



DIPLOMATIC
HYDRAULICS

81 500/107 ED



MZE

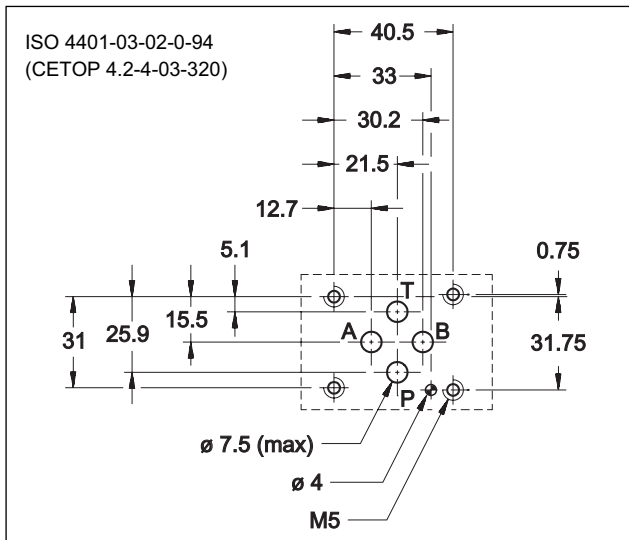
PILOT OPERATED PRESSURE REDUCING VALVE WITH ELECTRIC PROPORTIONAL CONTROL

SERIES 58

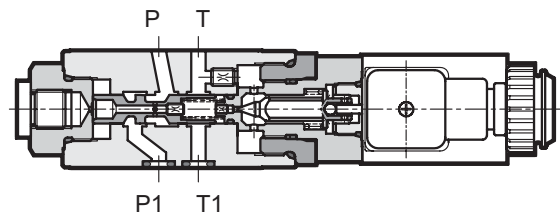
MODULAR VERSION
ISO 4401-03 (CETOP 03)

p max **320** bar
Q max (see table of performances)

MOUNTING INTERFACE



OPERATING PRINCIPLE



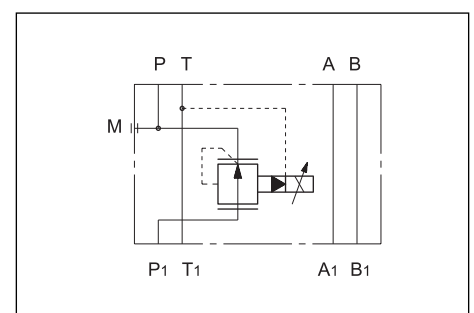
- MZE valves are pilot operated pressure reducing valves with electric proportional control, designed as modular versions with mounting interface in compliance with ISO 4401 (CETOP RP121H) standards.
- The valves are used to reduce pressure in the secondary circuit branches thus ensuring stability of controlled pressure in the event of variations of the flow rate through the valve.
- Pressure can be modulated continuously in proportion to the current supplied to the solenoid.
- The valve can be controlled directly by a current control supply unit or by means of the relative electronic control units to exploit valve performance to the full (see par. 8).
- The valve is available in three different pressure reduction ranges of up to 230 bar.
- The valve is available only with internal drain to the T line inside the valve.

PERFORMANCES

(obtained with mineral oil with viscosity of 36 cSt at 50°C and electronic control cards)

