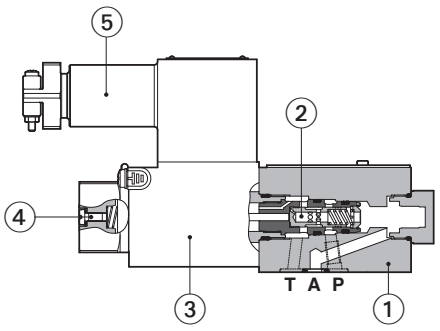
# Ex-proof proportional reducing valves type SRZGA

direct, without transducer - **MA,** and **CCC certification**




① Valve body
② Spool
③ Ex-proof proportional solenoid
④ Screw for air bleeding
⑤ Cable gland

**SRZGA/MA-A-010***

### SRZGA/MA-A

Ex-proof proportional reducing direct valves, equipped with explosion-proof solenoids certified according to **CCC** and **MA** Chinese mining certification, protection mode:

**Ex db I Mb** for surface, tunnel or mine plants.

They operate in association with electronic drivers, see section 3, which supply the proportional solenoids with proper current to align the pressure regulation to the reference signal.

**Technical characteristics**
They provide the pressure reduction on port A. The direct execution performs low internal leakages, fast response and low hysteresis.

Mounting surface: **ISO 4401 size 06**
Max flow: **12 l/min**
Max pressure: **315 bar**
Max regulated pressure: **210 bar**

## 1 MODEL CODE

| SRZGA | / | MA | - | A | - | 010 | / | 210 | / | * | * | / | * |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**SRZGA** = Ex-proof proportional pressure reducing valves, subplate mounting

**MA** = Ex-proof Ma chinese certification

**A** = for off-board driver, see section 3

**Configuration**:
**010** = reduced pressure on port A

**Max regulated pressure**:
**32** = 32 bar **100** = 100 bar **210** = 210 bar

**Voltage code (1):**
see section 6 :
**-** = standard coil for 24VDC Atos drivers
**24** = optional coil for 24VDC low current drivers **(2)**

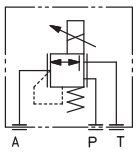
Series number

**Seals material,**
see section 7 :
**-** = NBR
**PE** = FKM

**(1)** Available on request coil voltage /6 for Atos driver with power supply 12 VDC
**(2)** Select coil voltage /24 in case of electronic drivers not supplied by Atos, with power supply 24 VDC

## 2 HYDRAULIC SYMBOL (representation according to ISO 1219-1)

**SRZGA*-A-010**



## 3 ELECTRONIC DRIVERS

Electronic drivers are factory set with max current limitation for ex-proof valves.
Please include in the driver order also the complete code of the connected ex-proof proportional valve.

| Drivers model | E-BM-AS-* /A | E-BM-AES-* /A |
|---|---|---|
| Type | digital | digital |
| Format | DIN-rail panel | |
| Data sheet | G030 | GS050 |

## 4 GENERAL CHARACTERISTICS

| | |
|---|---|
| Assembly position / location | Any position |
| Subplate surface finishing to ISO 4401 | Acceptable roughness index, Ra ≤0,8 recommended Ra 0,4 - flatness ratio 0,01/100 |
| MTTFd values according to EN ISO 13849 | 150 years, for further details see technical table P007 |
| Ambient temperature | **Standard** = -20°C ÷ +40°C **/PE** option = -20°C ÷ +40°C |
| Storage temperature range | **Standard** = -20°C ÷ +80°C **/PE** option = -20°C ÷ +80° |
| Compliance | Explosion proof protection, see section 8<br>-Flame proof enclosure Ex-db |

## 5 HYDRAULIC CHARACTERISTICS - based on mineral oil ISO VG 46 at 50 °C

| Valve model | | **SRZGA** | | |
|---|---|---|---|---|
| Size code | | **010** | | |
| Valve size | | 06 | | |
| Max regulated pressure | [bar] | **32** | **100** | **210** |
| Max pressure at port P, A, B, X | [bar] | 315 | | |
| Max pressure at port T, Y | [bar] | 210 | | |
| Min regulated pressure **(1)** | [bar] | 0,8 | | |
| Max flow | [l/min] | 12 | | |
| Response time 0-100% step signal (depending on installation) **(2)** | [ms] | ≤ 70 | | |
| Hysteresis | [% of the max pressure] | ≤ 1,5 | | |
| Linearity | [% of the max pressure] | ≤ 3 | | |
| Repeatability | [% of the max pressure] | ≤ 2 | | |

