



AIR TORQUE[®]

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EN

**DIRETTIVA ATEX 2014/34/UE / ATEX DIRECTIVE 2014/34/EU
ATEX RICHTLINIEN 2014/34/EU / DIRECTIVES ATEX 2014/34/EU**



- ◇ Istruzioni di sicurezza per l'uso degli attuatori Air Torque serie AT, PT e Stainless Steel in atmosfere potenzialmente esplosive.
- ◇ Safety instructions for the use of Air Torque actuators series AT, PT and Stainless Steel in potentially explosive atmospheres.
- ◇ Sicherheitsanweisung für die Benutzung der Air Torque Antriebe der Serie AT, PT und Stainless Steel in explosiver Umgebung.
- ◇ Instructions de sécurité pour l'usage des actuateurs Air Torque séries AT, PT et Stainless Steel en atmosphères explosives.



1) DESCRIPTION

The 4thGU (DR/DL/SC/SO...U), PT with aluminium housing and the S with stainless steel housing PNEUMATIC ACTUATORS series are rack and pinion actuators, spring return or double acting type. They are available in the following working temperature executions:

- **LLT2:** Very Low Temperature application [- 60°C / + 80°C]
- **LLT:** Low Temperature application [- 55°C / + 80°C]
- **ST:** Standard application [- 40°C / + 80°C]
- **HT:** High Temperature application [- 15°C / + 150°C]

The PNEUMATIC ACTUATORS series mentioned above are equipment for the usage in classified zones with the presence of gas and/or combustible dusts (group II, category 2 GD, zone 1 / zone 21) or for the usage in mines (group I, category M2) – only S series in stainless steel.

The actuators series, as equipment of category 2, are also suitable for the usage in zone 2 (gas) / zone 22 (dust), category 3 GD.

The equipment are designed and manufactured according to ATEX Directive 2014/34/EU, and in compliance with the European standards: EN 1127-1:2011, EN ISO 80079-36:2016, EN ISO 80079-37:2016.

The PNEUMATIC ACTUATORS series have been designed with type of protection “c” constructional safety.

This is valid also in case the actuators series are supplied with following:

- aluminium or stainless-steel flange on top side;
- adaptor in aluminium, steel or stainless steel placed in the drive shaft bottom end;
- aluminium flange on the bottom side valve connection;
- steel or stainless steel bracket on bottom side
- mechanical components such as plates or aluminium blocks screwed for the actuator accessories assembly, etc.

2) ATEX AREA CLASSIFICATION

According to the ATEX Directive 2014/34/EU, the classification area is:

Correspondences between hazardous areas, substances and categories, EPL

Hazardous area		Equipment category according to Directive 2014/34/EU	EPL
Underground		M1	Ma
Underground		M2	Ma or Mb
Gas, vapours or mist	Zone 0	1G	Ga
Gas, vapours or mist	Zone 1	2G or 1G	Ga or Gb
Gas, vapours or mist	Zone 2	3G, 2G or 1G	Ga, Gb or Gc
Dust	Zone 20	1D	Da
Dust	Zone 21	2D or 1D	Da or Db
Dust	Zone 22	3D, 2D or 1D	Da, Db or Dc

3) TECHNICAL CHARACTERISTICS

Max operating pressure	Up to 10 bar
Operating temperature	- 60°C / + 80°C (LLT2); - 55°C / + 80°C (LLT); - 40°C / + 80°C (ST); - 15°C / + 150°C (HT);
Operating media	Fluid of group II for PED: Air/Inert gas/not dangerous fluid (water)/not corrosive/not flammable fluids. Fluid of group I for PED: flammable fluid (methane, natural gas, etc.)



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4) MARKING

The PNEUMATIC ACTUATORS can be marked as shown in the following tables:

