BEIJING HUADE HYDRAULIC INDUSTRIAL GROUP CO.,LTD.	Pilot operated pressure reducing valve, type DR...50B/(New Series)			RE 26892/12.2004
	Size 10 to 25	up to 31.5MPa	up to 400L/min	Replaces: RE26892/05.2001

Features:

- Subplate mounting
- For threaded connections
- For manifold mounting
- 4 adjustment elements:
  - · Rotary knob,
  - · Sleeve with hexagon and protective cap,
  - · Lockable rotary knob with scale,
  - · Rotary knob with scale
- 4 pressure settings
  optional check valve (only for valve for subplate mounting)
- Porting pattern to DIN 24 340, form D,ISO 5781 and CETOP-RP 121H

Functional, Section

Pressure valves type DR are pilot operated pressure reducing valves, which are controlled from the secondary circuit. They basically consist of main valve (1) with main spool insert (3) and pilot valve (2) with pressure adjustment element ..

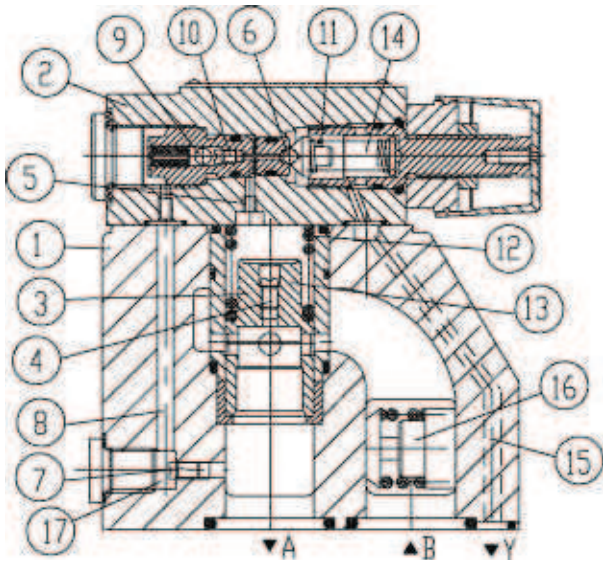
At rest, the valves are open, fluid can freely pass from port B to port A via the main spool insert (3).

Pressure present in port A acts upon the bottom side of the main spool. At the same time there is pressure acting on the ball(6) in the pilot valve (2) via the orifice (4) on the spring-loaded side of the main piston (3) and via the port (5). Same it is acting on the ball (6) via the orifice (7), control line (8), check valve(9)and orifice (10). According to setting of spring (11), pressure builds up in front of the ball (6), in port (5) and in spring chamber (12), holding the control piston (13) in the open position. Fluid can freely flow from port B to port A via main spool insert (3), until the pressure in port A exceeds the value set at spring (11) and opens the ball (6). The control piston (13) moves to closing position.

The desired reduced pressure is achieved, when a balance between the pressure in port A and the pressure set at spring (11) is reached. Pilot oil drain from spring chamber (14) to tank takes place externally via control line (15).

Free return flow from port A to B can be achieved by installing an optional check valve (16).

A pressure gauge connection (17) allows the reduced pressure in port A to be monitored.



Ordering Code

			-	-	50	B	/		Y	/	/	*

Pilot operated valve =DR
Pilot valve = DRC
without main spool insert
(do not state size)
Pilot valve = DRC
with main spool insert
(state valve size 30)

Size	Valve	
	Subplate mounting	Threaded connections G
	Ordering code	
10	10	10（M22x1.5 or G1/2``）
15	-	15（M27x2 or G3/4``）
20	20	20（M33x2 or G1``）
25	-	25（M42x2 or G11/2``）

For subplate mounting = No code
For threaded connections = G

50= Series 50 to 59
(50 to 59: unchanged installation and connection dimensions)

