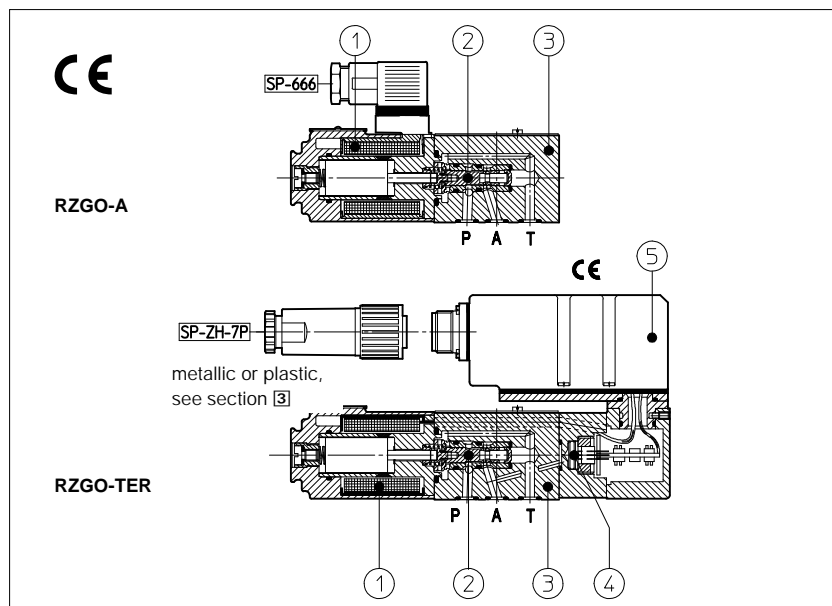


Proportional pressure reducing valve type RZGO

direct operated, ISO/Cetop size 03



RZGO are 3-way proportional pressure reducing valves, direct operated with regulation proportional to electronic reference signals.

They operate in association with electronic drivers, see table [5] which supply the proportional valve with correct current signal to align valve regulation to the reference signal supplied to the electronic driver (which may be integral or Eurocard type).

The regulated pressure will be maintained also when pressure at use ports tend to overcome the regulated value: higher pressure exerts its action on the valve poppet permitting a flow from use ports towards port T.

They are available in different options:

- ZO-A suitable for open or closed loop with external pressure transducer;
- ZO-TER with integral pressure transducer plus electronics preset in control loop featuring improved static and dynamic performances.

In this kind of valve a proportional solenoid ZO type ① direct operates a poppet ② inside the valve body ③.

The ZO-TER versions are equipped with integral pressure transducer ④ and electronics ⑤, which realizes the pressure closed loop control inside the valve. This allows higher dynamic performances, eliminates hysteresis and the linearity errors of the valve.

In the -TER versions the integral construction and factory presetting ensure fine functionality plus valve-to-valve interchangeability and simplified wiring and installation.

The coils are fully plastic encapsulated (insulation class H) and valves have anti-vibration, antishock and weather-proof features.

Surface mounting: ISO/Cetop 03. Max flow: 12 l/min. Max pressure: 210 bar.

1 MODEL CODE

RZGO

- A - 010 / 32 / * ** / *

Proportional pressure reducing valve ISO/Cetop 03.

A = for open or closed loop application
TER = with integral electronics and pressure transducer
 See note 2 at section [4]

Configuration

0 = Cetop 03
10 = P, A and T ports

Pressure range

32 = 0 ÷ 32 bar
100 = 0 ÷ 100 bar
210 = 0 ÷ 210 bar

Synthetic fluids
WG = water-glycol
PE = phosphate ester

Design number

Option for -A versions:

6 = with 6 V_{dc} coil instead of standard 12 V_{dc} coil

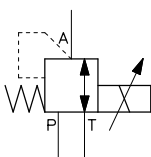
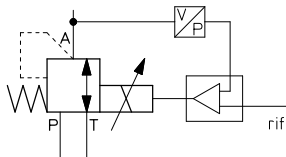
18 = with 18 V_{dc} coil instead of standard 12 V_{dc} coil

Options for TER versions:

