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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 serie AT-HD in atmosfere potenzialmente esplosive.
- ❑ Safety instructions for the use of Air Torque actuators serie AT-HD in potentially explosive atmospheres.
- ❑ Sicherheitsanweisung für die Benutzung der Air Torque Antriebe der Serie AT-HD in explosiver Umgebung.
- ❑ Instructions de sécurité pour l'usage des actuateurs Air Torque série AT-HD en atmosphères explosives.

1. DESCRIPTION

AIR TORQUE **AT-HD yyyy** series actuators are Heavy Duty - Scotch Yoke actuators, spring return or double acting, with carbon steel case, available in the following executions:

- ***S ➔ for standard applications (-40°C / + 80°C)***
- ***L ➔ for low low temperature applications (-60°C / + 80°C)***
- ***H ➔ for high temperature applications (-15°C / + 150°C)***

AIR TORQUE **AT-HD yyyy** series actuators are equipment suitable for use in hazardous area with presence of gas and/or combustible dusts (group II, category 2GD, zone 1 / zone 21) or for use in mines (group I, category M2).
AIR TORQUE **AT-HD** series actuators, as a category 2 equipment, are suitable for use in zone 2 (gas) / zone 22 (dust), category 3 GD.

These actuators are designed and build according to the ATEX directive 2014/34EU, in compliance with the EN 1127-1:2011, EN 13463-1:2009 and EN 13463-5:2011 standards.

On the **AT-HD yyyy** series actuators, it is possible to mount or provide separately the following accessories:

- Flange or bracket: in carbon steel (zinc plated or painted) or in stainless steel, for the connection of the valve (bottom interface);
- Adapter or coupling: in nickel plated iron or stainless steel, the adapter, used for connecting the actuator to the valve stem, is placed in the bottom of the hole located inside the lever;
- Mechanical components: plates and/or blocks in aluminium, carbon steel nickel plated or painted, stainless steel, located on the top of the actuator for the mounting of accessories (limit switch, positioners, etc...), for the indication of the rotation position and for safety indication
- Actuator control panel: folded, in stainless steel or other material, onto which control accessories are mounted (pressure regulators, filters, control valves, etc...)
- jack-screw, hydraulic pump, gear: accessories for the manual operation or emergency operation of the actuator

2. TECHNICAL FEATURES

Pneumatic actuators

Max operating pressure	10 bar (145 Psi)
Operating temperature	- 60°C ÷ + 80°C (L); - 40°C ÷ + 80°C (S); - 15°C ÷ + 150°C (H);
Operating media	Air / inert gases / water / non dangerous fluids – fluids group II Gas (e.g. methane, natural gas, etc.) – fluids group I

High-pressure hydraulic / pneumatic actuators

Max operating pressure	207 bar (3000 Psi)
Operating temperature	- 60°C ÷ + 80°C (L); - 40°C ÷ + 80°C (S); - 15°C ÷ + 150°C (H);
Operating media	Hydraulic oil – fluids group II

Max operating pressure	103 bar (1500 Psi)
Operating temperature	- 60°C ÷ + 80°C (L); - 40°C ÷ + 80°C (S); - 15°C ÷ + 150°C (H);
Operating media	Gas (e.g. methane, natural gas, ecc.) – fluids group I

The selection of the maximum working temperature of the actuator is defined by the temperature of the supply media, the maximum temperature of the environment and/or the maximum temperature of the process fluid (or by the maximum surface temperature in the area of contact with the actuator).
Always check that the ignition temperature of the supply gas/fluid is higher than the maximum working temperature reached by the actuator.
For the quality of the supply fluid, please stick with the indications for the supply fluid.

In case of flammable gases used as supply fluid, the gases must have a concentration located out of the flammable range with an adequate safety margin

3. *MARKING*

Actuators S, L, H for group II

CE Ex **II 2 GD c IIB** or **IIC TX** **T.F.: ATX 13AT-HD**

II 2	=	**group II (surface), category 2 (zone 1)**
G	=	**explosive atmosphere with the presence of gas, vapours or mists**
D		**explosive atmosphere with the presence of dust**
c	=	**constructional safety EN 13463-5**
IIB or **IIC**	=	**gases groups (see table 1)**
TX	=	**temperature class / maximum surface temperature related to the environment temperature and/or process fluid temperature (or the surface temperature in the area of contact with the actuator) (see table 2)**
AA / yyyyyy	=	**serial number (AA / yyyyyy = AA / progressive)**
- 60°C ÷ + 80°C	=	**working temperature (L)**
- 40°C ÷ + 80°C	=	**working temperature (S)**
- 15°C ÷ + 150°C	=	**working temperature (H)**
T.F.	=	**reference to the registered technical file (ATX 13AT-HD)**