B = Technology of Beijing Huade Hydraulic

50 = pressure setting up to 5.0 MPa
100 = pressure setting up to 10.0 MPa
200 = pressure setting up to 20.0 MPa
315 = pressure setting up to 31.5 MPa

No code = with check valve
M = without check valve
(Without check valve ,but no code)

No code =external connect with port:metre
2= external connect with port:inch
(A pressure gauge connection G1/4")

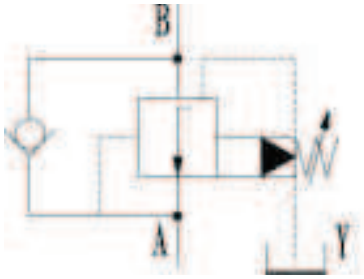
No code = mineral oils
V = phosphate ester

Further details in clear text

Adjustment element
4 = Rotary knob
5 = Sleeve with hexagon and protective cap
6 = Lockable rotary knob with scale
7 = Rotary knob with scale

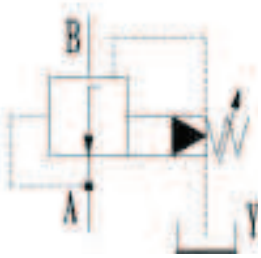
Symbols

only for subplate mounting



DR...50B...Y...

only for subplate mounting



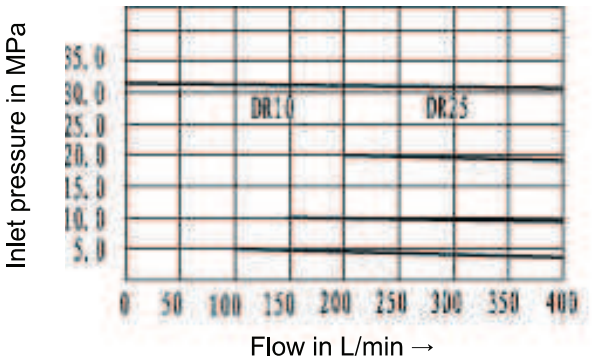
DR...50B...YM...

Technical Data

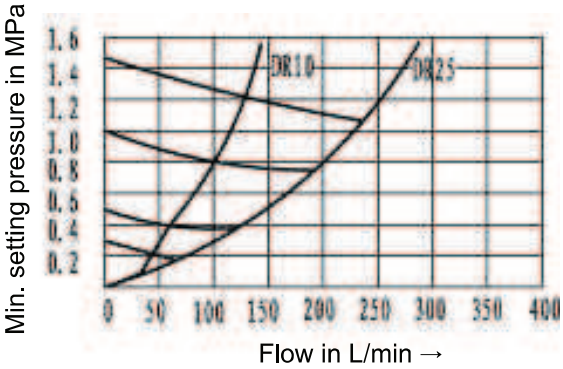
Inlet pressure, port B	(MPa)	up to 31.5			
Outlet pressure, port A	(MPa)	up to 5.0、10.0、20.0、31.5			
Backpressure, port Y	(MPa)	up to 31.5			
Max. flow (Subplate mounting)	(L/min)	DR10		DR20	
		150		300	
Max. flow (Threaded connections)	(L/min)	DR10	DR15	DR20	DR25
		150	300	300	400
Fluid		Mineral oil (for NBR seal)or phosphate ester(for FPM seal)			
Fluid temperature range	(℃)	-30 up to + 80			
Viscosity range	(mm/s^2)	10 up to 800			
Degree of contamination		Maximum permissible degree of contamination of the fluid to NAS 1638, class 9.			

