

Pilot Operated Pressure Reducing Valve

Model: DR...5X



- ◆ Size 10 to 32
- ◆ Maximum working pressure 315 bar
- ◆ Maximum working flow 400 L/min

Contents

Function description, sectional drawing	02
Models and specifications	03
Functional symbols	03
Technical parameters	04
Characteristic curve	05-06
Component size	07-09

Features

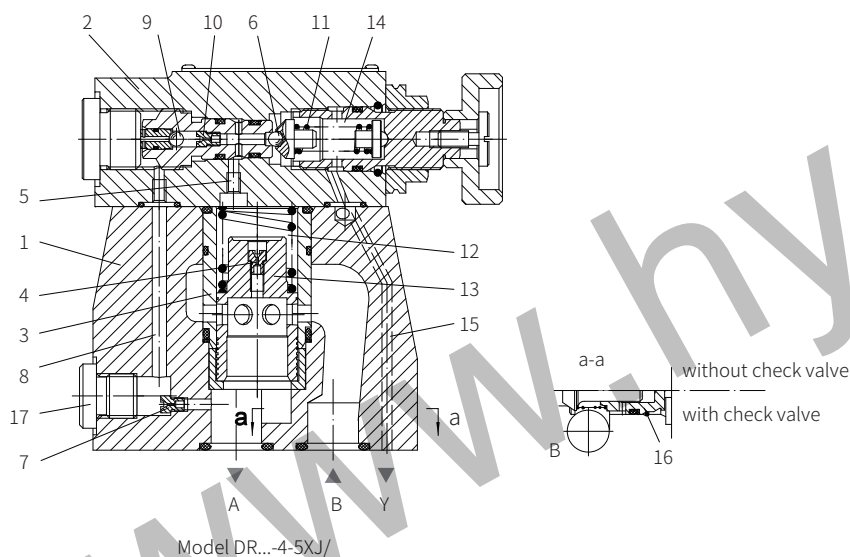
- For threaded connection
- For subplate mounting
- 4 adjusting elements
 - rotary knob
 - hexagon screw with sleeve and protective cap
 - lockable rotary knob with scale
 - rotary knob with scale
- 5 pressure ratings
- Check valve, optional (only for subplate mounting)

Function description, sectional drawing

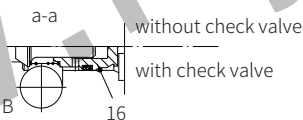
The DR... valve is pilot operated pressure reducing valve, it is composed of the main valve (1) with main spool insert (3) and pilot control valve (2) with pressure adjusting element.

At rest, the valve is normally open. The fluid flows freely from port B to port A via the main spool insert (3). The pressure at port A acts on the lower main spool side. At the same time, the pressure acts on the spring-loaded side of the main spool (3) via the throttle (4) and the ball (6) in the pilot control valve (2) via the channel (5). It also acts on the ball (6) via throttle (7), control line (8), check valve (9) and throttle (10). Depending on the spring (11) setting, a pressure builds up in front of the ball (6), in the channel (5) and in the spring chamber (12) to keep the control spool (13) in opened position. The fluid can flow freely from port to port A via the main spool insert (3) until the pressure at port A exceeds the setting value of the spring (11) and opens the ball (6). The control spool (13) moves in closing direction. The desired reduced pressure is achieved when there is a state of equilibrium between the pressure at port A and the setting pressure of the spring (11).

The control oil is drained from the chamber of spring (14) externally to the oil tank via the control line (15). An optional check valve (16) allows the oil to flow freely from port A to port B, and the pressure gauge connection (17) is used for the reduced pressure monitoring in port A.