Actuators S, L, H for group I and group II

CE Ex **I M2 / II 2 GD c IIB** or **IIC TX** **T.F.: ATX 13AT-HD**

I M2	=	**group I (mine), category M2**
II 2	=	**group II (surface), category 2 (zone 1)**
G	=	**explosive atmosphere with the presence of gas, vapours or mists**
D		**explosive atmosphere with the presence of dust**
c	=	**constructional safety EN 13463-5**
IIB or **IIC**	=	**gases group (see table 1)**
TX	=	**temperature class / maximum surface temperature related to the environment temperature and/or process fluid temperature (or the surface temperature in the area of contact with the actuator) (see table 2)**
AA / yyyyyy	=	**serial number (AA / yyyyyy = AA / progressive)**
- 60°C ÷ + 80°C	=	**working temperature (L)**
- 40°C ÷ + 80°C	=	**working temperature (S)**
- 15°C ÷ + 150°C	=	**working temperature (H)**
T.F.	=	**reference to the registered technical file (ATX 13AT-HD)**

Table 1

Gases group	Actuator painting thickness (non conductive painting)	Actuator type
IIB	0.2 mm ÷ 2 mm	L, S or H
IIC	≤ 0.2 mm	L, S or H

Table 2

Maximum environment temperature and/or process fluid maximum temperature (or surface temperature in the area of contact with the actuator)	Temperature class / Maximum surface temperature	Actuator type
70°C	T6 / T85°C	L, S or H
80°C	T5 / T95°C	L, S or H
120°C	T4 / T135°C	H
150°C	T3 / T165°C	H

Correspondence between hazardous areas, substances and categories

Hazardous area		***Categories according to Directive 2014/34/EU***
Mine		M1
Mine		M2
Gas, vapours or mist	Zone 0	1G
Gas, vapours or mist	Zone 1	2G or 1G
Gas, vapours or mist	Zone 2	3G, 2G or 1G
Dust	Zone 20	1D
Dust	Zone 21	2D or 1D
Dust	Zone 22	3D, 2D or 1D

4. *SAFETY INSTRUCTIONS FOR INSTALLATION IN HAZARDOUS AREA*

Before installation carefully read what is written in the instruction manual.

Equipment and/or electrical components (in compliance with the ATEX directive) and mechanical components can be installed on the actuators.

All the equipment and/or electrical components and mechanical components must be suitable for use in classified zones with the presence of gases of group II and/or with the presence of flammable dust or for mine (group I, category M2).
The temperature classes and/or the maximum temperature of the components must be compatible with the temperature range of the different actuators executions.

AT-HD series actuators must be installed and maintained according to the plant and maintenance norms for environments classified against the risk of explosion due to the presence of gases / dust or mine (e.g.: EN 60079- 14, EN 60079-17, or other national norms/standards).

Always check that the actuator is connected to the ground. Make the mechanical connection between the shaft of the actuator and the stem of the valve through electro conducting materials. Check that there is a good conduction between the shaft of the actuator and the body of the attached valve during first installation and later on with periodical maintaining and preventive checks.

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

Check that the ignition temperature of the gas/supply media is higher than the maximum surface temperature reached by the actuator.

The buyer has the responsibility of checking that the first filling (with the non-inert gas) of the power cylinder has to be done with low filling speed.

The buyer has the responsibility of making sure that the discharge of the exhaust non-inert gas is done in a safe place and far off possible ignition sources.

In case of flammable dust, a periodical cleaning must be done to avoid the deposit of dust layers.

All the maintenance operations must be done following the indications in the instruction manual.

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.

Basing on the utilization and the used substances, the user must periodically check:

- Presence of encrustation, the cleanness, wear condition and the proper operation of the actuator;
- Presence of vibration and/or unusual sounds. If that is the case, he must stop the actuator, find the causes and contact the manufacturer.

Nevertheless, residual risks may be present during the normal operation of the HD series AT-HD actuator if:

- the actuator is not subject to regular maintenance schedule as per indication in the instruction manual;
- the actuator is not used as per project specification.

Different or additional use other than the ones indicated in the instruction manual are not allowed, and AIR TORQUE S.p.a. is not responsible for any damage caused by improper use.

All maintenance operation must be done according to what mentioned in the instruction manual: no mechanical modification is allowed without AIR TORQUE S.p.a. written authorization.

Unauthorized replacement or non original components void the safety of the actuator; all spare components must be asked to AIR TORQUE S.p.A. .

All equipment / electrical components must not be opened under tension. The actuator must not be opened when pressurized.

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We AIR TORQUE S.p.A.
Via dei Livelli di Sopra, 11
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Declare under our sole responsibility that the product:

AT-HD series actuators

to which this declaration relates complies with the following Directives:

- Directive 2014/34/EU (ATEX)
- Directive 2006/42/EC (Machinery)

The conformity are under observance of the following standards or standards documents:

- ❑ EN 1127-1:2011
- ❑ EN 13463-1:2009
- ❑ EN 13463-5:2011
- ❑ EN 15714-3:2009
- ❑ EN 15714-4:2009

Type of protection:

❑ CE Ex **II 2 GD c IIB** or **IIC TX** ➔ Actuators group II

❑ CE Ex **I M2 / II 2 GD c IIB** or **IIC TX** ➔ Actuators group I and group II

Technical file issued according to 94/9/EC directive: **ATX 13AT-HD**

Notified Body of deposit of technical file: **INERIS (0080)**

Costa di Mezzate (BG) Italy,
date 20/04/2016

A. Marinoni
Managing Director
Design and Quality Manager
Signature