

# GEARBOXES

for operation of industrial valves

## TECHNICAL

### DOCUMENTATION 2024

#### Part-turn gearboxes

GS 50.3 – GS 250.3

GS 50.3 – GS 250.3 with base and lever

GS 315 – GS 500

GS 630.3

GQB 80.1 – GQB 250.1

GHE 05.1 – GHE 12.1

#### Multi-turn gearboxes

GK 10.2 – GK 40.2

GST 10.1 – GST 40.1

GHT 320.3 – GHT 1200.3

GP 10.1 – GP 30.1

#### Linear gearboxes

LE 12.1 – LE 200.1



Manual  
Technical documentation  
1<sup>st</sup> edition 2024

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## 1 Technical data Part-turn gearboxes

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## Technical data Part-turn gearboxes for open-close duty

## General information

For motor or manual operation of valves (e.g. butterfly valves, ball and plug valves).

For special applications, e.g. dampers, gas diverters, flue gas dampers, toggle arm driven diverters and guillotine isolators, specific sizing is required. Specific technical data applies.

Duty class 1<sup>1)</sup>

Motor operation in accordance with EN 15714-2.

| Valve                   |                                    |                                     | Gearbox  |                       |                      |               |             |                                                     |                       |                      |                                          |
|-------------------------|------------------------------------|-------------------------------------|----------|-----------------------|----------------------|---------------|-------------|-----------------------------------------------------|-----------------------|----------------------|------------------------------------------|
| Max. valve torque<br>2) | Valve attachment                   |                                     | Type     | Reduction ratio       | Factor <sup>3)</sup> | Turns for 90° | Input shaft | Input mounting<br>flange for multi-turn<br>actuator | Max. input<br>torques | Weight <sup>4)</sup> | Additional weight<br>Extension<br>flange |
| to<br>[Nm]              | Flange according to<br>EN ISO 5211 | Max.<br>shaft dia-<br>meter<br>[mm] |          |                       |                      |               | [mm]        |                                                     | [Nm]                  | [kg]                 |                                          |
| 500                     | F07<br>F10                         | 38                                  | GS 50.3  | 51:1                  | 16.7                 | 12.75         | 16          | F07<br>F10                                          | 30                    | 7.0                  | –                                        |
| 1,000                   | F10                                | 50                                  | GS 63.3  | 51:1                  | 16.7                 | 12.75         | 20          | F07<br>F10                                          | 60                    | 12                   | –                                        |
| 750 <sup>5)</sup>       | F12                                |                                     |          | 82:1                  | 17.0                 | 20.5          |             |                                                     | 44                    |                      |                                          |
| 2,000                   | F12                                | 60                                  | GS 80.3  | 53:1                  | 18.2                 | 13.25         | 20          | F07<br>F10                                          | 110                   | 16                   | –                                        |
| 1,500 <sup>5)</sup>     | F14                                |                                     |          | 82:1                  | 28.1                 | 20.5          |             |                                                     | 88                    |                      |                                          |
| 4,000                   | F14<br>F16                         | 80                                  | GS 100.3 | 52:1                  | 18.7                 | 13            | 30/(20)     | F14<br>(F10)                                        | 214                   | 33                   | –                                        |
| 2,800 <sup>5)</sup>     |                                    |                                     |          | 107:1                 | 22.6                 | 26.8          |             | F14<br>(F10)                                        | 124                   |                      |                                          |
| 4,000                   |                                    |                                     |          | 126:1 <sup>6)</sup>   | 42.8                 | 31.5          | 20          | F10                                                 | 93                    | 39                   |                                          |
|                         |                                    |                                     |          | 160:1 <sup>6)</sup>   | 54.0                 | 40            |             | F10                                                 | 74                    |                      |                                          |
|                         |                                    |                                     |          | 208:1 <sup>6)</sup>   | 71.0                 | 52            |             | F10                                                 | 57                    |                      |                                          |
| 8,000                   | F16<br>F25<br>F30 <sup>7)</sup>    | 90                                  | GS 125.3 | 52:1                  | 19.2                 | 13            | 30          | F14<br>(F10)                                        | 417                   | 40                   | F30:<br>18 kg                            |
|                         |                                    |                                     |          | 126:1 <sup>6)</sup>   | 44.0                 | 31.5          | 30/(20)     | F14<br>(F10)                                        | 182                   | 46                   |                                          |
|                         |                                    |                                     |          | 160:1 <sup>6)</sup>   | 56.0                 | 40            |             | F14<br>(F10)                                        | 143                   |                      |                                          |
|                         |                                    |                                     |          | 208:1 <sup>6)</sup>   | 72.7                 | 52            | 20/(30)     | F10<br>(F14)                                        | 110                   |                      |                                          |
| 14,000                  | F25<br>F30<br>F35 <sup>7)</sup>    | 100                                 | GS 160.3 | 54:1                  | 21.0                 | 13.5          | 30          | F16<br>(F14)                                        | 667                   | 80                   | F35:<br>33 kg                            |
|                         |                                    |                                     |          | 218:1 <sup>6)</sup>   | 76.0                 | 54.5          | 30/(20)     | F14<br>(F10)                                        | 184                   | 91                   |                                          |
|                         |                                    |                                     |          | 442:1 <sup>6)</sup>   | 155                  | 110.5         | 20          | F10                                                 | 90                    |                      |                                          |
|                         |                                    |                                     |          | 880:1 <sup>6)</sup>   | 276                  | 220           |             |                                                     | 51                    |                      |                                          |
| 28,000                  | F30<br>F35<br>F40 <sup>7)</sup>    | 135                                 | GS 200.3 | 53:1                  | 21.0                 | 13.25         | 40          | F25<br>(F16)                                        | 1,333                 | 140                  | F40:<br>48 kg                            |
|                         |                                    |                                     |          | 214:1 <sup>6)</sup>   | 75.0                 | 53.5          | 30          | F14                                                 | 373                   | 160                  |                                          |
|                         |                                    |                                     |          | 434:1 <sup>6)</sup>   | 152                  | 108.5         | 30/(20)     | F14<br>(F10)                                        | 184                   |                      |                                          |
|                         |                                    |                                     |          | 864:1 <sup>6)</sup>   | 268                  | 216           | 20          | F10                                                 | 104                   |                      |                                          |
|                         |                                    |                                     |          | 1,752:1 <sup>6)</sup> | 552                  | 438           | 20          | F10                                                 | 51                    |                      |                                          |
| 56,000                  | F35<br>F40<br>F48 <sup>7)</sup>    | 160                                 | GS 250.3 | 52:1                  | 20.3                 | 13            | 50          | F30<br>(F25)                                        | 2,759                 | 273                  | F48:<br>75 kg                            |
|                         |                                    |                                     |          | 210:1 <sup>6)</sup>   | 74.0                 | 52.5          | 40/(30)     | F16<br>(F14)                                        | 757                   | 296                  |                                          |
|                         |                                    |                                     |          | 411:1 <sup>6)</sup>   | 144                  | 103           | 30          | F14                                                 | 389                   |                      |                                          |
|                         |                                    |                                     |          | 848:1 <sup>6)</sup>   | 263                  | 212           | 30/(20)     | F14<br>(F10)                                        | 213                   | 308                  |                                          |
|                         |                                    |                                     |          | 1,718:1 <sup>6)</sup> | 533                  | 430           | 20/(30)     | F10                                                 | 105                   |                      |                                          |

1) For further information on lifetime, refer to "Lifetime for motor operation" and "Lifetime for manual operation"

2) For a swing angle up to max. 90°.

3) Conversion factor from output torque to input torque for actuator size definition When new, the factor can fall short of the indicated value by up to 10 %.

4) Indicated weight includes unfinished coupling and grease filling in the gear housing.

5) Toothing does not allow for higher loads.

6) Equipped with primary reduction gearing or planetary gearing to reduce input torques.

7) Screwed and doweled to housing by means of extension flange.

## Technical data Part-turn gearboxes for open-close duty

| Duty class 2 <sup>1)</sup>                                           |                                 |                          |          |                       |                      |               |             |                                               |                    |                      |                                    |
|----------------------------------------------------------------------|---------------------------------|--------------------------|----------|-----------------------|----------------------|---------------|-------------|-----------------------------------------------|--------------------|----------------------|------------------------------------|
| Motor operation for infrequently operated valves (max. 1,000 cycles) |                                 |                          |          |                       |                      |               |             |                                               |                    |                      |                                    |
| Valve                                                                |                                 |                          | Gearbox  |                       |                      |               |             |                                               |                    |                      |                                    |
| Max. valve torque<br>2)                                              | Valve attachment                |                          | Type     | Reduction ratio       | Factor <sup>3)</sup> | Turns for 90° | Input shaft | Input mounting flange for multi-turn actuator | Max. input torques | Weight <sup>4)</sup> | Additional weight Extension flange |
| to [Nm]                                                              | Flange according to EN ISO 5211 | Max. shaft diameter [mm] |          |                       |                      |               | [mm]        |                                               | [Nm]               | [kg]                 |                                    |
| 625                                                                  | F07 F10                         | 38                       | GS 50.3  | 51:1                  | 16.7                 | 12.75         | 16          | F07 F10                                       | 37                 | 7.0                  | —                                  |
| 1,250                                                                | F10 F12                         | 50                       | GS 63.3  | 51:1                  | 16.7                 | 12.75         | 20          | F07 F10                                       | 75                 | 12                   | —                                  |
| 2,200                                                                | F12 F14                         | 60                       | GS 80.3  | 53:1                  | 18.2                 | 13.25         | 20          | F07 F10                                       | 120                | 16                   | —                                  |
| 5,000                                                                | F14 F16                         | 80                       | GS 100.3 | 52:1                  | 18.7                 | 13            | 30/(20)     | F14 (F10)                                     | 267                | 33                   | —                                  |
|                                                                      |                                 |                          |          | 126:1 <sup>5)</sup>   | 42.8                 | 31.5          | 20          | F10                                           | 117                | 39                   |                                    |
|                                                                      |                                 |                          |          | 160:1 <sup>5)</sup>   | 54.0                 | 40            |             |                                               | 93                 |                      |                                    |
|                                                                      |                                 |                          |          | 208:1 <sup>5)</sup>   | 71.0                 | 52            |             |                                               | 71                 |                      |                                    |
| 10,000                                                               | F16 F25 F30 <sup>6)</sup>       | 90                       | GS 125.3 | 52:1                  | 19.2                 | 13            | 30          | F16                                           | 521                | 40                   | F30: 18 kg                         |
|                                                                      |                                 |                          |          | 126:1 <sup>5)</sup>   | 44.0                 | 31.5          | 30/(20)     | F14 (F10)                                     | 227                | 46                   |                                    |
|                                                                      |                                 |                          |          | 160:1 <sup>5)</sup>   | 56.0                 | 40            |             |                                               | 179                |                      |                                    |
|                                                                      |                                 |                          |          | 208:1 <sup>5)</sup>   | 72.7                 | 52            | 20          | F10 (F14)                                     | 138                |                      |                                    |
| 17,500                                                               | F25 F30 F35 <sup>6)</sup>       | 100                      | GS 160.3 | 54:1                  | 21.0                 | 13.5          | 30          | F16 (F14)                                     | 833                | 80                   | F35: 33 kg                         |
|                                                                      |                                 |                          |          | 218:1 <sup>5)</sup>   | 76.0                 | 54            | 30/(20)     | F14 (F10)                                     | 230                | 91                   |                                    |
|                                                                      |                                 |                          |          | 442:1 <sup>5)</sup>   | 155                  | 110.5         | 20          | F10                                           | 113                |                      |                                    |
|                                                                      |                                 |                          |          | 880:1 <sup>5)</sup>   | 276                  | 220           |             |                                               |                    |                      |                                    |
| 35,000                                                               | F30 F35 F40 <sup>6)</sup>       | 135                      | GS 200.3 | 53:1                  | 21.0                 | 13.25         | 40          | F25 (F16)                                     | 1,691              | 140                  | F40: 48 kg                         |
|                                                                      |                                 |                          |          | 214:1 <sup>5)</sup>   | 75.0                 | 53.5          | 30          | F14                                           | 467                | 160                  |                                    |
|                                                                      |                                 |                          |          | 434:1 <sup>5)</sup>   | 152                  | 108.5         | 30/(20)     | F14 (F10)                                     | 230                |                      |                                    |
|                                                                      |                                 |                          |          | 864:1 <sup>5)</sup>   | 268                  | 216           | 30          | F14                                           | 131                |                      |                                    |
|                                                                      |                                 |                          |          | 1,752:1 <sup>5)</sup> | 552                  | 438           | 20          | F10                                           | 63                 |                      |                                    |
| 70,000                                                               | F35 F40 F48 <sup>6)</sup>       | 160                      | GS 250.3 | 52:1                  | 20.3                 | 13            | 50          | F30 (F25)                                     | 3,448              | 273                  | F48: 75 kg                         |
|                                                                      |                                 |                          |          | 210:1 <sup>5)</sup>   | 74.0                 | 52.5          | 40/(30)     | F16 (F14)                                     | 946                | 296                  |                                    |
|                                                                      |                                 |                          |          | 411:1 <sup>5)</sup>   | 144                  | 103           | 30          | F14                                           | 486                |                      |                                    |
|                                                                      |                                 |                          |          | 848:1 <sup>5)</sup>   | 263                  | 212           | 30/(20)     | F14 (F10)                                     | 266                |                      |                                    |
|                                                                      |                                 |                          |          | 1,718:1 <sup>5)</sup> | 533                  | 430           | 20          | F14                                           | 131                |                      |                                    |

1) For further information on lifetime, refer to "Lifetime for motor operation" and "Lifetime for manual operation"

2) For a swing angle up to max. 90°.

3) Conversion factor from output torque to input torque for actuator size definition When new, the factor can fall short of the indicated value by up to 10 %.

4) Indicated weight includes unfinished coupling and grease filling in the gear housing.

5) Equipped with primary reduction gearing or planetary gearing to reduce input torques.

6) Screwed and doweled to housing by means of extension flange.

## Technical data Part-turn gearboxes for open-close duty

| Duty class 3 <sup>1)</sup>                                      |                                    |                             |          |                                 |                      |             |                       |                           |              |                      |                                          |     |     |               |
|-----------------------------------------------------------------|------------------------------------|-----------------------------|----------|---------------------------------|----------------------|-------------|-----------------------|---------------------------|--------------|----------------------|------------------------------------------|-----|-----|---------------|
| Manual operation in accordance with EN 1074-2 (max. 250 cycles) |                                    |                             |          |                                 |                      |             |                       |                           |              |                      |                                          |     |     |               |
| Valve                                                           |                                    |                             | Gearbox  |                                 |                      |             |                       |                           |              |                      |                                          |     |     |               |
| Max. output torque<br>2)                                        | Valve attachment                   |                             | Type     | Reduction ratio                 | Factor <sup>3)</sup> | Input shaft | Max. input torques    | Handwheel Ø <sup>4)</sup> | Manual force | Weight <sup>5)</sup> | Additional weight<br>Extension<br>flange |     |     |               |
| to<br>[Nm]                                                      | Flange according to<br>EN ISO 5211 | Max. shaft diameter<br>[mm] |          |                                 |                      | [mm]        | [Nm]                  | [mm]                      | [N]          | [kg]                 |                                          |     |     |               |
| 750                                                             | F07<br>F10                         | 38                          | GS 50.3  | 51:1                            | 16.7                 | 16          | 45                    | 160                       | 561          | 7.0                  |                                          |     |     |               |
|                                                                 |                                    |                             |          |                                 |                      |             |                       | 200                       | 449          |                      |                                          |     |     |               |
|                                                                 |                                    |                             |          |                                 |                      |             |                       | 250                       | 359          |                      |                                          |     |     |               |
| 1,500                                                           | F10<br>F12                         | 50                          | GS 63.3  | 51:1                            | 16.7                 | 20          | 90                    | 250                       | 720          | 12                   |                                          |     |     |               |
| 750 <sup>6)</sup>                                               |                                    |                             |          | 82:1                            | 17.0                 |             | 44                    | 200                       | 441          |                      |                                          |     |     |               |
|                                                                 |                                    |                             |          | 250                             | 353                  |             |                       |                           |              |                      |                                          |     |     |               |
| 3,000                                                           | F12<br>F14                         | 60                          | GS 80.3  | 53:1                            | 18.2                 | 20          | 165                   | 400                       | 824          | 16                   |                                          |     |     |               |
| 1,500 <sup>6)</sup>                                             |                                    |                             |          | 82:1                            | 17.0                 |             | 88                    | 315                       | 560          |                      |                                          |     |     |               |
|                                                                 |                                    |                             |          | 400                             | 441                  |             |                       |                           |              |                      |                                          |     |     |               |
| 6,000                                                           | F14<br>F16                         | 80                          | GS 100.3 | 52:1                            | 18.7                 | 30/(20)     | 321                   | 800                       | 802          | 33                   |                                          |     |     |               |
| 2,800 <sup>6)</sup>                                             |                                    |                             |          | 107:1                           | 22.6                 |             | 124                   | 400                       | 619          |                      |                                          |     |     |               |
|                                                                 |                                    |                             |          | 6,000                           | 126:1 <sup>7)</sup>  | 42.8        | 30                    | 140                       | 400          | 701                  | 39                                       |     |     |               |
| 160:1 <sup>7)</sup>                                             |                                    |                             |          |                                 | 54.0                 | 111         |                       | 315                       | 705          |                      |                                          |     |     |               |
| 208:1 <sup>7)</sup>                                             |                                    |                             |          |                                 | 71.0                 | 85          |                       | 400                       | 556          |                      |                                          |     |     |               |
| 250                                                             |                                    |                             |          |                                 | 679                  |             |                       |                           |              |                      |                                          |     |     |               |
| 12,000                                                          | F16<br>F25<br>F30 <sup>8)</sup>    | 90                          | GS 125.3 | 126:1 <sup>7)</sup>             | 44.0                 | 30/(20)     | 273                   | 630                       | 866          | 46                   | F30:<br>18 kg                            |     |     |               |
| 160:1 <sup>7)</sup>                                             |                                    |                             |          | 56.0                            | 214                  |             | 800                   | 682                       |              |                      |                                          |     |     |               |
| 17,500                                                          |                                    |                             |          | 208:1 <sup>7)</sup>             | 72.7                 | 20          | 165                   | 400                       | 825          |                      |                                          | 500 | 857 |               |
|                                                                 |                                    |                             |          | 442:1 <sup>7)</sup>             | 155                  | 30/(20)     | 230                   | 630                       | 731          |                      |                                          | 630 | 680 |               |
|                                                                 |                                    |                             |          |                                 |                      |             |                       | 800                       | 535          |                      |                                          | 800 | 576 |               |
|                                                                 |                                    |                             |          |                                 |                      |             |                       | 315                       | 717          |                      |                                          | 400 | 565 |               |
| 35,000                                                          | F25<br>F30<br>F35 <sup>8)</sup>    | 100                         | GS 160:3 | 218:1 <sup>7)</sup>             | 76.0                 | 20          | 113                   | 200                       | 634          | 91                   | F35:<br>33 kg                            |     |     |               |
|                                                                 |                                    |                             |          | 880:1 <sup>7)</sup>             | 276                  |             |                       | 63                        | 250          |                      |                                          | 507 |     |               |
|                                                                 |                                    |                             |          | 434:1 <sup>7)</sup>             | 152                  | 30/(20)     | 230                   | 315                       | 403          |                      |                                          | 630 | 731 |               |
|                                                                 |                                    |                             |          |                                 |                      |             |                       | 864:1 <sup>7)</sup>       | 268          |                      |                                          | 30  | 131 | 400           |
| 70,000                                                          | F30<br>F35<br>F40 <sup>8)</sup>    | 135                         | GS 200.3 | 1,752:1 <sup>7)</sup>           | 552                  | 20          | 63                    | 315                       | 403          | 160                  | F40:<br>48 kg                            |     |     |               |
|                                                                 |                                    |                             |          | 400                             | 317                  | 400         | 653                   |                           |              |                      |                                          |     |     |               |
|                                                                 |                                    |                             |          | F35<br>F40<br>F48 <sup>8)</sup> | 160                  | GS 250.3    | 848:1 <sup>7)</sup>   | 263                       | 30/(20)      | 266                  | 630                                      | 845 | 308 | F48:<br>75 kg |
|                                                                 |                                    |                             |          |                                 |                      |             | 1,718:1 <sup>7)</sup> | 533                       | 20           | 131                  | 800                                      | 665 |     |               |
|                                                                 |                                    |                             |          |                                 |                      |             |                       | 400                       | 657          |                      |                                          |     |     |               |

- 1) For further information on lifetime, refer to "Lifetime for motor operation" and "Lifetime for manual operation" Duty class 3 is limited to manual operation only.
- 2) For a swing angle up to max. 90°.
- 3) Conversion factor from output torque to input torque for actuator size definition When new, the factor can fall short of the indicated value by up to 10 %.
- 4) Available handwheel diameters in accordance with EN 12570.
- 5) Indicated weight includes unfinished coupling and grease filling in the gear housing.
- 6) Toothing does not allow for higher loads.
- 7) Equipped with primary reduction gearing or planetary gearing to reduce input torques.
- 8) Screwed and doweled to housing by means of extension flange.

## Technical data Part-turn gearboxes for open-close duty

| Features and functions          |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                  |         |          |        |        |       |       |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------|----------|--------|--------|-------|-------|
| Worm wheel material             | Spheroidal cast iron                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                  |         |          |        |        |       |       |
| Version                         | Standard:                                                                                                                                                                                                                                     | Clockwise rotation RR, counterclockwise rotation LL                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                  |         |          |        |        |       |       |
|                                 | Option:                                                                                                                                                                                                                                       | RL or LR                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                  |         |          |        |        |       |       |
| Housing material                | Standard:                                                                                                                                                                                                                                     | Cast iron (GJL-250)                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                  |         |          |        |        |       |       |
|                                 | Option:                                                                                                                                                                                                                                       | Spheroidal cast iron (GJS-400-15)                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                  |         |          |        |        |       |       |
| Self-locking                    | The gearboxes are self-locking when at standstill under normal service conditions; strong vibration may cancel the self-locking effect. While in motion, safe breaking is not guaranteed. If this is required, a separate brake must be used. |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                  |         |          |        |        |       |       |
| End stops                       | Positive for both end positions by travelling nut, sensitive adjustment                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                  |         |          |        |        |       |       |
| Strength of end stop            | Guaranteed strength of end stop (in Nm) for input side operation                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                  |         |          |        |        |       |       |
|                                 | Type                                                                                                                                                                                                                                          | GS 50.3                                                                                                                                                                                                                                                                                                                                                                                                                                          | GS 63.3                                                                                          | GS 80.3 | GS 100.3 |        |        |       |       |
|                                 | Reduction ratio                                                                                                                                                                                                                               | 51:1                                                                                                                                                                                                                                                                                                                                                                                                                                             | 51:1                                                                                             | 53:1    | 52:1     | 126:1  | 160:1  | 208:1 |       |
|                                 | [Nm]                                                                                                                                                                                                                                          | 250                                                                                                                                                                                                                                                                                                                                                                                                                                              | 450                                                                                              | 450     | 1,350    | 625    | 500    | 250   |       |
|                                 |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                  |         |          |        |        |       |       |
|                                 | Type                                                                                                                                                                                                                                          | GS 125.3                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                  |         | GS 160.3 |        |        |       |       |
|                                 | Reduction ratio                                                                                                                                                                                                                               | 52:1                                                                                                                                                                                                                                                                                                                                                                                                                                             | 126:1                                                                                            | 160:1   | 208:1    | 54:1   | 218:1  | 442:1 | 880:1 |
|                                 | [Nm]                                                                                                                                                                                                                                          | 1,350                                                                                                                                                                                                                                                                                                                                                                                                                                            | 625                                                                                              | 500     | 250      | 3,200  | 900    | 450   | 250   |
|                                 |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                  |         |          |        |        |       |       |
|                                 | Type                                                                                                                                                                                                                                          | GS 200.3                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                  |         |          |        |        |       |       |
|                                 | Reduction ratio                                                                                                                                                                                                                               | 53:1                                                                                                                                                                                                                                                                                                                                                                                                                                             | 67:1                                                                                             | 214:1   | 434:1    | 864:1  | 1752:1 |       |       |
|                                 | [Nm]                                                                                                                                                                                                                                          | 8,000                                                                                                                                                                                                                                                                                                                                                                                                                                            | 250                                                                                              | 2,000   | 1,000    | 500    | 250    |       |       |
|                                 |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                  |         |          |        |        |       |       |
|                                 | Type                                                                                                                                                                                                                                          | GS 250.3                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                  |         |          |        |        |       |       |
|                                 | Reduction ratio                                                                                                                                                                                                                               | 52:1                                                                                                                                                                                                                                                                                                                                                                                                                                             | 210:1                                                                                            | 411:1   | 848:1    | 1718:1 |        |       |       |
|                                 | [Nm]                                                                                                                                                                                                                                          | 8,000                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2,000                                                                                            | 1,000   | 500      | 250    |        |       |       |
|                                 | Swing angle GS 50.3 – GS 125.3                                                                                                                                                                                                                | Standard:                                                                                                                                                                                                                                                                                                                                                                                                                                        | Fixed swing angle between 10° and max. 100°; set in the factory to 92° unless ordered otherwise. |         |          |        |        |       |       |
| Options:                        |                                                                                                                                                                                                                                               | Adjustable in steps of:<br>10° – 35°, 35° – 60°, 60° – 80°, 80° – 100°, 100° – 125°, 125° – 150°, 150° – 170°,170° – 190°<br><br>Swing angles > 190° are only possible with a worm wheel made of bronze and without end stops. For swing angles > 100°, we recommend a worm wheel made of bronze.                                                                                                                                                |                                                                                                  |         |          |        |        |       |       |
| Swing angle GS 160.3 – GS 250.3 | Standard:                                                                                                                                                                                                                                     | Adjustable 80° – 100°; set in the factory to 92° unless ordered otherwise.                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                  |         |          |        |        |       |       |
|                                 | Options:                                                                                                                                                                                                                                      | Adjustable in steps of:<br>0° – 20°, 20° – 40°, 40° – 60°, 60° – 80°, 90° – 110°, 110° – 130°, 130° – 150°, 150° – 170°, 170° – 190°<br><br>Swing angles > 190° are only possible with a worm wheel made of bronze and without end stops. For swing angles > 100°, we recommend a worm wheel made of bronze.                                                                                                                                     |                                                                                                  |         |          |        |        |       |       |
| Mechanical position indicator   | Standard:                                                                                                                                                                                                                                     | Pointer cover for continuous position indication                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                  |         |          |        |        |       |       |
|                                 | Options:                                                                                                                                                                                                                                      | <ul style="list-style-type: none"><li>Sealed pointer cover for horizontal outdoor installation with perpendicular valve shaft (not available for GS 50.3)</li><li>Protection cover for buried services instead of pointer cover (without mechanical position indicator)</li><li>Sealed pointer cover with air vent valve, not available for GS 50.3</li></ul> Heed notes on Information sheet Enclosure protection IP68 for part-turn gearboxes. |                                                                                                  |         |          |        |        |       |       |
| Input shaft                     | Standard:                                                                                                                                                                                                                                     | With corrosion protection, cylindrical with parallel key according to DIN 6885-1 (refer to table on pages 1 and 2).                                                                                                                                                                                                                                                                                                                              |                                                                                                  |         |          |        |        |       |       |
|                                 | Option:                                                                                                                                                                                                                                       | Cylindrical with parallel key according to DIN 6885-1 with square adapter for power tool emergency operation.                                                                                                                                                                                                                                                                                                                                    |                                                                                                  |         |          |        |        |       |       |



## Technical data Part-turn gearboxes for open-close duty

| Operation                                            |                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                     |         |       |         |          |          |       |       |              |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------|---------|----------|----------|-------|-------|--------------|
| Motor operation                                      | <ul style="list-style-type: none"> <li>Via electric multi-turn actuator</li> <li>Input mounting flanges for multi-turn actuator (refer to table on pages 1 and 2)</li> </ul>                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                     |         |       |         |          |          |       |       |              |
| Type of duty                                         | Short-time duty S2 - 15 min<br>Class A according to EN 15714-2: OPEN-CLOSE<br>Class B according to EN 15714-2: Inching/positioning or positioning duty                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                     |         |       |         |          |          |       |       |              |
| Maximum permissible input speeds and operating times | Type                                                                                                                                                                                                                                                                                                                                                                                  | GS 50.3                                                                                                                                                                                                                                                                             | GS 63.3 |       | GS 80.3 |          | GS 100.3 |       |       |              |
|                                                      | Reduction ratio                                                                                                                                                                                                                                                                                                                                                                       | 51:1                                                                                                                                                                                                                                                                                | 51:1    | 82:1  | 53:1    | 82:1     | 52:1     | 107:1 | 126:1 | 160:1 208:1  |
|                                                      | Max. permissible input speed [rpm]                                                                                                                                                                                                                                                                                                                                                    | 108                                                                                                                                                                                                                                                                                 | 108     |       | 108     |          | 108      |       | 216   |              |
|                                                      | Fastest operating time for 90° [s]                                                                                                                                                                                                                                                                                                                                                    | 7                                                                                                                                                                                                                                                                                   | 7       | 11    | 7       | 11       | 7        | 15    | 9     | 11 19        |
|                                                      | Type                                                                                                                                                                                                                                                                                                                                                                                  | GS 125.3                                                                                                                                                                                                                                                                            |         |       |         | GS 160.3 |          |       |       |              |
|                                                      | Reduction ratio                                                                                                                                                                                                                                                                                                                                                                       | 52:1                                                                                                                                                                                                                                                                                | 126:1   | 160:1 | 208:1   | 54:1     | 218:1    | 442:1 | 880:1 |              |
|                                                      | Max. permissible input speed [rpm]                                                                                                                                                                                                                                                                                                                                                    | 108                                                                                                                                                                                                                                                                                 | 216     |       |         |          | 108      | 216   |       |              |
|                                                      | Fastest operating time for 90° [s]                                                                                                                                                                                                                                                                                                                                                    | 7                                                                                                                                                                                                                                                                                   | 9       | 11    | 19      | 8        | 15       | 31    | 61    |              |
|                                                      | Type                                                                                                                                                                                                                                                                                                                                                                                  | GS 200.3                                                                                                                                                                                                                                                                            |         |       |         |          | GS 250.3 |       |       |              |
|                                                      | Reduction ratio                                                                                                                                                                                                                                                                                                                                                                       | 53:1                                                                                                                                                                                                                                                                                | 214:1   | 434:1 | 864:1   | 1752:1   | 52:1     | 210:1 | 411:1 | 848:1 1718:1 |
|                                                      | Max. permissible input speed [rpm]                                                                                                                                                                                                                                                                                                                                                    | 108                                                                                                                                                                                                                                                                                 | 216     |       |         |          |          | 108   | 216   |              |
|                                                      | Fastest operating time for 90° [s]                                                                                                                                                                                                                                                                                                                                                    | 7                                                                                                                                                                                                                                                                                   | 15      | 30    | 60      | 122      | 7        | 15    | 29    | 59 119       |
|                                                      | Shorter operating times can be achieved with worm wheels made of bronze, refer to Technical data GS 50.3 – GS 250.3 for modulating duty and shorter operating times.<br>Due to gear tooth geometry and the material characteristics of bronze, worm gearboxes with a worm wheel made of bronze can transmit lower torques.<br>Calculation of operating time for a 90° swivel movement |                                                                                                                                                                                                                                                                                     |         |       |         |          |          |       |       |              |
|                                                      | $\text{Oper. time for 90° [s]} = \frac{\text{Reduction ratio [i]}}{n [\text{input speed in rpm}]} \cdot 15$                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                     |         |       |         |          |          |       |       |              |
|                                                      | Calculation of the operating time for a swivel movement [°]:<br>$\text{Oper. time for } \theta^\circ [\text{s}] = \frac{\text{Swing angle } \theta [^\circ] \cdot \text{Reduction ratio [i]}}{6 \cdot n [\text{input speed in rpm}]}$                                                                                                                                                 |                                                                                                                                                                                                                                                                                     |         |       |         |          |          |       |       |              |
| Manual operation                                     | Standard:                                                                                                                                                                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>Handwheel made of aluminium with electrophoretic coating</li> <li>Handwheel with ball handle</li> </ul>                                                                                                                                      |         |       |         |          |          |       |       |              |
|                                                      | Option:                                                                                                                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>Handwheel made of GJL-200 with electrophoretic coating and painting</li> <li>Handwheel lockable</li> <li>WSH for signalling position and end positions</li> <li>Chainwheel (only available for torques according to duty class 1)</li> </ul> |         |       |         |          |          |       |       |              |

## Deflection of the input shaft

90° deflection of the input shaft

Combination with GK bevel gearbox directly mounted on GS or on planetary stage possible, refer to Mounting positions Part-turn gearboxes with multi-turn actuators

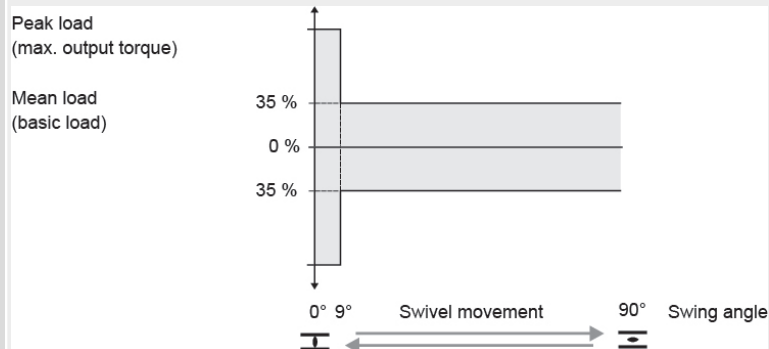
## Technical data Part-turn gearboxes for open-close duty

| Base and lever                             |                                                                                                                                                                                                             |                                                                              |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------|-----|-----------------------------------------------------------------------------------------------------|-----|-----|----------|-----|-----|-----|
| Not suitable for load class 3.             |                                                                                                                                                                                                             |                                                                              |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
| Base                                       | Made of spheroidal cast iron; for mounting to base, 4 holes for fastening screws are available.                                                                                                             |                                                                              |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
| Lever                                      | Made of spheroidal cast iron; with 2 or 3 bores for fixing lever arrangement. Considering the environmental conditions, the lever may be mounted to the output shaft in any desired position.               |                                                                              |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
| Ball joints                                | Two ball joints matching the lever, as an option including lock nuts and 2 welding nuts; suitable for pipe according to dimension sheet.                                                                    |                                                                              |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
| Mechanical position indicator              | Standard:                                                                                                                                                                                                   | No position indicator (protection cover)                                     |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
|                                            | Option:                                                                                                                                                                                                     | Pointer cover instead of protection cover for continuous position indication |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
|                                            |                                                                                                                                                                                                             |                                                                              |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
| Valve attachment                           |                                                                                                                                                                                                             |                                                                              |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
| Valve attachment                           | Dimensions according to EN ISO 5211: The maximum torques of mounting flanges according to EN ISO 5211 are to be met.                                                                                        |                                                                              |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
| Spigot                                     | Flanges with spigot. Up to GS 125.3, spigots are implemented by means of spigot rings (option). From GS 160.3 to GS 250.3, spigots are directly integrated into the housing.                                |                                                                              |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
| Plane flanges                              | Up to GS 125.3, plane flanges are implemented by means of recesses. From GS 160.3 to GS 250.3, the housing is plane machined (option).                                                                      |                                                                              |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
| Bore for parallel pins (option)            | Two bores for parallel pins shifted by 180°. The parallel pins are not included in the scope of delivery.                                                                                                   |                                                                              |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
|                                            | Type                                                                                                                                                                                                        | GS 80.3                                                                      |                                                                                                                                          | GS 100.3 |     | GS 125.3                                                                                            |     |     | GS 160.3 |     |     |     |
|                                            | Flange according to EN ISO 5211                                                                                                                                                                             | F12                                                                          | F14                                                                                                                                      | F14      | F16 | F16                                                                                                 | F25 | F30 | F25      | F30 | F35 |     |
|                                            | Housing material                                                                                                                                                                                            | GJS                                                                          | GJS                                                                                                                                      | GJS      | GJS | GJL                                                                                                 | GJL | GJL | GJL      | GJL | GJL |     |
|                                            | Type                                                                                                                                                                                                        | GS 200.3                                                                     |                                                                                                                                          |          |     | GS 250.3                                                                                            |     |     |          |     |     |     |
|                                            | Flange according to EN ISO 5211                                                                                                                                                                             | F30                                                                          |                                                                                                                                          | F35      |     | F40                                                                                                 |     | F35 |          | F40 |     | F48 |
|                                            | Housing material                                                                                                                                                                                            | GJL                                                                          |                                                                                                                                          | GJL      |     | GJL                                                                                                 |     | GJL |          | GJL |     |     |
|                                            | Refer to Dimensions Output mounting flange GS 50.3 – GS 125.3 (Y000.854) and Dimensions Output mounting flange GS 160.3 – GS 250.3 (Y005.001). Further pitch circle diameters for locating pins on request. |                                                                              |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
|                                            | Splined coupling for connection to the valve shaft                                                                                                                                                          | Standard:                                                                    | <ul style="list-style-type: none"><li>Without bore or pilot bore from GS 160.3</li><li>Worm gearbox can be mounted on coupling</li></ul> |          |     |                                                                                                     |     |     |          |     |     |     |
|                                            |                                                                                                                                                                                                             | Options:                                                                     | Finish machining with bore and keyway, square bore or two-flat with grub screw for secure fixing to valve shaft.                         |          |     |                                                                                                     |     |     |          |     |     |     |
|                                            |                                                                                                                                                                                                             |                                                                              |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
| Service conditions                         |                                                                                                                                                                                                             |                                                                              |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
| Mounting position                          | Any position                                                                                                                                                                                                |                                                                              |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
| Ambient temperature                        | Standard:                                                                                                                                                                                                   | –40 °C to +80 °C                                                             |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
|                                            | Options:                                                                                                                                                                                                    | –60 °C to +60 °C<br>0 °C to +120 °C                                          |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
| Enclosure protection according to EN 60529 | Standard:                                                                                                                                                                                                   | IP68, dust-tight and water-tight up to max. 8 m head of water                |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
|                                            | Options:                                                                                                                                                                                                    | IP68-20, dust-tight and water-tight up to max. 20 m head of water            |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
| Corrosion protection                       | Standard:                                                                                                                                                                                                   | KS                                                                           |                                                                                                                                          |          |     | Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.    |     |     |          |     |     |     |
|                                            | Option:                                                                                                                                                                                                     | KX                                                                           |                                                                                                                                          |          |     | Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution. |     |     |          |     |     |     |
| Coating                                    | Double layer powder coating                                                                                                                                                                                 |                                                                              |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
| Colour                                     |                                                                                                                                                                                                             | AUMA silver-grey (similar to RAL 7037)                                       |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |
|                                            | Option:                                                                                                                                                                                                     | Available colours on request                                                 |                                                                                                                                          |          |     |                                                                                                     |     |     |          |     |     |     |

## Technical data Part-turn gearboxes for open-close duty

## Service conditions

## AUMA load spectrum



AUMA worm gearboxes meet or exceed the lifetime requirements of EN 15714-2.

## Lifetime for motor operation in accordance with AUMA load spectrum

Duty class 1: Lifetime for 90° swivel movement. Meets the lifetime requirement of EN 15714-2

| Gearbox size                     | GS 50.3/GS 63.3 | GS 80.3/GS100.3 | GS 125.3 – GS 200.3 | GS 250.3 |
|----------------------------------|-----------------|-----------------|---------------------|----------|
| Number of cycles for max. torque | 10,000          | 5,000           | 2,500               | 1,200    |

Duty class 2: Lifetime for 90° swivel movement for valves which are infrequently operated.

| Gearbox size                     | GS 50.3/GS 63.3 | GS 80.3/GS100.3 | GS 125.3 – GS 200.3 | GS 250.3 |
|----------------------------------|-----------------|-----------------|---------------------|----------|
| Number of cycles for max. torque | 1,000           |                 |                     |          |

Lifetime for larger swing angle on request

## Lifetime for manual operation

Duty class 3: Meets the lifetime requirement of EN 1074-2

## Technical data Part-turn gearboxes for open-close duty

| Special features for use in potentially explosive atmospheres in accordance with ATEX 2014/34 EU        |                                                                                                                                                                                                   |                                                                                        |         |          |         |          |          |       |          |
|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|---------|----------|---------|----------|----------|-------|----------|
| Explosion protection in accordance with ATEX 2014/34 EU                                                 | Standard:                                                                                                                                                                                         | II 2G Ex h IIC T4 Gb<br>II 2D Ex h IIIC T130°C Db                                      |         |          |         |          |          |       |          |
|                                                                                                         | Option                                                                                                                                                                                            | II 2G Ex h IIC T3 Gb<br>II 2D Ex h IIIC T190°C Db<br>I M2 Ex h I Mb                    |         |          |         |          |          |       |          |
| Type of duty                                                                                            | Maximum 3 cycles (OPEN - CLOSE - OPEN) in accordance with AUMA load spectrum (90° swivel movement) and maximum permissible input speeds, or with mean constant output torques according to table: |                                                                                        |         |          |         |          |          |       |          |
|                                                                                                         | Type                                                                                                                                                                                              | GS 50.3                                                                                | GS 63.3 |          | GS 80.3 |          | GS 100.3 |       | GS 125.3 |
|                                                                                                         | Reduction ratio                                                                                                                                                                                   | –                                                                                      | 51:1    | 82:1     | 53:1    | 82:1     | –        | 107:1 | –        |
|                                                                                                         | Average output torque [Nm]                                                                                                                                                                        | 250                                                                                    | 500     | 375      | 1,000   | 750      | 2,000    | 1,400 | 4,000    |
|                                                                                                         |                                                                                                                                                                                                   |                                                                                        |         |          |         |          |          |       |          |
|                                                                                                         | Type                                                                                                                                                                                              | GS 160.3                                                                               |         | GS 200.3 |         | GS 250.3 |          |       |          |
|                                                                                                         | Average output torque [Nm]                                                                                                                                                                        | 8,000                                                                                  |         | 16,000   |         | 32,000   |          |       |          |
| Ambient temperature                                                                                     | Duty classes 1 and 3                                                                                                                                                                              |                                                                                        |         |          |         |          |          |       |          |
|                                                                                                         | Standard:                                                                                                                                                                                         | –40 °C to +60 °C (II 2G Ex h IIC T4 Gb; II 2D Ex h IIIC T130°C Db)                     |         |          |         |          |          |       |          |
|                                                                                                         | Options:                                                                                                                                                                                          | –60 °C to +60 °C (II 2G Ex h IIC T4 Gb; II 2D Ex h IIIC T130°C Db)                     |         |          |         |          |          |       |          |
|                                                                                                         |                                                                                                                                                                                                   | –40 °C to +40 °C (II 2G Ex h IIC T4 Gb; II 2D Ex h IIIC T130°C Db)                     |         |          |         |          |          |       |          |
|                                                                                                         |                                                                                                                                                                                                   | –40 °C to +80 °C (II 2G Ex h IIC T3 Gb; II 2D Ex h IIIC T190°C Db)                     |         |          |         |          |          |       |          |
|                                                                                                         |                                                                                                                                                                                                   | 0 °C to +120 °C (II 2G Ex h IIC T3 Gb; II 2D Ex h IIIC T190°C Db)                      |         |          |         |          |          |       |          |
|                                                                                                         |                                                                                                                                                                                                   | –20 °C to +40 °C (I M2 Ex h I Mb)                                                      |         |          |         |          |          |       |          |
|                                                                                                         | Duty class 2                                                                                                                                                                                      |                                                                                        |         |          |         |          |          |       |          |
|                                                                                                         | Standard:                                                                                                                                                                                         | –40 °C to +60 °C (II 2G c IIC T3; II 2D c T190 °C); T4 on request with individual test |         |          |         |          |          |       |          |
| Options:                                                                                                | –60 °C to +40 °C (II 2G Ex h IIC T4; II 2D Ex h IIIC T130 °C Db)                                                                                                                                  |                                                                                        |         |          |         |          |          |       |          |
|                                                                                                         | –60 °C to +60 °C (II 2G Ex h IIC T3; II 2D Ex h IIIC T190 °C Db); T4 on request with individual test                                                                                              |                                                                                        |         |          |         |          |          |       |          |
|                                                                                                         | –40 °C to +40 °C (II 2G Ex h IIC T4; II 2D Ex h IIIC T130 °C Db)                                                                                                                                  |                                                                                        |         |          |         |          |          |       |          |
|                                                                                                         | –40 °C to +80 °C (II 2G Ex h IIC T3; II 2D Ex h IIIC T190 °C Db)                                                                                                                                  |                                                                                        |         |          |         |          |          |       |          |
|                                                                                                         | –20 °C to +40 °C (I M2 Ex h I Mb)                                                                                                                                                                 |                                                                                        |         |          |         |          |          |       |          |
| Further temperature classes or loads exceeding the average torque of the AUMA load spectrum on request. |                                                                                                                                                                                                   |                                                                                        |         |          |         |          |          |       |          |
| Further information                                                                                     |                                                                                                                                                                                                   |                                                                                        |         |          |         |          |          |       |          |
| EU Directives                                                                                           | Machinery Directive: (2006/42/EC)                                                                                                                                                                 |                                                                                        |         |          |         |          |          |       |          |

## Technical data Part-turn gearboxes Operating times for different reduction ratios and input speeds

| Total reduction ratio of GS | Operating time <sup>1)</sup> for 50 Hz in seconds for 90° at actuator output speed in rpm |       |       |       |       |       |       |       |     |     |     |     |
|-----------------------------|-------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-----|-----|-----|-----|
|                             | 4                                                                                         | 5.6   | 8     | 11    | 16    | 22    | 32    | 45    | 63  | 90  | 125 | 180 |
| 51:1                        | 191                                                                                       | 137   | 96    | 70    | 48    | 35    | 24    | 17    | 12  | 9   | 6   | 4   |
| 52:1                        | 195                                                                                       | 139   | 98    | 71    | 49    | 35    | 24    | 17    | 12  | 9   | 6   | 4   |
| 53:1                        | 199                                                                                       | 142   | 99    | 72    | 50    | 36    | 25    | 18    | 13  | 9   | 6   | 4   |
| 54:1                        | 203                                                                                       | 145   | 101   | 74    | 51    | 37    | 25    | 18    | 13  | 9   | 6   | 5   |
| 67:1                        | 251                                                                                       | 179   | 126   | 91    | 63    | 46    | 31    | 22    | 16  | 11  | 8   | 6   |
| 82:1                        | 308                                                                                       | 220   | 154   | 112   | 77    | 56    | 38    | 27    | 20  | 14  | 10  | 7   |
| 107:1                       | 401                                                                                       | 287   | 201   | 146   | 100   | 73    | 50    | 36    | 25  | 18  | 13  | 9   |
| 126:1                       | 473                                                                                       | 338   | 236   | 172   | 118   | 86    | 59    | 42    | 30  | 21  | 15  | 11  |
| 160:1                       | 600                                                                                       | 429   | 300   | 218   | 150   | 109   | 75    | 53    | 38  | 27  | 19  | 13  |
| 208:1                       | 780                                                                                       | 557   | 390   | 284   | 195   | 142   | 98    | 69    | 50  | 35  | 25  | 17  |
| 210:1                       | 788                                                                                       | 563   | 394   | 286   | 197   | 143   | 98    | 70    | 50  | 35  | 25  | 18  |
| 212:1                       | 795                                                                                       | 568   | 398   | 289   | 199   | 145   | 99    | 71    | 50  | 35  | 25  | 18  |
| 214:1                       | 803                                                                                       | 573   | 401   | 292   | 201   | 146   | 100   | 71    | 51  | 36  | 26  | 18  |
| 216:1                       | 810                                                                                       | 579   | 405   | 295   | 203   | 147   | 101   | 72    | 51  | 36  | 26  | 18  |
| 218:1                       | 818                                                                                       | 584   | 409   | 297   | 204   | 149   | 102   | 73    | 52  | 36  | 26  | 18  |
| 324:1                       | 1215                                                                                      | 868   | 608   | 442   | 304   | 221   | 152   | 108   | 77  | 54  | 39  | 27  |
| 411:1                       | 1541                                                                                      | 1,101 | 771   | 560   | 385   | 280   | 193   | 137   | 98  | 69  | 49  | 34  |
| 416:1                       | 1560                                                                                      | 1,114 | 780   | 567   | 390   | 284   | 195   | 139   | 99  | 69  | 50  | 35  |
| 424:1                       | 1,590                                                                                     | 1,136 | 795   | 578   | 398   | 289   | 199   | 141   | 101 | 71  | 51  | 35  |
| 432:1                       | 1,620                                                                                     | 1,157 | 810   | 589   | 405   | 295   | 203   | 144   | 103 | 72  | 52  | 36  |
| 434:1                       | 1,628                                                                                     | 1,163 | 814   | 592   | 407   | 296   | 203   | 145   | 103 | 72  | 52  | 36  |
| 442:1                       | 1,658                                                                                     | 1,184 | 829   | 603   | 414   | 301   | 207   | 147   | 105 | 74  | 53  | 37  |
| 832:1                       | 3,120                                                                                     | 2,229 | 1560  | 1,135 | 780   | 567   | 390   | 277   | 198 | 139 | 100 | 69  |
| 848:1                       | 3,180                                                                                     | 2,271 | 1,590 | 1,156 | 795   | 578   | 398   | 283   | 202 | 141 | 102 | 71  |
| 864:1                       | 3,240                                                                                     | 2,314 | 1,620 | 1,178 | 810   | 589   | 405   | 288   | 206 | 144 | 104 | 72  |
| 880:1                       | 3,300                                                                                     | 2,357 | 1,650 | 1,200 | 825   | 600   | 413   | 293   | 210 | 147 | 106 | 73  |
| 1,664:1                     | 6,240                                                                                     | 4,457 | 3,120 | 2,269 | 1560  | 1,135 | 780   | 555   | 396 | 277 | 200 | 139 |
| 1,696:1                     | 6,360                                                                                     | 4,543 | 3,180 | 2,313 | 1,590 | 1,156 | 795   | 565   | 404 | 283 | 204 | 141 |
| 1,718:1                     | 6,443                                                                                     | 4,602 | 3,221 | 2,343 | 1,611 | 1,171 | 805   | 573   | 409 | 286 | 206 | 143 |
| 1,728:1                     | 6,480                                                                                     | 4,629 | 3,240 | 2,356 | 1,620 | 1,178 | 810   | 576   | 411 | 288 | 207 | 144 |
| 1,752:1                     | 6,570                                                                                     | 4,693 | 3,285 | 2,389 | 1,643 | 1,195 | 821   | 584   | 417 | 292 | 210 | 146 |
| 2,120:1                     | 7,950                                                                                     | 5,679 | 3,975 | 2,891 | 1,988 | 1,445 | 994   | 707   | 505 | 353 | 254 | 177 |
| 2,340:1                     | 8,775                                                                                     | 6,268 | 4,388 | 3,191 | 2,194 | 1,595 | 1,097 | 780   | 557 | 390 | 281 | 195 |
| 3,328:1                     | 12,480                                                                                    | 8,914 | 6,240 | 4,538 | 3,120 | 2,269 | 1,560 | 1,109 | 792 | 555 | 399 | 277 |

## Notes on table on page

## 1) Operating time

Calculation of operating time for a 90° swivel movement

$$\text{Oper. time for } 90^\circ [\text{s}] = \frac{\text{Reduction ratio [i]}}{n [\text{input speed in rpm}]} \cdot 15$$

Calculation of the operating time for a swivel movement  $\theta$  [°]:

$$\text{Oper. time for } \theta^\circ [\text{s}] = \frac{\text{Swing angle } \theta [^\circ] \cdot \text{reduction ratio [i]}}{6 \cdot n [\text{input speed in rpm}]}$$

## 2) Output speed

The output speeds are not available for all actuator sizes. The technical data of the multi-turn actuators is binding.

## Technical data Part-turn gearboxes for modulating duty

## General information

For motor or manual operation of valves (e.g. butterfly valves, ball and plug valves).

For special applications, e.g. dampers, gas diverters, flue gas dampers, toggle arm driven diverters and guillotine isolators, specific sizing is required. Specific technical data applies.

| Valve                           |                                         |                                 |                          | Gearbox  |                       |                      |               |             |                                               |                    |                      |                                    |
|---------------------------------|-----------------------------------------|---------------------------------|--------------------------|----------|-----------------------|----------------------|---------------|-------------|-----------------------------------------------|--------------------|----------------------|------------------------------------|
| Max. valve torque <sup>1)</sup> |                                         | Valve attachment                |                          | Type     | Reduction ratio       | Factor <sup>2)</sup> | Turns for 90° | Input shaft | Input mounting flange for multi-turn actuator | Max. input torques | Weight <sup>3)</sup> | Additional weight Extension flange |
| to [Nm]                         | Modulating torque <sup>4)</sup> to [Nm] | Flange according to EN ISO 5211 | Max. Shaft diameter [mm] |          |                       |                      |               | [mm]        |                                               | [Nm]               | [kg]                 |                                    |
| 350                             | 125                                     | F05                             | 20                       | GS 50.3  | 51:1                  | 17.9                 | 12.75         | 16          | F07 (F10)                                     | 20                 | 7.0                  | –                                  |
|                                 |                                         | F07 F10                         | 38                       |          |                       |                      |               |             |                                               |                    |                      |                                    |
| 700                             | 250                                     | F10 F12                         | 50                       | GS 63.3  | 51:1                  | 17.3                 | 12.75         | 20          | F07 (F10)                                     | 41                 | 12                   | –                                  |
| 1,400                           | 500                                     | F12 F14                         | 60                       | GS 80.3  | 53:1                  | 19.3                 | 13.25         | 20          | F07 (F10)                                     | 73                 | 16                   | –                                  |
| 2,800                           | 1,000                                   | F14 F16                         | 80                       | GS 100.3 | 52:1                  | 20.2                 | 13            | 30/(20)     | F14 (F10)                                     | 139                | 33                   | –                                  |
|                                 |                                         |                                 |                          |          | 126:1 <sup>5)</sup>   | 44.4                 | 31.5          | 20/(30)     | F10 (F14)                                     | 63                 | 39                   |                                    |
|                                 |                                         |                                 |                          |          | 160:1 <sup>5)</sup>   | 55.5                 | 40            | 20/(30)     | F10 (F14)                                     | 50                 | 39                   |                                    |
|                                 |                                         |                                 |                          |          | 208:1 <sup>5)</sup>   | 77                   | 52            | 20/(30)     | F10 (F14)                                     | 37                 | 39                   |                                    |
| 5,600                           | 2,000                                   | F16 F25 F30 <sup>6)</sup>       | 90                       | GS 125.3 | 52:1                  | 20.8                 | 13            | 30          | F14 (F10)                                     | 269                | 40                   | F30: 18 kg                         |
|                                 |                                         |                                 |                          |          | 126:1 <sup>5)</sup>   | 45.4                 | 31.5          | 30/(20)     | F14 (F10)                                     | 123                | 46                   |                                    |
|                                 |                                         |                                 |                          |          | 160:1 <sup>5)</sup>   | 57.9                 | 40            | 30/(20)     | F14 (F10)                                     | 97                 | 46                   |                                    |
|                                 |                                         |                                 |                          |          | 208:1 <sup>5)</sup>   | 77                   | 52            | 20          | F10 (F14)                                     | 73                 | 46                   |                                    |
| 11,250                          | 4,000                                   | F25 F30 F35 <sup>6)</sup>       | 100                      | GS 160.3 | 54:1                  | 22.7                 | 13.5          | 30          | F16 (F14)                                     | 496                | 80                   | F35: 33 kg                         |
|                                 |                                         |                                 |                          |          | 218:1 <sup>5)</sup>   | 83                   | 54.5          | 30/(20)     | F14 (F10)                                     | 136                | 91                   |                                    |
|                                 |                                         |                                 |                          |          | 442:1 <sup>5)</sup>   | 167                  | 110.5         | 20          | F10                                           | 68                 | 91                   |                                    |
|                                 |                                         |                                 |                          |          | 880:1 <sup>5)</sup>   | 320                  | 220           | 20          |                                               | 36                 | 91                   |                                    |
| 22,500                          | 8,000                                   | F30 F35 F40 <sup>6)</sup>       | 135                      | GS 200.3 | 53:1                  | 22.3                 | 13.25         | 40          | F25 (F16)                                     | 1,009              | 140                  | F40: 48 kg                         |
| 17,500                          |                                         |                                 |                          |          | 67:1                  | 28.2                 | 16.75         | 40          | F16                                           | 621                | 91                   |                                    |
| 22,500                          |                                         |                                 |                          |          | 214:1 <sup>5)</sup>   | 81.3                 | 53.5          | 30          | F14                                           | 277                | 160                  |                                    |
|                                 |                                         |                                 |                          |          | 434:1 <sup>5)</sup>   | 165                  | 108.5         | 30/(20)     | F14 (F10)                                     | 137                | 160                  |                                    |
|                                 |                                         |                                 |                          |          | 864:1 <sup>5)</sup>   | 308                  | 216           | 20          | F10                                           | 73                 | 170                  |                                    |
|                                 |                                         |                                 |                          |          | 1,752:1 <sup>5)</sup> | 640                  | 438           | 20          | F10                                           | 35                 | 170                  |                                    |
| 45,000                          | 16,000                                  | F35 F40 F48 <sup>6)</sup>       | 160                      | GS 250.3 | 52:1                  | 21.9                 | 13            | 50          | F30 (F25)                                     | 2,060              | 273                  | F48: 75 kg                         |
|                                 |                                         |                                 |                          |          | 210:1 <sup>5)</sup>   | 80                   | 52.5          | 40/(30)     | F16 (F14)                                     | 563                | 296                  |                                    |
|                                 |                                         |                                 |                          |          | 411:1 <sup>5)</sup>   | 156                  | 103           | 30          | F14                                           | 289                | 296                  |                                    |
|                                 |                                         |                                 |                          |          | 848:1 <sup>5)</sup>   | 305                  | 212           | 30/(20)     | F14 (F10)                                     | 148                | 308                  |                                    |
|                                 |                                         |                                 |                          |          | 1,718:1 <sup>5)</sup> | 615                  | 430           | 20/(30)     | F10                                           | 73                 | 308                  |                                    |

1) For a swing angle up to max. 90°.

2) Conversion factor from output torque to input torque for actuator size definition. When new, the factor can fall short of the indicated value by up to 10 %.

3) Specified weight includes coupling (without bore) and grease filling in the gear housing.

4) Modulating torque = permissible, average torque for modulating duty.

5) Equipped with primary reduction gearing or planetary gearing to reduce input torques.

6) Screwed and doweled to housing by means of extension flange.

## Technical data Part-turn gearboxes for modulating duty

| Features and functions                  |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                  |         |          |        |        |       |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------|----------|--------|--------|-------|
| Worm wheel material                     | Bronze                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                  |         |          |        |        |       |
| Version                                 | Standard:                                                                                                                                                                                                                                     | Clockwise rotation RR, counterclockwise rotation LL                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                  |         |          |        |        |       |
|                                         | Option:                                                                                                                                                                                                                                       | RL or LR                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                  |         |          |        |        |       |
| Housing material                        | Standard:                                                                                                                                                                                                                                     | Cast iron (GJL-250)                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                  |         |          |        |        |       |
|                                         | Option:                                                                                                                                                                                                                                       | Spheroidal cast iron (GJS-400-15)                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                  |         |          |        |        |       |
| Self-locking                            | The gearboxes are self-locking when at standstill under normal service conditions; strong vibration may cancel the self-locking effect. While in motion, safe breaking is not guaranteed. If this is required, a separate brake must be used. |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                  |         |          |        |        |       |
| End stops                               | Positive for both end positions by travelling nut, sensitive adjustment                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                  |         |          |        |        |       |
| Strength of end stop                    | Guaranteed strength of end stop (in Nm) for input side operation                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                  |         |          |        |        |       |
|                                         | Type                                                                                                                                                                                                                                          | GS 50.3                                                                                                                                                                                                                                                                                                                                                                                                                                          | GS 63.3                                                                                          | GS 80.3 | GS 100.3 |        |        |       |
|                                         | Reduction ratio                                                                                                                                                                                                                               | 51:1                                                                                                                                                                                                                                                                                                                                                                                                                                             | 51:1                                                                                             | 53:1    | 52:1     | 126:1  | 160:1  | 208:1 |
|                                         | [Nm]                                                                                                                                                                                                                                          | 250                                                                                                                                                                                                                                                                                                                                                                                                                                              | 450                                                                                              | 450     | 1,350    | 625    | 500    | 250   |
|                                         | Type                                                                                                                                                                                                                                          | GS 125.3                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                  |         | GS 160.3 |        |        |       |
|                                         | Reduction ratio                                                                                                                                                                                                                               | 52:1                                                                                                                                                                                                                                                                                                                                                                                                                                             | 126:1                                                                                            | 160:1   | 208:1    | 54:1   | 218:1  | 442:1 |
|                                         | [Nm]                                                                                                                                                                                                                                          | 1,350                                                                                                                                                                                                                                                                                                                                                                                                                                            | 625                                                                                              | 500     | 250      | 3,200  | 900    | 450   |
|                                         | Type                                                                                                                                                                                                                                          | GS 200.3                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                  |         |          |        |        |       |
|                                         | Reduction ratio                                                                                                                                                                                                                               | 53:1                                                                                                                                                                                                                                                                                                                                                                                                                                             | 67:1                                                                                             | 214:1   | 434:1    | 864:1  | 1752:1 |       |
|                                         | [Nm]                                                                                                                                                                                                                                          | 8,000                                                                                                                                                                                                                                                                                                                                                                                                                                            | 250                                                                                              | 2,000   | 1,000    | 500    | 250    |       |
|                                         | Type                                                                                                                                                                                                                                          | GS 250.3                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                  |         |          |        |        |       |
|                                         | Reduction ratio                                                                                                                                                                                                                               | 52:1                                                                                                                                                                                                                                                                                                                                                                                                                                             | 210:1                                                                                            | 411:1   | 848:1    | 1718:1 |        |       |
|                                         | [Nm]                                                                                                                                                                                                                                          | 8,000                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2,000                                                                                            | 1,000   | 500      | 250    |        |       |
|                                         | Swing angle GS 50.3 – GS 125.3                                                                                                                                                                                                                | Standard:                                                                                                                                                                                                                                                                                                                                                                                                                                        | Fixed swing angle between 10° and max. 100°; set in the factory to 92° unless ordered otherwise. |         |          |        |        |       |
| Options:                                |                                                                                                                                                                                                                                               | Adjustable in steps of:<br>10° – 35°, 35° – 60°, 60° – 80°, 80° – 100°, 100° – 125°, 125° – 150°, 150° – 170°, 170° – 190°<br><br>Worm wheel made of bronze; Multi-turn version without end stop, up to max. 10 turns of worm wheel permissible Heed special sizing!                                                                                                                                                                             |                                                                                                  |         |          |        |        |       |
| Swing angle GS 160.3 – GS 250.3         | Standard:                                                                                                                                                                                                                                     | Adjustable 80° – 100°; set in the factory to 92° unless ordered otherwise.                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                  |         |          |        |        |       |
|                                         | Options:                                                                                                                                                                                                                                      | Adjustable in steps of:<br>0° – 20°, 20° – 40°, 40° – 60°, 60° – 80°, 90° – 110°, 110° – 130°, 130° – 150°, 150° – 170°, 170° – 190°<br><br>Worm wheel made of bronze; Multi-turn version without end stop, up to max. 10 turns of worm wheel permissible. Heed special sizing!                                                                                                                                                                  |                                                                                                  |         |          |        |        |       |
| Swing angle for special reduction ratio | Standard:                                                                                                                                                                                                                                     | Adjustable 80° – 100°; set in the factory to 92° unless ordered otherwise.                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                  |         |          |        |        |       |
|                                         | Options:                                                                                                                                                                                                                                      | Swing angle range different from standard range available on request<br>Multi-turn version without end stop, up to max. 10 turns of worm wheel permissible. Heed special sizing!                                                                                                                                                                                                                                                                 |                                                                                                  |         |          |        |        |       |
| Mechanical position indicator           | Standard:                                                                                                                                                                                                                                     | Pointer cover for continuous position indication                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                  |         |          |        |        |       |
|                                         | Options:                                                                                                                                                                                                                                      | <ul style="list-style-type: none"><li>Sealed pointer cover for horizontal outdoor installation with perpendicular valve shaft (not available for GS 50.3)</li><li>Protection cover for buried services instead of pointer cover (without mechanical position indicator)</li><li>Sealed pointer cover with air vent valve, not available for GS 50.3</li></ul> Heed notes on Information sheet Enclosure protection IP68 for part-turn gearboxes. |                                                                                                  |         |          |        |        |       |
| Input shaft                             | Standard:                                                                                                                                                                                                                                     | With corrosion protection, cylindrical with parallel key according to DIN 6885-1 (refer to table on pages 1 and 2).                                                                                                                                                                                                                                                                                                                              |                                                                                                  |         |          |        |        |       |
|                                         | Option:                                                                                                                                                                                                                                       | Cylindrical with parallel key according to DIN 6885-1 with square adapter for power tool emergency operation.                                                                                                                                                                                                                                                                                                                                    |                                                                                                  |         |          |        |        |       |

## Technical data Part-turn gearboxes for modulating duty

| Operation                                            |                                                                                                                                                                               |                                                                                                                                                                                                                                 |            |            |            |            |       |            |                   |            |        |            |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|------------|-------|------------|-------------------|------------|--------|------------|
| Motor operation                                      | <ul style="list-style-type: none"><li>• Via electric multi-turn actuator</li><li>• Input mounting flanges for multi-turn actuator (refer to table on pages 1 and 2)</li></ul> |                                                                                                                                                                                                                                 |            |            |            |            |       |            |                   |            |        |            |
| Type of duty                                         | Intermittent duty S4 - 25 %<br>Class C according to EN 15714-2: Modulating duty                                                                                               |                                                                                                                                                                                                                                 |            |            |            |            |       |            |                   |            |        |            |
| Maximum permissible input speeds and operating times | 215 rpm                                                                                                                                                                       |                                                                                                                                                                                                                                 |            |            |            |            |       |            |                   |            |        |            |
|                                                      | For use in potentially explosive atmospheres, heed input speeds!                                                                                                              |                                                                                                                                                                                                                                 |            |            |            |            |       |            |                   |            |        |            |
|                                                      | Calculation of operating time for a 90° swivel movement                                                                                                                       |                                                                                                                                                                                                                                 |            |            |            |            |       |            |                   |            |        |            |
|                                                      | <div>Oper. time for 90° [s] = <math>\frac{\text{Reduction ratio [i]}}{n \text{ [input speed in rpm]}} \cdot 15</math></div>                                                   |                                                                                                                                                                                                                                 |            |            |            |            |       |            |                   |            |        |            |
|                                                      | Calculation of the operating time for a swivel movement [°]:                                                                                                                  |                                                                                                                                                                                                                                 |            |            |            |            |       |            |                   |            |        |            |
|                                                      | <div>Oper. time for θ° [s] = <math>\frac{\text{Swing angle } \theta \text{ [°]} \cdot \text{Reduction ratio [i]}}{i \cdot n \text{ [input speed in rpm]}}</math></div>        |                                                                                                                                                                                                                                 |            |            |            |            |       |            |                   |            |        |            |
| Manual operation                                     | Standard:                                                                                                                                                                     | <ul style="list-style-type: none"><li>• Handwheel made of aluminium with electrophoretic coating</li><li>• Handwheel with ball handle</li></ul>                                                                                 |            |            |            |            |       |            |                   |            |        |            |
|                                                      | Option:                                                                                                                                                                       | <ul style="list-style-type: none"><li>• Handwheel made of GJL-200 with electrophoretic coating and painting</li><li>• Handwheel lockable</li><li>• WSH for signalling position and end positions</li><li>• Chainwheel</li></ul> |            |            |            |            |       |            |                   |            |        |            |
|                                                      | Available handwheel diameters according to EN 12570, selection according to output torque:                                                                                    |                                                                                                                                                                                                                                 |            |            |            |            |       |            |                   |            |        |            |
|                                                      | Type                                                                                                                                                                          | GS 50.3                                                                                                                                                                                                                         | GS 63.3    | GS 80.3    | GS 100.3   |            |       | GS 125.3   |                   |            |        |            |
|                                                      | Reduction ratio                                                                                                                                                               | 51:1                                                                                                                                                                                                                            | 51:1       | 53:1       | 52:1       | 126:1      | 160:1 | 208:1      | 52:1              | 126:1      | 160:1  | 208:1      |
|                                                      | Handwheel Ø [mm]                                                                                                                                                              | 160<br>200<br>250                                                                                                                                                                                                               | 250<br>315 | 315<br>400 | 400<br>500 | 315<br>400 |       | 250<br>315 | 500<br>630<br>800 | 400<br>500 |        | 315<br>400 |
|                                                      | Type                                                                                                                                                                          | GS 160.3                                                                                                                                                                                                                        |            |            |            | GS 200.3   |       |            |                   |            |        |            |
|                                                      | Reduction ratio                                                                                                                                                               | 54:1                                                                                                                                                                                                                            | 218:1      | 442:1      | 880:1      | 53:1       | 67:1  | 214:1      | 434:1             | 864:1      | 1752:1 |            |
|                                                      | Handwheel Ø [mm]                                                                                                                                                              | 630<br>800                                                                                                                                                                                                                      | 400        | 315        | 250        | –          | 800   | 500<br>630 | 400               | 315        | 250    |            |
|                                                      | Type                                                                                                                                                                          | GS 250.3                                                                                                                                                                                                                        |            |            |            |            |       |            |                   |            |        |            |
| Reduction ratio                                      | 52:1                                                                                                                                                                          |                                                                                                                                                                                                                                 | 210:1      |            | 411:1      |            | 848:1 |            | 1718:1            |            |        |            |
| Handwheel Ø [mm]                                     | –                                                                                                                                                                             |                                                                                                                                                                                                                                 | 800        |            | 500<br>630 |            | 400   |            | 315               |            |        |            |

## Deflection of the input shaft

90° deflection of the input shaft

Combination with GK bevel gearbox directly mounted on GS or on planetary stage possible, refer to Mounting positions Part-turn gearboxes with multi-turn actuators

## Base and lever

|                               |                                                                                                                                                                                               |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Base                          | Made of spheroidal cast iron; for mounting to base, 4 holes for fastening screws are available.                                                                                               |
| Lever                         | Made of spheroidal cast iron; with 2 or 3 bores for fixing lever arrangement. Considering the environmental conditions, the lever may be mounted to the output shaft in any desired position. |
| Ball joints                   | Two ball joints matching the lever, as an option including lock nuts and 2 welding nuts; suitable for pipe according to dimension sheet.                                                      |
| Mechanical position indicator | <div>Standard:</div> No position indicator (protection cover) <div>Option:</div> Pointer cover instead of protection cover for continuous position indication                                 |



## Technical data Part-turn gearboxes for modulating duty

| Valve attachment                |                                                                                                                                                                                                             |                                                                                                                  |                                                                                                                                          |          |     |          |     |     |          |     |     |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------|-----|----------|-----|-----|----------|-----|-----|
| Valve attachment                | Dimensions according to EN ISO 5211: The maximum torques of mounting flanges according to EN ISO 5211 are to be met.                                                                                        |                                                                                                                  |                                                                                                                                          |          |     |          |     |     |          |     |     |
| Spigot                          | Flanges with spigot. Up to GS 125.3, spigots are implemented by means of spigot rings (option). From GS 160.3 to GS 250.3, spigots are directly integrated into the housing.                                |                                                                                                                  |                                                                                                                                          |          |     |          |     |     |          |     |     |
| Plane flanges                   | Up to GS 125.3, plane flanges are implemented by means of recesses. From GS 160.3 to GS 250.3, the housing is plane machined (option).                                                                      |                                                                                                                  |                                                                                                                                          |          |     |          |     |     |          |     |     |
| Bore for parallel pins (option) | Two bores for parallel pins shifted by 180°. The parallel pins are not included in the scope of delivery.                                                                                                   |                                                                                                                  |                                                                                                                                          |          |     |          |     |     |          |     |     |
|                                 | Type                                                                                                                                                                                                        | GS 80.3                                                                                                          |                                                                                                                                          | GS 100.3 |     | GS 125.3 |     |     | GS 160.3 |     |     |
|                                 | Flange according to EN ISO 5211                                                                                                                                                                             | F12                                                                                                              | F14                                                                                                                                      | F14      | F16 | F16      | F25 | F30 | F25      | F30 | F35 |
|                                 | Housing material                                                                                                                                                                                            | GJS                                                                                                              | GJS                                                                                                                                      | GJS      | GJS | GJL      | GJL | GJL | GJL      | GJL | GJL |
|                                 |                                                                                                                                                                                                             |                                                                                                                  |                                                                                                                                          |          |     |          |     |     |          |     |     |
|                                 | Type                                                                                                                                                                                                        | GS 200.3                                                                                                         |                                                                                                                                          |          |     | GS 250.3 |     |     |          |     |     |
|                                 | Flange according to EN ISO 5211                                                                                                                                                                             | F30                                                                                                              | F35                                                                                                                                      | F40      | F35 | F40      | F48 |     |          |     |     |
|                                 | Housing material                                                                                                                                                                                            | GJL                                                                                                              | GJL                                                                                                                                      | GJL      | GJL | GJL      | GJL |     |          |     |     |
|                                 | Refer to Dimensions Output mounting flange GS 50.3 – GS 125.3 (Y000.854) and Dimensions Output mounting flange GS 160.3 – GS 250.3 (Y005.001). Further pitch circle diameters for locating pins on request. |                                                                                                                  |                                                                                                                                          |          |     |          |     |     |          |     |     |
|                                 | Splined coupling for connection to the valve shaft                                                                                                                                                          | Standard:                                                                                                        | <ul style="list-style-type: none"><li>Without bore or pilot bore from GS 160.3</li><li>Worm gearbox can be mounted on coupling</li></ul> |          |     |          |     |     |          |     |     |
| Options:                        |                                                                                                                                                                                                             | Finish machining with bore and keyway, square bore or two-flat with grub screw for secure fixing to valve shaft. |                                                                                                                                          |          |     |          |     |     |          |     |     |

| Service conditions                                                 |                                                                                                                                                                                                                      |                                                                   |                                                                                                     |
|--------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Mounting position                                                  | Any position                                                                                                                                                                                                         |                                                                   |                                                                                                     |
| Ambient temperature                                                | Standard:                                                                                                                                                                                                            | −40 °C to +80 °C                                                  |                                                                                                     |
|                                                                    | Options:                                                                                                                                                                                                             | −60 °C to +60 °C<br>0 °C to +120 °C                               |                                                                                                     |
| Enclosure protection according to EN 60529                         | Standard:                                                                                                                                                                                                            | IP68, dust-tight and water-tight up to max. 8 m head of water     |                                                                                                     |
|                                                                    | Options:                                                                                                                                                                                                             | IP68-20, dust-tight and water-tight up to max. 20 m head of water |                                                                                                     |
| Corrosion protection                                               | Standard:                                                                                                                                                                                                            | KS                                                                | Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.    |
|                                                                    | Option:                                                                                                                                                                                                              | KX                                                                | Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution. |
| Coating                                                            | Double layer powder coating                                                                                                                                                                                          |                                                                   |                                                                                                     |
| Colour                                                             |                                                                                                                                                                                                                      | AUMA silver-grey (similar to RAL 7037)                            |                                                                                                     |
|                                                                    | Option:                                                                                                                                                                                                              | Available colours on request                                      |                                                                                                     |
| AUMA load spectrum                                                 | A start consists of one movement of minimum 1 % in both directions at a load of 35 % of the maximum valve torque (modulating torque).<br>AUMA worm gearboxes meet or exceed the lifetime requirements of EN 15714-2. |                                                                   |                                                                                                     |
| Lifetime for motor operation in accordance with AUMA load spectrum | Duty class 2: Lifetime for 90° swivel movement for valves which are infrequently operated.<br>1.2 million modulating steps                                                                                           |                                                                   |                                                                                                     |

## Technical data Part-turn gearboxes for modulating duty

## Special features for use in potentially explosive atmospheres in accordance with ATEX 2014/34 EU

|                                                         |            |                                                                                                                                                                                                                                                                                      |          |         |         |          |         |         |
|---------------------------------------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------|---------|----------|---------|---------|
| Explosion protection in accordance with ATEX 2014/34 EU | Standard:  | II 2G Ex h IIC T4 Gb<br>II 2D Ex h IIIC T130°C Db                                                                                                                                                                                                                                    |          |         |         |          |         |         |
|                                                         | Option:    | II 2G Ex h IIC T3 Gb<br>II 2D Ex h IIIC T190°C Db<br>I M2 Ex h I Mb                                                                                                                                                                                                                  |          |         |         |          |         |         |
| Type of duty                                            | Standard:  | Intermittent duty S4 – 25 % with modulating torque and max. input speed                                                                                                                                                                                                              |          |         |         |          |         |         |
|                                                         |            | Type                                                                                                                                                                                                                                                                                 | GS 50.3  | GS 63.3 | GS 80.3 | GS 100.3 |         |         |
|                                                         |            | Reduction ratio                                                                                                                                                                                                                                                                      | 51:1     | 51:1    | 53:1    | 52:1     | 126:1   | 208:1   |
|                                                         |            | Max. speed at GS input with SA [rpm]                                                                                                                                                                                                                                                 | 45       | 45      | 45      | 45       | 90      | 125     |
|                                                         |            |                                                                                                                                                                                                                                                                                      |          |         |         |          | 180     |         |
|                                                         |            | Type                                                                                                                                                                                                                                                                                 | GS 125.3 |         |         | GS 160.3 |         |         |
|                                                         |            | Reduction ratio                                                                                                                                                                                                                                                                      | 52:1     | 126:1   | 160:1   | 209:1    | 54:1    | 218:1   |
|                                                         |            | Max. speed at GS input with SA [rpm]                                                                                                                                                                                                                                                 | 45       | 90      | 125     | 180      | 45      | 180     |
|                                                         |            |                                                                                                                                                                                                                                                                                      |          |         |         |          | 180     | 180     |
|                                                         |            | Type                                                                                                                                                                                                                                                                                 | GS 200.3 |         |         |          |         |         |
|                                                         |            | Reduction ratio                                                                                                                                                                                                                                                                      | 53:1     | 67:1    | 214:1   | 434:1    | 864:1   | 1,752:1 |
|                                                         |            | Max. speed at GS input with SA [rpm]                                                                                                                                                                                                                                                 | 11       | 11      | 45      | 90       | 180     | 180     |
|                                                         |            |                                                                                                                                                                                                                                                                                      |          |         |         |          |         |         |
|                                                         |            | Type                                                                                                                                                                                                                                                                                 | GS 250.3 |         |         |          |         |         |
|                                                         |            | Reduction ratio                                                                                                                                                                                                                                                                      | 52:1     | 210:1   | 441:1   | 848:1    | 1,718:1 |         |
|                                                         |            | Max. speed at GS input with SA [rpm]                                                                                                                                                                                                                                                 | 11       | 45      | 90      | 180      | 180     |         |
|                                                         |            |                                                                                                                                                                                                                                                                                      |          |         |         |          |         |         |
| Ambient temperature                                     | Exception: | GS 200.3 with modulating torque up to 4,800 Nm                                                                                                                                                                                                                                       |          |         |         |          |         |         |
|                                                         | Option:    | GSD multi-turn version, specific sizing required; please contact AUMA.                                                                                                                                                                                                               |          |         |         |          |         |         |
|                                                         | Standard:  | –40 °C to +40 °C (II 2G Ex h IIC T4 Gb; II 2D Ex h IIIC T130°C Db)<br>–40 °C to +60 °C (II 2G Ex h IIC T4 Gb; II 2D Ex h IIIC T130°C Db)<br>–50 °C to +60 °C (II 2G Ex h IIC T4 Gb; II 2D Ex h IIIC T130°C Db)<br>–60 °C to +60 °C (II 2G Ex h IIC T4 Gb; II 2D Ex h IIIC T130°C Db) |          |         |         |          |         |         |
|                                                         | Options:   | –40 °C to +80 °C (II 2G Ex h IIC T3 Gb; II 2D Ex h IIIC T190°C Db)<br>0 °C to +120 °C (II 2G Ex h IIC T3 Gb; II 2D Ex h IIIC T190°C Db)<br>–20 °C to +40 °C (I M2 Ex h I Mb)                                                                                                         |          |         |         |          |         |         |

## Further information

|               |                                   |
|---------------|-----------------------------------|
| EU Directives | Machinery Directive: (2006/42/EC) |
|---------------|-----------------------------------|

## Technical data Part-turn gearboxes for open-close duty

## General information

Worm gearboxes for motor or manual operation of valves (e.g. butterfly valves, ball and plug valves). Specific sizing is required for special applications e.g. dampers or gas diverters. Special applications on request.

| Valve             |                                 |                          | Gearbox                                         |                 |                      |               |                           |                    |                      |
|-------------------|---------------------------------|--------------------------|-------------------------------------------------|-----------------|----------------------|---------------|---------------------------|--------------------|----------------------|
| Max. valve torque | Valve attachment                |                          | Type                                            | Reduction ratio | Factor <sup>1)</sup> | Turns for 90° | Input shaft <sup>2)</sup> | Max. input torques | Weight <sup>3)</sup> |
| to [Nm]           | Flange according to EN ISO 5211 | Max. Shaft diameter [mm] |                                                 |                 |                      |               | [mm]                      | [Nm]               | GS + GZ approx. [kg] |
| 90,000            | F40/F48                         | 200                      | GS 315                                          | 53:1            | 23.9                 | 13.25         | 60                        | 3,766              | 520                  |
|                   |                                 |                          | GS 315<br>GZ 30.1 – 4:1 <sup>4)</sup>           | 212:1           | 81                   | 53            | 40                        | 1,111              | 630                  |
|                   |                                 |                          | GS 315<br>GZ 30.1 – 8:1                         | 424:1           | 162                  | 106           | 30/40                     | 556                |                      |
|                   |                                 |                          | GS 315<br>GZ 30.1 – 16:1                        | 848:1           | 325                  | 212           | 30/40                     | 277                |                      |
|                   |                                 |                          | GS 315<br>GZ 30.1 – 32:1                        | 1,696:1         | 650                  | 424           | 20                        | 138                |                      |
| 63,000            |                                 |                          | GS 315<br>GZ 30.1 – 40:1 <sup>4)</sup>          | 2,120:1         | 813                  | 530           | 20                        | 78                 |                      |
| 180,000           | F48/F60                         | 250                      | GS 400                                          | 54:1            | 24.3                 | 13.5          | 80                        | 7,407              | 980                  |
| 125,000           |                                 |                          | GS 400<br>GZ 35.1 – 4:1 <sup>4)</sup>           | 216:1           | 82                   | 54            | 50                        | 1,528              | 1,100                |
| 125,000           |                                 |                          | GS 400<br>GZ 35.1 – 6:1 <sup>4)</sup>           | 324:1           | 123                  | 81            | 40                        | 1,016              |                      |
| 180,000           |                                 |                          | GS 400<br>GZ 35.1 – 8:1                         | 432:1           | 165                  | 108           | 40                        | 1,091              |                      |
| 64,000            |                                 |                          | GS 400<br>GZ 35.1 – 8:1 <sup>4)</sup>           | 432:1           | 165                  | 108           | 30                        | 388                |                      |
| 180,000           |                                 |                          | GS 400<br>GZ 35.1 – 16:1                        | 864:1           | 331                  | 216           | 30                        | 544                |                      |
|                   |                                 |                          | GS 400<br>GZ 35.1 – 32:1                        | 1,728:1         | 661                  | 432           |                           | 272                |                      |
| 360,000           | F60                             | 315                      | GS 500                                          | 52:1            | 23.4                 | 13            | 100                       | 15,385             | 1,800                |
| 250,000           |                                 |                          | GS 500<br>GZ 40.1 – 8:1 <sup>4)</sup>           | 416:1           | 145                  | 104           | 40                        | 1,724              | 2,000                |
| 360,000           |                                 |                          | GS 500<br>GZ 40.1 – 16:1                        | 832:1           | 318                  | 208           | 40                        | 1,132              |                      |
|                   |                                 |                          | GS 500<br>GZ 40.1 – 32:1                        | 1,664:1         | 636                  | 416           | 30                        | 566                |                      |
| 250,000           |                                 |                          | GS 500<br>GZ 40.1 – 45:1 <sup>4)</sup>          | 2,340:1         | 809                  | 585           |                           | 309                |                      |
| 360,000           |                                 |                          | GS 500<br>GZ 16.1 (4:1) + GZ 40.1 (16:1) – 64:1 | 3,328:1         | 1,147                | 832           |                           | 314                | 2,030                |

- 1) Conversion factor from output torque to input torque for actuator size definition For new gearboxes, input torques increased by 15 % are required due to lower efficiency.
- 2) Depending on the required input torque.
- 3) Specified weight includes coupling (without bore) and grease filling in the gear housing and the smallest flange size
- 4) Special reduction ration on request.

| Type                                  | Reduction ratio | Possible combinations with multi-turn actuators                                               |     |     |                 |                 |                 |                  |                 | Multi-turn actuator            | Input mounting flange for mounting multi-turn actuator |          | Max. weight <sup>1)</sup> |
|---------------------------------------|-----------------|-----------------------------------------------------------------------------------------------|-----|-----|-----------------|-----------------|-----------------|------------------|-----------------|--------------------------------|--------------------------------------------------------|----------|---------------------------|
|                                       |                 | Operating time for 50 Hz <sup>2)</sup> in seconds at 90° for multi-turn actuator speed in rpm |     |     |                 |                 |                 |                  |                 | Actuator for max. input torque | EN ISO 5210                                            | DIN 3210 | GS+GZ+SA [kg]             |
|                                       |                 | 16                                                                                            | 22  | 32  | 45              | 63              | 90              | 125              | 180             |                                |                                                        |          |                           |
| GS 315                                | 53:1            | 50                                                                                            | 36  | 25  | – <sup>3)</sup> | – <sup>3)</sup> | – <sup>3)</sup> | –                | –               | SA 30.1                        | F30                                                    | –        | 919                       |
| GS 315<br>GZ 30.1 – 4:1 <sup>4)</sup> | 212:1           | 199                                                                                           | 145 | 99  | 71              | 50              | 35              | 25 <sup>3)</sup> | – <sup>3)</sup> | SA 16.2                        | F16                                                    | G3       | 857                       |
| GS 315<br>GZ 30.1 – 8:1               | 424:1           | 398                                                                                           | 289 | 199 | 141             | 101             | 71              | 51               | 35              | SA 14.6                        | F14                                                    | G1/2     | 828                       |
| GS 315<br>GZ 30.1 – 16:1              | 848:1           | 795                                                                                           | 578 | 398 | 283             | 202             | 141             | 102              | 71              | SA 14.2                        | F14                                                    | G1/2     | 823                       |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document. For further information on the product, refer to [www.auma.com](http://www.auma.com).

## Technical data Part-turn gearboxes for open-close duty

|                                                 |                 | Possible combinations with multi-turn actuators                                               |     |                 |                 |                 |                 |     |     | Multi-turn actuator            | Input mounting flange for mounting multi-turn actuator |          | Max. weight <sup>1)</sup> |
|-------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------|-----|-----------------|-----------------|-----------------|-----------------|-----|-----|--------------------------------|--------------------------------------------------------|----------|---------------------------|
| Type                                            | Reduction ratio | Operating time for 50 Hz <sup>2)</sup> in seconds at 90° for multi-turn actuator speed in rpm |     |                 |                 |                 |                 |     |     | Actuator for max. input torque | EN ISO 5210                                            | DIN 3210 | GS+GZ+SA [kg]             |
|                                                 |                 | 16                                                                                            | 22  | 32              | 45              | 63              | 90              | 125 | 180 |                                |                                                        |          |                           |
| GS 315<br>GZ 30.1 – 32:1                        | 1,696:1         | –                                                                                             | –   | 795             | 565             | 404             | 283             | 204 | 141 | SA 10.2                        | F10                                                    | G0       | 800                       |
| GS 315<br>GZ 30.1 – 40:1 <sup>4)</sup>          | 2,120:1         | –                                                                                             | –   | –               | 707             | 505             | 353             | 254 | 177 | SA 10.2                        | F10                                                    | G0       | 800                       |
| GS 400                                          | 54:1            | 51                                                                                            | 37  | – <sup>3)</sup> | – <sup>3)</sup> | – <sup>3)</sup> | – <sup>3)</sup> | –   | –   | SA 35.1                        | F35                                                    | –        | 1,405                     |
| GS 400<br>GZ 35.1 – 4:1 <sup>4)</sup>           | 216:1           | 203                                                                                           | 147 | 101             | 72              | 51              | 36              | –   | –   | SA 25.1                        | F25                                                    | G4       | 1,260                     |
| GS 400<br>GZ 35.1 – 6:1 <sup>4)</sup>           | 324:1           | 304                                                                                           | 221 | 152             | 108             | 77              | 54              | 39  | 27  | SA 16.2                        | F16                                                    | G3       | 1,183                     |
| GS 400<br>GZ 35.1 – 8:1                         | 432:1           | 405                                                                                           | 295 | 203             | 144             | 103             | 72              | 52  | 36  | SA 16.2                        | F16                                                    | G3       | 1,183                     |
| GS 400<br>GZ 35.1 – 8:1 <sup>4)</sup>           | 432:1           | 405                                                                                           | 295 | 203             | 144             | 103             | 72              | 52  | 36  | SA 14.6                        | F14                                                    | G1/2     | 1,153                     |
| GS 400<br>GZ 35.1 – 16:1                        | 864:1           | 810                                                                                           | 589 | 405             | 288             | 206             | 144             | 104 | 72  | SA 14.6                        | F14                                                    | G1/2     | 1,153                     |
| GS 400<br>GZ 35.1 – 32:1                        | 1,728:1         | –                                                                                             | –   | 810             | 576             | 411             | 288             | 207 | 144 | SA 14.2                        | F14                                                    | G1/2     | 1,148                     |
| GS 500                                          | 52:1            | 49                                                                                            | 35  | – <sup>3)</sup> | – <sup>3)</sup> | – <sup>3)</sup> | – <sup>3)</sup> | –   | –   | SA 40.1                        | F40                                                    | –        | 2,380                     |
| GS 500<br>GZ 40.1 – 8:1 <sup>4)</sup>           | 416:1           | 390                                                                                           | 284 | 195             | 139             | 99              | 69              | 50  | 35  | SA 25.1                        | F25                                                    | –        | 2,160                     |
| GS 500<br>GZ 40.1 – 16:1                        | 832:1           | 780                                                                                           | 567 | 390             | 277             | 198             | 139             | 100 | 69  | SA 16.2                        | F16                                                    | G3       | 2,083                     |
| GS 500<br>GZ 40.1 – 32:1                        | 1,664:1         | –                                                                                             | –   | 780             | 555             | 396             | 277             | 200 | 139 | SA 14.6                        | F14                                                    | G1/2     | 2,053                     |
| GS 500<br>GZ 40.1 – 45:1 <sup>4)</sup>          | 2,340:1         | –                                                                                             | –   | –               | 780             | 557             | 390             | 281 | 195 | SA 14.6                        | F14                                                    | G1/2     | 2,053                     |
| GS 500<br>GZ 16.1 (4:1) + GZ 40.1 (16:1) – 64:1 | 3,328:1         | –                                                                                             | –   | –               | –               | 792             | 555             | 399 | 277 | SA 14.2                        | F14                                                    | G1/2     | 2,048                     |

- 1) Specified weight contains coupling (without bore) and grease filling in the gear housing, multi-turn actuator with 3-phase AC motor, standard electrical connection, output drive type B3 and handwheel.
- 2) Standard values at 50 Hz; at 60 Hz, the indicated operating time is reduced by 17 %.
- 3) Refer to Technical Data GS 315 – GS 500 for modulating duty and shorter operating times; heed maximum valve torque.
- 4) Special reduction ration on request.

## Features and functions

|                     |                                                                                                                                                                                                                                              |                                                     |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| Worm wheel material | Spheroidal cast iron                                                                                                                                                                                                                         |                                                     |
| Version             | Standard:                                                                                                                                                                                                                                    | Clockwise rotation RR, counterclockwise rotation LL |
|                     | Option:                                                                                                                                                                                                                                      | RL or LR                                            |
| Housing material    | Standard:                                                                                                                                                                                                                                    | Cast iron (GJL-250)                                 |
|                     | Option:                                                                                                                                                                                                                                      | Spheroidal cast iron (GJS-400-15)                   |
| Self-locking        | The gearboxes are self-locking when at standstill under normal service conditions; strong vibration may cancel the self-locking effect. While in motion, safe braking is not guaranteed. If this is required, a separate brake must be used. |                                                     |
| End stops           | Positive for both end positions by travelling nut, sensitive adjustment                                                                                                                                                                      |                                                     |

## Technical data Part-turn gearboxes for open-close duty

| Features and functions                            |                                                                                    |                                                                                                                                                                                                                                                                                                                                               |      |      |         |      |      |         |      |         |         |
|---------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|---------|------|------|---------|------|---------|---------|
| Strength of end stop                              | Guaranteed strength of end stop (in Nm) for input side operation according to AWWA |                                                                                                                                                                                                                                                                                                                                               |      |      |         |      |      |         |      |         |         |
|                                                   | Type                                                                               | GS 315                                                                                                                                                                                                                                                                                                                                        |      |      | GS 400  |      |      | GS 500  |      |         |         |
|                                                   | Primary reduction gearing                                                          | GZ 30.1                                                                                                                                                                                                                                                                                                                                       |      |      | GZ 35.1 |      |      | GZ 40.1 |      | GZ 40.1 | GZ 16.1 |
|                                                   | Reduction ratio                                                                    | 8:1                                                                                                                                                                                                                                                                                                                                           | 16:1 | 32:1 | 8:1     | 16:1 | 32:1 | 16:1    | 32:1 | 16:1    | 4:1     |
|                                                   | [Nm]                                                                               | 450                                                                                                                                                                                                                                                                                                                                           |      | 250  | 450     |      |      | 450     |      | 450     |         |
| Strength of end stop for special reduction ratios | Guaranteed strength of end stop (in Nm) for input side operation                   |                                                                                                                                                                                                                                                                                                                                               |      |      |         |      |      |         |      |         |         |
|                                                   | Type                                                                               | GS 315                                                                                                                                                                                                                                                                                                                                        |      |      | GS 400  |      |      | GS 500  |      |         |         |
|                                                   | Primary reduction gearing                                                          | GZ 30.1                                                                                                                                                                                                                                                                                                                                       |      |      | GZ 35.1 |      |      | GZ 40.1 |      |         |         |
|                                                   | Reduction ratio                                                                    | 4:1                                                                                                                                                                                                                                                                                                                                           | 16:1 | 40:1 | 4:1     | 6:1  | 8:1  | 8:1     | 45:1 |         |         |
|                                                   | [Nm]                                                                               | 450                                                                                                                                                                                                                                                                                                                                           |      | 250  | 450     |      |      | 450     |      | 500     |         |
| Swing angle GS 315 – GS 500                       | Standard:                                                                          | Adjustable 0° – 135°; set in the factory to 92° unless ordered otherwise.                                                                                                                                                                                                                                                                     |      |      |         |      |      |         |      |         |         |
|                                                   | Options:                                                                           | Swing angle > 100°, multi-turn without end stops, refer to Technical data GS 315 – GS 500 for modulating duty and shorter operating times                                                                                                                                                                                                     |      |      |         |      |      |         |      |         |         |
| Mechanical position indicator                     | Standard:                                                                          | Pointer cover for continuous position indication                                                                                                                                                                                                                                                                                              |      |      |         |      |      |         |      |         |         |
|                                                   | Options:                                                                           | <ul style="list-style-type: none"><li>Sealed pointer cover for horizontal outdoor installation</li><li>Protection cover instead of pointer cover for buried service</li></ul> <p>For gas applications with sealed pointer cover, an air vent valve in the pointer cover or venting keyways in the valve mounting flange must be provided.</p> |      |      |         |      |      |         |      |         |         |
| Input shaft                                       | Cylindrical with parallel key according to DIN 6885-1 (refer to table on page 1)   |                                                                                                                                                                                                                                                                                                                                               |      |      |         |      |      |         |      |         |         |

| Operation        |                                                                                                                                                                                                                       |                                                                                                                                                                                       |         |       |         |         |         |         |                   |  |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------|---------|---------|---------|---------|-------------------|--|
| Motor operation  | <ul style="list-style-type: none"> <li>With electric multi-turn actuator, directly or through GZ primary reduction gearing</li> <li>Input mounting flanges for multi-turn actuator (refer to table page 2)</li> </ul> |                                                                                                                                                                                       |         |       |         |         |         |         |                   |  |
| Type of duty     | Short-time duty S2 - 15 min (open-close duty)                                                                                                                                                                         |                                                                                                                                                                                       |         |       |         |         |         |         |                   |  |
| Manual operation | Available handwheel diameters (according to EN 12570), selection according to output torque:                                                                                                                          |                                                                                                                                                                                       |         |       |         |         |         |         |                   |  |
|                  | Type                                                                                                                                                                                                                  | GS 315                                                                                                                                                                                |         |       |         |         |         |         |                   |  |
|                  | Primary reduction gearing                                                                                                                                                                                             | –                                                                                                                                                                                     | GZ 30.1 |       |         |         |         |         |                   |  |
|                  | Reduction ratio                                                                                                                                                                                                       | 53:1                                                                                                                                                                                  | 212:1   | 424:1 | 848:1   | 1,696:1 | 2,120:1 |         |                   |  |
|                  | Handwheel Ø [mm]                                                                                                                                                                                                      | –                                                                                                                                                                                     | –       | 800   | 500/830 | 400     | 400     |         |                   |  |
|                  | Type                                                                                                                                                                                                                  | GS 400                                                                                                                                                                                |         |       |         |         |         |         |                   |  |
|                  | Primary reduction gearing                                                                                                                                                                                             | –                                                                                                                                                                                     | GZ 35.1 |       |         |         |         |         |                   |  |
|                  | Reduction ratio                                                                                                                                                                                                       | 54:1                                                                                                                                                                                  | 216:1   | 324:1 | 432:1   | 432:1   | 864:1   | 1,728:1 |                   |  |
|                  | Handwheel Ø [mm]                                                                                                                                                                                                      | –                                                                                                                                                                                     | –       | –     | –       | 800     | 800     | 500/630 |                   |  |
|                  | Type                                                                                                                                                                                                                  | GS 500                                                                                                                                                                                |         |       |         |         |         |         |                   |  |
|                  | Primary reduction gearing                                                                                                                                                                                             | –                                                                                                                                                                                     | GZ 40.1 |       |         |         |         |         | GZ 16.1 + GZ 40.1 |  |
|                  | Reduction ratio                                                                                                                                                                                                       | 52:1                                                                                                                                                                                  | 416:1   | 832:1 | 1,664:1 | 2,340:1 | 3,328:1 |         |                   |  |
|                  | Handwheel Ø [mm]                                                                                                                                                                                                      | –                                                                                                                                                                                     | –       | –     | 800     | 800     | 500/630 |         |                   |  |
|                  | Standard:                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>Handwheel made of aluminium</li> <li>Handwheel with ball handle</li> </ul>                                                                     |         |       |         |         |         |         |                   |  |
|                  | Options:                                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>Handwheel made of GJL-200</li> <li>Handwheel lockable</li> <li>WSH limit switching device for signalling position and end positions</li> </ul> |         |       |         |         |         |         |                   |  |

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## Technical data Part-turn gearboxes for open-close duty

## Primary reduction gearing

|                           |                                                                                                                                                                                                                                                                                          |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Primary reduction gearing | <ul style="list-style-type: none"> <li>Type GZ as coaxial spur gear with various reduction ratios for reducing the input torques (refer to table page 1).</li> <li>Combination with GK bevel gearbox directly on GS or on GS with GZ possible (90° deflection of input shaft)</li> </ul> |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Valve attachment

|                                                    |                                                                                                                      |                                                                                                                                          |  |
|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|--|
| Valve attachment                                   | Dimensions according to EN ISO 5211: The maximum torques of mounting flanges according to EN ISO 5211 are to be met. |                                                                                                                                          |  |
|                                                    | Standard:                                                                                                            | <ul style="list-style-type: none"> <li>With spigot</li> </ul>                                                                            |  |
| Splined coupling for connection to the valve shaft | Standard:                                                                                                            | <ul style="list-style-type: none"> <li>With pilot bore</li> <li>Worm gearbox can be mounted at 4 x 90° increments on coupling</li> </ul> |  |
|                                                    | Options:                                                                                                             | Finish machining with bore and keyway, square bore or two-flat with grub screw for secure fixing to valve shaft.                         |  |

## Limit sensing for signalling position and end positions

|                           |                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valve position indicators | <ul style="list-style-type: none"> <li>WSG valve position indicator (hall sensors) for position and end position signalling to ensure precise and low-backlash feedback for swing angles ranging between 82° and 98°.</li> <li>WGD valve position indicator (counter gear mechanism) for position and end position signalling for swing angles &gt; 180°</li> </ul> |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Service conditions

|                                            |                                                                                                                              |                                                                   |                                                                                                             |        |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|--------|
| Mounting position                          | Any position                                                                                                                 |                                                                   |                                                                                                             |        |
| Ambient temperature                        | Standard:                                                                                                                    | −40 °C to +80 °C                                                  |                                                                                                             |        |
|                                            | Options:                                                                                                                     | −60 °C to +60 °C<br>0 °C to +120 °C                               |                                                                                                             |        |
|                                            |                                                                                                                              |                                                                   |                                                                                                             |        |
| Enclosure protection according to EN 60529 | Standard:                                                                                                                    | IP68, dust-tight and water-tight up to max. 8 m head of water     |                                                                                                             |        |
|                                            | Options:                                                                                                                     | IP68-20, dust-tight and water-tight up to max. 20 m head of water |                                                                                                             |        |
| Corrosion protection                       | Standard:                                                                                                                    | KN                                                                | Suitable for installation in industrial units, in water or power plants with a low pollutant concentration. |        |
|                                            | Options:                                                                                                                     | KS                                                                | Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.            |        |
|                                            |                                                                                                                              | KX                                                                | Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.         |        |
| Paint                                      | Standard:                                                                                                                    | Primer coated                                                     |                                                                                                             |        |
|                                            | Option:                                                                                                                      | Two-component iron-mica combination                               |                                                                                                             |        |
| Colour                                     | Standard:                                                                                                                    | AUMA silver-grey (similar to RAL 7037)                            |                                                                                                             |        |
|                                            | Option:                                                                                                                      | Available colours on request                                      |                                                                                                             |        |
| Lifetime                                   | Lifetime for 90° rotary movement                                                                                             |                                                                   |                                                                                                             |        |
|                                            | Type                                                                                                                         | GS 315                                                            | GS 400                                                                                                      | GS 500 |
|                                            | Number of cycles for max. torque                                                                                             | 2,500                                                             | 1,200                                                                                                       | 1,200  |
|                                            | AUMA worm gearboxes meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request. |                                                                   |                                                                                                             |        |

## Technical data Part-turn gearboxes for open-close duty

## Special features for use in potentially explosive atmospheres in accordance with ATEX 2014/34/EU

|                                                         |                                                    |                                                                                                                                                                                                              |
|---------------------------------------------------------|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Explosion protection in accordance with ATEX 2014/34/EU | Standard:                                          | II 2G Ex h IIC T4 Gb<br>II 2D Ex h IIIC T130°C Db                                                                                                                                                            |
|                                                         | Options:                                           | II 2G Ex h IIC T3 Gb<br>II 2D Ex h IIIC T190°C Db<br>I M2 Ex h I Mb                                                                                                                                          |
| Applied standards                                       | EN ISO 80079-36:2016-12<br>EN ISO 80079-37:2016-12 |                                                                                                                                                                                                              |
| Type of duty                                            | Standard:                                          | Maximum 3 cycles (OPEN - CLOSE - OPEN) in accordance with AUMA load spectrum (90° part-turn movement) and maximum permissible input speeds or with mean constant output torques according to technical data. |
| Ambient temperature                                     | Standard:                                          | –40 °C to +60 °C                                                                                                                                                                                             |
|                                                         | Options:                                           | –50 °C to +60 °C<br>–60 °C to +60 °C                                                                                                                                                                         |

## Further information

|               |                                   |
|---------------|-----------------------------------|
| EU Directives | Machinery Directive: (2006/42/EC) |
|---------------|-----------------------------------|

## Technical data Part-turn gearboxes for modulating duty and short operating times

## General information

Worm gearboxes for motor or manual operation of valves (e.g. butterfly valves, ball and plug valves), particularly suited for modulating duty and shorter operating times. Specific sizing is required for special applications e.g. dampers or gas diverters. Special applications on request.

| Valve             |                                                  |                                                 |                                   | Gearbox                                |                 |                      |               |                           |                    |                            |
|-------------------|--------------------------------------------------|-------------------------------------------------|-----------------------------------|----------------------------------------|-----------------|----------------------|---------------|---------------------------|--------------------|----------------------------|
| Max. valve torque |                                                  | Valve attachment                                |                                   | Type                                   | Reduction ratio | Factor <sup>1)</sup> | Turns for 90° | Input shaft <sup>2)</sup> | Max. input torques | Weight <sup>3)</sup>       |
| to<br>[Nm]        | Modulating<br>torque <sup>4)</sup><br>to<br>[Nm] | Flange<br>according<br>to EN<br>ISO 5211        | Max.<br>Shaft<br>diameter<br>[mm] |                                        |                 |                      |               | [mm]                      | [Nm]               | GS + GZ<br>approx.<br>[kg] |
| 90,000            | 30,000                                           | F40/F48                                         | 200                               | GS 315                                 | 53:1            | 26                   | 13.25         | 60                        | 3,462              | 520                        |
|                   |                                                  |                                                 |                                   | GS 315<br>GZ 30.1 – 4:1 <sup>5)</sup>  | 212:1           | 89                   | 53            | 40                        | 1,011              | 630                        |
|                   |                                                  |                                                 |                                   | GS 315<br>GZ 30.1 – 8:1                | 424:1           | 178                  | 106           | 30/40                     | 506                |                            |
|                   |                                                  |                                                 |                                   | GS 315<br>GZ 30.1 – 16:1               | 848:1           | 356                  | 212           | 30/40                     | 253                |                            |
|                   |                                                  |                                                 |                                   | GS 315<br>GZ 30.1 – 32:1               | 1,696:1         | 716                  | 424           | 20                        | 126                |                            |
|                   |                                                  |                                                 |                                   | GS 315<br>GZ 30.1 – 40:1 <sup>5)</sup> | 2,120:1         | 887                  | 530           | 20                        |                    |                            |
| 63,000            | 35,000                                           | F48/F60                                         | 250                               | GS 400                                 | 54:1            | 26.5                 | 13.5          | 80                        | 6,793              | 980                        |
| 125,000           |                                                  |                                                 |                                   | GS 400<br>GZ 35.1 – 4:1 <sup>5)</sup>  | 216:1           | 90                   | 54            | 50                        | 1,982              | 1,100                      |
| 125,000           |                                                  |                                                 |                                   | GS 400<br>GZ 35.1 – 6:1 <sup>5)</sup>  | 324:1           | 136                  | 81            | 40                        | 919                |                            |
| 180,000           |                                                  |                                                 |                                   | GS 400<br>GZ 35.1 – 8:1                | 432:1           | 181                  | 108           | 40                        | 995                |                            |
| 64,000            |                                                  |                                                 |                                   | GS 400<br>GZ 35.1 – 8:1 <sup>5)</sup>  | 432:1           | 181                  | 108           | 30                        | 354                |                            |
| 180,000           |                                                  |                                                 |                                   | GS 400<br>GZ 35.1 – 16:1               | 864:1           | 363                  | 216           | 30                        | 496                |                            |
|                   |                                                  |                                                 |                                   | GS 400<br>GZ 35.1 – 32:1               | 1,728:1         | 726                  | 432           |                           | 248                |                            |
| 360,000           |                                                  |                                                 |                                   | 35,000                                 | F60             | 315                  | GS 500        | 52:1                      | 25.5               | 13                         |
| 250,000           | 60,000                                           | GS 500<br>GZ 40.1 – 8:1 <sup>5)</sup>           | 416:1                             | 175                                    |                 |                      | 104           | 40                        | 1,428              | 2,000                      |
| 360,000           | 120,000                                          | GS 500<br>GZ 40.1 – 16:1                        | 832:1                             | 350                                    |                 |                      | 208           | 40                        | 1,029              |                            |
|                   |                                                  | GS 500<br>GZ 40.1 – 32:1                        | 1,664:1                           | 698                                    |                 |                      | 416           | 30                        | 516                |                            |
| 250,000           | 120,000                                          | GS 500<br>GZ 40.1 – 45:1 <sup>5)</sup>          | 2,340:1                           | 977                                    |                 |                      | 585           |                           | 256                |                            |
| 360,000           |                                                  | GS 500<br>GZ 16.1 (4:1) + GZ 40.1 (16:1) – 64:1 | 3,328:1                           | 1,232                                  |                 |                      | 832           | 292                       | 2,030              |                            |

- 1) Conversion factor from output torque to input torque for actuator size definition For new gearboxes, input torques increased by 15 % are required due to lower efficiency.
- 2) Depending on the required input torque.
- 3) Specified weight includes coupling (without bore) and grease filling in the gear housing and the smallest flange size
- 4) Modulating torque = permissible, average torque for modulating duty.
- 5) Special reduction ration on request.

|                                       |                 | Possible combinations with multi-turn actuators                                               |     |     |                  |                  |                 |                  |                  | Multi-turn actuator            | Input mounting flange for mounting multi-turn actuator |          | Max. weight <sup>1)</sup> |
|---------------------------------------|-----------------|-----------------------------------------------------------------------------------------------|-----|-----|------------------|------------------|-----------------|------------------|------------------|--------------------------------|--------------------------------------------------------|----------|---------------------------|
| Type                                  | Reduction ratio | Operating time for 50 Hz <sup>2)</sup> in seconds at 90° for multi-turn actuator speed in rpm |     |     |                  |                  |                 |                  |                  | Actuator for max. input torque | EN ISO 5210                                            | DIN 3210 | GS+GZ+SA [kg]             |
|                                       |                 | 16                                                                                            | 22  | 32  | 45               | 63               | 90              | 125              | 180              |                                |                                                        |          |                           |
| GS 315                                | 53:1            | 50                                                                                            | 36  | 25  | 18 <sup>3)</sup> | 13 <sup>3)</sup> | 9 <sup>3)</sup> | –                | –                | SAR 30.1                       | F30                                                    | –        | 849                       |
| GS 315<br>GZ 30.1 – 4:1 <sup>4)</sup> | 212:1           | 199                                                                                           | 145 | 99  | 71               | 50               | 35              | 25 <sup>3)</sup> | 18 <sup>3)</sup> | SAR 16.2                       | F16                                                    | G1/2     | 858                       |
| GS 315<br>GZ 30.1 – 8:1               | 424:1           | 398                                                                                           | 289 | 199 | 141              | 101              | 71              | 51               | 35               | SAR 14.6                       | F14                                                    | G1/2     | 828                       |
| GS 315<br>GZ 30.1 – 16:1              | 848:1           | 795                                                                                           | 578 | 398 | 283              | 202              | 141             | 102              | 71               | SAR 14.2                       | F14                                                    | G1/2     | 823                       |
| GS 315<br>GZ 30.1 – 32:1              | 1,696:1         | –                                                                                             | –   | 795 | 565              | 404              | 283             | 204              | 141              | SAR 10.2                       | F10                                                    | G0       | 800                       |

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## Technical data Part-turn gearboxes for modulating duty and short operating times

|                                                 |                 | Possible combinations with multi-turn actuators                                               |     |                  |                  |                  |                 |     |     | Multi-turn actuator            | Input mounting flange for mounting multi-turn actuator |          | Max. weight <sup>1)</sup> |
|-------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------|-----|------------------|------------------|------------------|-----------------|-----|-----|--------------------------------|--------------------------------------------------------|----------|---------------------------|
| Type                                            | Reduction ratio | Operating time for 50 Hz <sup>2)</sup> in seconds at 90° for multi-turn actuator speed in rpm |     |                  |                  |                  |                 |     |     | Actuator for max. input torque | EN ISO 5210                                            | DIN 3210 | GS+GZ+SA [kg]             |
|                                                 |                 | 16                                                                                            | 22  | 32               | 45               | 63               | 90              | 125 | 180 |                                |                                                        |          |                           |
| GS 315<br>GZ 30.1 – 40:1 <sup>4)</sup>          | 2,120:1         | –                                                                                             | –   | –                | 707              | 505              | 353             | 254 | 177 | SAR 10.2                       | F10                                                    | G0       | 800                       |
| GS 400                                          | 54:1            | 51                                                                                            | 37  | 25 <sup>3)</sup> | 18 <sup>3)</sup> | 13 <sup>3)</sup> | 9 <sup>3)</sup> | –   | –   | SAR 30.1                       | F35                                                    | –        | 1,170                     |
| GS 400<br>GZ 35.1 – 4:1 <sup>4)</sup>           | 216:1           | 203                                                                                           | 147 | 101              | 72               | 51               | 36              | –   | –   | SAR 25.1 <sup>5)</sup>         | F25                                                    | G4       | 1,250                     |
| GS 400<br>GZ 35.1 – 6:1 <sup>4)</sup>           | 324:1           | 304                                                                                           | 221 | 152              | 108              | 77               | 54              | 39  | 27  | SAR 16.2                       | F16                                                    | G3       | 1,183                     |
| GS 400<br>GZ 35.1 – 8:1                         | 432:1           | 405                                                                                           | 295 | 203              | 144              | 103              | 72              | 52  | 36  | SAR 16.2                       | F16                                                    | G3       | 1,183                     |
| GS 400<br>GZ 35.1 – 8:1 <sup>4)</sup>           | 432:1           | 405                                                                                           | 295 | 203              | 144              | 103              | 72              | 52  | 36  | SAR 14.6                       | F14                                                    | G1/2     | 1,153                     |
| GS 400<br>GZ 35.1 – 16:1                        | 864:1           | 810                                                                                           | 589 | 405              | 288              | 202              | 141             | 104 | 72  | SAR 14.6                       | F14                                                    | G1/2     | 1,153                     |
| GS 400<br>GZ 35.1 – 32:1                        | 1,728:1         | –                                                                                             | –   | 810              | 576              | 411              | 288             | 207 | 144 | SAR 14.2                       | F14                                                    | G1/2     | 1,148                     |
| GS 500                                          | 52:1            | 49                                                                                            | 35  | 24 <sup>3)</sup> | 17 <sup>3)</sup> | 12 <sup>3)</sup> | 9 <sup>3)</sup> | –   | –   | SAR 30.1                       | F40                                                    | –        | 2,060                     |
| GS 500<br>GZ 40.1 – 8:1 <sup>4)</sup>           | 416:1           | 390                                                                                           | 284 | 195              | 139              | 99               | 69              | –   | –   | SAR 25.1 <sup>5)</sup>         | F25                                                    | –        | 2,150                     |
| GS 500<br>GZ 40.1 – 16:1                        | 832:1           | 780                                                                                           | 567 | 390              | 277              | 198              | 139             | 100 | 69  | SAR 16.2                       | F16                                                    | G3       | 2,083                     |
| GS 500<br>GZ 40.1 – 32:1                        | 1,664:1         | –                                                                                             | –   | 780              | 555              | 396              | 277             | 200 | 139 | SAR 14.6                       | F14                                                    | G1/2     | 2,053                     |
| GS 500<br>GZ 40.1 – 45:1 <sup>4)</sup>          | 2,340:1         | –                                                                                             | –   | –                | 780              | 557              | 390             | 281 | 195 | SAR 14.6                       | F14                                                    | G1/2     | 2,053                     |
| GS 500<br>GZ 16.1 (4:1) + GZ 40.1 (16:1) – 64:1 | 3,328:1         | –                                                                                             | –   | –                | –                | 792              | 555             | 399 | 277 | SAR 14.2                       | F14                                                    | G1/2     | 2,098                     |

- 1) Specified weight contains coupling (without bore) and grease filling in the gear housing, multi-turn actuator with 3-phase AC motor, standard electrical connection, output drive type B3 and handwheel.
- 2) Standard values at 50 Hz; at 60 Hz, the indicated operating time is reduced by 17 %.
- 3) Multi-turn version without end stop is recommended. Not feasible for modulating duty.
- 4) Special reduction ratio on request.
- 5) Not qualified in accordance with AWWA.

## Features and functions

|                      |                                                                                                                                                                                                                                              |                                                     |      |      |         |      |      |         |      |         |         |  |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|------|------|---------|------|------|---------|------|---------|---------|--|
| Worm wheel material  | Bronze                                                                                                                                                                                                                                       |                                                     |      |      |         |      |      |         |      |         |         |  |
| Version              | Standard:                                                                                                                                                                                                                                    | Clockwise rotation RR, counterclockwise rotation LL |      |      |         |      |      |         |      |         |         |  |
|                      | Option:                                                                                                                                                                                                                                      | RL or LR                                            |      |      |         |      |      |         |      |         |         |  |
| Housing material     | Standard:                                                                                                                                                                                                                                    | Cast iron (GJL-250)                                 |      |      |         |      |      |         |      |         |         |  |
|                      | Option:                                                                                                                                                                                                                                      | Spheroidal cast iron (GJS-400-15)                   |      |      |         |      |      |         |      |         |         |  |
| Self-locking         | The gearboxes are self-locking when at standstill under normal service conditions; strong vibration may cancel the self-locking effect. While in motion, safe braking is not guaranteed. If this is required, a separate brake must be used. |                                                     |      |      |         |      |      |         |      |         |         |  |
| End stops            | Positive for both end positions by travelling nut, sensitive adjustment                                                                                                                                                                      |                                                     |      |      |         |      |      |         |      |         |         |  |
| Strength of end stop | Guaranteed strength of end stop (in Nm) for input side operation according to AWWA                                                                                                                                                           |                                                     |      |      |         |      |      |         |      |         |         |  |
|                      | Type                                                                                                                                                                                                                                         | GS 315                                              |      |      | GS 400  |      |      | GS 500  |      |         |         |  |
|                      | Primary reduction gearing                                                                                                                                                                                                                    | GZ 30.1                                             |      |      | GZ 35.1 |      |      | GZ 40.1 |      | GZ 40.1 | GZ 16.1 |  |
|                      | Reduction ratio                                                                                                                                                                                                                              | 8:1                                                 | 16:1 | 32:1 | 8:1     | 16:1 | 32:1 | 16:1    | 32:1 | 16:1    | 4:1     |  |
|                      | [Nm]                                                                                                                                                                                                                                         | 450                                                 |      | 250  | 450     |      |      | 450     |      | 450     |         |  |

## Technical data Part-turn gearboxes for modulating duty and short operating times

| Features and functions                            |                                                                                  |                                                                                                                                                                                                                                                                                                                                        |      |      |         |     |     |         |      |
|---------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|---------|-----|-----|---------|------|
| Strength of end stop for special reduction ratios | Guaranteed strength of end stop (in Nm) for input side operation                 |                                                                                                                                                                                                                                                                                                                                        |      |      |         |     |     |         |      |
|                                                   | Type                                                                             | GS 315                                                                                                                                                                                                                                                                                                                                 |      |      | GS 400  |     |     | GS 500  |      |
|                                                   | Primary reduction gearing                                                        | GZ 30.1                                                                                                                                                                                                                                                                                                                                |      |      | GZ 35.1 |     |     | GZ 40.1 |      |
|                                                   | Reduction ratio                                                                  | 4:1                                                                                                                                                                                                                                                                                                                                    | 16:1 | 40:1 | 4:1     | 6:1 | 8:1 | 8:1     | 45:1 |
|                                                   | [Nm]                                                                             | 450                                                                                                                                                                                                                                                                                                                                    |      | 250  | 450     |     |     | 450     | 500  |
| Swing angle GS 315 – GS 500                       | Standard:                                                                        | Adjustable 0° – 135°; set in the factory to 92° unless ordered otherwise.                                                                                                                                                                                                                                                              |      |      |         |     |     |         |      |
|                                                   | Options:                                                                         | Swing angle > 100°, multi-turn version without end stops, GSD version.<br>Multi-turn version without end stop, up to max. 10 turns of worm wheel permissible. Heed special sizing!                                                                                                                                                     |      |      |         |     |     |         |      |
| Mechanical position indicator                     | Standard:                                                                        | Pointer cover for continuous position indication                                                                                                                                                                                                                                                                                       |      |      |         |     |     |         |      |
|                                                   | Options:                                                                         | <ul style="list-style-type: none"><li>Sealed pointer cover for horizontal outdoor installation</li><li>Protection cover instead of pointer cover for buried service</li></ul> For gas applications with sealed pointer cover, an air vent valve in the pointer cover or venting keyways in the valve mounting flange must be provided. |      |      |         |     |     |         |      |
| Input shaft                                       | Cylindrical with parallel key according to DIN 6885-1 (refer to table on page 1) |                                                                                                                                                                                                                                                                                                                                        |      |      |         |     |     |         |      |

| Operation        |                                                                                                                                                                                                                    |                                                                                                                                                                                   |         |       |         |         |         |                   |  |  |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------|---------|---------|---------|-------------------|--|--|
| Motor operation  | <ul style="list-style-type: none"><li>With electric multi-turn actuator, directly or through GZ primary reduction gearing</li><li>Input mounting flanges for multi-turn actuator (refer to table page 2)</li></ul> |                                                                                                                                                                                   |         |       |         |         |         |                   |  |  |
| Type of duty     | Intermittent duty S4 - 25 % (modulating duty)                                                                                                                                                                      |                                                                                                                                                                                   |         |       |         |         |         |                   |  |  |
|                  | Short-time duty S2 - 15 min (open-close duty)<br>Intermittent duty S4 - 25 % (modulating duty)                                                                                                                     |                                                                                                                                                                                   |         |       |         |         |         |                   |  |  |
| Manual operation | Available handwheel diameters (according to EN 12570), selection according to output torque:                                                                                                                       |                                                                                                                                                                                   |         |       |         |         |         |                   |  |  |
|                  | Type                                                                                                                                                                                                               | GS 315                                                                                                                                                                            |         |       |         |         |         |                   |  |  |
|                  | Primary reduction gearing                                                                                                                                                                                          | —                                                                                                                                                                                 | GZ 30.1 |       |         |         |         |                   |  |  |
|                  | Reduction ratio                                                                                                                                                                                                    | 53:1                                                                                                                                                                              | 212:1   | 424:1 | 848:1   | 1,696:1 | 2,120.1 |                   |  |  |
|                  | Handwheel Ø [mm]                                                                                                                                                                                                   | —                                                                                                                                                                                 | —       | 800   | 500/830 | 400     | 400     |                   |  |  |
|                  | Type                                                                                                                                                                                                               | GS 400                                                                                                                                                                            |         |       |         |         |         |                   |  |  |
|                  | Primary reduction gearing                                                                                                                                                                                          | —                                                                                                                                                                                 | GZ 35.1 |       |         |         |         |                   |  |  |
|                  | Reduction ratio                                                                                                                                                                                                    | 54:1                                                                                                                                                                              | 216:1   | 324:1 | 432:1   | 432:1   | 864:1   | 1,728:1           |  |  |
|                  | Handwheel Ø [mm]                                                                                                                                                                                                   | —                                                                                                                                                                                 | —       | —     | —       | 800     | 800     | 500/630           |  |  |
|                  | Type                                                                                                                                                                                                               | GS 500                                                                                                                                                                            |         |       |         |         |         |                   |  |  |
|                  | Primary reduction gearing                                                                                                                                                                                          | —                                                                                                                                                                                 | GZ 40.1 |       |         |         |         | GZ 16.1 + GZ 40.1 |  |  |
|                  | Reduction ratio                                                                                                                                                                                                    | 52:1                                                                                                                                                                              | 416:1   | 832:1 | 1,664:1 | 2,340:1 | 3,328:1 |                   |  |  |
|                  | Handwheel Ø [mm]                                                                                                                                                                                                   | —                                                                                                                                                                                 | —       | —     | 800     | 800     | 500/630 |                   |  |  |
|                  | Standard:                                                                                                                                                                                                          | <ul style="list-style-type: none"><li>Handwheel made of aluminium</li><li>Handwheel with ball handle</li></ul>                                                                    |         |       |         |         |         |                   |  |  |
|                  | Options:                                                                                                                                                                                                           | <ul style="list-style-type: none"><li>Handwheel made of GJL-200</li><li>Handwheel lockable</li><li>WSH limit switching device for signalling position and end positions</li></ul> |         |       |         |         |         |                   |  |  |

## Technical data Part-turn gearboxes for modulating duty and short operating times

## Primary reduction gearing

|                           |                                                                                                                                                                                                                                                                                          |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Primary reduction gearing | <ul style="list-style-type: none"> <li>Type GZ as coaxial spur gear with various reduction ratios for reducing the input torques (refer to table page 1).</li> <li>Combination with GK bevel gearbox directly on GS or on GS with GZ possible (90° deflection of input shaft)</li> </ul> |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Valve attachment

|                                                    |                                                                                                                      |                                                                                                                                          |  |
|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|--|
| Valve attachment                                   | Dimensions according to EN ISO 5211: The maximum torques of mounting flanges according to EN ISO 5211 are to be met. |                                                                                                                                          |  |
|                                                    | Standard:                                                                                                            | <ul style="list-style-type: none"> <li>With spigot</li> </ul>                                                                            |  |
| Splined coupling for connection to the valve shaft | Standard:                                                                                                            | <ul style="list-style-type: none"> <li>With pilot bore</li> <li>Worm gearbox can be mounted at 4 x 90° increments on coupling</li> </ul> |  |
|                                                    | Options:                                                                                                             | Finish machining with bore and keyway, square bore or two-flat with grub screw for secure fixing to valve shaft.                         |  |

## Limit sensing for signalling position and end positions

|                           |                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valve position indicators | <ul style="list-style-type: none"> <li>WSG valve position indicator (hall sensors) for position and end position signalling to ensure precise and low-backlash feedback for swing angles ranging between 82° and 98°.</li> <li>WGD valve position indicator (counter gear mechanism) for position and end position signalling for swing angles &gt; 180°</li> </ul> |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Service conditions

|                                            |                  |                                                                                                                              |                                                                                                             |        |        |
|--------------------------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|--------|--------|
| Mounting position                          | Any position     |                                                                                                                              |                                                                                                             |        |        |
| Ambient temperature                        | Standard:        | –40 °C to +80 °C                                                                                                             |                                                                                                             |        |        |
|                                            | Options:         | –60 °C to +60 °C<br>0 °C to +120 °C                                                                                          |                                                                                                             |        |        |
| Enclosure protection according to EN 60529 | Standard:        | IP68, dust-tight and water-tight up to max. 8 m head of water                                                                |                                                                                                             |        |        |
|                                            | Options:         | IP68-20, dust-tight and water-tight up to max. 20 m head of water                                                            |                                                                                                             |        |        |
| Corrosion protection                       | Standard:        | KN                                                                                                                           | Suitable for installation in industrial units, in water or power plants with a low pollutant concentration. |        |        |
|                                            | Options:         | KS                                                                                                                           | Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.            |        |        |
|                                            |                  | KX                                                                                                                           | Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.         |        |        |
| Paint                                      | Standard:        | Primer coated                                                                                                                |                                                                                                             |        |        |
|                                            | Option:          | Two-component iron-mica combination                                                                                          |                                                                                                             |        |        |
| Colour                                     | Standard:        | AUMA silver-grey (similar to RAL 7037)                                                                                       |                                                                                                             |        |        |
|                                            | Option:          | Available colours on request                                                                                                 |                                                                                                             |        |        |
| Lifetime                                   | Open-close duty: | Lifetime for 90° rotary movement                                                                                             |                                                                                                             |        |        |
|                                            |                  | Type                                                                                                                         | GS 315                                                                                                      | GS 400 | GS 500 |
|                                            |                  | Number of cycles for max. torque                                                                                             | 2,500                                                                                                       | 1,200  | 1,200  |
|                                            |                  | AUMA worm gearboxes meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request. |                                                                                                             |        |        |
|                                            | Modulating duty: | 2.5 million modulating steps                                                                                                 |                                                                                                             |        |        |

## Technical data Part-turn gearboxes for modulating duty and short operating times

## Special features for use in potentially explosive atmospheres in accordance with ATEX 2014/34/EU

|                                                         |                                                    |                                                                         |
|---------------------------------------------------------|----------------------------------------------------|-------------------------------------------------------------------------|
| Explosion protection in accordance with ATEX 2014/34/EU | Standard:                                          | II 2G Ex h IIC T4 Gb<br>II 2D Ex h IIIC T130°C Db                       |
|                                                         | Options:                                           | II 2G Ex h IIC T3 Gb<br>II 2D Ex h IIIC T190°C Db<br>I M2 Ex h I Mb     |
| Applied standards                                       | EN ISO 80079-36:2016-12<br>EN ISO 80079-37:2016-12 |                                                                         |
| Type of duty                                            | Standard:                                          | Intermittent duty S4 – 25 % with modulating torque and max. input speed |
| Ambient temperature                                     | Standard:                                          | –40 °C to +60 °C                                                        |
|                                                         | Options:                                           | 0 °C to +60 °C<br>–60 °C to +120 °C                                     |

## Further information

|               |                                   |
|---------------|-----------------------------------|
| EU Directives | Machinery Directive: (2006/42/EC) |
|---------------|-----------------------------------|

## Technical data Part-turn gearboxes for open-close duty

## General information

For motor or manual operation of valves (e.g. butterfly valves, ball and plug valves). Specific sizing is required for special applications e.g. dampers or gas diverters. For special applications, please consult AUMA.

| Valve             |                  |                          | Gearbox                      |                      |               |             |                    |                      |
|-------------------|------------------|--------------------------|------------------------------|----------------------|---------------|-------------|--------------------|----------------------|
| Max. valve torque | Valve attachment |                          | Gearbox/prim. red gearing    | Factor <sup>1)</sup> | Turns for 90° | Input shaft | Max. Input torques | Weight <sup>2)</sup> |
| to [Nm]           | Flange           | Max. shaft diameter [mm] |                              |                      |               | [mm]        | [Nm]               | GS + GZ [t]          |
| 480,000           | F90/AUMA         | 400                      | GS 630.3                     | 19.8                 | 13            | 120         | 24,242             | 4.8                  |
|                   |                  |                          | GS 630.3<br>GZ 630.3 – 4:1   | 71.9                 | 52.5          | 80          | 6,676              | 5.3                  |
|                   |                  |                          | GS 630.3<br>GZ 630.3 – 8:1   | 145.5                | 106.3         | 60          | 3,299              |                      |
|                   |                  |                          | GS 630.3<br>GZ 630.3 – 16:1  | 261.2                | 212           | 50          | 1,838              | 5.5                  |
|                   |                  |                          | GS 630.3<br>GZ 630.3 – 32:1  | 528.8                | 429.5         | 40          | 908                |                      |
|                   |                  |                          | GS 630.3<br>GZ 630.3 – 64:1  | 951.2                | 857.3         | 40          | 505                | 5.6                  |
|                   |                  |                          | GS 630.3<br>GZ 630.3 – 133:1 | 1,924.9              | 1,734.8       | 30          | 249                |                      |
| 675,000           | F90/AUMA         | 400                      | GS 630.3                     | 19.8                 | 13            | 120         | 34,160             | 4.8                  |
|                   |                  |                          | GS 630.3<br>GZ 630.3 – 4:1   | 71.9                 | 52.5          | 100         | 9,395              | 5.3                  |
|                   |                  |                          | GS 630.3<br>GZ 630.3 – 8:1   | 145.5                | 106.3         | 80          | 4,640              |                      |
|                   |                  |                          | GS 630.3<br>GZ 630.3 – 16:1  | 261.2                | 212           | 60          | 2,585              | 5.5                  |
|                   |                  |                          | GS 630.3<br>GZ 630.3 – 32:1  | 528.8                | 429.5         | 50          | 1,275              |                      |
|                   |                  |                          | GS 630.3<br>GZ 630.3 – 64:1  | 951.2                | 857.3         | 40          | 710                | 5.6                  |
|                   |                  |                          | GS 630.3<br>GZ 630.3 – 133:1 | 1,924.9              | 1,734.8       | 40          | 350                |                      |

- 1) Conversion factor from output torque to input torque for actuator size definition For new gearboxes, input torques increased by 15 % are required due to lower efficiency.
- 2) Specified weight includes coupling (with pilot bore) and grease filling in the gear housing.

|                                           |                 | Possible combinations with multi-turn actuators                                               |     |     |     |     |     |     |     |                     |                     |                   |                   | Multi-turn actuator            | Input mounting flange for mounting multi-turn actuator | Permissible actuator weight |
|-------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|---------------------|---------------------|-------------------|-------------------|--------------------------------|--------------------------------------------------------|-----------------------------|
| Gearbox/primary reduction gearing         | Reduction ratio | Operating time for 50 Hz <sup>1)</sup> in seconds at 90° for multi-turn actuator speed in rpm |     |     |     |     |     |     |     |                     |                     |                   |                   | Actuator for max. input torque | EN 5210                                                | [kg]                        |
|                                           |                 | 4                                                                                             | 5.6 | 8   | 11  | 16  | 22  | 32  | 45  | 63                  | 90                  | 125               | 180               |                                |                                                        |                             |
| GS 630.3                                  | 52:1            | 195                                                                                           | 139 | 98  | 71  | 49  | –   | –   | –   | –                   | –                   | –                 | –                 | SA 48.1                        | F48                                                    | 1,400                       |
| GS 630.3<br>GZ 630.3 – 4:1                | 210:1           | 788                                                                                           | 563 | 394 | 286 | 197 | 143 | 98  | 70  | –                   | –                   | –                 | –                 | SA 35.1                        | F35                                                    | 800                         |
| GS 630.3<br>GZ 630.3 – 8:1                | 425:1           | –                                                                                             | –   | 797 | 580 | 398 | 290 | 199 | 142 | 101                 | 71                  | –                 | –                 | SA 30.1                        | F30                                                    | 400                         |
| GS 630.3<br>GZ 630.3 – 16:1               | 848:1           | –                                                                                             | –   | –   | –   | –   | –   | 398 | 283 | 202                 | 141                 | –                 | –                 | SA 25.1                        | F25                                                    | 340                         |
| GS 630.3<br>GZ 630.3 – 32:1 <sup>2)</sup> | 1,718:1         | –                                                                                             | –   | –   | –   | –   | –   | –   | 573 | 409                 | 286                 | 206 <sup>3)</sup> | 143 <sup>3)</sup> | SA 16.2                        | F16                                                    | 160                         |
| GS 630.3<br>GZ 630.3 – 64:1               | 3,429:1         | –                                                                                             | –   | –   | –   | –   | –   | –   | –   | 816                 | 572                 | 411               | 286               | SA 16.2                        | F16                                                    | 160                         |
| GS 630.3<br>GZ 630.3 – 133:1              | 6,939:1         | –                                                                                             | –   | –   | –   | –   | –   | –   | –   | 1,652 <sup>4)</sup> | 1,157 <sup>4)</sup> | 833               | 578               | SA 14.6                        | F14                                                    | 100                         |
| GS 630.3                                  | 52:1            | 195                                                                                           | 139 | 98  | 71  | 49  | –   | –   | –   | –                   | –                   | –                 | –                 | SA 48.1 <sup>3)</sup>          | F48                                                    | 1,400                       |
| GS 630.3<br>GZ 630.3 – 4:1 <sup>2)</sup>  | 210:1           | 788                                                                                           | 563 | 394 | 286 | 197 | 143 | 98  | –   | –                   | –                   | –                 | –                 | SA 40.1                        | F40                                                    | 1,000                       |
| GS 630.3<br>GZ 630.3 – 8:1                | 425:1           | –                                                                                             | –   | 797 | 580 | 398 | 290 | 199 | 142 | –                   | –                   | –                 | –                 | SA 35.1                        | F35                                                    | 800                         |
| GS 630.3<br>GZ 630.3 – 16:1               | 848:1           | –                                                                                             | –   | –   | –   | 793 | 578 | 398 | 283 | 202                 | 141                 | –                 | –                 | SA 30.1                        | F30                                                    | 400                         |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document. For further information on the product, refer to [www.auma.com](http://www.auma.com).

