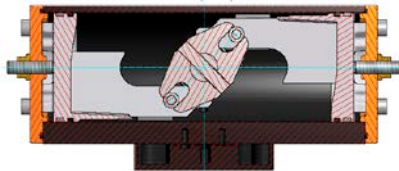
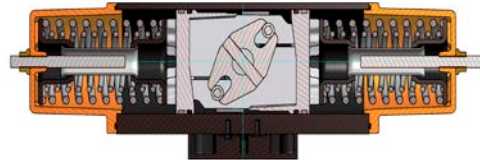


Pneumatic Rotary Actuators

Supplementary ATEX Operating Instructions BA 4.1 - Atex



**Type EBx.1 SYD
double-acting**




**Type EBx.1 SYS
single-acting**

Explosion Protection Directive 94/9/EC (ATEX 95)

Product: Pneumatic rotary actuators
Design: Double-acting, single-acting
Series: EB x.1 SYD, SYS

Area of application:	Group II 2GD	
Usable in zones	1 and 2	Gases and vapours
	21 and 22	Dust

These instructions, complementary to the standard operating instructions, are intended to support and instruct the user of EBRO pneumatic actuators of series **SYD** and **SYS** for operation and maintenance tasks in a  potentially explosive atmosphere.

In accordance with Directive 94/9/EC, Annex VIII of the European Parliament and of the Council of 23 March 1994, ATEX 95, in the correction of 10/10/1996 (Official Journal of the European Union L257, corrected version)

