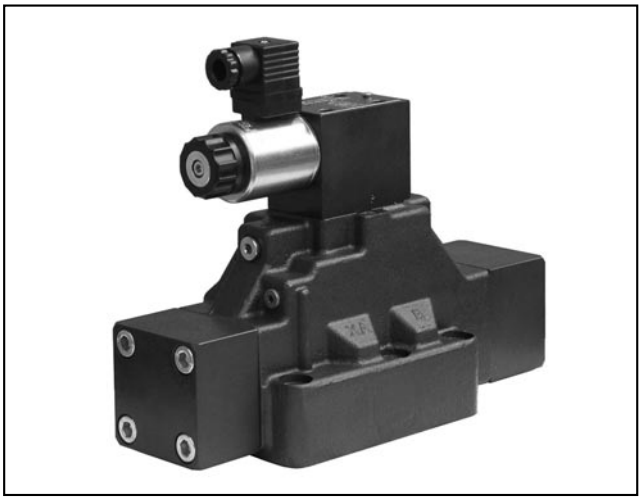


DZCE*

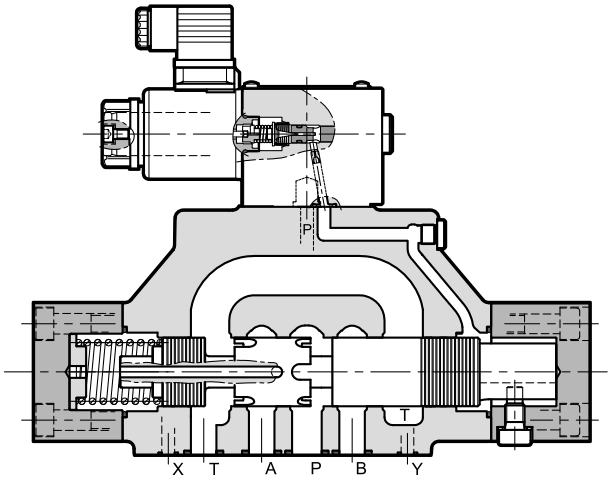
PROPORTIONAL PRESSURE REDUCING VALVE

SERIES 30

DZCE5	**CETOP P05**
DZCE5R	**ISO 4401-05**
DZCE7	**ISO 4401-07**
DZCE8	**ISO 4401-08**

p max **350** bar
Q max (see table of performances)

OPERATING PRINCIPLE



— The DZCE* are proportional pressure reducing valves with mounting interface in compliance with ISO 4401 standards.

— These valves, besides reducing the pressure from line P to working line A, allow the flow to return from the line A to the return line T when a pressure greater than the set value is generated in the downstream circuit (flow path A): a typical case of hydraulic counterweight or load balancing.

— The pressure can be modulated continuously in proportion to the current supplied to the solenoid.

— They can be controlled directly by a current control supply unit or by means of the electronic control units (p. 12) to exploit valve performance to the full.

— They are available in CETOP P05, ISO 4401-05, ISO 4401-07 and ISO 4401-08 sizes.

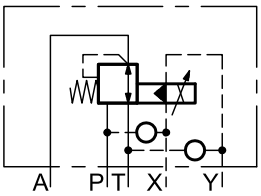
— Every size can be supplied with several controlled flow rates, up to 500 l/min.

PERFORMANCES

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

		DZCE5 DZCE5R	DZCE7	DZCE8
Maximum operating pressure	bar	350		
Maximum flow	l/min	150	300	500
Step response		see point 6		
Hysteresis (with PWM 200 Hz)	% of p_{max}	< 6%		
Repeatability	% of p_{max}	< ±2%		
Electrical characteristic		see point 5		
Ambient temperature range	°C	-20 / +60		
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	5.4	8	14.8

HYDRAULIC SYMBOL



1 - IDENTIFICATION CODE

D	Z	C	E		-		/	30		-			/		K1

Pressure reducing valve

Electric proportional control

Nominal size:
5 = CETOP P05 (**NOTE**)
5R = ISO 4401-05
7 = ISO 4401-07
8 = ISO 4401-08

Pressure adjustment range:
070 = 1 ÷ 70 bar
140 = 1 ÷ 140 bar
210 = 1.2 ÷ 210 bar
320 = 1.8 ÷ 320 bar

Series No. (the overall and mounting dimensions remain unchanged from 30 to 39)

Seals:
N = NBR seals for mineral oil (**standard**)
V = FPM seals for special fluids

Piloting: **I** = internal
E = external

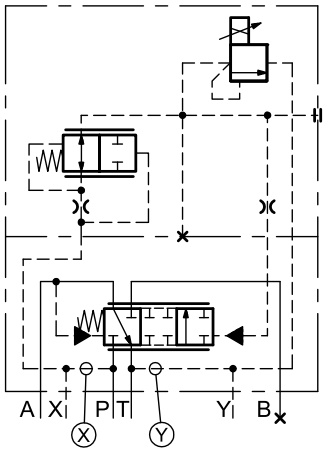
Drainage: **I** = internal
E = external

Nominal solenoid voltage:
D12 = 12 V DC
D24 = 24 V DC

Coil electrical connection:
for connector type
EN 175301-803 (ex DIN 43650)
(**standard**)

NOTE: This version is interchangeable with the model ZCE4 Duplomatic.