## Technical data Part-turn gearboxes for open-close duty

|                                   |                 | Possible combinations with multi-turn actuators                                               |     |   |    |    |    |     |     |                     |                     |     |     | Multi-turn actuator            | Input mounting flange for mounting multi-turn actuator | Permissible actuator weight |
|-----------------------------------|-----------------|-----------------------------------------------------------------------------------------------|-----|---|----|----|----|-----|-----|---------------------|---------------------|-----|-----|--------------------------------|--------------------------------------------------------|-----------------------------|
| Gearbox/primary reduction gearing | Reduction ratio | Operating time for 50 Hz <sup>1)</sup> in seconds at 90° for multi-turn actuator speed in rpm |     |   |    |    |    |     |     |                     |                     |     |     | Actuator for max. input torque | EN 5210                                                | [kg]                        |
|                                   |                 | 4                                                                                             | 5.6 | 8 | 11 | 16 | 22 | 32  | 45  | 63                  | 90                  | 125 | 180 |                                |                                                        |                             |
| GS 630.3<br>GZ 630.3 – 32:1       | 1,718:1         | –                                                                                             | –   | – | –  | –  | –  | 805 | 573 | 409                 | 286                 | –   | –   | SA 25.1                        | F25                                                    | 340                         |
| GS 630.3<br>GZ 630.3 – 64:1       | 3,429:1         | –                                                                                             | –   | – | –  | –  | –  | –   | –   | 816                 | 572                 | 411 | 286 | SA 16.2                        | F16                                                    | 160                         |
| GS 630.3<br>GZ 630.3 – 133:1      | 6,939:1         | –                                                                                             | –   | – | –  | –  | –  | –   | –   | 1,652 <sup>4)</sup> | 1,157 <sup>4)</sup> | 833 | 578 | SA 16.2                        | F16                                                    | 160                         |

1) Standard values at 50 Hz; at 60 Hz, the indicated operating time is reduced by 17 %.

2) On request

3) Maximum output torque cannot be reached.

4) Motor for S2 – 30 min.

## Features and functions

|                               |                                                                                                                                                                                                                                              |                                                                                                                                                                                                                            |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Worm wheel material           | Bronze                                                                                                                                                                                                                                       |                                                                                                                                                                                                                            |
| Version                       | Standard:                                                                                                                                                                                                                                    | Clockwise rotation RR, counterclockwise rotation LL                                                                                                                                                                        |
|                               | Option:                                                                                                                                                                                                                                      | RL or LR                                                                                                                                                                                                                   |
| Housing material              | Cast iron (GJL-250)                                                                                                                                                                                                                          |                                                                                                                                                                                                                            |
| Self-locking                  | The gearboxes are self-locking when at standstill under normal service conditions; strong vibration may cancel the self-locking effect. While in motion, safe braking is not guaranteed. If this is required, a separate brake must be used. |                                                                                                                                                                                                                            |
| End stops                     | Positive for both end positions by travelling nut, sensitive adjustment.                                                                                                                                                                     |                                                                                                                                                                                                                            |
| Swing angle                   | Adjustable 80° – 100°; set in the factory to 92° unless ordered otherwise.                                                                                                                                                                   |                                                                                                                                                                                                                            |
| Mechanical position indicator | Standard:                                                                                                                                                                                                                                    | Pointer cover with sealing for continuous position indication.<br>For gas applications with sealed pointer cover, an air vent valve in the pointer cover or venting keyways in the valve mounting flange must be provided. |
|                               | Option:                                                                                                                                                                                                                                      | Protection cover instead of pointer cover for buried service.                                                                                                                                                              |
| Input shaft                   | Cylindrical with parallel key according to DIN 6885-1 (refer to table on page 1).                                                                                                                                                            |                                                                                                                                                                                                                            |

## Operation

|                  |                                                                                                                                                                              |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Motor operation  | <ul style="list-style-type: none"> <li>Via electric multi-turn actuator</li> <li>Input mounting flanges for multi-turn actuator (refer to table on pages 1 and 2)</li> </ul> |
| Type of duty     | Short-time duty S2 - 15 min or S2 - 30 min (open-close duty).                                                                                                                |
| Manual operation | Via handwheel with GZ primary reduction gearing.<br>Possible handwheel diameters, selection in compliance with the required input torque up to 400 Nm.                       |

## Primary reduction gearing

|                           |                                                                                                             |
|---------------------------|-------------------------------------------------------------------------------------------------------------|
| Primary reduction gearing | Type GZ as planetary gearing with various reduction ratios for reducing the input torques (refer to table). |
|---------------------------|-------------------------------------------------------------------------------------------------------------|

## Valve attachment

|                                                    |           |                                                                                                                     |
|----------------------------------------------------|-----------|---------------------------------------------------------------------------------------------------------------------|
| Valve attachment                                   | Standard: | F90/AUMA with spigot, dimension drawing U3.2592<br>Dimensions not within specifications according to EN ISO 5211    |
|                                                    | Option:   | F90/AUMA-plane without spigot<br>Dimensions not within specifications according to EN ISO 5211                      |
| Splined coupling for connection to the valve shaft | Standard: | <ul style="list-style-type: none"> <li>With pilot bore 100 mm</li> </ul>                                            |
|                                                    | Option:   | <ul style="list-style-type: none"> <li>Finish machining with bore and keyway, bore diameter max. 400 mm.</li> </ul> |

## Technical data Part-turn gearboxes for open-close duty

| Service conditions                         |              |                                                                                                                |
|--------------------------------------------|--------------|----------------------------------------------------------------------------------------------------------------|
| Mounting position                          | Any position |                                                                                                                |
| Ambient temperature                        | Standard:    | −40 °C to +80 °C                                                                                               |
|                                            | Option:      | 0 °C to +120 °C                                                                                                |
| Enclosure protection according to EN 60529 | Standard:    | IP68-3, dust-tight and water-tight up to max. 3 m head of water                                                |
|                                            | Option:      | IP68-6, dust-tight and water-tight up to max. 6 m head of water                                                |
| Corrosion protection                       | Standard:    | KN Suitable for installation in industrial units, in water or power plants with a low pollutant concentration. |
|                                            | Options:     | KS Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.            |
|                                            | KX           | Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.            |
| Paint                                      | Standard:    | Primer coated                                                                                                  |
|                                            | Option:      | Two-component iron-mica combination                                                                            |
| Colour                                     | Standard:    | AUMA silver-grey (similar to RAL 7037)                                                                         |
|                                            | Option:      | Other colours available on request.                                                                            |

## Special features for use in potentially explosive atmospheres in accordance with ATEX 2014/34/EU

|                                                         |                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Explosion protection in accordance with ATEX 2014/34/EU | Standard:                                                                                                                                                                            | II 2G Ex h IIC T4 Gb<br>II 2D Ex h IIIC T130°C Db                                                                                                                                                                                                                                    |
|                                                         | Option:                                                                                                                                                                              | II 2G Ex h IIC T3 Gb<br>II 2D Ex h IIIC T190°C Db<br>I M2 Ex h I Mb                                                                                                                                                                                                                  |
| Ambient temperature                                     | Standard:                                                                                                                                                                            | −40 °C to +40 °C (II 2G Ex h IIC T4 Gb; II 2D Ex h IIIC T130°C Db)<br>−40 °C to +60 °C (II 2G Ex h IIC T4 Gb; II 2D Ex h IIIC T130°C Db)<br>−50 °C to +60 °C (II 2G Ex h IIC T4 Gb; II 2D Ex h IIIC T130°C Db)<br>−60 °C to +60 °C (II 2G Ex h IIC T4 Gb; II 2D Ex h IIIC T130°C Db) |
|                                                         | Option:                                                                                                                                                                              | −40 °C to +80 °C (II 2G Ex h IIC T3 Gb; II 2D Ex h IIIC T190°C Db)<br>0 °C to +120 °C (II 2G Ex h IIC T3 Gb; II 2D Ex h IIIC T190°C Db)<br>−20 °C to +40 °C (I M2 Ex h I Mb)                                                                                                         |
| Type of duty                                            | Maximum 3 cycles (OPEN - CLOSE - OPEN) in accordance with AUMA load spectrum (90° part-turn movement) and maximum permissible input speeds, or with mean constant output 480,000 Nm. |                                                                                                                                                                                                                                                                                      |
| Output speeds                                           | Standard:                                                                                                                                                                            | 50 Hz, refer to table page 1                                                                                                                                                                                                                                                         |
|                                                         | Option:                                                                                                                                                                              | 60 Hz with respective output speed of multi-turn actuator                                                                                                                                                                                                                            |

## Further information

|               |                                   |
|---------------|-----------------------------------|
| EU Directives | Machinery Directive: (2006/42/EC) |
|---------------|-----------------------------------|

## Technical data Part-turn gearboxes

### General information

Part-turn gearboxes are suitable for manual and motor operation of industrial valves.

GQB part-turn gearboxes are not suitable for:

- Hydraulic steel structures & hydropower
- Nuclear applications
- Buried service
- Automation of special valves (e.g. louvre dampers, stack dampers, diverters with toggle arm, guillotine isolators)

| Valve              |                                 | Gearbox   |                 |                      |               |                    |                                               |             |           |                   |                  |                      |
|--------------------|---------------------------------|-----------|-----------------|----------------------|---------------|--------------------|-----------------------------------------------|-------------|-----------|-------------------|------------------|----------------------|
| Max. output torque | Valve attachment                | Type      | Reduction ratio | Factor <sup>1)</sup> | Turns for 90° | Max. input torques | Input mounting flange for multi-turn actuator | Input shaft | Handwheel | Max. Manual force | Max. Input speed | Weight <sup>2)</sup> |
| to [Nm]            | Flange according to EN ISO 5211 |           |                 |                      |               | [Nm]               |                                               | Ø [mm]      | Ø [mm]    | [N]               | [rpm]            | approx. [kg]         |
| 3,000              | F12, F14, F16                   | GQB 80.1  | 54:1            | 16.7                 | 14            | 180                | Without F10                                   | 20          | 400       | 926               | 54               | 15                   |
|                    |                                 |           | 225:1           | 64.2                 | 56            | 47                 | F07                                           | 16          | 200       | 483               | 216              | 15                   |
| 6,000              | F14, F16, F25                   | GQB 100.1 | 52:1            | 17.2                 | 13            | 349                | Without F10                                   | 30          | 800       | 874               | 54               | 26                   |
|                    |                                 |           | 217:1           | 65.8                 | 54            | 92                 | F10                                           | 20          | 250       | 752               | 216              | 27                   |
|                    |                                 |           | 903:1           | 245.6                | 226           | 25                 | F07                                           | 16          | 125       | 417               | 216              | 28                   |
| 12,000             | F16, F25, F30                   | GQB 125.1 | 217:1           | 69.8                 | 54            | 172                | F14                                           | 30          | 400       | 860               | 216              | 48                   |
|                    |                                 |           | 628:1           | 181.5                | 157           | 67                 | F10                                           | 20          | 200       | 681               | 216              | 49                   |
|                    |                                 |           | 903:1           | 253.3                | 226           | 48                 | F07                                           | 16          | 200       | 489               | 216              | 47                   |
|                    |                                 |           |                 |                      |               |                    | F10                                           | 20          | 200       | 489               | 216              |                      |
| 21,000             | F25, F30, F35                   | GQB 160.1 | 218:1           | 72.2                 | 55            | 291                | F14                                           | 30          | 630       | 852               | 216              | 72                   |
|                    |                                 |           | 563:1           | 175.0                | 141           | 120                | F10                                           | 20          | 315       | 754               | 216              |                      |
|                    |                                 |           | 880:1           | 254.5                | 220           | 83                 | F10                                           | 20          | 250       | 624               | 216              | 75                   |
|                    |                                 |           | 1,784:1         | 500.4                | 446           | 42                 | F10                                           | 20          | 160       | 509               | 216              | 75                   |
|                    |                                 |           | 42,000          | F30, F35, F40        | GQB 200.1     | 214:1              | 72.9                                          | 54          | 577       | F16               | 40               | –                    |
| 552:1              | 169.0                           | 138       |                 |                      |               | 249                | F14                                           | 30          | 500       | 918               | 216              | 129                  |
| 864:1              | 257.1                           | 216       |                 |                      |               | 164                | F14                                           | 30          | 400       | 752               | 216              | 129                  |
| 1,751:1            | 506.1                           | 438       |                 |                      |               | 83                 | F10                                           | 20          | 400       | 752               | 216              |                      |
| 84,000             | F35, F40, F48                   | GQB 250.1 |                 |                      |               | 214:1              | 74.8                                          | 54          | 1 123     | F25               | 50               | –                    |
|                    |                                 |           | F16             | 40                   | –             |                    |                                               |             |           | –                 | 216              |                      |
|                    |                                 |           | F14             | 30                   | –             |                    |                                               |             |           | –                 | 216              |                      |
|                    |                                 |           | 552:1           | 173.7                | 138           | 484                | F14                                           | 30          | 800       | 1,120             | 216              | 252                  |
|                    |                                 |           | 864:1           | 264.4                | 216           | 318                | F14                                           | 30          | 630       | 931               | 216              | 252                  |
|                    |                                 |           | 1,751:1         | 520.9                | 438           | 162                | F14                                           | 30          | 400       | 763               | 216              | 252                  |
| F10                | 20                              | 400       | 763             | 216                  |               |                    |                                               |             |           |                   |                  |                      |

- 1) Conversion factor from output torque to input torque for actuator size definition When new, the factor can fall short of the indicated value by up to 15 %.
- 2) Specified weight includes coupling (without bore) and grease filling in the gear housing.

### Additional information on weight:

For an additional extension flange, the weight adds up as follows:

| Type                   | GQB 80.1 |     | GQB 100.1 |     | GQB 125.1 |     | GQB 160.1 |     | GQB 200.1 |     | GQB 250.1 |     |
|------------------------|----------|-----|-----------|-----|-----------|-----|-----------|-----|-----------|-----|-----------|-----|
| Extension flange       | F14      | F16 | F25       | F25 | F25       | F30 | F30       | F35 | F35       | F40 | F40       | F48 |
| Additional weight [kg] | 0.3      | 3   | 0.1       | 4   | 4         | 7   | 3         | 15  | 6         | 17  | 7         | 20  |



## Technical data Part-turn gearboxes

| Features and functions |                                                                                                                                                                                                                                              |                                                                                                       |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| Type of duty           | Class A according to EN 15714-2: OPEN-CLOSE                                                                                                                                                                                                  |                                                                                                       |
| Weatherproof version   | Class B according to EN 15714-2: Inching/positioning or positioning duty                                                                                                                                                                     |                                                                                                       |
| End stops              | End positions OPEN and CLOSED can be set individually.                                                                                                                                                                                       |                                                                                                       |
| Swing angle            | 90° ± 5°                                                                                                                                                                                                                                     |                                                                                                       |
| Direction of rotation  | Standard:                                                                                                                                                                                                                                    | Suitable for clockwise closing valves                                                                 |
|                        | Option:                                                                                                                                                                                                                                      | Suitable for counterclockwise closing valves                                                          |
| Lifetime               | GQB 80.1 – GQB 125.1                                                                                                                                                                                                                         | Lifetime according to EN 15714-2 and ISO/DIS 22109 when assuming a valve torque safety factor of 1.5. |
|                        | GQB 160.1 – GQB 250.1                                                                                                                                                                                                                        | Lifetime according to EN 15714-2 and ISO/DIS 22109 when assuming a valve torque safety factor of 1.2. |
| Worm wheel material    | Spheroidal cast iron (EN-GJS)                                                                                                                                                                                                                |                                                                                                       |
| Housing material       | Cast iron (EN-GJL)                                                                                                                                                                                                                           |                                                                                                       |
| Self-locking           | The gearboxes are self-locking when at standstill under normal service conditions; strong vibration may cancel the self-locking effect. While in motion, safe braking is not guaranteed. If this is required, a separate brake must be used. |                                                                                                       |
| Static safety factor   | <ul style="list-style-type: none"> <li>Sized with double safety, in relation to maximum torques</li> <li>With overload protection to prevent housing damage</li> </ul>                                                                       |                                                                                                       |

## Interface to multi-turn actuator or operator

|                     |                                                                       |                                                                                                                                                                                           |
|---------------------|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input shaft         | Standard:                                                             | Corrosion-protected, cylindrical with parallel key according to DIN 6885-1                                                                                                                |
|                     | Option:                                                               | Cylindrical with parallel key according to DIN 6885-1 with square adapter for power tool emergency operation                                                                              |
| Flange for actuator | In accordance with EN ISO 5210                                        |                                                                                                                                                                                           |
| Manual operation    | Standard:                                                             | <ul style="list-style-type: none"> <li>Handwheel made of aluminium with electrophoretic coating</li> <li>Handwheel with ball handle</li> </ul>                                            |
|                     | Options:                                                              | <ul style="list-style-type: none"> <li>Handwheel made of GJL-200 with electrophoretic coating and painting</li> <li>Handwheel lockable</li> <li>Handwheel extension on request</li> </ul> |
| Position indicator  | Mechanical position indication proportional to travel (pointer cover) |                                                                                                                                                                                           |

## Interface to the valve

|                           |                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Output drive flange       | Dimensions according to EN ISO 5211 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Connection to valve shaft | Standard:                           | Plug-in unmachined output drive sleeve with splines                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                           | Options:                            | <ul style="list-style-type: none"> <li>Plug-in finish-machined coupling with splines and bore with keyway, square bore or two-flat with grub screw for secure fixing to valve shaft.</li> <li>Plug-in finish-machined coupling with splines and bore with keyway, square bore or coated two-flat with grub screw for secure fixing to valve shaft.</li> <li>Integral coupling for adopting enlarged valve shaft diameter with 4 keyways according to DIN 6885 (not available for GQB 80.1 - GQB 100.1)</li> </ul> |
| Spigot                    | Standard:                           | <ul style="list-style-type: none"> <li>GQB 80.1 – GQB 125.1: Plane (recess) according to EN ISO 5211</li> <li>GQB 160.1 – GQB 250.1: Spigot according to EN ISO 5211 (integrated into the housing)</li> </ul>                                                                                                                                                                                                                                                                                                     |
|                           | Options:                            | <ul style="list-style-type: none"> <li>4 bores for dowel pin</li> <li>GQB 80.1 – GQB 125.1: With spigot according to EN ISO 5211</li> <li>GQB 160.1 – GQB 250.1: Plane</li> </ul>                                                                                                                                                                                                                                                                                                                                 |

## Service conditions

|                                                 |                                    |                                       |
|-------------------------------------------------|------------------------------------|---------------------------------------|
| Use                                             | Indoor and outdoor use permissible |                                       |
| Ambient temperature                             | Standard:                          | –40 °C to +100 °C                     |
|                                                 | Option:                            | Further temperature ranges on request |
| Humidity                                        | Up to 100 % relative humidity      |                                       |
| Vibration resistance according to IEC 60068-2-6 | 1g, 5 to 200 Hz or on request      |                                       |

## Technical data Part-turn gearboxes

| Service conditions                         |                                                                                                                                                           |                                                                                                             |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Enclosure protection according to EN 60529 | IP67                                                                                                                                                      |                                                                                                             |
| Corrosion protection                       | KN                                                                                                                                                        | Suitable for installation in industrial units, in water or power plants with a low pollutant concentration. |
|                                            | KS                                                                                                                                                        | Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.            |
| Coating                                    | Double layer powder coating                                                                                                                               |                                                                                                             |
| Colour                                     | Standard:                                                                                                                                                 | AUMA silver-grey (similar to RAL 7037)                                                                      |
|                                            | Option:                                                                                                                                                   | Available colours on request                                                                                |
| Further information                        |                                                                                                                                                           |                                                                                                             |
| EU Directives                              | Machinery Directive 2006/42/EC                                                                                                                            |                                                                                                             |
| Reference documents                        | Dimensions GQB 80.1 – GQB 125.1<br>Dimensions GQB 160.1 – GQB 250.1<br>Dimensions Extensions for input shaft<br>Mounting position – Mounting of actuators |                                                                                                             |

**GQB 80.1 – GQB 250.1**  
**Explosion-proof version**  
**Technical data Part-turn gearboxes**

| Valve              |                                 | Gearbox          |                 |                      |               |                   |                                               |               |             |                                 |                      |
|--------------------|---------------------------------|------------------|-----------------|----------------------|---------------|-------------------|-----------------------------------------------|---------------|-------------|---------------------------------|----------------------|
| Max. output torque | Valve attachment                | Type             | Reduction ratio | Factor <sup>1)</sup> | Turns for 90° | Max. input torque | Input mounting flange for multi-turn actuator | Input shaft Ø | Handwheel Ø | Max. manual force at hand-wheel | Weight <sup>2)</sup> |
| to [Nm]            | Flange according to EN ISO 5211 |                  |                 |                      |               | [Nm]              |                                               | [mm]          | [mm]        | [N]                             | approx. [kg]         |
| 2,150              | F12/F14/F16                     | <b>GQB 80.1</b>  | 54:1            | 16.7                 | 14            | 128               | Without                                       | 20            | 400         | 642                             | 15                   |
|                    |                                 |                  | 225:1           | 64.2                 | 56            | 34                | F10                                           | 20            | 400         | 642                             |                      |
|                    |                                 |                  | 52:1            | 17.2                 | 13            | 248               | F07                                           | 16            | 200         | 335                             |                      |
| 4,250              | F14/F16/F25                     | <b>GQB 100.1</b> | 217:1           | 65.8                 | 54            | 65                | Without                                       | 30            | 800         | 619                             | 26                   |
|                    |                                 |                  | 903:1           | 245.6                | 226           | 17                | F10                                           | 20            | 250         | 517                             | 27                   |
|                    |                                 |                  |                 |                      |               |                   | F07                                           | 16            | 125         | 277                             | 28                   |
| 8,500              | F16/F25/F30                     | <b>GQB 125.1</b> |                 |                      |               |                   | F10                                           | 20            | 125         | 277                             |                      |
|                    |                                 |                  | 217:1           | 69.8                 | 54            | 122               | F14                                           | 30            | 400         | 609                             |                      |
|                    |                                 |                  | 628:1           | 181.5                | 157           | 47                | F10                                           | 20            | 400         | 609                             | 48                   |
|                    |                                 |                  |                 |                      |               |                   | F07                                           | 16            | 200         | 468                             | 49                   |
|                    |                                 |                  | 903:1           | 253.3                | 226           | 34                | F10                                           | 20            | 200         | 336                             |                      |
| 17,500             | F25/F30/F35                     | <b>GQB 160.1</b> |                 |                      |               |                   | F14                                           | 20            | 200         | 336                             |                      |
|                    |                                 |                  | 218:1           | 72.2                 | 55            | 242               | F10                                           | 30            | 630         | 769                             | 72                   |
|                    |                                 |                  | 563:1           | 175.0                | 141           | 100               | F10                                           | 20            | 630         | 769                             |                      |
|                    |                                 |                  | 880:1           | 254.5                | 220           | 69                | F10                                           | 20            | 315         | 635                             | 75                   |
|                    |                                 |                  | 1,784:1         | 500.4                | 446           | 35                | F10                                           | 20            | 250         | 550                             |                      |
| 35,000             | F30/F35/F40                     | <b>GQB 200.1</b> |                 |                      |               |                   | F10                                           | 20            | 160         | 437                             | 124                  |
|                    |                                 |                  | 214:1           | 72.9                 | 54            | 480               | F16                                           | 40            | –           | –                               |                      |
|                    |                                 |                  | 552:1           | 169.0                | 138           | 207               | F14                                           | 30            | –           | –                               |                      |
|                    |                                 |                  | 864:1           | 257.1                | 216           | 136               | F14                                           | 30            | 500         | 829                             | 129                  |
|                    |                                 |                  | 1,751:1         | 506.1                | 438           | 69                | F14                                           | 30            | 400         | 681                             |                      |
| 70,000             | F35/F40/F48                     | <b>GQB 250.1</b> |                 |                      |               |                   | F10                                           | 20            | 400         | 681                             | 127                  |
|                    |                                 |                  |                 |                      |               |                   | F16                                           | 20            | 250         | 553                             |                      |
|                    |                                 |                  | 214:1           | 74.8                 | 54            | 936               | F14                                           | 30            | 400         | 672                             | 240                  |
|                    |                                 |                  | 552:1           | 173.7                | 138           | 403               | F14                                           | 40            | –           | –                               |                      |
|                    |                                 |                  | 864:1           | 264.4                | 216           | 265               | F14                                           | 30            | –           | –                               | 252                  |
|                    |                                 |                  | 1,751:1         | 520.9                | 438           | 134               | F14                                           | 30            | 630         | 840                             |                      |
|                    |                                 |                  |                 |                      |               |                   | F10                                           | 30            | 400         | 672                             |                      |
|                    |                                 |                  |                 |                      |               |                   | F10                                           | 20            | 400         | 672                             |                      |

- 1) Conversion factor of output torque to input torque for actuator size definition. When new, the factor can fall short of the indicated value by up to 15 %.  
2) Specified weight includes coupling (without bore) and grease filling in the gear housing

| Max. permissible ambient temperatures and input speeds |           |                 |                                                          |      |    |       |       |       |       |
|--------------------------------------------------------|-----------|-----------------|----------------------------------------------------------|------|----|-------|-------|-------|-------|
| Valve                                                  | Gearbox   |                 |                                                          |      |    |       |       |       |       |
| Max. output torque                                     | Type      | Reduction ratio | Max. input speed [rpm] / Max. ambient temperature for T3 |      |    |       |       |       |       |
| to [Nm]                                                |           |                 | 26.4                                                     | 38.4 | 54 | 75.6  | 108   | 150   | 216   |
| 2,150                                                  | GQB 80.1  | 54:1            | 80 °C                                                    |      |    | —     |       |       |       |
|                                                        |           | 225:1           | 80 °C                                                    |      |    | —     |       |       |       |
| 1800                                                   |           | 54:1            | 80 °C                                                    |      |    | —     |       |       |       |
|                                                        |           | 225:1           | 80 °C                                                    |      |    | —     |       |       |       |
| 4,250                                                  | GQB 100.1 | 52:1            | 80 °C                                                    |      |    | —     |       |       |       |
|                                                        |           | 217:1           | 80 °C                                                    |      |    | —     |       |       |       |
| 3500                                                   |           | 903:1           | 80 °C                                                    |      |    | —     |       |       |       |
|                                                        |           | 52:1            | 80 °C                                                    |      |    | —     |       |       |       |
|                                                        | 217:1     | 80 °C           |                                                          |      | —  |       |       |       |       |
|                                                        | 903:1     | 80 °C           |                                                          |      | —  |       |       |       |       |
| 8,500                                                  | GQB 125.1 | 217:1           | 80 °C                                                    |      |    |       | 70 °C | 65 °C | 40 °C |
|                                                        |           | 628:1           | 80 °C                                                    |      |    |       | 80 °C |       |       |
| 7,000                                                  |           | 903:1           | 80 °C                                                    |      |    |       | 80 °C |       |       |
|                                                        |           | 217:1           | 80 °C                                                    |      |    |       |       | 70 °C | 65 °C |
|                                                        | 628:1     | 80 °C           |                                                          |      |    | 80 °C |       |       |       |
|                                                        |           | 903:1           | 80 °C                                                    |      |    |       | 80 °C |       |       |

**Max. permissible ambient temperatures and input speeds**

| Valve              | Gearbox   |                 |                                                          |       |       |       |       |       |       |
|--------------------|-----------|-----------------|----------------------------------------------------------|-------|-------|-------|-------|-------|-------|
| Max. output torque | Type      | Reduction ratio | Max. input speed [rpm] / Max. ambient temperature for T3 |       |       |       |       |       |       |
| to [Nm]            |           |                 | 26.4                                                     | 38.4  | 54    | 75.6  | 108   | 150   | 216   |
| 17,500             | GQB 160.1 | 218:1           | 80 °C                                                    | 70 °C | 65 °C | 40 °C | 40 °C | —     |       |
|                    |           | 563:1           | 80 °C                                                    |       |       |       | 70 °C | 40 °C |       |
|                    |           | 880:1           | 80 °C                                                    |       |       |       |       | 70 °C | 65 °C |
|                    |           | 1,784:1         | 80 °C                                                    |       |       |       |       |       |       |
| 14,000             |           | 218:1           | 80 °C                                                    |       | 70 °C | 65 °C | 40 °C | —     |       |
|                    |           | 563:1           | 80 °C                                                    |       |       |       |       | 70 °C | 65 °C |
|                    |           | 880:1           | 80 °C                                                    |       |       |       |       |       | 70 °C |
|                    |           | 1,784:1         | 80 °C                                                    |       |       |       |       |       |       |
| 35,000             | GQB 200.1 | 214:1           | 80 °C                                                    | 70 °C | 65 °C | 40 °C |       | —     |       |
|                    |           | 552:1           | 80 °C                                                    |       |       |       | 70 °C | 65 °C | 40 °C |
|                    |           | 864:1           | 80 °C                                                    |       |       |       |       | 70 °C | 65 °C |
|                    |           | 1,751:1         | 80 °C                                                    |       |       |       |       |       |       |
| 28,000             |           | 214:1           | 80 °C                                                    |       | 70 °C | 65 °C | 40 °C | —     |       |
|                    |           | 552:1           | 80 °C                                                    |       |       |       |       | 70 °C | 65 °C |
|                    |           | 864:1           | 80 °C                                                    |       |       |       |       |       | 70 °C |
|                    |           | 1,751:1         | 80 °C                                                    |       |       |       |       |       |       |
| 70,000             | GQB 250.1 | 214:1           | 65 °C                                                    | 40 °C |       |       | —     |       |       |
|                    |           | 552:1           | 80 °C                                                    |       |       | 70 °C | 40 °C |       | —     |
|                    |           | 864:1           | 80 °C                                                    |       |       |       | 65 °C | 40 °C |       |
|                    |           | 1,751:1         | 80 °C                                                    |       |       |       |       |       | 70 °C |
| 56,000             |           | 214:1           | 80 °C                                                    | 70 °C | 65 °C | 40 °C |       | —     |       |
|                    |           | 552:1           | 80 °C                                                    |       |       |       | 70 °C | 40 °C |       |
|                    |           | 864:1           | 80 °C                                                    |       |       |       |       | 70 °C | 65 °C |
|                    |           | 1,751:1         | 80 °C                                                    |       |       |       |       |       |       |

**Additional information on weight:**

For an additional extension flange, the weight adds up as follows:

| Type                   | GQB 80.1 |     | GQB 100.1 |     | GQB 125.1 |     | GQB 160.1 |     | GQB 200.1 |     | GQB 250.1 |     |
|------------------------|----------|-----|-----------|-----|-----------|-----|-----------|-----|-----------|-----|-----------|-----|
| Extension flange       | F14      | F16 | F25       | F25 | F25       | F30 | F30       | F35 | F35       | F40 | F40       | F48 |
| Additional weight [kg] | 0.3      | 3   | 0.1       | 4   | 4         | 7   | 3         | 15  | 6         | 17  | 7         | 20  |

**General information**

Part-turn gearboxes are suitable for manual and motor operation of industrial valves.

GQB part-turn gearboxes are not suitable for:

- Hydraulic steel structures & hydropower
- Nuclear applications
- Buried service
- Automation of special valves (e.g. louvre dampers, stack dampers, diverters with toggle arm, guillotine isolators)

**Features and functions**

|                       |                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                              |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Explosion protection  | Standard:                                                                                                                                                                                                                                                              | II 2G Ex h IIC T3 Gb<br>II 2D Ex h IIIC T190 °C Db                                                                                                                                                                                                           |
|                       | Options:                                                                                                                                                                                                                                                               | Available on request <ul style="list-style-type: none"> <li>• Explosion-proof temperature class T4/130 °C</li> <li>• Higher ambient temperatures</li> <li>• Applications with load spectrum other than load spectrum EN 15714-2 and ISO/DIS 22109</li> </ul> |
| Type of duty          | Class A according to EN 15714-2: OPEN-CLOSE / max. 3 subsequent strokes (90°), cooling down is then required<br>Class B according to EN 15714-2: Inching/positioning or positioning duty<br>For nominal voltage and +40 °C ambient temperature and at run torque load. |                                                                                                                                                                                                                                                              |
| End stops             | End positions OPEN and CLOSED can be set individually.                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                              |
| Swing angle           | 90° ± 5°                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                              |
| Direction of rotation | Standard:                                                                                                                                                                                                                                                              | Suitable for clockwise closing valves                                                                                                                                                                                                                        |
|                       | Option:                                                                                                                                                                                                                                                                | Suitable for counterclockwise closing valves                                                                                                                                                                                                                 |
| Lifetime              | Lifetime according to EN 15714-2 and ISO/DIS 22109                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                              |
| Worm wheel material   | Spheroidal cast iron (EN-GJS)                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                              |
| Housing material      | Cast iron (EN-GJL)                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                              |

#### Features and functions

|                           |                                                                                                                                                                                                                                              |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Self-locking              | The gearboxes are self-locking when at standstill under normal service conditions; strong vibration may cancel the self-locking effect. While in motion, safe braking is not guaranteed. If this is required, a separate brake must be used. |
| Statistical safety factor | <ul style="list-style-type: none"> <li>Sized with double safety, in relation to maximum torques</li> <li>With overload protection to prevent housing damage</li> </ul>                                                                       |

#### Service conditions

|                                                |                                                       |                                        |                                                                                                             |
|------------------------------------------------|-------------------------------------------------------|----------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Use                                            | Indoor and outdoor use permissible                    |                                        |                                                                                                             |
| Ambient temperature                            | Min. –40 °C                                           |                                        |                                                                                                             |
| Humidity                                       | Up to 100 % relative humidity                         |                                        |                                                                                                             |
| Enclosure protection according to EN 60529     | IP67                                                  |                                        |                                                                                                             |
| Vibration resistance according to EN 60068-2-6 | 1g, 5 to 200 Hz at input mounting flange for actuator |                                        |                                                                                                             |
| Corrosion protection                           | Standard:                                             | KN                                     | Suitable for installation in industrial units, in water or power plants with a low pollutant concentration. |
|                                                | Option:                                               | KS                                     | Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.            |
| Coating                                        | Double layer powder coating                           |                                        |                                                                                                             |
| Colour                                         | Standard:                                             | AUMA silver-grey (similar to RAL 7037) |                                                                                                             |
|                                                | Option:                                               | Available colours on request           |                                                                                                             |

#### Further information

|                     |                                                                                                                        |  |  |
|---------------------|------------------------------------------------------------------------------------------------------------------------|--|--|
| EU Directives       | ATEX Directive: (2014/34/EU)                                                                                           |  |  |
|                     | Machinery Directive: (2006/42/EC)                                                                                      |  |  |
| Standard            | EN 80079-36                                                                                                            |  |  |
| Reference documents | Dimensions GQB 160.1 – GQB 250.1<br>Dimensions Extensions for input shaft<br>Mounting position – Mounting of actuators |  |  |

**Technical data Part-turn gearboxes Operating times for different reduction ratios and input speeds**

| Total reduction ratio of GQB | Operating time <sup>1)</sup> for 50 Hz in seconds for 90° at actuator output speed in rpm |       |       |       |       |       |     |     |     |     |     |     |
|------------------------------|-------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-----|-----|-----|-----|-----|-----|
|                              | 4                                                                                         | 5.6   | 8     | 11    | 16    | 22    | 32  | 45  | 63  | 90  | 125 | 180 |
| 52:1                         | 195                                                                                       | 139   | 98    | 71    | 49    | 35    | 24  | 17  | –   | –   | –   | –   |
| 54:1                         | 203                                                                                       | 145   | 101   | 74    | 51    | 37    | 25  | 18  | –   | –   | –   | –   |
| 214:1                        | 803                                                                                       | 573   | 401   | 292   | 201   | 146   | 100 | 71  | 51  | 36  | 26  | 18  |
| 217:1                        | 814                                                                                       | 581   | 407   | 296   | 203   | 148   | 102 | 72  | 52  | 36  | 26  | 18  |
| 218:1                        | 818                                                                                       | 584   | 409   | 297   | 204   | 149   | 102 | 73  | 52  | 36  | 26  | 18  |
| 225:1                        | 844                                                                                       | 603   | 422   | 307   | 211   | 153   | 105 | 75  | 54  | 38  | 27  | 19  |
| 552:1                        | –                                                                                         | 1 479 | 1 035 | 753   | 518   | 376   | 259 | 184 | 131 | 92  | 66  | 46  |
| 563:1                        | –                                                                                         | 1,508 | 1,056 | 768   | 528   | 384   | 264 | 188 | 134 | 94  | 68  | 47  |
| 628:1                        | –                                                                                         | 1,682 | 1,178 | 856   | 589   | 428   | 294 | 209 | 150 | 105 | 75  | 52  |
| 864:1                        | –                                                                                         | –     | 1,620 | 1,178 | 810   | 589   | 405 | 288 | 206 | 144 | 104 | 72  |
| 880:1                        | –                                                                                         | –     | 1,650 | 1,200 | 825   | 600   | 413 | 293 | 210 | 147 | 106 | 73  |
| 903:1                        | –                                                                                         | –     | 1,693 | 1,231 | 847   | 616   | 423 | 301 | 215 | 151 | 108 | 75  |
| 1,751:1                      | –                                                                                         | –     | –     | –     | 1,642 | 1,194 | 821 | 584 | 417 | 292 | 210 | 146 |
| 1,784:1                      | –                                                                                         | –     | –     | –     | 1,673 | 1,216 | 836 | 595 | 425 | 297 | 214 | 149 |

| Total reduction ratio of GQB | Operating time <sup>1)</sup> for 60 Hz in seconds for 90° at actuator output speed in rpm |       |       |       |       |       |     |     |     |     |     |     |
|------------------------------|-------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-----|-----|-----|-----|-----|-----|
|                              | 5                                                                                         | 7     | 10    | 13    | 19    | 26    | 38  | 54  | 76  | 108 | 150 | 216 |
| 52:1                         | 163                                                                                       | 116   | 81    | 59    | 41    | 30    | 20  | 14  | –   | –   | –   | –   |
| 54:1                         | 169                                                                                       | 121   | 84    | 61    | 42    | 31    | 21  | 15  | –   | –   | –   | –   |
| 214:1                        | 669                                                                                       | 478   | 334   | 243   | 167   | 122   | 84  | 59  | 42  | 30  | 21  | 15  |
| 217:1                        | 678                                                                                       | 484   | 339   | 247   | 170   | 123   | 85  | 60  | 43  | 30  | 22  | 15  |
| 218:1                        | 681                                                                                       | 487   | 341   | 248   | 170   | 124   | 85  | 61  | 43  | 30  | 22  | 15  |
| 225:1                        | 703                                                                                       | 502   | 352   | 256   | 176   | 128   | 88  | 63  | 45  | 31  | 23  | 16  |
| 552:1                        | 1 725                                                                                     | 1 232 | 863   | 627   | 431   | 314   | 216 | 153 | 110 | 77  | 55  | 38  |
| 563:1                        | 1,759                                                                                     | 1,257 | 880   | 640   | 440   | 320   | 220 | 156 | 112 | 78  | 56  | 39  |
| 628:1                        | –                                                                                         | 1 402 | 981   | 714   | 491   | 357   | 245 | 174 | 125 | 87  | 63  | 44  |
| 864:1                        | –                                                                                         | –     | 1,350 | 982   | 675   | 491   | 338 | 240 | 171 | 120 | 86  | 60  |
| 880:1                        | –                                                                                         | –     | 1,375 | 1,000 | 688   | 500   | 344 | 244 | 175 | 122 | 88  | 61  |
| 903:1                        | –                                                                                         | –     | 1,411 | 1,026 | 705   | 513   | 353 | 251 | 179 | 125 | 90  | 63  |
| 1,751:1                      | –                                                                                         | –     | –     | –     | 1,368 | 995   | 684 | 486 | 347 | 243 | 175 | 122 |
| 1,784:1                      | –                                                                                         | –     | –     | –     | 1,394 | 1,014 | 697 | 496 | 354 | 248 | 178 | 124 |

**Notes on tables**

|                   |                                                                                                                                                                              |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1) Operating time | <p>Calculation of operating time for a 90° swivel movement:</p> $\text{Oper. time for 90° [s]} = \frac{\text{Reduction ratio [i]}}{n [\text{input speed in rpm}]} \times 15$ |
| 2) Output speed   | The output speeds are not available for all actuator sizes. The technical data of the multi-turn actuators is binding.                                                       |

## Technical data Part-turn gearboxes

| Type     | Output torque | Reduction ratio | Input torque <sup>1)</sup> | Valve attachment         |                   | Factor <sup>2)</sup> | Turns at input shaft | Valve shaft       |                  |                    | Weight <sup>3)</sup> |
|----------|---------------|-----------------|----------------------------|--------------------------|-------------------|----------------------|----------------------|-------------------|------------------|--------------------|----------------------|
|          | max. [Nm]     |                 | approx. [Nm]               | Housing GGG              | Option Housing BZ | approx.              | for 90°              | Shaft Ø max. [mm] | Square max. [mm] | Two-flat max. [mm] | approx. [kg]         |
| GHE 05.1 | 125           | 80:1            | 5                          | F07<br>F10 <sup>4)</sup> | F07               | 25                   | 20                   | 20                | 17               | 16                 | 2.5                  |
| GHE 07.1 | 250           | 80:1            | 10                         | F07<br>F10 <sup>4)</sup> | F07               | 25                   | 20                   | 25.4              | 22               | 22                 | 4.0                  |
| GHE 10.1 | 500           | 80:1            | 20                         | F10<br>F12 <sup>4)</sup> | F10               | 25                   | 20                   | 38                | 30               | 27                 | 7.5                  |
| GHE 12.1 | 1,000         | 80:1            | 40                         | F12<br>F14 <sup>4)</sup> | F12               | 25                   | 20                   | 50                | 36               | 41                 | 13                   |

## Use

For manual operation (e.g. butterfly valves, ball valves and plug valves)

## Notes on table

|                 |                                                                                  |
|-----------------|----------------------------------------------------------------------------------|
| 1) Input torque | For maximum output torque                                                        |
| 2) Factor       | Conversion factor from output torque to input torque for gearbox size definition |
| 3) Weight       | Indicated weight does neither include coupling nor operating elements            |
| 4)              | With intermediate flange and price adder, possibly requires an extended coupling |

## Features and functions

|                                                    |                                                                    |                                                                                                                                                 |
|----------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Version                                            | Clockwise rotation RR                                              |                                                                                                                                                 |
| Housing material                                   | Standard:                                                          | Spheroidal cast iron (GJS-500-7)                                                                                                                |
|                                                    | Option:                                                            | Bronze (alloy)                                                                                                                                  |
| Self-locking                                       | Yes                                                                |                                                                                                                                                 |
| Swing angle                                        | Standard:                                                          | Fixed angle between 82° and max. 98°<br>Adjustment in the factory to 90°, unless another angle is stated when setting.                          |
|                                                    | Option:                                                            | Multi-turn version without end stops with AUMA special sizing                                                                                   |
| Mechanical position indicator                      | Continuous position indication                                     |                                                                                                                                                 |
| Operation elements                                 | Standard:                                                          | Handwheel made of polyamide                                                                                                                     |
|                                                    | Option:                                                            | Handwheel with ball handle<br>Operation elements according to VG 85081 made of bronze in version A or with additional ball element in version B |
| Valve attachment                                   | Standard:                                                          | Integrated into the housing in accordance with EN ISO 5211                                                                                      |
|                                                    | Option:                                                            | Implemented with intermediate flange<br>With intermediate flange and price adder, possibly requires an extended coupling                        |
| Splined coupling for connection to the valve shaft | Part-turn gearbox can be mounted at 4 x 90° increments on coupling |                                                                                                                                                 |
|                                                    | Standard:                                                          | Coupling without bore                                                                                                                           |
|                                                    | Option:                                                            | Machined coupling with bore and keyway, square bore or bore with two-flats                                                                      |
| Coupling material                                  | Standard:                                                          | Quenched and tempered steel                                                                                                                     |
|                                                    | Option:                                                            | Version made of bronze                                                                                                                          |

## Service conditions

|                                            |                                                                                                                                                                                                                                                                                                                        |      |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Ambient temperature                        | -25 °C to +80 °C                                                                                                                                                                                                                                                                                                       |      |
| Enclosure protection according to EN 60529 | Standard:                                                                                                                                                                                                                                                                                                              | IP67 |
|                                            | Option:                                                                                                                                                                                                                                                                                                                | IP68 |
|                                            | According to AUMA definition, enclosure protection IP68 meets the following requirements: <ul style="list-style-type: none"> <li>• Depth of water: maximum 8 m head of water</li> <li>• Duration of continuous immersion in water: Max. 96 hours</li> <li>• Up to 10 operations during continuous immersion</li> </ul> |      |

Technical data Part-turn gearboxes

|                      |                                                                                                                                         |    |                                                                                                            |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------|----|------------------------------------------------------------------------------------------------------------|
| Corrosion protection | Standard:                                                                                                                               | KN | Suitable for installation in industrial units, in water or power plants with a low pollutant concentration |
|                      | Options:                                                                                                                                | KM | Bronze suitable for use in seawater or saline atmospheres                                                  |
| Paint                | Two-component iron-mica combination                                                                                                     |    |                                                                                                            |
| Colour               | AUMA silver-grey (similar RAL 7037)                                                                                                     |    |                                                                                                            |
| Lifetime             | Operating cycles (OPEN - STOP - CLOSE) for swing movements of 90° and temperature range of -25°C to +80°C<br>GHE 05.1 – GHE 12.1: 1,000 |    |                                                                                                            |

| Further information |                                                                              |
|---------------------|------------------------------------------------------------------------------|
| Reference documents | Dimensions GHE 05.1 – GHE 12.1<br>Operation instructions GHE 05.1 – GHE 12.1 |





## 2 Technical data Multi-turn gearboxes

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|                                                                         |           |
|-------------------------------------------------------------------------|-----------|
| <b>GK 10.2 – GK 40.2</b>                                                | <b>46</b> |
| <b>GST 10.1 – GST 40.1</b>                                              | <b>50</b> |
| <b>GHT 320.3 – GHT 1200.3</b>                                           | <b>55</b> |
| <b>GP 10.1 – GP 30.1</b>                                                | <b>57</b> |
| <b>Special output drive types for multi-turn gearboxes</b>              |           |
| Spring loaded stem nut AF 07.2 – AF 60.2                                | 60        |
| Spring loaded stem nut AF 07.2 – AF 60.2, Technical description         | 61        |
| Output drive type IB/IE – insulated output drive, Technical description | 62        |

## Technical data Multi-turn gearboxes

## General information

Bevel gearboxes for motor or manual operation of valves (e.g. gate valves and globe valves).

| Valve               |                                      |                      |                 | Gearbox |                       |                      |                     |                        |                           |             |                      |
|---------------------|--------------------------------------|----------------------|-----------------|---------|-----------------------|----------------------|---------------------|------------------------|---------------------------|-------------|----------------------|
| Max. valve torque   |                                      | Valve attachment     |                 | Type    | Reduction ratio       | Factor <sup>1)</sup> | Max. input torques  |                        | Input shaft <sup>2)</sup> |             | Weight <sup>3)</sup> |
| Nominal torque [Nm] | Modulating torque <sup>4)</sup> [Nm] | Standard EN ISO 5210 | Option DIN 3210 |         |                       |                      | Nominal torque [Nm] | Modulating torque [Nm] | Standard [mm]             | Option [mm] | [kg]                 |
| 120                 | 60                                   | F10                  | G0              | GK 10.2 | 1 : 1<br>2 : 1        | 0.9<br>1.8           | 135<br>67           | 66<br>33               | 20<br>20                  | –<br>–      | 8.5                  |
| 250                 | 120                                  | F14                  | G1/2            | GK 14.2 | 2 : 1<br>2.8 : 1      | 1.8<br>2.5           | 139<br>100          | 66<br>48               | 20<br>20                  | 30<br>30    | 15                   |
| 350                 | 200                                  | F14                  | G1/2            | GK 14.6 | 2 : 1                 | 1.8                  | 195                 | 11                     | 30                        | –           | 15                   |
| 500                 |                                      |                      |                 |         | 2.8 : 1               | 2.5                  | 198                 | 80                     | 30                        | –           |                      |
| 450                 | 400                                  | F16                  | G3              | GK 16.2 | 4 : 1                 | 3.6                  | 139                 | 55                     | 20                        | 30          | 25                   |
| 800                 |                                      |                      |                 |         | 1 : 1 <sup>5)</sup>   | 0.9                  | 500                 | 444                    | 30                        | 40          |                      |
| 1,000               |                                      |                      |                 |         | 2.8 : 1 <sup>5)</sup> | 2.5                  | 320                 | 160                    | 30                        | –           |                      |
| 500                 |                                      |                      |                 |         | 4 : 1                 | 3.6                  | 278                 | 111                    | 30                        | –           |                      |
| 1,000               |                                      |                      |                 |         | 4 : 1 <sup>5)</sup>   | 3.6                  | 140                 | 111                    | 20                        | –           |                      |
| 700                 |                                      |                      |                 |         | 5.6 : 1               | 5.0                  | 198                 | 80                     | 30                        | –           |                      |
| 2,000               | 800                                  | F25                  | G4              | GK 25.2 | 5.6 : 1<br>8 : 1      | 5.0<br>7.2           | 397<br>278          | 160<br>111             | 30<br>30                  | –<br>–      | 60                   |
| 4,000               | 1,600                                | F30                  | G5              | GK 30.2 | 5.6 : 1 <sup>5)</sup> | 5.0                  | 800                 | 320                    | 40                        | –           | 110                  |
| 2,800               |                                      |                      |                 |         | 5.6 : 1 <sup>5)</sup> | 5.0                  | 560                 | 320                    | 30                        | –           |                      |
| 4,000               |                                      |                      |                 |         | 8 : 1                 | 7.2                  | 556                 | 222                    | 30                        | –           |                      |
| 8,000               | On request                           | F35                  | G6              | GK 35.2 | 11 : 1                | 9.9                  | 808                 | On request             | 40                        | –           | 190                  |
|                     |                                      |                      |                 |         | 16 : 1                | 14.4                 | 556                 | 40                     | 30                        |             |                      |
|                     |                                      |                      |                 |         | 16 : 1                | 14.4                 | 1,111               | 40                     | –                         |             |                      |
| 16,000              | On request                           | F40                  | G7              | GK 40.2 | 22 : 1                | 19.8                 | 808                 | On request             | 40                        | –           | 250                  |
| 10,000              |                                      |                      |                 |         | 22 : 1 <sup>5)</sup>  | 19.8                 | 505                 | 30                     | –                         |             |                      |

- 1) Conversion factor from output torque to input torque to determine the actuator size For new gearboxes, input torques increased by 15 % are required due to lower efficiency.
- 2) Depending on the required input torque
- 3) Specified weight includes output drive sleeve (without bore) and grease filling in the gear housing
- 4) Permissible, average torque for modulating duty
- 5) Special reduction ratio: on request

| Possible combinations with multi-turn actuators |                       |                                                 |                                                        |            |                                        |
|-------------------------------------------------|-----------------------|-------------------------------------------------|--------------------------------------------------------|------------|----------------------------------------|
| Type                                            | Reduction ratio       | Suitable AUMA multi-turn actuator <sup>1)</sup> | Input mounting flange for mounting multi-turn actuator |            | Permissible weight Multi-turn actuator |
|                                                 |                       |                                                 | EN ISO 5210                                            | DIN 3210   | Max. [kg]                              |
| GK 10.2                                         | 1 : 1                 | SA 10.2/SAR 10.2<br>SA 14.2/SAR 14.2            | F10<br>F14                                             | G0<br>G1/2 | 40<br>80                               |
|                                                 | 2 : 1                 | SA 07.6/SAR 07.6<br>SA 10.2/SAR 10.2            | F10                                                    | G0         | 40                                     |
| GK 14.2                                         | 2 : 1                 | SA 10.2/SAR 10.2<br>SA 14.2/SAR 14.2            | F10<br>F14                                             | G0<br>G1/2 | 40<br>80                               |
|                                                 | 2.8 : 1               | SA 10.2/SAR 10.2                                | F10                                                    | G0         | 40                                     |
| GK 14.6                                         | 2 : 1                 | SA 14.2/SAR 14.2                                | F14                                                    | G1/2       | 80                                     |
|                                                 | 2.8 : 1               | SA 14.2/SAR 14.2                                | F14                                                    | G1/2       | 80                                     |
|                                                 | 4 : 1                 | SA 10.2/SAR 10.2<br>SA 14.2/SAR 14.2            | F10<br>F14                                             | G0<br>G1/2 | 40<br>80                               |
| GK 16.2                                         | 1 : 1 <sup>2)</sup>   | SA 14.6/SAR 14.6                                | F14                                                    | G1/2       | 80                                     |
|                                                 | 2.8 : 1 <sup>2)</sup> | SA 14.6/SAR 14.6                                | F14                                                    | G1/2       | 80                                     |
|                                                 | 4 : 1                 | SA 14.2/SAR 14.2<br>SA 14.6/SAR 14.6            | F14                                                    | G1/2       | 80                                     |
|                                                 | 4 : 1 <sup>2)</sup>   | SA 14.2/SAR 14.2                                | F14                                                    | G1/2       | 80                                     |
|                                                 | 5.6 : 1               | SA 14.2/SAR 14.2                                | F14                                                    | G1/2       | 80                                     |
|                                                 | 5.6 : 1 <sup>2)</sup> | SA 14.2/SAR 14.2                                | F14                                                    | G1/2       | 80                                     |

## Technical data Multi-turn gearboxes

| Possible combinations with multi-turn actuators |                       |                                                 |                                                        |            |                                        |
|-------------------------------------------------|-----------------------|-------------------------------------------------|--------------------------------------------------------|------------|----------------------------------------|
| Type                                            | Reduction ratio       | Suitable AUMA multi-turn actuator <sup>1)</sup> | Input mounting flange for mounting multi-turn actuator |            | Permissible weight Multi-turn actuator |
|                                                 |                       |                                                 | EN ISO 5210                                            | DIN 3210   | Max. [kg]                              |
| GK 25.2                                         | 5.6 : 1               | SA 14.6/SAR 14.6                                | F14                                                    | G1/2       | 80                                     |
|                                                 | 8 : 1                 | SA 14.2/SAR 14.2<br>SA 14.6/SAR 14.6            | F14                                                    | G1/2       | 80                                     |
| GK 30.2                                         | 5.6 : 1 <sup>2)</sup> | SA 16.2/SAR 16.2                                | F16                                                    | G3         | 160                                    |
|                                                 | 5.6:1 <sup>2)</sup>   | SA 14.6/SAR 14.6                                | F14                                                    | G1/2       | 80                                     |
|                                                 |                       | SA 16.2/SAR 16.2                                | F16                                                    | G3         | 160                                    |
|                                                 | 8 : 1                 | SA 14.6/SAR 14.6                                | F14                                                    | G1/2       | 80                                     |
|                                                 |                       | SA 16.2/SAR 16.2                                | F16                                                    | G3         | 160                                    |
| GK 35.2                                         | 11 : 1                | SA 14.6/SAR 14.6                                | F14                                                    | G1/2       | 80                                     |
|                                                 |                       | SA 16.2/SAR 16.2                                | F16                                                    | G3         | 160                                    |
|                                                 | 8 : 1 <sup>2)</sup>   | SA 16.2/SAR 16.2                                | F16                                                    | G3         | 160                                    |
|                                                 |                       | SA 25.1/SAR 25.1                                | F25                                                    | G4         | 300                                    |
|                                                 | 16 : 1                | SA 14.6/SAR 14.6<br>SA 16.2/SAR 16.2            | F14<br>F16                                             | G1/2<br>G3 | 80<br>160                              |
| GK 40.2                                         | 16 : 1                | SA 16.2/SAR 16.2                                | F16                                                    | G3         | 160                                    |
|                                                 |                       | SA 25.1/SAR 25.1                                | F25                                                    | G4         | 300                                    |
|                                                 | 22 : 1                | SA 16.2/SAR 16.2                                | F16                                                    | G3         | 160                                    |
|                                                 |                       | SA 14.6/SAR 14.6<br>SA 16.2/SAR 16.2            | F14<br>F16                                             | G1/2<br>G3 | 80<br>160                              |

1) Standard flange according to EN ISO 5210

2) Special reduction ratio: on request

## Features and functions

|                       |                                                                                                                                                        |                                                                                                                                                                                                                            |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type of duty          | <ul style="list-style-type: none"> <li>Short-time duty S2 - 15 min (open-close duty)</li> <li>Intermittent duty S4 - 25 % (modulating duty)</li> </ul> |                                                                                                                                                                                                                            |
| Direction of rotation | Standard:                                                                                                                                              | Clockwise rotation at input shaft results in clockwise rotation at output drive                                                                                                                                            |
|                       | Options:                                                                                                                                               | <ul style="list-style-type: none"> <li>GK 10.2 – GK 25.2<br/>Reversal of direction of rotation by GW 14.1 reversing gearbox</li> <li>GK 30.2 – GK 40.2<br/>Counterclockwise rotation possible as an alternative</li> </ul> |
| Stages                | Single stage:                                                                                                                                          | GK 10.2 – GK 25.2                                                                                                                                                                                                          |
|                       | Double stage:                                                                                                                                          | GK 30.2 – GK 40.2                                                                                                                                                                                                          |
| Input shaft           | Input shaft made of stainless steel                                                                                                                    |                                                                                                                                                                                                                            |
|                       | Standard:                                                                                                                                              | Cylindrical with parallel key according to DIN 6885.1                                                                                                                                                                      |
|                       | Option:                                                                                                                                                | Square: tapered (according to DIN 3233) or cylindrical shape<br>With respect to size, please contact AUMA                                                                                                                  |

## Technical data Multi-turn gearboxes

| Operation                                                |                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                   |                                                                                                                |         |         |         |         |         |         |         |         |       |         |         |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|-------|---------|---------|
| Motor operation                                          | With electric multi-turn actuator (maximum permissible input speed: 240 rpm)                                                                                                                                                                                                                                                                      |                                                                                                                                                                                   |                                                                                                                |         |         |         |         |         |         |         |         |       |         |         |
| Manual operation                                         | Available handwheel diameters according to EN 12570, selection according to output torque:                                                                                                                                                                                                                                                        |                                                                                                                                                                                   |                                                                                                                |         |         |         |         |         |         |         |         |       |         |         |
|                                                          | Type                                                                                                                                                                                                                                                                                                                                              | GK 10.2                                                                                                                                                                           |                                                                                                                | GK 14.2 |         | GK 14.6 |         |         | GK 16.2 |         |         |       |         |         |
|                                                          | Reduction ratio                                                                                                                                                                                                                                                                                                                                   | 1 : 1                                                                                                                                                                             | 2 : 1                                                                                                          | 2 : 1   | 2.8 : 1 | 2 : 1   | 2.8 : 1 | 4 : 1   | 1 : 1   | 2.8 : 1 | 4 : 1   | 4 : 1 | 5.6 : 1 | 5.6 : 1 |
|                                                          | Standard handwheel Ø [mm]                                                                                                                                                                                                                                                                                                                         | 315                                                                                                                                                                               | 200                                                                                                            | 315     | 200     | 315     | 400     | 315     | 800     | 630     | 315     | 500   | 315     | 400     |
|                                                          | Special handwheel Ø [mm]                                                                                                                                                                                                                                                                                                                          | 400                                                                                                                                                                               |                                                                                                                | 400     |         | 400     | 800     | 400     | 800     |         | 400     | 800   |         |         |
|                                                          |                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                   |                                                                                                                |         |         |         |         |         |         |         |         |       |         |         |
|                                                          | Type                                                                                                                                                                                                                                                                                                                                              | GK 25.2                                                                                                                                                                           |                                                                                                                | GK 30.2 |         |         |         | GK 35.2 |         |         | GK 40.2 |       |         |         |
|                                                          | Reduction ratio                                                                                                                                                                                                                                                                                                                                   | 5.6:1                                                                                                                                                                             | 8:1                                                                                                            | 5.6:1   | 5.6:1   | 8:1     | 11:1    | 8:1     | 11:1    | 16:1    | 16:1    | 22:1  | 22:1    |         |
|                                                          | Standard handwheel Ø [mm]                                                                                                                                                                                                                                                                                                                         | 630                                                                                                                                                                               | 500                                                                                                            | 800     |         |         |         | 800     |         |         | 800     |       |         |         |
|                                                          | Special handwheel Ø [mm]                                                                                                                                                                                                                                                                                                                          | 800                                                                                                                                                                               |                                                                                                                | 800     |         |         |         | 800     |         |         | 800     |       |         |         |
|                                                          | Standard:                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                   | <ul style="list-style-type: none"><li>Handwheel made of aluminium</li><li>Handwheel with ball handle</li></ul> |         |         |         |         |         |         |         |         |       |         |         |
| Options:                                                 |                                                                                                                                                                                                                                                                                                                                                   | <ul style="list-style-type: none"><li>Handwheel made of GJL-200</li><li>Handwheel lockable</li><li>WSH limit switching device for signalling position and end positions</li></ul> |                                                                                                                |         |         |         |         |         |         |         |         |       |         |         |
| Power tool emergency operation (input shaft with square) | Maximum permissible input speed: 240 rpm                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                   |                                                                                                                |         |         |         |         |         |         |         |         |       |         |         |
| Valve attachment                                         |                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                   |                                                                                                                |         |         |         |         |         |         |         |         |       |         |         |
| Output drive types                                       | A, B1, B2, B3, B4 according to EN ISO 5210<br>A, B, D, E according to DIN 3210<br>C according to DIN 3338<br>Special valve attachments: AF, AK, AG, IB1, IB3, IB4                                                                                                                                                                                 |                                                                                                                                                                                   |                                                                                                                |         |         |         |         |         |         |         |         |       |         |         |
| Service conditions                                       |                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                   |                                                                                                                |         |         |         |         |         |         |         |         |       |         |         |
| Mounting position                                        | Any position                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                   |                                                                                                                |         |         |         |         |         |         |         |         |       |         |         |
| Ambient temperature                                      | Standard:                                                                                                                                                                                                                                                                                                                                         | −40 °C to +80 °C                                                                                                                                                                  |                                                                                                                |         |         |         |         |         |         |         |         |       |         |         |
|                                                          | Options:                                                                                                                                                                                                                                                                                                                                          | −60 °C to +60 °C<br>0 °C to +120 °C                                                                                                                                               |                                                                                                                |         |         |         |         |         |         |         |         |       |         |         |
| Enclosure protection in accordance with IEC 60529        | IP68                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                   |                                                                                                                |         |         |         |         |         |         |         |         |       |         |         |
|                                                          | According to AUMA definition, enclosure protection IP68 meets the following requirements: <ul style="list-style-type: none"><li>Depth of water: maximum 8 m head of water</li><li>Continuous immersion in water: maximal 96 hours</li><li>Up to 10 operations during immersion</li><li>Modulating duty is not possible during immersion</li></ul> |                                                                                                                                                                                   |                                                                                                                |         |         |         |         |         |         |         |         |       |         |         |
| Corrosion protection                                     | Standard:                                                                                                                                                                                                                                                                                                                                         | KS: Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.                                                                              |                                                                                                                |         |         |         |         |         |         |         |         |       |         |         |
|                                                          | Option:                                                                                                                                                                                                                                                                                                                                           | KX: Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.                                                                           |                                                                                                                |         |         |         |         |         |         |         |         |       |         |         |
| Coating                                                  | Double layer powder coating<br>Two-component iron-mica combination                                                                                                                                                                                                                                                                                |                                                                                                                                                                                   |                                                                                                                |         |         |         |         |         |         |         |         |       |         |         |
| Colour                                                   | Standard:                                                                                                                                                                                                                                                                                                                                         | AUMA silver-grey (similar to RAL 7037)                                                                                                                                            |                                                                                                                |         |         |         |         |         |         |         |         |       |         |         |
|                                                          | Option:                                                                                                                                                                                                                                                                                                                                           | Available colours on request                                                                                                                                                      |                                                                                                                |         |         |         |         |         |         |         |         |       |         |         |
| Lifetime                                                 | AUMA multi-turn gearboxes meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.                                                                                                                                                                                                                |                                                                                                                                                                                   |                                                                                                                |         |         |         |         |         |         |         |         |       |         |         |

| Valve attachment   |                                                                                                                                                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|
| Output drive types | A, B1, B2, B3, B4 according to EN ISO 5210<br>A, B, D, E according to DIN 3210<br>C according to DIN 3338<br>Special valve attachments: AF, AK, AG, IB1, IB3, IB4 |  |  |  |  |  |  |  |  |  |  |  |  |

| Service conditions                                |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                         |
|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Mounting position                                 | Any position                                                                                                                                                                                                                                                                                                                                              |                                                                                                         |
| Ambient temperature                               | Standard:                                                                                                                                                                                                                                                                                                                                                 | −40 °C to +80 °C                                                                                        |
|                                                   | Options:                                                                                                                                                                                                                                                                                                                                                  | −60 °C to +60 °C<br>0 °C to +120 °C                                                                     |
| Enclosure protection in accordance with IEC 60529 | IP68                                                                                                                                                                                                                                                                                                                                                      |                                                                                                         |
|                                                   | According to AUMA definition, enclosure protection IP68 meets the following requirements: <ul style="list-style-type: none"><li>• Depth of water: maximum 8 m head of water</li><li>• Continuous immersion in water: maximal 96 hours</li><li>• Up to 10 operations during immersion</li><li>• Modulating duty is not possible during immersion</li></ul> |                                                                                                         |
| Corrosion protection                              | Standard:                                                                                                                                                                                                                                                                                                                                                 | KS: Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.    |
|                                                   | Option:                                                                                                                                                                                                                                                                                                                                                   | KX: Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution. |
| Coating                                           | Double layer powder coating<br>Two-component iron-mica combination                                                                                                                                                                                                                                                                                        |                                                                                                         |
| Colour                                            | Standard:                                                                                                                                                                                                                                                                                                                                                 | AUMA silver-grey (similar to RAL 7037)                                                                  |
|                                                   | Option:                                                                                                                                                                                                                                                                                                                                                   | Available colours on request                                                                            |
| Lifetime                                          | AUMA multi-turn gearboxes meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.                                                                                                                                                                                                                        |                                                                                                         |

## Technical data Multi-turn gearboxes

## Accessories

|                     |                                                                                        |
|---------------------|----------------------------------------------------------------------------------------|
| Reversing gearboxes | GW reversing gearbox for reversal of rotation direction for manual and motor operation |
|---------------------|----------------------------------------------------------------------------------------|

## Special features for use in potentially explosive atmospheres

|                                                         |                               |                                                                                                                                                                                                                   |       |         |       |         |      |         |       |
|---------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------|-------|---------|------|---------|-------|
| Explosion protection in accordance with ATEX 2014/34/EU | Standard:                     | II 2G Ex h IIC T4 Gb<br>II 2D Ex h IIIC T130°C Db                                                                                                                                                                 |       |         |       |         |      |         |       |
|                                                         | Options:                      | II 2G Ex h IIC T3 Gb<br>II 2D Ex h IIIC T190°C Db<br>I M2 Ex h I Mb                                                                                                                                               |       |         |       |         |      |         |       |
| Type of duty                                            | Open-close duty:              | Short-time duty S2 - 15 min with the following average output torques:                                                                                                                                            |       |         |       |         |      |         |       |
|                                                         |                               |                                                                                                                                                                                                                   |       |         |       |         |      |         |       |
|                                                         | Type                          | GK 10.2                                                                                                                                                                                                           |       | GK 14.2 |       | GK 14.6 |      | GK 16.2 |       |
|                                                         | Reduction ratio               | 1:1                                                                                                                                                                                                               | 2:1   | 2:1     | 2.8:1 | 2.8:1   | 4:1  | 4:1     | 5.6:1 |
|                                                         | Average output torque in [Nm] | 40                                                                                                                                                                                                                | 60    | 125     |       | 150     | 250  | 300     | 500   |
|                                                         |                               |                                                                                                                                                                                                                   |       |         |       |         |      |         |       |
|                                                         | Type                          | GK 25.2                                                                                                                                                                                                           |       | GK 30.2 |       | GK 35.6 |      | GK 40.2 |       |
|                                                         | Reduction ratio               | 5.6:1                                                                                                                                                                                                             | 8:1   | 8:1     | 11:1  | 11:1    | 16:1 | 16:1    | 22:1  |
|                                                         | Average output torque in [Nm] | 600                                                                                                                                                                                                               | 1,000 | 2,000   |       | 4,000   |      | 8,000   |       |
|                                                         |                               |                                                                                                                                                                                                                   |       |         |       |         |      |         |       |
|                                                         | Modulating duty:              | Intermittent duty S4 – 25 % with modulating torque                                                                                                                                                                |       |         |       |         |      |         |       |
| Ambient temperature                                     | Standard:                     | –40 °C to +40 °C (II 2G Ex h IIC T4 Gb; II 2D Ex h IIIC T130 °C Db)<br>–40 °C to +60 °C (II 2G Ex h IIC T4 Gb; II 2D Ex h IIIC T130 °C Db)<br>–60 °C to +60 °C (II 2G Ex h IIC T4 Gb; II 2D Ex h IIIC T130 °C Db) |       |         |       |         |      |         |       |
|                                                         | Option:                       | –40 °C to +80 °C (I 2G Ex h IIC T3 Gb; II 2D Ex h IIIC T190 °C Db)<br>0 °C to +120 °C (I 2G Ex h IIC T3 Gb; II 2D Ex h IIIC T190 °C Db)<br>–20 °C to +40 °C (I M2 Ex h I Mb)                                      |       |         |       |         |      |         |       |

## Further information

|                     |                                                                                                                                                                        |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EU Directives       | Machinery Directive 2006/42/EC                                                                                                                                         |
| Reference documents | Dimensions GK 10.2 – GK 40.1<br>Technical data SA 07.2 – SA 16.2<br>Technical data SAR 07.2 – SAR 16.2<br>Technical data WSH 10.2 – WSH 16.2<br>Technical data GW 14.1 |

## Technical data Multi-turn gearboxes

## General information

Spur gearboxes for motor or manual operation of valves (e.g. gate valves and globe valves).

| Valve               |                                      |                      |                 | Gearbox  |                       |                     |                        |                      |                           |             |                      |
|---------------------|--------------------------------------|----------------------|-----------------|----------|-----------------------|---------------------|------------------------|----------------------|---------------------------|-------------|----------------------|
| Max. valve torque   |                                      | Valve attachment     |                 | Type     | Reduction ratio       | Max. input torque   |                        | Factor <sup>1)</sup> | Input shaft <sup>2)</sup> |             | Weight <sup>3)</sup> |
| Nominal torque [Nm] | Modulating torque <sup>4)</sup> [Nm] | Standard EN ISO 5210 | Option DIN 3210 |          |                       | Nominal torque [Nm] | Modulating torque [Nm] |                      | Standard [mm]             | Option [mm] | [kg]                 |
| 120                 | 60                                   | F10                  | G0              | GST 10.1 | 1:1                   | 135                 | 66                     | 0.9                  | 20                        | –           | 14                   |
|                     |                                      |                      |                 |          | 1.4:1                 | 95                  | 46                     | 1.3                  | 20                        | –           |                      |
|                     |                                      |                      |                 |          | 2:1                   | 67                  | 33                     | 1.8                  | 20                        | –           |                      |
| 250                 | 120                                  | F14                  | G1/2            | GST 14.1 | 1.4:1                 | 198                 | 92                     | 1.3                  | 30                        | –           | 26                   |
|                     |                                      |                      |                 |          | 2:1                   | 139                 | 66                     | 1.8                  | 20                        | 30          |                      |
|                     |                                      |                      |                 |          | 2.8:1                 | 99                  | 48                     | 2.5                  | 20                        | 30          |                      |
|                     |                                      |                      |                 |          | 4:1 <sup>5)</sup>     | 70                  | 35                     | 3.6                  | 20                        | –           |                      |
| 500                 | 200                                  | F14                  | G1/2            | GST 14.5 | 2:1                   | 278                 | 111                    | 1.8                  | 30                        | –           | 26                   |
| 250                 |                                      |                      |                 |          | 2:1 <sup>5)</sup>     | 140                 | 111                    | 1.8                  | 20                        | –           |                      |
| 500                 |                                      |                      |                 |          | 2.8:1                 | 198                 | 80                     | 2.5                  | 30                        | –           |                      |
| 350                 |                                      |                      |                 |          | 2.8:1 <sup>5)</sup>   | 140                 | 80                     | 2.5                  | 20                        | –           |                      |
| 500                 |                                      |                      |                 |          | 4:1                   | 139                 | 50                     | 3.6                  | 20                        | –           |                      |
| 1,000               | 400                                  | F16                  | G3              | GST 16.1 | 2.8:1                 | 397                 | 160                    | 2.5                  | 30                        | –           | 40                   |
| 350                 |                                      |                      |                 |          | 2.8:1 <sup>5)</sup>   | 140                 | 140                    | 2.5                  | 20                        | –           |                      |
| 1,000               |                                      |                      |                 |          | 4:1                   | 278                 | 111                    | 3.6                  | 30                        | –           |                      |
| 500                 |                                      |                      |                 |          | 4:1 <sup>5)</sup>     | 140                 | 111                    | 3.6                  | 20                        | –           |                      |
| 1,000               |                                      |                      |                 |          | 5.6:1                 | 198                 | 80                     | 5.0                  | 30                        | –           |                      |
| 700                 |                                      |                      |                 |          | 5.6:1 <sup>5)</sup>   | 140                 | 80                     | 5.0                  | 20                        | –           |                      |
| 2,000               | 800                                  | F25                  | G4              | GST 25.1 | 3:1                   | 740                 | 296                    | 2.7                  | 30                        | 40          | 82                   |
|                     |                                      |                      |                 |          | 4:1                   | 556                 | 222                    | 3.6                  | 30                        | 40          |                      |
|                     |                                      |                      |                 |          | 5.6:1                 | 397                 | 160                    | 5.0                  | 30                        | 40          |                      |
|                     |                                      |                      |                 |          | 8:1                   | 278                 | 111                    | 7.2                  | 30                        | 40          |                      |
| 3,000               | 1,600                                | F30                  | G5              | GST 30.1 | 3.28:1 <sup>5)</sup>  | 1,020               | 552                    | 2.9                  | 40                        | –           | 115                  |
| 4,000               |                                      |                      |                 |          | 5.6:1                 | 794                 | 320                    | 5.0                  | 40                        | –           |                      |
| 2,800               |                                      |                      |                 |          | 5.6:1 <sup>5)</sup>   | 560                 | 320                    | 5.0                  | 30                        | –           |                      |
| 4,000               |                                      |                      |                 |          | 8:1                   | 556                 | 222                    | 7.2                  | 30                        | 40          |                      |
| 4,000               |                                      |                      |                 |          | 11:1                  | 404                 | 162                    | 9.9                  | 30                        | 40          |                      |
| 8,000               | 2,800                                | F35                  | G6              | GST 35.1 | 7:1 <sup>5)</sup>     | 1,270               | 444                    | 6.3                  | 50                        | –           | 195                  |
| 8,000               |                                      |                      |                 |          | 8:1                   | 1,111               | 389                    | 7.2                  | 40                        | 50          |                      |
| 4,030               |                                      |                      |                 |          | 8:1 <sup>5)</sup>     | 560                 | 389                    | 7.2                  | 30                        | –           |                      |
| 8,000               |                                      |                      |                 |          | 9.25:1 <sup>5)</sup>  | 965                 | 337                    | 8.3                  | 40                        | –           |                      |
| 8,000               |                                      |                      |                 |          | 11:1                  | 808                 | 283                    | 9.9                  | 40                        | 50          |                      |
| 5,540               |                                      |                      |                 |          | 11:1 <sup>5)</sup>    | 560                 | 283                    | 9.9                  | 30                        | –           |                      |
| 8,000               |                                      |                      |                 |          | 16:1                  | 556                 | 194                    | 14.4                 | 40                        | 50          |                      |
| 11,500              | 5,600                                | F40                  | G7              | GST 40.1 | 8:1 <sup>5)</sup>     | 1,600               | 778                    | 7.2                  | 50                        | –           | 255                  |
| 16,000              |                                      |                      |                 |          | 11:1                  | 1,616               | 566                    | 9.9                  | 50                        | –           |                      |
| 10,900              |                                      |                      |                 |          | 11:1 <sup>5)</sup>    | 1,100               | 566                    | 9.9                  | 40                        | –           |                      |
| 12,900              |                                      |                      |                 |          | 14.33:1 <sup>5)</sup> | 1,000               | 434                    | 12.9                 | 40                        | –           |                      |
| 16,000              |                                      |                      |                 |          | 16:1                  | 1,111               | 389                    | 14.4                 | 40                        | 50          |                      |
| 16,000              |                                      |                      |                 |          | 22:1                  | 808                 | 283                    | 19.8                 | 40                        | 50          |                      |

- 1) Conversion factor from output torque to input torque to determine the actuator size. For new gearboxes, input torques increased by 15 % are required due to lower efficiency.
- 2) Depending on the required input torque.
- 3) Specified weight includes output drive sleeve (without bore) and grease filling in the gear housing.
- 4) Modulating torque = permissible, average torque for modulating duty.
- 5) Special reduction ratio: on request

## Technical data Multi-turn gearboxes

| Type     | Possible combinations with multi-turn actuators        |          |                             | Reduction ratio       | Suitable AUMA multi-turn actuator <sup>1)</sup> |
|----------|--------------------------------------------------------|----------|-----------------------------|-----------------------|-------------------------------------------------|
|          | Input mounting flange for mounting multi-turn actuator |          | Permissible actuator weight |                       |                                                 |
|          | EN ISO 5210                                            | DIN 3210 | Max. [kg]                   |                       |                                                 |
| GST 10.1 | F10                                                    | G0       | 40                          | 1:1                   | SA 10.2/SAR 10.2                                |
|          | F14                                                    | G1/2     | 80                          |                       | SA 14.2/SAR 14.2                                |
|          | F10                                                    | G0       | 40                          | 1.4:1                 | SA 10.2/SAR 10.2                                |
|          | F10                                                    | G0       | 40                          | 2:1                   | SA 07.6/SAR 07.6<br>SA 10.2/SAR 10.2            |
| GST 14.1 | F14                                                    | G1/2     | 80                          | 1.4:1                 | SA 14.2/SAR 14.2                                |
|          | F10                                                    | G0       | 40                          | 2:1                   | SA 10.2/SAR 10.2                                |
|          | F14                                                    | G1/2     | 80                          |                       | SA 14.2/SAR 14.2                                |
|          | F10                                                    | G0       | 40                          | 2.8:1                 | SA 10.2/SAR 10.2                                |
|          | F10                                                    | G0       | 40                          | 4:1 <sup>2)</sup>     | SA 10.2/SAR 10.2                                |
| GST 14.5 | F14                                                    | G1/2     | 80                          | 2:1                   | SA 14.2/SAR 14.2<br>SA 14.6                     |
|          | F14                                                    | G1/2     | 80                          | 2:1 <sup>2)</sup>     | SA 14.2                                         |
|          | F14                                                    | G1/2     | 80                          | 2.8:1                 | SA 14.2/SAR 14.2                                |
|          | F14                                                    | G1/2     | 80                          | 2.8:1 <sup>2)</sup>   | SA 14.2                                         |
|          | F10                                                    | G0       | 40                          | 4:1                   | SA 10.2/SAR 10.2                                |
|          | F14                                                    | G1/2     | 80                          |                       | SA 14.2/SAR 14.2                                |
| GST 16.1 | F14                                                    | G1/2     | 80                          | 2.8:1                 | SA 14.6/SAR 14.6                                |
|          | F14                                                    | G1/2     | 80                          | 2.8:1 <sup>2)</sup>   | SA 14.2/SAR 14.2                                |
|          | F14                                                    | G1/2     | 80                          | 4:1                   | SA 14.2/SAR 14.2<br>SA 14.6/SAR 14.6            |
|          | F14                                                    | G1/2     | 80                          |                       | SA 14.2/SAR 14.2                                |
|          | F14                                                    | G1/2     | 80                          | 4:1 <sup>2)</sup>     | SA 14.2/SAR 14.2                                |
|          | F14                                                    | G1/2     | 80                          | 5.6:1                 | SA 14.2/SAR 14.2                                |
|          | F14                                                    | G1/2     | 80                          | 5.6:1 <sup>2)</sup>   | SA 14.2/SAR 14.2                                |
| GST 25.1 | F14                                                    | G1/2     | 80                          | 3:1                   | SA 14.6/SAR 14.6<br>SA 16.2/SAR 16.2            |
|          | F16                                                    | G3       | 160                         |                       | SA 14.6/SAR 14.6                                |
|          | F14                                                    | G1/2     | 80                          | 4:1                   | SA 16.2/SAR 16.2                                |
|          | F16                                                    | G3       | 160                         |                       | SA 14.6/SAR 14.6                                |
|          | F14                                                    | G1/2     | 80                          | 5.6:1                 | SA 14.2/SAR 14.2                                |
|          | F14                                                    | G1/2     | 80                          | 8:1                   | SA 14.6                                         |
| GST 30.1 | F16                                                    | G3       | 160                         | 3.28:1 <sup>2)</sup>  | SA 16.2/SAR 16.2                                |
|          | F16                                                    | G3       | 160                         | 5.6:1                 | SA 16.2/SAR 16.2                                |
|          | F16                                                    | G3       | 160                         | 5.6:1 <sup>2)</sup>   | SA 16.2/SAR 16.2                                |
|          | F14                                                    | G1/2     | 80                          |                       | SA 14.6/SAR 14.6                                |
|          | F16                                                    | G3       | 160                         | 8:1                   | SA 16.1                                         |
|          | F14                                                    | G1/2     | 80                          | 11:1                  | SA 14.6/SAR 14.6                                |
| GST 35.1 | F16                                                    | G3       | 160                         | 7:1 <sup>2)</sup>     | SA 16.2                                         |
|          | F25                                                    | G4       | 300                         |                       | SA 25.1                                         |
|          | F16                                                    | G3       | 160                         | 8:1                   | SA 16.2                                         |
|          | F25                                                    | G4       | 300                         |                       | SA 25.1                                         |
|          | F16                                                    | G3       | 160                         | 8:1 <sup>2)</sup>     | SA 16.2                                         |
|          | F25                                                    | G4       | 300                         |                       | SA 25.1                                         |
|          | F16                                                    | G3       | 160                         | 9.25:1 <sup>2)</sup>  | SA 16.2                                         |
|          | F25                                                    | G4       | 300                         |                       | SA 25.1                                         |
|          | F16                                                    | G3       | 160                         | 11:1                  | SA 16.2                                         |
|          | F16                                                    | G3       | 160                         | 11:1 <sup>2)</sup>    | SA 16.2                                         |
|          | F25                                                    | G4       | 300                         |                       | SA 25.1                                         |
|          | F14                                                    | G1/2     | 80                          | 16:1                  | SA 14.6                                         |
| GST 40.1 | F16                                                    | G3       | 160                         |                       | SA 16.2                                         |
|          | F25                                                    | G4       | 300                         | 8:1 <sup>1)</sup>     | SA 25.1                                         |
|          | F25                                                    | G4       | 300                         | 11:1                  | SA 25.1                                         |
|          | F16                                                    | G3       | 160                         | 11:1 <sup>1)</sup>    | SA 16.2                                         |
|          | F25                                                    | G4       | 300                         |                       | SA 25.1                                         |
|          | F16                                                    | G3       | 160                         | 14.33:1 <sup>1)</sup> | SA 16.2                                         |
|          | F16                                                    | G3       | 160                         |                       | SA 16.2                                         |
|          | F25                                                    | G4       | 300                         | 16:1                  | SA 25.1                                         |
|          | F16                                                    | G3       | 160                         | 22:1                  | SA 16.2                                         |

1) Standard flange according to EN ISO 5210.



## Technical data Multi-turn gearboxes

2) Special reduction ratio: on request

| Features and functions |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type of duty           | <ul style="list-style-type: none"> <li>Short-time duty S2 - 15 min (open-close duty)</li> <li>Intermittent duty S4 - 25 % (modulating duty)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                               |
| Direction of rotation  | Standard: Clockwise rotation at input shaft results in clockwise rotation at output drive<br>Option: GST 10.1 – GST 30.1: Reversal of direction of rotation by GW 14.1 reversing gearbox                                                                                                                                                                                                                                                                                                                                                                             |
| Stages                 | Single stage: GST 10.1 – GST 16.1<br>Double stage: GST 25.1 – GST 40.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Input shaft            | For standard reduction ratio, the input shaft is made of stainless steel.<br>Exception: GST 16.1: 5.6:1<br>GST 40.1: 22:1 and 16:1<br>Standard: Cylindrical with parallel key according to DIN 6885-1 (refer to table on page 1), without second shaft end<br>Options: Square: <ul style="list-style-type: none"> <li>conical (DIN 3233)</li> <li>cylindrical</li> </ul> With respect to size, please contact AUMA <ul style="list-style-type: none"> <li>Input shaft with second shaft end</li> <li>Input shaft with second shaft end and protective cap</li> </ul> |

| Operation        |                                                                                                                                                                                                              |                                          |                                                                                                                                                                                   |       |       |          |         |       |          |          |       |          |       |     |        |       |     |       |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|----------|---------|-------|----------|----------|-------|----------|-------|-----|--------|-------|-----|-------|
| Motor operation  | <ul style="list-style-type: none"><li>With electric multi-turn actuator (maximum permissible input speed (240 rpm))</li><li>Input mounting flanges for multi-turn actuator (refer to table page 2)</li></ul> |                                          |                                                                                                                                                                                   |       |       |          |         |       |          |          |       |          |       |     |        |       |     |       |
| Manual operation | Available handwheel diameters according to EN 12570, selection according to output torque:                                                                                                                   |                                          |                                                                                                                                                                                   |       |       |          |         |       |          |          |       |          |       |     |        |       |     |       |
|                  | Type                                                                                                                                                                                                         |                                          | GST 10.1                                                                                                                                                                          |       |       | GST 14.1 |         |       | GST 14.5 |          |       | GST 16.1 |       |     |        |       |     |       |
|                  | Reduction ratio                                                                                                                                                                                              |                                          | 1:1                                                                                                                                                                               | 1.4:1 | 2:1   | 1.4:1    | 2:1     | 2.8:1 | 4:1      | 2:1      | 2.8:1 | 4:1      | 2.8:1 | 4:1 | 5.6:1  | 2.8:1 | 4:1 | 5.6:1 |
|                  | Handwheel Ø [mm]                                                                                                                                                                                             |                                          | 200                                                                                                                                                                               |       |       | 315      |         | 250   |          | 315      |       |          | 400   |     |        | 315   |     |       |
|                  |                                                                                                                                                                                                              |                                          |                                                                                                                                                                                   |       |       |          |         |       |          |          |       |          |       |     |        |       |     |       |
|                  | Type                                                                                                                                                                                                         |                                          | GST 25.1                                                                                                                                                                          |       |       | GST 30.1 |         |       |          | GST 35.1 |       |          |       |     |        |       |     |       |
|                  | Reduction ratio                                                                                                                                                                                              |                                          | 3:1                                                                                                                                                                               | 4:1   | 5.6:1 | 8:1      | 5.6:1   | 8:1   | 11:1     | 3.28:1   | 8:1   | 11:1     | 16:1  | 7:1 | 9.25:1 |       |     |       |
|                  | Handwheel Ø [mm]                                                                                                                                                                                             |                                          | 500                                                                                                                                                                               |       |       | 500      |         |       |          | 500      |       |          |       |     |        |       |     |       |
|                  |                                                                                                                                                                                                              |                                          |                                                                                                                                                                                   |       |       |          |         |       |          |          |       |          |       |     |        |       |     |       |
|                  | Type                                                                                                                                                                                                         |                                          | GST 40.1                                                                                                                                                                          |       |       |          |         |       |          |          |       |          |       |     |        |       |     |       |
|                  | Reduction ratio                                                                                                                                                                                              |                                          | 11:1                                                                                                                                                                              | 16:1  | 22:1  | 8:1      | 14.33:1 |       |          |          |       |          |       |     |        |       |     |       |
|                  | Handwheel Ø [mm]                                                                                                                                                                                             |                                          | 500                                                                                                                                                                               |       |       |          |         |       |          |          |       |          |       |     |        |       |     |       |
|                  | Standard:                                                                                                                                                                                                    |                                          | <ul style="list-style-type: none"><li>Handwheel made of aluminium</li><li>Handwheel with ball handle</li></ul>                                                                    |       |       |          |         |       |          |          |       |          |       |     |        |       |     |       |
|                  | Options:                                                                                                                                                                                                     |                                          | <ul style="list-style-type: none"><li>Handwheel made of GJL-200</li><li>Handwheel lockable</li><li>WSH limit switching device for signalling position and end positions</li></ul> |       |       |          |         |       |          |          |       |          |       |     |        |       |     |       |
|                  | Power tool emergency operation (input shaft with square)                                                                                                                                                     | Maximum permissible input speed: 240 rpm |                                                                                                                                                                                   |       |       |          |         |       |          |          |       |          |       |     |        |       |     |       |

| Valve attachment |                                                                                                                                                                   |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valve attachment | A, B1, B2, B3, B4 according to EN ISO 5210<br>A, B, D, E according to DIN 3210<br>C according to DIN 3338<br>Special valve attachments: AF, AK, AG, IB1, IB3, IB4 |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document. For further information on the product, refer to [www.auma.com](http://www.auma.com).

## Technical data Multi-turn gearboxes

| Service conditions                                |                                                                                                                                                                                                                                                                                                                                                               |                                        |                                                                                                     |
|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------|
| Mounting position                                 | Any position                                                                                                                                                                                                                                                                                                                                                  |                                        |                                                                                                     |
| Ambient temperature                               | Standard:                                                                                                                                                                                                                                                                                                                                                     | −40 °C to +80 °C                       |                                                                                                     |
|                                                   | Options:                                                                                                                                                                                                                                                                                                                                                      | −60 °C to +60 °C<br>0 °C to +120 °C    |                                                                                                     |
| Enclosure protection in accordance with IEC 60529 | IP68                                                                                                                                                                                                                                                                                                                                                          |                                        |                                                                                                     |
|                                                   | According to AUMA definition, enclosure protection IP68 meets the following requirements: <ul style="list-style-type: none"><li>• Depth of water: maximum 8 m head of water</li><li>• Continuous immersion in water: maximal 96 hours</li><li>• Up to 10 operations during immersion</li><li>• Modulating duty is not recommended during immersion.</li></ul> |                                        |                                                                                                     |
| Corrosion protection                              | Standard:                                                                                                                                                                                                                                                                                                                                                     | KS                                     | Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.    |
|                                                   | Option:                                                                                                                                                                                                                                                                                                                                                       | KX                                     | Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution. |
| Coating                                           | Double layer powder coating<br>Two-component iron-mica combination                                                                                                                                                                                                                                                                                            |                                        |                                                                                                     |
| Colour                                            | Standard:                                                                                                                                                                                                                                                                                                                                                     | AUMA silver-grey (similar to RAL 7037) |                                                                                                     |
|                                                   | Option:                                                                                                                                                                                                                                                                                                                                                       | Available colours on request           |                                                                                                     |
| Lifetime                                          | AUMA multi-turn gearboxes meet or exceed the lifetime requirements of EN ISO 22109. Detailed information can be provided on request.                                                                                                                                                                                                                          |                                        |                                                                                                     |

## Accessories

|                     |                                                                                        |
|---------------------|----------------------------------------------------------------------------------------|
| Reversing gearboxes | GW reversing gearbox for reversal of rotation direction for manual and motor operation |
|---------------------|----------------------------------------------------------------------------------------|

## Special features for use in potentially explosive atmospheres

|                                                         |                               |                                                                                                                                                          |       |       |          |          |       |          |          |      |          |          |       |      |
|---------------------------------------------------------|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|----------|----------|-------|----------|----------|------|----------|----------|-------|------|
| Explosion protection in accordance with ATEX 2014/34/EU | Standard:                     | II2G c IIC T4<br>II2D c T130 °C                                                                                                                          |       |       |          |          |       |          |          |      |          |          |       |      |
|                                                         | Options:                      | II2G c IIC T3<br>II2D c T190 °C<br>IM2 c                                                                                                                 |       |       |          |          |       |          |          |      |          |          |       |      |
| Type of duty                                            | Open-close duty:              | Short-time duty S2 - 15 min with the following average output torques:                                                                                   |       |       |          |          |       |          |          |      |          |          |       |      |
|                                                         |                               |                                                                                                                                                          |       |       |          |          |       |          |          |      |          |          |       |      |
|                                                         | Type                          | GST 10.1                                                                                                                                                 |       |       | GST 14.1 |          |       | GST 14.5 |          |      | GST 16.1 |          |       |      |
|                                                         | Reduction ratio               | 1:1                                                                                                                                                      | 1.4:1 | 2:1   | 1.4:1    | 2:1      | 2.8:1 | 2:1      | 2.8:1    | 4:1  | 2.8:1    | 4:1      | 5.6:1 |      |
|                                                         | Average output torque in [Nm] | 60                                                                                                                                                       |       |       | 125      |          |       | 150      | 150      | 250  | 300      | –        |       |      |
|                                                         |                               |                                                                                                                                                          |       |       |          |          |       |          |          |      |          |          |       |      |
|                                                         | Type                          | GST 25.1                                                                                                                                                 |       |       |          | GST 30.1 |       |          | GST 35.1 |      |          | GST 40.1 |       |      |
|                                                         | Reduction ratio               | 3:1                                                                                                                                                      | 4:1   | 5.6:1 | 8:1      | 5.6:1    | 8:1   | 11:1     | 8:1      | 11:1 | 16:1     | 11:1     | 16:1  | 22:1 |
|                                                         | Average output torque in [Nm] | 1,000                                                                                                                                                    |       |       |          | 2,000    |       |          | 4,000    |      |          | 8,000    |       |      |
|                                                         |                               |                                                                                                                                                          |       |       |          |          |       |          |          |      |          |          |       |      |
|                                                         | Modulating duty:              | Intermittent duty S4 - 25 % with modulating torque                                                                                                       |       |       |          |          |       |          |          |      |          |          |       |      |
| Ambient temperature                                     | Standard:                     | –40 °C to +40 °C (II2G c IIC T4; II2D c T130 °C)<br>–40 °C to +60 °C (II2G c IIC T4; II2D c T130 °C)<br>–60 °C to +60 °C (II2G c IIC T4; II2D c T130 °C) |       |       |          |          |       |          |          |      |          |          |       |      |
|                                                         | Options:                      | –40 °C to +80 °C (II2G c IIC T3; II2D c T190 °C)<br>0 °C to +120 °C (II2G c IIC T3; II2D c T190 °C)<br>–20 °C to +40 °C (IM2 c)                          |       |       |          |          |       |          |          |      |          |          |       |      |

**Technical data Multi-turn gearboxes**

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| Further information |                                                                                                                                                                          |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EU Directives       | ATEX Directive 2014/34/EU<br>Machinery Directive 2006/42/EC                                                                                                              |
| Reference documents | Dimensions GST 10.1 – GST 40.1<br>Technical data SA 07.2 – SA 16.2<br>Technical data SAR 07.2 – SAR 16.2<br>Technical data WSH 10.2 – WSH 16.2<br>Technical data GW 14.1 |

## Technical data Multi-turn gearboxes

| Type       | Valve attachment                | Reduction ratio | Factor <sup>1)</sup> | Max. input speed | Load profile/torque curve according to EN 15714-2 |                              |                            | Load profile/torque curve Special valve |                            |
|------------|---------------------------------|-----------------|----------------------|------------------|---------------------------------------------------|------------------------------|----------------------------|-----------------------------------------|----------------------------|
|            |                                 |                 |                      |                  | Output torque <sup>2)</sup>                       | Running torque <sup>3)</sup> | Input torque <sup>4)</sup> | Running torque <sup>5)</sup>            | Input torque <sup>6)</sup> |
|            | Flange according to EN ISO 5211 |                 |                      | [rpm]            | Max. [Nm]                                         | [Nm]                         | Max. [Nm]                  | Max. [Nm]                               | Max. [Nm]                  |
| GHT 320.3  | F48                             | 10 : 1          | 8                    | 90               | 32,000                                            | 11,200                       | 4,000                      | 20,800                                  | 2,600                      |
|            |                                 | 15.5 : 1        | 12.4                 |                  |                                                   |                              | 2,600                      |                                         | 1,680                      |
|            |                                 | 20 : 1          | 16                   |                  |                                                   |                              | 2,000                      |                                         | 1,300                      |
| GHT 500.3  | F60                             | 10.25 : 1       | 8.2                  |                  | 50,000                                            | 17,500                       | 6,100                      | 32,500                                  | 3,960                      |
|            |                                 | 15 : 1          | 12                   |                  |                                                   |                              | 4,200                      |                                         | 2,710                      |
|            |                                 | 20.5 : 1        | 16.4                 |                  |                                                   |                              | 3,100                      |                                         | 1,980                      |
| GHT 800.3  | F60                             | 12 : 1          | 9.6                  |                  | 80,000                                            | 28,000                       | 8,300                      | 51,900                                  | 5,410                      |
|            |                                 | 15 : 1          | 12                   |                  |                                                   |                              | 6,700                      |                                         | 4,330                      |
| GHT 1200.3 | F60                             | 10.25 : 1       | 8.2                  |                  | 120,000                                           | 42,000                       | 14,600                     | 77,900                                  | 9,500                      |
|            |                                 | 20.5 : 1        | 16.4                 |                  |                                                   |                              | 7,300                      |                                         | 4,750                      |

## Possible combinations with multi-turn actuators

| Type       | Reduction ratio | Factor <sup>1)</sup> | Suitable AUMA<br>multi-turn actuator<br>for | Output speed in rpm at speed of multi-turn actuator for 50 Hz |     |     |     |     |     |                   |                   |     |     |
|------------|-----------------|----------------------|---------------------------------------------|---------------------------------------------------------------|-----|-----|-----|-----|-----|-------------------|-------------------|-----|-----|
|            |                 |                      |                                             | 100 %<br>output torque                                        | 4   | 5.6 | 8   | 11  | 16  | 22                | 32                | 45  | 63  |
| GHT 320.3  | 10 : 1          | 8                    | SA 30.1                                     | 0.4                                                           | 0.6 | 0.8 | 1.1 | 1.6 | 2.2 | 3.2               | 4.5               | 6.3 | 9.0 |
|            | 15.5 : 1        | 12.4                 | SA 25.1                                     | –                                                             | 0.4 | 0.5 | 0.7 | 1.0 | 1.4 | 2.1               | 2.9               | 4.1 | 5.8 |
|            | 20 : 1          | 16                   | SA 25.1                                     | –                                                             | –   | 0.4 | 0.6 | 0.8 | 1.1 | 1.6               | 2.3               | 3.2 | 4.5 |
| GHT 500.3  | 10.25 : 1       | 8.2                  | SA 35.1                                     | 0.4                                                           | 0.5 | 0.8 | 1.1 | 1.6 | 2.1 | 3.1 <sup>7)</sup> | 4.4 <sup>7)</sup> | –   | –   |
|            | 15 : 1          | 12                   | SA 30.1                                     | –                                                             | 0.4 | 0.5 | 0.7 | 1.1 | 1.5 | 2.1               | 3.0               | 4.2 | 6.0 |
|            | 20.5 : 1        | 16.4                 | SA 30.1                                     | –                                                             | –   | 0.4 | 0.5 | 0.8 | 1.1 | 1.6               | 2.2               | 3.1 | 4.4 |
| GHT 800.3  | 12 : 1          | 9.6                  | SA 35.1                                     | 0.3                                                           | 0.5 | 0.7 | 0.9 | 1.3 | 1.8 | 2.7 <sup>7)</sup> | 3.8 <sup>7)</sup> | –   | –   |
|            | 15 : 1          | 12                   | SA 35.1                                     | –                                                             | 0.4 | 0.5 | 0.7 | 1.1 | 1.5 | 2.1 <sup>7)</sup> | 3.0 <sup>7)</sup> | –   | –   |
| GHT 1200.3 | 10.25 : 1       | 8.2                  | SA 40.1                                     | 0.4                                                           | 0.5 | 0.8 | 1.1 | 1.6 | 2.1 | 3.1 <sup>7)</sup> | –                 | –   | –   |
|            | 20.5 : 1        | 16.4                 | SA 35.1                                     | –                                                             | –   | 0.4 | 0.5 | 0.8 | 1.1 | 1.6 <sup>7)</sup> | 2.2 <sup>7)</sup> | –   | –   |

## Valve attachment options

| Type       | Output drive flange to valve<br>Output drive type A/AF | Output drive type B                                | Output drive type C                                                                                           | Splined coupling for output drive type A | Input mounting flanges for mounting AUMA multi-turn actuators | Drive shaft     | Weight             |
|------------|--------------------------------------------------------|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------------------------------------------------------|-----------------|--------------------|
|            | Based on EN ISO 5211 <sup>8)</sup>                     | Based on EN ISO 5210                               | Based on DIN 3338                                                                                             | DIN 5480                                 | EN ISO 5210                                                   | EN ISO 5210 [Ø] | [kg] <sup>9)</sup> |
| GHT 320.3  | F48                                                    | Ø 180H7 mm with parallel key according to DIN 6885 | d <sub>12</sub> = Ø 259 mm<br>d <sub>11</sub> = Ø 180 mm<br>b <sub>1</sub> = 85 mm<br>h <sub>11</sub> = 50 mm | N210x5x40                                | F25, F30                                                      | 60              | 477                |
| GHT 500.3  | F60 <sup>10)</sup>                                     |                                                    |                                                                                                               | N220x5x42                                | F30, F35                                                      | 80              | 765                |
| GHT 800.3  | F60 <sup>10)</sup>                                     |                                                    |                                                                                                               |                                          | F35, F40                                                      | 100             | 995                |
| GHT 1200.3 | F60 <sup>10)</sup>                                     |                                                    |                                                                                                               |                                          | F35, F40                                                      | 100             | 1,280              |

## Use

Worm gearboxes for motor operation of industrial valves (e.g. gate valves and globe valves) and special valves (e.g. louvre dampers, stack dampers, diverters, weirs, and sluice gates).

## Notes on table

|                                 |                                                                                                                                                            |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1) Factor                       | Conversion factor from output torque to input torque for actuator size definition                                                                          |
| 2) Output torque                | Maximum 10 % of the travel (25 turns per stroke)                                                                                                           |
| 3) Running torque               | 90 % of travel                                                                                                                                             |
| 4) Input torque                 | For maximum output torque                                                                                                                                  |
| 5) Running torque               | 100 % of travel                                                                                                                                            |
| 6) Input torque                 | Verify actuator sizing for running times > 2 minutes and high output speeds. For long running times, the output torques of the actuators will be reduced., |
| 7) Self-locking                 | SA not self-locking                                                                                                                                        |
| 8) Output drive flange          | Dimensions according to EN ISO 5211                                                                                                                        |
| 9) Weight                       | Indicated weight includes gearbox with a drive shaft end, output drive type B, largest possible input mounting flange, including standard lubricant        |
| 10) Output drive type A/AF 60.2 | Only max. 64,000 Nm can be applied                                                                                                                         |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

## Technical data Multi-turn gearboxes

| Features and functions |                  |                                                                                                                                                                                            |
|------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type of duty           | Open-close duty: | Short-time duty S2 - 15 min, classes A and B<br>Short-time duty S2 - 30 min, classes A and B                                                                                               |
|                        | Modulating duty: | Intermittent duty S4 -25 %, class C; on request                                                                                                                                            |
| Direction of rotation  | Standard:        | RR = Clockwise rotation at input shaft results in clockwise rotation at output shaft<br>LR = Clockwise rotation at input shaft results in clockwise rotation at output shaft               |
|                        | Option:          | RL = Clockwise rotation at input shaft results in counterclockwise rotation at output shaft<br>LL = Clockwise rotation at input shaft results in counterclockwise rotation at output shaft |
| Housing material       | Standard:        | Cast iron (EN-GJL-250)                                                                                                                                                                     |
|                        | Option:          | Spheroidal cast iron (EN-GJS-400-15)                                                                                                                                                       |
| Self-locking           | Not self-locking |                                                                                                                                                                                            |

| Operation       |                                                                                                       |
|-----------------|-------------------------------------------------------------------------------------------------------|
| Motor operation | Directly via electric multi-turn actuator<br>Mounting flanges for multi-turn actuator, refer to table |

| Service conditions   |                                                                                                                                                        |                                        |                                                                                                     |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------|
| Ambient temperature  | Standard:                                                                                                                                              | −40 °C to +80 °C                       |                                                                                                     |
|                      | Options:                                                                                                                                               | −60 °C to +60 °C<br>0 °C to +140 °C    |                                                                                                     |
|                      | IP68                                                                                                                                                   |                                        |                                                                                                     |
| Corrosion protection | Standard:                                                                                                                                              | KS                                     | Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.    |
|                      | Option:                                                                                                                                                | KX                                     | Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution. |
| Paint                | Two-component iron-mica combination                                                                                                                    |                                        |                                                                                                     |
| Colour               | Standard:                                                                                                                                              | AUMA silver-grey (similar to RAL 7037) |                                                                                                     |
|                      | Options:                                                                                                                                               | Available colours on request           |                                                                                                     |
| Lifetime             | 1,500 cycles<br><br>AUMA multi-turn gearboxes meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request. |                                        |                                                                                                     |
| Accessories          | Stem protection tube, on request<br>2 eyebolts for transport                                                                                           |                                        |                                                                                                     |

| Use in potentially explosive atmospheres                |           |                                                  |  |
|---------------------------------------------------------|-----------|--------------------------------------------------|--|
| Explosion protection in accordance with ATEX 2014/34/EU | Standard: | II2G c IIC T3<br>II2D c T190 °C                  |  |
|                                                         | Option:   | II2G c IIC T4<br>II2D c T130 °C                  |  |
| Ambient temperature                                     | Standard: | –40 °C to +80 °C (II2G c IIC T3; II2D c T190 °C) |  |
|                                                         | Option:   | –40 °C to +60 °C (II2G c IIC T4; II2D c T130 °C) |  |

| Further information |                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EU Directives       | ATEX Directive: (2014/34/EU)<br>Machinery Directive: (2006/42/EC)                                                                                                                                                                                                                                                                                                                                        |
| Reference documents | Brochure Electric actuators for the automation of industrial and special valves with torque requirements up to 120,000 Nm<br>Dimensions Multi-turn gearboxes GHT 320.3 – GHT 1200.3<br>Dimensions Output drive types A 25.2 – A 60.2<br>Technical data SA 25.1 – SA 48.1 with 3-phase AC motors<br>Technical data SAR 25.1 – SAR 30.1 with 3-phase AC motors<br>Technical data Grease and oil quantities |

## Technical data Multi-turn gearboxes

## General information

Coaxial planetary gearing for motor or manual operation of valves (e.g. gate valves and globe valves).

| Valve             |                                 |                                   | Gearboxes |                |                      |                    |             |        |
|-------------------|---------------------------------|-----------------------------------|-----------|----------------|----------------------|--------------------|-------------|--------|
| Max. valve torque | Valve attachment                |                                   | Gearboxes | Reductionratio | Factor <sup>1)</sup> | Max. input torques | Input shaft | Weight |
| up to [Nm]        | Flange according to EN ISO 5210 | Shaft diameter <sup>2)</sup> [mm] |           |                |                      | [Nm]               | [mm]        | [kg]   |
| 100               | F10                             | 20                                | GP 10.1   | 2.4 : 1        | 2.2                  | 46                 | 20          | 6.0    |
|                   |                                 |                                   |           | 3 : 1          | 2.7                  | 37                 | 20          | 6.0    |
|                   |                                 |                                   |           | 4 : 1          | 3.6                  | 28                 | 20          | 6.0    |
| 400               | F14                             | 30                                | GP 14.1   | 2.4 : 1        | 2.2                  | 185                | 30          | 6.0    |
|                   |                                 |                                   |           | 3 : 1          | 2.7                  | 148                | 20/30       | 6.0    |
|                   |                                 |                                   |           | 4 : 1          | 3.6                  | 111                | 20          | 6.0    |
| 700               | F16                             | 40                                | GP 26.1   | 4 : 1          | 3.6                  | 194                | 30          | 19.5   |
|                   |                                 |                                   |           | 8 : 1          | 7.2                  | 97                 | 20          | 19.5   |
| 1,200             | F25                             | 50                                | GP 25.1   | 4 : 1          | 3.6                  | 333                | 30          | 55     |
|                   |                                 |                                   |           | 8 : 1          | 7.2                  | 167                | 30          | 55     |
|                   |                                 |                                   |           | 16 : 1         | 14.4                 | 83                 | 20          | 65     |
| 2,500             | F30                             | 60                                | GP 30.1   | 4 : 1          | 3.6                  | 694                | 40          | 63.5   |
|                   |                                 |                                   |           | 8 : 1          | 7.2                  | 347                | 30          | 63.5   |
|                   |                                 |                                   |           | 16 : 1         | 14.4                 | 174                | 30          | 75.5   |

1) Conversion factor from output torque to input torque to determine the actuator size

2) Bore with keyway according to DIN 6885-1.

| Possible combinations with multi-turn actuators |                 |                                                 |                                                        |          |
|-------------------------------------------------|-----------------|-------------------------------------------------|--------------------------------------------------------|----------|
| Gearboxes                                       | Reduction ratio | Suitable AUMA multi-turn actuator <sup>1)</sup> | Input mounting flange for mounting multi-turn actuator |          |
|                                                 |                 |                                                 | EN ISO 5210                                            | DIN 3210 |
| GP 10.1                                         | 2.4 : 1         | SA 07.6                                         | F10                                                    | G0       |
|                                                 | 3 : 1           | SA 07.6                                         | F10                                                    | G0       |
|                                                 | 4 : 1           | SA 07.2                                         | F10                                                    | G0       |
| GP 14.1                                         | 2.4 : 1         | SA 14.2                                         | F14                                                    | G1/2     |
|                                                 | 3 : 1           | SA 14.2                                         | F14                                                    | G1/2     |
|                                                 | 4 : 1           | SA 10.2                                         | F10                                                    | G0       |
| GP 16.1                                         | 4 : 1           | SA 14.2                                         | F14                                                    | G1/2     |
|                                                 | 8 : 1           | SA 10.2                                         | F10                                                    | G0       |
| GP 25.1                                         | 4 : 1           | SA 14.6                                         | F14                                                    | G1/2     |
|                                                 | 8 : 1           | SA 14.2                                         | F14                                                    | G1/2     |
|                                                 | 16 : 1          | SA 10.2                                         | F10                                                    | G0       |
| GP 30.1                                         | 4 : 1           | SA 16.2                                         | F16                                                    | G3       |
|                                                 | 8 : 1           | SA 14.6                                         | F14                                                    | G1/2     |
|                                                 | 16 : 1          | SA 14.6                                         | F14                                                    | G1/2     |

1) Standard flange according to EN ISO 5210

## Features and functions

|                       |                                                                                                                                                               |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type of duty          | <ul style="list-style-type: none"> <li>Short-time duty S2 - 15 min (open-close duty)</li> <li>Intermittent duty S4 - 25 % (modulating duty)</li> </ul>        |
| Direction of rotation | Clockwise rotation at input shaft results in clockwise rotation at output drive                                                                               |
| Input shaft           | Input shaft with metallic surface protection, cylindrical with parallel key according to DIN 6885-1                                                           |
| Motor operation       | <ul style="list-style-type: none"> <li>Directly via electric multi-turn actuator</li> <li>Input mounting flanges for mounting multi-turn actuators</li> </ul> |

## Technical data Multi-turn gearboxes

| Features and functions |                                                                                                                |         |     |      |         |       |      |         |     |
|------------------------|----------------------------------------------------------------------------------------------------------------|---------|-----|------|---------|-------|------|---------|-----|
| Manual operation       | Available handwheel diameters according to EN 12570, selection according to output torque:                     |         |     |      |         |       |      |         |     |
|                        | Type                                                                                                           | GP 10.1 |     |      | GP 14.1 |       |      | GP 16.1 |     |
|                        | Reduction ratio                                                                                                | 2.4:1   | 3:1 | 4:1  | 2.4:1   | 3:1   | 4:1  | 4:1     | 8:1 |
|                        | Input shaft                                                                                                    | 20      |     |      | 30      | 20/30 | 20   | 30      | 20  |
|                        | Handwheel Ø [mm]                                                                                               | 250     |     |      | 500     | 315   | 250  | 500     | 250 |
|                        |                                                                                                                | 315     |     |      | 630     | 400   | 315  | 630     | 315 |
|                        |                                                                                                                | 400     |     |      | 800     | 500   | 400  | 800     |     |
|                        |                                                                                                                |         |     |      |         |       |      |         |     |
|                        | Type                                                                                                           | GP 25.1 |     |      | GP 30.1 |       |      |         |     |
|                        | Reduction ratio                                                                                                | 4:1     | 8:1 | 16:1 | 4:1     | 8:1   | 16:1 |         |     |
|                        | Input shaft                                                                                                    | 30      | 30  | 20   | 30      | 20/30 | 20   |         |     |
|                        | Handwheel Ø [mm]                                                                                               | 630     | 500 | 250  | 500     | 315   | 250  |         |     |
|                        |                                                                                                                | 800     | 630 | 315  | 630     | 400   | 315  |         |     |
|                        |                                                                                                                |         | 800 | 400  | 800     | 500   | 400  |         |     |
|                        |                                                                                                                |         |     |      |         |       |      |         |     |
| Standard:              | <ul style="list-style-type: none"><li>Handwheel made of aluminium</li><li>Handwheel with ball handle</li></ul> |         |     |      |         |       |      |         |     |
| Option:                | <ul style="list-style-type: none"><li>Handwheel made of GJL-200</li><li>Handwheel lockable</li></ul>           |         |     |      |         |       |      |         |     |
| Valve attachment       | B3 according to EN ISO 5210 (bore with parallel keyway)                                                        |         |     |      |         |       |      |         |     |

| Service conditions                         |                                                                                                                                                                                                                          |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mounting position                          | Any position                                                                                                                                                                                                             |
| Ambient temperature                        | Standard: –60 °C to +80 °C                                                                                                                                                                                               |
|                                            | Options: 0 °C to +140 °C (up to +150 °C for a short time with reduced lifetime)                                                                                                                                          |
| Enclosure protection according to EN 60529 | Standard: IP68-8, dust and water tight up to max. 8 m head of water                                                                                                                                                      |
|                                            | Option: IP68-20, dust-tight and water-tight up to max. 20 m head of water                                                                                                                                                |
| Corrosion protection                       | Standard: KN: Suitable for installation in industrial units, in water or power plants with a low pollutant concentration                                                                                                 |
|                                            | Options: KS: Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.<br>KX: Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution. |
| Paint                                      | Two-component iron-mica combination                                                                                                                                                                                      |
| Colour                                     | Standard: AUMA silver-grey (similar to RAL 7037)                                                                                                                                                                         |
|                                            | Option: Available colours on request                                                                                                                                                                                     |
| Lifetime                                   | AUMA multi-turn gearboxes meet or even exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.                                                                                  |
| Housing                                    | Cast iron                                                                                                                                                                                                                |

| Special features for use in potentially explosive atmospheres in accordance with ATEX 2014/34/EU |                                                                                                   |
|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| Explosion protection in accordance with ATEX 2014/34/EU                                          | Standard: II 2G Ex h IIC T4 Gb                                                                    |
| Applied standards                                                                                | EN ISO 80079-36:2016-12<br>EN ISO 80079-37:2016-12                                                |
| Type of duty                                                                                     | Standard: Restricted to manual operation, no motor operation permissible.                         |
| Ambient temperature                                                                              | Standard: –30 °C to +70 °C                                                                        |
| Lifetime                                                                                         | GP 10.1 – GP 16.1: 500 cycles<br>GP 25.1 – GP 30.1: 250 cycles<br>according to EN ISO 22109: 2020 |

Technical data Multi-turn gearboxes

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**Further information**

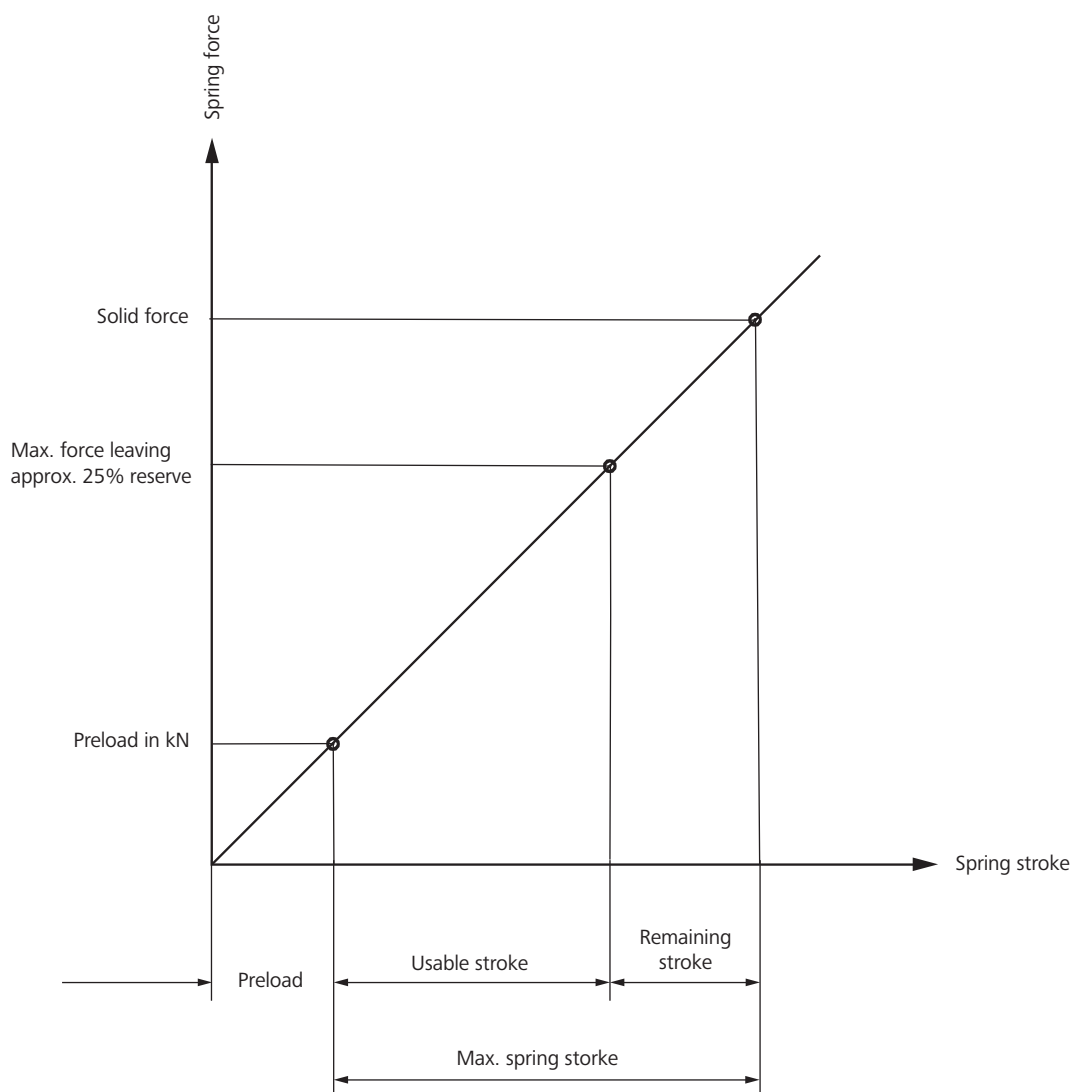
|                     |                                                         |
|---------------------|---------------------------------------------------------|
| EU Directives       | ATEX Directive: (2014/34/EU)                            |
|                     | Machinery Directive: (2006/42/EC)                       |
| Reference documents | Dimensions GP 10.1 – GP 30.1                            |
|                     | Technical data SA 07.2 – SA 16.2 with 3-phase AC motors |



## Technical data Spring loaded stem nut

| Type    | Spring constant | Spring stroke | Solid force | Preload |      | Usable stroke | Force usable leaving sufficient reserve | Remaining stroke | Stem diameter Ø d6 |
|---------|-----------------|---------------|-------------|---------|------|---------------|-----------------------------------------|------------------|--------------------|
|         | [kN/mm]         | Max. [mm]     | [kN]        | [mm]    | [kN] | [mm]          | Max. [kN]                               | [mm]             | Max. [mm]          |
| AF 07.2 | 3.1             | 5.9           | 20          | 0.5     | 1.5  | 4.7           | 16                                      | 1.2              | 32                 |
| AF 07.6 | 6.8             | 5.6           | 41          | 0.4     | 2.7  | 4.5           | 33                                      | 1.1              | 32                 |
| AF 10.2 | 10.2            | 6.0           | 65          | 0.4     | 4.3  | 4.7           | 52                                      | 1.3              | 32                 |
| AF 14.2 | 14.2            | 8.1           | 125         | 0.7     | 9.6  | 6.3           | 100                                     | 1.8              | 51                 |
| AF 16.2 | 19.2            | 9.6           | 200         | 0.8     | 14.9 | 7.5           | 160                                     | 2.1              | 65                 |
| AF 25.2 | 23.7            | 12.3          | 315         | 0.9     | 21.3 | 10            | 260                                     | 2.3              | 85                 |
| AF 30.2 | 32.7            | 14.0          | 510         | 1.6     | 52.0 | 11            | 410                                     | 3.0              | 102                |
| AF 35.2 | 44.8            | 17.5          | 860         | 1.7     | 76.0 | 14            | 700                                     | 3.5              | 150                |
| AF 40.2 | 43.1            | 21.4          | 1,000       | 1.8     | 76.5 | 17            | 800                                     | 4.4              | 175                |
| AF 48.2 | 84.2            | 30.4          | 3000        | 2.4     | 438  | 24            | 2630                                    | 4.0              | 180                |
| AF 60.2 | 84.2            | 30.4          | 3,000       | 2.4     | 438  | 24            | 2,630                                   | 4.0              | 180                |

Suitable for modulating duty to a limited extent only. Please contact AUMA.