Model DR...-4-5XJ/

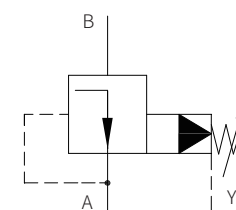


Models and specifications

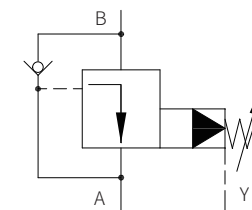
DR						5X	J	/		Y				*		
complete valve		=No code													more information in text	
pilot valve		=C													sealing material	
without main spool insert															No code= NBR seals	
(no mark size)															V= FKM seals	
pilot valve															(consult for other seals)	
with main spool insert		=C													No code ³⁾ with check valve	
(mark size 30)															M= without check valve	
															pilot oil supply	
															pilot oil supply internal	
															pilot oil return external	
															Y=	
															50= set pressure up to 50 bar	
															100= set pressure up to 100 bar	
															200= set pressure up to 200 bar	
															315= set pressure up to 315 bar	

3) only for pilot valve with subplate mounting

Functional symbols



Model DR...-5XJ/YM...



Model DR...-5XJ/Y...
(only for subplate mounting)

Technical parameters

Overview								
Installation position			optional					
Environment temperature range		°C	-30 to +50 (NBR seal)					
		°C	-20 to +50 (FKM seal)					
Weight			DR10	DR15	DR20	DR25	DR30	
Subplate mounting	DR...	kg	3.4	-	5.3	-	8.0	
	DRC...	kg	1.2					
	DRC30...	kg	1.2					
Threaded connection		DR...G...	kg	5.3	5.2	5.1	5.0	4.8
Hydraulic								
Nominal pressure		bar	315					
Maximum working pressure		Port B	bar	315				
Maximum secondary pressure		Port A	bar	10 to 315				
Maximum backpressure		Port T(Y)	bar	315				
Setting pressure	Min.	bar	relate to flow					
	Max.	bar	50;100;200;315					
Maximum flow			DR10	DR16	DR20	DR25	DR32	
		Subplate mounting	L/min	150	-	300	-	400
Threaded connection		L/min	150	300	300	400	400	
Medium		Mineral oil (HL, HLP) ¹⁾ in accordance with DIN 51524; Fast living organisms degraded oil according to VDMA 24568; HETG (Rapeseed oil) ¹⁾ ; HEPG (Polyethyleneglycol) ²⁾ ; HEES (Synthetic Fats) ²⁾						
Hydraulic oil temperature range		°C	-30 to +80 (NBR seal)					
		°C	-20 to +80 (FKM seal)					
Viscosity range		mm ² /s	10 to 800					
Cleanliness of oil ³⁾		The maximum allowable pollution level of oil is ISO4406 Class 20/18/15						

1) For NBR seal and FKM seal.

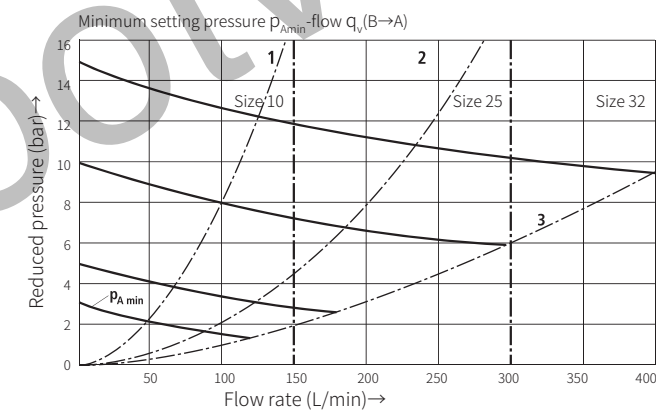
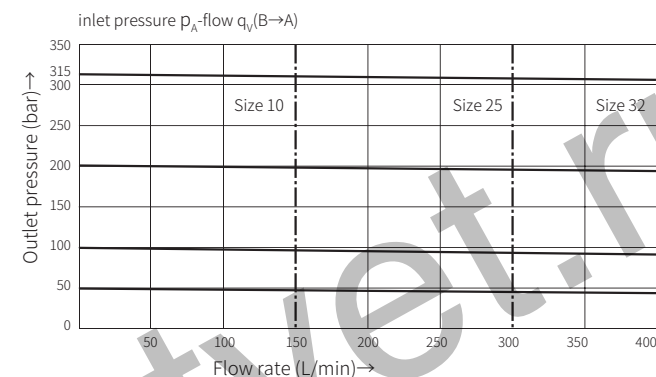
2) Only for FKM seal.

