

Pressure reducing valve, pilot operated

RE 26868/02.08
Replaces: 01.05

Type ZDRY 10 V

Nominal size (NG) 10
Unit series 1X
Maximum working pressure 315 bar
Maximum flow rate 120 l/min



Overview of contents

Contents

Features	
Ordering data, Symbols, Setting elements	
Function, sectional diagram	
Technical data	
Characteristic curves	
Unit dimensions	
Fastening bolts	

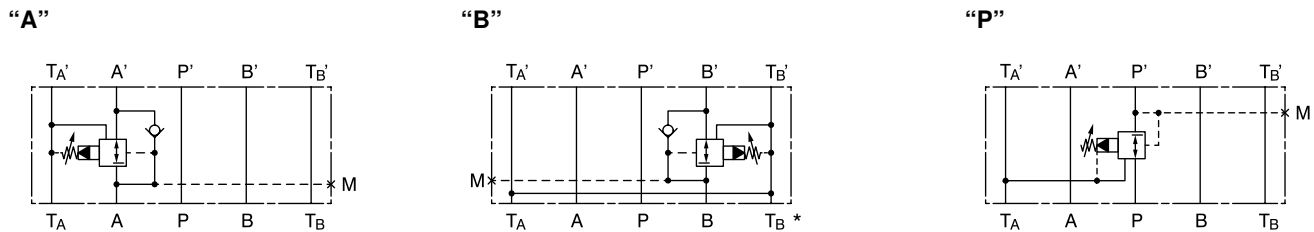
Features

Page	
	– Modular valve
1	– Mounting hole configuration to ISO 4401-05-04-0-05
2	– 4 pressure stages
3	– Pressure reduction in duct A, B or P
4	– Check valve in versions “VA” and “VB”
5	– Pressure gauge connection G $\frac{1}{4}$
6 and 7	– Setting element:
8	• Sleeve with hexagon socket
	• Rotary knob, lockable, with scale
	– Subplate as per catalog section RE 45055 (order separately)

Ordering data

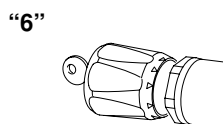
Z	DR	Y	10	V		-1X/	Y		V	*
Modular valve = Z	Pressure reducing valve = DR	3-way pressure reducing valve = Y	NG10 = 10	Pilot operated = V	Pressure reduction in A-duct = A					
					Pressure reduction in B-duct = B					
					Pressure reduction in P-duct = P					
Setting elements										
Sleeve with hexagon socket = 5										
Rotary knob, lockable, with scale ¹⁾ = 6										
Unit series 10 to 19 (10 to 19: installation and connection dimensions unchanged) = 1X										
										Further information in plain text
										V = FPM seals (other seals available on request)
										Note Take compatibility of seals and pressure fluid into account!
										No code = with check valve
										M = without check valve
										Y = Internal control oil supply, external control oil drain
										30 = Secondary pressure 4 to 30 bar
										80 = Secondary pressure 4 to 80 bar
										160 = Secondary pressure 8 to 160 bar
										315 = Secondary pressure 8 to 315 bar

Symbols



* It is essential that return T_B is connected to T_A (generally guaranteed by a directional control valve).

Setting elements



Function, sectional diagram

Type ZDRY 10 V pressure valves are pilot operated 3-way pressure reducing valves in modular design, with pressure safeguard for the secondary circuit. They are used to reduce the system pressure.

Pressure reducing valves essentially consist of a cartridge (1), main piston (6) and housing (2). The secondary pressure is set by means of the pressure setting element (4).

Version "VP"

In initial position the valves are open: pressure fluid can flow unhindered from duct P to duct P'. The pressure in duct P simultaneously acts on the main piston (6) and on the spring-loaded inner end of the main piston (6). Likewise, it acts on the poppet (8) via the nozzle (9). If the pressure in duct P exceeds the value set at the compression spring (7), the poppet (8) opens. Pressure fluid then flows from the spring-loaded inner end of the main piston (6) through the nozzle (9) and the poppet (8) into the spring chamber (10). The main piston (6) moves into control position and maintains the value set at the spring (7) constant in the P-duct.