## Technical description Spring loaded stem nut

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### 1. Function

The output drive type AF, spring-loaded stem nut, allows for limited axial stem nut offset within the output mounting flange. This helps to prevent valve damage and protects the axial bearings of the output drive against excessive load.

### 2. Use

The use of spring-loaded stem nuts type AF is recommended for the following applications:

- 2.1 Globe valves:
  - Operating speed  $\geq 250$  mm/min.
  - Output speed of the multi-turn actuator:  $\geq 45.1$  rpm
- 2.2 Gate valves: Operating speed  $\geq 500$  mm/min.
- 2.3 The mentioned limit values are based on experience. When exceeding these values, please check thoroughly whether and problems or damage may occur when operating the valve without a spring-loaded stem nut.
- 2.4 The use of a spring-loaded stem nut is also recommended if high temperature fluctuations of the medium in the pipes are to be expected for globe valves and gate valves.
- 2.5 If extended delay times occur between torque switch tripping and the ensuing motor power cut-out for actuator control, the spring-loaded stem nut can significantly reduce excess torque.

### 3. Version

- 3.1 Output drive type AF is available in two versions:
  - Spring-loaded version in both directions, e.g. type AF 10.2 (is acknowledged if the valve type is unknown)
  - Spring-loaded version in direction CLOSE, e.g. type AF 10.2-Z
- 3.2 The spring-loaded version for "direction CLOSE only" must be implemented, if it is to be expected that short-term peak torques are required during unseating from the end position CLOSED. These torques will drop immediately after unseating (typical for wedge gate valves).
- 3.3 In practical use, this means that the spring-loaded version in "direction CLOSE only" must be used for all conventional wedge gate valves.  
The spring-loaded version for both directions can be used for back seal valves e.g. globe valves.

### 4. Special features

If the output drive type AF is requested for special wedge gate valves when back seal control is required, please contact AUMA.

### 5. Ambient temperature range

–40 °C to +80 °C

### 6. Documentation

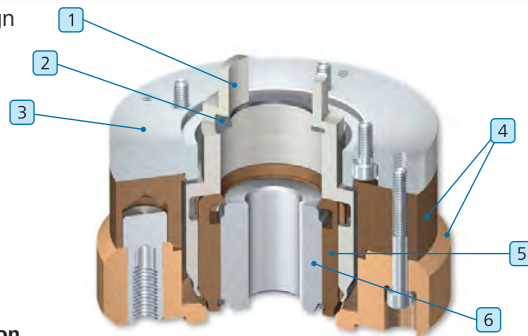
- Technical data AF 07.2 – AF 60.2
- Dimensions Output drive types AF 07.2 – AF 16.2
- Dimensions Output drive types AF 25.2 – AF 60.2

### 7. Safety instructions

The spring stack is subject to high pre-tension. For this reason, the spring stack may only be disassembled from the output mounting flange by authorised staff using the appropriate tools.

## Technical description Output drive type IB/IE - insulated output drive

Figure 1: Design



- 1 Coupling sleeve
- 2 Retaining ring
- 3 Actuator mounting flange (stainless steel)  
(only for mounting to actuator sizes  
SA 07.1/07.2/07.5/07.6)
- 4 Top and bottom made of cloth reinforced laminate
- 5 Output drive plug sleeve made of cloth reinforced  
laminate
- 6 Output drive sleeve

### 1. Function

Corrosion is generated by a natural process: Oxidation of metals in combination with water and oxygen.

The insulated output drive IB/IE avoids corrosion by applying cathodic protection (CS):

Cathodic corrosion protection considerably reduces the corrosion rate on metal structures by permanently lowering the electrical potential. This results in a sufficient decrease in the ion mobility between metal and electrolyte. Consequently, the metal to be protected is made virtually resistant against corrosion.

The insulated output drive has an insulation resistance of  $R_{iso} \geq 1 \text{ M}\Omega$

### 2. Use/application

2.1 The use of an insulated output drive is recommended for the following applications:

For metal constructions in electro conductive environments such as soil or water,  
e.g. corrosion protection for buried gas pipes.

2.2 Note:

When used in gas pipelines, a vent hole in the insulated output drive prevents the forming of overpressure created by gas emanating from the valve shaft.

Isolating spark gaps for lightning conditions between multi-turn actuator and pipe are not part of the AUMA delivery.

A potential supplier is the company Dehn, with the product TFS (isolating spark gaps - ISG).

### 3. Sizes/versions/related documents

3.1 Insulated output drives are available in the following sizes and version:

- IB 07.2, IB 10.2, IB 14.2, IB 16.2, IB 25.2: Bore diameter for valve shaft attachment according to DIN 3210
- IB1 07.2, IB1 10.2, IB1 14.2, IB1 16.2, IB1 25.2: Bore diameter for valve shaft attachment according to EN ISO 5210
- IB3 07.2, IB3 10.2, IB3 14.2, IB3 16.2, IB3 25.2: Bore diameter for valve shaft attachment according to EN ISO 5210
- IE 07.2, IE 10.2, IE 14.2, IE 16.2, IE 25.2: Bore diameter for valve shaft attachment according to DIN 3210
- IB4 07.2, IB4 10.2, IB4 14.2, IB4 16.2, IB4 25.2: Bore diameter for valve shaft attachment according to EN ISO 5210

3.2 Documentation:

- Dimensions Output drive types IB1/IB/IB3/IE - Insulated output drive for SA .2 multi-turn actuators (Y006.244)
- Dimensions Output drive types IB1/IB - Insulated output drive for SA .1 multi-turn actuators and GK/GST gearboxes (Y001.230)
- Dimensions Output drive types IB3/IE - Insulated output drive for SA .1 multi-turn actuators and GK/GST gearboxes (Y001.231)
- Assembly instructions Output drive types IBx - Insulated output drive for SA multi-turn actuators and GK/GST gearboxes (Y008.187)
- Mounting position Output drive type IBx - Insulated output drive at multi-turn actuators of SA type range (Y009.483)

### 4. Mounting options for SA 07.2 – SA 16.2, SA 07.1 – SA 25.1

SA-IB-valve

SA-IB-GK-valve

SA-IB-GST-valve

Note:

To adapt the SA .2 actuators to insulated output drive with flanges F10 and F14 (year of manufacture: 2009 and earlier) available on site, an adapter is required. The adapter can be ordered from AUMA.

For vertical mounting with the actuator pointing downward and the flange pointing upward, please contact AUMA.

### 5. Ambient temperature

–30°C to +70 °C

–40 °C to +80 °C

–60 °C to +60 °C

**Technical description Output drive type IB/IE - insulated output drive**

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**6. Special features**

Test performed according to internal specification KV 1.2.16.2

The high voltage test is performed at 5,000 V (10 seconds). Certified by test stamp.

**7. Recommendation to perform maintenance**

Annual maintenance interval:

- Clean if required.
- Perform visual inspection for damage or cracks. Replace insulated output drive in case of irregularities.
- Measure insulation resistance. Replace insulated output drive for an insulated resistance of  $R_{iso} < 1 \text{ M } \Omega$ .



### 3 *Technical data Linear thrust unit*

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Linear thrust unit with multi-turn actuators LE 12.1 – LE 200.1  
for open-close duty  
for modulating duty

66  
70

## Technical data Linear thrust unit with multi-turn actuators for open-close duty

## General information

AUMA linear thrust units type LE 12.1 – LE 200.1 are used in combination with multi-turn actuators on valves which require linear travel. The linear thrust units convert the output torque of the multi-turn actuator into axial thrust. For other applications, please consult AUMA. 100 % load may only be applied for a short time during opening and closing.

| Type     | Stroke <sup>1)</sup> | Thrust <sup>2)</sup> |              | Valve at-<br>tachment | Thread of<br>valve<br>stem <sup>3)</sup> | Factor <sup>4)</sup> | Suitable<br>multi-turn<br>actuator | Input speed      | Operating<br>speed | Max. perm.<br>thrust <sup>5)</sup> | Weight <sup>6)</sup> |
|----------|----------------------|----------------------|--------------|-----------------------|------------------------------------------|----------------------|------------------------------------|------------------|--------------------|------------------------------------|----------------------|
|          | Max.<br>[mm]         | Min.<br>[kN]         | Max.<br>[kN] |                       |                                          |                      |                                    | [rpm]            | [mm/min]           | Max.<br>[kN]                       | approx.<br>[kg]      |
| LE 12.1  | 50                   | 4                    | 11.5         | F07<br>F10            | 26 x 5 LH                                | 2.6                  | SA 07.2                            | 4                | 20                 | 23                                 | 8                    |
|          | 100                  |                      |              |                       |                                          |                      |                                    | 5.6              | 28                 |                                    | 9                    |
|          |                      |                      |              |                       |                                          |                      |                                    | 8                | 40                 |                                    |                      |
|          | 200                  |                      |              |                       |                                          |                      |                                    | 11               | 55                 |                                    | 10                   |
|          |                      |                      |              |                       |                                          |                      |                                    | 16               | 80                 |                                    |                      |
|          | 400                  |                      |              |                       |                                          |                      |                                    | 22               | 110                |                                    | 13                   |
| LE 25.1  | 50                   | 8                    | 23           | F07<br>F10            | 26 x 5 LH                                | 2.6                  | SA 07.6                            | 32               | 160                | 42                                 | 14                   |
|          | 100                  |                      |              |                       |                                          |                      |                                    | 45 <sup>7)</sup> | 225                |                                    |                      |
|          |                      |                      |              |                       |                                          |                      |                                    | 4                | 20                 |                                    | 8                    |
|          |                      |                      |              |                       |                                          |                      |                                    | 5.6              | 28                 |                                    | 9                    |
|          | 200                  |                      |              |                       |                                          |                      |                                    | 8                | 40                 |                                    |                      |
|          |                      |                      |              |                       |                                          |                      |                                    | 11               | 55                 |                                    | 10                   |
| LE 50.1  | 400                  |                      |              |                       |                                          |                      |                                    | 16               | 80                 |                                    | 13                   |
|          |                      |                      |              |                       |                                          |                      |                                    | 22               | 110                |                                    |                      |
|          | 500                  |                      |              |                       |                                          |                      |                                    | 32               | 160                |                                    | 14                   |
|          |                      |                      |              |                       |                                          |                      |                                    | 45 <sup>7)</sup> | 225                |                                    |                      |
|          | 63                   | 12.5                 | 37.5         | F10                   | 32 x 6 LH                                | 3.2                  | SA 10.2                            | 4                | 24                 | 60                                 | 10                   |
|          |                      |                      |              |                       |                                          |                      |                                    | 5.6              | 33                 |                                    |                      |
| LE 70.1  | 125                  |                      |              |                       |                                          |                      |                                    | 8                | 48                 |                                    | 12                   |
|          |                      |                      |              |                       |                                          |                      |                                    | 11               | 66                 |                                    |                      |
|          | 250                  |                      |              |                       |                                          |                      |                                    | 16               | 96                 |                                    | 15                   |
|          |                      |                      |              |                       |                                          |                      |                                    | 22               | 132                |                                    |                      |
|          | 400                  |                      |              |                       |                                          |                      |                                    | 32               | 192                |                                    | 18                   |
|          |                      |                      |              |                       |                                          |                      |                                    | 45 <sup>7)</sup> | 270                |                                    |                      |
| LE 100.1 | 80                   | 25                   | 64           | F14                   | 40 x 7 LH                                | 3.9                  | SA 14.2                            | 4                | 28                 | 92                                 | 23                   |
|          |                      |                      |              |                       |                                          |                      |                                    | 5.6              | 39                 |                                    |                      |
|          | 160                  |                      |              |                       |                                          |                      |                                    | 8                | 56                 |                                    | 26                   |
|          |                      |                      |              |                       |                                          |                      |                                    | 11               | 77                 |                                    |                      |
|          | 320                  |                      |              |                       |                                          |                      |                                    | 16               | 112                |                                    | 32                   |
|          |                      |                      |              |                       |                                          |                      |                                    | 22               | 154                |                                    |                      |
| LE 200.1 | 400                  |                      |              |                       |                                          |                      |                                    | 32               | 224                |                                    | 35                   |
|          |                      |                      |              |                       |                                          |                      |                                    | 45 <sup>8)</sup> | 315                |                                    |                      |
|          | 80                   | 50                   | 128          | F14                   | 40 x 7 LH                                | 3.9                  | SA 14.6                            | 4                | 28                 | 180                                | 23                   |
|          |                      |                      |              |                       |                                          |                      |                                    | 5.6              | 39                 |                                    |                      |
|          | 160                  |                      |              |                       |                                          |                      |                                    | 8                | 56                 |                                    | 26                   |
|          |                      |                      |              |                       |                                          |                      |                                    | 11               | 77                 |                                    |                      |
|          | 320                  |                      |              |                       |                                          |                      |                                    | 16               | 112                |                                    | 32                   |
|          |                      |                      |              |                       |                                          |                      |                                    | 22               | 154                |                                    |                      |
| LE 200.1 | 400                  |                      |              |                       |                                          |                      |                                    | 32               | 224                |                                    | 35                   |
|          |                      |                      |              |                       |                                          |                      |                                    | 45 <sup>7)</sup> | 315                |                                    |                      |
|          | 100                  | 87                   | 217          | F16                   | 48 x 8 LH                                | 4.6                  | SA 16.2                            | 4                | 32                 | 300                                | 45                   |
|          |                      |                      |              |                       |                                          |                      |                                    | 5.6              | 44                 |                                    |                      |
|          | 200                  |                      |              |                       |                                          |                      |                                    | 8                | 64                 |                                    | 50                   |
|          |                      |                      |              |                       |                                          |                      |                                    | 11               | 88                 |                                    |                      |
|          | 400                  |                      |              |                       |                                          |                      |                                    | 16               | 128                |                                    | 62                   |
|          |                      |                      |              |                       |                                          |                      |                                    | 22               | 176                |                                    |                      |
| LE 200.1 | 500                  |                      |              |                       |                                          |                      |                                    | 32               | 256                |                                    | 68                   |
|          |                      |                      |              |                       |                                          |                      |                                    | 45 <sup>7)</sup> | 360                |                                    |                      |

1) Higher strokes on request

2) For min./max. settings of torque switching at actuator, tolerance  $\pm 20\%$ .

3) LH = Stem extension for clockwise rotation of multi-turn actuator

4) Conversion factor for torque (T in Nm) into thrust (F in kN) for a mean adhesion factor of 0.15 ( $T = F \times f$ )

5) Thrust which can be transmitted in exceptional cases.

6) Weight indicated does neither include multi-turn actuator nor base

7) Max. permissible speed. Higher speed is not permitted.

## Technical data Linear thrust unit with multi-turn actuators for open-close duty

| Weight base | Type         | LE 12.1 | LE 25.1 | LE 50.1 | LE 70.1 | LE 100.1 | LE 200.1 |
|-------------|--------------|---------|---------|---------|---------|----------|----------|
|             | approx. [kg] |         | 11      |         |         | 40       |          |

## Features and functions

|                   |                             |                                                                  |
|-------------------|-----------------------------|------------------------------------------------------------------|
| Type of duty      | Short-time duty S2 - 15 min |                                                                  |
| Self-locking      | Yes                         |                                                                  |
| Closing direction | Standard:                   | LH Stem extension for clockwise rotation of multi-turn actuator  |
|                   | Option:                     | RH Stem retraction for clockwise rotation of multi-turn actuator |

## Valve attachment

|                    |                                                                                                              |                                                       |
|--------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| Output drive types | Coupling stud with metric thread (for dimensions, refer to Dimensions Linear thrust unit LE 12.1 – LE 200.1) |                                                       |
|                    | Standard:                                                                                                    | With flange according to DIN 3358                     |
|                    | Options:                                                                                                     | Base (without valve mounting flange)<br>Spring-loaded |

## Service conditions

|                                            |                                     |                                                                                                        |
|--------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------|
| Ambient temperature                        | Standard:                           | -25 °C to +80 °C                                                                                       |
|                                            | Options:                            | 0 °C to +120 °C<br>-40 °C to +60 °C<br>-60 °C to +60 °C                                                |
|                                            |                                     |                                                                                                        |
| Enclosure protection according to EN 60529 | Standard:                           | IP67                                                                                                   |
| Corrosion protection                       | Standard:                           | KS<br>Suitable for use in areas with high salinity, almost permanent condensation, and high pollution. |
| Base coating                               | Two-component iron-mica combination |                                                                                                        |
| Base colour                                | Standard:                           | AUMA silver-grey (similar to RAL 7037)                                                                 |
|                                            | Option:                             | Available colours on request                                                                           |

## Further information

|                     |                                                                          |  |
|---------------------|--------------------------------------------------------------------------|--|
| EU Directives       | Machinery Directive: (2006/42/EC)                                        |  |
| Reference documents | Technical data SA .2                                                     |  |
|                     | Electrical data SA .2                                                    |  |
|                     | Dimensions LE 12.1 – LE 200.1 with SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2 |  |



## Technical data Linear thrust unit with multi-turn actuators for open-close duty

| Type     | Stroke    | Thrust <sup>1)</sup> |           | Mean thrust <sup>2)</sup> | Valve attachment | Stem thread <sup>3)</sup> | Factor <sup>4)</sup> | Suitable multi-turn actuator | Speed | Running speed | Thrust at stall torque <sup>5)</sup> | Weight <sup>6)</sup> |  |  |  |  |
|----------|-----------|----------------------|-----------|---------------------------|------------------|---------------------------|----------------------|------------------------------|-------|---------------|--------------------------------------|----------------------|--|--|--|--|
|          | Max. [mm] | Min. [kN]            | Max. [kN] | Max. [kN]                 |                  |                           |                      |                              | [rpm] | [mm/min]      | Max. [kN]                            | approx. [kg]         |  |  |  |  |
| LE 12.1  | 50        | 4                    | 11.5      | 6                         | F07<br>F10       | 26 x 5 LH                 | 2.6                  | SAEx 07.2                    | 4     | 20            | 23                                   | 8                    |  |  |  |  |
|          | 100       |                      |           |                           |                  |                           |                      |                              | 5.6   | 28            |                                      | 9                    |  |  |  |  |
|          | 200       |                      |           |                           |                  |                           |                      |                              | 8     | 40            |                                      | 10                   |  |  |  |  |
|          | 400       |                      |           |                           |                  |                           |                      |                              | 11    | 55            |                                      | 13                   |  |  |  |  |
|          | 500       |                      |           |                           |                  |                           |                      |                              | 16    | 80            |                                      | 14                   |  |  |  |  |
|          |           |                      |           |                           |                  |                           |                      |                              | 22    | 110           |                                      |                      |  |  |  |  |
| LE 25.1  | 50        | 8                    | 23        | 12                        | F07<br>F10       | 26 x 5 LH                 | 2.6                  | SAEx 07.6                    | 4     | 20            | 42                                   | 8                    |  |  |  |  |
|          | 100       |                      |           |                           |                  |                           |                      |                              | 5.6   | 28            |                                      | 9                    |  |  |  |  |
|          | 200       |                      |           |                           |                  |                           |                      |                              | 8     | 40            |                                      | 10                   |  |  |  |  |
|          | 400       |                      |           |                           |                  |                           |                      |                              | 11    | 55            |                                      | 13                   |  |  |  |  |
|          | 500       |                      |           |                           |                  |                           |                      |                              | 16    | 80            |                                      | 14                   |  |  |  |  |
|          |           |                      |           |                           |                  |                           |                      |                              | 22    | 110           |                                      |                      |  |  |  |  |
| LE 50.1  | 63        | 12.5                 | 37.5      | 20                        | F10              | 32 x 6 LH                 | 3.2                  | SAEx 10.2                    | 4     | 24            | 60                                   | 10                   |  |  |  |  |
|          | 125       |                      |           |                           |                  |                           |                      |                              | 5.6   | 33            |                                      | 12                   |  |  |  |  |
|          | 250       |                      |           |                           |                  |                           |                      |                              | 8     | 48            |                                      | 15                   |  |  |  |  |
|          | 400       |                      |           |                           |                  |                           |                      |                              | 11    | 66            |                                      | 18                   |  |  |  |  |
|          |           |                      |           |                           |                  |                           |                      |                              | 16    | 96            |                                      |                      |  |  |  |  |
|          |           |                      |           |                           |                  |                           |                      |                              | 22    | 132           |                                      |                      |  |  |  |  |
| LE 70.1  | 80        | 25                   | 64        | 32                        | F14              | 40 x 7 LH                 | 3.9                  | SAEx 14.2                    | 32    | 192           | 92                                   | 23                   |  |  |  |  |
|          | 160       |                      |           |                           |                  |                           |                      |                              | 45    | 270           |                                      | 26                   |  |  |  |  |
|          | 320       |                      |           |                           |                  |                           |                      |                              | 4     | 28            |                                      | 32                   |  |  |  |  |
|          | 400       |                      |           |                           |                  |                           |                      |                              | 5.6   | 39            |                                      | 35                   |  |  |  |  |
|          |           |                      |           |                           |                  |                           |                      |                              | 8     | 56            |                                      |                      |  |  |  |  |
|          |           |                      |           |                           |                  |                           |                      |                              | 11    | 77            |                                      |                      |  |  |  |  |
| LE 100.1 | 80        | 50                   | 128       | 42                        | F14              | 40 x 7 LH                 | 3.9                  | SAEx 14.6                    | 16    | 112           | 180                                  | 26                   |  |  |  |  |
|          | 160       |                      |           | 42 <sup>7)</sup>          |                  |                           |                      |                              | 22    | 154           |                                      | 32                   |  |  |  |  |
|          | 320       |                      |           |                           |                  |                           |                      |                              | 32    | 224           |                                      | 35                   |  |  |  |  |
|          | 400       |                      |           |                           |                  |                           |                      |                              | 45    | 315           |                                      |                      |  |  |  |  |
|          |           |                      |           |                           |                  |                           |                      |                              | 4     | 28            |                                      |                      |  |  |  |  |
|          |           |                      |           |                           |                  |                           |                      |                              | 5.6   | 39            |                                      |                      |  |  |  |  |
| LE 200.1 | 100       | 87                   | 217       | 72                        | F16              | 48 x 8 LH                 | 4.6                  | SAEx 16.2                    | 8     | 64            | 300                                  | 45                   |  |  |  |  |
|          | 200       |                      |           | 72 <sup>7)</sup>          |                  |                           |                      |                              | 11    | 88            |                                      | 50                   |  |  |  |  |
|          | 400       |                      |           |                           |                  |                           |                      |                              | 16    | 128           |                                      | 62                   |  |  |  |  |
|          | 500       |                      |           |                           |                  |                           |                      |                              | 22    | 176           |                                      |                      |  |  |  |  |
|          |           |                      |           |                           |                  |                           |                      |                              | 32    | 256           |                                      |                      |  |  |  |  |
|          |           |                      |           |                           |                  |                           |                      |                              | 45    | 360           |                                      | 68                   |  |  |  |  |

| Weight base | Type         | LE 12.1 | LE 25.1 | LE 50.1 | LE 70.1 | LE 100.1 | LE 200.1 |
|-------------|--------------|---------|---------|---------|---------|----------|----------|
|             | approx. [kg] | 11      |         |         | 40      |          |          |

## General information

AUMA linear thrust units type LE 12.1 – LE 200.1 are used in combination with multi-turn actuators on valves which require linear travel. The linear thrust units convert the output torque of the multi-turn actuator into axial thrust. For other applications, please consult AUMA. 100 % load may only be applied for a short time during opening and closing.

The tests to ensure conformity with ATEX directive 2014/34/EU were performed according to the technical data. For other applications, please consult AUMA. 100 % load may only be applied for a short time during opening and closing. During running operation, sufficient pause times have to be respected. The type of duty must not be exceeded.

1) – 7) Refer to notes on page 2.

## Technical data Linear thrust unit with multi-turn actuators for open-close duty

| Notes on table on page 1  |                                                                                                                                        |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| 1) Thrust                 | For min./max. settings of torque switching at actuator, tolerance $\pm 20\%$ .                                                         |
| 2) Mean thrust            | Permissible average thrust for the whole travel. For more than 3 cycles (1 cycle = OPEN-CLOSE-OPEN) without stop. Please consult AUMA. |
| 3) Stem thread            | LH = Stem extension for clockwise rotation of multi-turn actuator                                                                      |
| 4) Factor                 | Conversion factor for torque (T in Nm) into thrust (F in kN) for a mean adhesion factor of 0.15 ( $T = F \times f$ )                   |
| 5) Thrust at stall torque | Thrust for actuator stall torque and 100 % nominal voltage                                                                             |
| 6) Weight                 | Weight indicated does neither include multi-turn actuator nor base                                                                     |
| 7) Mean thrust 42 and 72  | Maximum for 2 cycles without stop. For more than 2 cycles please contact AUMA.                                                         |

| Features and functions |                                                                                                            |                                                                  |
|------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| Explosion protection   | Linear thrust unit:                                                                                        | II2G c IIC T4 according to ATEX CD 2014/34/EU                    |
|                        | Multi-turn actuator:                                                                                       | II2G c IIC T4 according to ATEX CD 2014/34/EU                    |
| Type of duty           | Short-time duty S2, max. 3 cycles (OPEN-CLOSE-OPEN) based on mean thrust and standard ambient temperature. |                                                                  |
| Self-locking           | Yes                                                                                                        |                                                                  |
| Input speed            | Refer to page 1                                                                                            |                                                                  |
| Closing direction      | Standard:                                                                                                  | LH Stem extension for clockwise rotation of multi-turn actuator  |
|                        | Option:                                                                                                    | RH Stem retraction for clockwise rotation of multi-turn actuator |

| Valve attachment   |                                                                                                             |                                                   |
|--------------------|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| Output drive types | Coupling stud with metric thread (for dimensions, refer to Dimensions Linear thrust unit LE 12.1 – LE 200.1 |                                                   |
|                    | Standard:                                                                                                   | With flange according to DIN 3358                 |
|                    | Options:                                                                                                    | Base (without valve mounting flange)<br>Ferderung |

| Service conditions                         |                                     |                                                                                   |                                                                                                     |
|--------------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Ambient temperature                        | Standard:                           | –25 °C to +40 °C                                                                  |                                                                                                     |
|                                            | Options:                            | –40 °C to +40 °C                                                                  |                                                                                                     |
|                                            |                                     | –60 °C to +40 °C                                                                  |                                                                                                     |
|                                            |                                     | Special sizings with temperatures up to +60 °C are possible, please contact AUMA. |                                                                                                     |
| Enclosure protection according to EN 60529 | Standard:                           | IP67                                                                              |                                                                                                     |
| Corrosion protection                       | Standard:                           | KS                                                                                | Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.    |
|                                            | Option:                             | KX                                                                                | Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution. |
| Base coating                               | Two-component iron-mica combination |                                                                                   |                                                                                                     |
| Base colour                                | Standard:                           | AUMA silver-grey (similar to RAL 7037)                                            |                                                                                                     |
|                                            | Option:                             | Available colours on request                                                      |                                                                                                     |

| Further information |                                                                   |
|---------------------|-------------------------------------------------------------------|
| EU Directives       | ATEX Directive: (2014/34/EU)<br>Machinery Directive: (2006/42/EC) |
| Reference documents | Technical data SAEx .2<br>Electrical data SAEx .2                 |

## Technical data Linear thrust unit with multi-turn actuators for modulating duty

## General information

AUMA linear thrust units type LE 12.1 – LE 200.1 are used in combination with multi-turn actuators on valves which require linear travel. The linear thrust units convert the output torque of the multi-turn actuator into axial thrust. For other applications, please consult AUMA. 100 % load may only be applied for a short time during opening and closing.

| Type     | Stroke <sup>1)</sup> | Thrust <sup>2)</sup> |           | Thrust for modulating torque <sup>3)</sup> | Valve attachment | Thread of valve stem <sup>4)</sup> | Factor <sup>5)</sup> | Suitable multi-turn actuator | Input speed      | Operating speed | Max. perm. thrust <sup>6)</sup> | Weight <sup>7)</sup> |
|----------|----------------------|----------------------|-----------|--------------------------------------------|------------------|------------------------------------|----------------------|------------------------------|------------------|-----------------|---------------------------------|----------------------|
|          | Max. [mm]            | Min. [kN]            | Max. [kN] | Max. [kN]                                  |                  |                                    |                      |                              | [rpm]            | [mm/min]        | Max. [kN]                       | approx. [kg]         |
| LE 12.1  | 50                   | 6                    | 11.5      | 5.8                                        | F07<br>F10       | 26 x 5 LH                          | 2.6                  | SAR 07.2                     | 4                | 20              | 23                              | 8                    |
|          | 100                  |                      |           |                                            |                  |                                    |                      |                              | 5.6              | 28              |                                 | 9                    |
|          | 200                  |                      |           |                                            |                  |                                    |                      |                              | 8                | 40              |                                 | 10                   |
|          | 400                  |                      |           |                                            |                  |                                    |                      |                              | 11               | 55              |                                 | 13                   |
|          | 500                  |                      |           |                                            |                  |                                    |                      |                              | 16               | 80              |                                 | 14                   |
|          |                      |                      |           |                                            |                  |                                    |                      |                              | 22               | 110             |                                 |                      |
| LE 25.1  | 50                   | 12                   | 23        | 11.6                                       | F07<br>F10       | 26 x 5 LH                          | 2.6                  | SAR 07.6                     | 32               | 160             | 42                              | 13                   |
|          | 100                  |                      |           |                                            |                  |                                    |                      |                              | 45 <sup>8)</sup> | 225             |                                 | 14                   |
|          | 200                  |                      |           |                                            |                  |                                    |                      |                              | 4                | 20              |                                 | 8                    |
|          | 400                  |                      |           |                                            |                  |                                    |                      |                              | 5.6              | 28              |                                 | 9                    |
|          | 500                  |                      |           |                                            |                  |                                    |                      |                              | 8                | 40              |                                 | 10                   |
|          |                      |                      |           |                                            |                  |                                    |                      |                              | 11               | 55              |                                 | 13                   |
| LE 50.1  | 63                   | 20                   | 37.5      | 18.8                                       | F10              | 32 x 6 LH                          | 3.2                  | SAR 10.2                     | 16               | 80              | 60                              | 13                   |
|          | 125                  |                      |           |                                            |                  |                                    |                      |                              | 22               | 110             |                                 | 14                   |
|          | 250                  |                      |           |                                            |                  |                                    |                      |                              | 32               | 160             |                                 | 15                   |
|          | 400                  |                      |           |                                            |                  |                                    |                      |                              | 45 <sup>8)</sup> | 225             |                                 | 18                   |
|          |                      |                      |           |                                            |                  |                                    |                      |                              | 4                | 24              |                                 | 10                   |
|          |                      |                      |           |                                            |                  |                                    |                      |                              | 5.6              | 33              |                                 | 12                   |
| LE 70.1  | 80                   | 30                   | 64        | 30.8                                       | F14              | 40 x 7 LH                          | 3.9                  | SAR 14.2                     | 8                | 48              | 92                              | 15                   |
|          | 160                  |                      |           |                                            |                  |                                    |                      |                              | 11               | 66              |                                 | 18                   |
|          | 320                  |                      |           |                                            |                  |                                    |                      |                              | 16               | 96              |                                 | 23                   |
|          | 400                  |                      |           |                                            |                  |                                    |                      |                              | 22               | 132             |                                 | 26                   |
|          |                      |                      |           |                                            |                  |                                    |                      |                              | 32               | 192             |                                 | 32                   |
|          |                      |                      |           |                                            |                  |                                    |                      |                              | 45 <sup>8)</sup> | 270             |                                 | 35                   |
| LE 100.1 | 80                   | 64                   | 128       | 51.3                                       | F14              | 40 x 7 LH                          | 3.9                  | SAR 14.6                     | 4                | 28              | 180                             | 23                   |
|          | 160                  |                      |           |                                            |                  |                                    |                      |                              | 5.6              | 39              |                                 | 26                   |
|          | 320                  |                      |           |                                            |                  |                                    |                      |                              | 8                | 56              |                                 | 32                   |
|          | 400                  |                      |           |                                            |                  |                                    |                      |                              | 11               | 77              |                                 | 35                   |
|          |                      |                      |           |                                            |                  |                                    |                      |                              | 16               | 112             |                                 | 45                   |
|          |                      |                      |           |                                            |                  |                                    |                      |                              | 22               | 154             |                                 | 50                   |
| LE 200.1 | 100                  | 110                  | 217       | 87                                         | F16              | 48 x 8 LH                          | 4.6                  | SAR 16.2                     | 32               | 224             | 300                             | 62                   |
|          | 200                  |                      |           |                                            |                  |                                    |                      |                              | 45 <sup>8)</sup> | 315             |                                 | 68                   |
|          | 400                  |                      |           |                                            |                  |                                    |                      |                              | 4                | 32              |                                 |                      |
|          | 500                  |                      |           |                                            |                  |                                    |                      |                              | 5.6              | 44              |                                 |                      |
|          |                      |                      |           |                                            |                  |                                    |                      |                              | 8                | 64              |                                 |                      |
|          |                      |                      |           |                                            |                  |                                    |                      |                              | 11               | 88              |                                 |                      |

1) Higher strokes on request

2) For min./max. settings of torque switching at actuator, tolerance  $\pm 20\%$ .

3) Permissible maximum thrust for modulating torque

4) LH = Stem extension for clockwise rotation of multi-turn actuator

5) Conversion factor for torque (T in Nm) into thrust (F in kN) for a mean adhesion factor of 0.15 ( $T = F \times f$ )

6) Thrust for modulating actuator stall torque and 100 % nominal voltage

7) Weight indicated does neither include multi-turn actuator nor base

## Technical data Linear thrust unit with multi-turn actuators for modulating duty

8) Max. permissible speed. Higher speed is not permitted.

| Weight base | Type         | LE 12.1 | LE 25.1 | LE 50.1 | LE 70.1 | LE 100.1 | LE 200.1 |
|-------------|--------------|---------|---------|---------|---------|----------|----------|
|             | approx. [kg] |         | 11      |         |         | 40       |          |

## Features and functions

|                   |                                                                            |                                                                  |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------|
| Type of duty      | Intermittent duty S4 – 25 %; based on maximum thrust for modulating torque |                                                                  |
| Self-locking      | Yes                                                                        |                                                                  |
| Input speed       | Refer to page 1                                                            |                                                                  |
| Closing direction | Standard:                                                                  | LH Stem extension for clockwise rotation of multi-turn actuator  |
|                   | Option:                                                                    | RH Stem retraction for clockwise rotation of multi-turn actuator |

## Valve attachment

|                    |                                                                                                              |                                                       |
|--------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| Output drive types | Coupling stud with metric thread (for dimensions, refer to Dimensions Linear thrust unit LE 12.1 – LE 200.1) |                                                       |
|                    | Standard:                                                                                                    | With flange according to DIN 3358                     |
|                    | Options:                                                                                                     | Base (without valve mounting flange)<br>Spring-loaded |

## Service conditions

|                                            |                                     |                                                                                                           |
|--------------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------|
| Ambient temperature                        | Standard:                           | -25 °C to +80 °C                                                                                          |
|                                            | Options:                            | 0 °C to +120 °C<br>-40 °C to +60 °C<br>-60 °C to +60 °C                                                   |
|                                            |                                     |                                                                                                           |
| Enclosure protection according to EN 60529 | Standard:                           | IP67                                                                                                      |
| Corrosion protection                       | Standard:                           | KS<br>Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.    |
|                                            | Option:                             | KX<br>Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution. |
| Base coating                               | Two-component iron-mica combination |                                                                                                           |
| Base colour                                | Standard:                           | AUMA silver-grey (similar to RAL 7037)                                                                    |
|                                            | Option:                             | Available colours on request                                                                              |

## Further information

|                     |                                                                          |  |
|---------------------|--------------------------------------------------------------------------|--|
| EU Directives       | Machinery Directive: (2006/42/EC)                                        |  |
| Reference documents | Technical data SAR .2                                                    |  |
|                     | Electrical data SAR .2                                                   |  |
|                     | Dimensions LE 12.1 – LE 200.1 with SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2 |  |

## Technical data Linear thrust unit with multi-turn actuators for modulating duty

| Type     | Stroke    | Thrust <sup>1)</sup> |           | Thrust at modulating torque <sup>2)</sup> | Valve attachment | Stem thread <sup>3)</sup> | Factor <sup>4)</sup> | Suitable multi-turn actuator | Speed            | Running speed | Thrust at stall torque <sup>5)</sup> | Weight <sup>6)</sup> |
|----------|-----------|----------------------|-----------|-------------------------------------------|------------------|---------------------------|----------------------|------------------------------|------------------|---------------|--------------------------------------|----------------------|
|          |           | Min. [kN]            | Max. [kN] |                                           |                  |                           |                      |                              |                  |               |                                      |                      |
|          | Max. [mm] |                      |           | Max. [kN]                                 |                  |                           |                      |                              | [rpm]            | [mm/min]      | Max. [kN]                            | approx. [kg]         |
| LE 12.1  | 50        | 6                    | 11.5      | 6                                         | F07<br>F10       | 26 x 5 LH                 | 2.6                  | SAREx 07.2                   | 4                | 20            | 23                                   | 8                    |
|          | 100       |                      |           |                                           |                  |                           |                      |                              | 5.6              | 28            |                                      | 9                    |
|          |           |                      |           |                                           |                  |                           |                      |                              | 8                | 40            |                                      |                      |
|          | 200       |                      |           |                                           |                  |                           |                      |                              | 11               | 55            |                                      | 10                   |
|          |           |                      |           |                                           |                  |                           |                      |                              | 16               | 80            |                                      |                      |
|          | 400       |                      |           |                                           |                  |                           |                      |                              | 22               | 110           |                                      | 13                   |
| LE 25.1  | 50        | 12                   | 23        | 12                                        | F07<br>F10       | 26 x 5 LH                 | 2.6                  | SAREx 07.6                   | 32               | 160           | 42                                   | 14                   |
|          | 100       |                      |           |                                           |                  |                           |                      |                              | 45               | 225           |                                      |                      |
|          |           |                      |           |                                           |                  |                           |                      |                              | 4                | 20            |                                      | 8                    |
|          |           |                      |           |                                           |                  |                           |                      |                              | 5.6              | 28            |                                      | 9                    |
|          |           |                      |           |                                           |                  |                           |                      |                              | 8                | 40            |                                      |                      |
|          | 200       |                      |           |                                           |                  |                           |                      |                              | 11               | 55            |                                      | 10                   |
| LE 50.1  | 400       |                      |           |                                           |                  |                           |                      |                              | 16               | 80            |                                      | 13                   |
|          |           |                      |           |                                           |                  |                           |                      |                              | 22               | 110           |                                      |                      |
|          | 500       |                      |           |                                           |                  |                           |                      |                              | 32               | 160           |                                      | 14                   |
|          |           |                      |           |                                           |                  |                           |                      |                              | 45               | 225           |                                      |                      |
|          |           |                      |           |                                           |                  |                           |                      |                              | 4                | 24            | 60                                   | 10                   |
|          | 63        | 20                   | 37.5      | 20                                        | F10              | 32 x 6 LH                 | 3.2                  | SAREx 10.2                   | 5.6              | 33            |                                      | 12                   |
| LE 70.1  | 125       |                      |           |                                           |                  |                           |                      |                              | 8                | 48            |                                      |                      |
|          |           |                      |           |                                           |                  |                           |                      |                              | 11               | 66            |                                      | 15                   |
|          | 250       |                      |           |                                           |                  |                           |                      |                              | 16               | 96            |                                      |                      |
|          |           |                      |           |                                           |                  |                           |                      |                              | 22               | 132           |                                      | 18                   |
|          | 400       |                      |           |                                           |                  |                           |                      |                              | 32               | 192           |                                      |                      |
| LE 100.1 |           |                      |           |                                           |                  |                           |                      |                              | 45               | 270           |                                      |                      |
|          |           |                      |           |                                           |                  |                           |                      |                              | 4                | 28            | 92                                   | 23                   |
|          | 80        | 30                   | 64        | 30                                        | F14              | 40 x 7 LH                 | 3.9                  | SAREx 14.2                   | 5.6              | 39            |                                      | 26                   |
|          | 160       |                      |           |                                           |                  |                           |                      |                              | 8                | 56            |                                      |                      |
|          |           |                      |           |                                           |                  |                           |                      |                              | 11               | 77            |                                      | 32                   |
|          | 320       |                      |           |                                           |                  |                           |                      |                              | 16               | 112           |                                      |                      |
| LE 200.1 |           |                      |           |                                           |                  |                           |                      |                              | 22               | 154           |                                      | 35                   |
|          | 400       |                      |           |                                           |                  |                           |                      |                              | 32               | 224           |                                      |                      |
|          |           |                      |           |                                           |                  |                           |                      |                              | 45               | 315           |                                      |                      |
|          |           |                      |           |                                           |                  |                           |                      |                              | 4                | 28            | 180                                  | 23                   |
|          | 80        | 64                   | 128       | 52                                        | F14              | 40 x 7 LH                 | 3.9                  | SAREx 14.6                   | 5.6              | 39            |                                      | 26                   |
|          | 160       |                      |           |                                           |                  |                           |                      |                              | 8                | 56            |                                      |                      |
|          |           |                      |           |                                           |                  |                           |                      |                              | 11               | 77            |                                      | 32                   |
|          | 320       |                      |           |                                           |                  |                           |                      |                              | 16               | 112           |                                      |                      |
|          |           |                      |           |                                           |                  |                           |                      |                              | 22               | 154           |                                      | 35                   |
|          | 400       |                      |           |                                           |                  |                           |                      |                              | 32 <sup>7)</sup> | 224           |                                      |                      |
| LE 200.1 |           |                      |           |                                           |                  |                           |                      |                              | 45 <sup>8)</sup> | 315           |                                      |                      |
|          |           |                      |           |                                           |                  |                           |                      |                              | 4                | 32            | 300                                  | 45                   |
|          | 100       | 110                  | 217       | 87                                        | F16              | 48 x 8 LH                 | 4.6                  | SAREx 16.2                   | 5.6              | 44            |                                      | 50                   |
|          | 200       |                      |           |                                           |                  |                           |                      |                              | 8                | 64            |                                      |                      |
|          |           |                      |           |                                           |                  |                           |                      |                              | 11               | 88            |                                      | 62                   |
|          | 400       |                      |           |                                           |                  |                           |                      |                              | 16               | 128           |                                      |                      |
|          |           |                      |           |                                           |                  |                           |                      |                              | 22               | 176           |                                      | 68                   |
|          | 500       |                      |           |                                           |                  |                           |                      |                              | 32 <sup>7)</sup> | 256           |                                      |                      |
|          |           |                      |           |                                           |                  |                           |                      |                              | 45 <sup>8)</sup> | 360           |                                      |                      |

| Weight base | Type         | LE 12.1 | LE 25.1 | LE 50.1 | LE 70.1 | LE 100.1 | LE 200.1 |
|-------------|--------------|---------|---------|---------|---------|----------|----------|
|             | approx. [kg] | 11      |         |         | 40      |          |          |

## General information

AUMA linear thrust units type LE 12.1 – LE 200.1 are used in combination with multi-turn actuators on valves which require linear travel. The linear thrust units convert the output torque of the multi-turn actuator into axial thrust. For other applications, please consult AUMA. 100 % load may only be applied for a short time during opening and closing.

The tests to ensure conformity with ATEX directive 2014/34/EU were performed according to the technical data. For other applications, please consult AUMA. 100 % load may only be applied for a short time during opening and closing. The type of duty must not be exceeded.

1) – 8) Refer to notes on page 2.

## Technical data Linear thrust unit with multi-turn actuators for modulating duty

| Notes on table on page 1         |                                                                                                                      |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------|
| 1) Thrust                        | For min./max. settings of torque switching at actuator, tolerance $\pm 20\%$ .                                       |
| 2) Thrust for modulating torque. | Permissible maximum thrust for modulating torque                                                                     |
| 3) Stem thread                   | LH = Stem extension for clockwise rotation of multi-turn actuator                                                    |
| 4) Factor                        | Conversion factor for torque (T in Nm) into thrust (F in kN) for a mean adhesion factor of 0.15 ( $T = F \times f$ ) |
| 5) Thrust at stall torque        | Thrust for modulating actuator stall torque and 100 % nominal voltage                                                |
| 6) Weight                        | Weight indicated does neither include multi-turn actuator nor base                                                   |
| 7) Output speed 32               | On time reduced to S4 - 20 %                                                                                         |
| 8) Output speed 45               | On time reduced to S4 - 15 %                                                                                         |

| Features and functions |                                                                            |                                                                  |
|------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------|
| Explosion protection   | Linear thrust unit:                                                        | II2G c IIC T4 according to ATEX CD 2014/34/EU                    |
|                        | Multi-turn actuator:                                                       | II2G c IIC T4 according to ATEX CD 2014/34/EU                    |
| Type of duty           | Intermittent duty S4 – 25 %; based on maximum thrust for modulating torque |                                                                  |
| Self-locking           | Yes                                                                        |                                                                  |
| Input speed            | Refer to page 1                                                            |                                                                  |
| Closing direction      | Standard:                                                                  | LH Stem extension for clockwise rotation of multi-turn actuator  |
|                        | Option:                                                                    | RH Stem retraction for clockwise rotation of multi-turn actuator |

| Valve attachment   |                                                                                                             |                                                       |
|--------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| Output drive types | Coupling stud with metric thread (for dimensions, refer to Dimensions Linear thrust unit LE 12.1 – LE 200.1 |                                                       |
|                    | Standard:                                                                                                   | With flange according to DIN 3358                     |
|                    | Options:                                                                                                    | Base (without valve mounting flange)<br>Spring-loaded |

| Service conditions                         |                                                                                   |                                        |                                                                                                     |
|--------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------|
| Ambient temperature                        | Standard:                                                                         | –25 °C to +40 °C                       |                                                                                                     |
|                                            | Options:                                                                          | –40 °C to +40 °C                       |                                                                                                     |
|                                            | Special sizings with temperatures up to +60 °C are possible, please contact AUMA. |                                        |                                                                                                     |
| Enclosure protection according to EN 60529 | Standard:                                                                         | IP67                                   |                                                                                                     |
| Corrosion protection                       | Standard:                                                                         | KS                                     | Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.    |
|                                            | Option:                                                                           | KX                                     | Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution. |
| Base coating                               | Two-component iron-mica combination                                               |                                        |                                                                                                     |
| Base colour                                | Standard:                                                                         | AUMA silver-grey (similar to RAL 7037) |                                                                                                     |
|                                            | Option:                                                                           | Available colours on request           |                                                                                                     |

| Further information |                                                                   |
|---------------------|-------------------------------------------------------------------|
| EU Directives       | ATEX Directive: (2014/34/EU)<br>Machinery Directive: (2006/42/EC) |
| Reference documents | Technical data SAREx .2<br>Electrical data SAREx .2               |



## 4 Technical data Miscellaneous

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### Limit sensing for signalling position and end positions

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### Painting specifications

|                               |     |
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|                                                    |     |
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## Technical data Valve position indicator for gearboxes with swing angles &lt; 180°

| Features and functions                       |                                                                                    |                                                                                                                                                                |                                                                                                            |                               |                                            |
|----------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------|
| Version                                      | Closing direction clockwise, closing direction counterclockwise                    |                                                                                                                                                                |                                                                                                            |                               |                                            |
| Swing angle                                  | Standard:                                                                          | 90° - adjustable within a tolerance range of ±8°;<br>Factory setting to 90°, unless another angle is defined in the order.                                     |                                                                                                            |                               |                                            |
|                                              | Options:                                                                           | 34° – 50°, 50° – 66°, 66° – 82°, 98° – 130°, 130° – 180°; adjustable                                                                                           |                                                                                                            |                               |                                            |
| Power supply                                 | 24 V DC +/- 15 % smoothed, max. 80 mA                                              |                                                                                                                                                                |                                                                                                            |                               |                                            |
| Status signal                                | Contactless end position switches (Hall sensors) for end positions OPEN and CLOSED |                                                                                                                                                                |                                                                                                            |                               |                                            |
|                                              | Standard:                                                                          | 2 potential-free output contacts with one common for signalling end position OPEN, end position CLOSED<br>Max. 250 V AC, 3 A (resistive load), min. 5 V, 10 mA |                                                                                                            |                               |                                            |
|                                              | Option:                                                                            | RWG with max. 250 V AC, 3 A (resistive load), min. 5 V, 10 mA                                                                                                  |                                                                                                            |                               |                                            |
| Position feedback signal, analogue (options) | Potentiometer:                                                                     | Film potentiometer 5 kΩ/0.5 W/linearity ±0.5 %<br>Wire potentiometer 5 kΩ/1.5 W/linearity ±0.5 %                                                               |                                                                                                            |                               |                                            |
|                                              | Position transmitter:                                                              | Electronic position transmitter RWG:<br>0/4 – 20 mA in 3 or 4-wire version<br>4 – 20 mA in 2-wire version                                                      |                                                                                                            |                               |                                            |
|                                              |                                                                                    | <b>Technical data RWG</b>                                                                                                                                      |                                                                                                            |                               |                                            |
|                                              |                                                                                    |                                                                                                                                                                |                                                                                                            | 3-wire or 4-wire system       | 2-wire system                              |
|                                              |                                                                                    | Output current                                                                                                                                                 | I <sub>a</sub>                                                                                             | 0 – 20 mA, 4 – 20 mA          | 4 – 20 mA                                  |
|                                              |                                                                                    | Power supply                                                                                                                                                   | U <sub>v</sub>                                                                                             | 24 V DC (18 – 32 V)           | 14 V DC + (I x R <sub>B</sub> ), max. 30 V |
|                                              |                                                                                    | Max. current consumption                                                                                                                                       | I                                                                                                          | 24 mA at 20 mA output current | 20 mA                                      |
| Max. load                                    | R <sub>B</sub>                                                                     | 600 Ω                                                                                                                                                          | (U <sub>v</sub> - 14 V)/20 mA                                                                              |                               |                                            |
| Mechanical position indicator                | Standard:                                                                          | Continuous indication                                                                                                                                          |                                                                                                            |                               |                                            |
|                                              | Option:                                                                            | Adjustable indicator disc with symbols OPEN and CLOSED                                                                                                         |                                                                                                            |                               |                                            |
| Heater in switch compartment                 | Self-regulating PTC heater; 0 – 20 W; 110 – 250 V AC/DC or 24 – 48 V AC/DC         |                                                                                                                                                                |                                                                                                            |                               |                                            |
| Electrical connection                        | AUMA plug/socket connector with crimp connection                                   |                                                                                                                                                                |                                                                                                            |                               |                                            |
| Threads for cable entries                    | Standard:                                                                          | Metric threads                                                                                                                                                 |                                                                                                            |                               |                                            |
|                                              | Options:                                                                           | Pg-threads, NPT-threads, G-threads                                                                                                                             |                                                                                                            |                               |                                            |
| Terminal plan                                | APG AP301 (basic version)                                                          |                                                                                                                                                                |                                                                                                            |                               |                                            |
|                                              |                                                                                    |                                                                                                                                                                |                                                                                                            |                               |                                            |
| Service conditions                           |                                                                                    |                                                                                                                                                                |                                                                                                            |                               |                                            |
| Mounting position                            | Any position                                                                       |                                                                                                                                                                |                                                                                                            |                               |                                            |
| Ambient temperature                          | –40 °C to +80 °C                                                                   |                                                                                                                                                                |                                                                                                            |                               |                                            |
| Enclosure protection according to EN 60529   | Standard:                                                                          | IP68 -3, dust and water tight up to max. 3 m head of water                                                                                                     |                                                                                                            |                               |                                            |
|                                              | Option:                                                                            | IP68-8, dust and water tight up to max. 8 m head of water                                                                                                      |                                                                                                            |                               |                                            |
| Corrosion protection                         | Standard:                                                                          | KN                                                                                                                                                             | Suitable for installation in industrial units, in water or power plants with a low pollutant concentration |                               |                                            |
|                                              | Options:                                                                           | KS                                                                                                                                                             | Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.           |                               |                                            |
|                                              |                                                                                    | KX                                                                                                                                                             | Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.        |                               |                                            |
| Coating                                      | Two-component iron-mica combination                                                |                                                                                                                                                                |                                                                                                            |                               |                                            |
| Colour                                       | Standard:                                                                          | AUMA silver-grey (similar to RAL 7037)                                                                                                                         |                                                                                                            |                               |                                            |
|                                              | Option:                                                                            | Available colours on request                                                                                                                                   |                                                                                                            |                               |                                            |
| Mounting to gearbox                          | Standard:                                                                          | AUMA GS part-turn gearbox/GF lever gearbox with AUMA adapter:<br>Supply for mounting to external gearboxes without adapter and without retrofit kit            |                                                                                                            |                               |                                            |
|                                              | Option:                                                                            | Later retrofitting to AUMA GS part-turn gearboxes/GF lever gearboxes:<br>Using AUMA retrofit kit                                                               |                                                                                                            |                               |                                            |

Technical data Valve position indicator for gearboxes with swing angles < 180°

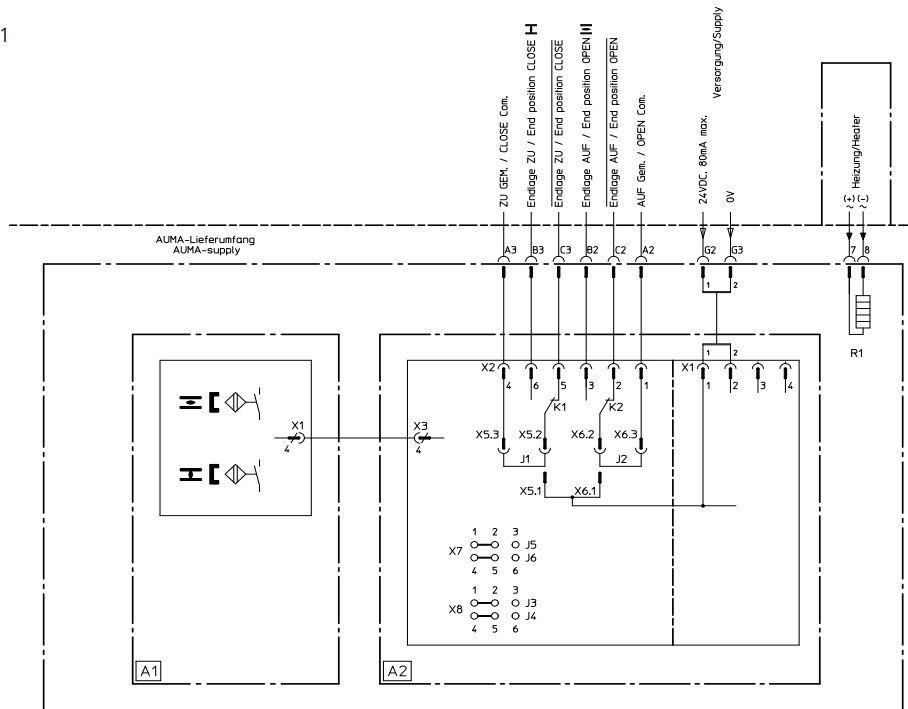
| Adapter: | Type                     | Screws | Tightening torque T <sub>A</sub> [Nm]<br>Strength class |             |
|----------|--------------------------|--------|---------------------------------------------------------|-------------|
|          |                          |        | A2-70/A4-70                                             | A2-80/A4-80 |
|          | Adapter:                 | M4     | 2                                                       | –           |
|          | GS/GF 50.3               | M5     | 5                                                       | –           |
|          | GS/GF 63.3 – GS/GF 125.3 | M6     | 8                                                       | 10          |
|          | GS/GF 160.3              | M8     | 18                                                      | 24          |
|          | GS/GF 200.3              | M10    | 36                                                      | 48          |
|          | GS/GF 250.3              | M12    | 61                                                      | 82          |
|          | GS 315 – GS 500          | M12    | 61                                                      | 82          |

| Further information |                                                                                                                               |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------|
| EU Directives       | Electromagnetic Compatibility (EMC): (2014/30/EU)<br>Low Voltage Directive: (2014/35/EU)<br>Machinery Directive: (2006/42/EC) |
| Reference documents | Brochure Electric actuators for industrial valve automation                                                                   |

## WSG 90.1 Position indicator for worm gearboxes

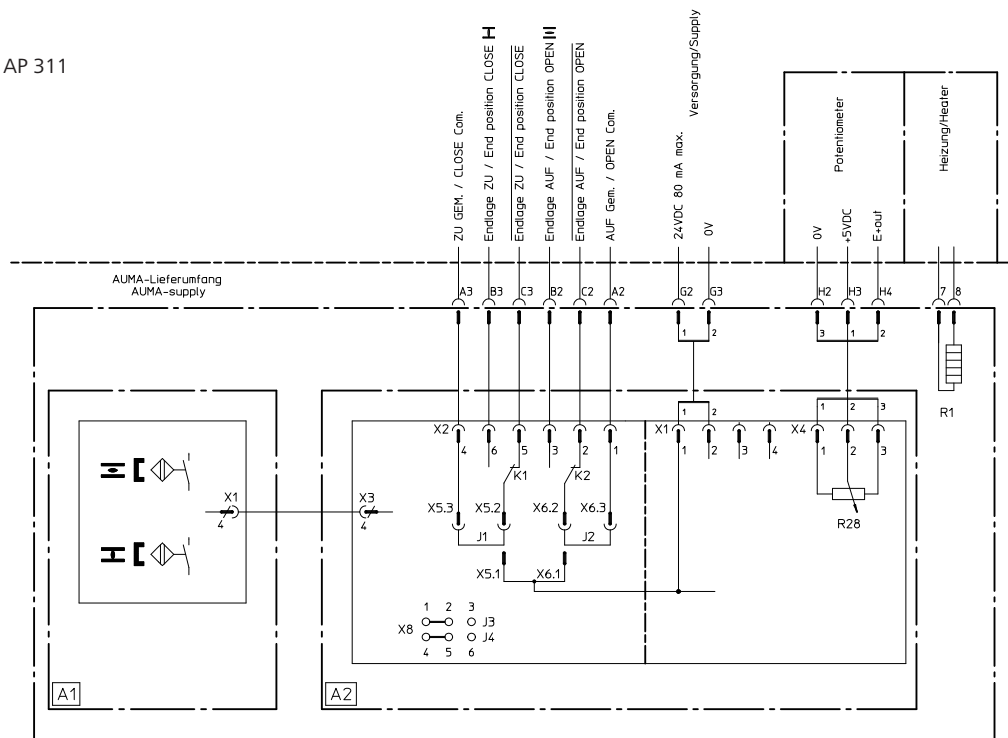
## AP 300

with heater (option) AP 301



## AP 310

with heater (option) AP 311

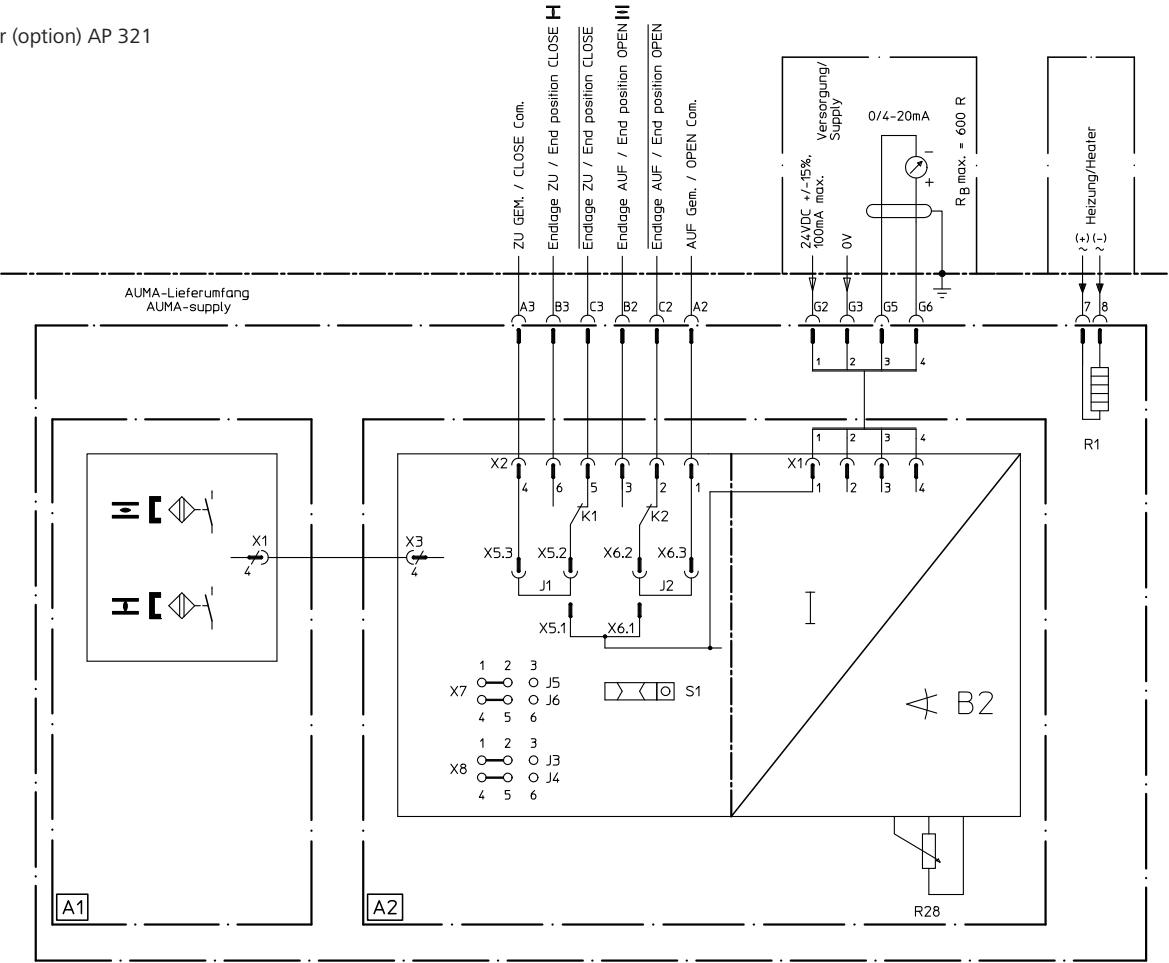


|     |                                     |
|-----|-------------------------------------|
| A1  | Electronic end position detection   |
| A2  | Interface board (clockwise closing) |
| K1  | Relay end positions CLOSED          |
| K2  | Relay end positions OPEN            |
| R1  | Heater                              |
| R28 | Potentiometer                       |

Switching power: Max. 250 V AC / 3 A /  $\cos \varphi = 1$   
Min. 12 V / 10 mA

WSG 90.1 Position indicator for worm gearboxes

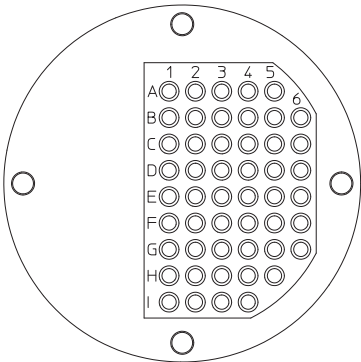
AP 320  
with heater (option) AP 321



|     |                                                     |                  |                                |
|-----|-----------------------------------------------------|------------------|--------------------------------|
| A1  | Electronic end position detection                   |                  |                                |
| A2  | Interface board (clockwise closing)                 |                  |                                |
| B2  | Electronic position transmitter RWG (4-wire system) |                  |                                |
| K1  | Relay end positions CLOSED                          | Switching power: | Max. 250 V AC / 3A / cos φ = 1 |
| K2  | Relay end positions OPEN                            |                  | Min. 12 V / 10 mA              |
| R1  | Heater                                              |                  |                                |
| R28 | Potentiometer                                       |                  |                                |

Plug/socket connector with crimp type connection for flexible wires, 40 poles; 0.75 – 1.0 mm², upon request 0.5 mm² or 1.5 mm²

Polar diagram of socket carrier



## Technical data Limit switching device for manually operated valves

| Type     | Output torque | Thrust permissible for Output drive type A | Valve attachment <sup>1)</sup> |                 |                         | Handwheel |               | Weight <sup>2)</sup> |
|----------|---------------|--------------------------------------------|--------------------------------|-----------------|-------------------------|-----------|---------------|----------------------|
|          | Max. [Nm]     | [kN]                                       | Standard EN ISO 5210           | Option DIN 3210 | Max. Ø rising stem [mm] | Ø [mm]    | Reduct. ratio | approx. [kg]         |
| WSH 10.2 | 170           | 70                                         | F10                            | G0              | 40                      | 400       | 1:1           | 10                   |
| WSH 14.2 | 400           | 160                                        | F14                            | G1/2            | 57                      | 400/500   | 1:1           | 16                   |
| WSH 16.2 | 800           | 250                                        | F16                            | G3              | 75                      | 630       | 1:1           | 22                   |

## General information

The AUMA limit switching devices allow valve operation via handwheel; at the same time, reaching the valve end position is indicated via the end position switches. A mechanical position indicator shows the valve position.

As an option, the limit switching device can be equipped with a remote position transmitter to transmit the valve position as 0/4 – 20 mA current signal to the DCS.

## Notes on table

|                     |                                                                                                                            |
|---------------------|----------------------------------------------------------------------------------------------------------------------------|
| 1) Valve attachment | Indicated flange sizes apply for output drive types A and B1.<br>Refer to dimension sheets for further output drive types. |
| 2) Weight           | Indicated weight includes limit switching device with standard electrical connection, output drive type B1 and handwheel.  |

## Features and functions

|                           |                                   |                                                                            |
|---------------------------|-----------------------------------|----------------------------------------------------------------------------|
| Electrical connection     | Standard:                         | AUMA plug/socket connector with screw-type connection                      |
|                           | Options:                          | Terminals or crimp connection                                              |
| Threads for cable entries | Standard:                         | Metric threads                                                             |
|                           | Options:                          | Pg-threads, NPT-threads, G-threads                                         |
| Terminal plan             | TPA90R00A-001-000 (basic version) |                                                                            |
| Valve attachment          | Standard:                         | B1 according to EN ISO 5210                                                |
|                           | Options:                          | A, B2, B3, B4 according to EN ISO 5210<br>A, B, D, E according to DIN 3210 |

## Electromechanical control unit

|                                              |                                                                                                   |                                                                                                                                                                                                                                                                   |
|----------------------------------------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Limit switching                              | Counter gear mechanism for end positions OPEN and CLOSED<br>Turns per stroke: 2 to 500 (standard) |                                                                                                                                                                                                                                                                   |
|                                              | Standard:                                                                                         | Single switches (1 NC and 1 NO) for each end position, not galvanically isolated                                                                                                                                                                                  |
|                                              | Options:                                                                                          | Tandem switches (2 NC and 2 NO) for each end position, switches galvanically isolated<br>Triple switches (3 NC and 3 NO) for each end position, switches galvanically isolated<br>Intermediate position switch (DUO limit switching), adjustable for any position |
| Position feedback signal, analogue (options) | Potentiometer or 0/4 – 20 mA (electronic position transmitter)                                    |                                                                                                                                                                                                                                                                   |
| Mechanical position indicator                | Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED                     |                                                                                                                                                                                                                                                                   |
| Running indication (option)                  | Blinker transmitter                                                                               |                                                                                                                                                                                                                                                                   |
| Heater in switch compartment                 | Standard:                                                                                         | Self-regulating PTC heater, 5 – 20 W, 110 – 250 V AC/DC                                                                                                                                                                                                           |
|                                              | Option:                                                                                           | 24 – 48 V AC/DC                                                                                                                                                                                                                                                   |

## Service conditions

|                                            |                                                                                                                                                                                                                                                              |                                                                              |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Use                                        | Indoor and outdoor use permissible                                                                                                                                                                                                                           |                                                                              |
| Mounting position                          | Any position                                                                                                                                                                                                                                                 |                                                                              |
| Ambient temperature                        | –40 °C to +80 °C                                                                                                                                                                                                                                             |                                                                              |
| Enclosure protection according to EN 60529 | Standard:                                                                                                                                                                                                                                                    | IP68                                                                         |
|                                            | Option:                                                                                                                                                                                                                                                      | DS Terminal compartment additionally sealed against interior (double sealed) |
|                                            | According to AUMA definition, enclosure protection IP68 meets the following requirements: <ul style="list-style-type: none"> <li>• Depth of water: maximum 8 m head of water</li> <li>• Duration of continuous immersion in water: Max. 96 hours.</li> </ul> |                                                                              |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Technical data Limit switching device for manually operated valves

|                      |                                                        |                                        |                                                                                                     |
|----------------------|--------------------------------------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------|
| Pollution degree     | Pollution degree 4 (when closed) according to EN 50178 |                                        |                                                                                                     |
| Corrosion protection | Standard:                                              | KS                                     | Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.    |
|                      | Options:                                               | KX                                     | Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution. |
|                      |                                                        | KX-G                                   | Same as KX, however aluminium-free version (outer parts)                                            |
| Coating              | Two-component iron-mica combination                    |                                        |                                                                                                     |
| Colour               | Standard:                                              | AUMA silver-grey (similar to RAL 7037) |                                                                                                     |
|                      | Option:                                                | Available colours on request.          |                                                                                                     |

|                     |                                                                                                                                                                                                                         |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Further information |                                                                                                                                                                                                                         |
| EU Directives       | Electromagnetic Compatibility (EMC): (2014/30/EU)<br>Low Voltage Directive: (2014/35/EU)                                                                                                                                |
| Reference documents | Product description Limit switching device WSH/WSHEx 10.2 – WSH/WSHEx 16.2<br>Operation instructions WSH 10.2 – WSH 16.2<br>Technical data for switches<br>Technical data Electronic position transmitter/potentiometer |

# Technical data list Limit switching device for manually operated valves for use in potentially explosive atmospheres

| Type       | Output torque | Thrust permissible for output drive type A | Valve attachment <sup>1)</sup> |                 |                         | Handwheel |                 | Weight <sup>2)</sup> |
|------------|---------------|--------------------------------------------|--------------------------------|-----------------|-------------------------|-----------|-----------------|----------------------|
|            | Max. [Nm]     | [kN]                                       | Standard EN ISO 5210           | Option DIN 3210 | Max. Ø rising stem [mm] | Ø mm      | Reduction ratio | approx. [kg]         |
| WSHEx 10.2 | 170           | 70                                         | F10                            | G0              | 40                      | 400       | 1 : 1           | 10                   |
| WSHEx 14.2 | 400           | 160                                        | F14                            | G1/2            | 57                      | 400/500   | 1 : 1           | 16                   |
| WSHEx 16.2 | 800           | 250                                        | F16                            | G3              | 75                      | 630       | 1 : 1           | 22                   |

## General information

The AUMA limit switching devices allow valve operation via handwheel; at the same time, reaching the valve end position is indicated via the end position switches. A mechanical position indicator shows the valve position.

As an option, the limit switching device can be equipped with a remote position transmitter to transmit the valve position as 0/4 – 20 mA current signal to the DCS.

## Notes on table

|                     |                                                                                                                            |
|---------------------|----------------------------------------------------------------------------------------------------------------------------|
| 1) Valve attachment | Indicated flange sizes apply for output drive types A and B1.<br>Refer to dimension sheets for further output drive types. |
| 2) Weight           | Indicated weight includes limit switching device with standard electrical connection, output drive type B1 and handwheel.  |

## Features and functions

|                                 |                                                                                     |
|---------------------------------|-------------------------------------------------------------------------------------|
| Explosion protection            | II2G Ex e IIC T4 Gb<br>II2G Ex e ib IIC T4 Gb<br>II2D Ex tb IIIC T130 °C            |
| EC type examination certificate | TÜV 12 ATEX 7187 X                                                                  |
| Overvoltage category            | Category III according to IEC 60364-4-443                                           |
| Electrical connection           | Terminal connection with terminal blocks                                            |
| Threads for cable entries       | Standard: Metric threads                                                            |
|                                 | Options: Pg-threads, NPT-threads, G-threads                                         |
| Terminal plan                   | TPA90R00A-001-000 (basic version)                                                   |
| Valve attachment                | Standard: B1 according to EN ISO 5210                                               |
|                                 | Options: A, B2, B3, B4 according to EN ISO 5210<br>A, B, D, E according to DIN 3210 |

## Electromechanical control unit

|                                              |                                                                                                   |                                                                                                                                                                                                                                                                   |
|----------------------------------------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Limit switching                              | Counter gear mechanism for end positions OPEN and CLOSED<br>Turns per stroke: 2 to 500 (standard) |                                                                                                                                                                                                                                                                   |
|                                              | Standard:                                                                                         | Single switches (1 NC and 1 NO) for each end position, not galvanically isolated                                                                                                                                                                                  |
|                                              | Options:                                                                                          | Tandem switches (2 NC and 2 NO) for each end position, switches galvanically isolated<br>Triple switches (3 NC and 3 NO) for each end position, switches galvanically isolated<br>Intermediate position switch (DUO limit switching), adjustable for any position |
| Position feedback signal, analogue (options) | Potentiometer or 0/4 – 20 mA (RWGEx 5020, Ex ib version)                                          |                                                                                                                                                                                                                                                                   |
| Mechanical position indicator                | Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED                     |                                                                                                                                                                                                                                                                   |
| Running indication (option)                  | Blinker transmitter                                                                               |                                                                                                                                                                                                                                                                   |
| Heater in switch compartment                 | Resistance type heater, 6 W, 220 – 240 V AC                                                       |                                                                                                                                                                                                                                                                   |

## Service conditions

|                     |                                    |                              |
|---------------------|------------------------------------|------------------------------|
| Use                 | Indoor and outdoor use permissible |                              |
| Mounting position   | Any position                       |                              |
| Ambient temperature | Standard:                          | –50 °C to +60 °C             |
|                     | Option:                            | –50 °C to +80 °C, on request |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

## Technical data list Limit switching device for manually operated valves for use in potentially explosive atmospheres

|                                            |                                                                                                                                                                                                                                                             |                                        |                                                                                                     |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------|
| Enclosure protection according to EN 60529 | IP68                                                                                                                                                                                                                                                        |                                        |                                                                                                     |
|                                            | According to AUMA definition, enclosure protection IP68 meets the following requirements: <ul style="list-style-type: none"> <li>• Depth of water: maximum 8 m head of water</li> <li>• Duration of continuous immersion in water: Max. 96 hours</li> </ul> |                                        |                                                                                                     |
| Pollution degree                           | Pollution degree 4 (when closed) according to EN 50178                                                                                                                                                                                                      |                                        |                                                                                                     |
| Corrosion protection                       | Standard:                                                                                                                                                                                                                                                   | KS                                     | Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.    |
|                                            | Options:                                                                                                                                                                                                                                                    | KX                                     | Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution. |
|                                            |                                                                                                                                                                                                                                                             | KG                                     | Same as KX, however aluminium-free version (outer parts)                                            |
| Coating                                    | Two-component iron-mica combination                                                                                                                                                                                                                         |                                        |                                                                                                     |
| Colour                                     | Standard:                                                                                                                                                                                                                                                   | AUMA silver-grey (similar to RAL 7037) |                                                                                                     |
|                                            | Option:                                                                                                                                                                                                                                                     | Available colours on request.          |                                                                                                     |

| Further information |                                                                                                                                                                                                                                                     |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EU Directives       | ATEX Directive: (2014/34/EU)<br>Electromagnetic Compatibility (EMC): (2014/30/EU)<br>Low Voltage Directive: (2014/35/EU)                                                                                                                            |
| Reference documents | Product description Limit switching device WSH/WSHEx 10.2 – WSH/WSHEx 16.2<br>Operation instructions WSHEx 10.2 – WSHEx 16.2<br>Technical data for switches<br>Technical data Electronic position transmitter/potentiometer/explosion-proof version |



## Technical description Stem protection tube for rising stem

The schematic representations apply to:

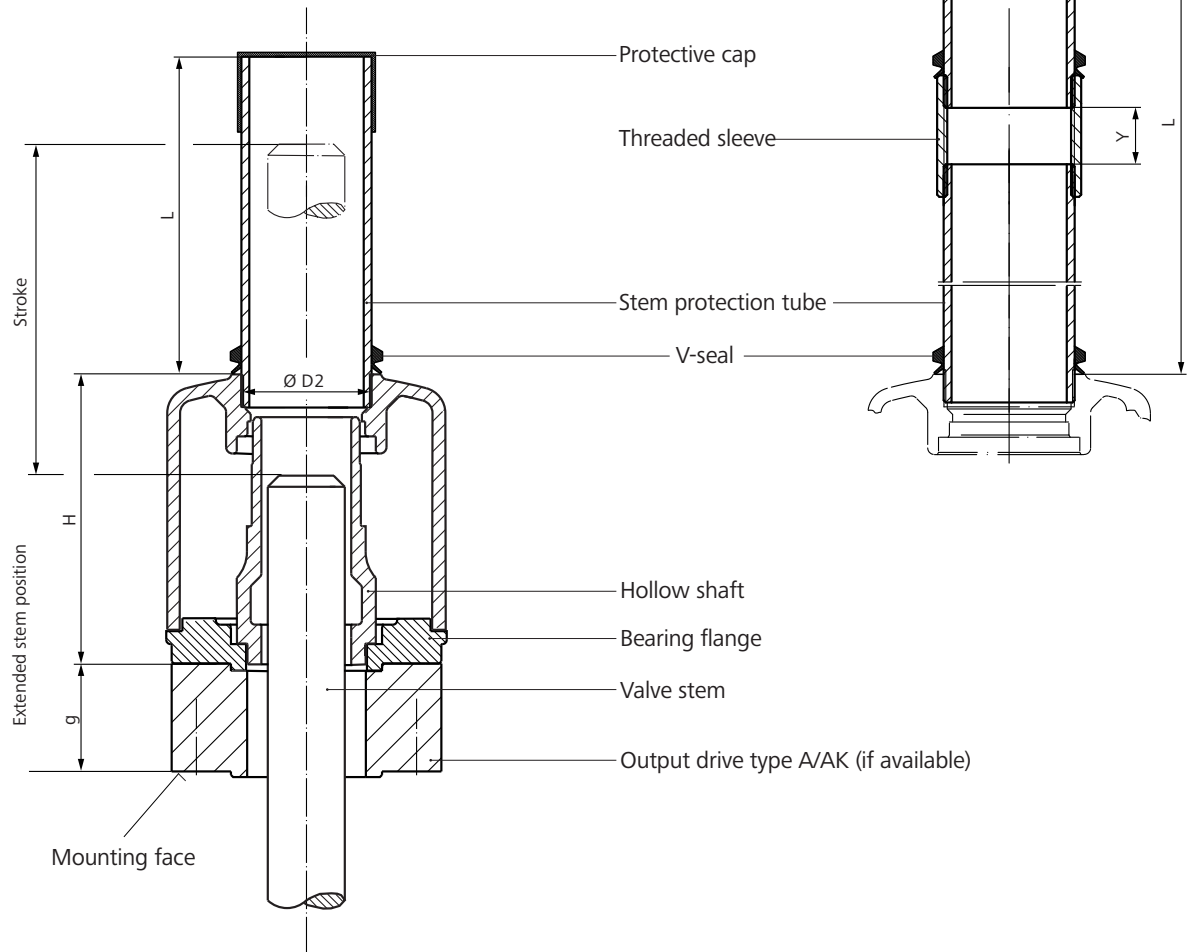
|                      |                                                                                                                                                                              |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Multi-turn actuators | SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2; SAEx 07.2 – SAEx 16.2/SAREx 07.2 – SAREx 16.2<br>SA 25.1 – SA 48.1/SAR 25.1 – SAR 30.1; SAEx 25.1 – SAEx 40.1/SAREx 25.1 – SAREx 30.1 |
| Multi-turn gearboxes | GK 10.2 – GK 40.2/GST 10.1 – GST 40.1                                                                                                                                        |

### Without threaded sleeve:

Sizes 07 – 30  
Protection tube up to 900 mm  
Sizes 35 – 48  
Protection tube up to 5000 mm

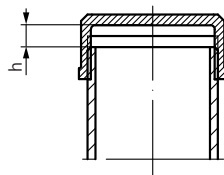
### With threaded sleeve:

Sizes 07 – 30  
Protection tube > 900 mm



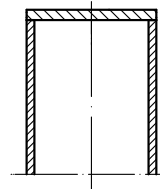
### Option:

Sizes 07 – 25  
screwed version



### Option:

Sizes 30 – 48  
welded version



| Multi-turn actuator | SA 07.2<br>SA 07.6 | SA 10.2             | SA 14.2<br>SA 14.6                         | SA 16.2             | SA 25.1             | SA 30.1             | SA 35.1             | SA 40.1<br>SA 48.1  |
|---------------------|--------------------|---------------------|--------------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Gearbox             |                    | GST 10.1<br>GK 10.2 | GST 14.1<br>GST 14.5<br>GK 14.2<br>GK 14.6 | GST 16.1<br>GK 16.2 | GST 25.1<br>GK 25.2 | GST 30.1<br>GK 30.2 | GST 35.1<br>GK 35.2 | GST 40.1<br>GK 40.2 |
| Ø D2                | G 1 1/4"           | G 2"                | G 2 1/2"                                   | G 3"                | G 4"                | G 5"                | M190 x 3            | M220 x 3            |
| Y min.              | 18                 | 26                  | 32                                         | 37                  | 49                  | 58                  | — <sup>1)</sup>     | — <sup>1)</sup>     |
| Y max.              | 24                 | 32                  | 39                                         | 44                  | 56                  | 65                  | — <sup>1)</sup>     | — <sup>1)</sup>     |

1) Sizes 35 – 48 are supplied without threaded sleeves

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

## Technical description Stem protection tube for rising stem

### Calculation and sizing of the stem protection tube

#### 1. Dimensions for different products

| Type              | Housing of output drive type B | Screwed on protective cap | Output drive type A |             | Output drive type AK |
|-------------------|--------------------------------|---------------------------|---------------------|-------------|----------------------|
| Dimensions        | H                              | h                         | g                   |             | g                    |
| SA 07.2/SA 07.6   | 153                            | 25                        | 40 (F07)            | 50 (F10/G0) | 105                  |
| SA 10.2           | 162                            | 25                        |                     | 50          | 105                  |
| SA 14.2/SA 14.6   | 188                            | 32                        |                     | 65          | 135                  |
| SA 16.2           | 227                            | 32                        |                     | 80          | 165                  |
| SA 25.1           | 292                            | –                         |                     | 130         | 216                  |
| SA 30.1           | 330                            | –                         |                     | 160         | 252                  |
| SA 35.1           | 388                            | –                         |                     | 185         | 315                  |
| SA 40.1           | 393                            | –                         |                     | 225         | 400                  |
| SA 48.1           | 430                            | –                         |                     | 270         | –                    |
| GK 10.2           | 162                            | 25                        |                     | 50          | 105                  |
| GK 14.2/GK 14.6   | 180                            | 32                        |                     | 65          | 135                  |
| GK 16.2           | 194                            | 32                        |                     | 80          | 165                  |
| GK 25.2           | 218                            | –                         |                     | 130         | 216                  |
| GK 30.1           | 258                            | –                         |                     | 160         | 252                  |
| GK 35.2           | 310                            | –                         |                     | 185         | 315                  |
| GK 40.2           | 325                            | –                         |                     | 225         | 400                  |
| GST 10.1          | 111                            | 25                        |                     | 50          | 105                  |
| GST 14.1/GST 14.5 | 140                            | 32                        |                     | 65          | 135                  |
| GST 16.1          | 175                            | 32                        |                     | 80          | 165                  |
| GST 25.1          | 193                            | –                         |                     | 130         | 216                  |
| GST 30.1          | 226                            | –                         |                     | 160         | 252                  |
| GST 35.1          | 303                            | –                         |                     | 185         | 315                  |
| GST 40.1          | 318                            | –                         |                     | 225         | 400                  |

#### 2. Calculation of stem protection tube length

|                                    |          |  |           |
|------------------------------------|----------|--|-----------|
| Stroke                             |          |  | mm        |
| Extended stem position             | +        |  | mm        |
| Housing height H                   | –        |  | mm        |
| Output drive height g              | –        |  | mm        |
| <b>Stem protection tube length</b> | <b>=</b> |  | <b>mm</b> |

#### 3. Available stem protection tube versions

| Stem protection tube | Number of thread sleeves | Lower stem prot. tube | Middle stem prot. tube | Middle stem prot. tube | Middle stem prot. tube | Middle stem prot. tube | Upper stem prot. tube |
|----------------------|--------------------------|-----------------------|------------------------|------------------------|------------------------|------------------------|-----------------------|
| 100                  | 0                        | 100                   | –                      | –                      | –                      | –                      | –                     |
| 200                  | 0                        | 200                   | –                      | –                      | –                      | –                      | –                     |
| 300                  | 0                        | 300                   | –                      | –                      | –                      | –                      | –                     |
| 400                  | 0                        | 400                   | –                      | –                      | –                      | –                      | –                     |
| 500                  | 0                        | 500                   | –                      | –                      | –                      | –                      | –                     |
| 600                  | 0                        | 600                   | –                      | –                      | –                      | –                      | –                     |
| 700                  | 0                        | 700                   | –                      | –                      | –                      | –                      | –                     |
| 800                  | 0                        | 800                   | –                      | –                      | –                      | –                      | –                     |
| 900                  | 0                        | 900                   | –                      | –                      | –                      | –                      | –                     |
| 1000                 | 1                        | 900                   | –                      | –                      | –                      | –                      | 100                   |
| 1200                 | 1                        | 900                   | –                      | –                      | –                      | –                      | 300                   |
| 1400                 | 1                        | 900                   | –                      | –                      | –                      | –                      | 500                   |
| 1,600                | 1                        | 900                   | –                      | –                      | –                      | –                      | 700                   |
| 1800                 | 1                        | 900                   | –                      | –                      | –                      | –                      | 900                   |
| 2,000                | 2                        | 900                   | 900                    | –                      | –                      | –                      | 200                   |
| 2,200                | 2                        | 900                   | 900                    | –                      | –                      | –                      | 400                   |
| 2400                 | 2                        | 900                   | 900                    | –                      | –                      | –                      | 600                   |
| 2,600                | 2                        | 900                   | 900                    | –                      | –                      | –                      | 800                   |
| 2800                 | 3                        | 900                   | 900                    | 900                    | –                      | –                      | 100                   |
| 3,000                | 3                        | 900                   | 900                    | 900                    | –                      | –                      | 300                   |
| 3,500                | 3                        | 900                   | 900                    | 900                    | –                      | –                      | 800                   |
| 4,000                | 4                        | 900                   | 900                    | 900                    | 900                    | –                      | 400                   |
| 4,500                | 4                        | 900                   | 900                    | 900                    | 900                    | –                      | 900                   |
| 5,000                | 5                        | 900                   | 900                    | 900                    | 900                    | 900                    | 500                   |

#### 4. Useful stem protection tube length

|                                             |          |        |                      |           |
|---------------------------------------------|----------|--------|----------------------|-----------|
|                                             |          | Y min. | Y max. <sup>2)</sup> |           |
| Available stem protection tube length       |          |        |                      | mm        |
| Threaded sleeve (number x Y)                | +        |        |                      | mm        |
| Screwed on protective cap (option)          | +        |        |                      | mm        |
| <b>Useful stem protection tube length L</b> | <b>=</b> |        | <sup>2)</sup>        | <b>mm</b> |

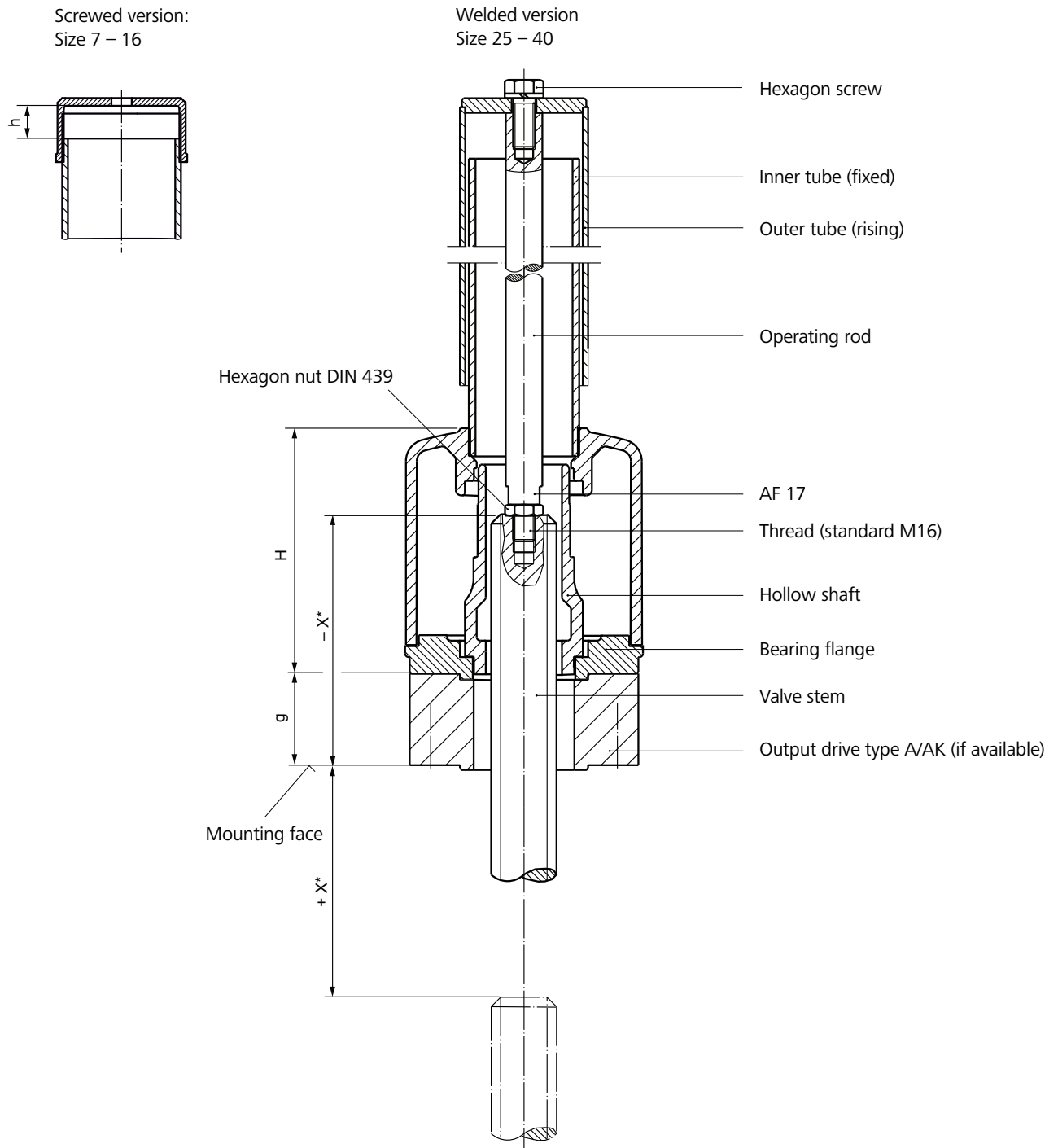
2) For max. space requirement for stem protection tube

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

## Technical description Position indication with telescopic protection tube

### The schematic representation applies to:

|                      |                                                                                                                                                                                      |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Multi-turn actuators | SA 07.2 – SA 16.2; SAR 07.2 – SAR 16.2; SAEEx 07.2 – SAEEx 16.2; SAREx 07.2 – SAREx 16.2<br>SA 25.1 – SA 48.1; SAR 25.1 – SAR 30.1; SAEEx 25.1 – SAEEx 40.1; SAREx 25.1 – SAREx 30.1 |
| Spur gearboxes       | GST 10.1 – GST 40.1                                                                                                                                                                  |
| Bevel gearboxes      | GK 10.2 – GK 40.2                                                                                                                                                                    |



**X\*** = Distance between mounting face and upper edge of stem while valve is closed  
 –X, if stem protrudes into output drive or hollow shaft  
 +X, if stem is outside output drive or hollow shaft

**Note:** Tube length will be adapted to the valve stroke.

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## Technical description Position indication with telescopic protection tube

### Calculation and sizing of the telescopic protection tube

#### 1. Housing height for different products

| Type              | Housing of output drive type B<br>H | Protective cap<br>h | Output drive type A<br>g |             | Output drive type AK<br>g |
|-------------------|-------------------------------------|---------------------|--------------------------|-------------|---------------------------|
| SA 07.2/SA 07.6   | 153                                 | 25                  | 40 (F07)                 | 50 (F10/G0) | 105                       |
| SA 10.2           | 162                                 | 25                  | 50                       |             | 105                       |
| SA 14.2/SA 14.6   | 188                                 | 32                  | 65                       |             | 135                       |
| SA 16.2           | 227                                 | 32                  | 80                       |             | 165                       |
| SA 25.1           | 292                                 | –                   | 130                      |             | 216                       |
| SA 30.1           | 330                                 | –                   | 160                      |             | 252                       |
| SA 35.1           | 388                                 | –                   | 185                      |             | 315                       |
| SA 40.1           | 393                                 | –                   | 225                      |             | 400                       |
| SA 48.1           | 430                                 | –                   | 270                      |             | –                         |
| GK 10.2           | 162                                 | 25                  | 50                       |             | 105                       |
| GK 14.2/GK 14.6   | 180                                 | 32                  | 65                       |             | 135                       |
| GK 16.2           | 194                                 | 32                  | 80                       |             | 165                       |
| GK 25.2           | 218                                 | –                   | 130                      |             | 216                       |
| GK 30.1           | 258                                 | –                   | 160                      |             | 252                       |
| GK 35.2           | 310                                 | –                   | 185                      |             | 315                       |
| GK 40.2           | 325                                 | –                   | 225                      |             | 400                       |
| GST 10.1          | 111                                 | 25                  | 50                       |             | 105                       |
| GST 14.1/GST 14.5 | 140                                 | 32                  | 65                       |             | 135                       |
| GST 16.1          | 175                                 | 32                  | 80                       |             | 165                       |
| GST 25.1          | 193                                 | –                   | 130                      |             | 216                       |
| GST 30.1          | 226                                 | –                   | 160                      |             | 252                       |
| GST 35.1          | 303                                 | –                   | 185                      |             | 315                       |
| GST 40.1          | 318                                 | –                   | 225                      |             | 400                       |

#### 2. Calculation of outer tube length and rod length

Determination of inner tube length (identical to outer tube length)

|                                                             |          |    |           |
|-------------------------------------------------------------|----------|----|-----------|
| Stroke                                                      |          |    | mm        |
| Safety factor                                               | +        | 50 | mm        |
| Sum = Inner tube length                                     | =        |    | mm        |
| <b>Inner tube length rounded up to the next full 100 mm</b> | <b>=</b> |    | <b>mm</b> |

Determining the rod length:

|                                                                          |       |          |           |
|--------------------------------------------------------------------------|-------|----------|-----------|
| Housing height                                                           | H     |          | mm        |
| Height of protective cap                                                 | h     | +        | mm        |
| Height of output drive type A/AK (if output drive type A/ AK is ordered) |       | +        | mm        |
| Outer tube length (=inner tube length)                                   |       | +        | mm        |
| Safety factor                                                            |       | +        | 30        |
| Sum 1                                                                    |       | =        | mm        |
| Stem position according to drawing                                       | +X/–X | +/-      | mm        |
| Rod length                                                               |       | =        | mm        |
| <b>Rod length rounded to full 10 mm</b>                                  |       | <b>=</b> | <b>mm</b> |

Determination of the thread:

Unless specified otherwise by the customer, the M16 thread will be used. If desired, an M12 thread can be used.

Purchase requirement:

Outer tube length/thread/rod length (e.g. 200/M16/275)

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

## Technical data Reversing gearboxes

| Type    | Output torque | Reduction ratio | Input torque <sup>1)</sup> | Valve attachment |          |                  | Factor <sup>2)</sup> | Input shaft           | Hand-wheel  | Weight <sup>3)</sup> |
|---------|---------------|-----------------|----------------------------|------------------|----------|------------------|----------------------|-----------------------|-------------|----------------------|
|         | Max. [Nm]     |                 |                            | EN ISO 5210      | DIN 3210 | Shaft Ø Max [mm] |                      | Ø [mm]                | Ø Max. [mm] | approx. [kg]         |
| GW 14.1 | 560           | 1:1             | 590                        | F14 (F10)        | G1/2     | 30               | 0.95                 | 30 (20) <sup>4)</sup> | 800         | 20                   |

| Possible combinations with multi-turn actuators |                              |          |                             |                                                |
|-------------------------------------------------|------------------------------|----------|-----------------------------|------------------------------------------------|
| Gearboxes                                       | Mounting flange for actuator |          | Permissible actuator weight | Suitable AUMA multi-turn actuator depending on |
|                                                 | EN ISO 5210                  | DIN 3210 | Max. [kg]                   | required output torque                         |
| GW 14.1                                         | F10                          | G0       | 40                          | SA 10.2                                        |
|                                                 | F14                          | G1/2     | 80                          | SA 14.2/SA 14.6                                |
|                                                 | F16                          | G3       | 160                         | SA 16.2                                        |

## Use

For reversal of rotation direction

## Notes on table

|                 |                                                                                   |
|-----------------|-----------------------------------------------------------------------------------|
| 1) Input torque | For maximum output torque                                                         |
| 2) Factor       | Conversion factor from output torque to input torque for actuator size definition |
| 3) Weight       | Indicated weight includes gearbox without flange for multi-turn actuators         |
| 4)              | Maximum input torque 120 Nm                                                       |

## Operation

|                  |                                                                                                                                                |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Motor operation  | Directly via electric multi-turn actuator<br>Mounting flanges for multi-turn actuator, refer to table                                          |
| Type of duty     | Short-time duty S2 - 15 min                                                                                                                    |
| Manual operation | Via handwheel, directly or via remote output lever arrangement<br>Available handwheel diameters, selection according to the max. output torque |

## Service conditions

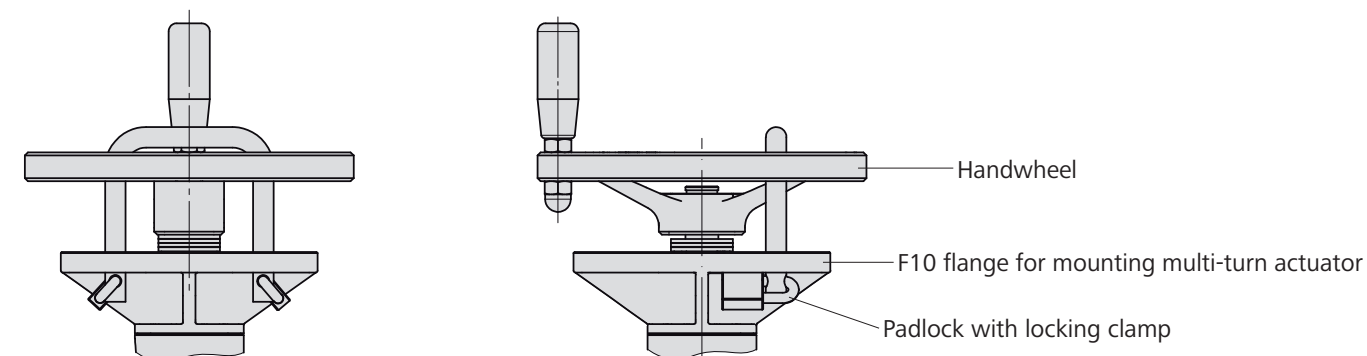
|                                            |                                                                                                                                                                                                                                                                                                                    |                                        |                                                                                                                                                                                                                                                                                             |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ambient temperature                        | −25 °C to +80 °C                                                                                                                                                                                                                                                                                                   |                                        |                                                                                                                                                                                                                                                                                             |
| Enclosure protection according to EN 60529 | Standard:                                                                                                                                                                                                                                                                                                          | IP67                                   |                                                                                                                                                                                                                                                                                             |
|                                            | Option:                                                                                                                                                                                                                                                                                                            | IP68                                   |                                                                                                                                                                                                                                                                                             |
|                                            | According to AUMA definition, enclosure protection IP68 meets the following requirements: <ul style="list-style-type: none"><li>• Depth of water: maximum 8 m head of water</li><li>• Duration of continuous immersion in water: Max. 96 hours</li><li>• Up to 10 operations during continuous immersion</li></ul> |                                        |                                                                                                                                                                                                                                                                                             |
| Corrosion protection                       | Standard:                                                                                                                                                                                                                                                                                                          | KN                                     | Suitable for installation in industrial units, in water or power plants with a low pollutant concentration                                                                                                                                                                                  |
|                                            | Options:                                                                                                                                                                                                                                                                                                           | KS                                     | Suitable for installation in industrial units, in water or power plants with a low pollutant concentration as well as for installation in occasionally or permanently aggressive atmospheres with a moderate pollutant concentration (e.g. wastewater treatments plants, chemical industry) |
| Paint                                      | Two-component iron-mica combination                                                                                                                                                                                                                                                                                |                                        |                                                                                                                                                                                                                                                                                             |
| Colour                                     | Standard:                                                                                                                                                                                                                                                                                                          | AUMA silver-grey (similar RAL 7037)    |                                                                                                                                                                                                                                                                                             |
|                                            | Options:                                                                                                                                                                                                                                                                                                           | Other colours are possible on request. |                                                                                                                                                                                                                                                                                             |

## Further information

|                     |                                                                                                                        |
|---------------------|------------------------------------------------------------------------------------------------------------------------|
| Reference documents | Dimensions Reversing gearboxes GW 14.1<br>Technical data SA 07.2 – SA 16.2 Multi-turn actuators with 3-phase AC motors |
|---------------------|------------------------------------------------------------------------------------------------------------------------|

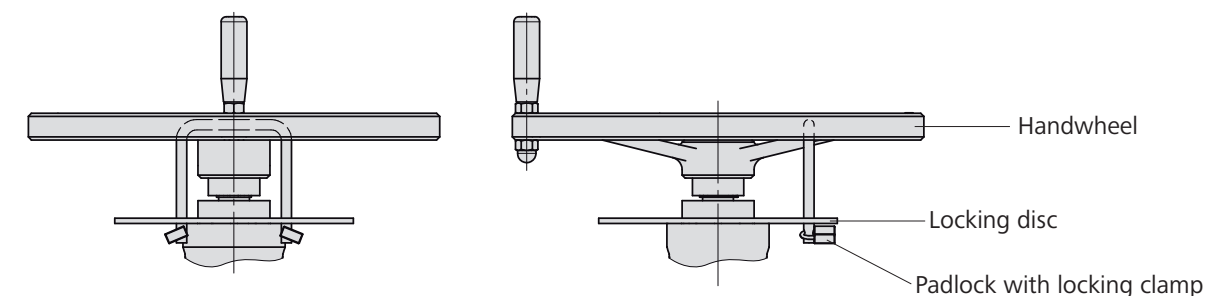
## Gearboxes

Version with locking clamp and input mounting flange:



| Gearbox  | Reduction ratio | Handwheel Ø |     |     |     |     |
|----------|-----------------|-------------|-----|-----|-----|-----|
| GS 50.3  | 51:1            | 160         | 200 | 250 | –   | –   |
| GS 63.3  | 51:1            | –           | –   | 250 | 315 | –   |
|          | 82:1            | –           | 200 | 250 | –   | –   |
| GS 80.3  | 53:1/82:1       | –           | –   | –   | 315 | 400 |
| GS 100.3 | 126:1/160:1     | –           | –   | –   | 315 | –   |
|          | 208:1           | –           | –   | 250 | 315 | –   |
| GS 125.3 | 208:1           | –           | –   | –   | 315 | –   |
| GS 160.3 | 442:1           | –           | –   | –   | 315 | –   |
|          | 880:1           | –           | 200 | 250 | 315 | –   |
| GS 200.3 | 864:1           | –           | –   | –   | 315 | –   |
|          | 1752:1          | –           | –   | 250 | 315 | –   |
| GS 250.3 | 1718:1          | –           | –   | –   | 315 | –   |

Version with locking clamp and locking disc:

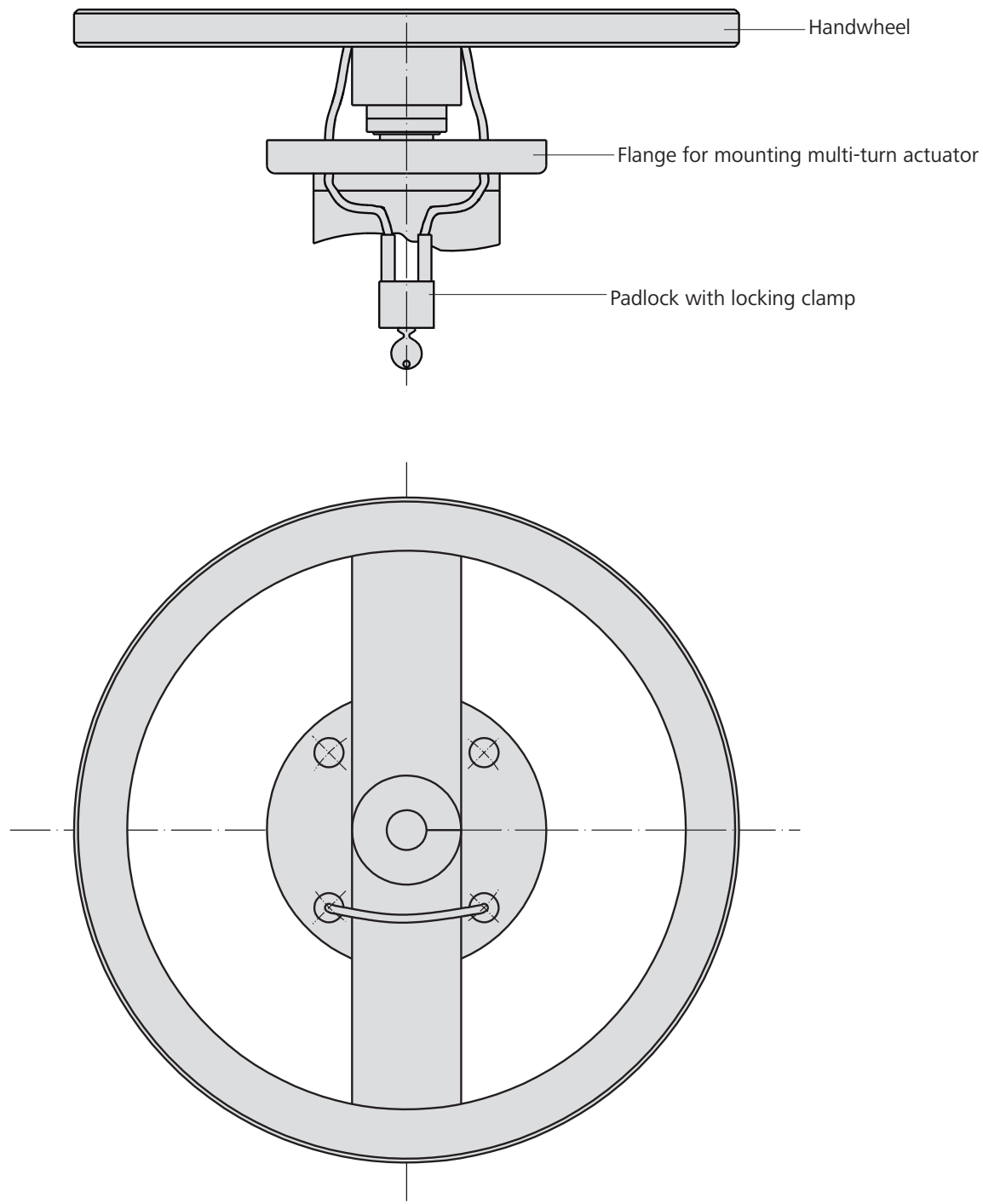


| Gearbox  | Reduction ratio   | Handwheel Ø |     |     |     |
|----------|-------------------|-------------|-----|-----|-----|
| GS 100.3 | 52:1              | 400         | 500 | 630 | 800 |
|          | 107:1             | 400         | 500 | –   | –   |
|          | 126:1/160:1/208:1 | 400         | –   | –   | –   |
| GS 125.3 | 52:1              | –           | 500 | 630 | 800 |
|          | 126:1/160:1       | 400         | 500 | 630 | 800 |
|          | 208:1             | 400         | –   | –   | –   |
| GS 160.3 | 54:1              | –           | –   | 630 | 800 |
|          | 218:1             | 400         | 500 | 630 | 800 |
|          | 442:1             | 400         | –   | –   | –   |
| GS 200.3 | 67:1              | –           | –   | –   | 800 |
|          | 214:1             | –           | 500 | 630 | 800 |
|          | 434:1             | 400         | 500 | 630 | 800 |
|          | 864:1/1752:1      | 400         | 500 | –   | –   |
| GS 250.3 | 210:1             | –           | –   | –   | 800 |
|          | 411:1             | –           | 500 | 630 | 800 |
|          | 848:1             | 400         | 500 | 630 | 800 |
|          | 1718:1            | 400         | 500 | –   | –   |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

## Gearboxes

GST 10.1 – GST 40.1  
GK 10.2 – GK 40.2



# Technical data Screws for mounting actuators onto valve gearboxes

| Valve attachment                | Article no. screw | Number of screws | Screw designation | Strength class  | Article no. set screw |
|---------------------------------|-------------------|------------------|-------------------|-----------------|-----------------------|
| F07                             | D003.460          | 4                | M8x20             | A2-80-GEO 500 A | Z108.900              |
| F10/G0                          | D003.406          | 4                | M10x25            | A2-80-GEO 500 A | Z105.657              |
| F10/G0-A4                       | D003.407          | 4                | M10x25            | A4-80-GEO 500 A | Z108.902              |
| F10<br>LE 12.1/LE 25.1/LE 50.1  | D003.419          | 4                | M10x30            | A2-80-GEO 500 A | Z105.694              |
| F10<br>GSI                      | D003.406          | 4                | M10x25            | A2-80-GEO 500 A | Z108.930              |
| F10<br>GZ 30.1                  | D003.537          | 4                | M10x20            | A2-80           | Z108.933              |
| F10/G0<br>SF 10.2               | D003.642          | 4                | M10x35            | A4-80-GEO 500 A | Z108.903              |
| F14/G1/2                        | D003.456          | 4                | M16x40            | A2-80-GEO 500 A | Z105.658              |
| F14/G1/2-A4                     | D003.457          | 4                | M16x40            | A4-80-GEO 500 A | Z108.937              |
| F14/G1/2<br>GK 10.2/GK 14.2     | D003.456          | 2                | M16x40            | A2-80-GEO 500 A | Z105.659              |
|                                 | D003.454          | 2                | M16x35            |                 |                       |
| F14<br>LE 70.1/LE 100.1         | D002.068          | 4                | M16x40            | A2-70           | Z105.695              |
| F14/G1/2<br>GSI                 | D003.456          | 4                | M16x40            | A2-80-GEO 500 A | Z108.934              |
| F14/G1/2<br>GSTI                | D003.246          | 4                | M16x40            | 10.9            | Z108.901              |
| F14-EW20<br>GZ 30.1             | D002.833          | 4                | M16x60            | 8.8-GEO 500 A   | Z109.413              |
| F14/G1/2<br>SF 14.2             | D003.422          | 4                | M16x60            | A2-80-GEO 500 A | Z108.928              |
| F16<br>LE 200.1                 | D001.811          | 4                | M20x50            | A2-70           | Z118.167              |
| F16/G3                          | D003.458          | 4                | M20x50            | A2-80-GEO 500 A | Z105.660              |
| F16/G3<br>GSTI                  | D003.244          | 4                | M20x50            | 10.9            | Z108.931              |
| F16/G3<br>SF 16.2               | D003.644          | 4                | M20x50            | A4-80-GEO 500 A | Z108.929              |
| F25/G4                          | D001.205          | 8                | M16x40            | A2-70           | Z105.688              |
| F25/G4<br>GSTI                  | D003.344          | 8                | M16x50            | 10.9            | Z108.932              |
| F30                             | D003.458          | 8                | M20x50            | A2-80-GEO 500 A | Z105.689              |
| FA10                            | D002.484          | 4                | 3/8"-16UNCx1"     | A2-70-GEO 500 A | Z105.690              |
| FA10<br>LE 12.1/LE 25.1/LE 50.1 | K003.846          | 4                | 3/8"-16UNCx1 1/4" | A2-70-GEO 500 A | Z118.168              |
| FA10<br>GZ 30.1                 | K008.052          | 4                | 3/8"-16UNCx3/4"   | 8.8-GEO 500 A   | Z108.635              |
| FA14                            | K003.156          | 4                | 5/8"-11UNCx1 3/4" | A2-70-GEO 500 A | Z105.691              |
| FA14<br>LE 70.1/LE 100.1        | K003.848          | 4                | 5/8"-11UNCx1 3/4" | A2-70-GEO 500 A | Z118.169              |
| FA16                            | K003.153          | 4                | 3/4"-10UNCx2"     | A2-70-GEO 500 A | Z105.692              |
| FA16<br>LE 200.1                | K003.847          | 4                | 3/4"-10UNCx2"     | A2-70-GEO 500 A | Z118.170              |
| FA25                            | K004.855          | 8                | 5/8"-11UNCx2"     | A2-70-GEO 500 A | Z105.693              |



## Technical description Types of corrosion protection

**This overview accounts for atmospheric ambient conditions, but not for special chemical atmospheres, requiring absence of aluminium or non-ferrous heavy metal, for example.**

| Corrosivity categories according to ISO 12944-2<br>Durability ranges according to ISO 12944-1 H (high)                                                                                                                         | Corrosion protection | AUMA                                             |                                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------------------------------------------|------------------------------------------|
|                                                                                                                                                                                                                                |                      | Painting specification<br>(total film thickness) |                                          |
|                                                                                                                                                                                                                                |                      | Powder coating                                   | Wet paint                                |
| C1 (very low):<br>Heated buildings with clean atmospheres                                                                                                                                                                      | KN                   | P1.001<br>(140 µm)                               | N1.001<br>(60 µm)                        |
| C2 (low):<br>Unheated buildings and areas with low level of pollution                                                                                                                                                          |                      |                                                  |                                          |
| C3 (medium):<br>Production rooms with high humidity and some pollution. Urban and industrial atmospheres with moderate pollution                                                                                               | KS                   |                                                  | N1.003<br>(140 µm)                       |
| C4 (high):<br>Chemical plants and areas with moderate salinity                                                                                                                                                                 |                      |                                                  |                                          |
| C5/C5-M (very high, marine):<br>Coastal and offshore areas with almost permanent condensation, high salinity and high pollution                                                                                                |                      |                                                  | N1.008<br>(220 µm)                       |
| C5-VH/C5-I (very high, marine/industrial):<br>Coastal and offshore areas with almost permanent condensation, high salinity and high pollution<br>Industrial areas with almost permanent condensation and aggressive atmosphere | KX                   |                                                  | S1.008<br>(300 µm)<br>depends on product |
| CX (extreme):<br>Offshore and industrial areas with extreme humidity, high salinity and aggressive atmosphere                                                                                                                  | KX                   |                                                  | on request                               |

## Technical description Corrosion protection KS with powder coating in accordance with painting specification P1.001

This description applies to AUMA products with powder coating in accordance with painting specification P1.001.

Corrosion protection KS based on painting specification P1.001 is suitable for use in areas with high salinity, almost permanent condensation, and high pollution. Corrosion protection includes the use of suitable material for outer parts and structure of the painting.

### 1. Materials

- 1.1 Outside fasteners (e.g. screws) are made of stainless steel with additional metallic surface protection.
- 1.2 Name plates are made of aluminium.

### 2. Surface treatment

- 2.1 After machining, steel parts are covered with metallic surface protection (except SQ/GS coupling and internal GS coupling compartment)
- 2.2 Aluminium parts such as the handwheel are electrophoretically coated.

### 3. General information

- 3.1 Housing parts made of GJL/GJS are blasted: Sa 2 ½ in accordance with EN ISO 12944-4.
- 3.2 Aluminium housing parts are not blasted.

### 4. Painting system

- 4.1 Powder coating  
The powder coating is performed in an automated process.
  - 4.1.1 During preliminary treatment, housing parts are chemically cleaned and painted with an Oxsilan® conversion coating.
  - 4.1.2 Housing parts are primer coated with:

|                 |                                                         |
|-----------------|---------------------------------------------------------|
| Product:        | FREOPOX PE 1204A                                        |
| Manufacturer:   | Emil Frei GmbH & Co. KG                                 |
| Structure:      | Thermally hardening powder coating based on epoxy resin |
| Colour:         | RAL 7035                                                |
| Film thickness: | 70 µm                                                   |
  - 4.1.3 Housing parts are finish coated with:

|                 |                                                          |
|-----------------|----------------------------------------------------------|
| Product:        | FREIOTHERM PU 4003M                                      |
| Manufacturer:   | Emil Frei GmbH & Co. KG                                  |
| Structure:      | Thermally hardening powder coating based on polyurethane |
| Colour:         | A0001, AUMA silver-grey (similar to RAL 7037 dust grey)  |
| Film thickness: | 70 µm                                                    |

### 5. Total film thickness (dry)

The average total film thickness (dry) of the powder coated housing is 140 µm.  
For reasons of geometry, powder coating thickness varies between 60 µm and 220 µm. Variation of film thickness has no impact on corrosion protection.

### 6. Notes

- 6.1 The top coat can be painted with all common 1- or 2-component coating materials (i.e. artificial resin, epoxy resin, PVC, polyurethane, polyamide and acrylic enamels).  
We recommend verifying the compatibility of the paints before applying a new wet painting layer.  
For this, the surfaces to be painted must be slightly ground and carefully cleaned, i. e. free of foreign substance, grease, oily dirt and dust.
- 6.2 Mounting surface to the valve is powder coated.

## Technical description Corrosion protection KS with powder coating in accordance with painting specification P1.002

This description applies to AUMA products with powder coating in accordance with painting specification P1.002.

Corrosion protection KS based on painting specification P1.002 is suitable for use in areas with high salinity, almost permanent condensation, and high pollution. Corrosion protection includes the use of suitable material for outer parts and structure of the painting.

### 1. Materials

- 1.1 Outside fasteners (e.g. screws) are made of stainless steel with additional metallic surface protection.
- 1.2 Name plates are made of aluminium.

### 2. Surface treatment

- 2.1 After machining, steel parts are covered with metallic surface protection (except SQ/GS coupling and internal GS coupling compartment)
- 2.2 Aluminium parts such as the handwheel are electrophoretically coated.

### 3. General information

- 3.1 Housing parts made of GJL/GJS are blasted: Sa 2 ½ in accordance with EN ISO 12944-4.
- 3.2 Aluminium housing parts are not blasted.

### 4. Painting system

- 4.1 Powder coating  
The powder coating is performed in an automated process.
  - 4.1.1 During preliminary treatment, housing parts are chemically cleaned and painted with an Oxsilan® conversion coating.
  - 4.1.2 Housing parts are primer coated with:  
Product: FREOPOX PE 1204A  
Manufacturer: Emil Frei GmbH & Co. KG  
Structure: Thermally hardening powder coating based on epoxy resin  
Colour: RAL 7035  
Film thickness: 70 µm
  - 4.1.3 Housing parts are finish coated with:  
Product: FREIOTHERM PU 4003M  
Manufacturer: Emil Frei GmbH & Co. KG  
Structure: Thermally hardening powder coating based on polyurethane  
Colour: A0001, AUMA silver-grey (similar to RAL 7037 dust grey)  
Film thickness: 70 µm
- 4.2 Finish painting  
The finish painting is applied after device assembly and depends on the desired colour.
  - 4.2.1 Housing parts are finish painted with:  
Product: EFDEDUR UR1946H  
Manufacturer: Emil Frei GmbH & Co. KG  
Structure: 2-component finish painting based on polyurethane  
Colour: A0001, AUMA silver-grey (similar to RAL 7037 dust grey) or DB colour according to work order  
Film thickness: 60 µm (dry)
  - 4.2.2 Housing parts are coated with finish painting for special colours:  
Product: EFDEDUR UR1040  
Manufacturer: Emil Frei GmbH & Co. KG  
Structure: 2-component finish painting based on polyurethane  
Colour: Special colour according to work order  
Film thickness: 60 µm (dry)

### 5. Total film thickness (dry)

Average total film thickness (dry) of the powder coated housings including finish painting is 200 µm.  
For reasons of geometry, powder coating thickness varies between 60 µm and 220 µm. Variation of film thickness has no impact on corrosion protection.

#### **6. Notes**

- 6.1 The top coat can be painted with all common 1- or 2-component coating materials (i.e. artificial resin, epoxy resin, PVC, polyurethane, polyamide and acrylic enamels).  
Subsequent finishing with chlorine rubber paints subject to restrictions.  
We recommend verifying the compatibility of the paints before applying a new wet painting layer. For this, the surfaces to be painted must be slightly ground and carefully cleaned, i. e. free of foreign substance, grease, oily dirt and dust.
- 6.2 Mounting surface to the valve is powder coated.

## Technical description KX corrosion protection with powder coating in accordance with painting specification P1.001

This description applies to AUMA products with powder coating in accordance with painting specification P1.001.

KX corrosion protection based on painting specification P1.001 is suitable for use in areas with extremely high salinity, permanent condensation, and high pollution. Corrosion protection includes the use of suitable material for outer parts and painting system.

### 1. Materials

- 1.1 Outside fasteners (e.g. screws) are made of stainless steel with additional metallic surface protection.
- 1.2 The name plates are made of aluminium.