I = current reference signal 4÷20 mA

M = monitor output

2 HYDRAULIC CHARACTERISTICS (1) - see notes at section [4]

Hydraulic symbols							
	RZGO-A			RZGO-TER (2)			
Valve model							
Max regulated pressure (Q = 1 l/min)	[bar]	32	100	210	32	100	210
Min regulated pressure	[bar]	0 (or actual value in T port)					
Max pressure at port P	[bar]	315					
Max pressures at port T (3)	[bar]	210					
Max flow	[l/min]	12					
Response time [ms] 0 - 100% signal variation (depending on installation)		≤ 45			≤ 40		
Hysteresis [% of the regulated max pressure]		≤ 1,5			≤ 0,2		
Linearity [% of the regulated max pressure]		≤ 3			≤ 0,5		
Repeatability [% of the regulated max pressure]		≤ 2			≤ 0,1		

3 MAIN CHARACTERISTICS OF PROPORTIONAL PRESSURE REDUCING VALVES WITH PRESSURE TRANSDUCER

Assembly position	Any position	
Subplate surface finish	Roughness index \sqrt{Ra} , flatness ratio 0,01/100 (ISO 1101)	
Ambient temperature	From -20°C to +70°C for RZGO-A version / from 0°C to +50°C for RZGO-TER version	
Fluid	Hydraulic oil as per DIN 51524 . . . 535; for other fluids see section [1]	
Recommended viscosity	15 ÷ 100 mm ² /s a 40°C (ISO VG 15 ÷ 100)	
Fluid contamination class	ISO 18/15, achieved with in line filters of 10 µm and $\beta_{10} \geq 75$ (recommended)	
Fluid temperature	T ≤ 80°C, if T ≥ 60°C select /PE seals	
Coil resistance R at 20°C	3 ÷ 3,3 Ω for standard 12 V _{DC} coil; 2 ÷ 2,2 Ω for 6 V _{DC} coil; 13 ÷ 13,4 Ω for 18 V _{DC} coil	
Max solenoid current	2,4 A (1,8 A for version /32) for standard 12 V _{DC} coil; 3 A (2,25 for version /32) for 6 V _{DC} coil; 1 A (0,8 A for version /32) for 18 V _{DC} coil	
Max power	40 Watt	
Relative duty factor	Continuous rating (ED=100%)	
Type of connector	for -A versions	Type SP-666 (plastic - black); 3 pins cable clamp PG11, cable max. Ø 10 mm
	for -TER versions	Type SP-ZM-7P (metallic), 7 pins, cable clamp PG11, cable max Ø 10 mm Type SP-ZH-7P (plastic); 7 pins, cable clamp PG11, cable max Ø 10 mm to be ordered separately
Connectors features	SP-666: DIN 43650 - ISO 4400; IP 65 (DIN 40050); VDE 0110C; SP-ZM-7P: according to MIL-C-5015G; IP 66 (DIN 40050); SP-ZH-7P: mounting dimensions according to MIL-C-5015G; IP 67 (DIN 40050);	

4 NOTES TO TABLES [2] AND [3]

- 1) Typical characteristics in table [2] refer to valves coupled with Atos electronic drivers and operation with ISO VG 36 mineral oil at 50°C.
- 2) The integral closed loop control of -TER type valves is affected by the stiffness of the hydraulic circuit: the greater the stiffness of the circuit is, the better the performances are. Please contact our technical office in case of circuits with accumulators and/or with great fluid volumes and/or with long hoses. On request are available RZGO-TR models directly derived from -TER versions with integral pressure transducer but without integral electronics. When -TR valves are used in pressure closed loop control coupled with Atos electronic drivers, performances are the same of corresponding valves -TER.
- 3) Setting the regulation value of the RZGO-A valve take into account the counter pressure at port T, which can alter the effective pressure value compared with the set value .

5 ELECTRONIC DRIVERS

Valves operation is optimized in association with Atos electronic drivers, which have factory preset electronic calibration.

Models	Valve model	Execution (1)	Max power consumption (2)	Driver response	Reference signals (3)	Ramps (4)	Special functions (5)	Alarm (6)
E-MI-AC-01F	RZGO-A	I	40W	normal	C, (A)	YES	NO	NO
E-BM-AC-01F		B	50W	fast	C	YES	NO	NO
E-RP-AC-01F		S	50W	fast	C, (A)	YES	NO	NO
E-ME-AC-01F		E	50W	fast	C, (A)	YES	ENABLE	NO
E-RI-TE-01H	RZGO-TER	X	50W	high performances	C, (A)	NO	MONIT. (/M option)	YES

