

# Pilot Operated Pressure Reducing Valve

Model: DR...5XJ



- ◆ 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

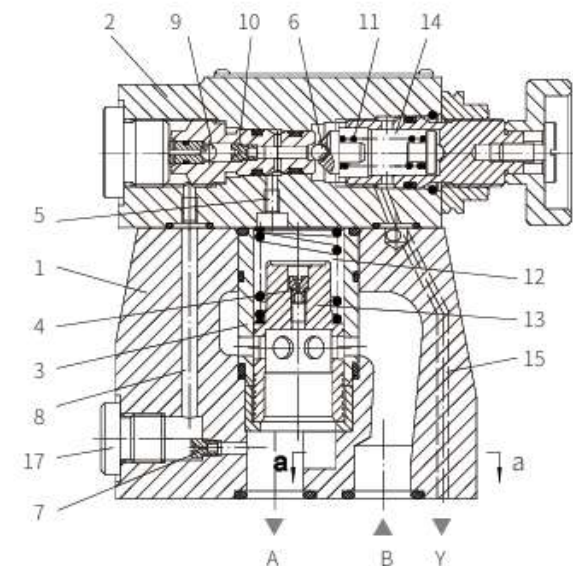
- For threaded connection
- For subplate mounting
- 4 adjusting elements
  - rotary knob
  - hexagon screw with sleeve and protective cap
  - lockable rotary knob with scale
  - rotary knob with scale
- 5 pressure ratings
- Check valve, optional (only for subplate mounting)

## Function description, sectional drawing

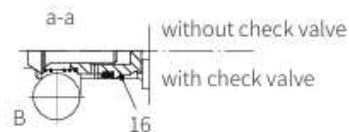
The DR... valve is pilot operated pressure reducing valve, it is composed of the main valve (1) with main spool insert (3) and pilot control valve (2) with pressure adjusting element.

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/

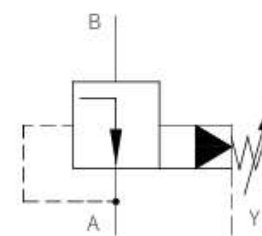


## Models and specifications

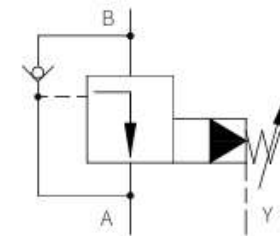
DR		-5X		J	Y	.
complete valve	=No code					
pilot valve without main spool insert (no mark size)	=C					
pilot valve with main spool insert (mark size 30)	=C					
size	subplate mounting "___"	threaded connection "G"				
10	=10	=10 (G 1/2)				
15		=15 (G 3/4)				
20	=20	=20 (G 1)				
25		=25(G 1 1/4)				
32	=30	=30(G 1 1/2)				
for subplate mounting	= -					
for threaded connection	=G					
adjusting element						
rotary knob	=4					
hexagon screw with sleeve and protective cap	=5					
lockable rotary knob with scale	=6					
rotary knob with scale	=7					
						more information in text
						sealing material
						No code= NBR seals
						V= FKM seals
						(consult for other seals)
						No code <sup>3)</sup> = with check valve
						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
						J= Rekit
						5X= 50 to 59 series
						(50 to 59 series installation and connection size unchanged)

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
<b>Hydraulic</b>							
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			relate to flow				
		Min.	bar				
		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) <sup>1)</sup> in accordance with DIN 51524; Fast living organisms degraded oil according to VDMA 24568; HETG (Rapeseed oil) <sup>1)</sup> ; HEPG (Polyethyleneglycol) <sup>2)</sup> ; HEES (Synthetic Fats) <sup>2)</sup>				
Hydraulic oil temperature range		°C	-30 to +80 (NBR seal)				
		°C	-20 to +80 (FKM seal)				
Viscosity range		mm <sup>2</sup> /s	10 to 800				
Cleanliness of oil <sup>3)</sup>			The maximum allowable pollution level of oil is ISO4406 Class 20/18/15				

1) For NBR seal and FKM seal.