2 - DETAILED SYMBOL



3 - MAX PRESSURE VALUES

This valve incorporates a mechanical limit of the maximum pressure, that operates independently of the applied current. This kind of design ensures that the pressure cannot rise over even if the solenoid current exceeds the maximum current ($I > I_{max}$).

Values obtained with oil viscosity of 36 cSt at 50°C

		DZCE*-070	DZCE*-140	DZCE*-210	DZCE*-320
pressure value at 800 mA	bar	78	140	210	320
max pressure value when $I > I_{max}$	bar	90	150	250	330

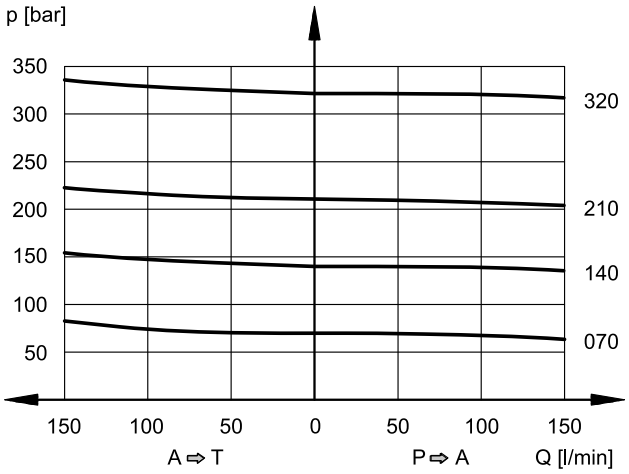
4 - CHARACTERISTIC CURVES

(obtained with mineral oil with viscosity of 36 cSt at 50°C)

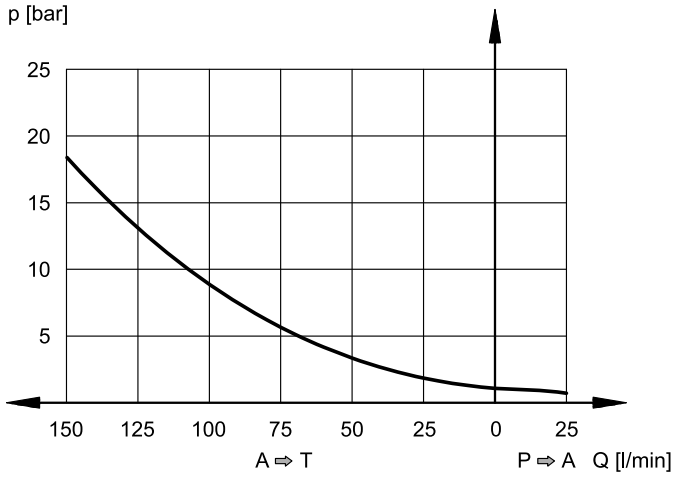
The characteristic curves are measured without hysteresis, linearity compensation and without any backpressure in T.

4.1 - Characteristic curves DZCE5 and DZCE5R

CONTROLLED PRESSURE

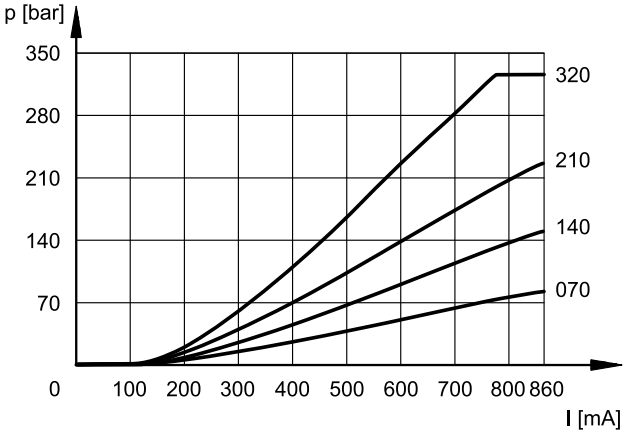


MIN. CONTROLLED PRESSURE p min = f(Q)



Pressure drops A →T as a function of the flow rate, without any backpressure in T and with command signal = 0V

