BEIJING HUADE HYDRAULIC INDUSTRIAL GROUP CO.,LTD.	Proportional pressure reducing valve Types DRE and DREM			RC29148/9.2006
	Size 10.25.32	up to 31.5 MPa	up to 300 L/min	Replaces: RC29148/08.2000

Features:

- Optional max.pressure protecting
- Optional check valve between A and B
- Valve used for reducing a working pressure
- For subplate mounting
- Valve and electronics from one scurce

Function, section

The valve types DRE and DREM are pilot operated pressure reducing valves. They are used for the reduction of a working pressure.

The valves basically consist of the pilot valve (1) with proportional solenoid (2), main valve (3) with main spool assembly (4), as well as an optional check valve (5).

Type DRE...

The setting of the pressure in port A is dependent on the voltage present at the proportional solenoids (2).

At rest, with no pressure in port B the spring holds the main spool (4) in its start position. The connection from B to A is closed. A start-up jump is, therefore avoided.

The pressure in port A acts via connection on the area of the main spool.

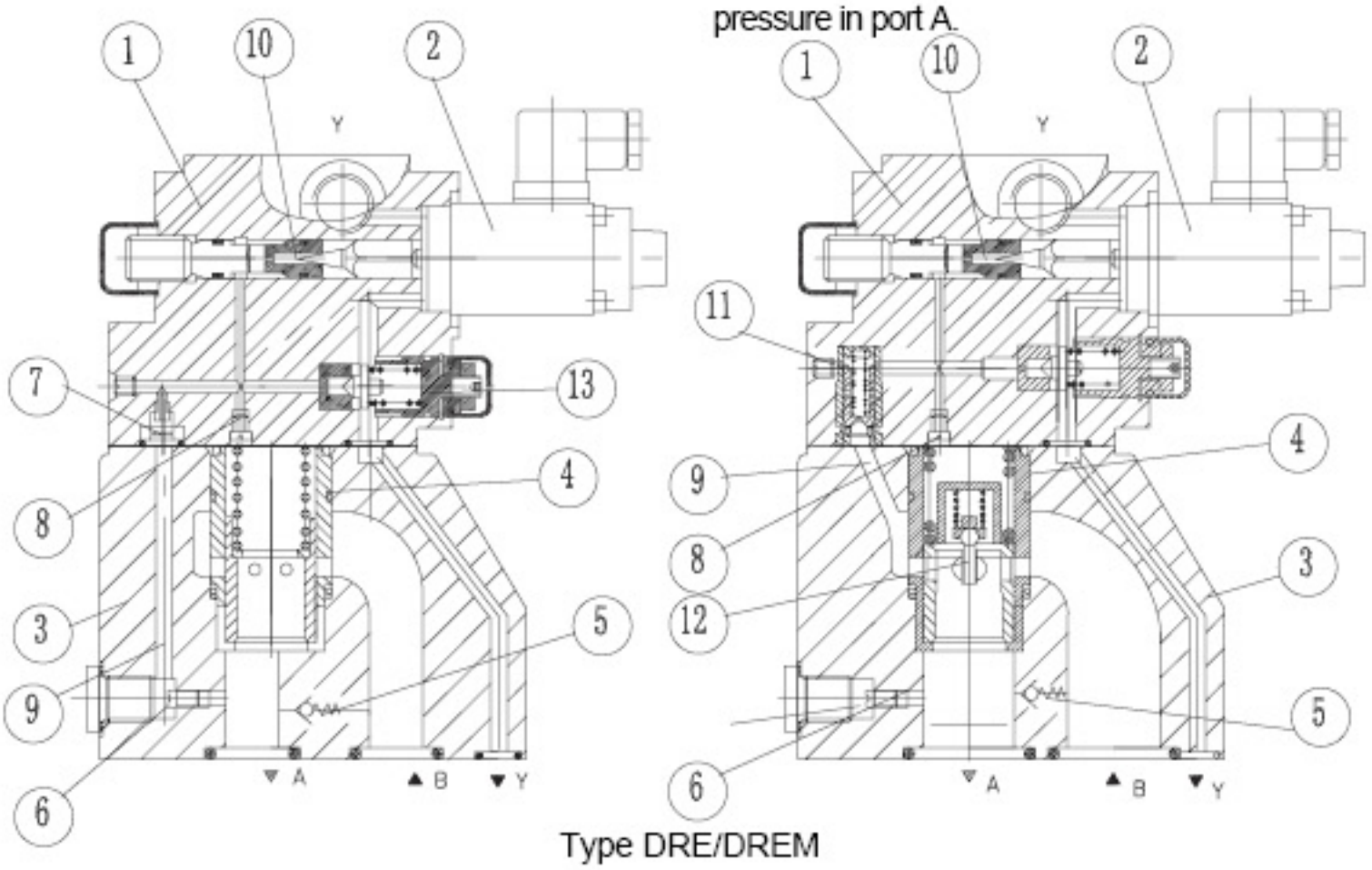
The pilot oil is taken from port A(NS 10) or port B(NS 20,30) and passes through the connection to the constant flow controller, which holds the pilot oil flow constant independent of pressure drops between ports A and B. From the constant flow controller the pilot oil flow passes into the spring chamber, through two connections, via valve seat into the Y port and from there into the drain line.