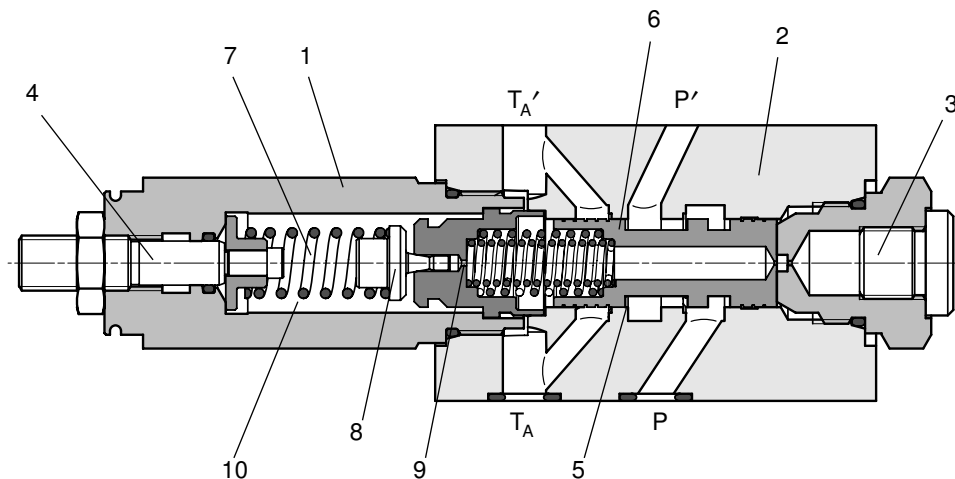
If the pressure in the P-duct continues to increase as a result of external forces acting on the load, it pushes the main piston (6) even harder against the compression spring (7). This causes duct P' to be connected to the tank (T_A duct) via the metering notch (5) on the main piston and housing. The amount of pressure fluid that drains to the tank in this way ensures that the pressure does not rise any further. The control oil is returned from the spring chamber (10) via the T_A port.

A pressure gauge connection (3) enables the valve's secondary pressure to be monitored.

Versions "VA" and "VB"

In versions VA and VB, the pressure is reduced in duct A' and/or B'.

A check valve is installed (not possible in version VP) to ensure a free return flow from duct A' to A and from B' to B.



Technical data

General

Valve function	Pressure reducing valve, pilot operated		
Type of mounting	Intermediate plate NG10, ISO 4401-05-04-0-05		
Installation position	Optional		
Weight	kg	2.7	

