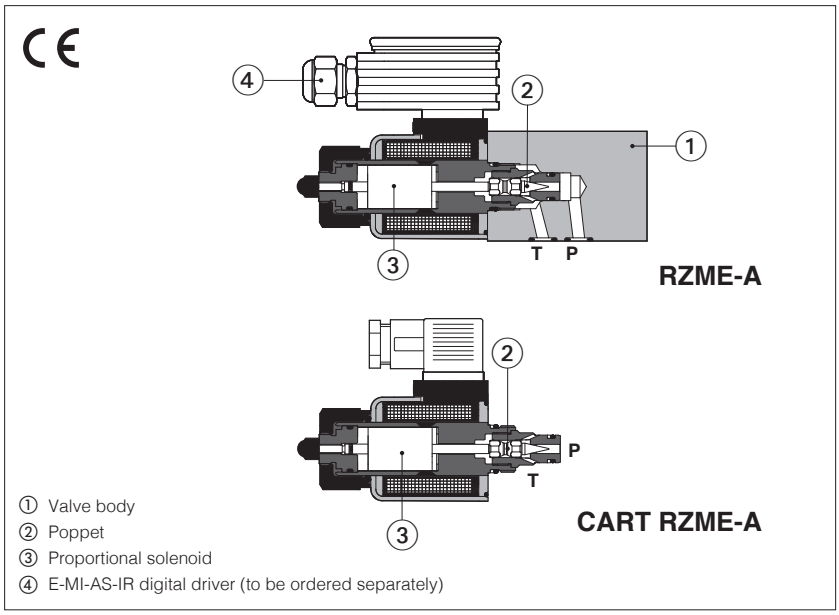
Proportional relief valves

direct, without transducer



① Valve body
② Poppet
③ Proportional solenoid
④ E-MI-AS-IR digital driver (to be ordered separately)

RZME-A, CART RZME-A

Poppet type, direct, proportional pressure relief valves for open loop pressure controls.

They operate in association with off-board driver, which supply the proportional valves with proper current to align the valve regulation to the reference signal supplied to the driver.

They are available in following executions:

RZME: subplate mounting, ISO size 06
CART RZME: M20 cartridge execution

The solenoids are certified according to North American standard **cURus**.

Size: **06** - ISO 4401 (RZME); **M20** (CART RZME)
Max flow: **4 l/min**
Max pressure: **420 bar**

For cavity CART RZME see section 15

1 MODEL CODE

RZME	-	A	-	010	/	315	-	*	/	*	*	/	*

RZME: Proportional pressure relief valve, direct
RZME = subplate mounting
CART RZME = cartridge execution

A = for off-board driver, see section 3

Configuration:
010 = regulation on port P, discharge in T

Max regulated pressure:
50 = 50 bar
100 = 100 bar
210 = 210 bar
315 = 315 bar
420 = 420 bar

Coil with special connectors, see section 11 :
- = omit for standard DIN connector
J = AMP Junior Timer connector
K = Deutsch connector
S = Lead Wire connection

Coil voltage, see section 10 :
- = standard coil for 24 VDC Atos drivers
6 = optional coil for 12 VDC Atos drivers
18 = optional coil for low current drivers **(1)**

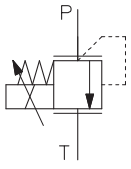
Series number

Seals material, see section 8 :
- = NBR
PE = FKM
BT = HNBR

(1) Select valve's coil voltage **/18** in case of electronic drivers not supplied by Atos, with power supply 24 VDC and with max current limited to 1,2A

2 HYDRAULIC SYMBOL

RZME-A
CART RZME-A



3 OFF-BOARD ELECTRONIC DRIVERS

Drivers model	E-MI-AC-01F **(1)**		E-MI-AS-IR **(1)**		E-BM-AS-PS		E-BM-AES
Type	Analog		Digital				
Voltage supply (VDC)	12	24	12	24	12	24	24
Valve coil option	/6	std	/6	std	/6	std	std
Format	plug-in to solenoid				DIN-rail panel		
Tech table	G010		G020		G030		GS050

(1) For **CART RZME** the electronic driver may interfere with the manifold surface.
Please check the installation dimensions at section 15

4 GENERAL NOTES

Atos digital proportionals valves are CE marked according to the applicable directives (e.g. Immunity and Emission EMC Directive).
Installation, wirings and start-up procedures must be performed according to the general prescriptions shown in tech table **FS900** and in the installation notes supply with relevant components.