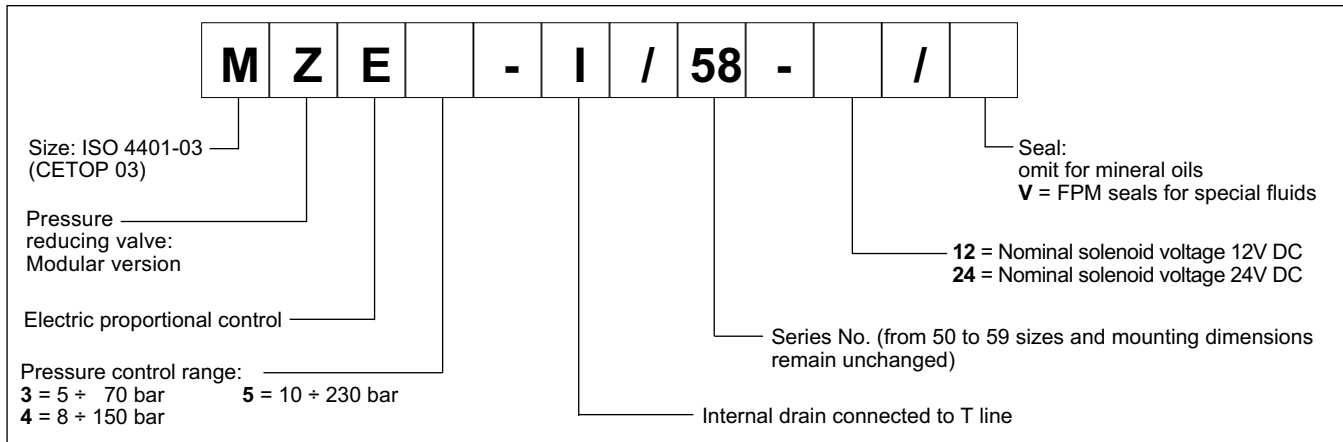
Maximum operating pressure:		
- P-A-B ports	bar	320
- T port		2
Minimum controlled pressure	see Δp -Q diagram	
Maximum flow in P line		30
Maximum flow on passing lines	l/min	50
Drain flow		0,6
Step response	see paragraph 5	
Hysteresis	% of p nom	< 6%
Repeatability	% of p nom	< $\pm 2,5\%$
Electrical characteristic	see paragraph 4	
Ambient temperature range	°C	-10 / +50
Fluid temperature range	°C	-20 / +80
Fluid viscosity range	cSt	10 ÷ 400
Fluid contamination degree	According to ISO 4406:1999 class 18/16/13	
Recommended viscosity	cSt	25
Mass:	kg	1,8

HYDRAULIC SYMBOL



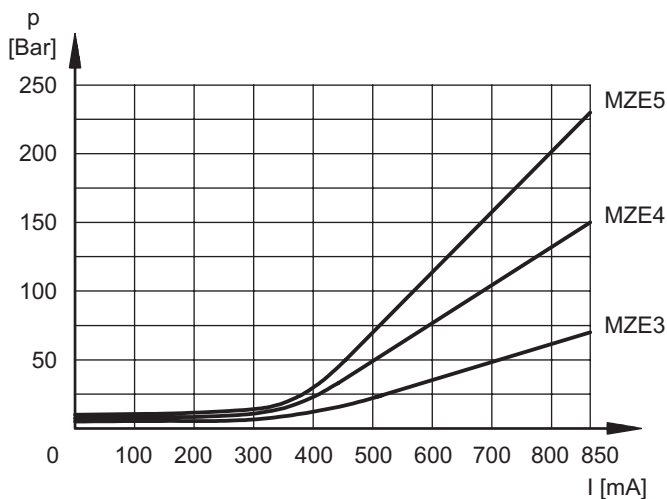


1 - IDENTIFICATION CODE



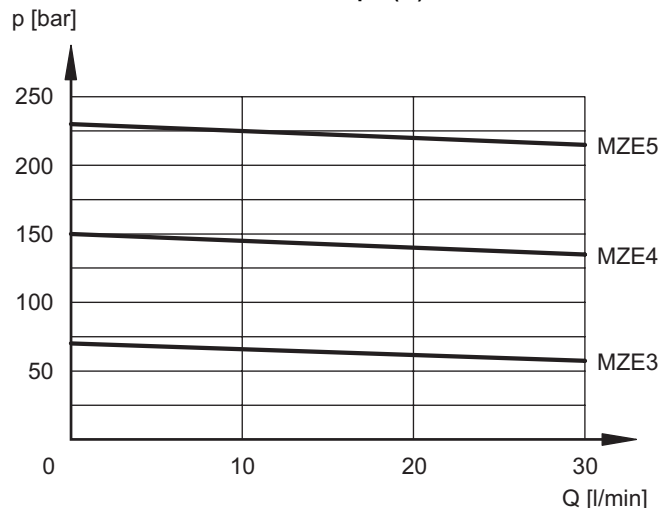
2 - CHARACTERISTIC CURVES (measured with viscosity 36 cSt at 50°C)