### 2. Surface treatment

- 2.1 After machining, the parts are coated with a metallic surface protection or are made of stainless steel (except for internal GS coupling compartment).
- 2.2 Aluminium parts such as the handwheel are electrophoretically coated.

### 3. General

- 3.1 Housing parts made of GJL/GJS are blasted: Sa 2 ½ in accordance with EN ISO 12944-4.
- 3.2 Aluminium housing parts are not blasted.

### 4. Painting system

- 4.1 Powder coating  
The powder coating is performed in an automated process.
  - 4.1.1 During preliminary treatment, housing parts are chemically cleaned and painted with an Oxsilan® conversion coating.
  - 4.1.2 Housing parts are primer coated with:
    - Product: FREOPOX PE 1204A
    - Manufacturer: Emil Frei GmbH & Co. KG
    - Structure: Thermally hardening powder coating based on epoxy resin
    - Colour: RAL 7035
    - Film thickness: 70 µm
  - 4.1.3 Housing parts are finish coated with:
    - Product: FREIOTHERM PU 4003M
    - Manufacturer: Emil Frei GmbH & Co. KG
    - Structure: Thermally hardening powder coating based on polyurethane
    - Colour: A0001, AUMA silver-grey (similar to RAL 7037 dust grey)
    - Film thickness: 70 µm

### 5. Total film thickness (dry)

The average total film thickness (dry) of the powder coated housing is 140 µm.  
For reasons of geometry, powder coating thickness varies between 60 µm and 220 µm. Variation of film thickness has no impact on corrosion protection.

### 6. Notes

- 6.1 The top coat can be painted with all common 1- or 2-component coating materials (i.e. artificial resin, epoxy resin, PVC, polyurethane, polyamide and acrylic enamels). We recommend verifying the compatibility of the paints before applying a new wet painting layer. For this, the surfaces to be painted must be slightly ground and carefully cleaned, i. e. free of foreign substance, grease, oily dirt and dust.
- 6.2 Mounting surface to the valve is powder coated.

## Technical description KX corrosion protection with powder coating in accordance with painting specification P1.002

This description applies to AUMA products with powder coating in accordance with painting specification P1.002.

Corrosion protection KX based on painting specification P1.002 is suitable for use in areas with extremely high salinity, permanent condensation, and high pollution. Corrosion protection includes the use of suitable material for outer parts and painting system.

### 1. Materials

- 1.1 Outside fasteners (e.g. screws) are made of stainless steel with additional metallic surface protection.
- 1.2 The name plates are made of aluminium.

### 2. Surface treatment

- 2.1 After machining, the parts are coated with a metallic surface protection (except for internal GS coupling compartment) or are made of stainless steel.
- 2.2 Aluminium parts such as the handwheel are electrophoretically coated.

### 3. General

- 3.1 Housing parts made of GJL/GJS are blasted: Sa 2 ½ in accordance with EN ISO 12944-4.
- 3.2 Aluminium housing parts are not blasted.

### 4. Painting system

- 4.1 Powder coating  
The powder coating is performed in an automated process.
  - 4.1.1 During preliminary treatment, housing parts are chemically cleaned and painted with an Oxsilan® conversion coating.
  - 4.1.2 Housing parts are primer coated with:  
Product: FREOPOX PE 1204A  
Manufacturer: Emil Frei GmbH & Co. KG  
Structure: Thermally hardening powder coating based on epoxy resin  
Colour: RAL 7035  
Film thickness: 70 µm
  - 4.1.3 Housing parts are finish coated with:  
Product: FREIOTHERM PU 4003M  
Manufacturer: Emil Frei GmbH & Co. KG  
Structure: Thermally hardening powder coating based on polyurethane  
Colour: A0001, AUMA silver-grey (similar to RAL 7037 dust grey)  
Film thickness: 70 µm
- 4.2 Finish painting  
The finish painting is applied after device assembly and depends on the desired colour.
  - 4.2.1 Housing parts are finish painted with:  
Product: EFDEDUR UR1946H  
Manufacturer: Emil Frei GmbH & Co. KG  
Structure: 2-component finish painting based on polyurethane  
Colour: A0001, AUMA silver-grey (similar to RAL 7037 dust grey) or DB colour according to work order  
Film thickness: 60 µm (dry)
  - 4.2.2 Housing parts are coated with finish painting for special colours:  
Product: EFDEDUR UR1040  
Manufacturer: Emil Frei GmbH & Co. KG  
Structure: 2-component finish painting based on polyurethane  
Colour: Special colour according to work order  
Film thickness: 60 µm (dry)

### 5. Total film thickness (dry)

Average total film thickness (dry) of the powder coated housings including finish painting is 200 µm.  
For reasons of geometry, powder coating thickness varies between 60 µm and 220 µm. Variation of film thickness has no impact on corrosion protection.

#### **6. Notes**

- 6.1 The top coat can be painted with all common 1- or 2-component coating materials (i.e. artificial resin, epoxy resin, PVC, polyurethane, polyamide and acrylic enamels). We recommend verifying the compatibility of the paints before applying a new wet painting layer. For this, the surfaces to be painted must be slightly ground and carefully cleaned, i. e. free of foreign substance, grease, oily dirt and dust.
- 6.2 Mounting surface to the valve is powder coated.

## Technical description KX-G corrosion protection with powder coating in accordance with painting specification P1.004

This description applies to AUMA products with powder coating in accordance with painting specification P1.004.

Corrosion protection KX-G based on painting specification P1.004 is suitable for use in areas with extremely high salinity, permanent condensation, and high pollution. Corrosion protection includes the use of suitable material for outer parts and painting system.

### 1. Materials

- 1.1 Outside fasteners (e.g. screws) are made of stainless steel with additional metallic surface protection.
- 1.2 Name plates are made of stainless steel.

### 2. Surface treatment

- 2.1 After machining, the parts are coated with a metallic surface protection or are made of stainless steel.

### 3. General information

- 3.1 Housing parts made of GJL/GJS are blasted: Sa 2 ½ in accordance with EN ISO 12944-4.

### 4. Painting system

- 4.1 Powder coating  
The powder coating is performed in an automated process.
  - 4.1.1 During preliminary treatment, housing parts are chemically cleaned and painted with an Oxilan® conversion coating.
  - 4.1.2 Housing parts are primer coated with:  
Product: FREOPOX PE 1204A  
Manufacturer: Emil Frei GmbH & Co. KG  
Structure: Thermally hardening powder coating based on epoxy resin  
Colour: RAL 7035  
Film thickness: 70 µm
  - 4.1.3 Housing parts are finish coated with:  
Product: FREIOTHERM PU 4003M  
Manufacturer: Emil Frei GmbH & Co. KG  
Structure: Thermally hardening powder coating based on polyurethane  
Colour: A0001, AUMA silver-grey (similar to RAL 7037 dust grey)  
Film thickness: 70 µm
- 4.2 After product assembly, the first intermediate painting is applied to the housing parts:  
Product: FREOPOX ER1912M  
Manufacturer: Emil Frei GmbH & Co. KG  
Structure: 2-component painting based on epoxy resin  
Colour: white  
Film thickness: 80 µm (dry)
- 4.3 Finish painting  
The finish painting is applied after device assembly and depends on the desired colour.
  - 4.3.1 Housing parts are finish painted with:  
Product: EFDEDUR UR1946H  
Manufacturer: Emil Frei GmbH & Co. KG  
Structure: 2-component finish painting based on polyurethane  
Colour: A0001, AUMA silver-grey (similar to RAL 7037 dust grey) or DB colour according to work order  
Film thickness: 60 µm (dry)
  - 4.3.2 Housing parts are coated with finish painting for special colours:  
Product: EFDEDUR UR1040  
Manufacturer: Emil Frei GmbH & Co. KG  
Structure: 2-component finish painting based on polyurethane  
Colour: Special colour according to work order  
Film thickness: 60 µm (dry)



#### 5. Total film thickness (dry)

Average total film thickness (dry) of the powder coated housings including finish painting is 280 µm.

For reasons of geometry, powder coating thickness varies between 60 µm and 220 µm. Variation of film thickness has no impact on corrosion protection.

#### 6. Notes

- 6.1 The top coat can be painted with all common 1- or 2-component coating materials (i.e. artificial resin, epoxy resin, PVC, polyurethane, polyamide and acrylic enamels). We recommend verifying the compatibility of the paints before applying a new wet painting layer. For this, the surfaces to be painted must be slightly ground and carefully cleaned, i. e. free of foreign substance, grease, oily dirt and dust.
- 6.2 Mounting surface to the valve is powder coated.

## Technical description Powder coating, primer coating, finish coating and multi-layer wet painting

### 1. General information

- 1.1 Housing parts made of GJL/GJS are blasted: Sa 2 ½ in accordance with EN ISO 12944-4.
- 1.2 Aluminium housing parts are not blasted.

### 2. Painting system

- 2.1 Powder coating  
The powder coating is performed in an automated process.
  - 2.1.1 During preliminary treatment, housing parts are chemically cleaned and painted with an Oxsilan® conversion coating.
  - 2.1.2 Housing parts are primer coated with:
    - Product: FREOPOX PE 1204A
    - Manufacturer: Emil Frei GmbH & Co. KG
    - Structure: Thermally hardening powder coating based on epoxy resin.
    - Colour: RAL 7035
    - Film thickness: 70 µm
  - 2.1.3 Housing parts are finish coated with:
    - Product: FREIOTHERM PU 4003M
    - Manufacturer: Emil Frei GmbH & Co. KG
    - Structure: Thermally hardening powder coating based on polyurethane.
    - Colour: A0001, AUMA silver-grey (similar to RAL 7037 dust grey)
    - Film thickness: 70 µm
- 2.2 After product assembly, the first intermediate painting is applied to the housing parts:
  - Product: FREOPOX ER1912M
  - Manufacturer: Emil Frei GmbH & Co. KG
  - Structure: 2-component painting based on epoxy resin
  - Colour: white
  - Film thickness: 80 µm (dry)
- 2.3 The second intermediate painting is applied to the housing parts:
  - Product: FREOPOX ER1912M (for data refer to 1<sup>st</sup> intermediate painting)
  - Colour: White
  - Film thickness: 80 µm (dry)
- 2.4 Finish painting  
The finish painting is applied after device assembly and depends on the desired colour.
  - 2.4.1 Housing parts are finish painted with:
    - Product: EFDEDUR UR1946H
    - Manufacturer: Emil Frei GmbH & Co. KG
    - Structure: 2-component finish painting based on polyurethane
    - Colour: A0001, AUMA silver-grey (similar to RAL 7037 dust grey) or DB colour according to work order
    - Film thickness: 60 µm (dry)
  - 2.4.2 Housing parts are coated with finish painting for special colours:
    - Product: EFDEDUR UR1040
    - Manufacturer: Emil Frei GmbH & Co. KG
    - Structure: 2-component finish painting based on polyurethane
    - Colour: Special colour according to work order
    - Film thickness: 60 µm (dry)

### 3. Total film thickness (dry)

Total film thickness (dry) of the powder coated housings including wet painting layer is 360 µm.  
For reasons of geometry, powder coating thickness varies between 60 µm and 220 µm. Variation of film thickness has no impact on corrosion protection.

### 4. Notes

- 4.1 The top coat can be painted with all common 1- or 2-component coating materials (i.e. artificial resin, epoxy resin, PVC, polyurethane, polyamide and acrylic enamels). Subsequent finishing with chlorine rubber paints subject to restrictions.  
We recommend verifying the compatibility of the paints before applying a new wet painting layer.  
For this, the surfaces to be painted must be slightly ground and carefully cleaned, i. e. free of foreign substance, grease, oily dirt and dust.
- 4.2 Mounting surface to the valve is powder coated.

**Technical description Electric actuators, actuator controls and gearboxes in K-Mass™ (registered trademark of Thermal Designs Inc.) fireproof version**

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**1. General information**

- 1.1 Fireproof characteristics are achieved by the patented K-MASS™ coating by Thermal Designs Inc. In the event of a fire, the coating will expand and absorb the externally supplied thermal energy of the fire.

**2. Characteristics**

- Chemically inert
- Fixed passive fire protection
- Segment-moulded coating
- Test in accordance with strict standards
- Protection of electronic elements for 30 minutes at 1,100 °C/2,000 °F

**3. Advantages**

- Does not fan the fire
- Device remains fully operational
- Full access to any component part, without removal of fire protection
- Local operation not impaired
- Minimum space requirement
- No additional installation cost
- Good heat dissipation characteristics
- Ambient temperature –50 °C to +85.6 °C
- Permanent corrosion protection
- Always ready for use
- Meets the requirements of ANSI/API607 and UL 1709

**4. In case of fire**

- 4.1 Actuators, actuator controls and gearboxes remain completely operational during minimum 30 minutes at a temperature up to 1 100 °C/2 000 °F. Within this period of time, the corresponding fireproof valve can be operated.

**5. Qualifications**

- 5.1 K-Mass™ is hydrocarbon jet and pool fire tested by:

- Bureau Veritas
- Faverdale Technology Centre
- Sintef of Norway
- Southwest Research Institute

**6. Finish painting**

The finish painting depends on the desired colour.

- 6.1 The intermediate painting is applied to the housing parts:

|                 |                                                                     |
|-----------------|---------------------------------------------------------------------|
| Product:        | SikaCor EG 1                                                        |
| Manufacturer:   | Sika Deutschland GmbH                                               |
| Structure:      | 2-component painting based on epoxy resin with micaceous iron oxide |
| Colour:         | Green (DB 601)                                                      |
| Film thickness: | 80 µm (dry)                                                         |

- 6.2 Housing parts are finish painted with:

|                 |                                                                                              |
|-----------------|----------------------------------------------------------------------------------------------|
| Product:        | SikaCor EG 4                                                                                 |
| Manufacturer:   | Sika Deutschland GmbH                                                                        |
| Structure:      | 2-component finish painting based on polyurethane with micaceous iron oxide                  |
| Colour:         | A0001, AUMA silver-grey (similar to RAL 7037 dust grey) or DB colour according to work order |
| Film thickness: | 60 µm (dry)                                                                                  |

**Technical description Electric actuators, actuator controls and gearboxes in K-Mass™ (registered trademark of Thermal Designs Inc.) fireproof version**

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6.3 Housing parts are coated with finish painting for special colours:

|                 |                                                   |
|-----------------|---------------------------------------------------|
| Product:        | SikaCor EG 5                                      |
| Manufacturer:   | Sika Deutschland GmbH                             |
| Structure:      | 2-component finish painting based on polyurethane |
| Colour:         | Special colour according to work order            |
| Film thickness: | 60 µm (dry)                                       |

6.4 Mounting face to the valve is without surface treatment, covered with a metallic surface protection or powder coated.

## Technical data Grease and oil quantities

This data applies to<sup>1)</sup>:

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Multi-turn actuators      | SA 07.1 – SA 48.1; SAR 07.1 – SAR 30.1; SA 07.2 – SA 16.2; SAR 07.2 – SAR 16.2<br>SA 07.2-UW – SA 16.2-UW; SAR 07.2-UW – SAR 16.2-UW<br>SAV 07.2 – SAV 16.2; SARV 07.2 – SARV 16.2<br>SAExC 07.1 – SAExC 16.1; SARExC 07.1 – SARExC 16.1; SAEx 25.1 – SAEx 40.1; SAREx 25.1 – SAREx 30.1<br>SAEx 07.2 – SAEx 16.2; SAREx 07.2 – SAREx 16.2<br>SAVEx 07.2 – SARVEx 16.2; SARVEx 07.2 – SARVEx 16.2<br>SAN 07.1 – SAN 25.1; SARN 07.1 – 25.1; SAN 07.2 – SAN 16.2; SARN 07.2 – SARN 16.2<br>SAI 07.2 – SAI 16.2; SARI 07.2 – SARI 16.2 |
| Part-turn actuators       | SQ 05.2 – SQ 14.2; SQR 05.2 – SQR 14.2; SQEx 05.2 – SQEx 14.2; SQREx 05.2 – SQREx 14.2<br>SG 05 – SG 12; SG 05.1 – SG 12.1; SGR 05.1 – SGR 12.1; SGExC 05.1 – SGExC 12.1<br>SG 04.2 – SG 10.2; SG 03.3 – SG 05.3<br>SGM 04.1 – SGM 10.1; SGMR 04.1 – SGMR 10.1; SGC 04.1 – SGC 10.1; SGCR 04.1 – SGCR 10.1                                                                                                                                                                                                                           |
| Globe valve actuators     | SV 05.1 – SV 07.1; SVM 05.1 – SVM 07.5; SVMR 05.1 – SVMR 07.5; SVC 05.1 – SVC 07.5; SVCR 05.1 – SVCR 07.5                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Worm gearboxes            | GS 50.3 – GS 250.3; GS 315 – GS 500; GS 630.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Primary reduction gearing | GZ 16 – GZ 40; GZ 630.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Coaxial planetary gearing | GP 10.1 – GP 30.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Spur gearboxes            | GST 10.1 – GST 40.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Bevel gearboxes           | GK 10.2 – GK 40.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Linear thrust units       | LE 12.1 – LE 200.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Multi-turn gearboxes      | GHT 320.3 – GHT 1200.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

## Multi-turn actuators

| SA     |                  | 07.1/07.5  |             | 10.0/10.1  | 14.1/14.5  | 16.1      | 25.1      | 30.1      | 35.1      | 40.1      | 48.1      |
|--------|------------------|------------|-------------|------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Qty    | dm <sup>3</sup>  | 0.62 ±0.03 |             | 0.93 ±0.04 | 2.3 ±0.1   | 4.5 ±0.1  | 11.0 ±0.2 | 16.0 ±0.2 | 29.0 ±0.4 | 36.0 ±0.4 | 56.0 ±0.5 |
| Weight | kg <sup>2)</sup> | 0.56 ±0.03 |             | 0.84 ±0.04 | 2.1 ±0.1   | 4.1 ±0.1  | 9.9 ±0.2  | 14.4 ±0.2 | 26.1 ±0.4 | 32.4 ±0.4 | 50.4 ±0.5 |
| SA     |                  | 07.2/07.6  |             | 10.2       | 14.2/14.6  | 16.2      |           |           |           |           |           |
|        |                  | F07        | F10/G0      |            |            |           |           |           |           |           |           |
| Qty    | dm <sup>3</sup>  | 0.58 ±0.02 | 0.525 ±0.02 | 0.9 ±0.02  | 1.76 ±0.05 | 3.1 ±0.05 |           |           |           |           |           |
| Weight | kg <sup>2)</sup> | 0.52 ±0.02 | 0.47 ±0.02  | 0.81 ±0.02 | 1.58 ±0.05 | 2.8 ±0.05 |           |           |           |           |           |

## Part-turn actuators

| SQ      |                  | 05.2       | 07.2       | 10.2       | 12.2       | 14.2       |  |  |  |  |  |
|---------|------------------|------------|------------|------------|------------|------------|--|--|--|--|--|
| Qty     | dm <sup>3</sup>  | 0.7 ±0.02  | 0.7 ±0.02  | 1.3 ±0.02  | 1.7 ±0.02  | 1.8 ±0.05  |  |  |  |  |  |
| Weight  | kg <sup>2)</sup> | 0.63 ±0.02 | 0.63 ±0.02 | 1.17 ±0.02 | 1.53 ±0.02 | 1.62 ±0.05 |  |  |  |  |  |
| SG      |                  | 05         | 07         | 10         | 12         |            |  |  |  |  |  |
| Qty     | dm <sup>3</sup>  | 0.3        | 0.3        | 0.52       | 0.8        |            |  |  |  |  |  |
| Weight  | kg <sup>2)</sup> | 0.27       | 0.27       | 0.47       | 0.72       |            |  |  |  |  |  |
| SG      |                  | 05.1       | 07.1       | 10.1       | 12.1       |            |  |  |  |  |  |
| Qty     | dm <sup>3</sup>  | 0.3        | 0.3        | 0.52       | 0.8        |            |  |  |  |  |  |
| Weight  | kg <sup>2)</sup> | 0.27       | 0.27       | 0.47       | 0.72       |            |  |  |  |  |  |
| SG      |                  | 04.2       | 05.2       | 07.2       | 10.2       |            |  |  |  |  |  |
| Qty     | dm <sup>3</sup>  | 0.09       | 0.14       | 0.30       | 0.52       |            |  |  |  |  |  |
| Weight  | kg <sup>3)</sup> | 0.07       | 0.12       | 0.25       | 0.43       |            |  |  |  |  |  |
| SG      |                  | 03.3       | 04.3       | 05.3       |            |            |  |  |  |  |  |
| Qty     | dm <sup>3</sup>  | 0.14       | 0.14       | 0.23       |            |            |  |  |  |  |  |
| Weight  | kg <sup>3)</sup> | 0.12       | 0.12       | 0.19       |            |            |  |  |  |  |  |
| SGM/SGC |                  | 04.1       | 05.1       | 07.1       | 10.1       |            |  |  |  |  |  |
| Qty     | dm <sup>3</sup>  | 0.11       | 0.11       | 0.24       | 0.40       |            |  |  |  |  |  |
| Weight  | kg <sup>3)</sup> | 0.09       | 0.09       | 0.20       | 0.33       |            |  |  |  |  |  |

1) – 2) Refer to notes on page 3.

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

## Technical data Grease and oil quantities

## Globe valve actuators

| SV      |                  | 05.1 | 07.1      |  |  |  |  |  |  |  |  |
|---------|------------------|------|-----------|--|--|--|--|--|--|--|--|
| Qty     | dm <sup>3</sup>  | 0.14 | 0.30      |  |  |  |  |  |  |  |  |
| Weight  | kg <sup>3)</sup> | 0.12 | 0.25      |  |  |  |  |  |  |  |  |
| SVM/SVC |                  | 05.1 | 07.1/07.5 |  |  |  |  |  |  |  |  |
| Qty     | dm <sup>3</sup>  | 0.11 | 0.24      |  |  |  |  |  |  |  |  |
| Weight  | kg <sup>3)</sup> | 0.09 | 0.20      |  |  |  |  |  |  |  |  |

## Worm gearboxes

| GS     |                  | 50.3               | 63.3            | 80.3             | 100.3<br>(52:1)  | 100.3<br>(126:1) | 100.3<br>(160:1)   | 100.3<br>(208:1) | 125.3<br>(52:1)  | 125.3<br>(126:1) | 125.3<br>(160:1) |
|--------|------------------|--------------------|-----------------|------------------|------------------|------------------|--------------------|------------------|------------------|------------------|------------------|
| Qty    | dm <sup>3</sup>  | 0.1                | 0.3             | 0.4              | 1                | 1.35             | 1.35               | 1.35             | 1.3              | 1.65             | 1.65             |
| Weight | kg <sup>2)</sup> | 0.09               | 0.27            | 0.36             | 0.9              | 1.22             | 1.22               | 1.22             | 1.17             | 1.49             | 1.49             |
| GS     |                  | 125.3<br>(208:1)   | 160.3<br>(54:1) | 160.3<br>(218:1) | 160.3<br>(442:1) | 160.3<br>(880:1) | 200.3<br>(53:1)    | 200.3<br>(67:1)  | 200.3<br>(214:1) | 200.3<br>(434:1) | 200.3<br>(864:1) |
| Qty    | dm <sup>3</sup>  | 1.65               | 3.3             | 4.3              | 4.3              | 4.3              | 6.6                | 6.6              | 8.1              | 8.1              | 8.6              |
| Weight | kg <sup>2)</sup> | 1.49               | 3               | 3.9              | 3.9              | 3.9              | 6                  | 6                | 7.4              | 7.4              | 7.8              |
| GS     |                  | 200.3<br>(1 752:1) | 250.3<br>(52:1) | 250.3<br>(210:1) | 250.3<br>(411:1) | 250.3<br>(848:1) | 250.3<br>(1 718:1) |                  |                  |                  |                  |
| Qty    | dm <sup>3</sup>  | 8.6                | 12.2            | 14.4             | 14.4             | 14.7             | 14.7               |                  |                  |                  |                  |
| Weight | kg <sup>2)</sup> | 7.8                | 11              | 13               | 13               | 13.3             | 13.3               |                  |                  |                  |                  |
| GS     |                  | 315                | 400             | 500              | 630.3            |                  |                    |                  |                  |                  |                  |
| Qty    | dm <sup>3</sup>  | 27.5               | 55.0            | 110.0            | 216.7            |                  |                    |                  |                  |                  |                  |
| Weight | kg <sup>2)</sup> | 25.0               | 50.0            | 100.0            | 195.0            |                  |                    |                  |                  |                  |                  |

## Primary reduction gearing

| GZ     |                  | 30                 | 35                   | 40                    | 40/16 |  |  |  |  |  |  |
|--------|------------------|--------------------|----------------------|-----------------------|-------|--|--|--|--|--|--|
| Qty    | dm <sup>3</sup>  | 17.6               | 18.7                 | 57.2                  | 61.9  |  |  |  |  |  |  |
| Weight | kg <sup>2)</sup> | 16.0               | 17.0                 | 52.0                  | 56.3  |  |  |  |  |  |  |
| GZ     |                  | 630.3<br>(4:1/8:1) | 630.3<br>(16:1/32:1) | 630.3<br>(64:1/133:1) |       |  |  |  |  |  |  |
| Qty    | dm <sup>3</sup>  | 11.1               | 16.7                 | 21.1                  |       |  |  |  |  |  |  |
| Weight | kg <sup>2)</sup> | 10.0               | 15.0                 | 19.0                  |       |  |  |  |  |  |  |

## Coaxial planetary gearing

| GP     |                  | 10.1/14.1<br>(2, 4:1) | 10.1/14.1<br>(3:1) | 10.1/14.1<br>(4:1) | 16.1 | 25.1<br>(4:1/8:1) | 25.1<br>(16:1) | 30.1<br>(4:1/8:1) | 30.1<br>(16:1) |  |  |
|--------|------------------|-----------------------|--------------------|--------------------|------|-------------------|----------------|-------------------|----------------|--|--|
| Qty    | dm <sup>3</sup>  | 0.35                  | 0.35               | 0.35               | 1.0  | 1.5               | 2.0            | 2.2               | 2.5            |  |  |
| Weight | kg <sup>2)</sup> | 0.32                  | 0.32               | 0.32               | 0.9  | 1.4               | 1.8            | 2.0               | 2.25           |  |  |

## Spur gearboxes

| GST    |                  | 10.1 | 14.1/14.5 | 16.1 | 25.1 | 30.1 | 35.1 | 40.1 |  |  |  |
|--------|------------------|------|-----------|------|------|------|------|------|--|--|--|
| Qty    | dm <sup>3</sup>  | 0.7  | 1.5       | 3.0  | 8.0  | 12.0 | 20.0 | 27.0 |  |  |  |
| Weight | kg <sup>2)</sup> | 0.62 | 1.3       | 2.7  | 7.1  | 10.7 | 17.8 | 24.0 |  |  |  |

## Bevel gearboxes

| GK     |                  | 10.2 | 14.2/14.6 | 16.2 | 25.2 | 30.2 | 35.2 | 40.2 |  |  |  |
|--------|------------------|------|-----------|------|------|------|------|------|--|--|--|
| Qty    | dm <sup>3</sup>  | 0.25 | 0.6       | 1.0  | 4.0  | 14.0 | 20.0 | 22.0 |  |  |  |
| Weight | kg <sup>2)</sup> | 0.22 | 0.53      | 0.9  | 3.6  | 12.5 | 17.8 | 19.6 |  |  |  |

## Multi-turn gearboxes

| GHT    |                  | 320.3 | 500.3 | 800.3 | 1200.3 |  |  |  |  |  |  |
|--------|------------------|-------|-------|-------|--------|--|--|--|--|--|--|
| Qty    | dm <sup>3</sup>  | 30.0  | 71.5  | 93.5  | 146.5  |  |  |  |  |  |  |
| Weight | kg <sup>2)</sup> | 27    | 64.4  | 84.2  | 131.9  |  |  |  |  |  |  |

1) – 2) Refer to notes on page 3.

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

## Technical data Grease and oil quantities

## Linear thrust units

| LE     |                  | 12.1-50<br>25.1-50 | 12.1-100<br>25.1-100 | 12.1-125<br>25.1-125  | 12.1-200<br>25.1-200  | 12.1-250<br>25.1-250  | 12.1-400<br>25.1-400 | 12.1-500<br>25.1-500 | 50.1-63   | 50.1-125  | 50.1-250 |
|--------|------------------|--------------------|----------------------|-----------------------|-----------------------|-----------------------|----------------------|----------------------|-----------|-----------|----------|
| Qty    | dm <sup>3</sup>  | 0.10               | 0.13                 | 0.16                  | 0.28                  | 0.36                  | 0.54                 | 0.65                 | 0.26      | 0.41      | 0.65     |
| Weight | kg <sup>2)</sup> | 0.09               | 0.12                 | 0.15                  | 0.26                  | 0.33                  | 0.50                 | 0.60                 | 0.28      | 0.38      | 0.70     |
| LE     |                  | 50.1-400           | 70.1-80<br>100.1-80  | 70.1-160<br>100.1-160 | 70.1-320<br>100.1-320 | 70.1-400<br>100.1-400 | 200.1-100            | 200.1-200            | 200.1-400 | 200.1-500 |          |
| Qty    | dm <sup>3</sup>  | 1.09               | 0.52                 | 0.88                  | 1.48                  | 1.79                  | 1.71                 | 2.80                 | 4.92      | 6.11      |          |
| Weight | kg <sup>2)</sup> | 1.01               | 0.48                 | 0.81                  | 1.37                  | 1.65                  | 1.58                 | 2.58                 | 4.53      | 5.63      |          |

## Notes on tables on pages 1 and 2

- |    |                                                        |
|----|--------------------------------------------------------|
| 1) | This overview is not applicable for products with F21. |
| 2) | For $\rho$ = approx. 0.9 kg/dm <sup>3</sup>            |
| 3) | For $\rho$ = approx. 0.83 kg/dm <sup>3</sup>           |

## Technical data Ambient temperatures/lubricant in the gear housing

| Type<br>List designation<br>Gearboxes |          | Temperature range |         |                 |      |                         |      |                  |      |
|---------------------------------------|----------|-------------------|---------|-----------------|------|-------------------------|------|------------------|------|
|                                       |          | Normal (standard) |         | Low temperature |      | Extreme low temperature |      | High temperature |      |
|                                       |          | N                 |         | L               |      | EL                      |      | H                |      |
| Version                               |          | °C                | Fett/Öl | °C              | Fett | °C                      | Fett | °C               | Fett |
| GS 50.3 – GS 250.3                    | Standard | –40/+80           | F21     | –               | –    | –60/+60                 | F2   | 0/+120           | F21  |
| GS 50.3 – GS 250.3                    | Ex       | –40/+80           | F15     | –               | –    | –60/+60                 | F2   | 0/+120           | F13  |
| GS 630.3                              | Standard | –40/+80           | F15     | –               | –    | –60/+60                 | F2   | 0/+120           | F13  |
| GS 630.3                              | Ex       | –40/+80           | F15     | –               | –    | –60/+60                 | F2   | 0/+120           | F13  |
| GQB 160.1 – GQB 250.1                 | Standard | –40/+100          | F21     | –               | –    | –                       | –    | –                | –    |
| GF 50.3 – GF 250.3                    | Standard | –40/+80           | F21     | –               | –    | –60/+60                 | F2   | 0/+120           | F21  |
| GF 50.3 – GF 250.3                    | Ex       | –40/+80           | F15     | –               | –    | –60/+60                 | F2   | 0/+120           | F13  |
| GS 315 – GS 500                       | Standard | –40/+80           | F15     | –               | –    | –60/+60                 | F2   | 0/+120           | F13  |
| GS 315 – GS 500                       | Ex       | –40/+80           | F15     | –               | –    | –60/+60                 | F2   | 0/+120           | F13  |
| GSI 63.3 – GSI 250.3                  | Nuclear  | –20/+80           | F13     | –               | –    | –                       | –    | –                | –    |
| GST 10.1 – GST 40.1                   | Standard | –40/+80           | F15     | –               | –    | –60/+60                 | F2   | 0/+120           | F3   |
| GSTI 25.1 – GSTI 40.1                 | Nuclear  | –20/+80           | F11     | –               | –    | –                       | –    | –                | –    |
| GK 10.2 – GK 40.2                     | Standard | –40/+80           | F15     | –               | –    | –60/+60                 | F2   | 0/+120           | F3   |
| GHT 320.3 – GHT 1200.3                | Standard | –40/+80           | F15     | –               | –    | –60/+60                 | F2   | 0/+120           | F13  |
| GP 10.1 – GP 30.1                     | Standard | –40/+80           | F21     | –               | –    | –60/+60                 | F2   | 0/+120           | F21  |
| GW 14.1                               | Standard | –25/+80           | F15     | –               | –    | –                       | –    | 0/+120           | F3   |
| LE 12.1 – LE 200.1                    | Standard | –25/+80           | F13     | –40/+60         | F2   | –60/+60                 | F2   | 0/+120           | F13  |
| LEN 12.1 – LEN 200.1                  | Nuclear  | –20/+80           | F13     | –               | –    | –                       | –    | –                | –    |
| GHE 05.1 – GHE 12.1                   | Standard | –25/+80           | O9      | –               | –    | –                       | –    | –                | –    |
| WSH 10.2 – WSH 16.2                   | Standard | –40/+80           | F15     | –               | –    | –                       | –    | –                | –    |
| Output d A und AK                     | Standard | –40/+80           | F24     | –               | –    | –60/+60                 | F24  | 0/+120           | F24  |
| Output drive types A                  | Nuclear  | –20/+80           | F17     | –               | –    | –                       | –    | –                | –    |
| Output drive types AF                 | Standard | –40/+80           | F-S1    | –               | –    | –                       | –    | –                | –    |
| Output drive types AF                 | Nuclear  | –20/+80           | F17     | –               | –    | –                       | –    | –                | –    |

## Lubricants:

F2 = Fuchs Discor R EP 000

F3 = Zepf AR 12 K

F11 = Fuchs Renolit LST

F13 = Special grease for nuclear applications V 2900

F15 = Shell Alvania 1029

F17 = Shell AeroShell Grease 22

F21 = AUMA Grease 1964

F24 = Klüber Isoflex Topas L 32

F-S1 = Ringfeder Spezialfett [special grease for friction springs]

O9 = Oest SAE 75W-90





## 5 Dimensions Part-turn gearboxes

---

### GS 50.3 – GS 250.3

|                                                                                 |     |
|---------------------------------------------------------------------------------|-----|
| Part-turn gearboxes and primary reduction gearings                              | 110 |
| Couplings                                                                       | 111 |
| Part-turn gearboxes with shaft ends on both sides and primary reduction gearing | 112 |
| Spigot rings                                                                    | 113 |
| Couplings (standard), bore with keyway                                          | 114 |
| Couplings (standard), two-flat bore                                             | 116 |
| Couplings (standard), square bore                                               | 118 |
| Valve attachment                                                                | 120 |
| Part-turn gearboxes with output mounting flange GS 00 – GS 3                    | 121 |

### GS 160.3

|                                                    |     |
|----------------------------------------------------|-----|
| Part-turn gearboxes and primary reduction gearings | 122 |
| Couplings                                          | 123 |

### GS 200.3

|                                                    |     |
|----------------------------------------------------|-----|
| Part-turn gearboxes and primary reduction gearings | 124 |
| Couplings                                          | 125 |

### GS 250.3

|                                                    |     |
|----------------------------------------------------|-----|
| Part-turn gearboxes and primary reduction gearings | 126 |
| Couplings                                          | 127 |

### GS 50.3 – GS 250.3 with base and lever

|                                                             |     |
|-------------------------------------------------------------|-----|
| Part-turn gearboxes with base and lever GS 50.3 – GS 125.3  | 128 |
| Part-turn gearboxes with base and lever GS 160.3 – GS 250.3 | 129 |

### GS 160.3 – GS 250.3

|                                                             |     |
|-------------------------------------------------------------|-----|
| Part-turn gearboxes with shaft ends on both sides           | 130 |
| Valve attachment                                            | 131 |
| Part-turn gearboxes with output mounting flange GS 3 – GS 6 | 132 |

### GS 315 – GS 500 with GZ 30.1 – GZ 40.1

|                                                    |     |
|----------------------------------------------------|-----|
| Part-turn gearboxes and primary reduction gearings | 133 |
| Couplings                                          | 134 |
| Couplings (standard), bore with keyway             | 135 |

### GQB 80.1 – GS 250.1

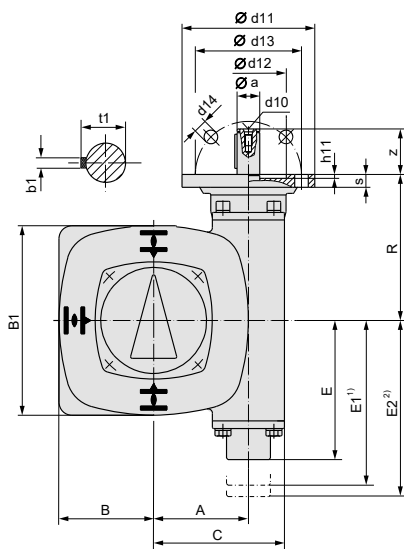
|                                           |     |
|-------------------------------------------|-----|
| Part-turn gearboxes GQB 80.1 – GQB 125.1  | 136 |
| Couplings                                 | 137 |
| Part-turn gearboxes GQB 160.1 – GQB 250.1 | 138 |
| Couplings                                 | 139 |

### GHE 05.1 – GHE 12.1

|                     |     |
|---------------------|-----|
| Part-turn gearboxes | 140 |
| Couplings           | 141 |

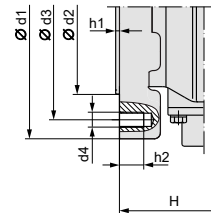
## Dimensions Part-turn gearboxes

Without primary reduction gearings

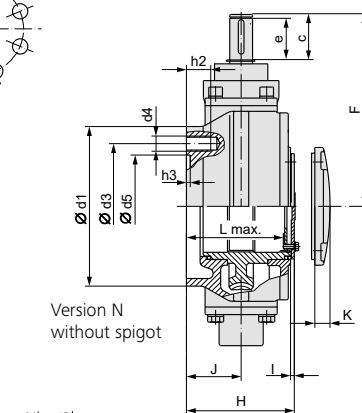
Valve attachment  
EN ISO 5211

F07 – F16

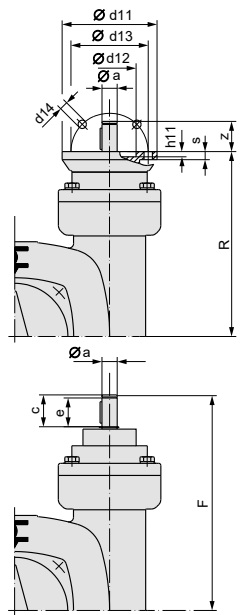
F25 – F35

Valve attachment  
GS 125.3 – F30

For manual operation

Version N  
without spigotVersion Y  
with spigot

With primary reduction gearings



For manual operation

- 1) Swing angle adjustable 10° – 100°  
 2) Swing angle adjustable 100° – 190°  
 3) Equipped with primary reduction gearing or planetary gearing to reduce input torques

| Dimensions                | GS 50.3 |      |     | GS 63.3      |     | GS 80.3      |     | GS 100.3      |     |                                                  |     | GS 125.3 |     |     |                                            |     |      |                     |      |     |
|---------------------------|---------|------|-----|--------------|-----|--------------|-----|---------------|-----|--------------------------------------------------|-----|----------|-----|-----|--------------------------------------------|-----|------|---------------------|------|-----|
|                           | 51:1    |      |     | 51:1<br>82:1 |     | 53:1<br>82:1 |     | 52:1<br>107:1 |     | 126:1 <sup>3)</sup><br>160:1/208:1 <sup>3)</sup> |     | 52:1     |     |     | 126:1 <sup>3)</sup><br>160:1 <sup>3)</sup> |     |      | 208:1 <sup>3)</sup> |      |     |
| EN ISO 5211               | F05     | F07  | F10 | F10          | F12 | F12          | F14 | F14           | F16 | F14                                              | F16 | F16      | F25 | F30 | F16                                        | F25 | F30  | F16                 | F25  | F30 |
| A                         |         | 50   |     |              | 63  |              | 80  |               | 100 |                                                  | 100 |          | 125 |     |                                            | 125 |      |                     | 125  |     |
| B                         | 60      | 60   | 63  | 75           |     | 88           |     | 105           |     | 105                                              |     | 125      | 150 | 125 | 125                                        | 150 | 125  | 125                 | 150  | 125 |
| B1                        | 108     | 108  | 125 | 150          |     | 175          |     | 210           |     | 210                                              |     | 250      | 300 | 250 | 250                                        | 300 | 250  | 250                 | 300  | 250 |
| C                         |         | 77   |     | 94           |     | 111          |     | 148           |     | 148                                              |     |          | 173 |     |                                            | 173 |      |                     | 173  |     |
| E                         |         | 98   |     | 128          |     | 133          |     | 189           |     | 189                                              |     |          | 194 |     |                                            | 194 |      |                     | 194  |     |
| E1 <sup>1)</sup>          |         | 101  |     | 135          |     | 140          |     | 213           |     | 213                                              |     |          | 218 |     |                                            | 218 |      |                     | 218  |     |
| E2 <sup>2)</sup>          |         | 114  |     | 150          |     | 155          |     | 225           |     | 225                                              |     |          | 230 |     |                                            | 230 |      |                     | 230  |     |
| F                         |         | 132  |     | 165          |     | 170          | 230 | 250           |     | 299                                              |     | 255      |     |     | 304                                        | 324 | 304  |                     | 304  |     |
| H                         | 85      | 80   | 80  | 91           | 94  | 97           | 107 | 142           |     | 142                                              |     | 145      |     | 184 |                                            | 145 | 184  |                     | 145  | 184 |
| I                         |         | 3    |     | 3            |     | 4            |     | 5             |     | 5                                                |     | 5        |     |     |                                            | 5   |      |                     | 5    |     |
| J                         | 45      | 40   | 40  | 42           | 45  | 47           | 57  | 75            |     | 75                                               |     | 75       |     | 114 |                                            | 75  | 114  |                     | 75   | 114 |
| K                         |         | 12   |     | 13           |     | 16           |     | 17            |     | 17                                               |     | 18       |     |     |                                            | 18  |      |                     | 18   |     |
| R                         |         | 100  |     | 125          |     | 130          |     | 190           |     | 259                                              |     | 195      |     |     |                                            | 264 |      |                     | 264  |     |
| Ø a f7                    |         | 16   |     | 20           |     | 20           | 20  | 30            |     | 20                                               |     | 30       |     |     | 20                                         | 30  | 20   |                     | 20   |     |
| b1                        |         | 5    |     | 6            |     | 6            | 6   | 8             |     | 6                                                |     | 8        |     |     | 6                                          | 8   | 6    |                     | 6    |     |
| c                         |         | 31.5 |     | 42           |     | 42           | 43  | 60            |     | 43                                               |     | 60       |     |     | 43                                         | 60  | 43   |                     | 42   |     |
| Ø d1                      | 65      | 90   | 125 | 125          | 150 | 150          | 175 | 175           | 210 | 175                                              | 210 | 210      | 300 | 348 | 210                                        | 300 | 348  | 210                 | 300  | 348 |
| Ø d2 f8                   | 35      | 55   | 70  | 70           | 85  | 85           | 100 | 100           | 130 | 100                                              | 130 | 130      | 200 | 230 | 130                                        | 200 | 230  | 130                 | 200  | 230 |
| Ø d3                      | 50      | 70   | 102 | 102          | 125 | 125          | 140 | 140           | 165 | 140                                              | 165 | 165      | 254 | 298 | 165                                        | 254 | 298  | 165                 | 254  | 298 |
| d4                        | M6      | M8   | M10 | M10          | M12 | M12          | M16 | M16           | M20 | M16                                              | M20 | M20      | M16 | M20 | M20                                        | M16 | M20  | M20                 | M16  | M20 |
| Ø d5                      | 40      | 60   | 85  | 85           | 105 | 105          | 115 | 115           | 140 | 115                                              | 140 | 140      | 225 | —   | 140                                        | 225 | —    | 140                 | 225  | —   |
| Ø d6                      | 32.5    | 49   | 64  | 64           | 79  | 79           | 92  | 92            | 121 | 92                                               | 121 | 121      | 190 | —   | 121                                        | 190 | —    | 121                 | 190  | —   |
| d10                       |         | M5   |     | M6           |     | M6           |     | M10           |     | M6                                               |     | M10      |     |     |                                            | M10 |      |                     | M6   |     |
| e                         |         | 28   |     | 38           |     | 38           |     | 38            | 55  |                                                  | 38  |          | 55  |     | 38                                         | 55  | 38   |                     | 38   |     |
| h1                        |         | 2.5  |     | 2.5          |     | 2.5          | 3.5 | 3.5           | 4.5 | 3.5                                              | 4.5 | 4.5      | 4.5 | 5   | 4.5                                        | 4.5 | 5    | 4.5                 | 4.5  | 5   |
| h2                        | 10      | 13   | 16  | 16           | 19  | 19           | 25  | 25            | 32  | 25                                               | 32  | 32       | 25  | 32  | 32                                         | 25  | 32   | 32                  | 25   | 32  |
| h3                        | 3       | 3.5  | 4   | 4            | 4   | 4            | 5   | 5             | 5   | 5                                                | 5   | 5        | 5   | —   | 5                                          | 5   | —    | 5                   | 5    | —   |
| L max.                    | 68      | 63   | 63  | 75           | 78  | 80           | 90  | 125           |     | 125                                              |     | 128      | 128 | 167 | 128                                        | 128 | 167  | 128                 | 128  | 167 |
| t1                        |         | 18   |     | 22.5         |     | 22.5         |     | 22.5          | 33  | 22.5                                             |     | 33       |     |     | 22.5                                       | 33  | 22.5 |                     | 22.5 |     |
| z                         |         | 32   |     | 40           |     | 40           |     | 40            | 60  | 40                                               |     | 60       |     |     | 40                                         | 60  | 40   |                     | 40   |     |
| EN ISO 5210 <sup>4)</sup> | F07/F10 |      |     | F07/F10      |     | F07/F10      |     | F10/F14       |     | F10                                              |     | F14      |     |     | F10/F14                                    |     |      |                     | F10  |     |
| DIN 3210 <sup>4)</sup>    | G0      |      |     | G0           |     | G0           |     | G0/G1/2       |     | G0                                               |     | G1/2     |     |     | G0/G1/2                                    |     |      |                     | G0   |     |

<sup>4)</sup> Flange for mounting multi-turn actuator

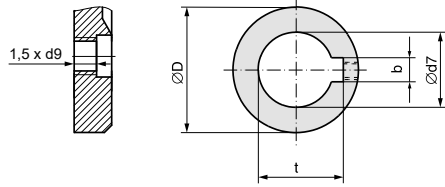
|             |     |      |      |
|-------------|-----|------|------|
| EN ISO 5210 | F07 | F10  | F14  |
| DIN 3210    | G0  | G1/2 | G1/2 |
| Ø d11       | 90  | 125  | 175  |
| Ø d12       | 55  | 70   | 100  |
| Ø d13       | 70  | 102  | 140  |
| Ø d14       | 9   | 11   | 18   |
| h11         | 5   | 5    | 5    |
| s           | 8   | 12   | 17   |

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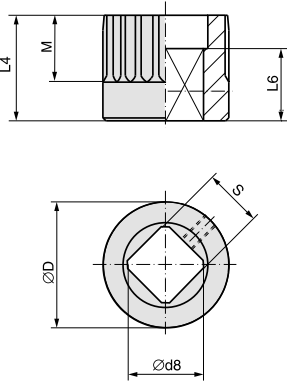
## Dimensions Couplings according to EN ISO 5211, DIN 6885

Bore according to  
EN ISO 5211With keyway according to  
DIN 6885-1

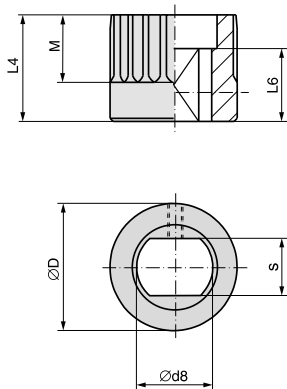
Detail X



| Dimensions          | GS 50.3 |       |      | GS 63.3 |      | GS 80.3 |      | GS 100.3 |      | GS 125.3         |                  |      |
|---------------------|---------|-------|------|---------|------|---------|------|----------|------|------------------|------------------|------|
| EN ISO 5211         | F05     | F07   | F10  | F10     | F12  | F12     | F14  | F14      | F16  | F16              | F25              | F30  |
| Ø D                 | 31.75   | 51.75 |      | 67.6    |      | 81.6    |      | 105.8    |      | 119.6            |                  |      |
| b JS9 <sup>1)</sup> | 6       | 6     | 8    | 8       | 10   | 10      | 14   | 14       | 18   | 18               | 20               | 20   |
| Ø d7 H8             | 18      | 22    | 28   | 28      | 36   | 36      | 48   | 48       | 60   | 60 <sup>2)</sup> | 72 <sup>2)</sup> | 72   |
| Ø d7 H8 max.        | 20      | 38    |      | 50      |      | 60      |      | 80       |      | 90               |                  |      |
| d9 <sup>3)</sup>    | M4      | M6    |      | M6      |      | M6      |      | M8       |      | M8               |                  |      |
| L4                  | 35      | 45    |      | 55      |      | 65      |      | 80       |      | 110              |                  | 130  |
| L5 <sup>3)</sup>    | 8       | 10    |      | 10      |      | 10      |      | 18       |      | 18               |                  |      |
| M                   | 20      | 30    |      | 40      |      | 47      |      | 50       |      | 70               |                  |      |
| t <sup>1)</sup>     | 20.8    | 24.8  | 31.3 | 31.3    | 39.3 | 39.3    | 51.8 | 51.8     | 64.4 | 64.4             | 76.9             | 76.9 |

Square bore  
according to EN ISO 5211

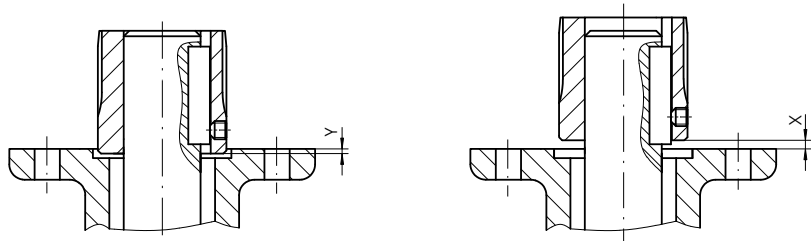
| Dimensions  | GS 50.3 |                    |      | GS 63.3 |      | GS 80.3 |      | GS 100.3 |      | GS 125.3           |                    |      |
|-------------|---------|--------------------|------|---------|------|---------|------|----------|------|--------------------|--------------------|------|
| EN ISO 5211 | F05     | F07                | F10  | F10     | F12  | F12     | F14  | F14      | F16  | F16                | F25                | F30  |
| Ø D         | 31.75   | 51.75              |      | 67.6    |      | 81.6    |      | 105.8    |      | 119.6              |                    |      |
| Ø d8 min.   | 18.1    | 22.2               | 28.2 | 28.2    | 36.2 | 36.2    | 48.2 | 48.2     | 60.2 | 60.2 <sup>2)</sup> | 72.2 <sup>2)</sup> | 72.2 |
| Ø d8 max.   | 22.2    | 40.2 <sup>4)</sup> |      | 48.2    |      | 60.2    |      | 72.2     |      | 98.2               |                    |      |
| L4          | 35      | 45                 |      | 55      |      | 65      |      | 80       |      | 110                |                    | 130  |
| L6 min.     | 30      | 30                 |      | 30      |      | 40      |      | 50       |      | 50                 |                    |      |
| M           | 20      | 30                 |      | 40      |      | 47      |      | 50       |      | 70                 |                    |      |
| s H11       | 14      | 17                 | 22   | 22      | 27   | 27      | 36   | 36       | 46   | 46 <sup>2)</sup>   | 55 <sup>2)</sup>   | 55   |
| s H11 max.  | 17      | 30 <sup>4)</sup>   |      | 36      |      | 46      |      | 55       |      | 75                 |                    |      |

Bore with two-flats  
according to EN ISO 5211

| Dimensions  | GS 50.3 |       |      | GS 63.3               |      | GS 80.3 |      | GS 100.3 |      | GS 125.3           |                    |      |
|-------------|---------|-------|------|-----------------------|------|---------|------|----------|------|--------------------|--------------------|------|
| EN ISO 5211 | F05     | F07   | F10  | F10                   | F12  | F12     | F14  | F14      | F16  | F16                | F25                | F30  |
| Ø D         | 31.75   | 51.75 |      | 67.6                  |      | 81.6    |      | 105.8    |      | 119.6              |                    |      |
| Ø d8 min.   | 18.1    | 22.2  | 28.2 | 28.2                  | 36.2 | 36.2    | 48.2 | 48.2     | 60.2 | 60.2 <sup>2)</sup> | 72.2 <sup>2)</sup> | 72.2 |
| Ø d8 max.   | 22.2    | 36.2  |      | 48.2/48 <sup>5)</sup> |      | 60.2    |      | 72.2     |      | 98.2               |                    |      |
| L4          | 35      | 45    |      | 55                    |      | 65      |      | 80       |      | 110                |                    | 130  |
| L6 min.     | 25      | 25    |      | 30                    |      | 40      |      | 45       |      | 59                 |                    |      |
| M           | 20      | 30    |      | 40                    |      | 47      |      | 50       |      | 70                 |                    |      |
| s H11       | 14      | 17    | 22   | 22                    | 27   | 27      | 36   | 36       | 46   | 46 <sup>2)</sup>   | 55 <sup>2)</sup>   | 55   |
| s H11 max.  | 17      | 27    |      | 36/41 <sup>5)</sup>   |      | 46      |      | 55       |      | 75                 |                    |      |

Mounting position of coupling

|        |   |    |    |    |    |    |    |    |    |    |    |
|--------|---|----|----|----|----|----|----|----|----|----|----|
| X max. | 6 | 14 | 7  | 10 | 13 | 23 | 22 | 22 | 17 | 17 | 35 |
| Y max. | 5 | 5  | 18 | 13 | 18 | 5  | 13 | 8  | 35 | 27 | 0  |



1) Dimensions depend on Ø d7, refer to DIN 6885-1

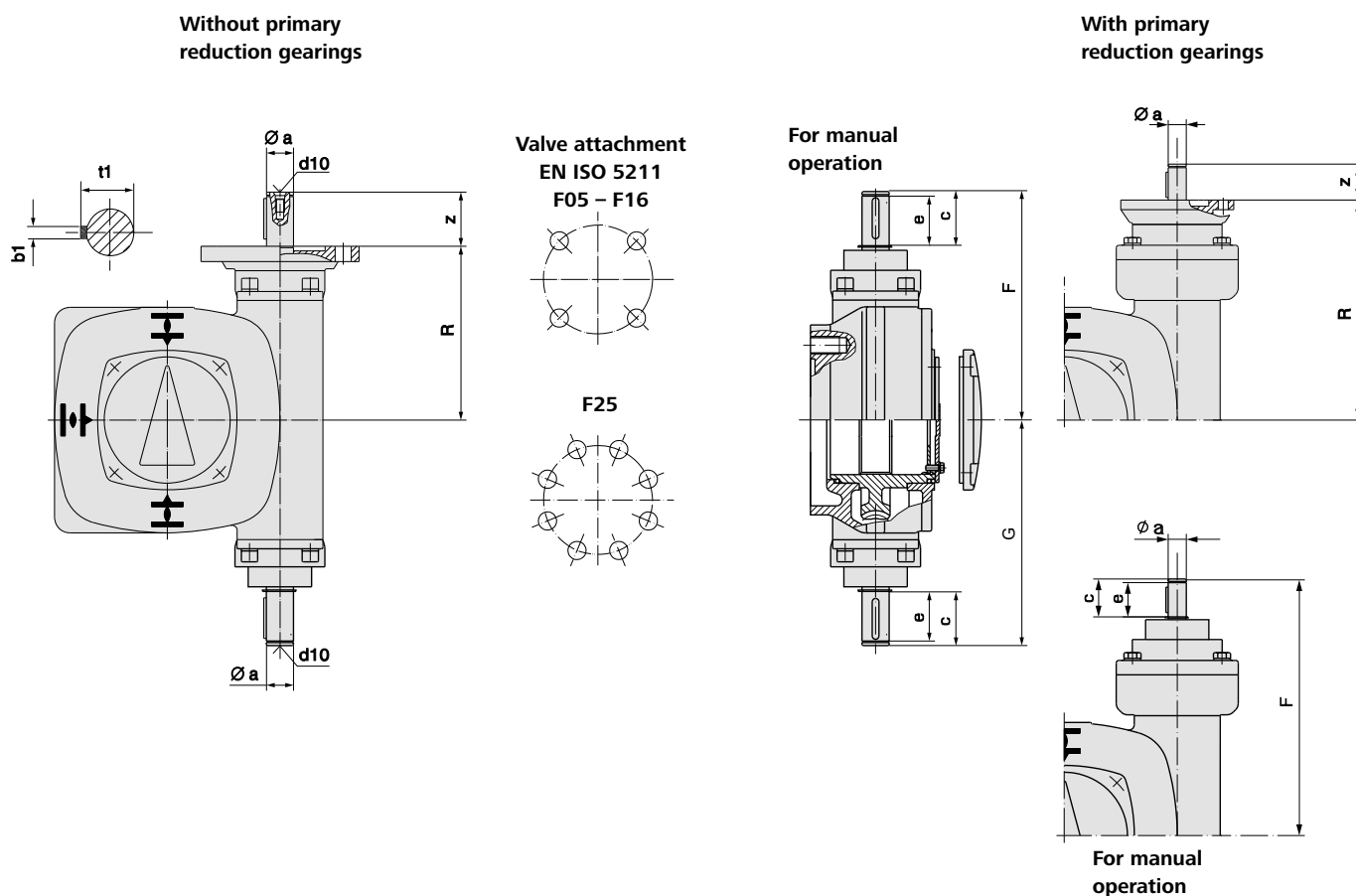
2) Recommended size according to EN ISO 5211

3) Thread with grub screw

4) According to DIN 79

5) According to DIN 475

## Dimensions Part-turn gearboxes with shaft ends on both sides

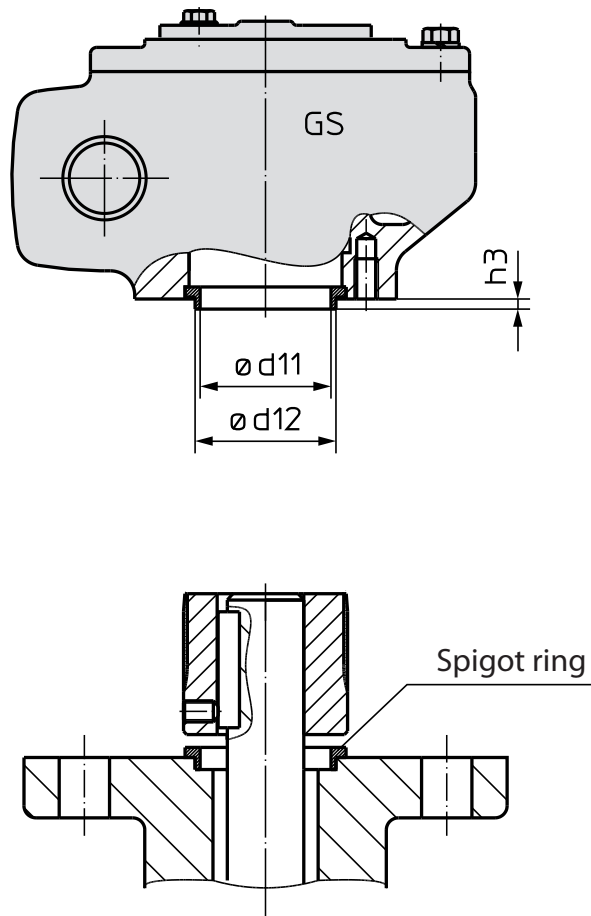


For all other dimensions, please refer to the latest issue of Dimension sheet GS 50.3 – GS 125.3

| Maße   | GS 50.3 | GS 63.3      | GS 80.3      | GS 100.3      |     |                      | GS 125.3 |                |     |       |
|--------|---------|--------------|--------------|---------------|-----|----------------------|----------|----------------|-----|-------|
|        | 51:1    | 51:1<br>82:1 | 53:1<br>82:1 | 52:1<br>107:1 |     | 126:1<br>160:1/208:1 | 52:1     | 126:1<br>160:1 |     | 208:1 |
| F      | 132     | 165          | 170          | 230           | 250 | 299                  | 255      | 324            |     | 304   |
| G      | 132     | 165          | 170          | 230           |     | 230                  | 255      | 255            |     | 255   |
| R      | 100     | 125          | 130          | 190           |     | 259                  | 195      | 264            |     | 264   |
| Ø a f7 | 16      | 20           | 20           | 20            | 30  | 20                   | 30       | 20             | 30  | 20    |
| b1     | 5       | 6            | 6            | 6             | 8   | 6                    | 8        | 6              | 8   | 6     |
| c      | 31.5    | 42           | 42           | 43            | 60  | 43                   | 60       | 43             | 60  | 42    |
| d10    | M5      | M6           | M6           | M6            | M10 | M6                   | M10      | M6             | M10 | M6    |
| e      | 28      | 38           | 38           | 38            | 55  | 38                   | 55       | 38             | 55  | 38    |
| t1     | 18      | 22.5         | 22.5         | 22.5          | 33  | 22.5                 | 33       | 22.5           | 33  | 22.5  |
| z      | 32      | 40           | 40           | 40            | 60  | 40                   | 60       | 40             | 60  | 40    |

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## Dimensions Spigot rings

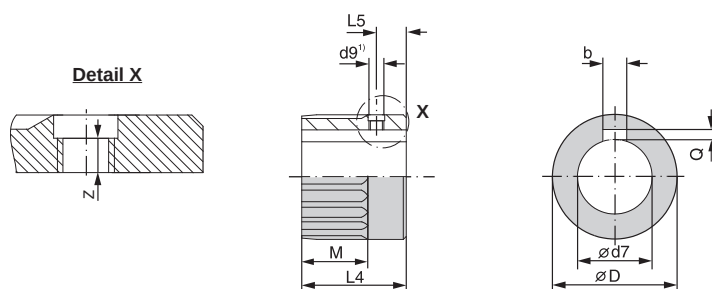


**Note:** The outer diameter of coupling is partially larger than the bore within the spigot ring. In these cases, the spigot ring must be placed onto the valve flange prior to fitting the coupling onto the valve shaft (refer to sketch)

| Dimensions  | GS 50.3 |     |     | GS 63.3 |     | GS 80.3 |     | GS 100.3 |     | GS 125.3 |     |
|-------------|---------|-----|-----|---------|-----|---------|-----|----------|-----|----------|-----|
| EN ISO 5211 | F05     | F07 | F10 | F10     | F12 | F12     | F14 | F14      | F16 | F16      | F25 |
| Ø d11       | 32.5    | 49  | 64  | 64      | 79  | 79      | 92  | 92       | 121 | 121      | 190 |
| Ø d12 f8    | 35      | 55  | 70  | 70      | 85  | 85      | 100 | 100      | 130 | 130      | 200 |
| h3          | 2.5     | 2.5 | 2.5 | 2.5     | 2.5 | 2.5     | 3.5 | 3.5      | 4.5 | 4.5      | 4.5 |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

## Dimensions Couplings (standard), bore with keyway according to DIN 6885-1



1) Thread with grub screw made of A2

2) Article number refers to unbored version, KN, KS

3) Combined flange F05/F07 without spigot (standard).

As an alternative an individual flange F07 can be ordered with spigot

| Type                                                                                                                                                                  | Article no. <sup>2)</sup> | Ø D   | L4 | M  | Splined coupling DIN 5480 | Ø d7 max. | Ø d7 H8 over | Ø d7 H8 to | b JS 9 | Q         | Parallel key DIN 6885-1 | Ø d9 <sup>1)</sup> | L5 <sup>1)</sup> | Grub screw <sup>1)</sup> ISO 4029 | Z   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------|----|----|---------------------------|-----------|--------------|------------|--------|-----------|-------------------------|--------------------|------------------|-----------------------------------|-----|
| SG 03.3/SG 04.3<br>ED 25 – ED 50                                                                                                                                      | Z009.977                  | 24.8  | 25 | 17 | 25x1x24                   | 15        | 12           | 15         | 5      | 2.3 + 0.1 | 5 x 5 x ..              | M4                 | 5                | M4 x 4                            | 6   |
|                                                                                                                                                                       |                           |       |    |    |                           |           | 10           | 12         | 4      | 1.8 + 0.1 | 4 x 4 x ..              |                    |                  |                                   |     |
|                                                                                                                                                                       |                           |       |    |    |                           |           | 8            | 10         | 3      | 1.4 + 0.1 | 3 x 3 x ..              |                    |                  |                                   |     |
| SG 04.2                                                                                                                                                               | Z009.992                  | 24.8  | 35 | 17 | 25x1x24                   | 15        | 12           | 15         | 5      | 2.3 + 0.1 | 5 x 5 x ..              | M4                 | 8                | M4 x 4                            | 6   |
|                                                                                                                                                                       |                           |       |    |    |                           |           | 10           | 12         | 4      | 1.8 + 0.1 | 4 x 4 x ..              |                    |                  |                                   |     |
|                                                                                                                                                                       |                           |       |    |    |                           |           | 8            | 10         | 3      | 1.4 + 0.1 | 3 x 3 x ..              |                    |                  |                                   |     |
| SGC/SGM 04.1/05.1<br>SVC/SVM 05.1<br>SG 05.2<br>SG 05.3<br>EQ 40 – EQ 150<br>GS 50.3 F05<br>GHE 05.1<br>PF-Q80/150<br>PF-M25/50                                       | Z010.132                  | 31.75 | 35 | 20 | 32x1.25x24                | 20        | 17           | 20         | 6      | 2.8 + 0.1 | 6 x 6 x ..              | M4                 | 8                | M4 x 4                            | 6   |
|                                                                                                                                                                       |                           |       |    |    |                           |           | 12           | 17         | 5      | 2.3 + 0.1 | 5 x 5 x ..              |                    |                  |                                   |     |
|                                                                                                                                                                       |                           |       |    |    |                           |           | 10           | 12         | 4      | 1.8 + 0.1 | 4 x 4 x ..              |                    |                  |                                   |     |
| SGC/SGM 07.1<br>SQ 05.2 – F05/F07 <sup>3)</sup><br>SQ 07.2 – F05/F07 <sup>3)</sup><br>SG 07.2<br>EQ 40 – EQ 150 (IP68)<br>GHE 07.1<br>SVC/SVM 07.1/5<br>FQM 05.1/07.1 | Z010.369                  | 41.75 | 35 | 20 | 42x1.25x32                | 25.4      | 22           | 25.4       | 8      | 3.3 + 0.2 | 8 x 7 x ..              | M5                 | 8                | M5 x 5                            | 7.5 |
|                                                                                                                                                                       |                           |       |    |    |                           |           | 17           | 22         | 6      | 2.8 + 0.2 | 6 x 6 x ..              |                    |                  |                                   |     |
|                                                                                                                                                                       |                           |       |    |    |                           |           | 12           | 17         | 5      | 2.3 + 0.1 | 5 x 5 x ..              |                    |                  |                                   |     |
| SG 05.1/SG 07.1                                                                                                                                                       | Z010.169                  | 41.75 | 40 | 20 | 42x1.25x32                | 25.4      | 22           | 25.4       | 8      | 3.3 + 0.2 | 8 x 7 x ..              | M5                 | 8                | M5 x 5                            | 7.5 |
|                                                                                                                                                                       |                           |       |    |    |                           |           | 17           | 22         | 6      | 2.8 + 0.1 | 6 x 6 x ..              |                    |                  |                                   |     |
|                                                                                                                                                                       |                           |       |    |    |                           |           | 12           | 17         | 5      | 2.3 + 0.1 | 5 x 5 x ..              |                    |                  |                                   |     |
| SQ 07.2 – F10                                                                                                                                                         | Z010.658                  | 41.75 | 60 | 20 | 42x1.25x32                | 25.4      | 22           | 25.4       | 8      | 3.3 + 0.2 | 8 x 7 x ..              | M5                 | 8                | M5 x 5                            | 7.5 |
|                                                                                                                                                                       |                           |       |    |    |                           |           | 17           | 22         | 6      | 2.8 + 0.1 | 6 x 6 x ..              |                    |                  |                                   |     |
|                                                                                                                                                                       |                           |       |    |    |                           |           | 12           | 17         | 5      | 2.3 + 0.1 | 5 x 5 x ..              |                    |                  |                                   |     |
| SGC/SGM 10.1<br>SQ 10.2 – F10<br>GS 50.3<br>GHE 10.1<br>SG 10.2<br>EQ 300/EQ 600<br>PF-Q300/600<br>PF-M100                                                            | Z010.302                  | 51.75 | 45 | 30 | 52x1.25x40                | 38        | 30           | 38         | 10     | 3.3 + 0.2 | 10 x 8 x ..             | M6                 | 10               | M6 x 6                            | 9   |
|                                                                                                                                                                       |                           |       |    |    |                           |           | 22           | 30         | 8      | 3.3 + 0.2 | 8 x 7 x ..              |                    |                  |                                   |     |
|                                                                                                                                                                       |                           |       |    |    |                           |           | 17           | 22         | 6      | 2.8 + 0.1 | 6 x 6 x ..              |                    |                  |                                   |     |
| SG 10.1                                                                                                                                                               | Z010.328                  | 51.75 | 65 | 35 | 52x1.25x40                | 38        | 30           | 38         | 10     | 3.3 + 0.2 | 10 x 8 x ..             | M6                 | 10               | M6 x 6                            | 9   |
|                                                                                                                                                                       |                           |       |    |    |                           |           | 22           | 30         | 8      | 3.3 + 0.2 | 8 x 7 x ..              |                    |                  |                                   |     |
|                                                                                                                                                                       |                           |       |    |    |                           |           | 17           | 22         | 6      | 2.8 + 0.1 | 6 x 6 x ..              |                    |                  |                                   |     |
| SQ 10.2 – F12                                                                                                                                                         | Z044.911                  | 51.75 | 75 | 30 | 52x1.25x40                | 38        | 30           | 38         | 10     | 3.3 + 0.2 | 10 x 8 x ..             | M6                 | 10               | M6 x 6                            | 9   |
|                                                                                                                                                                       |                           |       |    |    |                           |           | 22           | 30         | 8      | 3.3 + 0.2 | 8 x 7 x ..              |                    |                  |                                   |     |
|                                                                                                                                                                       |                           |       |    |    |                           |           | 17           | 22         | 6      | 2.8 + 0.1 | 6 x 6 x ..              |                    |                  |                                   |     |
| SGC/SGM 12.1 – F12<br>SQ 12.2 – F12<br>GS 63.3<br>GHE 12.1<br>FQM 10.1/12.1                                                                                           | Z010.368                  | 67.6  | 55 | 40 | 68x2x32                   | 50        | 44           | 50         | 14     | 3.8 + 0.2 | 14 x 9 x ..             | M6                 | 10               | M6 x 6                            | 9   |
|                                                                                                                                                                       |                           |       |    |    |                           |           | 38           | 44         | 12     | 3.3 + 0.2 | 12 x 8 x ..             |                    |                  |                                   |     |
|                                                                                                                                                                       |                           |       |    |    |                           |           | 30           | 38         | 10     | 3.3 + 0.2 | 10 x 8 x ..             |                    |                  |                                   |     |

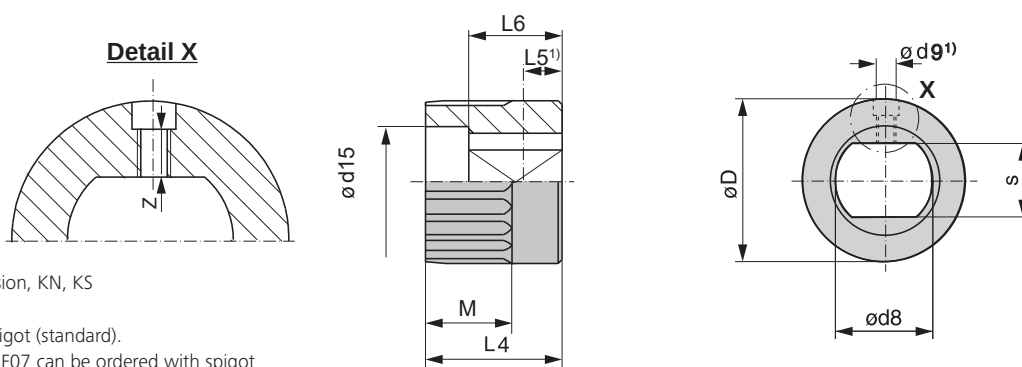
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## Dimensions Couplings (standard), bore with keyway according to DIN 6885-1

| Type                                       | Article no. <sup>2)</sup> | Ø D   | L4  | M  | Splined coupling DIN 5480 | Ø d7 max. | Ø d7 H8 over | to | b JS 9 | Q         | Parallel key DIN 6885-1 | Ø d9 <sup>1)</sup> | L5 <sup>1)</sup> | Grub screw <sup>1)</sup> ISO 4029 | Z  |
|--------------------------------------------|---------------------------|-------|-----|----|---------------------------|-----------|--------------|----|--------|-----------|-------------------------|--------------------|------------------|-----------------------------------|----|
| SG 12.1                                    | Z010.184                  | 67.6  | 75  | 40 | 68x2x32                   | 50        | 44           | 50 | 14     | 3.8 + 0.2 | 14 x 9 x ..             | M6                 | 10               | M6 x 6                            | 9  |
|                                            |                           |       |     |    |                           |           | 38           | 44 | 12     | 3.3 + 0.2 | 12 x 8 x ..             |                    |                  |                                   |    |
|                                            |                           |       |     |    |                           |           | 30           | 38 | 10     | 3.3 + 0.2 | 10 x 8 x ..             |                    |                  |                                   |    |
| SGC/SGM 12.1 – F14<br>SQ 12.2 – F14        | Z006.070                  | 67.6  | 95  | 40 | 68x2x32                   | 50        | 44           | 50 | 14     | 3.8 + 0.2 | 14 x 9 x ..             | M6                 | 10               | M6 x 6                            | 9  |
|                                            |                           |       |     |    |                           |           | 38           | 44 | 12     | 3.3 + 0.2 | 12 x 8 x ..             |                    |                  |                                   |    |
|                                            |                           |       |     |    |                           |           | 30           | 38 | 10     | 3.3 + 0.2 | 10 x 8 x ..             |                    |                  |                                   |    |
| SGC/SGM 12.1 – F16<br>SQ 12.2 – F16        | Z006.071                  | 67.6  | 105 | 40 | 68x2x32                   | 50        | 44           | 50 | 14     | 3.8 + 0.2 | 14 x 9 x ..             | M6                 | 10               | M6 x 6                            | 9  |
|                                            |                           |       |     |    |                           |           | 38           | 44 | 12     | 3.3 + 0.2 | 12 x 8 x ..             |                    |                  |                                   |    |
|                                            |                           |       |     |    |                           |           | 30           | 38 | 10     | 3.3 + 0.2 | 10 x 8 x ..             |                    |                  |                                   |    |
| SGM 14.1 – F14<br>SQ 14.2 – F14<br>GS 80.3 | Z010.394                  | 81.6  | 65  | 47 | 82x2x40                   | 60        | 58           | 60 | 18     | 4.4 + 0.2 | 18 x 11 x ..            | M6                 | 10               | M6 x 6                            | 9  |
|                                            |                           |       |     |    |                           |           | 50           | 58 | 16     | 4.3 + 0.2 | 16 x 10 x ..            |                    |                  |                                   |    |
|                                            |                           |       |     |    |                           |           | 44           | 50 | 14     | 3.8 + 0.2 | 14 x 9 x ..             |                    |                  |                                   |    |
| SGM 14.1 – F16<br>SQ 14.2 – F16            | Z111.676                  | 81.6  | 115 | 40 | 82x2x40                   | 60        | 58           | 60 | 18     | 4.4 + 0.2 | 18 x 11 x ..            | M6                 | 10               | M6 x 6                            | 9  |
|                                            |                           |       |     |    |                           |           | 50           | 58 | 16     | 4.3 + 0.2 | 16 x 10 x ..            |                    |                  |                                   |    |
|                                            |                           |       |     |    |                           |           | 44           | 50 | 14     | 3.8 + 0.2 | 14 x 9 x ..             |                    |                  |                                   |    |
| GS 100.3                                   | Z015.955                  | 105.8 | 80  | 50 | 106x2x52                  | 80        | 75           | 80 | 22     | 5.4 + 0.2 | 22 x 14 x ..            | M8                 | 18               | M8 x 8                            | 12 |
|                                            |                           |       |     |    |                           |           | 65           | 75 | 20     | 4.9 + 0.2 | 20 x 12 x ..            |                    |                  |                                   |    |
|                                            |                           |       |     |    |                           |           | 58           | 65 | 18     | 4.4 + 0.2 | 18 x 11 x ..            |                    |                  |                                   |    |
| GS 125.3                                   | Z017.441                  | 119.6 | 110 | 70 | 120x2x60                  | 90        | 85           | 90 | 25     | 5.4 + 0.2 | 25 x 14 x ..            | M8                 | 18               | M8 x 8                            | 12 |
|                                            |                           |       |     |    |                           |           | 75           | 85 | 22     | 5.4 + 0.2 | 22 x 14 x ..            |                    |                  |                                   |    |
|                                            |                           |       |     |    |                           |           | 65           | 75 | 20     | 4.9 + 0.2 | 20 x 12 x ..            |                    |                  |                                   |    |



## Dimensions Couplings (standard), two-flat bore according to ISO 5211



1) Thread with grub screw made of A2

2) Article number refers to unbored version, KN, KS

3) DIN 475

4) Combined flange F05/F07 without spigot (standard).

As an alternative an individual flange F07 can be ordered with spigot

| Type                                                                                                                                                                  | Article no. <sup>2)</sup> | Ø D   | L4 | M  | Splined coupling DIN 5480 | S H11            |                        | Ø d8 max.                | L6 | Ø d9 <sup>1)</sup> | Ø d15 | L5 <sup>1)</sup> | Grub screw <sup>1)</sup> ISO 4029 | Z   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------|----|----|---------------------------|------------------|------------------------|--------------------------|----|--------------------|-------|------------------|-----------------------------------|-----|
| SG 03.3/SG 04.3<br>ED 25 – ED 50                                                                                                                                      | 2009.977                  | 24.8  | 25 | 17 | 25x1x24                   |                  | 11                     | 14.1                     | 25 | M4                 | 16    | 5                | M4 x 4                            | 6   |
|                                                                                                                                                                       |                           |       |    |    |                           | 11               | 14                     | 18.1                     |    |                    |       |                  |                                   |     |
| SG 04.2                                                                                                                                                               | 2009.992                  | 24.8  | 35 | 17 | 25x1x24                   |                  | 11                     | 14.1                     | 25 | M4                 | 16    | 8                | M4 x 4                            | 6   |
|                                                                                                                                                                       |                           |       |    |    |                           | 11               | 14                     | 18.1                     |    |                    |       |                  |                                   |     |
| SGC/SGM 04.1/05.1<br>SVC/SVM 05.1<br>SG 05.2<br>SG 05.3<br>EQ 40 – EQ 150<br>GS 50.3 F05<br>GHE 05.1<br>PF-Q80/150<br>PF-M25/50                                       | 2010.132                  | 31.75 | 35 | 20 | 32x1.25x24                |                  | 11                     | 16 <sup>3)</sup>         | 25 | M4                 | 22.5  | 8                | M4 x 4                            | 6   |
|                                                                                                                                                                       |                           |       |    |    |                           | 16 <sup>3)</sup> | 17                     | 22.2                     | 30 |                    | 25    |                  |                                   |     |
| SGC/SGM 07.1<br>SQ 05.2 – F05/F07 <sup>4)</sup><br>SQ 07.2 – F05/F07 <sup>4)</sup><br>SG 07.2<br>EQ 40 – EQ 150 (IP68)<br>GHE 07.1<br>SVC/SVM 07.1/5<br>FQM 05.1/07.1 | 2010.369                  | 41.75 | 35 | 20 | 42x1.25x32                |                  | 11                     | 16 <sup>3)</sup>         | 25 | M5                 | 22.5  | 8                | M5 x 5                            | 7.5 |
|                                                                                                                                                                       |                           |       |    |    |                           | 16 <sup>3)</sup> | 22                     | 28.2                     | 30 |                    | 31    |                  |                                   |     |
|                                                                                                                                                                       | 2021.449                  |       |    |    |                           |                  |                        |                          |    |                    |       |                  |                                   |     |
| SG 05.1/SG 07.1                                                                                                                                                       | 2010.169                  | 41.75 | 40 | 20 | 42x1.25x32                |                  | 11                     | 16 <sup>3)</sup>         | 25 | M5                 | 22.5  | 8                | M5 x 5                            | 7.5 |
|                                                                                                                                                                       |                           |       |    |    |                           | 16 <sup>3)</sup> | 22                     | 28.2                     | 30 |                    | 31    |                  |                                   |     |
| SQ 07.2 – F10                                                                                                                                                         | 2010.658                  | 41.75 | 60 | 20 | 42x1.25x32                |                  | 11                     | 16 <sup>3)</sup>         | 25 | M5                 | 22.5  | 8                | M5 x 5                            | 7.5 |
|                                                                                                                                                                       |                           |       |    |    |                           | 16 <sup>3)</sup> | 22                     | 28.2                     | 30 |                    | 31    |                  |                                   |     |
| SGC/SGM 10.1<br>SQ 10.2 – F10<br>GS 50.3<br>GHE 10.1<br>SG 10.2<br>EQ 300/EQ 600<br>PF-Q300/600<br>PF-M100                                                            | 2010.302                  | 51.75 | 45 | 30 | 52x1.25x40                |                  | 11                     | 16 <sup>3)</sup>         | 25 | M6                 | 31    | 10               | M6 x 6                            | 9   |
|                                                                                                                                                                       |                           |       |    |    |                           | 16 <sup>3)</sup> | 22                     | 28.2                     | 30 |                    | 41    |                  |                                   |     |
|                                                                                                                                                                       |                           |       |    |    |                           | 22               | 27                     | 36.2                     | 40 |                    |       |                  |                                   |     |
| SG 10.1                                                                                                                                                               | 2010.328                  | 51.75 | 65 | 35 | 52x1.25x40                |                  | 11                     | 16 <sup>3)</sup>         | 25 | M6                 | 22.5  | 10               | M6 x 6                            | 9   |
|                                                                                                                                                                       |                           |       |    |    |                           | 16 <sup>3)</sup> | 22                     | 28.2                     | 30 |                    | 31    |                  |                                   |     |
|                                                                                                                                                                       |                           |       |    |    |                           | 22               | 27                     | 36.2                     | 40 |                    | 41    |                  |                                   |     |
| SQ 10.2 – F12                                                                                                                                                         | Z044.911                  | 51.75 | 75 | 30 | 52x1.25x40                |                  | 11                     | 16 <sup>3)</sup>         | 25 | M6                 | 22.5  | 10               | M6 x 6                            | 9   |
|                                                                                                                                                                       |                           |       |    |    |                           | 16 <sup>3)</sup> | 22                     | 28.2                     | 30 |                    | 31    |                  |                                   |     |
|                                                                                                                                                                       |                           |       |    |    |                           | 22               | 27                     | 36.2                     | 40 |                    | 41    |                  |                                   |     |
| SGC/SGM 12.1 – F12<br>SQ 12.2 – F12<br>GS 63.3<br>GHE 12.1<br>FQM 10.1/12.1                                                                                           | 2010.368                  | 67.6  | 55 | 40 | 68x2x32                   |                  | 16 <sup>3)</sup>       | 22                       | 30 | M6                 | 31    | 10               | M6 x 6                            | 9   |
|                                                                                                                                                                       |                           |       |    |    |                           | 22               | 27                     | 36.2                     | 40 |                    | 41    |                  |                                   |     |
|                                                                                                                                                                       | 2021.415                  |       |    |    |                           | 27               | 36 (41 <sup>3)</sup> ) | 48.2 (48 <sup>3)</sup> ) | 45 |                    | 53    |                  |                                   |     |
| SG 12.1                                                                                                                                                               | 2010.184                  | 67.6  | 75 | 40 | 68x2x32                   |                  | 16 <sup>3)</sup>       | 22                       | 30 | M6                 | 31    | 10               | M6 x 6                            | 9   |
|                                                                                                                                                                       |                           |       |    |    |                           | 22               | 27                     | 36.2                     | 40 |                    | 41    |                  |                                   |     |
|                                                                                                                                                                       |                           |       |    |    |                           | 27               | 36 (41 <sup>3)</sup> ) | 48.2 (48 <sup>3)</sup> ) | 45 |                    | 53    |                  |                                   |     |

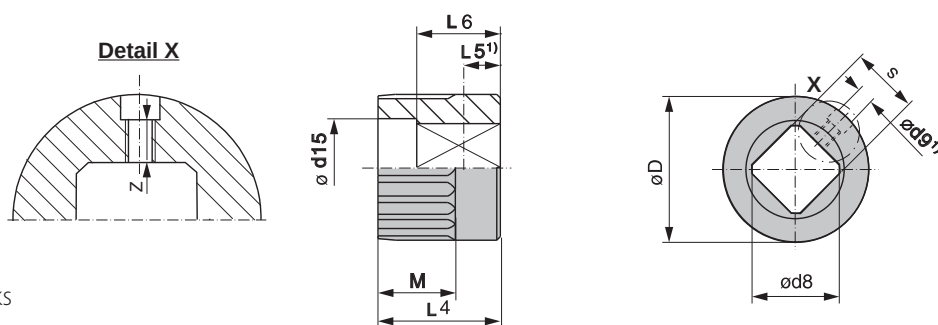
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Dimensions Couplings (standard), two-flat bore according to ISO 5211

| Type                                       | Article no. <sup>2)</sup> | Ø D   | L4  | M  | Splined coupling DIN 5480 | S H11                  |                        | Ø d8 max.                | L6 | Ø d9 <sup>1)</sup> | Ø d15 | L5 <sup>1)</sup> | Grub screw <sup>1)</sup> ISO 4029 | Z  |
|--------------------------------------------|---------------------------|-------|-----|----|---------------------------|------------------------|------------------------|--------------------------|----|--------------------|-------|------------------|-----------------------------------|----|
| SGC/SGM 12.1 – F14<br>SQ 12.2 – F14        | Z006.070                  | 67.6  | 95  | 40 | 68x2x32                   | 16 <sup>3)</sup>       | 22                     | 28.2                     | 30 | M6                 | 31    | 10               | M6 x 6                            | 9  |
|                                            |                           |       |     |    |                           | 22                     | 27                     | 36.2                     | 40 |                    | 41    |                  |                                   |    |
|                                            |                           |       |     |    |                           | 27                     | 36 (41 <sup>3)</sup> ) | 48.2 (48 <sup>3)</sup> ) | 45 |                    | 53    |                  |                                   |    |
| SGC/SGM 12.1 – F16<br>SQ 12.2 – F16        | Z006.071                  | 67.6  | 105 | 40 | 68x2x32                   | 16 <sup>3)</sup>       | 22                     | 28.2                     | 30 | M6                 | 31    | 10               | M6 x 6                            | 9  |
|                                            |                           |       |     |    |                           | 22                     | 27                     | 36.2                     | 40 |                    | 41    |                  |                                   |    |
|                                            |                           |       |     |    |                           | 27                     | 36 (41 <sup>3)</sup> ) | 48.2 (48 <sup>3)</sup> ) | 45 |                    | 53    |                  |                                   |    |
| SGM 14.1 – F14<br>SQ 14.2 – F14<br>GS 80.3 | Z010.394                  | 81.6  | 65  | 47 | 82x2x40                   | 22                     | 27                     | 36.2                     | 40 | M6                 | 41    | 10               | M6 x 6                            | 9  |
|                                            |                           |       |     |    |                           | 27                     | 36 (41 <sup>3)</sup> ) | 48.2 (48 <sup>3)</sup> ) | 45 |                    | 53    |                  |                                   |    |
|                                            |                           |       |     |    |                           | 36 (41 <sup>3)</sup> ) | 46                     | 60.2                     | 59 |                    | 64    |                  |                                   |    |
| SGM 14.1 – F16<br>SQ 14.2 – F16            | Z111.676                  | 81.6  | 115 | 40 | 82x2x40                   | 22                     | 27                     | 36.2                     | 40 | M6                 | 41    | 10               | M6 x 6                            | 9  |
|                                            |                           |       |     |    |                           | 27                     | 36 (41 <sup>3)</sup> ) | 48.2 (48 <sup>3)</sup> ) | 45 |                    | 53    |                  |                                   |    |
|                                            |                           |       |     |    |                           | 36 (41 <sup>3)</sup> ) | 46                     | 60.2                     | 59 |                    | 64    |                  |                                   |    |
| GS 100.3                                   | Z015.955                  | 105.8 | 80  | 50 | 106x2x52                  | 27                     | 36 (41 <sup>3)</sup> ) | 48.2 (48 <sup>3)</sup> ) | 45 | M8                 | 53    | 18               | M8 x 8                            | 12 |
|                                            |                           |       |     |    |                           | 36 (41 <sup>3)</sup> ) | 46                     | 60.2                     | 59 |                    | 64    |                  |                                   |    |
|                                            |                           |       |     |    |                           | 46                     | 55                     | 72.2                     | 77 |                    | 85    |                  |                                   |    |
| GS 125.3                                   | Z017.441                  | 119.6 | 110 | 70 | 120x2x60                  | 36 (41 <sup>3)</sup> ) | 46                     | 60.2                     | 59 | M8                 | 64    | 18               | M8 x 8                            | 12 |
|                                            |                           |       |     |    |                           | 46                     | 55                     | 72.2                     | 77 |                    | 85    |                  |                                   |    |
|                                            |                           |       |     |    |                           | 55                     | 75                     | 98.2                     | 94 |                    | 95    |                  |                                   |    |

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## Dimensions Couplings (standard), square bore according to ISO 5211



1) Thread with grub screw made of A2

2) Article number refers to unbored version, KN, KS

3) DIN 79

4) Combined flange F05/F07 without spigot (standard).

As an alternative an individual flange F07 can be ordered with spigot

| Type                                                                                                                                                                  | Article no. <sup>2)</sup> | Ø D   | L4 | M  | Splined coupling DIN 5480 | S H11 |    | Ø d8 max. | L6 | Ø d9 <sup>1)</sup> | Ø d15 | L5 <sup>1)</sup> | Grub screw <sup>1)</sup> ISO 4029 | Z   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------|----|----|---------------------------|-------|----|-----------|----|--------------------|-------|------------------|-----------------------------------|-----|
|                                                                                                                                                                       |                           |       |    |    |                           | over  | to |           |    |                    |       |                  |                                   |     |
| SG 03.3/SG 04.3<br>ED 25 – ED 50                                                                                                                                      | Z009.977                  | 24.8  | 25 | 17 | 25x1x24                   |       | 11 | 14.1      | 25 | M4                 | 16    | 5                | M4 x 4                            | 6   |
|                                                                                                                                                                       |                           |       |    |    |                           | 11    | 14 | 18.1      |    |                    |       |                  |                                   |     |
| SG 04.2                                                                                                                                                               | Z009.992                  | 24.8  | 35 | 17 | 25x1x24                   |       | 11 | 14.1      | 30 | M4                 | 16    | 8                | M4 x 4                            | 6   |
|                                                                                                                                                                       |                           |       |    |    |                           | 11    | 14 | 18.1      |    |                    |       |                  |                                   |     |
| SGC/SGM 04.1/05.1<br>SVC/SVM 05.1<br>SG 05.2<br>SG 05.3<br>EQ 40 – EQ 150<br>GS 50.3 F05<br>GHE 05.1<br>PF-Q80/150<br>PF-M25/50                                       | Z010.132                  | 31.75 | 35 | 20 | 32x1.25x24                |       | 11 | 14.1      | 30 | M4                 | 16    | 8                | M4 x 4                            | 6   |
|                                                                                                                                                                       |                           |       |    |    |                           |       |    |           |    |                    | 20    |                  |                                   |     |
|                                                                                                                                                                       |                           |       |    |    |                           |       |    |           |    |                    | 24    |                  |                                   |     |
| SGC/SGM 07.1<br>SQ 05.2 – F05/F07 <sup>4)</sup><br>SQ 07.2 – F05/F07 <sup>4)</sup><br>SG 07.2<br>EQ 40 – EQ 150 (IP68)<br>GHE 07.1<br>SVC/SVM 07.1/5<br>FQM 05.1/07.1 | Z010.369<br><br>Z021.449  | 41.75 | 35 | 20 | 42x1.25x32                |       | 11 | 14.1      | 30 | M5                 | 20    | 8                | M5 x 5                            | 7.5 |
|                                                                                                                                                                       |                           |       |    |    |                           |       |    |           |    |                    | 24    |                  |                                   |     |
|                                                                                                                                                                       |                           |       |    |    |                           |       |    |           |    |                    | 31.5  |                  |                                   |     |
| SG 05.1/SG 07.1                                                                                                                                                       | Z010.169                  | 41.75 | 40 | 20 | 42x1.25x32                |       | 11 | 14.1      | 30 | M5                 | 20    | 8                | M5 x 5                            | 7.5 |
|                                                                                                                                                                       |                           |       |    |    |                           |       |    |           |    |                    | 24    |                  |                                   |     |
|                                                                                                                                                                       |                           |       |    |    |                           |       |    |           |    |                    | 31.5  |                  |                                   |     |
| SQ 07.2 – F10                                                                                                                                                         | Z010.658                  | 41.75 | 60 | 20 | 42x1.25x32                |       | 11 | 14.1      | 30 | M5                 | 20    | 8                | M5 x 5                            | 7.5 |
|                                                                                                                                                                       |                           |       |    |    |                           |       |    |           |    |                    | 24    |                  |                                   |     |
|                                                                                                                                                                       |                           |       |    |    |                           |       |    |           |    |                    | 31.5  |                  |                                   |     |
| SGC/SGM 10.1<br>SQ 10.2 – F10<br>GS 50.3<br>GHE 10.1<br>SG 10.2<br>EQ 300/EQ 600<br>PF-Q300/600<br>PF-M100                                                            | Z010.302                  | 51.75 | 45 | 30 | 52x1.25x40                |       | 14 | 17        | 30 | M6                 | 24    | 10               | M6 x 6                            | 9   |
|                                                                                                                                                                       |                           |       |    |    |                           |       |    |           |    |                    | 31.5  |                  |                                   |     |
|                                                                                                                                                                       |                           |       |    |    |                           |       |    |           |    |                    | 41.5  |                  |                                   |     |
| SG 10.1                                                                                                                                                               | Z010.328                  | 51.75 | 65 | 35 | 52x1.25x40                |       | 14 | 17        | 30 | M6                 | 24    | 10               | M6 x 6                            | 9   |
|                                                                                                                                                                       |                           |       |    |    |                           |       |    |           |    |                    | 31.5  |                  |                                   |     |
|                                                                                                                                                                       |                           |       |    |    |                           |       |    |           |    |                    | 41.5  |                  |                                   |     |
| SQ 10.2 – F12                                                                                                                                                         | Z044.911                  | 51.75 | 75 | 30 | 52x1.25x40                |       | 14 | 17        | 30 | M6                 | 24    | 10               | M6 x 6                            | 9   |
|                                                                                                                                                                       |                           |       |    |    |                           |       |    |           |    |                    | 31.5  |                  |                                   |     |
|                                                                                                                                                                       |                           |       |    |    |                           |       |    |           |    |                    | 41.5  |                  |                                   |     |
| SGC/SGM 12.1 – F12<br>SQ 12.2 – F12<br>GS 63.3<br>GHE 12.1<br>FQM 10.1/12.1                                                                                           | Z010.368<br><br>Z021.415  | 67.6  | 55 | 40 | 68x2x32                   |       | 17 | 22        | 30 | M6                 | 31.5  | 10               | M6 x 6                            | 9   |
|                                                                                                                                                                       |                           |       |    |    |                           |       |    |           |    |                    | 41.5  |                  |                                   |     |
|                                                                                                                                                                       |                           |       |    |    |                           |       |    |           |    |                    | 50    |                  |                                   |     |

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Dimensions Couplings (standard), square bore according to ISO 5211

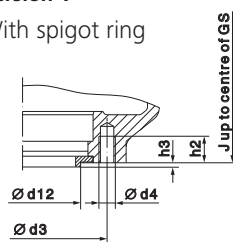
| Type                                       | Article no. <sup>2)</sup> | Ø D   | L4  | M  | Splined coupling DIN 5480 | S H11            |                  | Ø d8 max.          | L6 | Ø d9 <sup>1)</sup> | Ø d15 | L5 <sup>1)</sup> | Grub screw <sup>1)</sup> ISO 4029 | Z  |
|--------------------------------------------|---------------------------|-------|-----|----|---------------------------|------------------|------------------|--------------------|----|--------------------|-------|------------------|-----------------------------------|----|
|                                            |                           |       |     |    |                           | over             | to               |                    |    |                    |       |                  |                                   |    |
| SG 12.1                                    | Z010.184                  | 67.6  | 75  | 40 | 68x2x32                   | 17               | 22               | 28.2               | 30 | M6                 | 31.5  | 10               | M6 x 6                            | 9  |
|                                            |                           |       |     |    |                           | 22               | 30 <sup>3)</sup> | 40.2 <sup>3)</sup> | 40 |                    | 41.5  |                  |                                   |    |
|                                            |                           |       |     |    |                           | 30 <sup>3)</sup> | 36               | 48.2               | 50 |                    | 50    |                  |                                   |    |
| SGC/SGM 12.1 – F14<br>SQ 12.2 – F14        | Z006.070                  | 67.6  | 95  | 40 | 68x2x32                   | 17               | 22               | 28.2               | 30 | M6                 | 31.5  | 10               | M6 x 6                            | 9  |
|                                            |                           |       |     |    |                           | 22               | 30 <sup>3)</sup> | 40.2 <sup>3)</sup> | 40 |                    | 41.5  |                  |                                   |    |
|                                            |                           |       |     |    |                           | 30 <sup>3)</sup> | 36               | 48.2               | 50 |                    | 50    |                  |                                   |    |
| SGC/SGM 12.1 – F16<br>SQ 12.2 – F16        | Z006.071                  | 67.6  | 105 | 40 | 68x2x32                   | 17               | 22               | 28.2               | 30 | M6                 | 31.5  | 10               | M6 x 6                            | 9  |
|                                            |                           |       |     |    |                           | 22               | 30 <sup>3)</sup> | 40.2 <sup>3)</sup> | 40 |                    | 41.5  |                  |                                   |    |
|                                            |                           |       |     |    |                           | 30 <sup>3)</sup> | 36               | 48.2               | 50 |                    | 50    |                  |                                   |    |
| SGM 14.1 – F14<br>SQ 14.2 – F14<br>GS 80.3 | Z010.394                  | 81.6  | 65  | 47 | 82x2x40                   | 22               | 30 <sup>3)</sup> | 40.2 <sup>3)</sup> | 40 | M6                 | 41.5  | 10               | M6 x 6                            | 9  |
|                                            |                           |       |     |    |                           | 30 <sup>3)</sup> | 36               | 48.2               | 50 |                    | 50    |                  |                                   |    |
|                                            |                           |       |     |    |                           | 36               | 46               | 60.2               | 50 |                    | 64    |                  |                                   |    |
| SGM 14.1 – F16<br>SQ 14.2 – F16            | Z111.676                  | 81.6  | 115 | 40 | 82x2x40                   | 22               | 30 <sup>3)</sup> | 40.2 <sup>3)</sup> | 40 | M6                 | 41.5  | 10               | M6 x 6                            | 9  |
|                                            |                           |       |     |    |                           | 30 <sup>3)</sup> | 36               | 48.2               | 50 |                    | 50    |                  |                                   |    |
|                                            |                           |       |     |    |                           | 36               | 46               | 60.2               | 50 |                    | 64    |                  |                                   |    |
| GS 100.3                                   | Z015.955                  | 105.8 | 80  | 50 | 106x2x52                  | 30 <sup>3)</sup> | 36               | 48.2               | 50 | M8                 | 50    | 18               | M8 x 8                            | 12 |
|                                            |                           |       |     |    |                           | 36               | 46               | 60.2               | 50 |                    | 64    |                  |                                   |    |
|                                            |                           |       |     |    |                           | 46               | 55               | 72.2               | 60 |                    | 82    |                  |                                   |    |
| GS 125.3                                   | Z017.441                  | 119.6 | 110 | 70 | 120x2x60                  | 36               | 46               | 60.2               | 50 | M8                 | 64    | 18               | M8 x 8                            | 12 |
|                                            |                           |       |     |    |                           | 46               | 55               | 72.2               | 60 |                    | 82    |                  |                                   |    |
|                                            |                           |       |     |    |                           | 55               | 75               | 98.2               | 80 |                    | 95    |                  |                                   |    |

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## Dimensions Output mounting flange

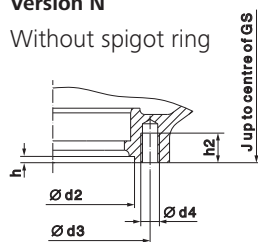
## Version Y

With spigot ring

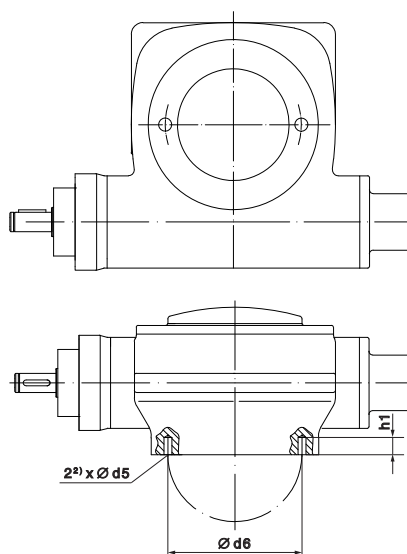


## Version N

Without spigot ring



## Option

Bore for parallel pins <sup>2)</sup>

## Bore depth h1:

20 mm at  $10 \leq \text{Ø}d5 < 16$ 25 mm at  $16 \leq \text{Ø}d5 < 20$ 30 mm at  $20 \leq \text{Ø}d5 < 30$ 35 mm at  $30 \leq \text{Ø}d5 < 40$ 

| Type     | Flange size | Characteristics | Ø d2 H8 | Ø d3                         | Ø d4                         | Ø d5 max. | Ø d6    | Ø d12 f8 | h   | h1  | h2  | h3  | J  |     |     |    |
|----------|-------------|-----------------|---------|------------------------------|------------------------------|-----------|---------|----------|-----|-----|-----|-----|----|-----|-----|----|
| GS 50.3  | F05         | N               | 40      | 50                           | 4 x M6                       | —         | —       | —        | 3   | —   | 10  | —   | 45 |     |     |    |
|          |             | Y               | —       |                              |                              |           |         | 35       | —   |     |     | 2.5 |    |     |     |    |
|          | F07         | N               | 60      | 70                           | 4 x M8                       |           |         | —        | 3.5 |     | 13  | —   | 40 |     |     |    |
|          |             | Y               | —       |                              |                              |           |         | 55       | —   |     |     | 2.5 |    |     |     |    |
|          | F10         | N               | 85      | 102                          | 4 x M10                      |           |         | —        | 4   |     | 16  | —   | 40 |     |     |    |
|          |             | Y               | —       |                              |                              |           |         | 70       | —   |     |     | 2.5 |    |     |     |    |
| FA10     | N           | 85              | 102     | 4 x 3/8-16 UNC <sup>1)</sup> | —                            | 4         | 16      | —        | 40  |     |     |     |    |     |     |    |
|          | Y           | —               |         |                              | 70                           | —         |         | 2.5      |     |     |     |     |    |     |     |    |
| GS 63.3  | F10         | N               | 85      | 102                          | 4 x M10                      | —         | —       | —        | 4   | —   | 16  | —   | 42 |     |     |    |
|          |             | Y               | —       |                              |                              |           |         | 70       | —   |     |     | 2.5 |    |     |     |    |
|          | F12         | N               | 105     | 125                          | 4 x M12                      |           |         | —        | 4   |     | 19  | —   | 45 |     |     |    |
|          |             | Y               | —       |                              |                              |           |         | 85       | —   |     |     | 2.5 |    |     |     |    |
|          | FA10        | N               | 85      | 102                          | 4 x 3/8-16 UNC <sup>1)</sup> |           |         | —        | 4   |     | 16  | —   | 42 |     |     |    |
|          |             | Y               | —       |                              |                              |           |         | 70       | —   |     |     | 2.5 |    |     |     |    |
| FA12     | N           | 105             | 125     | 4 x 1/2-13 UNC <sup>1)</sup> | —                            | 4         | 19      | —        | 45  |     |     |     |    |     |     |    |
|          | Y           | —               |         |                              | 85                           | —         |         | 2.5      |     |     |     |     |    |     |     |    |
| GS 80.3  | F12         | N               | 105     | 125                          | 4 x M12                      | —         | —       | —        | 4   | —   | 19  | —   | 48 |     |     |    |
|          |             | Y               | —       |                              |                              |           |         | 85       | —   |     |     | 2.5 |    |     |     |    |
|          | F14/G1/2    | N               | 115     | 140                          | 4 x M16                      |           |         | 16       | 140 |     | —   | 5   | 25 | 25  | —   | 57 |
| Y        |             | —               | 100     |                              |                              | —         | 3.5     |          |     |     |     |     |    |     |     |    |
| FA14     | N           | 115             | 140     | 4 x 5/8 UNC <sup>1)</sup>    | —                            | —         | —       |          |     | 5   | —   | 25  |    | —   | 57  |    |
| Y        | —           | 100             |         |                              |                              |           | —       | 3.5      |     |     |     |     |    |     |     |    |
| GS 100.3 | F14/G1/2    | N               | 115     | 140                          |                              |           | 4 x M16 | 16       | 140 | —   |     | 5   | 25 | 25  | —   | 75 |
|          |             | Y               | —       |                              | 100                          | —         |         |          |     | 3.5 |     |     |    |     |     |    |
|          | FA14        | N               | 115     | 140                          | 4 x 5/8-11 UNC <sup>1)</sup> | —         | —       |          |     | —   | 5   | —   |    | 25  | —   | 75 |
|          |             | Y               | —       |                              |                              |           |         |          |     | 100 | —   |     |    |     | 3.5 |    |
| F16/G3   | N           | 140             | 165     | 4 x M20                      | 16                           |           |         | 165      | —   | 5   | 25  |     | 32 | —   | 75  |    |
|          | Y           | —               |         |                              |                              |           |         |          | 130 | —   |     |     |    | 4.5 |     |    |
| FA16     | N           | 140             | 165     | 4 x 3/4-10 UNC <sup>1)</sup> |                              | —         | —       |          | —   | 5   |     | —   | 32 | —   | 75  |    |
|          | Y           | —               |         |                              |                              |           |         |          | 130 | —   |     |     |    | 4.5 |     |    |
| GS 125.3 | F16/G3      | N               | 140     | 165                          | 4 x M20                      |           |         | 20       | 165 | —   | 5   |     | 30 | 32  | —   | 75 |
|          |             | Y               | —       |                              |                              |           |         |          |     | 130 | —   |     |    |     | 4.5 |    |
|          | FA16        | N               | 140     | 165                          | 4 x 3/4-10 UNC <sup>1)</sup> | —         | —       | —        | 5   | —   | 32  | —   | 75 |     |     |    |
|          |             | Y               | —       |                              |                              |           |         | 130      | —   |     |     | 4.5 |    |     |     |    |
|          | F25         | N               | 225     | 254                          | 8 x M16                      | 20        | 254     | —        | 5   | 30  | 25  | —   | 75 |     |     |    |
|          |             | Y               | —       |                              |                              |           |         | 200      | —   |     |     | 4.5 |    |     |     |    |
| FA25     | N           | 225             | 254     | 8 x 5/8-11 UNC <sup>1)</sup> | —                            | —         | —       | 5        | —   | 25  | —   | 75  |    |     |     |    |
|          | Y           | —               |         |                              |                              |           | 200     | —        |     |     | 4.5 |     |    |     |     |    |
| F30      | plane       | —               | 298     | 8 x M20                      | 30                           | 298       | —       | —        | 35  | 32  | —   | 114 |    |     |     |    |
|          | Y           | —               |         |                              |                              |           | 230     | —        |     |     | 5   |     |    |     |     |    |
| FA30     | plane       | —               | 298     | 8 x 3/4-10 UNC <sup>1)</sup> | —                            | —         | —       | —        | —   | 32  | —   | 114 |    |     |     |    |
|          | Y           | —               |         |                              |                              |           | 230     | —        |     |     | 5   |     |    |     |     |    |

Please refer to the respectively valid dimension sheets for further dimensions.

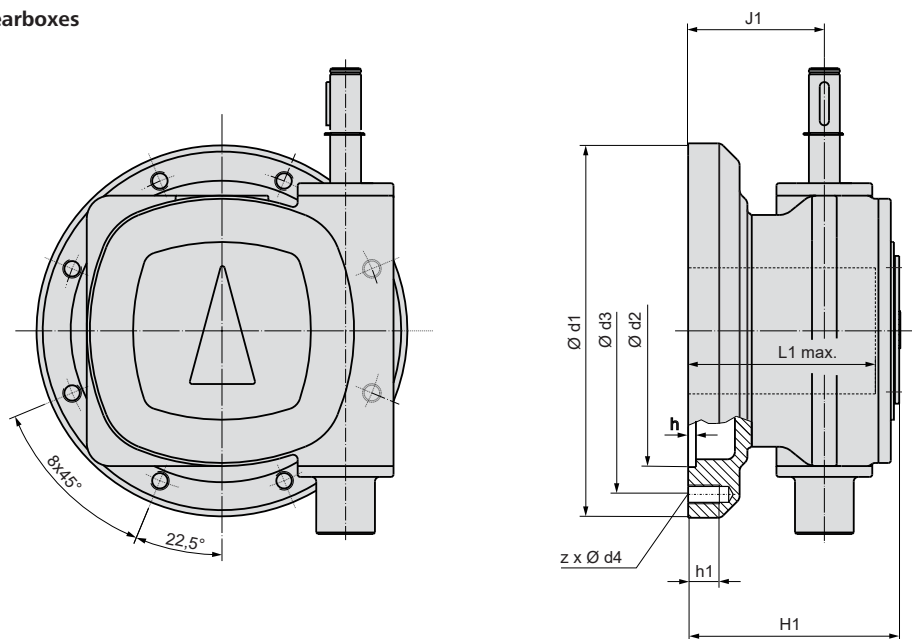
1) Threads comply with SP-101

2) GS 80.3 and GS 100.3 are exclusively available with GJS housing.