NOTES

- (1) Execution, Format/Connection
 I = plug DIN 43650-IP65, VDE 0110 direct on solenoid;
 B = fast plug in standard undecal base housing, relay type;
 S = sealed box with cable clamp binding screw type;
 E = Eurocard 100x160 mm (plug in unit DIN 41494);
 X = sealed box on the valve; IP65-DIN 40050.
- (2) Power supply at 24 V_{DC} ± 10%.
- (3) Reference signals
 A (option/I) = 4 ÷ 20 mA
 0 ÷ 20 mA (only for E-MI)
 C = 0 ÷ 10 V_{DC} or
 0 ÷ 5 V_{DC} (not available for E-RI)
- (4) Ramps options, i.e. control of rapidity on rise and fall of supply current and consequently of hydraulic parameters.
- (5) Enable: to allow driver operation only with an electric enabling signal.
 Monitor (/M option): value of regulated pressure (0 ÷ 10V_{DC}).
- (6) Options to monitor anomalous operating conditions of driver.

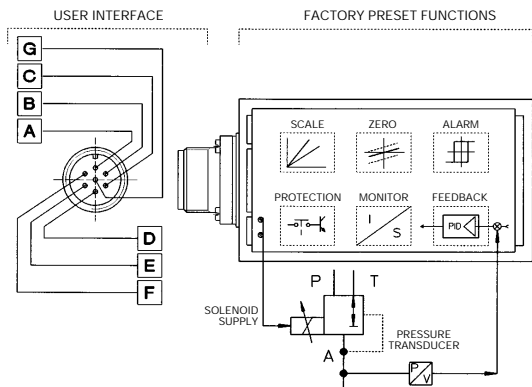
6 E-RI-TE-01H ELECTRONIC DRIVER, INTEGRAL IN RZGO-TER VALVES

The electronic box has a socket connector with 7 male pins arranged to receive the power supply and the reference signal (input) and to supply (output) the status signals, see also the technical table G200 for more characteristics. The female plug connector (metallic or plastic) type SP-Z⁺-7P may be supplied separately on request. Electrical connections to reference generators must be made using shielded cables: the sheat must be connected to the power supply zero **on the generator side**. The power supply must be properly stabilized or rectified and filtered.

Format	Sealed box on the valve
	Protection: IP 65 - DIN 40050
	Insulation: VDE0110
Electromagnetic compatibility (EMC)	Emission: EN 50081-2
	Immunity: EN 50082-2
Input signal impedance	Voltage signal: Ri ≥ 50 KΩ
	Current signal (option /I): Ri ≥ 316 Ω
Cable for plug connector SP-Z ⁺ -7P	LIYCY 7 x 0,75 mm ² for 20 m max. lenght 7 x 1 mm ² for 40 m max. lenght

PIN	SIGNAL DESCRIPTION	TECHNICAL SPECIFICATION
A	Power supply 24 V _{DC}	Nominal: + 24 V _{DC}
B	Power supply zero	Filtered and rectified: Vrms = 21 ÷ 33 (ripple max 2Vpp)
C	Signal zero	Reference 0 V _{DC}
D	Input signal +	0 ÷ 10 V _{DC} (4 ÷ 20 mA for option /I)
E	Input signal -	
F	Fault signal	Alarm = 0 V _{DC} ; Normal working = 24 V _{DC}
	Regulated pressure for option /M	0 ÷ 100% ↔ 0 ÷ 10 V _{DC} (R _{out} = 10 KΩ)
G	Safety lead to earth terminal	Connect only when the power supply is not conform to VDE 0551 (CEI 14/6)

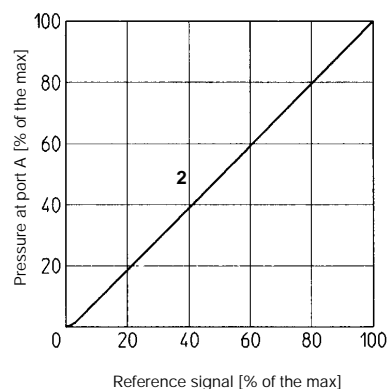
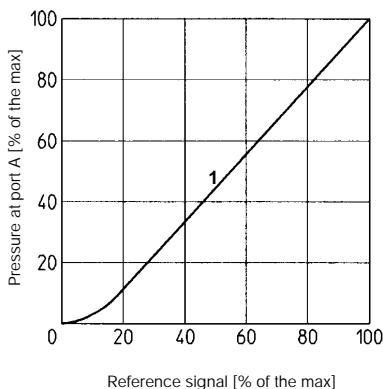
Note: electrical signals (e.g. actual value - feedback signals) taken via valve electronics must not be used to switch off the machine safety functions. This is in accordance with the regulations to the European standard (Safety requirements of fluid technology systems and components - hydraulics).