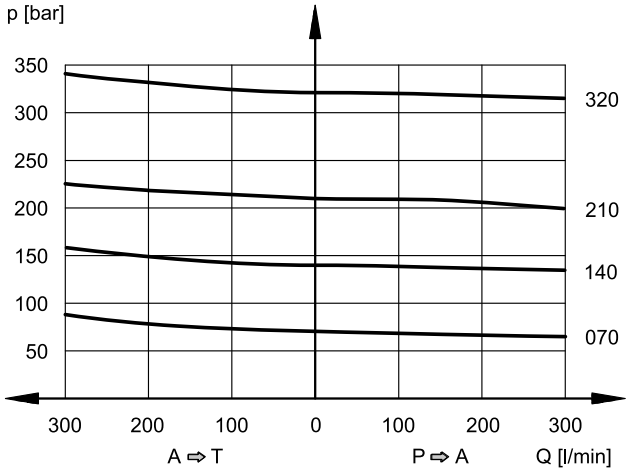
PRESSURE CONTROL p = f(I)



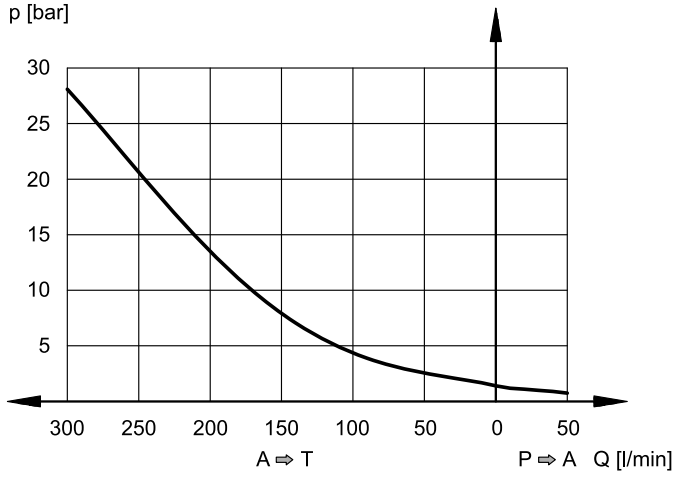
Characteristic curves as a function of the current to the solenoid for the available pressure adjustment ranges, obtained with A port plugged.

4.2 - Characteristic curves DZCE7

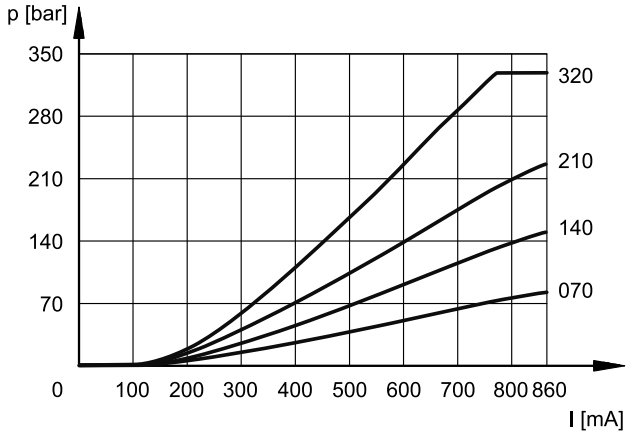
CONTROLLED PRESSURE



MIN. CONTROLLED PRESSURE p min = f(Q)

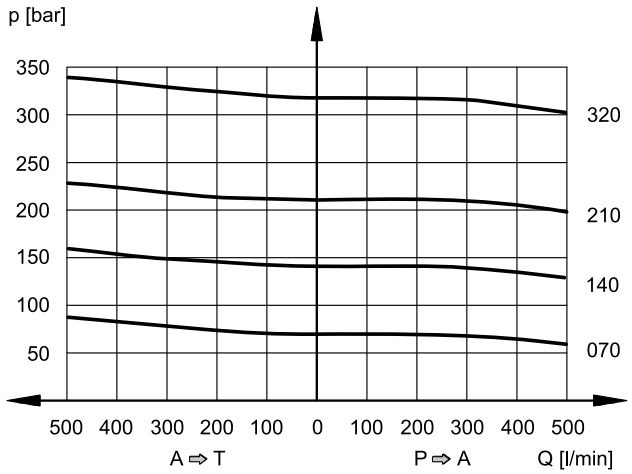


PRESSURE CONTROL p = f(I)