5 GENERAL CHARACTERISTICS

Assembly position	Any position
Subplate surface finishing to ISO 4401	Acceptable roughness index: Ra ≤ 0,8, recommended Ra 0,4 – Flatness ratio 0,01/100
MTTFd valves according to EN ISO 13849	150 years, see technical table P007
Ambient temperature range	**Standard** = -20°C ÷ +70°C **/PE** option = -20°C ÷ +70°C **/BT** option = -40°C ÷ +60°C
Storage temperature range	**Standard** = -20°C ÷ +80°C **/PE** option = -20°C ÷ +80°C **/BT** option = -40°C ÷ +70°C
Surface protection	Body: zinc coating with black passivation Coil: zinc coating
Corrosion resistance	Salt spray test (EN ISO 9227) > 200 h
Conformity	CE according to EMC directive 2014/30/EU (Immunity: EN 61000-6-2; Emission: EN 61000-6-3) RoHS Directive 2011/65/EU as last update by 2015/863/EU REACH Regulation (EC) n°1907/2006

6 HYDRAULIC CHARACTERISTICS

Valve model	**RZME-A-010**
Max regulated pressure	50; 100; 210; 315; 420;
Min. regulated pressure [bar]	see min. pressure / flow diagrams at section 9
Max. pressure at port P [bar]	420
Max. pressure at port T [bar]	210
Max. flow [l/min]	4
Recommended flow [l/min]	0,5 ÷ 2
Response time 0-100% step signal **(1)** [ms] (depending on installation)	≤ 80
Hysteresis [% of the max pressure]	≤ 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) 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

7 ELECTRICAL CHARACTERISTICS

Coil voltage code	**Standard** standard coil to be used with Atos drivers with power supply 24VDC	option **/6** optional coil to be used with Atos drivers with power supply 12 VDC	option **/18** optional coil to be used with electronic drivers not supplied by Atos, with power supply 24 VDC and max current limited to 1,2A
Max. regulation current	2,3 A	2,8 A	1,1 A
Max. solenoid current	2,5 A	3 A	1,2 A
Coil resistance R at 20°C	3,1 Ω	2,1 Ω	13,1 Ω
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** (with connectors 666 correctly assembled)		
Duty factor	Continuous rating (ED=100%)		
Certification	**cURus** North American Standards		

8 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 ÷ +80°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		20 ÷ 100 mm²/s - max allowed range 15 ÷ 380 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, HNBR	HL, HLP, HLPD, HVLP, HVLPD	DIN 51524
Flame resistant without water		FKM	HFDU, HFDR	ISO 12922
Flame resistant with water		NBR, HNBR	HFC	

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

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

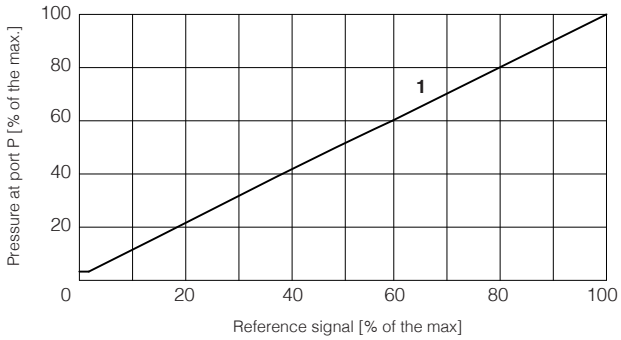
The valve is mechanically preset so that the maximum regulated pressure is obtained at max regulated current in correspondance of rated flow Q = 1 l/min

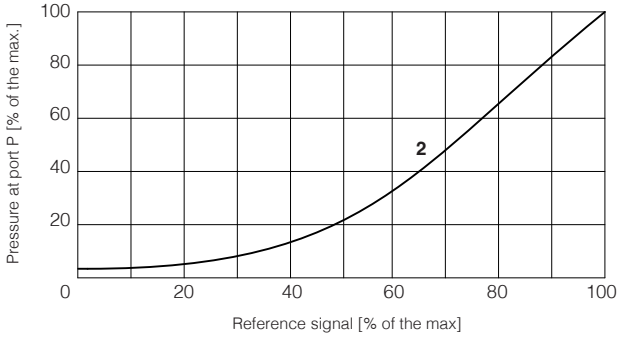
Example for RZME-A-010/210
Pmax 210 bar is obtained with 2.3A at Q = 1 l/min

1 = regulation characteristic linearized with Atos digital divers E-MI-AS-IR, E-BM-AS, E-BM-AES using Atos E-SW-BASIC software