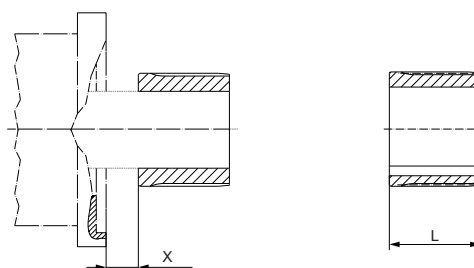
We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

## Dimensions Part-turn gearboxes with output mounting flange GS 00 – GS 3

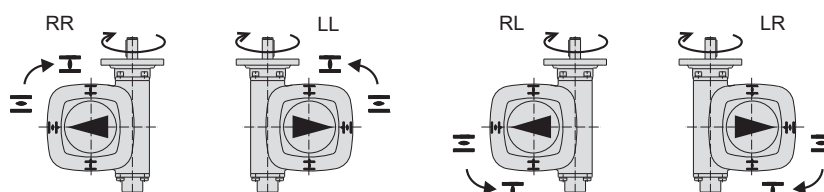
## Standard Part-turn gearboxes



## Coupling (standard)



## Version

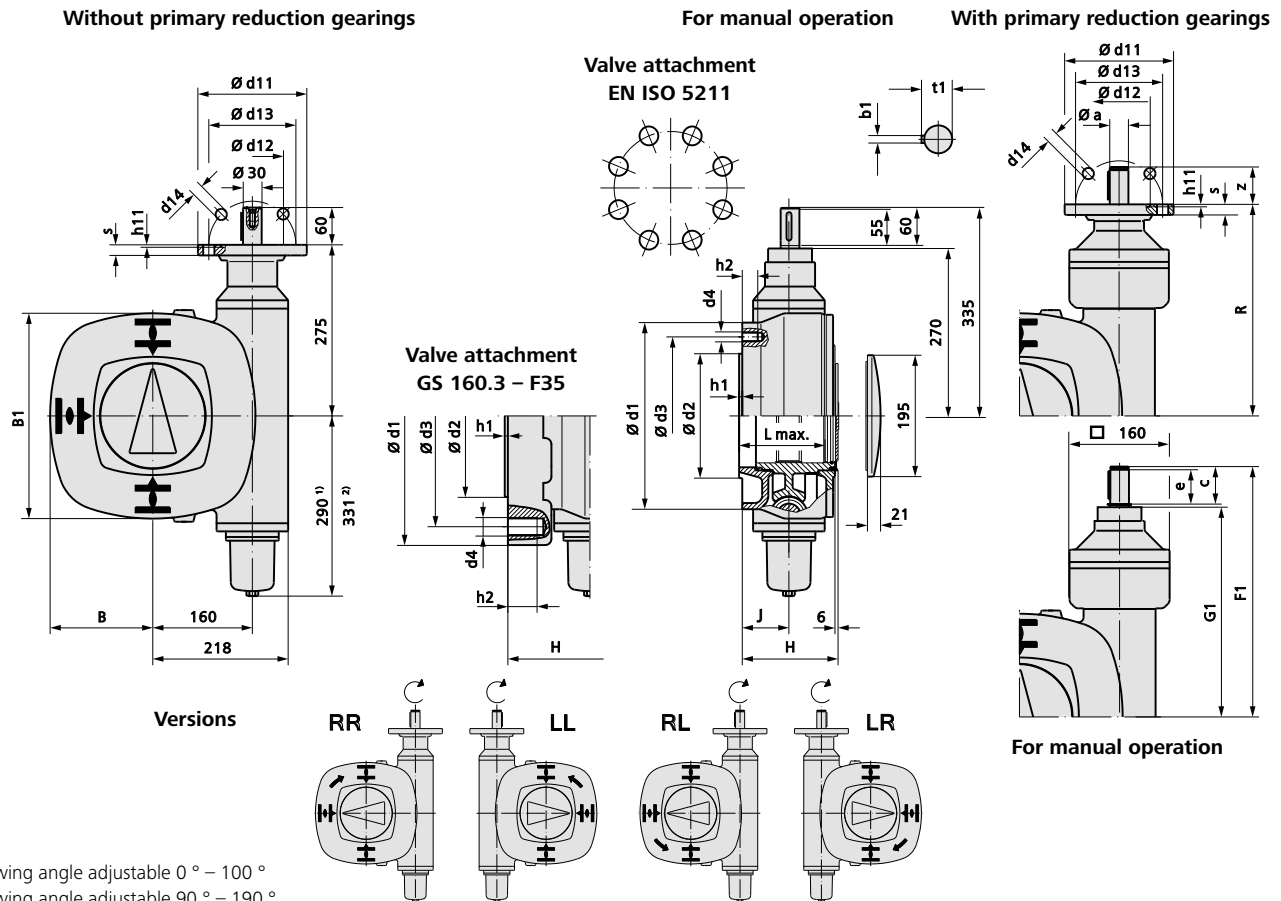


For all other dimensions, please refer to "Dimensions Part-turn gearboxes"

| Dimensions |     |       | H1  | J1  | L   | d1  | d2 H9 | d3  | d4  | h | h1 | L1 max. | x min. | x max. | z |
|------------|-----|-------|-----|-----|-----|-----|-------|-----|-----|---|----|---------|--------|--------|---|
| GS 50.3    | F10 | GS 00 | 108 | 68  | 45  | 136 | 95    | 115 | M10 | 5 | 16 | 91      | 25     | 42     | 8 |
| GS 63.3    | F10 | GS 00 | 119 | 70  | 55  | 136 | 95    | 115 | M10 | 5 | 16 | 103     | 12     | 35     | 8 |
|            | F12 | GS 0  | 134 | 85  | 55  | 240 | 175   | 210 | M12 | 5 | 20 | 118     | 28     | 52     | 8 |
| GS 80.3    | F12 | GS 0  | 137 | 87  | 65  | 240 | 175   | 210 | M12 | 5 | 20 | 120     | 23     | 53     | 8 |
|            | F14 | GS 1  | 155 | 105 | 65  | 290 | 230   | 255 | M16 | 5 | 26 | 138     | 44     | 71     | 8 |
| GS 100.3   | F14 | GS 1  | 190 | 123 | 80  | 290 | 230   | 255 | M16 | 5 | 26 | 173     | 37     | 70     | 8 |
|            | F16 | GS 2  | 197 | 130 | 80  | 345 | 260   | 300 | M20 | 5 | 32 | 180     | 49     | 77     | 8 |
| GS 125.3   | F16 | GS 2  | 200 | 130 | 110 | 345 | 260   | 300 | M20 | 5 | 32 | 183     | 21     | 72     | 8 |
|            | F25 | GS 3  | 205 | 135 | 110 | 410 | 315   | 355 | M20 | 5 | 32 | 188     | 34     | 77     | 8 |

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## Dimensions Part-turn gearboxes



- 1) Swing angle adjustable 0° – 100°  
 2) Swing angle adjustable 90° – 190°  
 3) Equipped with primary reduction gearing or planetary gearing to reduce input torques

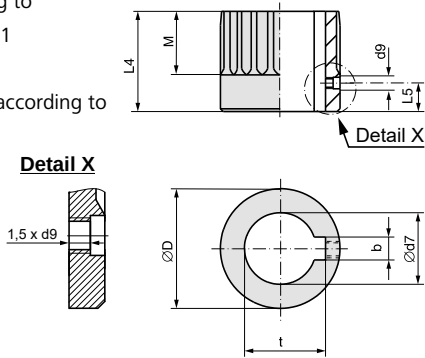
| Dimensions                                            | GS 160.3<br>54:1 |           |     | GS 160.3<br>218:1 <sup>3)</sup> |           |     | GS 160.3<br>442:1 <sup>3)</sup> |      |     | GS 160.3<br>880:1 <sup>3)</sup> |      |     |
|-------------------------------------------------------|------------------|-----------|-----|---------------------------------|-----------|-----|---------------------------------|------|-----|---------------------------------|------|-----|
| EN ISO 5211                                           | F25              | F30       | F35 | F25                             | F30       | F35 | F25                             | F30  | F35 | F25                             | F30  | F35 |
| B                                                     | 165              | 175       | 165 | 165                             | 175       | 165 | 165                             | 175  | 165 | 165                             | 175  | 165 |
| B1                                                    | 330              | 350       | 330 | 330                             | 350       | 330 | 330                             | 350  | 330 | 330                             | 350  | 330 |
| F1                                                    |                  | –         |     |                                 | 380/400   |     |                                 | 380  |     |                                 | 450  |     |
| G1                                                    |                  | –         |     |                                 | 335       |     |                                 | 335  |     |                                 | 405  |     |
| H                                                     | 155              | 170       | 212 | 155                             | 170       | 212 | 155                             | 170  | 212 | 155                             | 170  | 212 |
| J                                                     | 75               | 90        | 132 | 75                              | 90        | 132 | 75                              | 90   | 132 | 75                              | 90   | 132 |
| R                                                     |                  | –         |     |                                 | 340       |     |                                 | 340  |     |                                 | 410  |     |
| Ø a                                                   |                  | –         |     |                                 | 20/30     |     |                                 | 20   |     |                                 | 20   |     |
| b1                                                    |                  | 8         |     |                                 | 6/8       |     |                                 | 6    |     |                                 | 6    |     |
| c                                                     |                  | 60        |     |                                 | 43/60     |     |                                 | 43   |     |                                 | 43   |     |
| Ø d1                                                  | 300              | 350       | 415 | 300                             | 350       | 415 | 300                             | 350  | 415 | 300                             | 350  | 415 |
| Ø d2 f8                                               | 200              | 230       | 260 | 200                             | 230       | 260 | 200                             | 230  | 260 | 200                             | 230  | 260 |
| Ø d3                                                  | 254              | 298       | 356 | 254                             | 298       | 356 | 254                             | 298  | 356 | 254                             | 298  | 356 |
| d4                                                    | M16              | M20       | M30 | M16                             | M20       | M30 | M16                             | M20  | M30 | M16                             | M20  | M30 |
| e                                                     |                  | 55        |     |                                 | 38/55     |     |                                 | 38   |     |                                 | 38   |     |
| h1                                                    |                  | 5         |     |                                 | 5         |     |                                 | 5    |     |                                 | 5    |     |
| h2                                                    | 25               | 32        | 47  | 25                              | 32        | 47  | 25                              | 32   | 47  | 25                              | 32   | 47  |
| L max.                                                | 133              | 148       | 190 | 133                             | 148       | 190 | 133                             | 148  | 190 | 133                             | 148  | 190 |
| t1                                                    |                  | 33        |     |                                 | 22.5/33   |     |                                 | 22.5 |     |                                 | 22.5 |     |
| z                                                     |                  | 60        |     |                                 | 40/60     |     |                                 | 40   |     |                                 | 40   |     |
| EN ISO 5210 <sup>4)</sup>                             |                  | F14 (F16) |     |                                 | F10 (F14) |     |                                 | F10  |     |                                 | F10  |     |
| DIN 3210 <sup>4)</sup>                                |                  | G1/2 (G3) |     |                                 | G0 (G1/2) |     |                                 | G0   |     |                                 | G0   |     |
| <sup>4)</sup> Flange for mounting multi-turn actuator |                  |           |     |                                 |           |     |                                 |      |     |                                 |      |     |
| EN ISO 5210                                           | F10              |           |     | F14                             |           |     | F16                             |      |     |                                 |      |     |
| DIN 3210                                              |                  |           |     | G0                              |           |     | G1/2                            |      |     | G3                              |      |     |
| Ø d11                                                 | 125              |           |     | 125                             |           |     | 175                             |      |     | 210                             |      |     |
| Ø d12                                                 | 70               |           |     | 60                              |           |     | 100                             |      |     | 130                             |      |     |
| Ø d13                                                 | 102              |           |     | 102                             |           |     | 140                             |      |     | 165                             |      |     |
| Ø d14                                                 | 4x11             |           |     | 4x11                            |           |     | 4x18                            |      |     | 4x22                            |      |     |
| h11                                                   | 5                |           |     | 5                               |           |     | 5                               |      |     | 6                               |      |     |
| s                                                     | 12               |           |     | 12                              |           |     | 17                              |      |     | 25                              |      |     |

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Dimensions Couplings according to EN ISO 5211, DIN 6885

Bore according to  
to EN ISO 5211

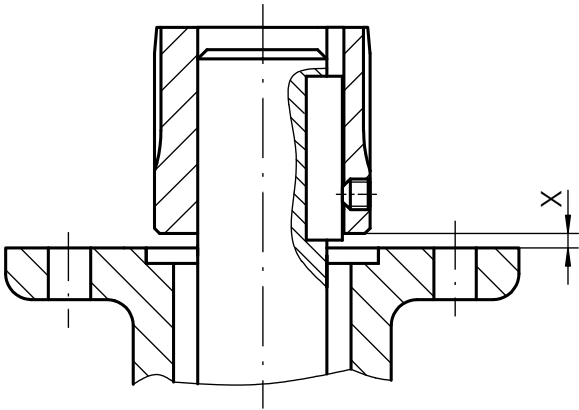
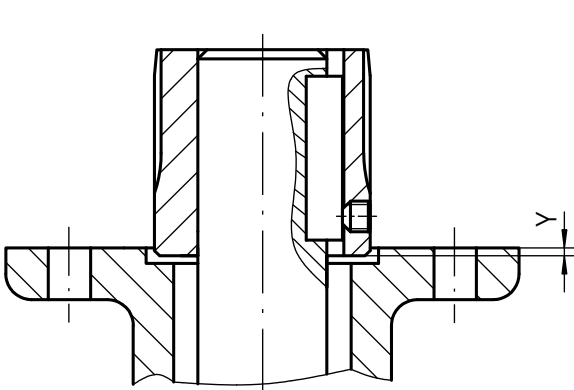
With keyway according to  
DIN 6885-1



| Dimensions          | GS 160.3                |     |     |
|---------------------|-------------------------|-----|-----|
| EN ISO 5211         | F25                     | F30 | F35 |
| Ø D                 | 149.4                   |     |     |
| b JS9 <sup>1)</sup> | According to DIN 6885-1 |     |     |
| Ø d7 H8 max.        | 110                     |     |     |
| d9 <sup>2)</sup>    | M10                     |     |     |
| L4                  | 110                     |     | 150 |
| L5                  |                         | 20  |     |
| M                   | 70                      |     |     |
| t <sup>1)</sup>     | According to DIN 6885-1 |     |     |
|                     |                         |     |     |

Mounting position of coupling

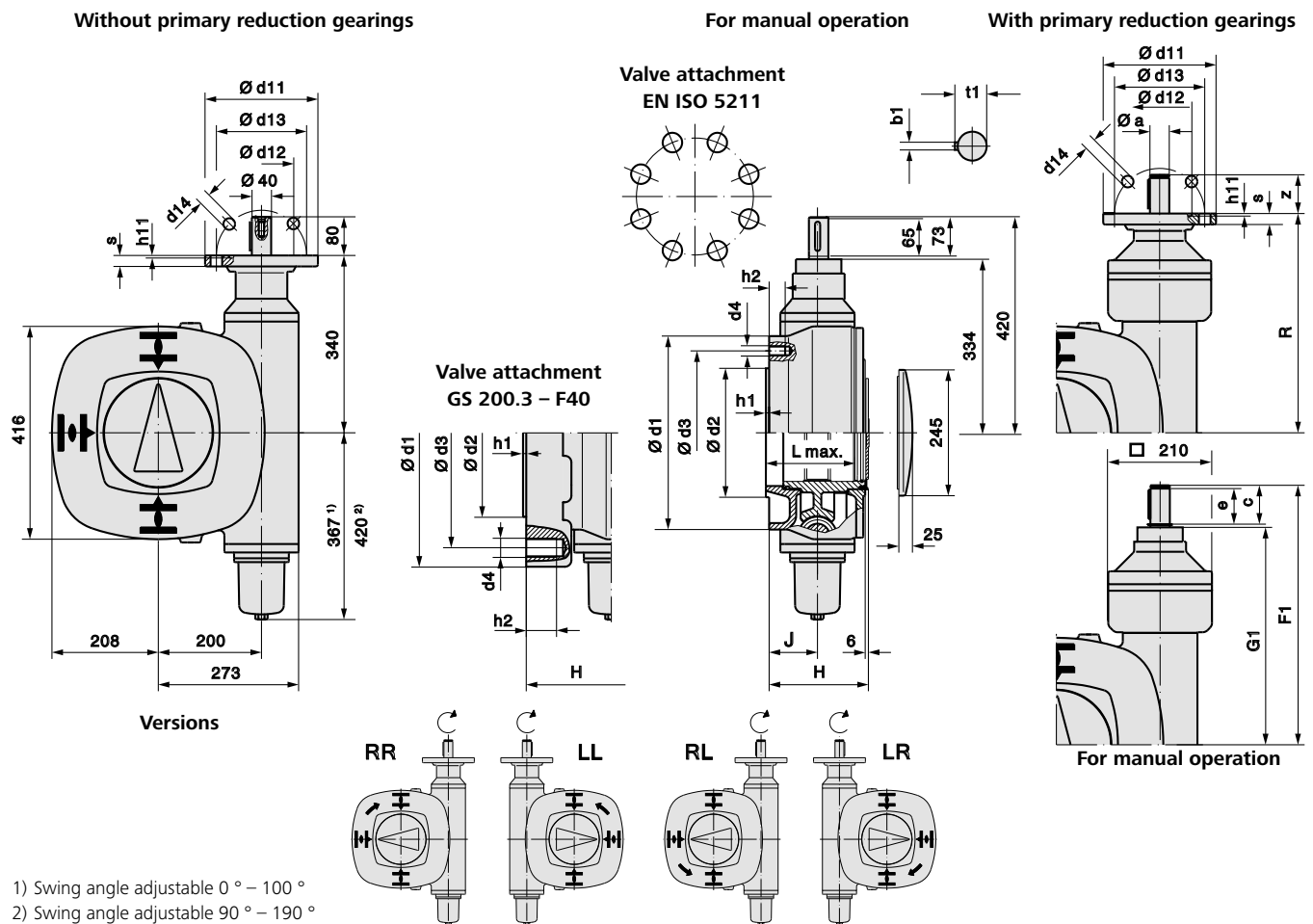
|        |    |    |    |
|--------|----|----|----|
| X max. | 15 | 30 | 30 |
| Y max. | 11 | 0  | 0  |



1) Dimensions depend on Ø d7, refer to DIN 6885-1  
2) Thread with grub screw



## Dimensions Part-turn gearboxes



- 1) Swing angle adjustable  $0^\circ - 100^\circ$
- 2) Swing angle adjustable  $90^\circ - 190^\circ$
- 3) Equipped with primary reduction gearing or planetary gearing to reduce input torques

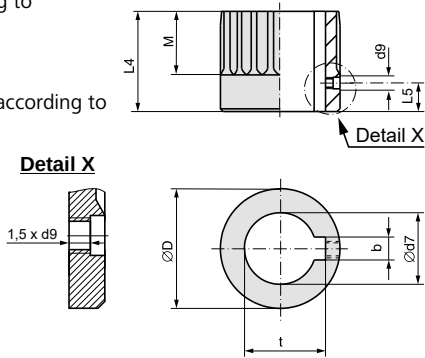
| Dimensions                                            | GS 200.3<br>53:1 |           |     | GS 200.3<br>214:1 <sup>3)</sup> |      |     | GS 200.3<br>434:1 <sup>3)</sup> |           |     | GS 200.3<br>864:1/1,752:1 <sup>3)</sup> |      |      |
|-------------------------------------------------------|------------------|-----------|-----|---------------------------------|------|-----|---------------------------------|-----------|-----|-----------------------------------------|------|------|
| EN ISO 5211                                           | F30              | F35       | F40 | F30                             | F35  | F40 | F30                             | F35       | F40 | F30                                     | F35  | F40  |
| F1                                                    |                  | –         |     |                                 | 485  |     |                                 | 465/485   |     |                                         | 510  |      |
| G1                                                    |                  | –         |     |                                 | 420  |     |                                 | 420       |     |                                         | 465  |      |
| H                                                     | 186              | 211       | 255 | 186                             | 211  | 255 | 186                             | 211       | 255 | 186                                     | 211  | 255  |
| J                                                     | 90               | 115       | 159 | 90                              | 115  | 159 | 90                              | 115       | 159 | 90                                      | 115  | 159  |
| R                                                     |                  | –         |     |                                 | 425  |     |                                 | 425       |     |                                         | 470  |      |
| $\varnothing a$                                       |                  | –         |     |                                 | 30   |     |                                 | 20/30     |     |                                         | 20   |      |
| b1                                                    |                  | 12        |     |                                 | 8    |     |                                 | 6/8       |     |                                         | 6    |      |
| c                                                     |                  | –         |     |                                 | 60   |     |                                 | 43/60     |     |                                         | 43   |      |
| $\varnothing d1$                                      | 350              | 415       | 475 | 350                             | 415  | 475 | 350                             | 415       | 475 | 350                                     | 415  | 475  |
| $\varnothing d2 \text{ f8}$                           | 230              | 260       | 300 | 230                             | 260  | 300 | 230                             | 260       | 300 | 230                                     | 260  | 300  |
| $\varnothing d3$                                      | 298              | 356       | 406 | 298                             | 356  | 406 | 298                             | 356       | 406 | 298                                     | 356  | 406  |
| d4                                                    | M20              | M30       | M36 | M20                             | M30  | M36 | M20                             | M30       | M36 | M20                                     | M30  | M36  |
| e                                                     |                  | –         |     |                                 | 55   |     |                                 | 38/55     |     |                                         | 38   |      |
| h1                                                    | 5                |           | 7   | 5                               |      | 7   | 5                               |           | 7   | 5                                       |      | 7    |
| h2                                                    | 31               | 47        | 55  | 31                              | 47   | 55  | 31                              | 47        | 55  | 31                                      | 47   | 55   |
| L max.                                                | 160              | 190       | 229 | 160                             | 190  | 229 | 160                             | 190       | 229 | 160                                     | 190  | 229  |
| t1                                                    |                  | 43        |     |                                 | 33   |     |                                 | 22.5/33   |     |                                         | 22.5 |      |
| z                                                     |                  | –         |     |                                 | 60   |     |                                 | 40/60     |     |                                         | 40   |      |
| EN ISO 5210 <sup>4)</sup>                             |                  | F16 (F25) |     |                                 | F14  |     |                                 | F10 (F14) |     |                                         | F10  |      |
| DIN 3210 <sup>4)</sup>                                |                  | G3        |     |                                 | G1/2 |     |                                 | G0 (G1/2) |     |                                         | G0   |      |
| <sup>4)</sup> Flange for mounting multi-turn actuator |                  |           |     |                                 |      |     |                                 |           |     |                                         |      |      |
| EN ISO 5210                                           |                  | F10       |     |                                 |      |     |                                 | F14       |     | F16                                     |      | F25  |
| DIN 3210                                              |                  |           |     |                                 | G0   |     |                                 | G1/2      |     | G3                                      |      |      |
| $\varnothing d11$                                     |                  | 125       |     |                                 | 125  |     |                                 | 175       |     | 210                                     |      | 300  |
| $\varnothing d12$                                     |                  | 70        |     |                                 | 60   |     |                                 | 100       |     | 130                                     |      | 200  |
| $\varnothing d13$                                     |                  | 102       |     |                                 | 102  |     |                                 | 140       |     | 165                                     |      | 254  |
| $\varnothing d14$                                     |                  | 4x11      |     |                                 | 4x11 |     |                                 | 4x18      |     | 4x22                                    |      | 8x18 |
| h11                                                   |                  | 5         |     |                                 | 5    |     |                                 | 5         |     | 6                                       |      | 6    |
| s                                                     |                  | 12        |     |                                 | 12   |     |                                 | 17        |     | 25                                      |      | 25   |

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Dimensions Couplings according to EN ISO 5211, DIN 6885

Bore according to  
EN ISO 5211

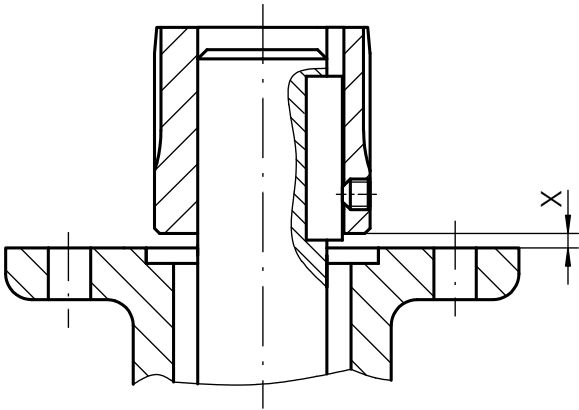
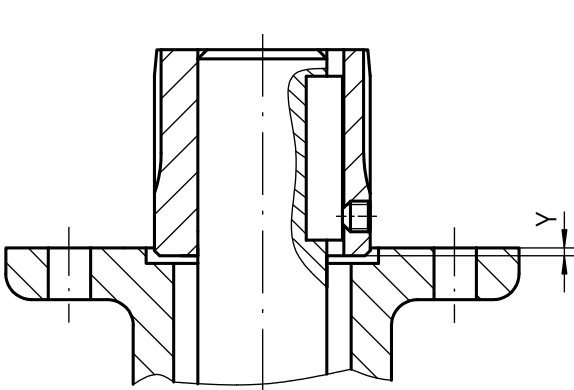
With keyway according to  
DIN 6885-1



| Dimensions          | GS 200.3                |     |     |
|---------------------|-------------------------|-----|-----|
| EN ISO 5211         | F30                     | F35 | F40 |
| Ø D                 | 189                     |     |     |
| b JS9 <sup>1)</sup> | According to DIN 6885-1 |     |     |
| Ø d7 H8 max.        | 135                     |     |     |
| d9 <sup>2)</sup>    | M12                     |     |     |
| L4                  | 140                     |     | 180 |
| L5                  |                         | 20  |     |
| M                   | 94                      |     |     |
| t <sup>1)</sup>     | According to DIN 6885-1 |     |     |
|                     |                         |     |     |

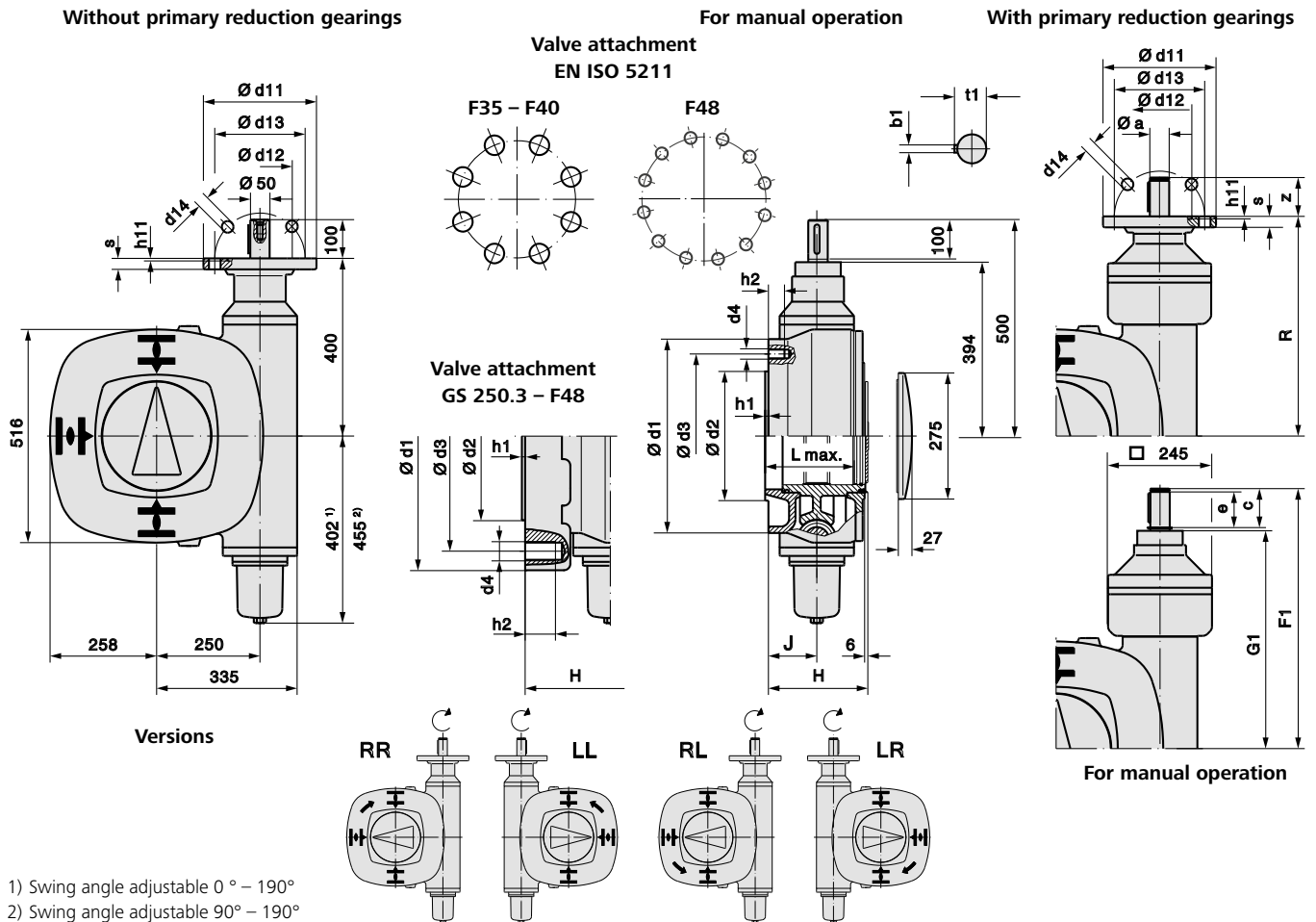
Mounting position of coupling

|        |    |    |    |
|--------|----|----|----|
| X max. | 19 | 44 | 44 |
| Y max. | 19 | 0  | 0  |



1) Dimensions depend on Ø d7, refer to DIN 6885-1  
2) Thread with grub screw

## Dimensions Part-turn gearboxes



- 1) Swing angle adjustable 0° – 190°
- 2) Swing angle adjustable 90° – 190°
- 3) Equipped with primary reduction gearing or planetary gearing to reduce input torques

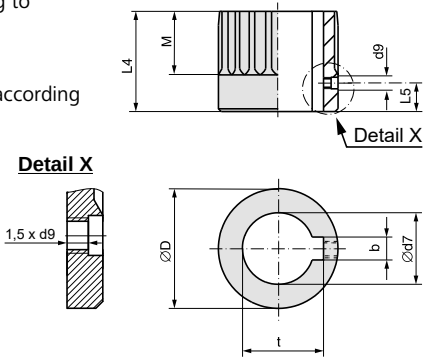
| Dimensions                                            | GS 250.3<br>52:1 |      |     | GS 250.3<br>210:1 <sup>3)</sup> |         |     | GS 250.3<br>411:1 <sup>3)</sup> |     |     | GS 250.3<br>848:1 <sup>3)</sup> |         |     | GS 250.3<br>1,718:1 <sup>3)</sup> |         |      |
|-------------------------------------------------------|------------------|------|-----|---------------------------------|---------|-----|---------------------------------|-----|-----|---------------------------------|---------|-----|-----------------------------------|---------|------|
| EN ISO 5211                                           | F35              | F40  | F48 | F35                             | F40     | F48 | F35                             | F40 | F48 | F35                             | F40     | F48 | F35                               | F40     | F48  |
| F1                                                    |                  | –    |     |                                 | 540/560 |     |                                 | 540 |     |                                 | 565/585 |     |                                   | 610/630 |      |
| G1                                                    |                  | –    |     |                                 | 475     |     |                                 | 475 |     |                                 | 520     |     |                                   | 565     |      |
| H                                                     | 249              | 259  | 304 | 249                             | 259     | 304 | 249                             | 259 | 304 | 249                             | 259     | 304 | 249                               | 259     | 304  |
| J                                                     | 130              | 140  | 185 | 130                             | 140     | 185 | 130                             | 140 | 185 | 130                             | 140     | 185 | 130                               | 140     | 185  |
| R                                                     |                  | –    |     |                                 | 480     |     |                                 | 480 |     |                                 | 525     |     |                                   | 570     |      |
| Ø a                                                   |                  | –    |     |                                 | 30/40   |     |                                 | 30  |     |                                 | 20/30   |     |                                   | 20/30   |      |
| b1                                                    |                  | 14   |     |                                 | 8/12    |     |                                 | 8   |     |                                 | 6/8     |     |                                   | 6/8     |      |
| c                                                     |                  | –    |     |                                 | 63/73   |     |                                 | 63  |     |                                 | 43/60   |     |                                   | 43/60   |      |
| Ø d1                                                  | 415              | 475  | 560 | 415                             | 475     | 560 | 415                             | 475 | 560 | 415                             | 475     | 560 | 415                               | 475     | 560  |
| Ø d2 f8                                               | 260              | 300  | 370 | 260                             | 300     | 370 | 260                             | 300 | 370 | 260                             | 300     | 370 | 260                               | 300     | 370  |
| Ø d3                                                  | 356              | 406  | 483 | 356                             | 406     | 483 | 356                             | 406 | 483 | 356                             | 406     | 483 | 356                               | 406     | 483  |
| d4                                                    | M30              | M36  |     | M30                             | M36     |     | M30                             | M36 |     | M30                             | M36     |     | M30                               | M36     |      |
| e                                                     |                  | –    |     |                                 | 55/65   |     |                                 | 55  |     |                                 | 38/55   |     |                                   | 38/55   |      |
| h1                                                    | 5                | 8    | 7   | 5                               | 8       | 7   | 5                               | 8   | 7   | 5                               | 8       | 7   | 5                                 | 8       | 7    |
| h2                                                    | 47               | 55   |     | 47                              | 55      |     | 47                              | 55  |     | 47                              | 55      |     | 47                                | 55      |      |
| L max.                                                | 233              | 245  | 288 | 233                             | 245     | 288 | 233                             | 245 | 288 | 233                             | 245     | 288 | 233                               | 245     | 288  |
| t1                                                    |                  | 53.5 |     |                                 | 33/43   |     |                                 | 33  |     |                                 | 22.5/33 |     |                                   | 22.5/33 |      |
| z                                                     |                  | –    |     |                                 | 60/80   |     |                                 | 60  |     |                                 | 40/60   |     |                                   | 40/60   |      |
| EN ISO 5210 <sup>4)</sup>                             | F25 (F30)        |      |     | F14 (F16)                       |         |     | F14                             |     |     | F10 (F14)                       |         |     | F10                               |         |      |
| DIN 3210 <sup>4)</sup>                                | –                |      |     | G1/2 (G3)                       |         |     | G1/2                            |     |     | G0 (G1/2)                       |         |     | G0                                |         |      |
| <sup>4)</sup> Flange for mounting multi-turn actuator |                  |      |     |                                 |         |     |                                 |     |     |                                 |         |     |                                   |         |      |
| EN ISO 5210                                           | F10              |      |     | F14                             |         |     | F16                             |     |     | F25                             |         |     | F30                               |         |      |
| DIN 3210                                              |                  |      |     | G0                              |         |     | G1/2                            |     |     | G3                              |         |     |                                   |         |      |
| Ø d11                                                 | 125              |      |     | 125                             |         |     | 175                             |     |     | 210                             |         |     | 300                               |         | 350  |
| Ø d12                                                 | 70               |      |     | 60                              |         |     | 100                             |     |     | 130                             |         |     | 200                               |         | 230  |
| Ø d13                                                 | 102              |      |     | 102                             |         |     | 140                             |     |     | 165                             |         |     | 254                               |         | 298  |
| Ø d14                                                 | 4x11             |      |     | 4x11                            |         |     | 4x18                            |     |     | 4x22                            |         |     | 8x18                              |         | 8x22 |
| h11                                                   | 5                |      |     | 5                               |         |     | 5                               |     |     | 6                               |         |     | 6                                 |         | 6    |
| s                                                     | 12               |      |     | 12                              |         |     | 17                              |     |     | 25                              |         |     | 25                                |         | 22   |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Dimensions Couplings according to EN ISO 5211, DIN 6885

Bore according to  
EN ISO 5211

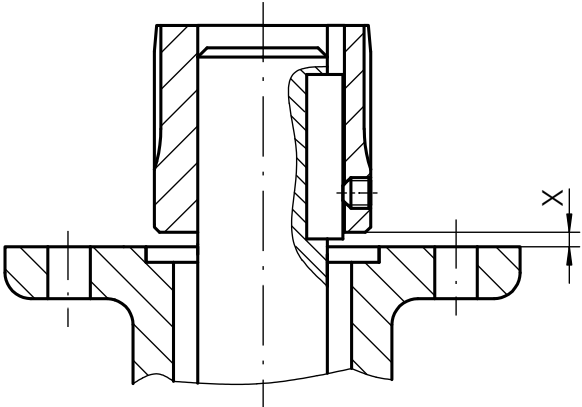
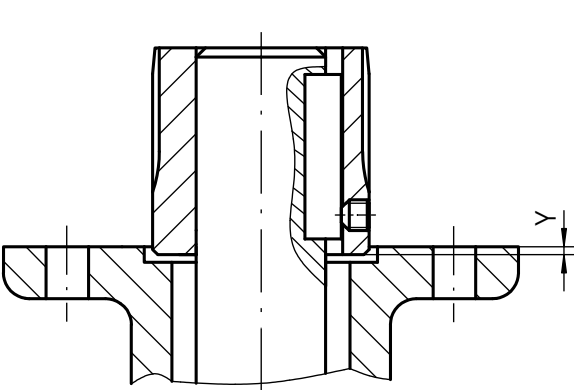
With keyway according  
to DIN 6885-1



| Dimensions          | GS 250.3                |     |     |
|---------------------|-------------------------|-----|-----|
| EN ISO 5211         | F35                     | F40 | F48 |
| Ø D                 | 209                     |     |     |
| b JS9 <sup>1)</sup> | According to DIN 6885-1 |     |     |
| Ø d7 H8 max.        | 160                     |     |     |
| d9 <sup>2)</sup>    | M16                     |     |     |
| L4                  | 180                     |     | 230 |
| L5                  |                         | 20  |     |
| M                   | 105                     |     |     |
| t <sup>1)</sup>     | According to DIN 6885-1 |     |     |
|                     |                         |     |     |

Mounting position of coupling

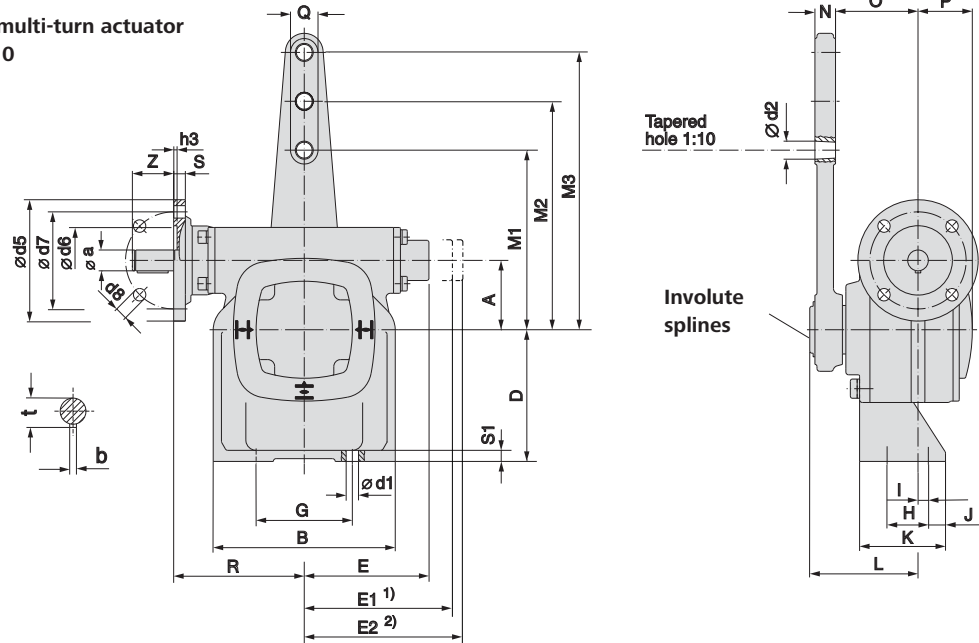
|        |   |    |    |
|--------|---|----|----|
| X max. | 8 | 13 | 20 |
| Y max. | 8 | 0  | 5  |



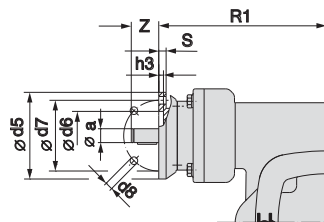
1) Dimensions depend on Ø d7, refer to DIN 6885-1  
2) Thread with grub screw

## Dimensions Part-turn gearboxes with base and lever

Mounting flange for multi-turn actuator  
EN ISO 5210/DIN 3210

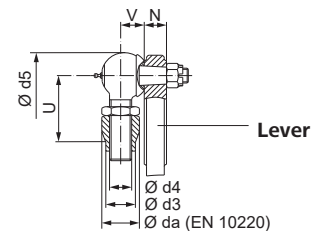


GS with primary  
reduction gearings

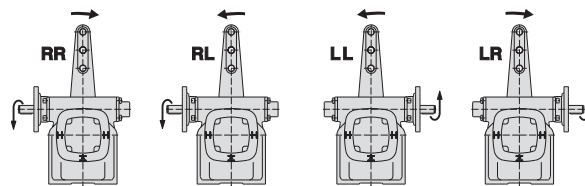


Ball joint  
only upon specific order

Suitable tube EN 10220



## Versions



1) Swing angle adjustable max. 100°

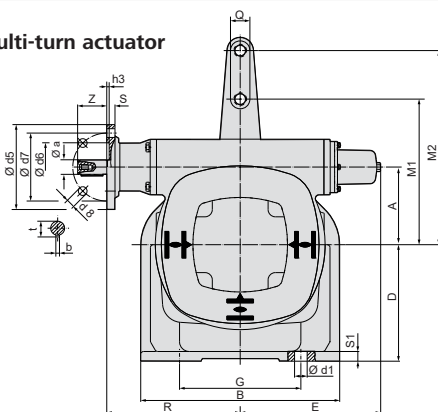
2) Swing angle adjustable max. 190°

| Dimensions                    | A   | B   | D   | E   | E1         | E2       | G        | H     | I    | J          | K    | L    | M1      | M2                                      | M3  | N   | h11 | O   | P  | Q   | R  | S1 | U min. |
|-------------------------------|-----|-----|-----|-----|------------|----------|----------|-------|------|------------|------|------|---------|-----------------------------------------|-----|-----|-----|-----|----|-----|----|----|--------|
| GS 50.3/51:1                  | 50  | 150 | 110 | 96  | 101        | 114      | 80       | 40    | 15   | 15         | 80   | 95   | 150     | 200                                     | –   | 20  | 70  | 49  | 25 | 100 | 12 | 58 |        |
| GS 63.3/51:1/82:1             | 63  | 190 | 130 | 128 | 135        | 150      | 110      | 45    | 17   | 15         | 90   | 109  | 150     | 200                                     | 250 | 26  | 77  | 58  | 32 | 125 | 16 | 75 |        |
| GS 80.3/53:1/82:1             | 80  | 225 | 150 | 133 | 140        | 155      | 110      | 50    | 13   | 15         | 100  | 123  | 150     | 200                                     | 250 | 26  | 91  | 60  | 32 | 130 | 16 | 75 |        |
| GS 100.3/52:1/107:1           | 100 | 265 | 190 | 189 | 213        | 225      | 140      | 60    | 10   | 25         | 125  | 163  | 300     | 400                                     | –   | 30  | 125 | 79  | 40 | 190 | 16 | 85 |        |
| GS 100.3<br>126:1/160:1/208:1 | 100 | 265 | 190 | 189 | 213        | 225      | 140      | 60    | 10   | 25         | 125  | 163  | 300     | 400                                     | –   | 30  | 125 | 79  | 40 | 259 | 16 | 85 |        |
| GS 125.3/52:1                 | 125 | 345 | 210 | 194 | 218        | 230      | 200      | 60    | 27   | 30         | 150  | 171  | 300     | 400                                     | –   | 30  | 133 | 83  | 40 | 195 | 18 | 85 |        |
| GS 125.3/126:1/160:1          | 125 | 345 | 210 | 194 | 218        | 230      | 200      | 60    | 27   | 30         | 150  | 171  | 300     | 400                                     | –   | 30  | 133 | 83  | 40 | 264 | 18 | 85 |        |
| GS 125.3/208:1                | 125 | 345 | 210 | 194 | 218        | 230      | 200      | 60    | 27   | 30         | 150  | 171  | 300     | 400                                     | –   | 30  | 133 | 83  | 40 | 264 | 18 | 85 |        |
| Dimensions                    | V   | Z   | Ø a | f7  | b          | Ø da     | EN 10220 | Ø d1  | Ø d2 | Ø d3       | Ø d4 | Ø d5 | t       | Mounting flange for multi-turn actuator |     |     |     |     |    |     |    |    |        |
| GS 50.3/51:1                  | 23  | 32  | 16  | 5   | 33,7 x 3,2 |          | 11       | 16 H8 | 27   | M 16 x 1,5 |      | 36   | 18      | EN ISO<br>5210<br>(DIN<br>3210)         |     |     |     |     |    |     |    |    |        |
| GS 63.3/51:1/82:1             | 28  | 40  | 20  | 6   | 42,4 x 4   |          | 14       | 22 H8 | 34   | M 28 x 1,5 |      | 52   | 22.5    |                                         |     |     |     |     |    |     |    |    |        |
| GS 80.3/53:1/82:1             | 28  | 40  | 20  | 6   | 42,4 x 4   |          | 18       | 22 H8 | 34   | M 28 x 1,5 |      | 52   | 22.5    |                                         |     |     |     |     |    |     |    |    |        |
| GS 100.3/52:1/107:1           | 32  | 40  | 20  | 30  | 6 8        | 48,3 x 4 | 18       | 26 H8 | 40   | M 30 x 1,5 |      | 62   | 22,5 33 |                                         |     |     |     |     |    |     |    |    |        |
| GS 100.3<br>126:1/160:1/208:1 | 32  | 40  | 20  | 6   | 48,3 x 4   |          | 18       | 26 H8 | 40   | M 30 x 1,5 |      | 62   | 22.5    | F07                                     |     | 90  | 55  | 70  | 9  | 5   | 8  |    |        |
| GS 125.3/52:1                 | 32  | 60  | 30  | 8   | 48.3 x 4   |          | 18       | 26 H8 | 40   | M 30 x 1,5 |      | 62   | 33      | F10                                     |     | 125 | 70  | 102 | 11 | 5   | 12 |    |        |
| GS 125.3/126:1/160:1          | 32  | 60  | 20  | 30  | 6 8        | 48.3 x 4 | 18       | 26 H8 | 40   | M 30 x 1,5 |      | 62   | 22,5 33 | (G0)                                    |     | 125 | 60  | 102 | 11 | 5   | 12 |    |        |
| GS 125.3/208:1                | 32  | 40  | 20  | 6   | 48.3 x 4   |          | 18       | 26 H8 | 40   | M 30 x 1.5 |      | 62   | 22.5    | F14 (G1/2)                              |     | 175 | 100 | 140 | 18 | 5   | 17 |    |        |

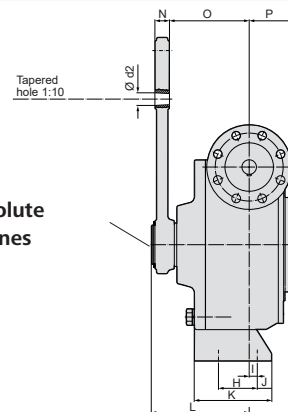
We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

## Dimensions Part-turn gearboxes with base and lever

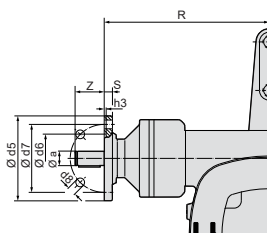
Flange for mounting multi-turn actuator  
EN ISO 5210/DIN 3210



Involute  
splines



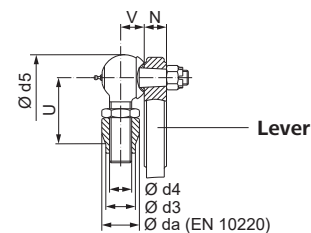
GS with primary  
reduction gearings



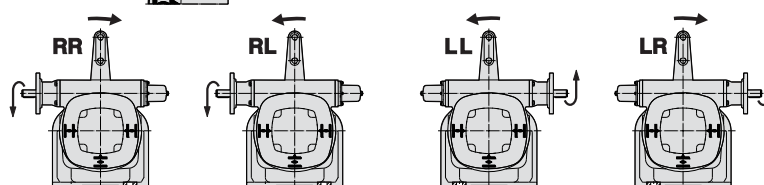
Ball joint

Only upon specific order

Suitable tube EN 10220



Versions



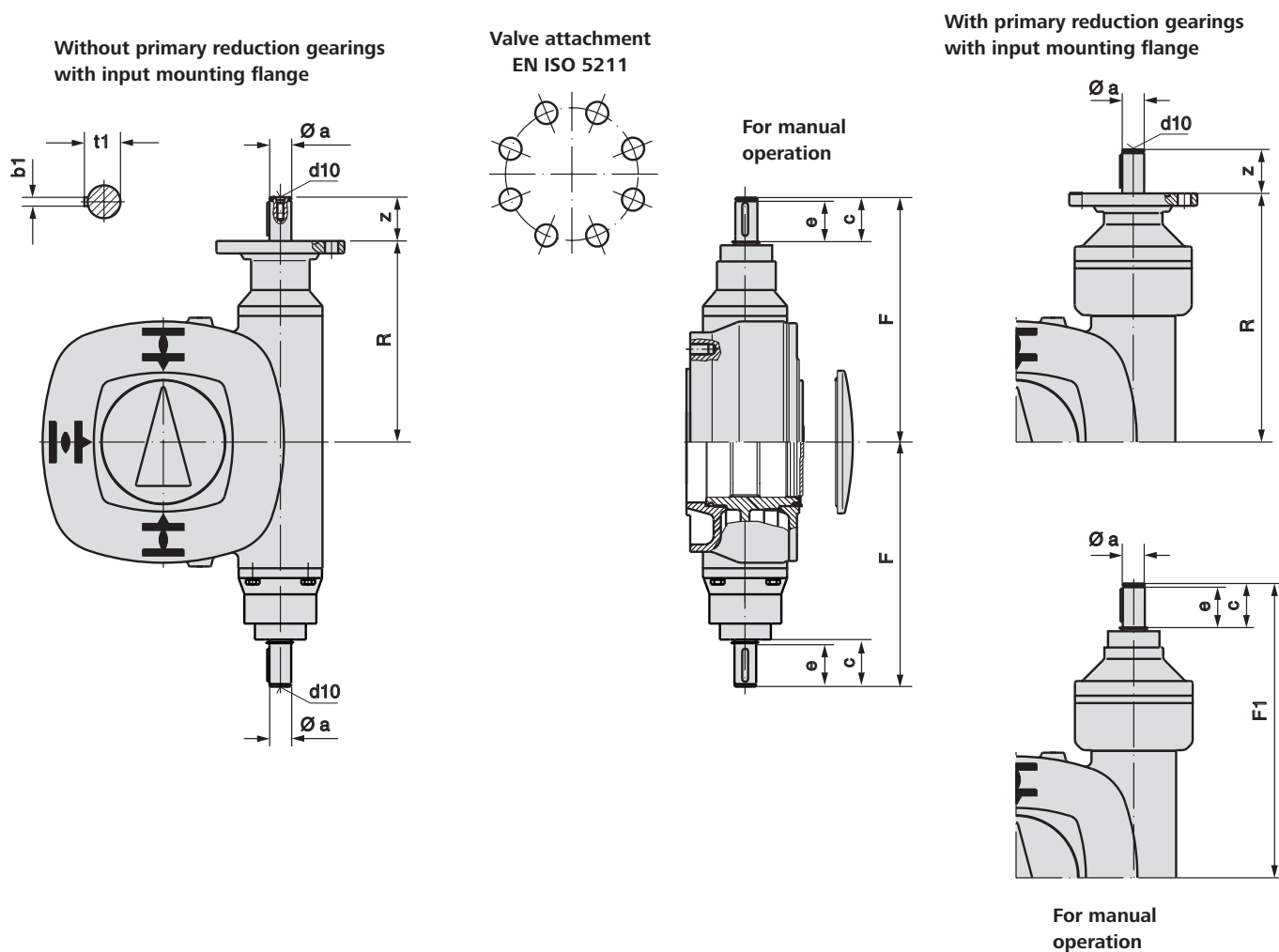
| Dimensions      | GS 160.3 |            |       |      | GS 200.3 |            |                 |      | GS 250.3 |            |       |    |
|-----------------|----------|------------|-------|------|----------|------------|-----------------|------|----------|------------|-------|----|
| Reduction ratio | 54:1     | 218:1      | 442:1 | 53:1 | 214:1    | 434:1      | 864:1<br>1752:1 | 52:1 | 210:1    | 411:1      | 848:1 |    |
| A               |          | 160        |       |      |          | 200        |                 |      |          | 250        |       |    |
| B               |          | 410        |       |      |          | 510        |                 |      |          | 630        |       |    |
| D               |          | 240        |       |      |          | 300        |                 |      |          | 380        |       |    |
| E               |          | 290        |       |      |          | 367        |                 |      |          | 402        |       |    |
| G               |          | 250        |       |      |          | 320        |                 |      |          | 400        |       |    |
| H               |          | 80         |       |      |          | 95         |                 |      |          | 125        |       |    |
| I               |          | 17         |       |      |          | 24         |                 |      |          | 42         |       |    |
| J               |          | 30         |       |      |          | 35         |                 |      |          | 45         |       |    |
| K               |          | 160        |       |      |          | 200        |                 |      |          | 260        |       |    |
| L               |          | 202        |       |      |          | 232        |                 |      |          | 295        |       |    |
| M1              |          | 300        |       |      |          | 500        |                 |      |          | 600        |       |    |
| M2              |          | 400        |       |      |          | 650        |                 |      |          | 800        |       |    |
| N h11           |          | 30         |       |      |          | 34         |                 |      |          | 42         |       |    |
| O               |          | 164        |       |      |          | 189        |                 |      |          | 244        |       |    |
| P               |          | 95         |       |      |          | 115        |                 |      |          | 140        |       |    |
| Q               |          | 40         |       |      |          | 50         |                 |      |          | 60         |       |    |
| R               | 275      | 340        | 340   | 340  | 425      | 425        | 470             | 400  | 480      | 480        | 525   |    |
| S1              |          | 20         |       |      |          | 25         |                 |      |          | 30         |       |    |
| U min.          |          | 85         |       |      |          | 95         |                 |      |          | 110        |       |    |
| V               |          | 32         |       |      |          | 36         |                 |      |          | 42         |       |    |
| Z               | 60       | 40         | 60    | 40   | 80       | 60         | 40              | 40   | 100      | 60         | 80    | 60 |
| Ø a f7          | 30       | 20         | 30    | 20   | 40       | 30         | 20              | 20   | 50       | 30         | 40    | 20 |
| b               | 8        | 6          | 8     | 6    | 12       | 8          | 6               | 6    | 14       | 8          | 12    | 8  |
| Ø da EN 10220   |          | 48,3 x 4,0 |       |      |          | 48,3 x 4,0 |                 |      |          | 60,3 x 5,0 |       |    |
| Ø d1            |          | 26         |       |      |          | 33         |                 |      |          | 33         |       |    |
| Ø d2 H8         |          | 26         |       |      |          | 30         |                 |      |          | 38         |       |    |
| Ø d3            |          | 40         |       |      |          | 40         |                 |      |          | 50         |       |    |
| Ø d4            |          | M30 x 1.5  |       |      |          | M30 x 1.5  |                 |      |          | M38 x 1.5  |       |    |
| Ø d5            |          | 62         |       |      |          | 69         |                 |      |          | 85         |       |    |
| t               | 33       | 22.5       | 33    | 22.5 | 43       | 33         | 22.5            | 22.5 | 53.5     | 33         | 43    | 33 |

## Flange for mounting multi-turn actuator

| EN ISO 5210 | F10 |     | F14  | F25 |
|-------------|-----|-----|------|-----|
| DIN 3210    |     | G0  | G1/2 |     |
| Ø d5        | 125 | 125 | 175  | 300 |
| Ø d6        | 70  | 60  | 100  | 200 |
| Ø d7        | 102 | 102 | 140  | 254 |
| Ø d8        | 11  | 11  | 18   | 18  |
| h3          | 5   | 5   | 5    | 6   |
| s           | 12  | 12  | 17   | 25  |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

## Dimensions Part-turn gearboxes with shaft ends on both sides



For all other dimensions, please refer to the latest issue of Dimension sheet GS 160.3 – GS 250.3

| Dimensions | GS 160.3 |       |     |      | GS 200.3 |      |       |     |       | GS 250.3        |      |       |     |       |       |
|------------|----------|-------|-----|------|----------|------|-------|-----|-------|-----------------|------|-------|-----|-------|-------|
|            | 54:1     | 218:1 |     |      | 442:1    | 53:1 | 214:1 |     | 434:1 | 864:1<br>1752:1 | 52:1 | 210:1 |     | 411:1 | 848:1 |
| F          | 335      | —     |     |      | 420      | —    |       |     |       | 510             | 500  | —     |     |       |       |
| F1         | —        | 380   | 400 | 380  | —        | 485  | 465   | 485 | 510   | —               | 540  | 560   | 540 | 585   |       |
| R          | 275      | 340   |     |      | 340      | 425  |       |     | 470   | 400             | 480  |       |     | 525   |       |
| Ø a f7     | 30       | 20    | 30  | 20   | 40       | 30   | 20    | 30  | 20    | 50              | 30   | 40    | 30  | 20    | 30    |
| b1         | 8        | 6     | 8   | 6    | 12       | 8    | 6     | 8   | 6     | 14              | 8    | 12    | 8   | 6     | 8     |
| c          | 60       | 43    | 60  | 43   | 73       | 60   | 43    | 60  | 43    | 100             | 60   | 73    | 60  | 43    | 60    |
| d10        | M8       | M6    | M8  | M6   | M8       | M10  | M6    | M10 | M6    | M10             | M16  | M10   |     | M6    | M10   |
| e          | 55       | 38    | 55  | 38   | 65       | 55   | 38    | 55  | 38    | —               | 55   | 65    | 55  | 38    | 55    |
| t1         | 33       | 22.5  | 33  | 22.5 | 43       | 33   | 22.5  | 33  | 22.5  | 53.5            | 33   | 43    | 33  | 22.5  | 33    |
| z          | 60       | 40    | 60  | 40   | 80       | 60   | 40    | 60  | 40    | 100             | 60   | 80    | 60  | 40    | 60    |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

## Dimensions Output mounting flange

| Option<br>Bore for parallel pins <sup>2)</sup>                                                                                                                                                                                                                                                                                          |             |                 |          |      |                                |           |      |         |    |    |    |    |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------|----------|------|--------------------------------|-----------|------|---------|----|----|----|----|-----|
| <p><b>Version Y</b><br/>With spigot</p> <p><b>Version N</b><br/>Without spigot</p> <p><b>Bore depth h1:</b><br/> 20 mm at <math>10 \leq \text{Ø}d5 &lt; 16</math><br/> 25 mm at <math>16 \leq \text{Ø}d5 &lt; 20</math><br/> 30 mm at <math>20 \leq \text{Ø}d5 &lt; 30</math><br/> 35 mm at <math>30 \leq \text{Ø}d5 &lt; 40</math></p> |             |                 |          |      |                                |           |      |         |    |    |    |    |     |
| Type                                                                                                                                                                                                                                                                                                                                    | Flange size | Characteristics | Ø d12 f8 | Ø d3 | Ø d4                           | Ø d5 max. | Ø d6 | Ø d2 H8 | h  | h1 | h2 | h3 | J   |
| GS 160.3                                                                                                                                                                                                                                                                                                                                | F25         | EN ISO 5211     | 200      | 254  | 8 x M16                        | 20        | 254  | —       | —  | 30 | 25 | 5  | 75  |
|                                                                                                                                                                                                                                                                                                                                         | F30         | EN ISO 5211     | 230      | 298  | 8 x M20                        | 30        | 298  | —       | —  | 35 | 32 | 5  | 90  |
|                                                                                                                                                                                                                                                                                                                                         | FA25        | Y               | 200      | 254  | 8 x 5/8-11 UNC <sup>1)</sup>   | —         | —    | —       | —  | —  | 25 | 5  | 75  |
|                                                                                                                                                                                                                                                                                                                                         |             | N               | —        | —    | —                              | —         | —    | 200     | 6  | —  | —  | —  | —   |
|                                                                                                                                                                                                                                                                                                                                         | FA30        | Y               | 230      | 298  | 8 x 3/4-10 UNC <sup>1)</sup>   | —         | —    | —       | —  | —  | 32 | 5  | 90  |
|                                                                                                                                                                                                                                                                                                                                         |             | N               | —        | —    | —                              | —         | —    | 230     | 6  | —  | —  | —  | —   |
|                                                                                                                                                                                                                                                                                                                                         | F25         | plane           | —        | 254  | 8 x M16                        | 20        | 254  | —       | —  | 30 | 25 | —  | 75  |
|                                                                                                                                                                                                                                                                                                                                         | F30         | plane           | —        | 298  | 8 x M20                        | 30        | 298  | —       | —  | 35 | 32 | —  | 90  |
| GS 200.3                                                                                                                                                                                                                                                                                                                                | F35         | plane           | —        | 356  | 8 x M30                        | 30        | 356  | —       | —  | 35 | 47 | —  | 132 |
|                                                                                                                                                                                                                                                                                                                                         |             | Y               | 260      | —    | —                              | —         | —    | —       | —  | —  | —  | 5  | —   |
|                                                                                                                                                                                                                                                                                                                                         | FA35        | plane           | —        | 356  | 8 x 1-8 UNC <sup>1)</sup>      | —         | —    | —       | —  | —  | 40 | —  | 132 |
|                                                                                                                                                                                                                                                                                                                                         |             | Y               | 260      | —    | —                              | —         | —    | —       | —  | —  | —  | 5  | —   |
|                                                                                                                                                                                                                                                                                                                                         | F30         | plane           | —        | 298  | 8 x M20                        | 30        | 298  | —       | —  | 35 | 31 | —  | 90  |
|                                                                                                                                                                                                                                                                                                                                         | F35         | plane           | —        | 356  | 8 x M30                        | 30        | 356  | —       | —  | 35 | 47 | —  | 115 |
|                                                                                                                                                                                                                                                                                                                                         | F40         | plane           | —        | 406  | 8 x M36                        | 35        | 406  | —       | —  | 35 | 55 | —  | 159 |
|                                                                                                                                                                                                                                                                                                                                         |             | Y               | 300      | —    | —                              | —         | —    | —       | —  | —  | —  | 7  | —   |
| GS 250.3                                                                                                                                                                                                                                                                                                                                | FA40        | plane           | —        | 406  | 8 x 1 1/4-7 UNC <sup>1)</sup>  | —         | —    | —       | —  | —  | 50 | —  | 159 |
|                                                                                                                                                                                                                                                                                                                                         |             | Y               | 300      | —    | —                              | —         | —    | —       | —  | —  | —  | 7  | —   |
|                                                                                                                                                                                                                                                                                                                                         | F35         | EN ISO 5211     | 260      | 356  | 8 x M30                        | 30        | 356  | —       | —  | 35 | 47 | 5  | 130 |
|                                                                                                                                                                                                                                                                                                                                         | F40         | EN ISO 5211     | 300      | 406  | 8 x M36                        | 35        | 406  | —       | —  | 35 | 55 | 8  | 140 |
|                                                                                                                                                                                                                                                                                                                                         | FA35        | Y               | 260      | 356  | 8 x 1-8 UNC <sup>1)</sup>      | —         | —    | —       | —  | —  | 40 | 5  | 130 |
|                                                                                                                                                                                                                                                                                                                                         |             | N               | —        | —    | —                              | —         | —    | 260     | 6  | —  | —  | —  | —   |
|                                                                                                                                                                                                                                                                                                                                         | FA40        | Y               | 300      | 406  | 8 x 1 1/4-7 UNC <sup>1)</sup>  | —         | —    | —       | —  | —  | 50 | 8  | 140 |
|                                                                                                                                                                                                                                                                                                                                         |             | N               | —        | —    | —                              | —         | —    | 300     | 10 | —  | —  | —  | —   |
| GS 250.3                                                                                                                                                                                                                                                                                                                                | F35         | plane           | —        | 356  | 8 x M30                        | 30        | 356  | —       | —  | 35 | 47 | —  | 130 |
|                                                                                                                                                                                                                                                                                                                                         | F40         | plane           | —        | 406  | 8 x M36                        | 35        | 406  | —       | —  | 35 | 55 | —  | 140 |
|                                                                                                                                                                                                                                                                                                                                         | F48         | plane           | —        | 483  | 12 x M36                       | 35        | 483  | —       | —  | 35 | 55 | —  | 185 |
|                                                                                                                                                                                                                                                                                                                                         |             | Y               | 370      | —    | —                              | —         | —    | —       | —  | —  | —  | 7  | —   |
|                                                                                                                                                                                                                                                                                                                                         | FA48        | plane           | —        | 483  | 12 x 1 1/4-7 UNC <sup>1)</sup> | —         | —    | —       | —  | —  | 50 | —  | 185 |
|                                                                                                                                                                                                                                                                                                                                         |             | Y               | 370      | —    | —                              | —         | —    | —       | —  | —  | —  | 7  | —   |

Please refer to the respectively valid dimension sheets for further dimensions.

1) Threads comply with SP-101

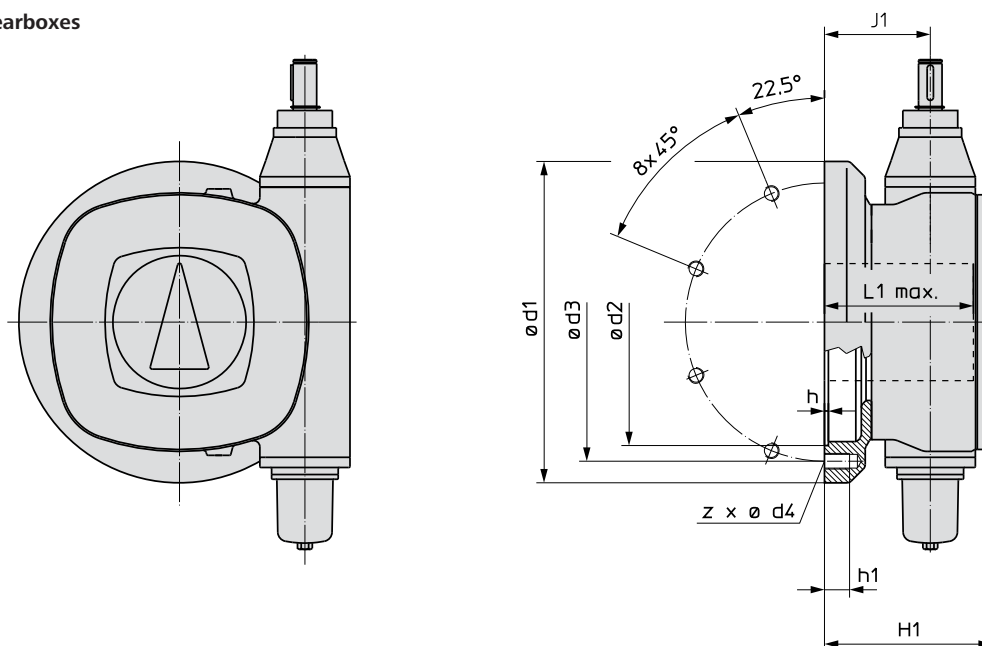
2) GS 200.3 and GS 250.3 are available with 4 bores. The 4 bores are exclusively available with GJS housing.

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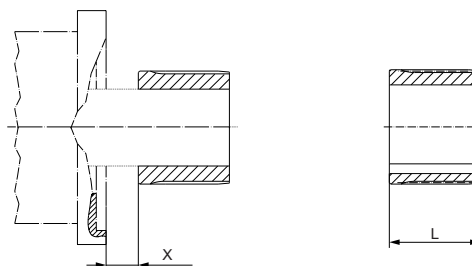


## Dimensions Part-turn gearbox with output mounting flange GS 3 – GS 6

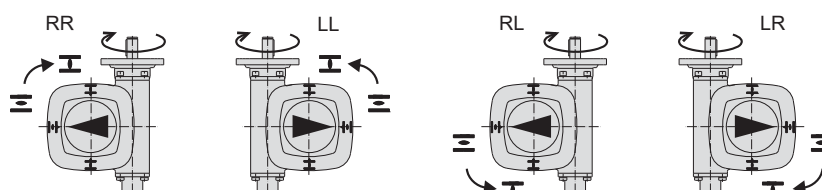
## Standard Part-turn gearboxes



## Coupling (standard)



## Version

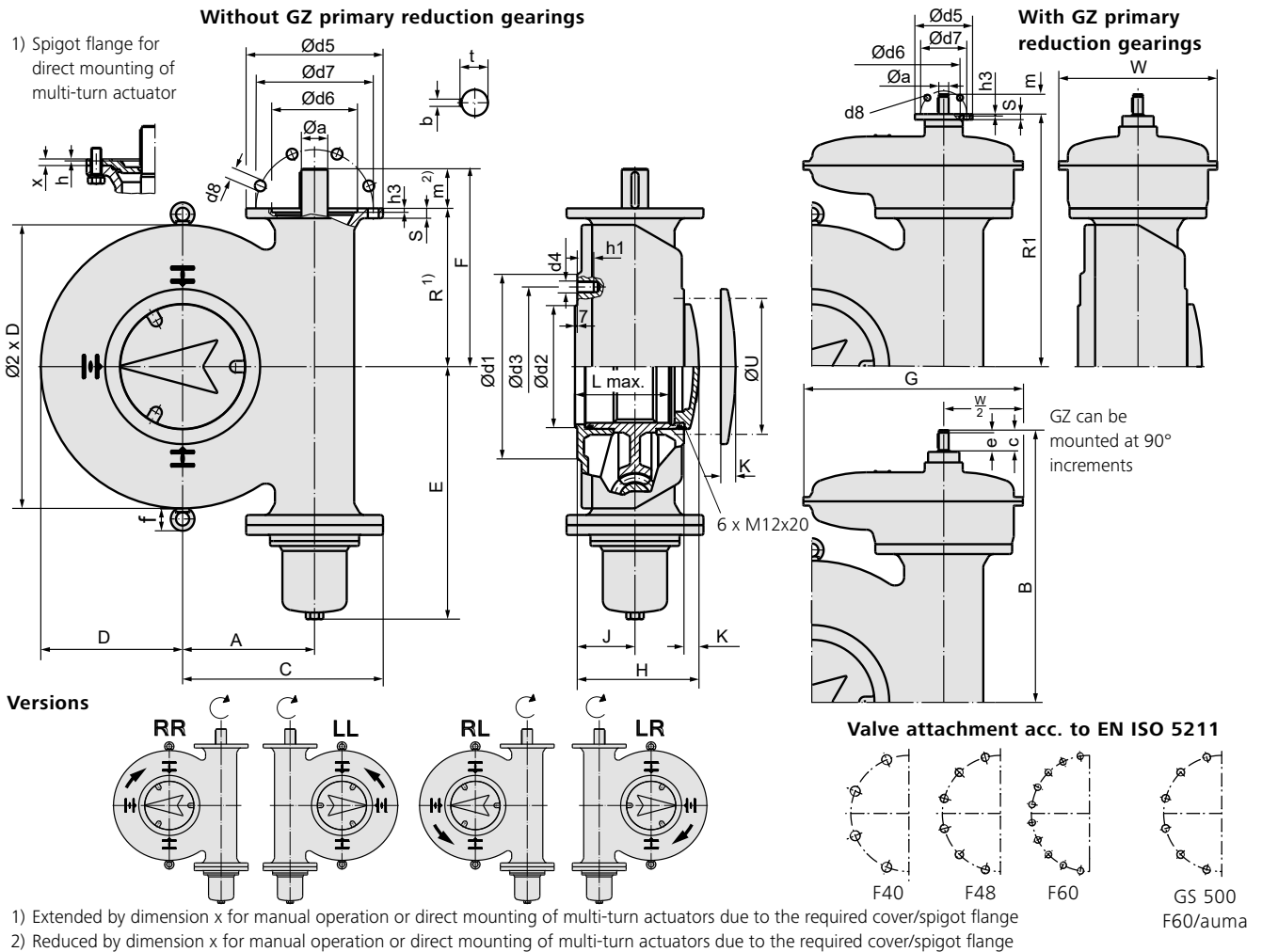


For all other dimensions, please refer to "Dimensions Part-turn gearboxes"

| Dimensions |     |      | H1  | J1  | L   | d1  | d2 H9 | d3  | d4  | h | h1 | L1 max. | x min. | x max. | z |
|------------|-----|------|-----|-----|-----|-----|-------|-----|-----|---|----|---------|--------|--------|---|
| GS 160.3   | F25 | GS 3 | 215 | 135 | 110 | 410 | 315   | 355 | M20 | 5 | 32 | 190     | 30     | 75     | 8 |
|            | F30 | GS 4 | 225 | 145 | 110 | 480 | 360   | 405 | M20 | 5 | 32 | 200     | 49     | 85     | 8 |
| GS 200.3   | F30 | GS 4 | 241 | 145 | 140 | 480 | 360   | 405 | M20 | 5 | 32 | 215     | 15     | 74     | 8 |
|            | F35 | GS 5 | 271 | 175 | 140 | 535 | 430   | 465 | M20 | 5 | 32 | 245     | 57     | 104    | 8 |
| GS 250.3   | F35 | GS 5 | 309 | 190 | 180 | 535 | 430   | 465 | M20 | 5 | 32 | 280     | 10     | 74     | 8 |
|            | F40 | GS 6 | 339 | 220 | 180 | 670 | 530   | 585 | M30 | 6 | 48 | 310     | 60     | 104    | 8 |

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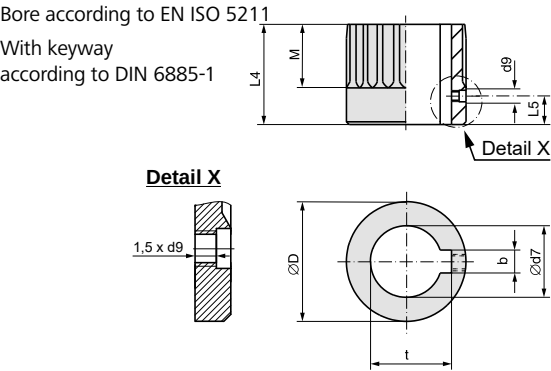
## Dimensions Part-turn gearboxes and primary reduction gearings



| Dimensions                              | i (GZ)                       | Flange for multi-turn actuator GS/GZ EN ISO 5210 |       | A     | B       | C     | D                 | E                 | F        | G   | H   | J   | K   | L max. | R <sup>1)</sup> | R1    | U   | W   | C  | e  |
|-----------------------------------------|------------------------------|--------------------------------------------------|-------|-------|---------|-------|-------------------|-------------------|----------|-----|-----|-----|-----|--------|-----------------|-------|-----|-----|----|----|
|                                         |                              | F30                                              | F14   | 315   | 726     | 490   | 340               | 552               | 500      | 666 | 305 | 145 | 40  | 230    | 380             | 666   | 310 | 480 | 63 | 55 |
| GS 315<br>GZ 30.1                       | 8:1/16:1                     | F35                                              | F10   | 725   | 610     | 430   | 766               | 600               | 666      | 370 | 175 | 45  | 286 | 480    | 766             | 410   | 480 | 100 | –  |    |
|                                         | 32:1                         |                                                  | F25   | 866   | 610     | 430   | 766               | 600               | 666      | 370 | 175 | 45  | 286 | 480    | 766             | 410   | 480 | 73  | 65 |    |
| GS 400<br>GZ 35.1                       | 4:1                          | F35                                              | F16   | 846   | 610     | 430   | 766               | 600               | 666      | 370 | 175 | 45  | 286 | 480    | 766             | 410   | 480 | 73  | 65 |    |
|                                         | 8:1                          |                                                  | F14   | 826   | 610     | 430   | 766               | 600               | 666      | 370 | 175 | 45  | 286 | 480    | 766             | 410   | 480 | 63  | 55 |    |
| GS 500<br>GZ 40.1                       | 16:1/32:1                    | F40                                              | F25   | 1,090 | 738     | 540   | 880               | 740               | 837      | 470 | 225 | 55  | 375 | 590    | 1,010           | 510   | 590 | 73  | 65 |    |
|                                         | 8:1                          |                                                  | F16   | 500   | 1,090   | 738   | 540               | 880               | 740      | 837 | 470 | 225 | 55  | 375    | 590             | 1,010 | 510 | 590 | 73 | 65 |
| GS 500<br>GZ 40.1                       | 16:1                         | F40                                              | F16   | 1,090 | 738     | 540   | 880               | 740               | 837      | 470 | 225 | 55  | 375 | 590    | 1,010           | 510   | 590 | 73  | 65 |    |
|                                         | 32:1                         |                                                  | F14   | 500   | 1,070   | 738   | 540               | 880               | 740      | 837 | 470 | 225 | 55  | 375    | 590             | 1,010 | 510 | 590 | 63 | 55 |
| Dimensions                              | Valve attachment EN ISO 5211 |                                                  | Ø d1  |       | Ø d2 f8 |       | Ø d3              |                   | d4       |     | f   |     | h1  |        |                 |       |     |     |    |    |
| GS 315                                  | F40                          |                                                  | 475   |       | 300     |       | 406               |                   | 8 x M36  |     | 60  |     | 50  |        |                 |       |     |     |    |    |
| GZ 30.1                                 | F48                          |                                                  | 560   |       | 370     |       | 483               |                   | 12 x M36 |     | 68  |     | 50  |        |                 |       |     |     |    |    |
| GS 400                                  | F48                          |                                                  | 560   |       | 370     |       | 483               |                   | 12 x M36 |     | 68  |     | 50  |        |                 |       |     |     |    |    |
| GZ 35.1                                 | F60                          |                                                  | 686   |       | 470     |       | 603               |                   | 20 x M36 |     | 106 |     | 56  |        |                 |       |     |     |    |    |
| GS 500                                  | F60                          |                                                  | 910   |       | 470     |       | 603               |                   | 20 x M36 |     | 106 |     | 55  |        |                 |       |     |     |    |    |
| GZ 40.1                                 | F60/auma                     |                                                  |       |       | 450     |       | 600               |                   | 12 x M42 |     |     |     | 65  |        |                 |       |     |     |    |    |
| Flange for mounting multi-turn actuator |                              |                                                  |       |       |         |       |                   |                   |          |     |     |     |     |        |                 |       |     |     |    |    |
| EN ISO 5210                             | F10                          |                                                  | F14   | F16   | F25     | F30   | F35               | F40               |          |     |     |     |     |        |                 |       |     |     |    |    |
| DIN 3210                                |                              | G0                                               | G1/2  | G3    | G4      |       |                   |                   |          |     |     |     |     |        |                 |       |     |     |    |    |
| Ø a                                     | 20 g6                        | 20 g6                                            | 30 g6 | 40 g6 | 40 g6   | 50 g6 | 60 f7             | 80 f7             | 100 f7   |     |     |     |     |        |                 |       |     |     |    |    |
| b                                       | 6                            | 6                                                | 8     | 12    | 12      | 14    | 18                | 22                | 28       |     |     |     |     |        |                 |       |     |     |    |    |
| Ø d5                                    | 125                          | 125                                              | 175   | 210   | 300     | 350   | 415               | 475               |          |     |     |     |     |        |                 |       |     |     |    |    |
| Ø d6 H8                                 | 70                           | 60                                               | 100   | 130   | 200     | 230   | 260               | 300               |          |     |     |     |     |        |                 |       |     |     |    |    |
| Ø d7                                    | 102                          | 102                                              | 140   | 165   | 254     | 298   | 356               | 406               |          |     |     |     |     |        |                 |       |     |     |    |    |
| Ø d8                                    | 11                           | 11                                               | 18    | 22    | 18      | 22    | 33                | 39                |          |     |     |     |     |        |                 |       |     |     |    |    |
| h                                       | –                            | –                                                | –     | –     | –       | 6     | 6                 | 9                 |          |     |     |     |     |        |                 |       |     |     |    |    |
| h3                                      | 5                            | 5                                                | 5     | 6     | 6       | 9     | 12                | 14                |          |     |     |     |     |        |                 |       |     |     |    |    |
| s                                       | 12                           | 12                                               | 17    | 25    | 22      | 25    | 30                | 35                |          |     |     |     |     |        |                 |       |     |     |    |    |
| m                                       | 40                           | 40                                               | 60    | 80    | 80      | 100   | 120 <sup>2)</sup> | 150 <sup>2)</sup> |          |     |     |     |     |        |                 |       |     |     |    |    |
| t                                       | 22.5                         | 22.5                                             | 33    | 43    | 43      | 53.8  | 64                | 106               |          |     |     |     |     |        |                 |       |     |     |    |    |
| x                                       | –                            | –                                                | –     | –     | –       | –     | 15                | 20                |          |     |     |     |     |        |                 |       |     |     |    |    |

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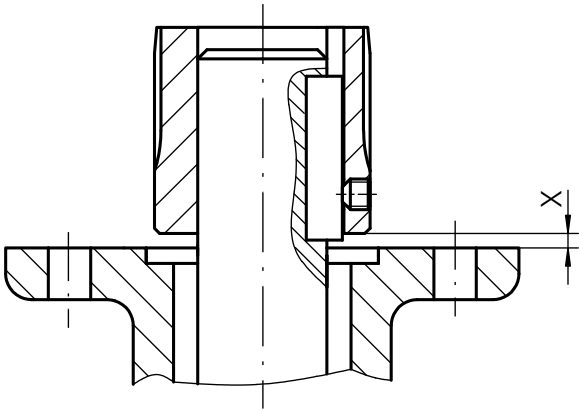
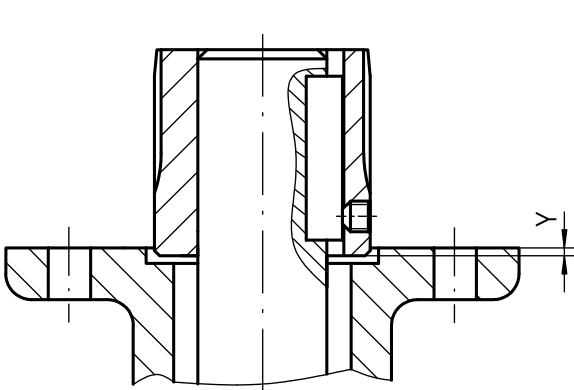
Dimensions Couplings according to EN ISO 5211, DIN 6885



| Dimensions          | GS 315                  |                   | GS 400 |                   | GS 500         |
|---------------------|-------------------------|-------------------|--------|-------------------|----------------|
| EN ISO 5211         | F40                     | F48 <sup>3)</sup> | F48    | F60 <sup>3)</sup> | F60 (F60/AUMA) |
| Ø D                 | 249                     |                   | 338    |                   | 418            |
| b JS9 <sup>1)</sup> | According to DIN 6885-1 |                   |        |                   |                |
| Ø d7 H8 max.        | 200                     |                   | 250    |                   | 315            |
| d9 <sup>2)</sup>    | M16                     |                   | M20    |                   | M20            |
| L4                  | 203                     |                   | 250    |                   | 315            |
| L5                  | 25                      |                   | 30     |                   | 30             |
| M                   | 128                     |                   | 160    |                   | 195            |
| t <sup>1)</sup>     | According to DIN 6885-1 |                   |        |                   |                |
|                     |                         |                   |        |                   |                |

Mounting position of coupling

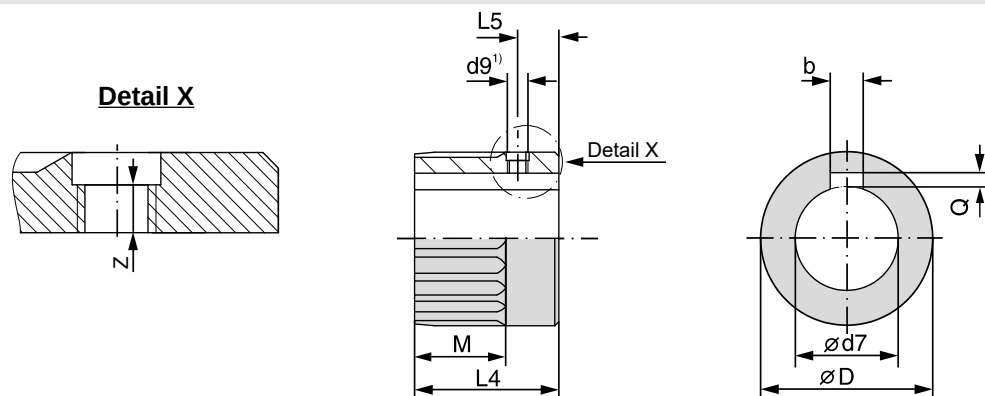
|        |    |    |    |
|--------|----|----|----|
| X max. | 26 | 36 | 40 |
| Y max. | 0  | 0  | 0  |



1) Dimensions depend on Ø d7, refer to DIN 6885-1  
2) Thread with grub screw  
3) Coupling dimensions not according to EN ISO 5211 specifications

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## Dimensions for couplings (standard), bore with keyway according to DIN 6885-1



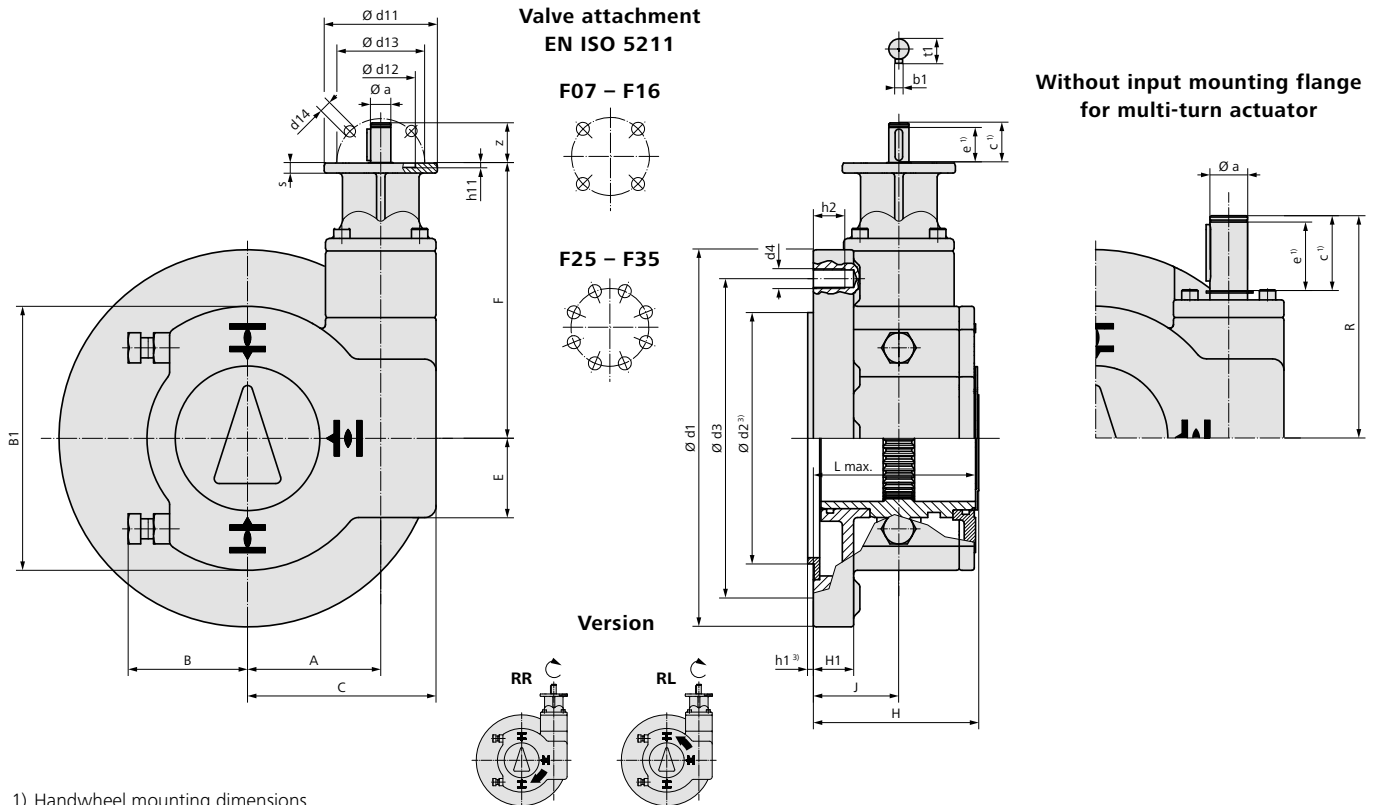
1) Thread with grub screw

2) Article number refers to pilot bore coupling, KN, KS

| Type     | Article no. <sup>2)</sup> | Ø D   | L4  | M   | Splined coupling DIN 5480 | Ø d7 max. | Ø d7 H8 |     | b JS 9 | Q          | Parallel key DIN 6885-1 | Ø d9 <sup>1)</sup> | L5 | Grub screw EN ISO 4029 | Z  |
|----------|---------------------------|-------|-----|-----|---------------------------|-----------|---------|-----|--------|------------|-------------------------|--------------------|----|------------------------|----|
| GS 160.3 | Z000.631                  | 149.4 | 110 | 70  | 150x3x48                  | 110       | 40      | 44  | 12     | 3.3 + 0.2  | 12 x 8 x ..             | M10                | 18 | M10 x 12               | 15 |
|          |                           |       |     |     |                           |           | 44      | 50  | 14     | 3.8 + 0.2  | 14 x 9 x ..             |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 50      | 58  | 16     | 4.3 + 0.2  | 16 x 10 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 58      | 65  | 18     | 4.4 + 0.2  | 18 x 11 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 65      | 75  | 20     | 4.9 + 0.2  | 20 x 12 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 75      | 85  | 22     | 5.4 + 0.2  | 22 x 14 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 85      | 95  | 25     | 5.4 + 0.2  | 25 x 14 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 95      | 100 | 28     | 6.4 + 0.2  | 28 x 16 x ..            |                    |    |                        |    |
| GS 200.3 | Z000.373                  | 189   | 140 | 94  | 190x5x36                  | 135       | 50      | 58  | 16     | 4.3 + 0.2  | 16 x 10 x ..            | M12                | 18 | M12 x 16               | 18 |
|          |                           |       |     |     |                           |           | 58      | 65  | 18     | 4.4 + 0.2  | 18 x 11 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 65      | 75  | 20     | 4.9 + 0.2  | 20 x 12 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 75      | 85  | 22     | 5.4 + 0.2  | 22 x 14 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 85      | 95  | 25     | 5.4 + 0.2  | 25 x 14 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 95      | 110 | 28     | 6.4 + 0.2  | 28 x 16 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 110     | 130 | 32     | 7.4 + 0.2  | 32 x 18 x ..            |                    |    |                        |    |
| GS 250.3 | Z000.155                  | 209   | 180 | 105 | 210x5x40                  | 160       | 130     | 135 | 36     | 8.4 + 0.3  | 36 x 20 x ..            | M16                | 25 | M16 x 16               | 24 |
|          |                           |       |     |     |                           |           | 50      | 58  | 16     | 4.3 + 0.2  | 16 x 10 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 58      | 65  | 18     | 4.4 + 0.2  | 18 x 11 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 65      | 75  | 20     | 4.9 + 0.2  | 20 x 12 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 75      | 85  | 22     | 5.4 + 0.2  | 22 x 14 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 85      | 95  | 25     | 5.4 + 0.2  | 25 x 14 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 95      | 110 | 28     | 6.4 + 0.2  | 28 x 16 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 110     | 130 | 32     | 7.4 + 0.2  | 32 x 18 x ..            |                    |    |                        |    |
| GS 315   | Z000.374                  | 249   | 203 | 128 | 250x5x48                  | 200       | 130     | 150 | 36     | 8.4 + 0.3  | 36 x 20 x ..            | M16                | 25 | M16 x 16               | 24 |
|          |                           |       |     |     |                           |           | 150     | 160 | 40     | 9.4 + 0.3  | 40 x 22 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 85      | 95  | 25     | 5.4 + 0.2  | 25 x 14 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 95      | 110 | 28     | 6.4 + 0.2  | 28 x 16 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 110     | 130 | 32     | 7.4 + 0.2  | 32 x 18 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 130     | 150 | 36     | 8.4 + 0.3  | 36 x 20 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 150     | 170 | 40     | 9.4 + 0.3  | 40 x 22 x ..            |                    |    |                        |    |
| GS 400   | Z004.756                  | 338   | 250 | 160 | 340x10x32                 | 250       | 170     | 200 | 45     | 10.4 + 0.3 | 45 x 25 x ..            | M20                | 30 | M20 x 20               | 30 |
|          |                           |       |     |     |                           |           | 110     | 130 | 32     | 7.4 + 0.2  | 32 x 18 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 130     | 150 | 36     | 8.4 + 0.3  | 36 x 20 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 150     | 170 | 40     | 9.4 + 0.3  | 40 x 22 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 170     | 200 | 45     | 10.4 + 0.3 | 45 x 25 x ..            |                    |    |                        |    |
| GS 500   | Z004.041                  | 418   | 315 | 195 | 420x10x40                 | 315       | 200     | 230 | 50     | 11.4 + 0.3 | 50 x 28 x ..            | M20                | 30 | M20 x 20               | 30 |
|          |                           |       |     |     |                           |           | 230     | 260 | 56     | 12.4 + 0.3 | 56 x 32 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 260     | 290 | 63     | 12.4 + 0.3 | 63 x 32 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 290     | 315 | 70     | 14.4 + 0.3 | 70 x 36 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 230     | 260 | 56     | 12.4 + 0.3 | 56 x 32 x ..            |                    |    |                        |    |
| GS 630.3 | Z042.109                  | 538   | 450 | 300 | 540x10x52                 | 400       | 260     | 290 | 63     | 12.4 + 0.3 | 63 x 32 x ..            | M20                | 50 | M20 x 20               | 30 |
|          |                           |       |     |     |                           |           | 290     | 330 | 70     | 14.4 + 0.3 | 70 x 36 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 330     | 380 | 80     | 15.4 + 0.3 | 80 x 40 x ..            |                    |    |                        |    |
|          |                           |       |     |     |                           |           | 380     | 400 | 90     | 17.4 + 0.3 | 90 x 45 x ..            |                    |    |                        |    |

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Dimensions Part-turn gearboxes



1) Handwheel mounting dimensions

2) Selection input mounting flange for multi-turn actuator refer to "Technical data Part-turn gearboxes GQB 80.1 – GQB 250.1"

3) Allowance for spigot is not available as standard. The spigot ring is a separate component, available as option

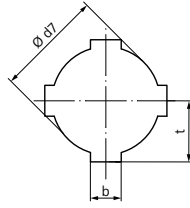
| Dimensions                                            | GQB 80.1 |     |     |       |     |     | GQB 100.1 |     |     |       |     |     |         |     |     | GQB 125.1 |     |     |             |     |     |
|-------------------------------------------------------|----------|-----|-----|-------|-----|-----|-----------|-----|-----|-------|-----|-----|---------|-----|-----|-----------|-----|-----|-------------|-----|-----|
|                                                       | 54:1     |     |     | 225:1 |     |     | 52:1      |     |     | 217:1 |     |     | 903:1   |     |     | 217:1     |     |     | 628:1/903:1 |     |     |
| EN ISO 5211                                           | F12      | F14 | F16 | F12   | F14 | F16 | F14       | F16 | F25 | F14   | F16 | F25 | F14     | F16 | F25 | F16       | F25 | F30 | F16         | F25 | F30 |
| A                                                     | 84       |     |     | 84    |     |     | 106       |     |     | 106   |     |     | 106     |     |     | 130       |     |     | 130         |     |     |
| B                                                     | 88       |     |     | 88    |     |     | 95        |     |     | 95    |     |     | 95      |     |     | 128       |     |     | 128         |     |     |
| B1                                                    | 175      |     |     | 175   |     |     | 210       |     |     | 210   |     |     | 210     |     |     | 260       |     |     | 260         |     |     |
| C                                                     | 120      |     |     | 120   |     |     | 150       |     |     | 150   |     |     | 150     |     |     | 180       |     |     | 180         |     |     |
| E                                                     | 51       |     |     | 51    |     |     | 63        |     |     | 63    |     |     | 63      |     |     | 85        |     |     | 85          |     |     |
| F                                                     | 131      |     |     | 145   |     |     | –         |     |     | 174   |     |     | 219     |     |     | 201       |     |     | 248/231     |     |     |
| H                                                     | 110      | 119 |     | 110   | 119 |     | 132       |     |     | 132   |     |     | 132     |     |     | 152       |     |     | 152         |     |     |
| H1                                                    | 29       | 37  |     | 29    | 37  |     | 32        |     |     | 32    |     |     | 32      |     |     | 37        |     |     | 37          |     |     |
| J                                                     | 56       | 65  |     | 56    | 65  |     | 68        |     |     | 68    |     |     | 68      |     |     | 78        |     |     | 78          |     |     |
| L max.                                                | 100      | 110 |     | 100   | 110 |     | 120       |     |     | 120   |     |     | 120     |     |     | 140       |     |     | 140         |     |     |
| R                                                     | 172      |     |     | –     |     |     | 182       |     |     | –     |     |     | –       |     |     | –         |     |     | –           |     |     |
| b1                                                    | 6        |     |     | 5     |     |     | 8         |     |     | 6     |     |     | 5/6     |     |     | 6/8       |     |     | 6/5         |     |     |
| c <sup>1)</sup>                                       | 42       |     |     | 31.5  |     |     | 60        |     |     | 42    |     |     | 31.5/42 |     |     | 43/60     |     |     | 43/31.5     |     |     |
| e <sup>1)</sup>                                       | 38       |     |     | 28    |     |     | 55        |     |     | 38    |     |     | 28/38   |     |     | 38/55     |     |     | 38/28       |     |     |
| h1                                                    | 2.5      | 3.5 | 4.5 | 2.5   | 3.5 | 4.5 | 3.5       | 4.5 | 4.5 | 3.5   | 4.5 | 4.5 | 3.5     | 4.5 | 4.5 | 4.5       | 4.5 | 5   | 4.5         | 4.5 | 5   |
| h2                                                    | 19       | 25  | 32  | 19    | 25  | 32  | 25        | 32  | 25  | 25    | 32  | 25  | 25      | 32  | 25  | 32        | 25  | 32  | 32          | 25  | 32  |
| t1                                                    | 22.5     |     |     | 18    |     |     | 33        |     |     | 22.5  |     |     | 18/22.5 |     |     | 22.5/33   |     |     | 22.5/18     |     |     |
| z                                                     | 41       |     |     | 32    |     |     | –         |     |     | 40    |     |     | 32/40   |     |     | 41/61     |     |     | 41/32       |     |     |
| Ø a f8                                                | 20       |     |     | 16    |     |     | 30        |     |     | 20    |     |     | 16/20   |     |     | 20/30     |     |     | 20/16       |     |     |
| Ø d1                                                  | 150      | 175 | 210 | 150   | 175 | 210 | 175       | 210 | 300 | 175   | 210 | 300 | 175     | 210 | 300 | 210       | 300 | 350 | 210         | 300 | 350 |
| Ø d2                                                  | 85       | 100 | 130 | 85    | 100 | 130 | 100       | 130 | 200 | 100   | 130 | 200 | 100     | 130 | 200 | 130       | 200 | 230 | 130         | 200 | 230 |
| Ø d3                                                  | 125      | 140 | 165 | 125   | 140 | 165 | 140       | 165 | 254 | 140   | 165 | 254 | 140     | 165 | 254 | 165       | 254 | 298 | 165         | 254 | 298 |
| Ø d4                                                  | M12      | M16 | M20 | M12   | M16 | M20 | M16       | M20 | M16 | M16   | M20 | M16 | M16     | M20 | M16 | M20       | M16 | M20 | M20         | M16 | M20 |
| EN ISO 5210 <sup>2)</sup>                             | F10      |     |     | F07   |     |     | –         |     |     | F10   |     |     | F07/10  |     |     | F10/F14   |     |     | F10/F07     |     |     |
| Flange for mounting multi-turn actuator <sup>2)</sup> |          |     |     |       |     |     |           |     |     |       |     |     |         |     |     |           |     |     |             |     |     |
| EN ISO 5210                                           | F07      |     |     |       |     |     | F10       |     |     |       |     |     | F14     |     |     |           |     |     |             |     |     |
| Ø d11                                                 | 90       |     |     |       |     |     | 125       |     |     |       |     |     | 175     |     |     |           |     |     |             |     |     |
| Ø d12                                                 | 55       |     |     |       |     |     | 70        |     |     |       |     |     | 100     |     |     |           |     |     |             |     |     |
| Ø d13                                                 | 70       |     |     |       |     |     | 102       |     |     |       |     |     | 140     |     |     |           |     |     |             |     |     |
| Ø d14                                                 | 4x9      |     |     |       |     |     | 4x11      |     |     |       |     |     | 4x18    |     |     |           |     |     |             |     |     |
| h11                                                   | 3.5      |     |     |       |     |     | 5         |     |     |       |     |     | 5       |     |     |           |     |     |             |     |     |
| s                                                     | 8        |     |     |       |     |     | 10        |     |     |       |     |     | 16      |     |     |           |     |     |             |     |     |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Dimensions Couplings according to EN ISO 5211, DIN 6885

Integrated coupling

Bore according to EN ISO 5211  
With 4 keyways according to  
DIN 6885-1

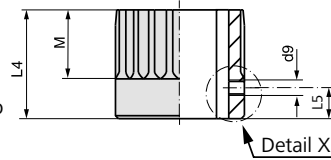


| Dimensions          | GQB 80.1 |     |     | GQB 100.1 |     |     | GQB 125.1           |     |     |
|---------------------|----------|-----|-----|-----------|-----|-----|---------------------|-----|-----|
| EN ISO 5211         | F12      | F14 | F16 | F14       | F16 | F25 | F16                 | F25 | F30 |
| b JS9 <sup>1)</sup> | –        |     |     | –         |     |     | According to 6885-1 |     |     |
| Ø d7 H8 max.        | –        |     |     | –         |     |     | 105                 |     |     |
| t <sup>1)</sup>     | –        |     |     | –         |     |     | According to 6885-1 |     |     |

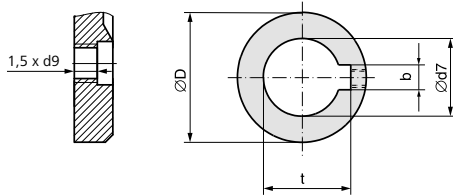
Plug-in coupling

Bore according to  
EN ISO 5211

With keyway according to  
DIN 6885-1



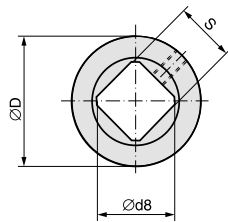
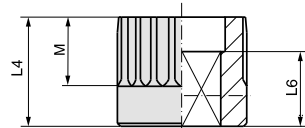
Detail X



| Dimensions          | GQB 80.1 |      |      | GQB 100.1 |      |      | GQB 125.1        |                  |      |
|---------------------|----------|------|------|-----------|------|------|------------------|------------------|------|
| EN ISO 5211         | F12      | F14  | F16  | F14       | F16  | F25  | F16              | F25              | F30  |
| Ø D                 | 81.6     |      |      | 99.6      |      |      | 119.6            |                  |      |
| b JS9 <sup>1)</sup> | 10       | 14   | 18   | 14        | 18   | 20   | 18               | 20               | 22   |
| Ø d7 H8             | 36       | 48   | 60   | 48        | 60   | 72   | 60 <sup>2)</sup> | 72 <sup>2)</sup> | 80   |
| Ø d7 H8 max.        | 60       |      |      | 72        |      |      | 90               |                  |      |
| d9 <sup>3)</sup>    | M6       |      |      | M8        |      |      | M8               |                  |      |
| L4                  | 65       |      |      | 80        |      |      | 110              |                  |      |
| L5 <sup>3)</sup>    | 10       |      |      | 18        |      |      | 18               |                  |      |
| M                   | 47       |      |      | 50        |      |      | 70               |                  |      |
| t <sup>1)</sup>     | 39.3     | 51.8 | 64.4 | 51.8      | 64.4 | 76.9 | 64.4             | 76.9             | 85.4 |

Plug-in coupling

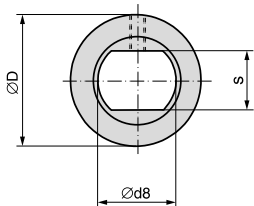
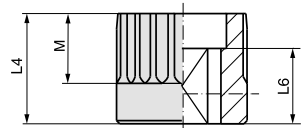
Squar bore according to  
EN ISO 5211



| Dimensions  | GQB 80.1 |      |      | GQB 100.1 |      |      | GQB 125.1 |      |      |
|-------------|----------|------|------|-----------|------|------|-----------|------|------|
| EN ISO 5211 | F12      | F14  | F16  | F14       | F16  | F25  | F16       | F25  | F30  |
| Ø D         | 81.6     |      |      | 99.6      |      |      | 119.6     |      |      |
| Ø d8 min.   | 36.2     | 48.2 | 60.2 | 48.2      | 60.2 | 72.2 | 60.2      | 72.2 | 98.2 |
| Ø d8 max.   | 60.2     |      |      | 80.2      |      |      | 98.2      |      |      |
| L4          | 65       |      |      | 80        |      |      | 110       |      |      |
| L6 min.     | 48       | 57   | 77   | 48        | 57   | 77   | 48        | 57   | 77   |
| M           | 47       |      |      | 50        |      |      | 70        |      |      |
| s H11       | 27       | 36   | 46   | 36        | 46   | 55   | 46        | 55   | 75   |
| s H11 max.  | 46       |      |      | 55        |      |      | 75        |      |      |

Plug-in coupling

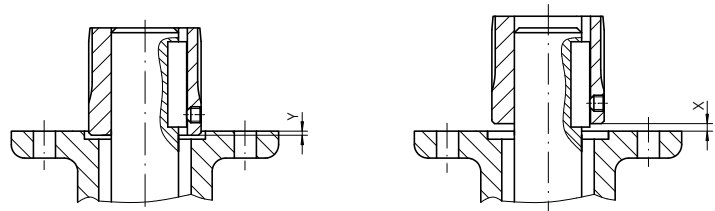
Bore with two-flats  
according to EN ISO 5211



| Dimensions  | GQB 80.1 |      |      | GQB 100.1 |      |      | GQB 125.1 |      |      |
|-------------|----------|------|------|-----------|------|------|-----------|------|------|
| EN ISO 5211 | F12      | F14  | F16  | F14       | F16  | F25  | F16       | F25  | F30  |
| Ø D         | 81.6     |      |      | 99.6      |      |      | 119.6     |      |      |
| Ø d8 min.   | 36.2     | 48.2 | 60.2 | 48.2      | 60.2 | 72.2 | 60.2      | 72.2 | 98.2 |
| Ø d8 max.   | 60.2     |      |      | 80.2      |      |      | 98.2      |      |      |
| L4          | 65       |      |      | 80        |      |      | 110       |      |      |
| L6 min.     | 48       | 57   | 77   | 48        | 57   | 77   | 48        | 57   | 77   |
| M           | 47       |      |      | 50        |      |      | 70        |      |      |
| s H11       | 27       | 36   | 46   | 36        | 46   | 55   | 46        | 55   | 75   |
| s H11 max.  | 46       |      |      | 55        |      |      | 75        |      |      |

Mounting position of the coupling within fitting dimensions  
according to AUMA definition

|        |    |    |    |    |
|--------|----|----|----|----|
| X max. | 22 | 11 | 24 | 20 |
| Y max. | 3  | 14 | 13 | 31 |

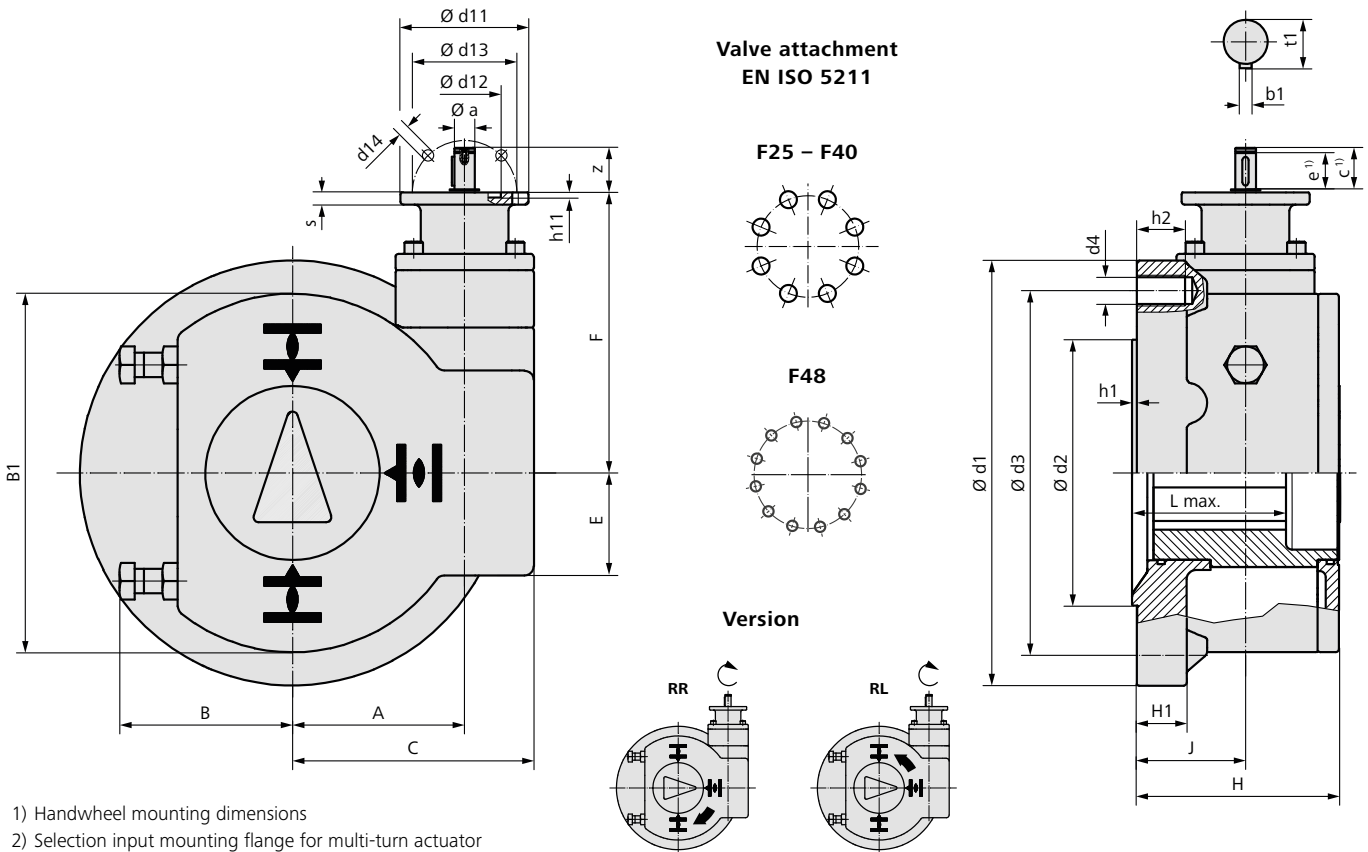


1) Dimensions depend on Ø d7, refer to DIN 6885-1

2) Recommended size according to EN ISO 5211

3) Thread with grub screw

Dimensions Part-turn gearboxes



1) Handwheel mounting dimensions

2) Selection input mounting flange for multi-turn actuator

Refer to "Technical data Part-turn gearboxes GQB 80.1 – GQB 250.1"

| Dimensions                                            | GQB 160.1 |     |      |                       |     |     | GQB 200.1 |     |     |                       |      |     | GQB 250.1   |     |      |                       |     |     |
|-------------------------------------------------------|-----------|-----|------|-----------------------|-----|-----|-----------|-----|-----|-----------------------|------|-----|-------------|-----|------|-----------------------|-----|-----|
|                                                       | 218:1     |     |      | 563:1<br>880:1/1784:1 |     |     | 214:1     |     |     | 552:1<br>864:1/1751:1 |      |     | 214:1       |     |      | 552:1<br>864:1/1751:1 |     |     |
| EN ISO 5211                                           | F25       | F30 | F35  | F25                   | F30 | F35 | F30       | F35 | F40 | F30                   | F35  | F40 | F35         | F40 | F48  | F35                   | F40 | F48 |
| A                                                     | 168       |     |      | 168                   |     |     | 210       |     |     | 210                   |      |     | 263         |     |      | 263                   |     |     |
| B                                                     | 169       |     |      | 169                   |     |     | 204       |     |     | 204                   |      |     | 241         |     |      | 241                   |     |     |
| B1                                                    | 350       |     |      | 350                   |     |     | 415       |     |     | 415                   |      |     | 500         |     |      | 500                   |     |     |
| C                                                     | 236       |     |      | 236                   |     |     | 290       |     |     | 290                   |      |     | 368         |     |      | 368                   |     |     |
| E                                                     | 100       |     |      | 100                   |     |     | 123       |     |     | 123                   |      |     | 154         |     |      | 154                   |     |     |
| F                                                     | 226       |     |      | 274                   |     |     | 259/274   |     |     | 324                   |      |     | 327         |     |      | 412                   |     |     |
| H                                                     | 186       | 201 |      | 186                   | 201 |     | 227       | 237 |     | 227                   | 237  |     | 289         | 294 |      | 289                   | 294 |     |
| H1                                                    | 39        | 44  | 49   | 39                    | 44  | 49  | 48        | 58  |     | 48                    | 58   |     | 47          | 57  | 62   | 47                    | 57  | 62  |
| J                                                     | 91        |     | 106  | 91                    |     | 106 | 116       |     | 126 | 116                   |      | 126 | 147         |     | 152  | 147                   |     | 152 |
| L max.                                                | 180       |     | 195  | 180                   |     | 195 | 225       |     | 235 | 225                   |      | 235 | 280         |     | 285  | 280                   |     | 285 |
| b1                                                    | 6/8       |     |      | 6                     |     |     | 8/12      |     |     | 6/8                   |      |     | 8/12/14     |     |      | 6/8/12                |     |     |
| c <sup>1)</sup>                                       | 43/60     |     |      | 43                    |     |     | 60/73     |     |     | 43/60                 |      |     | –           |     |      | 43/60/73              |     |     |
| e <sup>1)</sup>                                       | 38/55     |     |      | 38                    |     |     | 55/65     |     |     | 38/55                 |      |     | –           |     |      | 38/55/65              |     |     |
| h1                                                    | 5         |     |      | 5                     |     |     | 5         |     |     | 5                     |      |     | 5           |     |      | 5                     |     |     |
| h2                                                    | 25        | 32  | 47   | 25                    | 32  | 47  | 32        | 47  | 55  | 32                    | 47   | 55  | 47          | 55  |      | 47                    | 55  |     |
| t1                                                    | 22.5/33   |     |      | 22.5                  |     |     | 33/43     |     |     | 22.5/33               |      |     | 33/43/53.5  |     |      | 22.5/33/43            |     |     |
| z                                                     | 41/61     |     |      | 41                    |     |     | 60/80     |     |     | 41/60                 |      |     | 60/80/100   |     |      | 41/60/80              |     |     |
| Ø a f8                                                | 20/30     |     |      | 20                    |     |     | 30/40     |     |     | 20/30                 |      |     | 30/40/50    |     |      | 20/30/40              |     |     |
| Ø d1                                                  | 300       | 350 | 415  | 300                   | 350 | 415 | 350       | 415 | 475 | 350                   | 415  | 475 | 415         | 475 | 560  | 415                   | 475 | 560 |
| Ø d2                                                  | 200       | 230 | 260  | 200                   | 230 | 260 | 230       | 260 | 300 | 230                   | 260  | 300 | 260         | 300 | 370  | 260                   | 300 | 370 |
| Ø d3                                                  | 254       | 298 | 356  | 254                   | 298 | 356 | 298       | 356 | 406 | 298                   | 356  | 406 | 356         | 406 | 483  | 356                   | 406 | 483 |
| Ø d4                                                  | M16       | M20 | M30  | M16                   | M20 | M30 | M20       | M30 | M36 | M20                   | M30  | M36 | M30         | M36 | M36  | M30                   | M36 | M36 |
| EN ISO 5210 <sup>2)</sup>                             | F10/F14   |     |      | F10                   |     |     | F14/F16   |     |     | F10/F14               |      |     | F14/F16/F25 |     |      | F10/F14/F16           |     |     |
| Flange for mounting multi-turn actuator <sup>2)</sup> |           |     |      |                       |     |     |           |     |     |                       |      |     |             |     |      |                       |     |     |
| EN ISO 5210                                           |           |     | F10  |                       |     |     | F14       |     |     |                       | F16  |     |             |     | F25  |                       |     |     |
| Ø d11                                                 |           |     | 125  |                       |     |     | 175       |     |     |                       | 210  |     |             |     | 300  |                       |     |     |
| Ø d12                                                 |           |     | 70   |                       |     |     | 100       |     |     |                       | 130  |     |             |     | 200  |                       |     |     |
| Ø d13                                                 |           |     | 102  |                       |     |     | 140       |     |     |                       | 165  |     |             |     | 254  |                       |     |     |
| Ø d14                                                 |           |     | 4x11 |                       |     |     | 4x18      |     |     |                       | 4x22 |     |             |     | 8x18 |                       |     |     |
| h11                                                   |           |     | 5    |                       |     |     | 5         |     |     |                       | 6    |     |             |     | 6    |                       |     |     |
| s                                                     |           |     | 12   |                       |     |     | 15        |     |     |                       | 22   |     |             |     | 17   |                       |     |     |

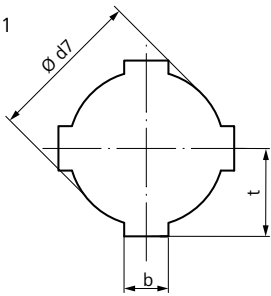
We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Dimensions Couplings according to EN ISO 5211, DIN 6885

Integrated coupling

Bore according to EN ISO 5211

With 4 keyways according to DIN 6885-1

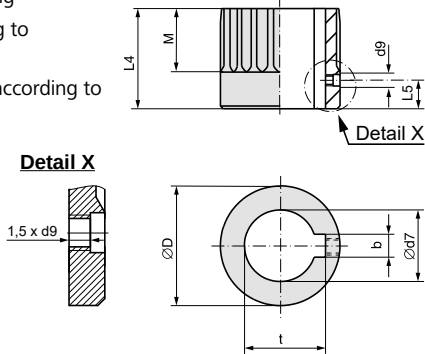


| Dimensions          | GQB 160.1               |     |     | GQB 200.1 |     |     | GQB 250.1 |     |     |
|---------------------|-------------------------|-----|-----|-----------|-----|-----|-----------|-----|-----|
| EN ISO 5211         | F25                     | F30 | F35 | F30       | F35 | F40 | F35       | F40 | F48 |
| b JS9 <sup>1)</sup> | According to DIN 6885-1 |     |     |           |     |     |           |     |     |
| Ø d7 H8 max.        | 130                     |     |     | 160       |     |     | 190       |     |     |
| t <sup>1)</sup>     | According to DIN 6885-1 |     |     |           |     |     |           |     |     |
|                     |                         |     |     |           |     |     |           |     |     |

Plug-in coupling

Bore according to EN ISO 5211

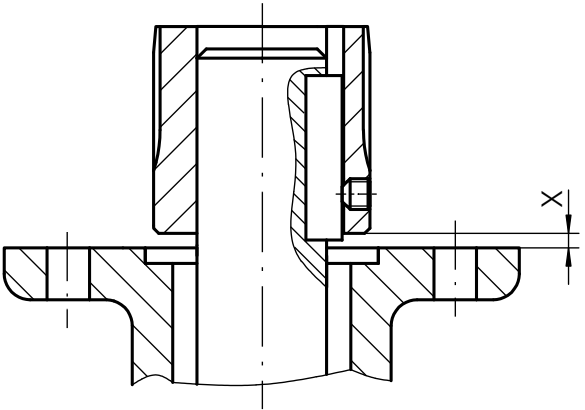
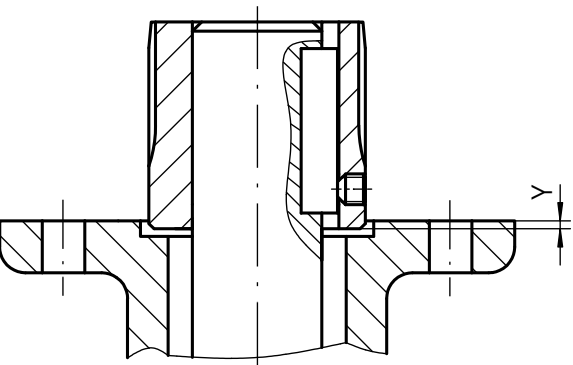
With keyway according to DIN 6885-1



| Dimensions          | GQB 160.1               |     |     | GQB 200.1 |     |     | GQB 250.1 |     |     |
|---------------------|-------------------------|-----|-----|-----------|-----|-----|-----------|-----|-----|
| EN ISO 5211         | F25                     | F30 | F35 | F30       | F35 | F40 | F35       | F40 | F48 |
| Ø D                 | 149.4                   |     |     | 179       |     |     | 209       |     |     |
| b JS9 <sup>1)</sup> | According to DIN 6885-1 |     |     |           |     |     |           |     |     |
| Ø d7 H8 max.        | 110                     |     |     | 125       |     |     | 160       |     |     |
| d9 <sup>2)</sup>    | M10                     |     |     | M12       |     |     | M16       |     |     |
| L4                  | 110                     |     |     | 140       |     |     | 180       |     |     |
| L5                  | 18                      |     |     | 18        |     |     | 25        |     |     |
| M                   | 70                      |     |     | 94        |     |     | 105       |     |     |
| t <sup>1)</sup>     | According to DIN 6885-1 |     |     |           |     |     |           |     |     |
|                     |                         |     |     |           |     |     |           |     |     |

Mounting position of coupling

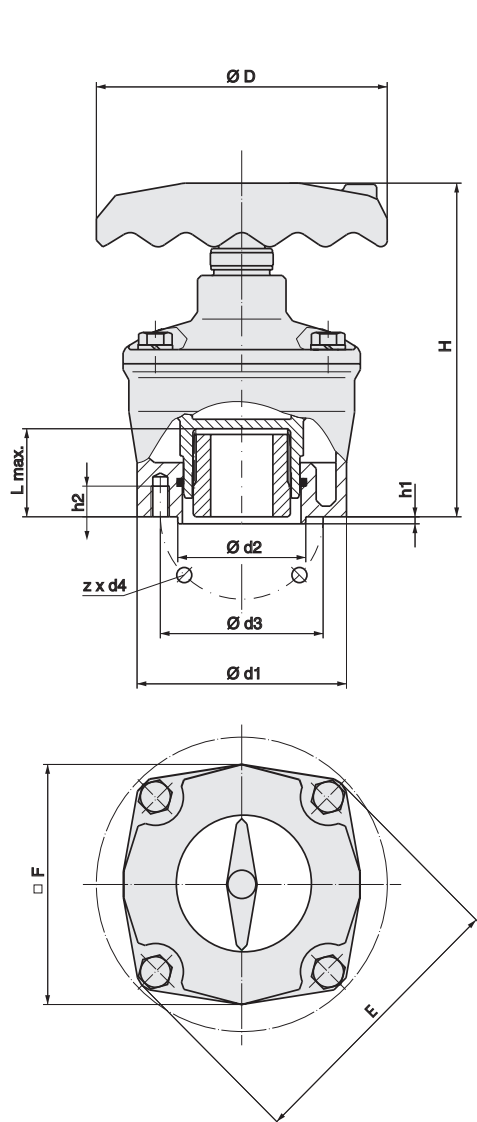
|        |    |    |    |    |    |    |    |    |    |
|--------|----|----|----|----|----|----|----|----|----|
| X max. | 30 | 30 | 45 | 45 | 45 | 55 | 30 | 30 | 35 |
| Y max. | 15 | 15 | 0  | 10 | 10 | 0  | 5  | 5  | 0  |



1) Dimensions depend on Ø d7, refer to DIN 6885-1  
2) Thread with grub screw



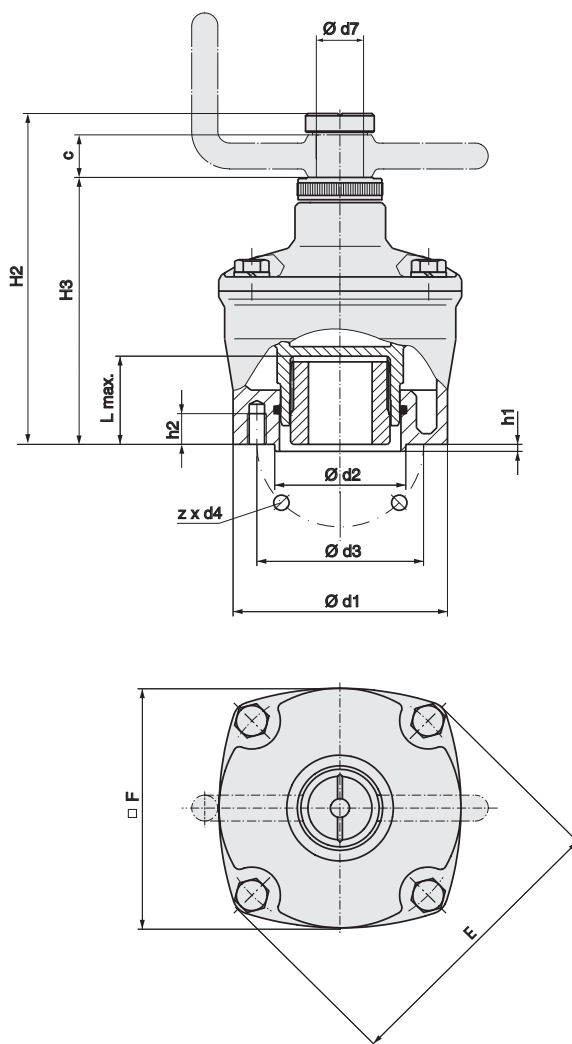
## Dimensions Part-turn gearboxes



## Option

Operation element according to VG 85081

Other variants are available

 $\varnothing$  refer to Technical dataValve attachment according to EN ISO 5211  
Dimensions of couplings see overleaf

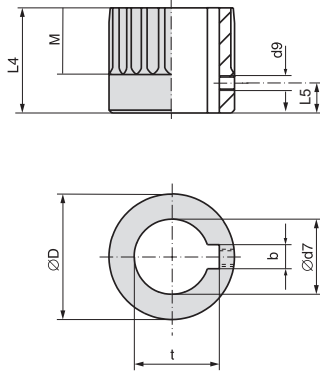
| Type                | GHE 05.1                        |     | GHE 07.1                 |     | GHE 10.1                 |     | GHE 12.1                 |     |
|---------------------|---------------------------------|-----|--------------------------|-----|--------------------------|-----|--------------------------|-----|
| EN ISO 5211         | F07                             | F10 | F07                      | F10 | F10                      | F12 | F12                      | F14 |
| Material: Standard  | Spheroidal cast iron GJS        |     | Spheroidal cast iron GJS |     | Spheroidal cast iron GJS |     | Spheroidal cast iron GJS |     |
| Material: Option    | Bronze BZ                       | –   | Bronze BZ                | –   | Bronze BZ                | –   | Bronze BZ                | –   |
| $\varnothing D$     | 100                             |     | 125                      |     | 160                      |     | 200                      |     |
| $\varnothing D1$    | 15                              |     | 15                       |     | 20                       |     | 20                       |     |
| E                   | 98                              |     | 121                      |     | 155                      |     | 189                      |     |
| $\square F$         | 82                              |     | 102                      |     | 128                      |     | 156                      |     |
| H                   | 141                             | 158 | 142                      | 159 | 184                      | 204 | 195                      | 221 |
| H1                  | 47                              |     | 47                       |     | 63                       |     | 63                       |     |
| H2                  | 141                             | 158 | 142                      | 159 | 183                      | 203 | 196                      | 222 |
| H3                  | 113                             | 130 | 114                      | 131 | 156                      | 176 | 168                      | 194 |
| c                   | 18                              |     | 18                       |     | 18                       |     | 18                       |     |
| $\varnothing d1$    | 90                              | 125 | 90                       | 125 | 125                      | 150 | 150                      | 175 |
| $\varnothing d2 f8$ | 55                              | 70  | 55                       | 70  | 70                       | 85  | 85                       | 100 |
| $\varnothing d3$    | 70                              | 102 | 70                       | 102 | 102                      | 125 | 125                      | 140 |
| d4                  | M8                              | M10 | M8                       | M10 | M10                      | M12 | M12                      | M16 |
| d7                  | W 20 x 0.6 x 0.32 x 8f DIN 5480 |     |                          |     |                          |     |                          |     |
| h1                  | 3                               |     | 3                        |     | 3                        |     | 3                        |     |
| h2                  | 13                              | 15  | 13                       | 15  | 16                       | 20  | 20                       | 26  |
| L max.              | 38                              | 55  | 37                       | 54  | 48                       | 68  | 60                       | 86  |
| z                   | 4                               |     | 4                        |     | 4                        |     | 4                        |     |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

## Dimensions Couplings according to EN ISO 5211, DIN 6885

Bore according to EN ISO 5211

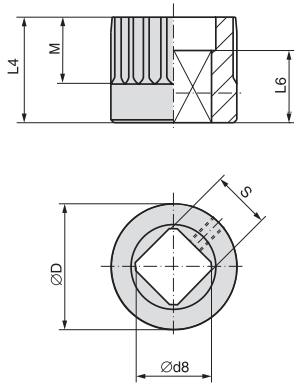
With keyway according to DIN 6885-1



| Dimensions            | GHE 05.1 |     | GHE 07.1 |     | GHE 10.1 |      | GHE 12.1 |      |
|-----------------------|----------|-----|----------|-----|----------|------|----------|------|
| EN ISO 5211           | F07      | F10 | F07      | F10 | F10      | F12  | F12      | F14  |
| Ø D                   | 31.75    |     | 41.75    |     | 51.75    |      | 67.6     |      |
| b JS9 <sup>1)</sup>   | –        |     | 6        | –   | 8        | 10   | 10       | 14   |
| Ø d7 H8 <sup>2)</sup> | –        |     | 22       | –   | 28       | 36   | 36       | 48   |
| Ø d7 max.             | 20       |     | 25.4     |     | 38       |      | 50       |      |
| d9 <sup>3)</sup>      | M4       |     | M5       |     | M6       |      | M6       |      |
| L4                    | 35       |     | 35       |     | 45       |      | 55       |      |
| L5 <sup>3)</sup>      | 8        |     | 8        |     | 10       |      | 10       |      |
| M                     | 20       |     | 20       |     | 30       |      | 40       |      |
| t <sup>1)</sup>       | –        |     | 24.8     | –   | 31.3     | 39.3 | 39.3     | 51.8 |

Square bore

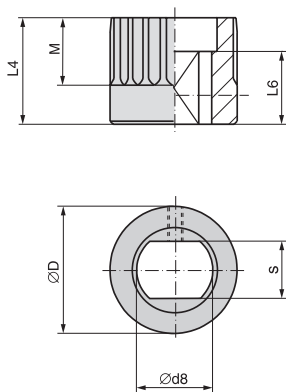
According to EN ISO 5211



| Dimensions              | GHE 05.1 |     | GHE 07.1 |      | GHE 10.1           |      | GHE 12.1 |      |
|-------------------------|----------|-----|----------|------|--------------------|------|----------|------|
| EN ISO 5211             | F07      | F10 | F07      | F10  | F10                | F12  | F12      | F14  |
| Ø D                     | 31.75    |     | 41.75    |      | 51.75              |      | 67.6     |      |
| Ø d8 min. <sup>2)</sup> | –        |     | 22.2     | 28.2 | 28.2               | 36.2 | 36.2     | 48.2 |
| Ø d8 max.               | 22.2     |     | 28.2     |      | 40.2 <sup>4)</sup> |      | 48.2     |      |
| L4                      | 35       |     | 35       |      | 45                 |      | 55       |      |
| L6 min.                 | 30       |     | 30       |      | 30                 |      | 30       |      |
| M                       | 20       |     | 20       |      | 30                 |      | 40       |      |
| s H11 <sup>2)</sup>     | –        |     | 17       | 22   | 22                 | 27   | 27       | 36   |
| s H11 max.              | 17       |     | 22       |      | 30 <sup>4)</sup>   |      | 36       |      |

Bore with two-flats

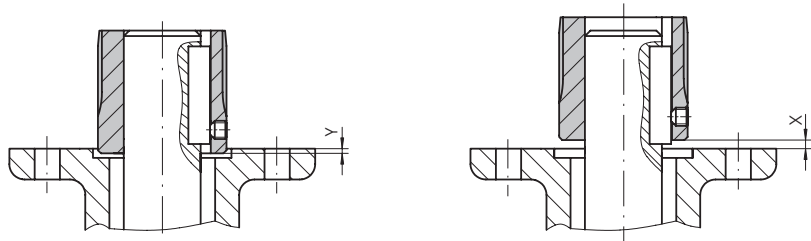
According to EN ISO 5211



| Dimensions              | GHE 05.1 |     | GHE 07.1 |      | GHE 10.1 |      | GHE 12.1                 |      |
|-------------------------|----------|-----|----------|------|----------|------|--------------------------|------|
| EN ISO 5211             | F07      | F10 | F07      | F10  | F10      | F12  | F12                      | F14  |
| Ø D                     | 31.75    |     | 41.75    |      | 51.75    |      | 67.6                     |      |
| Ø d8 min. <sup>2)</sup> | –        |     | 22.2     | 28.2 | 28.2     | 36.2 | 36.2                     | 48.2 |
| Ø d8 max.               | 22.2     |     | 28.2     |      | 36.2     |      | 48.2 (48 <sup>5)</sup> ) |      |
| L4                      | 35       |     | 35       |      | 45       |      | 55                       |      |
| L6                      | 25       |     | 25       |      | 25       |      | 30                       |      |
| M                       | 20       |     | 20       |      | 30       |      | 40                       |      |
| s H11 <sup>2)</sup>     | –        |     | 17       | 22   | 22       | 27   | 27                       | 36   |
| s H11 max.              | 17       |     | 22       |      | 27       |      | 36 (41 <sup>5)</sup> )   |      |

Mounting position of coupling

|        |     |     |     |     |
|--------|-----|-----|-----|-----|
| X max. | 2.5 | 2.5 | 3.5 | 5.5 |
| Y max. | 6   | 6   | 10  | 10  |



1) Dimensions depend on Ø d7, refer to DIN 6885-1

2) Recommended size according to EN ISO 5211

3) Thread with grub screw

4) According to DIN 79

5) According to DIN 475



## 6 Dimensions Multi-turn gearboxes

---

### GK 10.2 – GK 40.2

|                                                                             |     |
|-----------------------------------------------------------------------------|-----|
| Bevel gearboxes                                                             | 144 |
| Output drive types A, B, B1, B2, B3, B4, C, D, E                            | 145 |
| Output drive types B3D/ED bore with keyway, shaft end top GK 10.2 – GK 16.2 | 146 |
| Output drive type DD, shaft end bottom and top GK 10.2 – GK 16.2            | 147 |
| Output drive type DD, shaft end bottom and top GK 25.2 – GK 40.2            | 148 |

### GST 10.1 – GST 40.1

|                                                                               |     |
|-------------------------------------------------------------------------------|-----|
| Spur gearboxes                                                                | 149 |
| Output drive types A, B, B1, B2, B3, B4, C, D, E                              | 150 |
| Output drive types B3D/ED bore with keyway, shaft end top GST 10.1 – GST 16.1 | 151 |

### Output drive types for GK 10.2 – GK 40.2/ GST 10.1 – GST 40.1

|                                                               |     |
|---------------------------------------------------------------|-----|
| Stem nut A standard version A 07.2 – A 16.2                   | 152 |
| Stem nut A standard version A 25.2 – A 60.2                   | 153 |
| Plug sleeve B1 07.2 – B1 16.2                                 | 154 |
| Plug sleeve B1 25.2 – B1 40.2                                 | 155 |
| Shaft end D 07.2 – D 16.2                                     | 156 |
| Shaft end D 25.2 – D 40.2                                     | 157 |
| Spring loaded stem nut AF 07.2 – AF 16.2                      | 158 |
| Spring loaded stem nut AF 25.2 – AF 60.2                      | 159 |
| AK 10.2 – AK 16.2                                             | 160 |
| AK 25.2 – AK 40.2                                             | 161 |
| Stem nut for oxygen application AG 07.2 – AG 16.2             | 162 |
| Stem nut for oxygen application AG 25.2 – AG 30.2             | 163 |
| Insulated output drives IB1 07.2 – IB1 25.2/IB 07.2 – IB 25.2 | 164 |
| Insulated output drives IB3 07.2 – IB3 25.2/IE 07.2 – IE 25.2 | 165 |

### GHT 320.3 – GHT 1200.3

|                               |     |
|-------------------------------|-----|
| Multi-turn gearboxes          | 166 |
| Valve attachments A, AF, B, C | 167 |

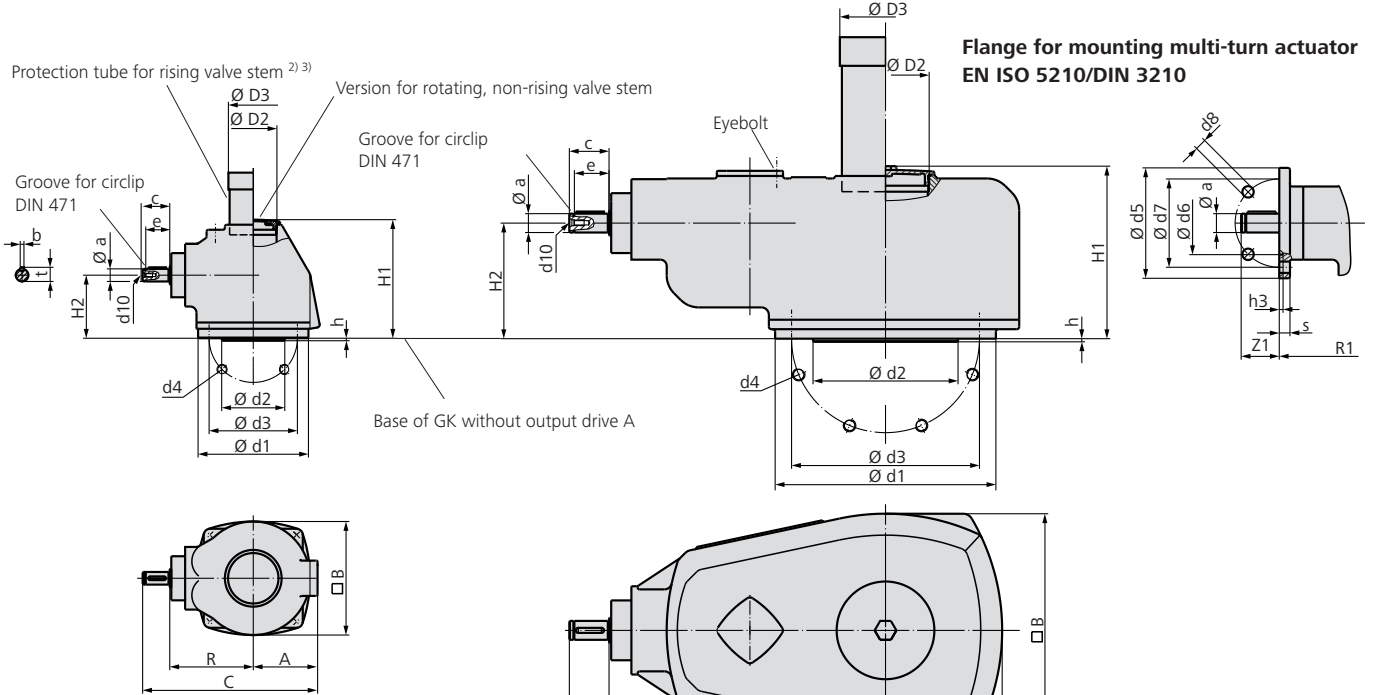
### GP 10.1 – GP 30.1

|                      |     |
|----------------------|-----|
| Multi-turn gearboxes | 168 |
|----------------------|-----|