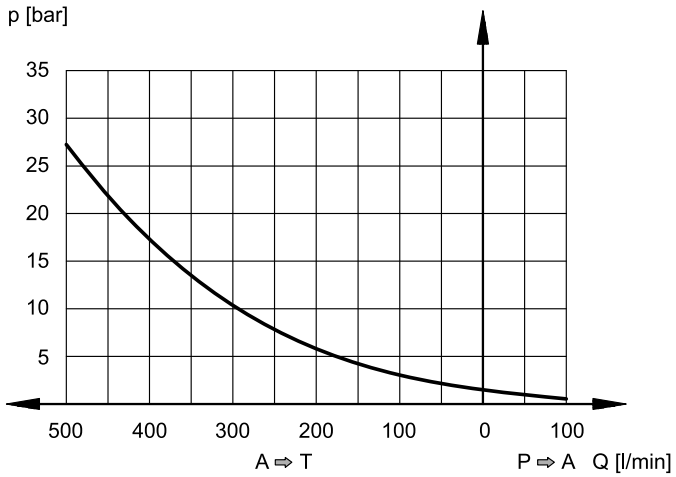


4.3 - Characteristic curves DZCE8

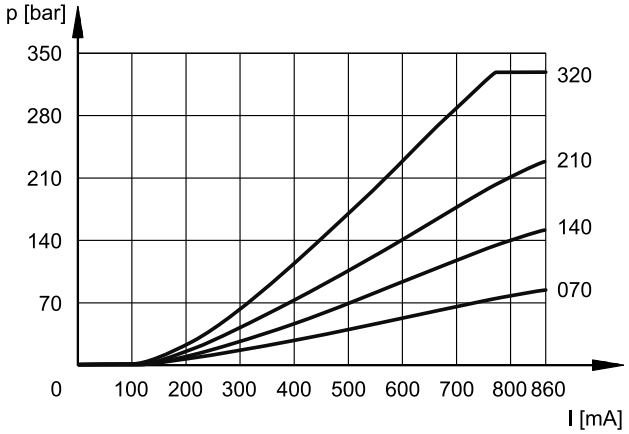
CONTROLLED PRESSURE



MIN. CONTROLLED PRESSURE p min = f(Q)



PRESSURE CONTROL p = f(I)



5 - HYDRAULIC FLUIDS

Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals (code N). For fluids HFDR type (phosphate esters) use FPM seals (code V). For the use of other kinds of fluid 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.

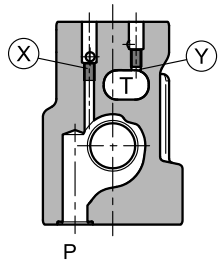
6 - PILOTING AND DRAINAGE

The DZCE* valves are available with pilot and drain both internal and external. The version with external drain allows a higher back pressure on the discharge line.

NOTE: The configuration of pilots and drains must be chosen when ordering. Subsequent modifications are allowed only to specialized operators with authorization and in factory.

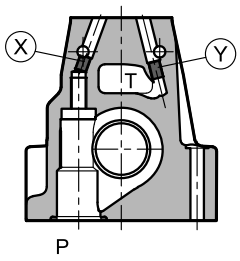
TYPE OF VALVE		Plug assembly	
		X	Y
IE	internal pilot and and external drain	NO	YES
II	internal pilot and internal drain	NO	NO
EE	external pilot and external drain	YES	YES
EI	external pilot and internal drain	YES	NO

DZCE5 and DZCE5R

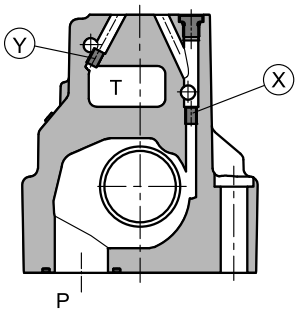


X: M5x6 plug for external pilot
Y: M5x6 plug for external drain

DZCE7



DZCE8



X: M6x8 plug for external pilot
Y: M6x8 plug for external drain

PRESSURES (bar)

Pressure	MAX
Piloting pressure on external X port	350 (**NOTE**)
Pressure on T port with internal drain	2
Pressure on T port with external drain	250

NOTE: Anyway, the pilot pressure must be 10% higher than the set value for the reduced pressure, in order to let the valve work properly.

7 - 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.

It can be rotated through 360° depending on installation clearances.

NOMINAL VOLTAGE	V DC	**12**	**24**
RESISTANCE (at 20°C)	Ω	3.66	17.6
NOMINAL CURRENT	A	1.88	0.86
DUTY CYCLE	100%		
ELECTROMAGNETIC COMPATIBILITY (EMC)	According to 2014/30/EU		
CLASS OF PROTECTION atmospheric agents (EN 60529) coil insulation (VDE 0580) Impregnation	IP65 class H class F		

8 - STEP RESPONSE

(measured with mineral oil with viscosity of 36 cSt at 50°C with electronic control card)

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 values change significantly according to the variation of the available flow rate and to the construction of the circuit.

REFERENCE SIGNAL	0 →100%	100 →0%
Step response [ms]		
DZCE5 and DZCE5R	100	50
DZCE7	100	50
DZCE8	150	70

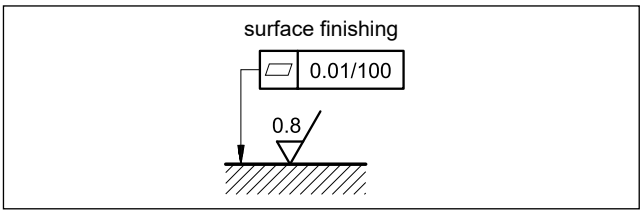
9 - INSTALLATION

The DZCE* valves can be installed in any position without impairing correct operation.