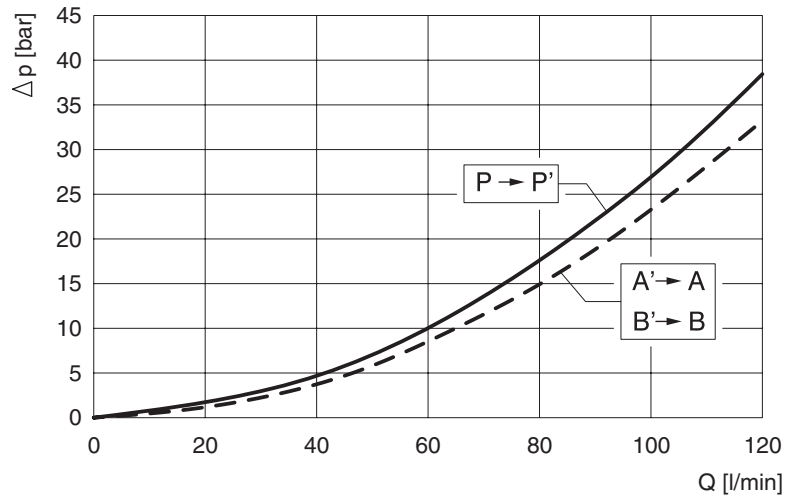
Hydraulic

Pressure fluid	Mineral oil (HL, HLP) to DIN 51524. Rapidly biodegradable pressure fluids to VDMA 24568 (see also RE 90221), HETG (rapeseed oil), HEPG (polyglycols), HEES (synthetic ester), other pressure fluids available on request				
Maximum permissible degree of contamination of pressure fluid Purity class to ISO 4406 (c)	Class 20/18/15 ¹⁾				
Pressure fluid temperature range	°C	-20...+80			
Seals	FPM (Viton® Dupont)				
Viscosity range	mm ² /s	10...500			
Max. setting pressure (outlet)	bar	30	80	160	315
Max. working pressure (inlet)	bar	Setting pressure +120		315	
Max. flow rate	l/min	120			

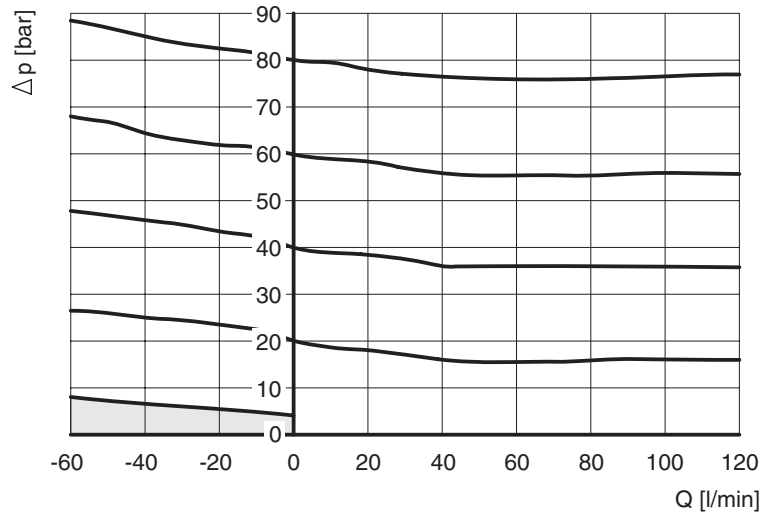
¹⁾ The purity classes stated for the components must be complied with in hydraulic systems.
Effective filtration prevents problems and also extends the service life of components.
For a selection of filters, see catalog sections RE 50070, RE 50076 and RE 50081.

Characteristic curves (measured with HLP46, $\vartheta_{oil} = 40\text{ °C} \pm 5\text{ °C}$)

