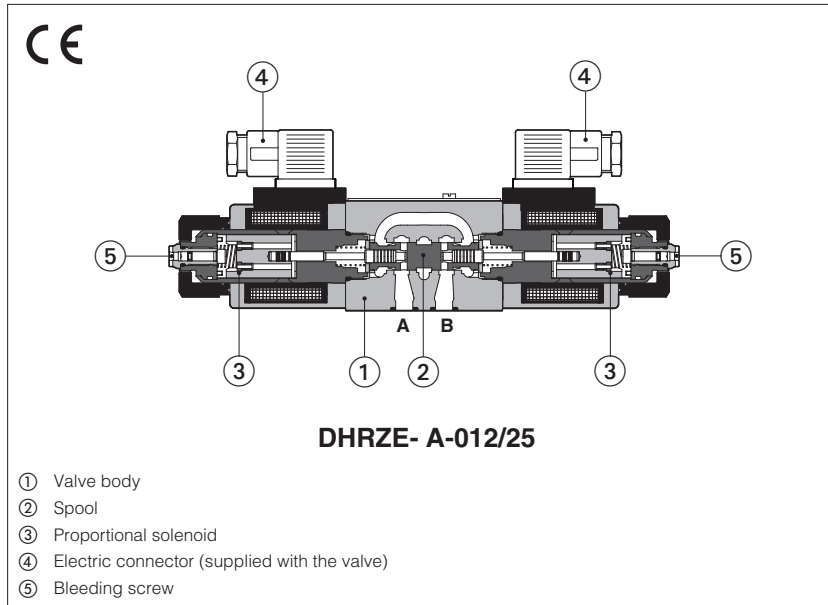


# Proportional reducing valves

3-way, direct, without transducer



## DHRZE-A

3 way, direct, pressure reducing 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 provide the pressure reduction on ports A, or B or A and B, depending on the valve model.

The direct execution performs low internal leakages, fast response and low hysteresis.

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

Typical applications:

- Pressure reduction in low flow systems
- Pilot stage of pilot operated valves

Size: **06** - ISO 4401

Max flow: **24 l/min**

Max pressure: **315 bar**

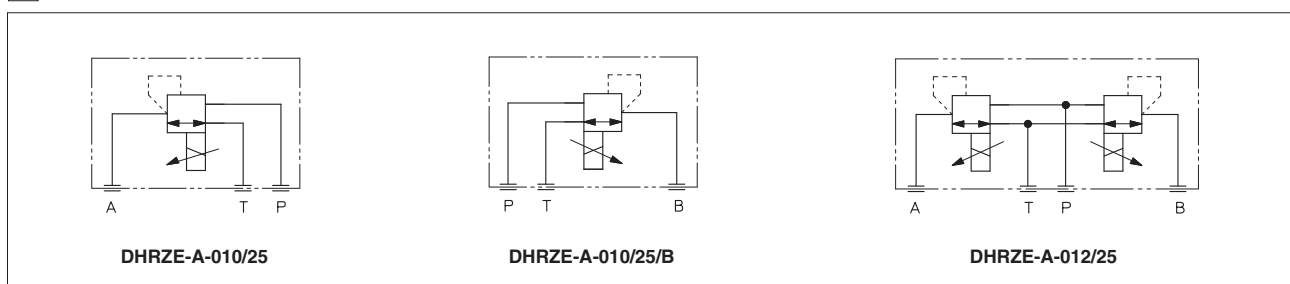
Max regulated pressure: **25 bar**

### 1 MODEL CODE

<b>DHRZE</b>	-	<b>A</b>	-	<b>010</b>	/	<b>25</b>	/	*	-	*	/	*	/	*			
Proportional pressure reducing valve, direct		A = off-board driver, see section 3		Configuration: 010 = reduced pressure on port A (port B for option /B) 012 = reduced pressure on port A and B		Regulated pressure: 25 = reduced pressure range 3÷25 bar		Hydraulic option: B = reduced pressure on port B, solenoid side of port A (only for valve configuration 010)		Seals material, see section 8: - = NBR PE = FKM BT = HNBR		Series number		Coil voltage, see section 10: - = standard coil for 24Vdc Atos drivers 6 = optional coil for 12Vdc Atos drivers 18 = optional coil for 24Vdc low current drivers (1)			
Coil with special connectors, see section 12:										- = omit for standard DIN connector		J = AMP Junior Timer connector		K = Deutsch connector		S = Lead Wire connection	

(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 1A

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



### 3 OFF-BOARD ELECTRONIC DRIVERS

Please include in the driver order also the complete code of the connected proportional valve.