Revision: 0-08.2015

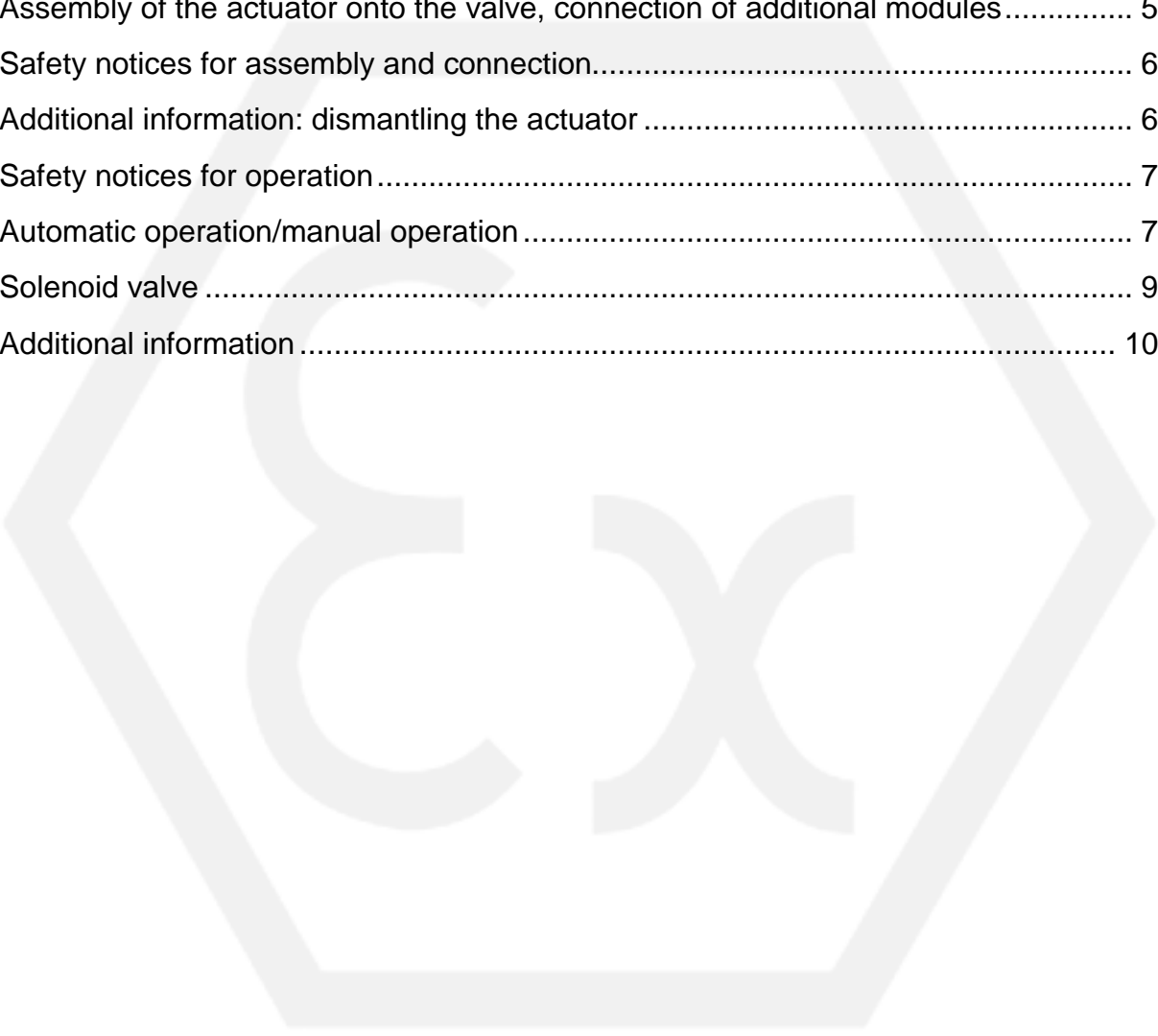


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General





The supplementary ATEX operating instructions provide additional information on explosion protection with EBRO pneumatic actuators.

Read these instructions carefully before commissioning and adhere to them.

Compliance with the operational safety regulations is the responsibility of the operator, regulations on explosion protection and occupational safety must be observed at all times.

Explanation of symbols

In these operating instructions, notes are marked with the following symbols:

 xxxxxxx	Danger/Warning ... indicates a situation of immediate danger that could lead to death or severe injury if not avoided.
	Note ... indicates an instruction that should be obeyed without fail.
	Information ... indicates useful tips and recommendations
 operation	The following safety instructions for explosion protection must be observed. Non-observance of the hazard warnings and "Intended use" can be dangerous for persons, devices and systems and can render the manufacturer's warranty void. If you have any questions, please contact the manufacturer at the addresses in the end section.

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Intended use

Pneumatic rotary actuators type EBx.1 SYD (double acting) and type EBx.1 SYS (with closing or opening springs) are intended,

- after connection of the solenoid valve to a system-side controller,
- with a gaseous control medium*¹ (as a rule compressed air in compliance with ISO 8573-1 cl. 3 and 5) with control pressure in accordance with the type plate, to automatically actuate industrial valves.
- in potentially explosive atmospheres of zones 1 and 2 or 21 and 22 classified in accordance with ATEX. The actuator must only be operated if atmospheric ambient conditions are present. Design temperature -20°C to 60°C (DIN EN 13463-1, 6.2.2). Usage with pressures and temperatures outside of this range must be assessed and approved by the user.


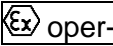
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*1 If fluids other than compressed air are used, please contact our customer service before usage.

 operation	<p>Safety instructions for operation in a potentially explosive atmosphere:</p> <ul style="list-style-type: none">The pneumatic rotary actuator is suitable and labelled for category 2 GD. For usage in potentially explosive atmospheres zone of 1 and 2 or 21 and 22 in accordance with ATEX118a, the user must strictly observe the instructions labelled with  operation, usage in hybrid mixtures is not permissible.It must be ensured that the compressed air is taken from a non-explosive atmosphere.
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As a rule, a correctly connected actuator must close in a clockwise direction (looking end-on at the actuator drive shaft) and open in the opposite direction.

The compressed air must be filtered, oiled, free from contaminations and water, and the particle size must be > 40 µm (ISO 8573-1, class 5).

The actuator may only be operated in accordance with the following documents:

- the <Declarations of conformity on EC Directives> included in the delivery
- EBRO assembly instructions BA4.1 (included in the delivery)
- product data sheets
- and the supplementary ATEX operating instructions **BA4.1 – ATEX**

The safety instructions must be observed when installing and operating the actuator.

	<p>The connection diagram to be used depends on the intended use of the valve and, in the case of actuators with "fail safe" function, on the type of spring(s) with which the actuator is fitted: this must be decided and selected accordingly by the planner/purchaser of the actuator.</p>
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Note 1:

These instructions should be used in conjunction with the instructions for the valve to which the actuator is fitted – the instructions for the valve are to be observed.

Note 2:

The purchaser is responsible for allocation of an individually supplied actuator to the appropriate valve

Explosion Protection Directive 94/9/EC (ATEX 95)



Pneumatic Rotary Actuators

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Identification of the actuator

Every actuator is identified by a type plate:

See BA 4.1

Each actuator is additionally labelled in accordance with EN 13463-1 as follows:


The labelling is included on the standard identification plate

CE  II 2GD c Tx
-20°C ≤ Ta ≤ +60°C


The additional markings have the following meaning:

- "c": Protection with (construction-related) safe design **in accordance with EN 13463-5**,
- "TX" The surface temperature does not depend on the device itself, but on the operating conditions.