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 appropriate drain screw in the solenoid tube. So, ensure the solenoid tube is always filled with oil. When finished, make sure you have screwed the screw back in correctly.

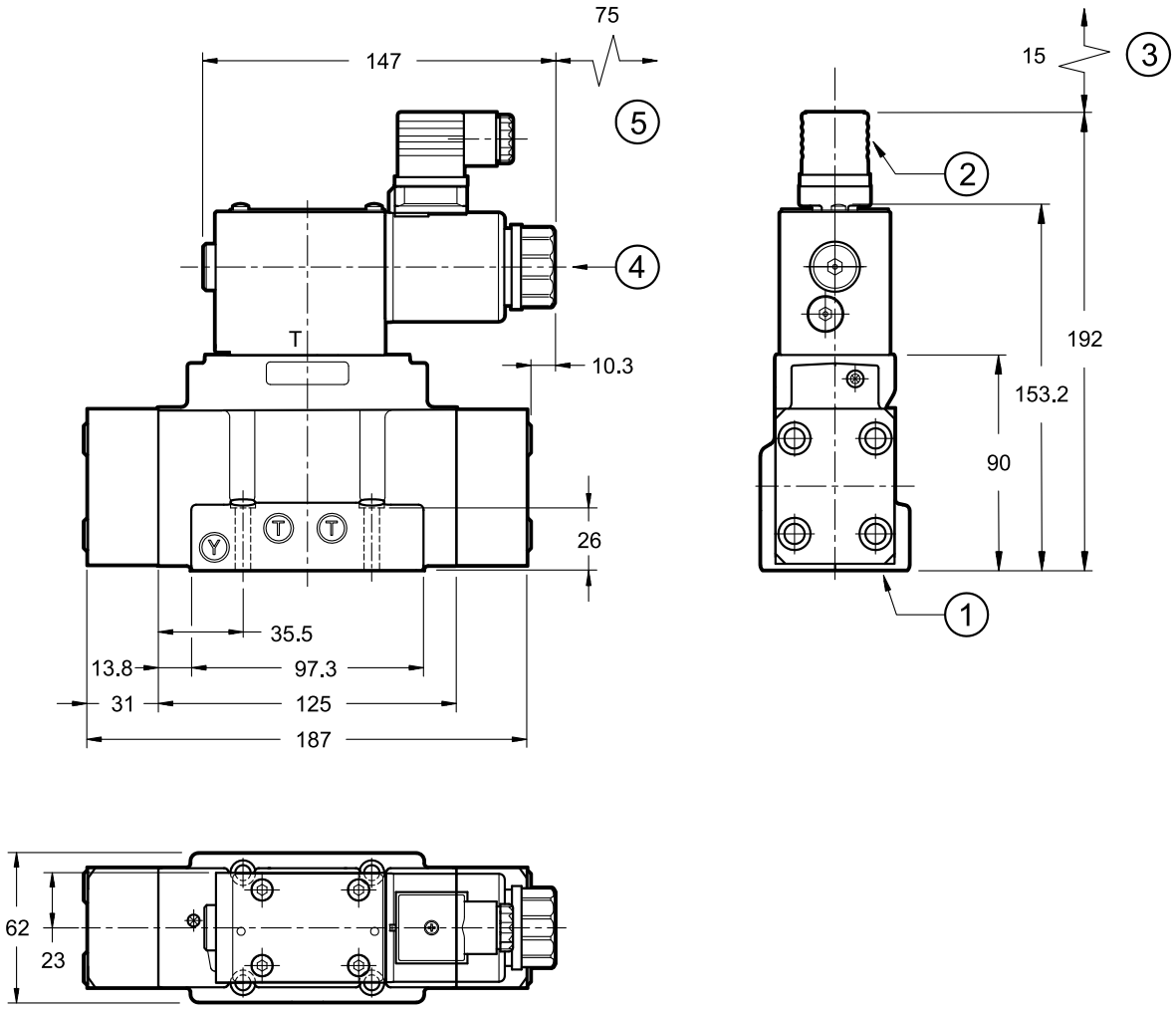
Connect the valve T port directly to the tank. Add any backpressure value detected in the T line to the controlled pressure value. **Maximum admissible backpressure in the T line, in operating conditions, is 2 bar.**

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.