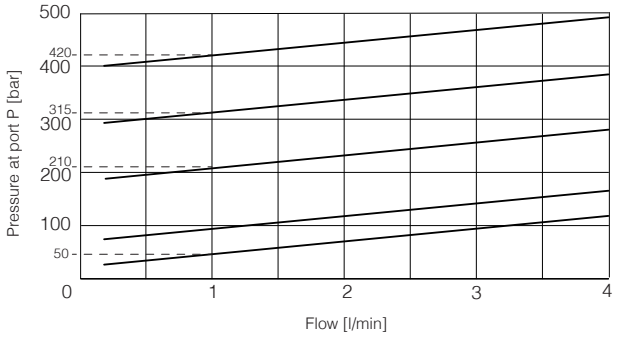
2 = regulation characteristic without linearization

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



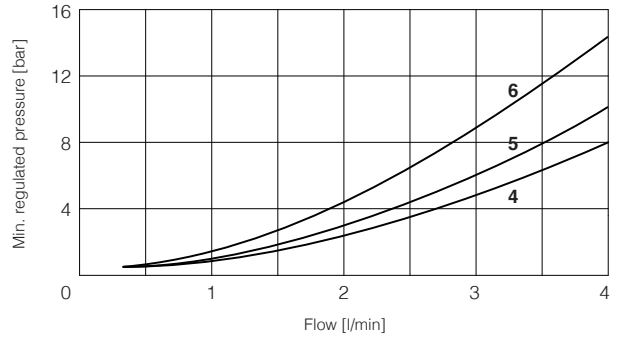


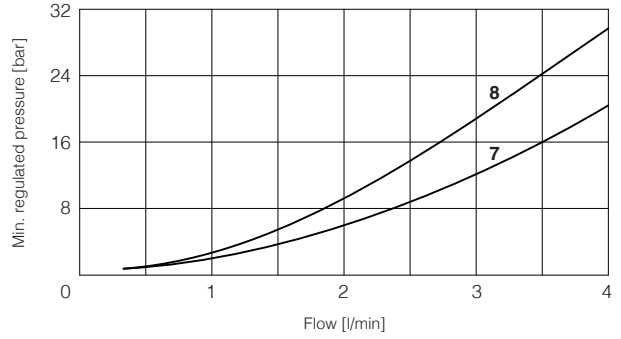
3 = Pressure/flow diagrams
with reference signal set at Q = 1 l/min



4-7 = Min. pressure/flow diagrams
with zero reference signal

4 = pressure range: 50
5 = pressure range: 100
6 = pressure range: 210
7 = pressure range: 315
8 = pressure range: 420





10 COIL VOLTAGE OPTIONS

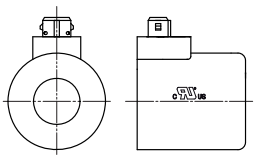
6 = Optional coil to be used with Atos drivers with power supply 12 VDC.

18 = Optional coil to be used with electronic drivers not supplied by Atos, with power supply 24 VDC and with max current limited to 1,2A.

11 COILS WITH SPECIAL CONNECTORS

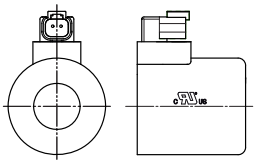
J option

Coil type COZEJ
AMP Junior Timer connector
Protection degree IP67



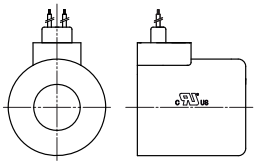
K option

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

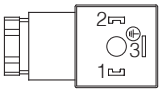


S option

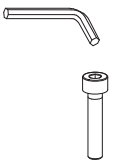
Coil type COZES
Lead Wire connection
Cable length = 180 mm



12 SOLENOID CONNECTION

PIN	SIGNAL	TECHNICAL SPECIFICATION	Connector code 666
1	**COIL**	Power supply	
2	**COIL**	Power supply	
3	**GND**	Ground	

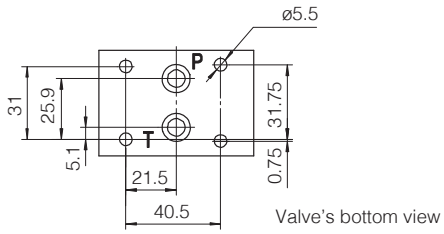
13 FASTENING BOLTS AND SEALS FOR RZME

	**Fastening bolts:** 4 socket head screws M5x50 class 12.9 Tightening torque = 8 Nm
	Seals: 2 OR 108 Diameter of ports P, T: Ø 5 mm