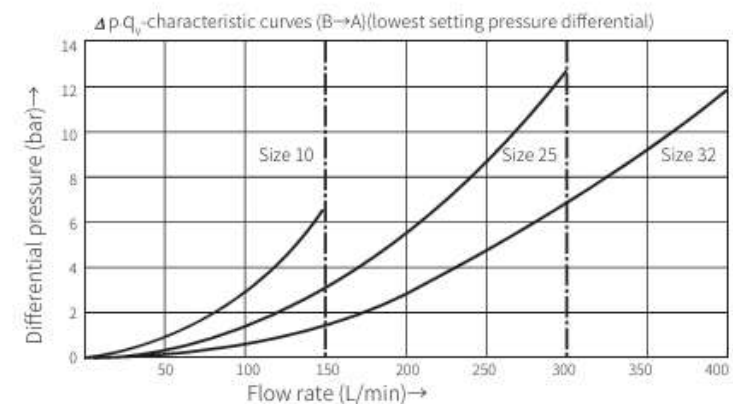
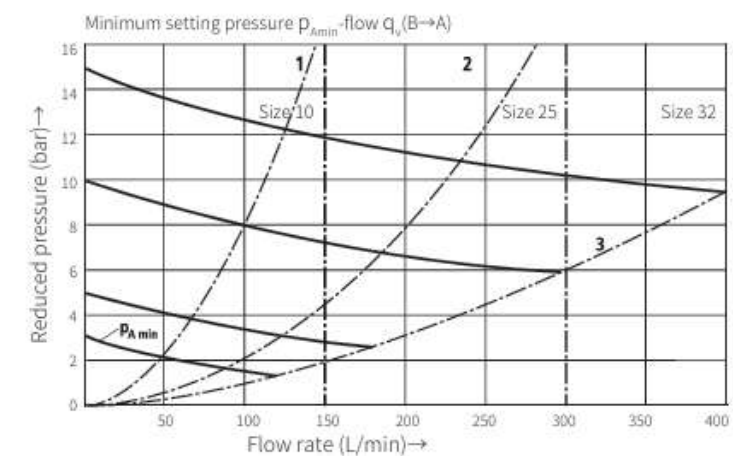
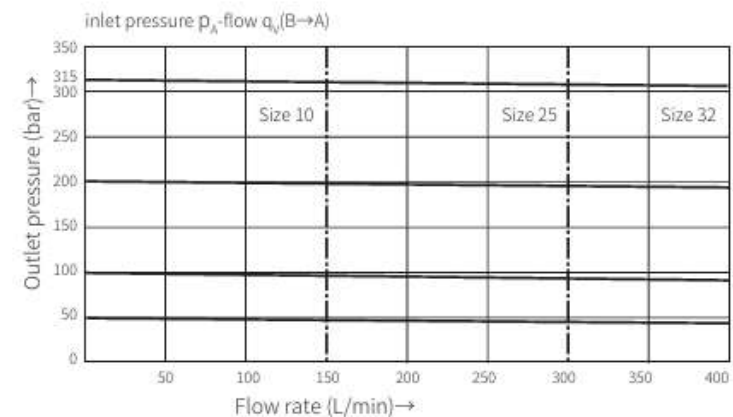
2) Only for FKM seal.

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

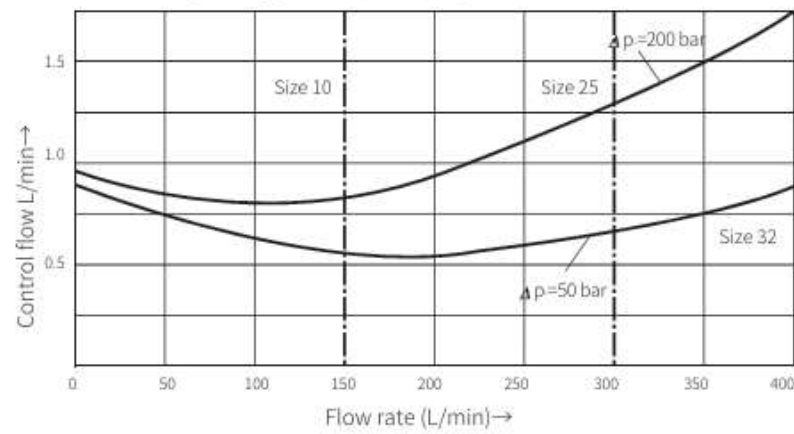
(Measured when using HLP46,  $\theta_{oil} = 40^\circ\text{C} \pm 5^\circ\text{C}$ )



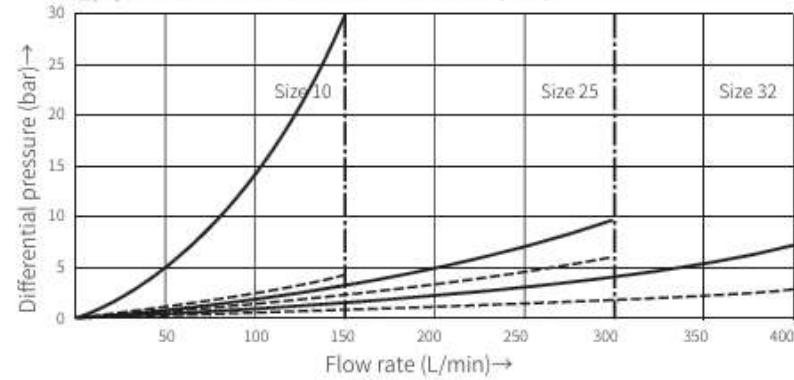
# Characteristic curve

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

Pilot flow depending on flow (B→A) and pressure differential



$\Delta p$ -q-characteristic curves across the check valve (A→B)



- Flow resistance across check valve, main valve closed
- - - Flow resistance across check valve with completely opened main valve