10 - DZCE5 AND DZCE5R OVERALL AND MOUNTING DIMENSIONS

dimensions in mm



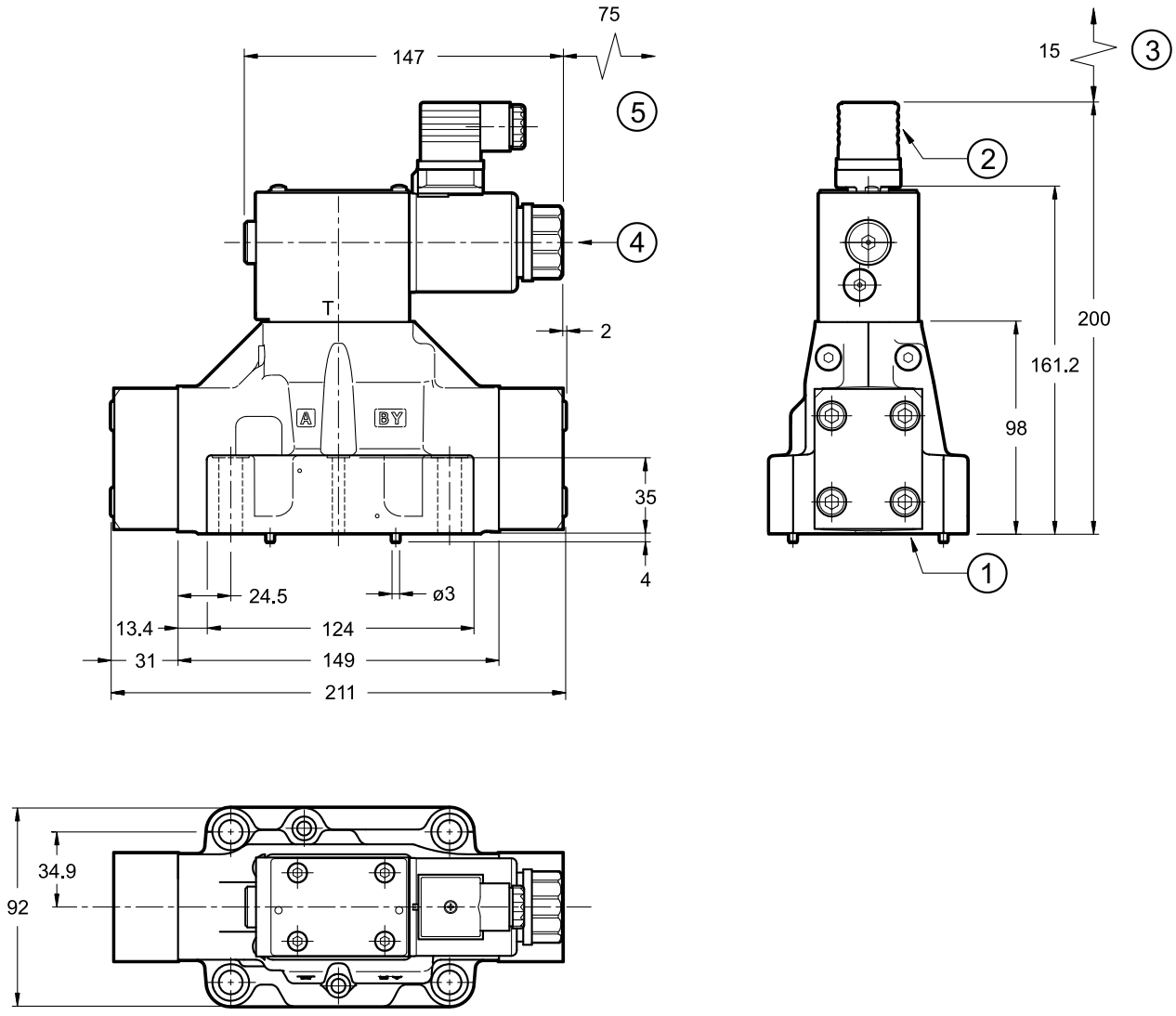
NOTE: at the first start up, or after a long period of no use, it is necessary to vent the air through the breather (4) placed at the end of the solenoid tube.

Valve fastening: N. 4 bolts SHC ISO 4762 M6x35	
Tightening torque: 8 Nm (A 8.8 bolts)	
Thread of mounting holes: M6x10	

1	Mounting surface with sealing rings: N. 5 OR type 2050 (12.42x1.78) - 90 Shore N. 2 OR type 2037 (9.25x1.78) - 90 Shore
2	EN 175301-803 (ex DIN 43650) connector, included in the supply
3	Connector removal space
4	Breather (Allen key 4)
5	Coil removal space