**Note:** above performance data refer to valves coupled with Atos electronic drivers, see section 3

**(1)** Minimum pressure value with port A blocked, to be increased of T line pressure

**(2)** Average response time value; the pressure variation in consequence of a modification of the reference input signal to the valve is affected by the stiffness of the hydraulic circuit: greater is the stiffness of the circuit, faster is the dynamic response

## 6 ELECTRICAL CHARACTERISTICS

| Coil voltage code | | **Standard**<br>standard coil to be used with Atos drivers with power supply 24V$_{DC}$ | option **/24**<br>optional coil to be used with electronic drivers not supplied by Atos, with power supply 24 V$_{DC}$ and max current limited to 1,2 A |
|---|---|---|---|
| Coil resistance R at 20°C | | 3,1 Ω | 13,1 Ω |
| Max. solenoid current | | 2,5 A | 1,2 A |
| Regulation current ±10% | 32 bar | 1,4 A | 0,7 A |
| | 100 bar | 1,9 A | 0,9 A |
| | 210 bar | 2,0 A | 1,0 A |
| Insulation class | | H (180°) Due to the occurring surface temperatures of the solenoid coils, the European standards ISO 13732-1 and EN982 must be taken into account | |
| Protection degree to DIN EN60529 | | IP 65 | |
| Duty factor | | Continuous rating (ED=100%) | |

## 7 SEALS AND HYDRAULIC FLUIDS - for other fluids not included in below table, consult our technical office

| | | | | |
|---|---|---|---|---|
| Seals, recommended fluid temperature | | NBR seals (standard) = -20°C ÷ +60°C, with HFC hydraulic fluids = -20°C ÷ +50°C<br>FKM seals (/PE option) = -20°C ÷ +80°C | | |
| Recommended viscosity | | 20 ÷ 100 mm²/s - max allowed range 15 ÷ 300 mm²/s | | |
| Max fluid contamination level | normal operation | ISO4406 class 18/16/13 NAS1638 class 7 | | see also filter section at www.atos.com or KTF catalog |
| | longer life | ISO4406 class 16/14/11 NAS1638 class 5 | | |
| **Hydraulic fluid** | | **Suitable seals type** | **Classification** | **Ref. Standard** |
| Mineral oils | | NBR, FKM | HL, HLP, HLPD, HVLP, HVLPD | DIN 51524 |
| Flame resistant without water | | FKM | HFDU, HFDR | ISO 12922 |
| Flame resistant with water **(1)** | | NBR | HFC | |

⚠ The ignition temperature of the hydraulic fluid must be 50°C higher than the max solenoid surface temperature

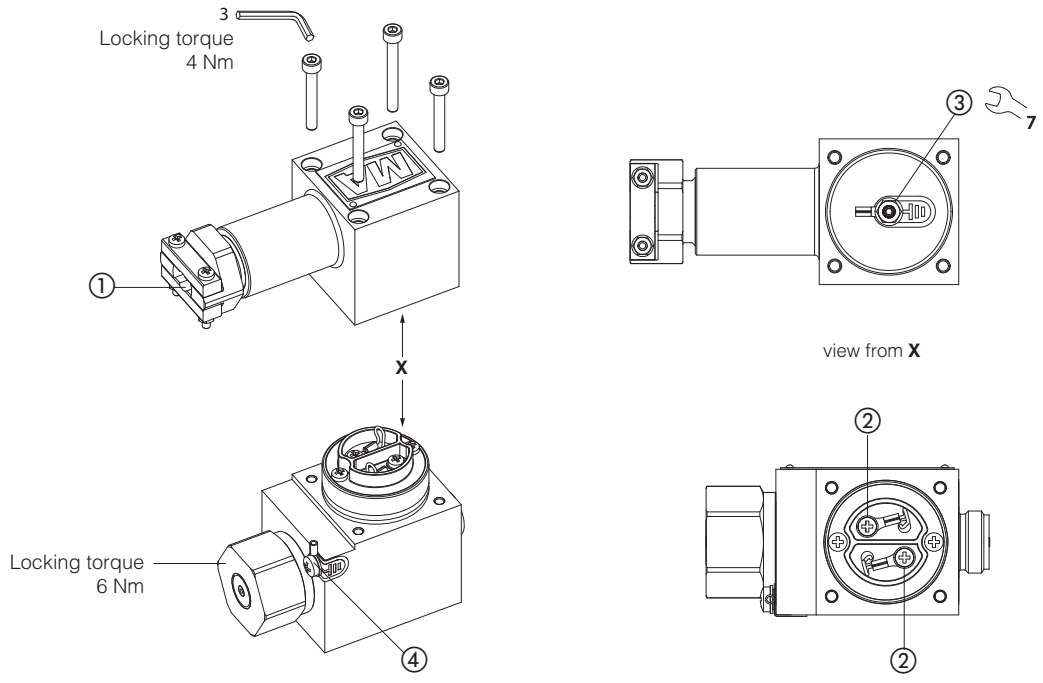
**(1) Performance limitations in case of flame resistant fluids with water:**
-max operating pressure = 210 bar -max fluid temperature = 50°C