The pressure required in port A is defined at the relevant amplifier.

Type DREM...

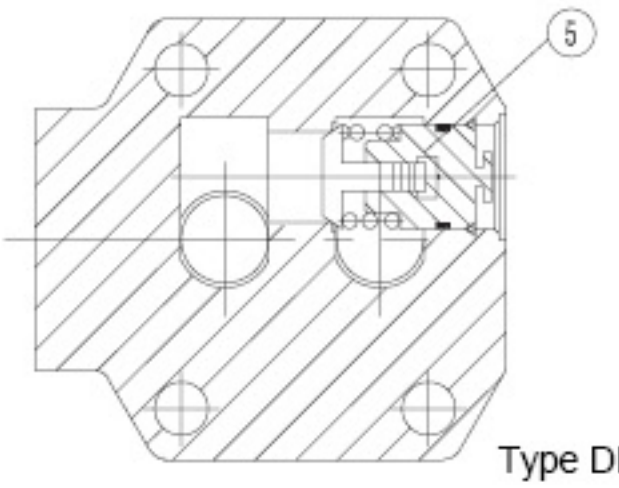
In order to ensure that excessive hydraulic pressures (hydraulic safety) do not occur due to unpermissibly high control currents at the proportional solenoid that automatically cause higher pressure in port A, a spring loaded maximum pressure relief valve, for maximum pressure safety, can be optionally installed if required.

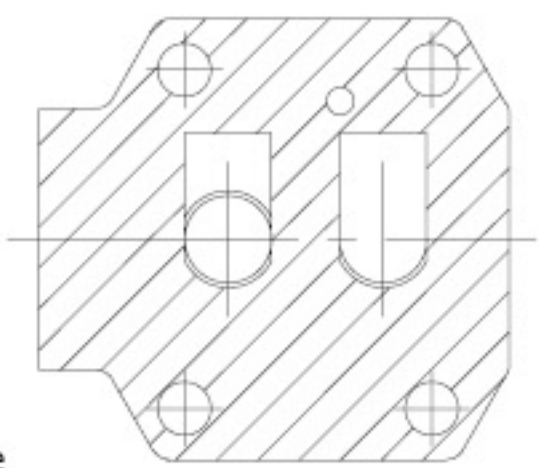
Note: When the pressure fluid flow from port A to port B via the check valve (5), the parallel flow of oil via Y to tank affects the deceleration process of the actuator attached to port A if this is being decelerated by a throttle valve in port B (e.g. proportional directional valve). Under such circumstances, the third flow direction A to Y is not suitable for limiting the maximum pressure in port A.



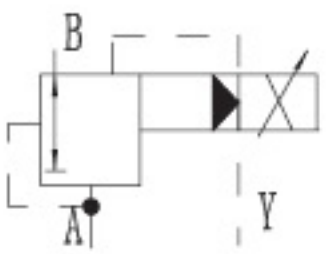
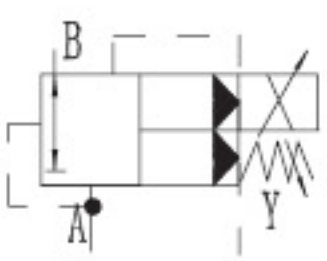
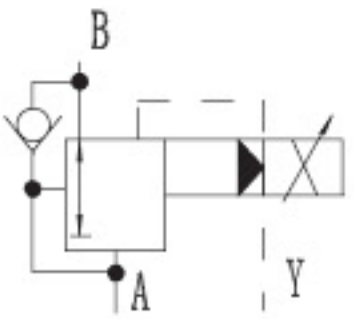
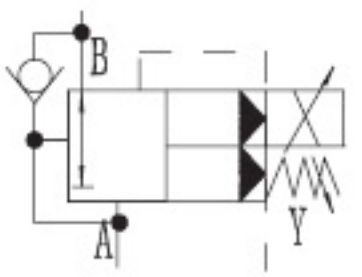
Type DRE/DREM