## Dimensions Bevel gearboxes

## GK 10.2 – GK 25.2

## GK 30.2 – GK 40.2



- 1) Flange for mounting multi-turn actuator
- 2) Only upon specific order
- 3) In steps of 100 mm length each
- 4) Without spigot
- 5) Does not apply to special reduction ratio 1:1 (U3.1618)

| Dimensions                | GK 10.2  | GK 14.2    | GK 14.6    | GK 16.2 <sup>5)</sup> | GK 25.2   | GK 30.2      | GK 35.2     | GK 40.2                 |
|---------------------------|----------|------------|------------|-----------------------|-----------|--------------|-------------|-------------------------|
| EN ISO 5210/DIN 3210      | F10 (G0) | F14 (G1/2) | F14 (G1/2) | F16 (G3)              | F25 (G4)  | F30 (G5)     | F35 (G6)    | F40 (G7 <sup>4)</sup> ) |
| A                         | 74       | 99         | 99         | 130                   | 185       | 185          | 225         | 250                     |
| □ B                       | 130      | 180        | 180        | 230                   | 340       | 370          | 450         | 500                     |
| C                         | 225      | 274/294    | 274/294    | 359                   | 486       | 686/706      | 792         | 870                     |
| Ø D2                      | G 2 "    | G 2 ½ "    | G 2 ½ "    | G 3 "                 | G 4 "     | G 5 "        | M190 x 3    | M220 x 3                |
| Ø D3                      | 60 x 3.7 | 76 x 3.7   | 76 x 3.7   | 89 x 4.1              | 114 x 4.5 | 139.7 x 4.85 | 193.7 x 6.3 | 219.1 x 6.3             |
| H1                        | 170      | 188        | 188        | 202                   | 234       | 273          | 334         | 349                     |
| H2                        | 77       | 100        | 100        | 113                   | 128       | 183          | 231         | 247                     |
| R                         | 108      | 133/135    | 133/135    | 169                   | 241       | 438/448      | 492         | 546                     |
| R1                        | 110      | 135        | 135        | 169                   | 241       | 441          | 486         | 540                     |
| Z1                        | 40       | 40/60      | 40/60      | 60                    | 60        | 60/80        | 80          | 80                      |
| Ø a                       | 20       | 20/30      | 20/30      | 30                    | 30        | 30/40        | 40          | 40                      |
| b                         | 6        | 6/8        | 6/8        | 8                     | 8         | 8/12         | 12          | 12                      |
| c                         | 42       | 42/60      | 42/60      | 60                    | 60        | 63/73        | 73          | 73                      |
| Ø d1                      | 125      | 175        | 175        | 210                   | 300       | 350          | 415         | 475                     |
| Ø d2                      | 70(60)   | 100        | 100        | 130                   | 200 (160) | 230 (180)    | 260 (220)   | 300 <sup>4)</sup>       |
| Ø d3                      | 102      | 140        | 140        | 165                   | 254       | 298 (300)    | 356         | 406                     |
| d4                        | 4 x M10  | 4 x M16    | 4 x M16    | 4 x M20               | 8 x M16   | 8 x M20      | 8 x M30     | 8 x M36                 |
| d10                       | M6       | M6/M10     | M6/M10     | M10                   | M10       | M10/M16      | M16         | M16                     |
| e                         | 38       | 38/55      | 38/55      | 55                    | 55        | 55/65        | 65          | 65                      |
| h                         | 3        | 4          | 4          | 5                     | 5         | 5            | 5           | 5 <sup>4)</sup>         |
| t                         | 22.5     | 22.5/33    | 22.5/33    | 33                    | 33        | 33/43        | 43          | 43                      |
| EN ISO 5210 <sup>1)</sup> | F10/F14  | F10/F14    | F10/F14    | F14                   | F14/F16   | F14/F16      | F14/F16/F25 | F16/F25                 |
| DIN 3210 <sup>1)</sup>    | G0/G1/2  | G0/G1/2    | G0/G1/2    | G1/2                  | G1/2/G3   | G1/2/G3      | G1/2/G3/G4  | G3/G4                   |

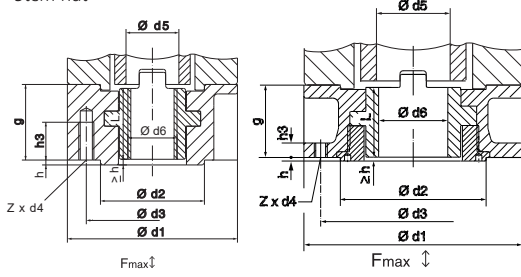
## Flange for mounting multi-turn actuator

|             |     |     |      |     |     |     |
|-------------|-----|-----|------|-----|-----|-----|
| EN ISO 5210 | F10 |     | F14  | F16 | F25 |     |
| DIN 3210    |     | G0  | G1/2 | G3  |     | G4  |
| Ø d5        | 125 | 125 | 175  | 210 | 300 | 300 |
| Ø d6        | 70  | 60  | 100  | 130 | 200 | 160 |
| Ø d7        | 102 | 102 | 140  | 165 | 254 | 254 |
| Ø d8        | 11  | 11  | 18   | 22  | 18  | 18  |
| h3          | 5   | 5   | 5    | 6   | 6   | 6   |
| s           | 12  | 12  | 17   | 25  | 28  | 25  |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

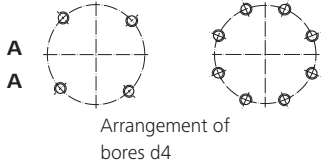
## Dimensions Valve attachments according to EN ISO 5210, DIN 3210

## Stem nut



Type  
EN ISO 5210  
DIN 3210

GK 10.2 – GK 16.2 GK 25.2 – GK 40.2

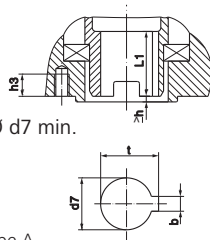


Arrangement of  
bores d4

| Dimensions  |          | GK 10.2 | GK 14.2/GK 14.6 | GK 16.2 | GK 25.2 | GK 30.2 | GK 35.2 | GK 40.2 |
|-------------|----------|---------|-----------------|---------|---------|---------|---------|---------|
| EN ISO 5210 | DIN 3210 | F10 G0  | F14 G1/2        | F16 G3  | F25 G4  | F30 G5  | F35 G6  | F40 G7  |
| F max. kN   |          | 70      | 160             | 250     | 380     | 460     | 875     | 1375    |
| Ø d1        |          | 125     | 175             | 210     | 300     | 350     | 415     | 475     |
| Ø d2        |          | 70 60   | 100             | 130     | 200 160 | 230 180 | 260     | 300     |
| Ø d3        |          | 102     | 140             | 165     | 254     | 298 300 | 356     | 406     |
| d4          |          | M10     | M16             | M20     | M16     | M20     | M30     | M36     |
| Ø d5        |          | 42      | 60              | 80      | 100     | 120     | 160     | 180     |
| Ø d6 max.   |          | 40      | 57              | 75      | 95      | 115     | 155     | 175     |
| g           |          | 50      | 65              | 80      | 130     | 160     | 185     | 225     |
| h           |          | 3       | 4               | 5       | 5       | 5       | 5       | 8       |
| h3          |          | 15      | 25              | 35      | 20      | 25      | 38      | 45      |
| L           |          | 47      | 60              | 75      | 126     | 156     | 175     | 210     |
| Z           |          | 4       | 4               | 4       | 8       | 8       | 8       | 8       |
| Weight kg   |          | 2.8     | 6.8             | 11.7    | 42      | 69      | 125     | 200     |

Output drive plug sleeve <sup>3)</sup>

Type  
EN ISO 5210 **B 1** = Ø d7  
EN ISO 5210 **B 2** < Ø d7 > Ø d7 min.  
DIN 3210 **B** = Ø d7

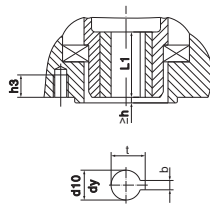


For missing dimensions, refer to type A

| Dimensions           |          | GK 10.2 | GK 14.2/GK 14.6 | GK 16.2 | GK 25.2 | GK 30.2 | GK 35.2 | GK 40.2 |
|----------------------|----------|---------|-----------------|---------|---------|---------|---------|---------|
| EN ISO 5210          | DIN 3210 | F10 G0  | F14 G1/2        | F16 G3  | F25 G4  | F30 G5  | F35 G6  | F40 G7  |
| b JS 9 <sup>1)</sup> |          | 12      | 18              | 22      | 28      | 32      | 40      | 45      |
| d7 H9                |          | 42      | 60              | 80      | 100     | 120     | 160     | 180     |
| Ø d7 min.            |          | 30      | 45              | 60      | 75      | 90      | 120     | 140     |
| h3                   |          | 15      | 25              | 30      | 28      | 30      | 50      | 60      |
| L1                   |          | 45      | 65              | 80      | 110     | 130     | 180     | 200     |
| t <sup>1)</sup>      |          | 45.3    | 64.4            | 85.4    | 106.4   | 127.4   | 169.4   | 190.4   |

## Bore with keyway

Type  
EN ISO 5210 **B 3** = Ø d10  
EN ISO 5210 **B 4** ≤ Ø dy  
DIN 3210 **E** = Ø d10

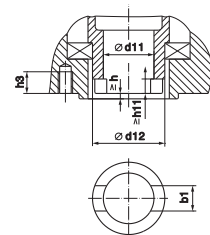


For missing dimensions, refer to type A

| Dimensions           |          | GK 10.2 | GK 14.2/GK 14.6 | GK 16.2 | GK 25.2 | GK 30.2 | GK 35.2 | GK 40.2 |
|----------------------|----------|---------|-----------------|---------|---------|---------|---------|---------|
| EN ISO 5210          | DIN 3210 | F10 G0  | F14 G1/2        | F16 G3  | F25 G4  | F30 G5  | F35 G6  | F40 G7  |
| b JS 9 <sup>1)</sup> |          | 6       | 8               | 12      | 14      | 18      | 22      | 28      |
| Ø d10 H9             |          | 20      | 30              | 40      | 50      | 60      | 80      | 100     |
| Ø dy max.            |          | 30      | 45              | 60      | 75      | 90      | 120     | 140     |
| h3                   |          | 15      | 25              | 30      | 28      | 30      | 50      | 60      |
| L1                   |          | 45      | 65              | 80      | 110     | 130     | 180     | 200     |
| t <sup>1)</sup>      |          | 22.8    | 33.3            | 43.3    | 53.8    | 64.4    | 85.4    | 106.4   |
| Weight kg            |          | 0.4     | 1.1             | 2.4     | 5.1     | 8.6     | 21.2    | 27.5    |

Dog coupling <sup>3)</sup>

Type  
DIN 3338 **C** = Ø d11

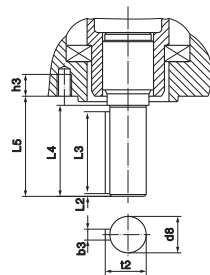


For missing dimensions, refer to type A

| Dimensions               |          | GK 10.2 | GK 14.2/GK 14.6 | GK 16.2 | GK 25.2 | GK 30.2 | GK 35.2 | GK 40.2 |
|--------------------------|----------|---------|-----------------|---------|---------|---------|---------|---------|
| EN ISO 5210              | DIN 3210 | F10 G0  | F14 G1/2        | F16 G3  | F25 G4  | F30 G5  | F35 G6  | F40 G7  |
| b1 H11                   |          | 14      | 20              | 24      | 30      | 40      | 45      | 50      |
| Ø d11 H11                |          | 28      | 38              | 47      | 64      | 75      | 105     | 125     |
| Ø d11 min.               |          | 20      | 30              | 40      | 50      | 60      | 80      | 100     |
| Ø d11 max. <sup>2)</sup> |          | 42      | 60              | 80      | 100     | 120     | 160     | 180     |
| Ø d12                    |          | 55      | 80              | 100     | 130     | 160     | 200     | 230     |
| h3                       |          | 15      | 25              | 30      | 28      | 30      | 50      | 60      |
| h11                      |          | 7       | 8               | 10      | 11      | 13      | 17      | 20      |

## Shaft end

Type  
DIN 3210 **D**



For missing dimensions, refer to type A

| Dimensions  |          | GK 10.2 | GK 14.2/GK 14.6 | GK 16.2 | GK 25.2 | GK 30.2 | GK 35.2 | GK 40.2 |
|-------------|----------|---------|-----------------|---------|---------|---------|---------|---------|
| EN ISO 5210 | DIN 3210 | F10 G0  | F14 G1/2        | F16 G3  | F25 G4  | F30 G5  | F35 G6  | F40 G7  |
| Ø d8 g6     |          | 20      | 30              | 40      | 50      | 60      | 80      | 100     |
| b3 h9       |          | 6       | 8               | 12      | 14      | 18      | 22      | 28      |
| h3          |          | 15      | 25              | 30      | 28      | 30      | 50      | 60      |
| L2          |          | 1.5     | 2               | 3       | 3       | 3       | 3       | 3       |
| L3          |          | 45      | 63              | 80      | 100     | 110     | 110     | 140     |
| L4          |          | 50      | 70              | 90      | 110     | 120     | 120     | 150     |
| L5          |          | 55      | 76              | 97      | 117     | 126     | 125     | 162     |
| t2          |          | 22.5    | 33              | 43      | 53.5    | 64      | 85      | 106     |
| Weight kg   |          | 0.7     | 2               | 4.3     | 9       | 15      | 34      | 50      |

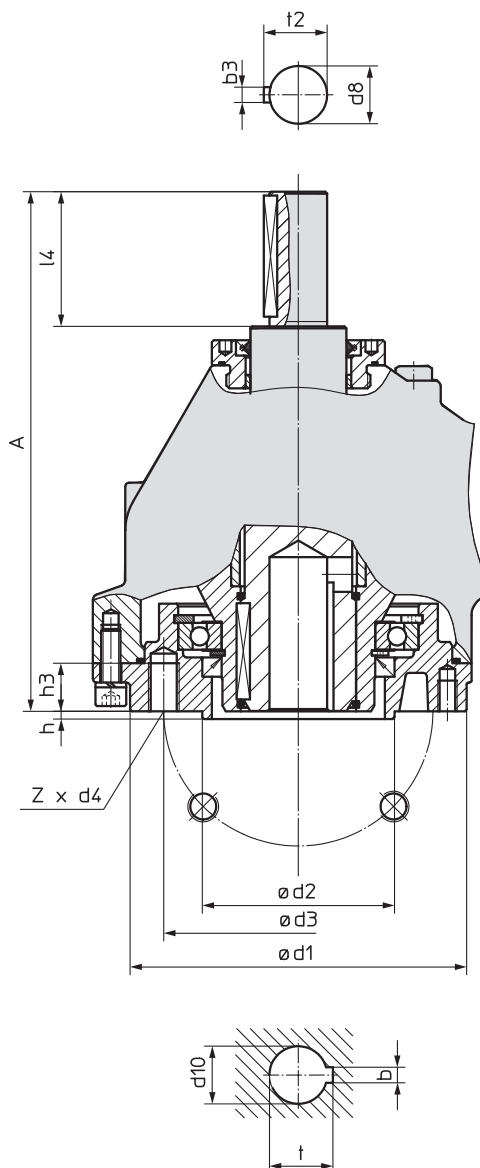
1) Dimensions depend on Ø d7/ Ø d10, refer to DIN 6885-1

2) For rising valve stem Ø d11 max. = Ø d5 of type A

3) Weight included in actuator

## Dimensions Output drive types B3D/ED, bore with keyway, shaft end top

Output drive type  
EN ISO 5210 B3D  
DIN 3210 ED

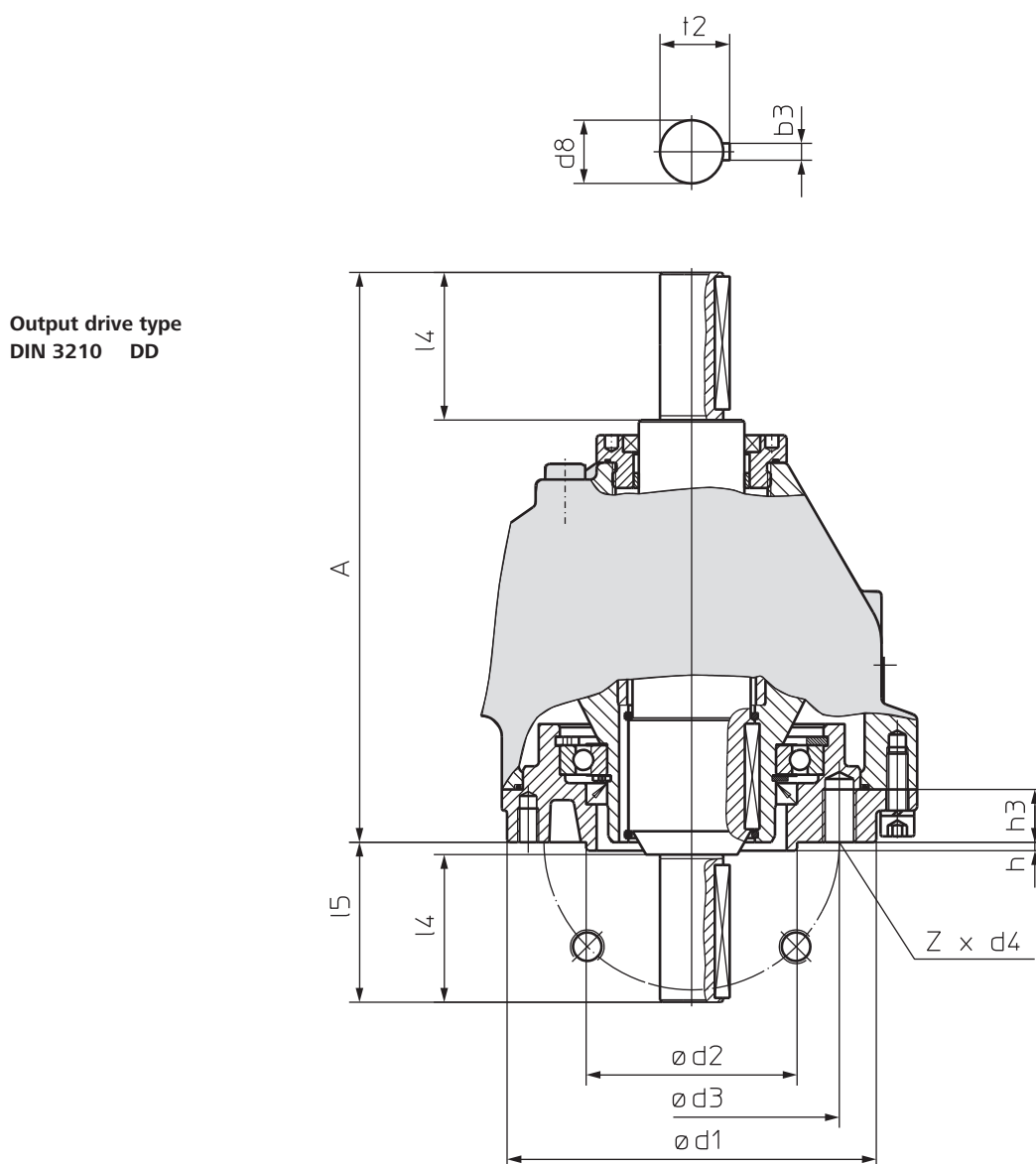


1) Does not apply to special reduction ratio 1:1 (U3.1618)

| Dimensions<br>EN ISO 5210/DIN 3210 | GK 10.2 |    | GK 14.2/GK 14.6 |      | GK 16.2           |    |
|------------------------------------|---------|----|-----------------|------|-------------------|----|
|                                    | F10     | G0 | F14             | G1/2 | F16               | G3 |
| A                                  | 230     |    | 270             |      | 304 <sup>1)</sup> |    |
| b JS9                              | 6       |    | 8               |      | 12                |    |
| b3                                 | 6       |    | 8               |      | 12                |    |
| Ø d1                               | 125     |    | 175             |      | 210               |    |
| Ø d2                               | 70      | 60 | 100             |      | 130               |    |
| Ø d3                               | 102     |    | 140             |      | 165               |    |
| d4                                 | M10     |    | M16             |      | M20               |    |
| Ø d8 g6                            | 20      |    | 30              |      | 40                |    |
| Ø d10                              | 20      |    | 30              |      | 40                |    |
| h                                  | 3       |    | 4               |      | 5                 |    |
| h3                                 | 15      |    | 25              |      | 30                |    |
| l4                                 | 50      |    | 70              |      | 90                |    |
| t                                  | 22.8    |    | 33.3            |      | 43.3              |    |
| t2                                 | 22.5    |    | 33              |      | 43                |    |
| Z                                  | 4       |    | 4               |      | 4                 |    |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

## Dimensions Output drive type DD, shaft end bottom and top



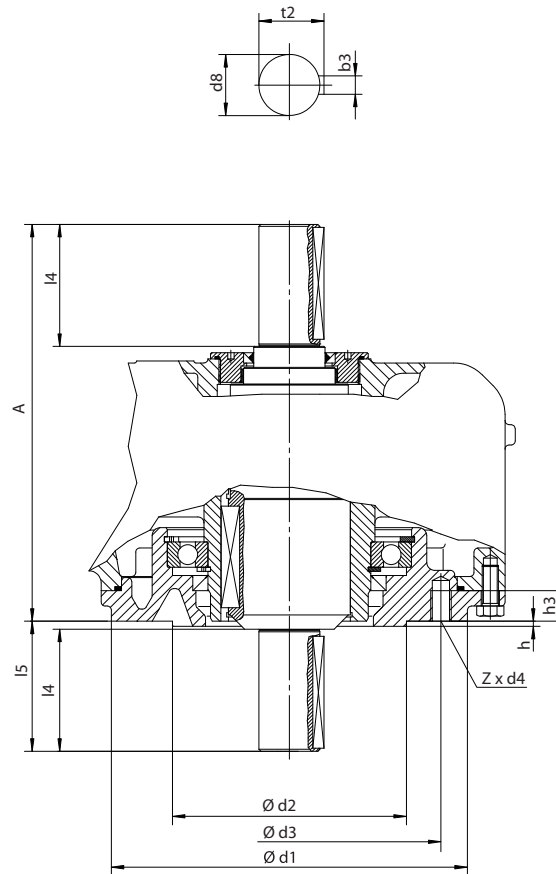
1) Does not apply to special reduction ratio 1:1 (U3.1618)

| Dimensions           | GK 10.2 |    | GK 14.2/GK 14.6 |      | GK 16.2           |    |
|----------------------|---------|----|-----------------|------|-------------------|----|
| EN ISO 5210/DIN 3210 | F10     | G0 | F14             | G1/2 | F16               | G3 |
| A                    | 230     |    | 270             |      | 304 <sup>1)</sup> |    |
| b3                   | 6       |    | 8               |      | 12                |    |
| Ø d1                 | 125     |    | 175             |      | 210               |    |
| Ø d2                 | 70      | 60 | 100             |      | 130               |    |
| Ø d3                 | 102     |    | 140             |      | 165               |    |
| d4                   | M10     |    | M16             |      | M20               |    |
| Ø d8 g6              | 20      |    | 30              |      | 40                |    |
| h                    | 3       |    | 4               |      | 5                 |    |
| h3                   | 15      |    | 25              |      | 30                |    |
| l4                   | 50      |    | 70              |      | 90                |    |
| l5                   | 55      |    | 76              |      | 97                |    |
| t2                   | 22.5    |    | 33              |      | 43                |    |
| Z                    | 4       |    | 4               |      | 4                 |    |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

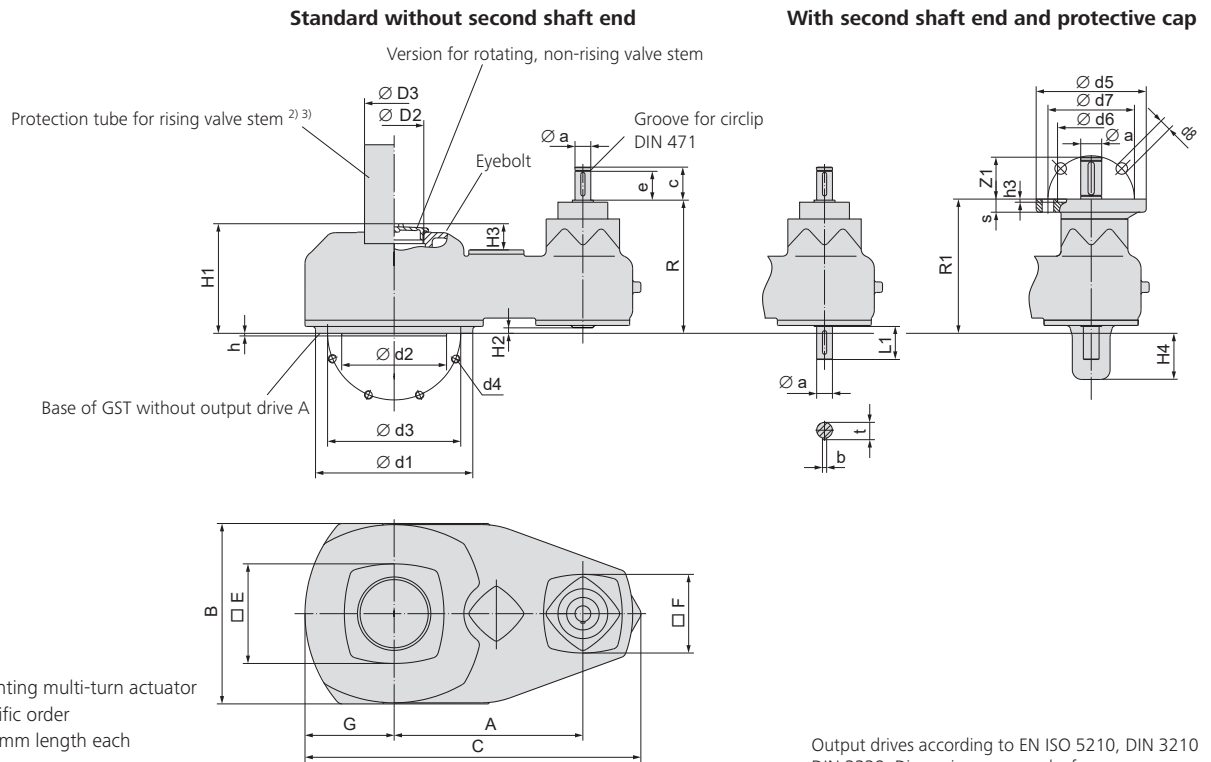


## Dimensions Output drive type DD, shaft end bottom and top



| Dimensions       | GK 25.2 | GK 30.2 | GK 35.2 | GK 40.2 |
|------------------|---------|---------|---------|---------|
| EN ISO 5210      | F25     | F30     | F35     | F40     |
| A                | 339     | 391     | —       | 466     |
| b3               | 14      | 18      | —       | 22      |
| $\varnothing d1$ | 300     | 350     | —       | 475     |
| $\varnothing d2$ | 200     | 230     | —       | 300     |
| $\varnothing d3$ | 254     | 298     | —       | 406     |
| d4               | M16     | M20     | —       | M36     |
| $\varnothing d8$ | 50      | 60      | —       | 80      |
| h                | 5       | 5       | —       | 5       |
| h3               | 28      | 30      | —       | 60      |
| l4               | 110     | 120     | —       | 120     |
| l5               | 117     | 127     | —       | 134     |
| t2               | 53.8    | 64.4    | —       | 85.4    |
| Z                | 8       | 8       | —       | 8       |

## Dimensions Spur gearboxes



- 1) Flange for mounting multi-turn actuator  
 2) Only upon specific order  
 3) In steps of 100 mm length each  
 4) Without spigot

Output drives according to EN ISO 5210, DIN 3210  
 DIN 3338, Dimensions see overleaf

| Dimensions                | GST 10.1 | GST 14.1   | GST 14.5   | GST 16.1 | GST 25.1  | GST 30.1  | GST 35.1    | GST 40.1                |
|---------------------------|----------|------------|------------|----------|-----------|-----------|-------------|-------------------------|
| EN ISO 5210/DIN 3210      | F10 (G0) | F14 (G1/2) | F14 (G1/2) | F16 (G3) | F25 (G4)  | F30 (G5)  | F35 (G6)    | F40 (G7 <sup>4)</sup> ) |
| A                         | 175      | 240        | 240        | 300      | 360       | 380       | 410         | 445                     |
| B                         | 138      | 188        | 188        | 234      | 344       | 374       | 454         | 504                     |
| C                         | 305      | 395        | 395        | 480      | 640       | 675       | 750         | 810                     |
| Ø D2                      | G 2 "    | G 2 ½ "    | G 2 ½ "    | G 3 "    | G 4 "     | G 5 "     | M190 x 3    | M220 x 3                |
| Ø D3                      | 60 x 3.7 | 76 x 3.7   | 76 x 3.7   | 89 x 4.1 | 114 x 4.5 | 140 x 4.9 | 191 x 8     | 219 x 10                |
| □ E                       | 96       | 106        | 106        | 130      | 200       | 220       | 275         | 320                     |
| □ F                       | 110      | 110        | 110        | 110      | 150       | 150       | 150         | 145                     |
| G                         | 65       | 90         | 90         | 115      | 170       | 185       | 225         | 250                     |
| H1                        | 118      | 148        | 148        | 183      | 208       | 243       | 329         | 348                     |
| H2                        | 9        | 15         | 15         | 15       | 9         | 14        | 23          | 28                      |
| H3                        | 28       | 45         | 45         | 58       | 61        | 69        | 81          | 84                      |
| H4                        | 41       | 53         | 53         | 53       | 88        | 83        | 97          | 92                      |
| R                         | 157      | 171        | 171        | 196      | 253/263   | 258/268   | 356/349     | 361/354                 |
| R1                        | 160      | 171        | 171        | 195      | 256       | 261       | 349         | 354                     |
| Z1                        | 40       | 40/60      | 40/60      | 60       | 60/80     | 60/80     | 80/100      | 80/100                  |
| Ø a                       | 20       | 20/30      | 20/30      | 30       | 30/40     | 30/40     | 40/50       | 40/50                   |
| b                         | 6        | 6/8        | 6/8        | 8        | 8/12      | 8/12      | 12/14       | 12/14                   |
| c                         | 42       | 42/60      | 42/60      | 60       | 63/73     | 63/73     | 73/100      | 73/100                  |
| Ø d1                      | 125      | 175        | 175        | 210      | 300       | 350       | 415         | 475                     |
| Ø d2 f8                   | 70(60)   | 100        | 100        | 130      | 200 (160) | 230 (180) | 260 (220)   | 300 <sup>4)</sup>       |
| Ø d3                      | 102      | 140        | 140        | 165      | 254       | 298 (300) | 356         | 406                     |
| d4                        | 4 x M10  | 4 x M16    | 4 x M16    | 4 x M20  | 8 x M16   | 8 x M20   | 8 x M30     | 8 x M36                 |
| e                         | 38       | 38/55      | 38/55      | 55       | 55/65     | 55/65     | 65/–        | 65/–                    |
| h                         | 3        | 4          | 4          | 5        | 5         | 5         | 5           | 5 <sup>4)</sup>         |
| L1                        | 40       | 40/60      | 40/60      | 60       | 60/80     | 60/80     | 80/100      | 80/100                  |
| t                         | 22.5     | 22,5/33    | 22,5/33    | 33       | 33/43     | 33/43     | 43/53,5     | 43/53,5                 |
| EN ISO 5210 <sup>1)</sup> | F10/F14  | F10/F14    | F10/F14    | F14      | F14/F16   | F14/F16   | F14/F16/F25 | F16/F25                 |
| DIN 3210 <sup>1)</sup>    | G0/G1/2  | G0/G1/2    | G0/G1/2    | G1/2     | G1/2/G3   | G1/2/G3   | G1/2/G3/G4  | G3/G4                   |

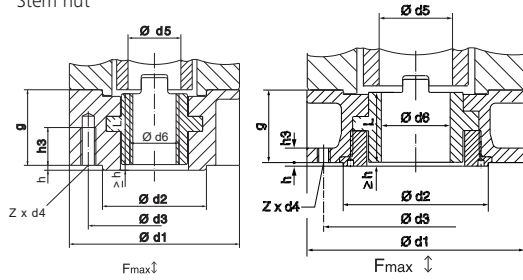
  

| Flange for mounting multi-turn actuator |     |     |      |     |     |     |
|-----------------------------------------|-----|-----|------|-----|-----|-----|
| EN ISO 5210                             | F10 |     | F14  | F16 | F25 |     |
| DIN 3210                                |     | G0  | G1/2 | G3  |     | G4  |
| Ø d5                                    | 125 | 125 | 175  | 210 | 300 | 300 |
| Ø d6                                    | 70  | 60  | 100  | 130 | 200 | 160 |
| Ø d7                                    | 102 | 102 | 140  | 165 | 254 | 254 |
| Ø d8                                    | 11  | 11  | 18   | 22  | 18  | 18  |
| h3                                      | 5   | 5   | 5    | 6   | 6   | 6   |
| s                                       | 12  | 12  | 17   | 25  | 28  | 25  |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

## Dimensions Valve attachments according to EN ISO 5210, DIN 3210

## Stem nut



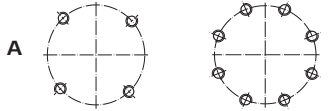
GK 10.2 – GK 16.2 GK 25.2 – GK 40.2

## Type

EN ISO 5210

DIN 3210

A

Arrangement of  
holes d4

| Dimensions |      | GST 10.1 |    | GST 14.1/GST 14.5 |      | GST 16.1 |    | GST 25.1 |     | GST 30.1 |     | GST 35.1 |     | GST 40.1 |    |
|------------|------|----------|----|-------------------|------|----------|----|----------|-----|----------|-----|----------|-----|----------|----|
| EN ISO     | DIN  | F10      | G0 | F14               | G1/2 | F16      | G3 | F25      | G4  | F30      | G5  | F35      | G6  | F40      | G7 |
| 5210       | 3210 |          |    |                   |      |          |    |          |     |          |     |          |     |          |    |
| F max. kN  |      | 70       |    | 160               |      | 250      |    | 380      |     | 460      |     | 875      |     | 1375     |    |
| Ø d1       |      | 125      |    | 175               |      | 210      |    | 300      |     | 350      |     | 415      |     | 475      |    |
| Ø d2       |      | 70       | 60 | 100               |      | 130      |    | 200      | 160 | 230      | 180 | 260      | 220 | 300      |    |
| Ø d3       |      | 102      |    | 140               |      | 165      |    | 254      |     | 298 300  |     | 356      |     | 406      |    |
| d4         |      | M10      |    | M16               |      | M20      |    | M16      |     | M20      |     | M30      |     | M36      |    |
| Ø d5       |      | 42       |    | 60                |      | 80       |    | 100      |     | 120      |     | 160      |     | 180      |    |
| Ø d6 max.  |      | 40       |    | 57                |      | 75       |    | 95       |     | 115      |     | 155      |     | 175      |    |
| g          |      | 50       |    | 65                |      | 80       |    | 130      |     | 160      |     | 185      |     | 225      |    |
| h          |      | 3        |    | 4                 |      | 5        |    | 5        |     | 5        |     | 5        |     | 8        |    |
| h3         |      | 15       |    | 25                |      | 35       |    | 20       |     | 25       |     | 38       |     | 45       |    |
| L          |      | 47       |    | 60                |      | 75       |    | 126      |     | 156      |     | 175      |     | 219      |    |
| Z          |      | 4        |    | 4                 |      | 4        |    | 8        |     | 8        |     | 8        |     | 8        |    |
| Weight kg  |      | 2.8      |    | 6.8               |      | 11.7     |    | 42       |     | 69       |     | 125      |     | 200      |    |

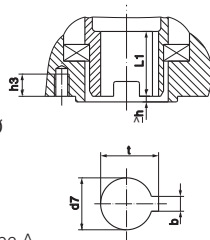
Output drive plug sleeve <sup>3)</sup>

## Type

EN ISO 5210 B 1 = Ø d7

EN ISO 5210 B 2 &lt; Ø d7 &gt; Ø d7 min.

DIN 3210 B = Ø d7



For missing dimensions, refer to type A

| Dimensions           |      | GST 10.1 |    | GST 14.1/GST 14.5 |      | GST 16.1 |    | GST 25.1 |    | GST 30.1 |    | GST 35.1 |    | GST 40.1 |    |
|----------------------|------|----------|----|-------------------|------|----------|----|----------|----|----------|----|----------|----|----------|----|
| EN ISO               | DIN  | F10      | G0 | F14               | G1/2 | F16      | G3 | F25      | G4 | F30      | G5 | F35      | G6 | F40      | G7 |
| 5210                 | 3210 |          |    |                   |      |          |    |          |    |          |    |          |    |          |    |
| b JS 9 <sup>1)</sup> |      | 12       |    | 18                |      | 22       |    | 28       |    | 32       |    | 40       |    | 45       |    |
| d7 H9                |      | 42       |    | 60                |      | 80       |    | 100      |    | 120      |    | 160      |    | 180      |    |
| Ø d7 min.            |      | 30       |    | 45                |      | 60       |    | 75       |    | 90       |    | 120      |    | 140      |    |
| h3                   |      | 15       |    | 25                |      | 30       |    | 28       |    | 30       |    | 50       |    | 60       |    |
| L1                   |      | 45       |    | 65                |      | 80       |    | 110      |    | 130      |    | 180      |    | 200      |    |
| t <sup>1)</sup>      |      | 45.3     |    | 64.4              |      | 85.4     |    | 106.4    |    | 127.4    |    | 169.4    |    | 190.4    |    |

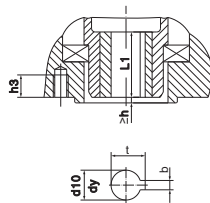
## Bore with keyway

## Type

EN ISO 5210 B 3 = Ø d10

EN ISO 5210 B 4 ≤ Ø dy

DIN 3210 E = Ø d10



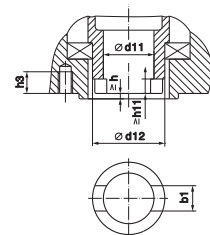
For missing dimensions, refer to type A

| Dimensions           |      | GST 10.1 |    | GST 14.1/GST 14.5 |      | GST 16.1 |    | GST 25.1 |    | GST 30.1 |    | GST 35.1 |    | GST 40.1 |    |
|----------------------|------|----------|----|-------------------|------|----------|----|----------|----|----------|----|----------|----|----------|----|
| EN ISO               | DIN  | F10      | G0 | F14               | G1/2 | F16      | G3 | F25      | G4 | F30      | G5 | F35      | G6 | F40      | G7 |
| 5210                 | 3210 |          |    |                   |      |          |    |          |    |          |    |          |    |          |    |
| b JS 9 <sup>1)</sup> |      | 6        |    | 8                 |      | 12       |    | 14       |    | 18       |    | 22       |    | 28       |    |
| Ø d10 H9             |      | 20       |    | 30                |      | 40       |    | 50       |    | 60       |    | 80       |    | 100      |    |
| Ø dy max.            |      | 30       |    | 45                |      | 60       |    | 75       |    | 90       |    | 120      |    | 140      |    |
| h3                   |      | 15       |    | 25                |      | 30       |    | 28       |    | 30       |    | 50       |    | 60       |    |
| L1                   |      | 45       |    | 65                |      | 80       |    | 110      |    | 130      |    | 180      |    | 200      |    |
| t <sup>1)</sup>      |      | 22.8     |    | 33.3              |      | 43.3     |    | 53.8     |    | 64.4     |    | 85.4     |    | 106.4    |    |
| Weight kg            |      | 0.4      |    | 1.1               |      | 2.4      |    | 5.1      |    | 8.6      |    | 21.2     |    | 27.5     |    |

Dog coupling <sup>3)</sup>

## Type

DIN 3338 C = Ø d11



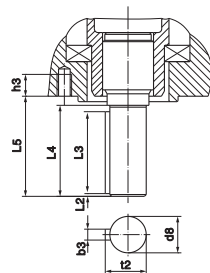
For missing dimensions, refer to type A

| Dimensions               |      | GST 10.1 |    | GST 14.1/GST 14.5 |      | GST 16.1 |    | GST 25.1 |    | GST 30.1 |    | GST 35.1 |    | GST 40.1 |    |
|--------------------------|------|----------|----|-------------------|------|----------|----|----------|----|----------|----|----------|----|----------|----|
| EN ISO                   | DIN  | F10      | G0 | F14               | G1/2 | F16      | G3 | F25      | G4 | F30      | G5 | F35      | G6 | F40      | G7 |
| 5210                     | 3210 |          |    |                   |      |          |    |          |    |          |    |          |    |          |    |
| b1 H11                   |      | 14       |    | 20                |      | 24       |    | 30       |    | 40       |    | 45       |    | 50       |    |
| Ø d11 H11                |      | 28       |    | 38                |      | 47       |    | 64       |    | 75       |    | 105      |    | 125      |    |
| Ø d11 min.               |      | 20       |    | 30                |      | 40       |    | 50       |    | 60       |    | 80       |    | 100      |    |
| Ø d11 max. <sup>2)</sup> |      | 42       |    | 60                |      | 80       |    | 100      |    | 120      |    | 160      |    | 180      |    |
| Ø d12                    |      | 55       |    | 80                |      | 100      |    | 130      |    | 160      |    | 200      |    | 230      |    |
| h3                       |      | 15       |    | 25                |      | 30       |    | 28       |    | 30       |    | 50       |    | 60       |    |
| h11                      |      | 7        |    | 8                 |      | 10       |    | 11       |    | 13       |    | 17       |    | 20       |    |

## Shaft end

## Type

DIN 3210 D



For missing dimensions, refer to type A

| Dimensions |      | GST 10.1 |    | GST 14.1/GST 14.5 |      | GST 16.1 |    | GST 25.1 |    | GST 30.1 |    | GST 35.1 |    | GST 40.1 |    |
|------------|------|----------|----|-------------------|------|----------|----|----------|----|----------|----|----------|----|----------|----|
| EN ISO     | DIN  | F10      | G0 | F14               | G1/2 | F16      | G3 | F25      | G4 | F30      | G5 | F35      | G6 | F40      | G7 |
| 5210       | 3210 |          |    |                   |      |          |    |          |    |          |    |          |    |          |    |
| Ø d8 g6    |      | 20       |    | 30                |      | 40       |    | 50       |    | 60       |    | 80       |    | 100      |    |
| b3 h9      |      | 6        |    | 8                 |      | 12       |    | 14       |    | 18       |    | 22       |    | 28       |    |
| h3         |      | 15       |    | 25                |      | 30       |    | 28       |    | 30       |    | 50       |    | 60       |    |
| L2         |      | 1.5      |    | 2                 |      | 3        |    | 3        |    | 3        |    | 3        |    | 3        |    |
| L3         |      | 45       |    | 63                |      | 80       |    | 100      |    | 110      |    | 110      |    | 140      |    |
| L4         |      | 50       |    | 70                |      | 90       |    | 110      |    | 120      |    | 120      |    | 150      |    |
| L5         |      | 55       |    | 76                |      | 97       |    | 117      |    | 126      |    | 125      |    | 162      |    |
| t2         |      | 22.5     |    | 33                |      | 43       |    | 53.5     |    | 64       |    | 85       |    | 106      |    |
| Weight kg  |      | 0.7      |    | 2                 |      | 4.3      |    | 9        |    | 15       |    | 34       |    | 50       |    |

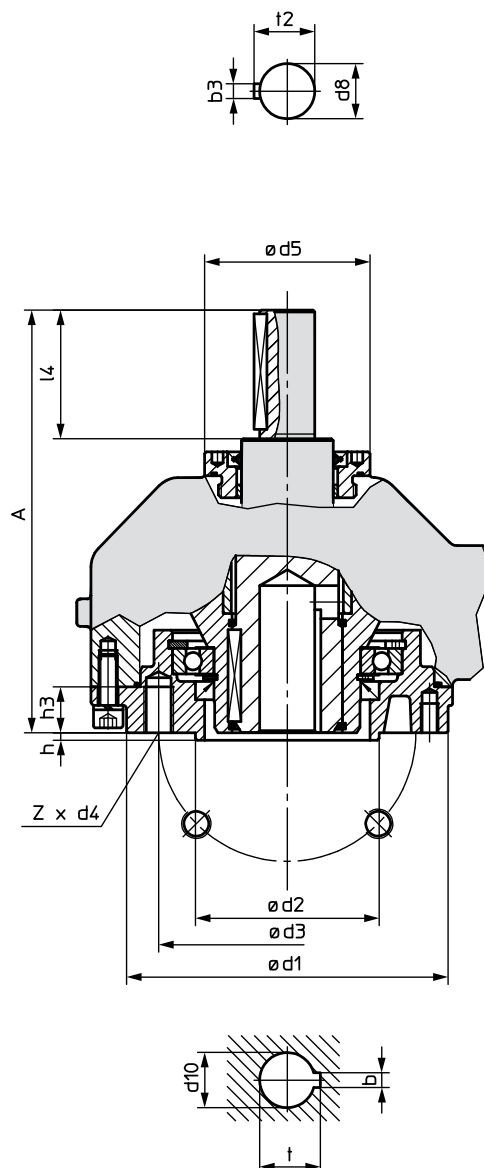
1) Dimensions depend on Ø d7/ Ø d10, refer to DIN 6885-1

2) For rising valve stem Ø d11 max. = Ø d5 of type A

3) Weight included in actuator

## Dimensions Output drive types B3D/ED, bore with keyway, shaft end top

Output drive type  
EN ISO 5210 B3D  
DIN 3210 ED



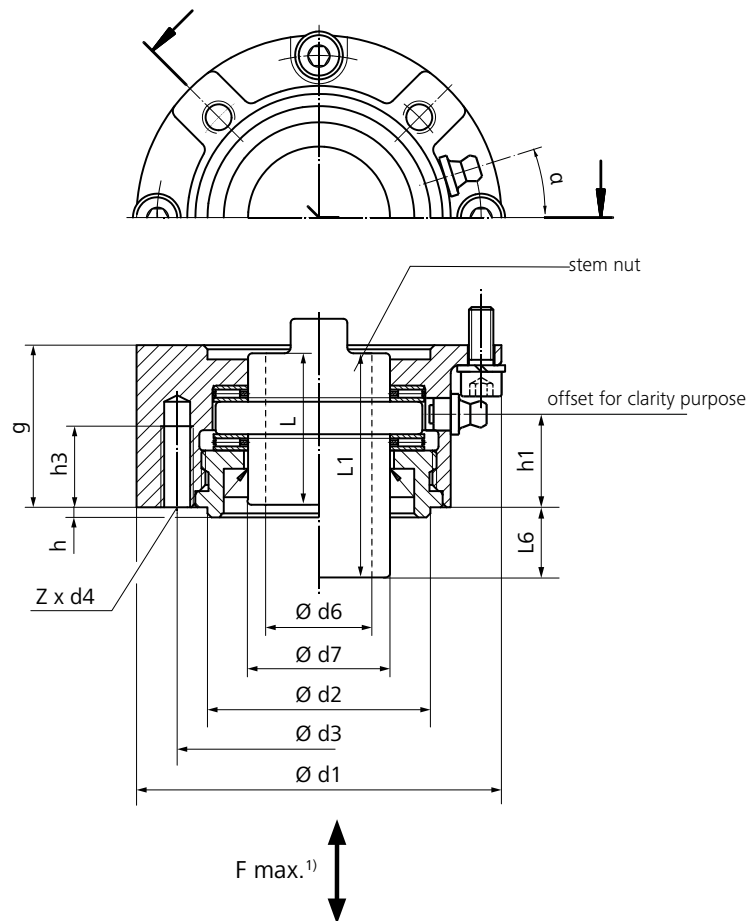
| Dimensions           | GST 10.1 |    | GST 14.1/GST 14.5 |      | GST 16.1 |    |
|----------------------|----------|----|-------------------|------|----------|----|
| EN ISO 5210/DIN 3210 | F10      | G0 | F14               | G1/2 | F16      | G3 |
| A                    | 180      |    | 230               |      | 355      |    |
| b JS9                | 6        |    | 8                 |      | 12       |    |
| b3                   | 6        |    | 8                 |      | 12       |    |
| Ø d1                 | 125      |    | 175               |      | 210      |    |
| Ø d2                 | 70       | 60 | 100               |      | 130      |    |
| Ø d3                 | 102      |    | 140               |      | 165      |    |
| d4                   | M10      |    | M16               |      | M20      |    |
| Ø d8 g6              | 20       |    | 30                |      | 40       |    |
| Ø d10                | 20       |    | 30                |      | 40       |    |
| h                    | 3        |    | 4                 |      | 5        |    |
| h3                   | 15       |    | 25                |      | 30       |    |
| l4                   | 50       |    | 70                |      | 90       |    |
| t                    | 22.8     |    | 33.3              |      | 43.3     |    |
| t2                   | 22.5     |    | 33                |      | 43       |    |
| Z                    | 4        |    | 4                 |      | 4        |    |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

## Dimensions Output drive stem nut type A

for SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2  
 SAEx 07.2 – SAEx 16.2/SAREx 07.2 – SAREx 16.2  
 GK 10.2 – GK 16.2/GST 10.1 – GST 16.1

Output drive type  
 EN ISO 5210 A  
 DIN 3210 A



1) permissible axial load

2) nominal diameter for trapezoidal thread Tr according to DIN 103 or ACME according to ANSI/ASME B 1.5

3) when mounting to multi-turn actuator sizes 07.2/07.6, refer to Dimensions Multi-turn actuators for max. nominal diameter

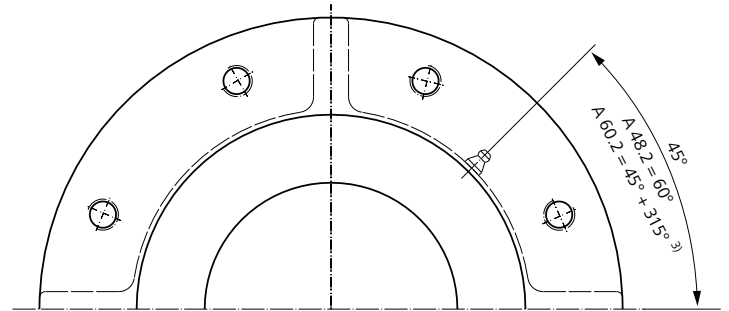
| Dimensions                    | A 07.2           | A 10.2                                        | A 14.2            | A 16.2           |
|-------------------------------|------------------|-----------------------------------------------|-------------------|------------------|
| EN ISO 5210/DIN 3210          | F07              | F10 G0                                        | F14 G1/2          | F16 G3           |
| F max. [kN] <sup>1)</sup>     | 40               | 70                                            | 160               | 250              |
| Ø d1                          | 90               | 125                                           | 175               | 210              |
| Ø d2 f8                       | 55               | 70 60                                         | 100               | 130              |
| Ø d3                          | 70               | 102                                           | 140               | 165              |
| d4                            | M8               | M10                                           | M16               | M20              |
| Ø d6 max. <sup>2)</sup>       | Tr 26<br>ACME 1" | Tr 40 <sup>3)</sup><br>ACME 1½" <sup>3)</sup> | Tr 55<br>ACME 2¼" | Tr 75<br>ACME 3" |
| Ø d7                          | 35               | 50                                            | 75                | 99               |
| g                             | 40               | 50                                            | 65                | 80               |
| h                             | 3                | 3                                             | 4                 | 5                |
| h1                            | 23               | 30                                            | 38                | 45               |
| h3                            | 12               | 15                                            | 25                | 35               |
| L                             | 37.5             | 47.5                                          | 61.5              | 76.5             |
| L1                            | 55.5             | 70.5                                          | 90                | 112.5            |
| L6                            | 18               | 23                                            | 28.5              | 36               |
| Z                             | 4                | 4                                             | 4                 | 4                |
| α                             | 17.5°            | 17.5°                                         | 22.5°             | 22.5°            |
| Weight: Standard Version [kg] | 1.1              | 2.8                                           | 6.8               | 11.7             |
| Weight: Extended Version [kg] | 1.3              | 3.2                                           | 7.8               | 14.2             |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

## Dimensions Output drive stem nut A

for SA 25.1 – SA 48.1/SAR 25.1 – SAR 30.1  
 SAEx 25.1 – SAEx 40.1/SAREx 25.1 – SAREx 30.1  
 GK 25.2 – GK 40.2  
 GST 25.1 – GST 40.1  
 GHT 320.3 – GHT 1200.3

Output drive type  
 EN ISO 5210 A

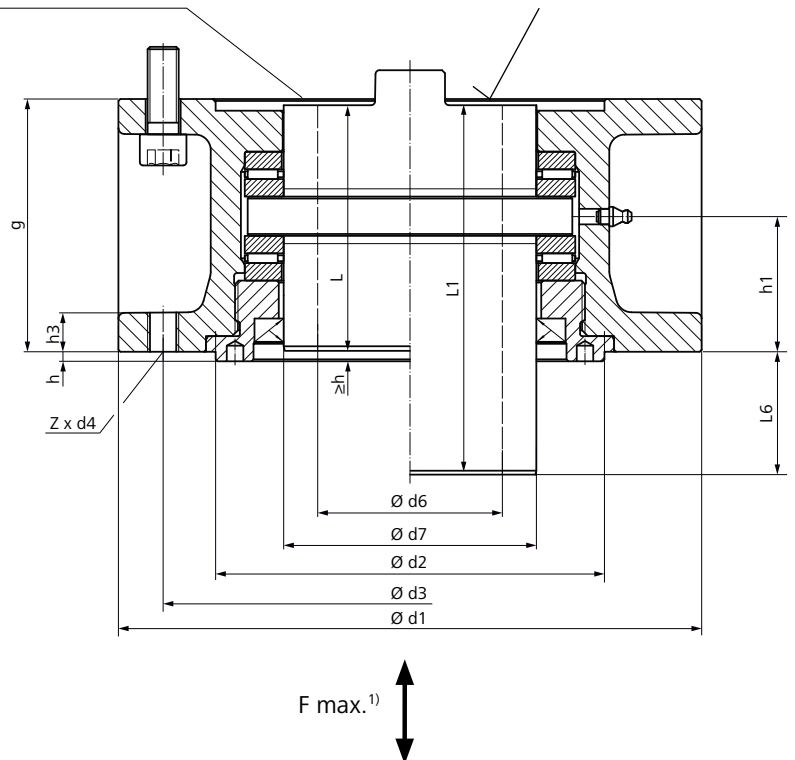


Flange to actuator for A 60.2: F48 according to EN ISO 5211

Flange to gearbox for A 60.2: F60 according to EN ISO 5211

Stem nut

(A 48.2 and A 60.2 with involute splines)



1) Permissible axial load

2) nominal diameter for trapezoidal thread Tr according to DIN 103 or ACME according to ANSI/ASME B 1.5

3) 2 grease nipples

4) Weight for unbored stem nut made of bronze

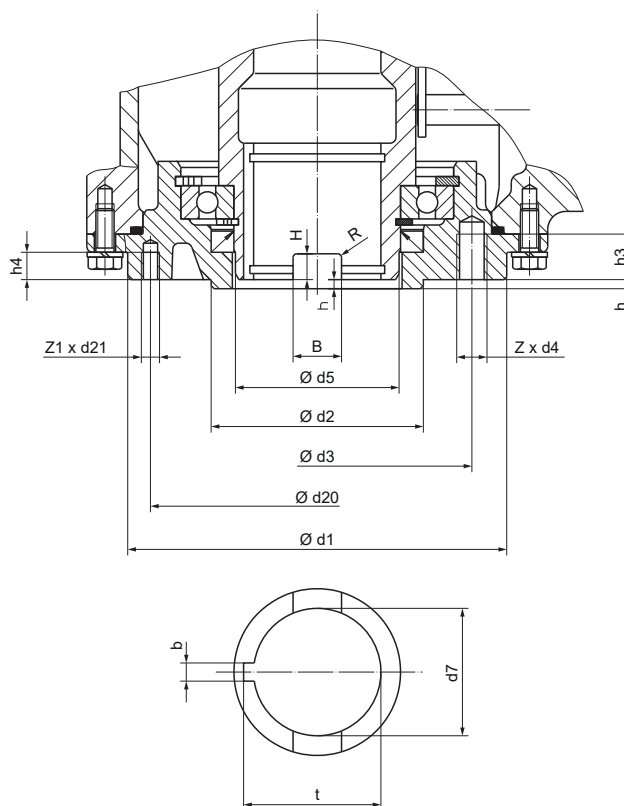
| Dimensions                                  | A 25.2            | A 30.2             | A 35.2            | A 40.2 | A 48.2 | A 60.2 |
|---------------------------------------------|-------------------|--------------------|-------------------|--------|--------|--------|
| EN ISO 5210                                 | F25               | F30                | F35               | F40    | F48    | F60    |
| F max. <sup>1)</sup> [kN]                   | 380               | 460                | 875               | 1375   | 2000   | 4000   |
| Ø d1                                        | 300               | 350                | 415               | 475    | 560    | 686    |
| Ø d2 f8                                     | 200               | 230                | 260               | 300    | 370    | 470    |
| Ø d3                                        | 254               | 298                | 356               | 406    | 483    | 603    |
| d4                                          | M16               | M20                | M30               | M36    | M36    | M36    |
| Ø d6 max. <sup>2)</sup>                     | Tr 95<br>ACME 3½" | Tr 115<br>ACME 4½" | Tr 155<br>ACME 5" | Tr 175 | Tr 175 | Tr 180 |
| Ø d7                                        | 130               | 140                | 200               | 230    | 230    | 230    |
| g                                           | 130               | 160                | 185               | 225    | 270    | 415    |
| h                                           | 5                 | 5                  | 5                 | 8      | 8      | 8      |
| h1                                          | 70                | 85                 | 105               | 129    | 154    | 230    |
| h3                                          | 20                | 25                 | 38                | 45     | 45     | 55     |
| L                                           | 126               | 155.5              | 180               | 219    | 214    | 367    |
| L1                                          | 190               | 234                | 270               | 330    | 359    | –      |
| L6                                          | 64                | 78.5               | 90                | 111    | 145    | –      |
| Z                                           | 8                 | 8                  | 8                 | 8      | 12     | 20     |
| Weight: Standard version [kg] <sup>4)</sup> | 42                | 69                 | 126               | 202    | 271    | 538    |
| Weight: Extended version [kg] <sup>4)</sup> | 49                | 79                 | 149               | 240    | 320    | –      |

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## Dimension Output drive plug sleeve type B1

for SA 07.1 – SA 16.1/SAR 07.1 – SAR 16.1  
GK 10.2 – GK 16.2/GST 10.1 – GST 16.1

Output drive  
type  
EN ISO 5210 B1  
DIN 3210 B



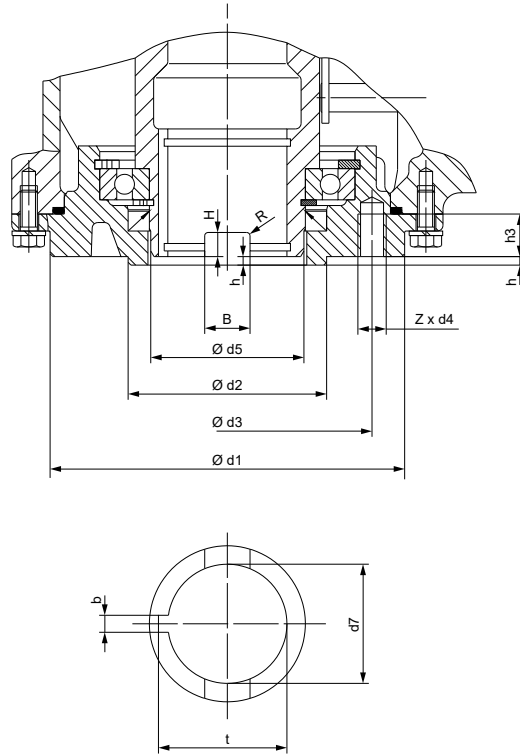
| Dimensions           | B1 07.2 |      |    | B1 10.2 |    | B1 14.2 |      | B1 16.2 |    |
|----------------------|---------|------|----|---------|----|---------|------|---------|----|
| EN ISO 5210/DIN 3210 | F07     | F10  | G0 | F10     | G0 | F14     | G1/2 | F16     | G3 |
| B E9                 | 14      | 16   |    | 16      |    | 32      |      | 36      |    |
| H                    | 8       |      |    | 8.5     |    | 18      |      | 19.5    |    |
| R                    | 1.2     |      |    | 1.2     |    | 1.6     |      | 2       |    |
| b JS9                | 8       | 12   |    | 12      |    | 18      |      | 22      |    |
| Ø d1                 | 90      | 125  |    | 125     |    | 175     |      | 210     |    |
| Ø d2 f8              | 55      | 70   | 60 | 70      | 60 | 100     |      | 130     |    |
| Ø d3                 | 70      | 102  |    | 102     |    | 140     |      | 165     |    |
| d4                   | M8      | M10  |    | M10     |    | M16     |      | M20     |    |
| Ø d5                 | 39      | 54   |    | 54      |    | 79      |      | 99      |    |
| Ø d7 H9              | 28      | 42   |    | 42      |    | 60      |      | 80      |    |
| Ø d20                | 80      |      |    | 110     |    | 155     |      | 185     |    |
| d21                  | M6      |      |    | M6      |    | M10     |      | M12     |    |
| h                    | 3       |      |    | 3       |    | 4       |      | 5       |    |
| h3                   | 12      | 13   |    | 15      |    | 25      |      | 30      |    |
| h4                   | 10      |      |    | 9       |    | 16      |      | 20      |    |
| t                    | 31.3    | 45.3 |    | 45.3    |    | 64.4    |      | 85.4    |    |
| Z                    | 4       |      |    | 4       |    | 4       |      | 4       |    |
| Z1                   | 4       |      |    | 4       |    | 4       |      | 4       |    |

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## Dimension Output drive plug sleeve type B1

for SA 25.1 – SA 40.1/SAR 25.1 – SAR 30.1  
 SAEx 25.1 – SAEx 40.1/SAREx 25.1 – SAREx 30.1  
 GK 25.2 – GK 40.2/GST 25.1 – GST 40.1

Output drive type  
 EN ISO 5210 B1



- 1) Without spigot  
 2) Dimension not according to DIN 3210

| Dimensions  | B1 25.2 |     | B1 30.2 |     | B1 35.2 |                   | B1 40.2 |               |
|-------------|---------|-----|---------|-----|---------|-------------------|---------|---------------|
| EN ISO 5210 | F25     | G4  | F30     | G5  | F35     | G6                | F40     | G7            |
| B E9        | 36      |     | 55      |     | 70      |                   | 85      |               |
| H           | 19      |     | 28.5    |     | 35      |                   | 50      |               |
| R           | 2       |     | 3       |     | 3       |                   | 3       |               |
| b JS9       | 28      |     | 32      |     | 40      |                   | 45      |               |
| Ø d1        | 300     |     | 350     |     | 415     | 415 <sup>2)</sup> | 475     |               |
| Ø d2 f12    | 200     | 160 | 230     | 180 | 260     | 220               | 300     | <sup>1)</sup> |
| Ø d3        | 254     |     | 298     |     | 356     |                   | 406     |               |
| d4          | M16     |     | M20     |     | M30     |                   | M36     |               |
| Ø d5        | 129     |     | 155     |     | 199     |                   | 239     |               |
| Ø d7 H9     | 100     |     | 120     |     | 160     |                   | 180     |               |
| h           | 5       |     | 5       |     | 5       |                   | 8       |               |
| h3          | 28      |     | 30      |     | 50      |                   | 60      |               |
| t           | 106.4   |     | 127.4   |     | 169.4   |                   | 190.4   |               |
| Z           | 8       |     | 8       |     | 8       |                   | 8       |               |

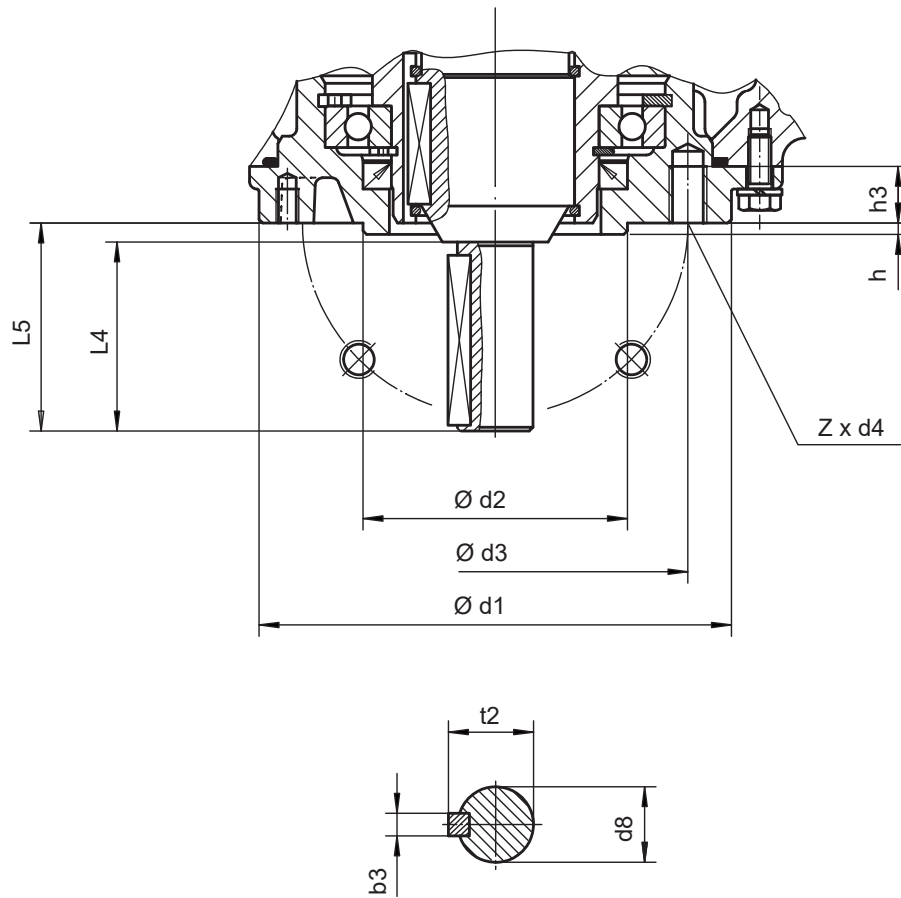
We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.



## Dimensions Output drive type shaft end D

for SA 07.1 – SA 16.1/SAR 07.1 – SAR 16.1  
GK 10.2 – GK 16.2/GST 10.1 – GST 16.1

Output drive type  
DIN 3210 D



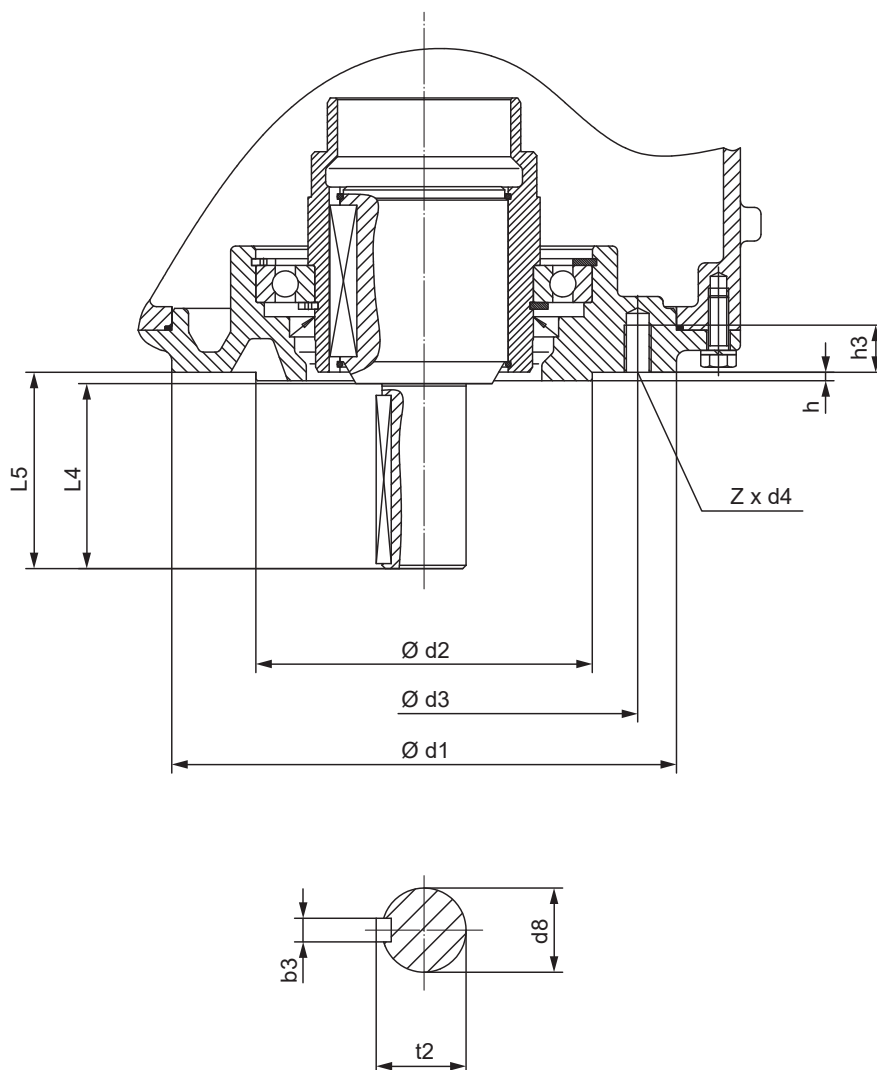
| Dimensions          | D 07.2 |     |    | D 10.2 |    | D 14.2 |      | D 16.2 |    |
|---------------------|--------|-----|----|--------|----|--------|------|--------|----|
| EN ISO 5210/DIN3210 | F07    | F10 | G0 | F10    | G0 | F14    | G1/2 | F16    | G3 |
| b3                  | 6      |     |    | 6      |    | 8      |      | 12     |    |
| Ø d1                | 90     | 125 |    | 125    |    | 175    |      | 210    |    |
| Ø d2 f8             | 55     | 70  | 60 | 70     | 60 | 100    |      | 130    |    |
| Ø d3                | 70     | 102 |    | 102    |    | 140    |      | 165    |    |
| d4                  | M8     | M10 |    | M10    |    | M16    |      | M20    |    |
| Ø d8 g6             | 20     |     |    | 20     |    | 30     |      | 40     |    |
| h                   | 3      |     |    | 3      |    | 4      |      | 5      |    |
| h3                  | 12     | 13  |    | 15     |    | 25     |      | 30     |    |
| L4                  | 50     |     |    | 50     |    | 70     |      | 90     |    |
| L5                  | 55     |     |    | 55     |    | 76     |      | 97     |    |
| t2                  | 22.5   |     |    | 22.5   |    | 33     |      | 43     |    |
| Z                   | 4      |     |    | 4      |    | 4      |      | 4      |    |

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## Dimensions Output drive type shaft end D

for SA 25.1 – SA 40.1/SAR 25.1 – SAR 30.1  
 SAEx 25.1 – SAEx 40.1/SAREx 25.1 – SAREx 30.1  
 GK 25.2 – GK 40.2/GST 25.1 – GST 40.1

Output drive type  
 EN ISO 5210 D  
 DIN 3210 D



1) Without spigot

2) Dimension not according to DIN 3210

| Dimensions           | D 25.2 |     | D 30.2 |     | D 35.2 |                   | D 40.2 |               |
|----------------------|--------|-----|--------|-----|--------|-------------------|--------|---------------|
| EN ISO 5210/DIN 3210 | F25    | G4  | F30    | G5  | F35    | G6                | F40    | G7            |
| Ø d1                 | 300    |     | 350    |     | 415    | 415 <sup>2)</sup> | 475    |               |
| Ø d2 f12             | 200    | 160 | 230    | 180 | 260    | 220               | 300    | <sup>1)</sup> |
| Ø d3                 | 254    |     | 298    | 300 | 356    |                   | 406    |               |
| d4                   | M16    |     | M20    |     | M30    |                   | M36    |               |
| Ø d8 g7              | 50     |     | 60     |     | 80     |                   | 100    |               |
| b3                   | 14     |     | 18     |     | 22     |                   | 28     |               |
| h                    | 5      |     | 5      |     | 5      |                   | 5      |               |
| h3                   | 29     |     | 30     |     | 52     |                   | 60     |               |
| L4                   | 110    |     | 120    |     | 120    |                   | 150    |               |
| L5                   | 117    |     | 127    |     | 127    |                   | 164    |               |
| t2                   | 53.5   |     | 64     |     | 85     |                   | 106    |               |
| Z                    | 8      |     | 8      |     | 8      |                   | 8      |               |

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### Dimensions Output drive type AF - with spring-loaded stem nut

**for SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2**

**SAEx 07.2 – SAEx 16.2/SAREx 07.2 – SAREx 16.2**

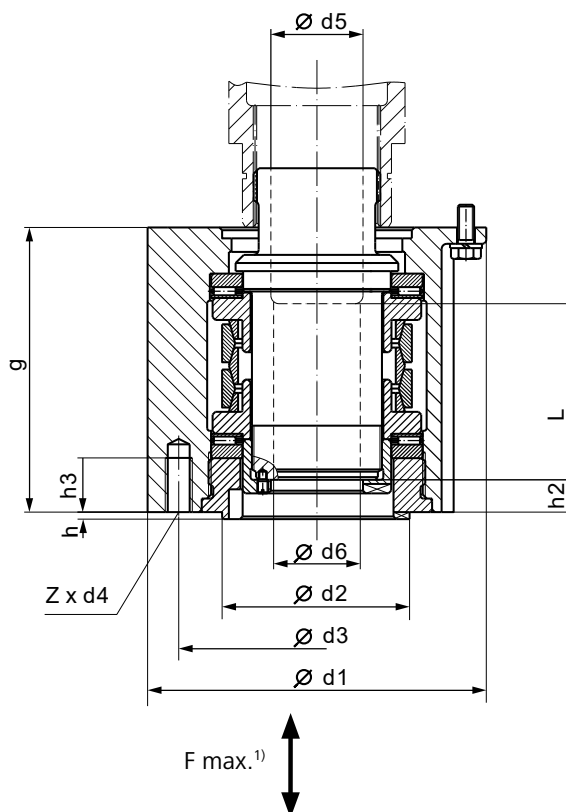
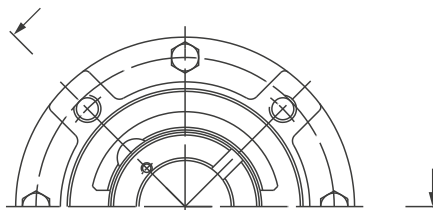
**GK 10.2 – GK 16.2**

## GST 10.1 – GST 16.1

### Output drive type

ISO 5210 AF

DIN 3210 AF



1) permissible axial load

2) Only for SA/SAR 07.2, 07.6

3) nominal diameter for trapezoidal thread Tr according to DIN 103 or ACME according to ANSI/ASME B 1.5

4) For stem protection tube made of PMMA max. Tr 30 or ACME 1 1/8"

| Dimensions                | AF 07.2 <sup>2)</sup>                         |    | AF 07.6 <sup>2)</sup> |    | AF 10.2           |    | AF 14.2          |      | AF 16.2           |    |
|---------------------------|-----------------------------------------------|----|-----------------------|----|-------------------|----|------------------|------|-------------------|----|
| ISO 5210/DIN 3210         | F10                                           | G0 | F10                   | G0 | F10               | G0 | F14              | G1/2 | F16               | G3 |
| F max. [kN] <sup>1)</sup> | 16                                            |    | 33                    |    | 52                |    | 100              |      | 160               |    |
| Ø d1                      | 125                                           |    |                       |    | 125               |    | 175              |      | 210               |    |
| Ø d2 f8                   | 70                                            | 60 | 70                    | 60 | 70                | 60 | 100              |      | 130               |    |
| Ø d3                      | 102                                           |    |                       |    | 102               |    | 140              |      | 165               |    |
| d4                        | M10                                           |    |                       |    | M10               |    | M16              |      | M20               |    |
| Ø d5                      | 34                                            |    |                       |    | 34                |    | 53               |      | 67                |    |
| Ø d6 max. <sup>3)</sup>   | Tr 32 <sup>4)</sup><br>ACME 1¼" <sup>4)</sup> |    |                       |    | Tr 32<br>ACME 1¼" |    | Tr 50<br>ACME 2" |      | Tr 65<br>ACME 2½" |    |
| g                         | 105                                           |    |                       |    | 105               |    | 135              |      | 165               |    |
| h                         | 3                                             |    |                       |    | 3                 |    | 4                |      | 4                 |    |
| h2                        | 12                                            |    |                       |    | 12                |    | 13               |      | 15                |    |
| h3                        | 20                                            |    |                       |    | 20                |    | 25               |      | 35                |    |
| L                         | 65                                            |    |                       |    | 65                |    | 90               |      | 110               |    |
| Z                         | 4                                             |    |                       |    | 4                 |    | 4                |      | 4                 |    |
| Weight [kg]               | 5.2                                           |    |                       |    | 5.5               |    | 13.7             |      | 23                |    |

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## Dimensions Output drive type AF - with spring loaded stem nut

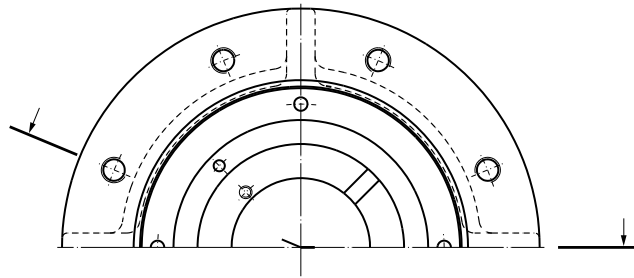
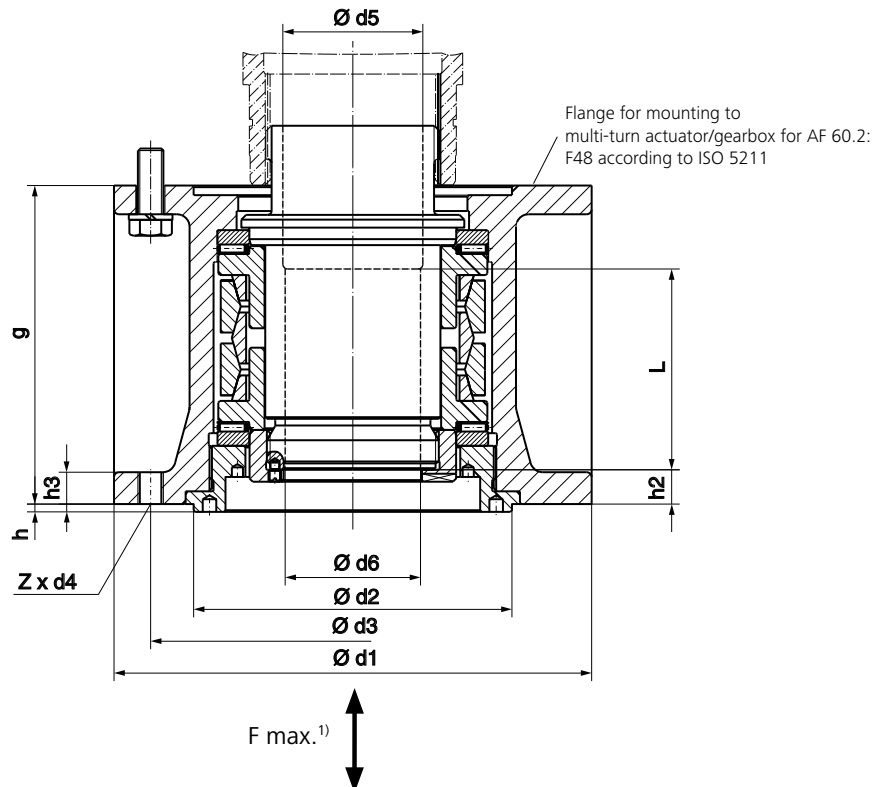
for SA 25.1 – SA 48.1/SAR 25.1 – SAR 30.1

SAEx 25.1 – SAEx 40.1/SAREx 25.1 – SAREx 30.1

GK 25.2 – GK 40.2

GST 25.1 – GST 40.1

GHT 320.3 – GHT 1200.3

Output drive type  
EN ISO 5210 AF

1) permissible axial load

2) nominal diameter for trapezoidal thread Tr according to DIN 103 or ACME according to ANSI/ASME B 1.5

| Dimensions                | AF 25.2          | AF 30.2           | AF 35.2           | AF 40.2 | AF 48.2 | AF 60.2 |
|---------------------------|------------------|-------------------|-------------------|---------|---------|---------|
| EN ISO 5210/EN ISO 5211   | F25              | F30               | F35               | F40     | F48     | F60     |
| F max. [kN] <sup>1)</sup> | 260              | 410               | 700               | 800     | 2630    | 2630    |
| Ø d1                      | 300              | 350               | 415               | 475     | 560     | 686     |
| Ø d2 f8                   | 200              | 230               | 260               | 300     | 370     | 470     |
| Ø d3                      | 254              | 298               | 356               | 406     | 483     | 603     |
| d4                        | M16              | M20               | M30               | M36     | M36     | M36     |
| Ø d5                      | 88               | 104               | 152               | 180     | 181     | 181     |
| Ø d6 max. <sup>2)</sup>   | Tr 85<br>ACME 3" | Tr 100<br>ACME 4" | Tr 150<br>ACME 5" | Tr 175  | Tr 180  | Tr 180  |
| g                         | 216              | 252               | 315               | 400     | 585     | 585     |
| h                         | 5                | 5                 | 5                 | 8       | 7       | 7       |
| h2                        | 21               | 25                | 28                | 37      | 59      | 59      |
| h3                        | 20               | 25                | 38                | 45      | 50      | 55      |
| L                         | 142              | 172               | 210               | 258     | 375     | 375     |
| Z                         | 8                | 8                 | 8                 | 8       | 12      | 20      |
| Weight [kg]               | 61               | 103               | 180               | 320     | 740     | 780     |

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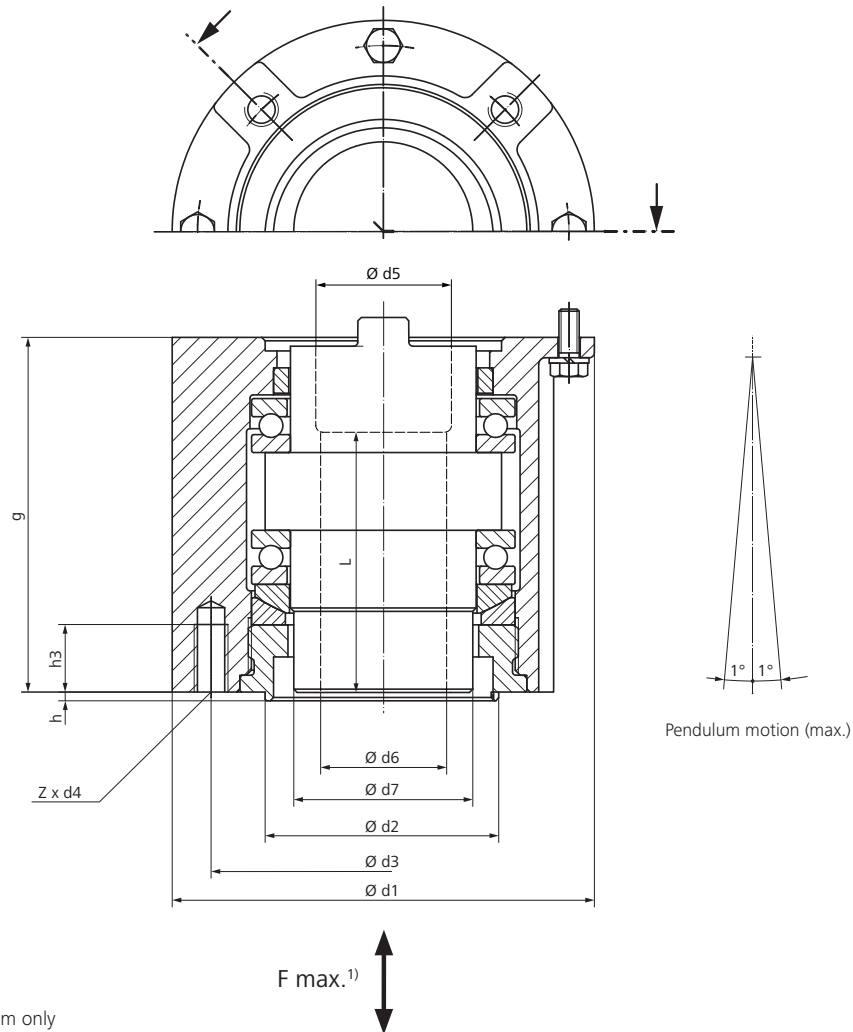
## Dimensions Output drive type AK

for SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2

SAEx 07.2 – SAEx 16.2/SAREx 07.2 – SAREx 16.2

GK 10.2 – GK 16.2

GST 10.1 – GST 16.1

Output drive type  
EN ISO 5210 AK**Note:** Suitable for vertical stem only

1) permissible axial load

2) nominal diameter for trapezoidal thread Tr according to DIN 103 or ACME according to ANSI/ASME B 1.5

3) when mounting to multi-turn actuator sizes 07.2/07.6, refer to Dimensions Multi-turn actuators for max. nominal diameter

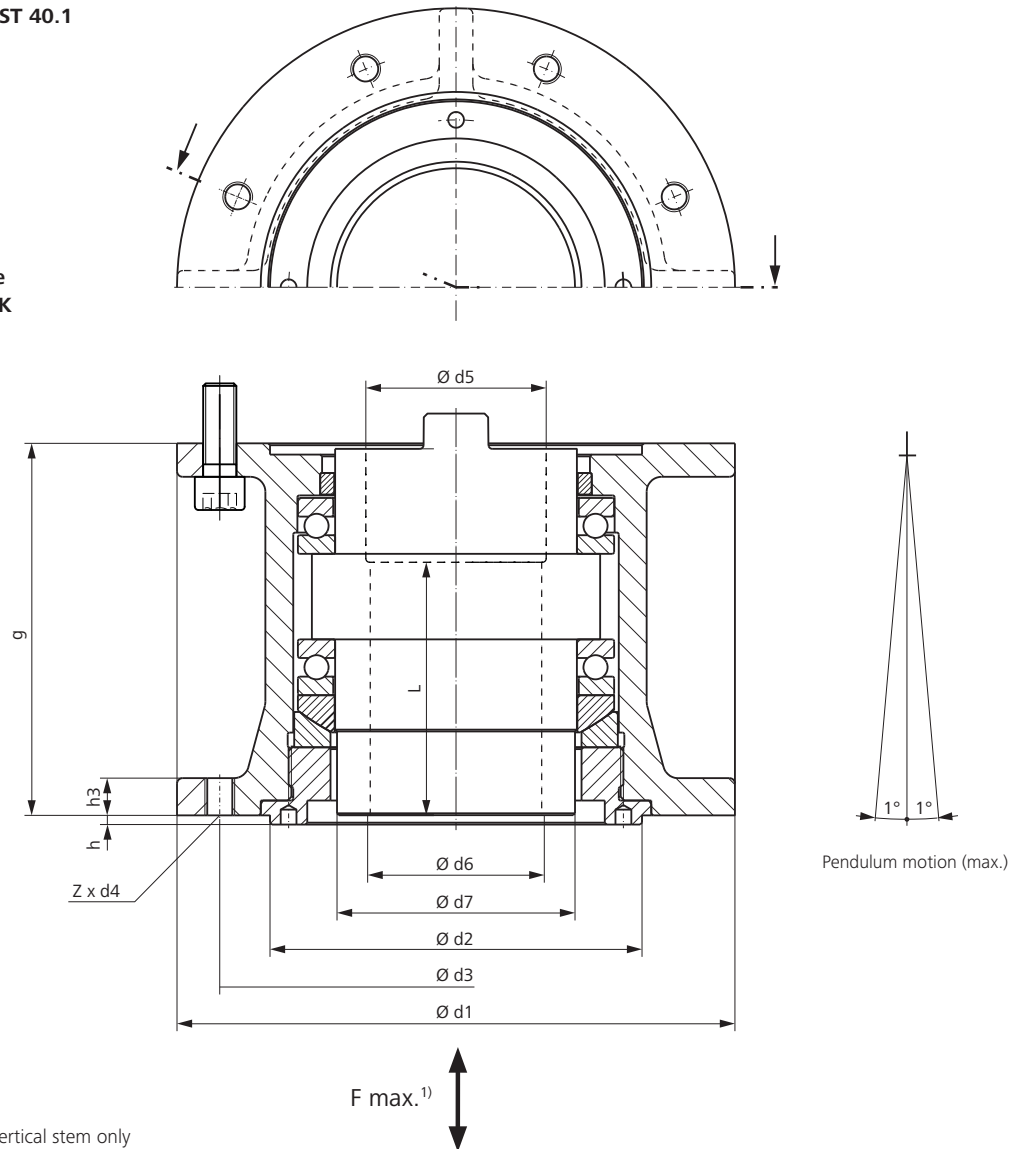
| Dimensions                | AK 10.2 |                                               | AK 14.2           |      | AK 16.2           |     |
|---------------------------|---------|-----------------------------------------------|-------------------|------|-------------------|-----|
|                           | F10     | G0                                            | F14               | G1/2 | F16               | G3  |
| EN ISO 5210/DIN 3210      |         |                                               |                   |      |                   |     |
| F max. [kN] <sup>1)</sup> |         | 70                                            |                   | 160  |                   | 250 |
| Ø d1                      |         | 125                                           |                   | 175  |                   | 210 |
| Ø d2 f8                   | 70      | 60                                            | 100               |      | 130               |     |
| Ø d3                      |         | 102                                           | 140               |      | 165               |     |
| d4                        |         | M10                                           | M16               |      | M20               |     |
| Ø d5                      |         | 41                                            | 58                |      | 76                |     |
| Ø d6 max. <sup>2)</sup>   |         | Tr 40 <sup>3)</sup><br>ACME 1½" <sup>3)</sup> | Tr 55<br>ACME 2¼" |      | Tr 75<br>ACME 3¼" |     |
| Ø d7                      |         | 53                                            | 78                |      | 97                |     |
| g                         |         | 105                                           | 135               |      | 165               |     |
| h                         |         | 3                                             | 4                 |      | 4                 |     |
| h3                        |         | 20                                            | 25                |      | 35                |     |
| L                         |         | 65                                            | 90                |      | 110               |     |
| Z                         |         | 4                                             | 4                 |      | 4                 |     |
| Weight kg                 |         | 5.5                                           | 13.7              |      | 23                |     |

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## Dimensions Output drive type AK

for SA 25.1 – SA 40.1/SAR 25.1 – SAR 30.1  
 SAEx 25.1 – SAEx 40.1/SAREx 25.1 – SAREx 30.1  
 GK 25.2 – GK 40.2  
 GST 25.1 – GST 40.1

Output drive type  
 EN ISO 5210 AK



**Note:** Suitable for vertical stem only

1) Permissible axial load

2) nominal diameter for trapezoidal thread Tr according to DIN 103 or ACME according to ANSI/ASME B 1.5

| Dimensions                | AK 25.2           | AK 30.2            | AK 35.2           | AK 40.2 |
|---------------------------|-------------------|--------------------|-------------------|---------|
| EN ISO 5210               | F25               | F30                | F35               | F40     |
| F max. [kN] <sup>1)</sup> | 380               | 460                | 875               | 1,100   |
| Ø d1                      | 300               | 350                | 415               | 475     |
| Ø d2 f8                   | 200               | 230                | 260               | 300     |
| Ø d3                      | 254               | 298                | 356               | 406     |
| d4                        | M16               | M20                | M30               | M36     |
| Ø d5                      | 97                | 117                | 157               | 180     |
| Ø d6 max. <sup>2)</sup>   | Tr 95<br>ACME 3½" | Tr 115<br>ACME 4½" | Tr 155<br>ACME 5" | Tr 175  |
| Ø d7                      | 128               | 156                | 195               | 230     |
| g                         | 216               | 252                | 315               | 400     |
| h                         | 5                 | 5                  | 5                 | 8       |
| h3                        | 20                | 25                 | 38                | 45      |
| L                         | 152               | 172                | 255               | 255.5   |
| Z                         | 8                 | 8                  | 8                 | 8       |
| Weight kg                 | 61                | 103                | 180               | 320     |

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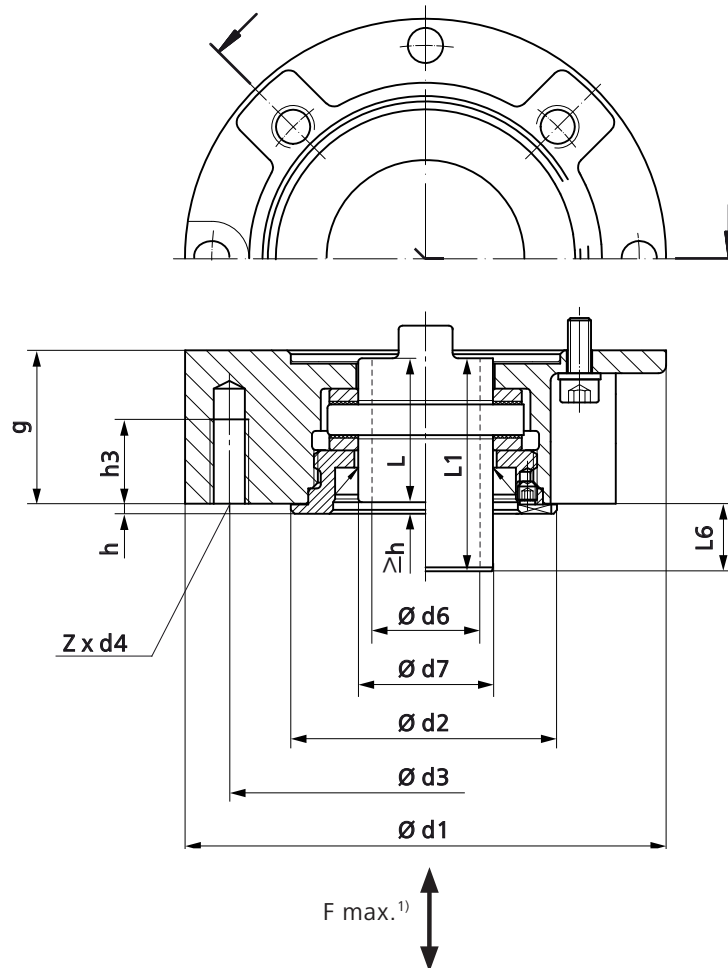
## Dimensions Output drive AG stem nut for oxygen application

for SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2

SAEx 07.2 – SAEx 16.2/SAREx 07.2 – SAREx 16.2

GK 10.2 – GK 16.2

GST 10.1 – GST 16.1

Output drive  
EN ISO 5210 AG

1) permissible axial load

2) nominal diameter for trapezoidal thread Tr according to DIN 103 or ACME according to ANSI/ASME B 1.5

3) when mounting to multi-turn actuator sizes 07.2/07.6, refer to Dimensions Multi-turn actuators for max. nominal diameter

| Dimensions                    | AG 10.2                | AG 14.2  | AG 16.2 |
|-------------------------------|------------------------|----------|---------|
| EN ISO 5210                   | F10                    | F14      | F16     |
| F max. [kN] <sup>1)</sup>     | 70                     | 160      | 250     |
| Ø d1                          | 125                    | 175      | 210     |
| Ø d2 f8                       | 70                     | 100      | 130     |
| Ø d3                          | 102                    | 140      | 165     |
| d4                            | M10                    | M16      | M20     |
| Ø d6 max. <sup>2)</sup>       | Tr 40 <sup>3)</sup>    | Tr 55    | Tr 75   |
|                               | ACME 1½" <sup>3)</sup> | ACME 2¼" | ACME 3" |
| Ø d7                          | 50                     | 75       | 99      |
| g                             | 50                     | 65       | 80      |
| h                             | 3                      | 4        | 5       |
| h3                            | 22                     | 25       | 35      |
| L                             | 47.5                   | 61.5     | 76.5    |
| L1                            | 70.5                   | 90       | 112.5   |
| L6                            | 23                     | 28.5     | 36      |
| Z                             | 4                      | 4        | 4       |
| Weight: Standard Version [kg] | 2.8                    | 6.8      | 11.7    |
| Weight: Extended Version [kg] | 3.2                    | 7.8      | 14.2    |

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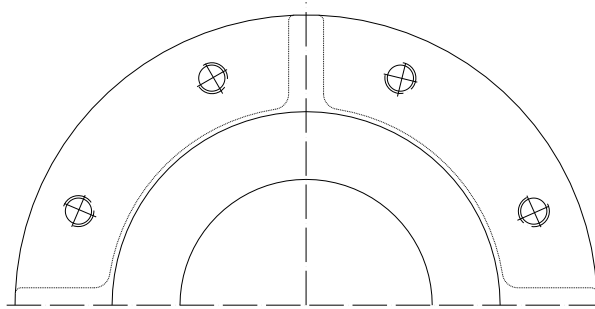
## Dimensions Output drive AG stem nut for oxygen application

for SA 25.1 – SA 30.1/SAR 25.1 – SAR 30.1

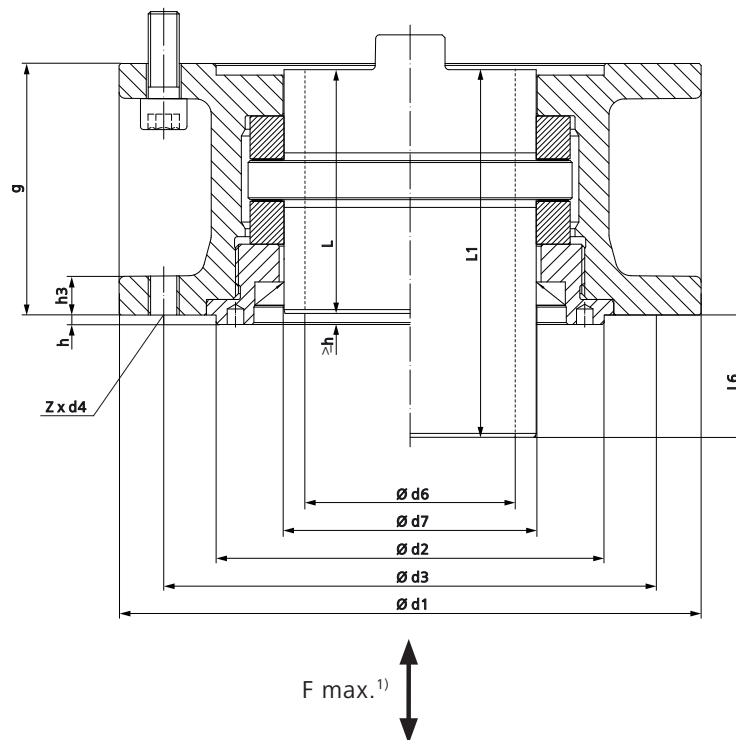
SAEx 25.1 – SAEx 30.1/SAREx 25.1 – SAREx 30.1

GK 25.2 – GK 30.2

GST 25.1 – GST 30.1



Output drive  
EN ISO 5210 AG



1) permissible axial load

2) nominal diameter for trapezoidal thread Tr according to DIN 103 or ACME according to ANSI/ASME B 1.5

| Dimensions                    | AG 25.2           | AG 30.2            |
|-------------------------------|-------------------|--------------------|
| EN ISO 5210                   | F25               | F30                |
| F max. [kN] <sup>1)</sup>     | 380               | 460                |
| Ø d1                          | 300               | 350                |
| Ø d2 f8                       | 200               | 230                |
| Ø d3                          | 254               | 298                |
| d4                            | M16               | M20                |
| Ø d6 max. <sup>2)</sup>       | Tr 95<br>ACME 3½" | Tr 115<br>ACME 4½" |
| Ø d7                          | 130               | 140                |
| g                             | 130               | 160                |
| h                             | 5                 | 5                  |
| h3                            | 20                | 25                 |
| L                             | 126               | 155.5              |
| L1                            | 190               | 234                |
| L6                            | 64                | 78.5               |
| Z                             | 8                 | 8                  |
| Weight: standard version [kg] | 43                | 70.5               |
| Weight: extended version [kg] | 50                | 80.5               |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.



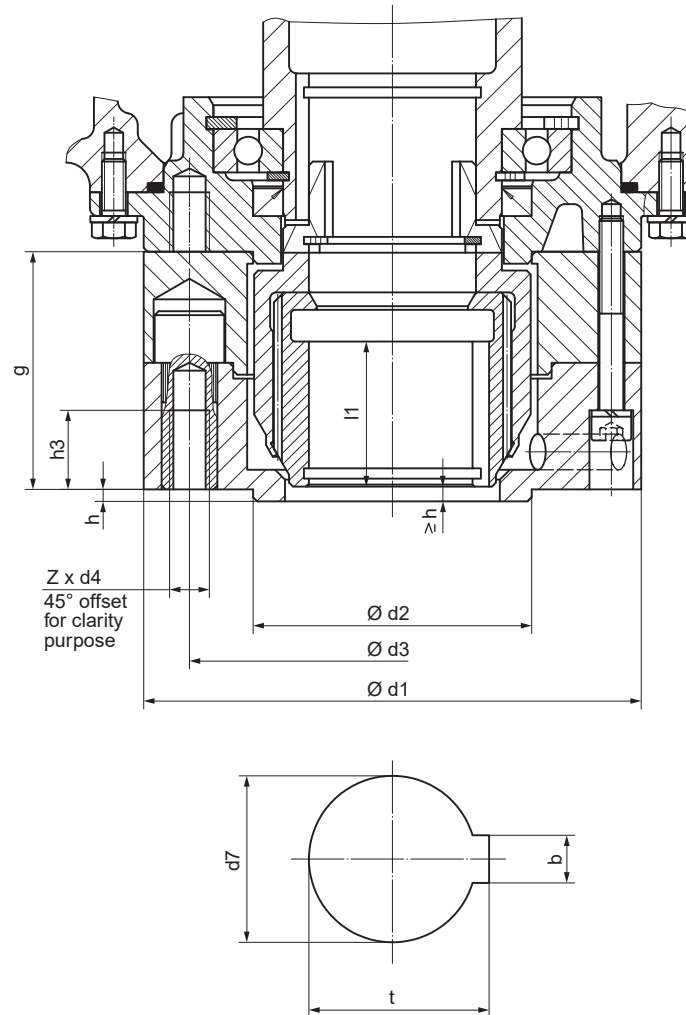
# Dimensions Output drive type IB1/IB - insulated output drive

for SA 07.1 – SA 25.1/SAR 07.1 – SAR 25.1  
GK 10.2 – GK 25.2/GST 10.1 – GST 25.1

## Output drive type

ISO 5210  
DIN 3210

IB1  
IB



1) with intermediate flange for actuator mounting

| Dimensions        | IB1 07.2          |                   | IB 07.2          | IB1 10.2 | IB 10.2 | IB1 14.2 | IB 14.2 | IB1 16.2 | IB 16.2 | IB1 25.2 | IB 25.2 |
|-------------------|-------------------|-------------------|------------------|----------|---------|----------|---------|----------|---------|----------|---------|
| ISO 5210/DIN 3210 | F07 <sup>1)</sup> | F10 <sup>1)</sup> | G0 <sup>1)</sup> | F10      | G0      | F14      | G1/2    | F16      | G3      | F25      | G4      |
| b JS9             | 8                 | 12                |                  | 12       |         | 18       |         | 22       |         | 28       |         |
| Ø d1              | 90                | 125               |                  | 125      |         | 180      |         | 210      |         | 300      |         |
| Ø d2 f8           | 55                | 70                | 60               | 70       | 60      | 100      |         | 130      |         | 200      | 160     |
| Ø d3              | 70                | 102               |                  | 102      |         | 140      |         | 165      |         | 254      |         |
| d4                | M8                | M10               |                  | M10      |         | M16      |         | M20      |         | M16      |         |
| Ø d7 H9           | 28                | 42                |                  | 42       |         | 60       |         | 80       |         | 100      |         |
| g                 | 60                | 75                |                  | 60       |         | 90       |         | 110      |         | 150      |         |
| h                 | 3                 |                   |                  | 3        |         | 4        |         | 5        |         | 5        |         |
| h3                | 16                | 20                |                  | 20       |         | 30       |         | 35       |         | 30       |         |
| l1                | 28                | 36                |                  | 36       |         | 55       |         | 65       |         | 110      |         |
| t                 | 31.3              | 45.3              |                  | 45.3     |         | 64.4     |         | 85.4     |         | 106.4    |         |
| Z                 | 4                 |                   |                  | 4        |         | 4        |         | 4        |         | 8        |         |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

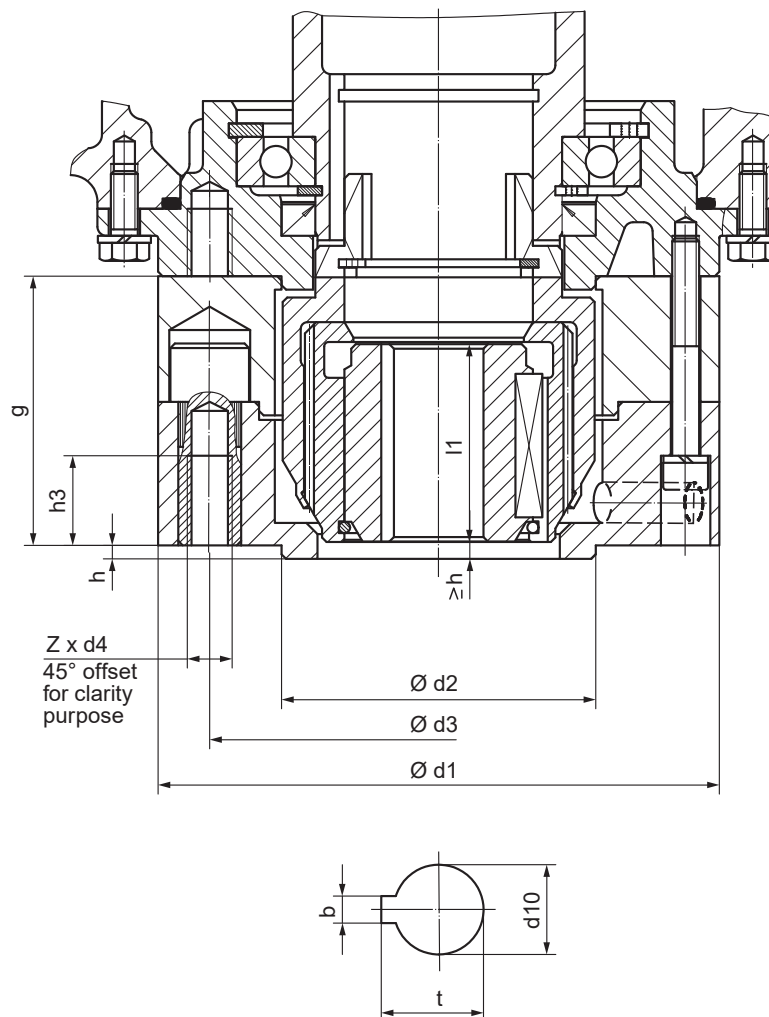
## Dimensions Output drive type IB3/IE - insulated output drive

for SA 07.1 – SA 25.1/SAR 07.1 – SAR 25.1  
GK 10.2 – GK 25.2/GST 10.1 – GST 25.1

## Output drive type

ISO 5210  
DIN 3210

IB3  
IE

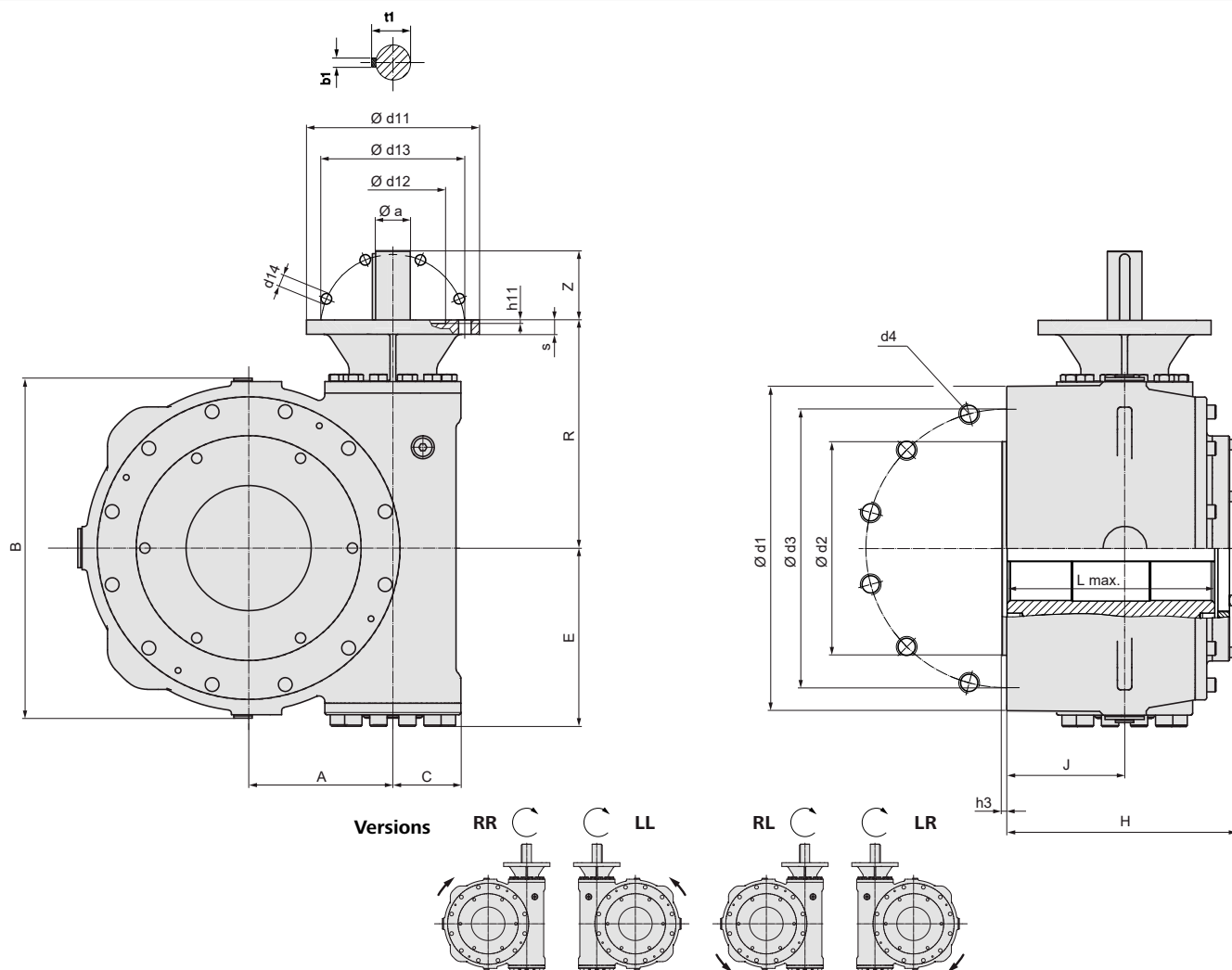


1) with intermediate flange for actuator mounting

| Dimensions        | IB3 07.2          |                   | IE 07.2          | IB3 10.2 |    | IE 10.2 | IB3 14.2 | IE 14.2 | IB3 16.2 | IE 16.2 | IB3 25.2 | IE 25.2 |
|-------------------|-------------------|-------------------|------------------|----------|----|---------|----------|---------|----------|---------|----------|---------|
| ISO 5210/DIN 3210 | F07 <sup>1)</sup> | F10 <sup>1)</sup> | G0 <sup>1)</sup> | F10      | G0 | F14     | G1/2     | F16     | G3       | F25     | G4       |         |
| b JS9             | 5                 | 6                 |                  | 6        |    | 8       |          | 12      |          | 14      |          |         |
| Ø d1              | 90                | 125               |                  | 125      |    | 180     |          | 210     |          | 300     |          |         |
| Ø d2 f8           | 55                | 70                | 60               | 70       | 60 | 100     |          | 130     |          | 200     | 160      |         |
| Ø d3              | 70                | 102               |                  | 102      |    | 140     |          | 165     |          | 254     |          |         |
| d4                | M8                | M10               |                  | M10      |    | M16     |          | M20     |          | M16     |          |         |
| Ø d10 H9          | 16                | 20                |                  | 20       |    | 30      |          | 40      |          | 50      |          |         |
| g                 | 60                | 75                |                  | 60       |    | 90      |          | 110     |          | 150     |          |         |
| h                 | 3                 |                   |                  | 3        |    | 4       |          | 5       |          | 5       |          |         |
| h3                | 16                | 20                |                  | 20       |    | 30      |          | 35      |          | 30      |          |         |
| l1                | 28                | 36                |                  | 36       |    | 55      |          | 65      |          | 110     |          |         |
| t                 | 18.3              | 22.8              |                  | 22.8     |    | 33.3    |          | 43.3    |          | 53.8    |          |         |
| Z                 | 4                 |                   |                  | 4        |    | 4       |          | 4       |          | 8       |          |         |

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## Dimensions Multi-turn gearboxes



| Dimensions                       | GHT 320.3     | GHT 500.3     | GHT 800.3     | GHT 1200.3    |
|----------------------------------|---------------|---------------|---------------|---------------|
| <b>EN ISO 5211</b>               | F48           | F60           | F60           | F60           |
| A                                | 250           | 315           | 355           | 400           |
| B                                | 590           | 721           | 793           | 883           |
| C                                | 118           | 145           | 163           | 169           |
| E                                | 313           | 364           | 398           | 441           |
| H                                | 399           | 460           | 496           | 624           |
| J                                | 205           | 236           | 254           | 323           |
| L max.                           | 360           | 422           | 456           | 586           |
| R                                | 396           | 442           | 475           | 518           |
| Ø a f7                           | 60            | 80            | 100           | 100           |
| b1                               | 18            | 22            | 28            | 28            |
| Ø d1                             | 560           | 686           | 686           | 686           |
| Ø d2 f8                          | 370           | 470           | 470           | 470           |
| Ø d3                             | 483           | 603           | 603           | 603           |
| d4                               | 12 x M36 x 55 | 20 x M36 x 55 | 20 x M36 x 55 | 20 x M36 x 55 |
| h3                               | 8             | 8             | 8             | 8             |
| t1                               | 64            | 85            | 106           | 106           |
| z                                | 120           | 180           | 200           | 200           |
| Input flange acc. to EN ISO 5210 | F25/F30       | F30/F35       | F35/F40       | F35/F40       |

| Flange for mounting multi-turn actuator |          |        |        |        |
|-----------------------------------------|----------|--------|--------|--------|
| EN ISO 5210                             | F25      | F30    | F35    | F40    |
| Ø d11                                   | 300      | 350    | 415    | 475    |
| Ø d12 H8                                | 200      | 230    | 260    | 300    |
| Ø d13                                   | 254      | 298    | 356    | 406    |
| Ø d14                                   | 8 x 17,5 | 8 x 22 | 8 x 33 | 8 x 39 |
| h11                                     | 6        | 6      | 9      | 9      |
| s                                       | 25       | 25     | 30     | 30     |

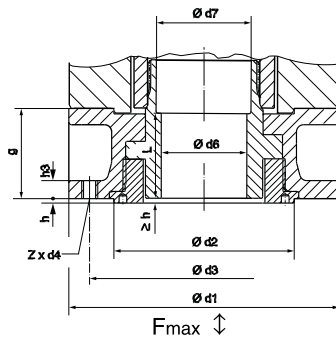
We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

# Dimensions Valve attachments according to EN ISO 5211

Output drive type

**A**

Stem nut



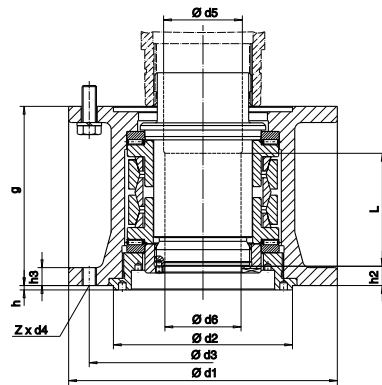
with involute splines

| Dimensions  | GHT 320.3 |      | GHT 500.3 | GHT 800.3 | GHT 1200.3 |
|-------------|-----------|------|-----------|-----------|------------|
| EN ISO 5211 | F48       | F60  | F60       | F60       | F60        |
| F max. [kN] | 2000      | 4000 | 4000      | 4000      | 4000       |
| Ø d1        | 560       | 686  | 686       | 686       | 686        |
| Ø d2        | 370       | 470  | 470       | 470       | 470        |
| Ø d3        | 483       | 603  | 603       | 603       | 603        |
| d4          | M36       | M36  | M36       | M36       | M36        |
| Ø d6 max.   | 175       | 180  | 180       | 180       | 180        |
| Ø d7        | 178       | 181  | 181       | 181       | 181        |
| g           | 270       | 415  | 415       | 415       | 415        |
| h           | 8         | 8    | 8         | 8         | 8          |
| h3          | 45        | 55   | 55        | 55        | 55         |
| L           | 214       | 367  | 367       | 367       | 367        |
| Z           | 12        | 20   | 20        | 20        | 20         |
| Weight [kg] | 103       | 480  | 565       | 565       | 565        |

Output drive type

**AF**

Spring loaded stem nut

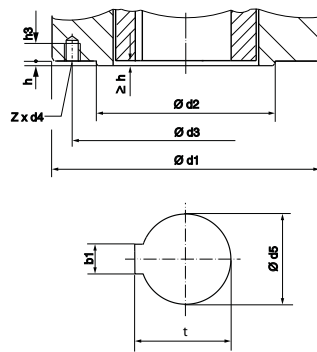


| Dimensions  | GHT 320.3 |      | GHT 500.3  | GHT 800.3  | GHT 1200.3 |
|-------------|-----------|------|------------|------------|------------|
| EN ISO 5211 | F48       | F60  | F60        | F60        | F60        |
| F max. [kN] | 2630      | 2630 |            |            |            |
| Ø d1        | 560       | 686  |            |            |            |
| Ø d2 f8     | 370       | 470  |            |            |            |
| Ø d3        | 483       | 603  |            |            |            |
| d4          | M36       | M36  |            |            |            |
| Ø d5        | 181       | 181  |            |            |            |
| Ø d6 max.   | 180       | 180  |            |            |            |
| g           | 585       | 585  | on request | on request | on request |
| h           | 7         | 7    |            |            |            |
| h2          | 59        | 59   |            |            |            |
| h3          | 50        | 55   |            |            |            |
| L           | 375       | 375  |            |            |            |
| Z           | 12        | 20   |            |            |            |
| Weight [kg] | 740       | 780  |            |            |            |

Output drive type

**B**

Bore with keyway according to DIN 6885-1

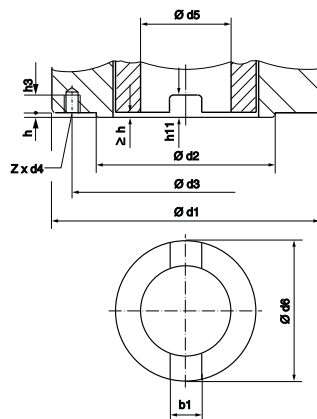


| Dimensions           | GHT 320.3 | GHT 500.3 | GHT 800.3 | GHT 1200.3 |
|----------------------|-----------|-----------|-----------|------------|
| EN ISO 5211          | F48       | F60       | F60       | F60        |
| Ø d1                 | 560       | 686       | 686       | 686        |
| Ø d2 f8              | 370       | 470       | 470       | 470        |
| Ø d3                 | 483       | 603       | 603       | 603        |
| d4                   | M36       | M36       | M36       | M36        |
| Ø d5 H7              | 120       | 135       | 160       | 180        |
| Ø d5 H7 max.         | 180       | 180       | 180       | 180        |
| h                    | 8         | 8         | 8         | 8          |
| h3                   | 55        | 55        | 55        | 55         |
| b1 js9 <sup>1)</sup> | 32        | 36        | 40        | 45         |
| t <sup>1)</sup>      | 127.4     | 143.4     | 169.4     | 190.4      |
| Z                    | 12        | 20        | 20        | 20         |

Output drive type

**C**

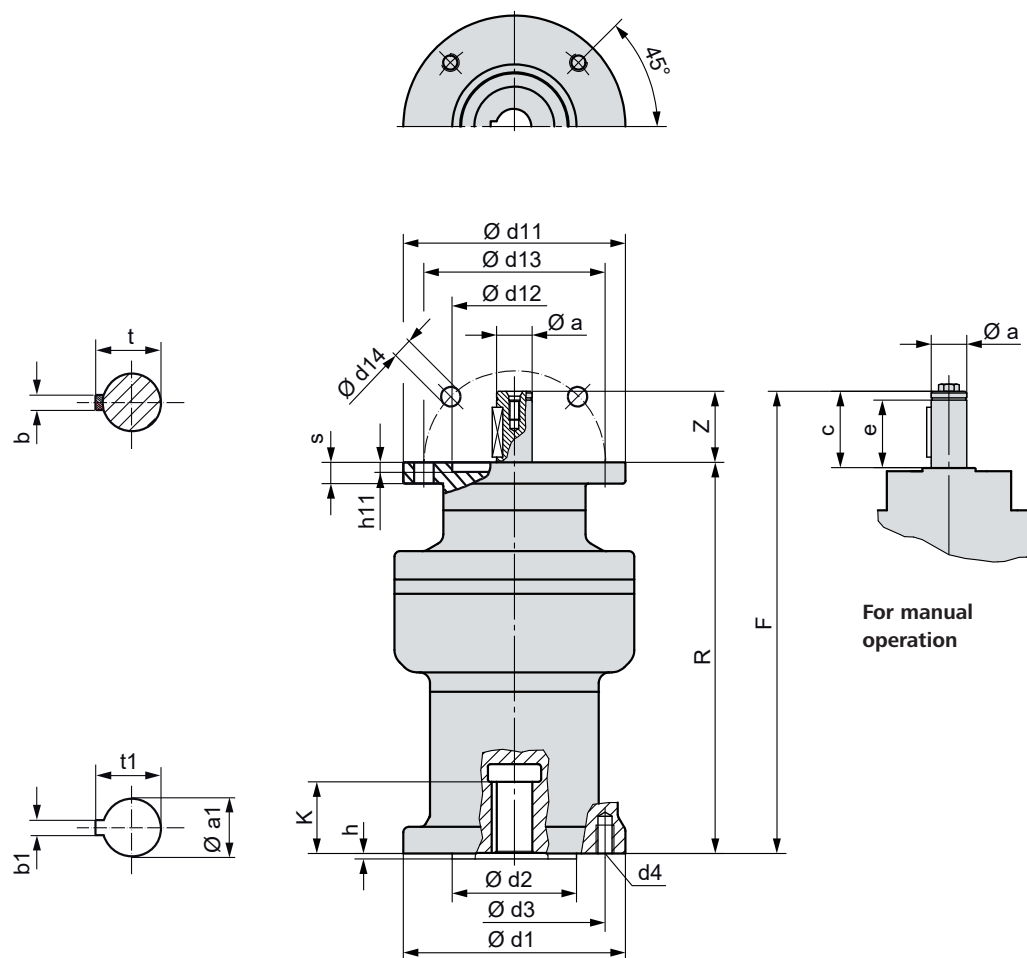
Dog coupling (dimensions acc. to DIN 3338)



| Dimensions  | GHT 320.3 | GHT 500.3 | GHT 800.3 | GHT 1200.3 |
|-------------|-----------|-----------|-----------|------------|
| EN ISO 5211 | F48       | F60       | F60       | F60        |
| Ø d1        | 560       | 686       | 686       | 686        |
| Ø d2 f8     | 370       | 470       | 470       | 470        |
| Ø d3        | 483       | 603       | 603       | 603        |
| d4          | M36       | M36       | M36       | M36        |
| Ø d5        | 180       | 180       | 180       | 180        |
| Ø d6        | 259       | 259       | 259       | 259        |
| h           | 8         | 8         | 8         | 8          |
| h3          | 55        | 55        | 55        | 55         |
| h11         | 58        | 58        | 58        | 58         |
| b1          | 85        | 85        | 85        | 85         |
| Z           | 12        | 20        | 20        | 20         |

1) Dimensions depend on Ø d7, refer to 6885-1

## Dimensions Multi-turn gearboxes



| Dimensions                | GP 10.1 |         | GP 14.1 |         | GP 16.1 |      | GP 25.1 |      |      | GP 30.1 |      |      |     |
|---------------------------|---------|---------|---------|---------|---------|------|---------|------|------|---------|------|------|-----|
| Reduction ratio           | —       |         |         | 4:1     |         | 8:1  |         | 4:1  |      | 8:1     |      | 16:1 |     |
| EN ISO 5210               | F10     |         | F14     |         | F16     |      | F25     |      |      | F30     |      |      |     |
| Ø a                       | 20      |         | 20      | 30      | 30      | 20   | 30      | 30   | 20   | 40      | 30   | 30   |     |
| Ø a1                      | 20      |         | 30      |         | 40      |      | 50      |      |      | 60      |      |      |     |
| b                         | 6       |         | 6       | 8       | 8       | 6    | 8       | 8    | 6    | 12      | 8    | 8    |     |
| b1                        | 6       |         | 8       |         | 12      |      | 14      |      |      | 18      |      |      |     |
| c                         | 43      |         | 43      | 60      | 60      | 43   | 60      | 60   | 43   | 73      | 60   | 60   |     |
| Ø d1                      | 125     |         | 175     |         | 210     |      | 300     |      |      | 350     |      |      |     |
| Ø d2                      | 70      |         | 100     |         | 130     |      | 200     |      |      | 230     |      |      |     |
| Ø d3                      | 102     |         | 140     |         | 165     |      | 254     |      |      | 298     |      |      |     |
| d4                        | 4 x M10 | 4 x M16 |         | 4 x M20 |         |      | 8 x M16 |      |      | 8 x M20 |      |      |     |
| e                         | 38      | 38      | 55      | 55      | 38      | 55   | 55      | 38   | 65   | 55      | 55   |      |     |
| F                         | 260     | 260     | 280     | 295     | 275     | 373  | 373     | 378  | 417  | 397     | 442  |      |     |
| h                         | 3       | 4       |         | 4       |         |      | 4       |      |      | 5       |      |      |     |
| K                         | 40      | 60      |         | 65.5    |         |      | 93.8    |      |      | 112.3   |      |      |     |
| R                         | 220     |         |         | 235     |         | 313  |         |      | 358  |         | 337  |      | 382 |
| t                         | 22.5    | 22.5    | 33      | 33      | 22.5    | 33   | 33      | 22.5 | 43   | 33      | 33   |      |     |
| t1                        | 22.8    | 33.3    |         | 43.3    |         | 53.8 |         |      | 64.4 |         |      |      |     |
| Z                         | 40      | 40      | 60      | 60      | 40      | 60   | 60      | 40   | 80   | 60      | 60   |      |     |
| EN ISO 5210 <sup>1)</sup> | F10     | F10/F14 |         | F14     | F10     | F14  | F14     | F10  | F16  | F14     | F14  |      |     |
| DIN 3210 <sup>1)</sup>    | G0      | G0/G1/2 |         | G1/2    | G0      | G1/2 | G1/2    | G0   | G3   | G1/2    | G1/2 |      |     |

<sup>1)</sup> Flange for mounting multi-turn actuator

|             |      |  |      |  |      |  |
|-------------|------|--|------|--|------|--|
| EN ISO 5210 | F10  |  | F14  |  | F16  |  |
| DIN 3210    | G0   |  | G1/2 |  | G3   |  |
| Ø d11       | 125  |  | 175  |  | 210  |  |
| Ø d12       | 70   |  | 100  |  | 130  |  |
| Ø d13       | 102  |  | 140  |  | 165  |  |
| Ø d14       | 4x11 |  | 4x18 |  | 4x22 |  |
| h11         | 5    |  | 5    |  | 6    |  |
| s           | 12   |  | 17   |  | 25   |  |