## 8 CERTIFICATION DATA

| | | |
|---|---|---|
| Valve type | SRZGA**/MA** | |
| Voltage code | **-** (standard) | **24** |
| Max solenoid current | 2,5 A | 1,2 A |
| Certification | **MA** mining, **CCC** | |
| Solenoid certified code | **DTBBL10-37/12FYC** | **DTBBL10-37/24FYC** |
| Type examination certificate | MA: MEE231120 | MA: MEE231118 |
| | CNEx 22.5286X<br>CCC: 2024312307000486 | |
| Method of protection | Ex db I Mb | |
| Surface temperature | ≤150 °C | |
| Ambient temperature | -20 ÷ +40 °C | |
| Cable entrance | cable entrance Ø =10.5mm | |

⚠ **WARNING: service work performed on the valve by the end users or not qualified personnel invalidates the certification**

## 9 EX-PROOF SOLENOID WIRING




① cable entrance = ø 10,5 mm
② screw termianl for power supply coil connection
③ screw terminal for ground connection
④ screw terminal for additional equipotential grounding

## 10 DIAGRAMS (based on mineral oil ISO VG 46 at 50 °C)

**Regulation diagrams**
with flow rate Q = 1 l/min

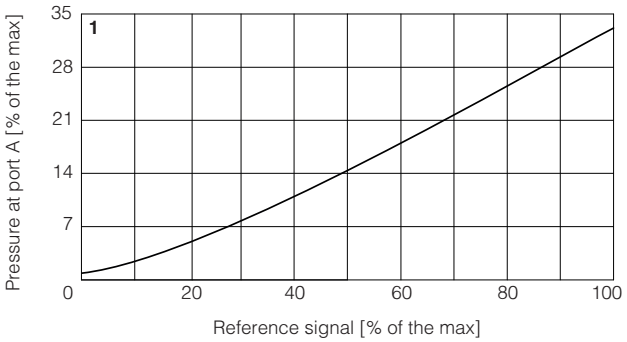
Test conditions:
volume at port A = 50 ml

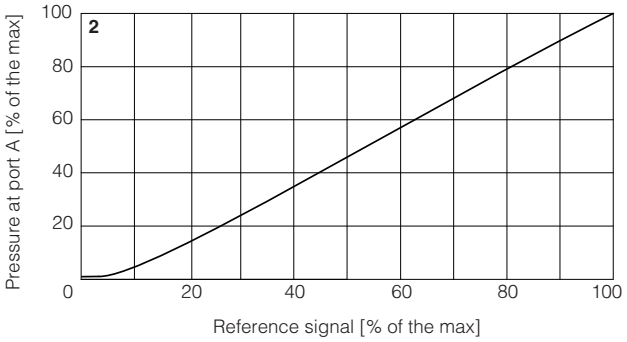
**Note:** the presence of counter pressure at port T can affect the effective pressure regulation

