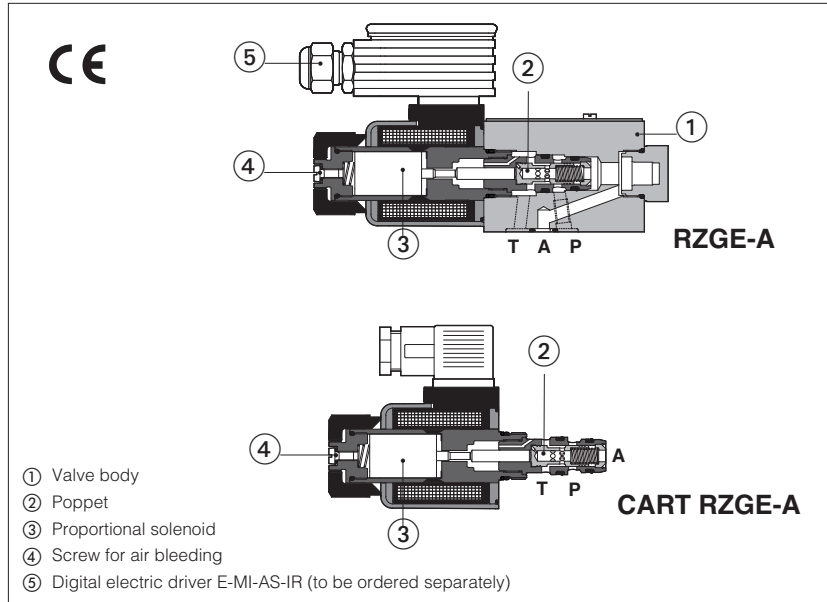


# Proportional reducing valves

direct operated, ISO 4401 size 06 subplate mounting or M20 screw-in cartridge execution



## RZGE-A, CART RZGE-A

Open loop, poppet type direct operated proportional pressure reducing valves with proportional solenoids certified according to North American standard **CURus**.

They operate in association with electronic drivers, see section ②, which supply the proportional valves with proper current to align the valve regulation to the reference signal.

They are available in following executions:

**RZGE:** subplate mounting, ISO size 06

**CART RZGE:** M20 cartridge execution

The solenoid coils are plastic encapsulated with insulation class H and they are available with different nominal resistances depending to the voltage supply (12 VDC or 24 VDC) and to the electronic driver type, see section ② and ③.

Mounting surface RZGE: **ISO 4401 size 06**

Cavity CART RZGE: see section ②

Max flow = **12 l/min**

Max pressure = **210 bar**

## 1 MODEL CODE

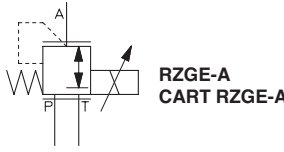
<b>RZGE</b>	-	<b>A</b>	-	<b>010</b>	/	<b>210</b>	-	<b>*</b>	/	<b>*</b>	<b>**</b>	/	<b>*</b>
<p>Proportional pressure relief valve  <b>RZGE</b> = subplate mounting  <b>CART RZGE</b> = cartridge execution</p> <p><b>A</b> = without integral transducer</p> <p><b>Configuration:</b>  <b>010</b> = regulation on port P, discharge in T</p> <p><b>Max regulated pressure:</b>  <b>32</b> = 32 bar  <b>100</b> = 100 bar  <b>210</b> = 210 bar</p>													
<p>Seals material, see section ④:                  - = NBR  <b>PE</b> = FKM  <b>BT</b> = HNBR</p> <p>Series number</p> <p><b>Coil voltage</b> see section ② and ③:                  - = standard coil for 24V<sub>DC</sub> Atos drivers  <b>6</b> = optional coil for 12V<sub>DC</sub> Atos drivers  <b>18</b> = optional coil for low current drivers</p> <p><b>Coils with special connectors</b>, see section ②                  - = omit for standard DIN connector  <b>J</b> = AMP Junior Timer connector  <b>K</b> = Deutsch connector  <b>S</b> = Lead Wire connection</p>													