3) The oil must meet the cleanliness degree requested by the components in the hydraulic system.

Effective oil filtration can prevent failure and increase the service life of the components.

Characteristic curve

(Measured when using HLP46, $\vartheta_{oil} = 40^\circ\text{C} \pm 5^\circ\text{C}$)

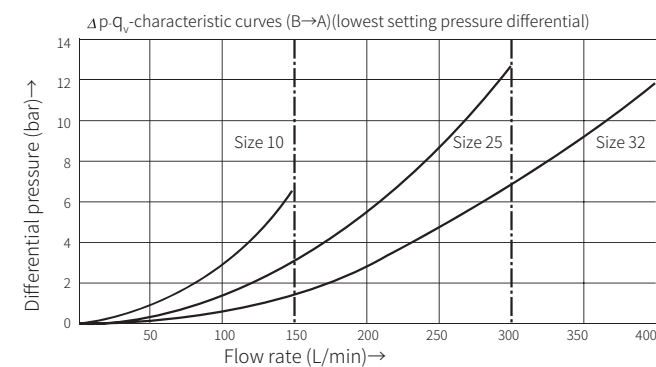


Performance limit
(system-dependent)

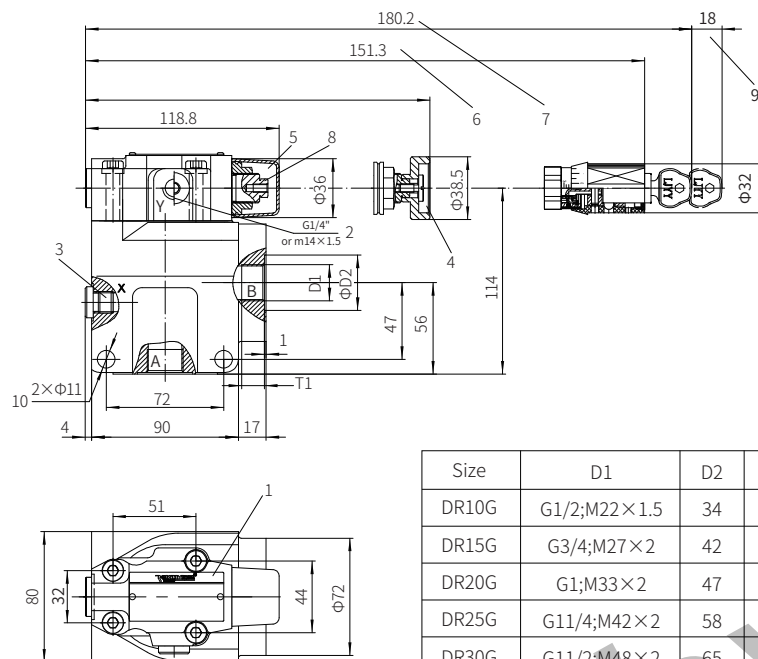
1=Size 10

2=Size 25

3=Size 30



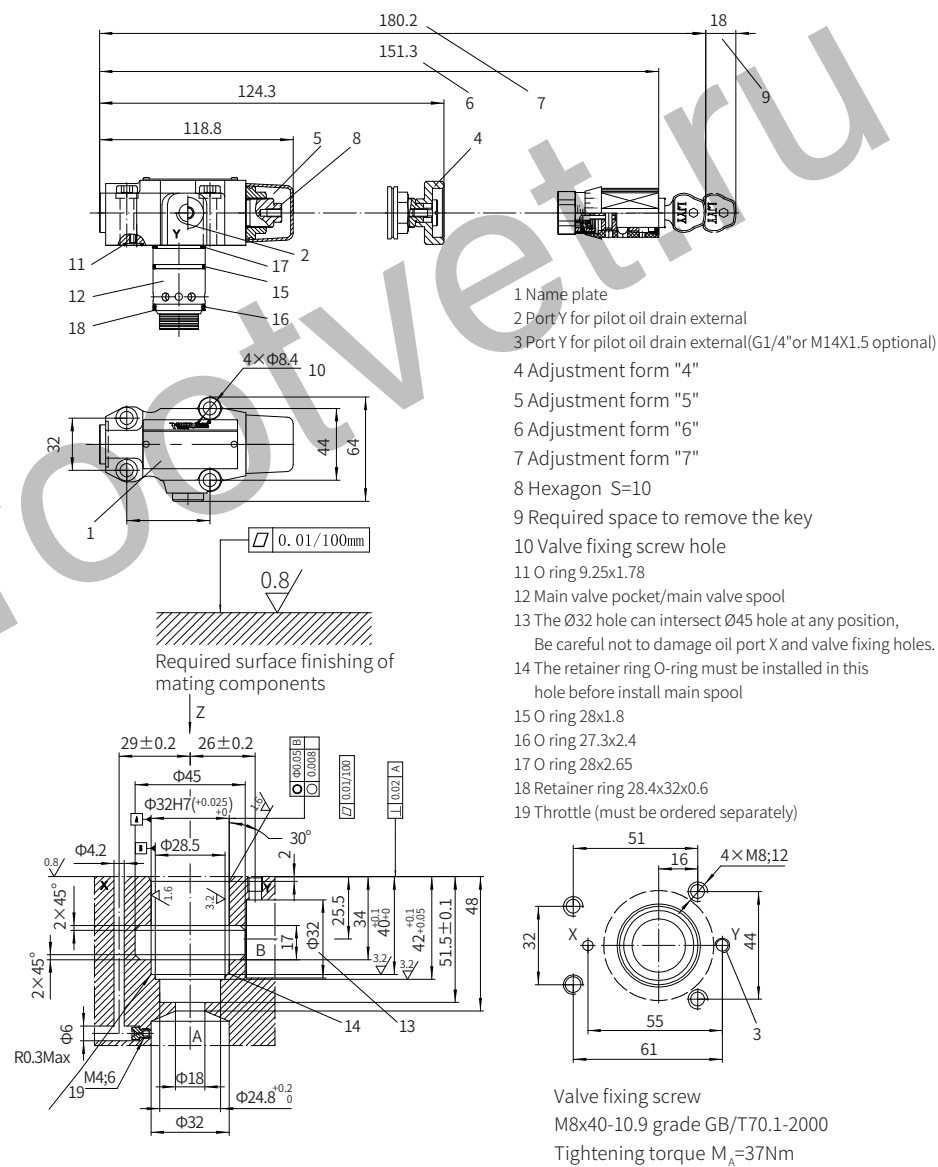
threaded connection, Model DR...G-5XJ/



Size	D1	D2	T1
DR10G	G1/2;M22×1.5	34	14
DR15G	G3/4;M27×2	42	16
DR20G	G1;M33×2	47	18
DR25G	G1 1/4;M42×2	58	20
DR30G	G1 1/2;M48×2	65	22

- 1 Name plate
- 2 Port Y for pilot oil drain external
- 3 Pressure gauge connection
- 4 Adjustment form "4"
- 5 Adjustment form "5"
- 6 Adjustment form "6"
- 7 Adjustment form "7"
- 8 Hexagon S=10
- 9 Required space to remove the key
- 10 Valve fixing screw hole

With (DRC10 or 30) or without (DRC)



- 1 Name plate
- 2 Port Y for pilot oil drain external
- 3 Port Y for pilot oil drain external (G1/4" or M14X1.5 optional)
- 4 Adjustment form "4"
- 5 Adjustment form "5"
- 6 Adjustment form "6"
- 7 Adjustment form "7"
- 8 Hexagon S=10
- 9 Required space to remove the key
- 10 Valve fixing screw hole
- 11 O ring 9.25x1.78
- 12 Main valve pocket/main valve spool
- 13 The Ø32 hole can intersect Ø45 hole at any position,
Be careful not to damage oil port X and valve fixing holes.
- 14 The retainer ring O-ring must be installed in this
hole before install main spool
- 15 O ring 28x1.8
- 16 O ring 27.3x2.4
- 17 O ring 28x2.65
- 18 Retainer ring 28.4x32x0.6
- 19 Throttle (must be ordered separately)

Valve fixing screw
M8x40-10.9 grade GB/T70.1-2000
Tightening torque $M_A=37\text{Nm}$