11 - DZCE7 OVERALL AND MOUNTING DIMENSIONS

dimensions in mm



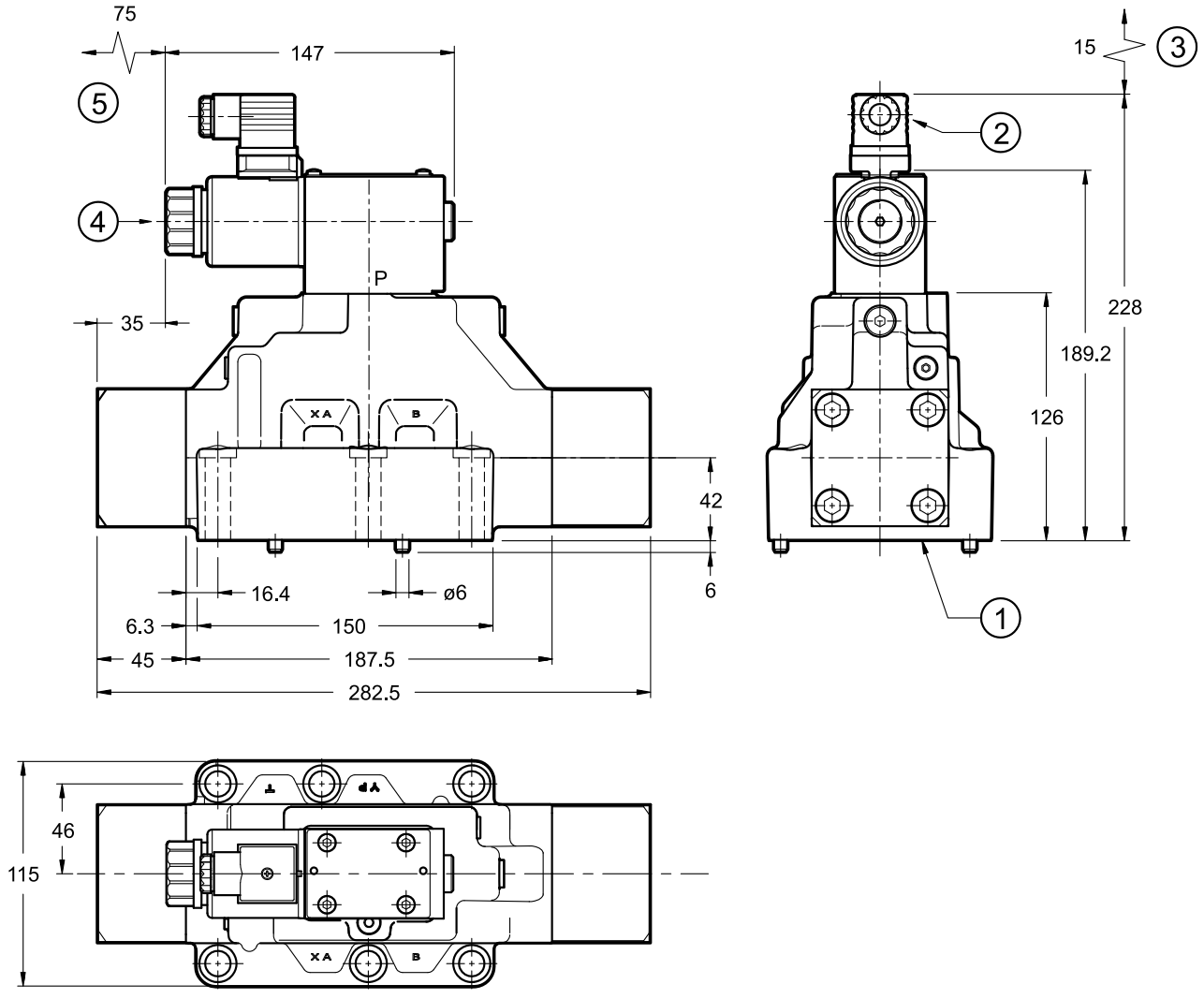
NOTE: at the first start up, or after a long period of no use, it is necessary to vent the air through the breather (4) placed at the end of the solenoid tube.

Single valve fastening:	N. 4 SHC bolts ISO 4762 M10x50 N. 2 SHC bolts ISO 4762 M6x50
Tightening torque	M10x50: 40 Nm (A 8.8 bolts) M6x50: 8 Nm (A 8.8 bolts)
Thread of mounting holes:	M6x18; M10x18

1	Mounting surface with sealing rings: N. 4 OR type 130 (22.22x2.62) - 90 Shore N. 2 OR type 2043 (10.82x1.78) - 90 Shore
2	EN 175301-803 (ex DIN 43650) connector, included in the supply
3	Connector removal space
4	Breather (Allen key 4)
5	Coil removal space

12 - DZCE8 OVERALL AND MOUNTING DIMENSIONS

dimensions in mm



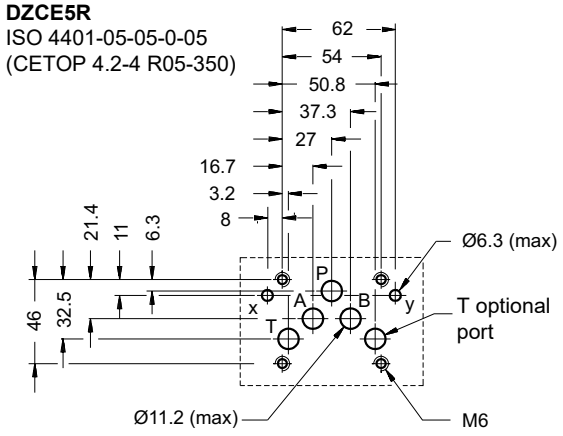
NOTE: at the first start up, or after a long period of no use, it is necessary to vent the air through the breather (4) placed at the end of the solenoid tube.