The type plate on the actuator housing must not be covered after mounting the actuator on the valve and after installation in the pipe run – this is to ensure that the actuator remains identifiable.

 Danger	Exceeding the maximum pressure indicated on the type plate presents a danger for subsequent operation.
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Assembly of the actuator onto the valve, connection of additional modules

	<p><i>These instructions include safety notices for foreseeable risks during assembly of the actuator onto a valve.</i></p> <p>It is the user's responsibility to complement these instructions for other risks, especially those arising with specific valves. It is assumed that all requirements for this system have been met.</p>
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The connection of any additional electric/electro-pneumatic modules supplied with the actuator is described in the accompanying documentation.


These documents apply in addition to these instructions.

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Pneumatic Rotary Actuators



Supplementary ATEX Operating Instructions BA 4.1 - Atex

Safety notices for assembly and connection



 operation	<p>Additional safety instructions when installing in potentially explosive atmospheres:</p> <ul style="list-style-type: none">• It is assumed that the relevant occupational safety guidelines are observed by qualified personnel when installing and commissioning.• It must be ensured that the actuator housing (in addition to the valve) is permanently earthed according to local regulations.• It must be ensured that the ambient temperature, as well as the temperature of the additional air, is limited to $\leq 60^{\circ}\text{C}$.• It must be ensured that each actuator type EBx.1-SYS (with spring reset) is equipped with a solenoid valve with spring chamber ventilation – for actuators that are not already supplied with solenoid valve ex works EBRO, the purchaser is responsible for this.• The actuator housing consists of light metal: to avoid ignition sparks during installation in a potentially explosive atmosphere, any knocks and impact on the housing - particularly with oxidised tools made out of steel - must be avoided.• Whether the piping of the actuator could be an ignition risk for the compressed air supply with plastic hoses must be determined by the user.
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If required: connection of electric/pneumatic additional modules

If such modules are connected to the compressed air supply and/or the controller, the instructions supplied by the component manufacturer must be observed.

 operation	<p>Additional safety instructions when installing in a potentially explosive atmosphere:</p> <p>It must be ensured that each electric additional module has the required  protection and is labelled accordingly.</p>
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Test run for all actuators: test steps to complete assembly and connection

 operation	<p>Additional safety instructions when installing in a potentially explosive atmosphere:</p> <ul style="list-style-type: none">• It must be checked and ensured that the actuator is earthed in accordance with the instructions.• It must be checked and ensured that the actuator and each electric additional module fitted has the required  protection and is labelled accordingly.• It must be checked and ensured that each actuator of type EBx.1-SYS (with spring reset) is equipped with a solenoid valve with spring chamber ventilation.
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Additional information: dismantling the actuator

Explosion Protection Directive 94/9/EC (ATEX 95)





Pneumatic Rotary Actuators

Supplementary ATEX Operating Instructions BA 4.1 - Atex


 operation	<p>Additional safety instructions when installing in a potentially explosive atmosphere:</p> <p>The actuator housing consists of light metal: to avoid ignition sparks during deinstallation in a potentially explosive atmosphere, any knocks and impact on the housing - particularly with oxidised tools made out of steel - must be avoided.</p> <p>The use of suitable tools made from austenitic stainless steel is strongly recommended.</p>
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Safety notices for operation

	<ul style="list-style-type: none"> • The function of a pneumatic actuator assembled onto a valve must comply with the <Intended use>. • The conditions of use must comply with the conditions shown on the actuator type plate. • The actuator is solely to be operated within the atmospheric conditions (see Intended use). • Any work on the actuator may only be carried out by trained personnel. For the purposes of these instructions, qualified personnel are persons who, on the basis of their training, specialist knowledge and professional experience, can correctly assess and execute the work assigned to them and can identify and avoid potential risks.
 Risk of crushing!	<p>Operation of an actuator assembled onto a valve is only permissible if the valve is enclosed on both sides by a section of pipe or equipment – any prior actuation entails a risk of crushing and is the sole responsibility of the user.</p>

Automatic operation/manual operation

If the actuator is correctly assembled, it works automatically and is designed for continuous operation, in accordance with EN15714-3, Table 1.