Aluminium series / 4thGU and PT – suitable for Group II (Surface) Category 2

Actuator version	Maximum Operating Temperature °C (°F)	Actuator Protection Level	ATEX Zone	Gas Group	Dust Group	Temperature Class (Gas) / Max. Temperature Surface (Dust)	ATEX Marking
ST	-40°C / +80°C (-40°F / +176°F)	V [NOTE 1]	Zone 1/21 or Zone 2/22	IIB	IIIC	T6 / T85°C or T5 / T95°C [NOTE 3]	 X = for safe use conditions see NOTE 4
LLT	-55°C / +80°C (-67°F / +176°F)						
LLT2	-60°C / +80°C (-76°F / +176°F)						
HT	-15°C / +150°C (+5°F / +302°F)	A / B / D E / F / G H / X / L M / P / V [NOTE 2]	Zone 1/21 or Zone 2/22	IIC	IIIC	T6 / T85°C or T5 / T95°C or T4 / T135°C or T3 / T165°C [NOTE 3]	 X = for safe use conditions see NOTE 4
ST	-40°C / +80°C (-40°F / +176°F)						
LLT	-55°C / +80°C (-67°F / +176°F)						
LLT2	-60°C / +80°C (-76°F / +176°F)	A / B / D E / F / G H / X / L M / P / V [NOTE 2]	Zone 1/21 or Zone 2/22	IIC	IIIC	T6 / T85°C or T5 / T95°C [NOTE 3]	 X = for safe use conditions see NOTE 4
ST	-40°C / +80°C (-40°F / +176°F)						
LLT	-55°C / +80°C (-67°F / +176°F)						
LLT2	-60°C / +80°C (-76°F / +176°F)	A / B / D E / F / G H / X / L M / P / V [NOTE 2]	Zone 1/21 or Zone 2/22	IIC	IIIC	T6 / T85°C or T5 / T95°C or T4 / T135°C or T3 / T165°C [NOTE 3]	 X = for safe use conditions see NOTE 4
ST	-40°C / +80°C (-40°F / +176°F)						
LLT	-55°C / +80°C (-67°F / +176°F)						
LLT2	-60°C / +80°C (-76°F / +176°F)	A / B / D E / F / G H / X / L M / P / V [NOTE 2]	Zone 1/21 or Zone 2/22	IIC	IIIC	T6 / T85°C or T5 / T95°C or T4 / T135°C or T3 / T165°C [NOTE 3]	 X = for safe use conditions see NOTE 4
ST	-40°C / +80°C (-40°F / +176°F)						
LLT	-55°C / +80°C (-67°F / +176°F)						

NOTE 1: Coating or Painting thickness 0.2 ± 2 mm (conductive or non conductive painting).

NOTE 2: Coating or painting thickness < 0.2 mm (conductive or non conductive painting) or painting thickness 0.2 ± 2 mm only with conductive painting.

NOTE 3: See table 2 for max. environment temperature and /or process fluid maximum temperature (or surface temperature in the area of contact with the actuator).

NOTE 4: Basing on process/application it is responsibility of the end user to verify the proper temperature class (gas) / maximum surface temperature (dust) referred to the maximum temperatures in Table 2.

Marking sample:

		ATEX 2014/34/EU: no INERIS-EQEN XXXXXX/19 			
Model / Type: AT201U S12 B		IEC 61508: SIL3 - Capable			
EN ISO 5211: F05+F07-N-14D		Serial Number: 19000001			
Operating Press.: Maximum 8 bar		90° Rotation - ASST			
Torque at 6 bar <table border="1"> <tr> <td>Max Nm 43,3</td> <td>Min. Nm 26,5</td> </tr> </table>				Max Nm 43,3	Min. Nm 26,5
Max Nm 43,3	Min. Nm 26,5				
Operating Temp.: -40°C to +80°C					
Ancillary Attach.: AA1					
Pressure Conn.: G 1/8"					



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Stainless Steel series – suitable for Group I (Mine) Category M2 and Group II (Surface) Category 2

Actuator version	Maximum Operating Temperature °C (°F)	Actuator Protection Level	ATEX Zone	Gas Group	Dust Group	Temperature Class (Gas) / Max. Temperature Surface (Dust)	ATEX Marking
ST	-40°C / +80°C (-40°F / +176°F)	SBV SCV	Zone 1/21	IIB	IIIC	T6 / T85°C or T5 / T95°C	 X = for safe use conditions see NOTE 4
LLT	-55°C / +80°C (-67°F / +176°F)	(NOTE 1)	or			(NOTE 3)	
LLT2	-60°C / +80°C (-76°F / +176°F)		Zone 2/22				
HT	-15°C / +150°C (+5°F / +302°F)					T6 / T85°C or T5 / T95°C or T4 / T135°C or T3 / T165°C (NOTE 3)	 X = for safe use conditions see NOTE 4
ST	-40°C / +80°C (-40°F / +176°F)	SB SBP SBV SC SCP SCV	Zone 1/21	IIC	IIIC	T6 / T85°C or T5 / T95°C	 X = for safe use conditions see NOTE 4
LLT	-55°C / +80°C (-67°F / +176°F)	(NOTE 2)	or			(NOTE 3)	
LLT2	-60°C / +80°C (-76°F / +176°F)		Zone 2/22				
HT	-15°C / +150°C (+5°F / +302°F)					T6 / T85°C or T5 / T95°C or T4 / T135°C or T3 / T165°C (NOTE 3)	 X = for safe use conditions see NOTE 4

NOTE 1: Coating or Painting thickness 0.2 + 2 mm (conductive or non conductive painting).