Valve fastening: N. 6 SHC bolts ISO 4762 M12x60	
Tightening torque: 69 Nm (A 8.8 bolts)	
Thread of mounting holes: M12x20	

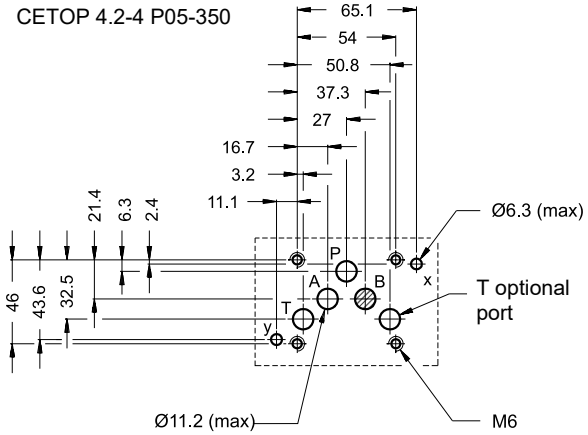
1	Mounting surface with sealing rings: N. 4 OR type 3131 (32.99x2.62) - 90 Shore N: 2 OR type 3087 (21.89x2.62) - 90 Shore
2	EN 175301-803 (ex DIN 43650) connector, included in the supply
3	Connector removal space
4	Breather (Allen key 4)
5	Coil removal space

13 - MOUNTING SURFACES

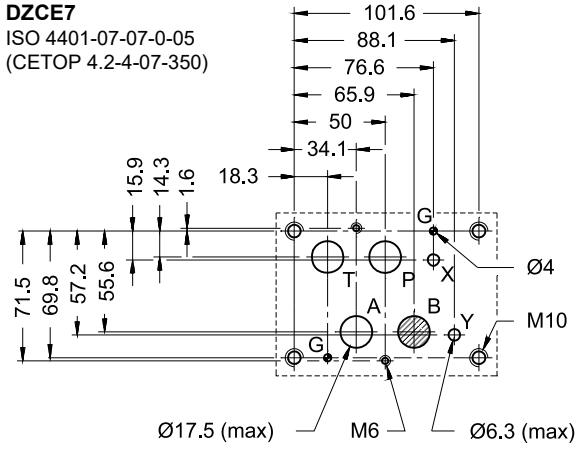
DZCE5R
ISO 4401-05-05-0-05
(CETOP 4.2-4 R05-350)



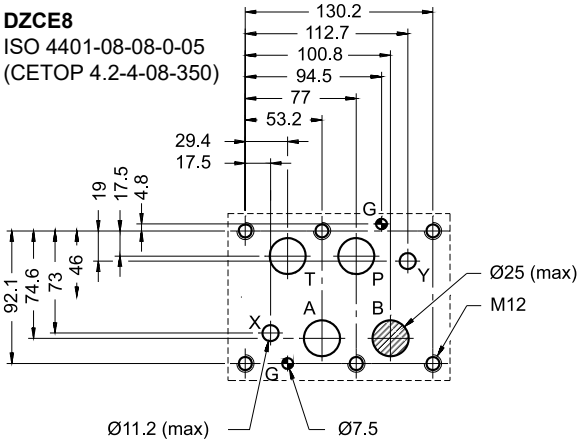
DZCE5
CETOP 4.2-4 P05-350



DZCE7
ISO 4401-07-07-0-05
(CETOP 4.2-4-07-350)



DZCE8
ISO 4401-08-08-0-05
(CETOP 4.2-4-08-350)



14 - ELECTRONIC CONTROL UNITS

EDC-112	for solenoid 24V DC	plug version	see cat. 89 120
EDC-142	for solenoid 12V DC		
EDM-M112	for solenoid 24V DC	DIN EN 50022 rail mounting	see cat. 89 252
EDM-M142	for solenoid 12V DC		

15 - SUBPLATES

(see catalogue 51 000)

		DZCE5	DZCE7	DZCE8
Model with rear ports		PME4-AI5G	PME07-AI6G	-
Model with side ports		PME4-AL5G	PME07-AL6G	PME5-AL8G
Thread of ports:	P - T - A - B X - Y	3/4" BSPP 1/4" BSPP	1½" BSPP 1/4" BSPP	1" BSPP 1/4" BSPP

DUPLOMATIC MOTION SOLUTIONS
a member of DAIKIN group

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