## 2 ELECTRONIC DRIVERS

Drivers model	E-MI-AC (1)		E-MI-AS-IR (1)		E-BM-AC		E-BM-AS-PS		E-BM-AES	E-ME-AC
Type	analog		digital		analog		digital		digital	analog
Voltage supply (V <sub>DC</sub> )	12	24	12	24	12	24	12	24	24	24
Valve coil option	/6	std	/6	std	/6	std	/6	std	std	std
Format	DIN 43650 plug-in to solenoid				DIN 43700 UNDECAL		DIN-rail panel			EUROCARD
Data sheet	G010		G020		G025		G030		GS050	G035

(1) for **CART RZGE** the electronic driver may interfere with the manifold surface. Please check the installation dimensions at section ②

### 3 HYDRAULIC CHARACTERISTICS (based on mineral oil ISO VG 46 at 50 °C)

Hydraulic symbols			
Assembly position / location	Any position		
Subplate surface finishing (RZME)	Roughness index Ra 0,4 - flatness ratio 0,01/100 (ISO 1101)		
Ambient temperature	<b>Standard</b> = -20°C ÷ +70°C; <b>/PE</b> option = -20°C ÷ +70°C; <b>/BT</b> option = -40°C ÷ +70°C		
Coil code	<b>Standard</b>	option <b>/6</b> optional coil to be used with Atos drivers with power supply 12 Vdc	option <b>/18</b> optional coil to be used with electronic drivers not supplied by Atos, with power supply 24 Vdc and max current limited to 1A
Coil resistance R at 20°C	3 ÷ 3,3 Ω	2 ÷ 2,2 Ω	13 ÷ 13,4 Ω
Max. solenoid current	2,2 A	2,75 A	1 A
Max. power	30 Watt		
Protection degree (CEI EN-60529)	IP65		
Duty factor	Continuous rating (ED=100%)		
Certification	<b>cURus</b> North American Standard		

Valve size	<b>10</b>	<b>20</b>	<b>32</b>
Max regulated pressure	<b>32</b>	<b>100</b>	<b>210</b>
Min. regulated pressure [bar]	0,8 (or actual value at T port)		
Max. pressure at port P [bar]	315		
Max. pressure at port T [bar]	210		
Max. flow [l/min]	12		
Response time 0-100% step signal <b>(1)</b> [ms] (depending on installation)	≤70		
Hysteresis [% of the max pressure]	≤ 1,5		
Linearity [% of the max pressure]	≤ 3		
Repeatability [% of the max pressure]	≤ 2		

**Notes:** above performance data refer to valves coupled with Atos electronic drivers, see section 2.

**(1)** Average response time values; 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.

### 4 SEALS AND HYDRAULIC FLUID

Seals, recommended fluid temperature	NBR seals (standard) = -20°C ÷ +60°C, with HFC hydraulic fluids = -20°C ÷ +50°C FKM seals (/PE option) = -20°C ÷ +80°C HNBR seals (/BT option) = -40°C ÷ +60°C, with HFC hydraulic fluids = -40°C ÷ +50°C		
Recommended viscosity	15 ÷ 100 mm <sup>2</sup> /s - max allowed range 2.8 ÷ 500 mm <sup>2</sup> /s		
Fluid contamination class	ISO 4406 class 21/19/16 NAS 1638 class 10, in line filters of 25 μm (β10 ≥75 recommended)		
<b>Hydraulic fluid</b>	<b>Suitable seals type</b>	<b>Classification</b>	<b>Ref. Standard</b>
Mineral oils	NBR, FKM, HNBR	HL, HLP, HLPD, HVL, HVLDP	DIN 51524
Flame resistant without water	FKM	HF, HFDR	ISO 12922
Flame resistant with water	NBR, HNBR	HFC	

**Note:** For other fluids not included in above table, consult our technical office

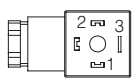
### 5 GENERAL NOTES

RZGE-A and CART RZGE-A proportional valves are CE marked according to the applicable Directives (e.g. Immunity/Emission EMC Directive and Low Voltage Directive).

Installation, wirings and start-up procedures must be performed according to the general prescriptions shown in table F003 and in the installation notes supplied with relevant components.