NOTE 2: Coating or painting thickness < 0.2 mm (conductive or non conductive painting) or painting thickness 0.2 + 2 mm only with conductive painting.

NOTE 3: See table 2 for max. environment temperature and /or process fluid maximum temperature (or surface temperature in the area of contact with the actuator).

NOTE 4: Basing on process/application it is responsibility of the end user to verify the proper temperature class (gas) / maximum surface temperature (dust) referred to the maximum temperatures in Table 2.

Marking sample:

<p>AIR TORQUE® www.airtorque.it</p>		<p>Made in Italy</p> <p>ATEX 2014/34/EU: no INERIS-EQEN XXXXX/19 I M2 Ex h I Mb X II 2 G Ex h IIC T6...T5 Gb X II 2 D Ex h IIIC T85°C...T95°C Db X</p>	
Model / Type: SB AT304 S12		IEC 61508: SIL3 - Capable	
EN ISO 5211: F05+F07+F10-N-17DS		Serial Number: 19000002	
Operating Press.: Maximum 8 bar		90° Rotation - ASST	
Torque at 6 bar	Max Nm 99	Min. Nm 60,8	
Operating Temp.: -40°C to +80°C			
Ancillary Attach.: AA1			
Pressure Conn.: G 1/4"			



Table 1:

Gases Group	Actuator painting/coating Thickness - Non conductive	Actuator painting/coating Thickness - Conductive
IIB	0.2 mm ÷ 2 mm	0.2 mm ÷ 2 mm
IIC	≤ 0.2 mm	

Table 2:

Maximum environment temperature and/or process fluid maximum temperature (or surface temperature in the area of contact with the actuator)	Temperature Class (Gas) / Maximum surface temperature (Dust)
70°C	T6 / T85°C
80°C	T5 / T95°C
120°C	T4 / T135°C
150°C	T3 / T165°C

5) SAFETY INSTRUCTIONS FOR THE INSTALLATION IN HAZARDOUS AREA

These safety instructions are related to the descriptions for the installation, usage and maintenance of the 4thGU, PT and S PNEUMATIC ACTUATORS series in hazardous area with the potentially explosive atmosphere.

The pneumatic actuators are designed according to the technical and safety requirements of the ATEX Directive 2014/34/EU according to the European standards.



Before the installation carefully read the instructions for use and maintenance.

The 4thGU, PT and S PNEUMATIC ACTUATORS series shall be installed and serviced according to the plant maintenance standards for classified areas due to the presence of gas, vapor and mist / dust or the usage in mine (ex: N 60079-14, EN 60079-17 or other national standards).

The actuator series are supplied properly classified/ marked for the usage in an hazardous area for gas, vapor and mist (group II) and/or combustible dust presence, or for the usage in mine (group I, category M2).



The equipment and/or electrical components (certified separately according to ATEX directive) and mechanical components installed on the pneumatic actuators shall be in accordance with the above directive and suitable for the usage in a classified area.

The classes of temperature and/or the maximum surface temperature of the components shall be compatible with the temperature limits of the different pneumatic actuator executions.

Always check that the actuator is connected to the ground. Ensure a mechanical connection between the actuator shaft and valve shaft through electro-conductive materials.

Where installed, all the electrical equipment must be connected to the ground through appropriate connecting elements.



The User must regularly check the effectiveness of the ground connections.

Due to the presence of combustible dust, a regular cleaning shall be carried out in order to avoid the dust deposit. All the maintenance operations must be done according to what is written in the manual instruction.



Remove the dust layer. All the operation shall be executed by skilled and qualified people.



In case of flammable gases used as the supply media, the gases must have a concentration outside of the flammable range with an adequate safety margin.



The End User shall verify that the ignition temperature of gas/operating fluid is lower than the max working temperature of the actuator.



If a dangerous gas is used as supply media, a more frequent maintenance and check of the fluid losses has to be done to ensure the perfect power cylinder tightness.