Characteristic Curves (measured at v=41mm^2/s and t=50℃)

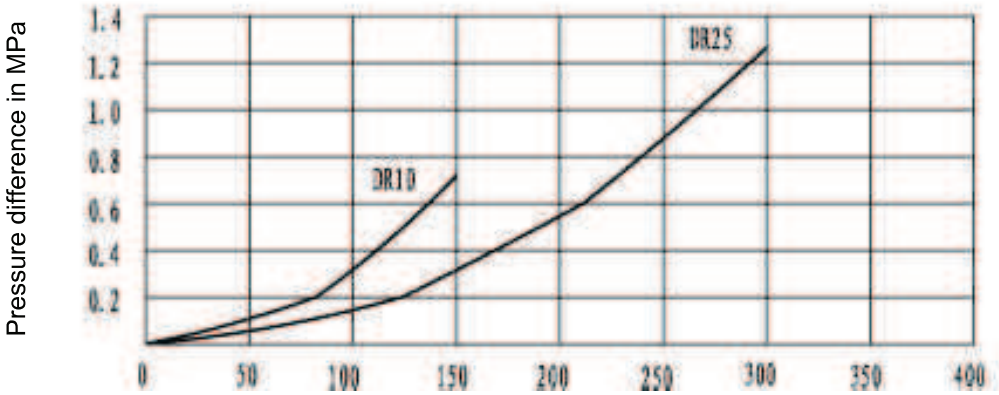
Outlet pressure p_A related to flow Q (B-A)



min. setting pressure p_A min related to flow Q (B-A)

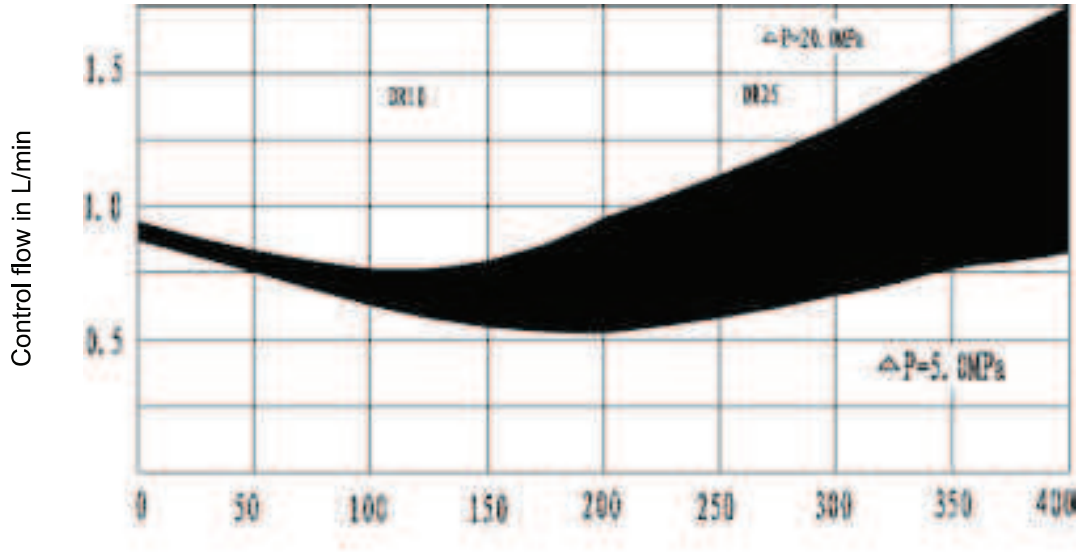


△ p-Q-curves (B- A) (lowest settable pressure difference)