7 DIAGRAMS

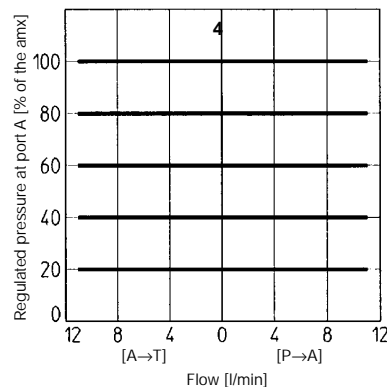
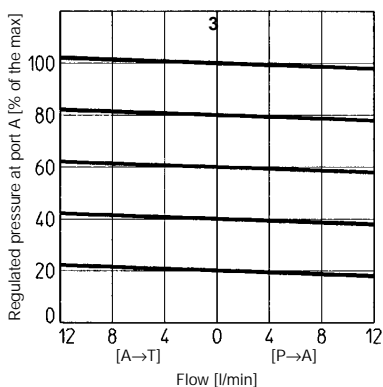
7.1 Regulation diagrams
 with flow rate $Q = 1 \text{ l/min}$

- 1 = RZGO-A
- 2 = RZGO-TER



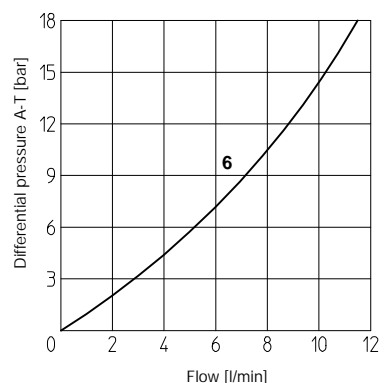
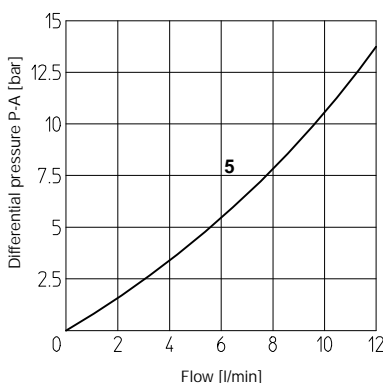
7.2 Pressure/flow diagrams
 with reference pressure set with
 $Q = 1 \text{ l/min}$

- 3 = RZGO-A
- 4 = RZGO-TER



7.3 Pressure drop/flow diagram
 with reference signal "null"

- 5 = RZGO-*-010
- 6 = RZGO-*-010



8 INSTALLATION AND SET-UP

8.1 Warning

- Do not install the RZGO valves before flushing the hydraulic circuit by using flushing subplates; see table P002.
- Do not connect or disconnect electric plugs before switching-off power.

8.2 Set-up

- fix the valve on the mounting subplate, on the manifold or on the piloted valve/cartridge by means of fastening bolts indicated at section 9 and wire electrically;
- to operate on the fastening bolts in the RZGO-TER valves it is necessary to rotate the electronics after having unlocked the grub screw (K). Once fixed the valve, retighten the grub screw (K) blocking the electronic in any position.
- for RZGO-A valves execute the following regulations on the electronic driver:
 - BIAS to align the "0" reference signal to the lowest value of regulated pressure;
 - SCALE to obtain the desired correspondance between reference signal and valve regulation.

In the RZGO-TER valves the integrated electronic is already pre-set and doesn't need further adjustment.

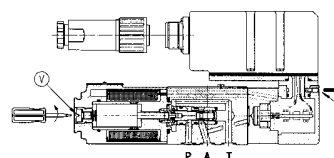
- bleed off the valve unloosening with a screwdriver the air bleed screw (V) on the extremity of the solenoid. The presence of air in the valve causes irregularities of functioning.
- the valve is ready to work.

