Pilot Operated Pressure Reducing Valve

Model: DR20K...-1XJ/DR...-4X

- Size 10, 20
- Maximum working pressure 315 bar
- Maximum working flow 160 L/min

Contents

Features

- Cartridge construction
- Subplate mounting
- 4 pressure ratings
- 4 adjusting elements

Rotary knob
Adjusting screw with protective cap
Lockable rotary knob with scale
Rotary knob with scale

Function description, sectional drawing

The DR...4XJ valve is pilot operated pressure pressure reducing valve, it is used to reduce the system pressure. The valve is composed of the plug-in valve and valve body, and an optional check valve (only for subplate mounting).

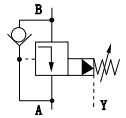
At rest, the valve is normally open. The fluid can flow freely from port B to port A via main spool (1). The pressure at port A is applied to the spring-loaded side of the main spool via the orifice (2). At the same time, the pressure acts on the side of the main spool (1) which is opposite to the spring via orifice (3) and (4). from the oil port A via the main spool with holes (2) and throttle holes (3) and (4).

If the pressure at port A exceeds the setting value of the spring (6), the pilot valve (5) opens. Then the fluid flows from spring-loaded side of the main spool (1) via the orifice (7) and poppet valve spool (5) to the spring chamber(8). The main spool (1) moves to the control position and keeps the pressure value set on spring(6) constant in port A.

The pilot control oil is always drained external from spring chamber (8) via the port Y (9). An optional check valve can be installed to allow the oil to flow freely from port A to port B in reverse direction.

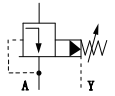
Functional symbols:

For subplate mounting

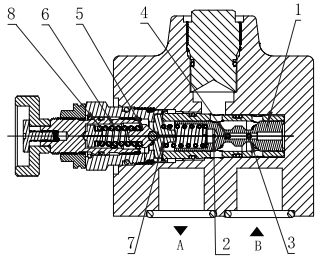


Model
DR...-4XJ/...Y

For subplate mounting
For manifold mounting



Model
DR...-4XJ/...YM
DR20...K-1XJ/...YM
(Cartridge type)



Models and specifications

DR | | – | – | / | Y | | | *

pilot operated
pressure reducing valve =DR

size	valve used for	
	subplate mounting	"K" type
10	=10	-
25	=20	=20

For subplate mounting =no code
manifold mounting(cartridge type) =K

adjusting element
rotary knob =4
adjusting screw with protective cap =5
lockable rotary knob with scale =6
rotary knob with scale =7

1X= 10 to 19 series (K type)
(10 to 19 series: installation and connection size unchanged)

4X= 40 to 49 series
(40 to 49 series: installation and connection size unchanged)

50= set pressure up to 50bar
100= set pressure up to 100bar
200= set pressure up to 200bar
315= set pressure up to 315bar

M= without check valve

No code= with check valve (subplate mounting)

No code= NBR seals
V= FKM seals

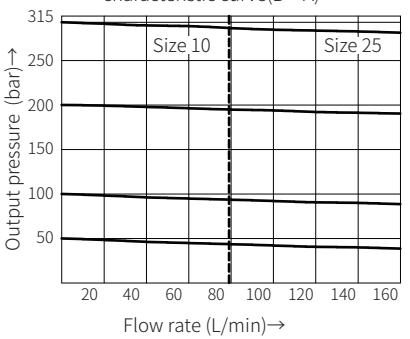
more information in text

Technical parameters

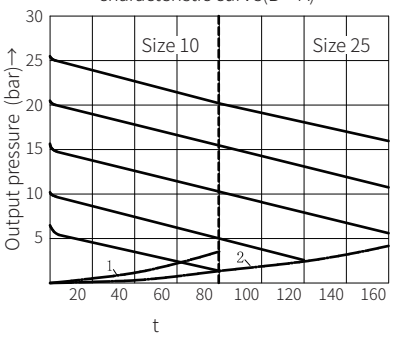
Medium		Mineral oil - for NBR seals and FKM seals
		Phosphate - for FKM seals
Working medium temperature range	°C	–30 to +80 (NBR seal)
		–20 to +80 (FKM seal)
Viscosity range	mm^2/s	10 to 800
Cleanliness of oil		The maximum allowable pollution level of oil is ISO4406 Class 20/18/15
Maximum working pressure	bar	315
Maximum adjusting pressure	bar	50; 100; 200; 315
Maximum flow	L/min	80 (size 10); 160 (size 25)

Characteristic curve

Output pressure p_A -flow q_v characteristic curve(B→A)