### 6 SOLENOID CONNECTIONS

SOLENOID POWER SUPPLY CONNECTOR	
PIN	Signal description
1	SUPPLY
2	SUPPLY
3	GND



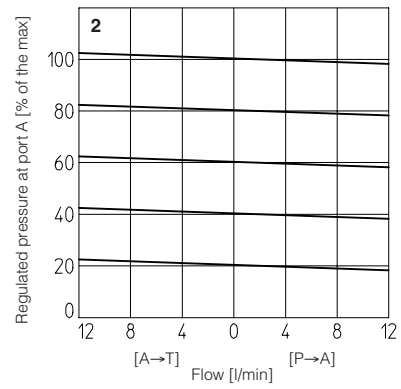
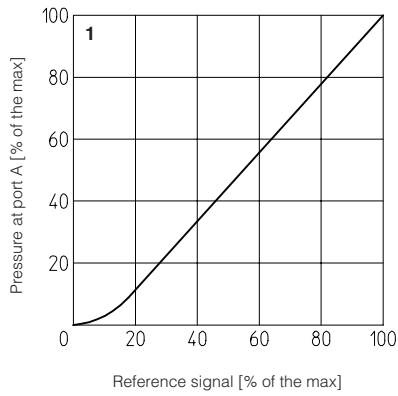
**7 DIAGRAMS** (based on mineral oil ISO VG 46 at 50 °C)

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

**Notes:**

The presence of counter pressure at port T can affect the effective pressure regulation.

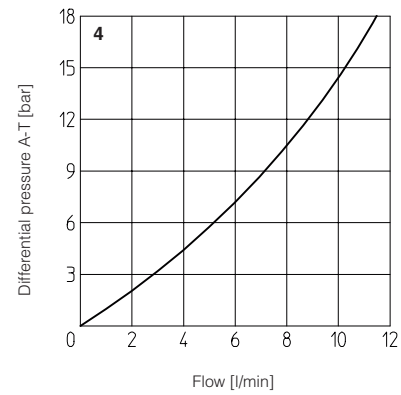
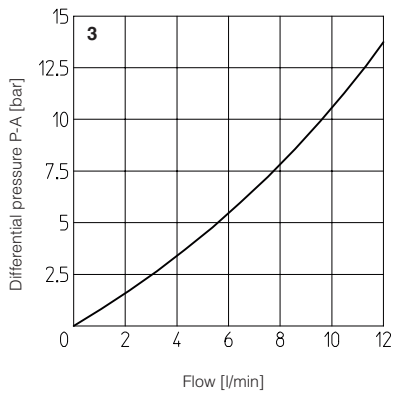
**2 Pressure/flow diagrams**  
with reference pressure set with  $Q = 1$  l/min



**3-4 Pressure drop/flow diagram**  
with zero reference signal

**3** = Pressure drops vs. flow P-A

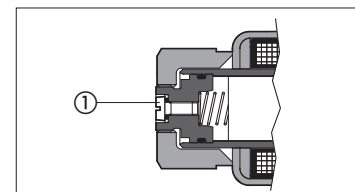
**4** = Pressure drops vs. flow A-T



**8 AIR BLEEDING**

At the first valve commissioning the air eventually trapped inside the solenoid must be bled-off through the screw ① located at the rear side of the solenoid housing.

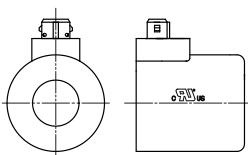
The presence of air may cause pressure instability and vibrations.



**9 COILS TYPE WITH SPECIAL CONNECTORS**

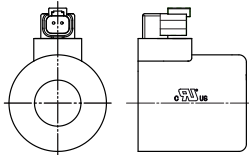
**Options -J**

Coil type COZEJ  
AMP Junior Timer connector  
Protection degree IP67



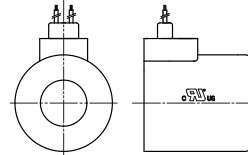
**Options -K**

Coil type COZEK  
Deutsch connector, DT-04-2P male  
Protection degree IP67



**Options -S**

Coil type COZES  
Lead Wire connection  
Cable length = 180 mm



**10 INSTALLATION DIMENSIONS [mm]**

**ISO 4401: 2005**

**Mounting surface: 4401-03-02-0-05** (see table P005)

**(without port B)**

Fastening bolts:

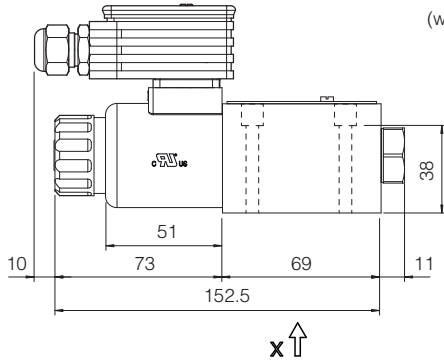
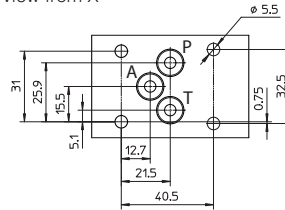
4 socket head screws M5X50 class 12.9

Tightening torque = 8 Nm

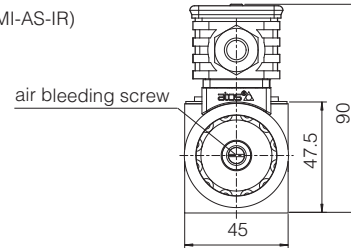
Seals: 3 OR 108

Ports P, T, A:  $\varnothing = 5$  mm

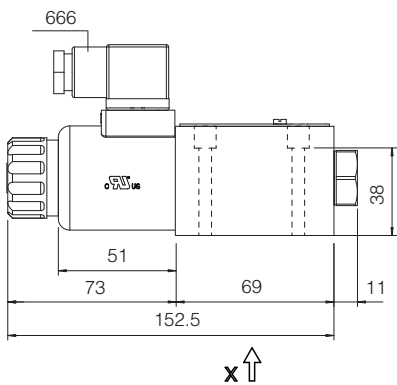
view from X



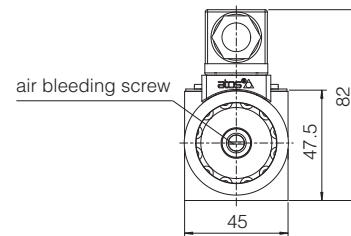
**RZGE-A**  
(with digital driver E-MI-AS-IR)



Mass: 1,6 Kg

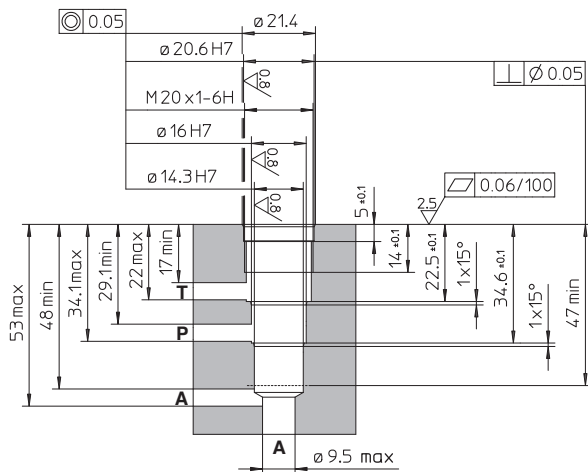


**RZGE-A**



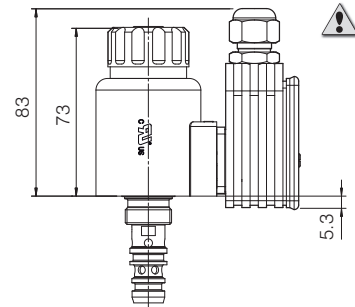
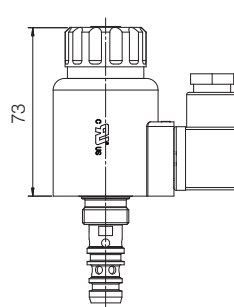
Mass: 1,5 Kg

Cavity dimensions  
for **CART RZGE-A**

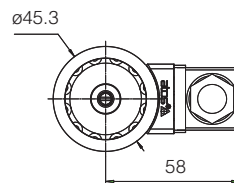


**CART RZGE-A**

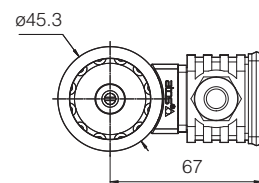
**CART RZGE-A**  
(with digital driver E-MI-AS-IR)



⚠ to be checked for eventual interference with the manifold surface



Mass: 0,6 Kg



Mass: 0,7 Kg