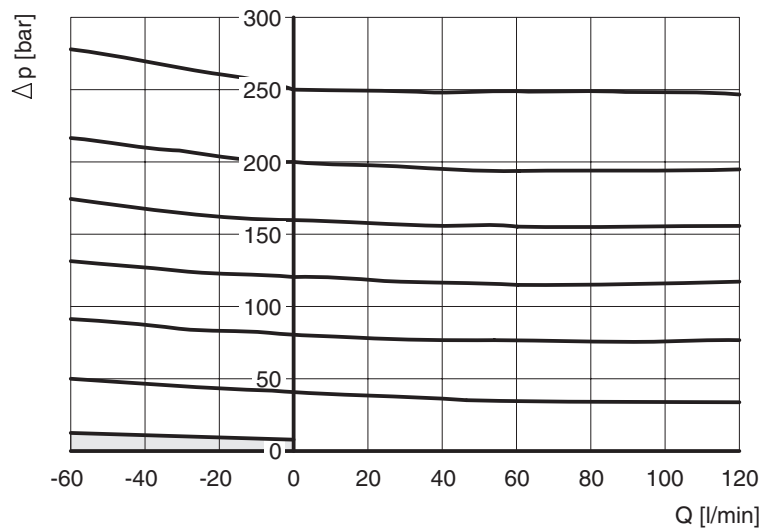
Δp – fully open valve



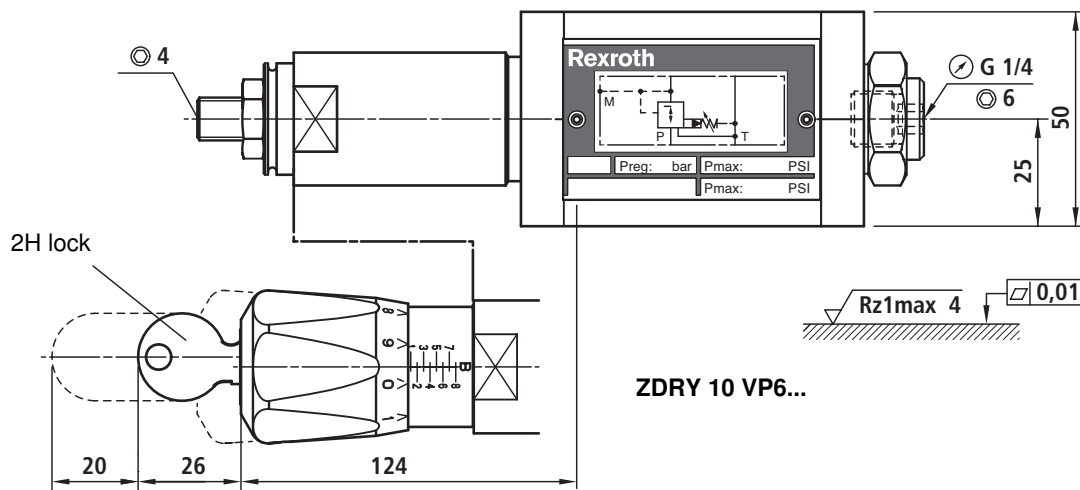
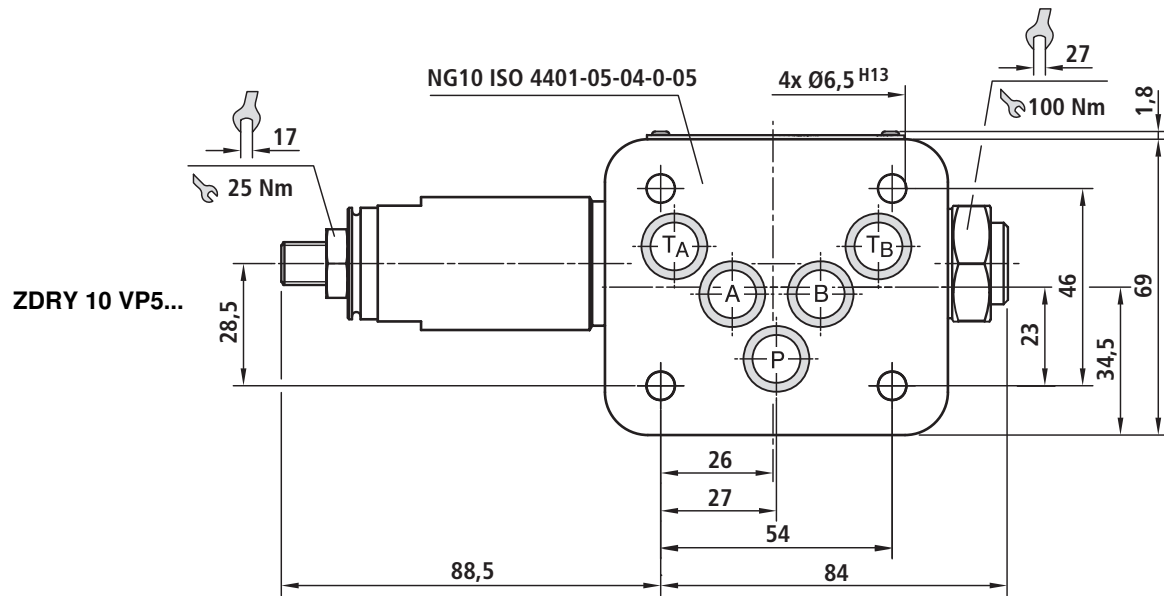
$p = 30\text{ bar}$
 $p = 80\text{ bar}$