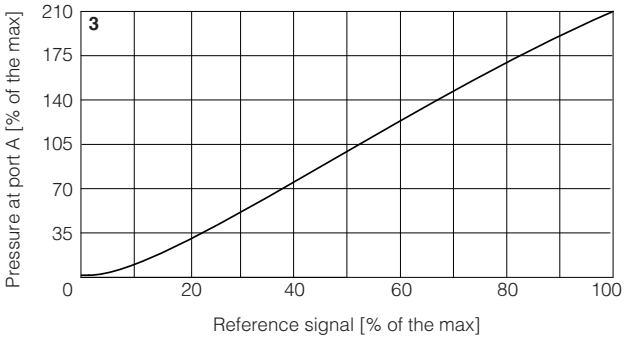
**1** = SRZGA/MA-A-010/**32**

**2** = SRZGA/MA-A-010/**100**

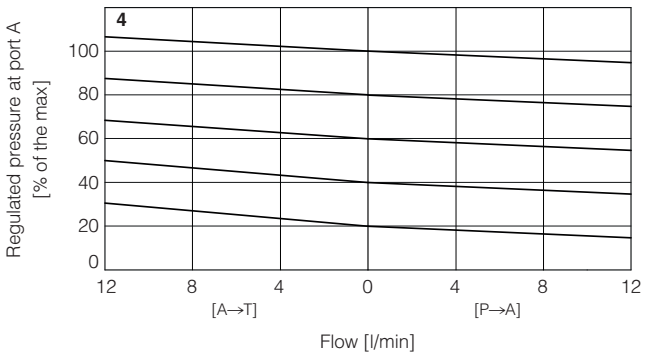
**3** = SRZGA/MA-A-010/**210**



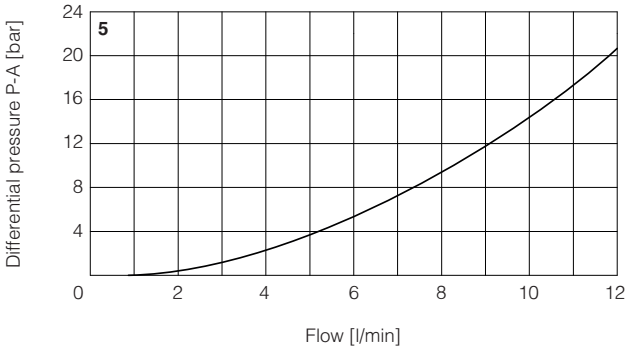



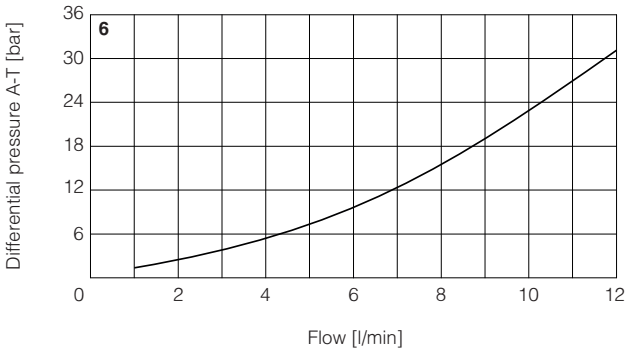

**4 = Pressure/flow diagrams**
with reference signal set at Q = 1 l/min



**5-6 = Min. pressure/flow diagrams**
with zero reference signal

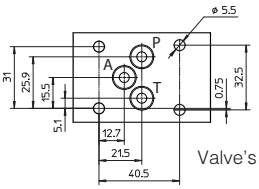
**5 =** Pressure drops vs. flow P-A
**6 =** Pressure drops vs. flow A-T



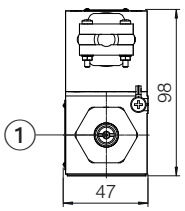

## 11 INSTALLATION DIMENSIONS [mm]

**ISO 4401: 2005**
**Mounting surface: 4401-03-02-0-05**
**(without port B)**
Fastening bolts: 4 socket head screws M5x50 class 12.9
Tightening torque = 8 Nm
Seals: 3 OR 108;
Diameter of ports A, B, P, T: Ø 5 mm (max)



Valve's bottom view

**SRZGA/MA-A-010**


Mass: 3.2 kg

(1) screw for air bleeding