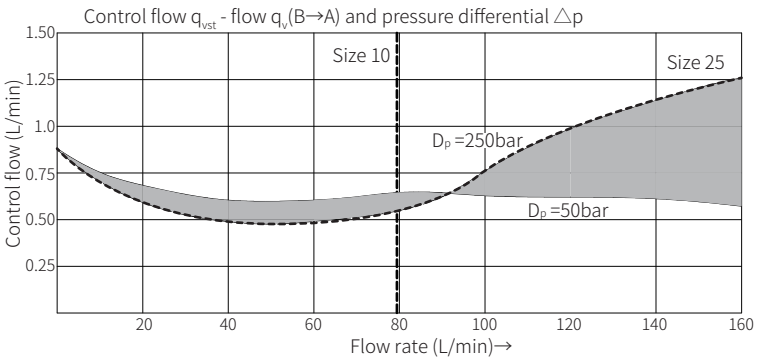


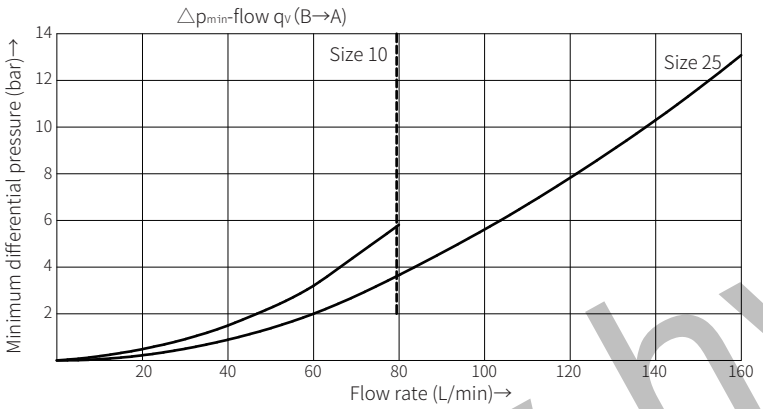
Minimum pressure p_{Amin}-flow q_v characteristic curve(B→A)

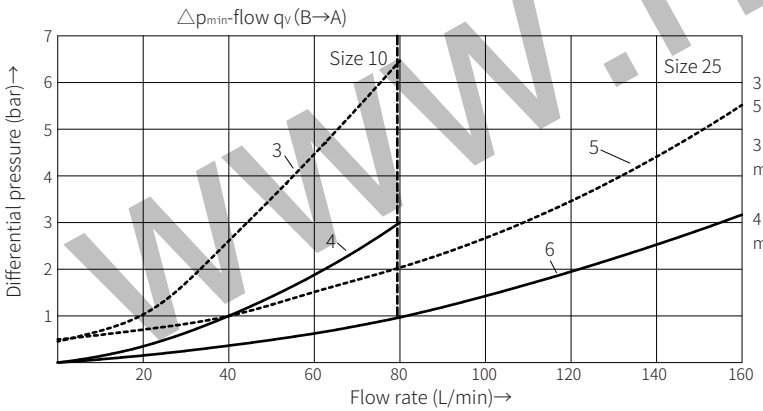


Performance limit
(system-dependent):
1 Size 10
2 Size 25

Characteristic curve







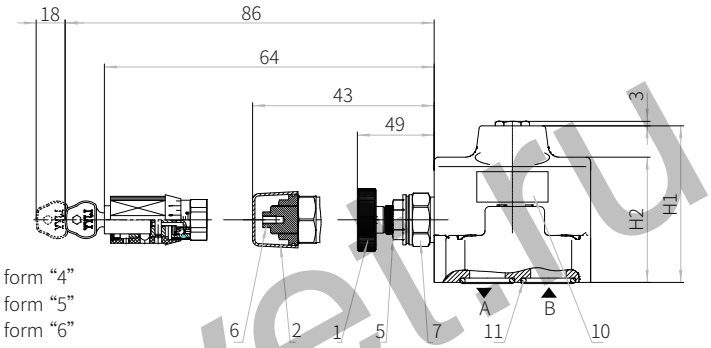
3 and 4 size 10
5 and 6 size 25

3 and 5
main stage closed

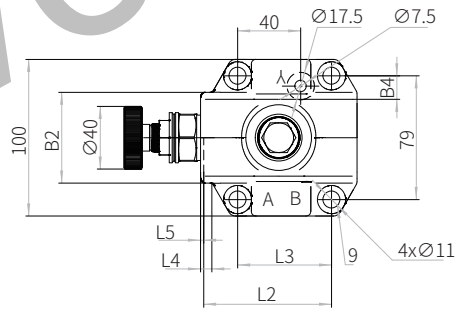
4 and 6
main stage fully open

Component size

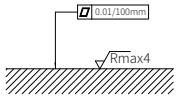
Size unit: mm



1 Adjustment form “4”
2 Adjustment form “5”
3 Adjustment form “6”
4 Adjustment form “7”
5 Locknut S=22
6 Hexagon screw S=10
7 Hexagon screw S=30
Tightening torque M_A=50Nm
8 Space required to remove the key
9 Valve fixing screw hole
10 Name plate
11 Same seal rings for port A and port B
12 Seal ring for port Y