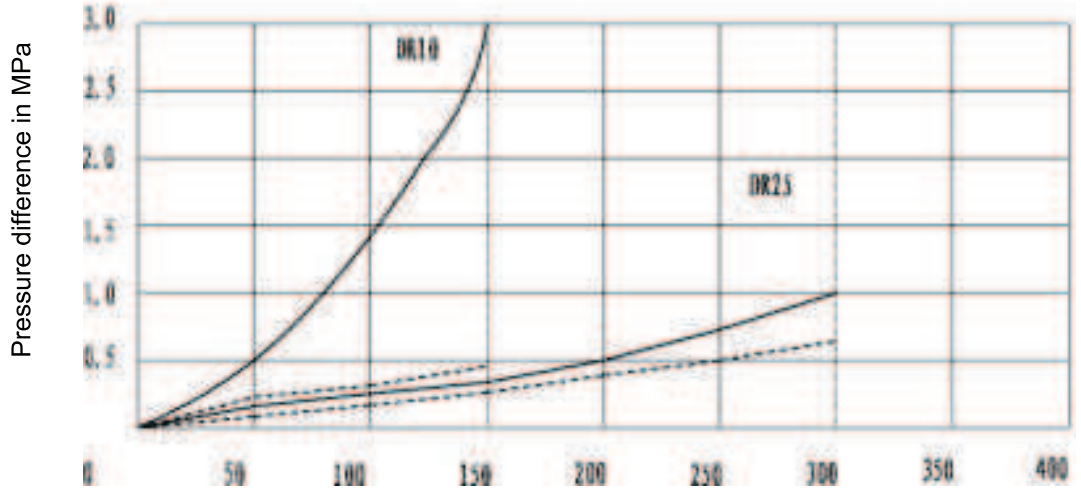
Characteristic Curves (measured at v = 41 mm²/s and t = 50℃)

Control flow related to flow (B-A) and to pressure difference



Flow in L/min →

△ p-Q-curves via the check valve (A-B)