It's under the End User responsibility to ensure that the first filling with inert gas is done with not dangerous speed.

The pressurized cylinder shall not be in contact with air and or explosive mixture, when decompressed.



It's under the End User responsibility to ensure that the exhaust of the gas is done in safe area and far from ignition sources. It is under the End User responsibility to avoid the explosive mixture inside the actuator springs chambers.



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It is responsibility of the User to perform regularly check in order to prevent:

- dust deposit
- irregular functioning (as for example, vibration, unusual noise etc)
- any misuse

In case malfunctioning may be detected, the maintenance may be necessary in order to prevent any potential ignition.

The User is solely responsible for the proper usage and maintenance of the pneumatic actuator. All the operations must be performed by trained and qualified personnel.



The usage of the actuator is allowed only according to the technical data and the instruction manual.

AIR TORQUE S.p.A. is not responsible for damages caused by an improper and/or dangerous use.

All maintenance operations shall be carried out as stated in the use and maintenance manuals: no mechanical modification is allowed without prior written agreement with AIR TORQUE S.p.A..

Only original spare parts are allowed for maintenance, on the contrary Air Torque S.p.A is not responsible for the actuator safety.

All the equipment (both electrical or pneumatic) should not be opened until not energized.



DICHIARAZIONE CE DI CONFORMITÀ / EU DECLARATION OF CONFORMITY
CE KONFORMITAETSERKLAERUNG / DECLARATION CE DE CONFORMITÉ

Noi/We/Wir/Nous: **AIR TORQUE S.p.A. Via dei Livelli di Sopra 8/11, 24060 Costa di Mezzate (BG)**

dichiariamo sotto la nostra esclusiva responsabilità che il prodotto / declare under our sole responsibility that the product / erklären eigenverantwortlich, dass das produkt / déclarons sous notre seule responsabilité que le produit:

ATTUATORI PNEUMATICI serie 4thGU (DR/DL/SC/SO...U), PT e Stainless Steel
PNEUMATIC ACTUATORS series 4thGU (DR/DL/SC/SO...U), PT and Stainless Steel
4thGU (DR/DL/SC/SO...U), PT und Stainless Steel PNEUMATISCHE ANTRIEBSSERIE
ACTIONNEURS PNEUMATIQUES séries 4thGU (DR/DL/SC/SO...U), PT et Stainless Steel

al quale questa dichiarazione si riferisce è conforme alla seguente direttiva / to which this declaration relates complies with the following Directives / auf das sich diese Erklärung bezieht, die Forderungen der folgenden Richtlinien erfüllt / concernés par la présente déclaration sont en conformité avec les directives suivantes:

- **Directive 2014/34/EU (ATEX)**
- **Directive 2004/42/EC (Machinery)**

La conformità è stata verificata sulla base dei requisiti delle norme o dei documenti normativi riportati nel seguito:

The conformity has been verified basing on the following standards or standards documents:

Die Konformität steht unter Beachtung der folgenden Normen oder Dokumente:

La conformité est vérifiée sur la base de standards et documents suivants:

- EN 1127-1:2011
- EN 80079-36:2016
- EN 15714-3:2009
- EN 80079-37:2016

Marcatura / Marking / Markierung / Marquage:

Versione / execution LLT, LLT2 and ST (Standard)

- *Group I (Mine) (only stainless steel series)*



I M2 Ex h I Mb X

- *Group IIB (Gas) e Group IIIC (Dust)*



II 2 G Ex h IIB T6...T5 Gb X



II 2 D Ex h IIIC T85°C...T95°C Db X

Group IIC (Gas) e Group IIIC (Dust)



II 2 G Ex h IIC T6...T5 Gb X



II 2 D Ex h IIIC T85°C...T95°C Db X

Versione / execution HT

- *Group I (Mine) (only stainless steel series)*



I M2 Ex h I Mb X

- *Group IIB (Gas) e Group IIIC (Dust)*



II 2 G Ex h IIB T6...T3 Gb X



II 2 D Ex h IIIC T85°C...T165°C Db X

Group IIC (Gas) e Group IIIC (Dust)



II 2 G Ex h IIC T6...T3 Gb X



II 2 D Ex h IIIC T85°C...T165°C Db X

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**Costa di Mezzate (BG),
05/08/2019**

AIRTORQUE S.p.A.

**A. Marinoni
Managing director**