Drivers model	E-MI-AC-01F		E-MI-AS-IR		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

### 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	<b>Standard</b> = -20°C ÷ +70°C <b>/PE</b> option = -20°C ÷ +70°C <b>/BT</b> option = -40°C ÷ +60°C
Storage temperature range	<b>Standard</b> = -20°C ÷ +80°C <b>/PE</b> option = -20°C ÷ +80°C <b>/BT</b> option = -40°C ÷ +70°C
Surface protection	Zinc coating with black passivation
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	<b>DHRZE</b>	
Max regulated pressure (Q=1 l/min) [bar]	25	
Min. regulated pressure (Q=1 l/min) <b>(1)</b> [bar]	3	
Max. pressure at port P [bar]	315	
Max. pressure at port T [bar]	210	
Max. flow [l/min]	24	
Response time 0-100% step signal <b>(2)</b> (depending on installation) [ms]	≤ 45	
Hysteresis [% of the max pressure]	≤ 1,5	
Linearity [% of the max pressure]	≤ 3,0	
Repeatability [% of the max pressure]	≤ 2,0	

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

**(1)** Min pressure value 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

### 7 ELECTRICAL CHARACTERISTICS

Power supplies	Nominal : +24 VDC Rectified and filtered : VRMS = 20 ÷ 32 VMAX (ripple max 10 % VPP)		
Coil voltage code	standard	option /6	option /18
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	IP65 with mating connectors		
Duty factor	Continuous rating (ED=100%)		
Certification	<b>cURus</b> North American Standard		

**8 SEALS AND HYDRAULIC FLUID** - for other fluids not included in below table, consult our technical office

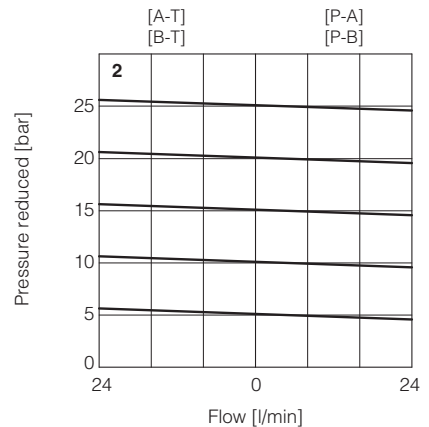
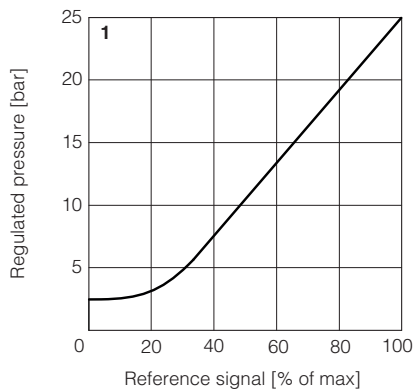
Seals, recommended fluid temperature	NBR seals (standard) = -20°C ÷ +80°C, with HFC hydraulic fluids = -20°C ÷ +50°C FKM seals (/PE option) = -20°C ÷ +80°C HNBR seals (/BT option) = -40°C ÷ +60°C, with HFC hydraulic fluids = -40°C ÷ +50°C		
Recommended viscosity	20 ÷ 100 mm <sup>2</sup> /s - max allowed range 15 ÷ 380 mm <sup>2</sup> /s		
Fluid contamination class	ISO 4406 class 20/18/15 NAS 1638 class 9, in line filters of 10 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	HFDR, HFDR	ISO 12922
Flame resistant with water	NBR, HNBR	HFC	

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

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

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

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



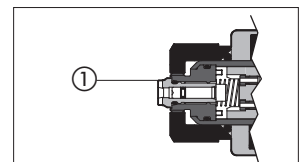
**10 COIL VOLTAGE OPTIONS**

**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 1A.

**11 AIR BLEEDING**

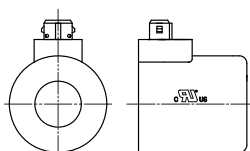
At the first valve commissioning the air eventually trapped inside the solenoid must be bled-off through the screw ① located at the rear side of the solenoid housing. The presence of air may cause pressure instability and vibrations.