With check valve	Without check valve



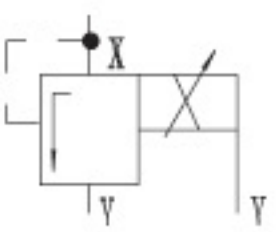


Type DRE, with check valve

10 DRE 20-30B...YM 30 DRE CN-30B...Y DRE CH-30B...Y	10 DREM 20-30B...YM 30 DREM CN-30B...Y DREM CH-30B...Y	10 DRE 20-30B...Y 30	10 DREM 20-30B...Y 30
			

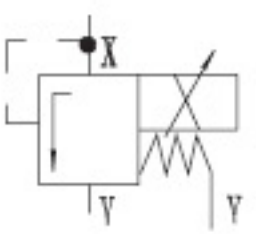
DREC $^{N}_{H}$ -30B/...Y

DREC $^{N}_{H}$ -30B



DREM C $^{N}_{H}$ -30B/...Y

DREM C $^{N}_{H}$ -30B



Ordering details

DRE				-	30	B	/		Y			*

Without maximum pressure limitation=No code
With maximum pressure limitation = M

Pilot operated pressure reducing valve = No code
Pilot valve, size 10 (do not state valve size) = CN
Pilot valve with main valve cartridge for installation in manifolds, size 10 (state valve size) = CN
Pilot valve, size 20,30 (do not state valve size) = CH
Pilot valve with main valve cartridge for installation in manifolds, size 20,30 (state valve size) = CH

NS	10	=10
	25	=20
	32	=30

Series 30 to 39 =30
(30 to 39: unchanged installation and connection dimensions)

Further details in clear text

M = for mineral oils
V = for phosphate ester

No code = With check valve between A and B
M = Without check valve

Y= Pilot oil drain external,separate and zero pressure to the tank

Pressure rating:	50=	5MPa
	100=	10MPa
	200=	20MPa
	315=	31.5MPa

B= Technology of Beijing Huade Hydraulic

Technical data

Hydraulic

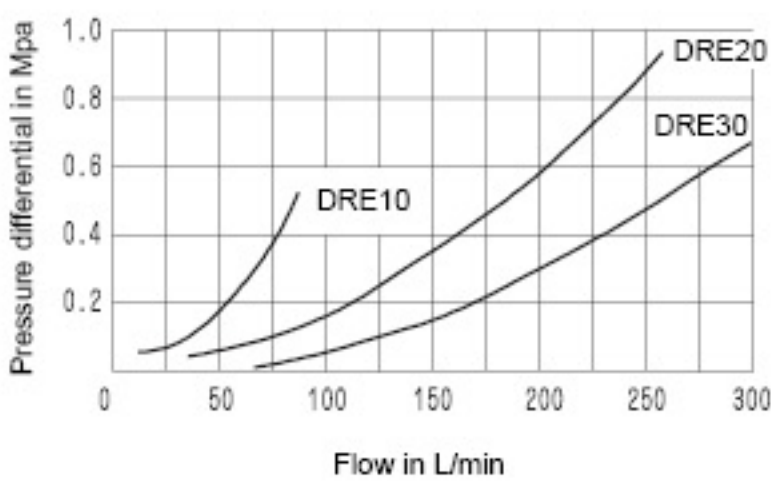
Max.setting pressure (MPa)	ports A and B	31.5			
	port Y	go to tank ,no pressure			
Max.setting pressure,for port A (MPa)		The same as pressure rating			
Min.setting pressure,for port A (MPa)		Be related to "Q". (see curves)			
Max.pressure limiter (steplessly settable)					
Setting pressure range set as delivered (MPa)		pressure rating			
		5	10	20	31.5
		1 to 6^{+2}	1 to 12^{+2}	1 to 22^{+2}	1 to 34^{+2}
Max.pressure limiter (assembly settable) (MPa)		6 to 8	12 to 14	22 to 24	34 to 36
Max. flow (L/min)	size	10	20	30	
	flow	80	200	300	
Pilot oil		See characteristic curves			
Linearity (%)		± 3.5			
Repeatability (%)		< ± 2			
Hysteresis		With quiver ± 2.5%Pmax,without quiver ± 4.5%Pmax			
Typical scatter		± 2.5Pmax See characteristic curves			
Operating time (ms)		100 to 300			
Fluids		Mineral oil(for NBR seal),Phosphate ester (for FPM seal)			
Viscosity range (mm^2/s)		2.8 to 380			
Fluid temperature range (°C)		-20 to +70			
Degree of the contamination (μm)		≤ 20(recommend 10)			