PRESSURE CONTROL $p=f(I)$



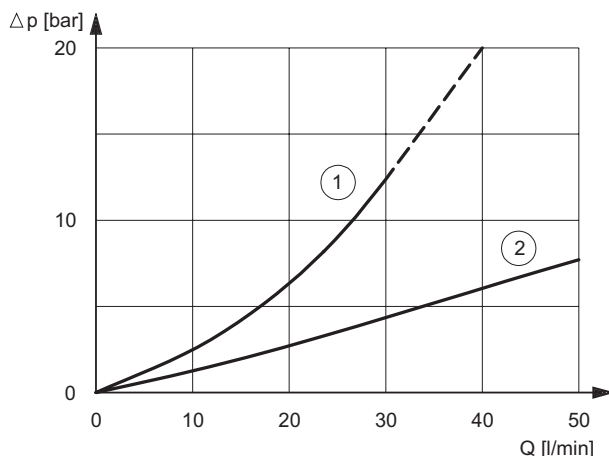
The curves have been obtained with closed users (without flow).

PRESSURE VARIATION $p=f(Q)$



The curves have been obtained with inlet pressure 50 bar greater than nominal pressure. Inlet pressure values greater than indicated values (see over) reduce flow values considerably.

PRESSURE DROP $\Delta p=f(Q)$



- 1) pressure drops $P1 \rightarrow P$
- 2) pressure drop in passing lines es. A $\leftrightarrow A1$



3 - HYDRAULIC FLUIDS

Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals.

For fluids HFDR type (phosphate esters) use FPM seals (code V). For the use of other fluid types such as HFA, HFB, HFC, please consult our technical department.

Using fluids at temperatures higher than 80 °C causes a faster degradation of the fluid and of the seals characteristics.

The fluid must be preserved in its physical and chemical characteristics.

4 - ELECTRICAL CHARACTERISTICS

Proportional solenoid

The proportional solenoid comprises two parts: tube and coil.

The tube, screwed to the valve body, contains the armature which is designed to maintain friction to a minimum thereby reducing hysteresis.

The coil is mounted on the tube secured by means of a lock nut and can be rotated through 360° depending on installation clearances.

NOMINAL VOLTAGE	V DC	12	24
RESISTANCE (at 20°C)	Ω	3.66	16.6
MAXIMUM CURRENT	A	1.9	0.85
DUTY CYCLE		100%	
ELECTROMAGNETIC COMPATIBILITY (EMC)		According to 89/336 CEE	
emissions	EN 50081-1		
immunity	EN 50082-2		
CLASS OF PROTECTION:		IP 65	
Atmospheric agents (CEI EN 60529)			

5 - STEP RESPONSE (with mineral oil with viscosity of 36 cSt at 50°C in conjunction with the relative electronic control unit)

Step response is the time taken for the valve to reach 90% of the set pressure value following a step change of reference signal.

The table illustrates typical step response times measured with input flow rate of Q = 25 l/min.

REFERENCE SIGNAL STEP	0 → 100%	100 → 0%
Step response [ms]	100	80

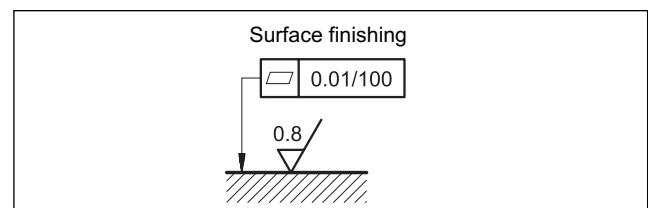
6 - INSTALLATION

We recommend to install the MZE valve either in horizontal position, or vertical position with the solenoid downward. If the valve is installed in vertical position and with the solenoid upward, you must consider possible variations of the minimum controlled pressure, if compared to what is indicated in paragraph 2.

Ensure that there is no air in the hydraulic circuit. In particular applications, it can be necessary to vent the air entrapped in the solenoid tube, by using the apposite drain screw in the solenoid tube. Ensure that the solenoid tube is always filled with oil (see par.7). At the end of the operation, make sure of having screwed correctly the drain screw.