$p = 160\text{ bar}$
 $p = 315\text{ bar}$

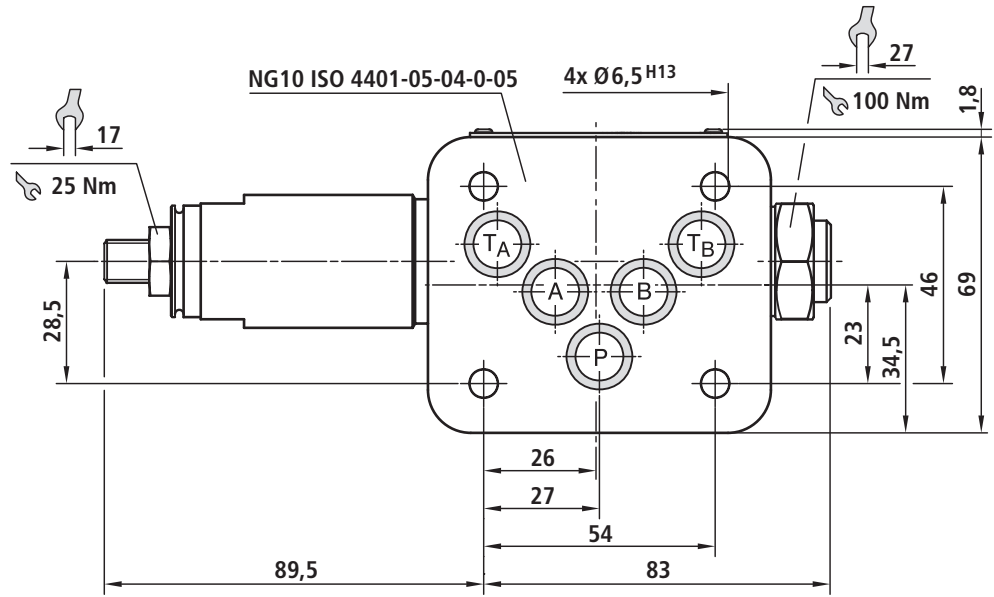


Unit dimensions (in mm)

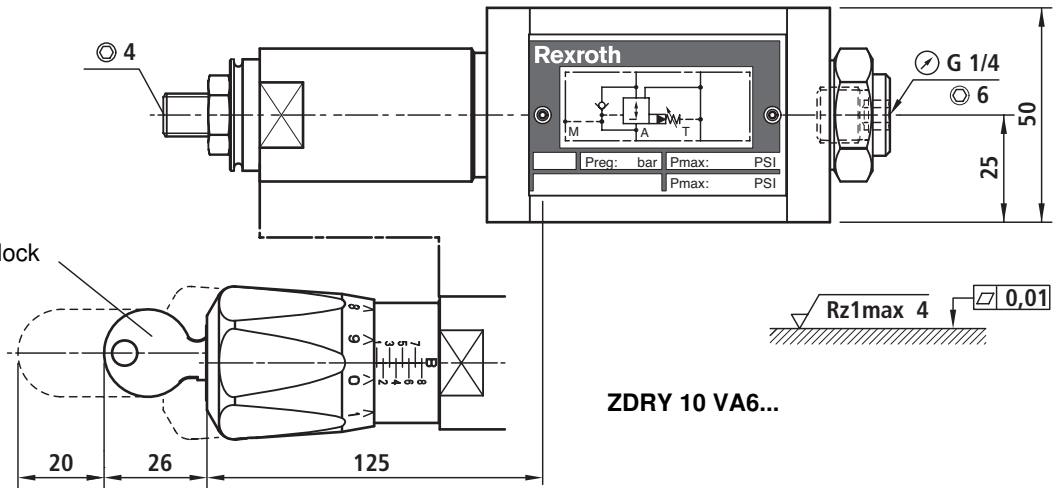


Unit dimensions (in mm)