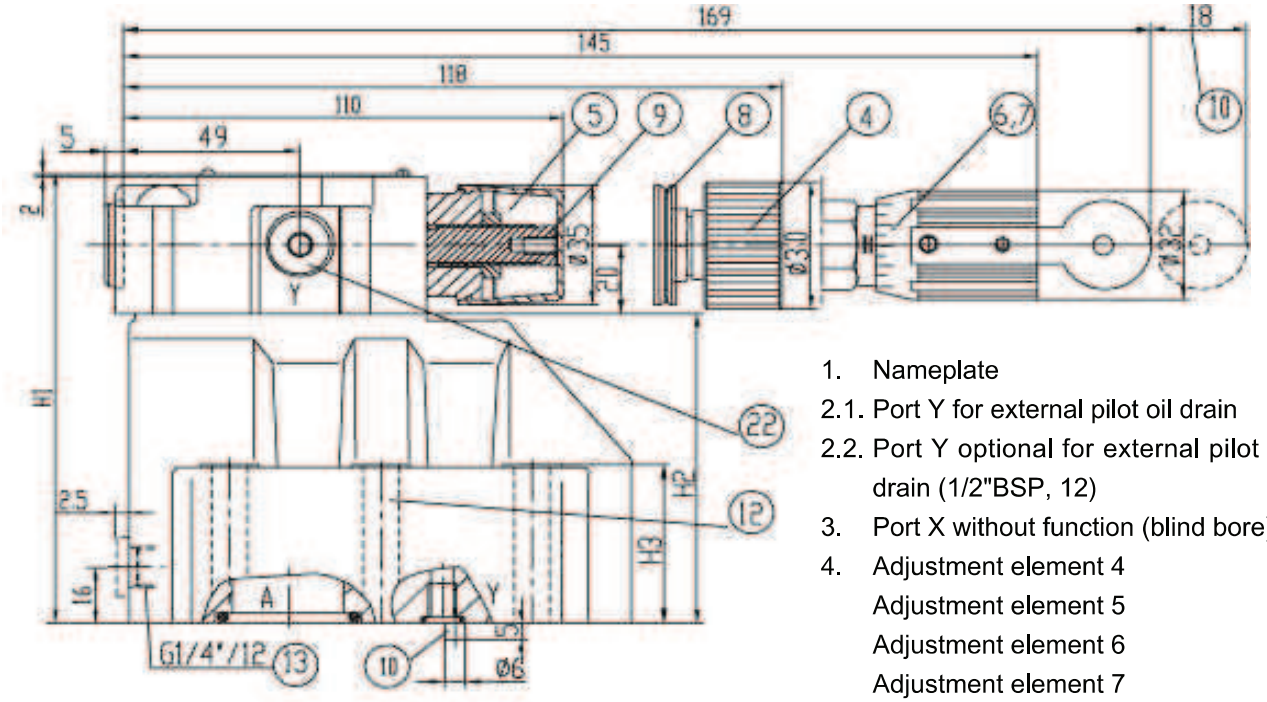


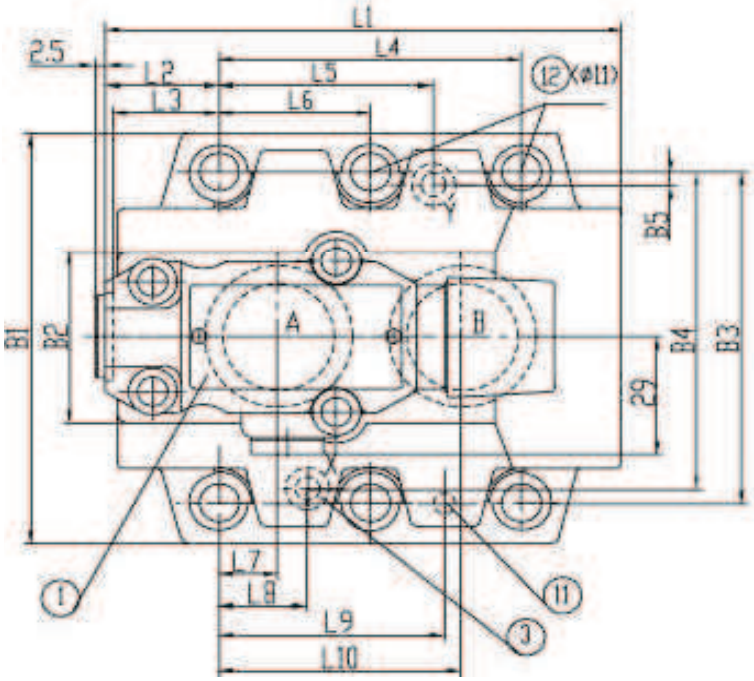
Flow in L/min→

——— Flow resistance via check valve, main stage closed

– – – Flow resistance via check valve at fully opened main stage

Unit Dimensions: Valve for Subplate Mounting (Dimensions in mm)