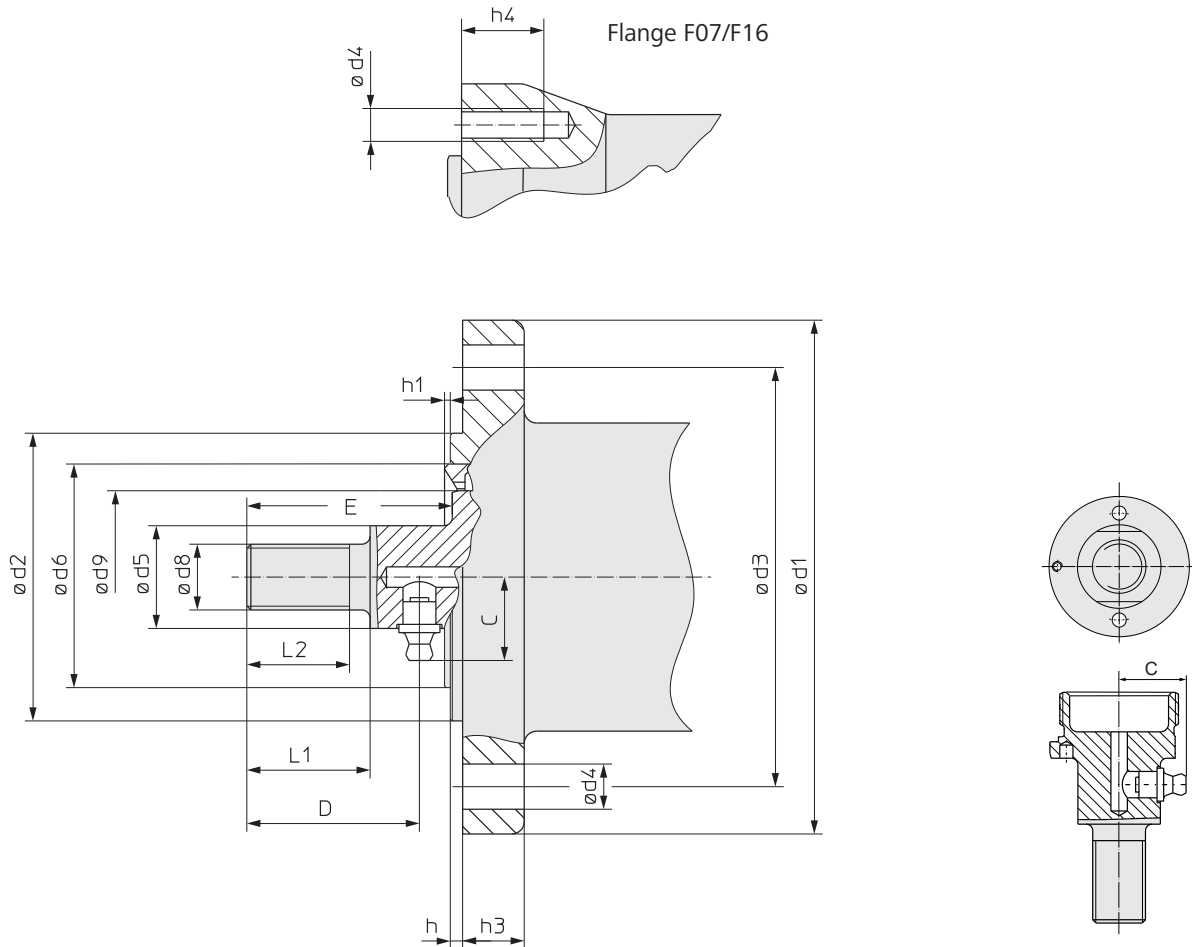
We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

## 7 Dimensions *Linear thrust unit*

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|                                                                                                                    |     |
|--------------------------------------------------------------------------------------------------------------------|-----|
| <b>LE 12.1 – LE 200.1</b><br>Linear thrust unit                                                                    | 170 |
| <b>LE 12.1 – LE 200.1 / SA 07.2 – SA 16.2 / SAR 07.2 – SAR 16.2</b><br>Linear thrust unit with multi-turn actuator | 171 |

## Dimensions Linear thrust unit



1) Spigot for F07

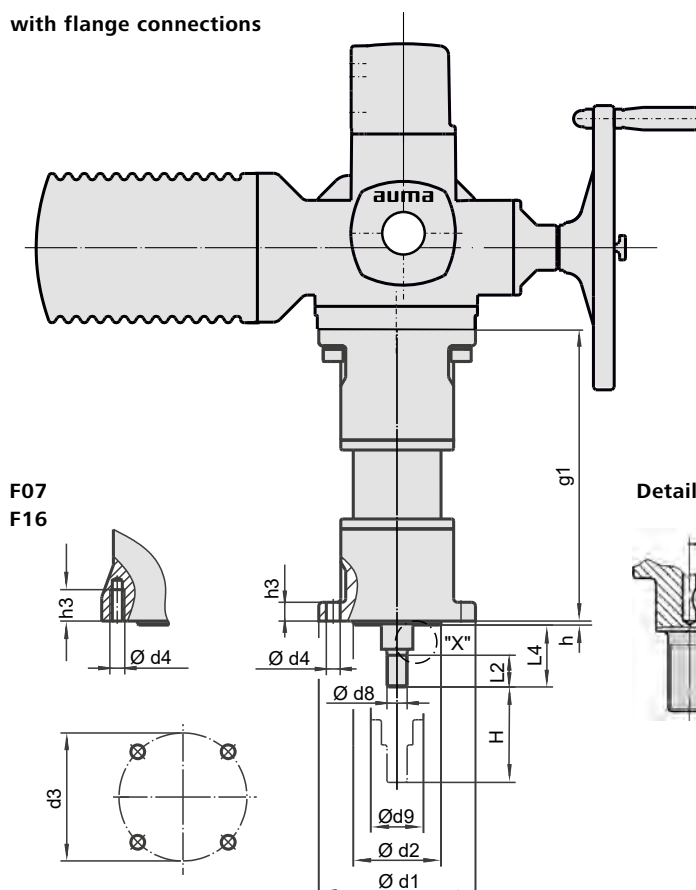
| Dimensions                      | Coupling stud LE 12.1 |                  | LE 25.1      |                  | LE 50.1   | LE 70.1/<br>LE 100.1 | LE 200.1 |
|---------------------------------|-----------------------|------------------|--------------|------------------|-----------|----------------------|----------|
|                                 | F07                   | F10              | F07          | F10              | F10       | F14                  | F16      |
| C                               | 18                    |                  | 21           |                  | 24        | 26                   | 29       |
| D                               | 37                    |                  | 42           |                  | 43        | 63                   | 76       |
| E $\pm 0.2$                     | 45                    |                  | 50           |                  | 55        | 75                   | 90       |
| L1                              | 25                    |                  | 30           |                  | 35        | –                    | –        |
| L2                              | 20                    |                  | 25           |                  | 30        | 55                   | 65       |
| $\varnothing d_1$               | $\square 75$          | 125              | $\square 75$ | 125              | 125       | 175                  | 210      |
| $\varnothing d_2$               | (55 g7 = d6)          | 70 f8            | (55 g7 = d6) | 70 f8            | 70 g7     | 100 f8               | 130 f8   |
| $\varnothing d_3$               | 70                    | 102              | 70           | 102              | 102       | 140                  | 165      |
| $\varnothing d_4$ (4 x)         | M8                    | 11               | M8           | 11               | 11        | 18                   | M20      |
| $\varnothing d_5$               | 20                    |                  | 25           |                  | 32        | 36                   | 42       |
| $\varnothing d_6$ g7            | –                     | 55 <sup>1)</sup> | –            | 55 <sup>1)</sup> | –         | –                    | 120      |
| $\varnothing d_8$               | M12 x 1.25            |                  | M16 x 1.5    |                  | M20 x 1.5 | M36 x 3              | M42 x 3  |
| $\varnothing d_9$ -0,1          | 42                    |                  | 42           |                  | 55        | 70                   | 100      |
| h                               | 3.4                   | 3                | 3.4          | 3                | 3.4       | 4                    | 4        |
| h1                              | –                     | 0.5              | –            | 0.5              | –         | –                    | 0.5      |
| h3                              | –                     | 15               | –            | 15               | 15        | 18                   | –        |
| h4                              | 20                    | –                | 20           | –                | –         | –                    | 32       |
| Screws min.                     | Quality 8.8           |                  |              |                  |           |                      |          |
| Grease nipple A-D8 according to | DIN 71412             |                  |              |                  |           |                      |          |

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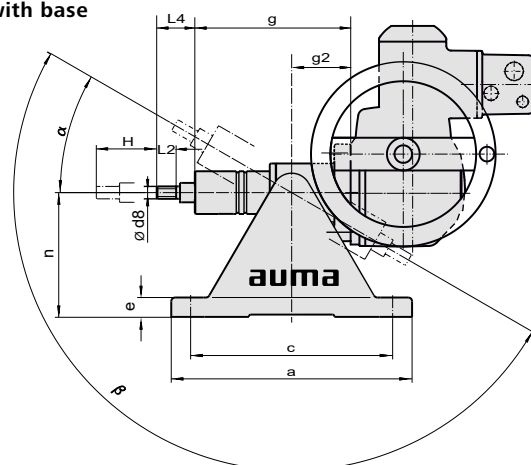
LE 12.1 – LE 200.1

SA 07.2 – SA 16.2 / SAR 07.2 – SAR 16.2

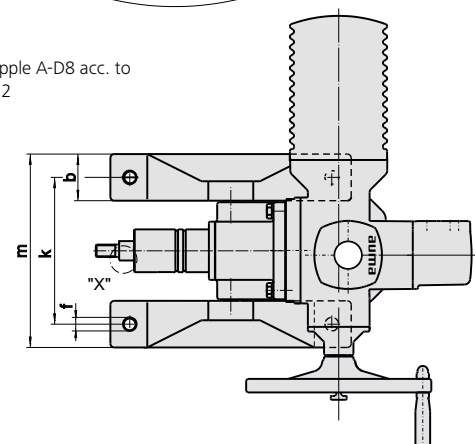
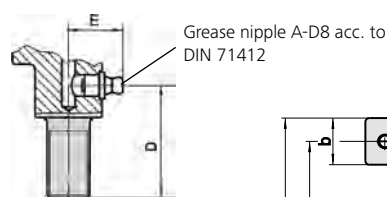
with flange connections



with base



Detail X



Detail refer to „Mounting dimensions linear thrust unit“

Standard version, actuator clockwise rotation: extending stem

Dimensions of actuator refer to sheet „Dimensions SA 07.2 – SA 16.2“ latest issue

| Dimensions        | LE 12.1             |     |     |     |     | LE 25.1             |     |     |     |     | LE 50.1             |     |     |     | LE 70.1             |     |     |     |     | LE 100.1            |     |     |     |     | LE 200.1            |     |     |     |  |
|-------------------|---------------------|-----|-----|-----|-----|---------------------|-----|-----|-----|-----|---------------------|-----|-----|-----|---------------------|-----|-----|-----|-----|---------------------|-----|-----|-----|-----|---------------------|-----|-----|-----|--|
| DIN 3358          | F07/F10             |     |     |     |     | F07/F10             |     |     |     |     | F10                 |     |     |     | F14                 |     |     |     |     | F14                 |     |     |     |     | F16                 |     |     |     |  |
| suitable actuator | SA 07.2<br>SAR 07.2 |     |     |     |     | SA 07.6<br>SAR 07.6 |     |     |     |     | SA 10.2<br>SAR 10.2 |     |     |     | SA 14.2<br>SAR 14.2 |     |     |     |     | SA 14.6<br>SAR 14.6 |     |     |     |     | SA 16.2<br>SAR 16.2 |     |     |     |  |
| H (stroke)        | 50                  | 100 | 200 | 400 | 500 | 50                  | 100 | 200 | 400 | 500 | 63                  | 125 | 250 | 400 | 80                  | 160 | 320 | 400 | 500 | 80                  | 160 | 320 | 400 | 500 | 100                 | 200 | 400 | 500 |  |
| a                 | 310                 |     |     |     |     | 310                 |     |     |     |     | 310                 |     |     |     | 565                 |     |     |     |     | 565                 |     |     |     |     | 565                 |     |     |     |  |
| b                 | 60                  |     |     |     |     | 60                  |     |     |     |     | 60                  |     |     |     | 80                  |     |     |     |     | 80                  |     |     |     |     | 80                  |     |     |     |  |
| c                 | 260                 |     |     |     |     | 260                 |     |     |     |     | 260                 |     |     |     | 500                 |     |     |     |     | 500                 |     |     |     |     | 500                 |     |     |     |  |
| Ø d1              | □75/125             |     |     |     |     | □75/125             |     |     |     |     | 125                 |     |     |     | 175                 |     |     |     |     | 175                 |     |     |     |     | 210                 |     |     |     |  |
| Ø d2              | 55 g7/70 f8         |     |     |     |     | 55 g7/70 f8         |     |     |     |     | 70 g7               |     |     |     | 100 f8              |     |     |     |     | 100 f8              |     |     |     |     | 130 f8              |     |     |     |  |
| Ø d3              | 70/102              |     |     |     |     | 70/102              |     |     |     |     | 102                 |     |     |     | 140                 |     |     |     |     | 140                 |     |     |     |     | 165                 |     |     |     |  |
| d4                | M8/11               |     |     |     |     | M8/11               |     |     |     |     | 11                  |     |     |     | 18                  |     |     |     |     | 18                  |     |     |     |     | M20                 |     |     |     |  |
| Ø d8              | M12 x 1.25          |     |     |     |     | M16 x 1.5           |     |     |     |     | M20 x 1.5           |     |     |     | M36 x 3             |     |     |     |     | M36 x 3             |     |     |     |     | M42 x 3             |     |     |     |  |
| Ø d9 –0.1         | 42                  |     |     |     |     | 42                  |     |     |     |     | 55                  |     |     |     | 70                  |     |     |     |     | 70                  |     |     |     |     | 100                 |     |     |     |  |
| e                 | 25                  |     |     |     |     | 25                  |     |     |     |     | 25                  |     |     |     | 32                  |     |     |     |     | 32                  |     |     |     |     | 32                  |     |     |     |  |
| f                 | 17.5                |     |     |     |     | 17.5                |     |     |     |     | 17.5                |     |     |     | 26                  |     |     |     |     | 26                  |     |     |     |     | 26                  |     |     |     |  |
| g                 | 195                 | 245 | 345 | 545 | 645 | 195                 | 245 | 345 | 545 | 645 | 238                 | 300 | 425 | 575 | 296                 | 376 | 536 | 616 | 716 | 296                 | 376 | 536 | 616 | 716 | 367                 | 467 | 667 | 767 |  |
| g1                | 191                 | 241 | 341 | 541 | 641 | 191                 | 241 | 341 | 541 | 641 | 234                 | 296 | 421 | 571 | 293                 | 373 | 533 | 613 | 713 | 293                 | 373 | 533 | 613 | 713 | 362                 | 462 | 662 | 762 |  |
| g2                | 70                  |     |     |     |     | 70                  |     |     |     |     | 70                  |     |     |     | 70                  |     |     |     |     | 70                  |     |     |     |     | 80                  |     |     |     |  |
| h                 | 3,4/3               |     |     |     |     | 3,4/3               |     |     |     |     | 3,4                 |     |     |     | 4                   |     |     |     |     | 4                   |     |     |     |     | 4                   |     |     |     |  |
| h3                | 20/15               |     |     |     |     | 20/15               |     |     |     |     | 15                  |     |     |     | 18                  |     |     |     |     | 18                  |     |     |     |     | 32                  |     |     |     |  |
| k                 | 190                 |     |     |     |     | 190                 |     |     |     |     | 190                 |     |     |     | 262                 |     |     |     |     | 262                 |     |     |     |     | 303                 |     |     |     |  |
| m                 | 249                 |     |     |     |     | 249                 |     |     |     |     | 249                 |     |     |     | 342                 |     |     |     |     | 342                 |     |     |     |     | 383                 |     |     |     |  |
| n                 | 160                 |     |     |     |     | 160                 |     |     |     |     | 160                 |     |     |     | 315                 |     |     |     |     | 315                 |     |     |     |     | 315                 |     |     |     |  |
| D                 | 37                  |     |     |     |     | 42                  |     |     |     |     | 43                  |     |     |     | 63                  |     |     |     |     | 63                  |     |     |     |     | 76                  |     |     |     |  |
| E                 | 18                  |     |     |     |     | 21                  |     |     |     |     | 24                  |     |     |     | 26                  |     |     |     |     | 26                  |     |     |     |     | 29                  |     |     |     |  |
| L2                | 20                  |     |     |     |     | 25                  |     |     |     |     | 30                  |     |     |     | 55                  |     |     |     |     | 55                  |     |     |     |     | 65                  |     |     |     |  |
| L4 ±0.2           | 45                  |     |     |     |     | 50                  |     |     |     |     | 55                  |     |     |     | 75                  |     |     |     |     | 75                  |     |     |     |     | 90                  |     |     |     |  |
| α max.            | 30°                 |     |     |     |     | 30°                 |     |     |     |     | 30°                 |     |     |     | 25°                 |     |     |     |     | 25°                 |     |     |     |     | 25°                 |     |     |     |  |
| β max.            | 145°                |     |     |     |     | 145°                |     |     |     |     | 140°                |     |     |     | 140°                |     |     |     |     | 140°                |     |     |     |     | 140°                |     |     |     |  |

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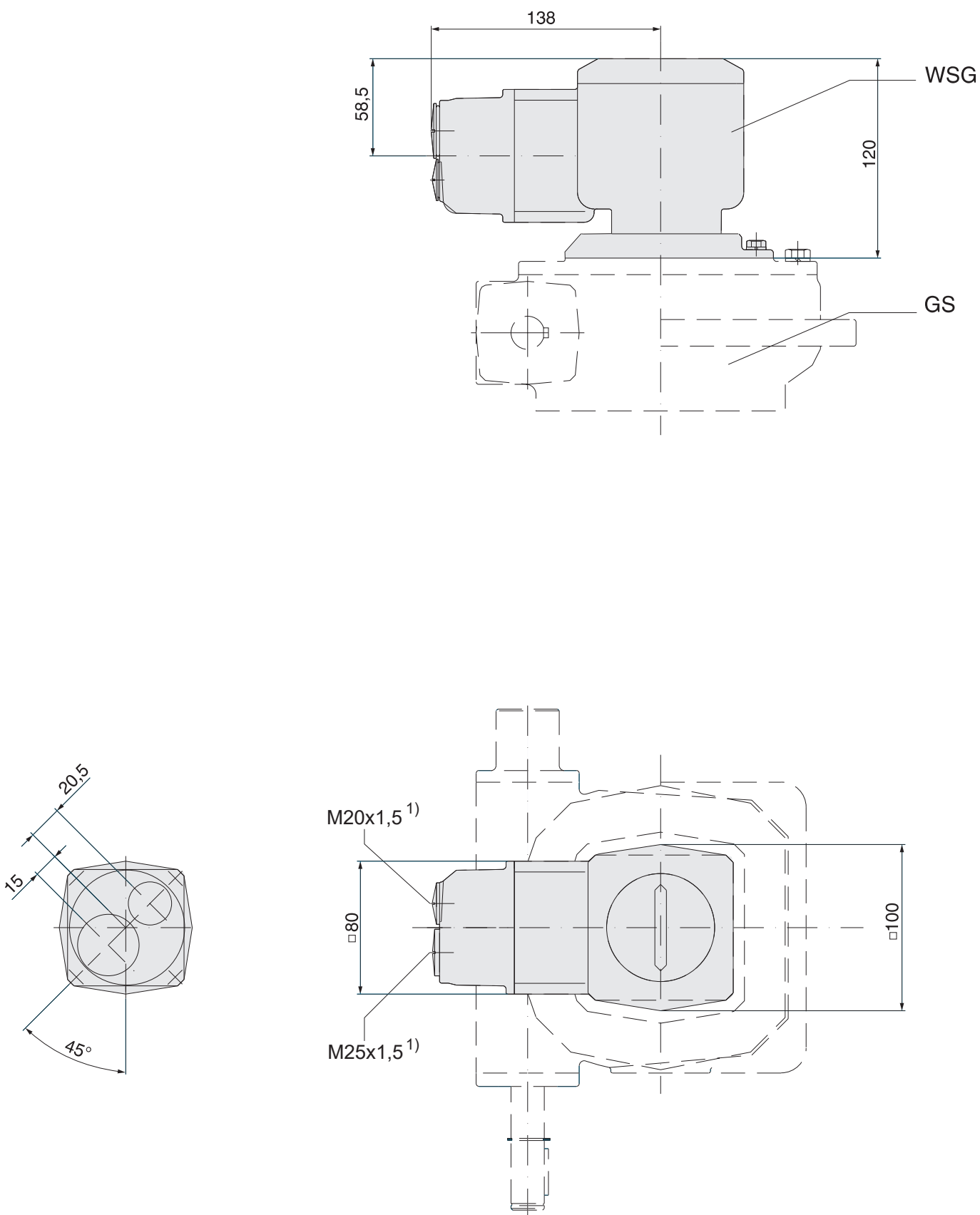


## **8 Dimensions Miscellaneous**

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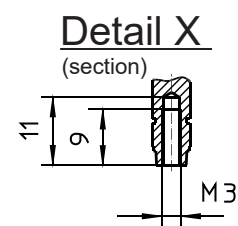
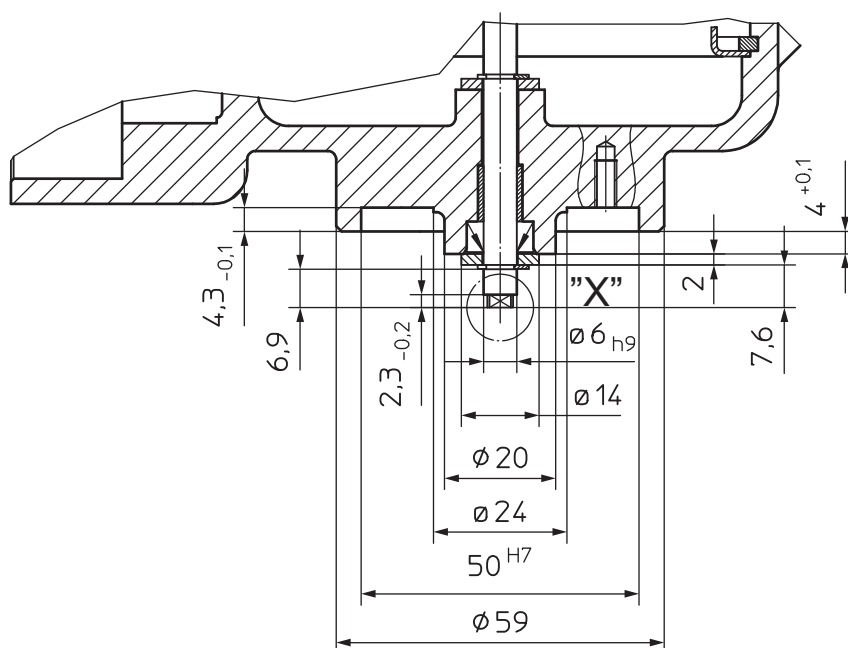
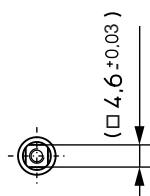
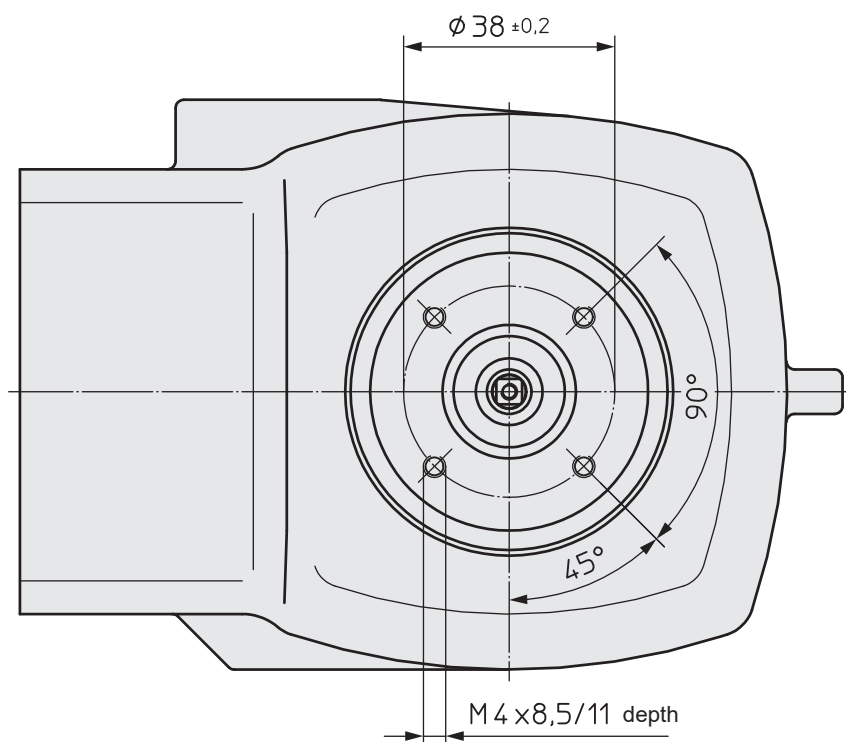
|                                                                 |     |
|-----------------------------------------------------------------|-----|
| <b>Limit sensing for signalling position and end positions</b>  |     |
| WSG 90.1 Valve position indicator for worm gearboxes            | 174 |
| WSG 90.1 Valve position indicator mounted to external gearboxes | 175 |
| <br><b>Limit switching device</b>                               |     |
| Limit switching device WSH 10.2 – WSH 16.2                      | 176 |
| <br><b>Reversing gearboxes</b>                                  |     |
| GW 14.1 Reversing gearbox                                       | 178 |
| <br><b>Accessories</b>                                          |     |
| Ball joints                                                     | 179 |
| Chainwheel                                                      | 180 |
| Handwheels AHR                                                  | 181 |
| Handwheels GHR                                                  | 183 |

## Dimensions Valve position indicator for worm gearboxes

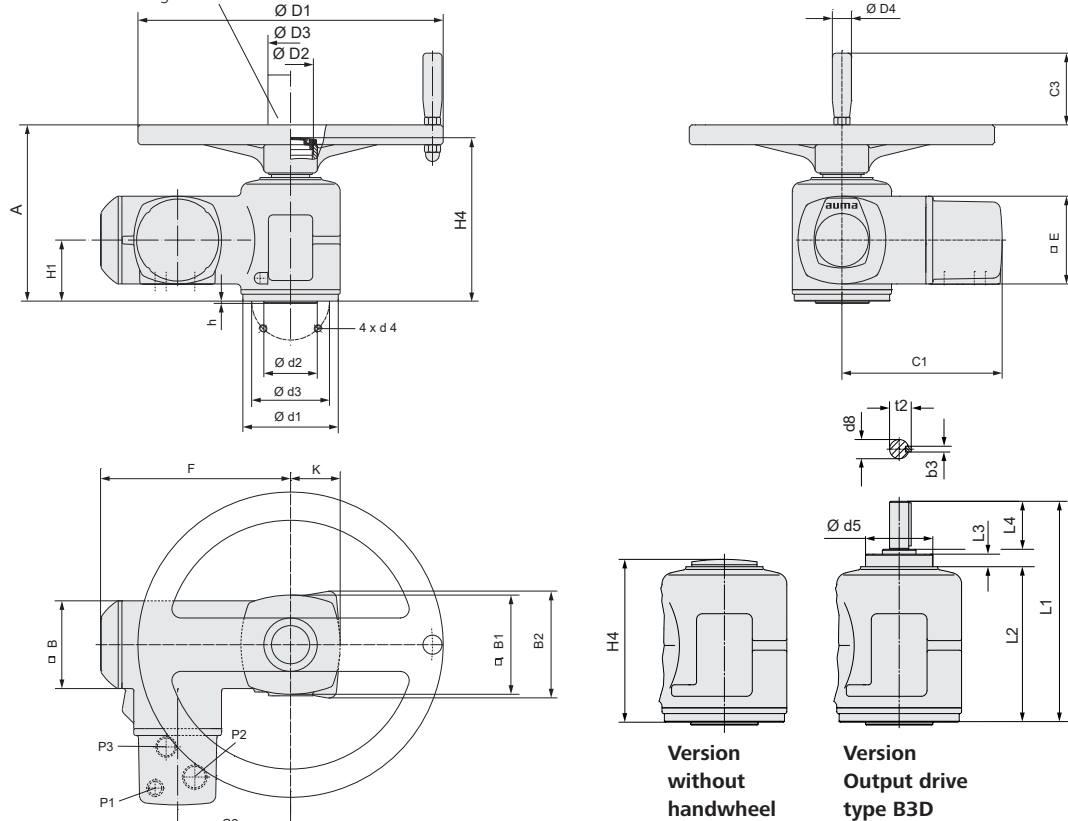


1) Standard, other threads on request

## Dimensions Valve position indicator mounted to external gearboxes



## Dimensions Limit switching device for manually operated valves

Protection tube for rising valve stem <sup>1)</sup>

1) On explicit order only, in steps of 100 mm length each

2) Standard, other threads on request

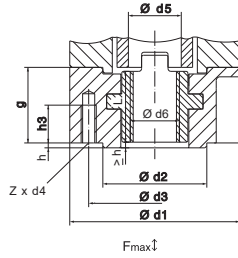
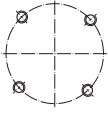
| Dimensions       | WSH 10.2  | WSH 14.2  | WSH 16.2  |
|------------------|-----------|-----------|-----------|
| EN ISO 5210      | F10       | F14       | F16       |
| A                | 231       | 220       | 233       |
| B                | 115       | 115       | 115       |
| B1               | 130       | 180       | 230       |
| B2               | 140       | 185       | 224       |
| C1               | 210       | 210       | 210       |
| C2               | 148       | 169       | 179       |
| C3               | 94        | 94        | 94        |
| Ø D1             | 400       | 500       | 630       |
| Ø D2             | G 2"      | G 2 ½"    | G 3"      |
| Ø D3             | 60 x 3.7  | 76 x 3.7  | 89 x 4.1  |
| Ø D4             | 25        | 25        | 25        |
| E                | 115       | 115       | 115       |
| F                | 249       | 270       | 280       |
| H1               | 80        | 83        | 80        |
| H4               | 211       | 198       | 207       |
| K                | 65        | 90        | 115       |
| L1               | 230       | 230       | 245       |
| L2               | 162       | 145       | 145       |
| L3               | 13        | 7         | 7         |
| L4               | 50        | 70        | 90        |
| P1 <sup>2)</sup> | M20 x 1.5 | M20 x 1.5 | M20 x 1.5 |
| P2 <sup>2)</sup> | M32 x 1.5 | M32 x 1.5 | M32 x 1.5 |
| P3 <sup>2)</sup> | M25 x 1.5 | M25 x 1.5 | M25 x 1.5 |
| b3               | 6         | 8         | 12        |
| Ø d1             | 125       | 175       | 210       |
| Ø d2             | 70        | 100       | 130       |
| Ø d3             | 102       | 140       | 165       |
| Ø d4             | M10       | M16       | M20       |
| Ø d5             | 70        | □ 110     | □ 123     |
| d8               | 20        | 30        | 40        |
| h                | 3         | 4         | 5         |
| t2               | 22.8      | 33.3      | 43.3      |

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Dimensions Couplings according to EN ISO 5210

Stem nut

Type  
EN ISO 5210 **A**

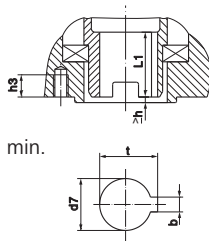


Arrangement of  
holes d4

| Dimensions              | WSH 10.2 | WSH 14.2 | WSH 16.2 |
|-------------------------|----------|----------|----------|
| EN ISO 5210             | F10      | F14      | F16      |
| F max. kN               | 70       | 160      | 250      |
| Ø d1                    | 125      | 175      | 210      |
| Ø d2                    | 70       | 100      | 130      |
| Ø d3                    | 102      | 140      | 165      |
| d4                      | M10      | M16      | M20      |
| Ø d5                    | 42       | 60       | 80       |
| Ø d6 max. <sup>3)</sup> | 41       | 57       | 77       |
| g                       | 50       | 65       | 80       |
| h                       | 3        | 4        | 5        |
| h3                      | 15       | 25       | 35       |
| L                       | 47       | 60       | 75       |
| Z                       | 4        | 4        | 4        |
| Weight kg               | 2.8      | 6.8      | 11.7     |

Output drive plug sleeve <sup>2)</sup>

Type  
EN ISO 5210 **B 1** = Ø d7  
EN ISO 5210 **B 2** < Ø d7 > Ø d7 min.

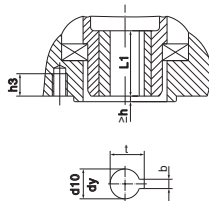


| Dimensions           | WSH 10.2 | WSH 14.2 | WSH 16.2 |
|----------------------|----------|----------|----------|
| EN ISO 5210          | F10      | F14      | F16      |
| b JS 9 <sup>1)</sup> | 12       | 18       | 22       |
| Ø d7 H9              | 42       | 60       | 80       |
| Ø d7 min.            | 30       | 45       | 60       |
| h3                   | 15       | 25       | 30       |
| L1                   | 45       | 65       | 80       |
| t <sup>1)</sup>      | 45.3     | 64.4     | 85.4     |

For missing dimensions, refer to type A

Bore with keyway

Type  
EN ISO 5210 **B 3** = Ø d10  
EN ISO 5210 **B 4** ≤ Ø dy



| Dimensions           | WSH 10.2 | WSH 14.2 | WSH 16.2 |
|----------------------|----------|----------|----------|
| EN ISO 5210          | F10      | F14      | F16      |
| b JS 9 <sup>1)</sup> | 6        | 8        | 12       |
| Ø d10 H9             | 20       | 30       | 40       |
| Ø dy max.            | 30       | 45       | 60       |
| h3                   | 15       | 25       | 30       |
| L1                   | 45       | 65       | 80       |
| t <sup>1)</sup>      | 22.8     | 33.3     | 43.3     |
| Weight kg            | 0.4      | 1.1      | 2.4      |

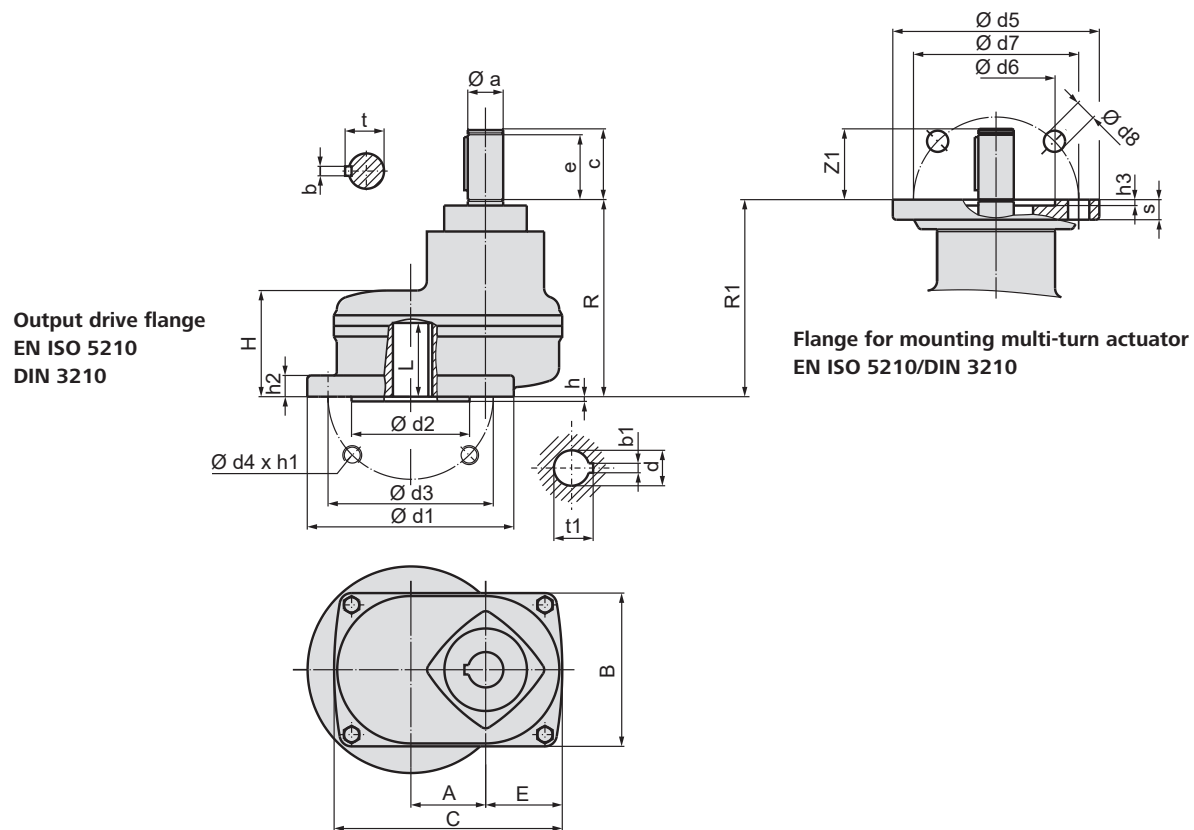
For missing dimensions, refer to type A

1) Dimensions depend on Ø d7/ Ø d10, refer to DIN 6885-1

2) Weight included in actuator

3) max. bore dimension in mm

## Dimensions Reversing gearbox



2) according to DIN 6885-1 at max. Ø d

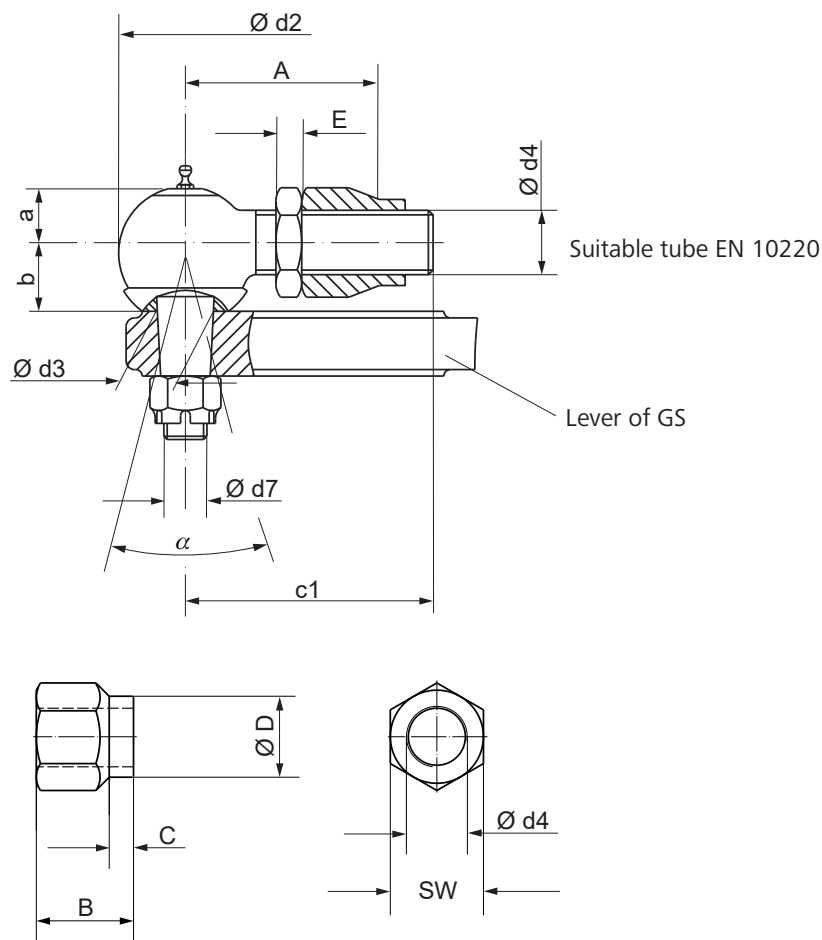
3) Option

| Dimensions                                            | Reversing gearbox type GW 14.1 |                    |      |      |                    |  |
|-------------------------------------------------------|--------------------------------|--------------------|------|------|--------------------|--|
| EN ISO 5210 <sup>1)</sup>                             | F10                            |                    |      | F14  |                    |  |
| DIN 3210 <sup>1)</sup>                                | G0                             |                    |      | G1/2 |                    |  |
| A                                                     | 63                             |                    |      |      |                    |  |
| B                                                     | 130                            |                    |      |      |                    |  |
| C                                                     | 194                            |                    |      |      |                    |  |
| E                                                     | 65                             |                    |      |      |                    |  |
| H                                                     | 110                            |                    |      | 90   |                    |  |
| R                                                     | 187                            | 184 <sup>3)</sup>  |      | 167  | 164 <sup>3)</sup>  |  |
| R1                                                    | 187                            |                    |      | 167  |                    |  |
| Ø a                                                   | 30                             | 20 <sup>3)</sup>   |      | 30   | 20 <sup>3)</sup>   |  |
| b                                                     | 8                              | 6 <sup>3)</sup>    |      | 8    | 6 <sup>3)</sup>    |  |
| b1 <sup>2)</sup>                                      | 6                              |                    |      | 8    |                    |  |
| c                                                     | 60                             | 43 <sup>3)</sup>   |      | 60   | 43 <sup>3)</sup>   |  |
| Ø d H8                                                | 20                             |                    |      | 30   |                    |  |
| Ø d1                                                  |                                | 175                |      |      |                    |  |
| Ø d2 f8                                               | 70                             |                    |      | 100  |                    |  |
| Ø d3                                                  | 102                            |                    |      | 140  |                    |  |
| d4                                                    | M10                            |                    |      | M16  |                    |  |
| e                                                     | 55                             | 38 <sup>3)</sup>   |      | 55   | 38 <sup>3)</sup>   |  |
| h                                                     | 3                              |                    |      | 4    |                    |  |
| h1                                                    | 15                             |                    |      | 18   |                    |  |
| h2                                                    | 38                             |                    |      | 18   |                    |  |
| L                                                     |                                | 62                 |      |      |                    |  |
| t                                                     | 33                             | 22.5 <sup>3)</sup> |      | 33   | 22.5 <sup>3)</sup> |  |
| t1 <sup>2)</sup>                                      | 22.8                           |                    |      | 33.3 |                    |  |
| Z1                                                    |                                | 60                 |      |      |                    |  |
| <sup>1)</sup> Flange for mounting multi-turn actuator |                                |                    |      |      |                    |  |
| EN ISO 5210                                           | F10                            |                    | F14  | F16  |                    |  |
| DIN 3210                                              |                                | G0                 | G1/2 | G3   |                    |  |
| Ø d5                                                  | 125                            | 125                | 175  | 210  |                    |  |
| Ø d6                                                  | 70                             | 60                 | 100  | 130  |                    |  |
| Ø d7                                                  | 102                            | 102                | 140  | 165  |                    |  |
| Ø d8                                                  | 11                             | 11                 | 18   | 22   |                    |  |
| h3                                                    | 5                              | 5                  | 5    | 6    |                    |  |
| S                                                     | 12                             | 12                 | 17   | 25   |                    |  |

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## Dimensions Ball joints

Type AH 36 – 1



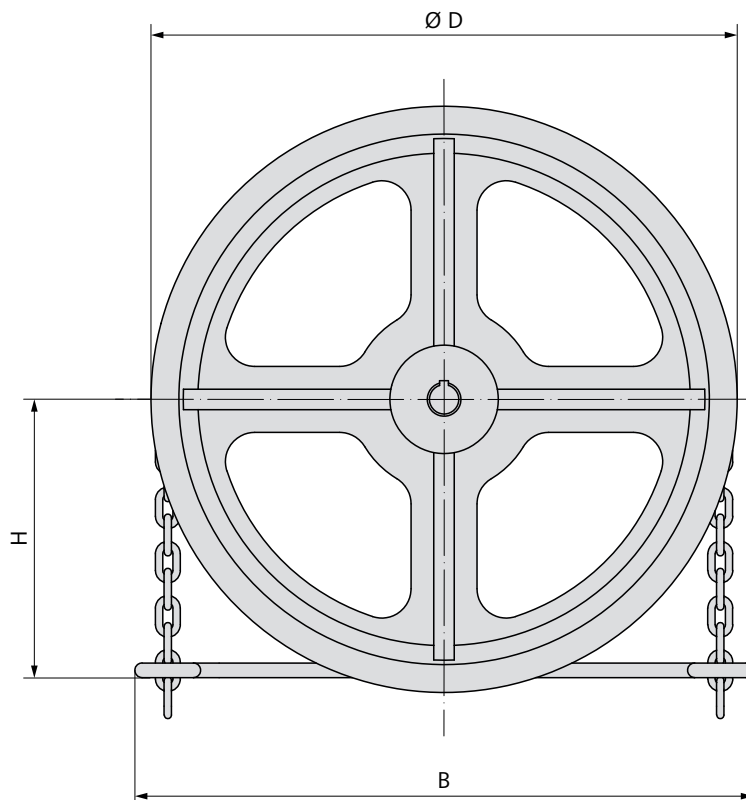
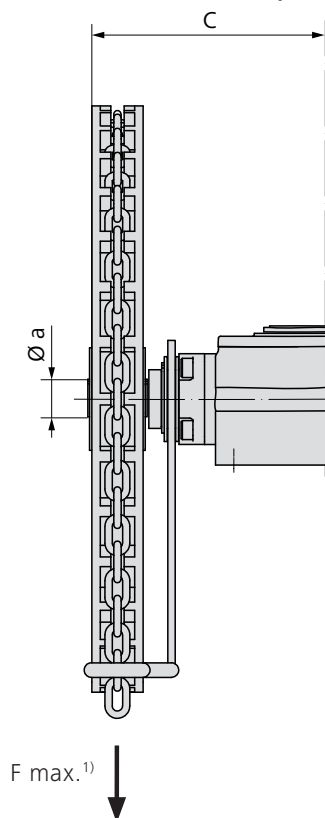
| Dimensions       | GS 50.3   | GS 63.3<br>GS 80.3 | GS 100.3<br>GS 125.3<br>GS 160.3 | GS 200.3  | GS 250.3  |
|------------------|-----------|--------------------|----------------------------------|-----------|-----------|
| Ball joint size  | 22        | 30                 | 35                               | 40        | 50        |
| A min.           | 58        | 75                 | 85                               | 95        | 110       |
| A max.           | 90        | 105                | 115                              | 120       | 135       |
| B                | 28        | 45                 | 48                               | 48        | 60        |
| C                | 8         | 12                 | 12                               | 12        | 15        |
| $\varnothing D$  | 27        | 34                 | 40                               | 40        | 50        |
| E                | 8         | 12                 | 12                               | 12        | 14        |
| SW               | 32        | 41                 | 46                               | 46        | 60        |
| a                | 15        | 22                 | 25                               | 28        | 33        |
| b                | 23        | 28                 | 32                               | 36        | 42        |
| c1               | 90        | 105                | 115                              | 120       | 135       |
| $\varnothing d2$ | 36        | 52                 | 62                               | 69        | 85        |
| $\varnothing d3$ | 16        | 22                 | 26                               | 30        | 38        |
| $\varnothing d4$ | M16 x 1.5 | M28 x 1.5          | M30 x 1.5                        | M30 x 1.5 | M38 x 1.5 |
| $\varnothing d7$ | M12 x 1.5 | M18 x 1.5          | M20 x 1.5                        | M24 x 1.5 | M30 x 1.5 |
| $\alpha$         | 25 °      | 25 °               | 25 °                             | 25 °      | 25 °      |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

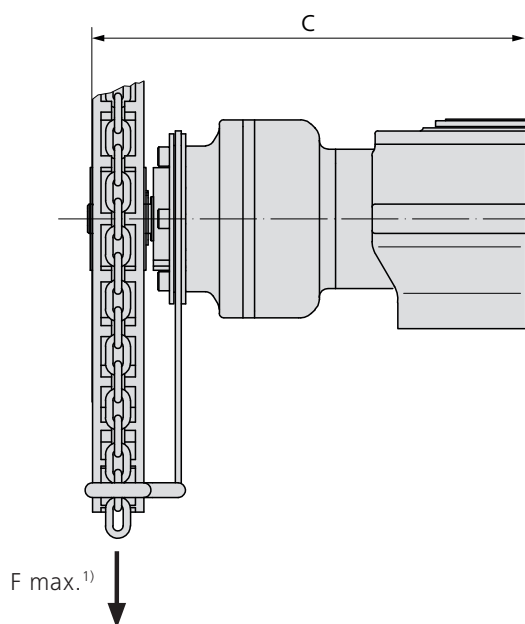


## Dimensions Chainwheel for part-turn gearboxes

## GS 50.3 – GS 80.3 without primary reduction gearings



## GS 100.3 – GS 250.3 with primary reduction gearings



## Option round steel link chain:

DIN 766 A5x18.5

total length of chain 6 m

(working height approx. 2.5 m)

total length of chain 11 m

(working height approx. 5 m)

total length of chain 21 m

(working height approx. 10 m)

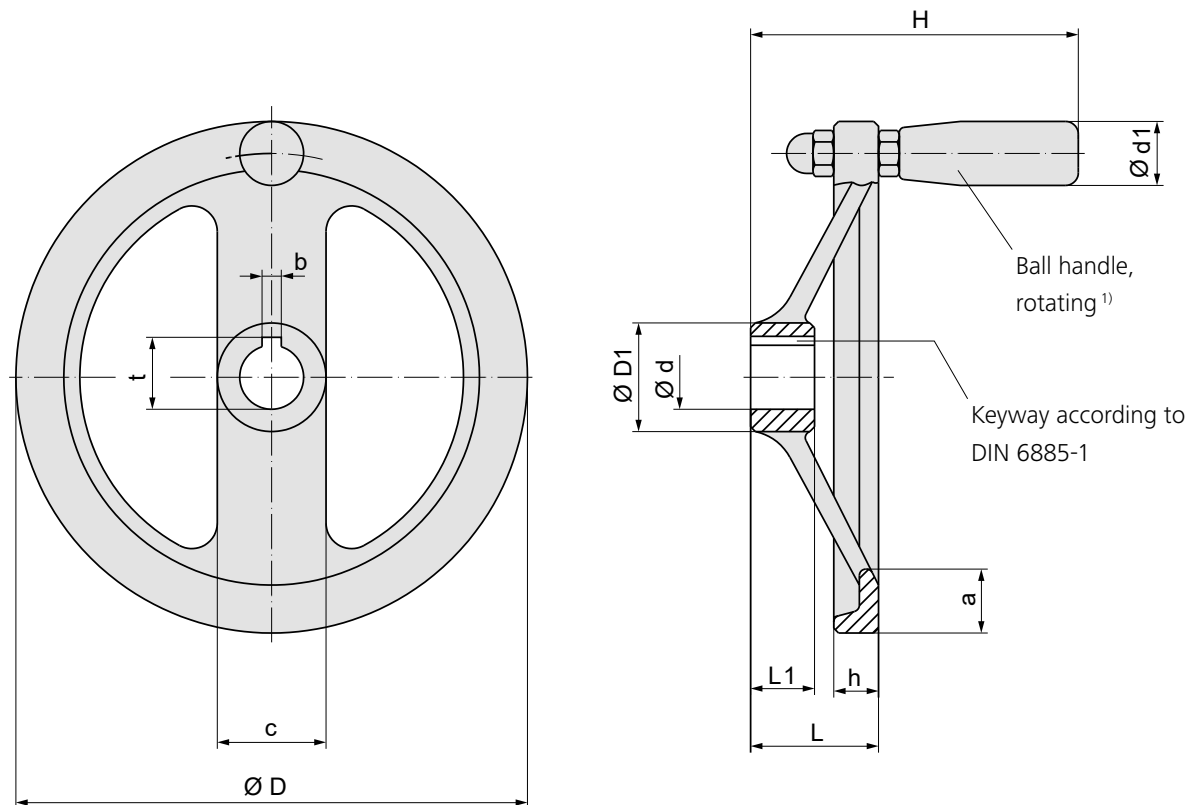
1) permissible tensile load

For all other dimensions, please refer to "Dimensions Part-turn gearboxes"

| Dimensions    | GS 50.3 | GS 63.3 | GS 80.3 | GS 100.3       |       | GS 125.3       |       | GS 160.3 |       | GS 200.3 |       | GS 250.3 |        |
|---------------|---------|---------|---------|----------------|-------|----------------|-------|----------|-------|----------|-------|----------|--------|
|               | 51:1    | 51:1    | 53:1    | 126:1<br>160:1 | 208:1 | 126:1<br>160:1 | 208:1 | 218:1    | 442:1 | 434:1    | 864:1 | 848:1    | 1718:1 |
| F max. [N] 1) | 400     | 550     | 550     | 550            | 750   | 550            | 750   | 550      | 750   | 550      | 750   | 550      | 750    |
| Ø a           | 16      | 20      | 20      | 20             | 30    | 20             | 30    | 20       | 30    | 20       | 30    | 20       | 30     |
| B             | 269     | 422     | 422     | 422            | 552   | 422            | 552   | 422      | 552   | 422      | 552   | 422      | 552    |
| C             | 132     | 161     | 166     | 294            | 311   | 294            | 299   | 316      | 299   | 392      | 375   | 477      | 505    |
| Ø D           | 250     | 400     | 400     | 400            | 530   | 400            | 530   | 400      | 530   | 400      | 530   | 400      | 530    |
| H             | 120     | 190     | 190     | 190            | 210   | 190            | 210   | 190      | 210   | 190      | 210   | 190      | 210    |

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## Dimensions Handwheels



AHR types made of cast aluminium alloy; colour: black

1) Ball handle

Material: Polyamide

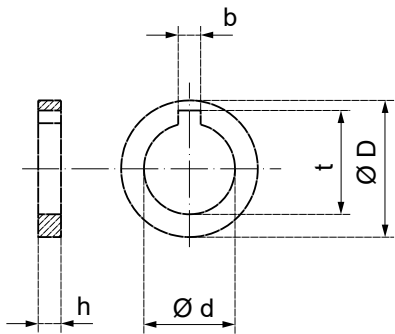
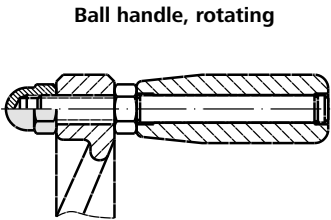
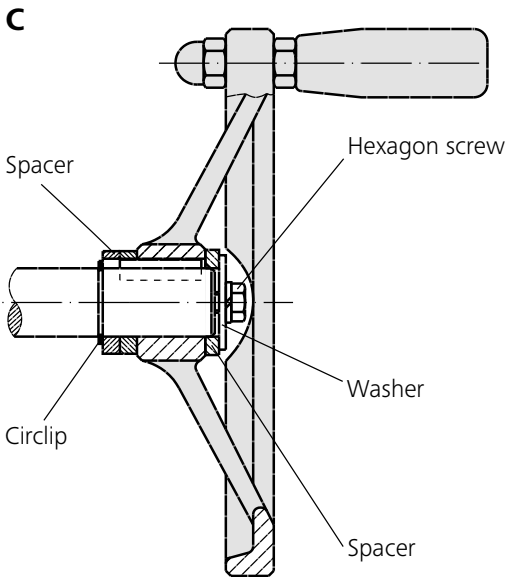
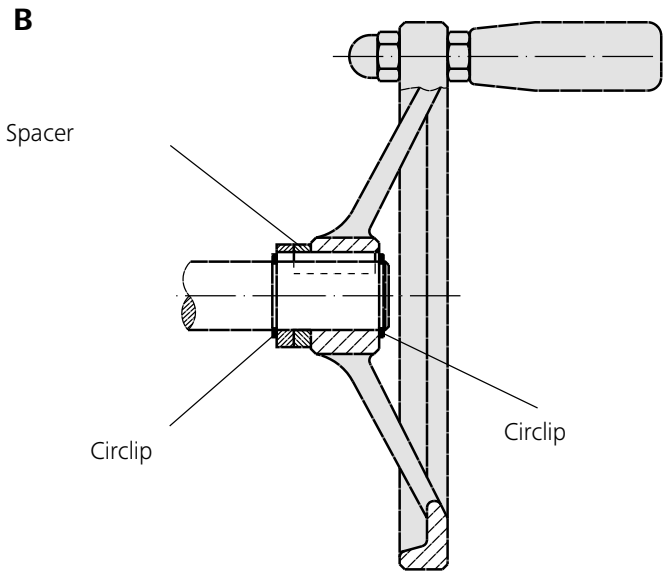
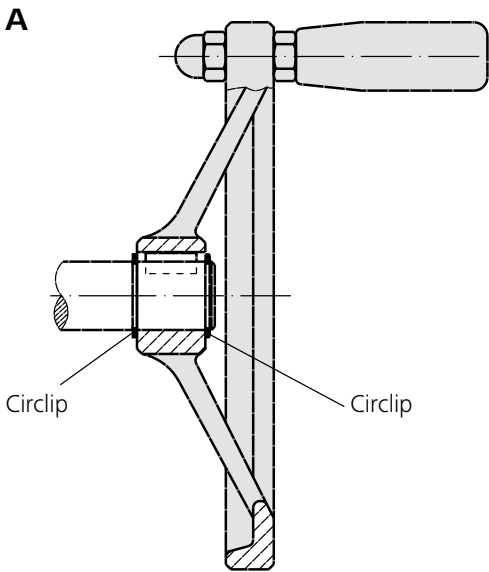
Bearing pin and mounting fixtures made of stainless steel

| Dimensions (in mm) |      |        |      |     |    |    |    |    |     |      |    |      | Weight |
|--------------------|------|--------|------|-----|----|----|----|----|-----|------|----|------|--------|
| Ø D                |      | Ø d H9 | Ø D1 | H   | L  | L1 | a  | b  | C   | Ø d1 | h  | t    | kg     |
| mm                 | inch |        |      |     |    |    |    |    |     |      |    |      |        |
| 125                | 5    | 12     | 34   | 83  | 36 | 18 | 19 | 4  | 34  | 15   | 13 | 13.8 | 0.25   |
| 125                | 5    | 16     | 34   | 83  | 36 | 18 | 19 | 5  | 34  | 15   | 13 | 18.3 | 0.25   |
| 160                | 6    | 12     | 34   | 103 | 40 | 20 | 20 | 4  | 34  | 20   | 14 | 13.8 | 0.40   |
| 160                | 6 ½  | 16     | 34   | 103 | 40 | 20 | 20 | 5  | 34  | 20   | 14 | 18.3 | 0.40   |
| 160                | 6 ½  | 20     | 34   | 103 | 40 | 20 | 20 | 6  | 34  | 20   | 14 | 22.8 | 0.40   |
| 200                | 8    | 16     | 40   | 108 | 45 | 24 | 25 | 5  | 40  | 20   | 17 | 18.3 | 1.1    |
| 200                | 8    | 20     | 40   | 108 | 45 | 24 | 25 | 6  | 40  | 20   | 17 | 22.8 | 1.1    |
| 250                | 10   | 16     | 48   | 113 | 50 | 28 | 30 | 5  | 48  | 20   | 21 | 18.3 | 1.4    |
| 250                | 10   | 20     | 48   | 113 | 50 | 28 | 30 | 6  | 48  | 20   | 21 | 22.8 | 1.4    |
| 315                | 12 ½ | 20     | 56   | 150 | 56 | 33 | 33 | 6  | 56  | 25   | 23 | 22.8 | 1.8    |
| 315                | 12 ½ | 30     | 56   | 150 | 56 | 33 | 33 | 8  | 56  | 25   | 23 | 33.3 | 1.7    |
| 400                | 16   | 20     | 70   | 157 | 63 | 38 | 37 | 6  | 70  | 25   | 26 | 22.8 | 2.9    |
| 400                | 16   | 30     | 70   | 157 | 63 | 38 | 37 | 8  | 70  | 25   | 26 | 33.3 | 2.8    |
| 500                | 20   | 30     | 82   | 166 | 72 | 45 | 40 | 8  | 82  | 25   | 28 | 33.3 | 4.5    |
| 500                | 20   | 40     | 82   | 166 | 72 | 45 | 40 | 12 | 82  | 25   | 28 | 43.3 | 4.5    |
| 630                | 25   | 30     | 98   | 169 | 75 | 45 | 45 | 8  | 98  | 25   | 31 | 33.3 | 7.7    |
| 630                | 25   | 40     | 98   | 169 | 75 | 45 | 45 | 12 | 98  | 25   | 31 | 43.3 | 7.5    |
| 800                | 31 ½ | 30     | 98   | 185 | 90 | 55 | 45 | 8  | 130 | 25   | 31 | 33.3 | 10.5   |
| 800                | 31 ½ | 40     | 98   | 185 | 90 | 55 | 45 | 12 | 130 | 25   | 31 | 43.3 | 10.5   |

Please state handwheel type and Ø D/d in mm when ordering (e.g. AHR 160-20).

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Mounting proposals



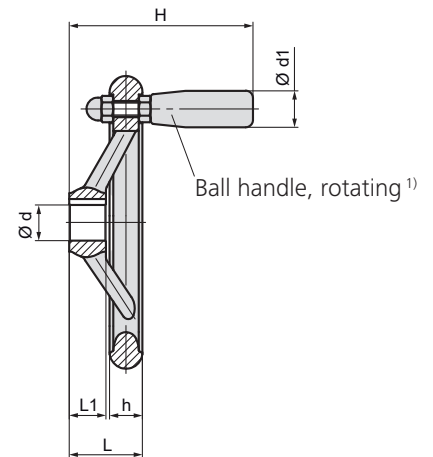
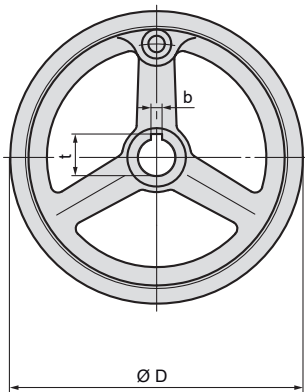
Material: Polyamide      Colour: black

| Spacer dimensions (in mm) |     |    |     |    |      |
|---------------------------|-----|----|-----|----|------|
| Type                      | Ø D | b  | Ø d | h  | t    |
| DS                        | 20  | 4  | 12  | 3  | 13.8 |
| DS                        | 20  | 4  | 12  | 4  | 13.8 |
| DS                        | 30  | 5  | 16  | 2  | 18.3 |
| DS                        | 30  | 5  | 16  | 4  | 18.3 |
| DS                        | 30  | 6  | 20  | 2  | 22.8 |
| DS                        | 30  | 6  | 20  | 4  | 22.8 |
| DS                        | 30  | 6  | 20  | 5  | 22.8 |
| DS                        | 50  | 8  | 30  | 2  | 33.3 |
| DS                        | 50  | 8  | 30  | 5  | 33.3 |
| DS                        | 60  | 12 | 40  | 10 | 43.3 |

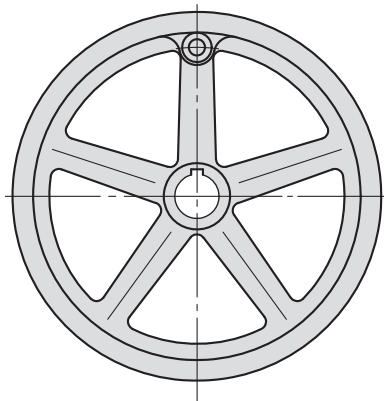
Please state spacer type, Ø d and height h in mm when ordering (e.g. DS 20x5).

## Dimensions Handwheels according to DIN 950

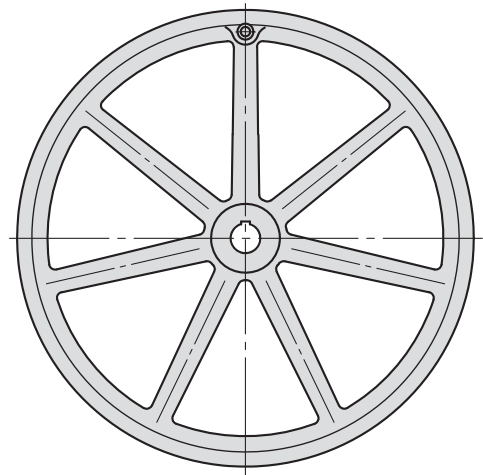
GHR 160 – GHR 200



GHR 250 – GHR 500



GHR 630 – GHR 800



GHR types made of cast iron; colour: black

1) Ball handle

Material: Polyamide

Bearing pin and mounting fixtures made of stainless steel

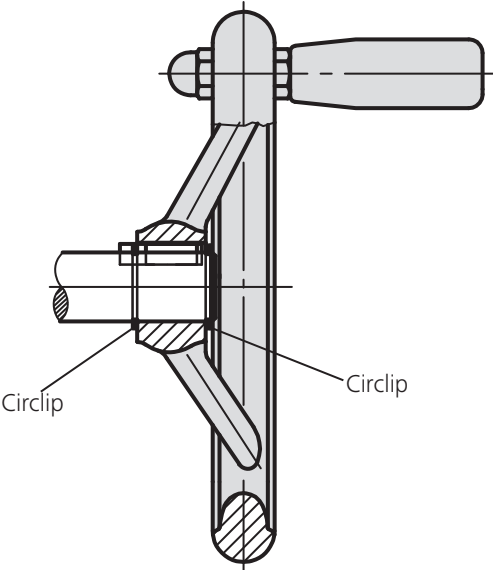
| Ø D |      | Dimensions (in mm) |     |    |    |    |      |    |      | Weight |
|-----|------|--------------------|-----|----|----|----|------|----|------|--------|
| mm  | inch | Ø d D9             | H   | L  | L1 | b  | Ø d1 | h  | t    | [kg]   |
| 160 | 6 ½  | 16                 | 100 | 40 | 20 | 5  | 20   | 18 | 18.3 | 1.35   |
| 160 | 6 ½  | 20                 | 100 | 40 | 20 | 6  | 20   | 18 | 22.8 | 1.35   |
| 200 | 8    | 20                 | 101 | 41 | 20 | 6  | 20   | 22 | 22.8 | 2.5    |
| 250 | 10   | 20                 | 102 | 42 | 20 | 6  | 20   | 26 | 22.8 | 3.9    |
| 250 | 10   | 30                 | 110 | 50 | 28 | 8  | 20   | 26 | 33.3 | 3.9    |
| 315 | 12 ½ | 20                 | 148 | 56 | 33 | 6  | 25   | 28 | 22.8 | 6.3    |
| 315 | 12 ½ | 30                 | 148 | 56 | 33 | 8  | 25   | 28 | 33.3 | 6.2    |
| 400 | 16   | 30                 | 154 | 63 | 38 | 8  | 25   | 32 | 33.3 | 9.7    |
| 400 | 16   | 40                 | 154 | 63 | 38 | 12 | 25   | 32 | 43.3 | 9.6    |
| 500 | 20   | 30                 | 156 | 65 | 38 | 8  | 25   | 34 | 33.3 | 15.6   |
| 500 | 20   | 40                 | 156 | 65 | 38 | 12 | 25   | 34 | 43.3 | 15.5   |
| 630 | 25   | 30                 | 161 | 70 | 38 | 8  | 25   | 36 | 33.3 | 21.7   |
| 630 | 25   | 40                 | 161 | 70 | 38 | 12 | 25   | 36 | 43.3 | 21.6   |
| 800 | 31 ½ | 30                 | 183 | 92 | 55 | 8  | 25   | 36 | 33.3 | 29.4   |

Please state handwheel type and diameters Ø D/d in mm when ordering (e.g. GHR 160-20).

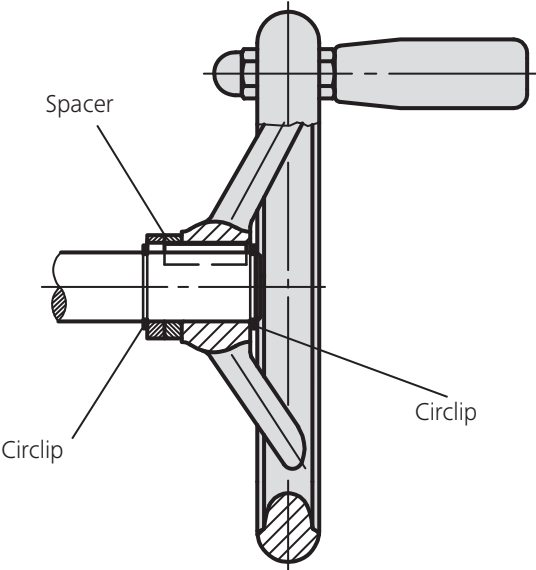
We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Mounting proposals

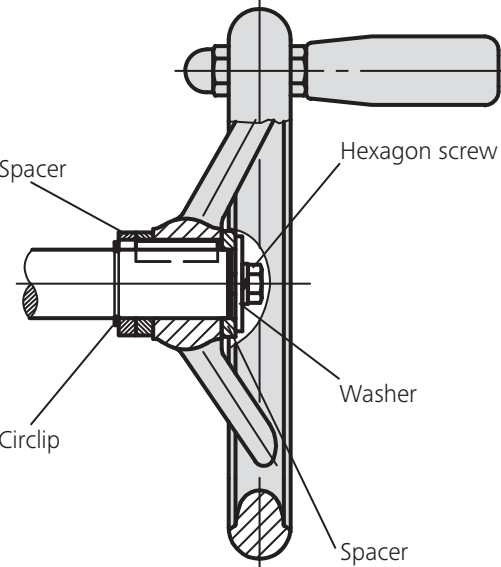
A



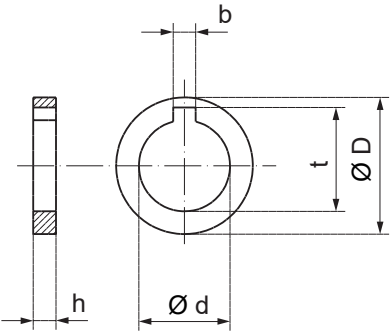
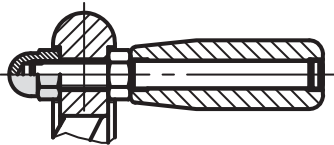
B



C



Ball handle, rotating



Material: Polyamide      Colour: black

| Spacer dimensions (in mm) |     |    |     |    |      |
|---------------------------|-----|----|-----|----|------|
| Type                      | Ø D | b  | Ø d | h  | t    |
| DS                        | 20  | 4  | 12  | 3  | 13.8 |
| DS                        | 20  | 4  | 12  | 4  | 13.8 |
| DS                        | 30  | 5  | 16  | 2  | 18.3 |
| DS                        | 30  | 5  | 16  | 4  | 18.3 |
| DS                        | 30  | 6  | 20  | 2  | 22.8 |
| DS                        | 30  | 6  | 20  | 4  | 22.8 |
| DS                        | 30  | 6  | 20  | 5  | 22.8 |
| DS                        | 50  | 8  | 30  | 2  | 33.3 |
| DS                        | 50  | 8  | 30  | 5  | 33.3 |
| DS                        | 60  | 12 | 40  | 10 | 43.3 |

Please state spacer type, Ø d and height h in mm when ordering (e.g. DS 20x5).

## 9 Spare parts lists

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### Part-turn gearboxes

|                     |     |
|---------------------|-----|
| GS 50.3 – GS 125.3  | 186 |
| GS 160.3 – GS 250.3 | 188 |
| GS 315 – GS 500     | 190 |
| GS 630.3            | 192 |

### Primary reduction gearings for part-turn gearboxes

|                                                                        |     |
|------------------------------------------------------------------------|-----|
| GS 100.3 (126:1/160:1/208:1), GS 125.3 (126:1/160:1/208:1)             | 194 |
| GS 160.3 (218:1/442:1), GS 200.3 (214:1/434:1), GS 250.3 (210:1/411:1) | 196 |
| GS 200.3 (864:1), GS 250.3 (848:1)                                     | 198 |
| GS 315 – GS 500                                                        | 200 |
| GS 630.3 (4:1/8:1)                                                     | 202 |
| GS 630.3 (16:1/32:1)                                                   | 204 |
| GS 630.3 (64:1/133:1)                                                  | 206 |

### Part-turn gearboxes with base and lever

|                     |     |
|---------------------|-----|
| GS 50.3 – GS 125.3  | 208 |
| GS 160.3 – GS 250.3 | 210 |

### Part-turn gearboxes

|                       |     |
|-----------------------|-----|
| GQB 80.1              | 212 |
| GQB 100.1 – GQB 125.1 | 214 |
| GQB 160.1 – GQB 250.1 | 216 |

### Part-turn gearboxes

|                     |     |
|---------------------|-----|
| GHE 05.1 – GHE 12.1 | 218 |
|---------------------|-----|

### Multi-turn gearboxes

|                   |     |
|-------------------|-----|
| GK 10.2 – GK 25.2 | 220 |
| GK 30.2 – GK 40.2 | 222 |

|                        |     |
|------------------------|-----|
| GHT 320.3 – GHT 1200.3 | 224 |
|------------------------|-----|

|                     |     |
|---------------------|-----|
| GST 10.1 – GST 16.1 | 226 |
| GST 25.1 – GST 40.1 | 228 |

|                                   |     |
|-----------------------------------|-----|
| GP 10.1 – GP 14.1 (2,4:1/3:1/4:1) | 230 |
| GP 16.1 (4:1/8:1)                 | 232 |
| GP 25.1 – GP 30.1 (4:1/8:1)       | 234 |
| GP 25.1 – GP 30.1 (16:1)          | 236 |

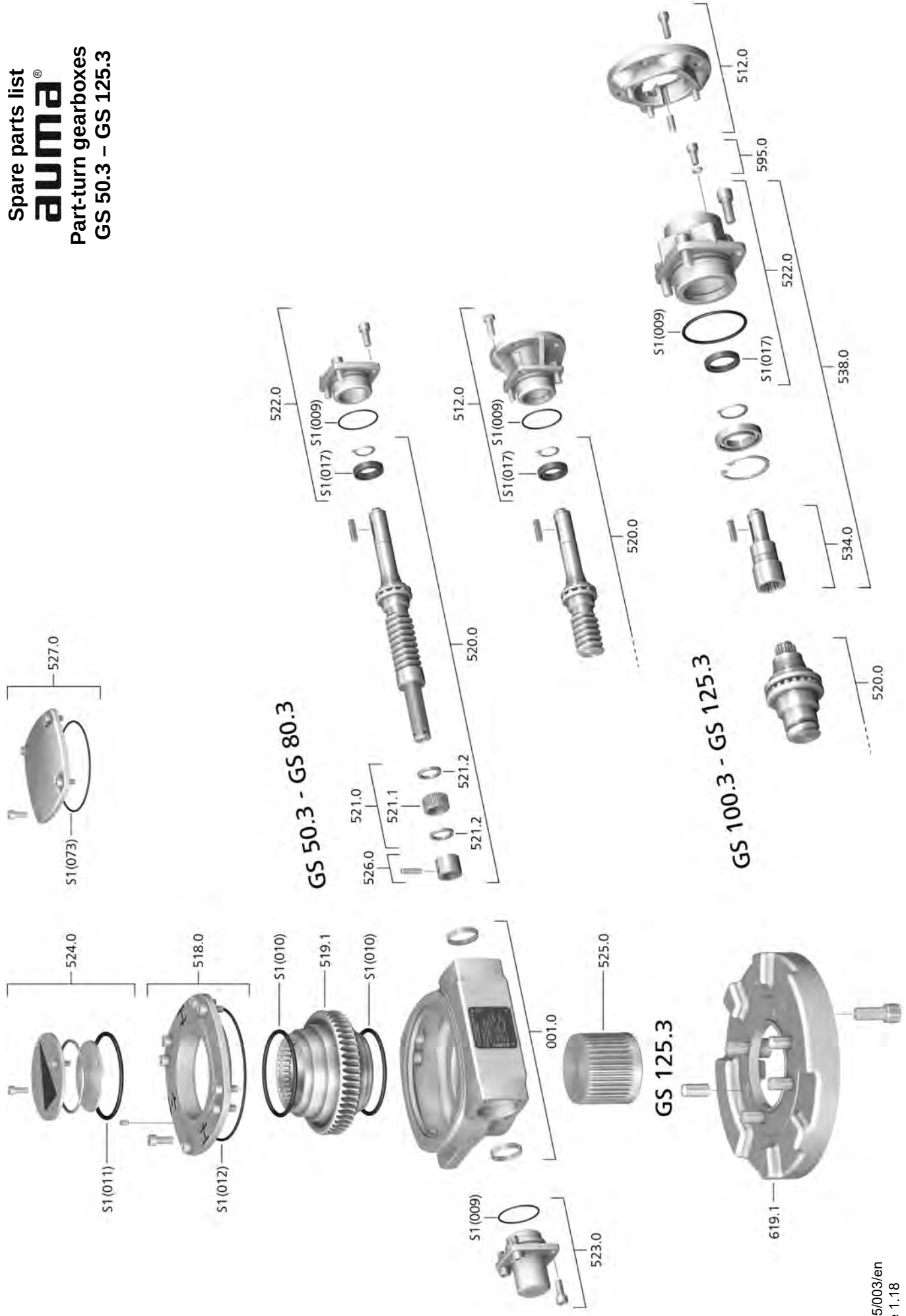
### Linear thrust unit

|                              |     |
|------------------------------|-----|
| LE 12.1 – LE 200.1           | 238 |
| LE 12.1 – LE 200.1 with base | 240 |

### Limit switching device

|                            |     |
|----------------------------|-----|
| WSH 10.2 – WSH 16.2        | 242 |
| WSHEx 10.2 – WSHEx 16.2 KR | 244 |

Spare parts list  
**auma®**  
 Part-turn gearboxes  
 GS 50.3 – GS 125.3



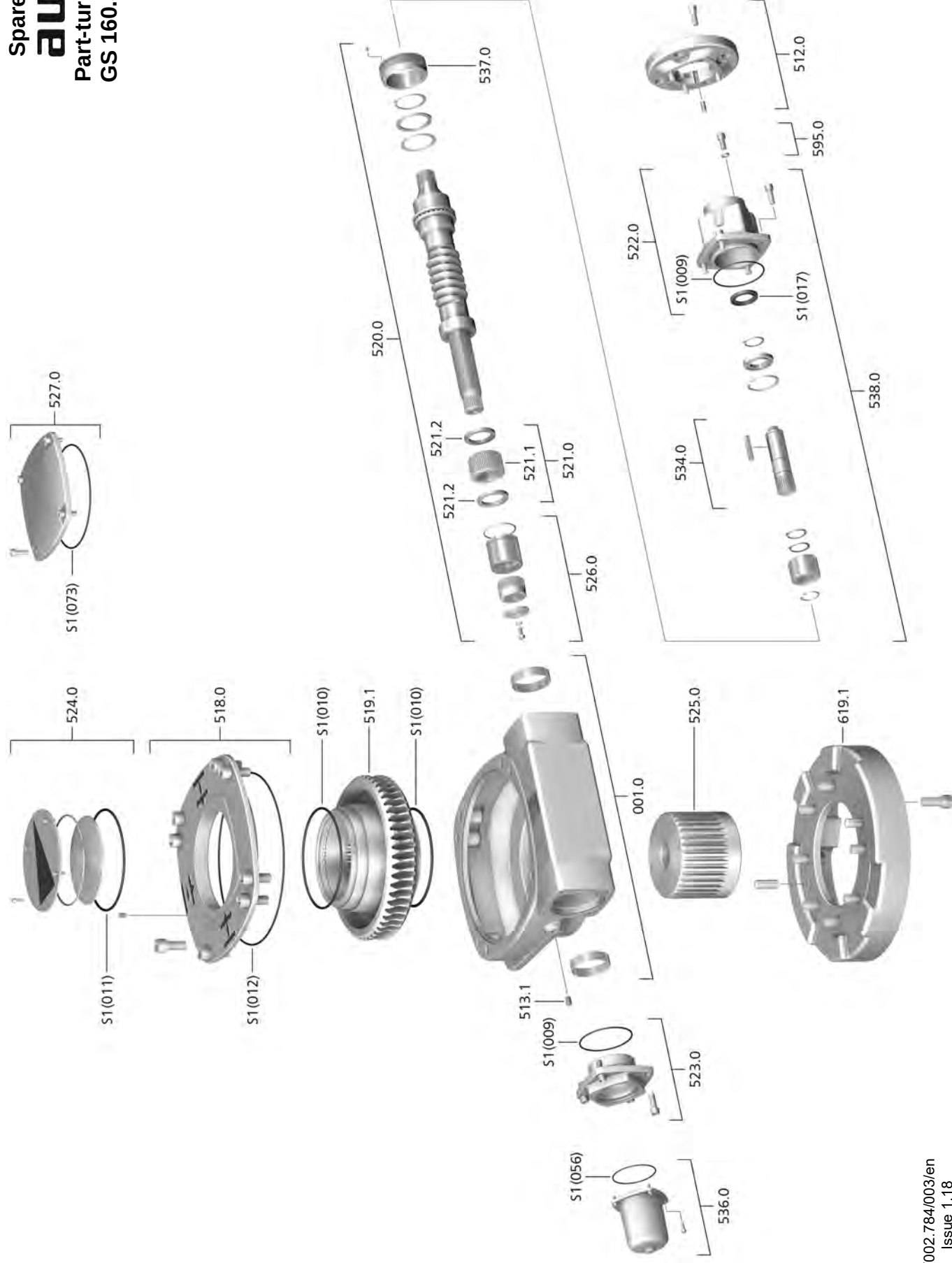
## Spare parts list Part-turn gearboxes

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation                                         | Type         |
|----------|-----------------------------------------------------|--------------|
| 001.0    | Housing                                             | Sub-assembly |
| 512.0    | Input mounting flange                               | Sub-assembly |
| 518.0    | Housing cover                                       | Sub-assembly |
| 519.1    | Worm wheel                                          |              |
| 520.0    | Worm shaft                                          | Sub-assembly |
| 521.0    | Travelling nut with two pairs of safety wedge discs | Sub-assembly |
| 521.1    | Travelling nut                                      |              |
| 521.12   | Pair of safety wedge discs                          |              |
| 522.0    | Bearing cover                                       | Sub-assembly |
| 523.0    | End stop                                            | Sub-assembly |
| 524.0    | Pointer cover                                       | Sub-assembly |
| 525.0    | Coupling                                            | Sub-assembly |
| 526.0    | End stop nut                                        | Sub-assembly |
| 527.0    | Protection cover                                    | Sub-assembly |
| 534.0    | Drive shaft                                         | Sub-assembly |
| 538.0    | Bearing cover with drive shaft                      | Sub-assembly |
| 595.0    | Screw kit for manual gearbox                        | Sub-assembly |
| 619.1    | Extension flange                                    | Sub-assembly |
| S1       | Seal kit                                            | Set          |



Spare parts list  
**auma®**  
 Part-turn gearboxes  
 GS 160.3 – GS 250.3

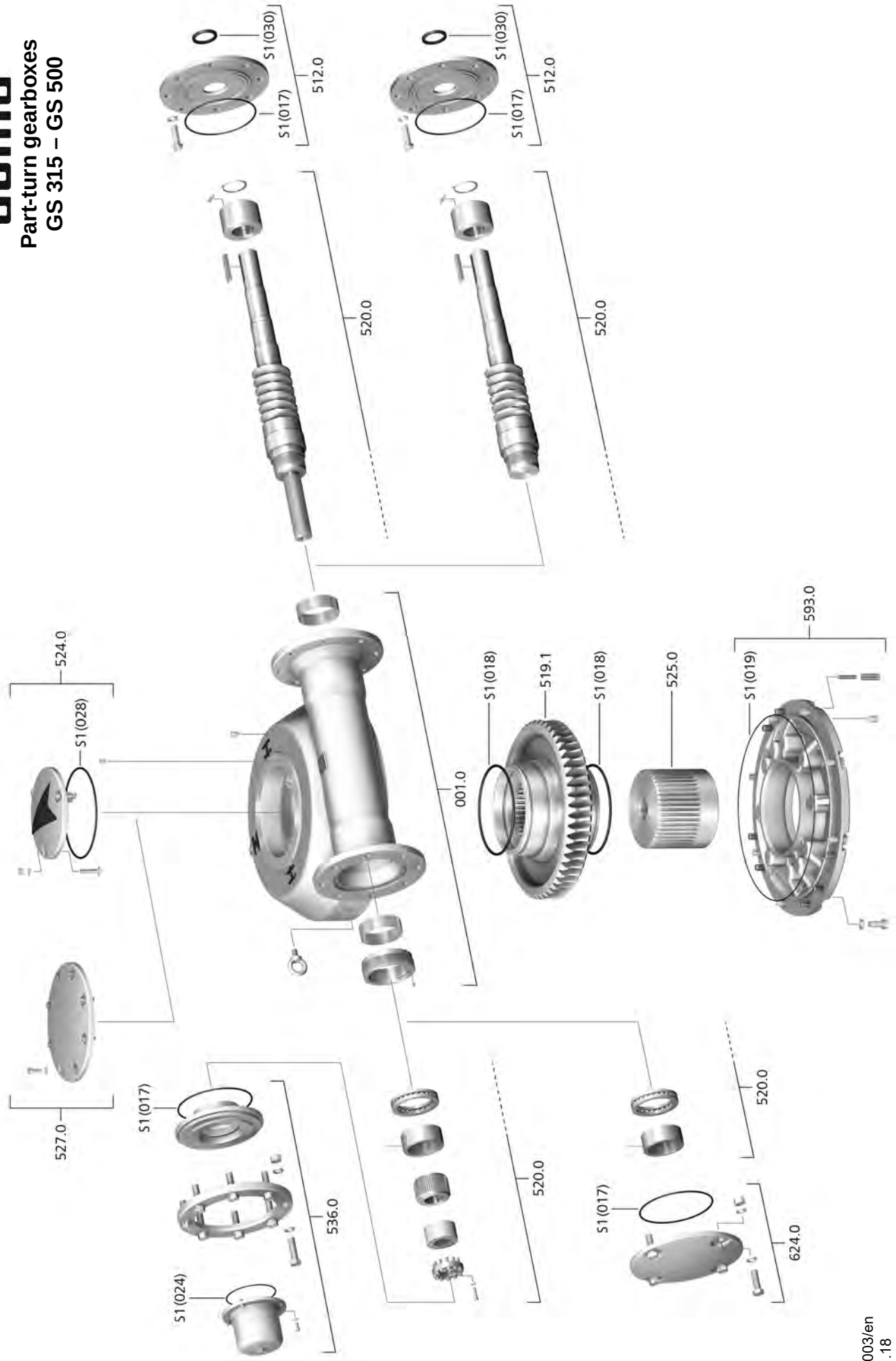


## Spare parts list Part-turn gearboxes

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation                                         | Type         |
|----------|-----------------------------------------------------|--------------|
| 001.0    | Housing                                             | Sub-assembly |
| 512.0    | Input mounting flange                               | Sub-assembly |
| 513.1    | Grub screw                                          |              |
| 518.0    | Housing cover                                       | Sub-assembly |
| 519.1    | Worm wheel                                          |              |
| 520.0    | Worm shaft                                          | Sub-assembly |
| 521.0    | Travelling nut with two pairs of safety wedge discs |              |
| 521.1    | Travelling nut                                      |              |
| 521.2    | Pair of safety wedge discs                          | Sub-assembly |
| 522.0    | Bearing cover                                       | Sub-assembly |
| 523.0    | End stop                                            | Sub-assembly |
| 524.0    | Pointer cover                                       | Sub-assembly |
| 525.0    | Coupling                                            | Sub-assembly |
| 526.0    | End stop nut                                        | Sub-assembly |
| 527.0    | Protection cover                                    | Sub-assembly |
| 534.0    | Drive shaft                                         | Sub-assembly |
| 536.0    | Protective cap                                      | Sub-assembly |
| 537.0    | Lock nut                                            | Sub-assembly |
| 538.0    | Bearing cover with drive shaft                      | Sub-assembly |
| 595.0    | Screw kit for manual gearbox                        | Sub-assembly |
| 619.1    | Extension flange                                    | Sub-assembly |
| S1       | Seal kit                                            | Set          |

Spare parts list  
**auma®**  
 Part-turn gearboxes  
 GS 315 – GS 500



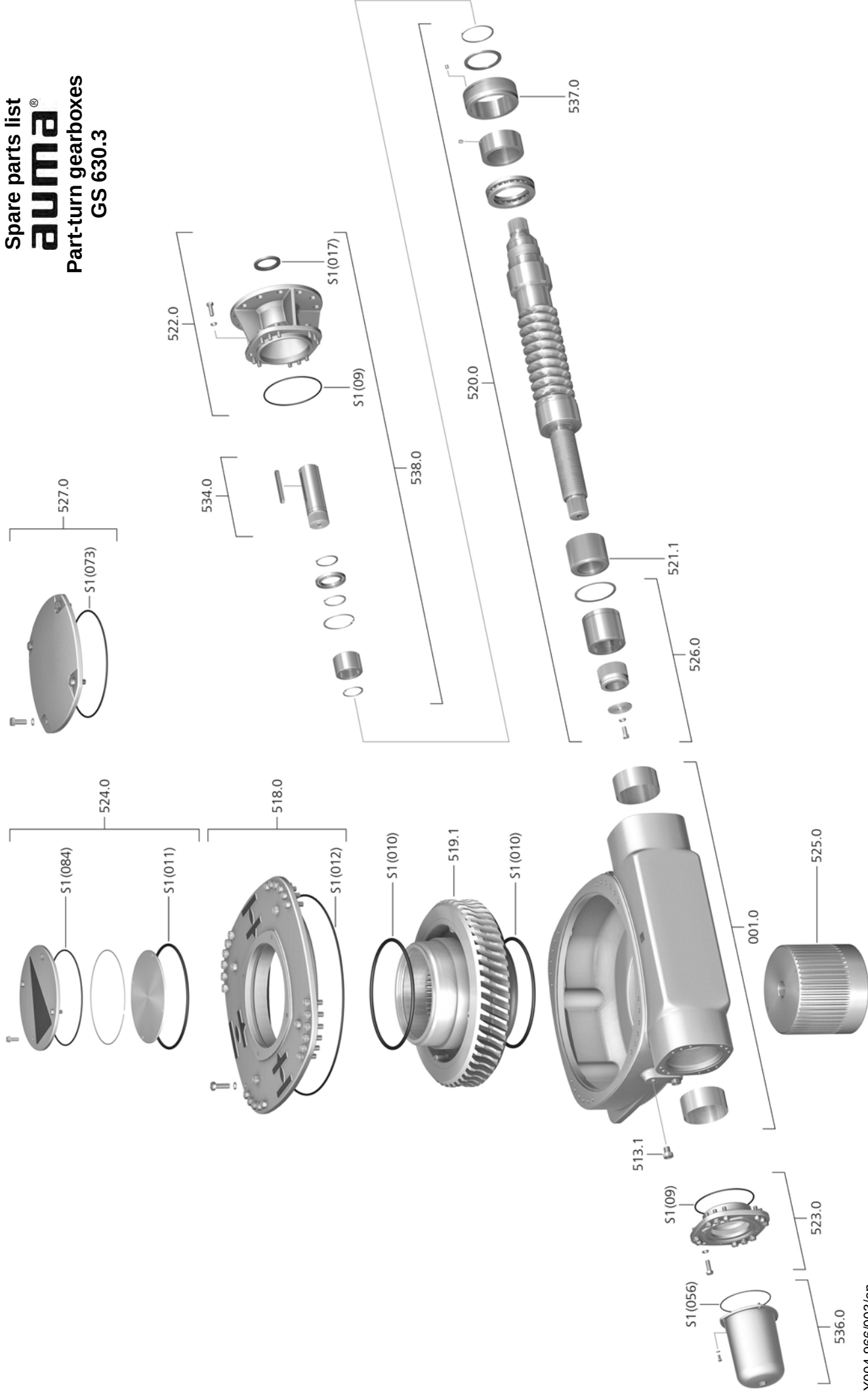
**Spare parts list Part-turn gearboxes**

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Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation           | Type         |
|----------|-----------------------|--------------|
| 001.0    | Housing               | Sub-assembly |
| 512.0    | Input mounting flange | Sub-assembly |
| 519.1    | Worm wheel            |              |
| 520.0    | Worm shaft            | Sub-assembly |
| 524.0    | Pointer cover         | Sub-assembly |
| 525.0    | Coupling              | Sub-assembly |
| 527.0    | Protection cover      | Sub-assembly |
| 536.0    | Protective cap        | Sub-assembly |
| 593.0    | Mounting flange       | Sub-assembly |
| 624.0    | Cover                 | Sub-assembly |
| S1       | Set of seals          | Set          |

Spare parts list  
**auma®**  
 Part-turn gearboxes  
 GS 630.3



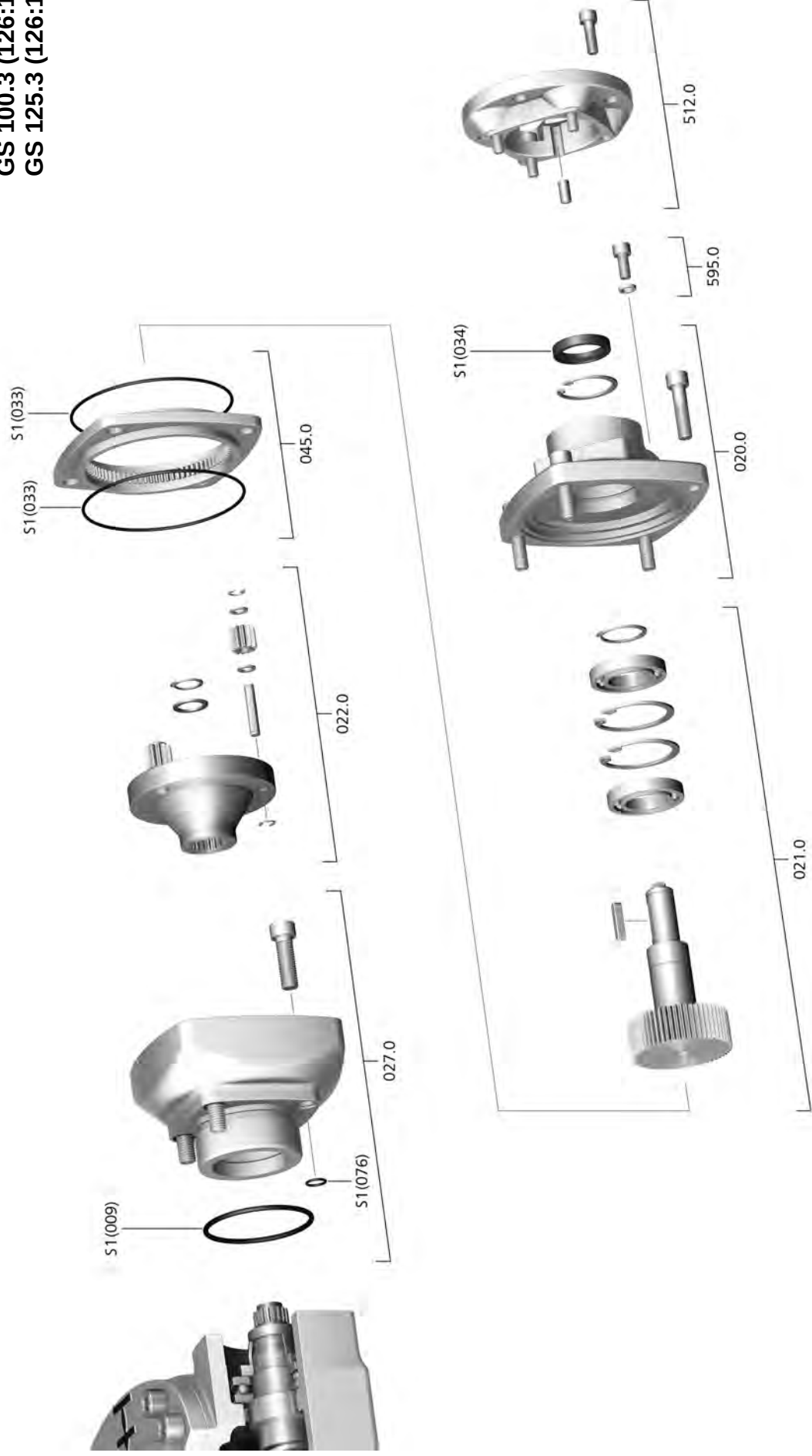
## Spare parts list Part-turn gearboxes

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation                                            | Type         |
|----------|--------------------------------------------------------|--------------|
| 001.0    | Housing                                                | Sub-assembly |
| 513.1    | Grub screw                                             |              |
| 518.0    | Housing cover                                          | Sub-assembly |
| 519.1    | Worm wheel                                             |              |
| 520.0    | Worm shaft                                             | Sub-assembly |
| 521.1    | Travelling nut                                         |              |
| 522.0    | Bearing cover with flange for actuator                 | Sub-assembly |
| 523.0    | End stop                                               | Sub-assembly |
| 524.0    | Pointer cover                                          | Sub-assembly |
| 525.0    | Coupling                                               | Sub-assembly |
| 526.0    | End stop nut                                           | Sub-assembly |
| 527.0    | Protection cover                                       | Sub-assembly |
| 534.0    | Drive shaft                                            | Sub-assembly |
| 536.0    | Protective cap                                         | Sub-assembly |
| 537.0    | Lock nut                                               | Sub-assembly |
| 538.0    | Bearing cover with flange for actuator and drive shaft | Sub-assembly |
| S1       | Seal kit                                               | Set          |

**Spare parts list**

**Primary reduction gearing for  
part-turn gearboxes**  
**GS 100.3 (126:1/160:1/208:1)**  
**GS 125.3 (126:1/160:1/208:1)**



Spare parts list Primary reduction gearing for part-turn gearboxes

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Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation                  | Type         |
|----------|------------------------------|--------------|
| 020.0    | Housing cover                | Sub-assembly |
| 021.0    | Drive shaft                  | Sub-assembly |
| 022.0    | Planet carrier               | Sub-assembly |
| 027.0    | Housing                      | Sub-assembly |
| 045.0    | Internal geared wheel        | Sub-assembly |
| 512.0    | Input mounting flange        | Sub-assembly |
| 595.0    | Screw kit for manual gearbox | Sub-assembly |
| S1       | Seal kit                     | Set          |

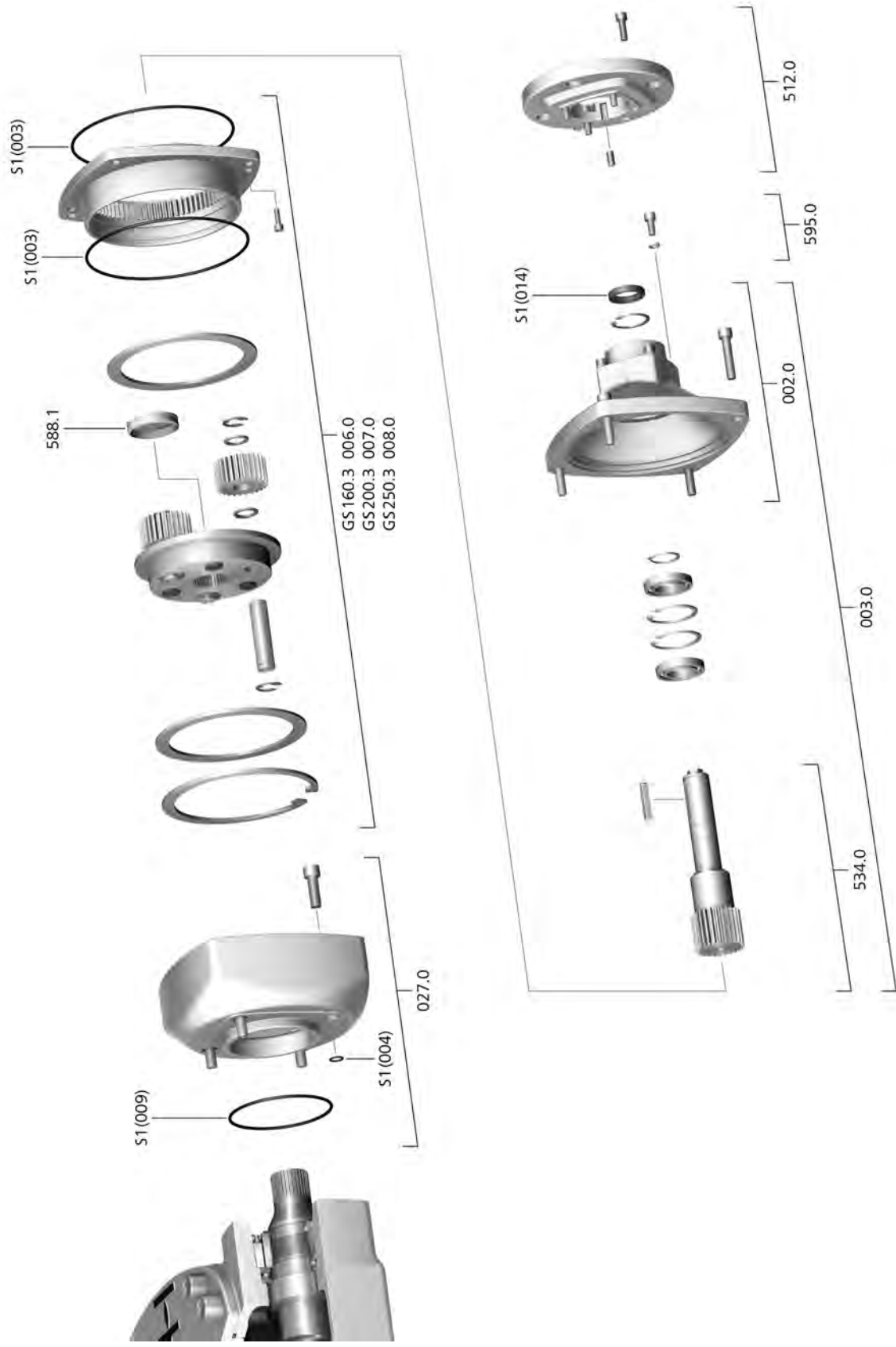


Spare parts list

**auma®**

Primary reduction gearing for  
part-turn gearboxes

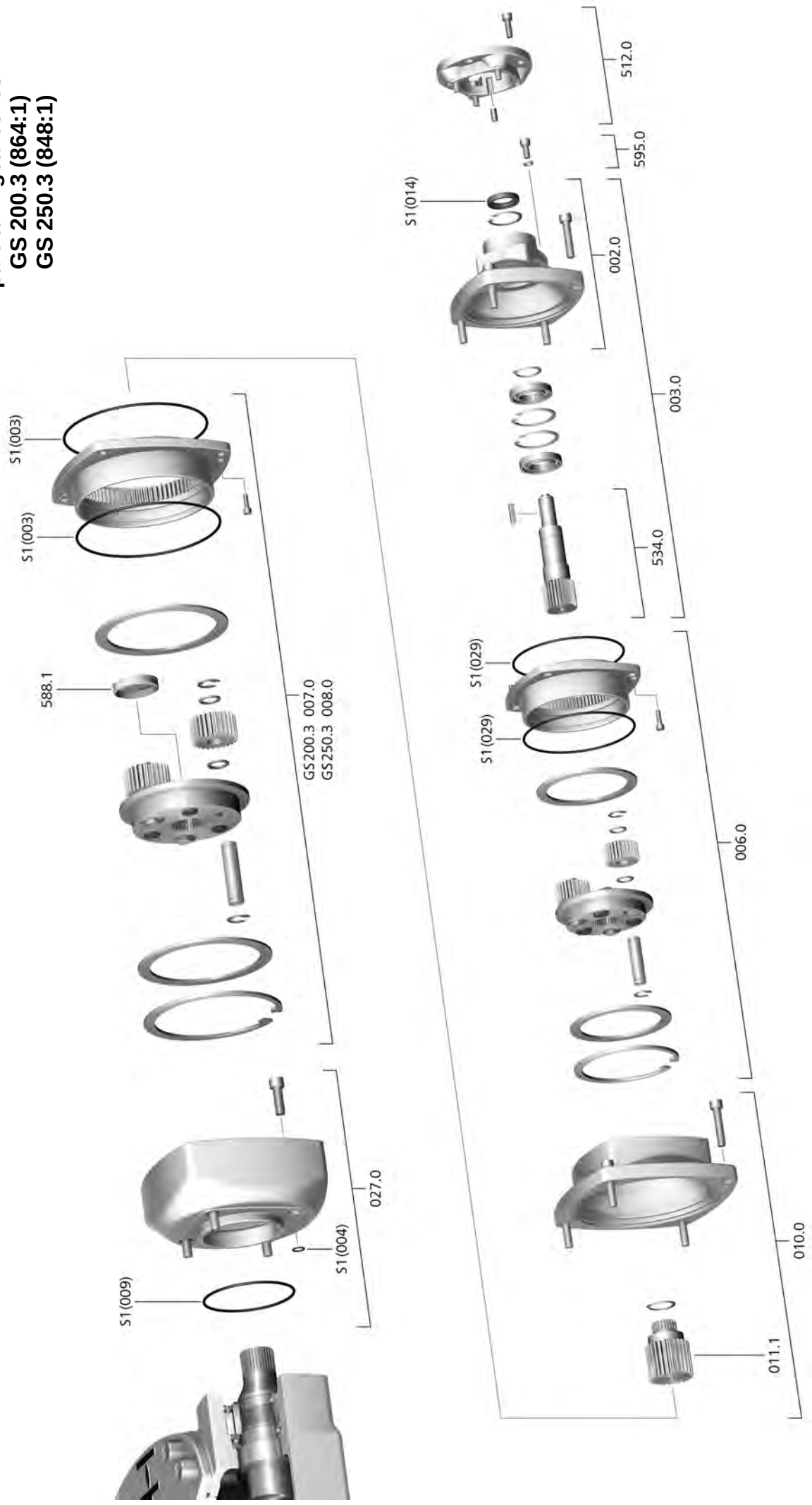
GS 160.3 (218:1/442:1)  
GS 200.3 (214:1/434:1)  
GS 250.3 (210:1/411:1)



Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation                              | Type         |
|----------|------------------------------------------|--------------|
| 002.0    | Housing cover                            | Sub-assembly |
| 003.0    | Housing cover with drive shaft           | Sub-assembly |
| 006.0    | Planetary gearing first stage (GS 160.3) | Sub-assembly |
| 007.0    | Planetary gearing first stage (GS 200.3) | Sub-assembly |
| 008.0    | Planetary gearing first stage (GS 250.3) | Sub-assembly |
| 027.0    | Housing                                  | Sub-assembly |
| 512.0    | Input mounting flange                    | Sub-assembly |
| 534.0    | Drive shaft                              | Sub-assembly |
| 588.1    | Blanking plug                            |              |
| 595.0    | Screw kit for manual gearbox             | Sub-assembly |
| S1       | Seal kit                                 | Set          |

Spare parts list  
**auma®**  
 Primary reduction gearing for  
 part-turn gearboxes  
 GS 200.3 (864:1)  
 GS 250.3 (848:1)

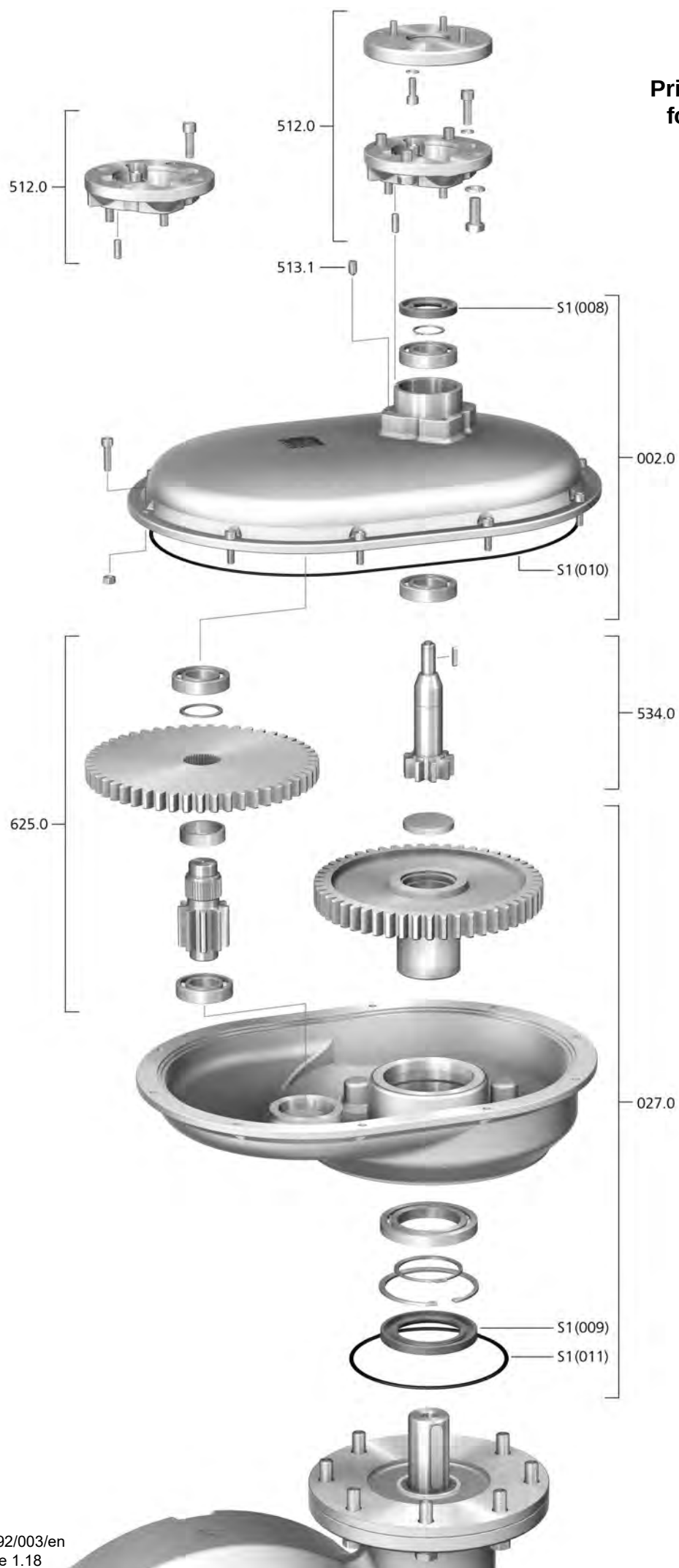


### **Spare parts list Primary reduction gearing for part-turn gearboxes**

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| <b>Ref. no.</b> | <b>Designation</b>                     | <b>Type</b>  |
|-----------------|----------------------------------------|--------------|
| 002.0           | Housing cover                          | Sub-assembly |
| 003.0           | Housing cover with drive shaft         | Sub-assembly |
| 006.0           | Planetary gearing first stage          | Sub-assembly |
| 007.0           | Planetary gear second stage (GS 200.3) | Sub-assembly |
| 008.0           | Planetary gear second stage (GS 250.3) | Sub-assembly |
| 010.0           | Intermediate housing                   | Sub-assembly |
| 011.1           | Pinion                                 |              |
| 027.0           | Housing                                | Sub-assembly |
| 512.0           | Input mounting flange                  | Sub-assembly |
| 534.0           | Drive shaft                            | Sub-assembly |
| 588.1           | Blanking plug                          |              |
| 595.0           | Screw kit for manual gearbox           | Sub-assembly |
| S1              | Seal kit                               | Set          |

Spare parts list  
**auma®**  
 Primary reduction gearing  
 for part-turn gearboxes  
 GS 315 – GS 500



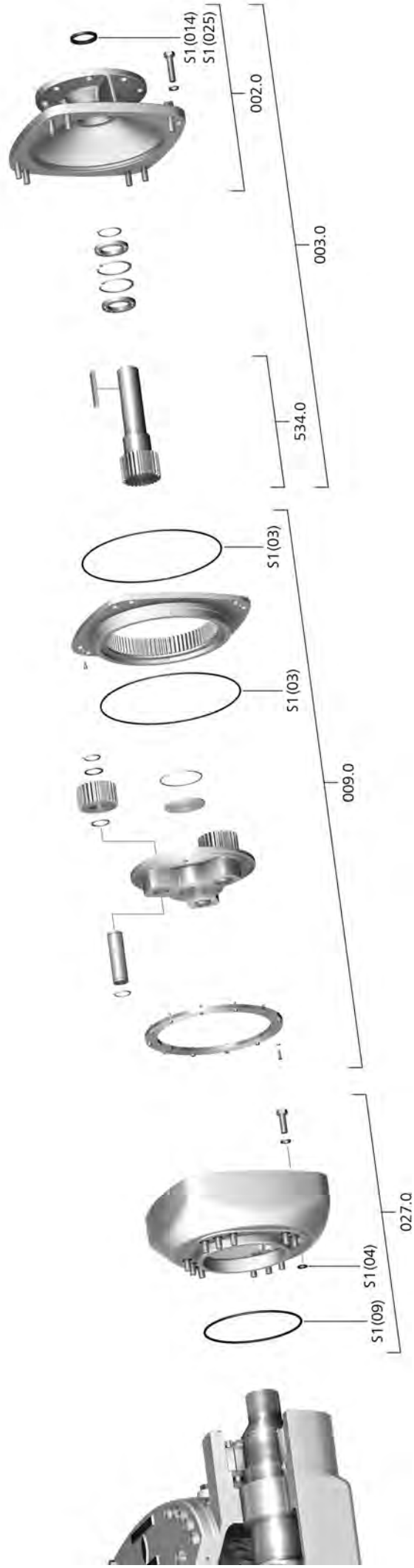
**Spare parts list Primary reduction gearing for part-turn gearboxes**

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Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation           | Type         |
|----------|-----------------------|--------------|
| 002.0    | Housing cover         | Sub-assembly |
| 027.0    | Housing               | Sub-assembly |
| 512.0    | Input mounting flange | Sub-assembly |
| 513.1    | Grub screw            |              |
| 534.0    | Drive shaft           | Sub-assembly |
| 625.0    | Gear shaft assembly   | Sub-assembly |
| S1       | Seal kit              | Set          |

Spare parts list  
**auma**<sup>®</sup>  
 Primary reduction gearing for  
 part-turn gearboxes  
 GS 630.3 (4:1/8:1)



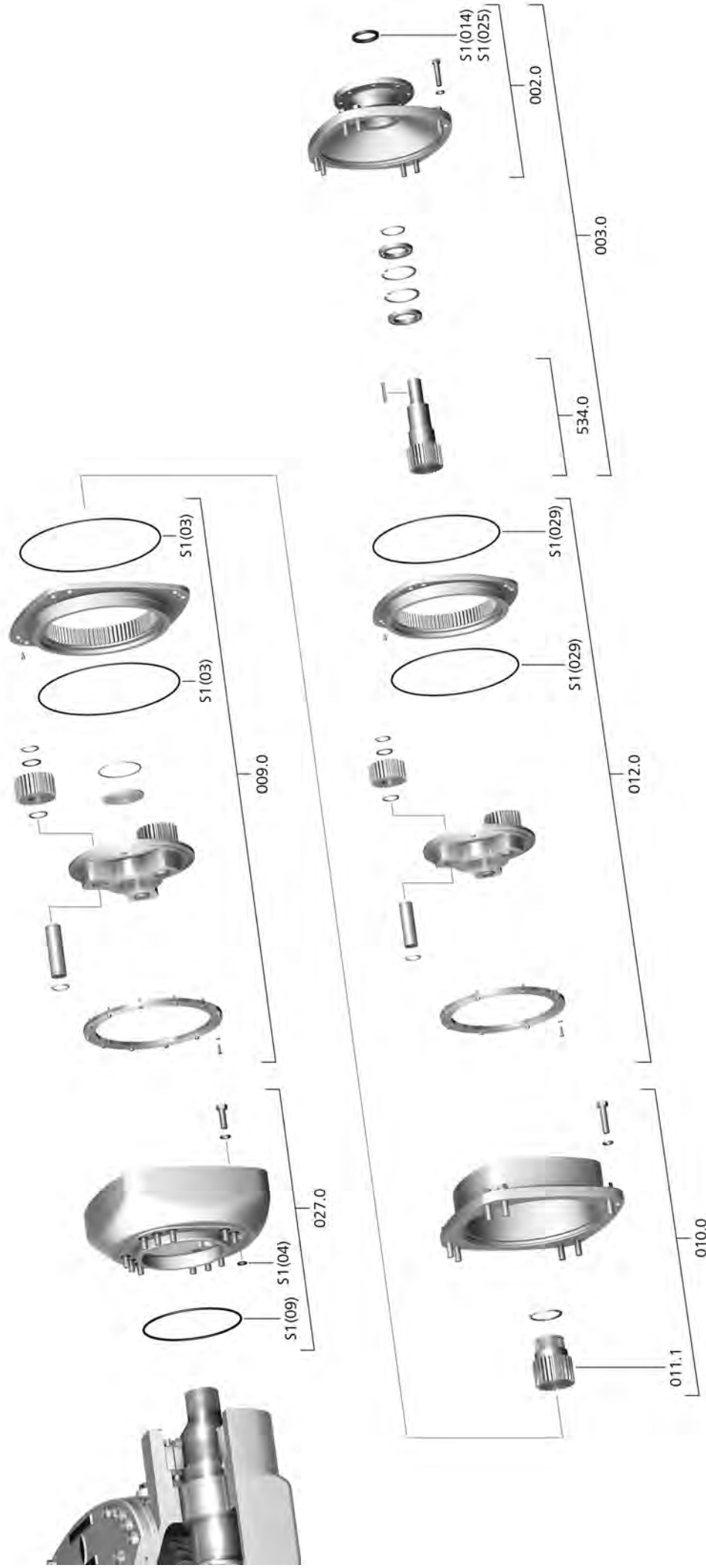
Spare parts list Primary reduction gearing for part-turn gearboxes

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation                              | Type         |
|----------|------------------------------------------|--------------|
| 002.0    | Housing cover with flange for actuator   | Sub-assembly |
| 003.0    | Housing cover with drive shaft           | Sub-assembly |
| 009.0    | Planetary gearing first stage (GS 630.3) | Sub-assembly |
| 027.0    | Housing                                  | Sub-assembly |
| 534.0    | Drive shaft                              | Sub-assembly |
| S1       | Seal kit                                 | Set          |



Spare parts list  
**auma**<sup>®</sup>  
 Primary reduction gearing for  
 part-turn gearboxes  
 GS 630.3 (16:1/32:1)



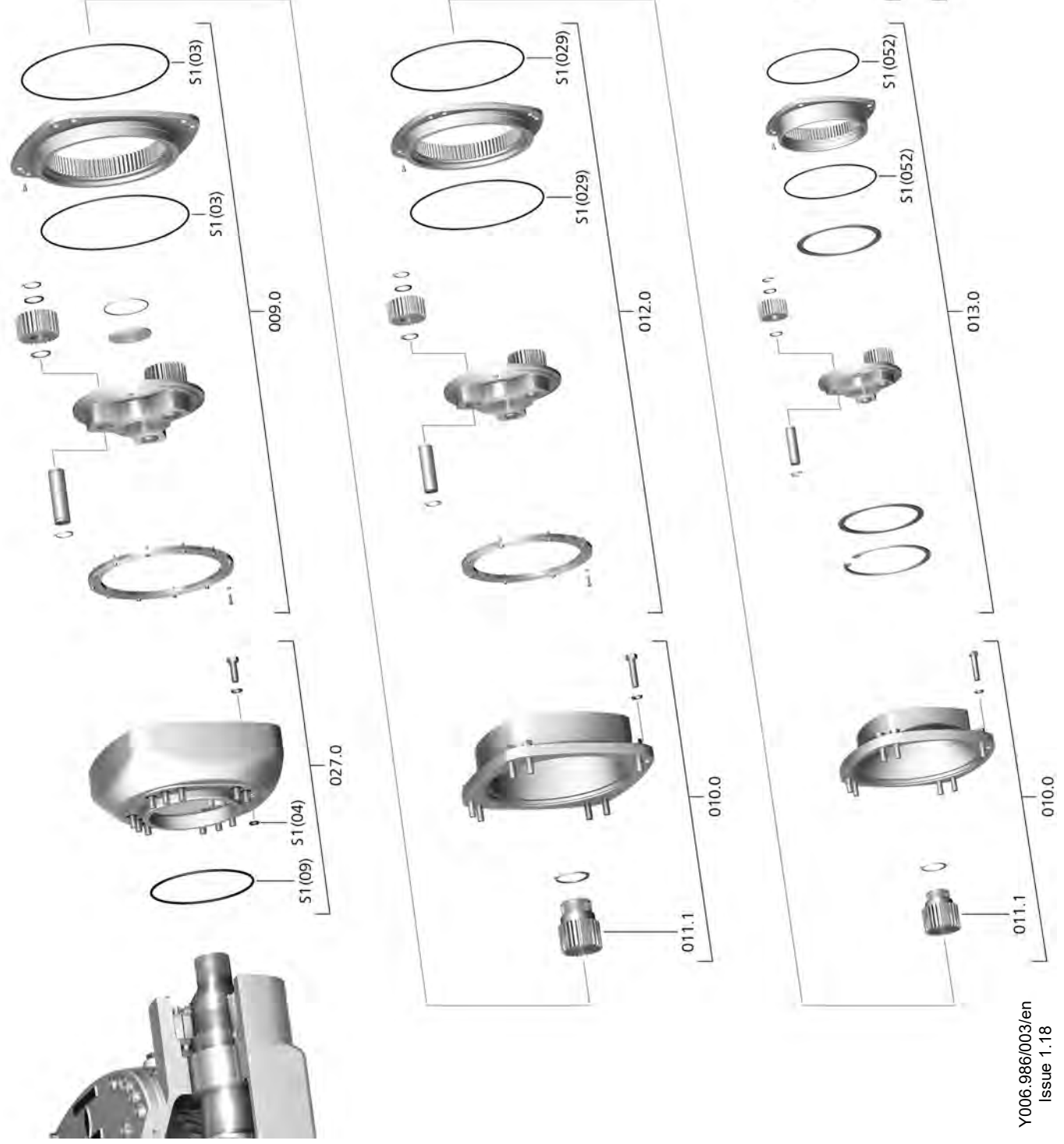
**Spare parts list Primary reduction gearing for part-turn gearboxes**

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Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation                              | Type         |
|----------|------------------------------------------|--------------|
| 002.0    | Housing cover with flange for actuator   | Sub-assembly |
| 003.0    | Housing cover with drive shaft           | Sub-assembly |
| 009.0    | Planetary gear second stage (GS 630.3)   | Sub-assembly |
| 010.0    | Intermediate housing                     | Sub-assembly |
| 011.1    | Pinion                                   |              |
| 012.0    | Planetary gearing first stage (GS 500.3) | Sub-assembly |
| 027.0    | Housing                                  | Sub-assembly |
| 534.0    | Drive shaft                              | Sub-assembly |
| S1       | Seal kit                                 | Set          |

Spare parts list  
**auma®**  
 Primary reduction gearing for  
 part-turn gearboxes  
 GS 630.3 (64:1/133:1)



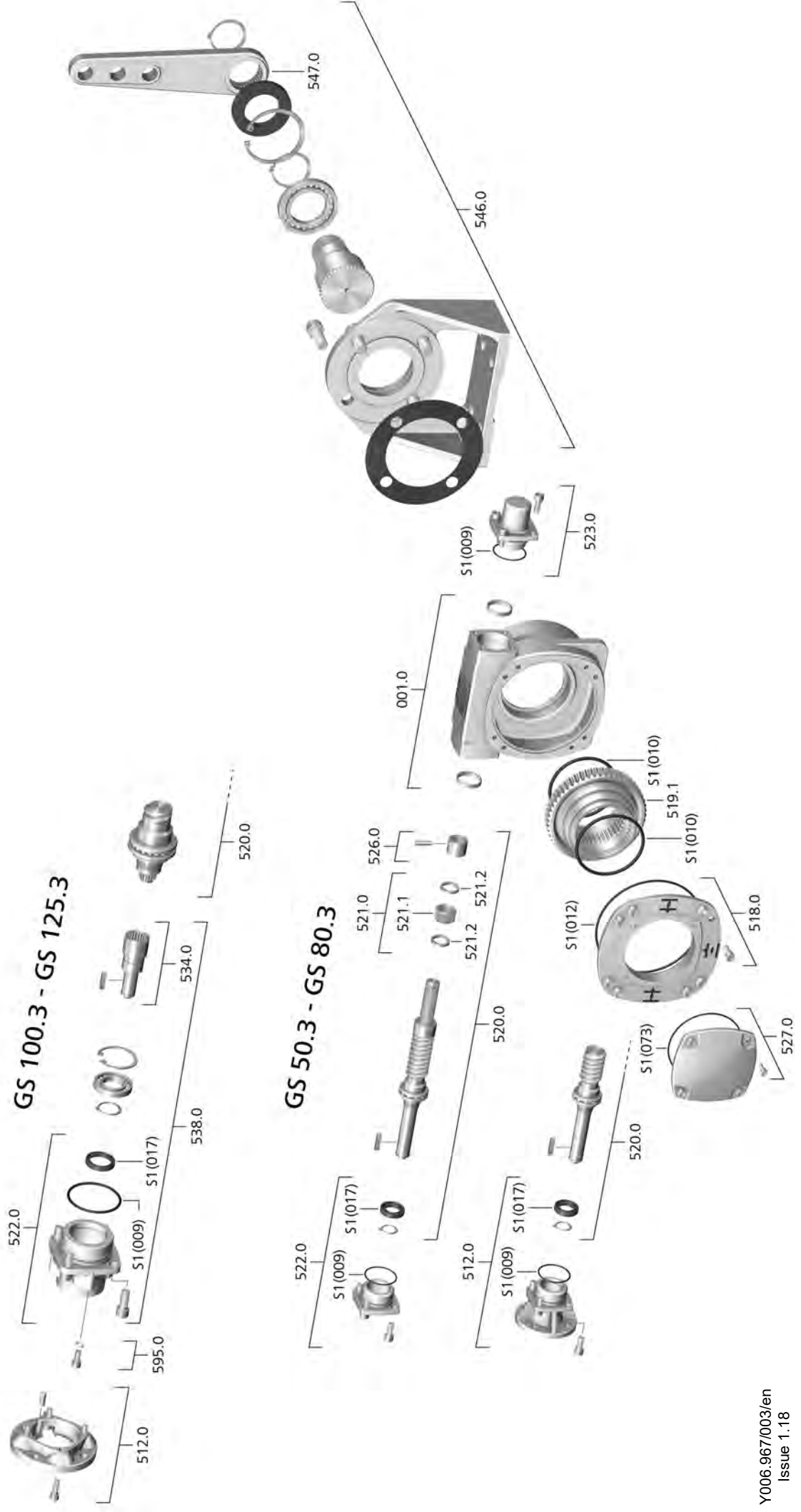
**Spare parts list Primary reduction gearing for part-turn gearboxes**