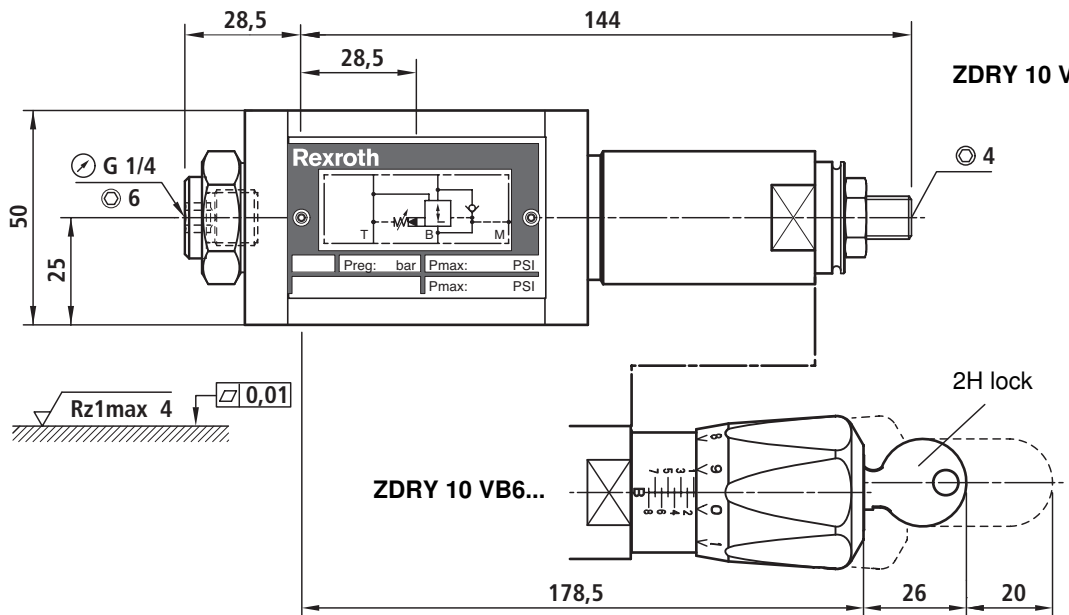
ZDRY 10 VA5...



2H lock



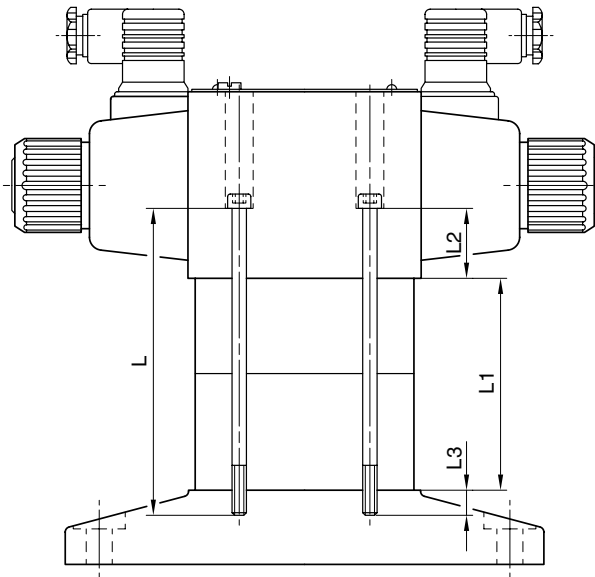
ZDRY 10 VA6...




ZDRY 10 VB5...

ZDRY 10 VB6...

Fastening bolts



NG	Qty.		L2 [mm] + L3 [mm]*	L1 [mm]	L [mm]	
10	4	M6	40	50	90	–
				70	110	2 910 151 226
				100	140	–
				140	180	2 910 151 660
				150	190	–

* With Rexroth directional control valve and subplate as per RE 45055