ELECTRICAL WIRING FOR -A VERSIONS

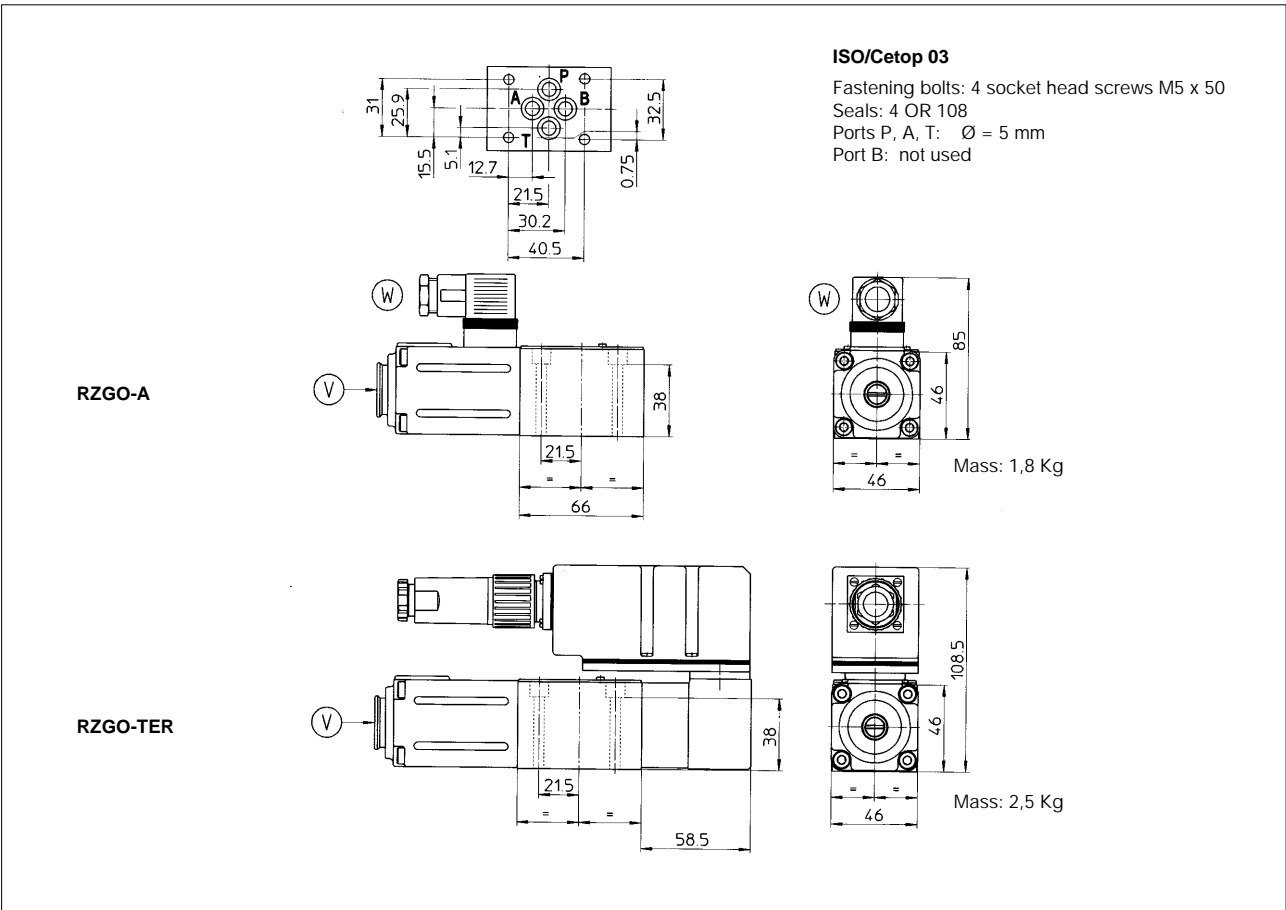


PIN	
1	COIL LEAD
2	COIL LEAD
⊕	EARTH CONDUCTOR

For -TER versions, see section 6



9 INSTALLATION DIMENSIONS [mm]



10 MOUNTING PLATES

Model	Ports location	BSP Ports A-B-P-T	\varnothing Counterbore [mm] A-B-P-T	Mass [kg]
BA-202	Ports A, B, P, T underneath;	3/8"	-	1,2
BA-204	Ports P, T underneath; Ports A, B on lateral side	3/8"	25,5	1,8
BA-302	Ports A, B, P, T underneath;	1/2"	30	1,8