14 INSTALLATION DIMENSIONS FOR RZME [mm]

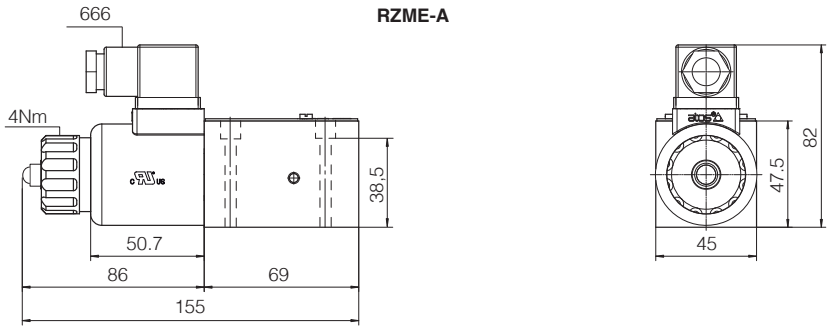
ISO 4401: 2005
Mounting surface: 4401-03-02-0-05 (see table P005)
(without ports A and B)

Mass [kg]	
RZME	1,5
RZME with E-MI-AS-IR	2,0

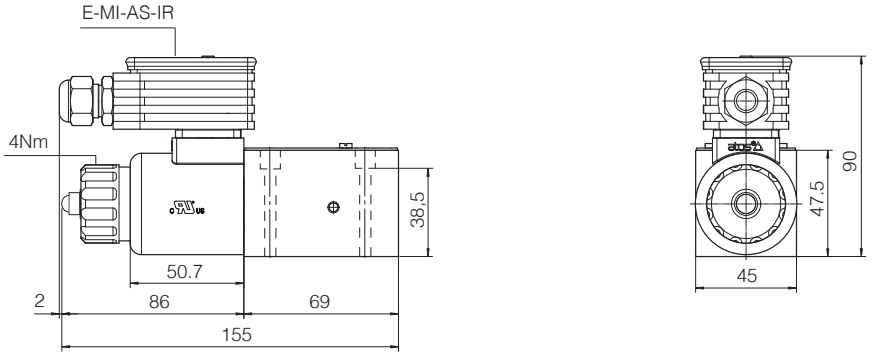


Valve's bottom view

RZME-A

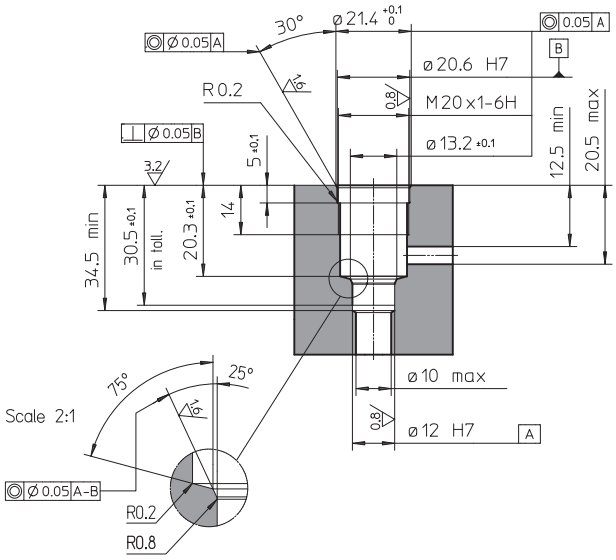


RZME-A
(with digital driver E-MI-AS-IR)

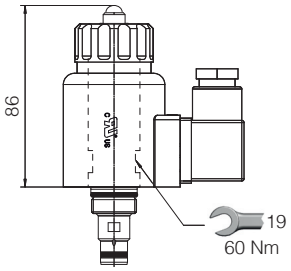


15 INSTALLATION DIMENSIONS FOR CART RZME [mm]

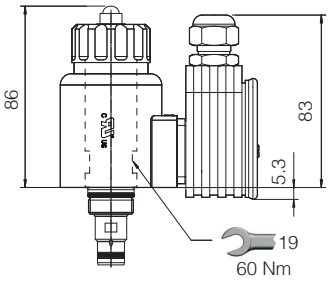
Cavity dimensions for **CART RZME-A**



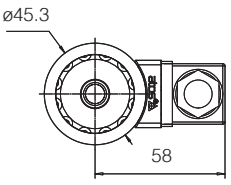
CART RZME-A

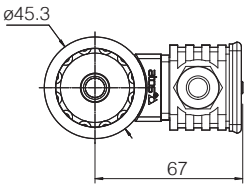


CART RZME-A
(with E-MI-AS-IR digital driver)



To be checked for eventual interference with the manifold surface





Mass [kg]	
CART RZME	0,6
CART RZME with E-MI-AS-IR	1,1