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation                              | Type         |
|----------|------------------------------------------|--------------|
| 002.0    | Housing cover                            | Sub-assembly |
| 003.0    | Housing cover with drive shaft           | Sub-assembly |
| 009.0    | Planetary gear third stage (GS 630.3)    | Sub-assembly |
| 010.0    | Intermediate housing                     | Sub-assembly |
| 011.1    | Pinion                                   |              |
| 012.0    | Planetary gear second stage (GS 500.3)   | Sub-assembly |
| 013.0    | Planetary gearing first stage (GS 315.3) | Sub-assembly |
| 027.0    | Housing                                  | Sub-assembly |
| 512.0    | Flange for actuator                      | Sub-assembly |
| 513.1    | Grub screw                               |              |
| 534.0    | Drive shaft                              | Sub-assembly |
| S1       | Seal kit                                 | Set          |

## Spare parts list

## Part-turn gearboxes GS 50.3 – GS 125.3 with base and lever



## Spare parts list Part-turn gearboxes with base and lever

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation                                         | Type         |
|----------|-----------------------------------------------------|--------------|
| 001.0    | Housing                                             | Sub-assembly |
| 512.0    | Input mounting flange                               | Sub-assembly |
| 513.1    | Grub screw                                          |              |
| 518.0    | Housing cover                                       | Sub-assembly |
| 519.1    | Worm wheel                                          |              |
| 520.0    | Worm shaft                                          | Sub-assembly |
| 521.0    | Travelling nut with two pairs of safety wedge discs | Sub-assembly |
| 521.1    | Travelling nut                                      |              |
| 521.2    | Pair of safety wedge discs                          |              |
| 522.0    | Bearing cover                                       | Sub-assembly |
| 523.0    | End stop                                            | Sub-assembly |
| 526.0    | End stop nut                                        | Sub-assembly |
| 527.0    | Protection cover                                    | Sub-assembly |
| 534.0    | Drive shaft                                         | Sub-assembly |
| 538.0    | Bearing cover with drive shaft                      | Sub-assembly |
| 546.0    | Base flange                                         | Sub-assembly |
| 547.0    | Swing lever                                         |              |
| 595.0    | Screw kit for manual gearbox                        | Sub-assembly |
| S1       | Seal kit                                            | Set          |

Exploded view diagram of a mechanical assembly. The diagram shows the following components and their part numbers:

- 522.0: Main housing assembly
- 512.0: Flange component
- 51 (009): Bolt
- 51 (017): Bolt
- 595.0: Nut
- 534.0: Bolt
- 538.0: Main housing assembly
- 537.0: Bolt
- 520.0: Main housing assembly
- 521.0: Bolt
- 521.1: Bolt
- 521.2: Bolt
- 526.0: Bolt
- 521.0: Bolt
- 521.1: Bolt
- 521.2: Bolt
- 526.0: Bolt
- 520.0: Main housing assembly
- 513.1: Bolt
- 513.0: Bolt
- 51 (009): Bolt
- 51 (056): Bolt
- 536.0: Bolt
- 546.0: Bolt
- 547.0: Bolt
- 512.0: Flange component
- 51 (012): Bolt
- 519.1: Bolt
- 51 (010): Bolt
- 518.0: Bolt
- 51 (073): Bolt
- 527.0: Bolt

## Spare parts list Part-turn gearboxes with base and lever

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation                                         | Type         |
|----------|-----------------------------------------------------|--------------|
| 001.0    | Housing                                             | Sub-assembly |
| 512.0    | Input mounting flange                               | Sub-assembly |
| 513.1    | Grub screw                                          |              |
| 518.0    | Housing cover                                       | Sub-assembly |
| 519.1    | Worm wheel                                          |              |
| 520.0    | Worm shaft                                          | Sub-assembly |
| 521.0    | Travelling nut with two pairs of safety wedge discs | Sub-assembly |
| 521.1    | Travelling nut                                      |              |
| 521.2    | Pair of safety wedge discs                          |              |
| 522.0    | Bearing cover                                       | Sub-assembly |
| 523.0    | End stop                                            | Sub-assembly |
| 526.0    | End stop nut                                        | Sub-assembly |
| 527.0    | Protection cover                                    | Sub-assembly |
| 534.0    | Drive shaft                                         | Sub-assembly |
| 536.0    | Protective cap                                      | Sub-assembly |
| 537.0    | Lock nut                                            | Sub-assembly |
| 538.0    | Bearing cover with drive shaft                      | Sub-assembly |
| 546.0    | Base flange                                         | Sub-assembly |
| 547.0    | Swing lever                                         |              |
| 595.0    | Screw kit for manual gearbox                        | Sub-assembly |
| S1       | Seal kit                                            | Set          |



|       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 524.0 | 518.0 | 519.1 | 001.0 | 548.0 | 525.0 | 001.1 | 520.2 | 520.1 | 520.2 | 630.1 | 512.0 | 522.0 | 631.0 | 632.0 | 512.0 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|

Y008.256/003/en  
Issue 1.23

## Spare parts list Part-turn gearboxes

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation                   | Type         |
|----------|-------------------------------|--------------|
| 001.0    | Housing                       | Sub-assembly |
| 001.1    | Setting screw for end stop    | Sub-assembly |
| 512.0    | Input mounting flange         | Sub-assembly |
| 518.0    | Housing cover                 | Sub-assembly |
| 519.1    | Worm wheel                    |              |
| 520.1    | Worm shaft                    | Sub-assembly |
| 520.2    | Axial cylinder roller bearing |              |
| 522.0    | Bearing cover                 | Sub-assembly |
| 524.0    | Pointer cover                 | Sub-assembly |
| 525.0    | Coupling                      | Sub-assembly |
| 548.0    | Spigot ring                   |              |
| 630.1    | Shaft                         | Sub-assembly |
| 631.0    | Planet carrier                |              |
| 632.0    | Internal geared wheel         |              |
| S1       | Seal kit                      | Set          |

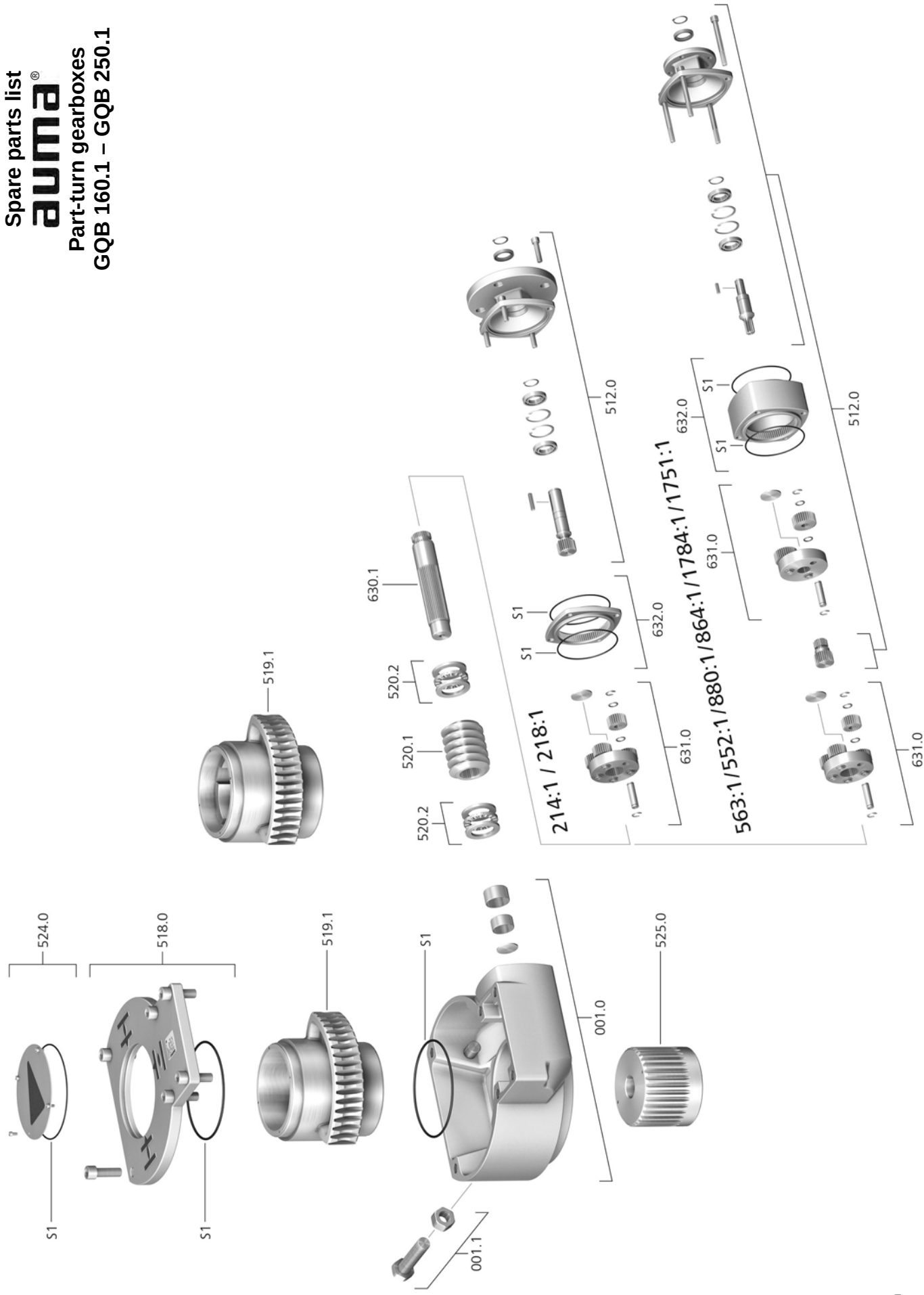


## Spare parts list Part-turn gearboxes

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. No. | Designation                   | Type         |
|----------|-------------------------------|--------------|
| 001.0    | Housing                       | Sub-assembly |
| 001.1    | Setting screw for end stop    | Sub-assembly |
| 512.0    | Input mounting flange         | Sub-assembly |
| 518.0    | Housing cover                 | Sub-assembly |
| 519.1    | Worm wheel                    |              |
| 520.1    | Worm                          | Sub-assembly |
| 520.2    | Axial cylinder roller bearing |              |
| 522.0    | Bearing cover                 | Sub-assembly |
| 524.0    | Pointer cover                 | Sub-assembly |
| 525.0    | Coupling                      | Sub-assembly |
| 548.0    | Spigot ring                   |              |
| 630.1    | Shaft                         | Sub-assembly |
| 631.0    | Planetary carrier             |              |
| 632.0    | Internal geared wheel         |              |
| S1       | Seal kit                      | Set          |

**Spare parts list**  
**auma®**  
**Part-turn gearboxes**  
**QGB 160.1 – QGB 250.1**

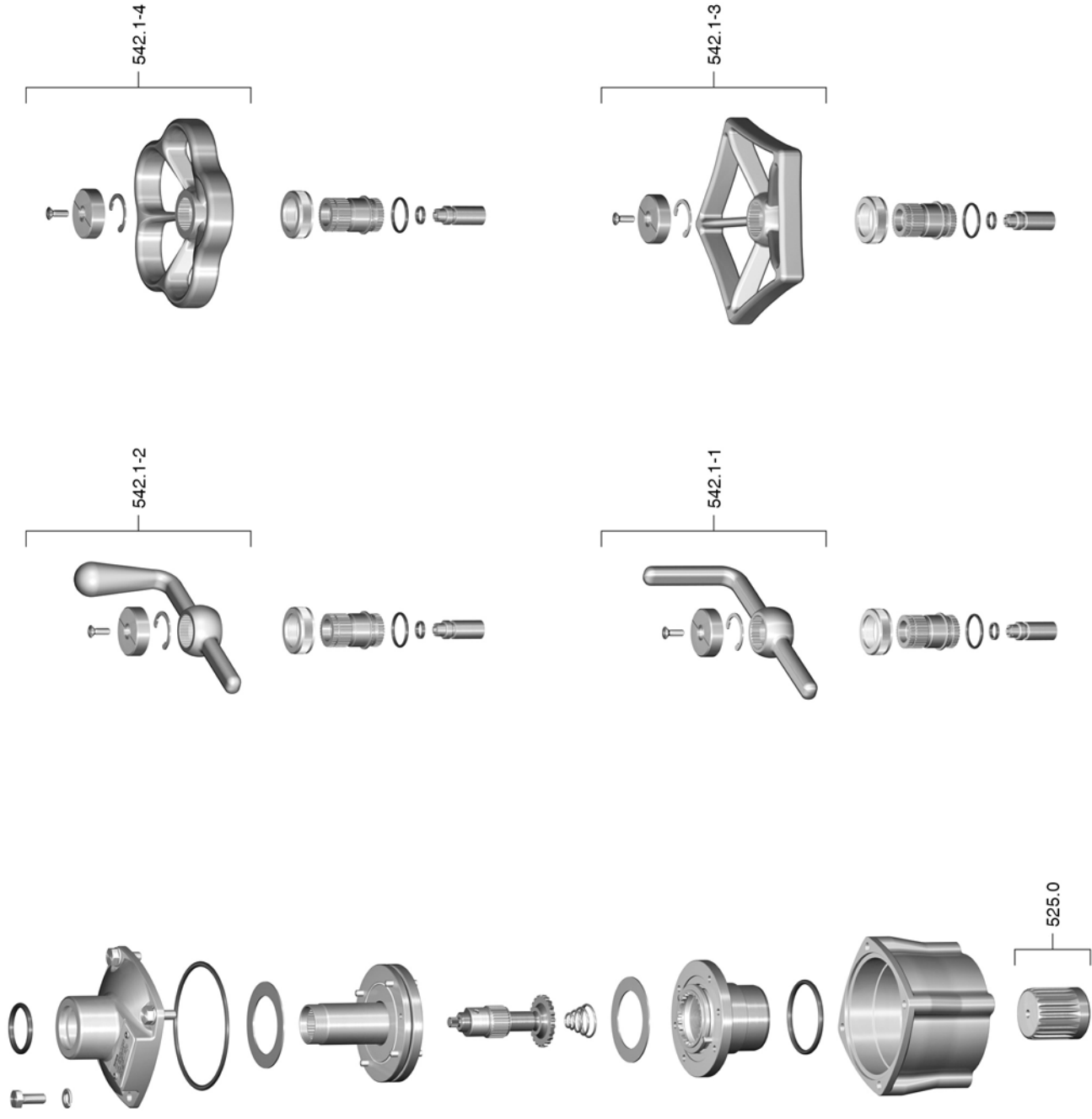


## Spare parts list Part-turn gearboxes

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation                   | Type         |
|----------|-------------------------------|--------------|
| 001.0    | Housing                       | Sub-assembly |
| 001.1    | Setting screw for end stop    | Sub-assembly |
| 512.0    | Input mounting flange         | Sub-assembly |
| 518.0    | Housing cover                 | Sub-assembly |
| 519.1    | Worm wheel                    |              |
| 520.1    | Worm                          | Sub-assembly |
| 520.2    | Axial cylinder roller bearing |              |
| 524.0    | Pointer cover                 | Sub-assembly |
| 525.0    | Coupling                      | Sub-assembly |
| 630.1    | Shaft                         | Sub-assembly |
| 631.0    | Planet carrier                |              |
| 632.0    | Internal geared wheel         |              |
| S1       | Seal kit                      | Set          |

Spare parts list  
**auma**<sup>®</sup>  
 Part-turn gearboxes  
 GHE 05.1 – GHE 12.1



**Spare parts list Part-turn gearboxes**

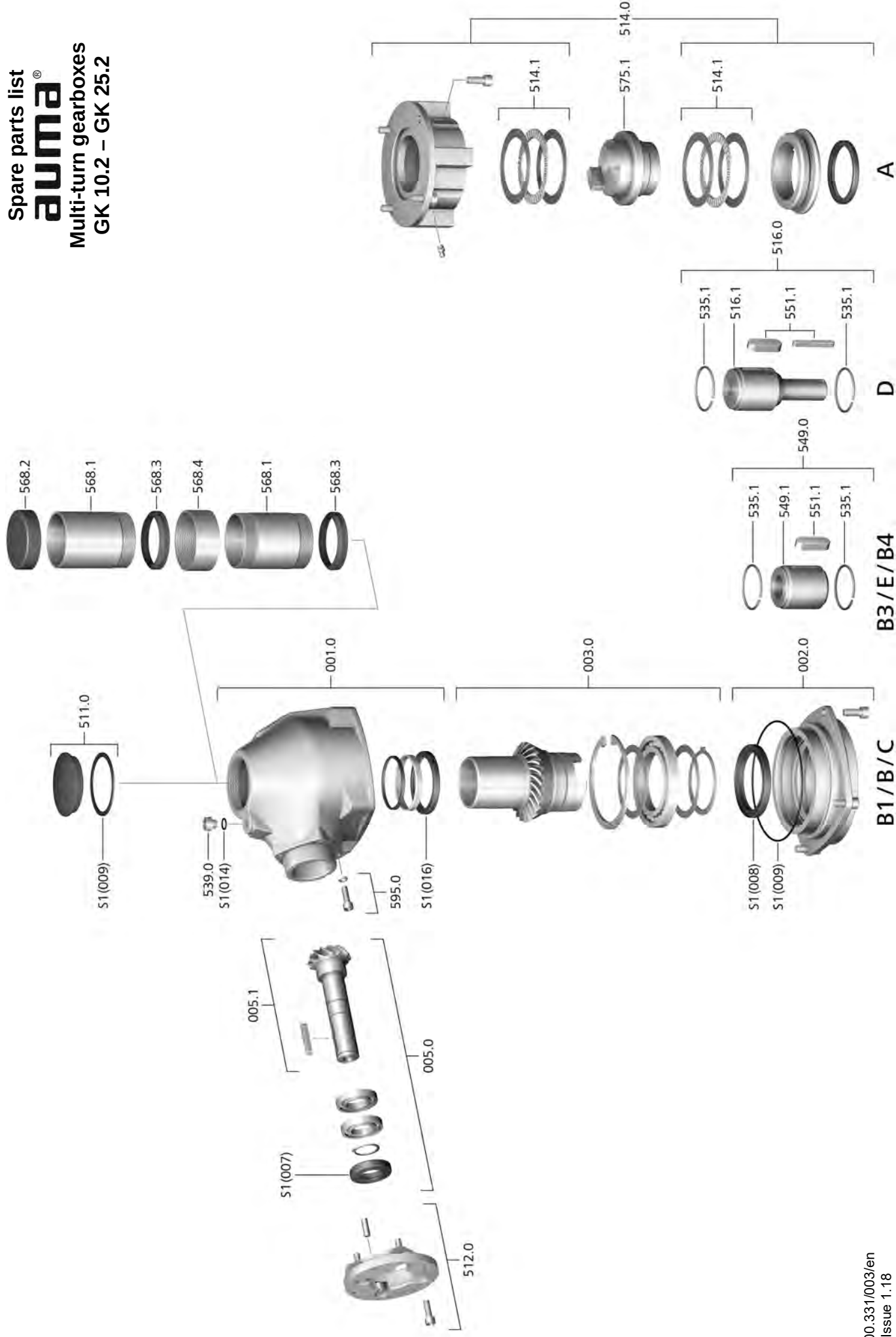
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Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no.  | Designation                                            | Type         |
|-----------|--------------------------------------------------------|--------------|
| 525.0     | Coupling                                               | Sub-assembly |
| 542.1-1.1 | Crank handle with cylindrical grip                     | Sub-assembly |
| 542.1-1.2 | Crank handle with cylindrical grip and additional ball | Sub-assembly |
| 542.1-2.1 | Crank handle with conical grip                         | Sub-assembly |
| 542.1-2.2 | Crank handle with conical grip and additional ball     | Sub-assembly |
| 542.1-3.1 | Handwheel with five-edge ring                          | Sub-assembly |
| 542.1-3.2 | Handwheel with five-edge ring and additional ball      | Sub-assembly |
| 542.1-4.1 | Handwheel with five-ripple ring                        | Sub-assembly |
| 542.1-4.2 | Handwheel with five-ripple ring and additional ball    | Sub-assembly |



Spare parts list  
**auma**<sup>®</sup>  
 Multi-turn gearboxes  
 GK 10.2 – GK 25.2



## Spare parts list Multi-turn gearboxes

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

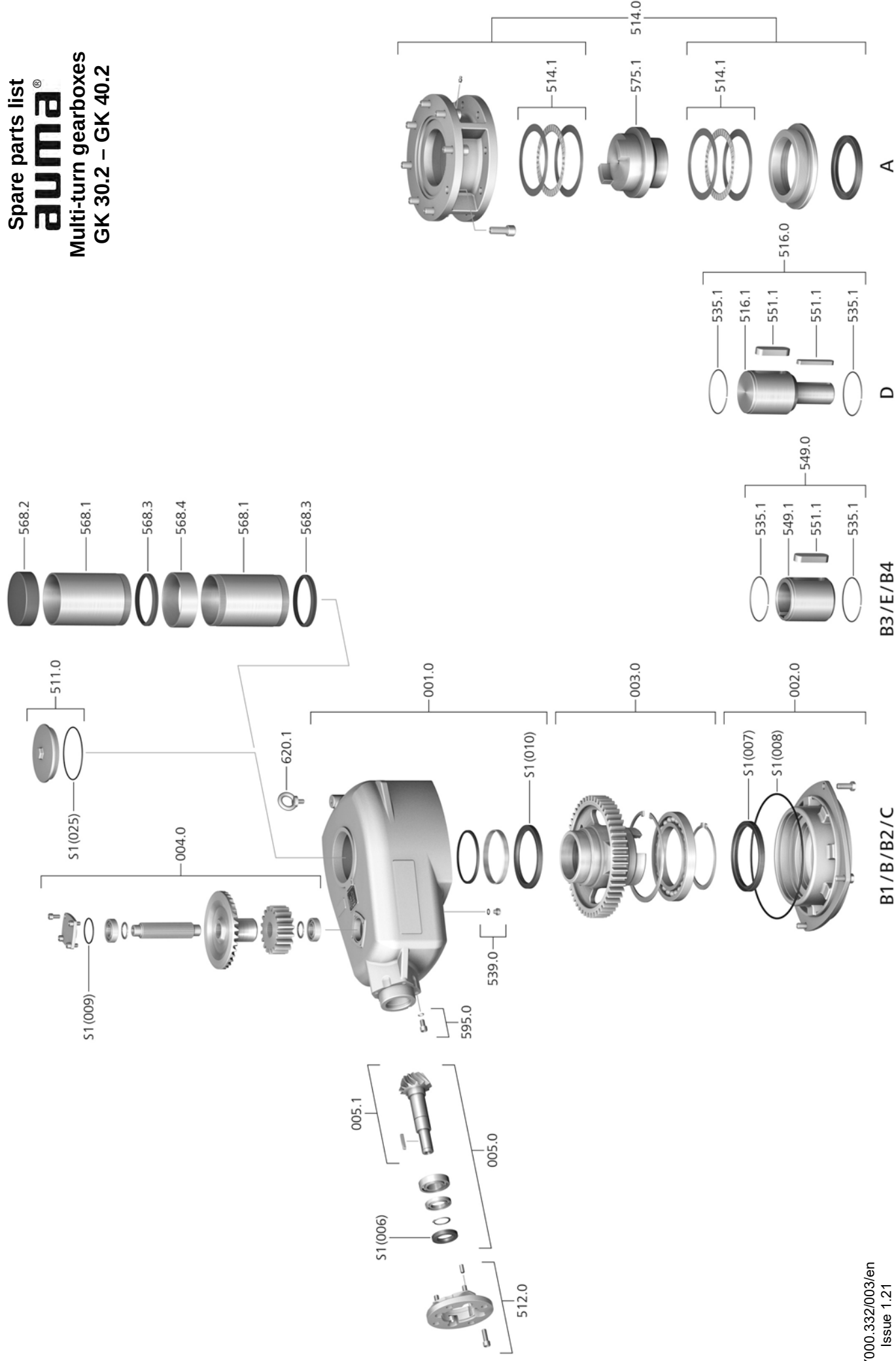
| Ref. no. | Designation                             | Type         |
|----------|-----------------------------------------|--------------|
| 001.0    | Housing                                 | Sub-assembly |
| 002.0    | Bearing flange                          | Sub-assembly |
| 003.0    | Hollow shaft                            | Sub-assembly |
| 005.0    | Input shaft                             | Sub-assembly |
| 005.1    | Pinion shaft                            | Sub-assembly |
| 511.0    | Threaded plug                           | Sub-assembly |
| 512.0    | Input mounting flange                   | Sub-assembly |
| 514.0    | Output drive type A (without stem nut)  | Sub-assembly |
| 514.1    | Axial needle roller bearing             | Sub-assembly |
| 516.0    | Output drive type D                     | Sub-assembly |
| 516.1    | Output drive shaft D                    |              |
| 535.1    | Snap ring                               |              |
| 539.0    | Screw plug                              | Sub-assembly |
| 549.0    | Output drive type B3/E/B4               | Sub-assembly |
| 549.1    | Output drive sleeve B3/E/B4             |              |
| 551.1    | Parallel key                            |              |
| 568.1    | Stem protection tube (without cap)      |              |
| 568.2    | Protective cap for stem protection tube |              |
| 568.3    | V-seal                                  |              |
| 568.4    | Threaded sleeve                         |              |
| 575.1    | Stem nut (without thread)               |              |
| 595.0    | Screw kit for manual gearbox            | Sub-assembly |
| S1       | Seal kit                                | Set          |

# Spare parts list

## **auma**<sup>®</sup>

### Multi-turn gearboxes

#### GK 30.2 – GK 40.2



## Spare parts list Multi-turn gearboxes

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation                             | Type         |
|----------|-----------------------------------------|--------------|
| 001.0    | Housing                                 | Sub-assembly |
| 002.0    | Bearing flange                          | Sub-assembly |
| 003.0    | Hollow shaft                            | Sub-assembly |
| 004.0    | Intermediate stage                      | Sub-assembly |
| 005.0    | Input shaft                             | Sub-assembly |
| 005.1    | Pinion shaft                            | Sub-assembly |
| 511.0    | Threaded plug                           | Sub-assembly |
| 512.0    | Input mounting flange                   | Sub-assembly |
| 514.0    | Output drive type A (without stem nut)  | Sub-assembly |
| 514.1    | Axial needle roller bearing             | Sub-assembly |
| 516.0    | Output drive type D                     | Sub-assembly |
| 516.1    | Output drive shaft D                    |              |
| 535.1    | Snap ring                               |              |
| 539.0    | Screw plug                              | Sub-assembly |
| 549.0    | Output drive type B3/E/B4               | Sub-assembly |
| 549.1    | Output drive sleeve B3/E/B4             |              |
| 551.1    | Parallel key                            |              |
| 568.1    | Stem protection tube (without cap)      |              |
| 568.2    | Protective cap for stem protection tube |              |
| 568.3    | V-seal                                  |              |
| 568.4    | Threaded sleeve                         |              |
| 575.1    | Stem nut for output drive type A        |              |
| 595.0    | Screw kit for manual gearbox            | Sub-assembly |
| 620.1    | Eyebolt                                 |              |
| S1       | Seal kit                                | Set          |

This exploded view diagram illustrates the assembly of a mechanical component, likely a pump or valve. The central part is a large cylindrical housing (518.0) with a flange. Key sub-assemblies and components are shown in their relative positions:

- Top Assembly:** Includes a flange (527.0), a ring (637.0), and two O-rings (S1).
- Internal Components:** A central shaft (519.0) with a spring (635.1) and a gear (519.1) are shown.
- Bottom Assembly:** Includes a flange (638.0), a ring (635.0), and two O-rings (S1).
- Other Components:** Various small parts like bolts, washers, and seals are labeled with numbers like 568.1, 568.2, 568.3, 539.0, and 539.1.

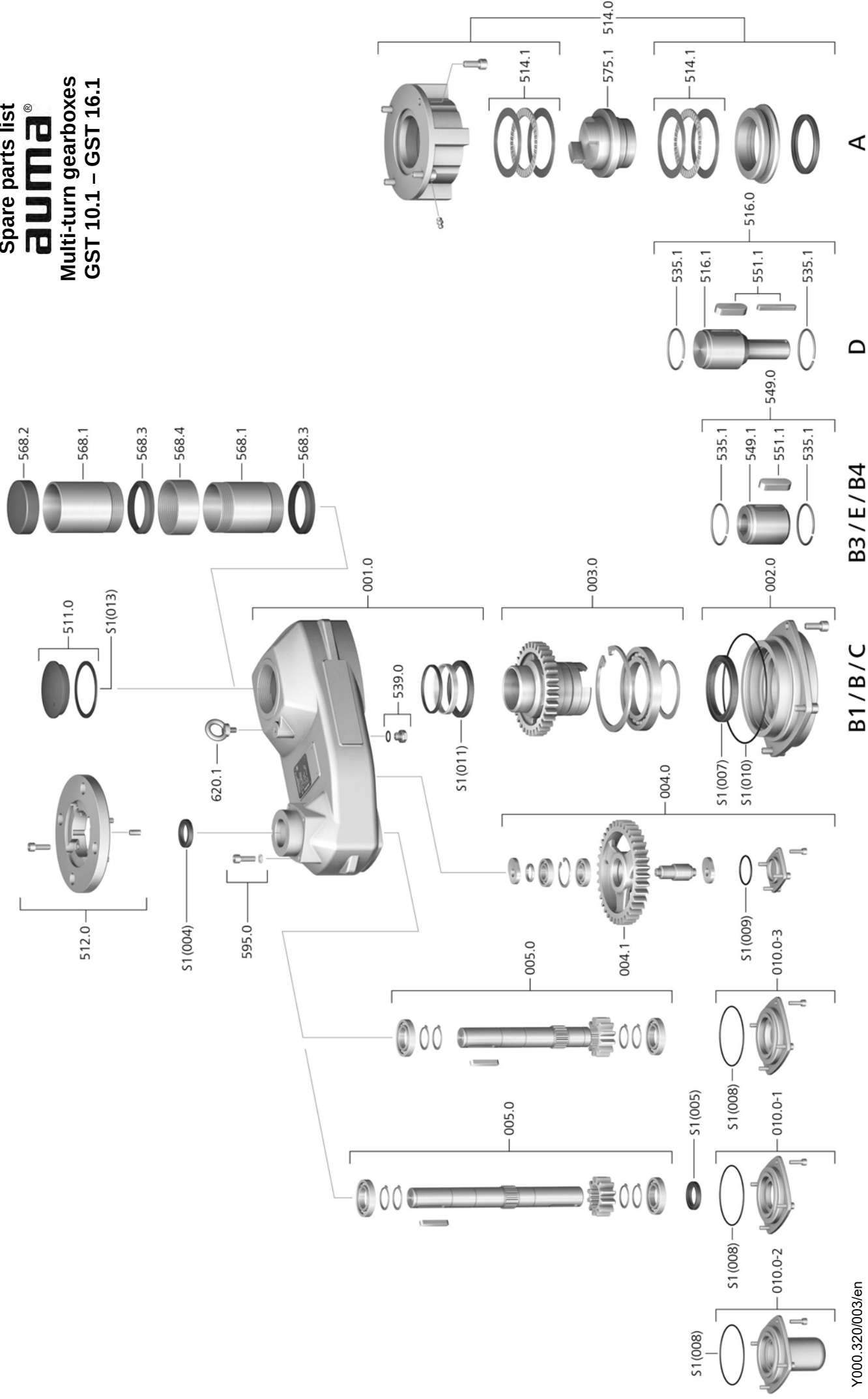
The diagram uses leader lines to connect the part numbers to the corresponding components in the exploded view.

## Spare parts list Multi-turn gearboxes

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation                             | Type         |
|----------|-----------------------------------------|--------------|
| 512.0    | Input mounting flange                   | Sub-assembly |
| 518.0    | Housing cover                           | Sub-assembly |
| 519.0    | Worm shaft                              | Sub-assembly |
| 519.1    | Worm wheel                              |              |
| 527.0    | Protection cover                        | Sub-assembly |
| 539.0    | Screw plug                              | Sub-assembly |
| 568.1    | Stem protection tube (without cap)      |              |
| 568.2    | Protective cap for stem protection tube |              |
| 568.3    | V-seal                                  |              |
| 635.0    | Ball bearing                            | Sub-assembly |
| 635.1    | Ball bearing worm shaft / GHT.3         | Sub-assembly |
| 637.0    | Protection cover with thread            | Sub-assembly |
| 638.0    | Cover for worm shaft                    |              |
| 639.0    | Retaining ring                          |              |
| S1       | Seal kit                                | Set          |

**Spare parts list**



## Spare parts list Multi-turn gearboxes

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation                             | Type         |
|----------|-----------------------------------------|--------------|
| 001.0    | Housing                                 | Sub-assembly |
| 002.0    | Bearing flange                          | Sub-assembly |
| 003.0    | Hollow shaft                            | Sub-assembly |
| 004.0    | Intermediate stage                      | Sub-assembly |
| 004.1    | Intermediate wheel                      | Sub-assembly |
| 005.0    | Input shaft                             | Sub-assembly |
| 010.0–1  | Bearing cover for second shaft end      | Sub-assembly |
| 010.0–2  | Protection cover for second shaft end   | Sub-assembly |
| 010.0–3  | Bearing cover                           | Sub-assembly |
| 511.0    | Threaded plug                           | Sub-assembly |
| 512.0    | Input mounting flange                   | Sub-assembly |
| 514.0    | Output drive type A (without stem nut)  | Sub-assembly |
| 514.1    | Axial needle roller bearing             | Sub-assembly |
| 516.0    | Output drive type D                     | Sub-assembly |
| 516.1    | Output drive shaft D                    |              |
| 535.1    | Snap ring                               |              |
| 539.0    | Screw plug                              | Sub-assembly |
| 549.0    | Output drive type B3/E/B4               | Sub-assembly |
| 549.1    | Output drive sleeve B3/E/B4             |              |
| 551.1    | Parallel key                            |              |
| 568.1    | Stem protection tube (without cap)      |              |
| 568.2    | Protective cap for stem protection tube |              |
| 568.3    | V-seal                                  |              |
| 568.4    | Threaded sleeve                         |              |
| 575.1    | Stem nut for output drive type A        |              |
| 595.0    | Screw kit for manual gearbox            | Sub-assembly |
| 620.1    | Eyebolt (available as of GST 16.1)      |              |
| S1       | Seal kit                                | Set          |

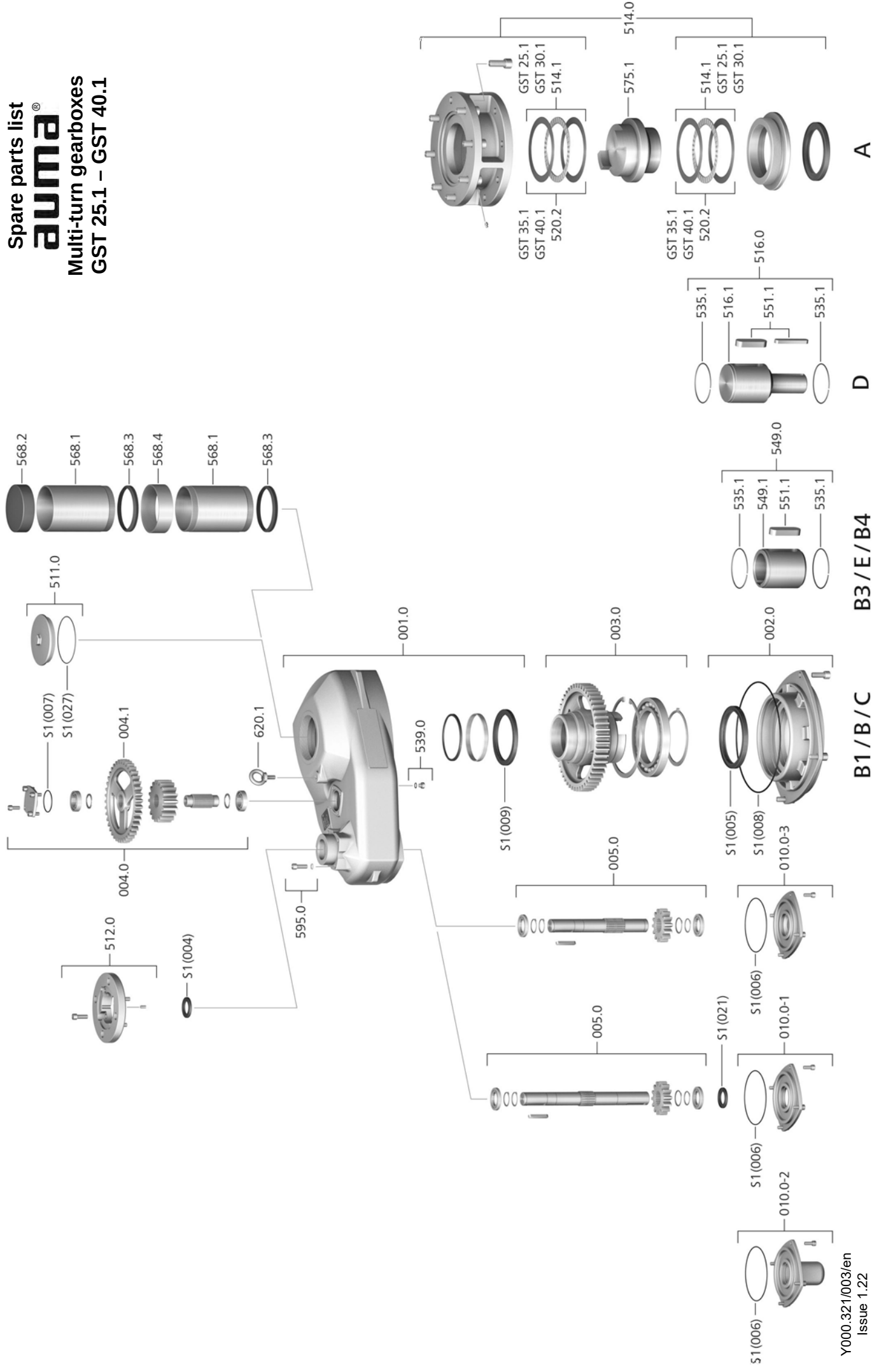


# Spare parts list

## **auma®**

### Multi-turn gearboxes

#### GST 25.1 – GST 40.1



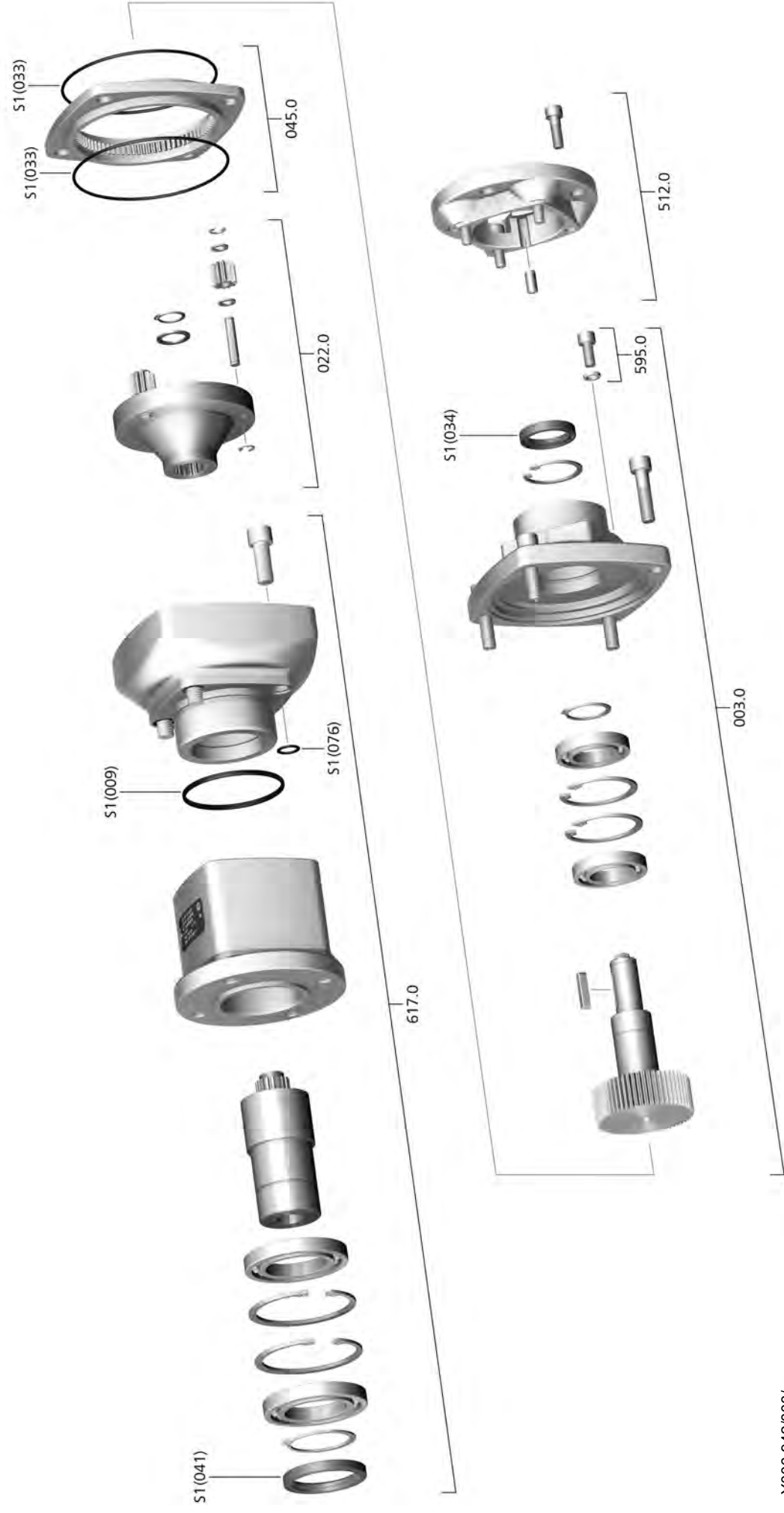
## Spare parts list Multi-turn gearboxes

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation                                    | Type         |
|----------|------------------------------------------------|--------------|
| 001.0    | Housing                                        | Sub-assembly |
| 002.0    | Bearing flange                                 | Sub-assembly |
| 003.0    | Hollow shaft                                   | Sub-assembly |
| 004.0    | Intermediate stage                             | Sub-assembly |
| 004.1    | Intermediate wheel                             | Sub-assembly |
| 005.0    | Input shaft                                    | Sub-assembly |
| 010.0–1  | Bearing cover for second shaft end             | Sub-assembly |
| 010.0–2  | Protection cover for second shaft end          | Sub-assembly |
| 010.0–3  | Bearing cover                                  | Sub-assembly |
| 511.0    | Threaded plug                                  | Sub-assembly |
| 512.0    | Input mounting flange                          | Sub-assembly |
| 514.0    | Output drive type A (without stem nut)         | Sub-assembly |
| 514.1    | Axial needle roller bearing                    | Sub-assembly |
| 516.0    | Output drive type D                            | Sub-assembly |
| 516.1    | Output drive shaft D                           |              |
| 520.2    | Axial cylinder roller bearing (as of GST 35.1) | Sub-assembly |
| 535.1    | Snap ring                                      |              |
| 539.0    | Screw plug                                     | Sub-assembly |
| 549.0    | Output drive type B3/E/B4                      | Sub-assembly |
| 549.1    | Output drive sleeve B3/E/B4                    |              |
| 551.1    | Parallel key                                   |              |
| 568.1    | Stem protection tube (without cap)             |              |
| 568.2    | Protective cap for stem protection tube        |              |
| 568.3    | V-seal                                         |              |
| 568.4    | Threaded sleeve                                |              |
| 575.1    | Stem nut for output drive type A               |              |
| 595.0    | Screw kit for manual gearbox                   | Sub-assembly |
| 620.1    | Eyebolt                                        |              |
| S1       | Seal kit                                       | Set          |

**Spare parts list**

**Multi-turn gearboxes**  
**GP 10.1 – GP 14.1**  
**2,4:1/3:1/4:1**

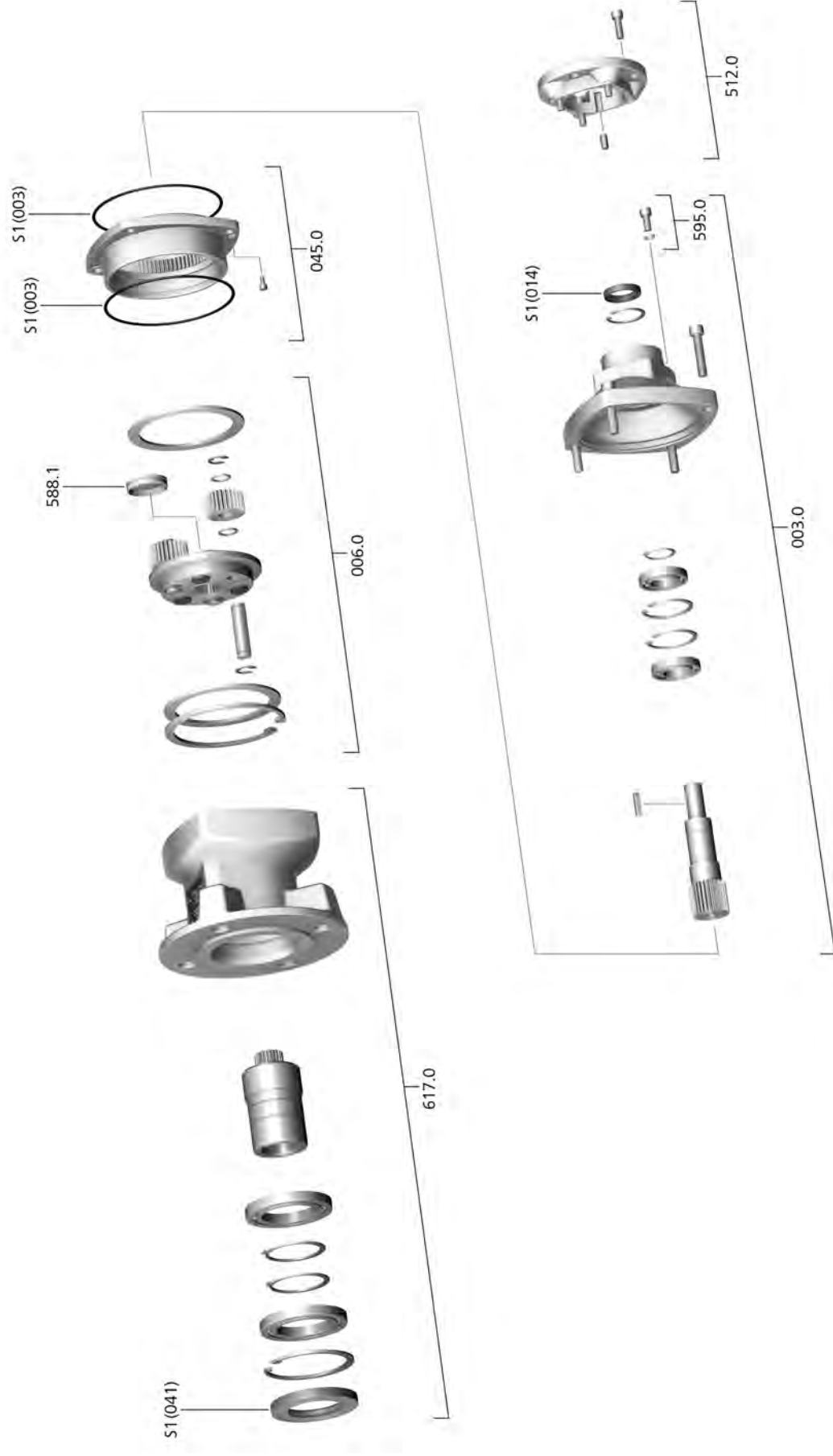


**Spare parts list Multi-turn gearboxes 2,4:1/3:1/4:1**

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation                    | Type         |
|----------|--------------------------------|--------------|
| 003.0    | Housing cover with drive shaft | Sub-assembly |
| 022.0    | Planet carrier                 | Sub-assembly |
| 045.0    | Internal geared wheel          |              |
| 512.0    | Input mounting flange          | Sub-assembly |
| 595.0    | Screw kit for manual gearbox   | Sub-assembly |
| 617.0    | Output drive housing           | Sub-assembly |
| S1       | Seal kit                       | Set          |

Spare parts list  
**auma**<sup>®</sup>  
 Multi-turn gearboxes  
 GP 16.1  
 4:1/8:1



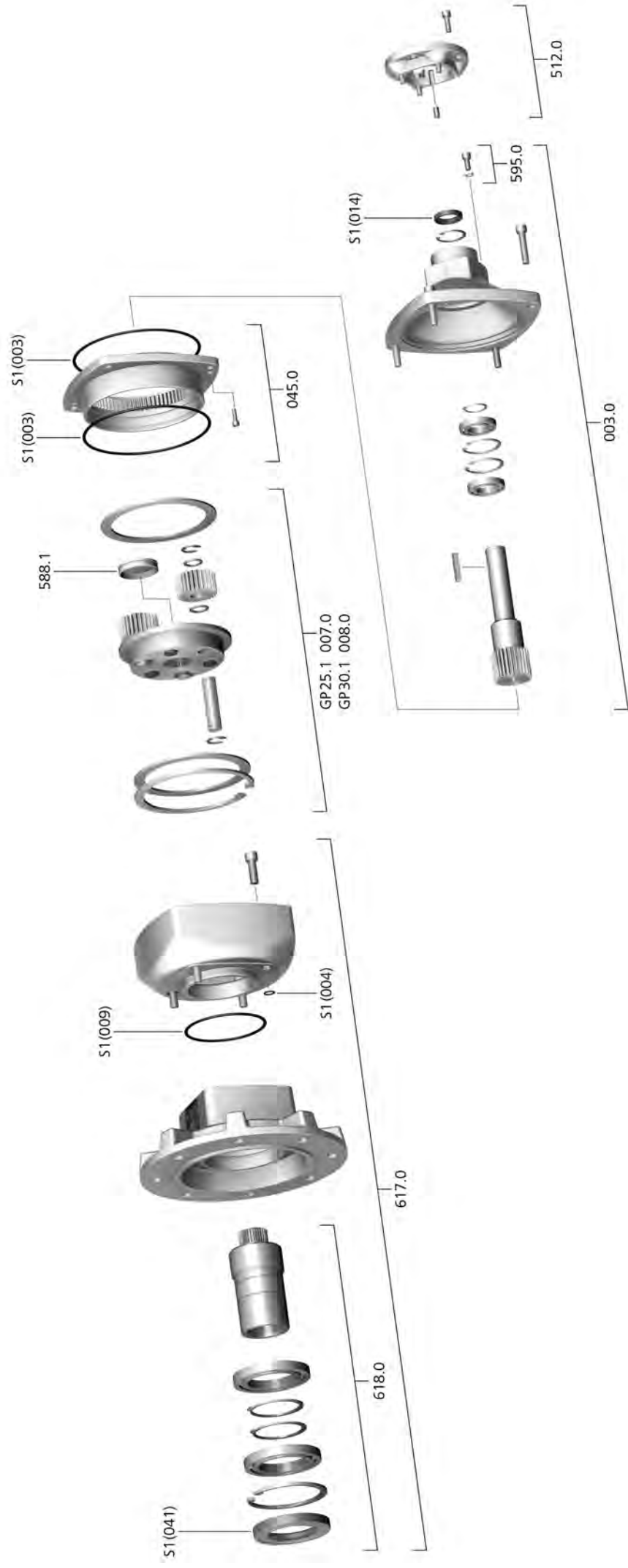
**Spare parts list Multi-turn gearboxes 4:1/8:1**

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Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation                    | Type         |
|----------|--------------------------------|--------------|
| 003.0    | Housing cover with drive shaft | Sub-assembly |
| 006.0    | Planetary gearing              | Sub-assembly |
| 045.0    | Internal geared wheel          |              |
| 512.0    | Input mounting flange          | Sub-assembly |
| 588.1    | Blanking plug                  |              |
| 595.0    | Screw kit for manual gearbox   | Sub-assembly |
| 617.0    | Output drive housing           | Sub-assembly |
| S1       | Seal kit                       | Set          |

Spare parts list  
**auma**<sup>®</sup>  
 Multi-turn gearboxes  
 GP 25.1 – GP 30.1  
 4:1/8:1



**Spare parts list Multi-turn gearboxes 4:1/8:1**

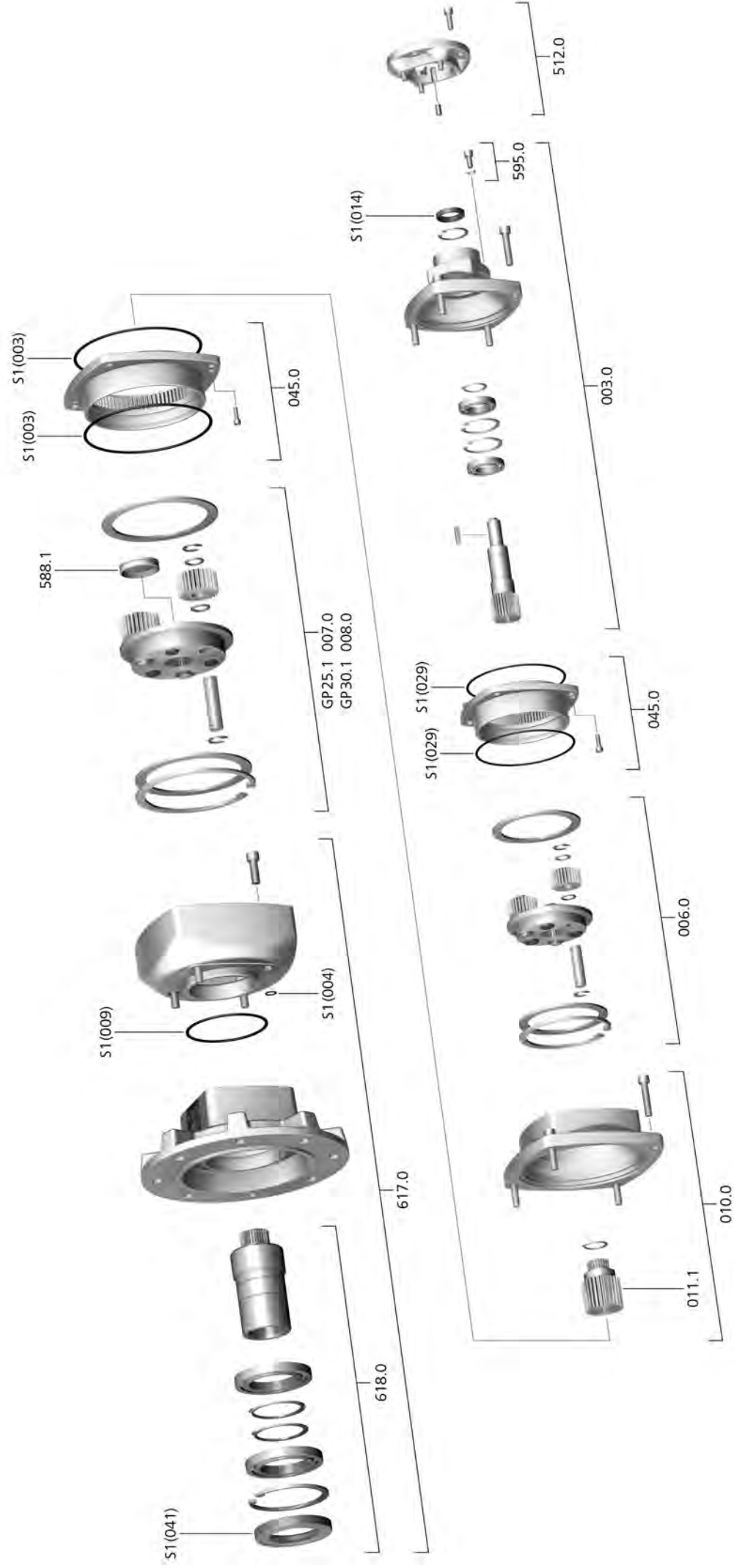
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Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation                    | Type         |
|----------|--------------------------------|--------------|
| 003.0    | Housing cover with drive shaft | Sub-assembly |
| 007.0    | Planetary gearing (GP 25.1)    | Sub-assembly |
| 008.0    | Planetary gearing (GP 30.1)    | Sub-assembly |
| 045.0    | Internal geared wheel          |              |
| 512.0    | Input mounting flange          | Sub-assembly |
| 588.1    | Blanking plug                  |              |
| 595.0    | Screw kit for manual gearbox   | Sub-assembly |
| 617.0    | Output drive housing           | Sub-assembly |
| 618.0    | Output drive sleeve            | Sub-assembly |
| S1       | Seal kit                       | Set          |



Spare parts list  
**auma**<sup>®</sup>  
 Multi-turn gearboxes  
 GP 25.1 – GP 30.1  
 16:1



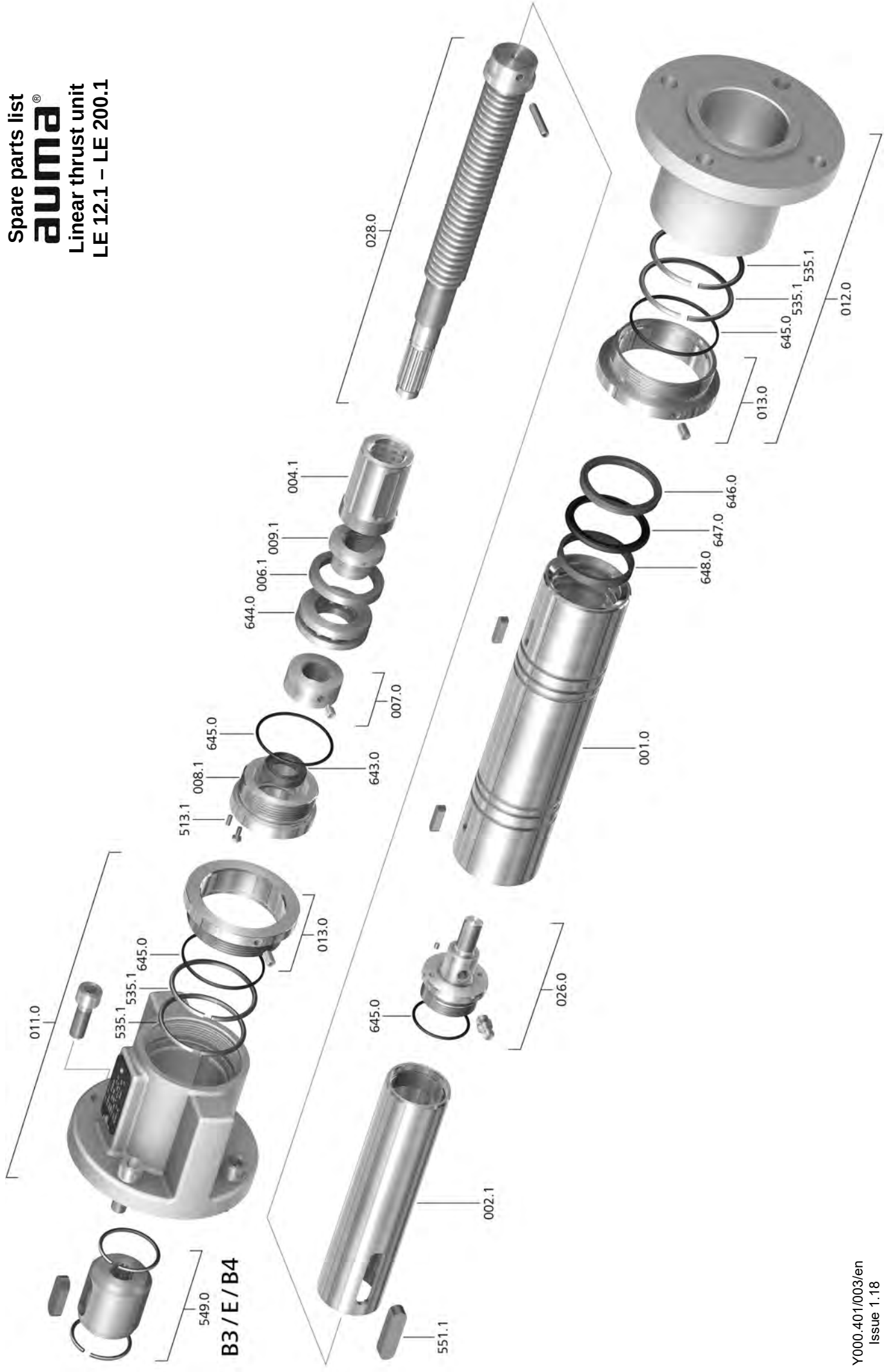
**Spare parts list Multi-turn gearboxes 16:1**

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Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation                              | Type         |
|----------|------------------------------------------|--------------|
| 003.0    | Housing cover with drive shaft           | Sub-assembly |
| 006.0    | Planetary gearing first stage            | Sub-assembly |
| 007.0    | Planetary gearing second stage (GP 25.1) | Sub-assembly |
| 008.0    | Planetary gearing second stage (GP 30.1) | Sub-assembly |
| 010.0    | Intermediate housing                     | Sub-assembly |
| 011.1    | Pinion                                   | Sub-assembly |
| 045.0    | Internal geared wheel                    |              |
| 512.0    | Input mounting flange                    | Sub-assembly |
| 588.1    | Blanking plug                            |              |
| 595.0    | Screw kit for manual gearbox             | Sub-assembly |
| 617.0    | Output drive housing                     | Sub-assembly |
| 618.0    | Output drive sleeve                      | Sub-assembly |
| S1       | Seal kit                                 | Set          |

Spare parts list  
**uma**<sup>®</sup>  
 Linear thrust unit  
 LE 12.1 – LE 200.1

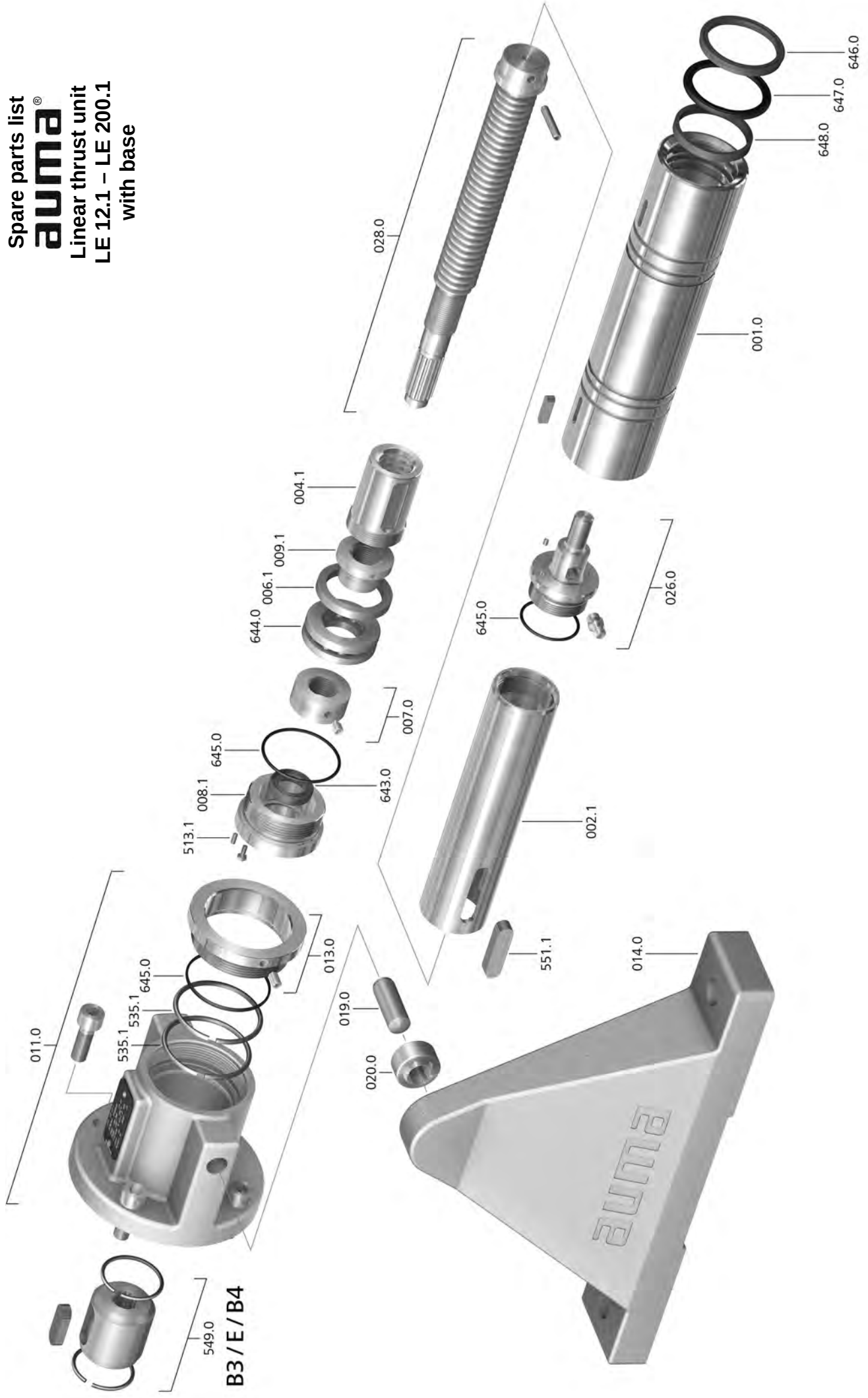


## Spare parts list Linear thrust unit

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| No.   | Designation                    | Type         |
|-------|--------------------------------|--------------|
| 001.0 | Outer tube                     |              |
| 002.1 | Inner tube                     |              |
| 004.1 | Nut                            |              |
| 006.1 | Support washer                 |              |
| 007.0 | Ring nut                       | Sub-assembly |
| 008.1 | Barrel nut                     |              |
| 009.1 | Bearing bush                   |              |
| 011.0 | Actuator flange                | Sub-assembly |
| 012.0 | Mounting flange                | Sub-assembly |
| 013.0 | Locking nut                    | Sub-assembly |
| 026.0 | Coupling stud                  | Sub-assembly |
| 028.0 | Stem                           | Sub-assembly |
| 513.1 | Grub screw                     |              |
| 535.1 | Snap ring                      |              |
| 549.0 | Output drive type B3/B4/E      | Sub-assembly |
| 551.1 | Parallel key                   |              |
| 643.0 | Radial seal                    |              |
| 644.0 | Axial deep groove ball bearing |              |
| 645.0 | O-ring                         |              |
| 646.0 | Wiper ring                     |              |
| 647.0 | Sealing ring                   |              |
| 648.0 | Guide ring                     |              |

Spare parts list  
**auma®**  
 Linear thrust unit  
 LE 12.1 – LE 200.1  
 with base

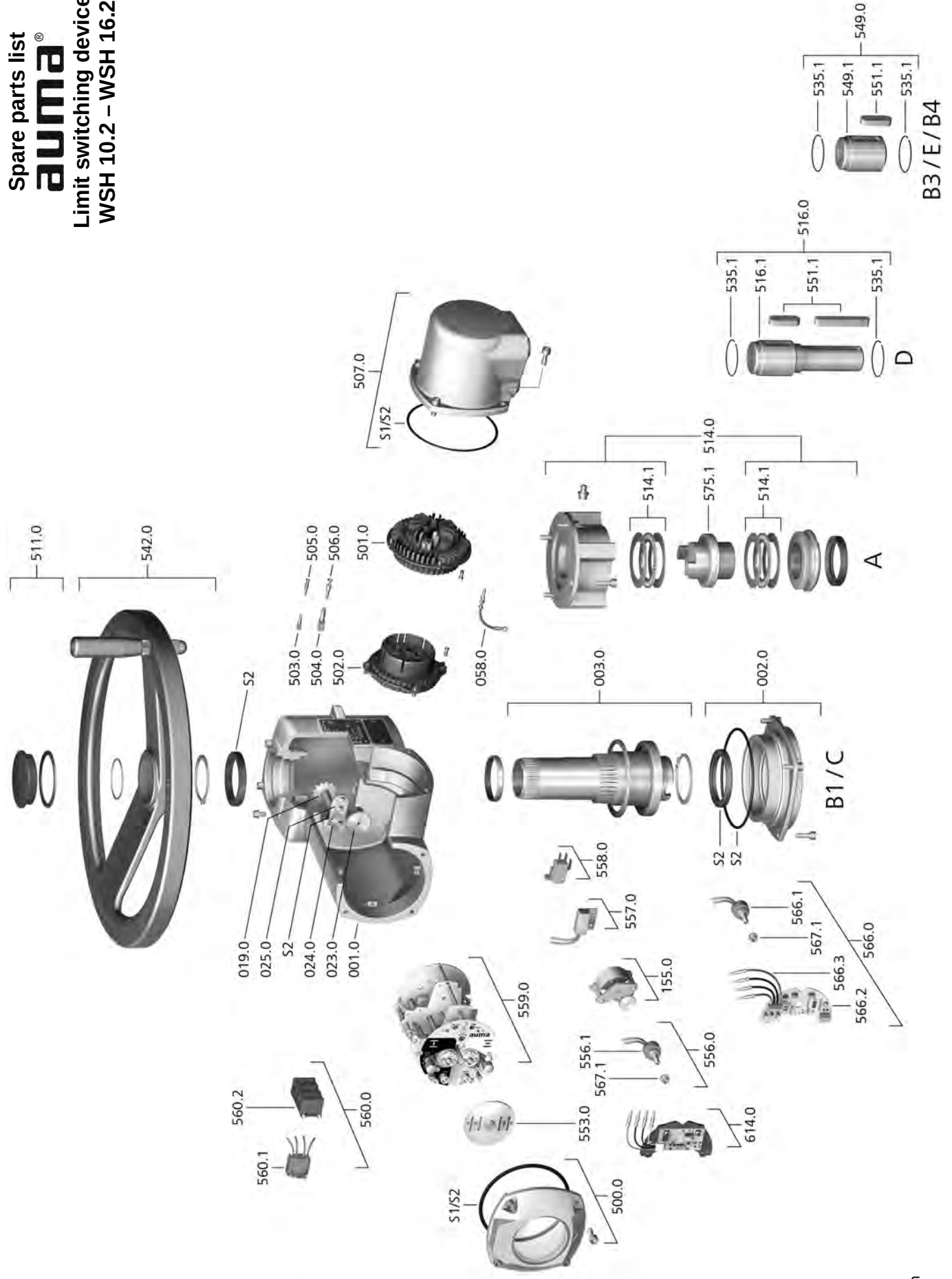


## Spare parts list Linear thrust unit with base

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| No    | Designation                    | Type         |
|-------|--------------------------------|--------------|
| 001.0 | Outer tube                     |              |
| 002.1 | Inner tube                     |              |
| 004.1 | Nut                            |              |
| 006.1 | Support washer                 |              |
| 007.0 | Ring nut                       | Sub-assembly |
| 008.1 | Barrel nut                     |              |
| 009.1 | Bearing bush                   |              |
| 011.0 | Actuator flange                | Sub-assembly |
| 012.0 | Output mounting flange         | Sub-assembly |
| 013.0 | Locking nut                    | Sub-assembly |
| 014.0 | Base assy                      | Sub-assembly |
| 019.0 | Parallel pin                   |              |
| 020.0 | Joint bearing                  |              |
| 026.0 | Coupling stud                  | Sub-assembly |
| 028.0 | Stem                           | Sub-assembly |
| 513.1 | Grub screw                     |              |
| 535.1 | Snap ring                      |              |
| 549.0 | Output drive type B3/B4/E      | Sub-assembly |
| 551.1 | Parallel key                   |              |
| 643.0 | Radial seal                    |              |
| 644.0 | Axial deep groove ball bearing |              |
| 645.0 | O-ring                         |              |
| 646.0 | Wiper ring                     |              |
| 647.0 | Sealing ring                   |              |
| 648.0 | Guide ring                     |              |

Spare parts list  
**auma®**  
 Limit switching device  
 WSH 10.2 – WSH 16.2



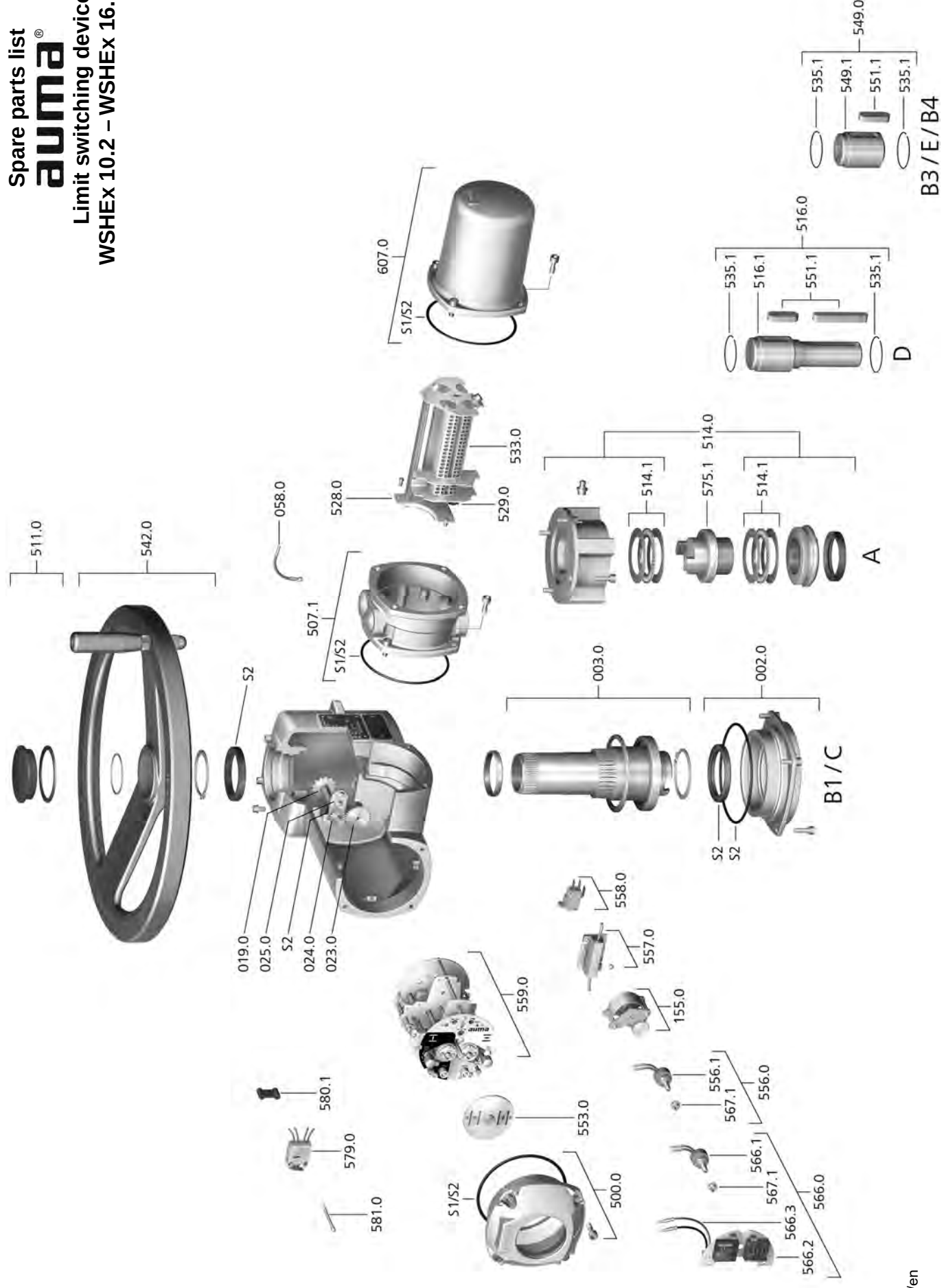
## Spare parts list Limit switching device

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref. no. | Designation                            | Type         | Ref. no. | Designation                                                                             | Type         |
|----------|----------------------------------------|--------------|----------|-----------------------------------------------------------------------------------------|--------------|
| 001.0    | Housing                                | Sub-assembly | 549.0    | Output drive type B3/E/B4                                                               | Sub-assembly |
| 002.0    | Bearing flange                         | Sub-assembly | 549.1    | Output drive sleeve B3/E/B4                                                             |              |
| 003.0    | Hollow shaft                           | Sub-assembly | 551.1    | Parallel key                                                                            |              |
| 019.0    | Crown wheel                            | Sub-assembly | 553.0    | Mechanical position indicator                                                           | Sub-assembly |
| 023.0    | Output drive wheel for limit switching | Sub-assembly | 556.0    | Potentiometer for position transmitter                                                  | Sub-assembly |
| 024.0    | Drive wheel for limit switching        | Sub-assembly | 556.1    | Potentiometer without slip clutch                                                       | Sub-assembly |
| 025.0    | Locking plate                          | Sub-assembly | 557.0    | Heater                                                                                  | Sub-assembly |
| 058.0    | Wire for protective earth              | Sub-assembly | 558.0    | Blinker transmitter including pins at wires (without impulse disc and insulation plate) | Sub-assembly |
| 155.0    | Reduction gearing                      | Sub-assembly | 559.0    | Control unit                                                                            | Sub-assembly |
| 500.0    | Cover                                  | Sub-assembly | 560.0-1  | Switch stack for direction OPEN                                                         | Sub-assembly |
| 501.0    | Socket carrier (complete with sockets) | Sub-assembly | 560.0-2  | Switch stack for direction CLOSE                                                        | Sub-assembly |
| 502.0    | Pin carrier without pins               | Sub-assembly | 560.1    | Limit switches                                                                          | Sub-assembly |
| 503.0    | Socket for controls                    | Sub-assembly | 560.2-1  | Switch case for direction OPEN                                                          | Sub-assembly |
| 504.0    | Socket for motor                       | Sub-assembly | 560.2-2  | Switch case for direction CLOSE                                                         | Sub-assembly |
| 505.0    | Pin for controls                       | Sub-assembly | 566.0    | Position transmitter RWG                                                                | Sub-assembly |
| 506.0    | Pin for motor                          | Sub-assembly | 566.1    | Potentiometer for RWG without slip clutch                                               | Sub-assembly |
| 507.0    | Cover for electrical connection        | Sub-assembly | 566.2    | Positioner board for RWG                                                                | Sub-assembly |
| 511.0    | Threaded plug                          | Sub-assembly | 566.3    | Cable set for RWG                                                                       | Sub-assembly |
| 514.0    | Output drive form A (without stem nut) | Sub-assembly | 567.1    | Slip clutch for potentiometer                                                           | Sub-assembly |
| 514.1    | Axial needle roller bearing            | Sub-assembly | 575.0    | Stem nut (without thread)                                                               |              |
| 516.0    | Output drive D                         | Sub-assembly | 614.0    | EWG position transmitter                                                                | Sub-assembly |
| 516.1    | Output drive shaft D                   |              | S1       | Seal kit, small                                                                         | Set          |
| 535.1    | Snap ring                              |              | S2       | Seal kit, large                                                                         | Set          |
| 542.0    | Handwheel with ball handle             | Sub-assembly |          |                                                                                         |              |



Spare parts list  
**auma®**  
 Limit switching device  
 WSHEx 10.2 – WSHEx 16.2 KR



## Spare parts list Limit switching device

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

| Ref.No. | Designation                            | Type         | Ref.No. | Designation                                                                           | Type         |
|---------|----------------------------------------|--------------|---------|---------------------------------------------------------------------------------------|--------------|
| 002.0   | Bearing flange                         | Sub-assembly | 549.1   | Output drive sleeve B3/E/B4                                                           |              |
| 003.0   | Hollow shaft                           | Sub-assembly | 551.1   | Parallel key                                                                          |              |
| 019.0   | Crown wheel                            | Sub-assembly | 553.0   | Mechanical position indicator                                                         | Sub-assembly |
| 023.0   | Output drive wheel for limit switching | Sub-assembly | 556.0   | Potentiometer as position transmitter                                                 | Sub-assembly |
| 024.0   | Intermediate wheel for limit switching | Sub-assembly | 556.1   | Potentiometer without slip clutch                                                     | Sub-assembly |
| 025.0   | Locking plate                          | Sub-assembly | 557.0   | Heater                                                                                | Sub-assembly |
| 058.0   | Wire for protective earth              | Sub-assembly | 558.0   | Blinker transmitter including end sleeves (without impulse disc and insulation plate) | Sub-assembly |
| 155.0   | Reduction gearing                      | Sub-assembly | 559.0   | Control unit                                                                          | Sub-assembly |
| 500.0   | Cover                                  | Sub-assembly | 566.0   | Position transmitter RWG                                                              | Sub-assembly |
| 507.1   | Frame for electrical connection        | Sub-assembly | 566.1   | Potentiometer for RWG without slip clutch                                             | Sub-assembly |
| 511.0   | Threaded plug                          | Sub-assembly | 566.2   | Position transmitter board for RWG                                                    | Sub-assembly |
| 514.0   | Output drive form A (without stem nut) | Sub-assembly | 566.3   | Cable set for RWG                                                                     | Set          |
| 514.1   | Axial needle roller bearing            | Sub-assembly | 567.1   | Slip clutch for potentiometer                                                         | Sub-assembly |
| 516.0   | Output drive D                         | Sub-assembly | 575.1   | Stem nut type A                                                                       | Sub-assembly |
| 516.1   | Output drive shaft D                   |              | 579.0   | Switch for limit/torque                                                               | Sub-assembly |
| 528.0   | Terminal frame (without terminals)     | Sub-assembly | 580.1   | Spacer                                                                                |              |
| 529.0   | End clamp                              |              | 581.0   | Stud bolt for switches                                                                |              |
| 533.0   | Terminals for motor/controls           |              | 607.0   | Cover                                                                                 |              |
| 535.1   | Snap ring                              |              | 607.0   | Cover for terminals                                                                   |              |
| 542.0   | Handwheel with ball handle             | Sub-assembly | S1      | Seal kit, small                                                                       | Set          |
| 549.0   | Output drive type B3/E/B4              | Sub-assembly | S2      | Seal kit, large                                                                       | Set          |



## 10 Mounting positions

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### Part-turn gearboxes

|                                                              |     |
|--------------------------------------------------------------|-----|
| SA 07.2 – SA 16.2 / SAR 07.2 – SAR 16.2 / GS 50.3 – GS 250.3 | 248 |
| SA 07.2 – SA 16.2 / SA 25.1 / GQB 80.1 – GQB 250.1           | 250 |
| GS 50.3 – GS 250.3 / GK 10.2 – GK 25.2                       | 252 |

### Part-turn gearboxes with base and lever

|                                                              |     |
|--------------------------------------------------------------|-----|
| SA 07.2 – SA 16.2 / SAR 07.2 – SAR 16.2 / GS 50.3 – GS 250.3 | 253 |
|--------------------------------------------------------------|-----|

### Multi-turn gearboxes

|                                                               |     |
|---------------------------------------------------------------|-----|
| SA 07.2 – SA 16.2 / SAR 07.2 – SAR 16.2 / GK 10.2 – GK 25.2   | 254 |
| SA 07.2 – SA 16.2 / SAR 07.2 – SAR 16.2 / GST 10.1 – GST 16.1 | 255 |

|                                         |     |
|-----------------------------------------|-----|
| GK 10.2 – GK 16.2 / GK 10.2 – GK 16.2   | 256 |
| GK 10.2 – GK 16.2 / GST 10.1 – GST 40.1 | 257 |
| GST 10.1 – GST 14.5 / GK 10.2 – GK 25.2 | 258 |

## Mounting positions Multi-turn actuators with part-turn gearboxes

## Versions GS 50.3 – GS 250.3

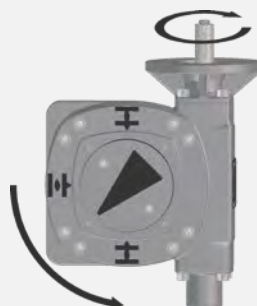
RR



LL



RL



LR



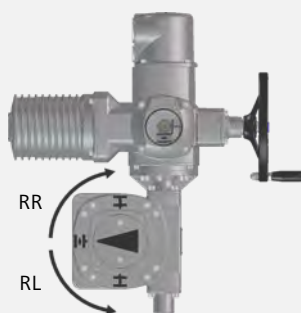
Description of the four different versions (view on pointer cover):

| Code | Direction of rotation at input shaft | Position of worm shaft | Direction of rotation at output drive |
|------|--------------------------------------|------------------------|---------------------------------------|
| RR   | Clockwise                            | Right                  | <b>R</b> = Clockwise                  |
| LL   | Clockwise                            | Left                   | <b>L</b> = Counterclockwise           |
| RL   | Clockwise                            | Right                  | <b>L</b> = Counterclockwise           |
| LR   | Clockwise                            | Left                   | <b>R</b> = Clockwise                  |

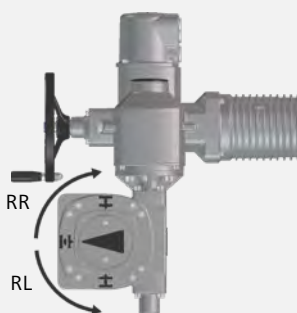
## Mounting positions A – D for multi-turn actuator actuator combined with part-turn gearbox (please indicate on order)

## GS versions RR and LL

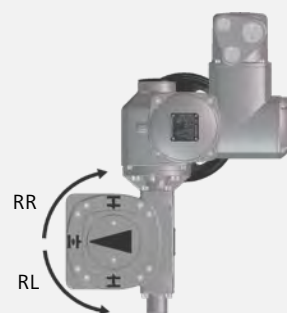
A



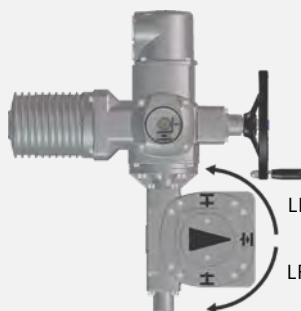
B

C<sup>1)</sup>

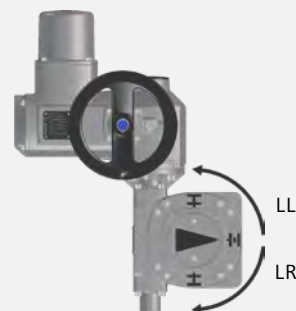
D



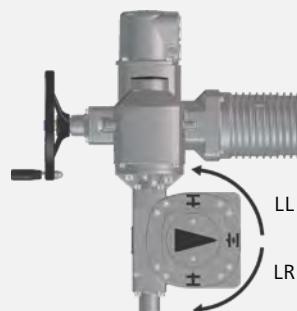
## GS versions LL and LR

A<sup>1)</sup>

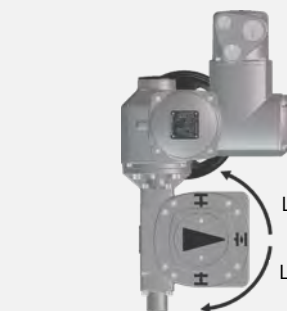
B



C



D



Please consider possible space confinements on site when selecting the mounting position.

Mounting positions may easily be changed at a later date.

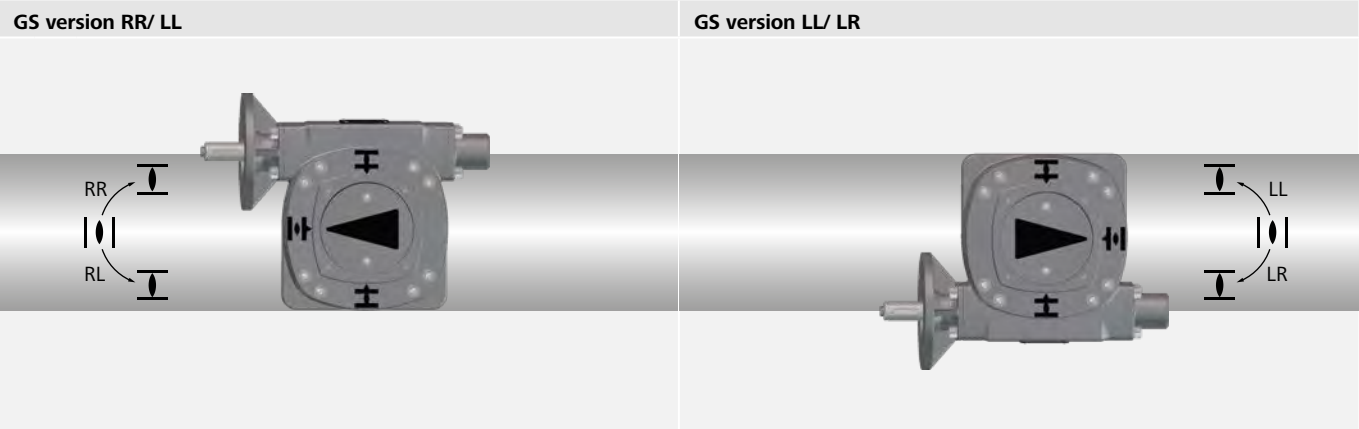
Up to size GS 125.3, the multi-turn actuator-gearbox combination is delivered in the ordered mounting position. For packing reasons, actuator and gearbox will be delivered separately from size GS 160.3.

1) **Caution:** For multi-turn actuators SA/SAR 14.2 and 14.6 with GS 125.3, mounting position C is not possible for RR and RL versions; mounting position A is not possible for LL and LR versions.

Mounting positions Multi-turn actuators with part-turn gearboxes

**Mounting position parallel to pipeline**

When mounting the part-turn gearbox with the worm shaft parallel to the pipeline, the housing cover at the GS can be shifted by 90° to ensure that the position indicator show the flow direction in the pipeline for position OPEN.



| Mounting positions of AUMA multi-turn actuators with AUMA part-turn gearboxes (please state on order) |                                                                                                                            |
|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Description of the mounting positions (example of A-S)                                                |                                                                                                                            |
| A                                                                                                     | Mounting positions A – D for multi-turn actuators with part-turn gearboxes                                                 |
| -S                                                                                                    | Mounting of the part-turn gearbox with worm shaft parallel to the pipeline (symbol CLOSED perpendicular to the worm shaft) |

Please consider possible space confinements on site when selecting the mounting position.  
Mounting positions may easily be changed at a later date.

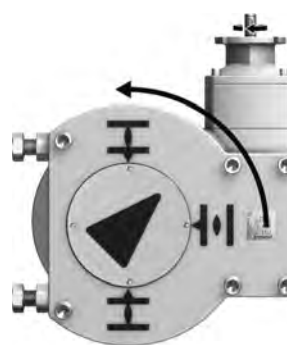
## Mounting positions Multi-turn actuators with part-turn gearboxes

## Versions GQB 80.1 – GQB 250.1

RR



RL



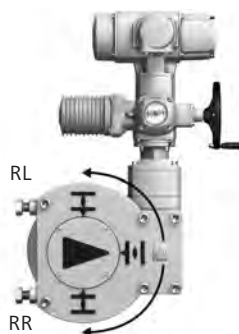
Description of the various versions (view on the pointer cover):

| Code | Direction of rotation at input shaft | Position of worm shaft | Direction of rotation at output drive |
|------|--------------------------------------|------------------------|---------------------------------------|
| RR   | Clockwise                            | R = Right              | R = Clockwise                         |
| RL   | Clockwise                            | R = Right              | L = Counterclockwise                  |

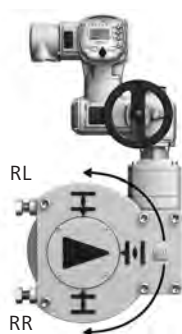
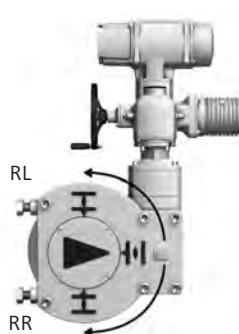
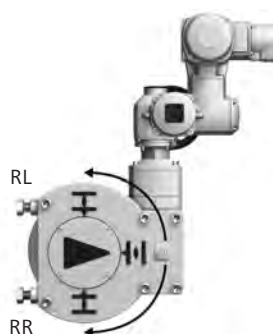
## Mounting positions A – D for multi-turn actuator combined with part-turn gearbox (please indicate on order)

## GQB versions RR and RL

A



B

C<sup>1)</sup>D<sup>1)</sup>

Please consider possible space confinements on site when selecting the mounting position.

Mounting positions may easily be changed at a later date.

Up to size GQB 125.1, the multi-turn actuator-gearbox combination is delivered in the ordered mounting position. For packing reasons, actuator and gearbox will be delivered separately from size GQB 160.1.

1) **Caution:** These mounting positions are not available for all sizes/reduction ratios.

| Type      | Valve attachment                | Reduction ratio | Actuator | Mounting positions for RR / RL |   |   |   |
|-----------|---------------------------------|-----------------|----------|--------------------------------|---|---|---|
|           | Flange according to EN ISO 5211 |                 |          | A                              | B | C | D |
| GQB 80.1  | F12                             | 54:1            | SA 10.2  | ■                              | ■ | ■ | ■ |
|           |                                 | 225:1           | SA 07.6  | ■                              | ■ | ■ | ■ |
|           | F14                             | 54:1            | SA 10.2  | ■                              | ■ | ■ | ■ |
|           |                                 | 225:1           | SA 07.6  | ■                              | ■ | ■ | ■ |
|           | F16                             | 54:1            | SA 10.2  | ■                              | ■ | ■ | ■ |
|           |                                 | 225:1           | SA 07.6  | ■                              | ■ | ■ | ■ |
| GQB 100.1 | F14                             | 52:1            | SA 10.2  | ■                              | ■ | ■ | ■ |
|           |                                 | 217:1           | SA 07.6  | ■                              | ■ | ■ | ■ |
|           |                                 | 903:1           | SA 07.6  | ■                              | ■ | ■ | ■ |
|           | F16                             | 52:1            | SA 10.2  | ■                              | ■ | ■ | ■ |
|           |                                 | 217:1           | SA 07.6  | ■                              | ■ | ■ | ■ |
|           |                                 | 903:1           | SA 07.6  | ■                              | ■ | ■ | ■ |
|           | F25                             | 52:1            | SA 10.2  | ■                              | ■ | ● | ■ |
|           |                                 | 217:1           | SA 07.6  | ■                              | ■ | ● | ■ |
|           |                                 | 903:1           | SA 07.6  | ■                              | ■ | ■ | ■ |

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

| Type      | Valve attachment                | Reduction ratio | Actuator                    | Mounting positions for RR / RL |   |   |   |
|-----------|---------------------------------|-----------------|-----------------------------|--------------------------------|---|---|---|
|           | Flange according to EN ISO 5211 |                 |                             | A                              | B | C | D |
| GQB 125.1 | F16                             | 217:1           | SA 07.6                     | ■                              | ■ | ■ | ■ |
|           |                                 |                 | SA 10.2                     | ■                              | ■ | ■ | ■ |
|           |                                 |                 | SA 14.2                     | ■                              | ■ | ● | ■ |
|           |                                 | 628:1           | SA 10.2                     | ■                              | ■ | ■ | ■ |
|           |                                 |                 | SA 07.6                     | ■                              | ■ | ■ | ■ |
|           | F25                             | 217:1           | SA 07.6                     | ■                              | ■ | ■ | ■ |
|           |                                 |                 | SA 10.2                     | ■                              | ■ | ■ | ■ |
|           |                                 |                 | SA 14.2                     | ■                              | ■ | ● | ■ |
|           |                                 | 628:1           | SA 10.2                     | ■                              | ■ | ■ | ■ |
|           |                                 |                 | SA 07.6                     | ■                              | ■ | ■ | ■ |
|           | F30                             | 217:1           | SA 07.6                     | ■                              | ■ | ● | ■ |
|           |                                 |                 | SA 10.2                     | ■                              | ■ | ● | ■ |
|           |                                 |                 | SA 14.2                     | ■                              | ■ | – | ● |
|           |                                 | 628:1           | SA 10.2                     | ■                              | ■ | ■ | ■ |
|           |                                 |                 | SA 07.6                     | ■                              | ■ | ■ | ■ |
| GQB 160.1 | F25                             | 218:1           | SA 14.6 / SA 10.2           | ■                              | ■ | – | ■ |
|           |                                 |                 | SA 10.2                     | ■                              | ■ | ■ | ■ |
|           |                                 |                 | SA 10.2                     | ■                              | ■ | ■ | ■ |
|           |                                 |                 | SA 07.6                     | ■                              | ■ | ■ | ■ |
|           |                                 | 1 784:1         | SA 07.6                     | ■                              | ■ | ■ | ■ |
|           | F30                             | 218:1           | SA 14.6 / SA 10.2           | ■                              | ■ | – | ■ |
|           |                                 |                 | SA 10.2                     | ■                              | ■ | ■ | ■ |
|           |                                 |                 | SA 10.2                     | ■                              | ■ | ■ | ■ |
|           |                                 |                 | SA 07.6                     | ■                              | ■ | ■ | ■ |
|           |                                 | 1 784:1         | SA 07.6                     | ■                              | ■ | ■ | ■ |
|           | F35                             | 218:1           | SA 14.6 / SA 10.2           | ■                              | ■ | – | ● |
|           |                                 |                 | SA 10.2                     | ■                              | ■ | ■ | ■ |
|           |                                 |                 | SA 10.2                     | ■                              | ■ | ■ | ■ |
|           |                                 |                 | SA 07.6                     | ■                              | ■ | ■ | ■ |
|           |                                 | 1 784:1         | SA 07.6                     | ■                              | ■ | ■ | ■ |
| GQB 200.1 | F30                             | 214:1           | SA 14.6 / SA 16.2           | ■                              | ■ | – | ■ |
|           |                                 | 552:1           | SA 14.2                     | ■                              | ■ | ■ | ■ |
|           |                                 | 864:1           | SA 14.2 / SA 14.6           | ■                              | ■ | ■ | ■ |
|           |                                 | 1 751:1         | SA 10.2                     | ■                              | ■ | ■ | ■ |
|           | F35                             | 214:1           | SA 14.6 / SA 16.2           | ■                              | ■ | – | ● |
|           |                                 | 552:1           | SA 14.2                     | ■                              | ■ | ■ | ■ |
|           |                                 | 864:1           | SA 14.2 / SA 14.6           | ■                              | ■ | ■ | ■ |
|           |                                 | 1 751:1         | SA 10.2                     | ■                              | ■ | ■ | ■ |
|           |                                 | 1 751:1         | SA 10.2                     | ■                              | ■ | ■ | ■ |
|           | F40                             | 214:1           | SA 14.6 / SA 16.2           | ■                              | ■ | – | – |
|           |                                 | 552:1           | SA 14.2                     | ■                              | ■ | ● | ■ |
|           |                                 | 864:1           | SA 14.2 / SA 14.6           | ■                              | ■ | ● | ■ |
|           |                                 | 1 751:1         | SA 10.2                     | ■                              | ■ | ■ | ■ |
|           |                                 | 1 751:1         | SA 10.2                     | ■                              | ■ | ■ | ■ |
| GQB 250.1 | F35                             | 214:1           | SA 14.6 / SA 16.2 / SA 25.1 | ■                              | ■ | ● | ■ |
|           |                                 | 552:1           | SA 16.2                     | ■                              | ■ | ● | ■ |
|           |                                 | 864:1           | SA 14.6                     | ■                              | ■ | ■ | ■ |
|           |                                 | 1 751:1         | SA 14.2                     | ■                              | ■ | ■ | ■ |
|           | F40                             | 214:1           | SA 14.6 / SA 16.2 / SA 25.1 | ■                              | ■ | ● | ■ |
|           |                                 | 552:1           | SA 16.2                     | ■                              | ■ | ● | ■ |
|           |                                 | 864:1           | SA 14.6                     | ■                              | ■ | ■ | ■ |
|           |                                 | 1 751:1         | SA 14.2                     | ■                              | ■ | ■ | ■ |
|           |                                 | 1 751:1         | SA 14.2                     | ■                              | ■ | ■ | ■ |
|           | F48                             | 214:1           | SA 14.6 / SA 16.2 / SA 25.1 | ■                              | ■ | – | ■ |
|           |                                 | 552:1           | SA 16.2                     | ■                              | ■ | – | ■ |
|           |                                 | 864:1           | SA 14.6                     | ■                              | ■ | ■ | ■ |
|           |                                 | 1 751:1         | SA 14.2                     | ■                              | ■ | ■ | ■ |

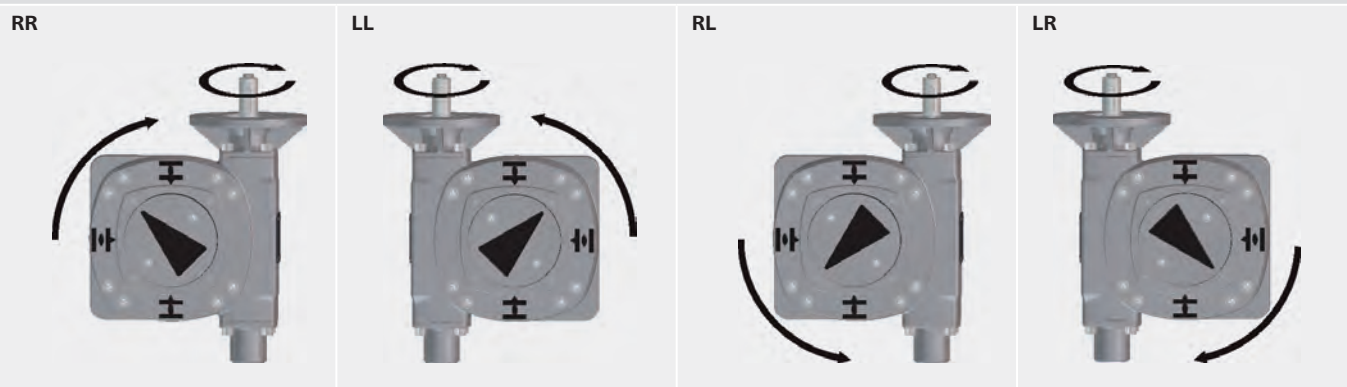
## Notes on table

|   |                                                                                |
|---|--------------------------------------------------------------------------------|
| ■ | Possible without restrictions                                                  |
| ● | Danger of crushing due to insufficient distance between ball handle and valve. |
| – | Not possible due to potential collision between handwheel and housing or valve |



### Mounting positions Part-turn gearboxes combined with multi-turn gearboxes

### **Versions GS 50.3 – GS 250.3**

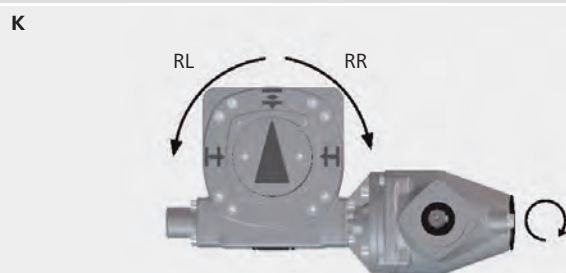


Description of the four different versions (view on pointer cover):

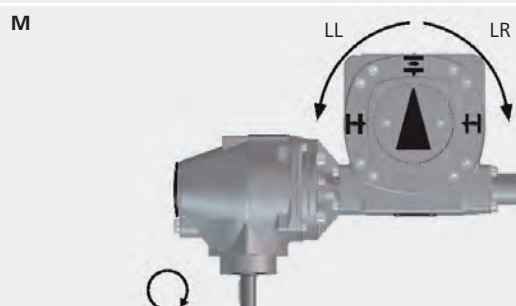
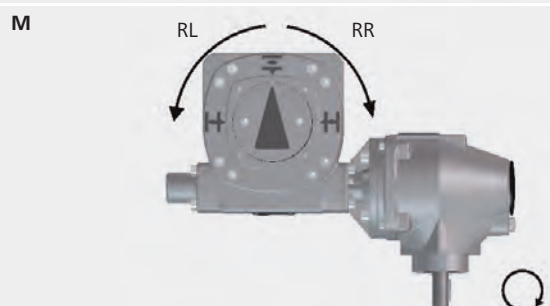
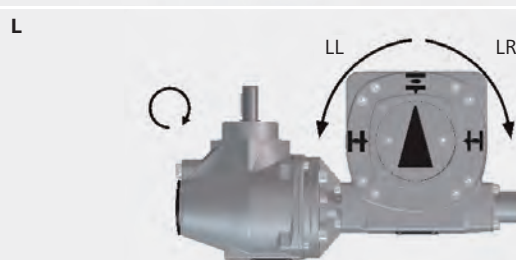
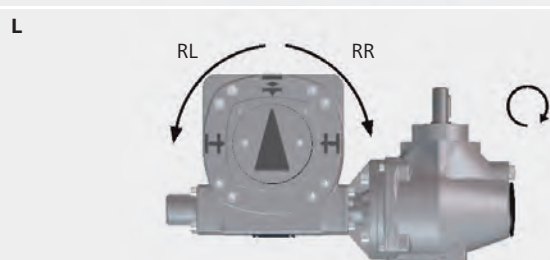
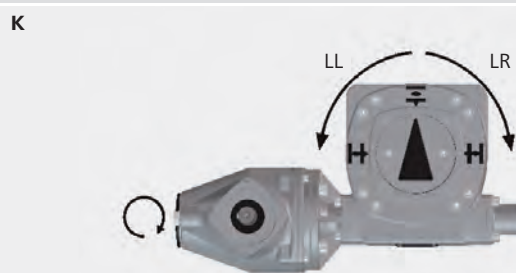
| Code | Direction of rotation at input shaft | Position of worm shaft | Direction of rotation at output drive |
|------|--------------------------------------|------------------------|---------------------------------------|
| RR   | clockwise                            | <b>Right</b>           | <b>Right</b> (clockwise)              |
| LL   | clockwise                            | <b>Left</b>            | <b>Left</b> (counterclockwise)        |
| RL   | clockwise                            | <b>Right</b>           | <b>Left</b> (counterclockwise)        |
| LR   | clockwise                            | <b>Left</b>            | <b>Right</b> (clockwise)              |

**Mounting positions K – M for part-turn gearboxes combined with multi-turn gearboxes (please indicate on order)**

### GS versions RR and LL



### GS versions LL and LR



Please consider possible space constraints on site when selecting the mounting position.

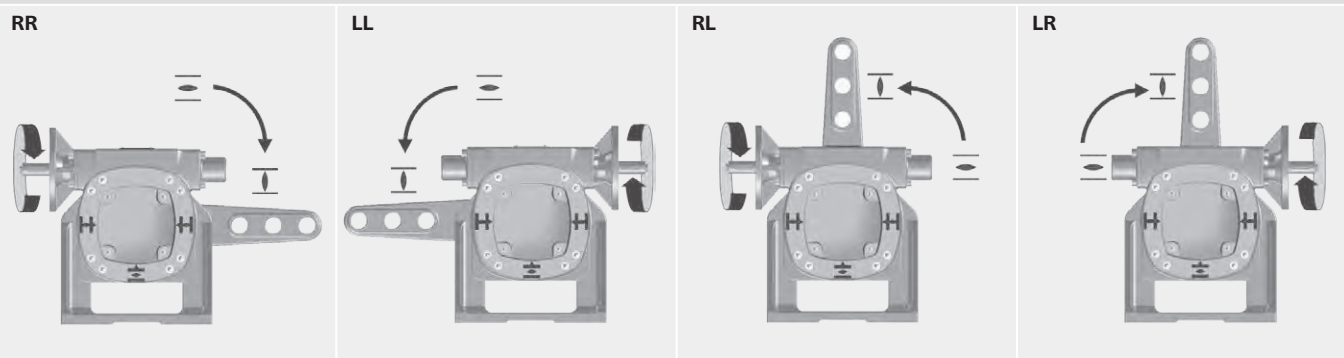
Mounting positions may easily be changed at a later date.

The combination is supplied in the ordered mounting position up to size GK 16.2.

For packing reasons, gearboxes will be delivered separately from size GK 25.2.

Mounting positions Multi-turn actuator with part-turn gearbox

Versions GS 50.3 – GS 250.3 with base and lever



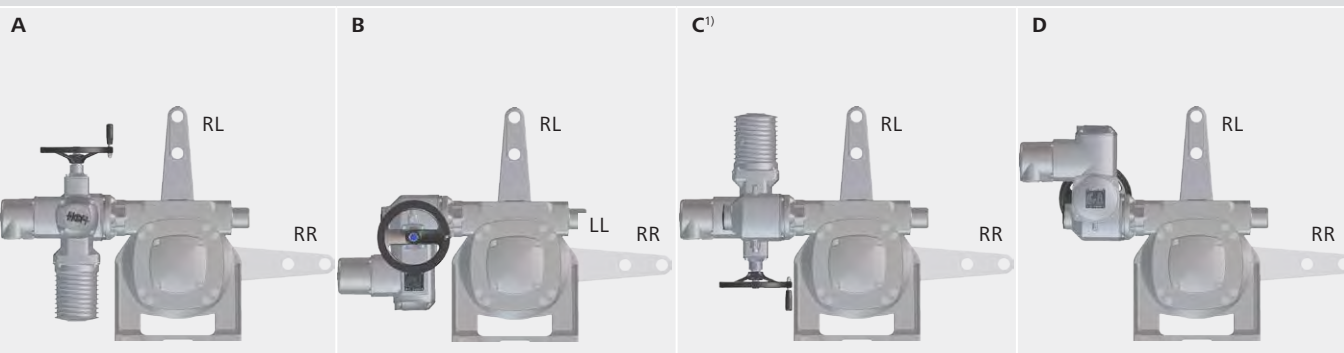
Description of the four different versions (view on housing cover):

| Code | Direction of rotation at input shaft | Position of worm shaft | Direction of rotation at output drive |
|------|--------------------------------------|------------------------|---------------------------------------|
| RR   | clockwise                            | Right side             | clockwise                             |
| LL   | clockwise                            | Left side              | counter clockwise                     |
| RL   | clockwise                            | Right side             | counter clockwise                     |
| LR   | clockwise                            | Left side              | clockwise                             |

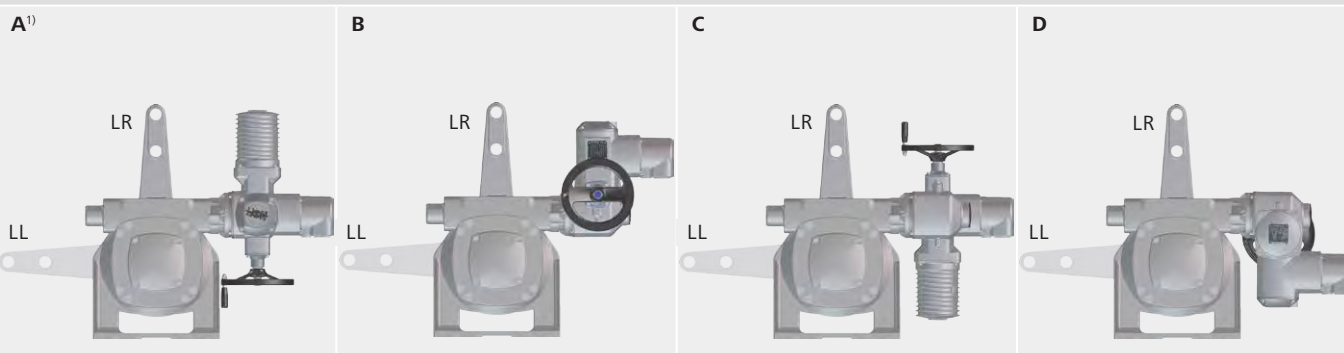
Unless ordered otherwise, the gearboxes are supplied in end position CLOSED.

Mounting positions A – D for multi-turn actuator with part-turn gearbox (please indicate when placing the order)

GS versions RR and RL



GS versions LL and LR



When selecting the mounting position, please consider the space constraints at the place of installation.

The figures above show the mounting position on delivery (end position CLOSED).

Up to size GS 125.3, the actuator - gearbox combination is supplied in the ordered mounting position. For packing reasons, actuator and gearbox are supplied separately from size GS 160.3.

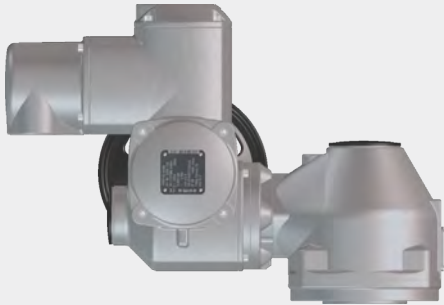
Mounting positions can easily be changed at a later date.

1) **Caution:** For multi-turn actuators SA/SAR 10.2/10.6 with GS 80.3 and SA/SAR 14.2/14.6 with GS 125.3, the following mounting positions are not possible:

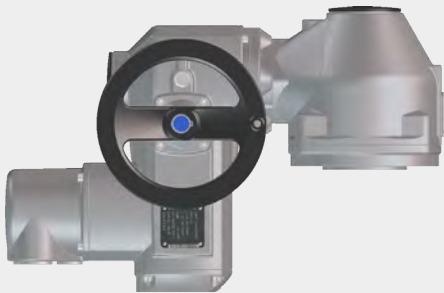
- Mounting position C for versions RR and RL
- Mounting position A for versions LL and LR

## Mounting positions Multi-turn actuator with multi-turn gearbox

Mounting position A

Mounting position B<sup>1)</sup>

Mounting position C



Mounting position D

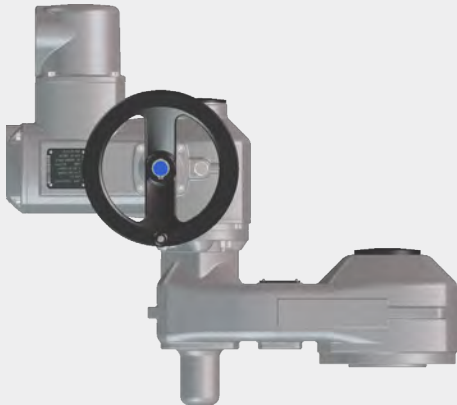
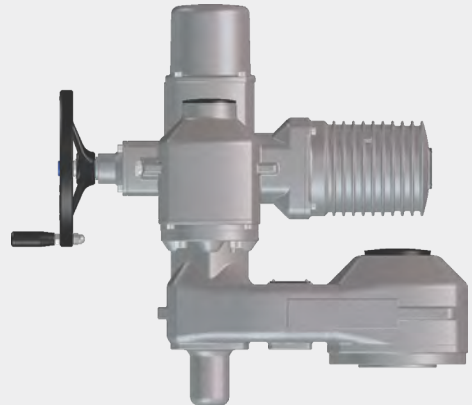
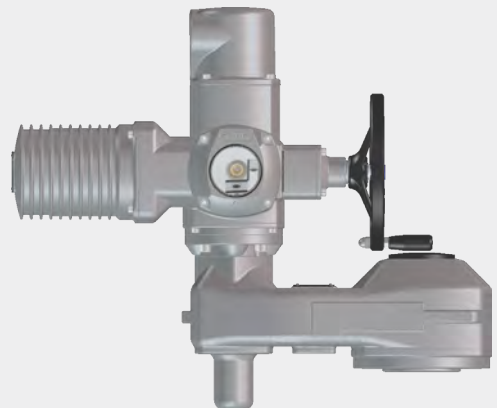


When selecting the mounting position, please consider the space constraints at the place of installation.

Mounting positions can easily be changed at a later date.

1) **Caution:** Mounting position B is not possible for actuators with specified handwheel sizes and rising valve stem.

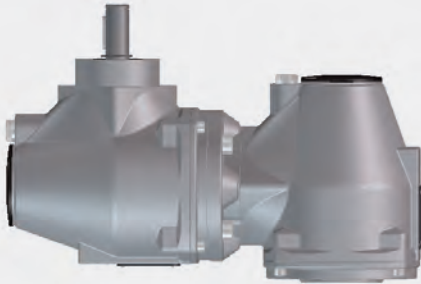
Mounting position A

Mounting position B<sup>1)</sup>Mounting position C<sup>1)</sup>Mounting position D<sup>1)2)</sup>

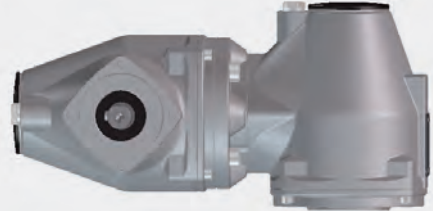
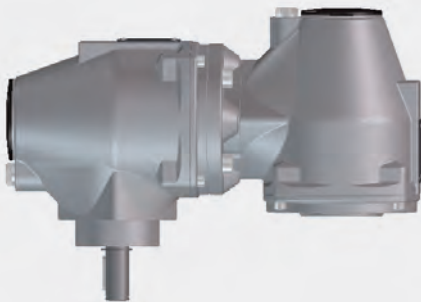
When selecting the mounting position, please consider the space constraints at the place of installation.  
Mounting positions can easily be changed at a later date.

- 1) **Caution:** Mounting positions B, C and D are not possible for actuators with rising valve stem.  
2) **Caution:** Mounting position D is not possible for specified actuator-gearbox combinations.

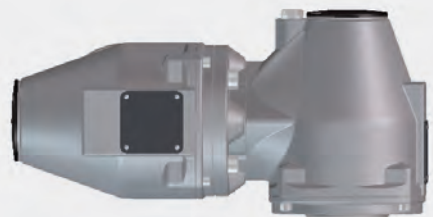
Mounting position A



Mounting position B

Mounting position C<sup>1)</sup>

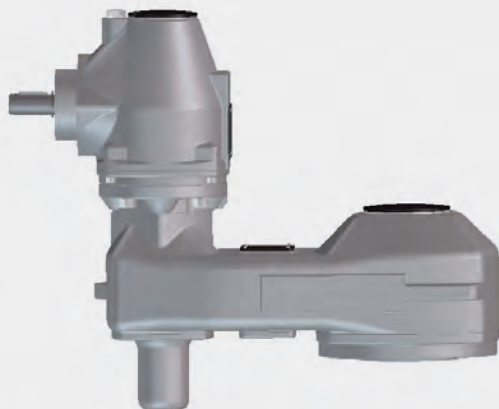
Mounting position D



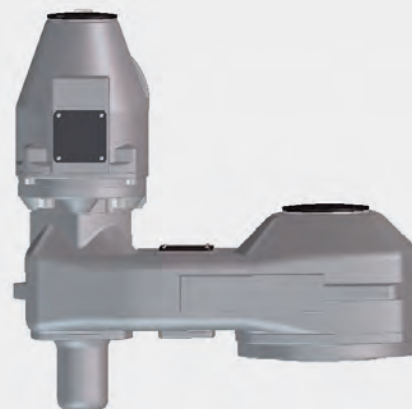
Please consider possible space constraints on site when selecting handwheel or multi-turn actuator to be fitted.  
Mounting positions may easily be changed at a later date.

1) **Attention:** Depending on the space constraints on site, mounting position C might not be possible.

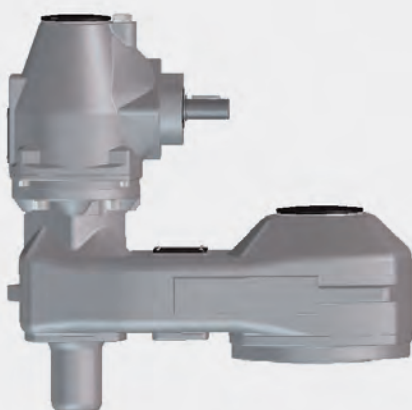
Mounting position A



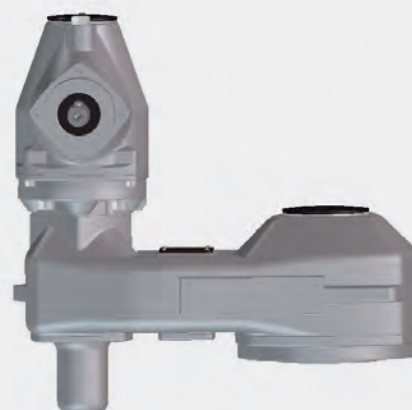
Mounting position B



Mounting position C<sup>1)</sup>



Mounting position D

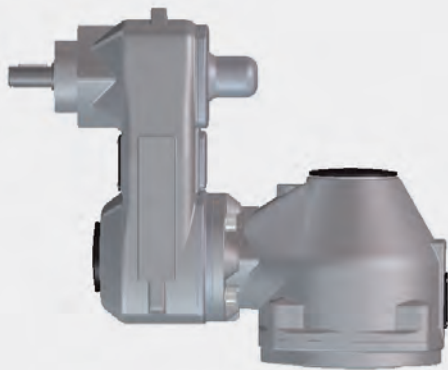


Please consider any possible space constraints on site when selecting handwheel or multi-turn actuator to be fitted.  
Mounting positions may easily be changed at a later date.

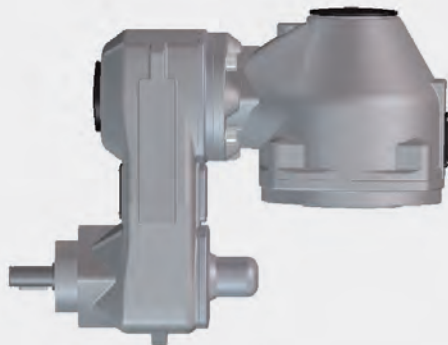
1) **Attention:** Handwheel fitting is not possible for mounting position C.



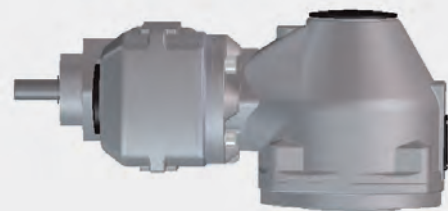
Mounting position A



Mounting position B

Mounting position C<sup>1)</sup>

Mounting position D



Please consider possible space constraints on site when selecting handwheel or multi-turn actuator to be fitted.  
Mounting positions may easily be changed at a later date.

1) **Attention:** Depending on the space constraints on site, mounting position C might not be possible.





GS  
630.3  
/GZ 630.3 Valve attachment . Flange size F90  
/AUMA . Max. shaft diameter in  
mm: 400 . IP 68-3, IP 68-6 .  
Application For motor and manual  
operation of valves (e.g. butterfly  
and ball valves). For special  
applications, e.g. dampers or gas  
diverters, special sizing is required. Version  
Standard: Clockwise rotation RR, counter-  
clockwise rotation LL, Option: RL or LR .  
Housing material Standard: Cast iron (GJL-250)  
Swing angle Standard: Adjustable in steps of 80° -  
100° . Ambient temperature Standard: -40 °C to +80 °C  
Option: -0 °C to +120 °C, version H . Enclosure protection  
according to EN 60 529 Standard: IP 68-3, dust and water  
tight up to max. 3 m head of water . Option: IP 68-6, dust and  
water tight up to max. 6 m head of water. Splined coupling  
for connection to the valve shaft . Weight GS + VZ kg: 7, 12,  
16, 33, 39, 39, 40, 46, 46, 46 . Mounting position:  
Any position . Possible combinations with multi - turn  
actuators . SA 07.1, SA 07.2, SA 07.5, SA 07.6, SA 10.1  
SA 14.1, SA 14.2, SA 14.5, SA 14.6 . IP 68-3 . IP 68-6

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are implanted in more than 70 countries. For  
detailed contact information, please refer to

**www.auma.com**

planetary gear with various  
reduction ratios for reducing the  
input torques. Combination with GK bevel gearbox directly on GS  
or on GS with VZ/GZ possible . Splined coupling for connection  
to the valve shaft: Standard: Without bore or pilot bore from GS  
160.3, Worm gearbox can be repositioned 4 x 90° on coupling.  
Options: Machined with bore and keyway, square bore or bore  
with two-flats including grub screw for fixing to valve shaft. IP 68-3  
Mechanical position indicator Standard: Pointer cover for continuous  
position indication . Options: Protection cover e.g. for buried service  
instead of pointer cover, For gas applications with sealed pointer cover,  
an air vent in the pointer cover or venting grooves in the valve mounting  
flange must be provided. IP 68-3 . Options: KS Suitable for installation in  
occasionally or permanently aggressive atmosphere with a moderate  
pollutant concentration (e.g. in wastewater treatment  
plants, chemical industry). Valve: torque in Nm  
to 480 000, max. 675 000 . Self-  
locking: The gearboxes are

Standard: With pilot bore 100 mm . Corrosion  
protection Standard: KN Suitable for installation  
in industrial units, in water or power plants with  
low pollutant concentration . EU directives: ATEX Directive:  
(94/9/EC), Machinery Directive: (2006/42/EC). End stops Positive  
for both end positions by travelling nut, sensitive adjustment.  
Turns for 90°: 13 . Input shaft Ø 120, Ø 80, Ø 60, Ø 50,  
Ø 40, Ø 30, Ø 20, Ø 16, Motor operation: With electric  
multi-turn actuator, directly or through  
primary reduction gearing VZ/GZ  
Flanges for mounting of multi-turn  
actuator . Primary reduction  
gearing - Types  
VZ and GZ as

## Bevel gearboxes GK

10.2 – GK 40.2. Mounting

position: Any. Options: IP 68

Nominal torque max. Nm 120, 250,

500, 1 000, 2 000, 4 000, 8 000, 16 000.

Modulating torque Max. Nm 60, 120, 200, 400,

800, 1600. Short-time duty S2 - 15 min (open-close

duty) . Intermittent duty S4 - 25 % (modulating duty),

Single stage: GK 10.2 – GK 25.2. Double stage: GK30.2 –

GK40.2. Ambient temperature Standard: -40 °C to +80 °C

Ambient temperature Options: -60 °C to +60 °C, version EL

-0 °C to +120 °C, version H . Output drive types A, B1, B2,

B3, B4 according to EN ISO 5210 A, B, D, E according to

DIN 3210 C according to DIN 3338 . Enclosure protection

in accordance with EN 60529 Standard: IP 67 . Direction of

rotation Standard: Clockwise rotation at input shaft results

in clockwise rotation at output shaft . Option: GK 10.2 -

GK 25.2 Reversal of rotation direction using a reversing

gearbox GW 14.1. GK 30.2-GK 40.2: Clockwise rotation

possible as an alternative . Input shaft made of stainless

steel. Standard: Cylindrical with parallel key accord-

ing to DIN 6885-1. Option: Square: - tapered

(DIN 3233)- cylindrical . GK 10.2

selflocking at stand-  
still under normal  
service conditions:  
strong vibrations  
may cancel  
the self-