Subplate use for
Valve size 10:
G460/01 (G3/8)
G461/01 (G1/2)
Valve size 20:
G412/01 (G3/4)
G413/01 (G1)
Valve fixing screw use for
Valve size 10: M10x40 DIN 912-10.9
Tightening torque M_A=75Nm
Valve size 20: M10x50 DIN 912-10.9
Tightening torque M_A=75Nm



Required surface finishing of mating components

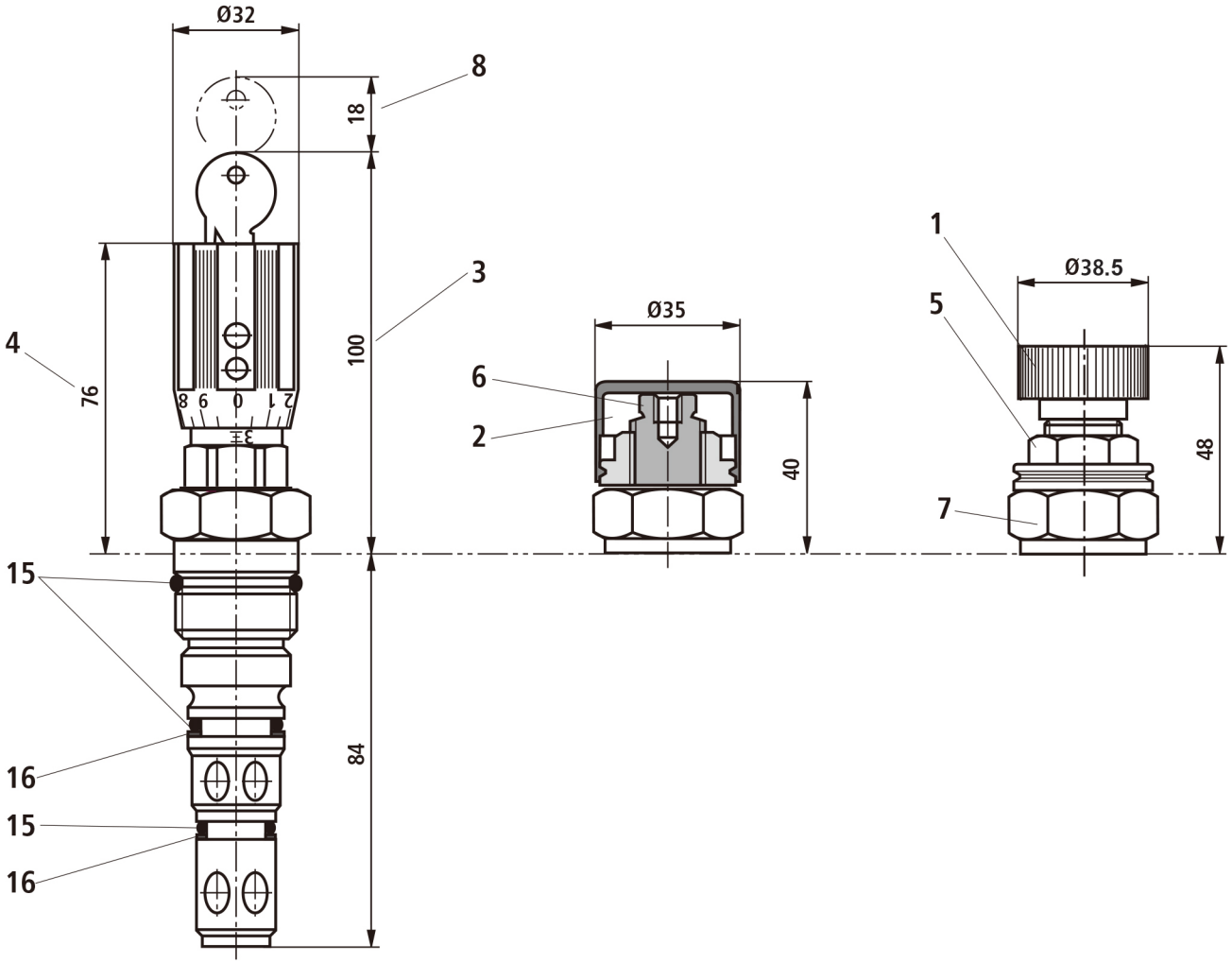
Model	L1	L2	L3	L4	L5	L6	B1	B2	B3	B4	H1	H2
DR10	95.5	79	42.9	23	2.5	21.5	85	49	66.7	7.9	71	60
DR20	96	79.5	60.3	7	4	39.7	100	58	79.4	6.4	96	78

Model	H3	H4	∅D1	∅D2	∅D3
DR10	26	26	35.5	21.8	15
DR20	26	40	41	34.8	25

02

www.hydrootvet.ru
www.hydrootvet.ru

Unit dimensions: Screw-in cartridge valve "K"
(dimensions in mm)



Mounting cavity
(dimensions in mm)