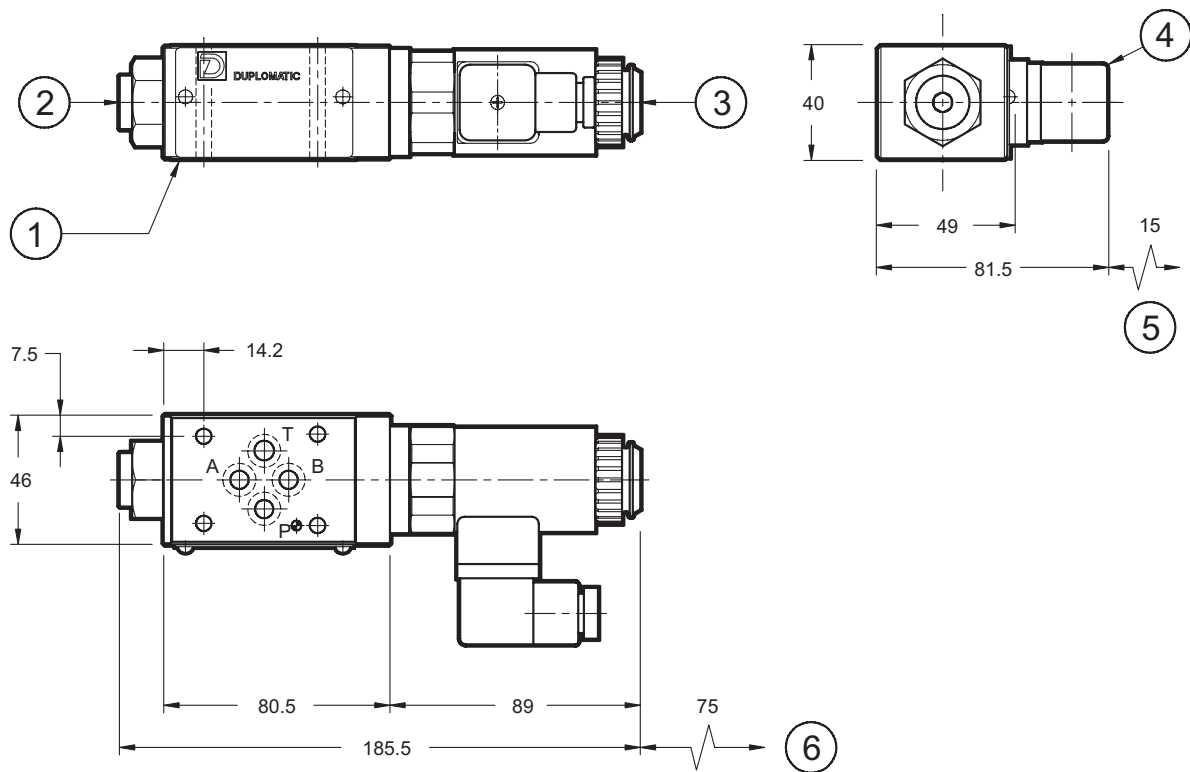
Connect the valve T port directly to the tank. Add any backpressure value detected in the T line to the reduced pressure value. Maximum admissible backpressure in the T line, under operational conditions, is 2 bar.

Valves are fixed by means of screws or tie rods on a flat surface with planarity and roughness equal to or better than those indicated in the relative symbols. If minimum values are not observed fluid can easily leak between the valve and support surface.





7 - OVERALL AND MOUNTING DIMENSIONS



dimensions in mm

1	Mounting surface with sealing rings: 4 OR type 2037 - 90 shore (9.25x1.78)
2	Pressure gauge port 1/4" BSP
3	Breather (male hexagonal spanner 4)
4	DIN 43650 electric connector (included in the delivery)
5	Connector removal space
6	Coil removal space

NOTE: at the first start up, or after a long period of no use, it is necessary to vent the air through the breather (3) placed at the end of the solenoid tube.

8 - ELECTRONIC CONTROL UNITS

EDC-112	for solenoid 24V DC	plug version	see cat.89 120
EDM-M112	for solenoid 24V DC	DIN EN 50022 rail mounting	see cat. 89 250
EDM-M142	for solenoid 12V DC		
UEIK-11	for solenoid 24V DC	Eurocard type	see cat. 89 300

<p>DIPLOMATIC HYDRAULICS</p>	<p>DIPLOMATIC OLEODINAMICA SpA 20025 LEGNANO (MI) - P.le Bozzi, 1 / Via Edison Tel. 0331/472111 - Fax 0331/548328</p>	
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