	<ul style="list-style-type: none"> • When pneumatically powered, the actuator requires a continuous supply of compressed air to ensure stable operation. • If the compressed air supply is interrupted or switched off, <fail safe> actuators move the valve to the predetermined CLOSED or OPEN position.
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Operating instructions in an potentially explosive atmosphere

Explosion Protection Directive 94/9/EC (ATEX 95)



Pneumatic Rotary Actuators

Supplementary ATEX Operating Instructions BA 4.1 - ATEX

Before and during operation in potentially explosive atmospheres of zones 1 or 2 or 21 or 22 in accordance with ATEX 118a, the user must refer to the following information and have the following measures in place:

- ⇒ The additional safety instructions also apply to operation in potentially explosive atmospheres of the above mentioned zones. The actuator is not permitted for zones 0 and 20 and hybrid mixtures.
- ⇒ The warnings must have been observed during installation.
- ⇒ The compressed air should be lightly oiled, to prevent the functional parts in the actuator from running dry.
- ⇒ It must be ensured that there is no heat radiation from the environment - particularly from the valve on which the actuator is fitted - which would heat up the actuator above 60°C in continuous operation.
If required, corresponding measures for heat insulation must be taken on site, or shielding against overheating and direct sunlight.
- ⇒ Sufficient ventilation with cool air must be ensured.
- ⇒ When used in areas subject to explosion hazard, dust layers > 5 mm must be removed immediately.
- ⇒ Operating temperatures below -20°C are also not permitted to prevent brittleness (and thus functional failure of the plastic parts in the cylinder).
- ⇒ To prevent an ignitable brush discharge on the non-conducting paint coating, the layer thickness of the applied paint is ≤ 0.2 mm and thus no longer represents a risk in connection with static charging.
- ⇒ **The layer thickness must not exceed the permissible layer thickness of 0.2 mm if another coat is applied.**
- ⇒ Depending on the frequency of the operation, it must be checked at least every 2 - 4 weeks that
 - the actuator in a pipe section with a medium >60°C must not be heated to more than 60°C (= on the actuator housing) through heat transmission: If required, appropriate shielding must be provided.
 - all screw connections between valve and actuator are firmly tightened,
 - the actuator moves the valve smoothly to the two end positions at the control pressure specified,
 - no control medium escapes to the outside.

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Pneumatic Rotary Actuators

Supplementary ATEX Operating Instructions BA 4.1 - Atex

Maintenance in potentially explosive atmospheres

Pneumatic actuators type EBx.1-SYD require the following maintenance for operation in potentially explosive atmospheres. It must be ensured that

- ⇒ a check is performed at least twice a year to ensure that the actuator continues to be earthed
- ⇒ the position indicator and the drive are not covered by dust.


Pneumatic actuators type EBx1-SYS additionally require the following maintenance:

- ⇒ The sinter filter ensures the functionality of the actuator and could get blocked with dust or dirt:
It must be cleaned or replaced at suitable intervals according to local ambient conditions.
- ⇒ A functional test OPEN ↔ CLOSED must also ensure that the spring set moves the actuator to the safety end position.


Troubleshooting

The safety instructions of the standard operating instructions are to be observed for troubleshooting. Repair measures must only be performed by trained personnel.

Any tools used must comply with the relevant regulatory requirements and be in perfect condition.

	<p>Additional safety instructions when working in potentially explosive atmospheres:</p> <p>The actuator housing consists of light metal: to avoid ignition sparks during deinstallation in a potentially explosive atmosphere, any knocks and impact on the housing - particularly with oxidised tools made out of steel - must be avoided.</p> <p>The use of tools made from austenitic stainless steel is strongly recommended.</p> <p>If the O-rings (alternatively driving band) (see drawing in standard operating instructions) need to be replaced, they must be made from a special conductive material (<math>10^4</math> Ohm), to prevent the functional group piston/drive shaft from getting statically charged. Original spare parts must be used.</p>
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Solenoid valve

	<p>Additional safety instructions when installing in a potentially explosive atmosphere:</p> <p>The solenoid valve must be suited to the explosion zone.</p> <p>It must be checked and ensured that an actuator of type EBx-1SYS (with spring reset) is only used with a solenoid valve with spring chamber ventilation.</p>
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Pneumatic Rotary Actuators

Supplementary ATEX Operating Instructions BA 4.1 - Atex

Additional information

Instructions, type sheets, maintenance and assembly instructions as well as additional information can be found in the document and download area under www.ebro-armaturen.com/de/nc/main-site/downloads.html.

If you have further questions, there are national as well as international contacts which you can find under <http://www.ebro-armaturen.com/de/main-site/kontakte.html>.

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