**12 COILS WITH SPECIAL CONNECTORS**

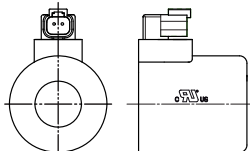
**J option**

Coil type COZEJ  
AMP Junior Timer connector  
Protection degree IP67



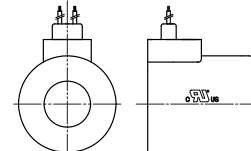
**K option**

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

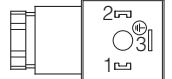


**S option**

Coil type COZES  
Lead Wire connection  
Cable length = 180 mm



**13 SOLENOID CONNECTION**

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

**14 FASTENING BOLTS AND SEALS FOR DHRZE**

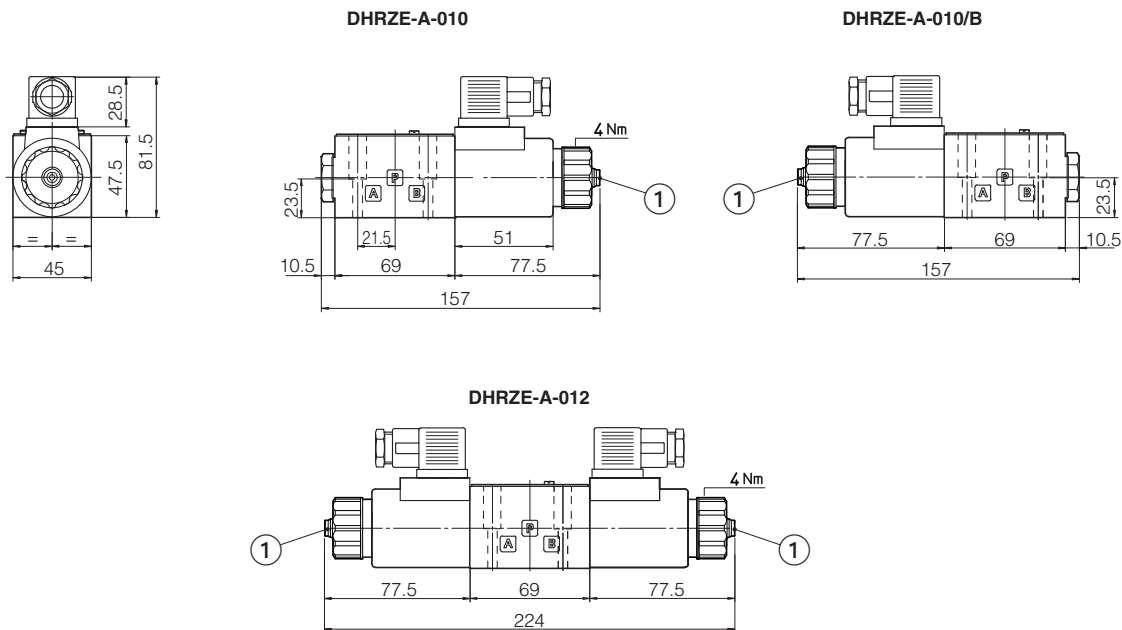
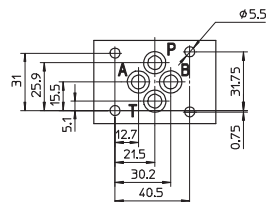
	<p><b>Fastening bolts:</b> 4 socket head screws M5x30 class 12.9 Tightening torque = 8 Nm</p>
	<p><b>Seals:</b> 4 OR 108 Diameter of ports P, T, A: <math>\varnothing</math> 7,5 mm</p>


**15 INSTALLATION DIMENSIONS FOR DHRZE [mm]**

ISO 4401: 2005

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

Mass [kg]	
DHRZE-A-010	1,9
DHRZE-A-012	2,6



① = Air bleeding, see section 11 

**16 RELATED DOCUMENTATION**

<b>FS001</b>	Basics for digital electrohydraulics	<b>GS050</b>	E-BM-AES digital driver
<b>FS900</b>	Operating and maintenance information for proportional valves	<b>GS500</b>	Programming tools
<b>G010</b>	E-MI-AC analog driver	<b>K800</b>	Electric and electronic connectors
<b>G020</b>	E-MI-AS-IR digital driver	<b>P005</b>	Mounting surfaces for electrohydraulic valves
<b>G030</b>	E-BM-AS digital driver		