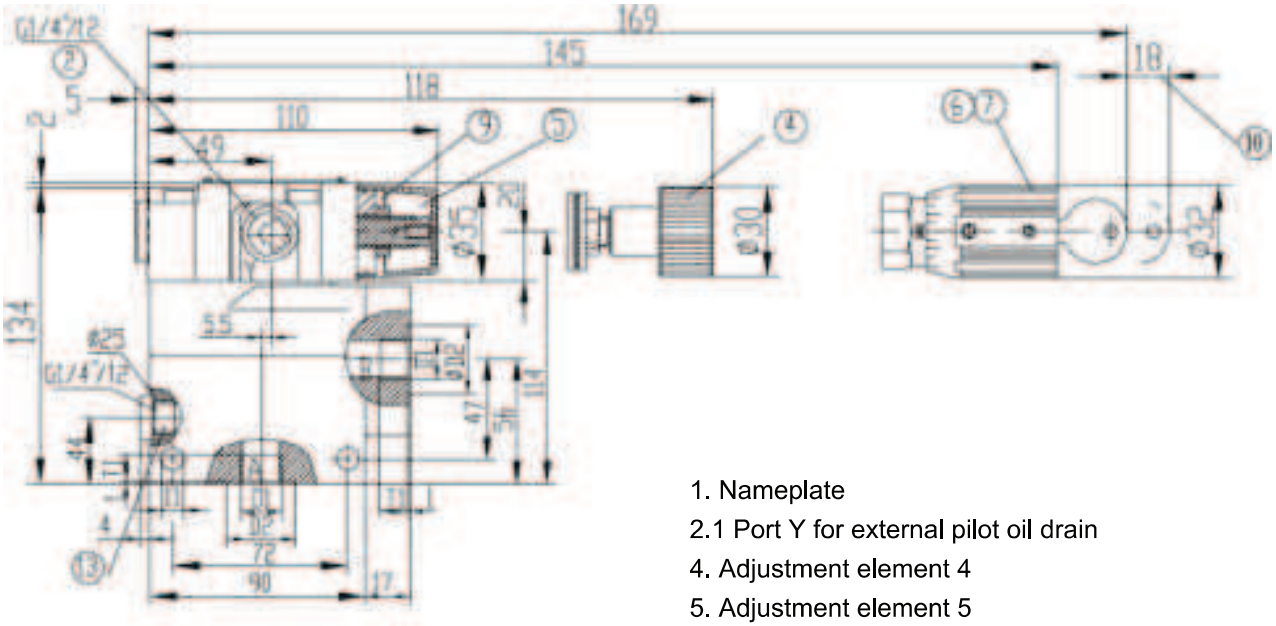


1. Nameplate
2.1. Port Y for external pilot oil drain
2.2. Port Y optional for external pilot oil drain (1/2"BSP, 12)
3. Port X without function (blind bore)
4. Adjustment element 4
   Adjustment element 5
   Adjustment element 6
   Adjustment element 7
   Hexagon 22 A/F
9. Hexagon 10 A/F
10. Space required for removal of key
11. Locating pin
12. Valve fixing holes
13. Pressure gauge connection port

Subplates for:see page150
DR 10 G 460/01 (3/8" BSP)
G 461/01 (1/2" BSP)
DR 20 G 412/01 (3/4" BSP)
G 413/01 (1" BSP)
DR 30 G 414/01 (1 1/4" BSP)
G 415/01 (1 1/2" BSP)
Valve fixing screws:GB/T70.1-2000
DR 10：4-M10 x 50-10.9;
tightening torque = 75 Nm
DR 20：4-M10 x 60-10.9;
tightening torque = 75 Nm
DR 30：6-M10 x 70-10.9
tightening torque = 75 Nm

Required surface finish
of mating piece

Size	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	B1	B2	B3	B4	B5	H1	H2	H3	O-ring(ports A.B)	O-ring(ports X.Y)
10	96	35.5	33	42.9	21.5	-	7.2	31.5	21.8	35.8	85	50	66.7	58.8	7.9	112	92	28	17.2 × 262	9.25 × 1.78
20	116	37.5	35.4	60.3	39.7	-	11.1	20.6	44.5	49.2	102	59.5	79.4	73	6.4	122	102	38	28.17 × 3.53	



1. Nameplate
2.1 Port Y for external pilot oil drain
4. Adjustment element 4
5. Adjustment element 5
6. Adjustment element 6
7. Adjustment element 7
8. Hexagon 22A/F
9. Hexagon 10A/F
10. Space required for removal of key
12. Valve fixing hole
13. Pressure gauge connection port

Type	D1	ϕ D2	T
DR10G	G1/2″(M22 × 1.5)	34	14
DR15G	G3/4″(M27 × 2)	42	16
DR20G	G1″(M33 × 2)	47	18
DR25G	G11/4″(M42 × 2)	58	20

Warnning: pipe mounting without non-return valve,can not flow reverse

Notice

1. **The fluid must be filtered. Minimum filter fineness is 20 μm.**
2. **The tank must be sealed up and an air breather/filter must be installed on air suction/entrance.**
3. **Subplate are not supplied, if required, please ordering separetly.**
4. **Valve fixing bolts/screws must be high tensilel (class 10.9). Please select and consult manufacturer. according to the parameter listed in the datasheet.**
5. **Roughness of surface mating with the valve is required to** 

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6. **Surface straightness of mating piece is required to 0.01/100mm.**

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