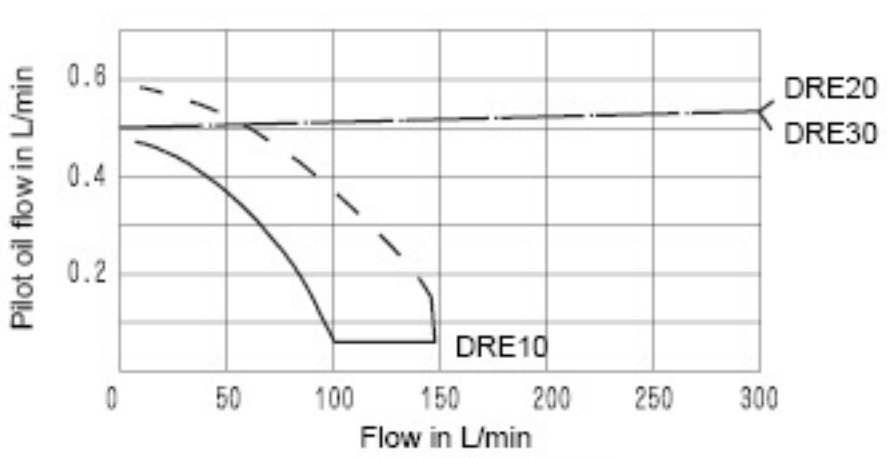
Electrical

Supply voltage	DC
Min.control current (A)	0.1
Max.control current (A)	0.8
Coil resistance (Ω)	cold valve at 20°C is 19.5,Max.warm valve is 28.8
Duty	continuous
Max. condition temperature (°C)	+50
Insulation to DIN 40 050	IP65
Associated amplifier	Plug-in connecter
Electrical applifier	VT-2000$^{s}_{k}$40(together provide)

Characteristic curves (measured at V = 41 mm^2/s and t= 50°C)

Pressure difference from A to B,via check valve

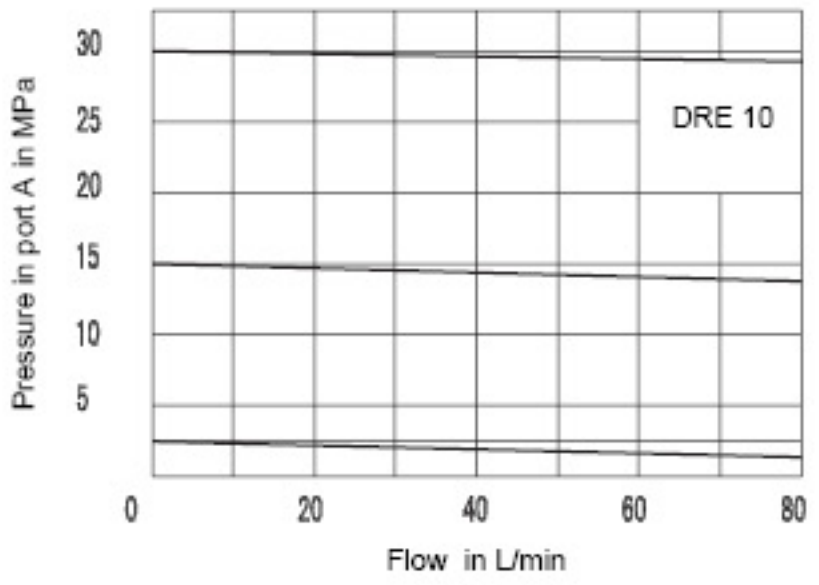




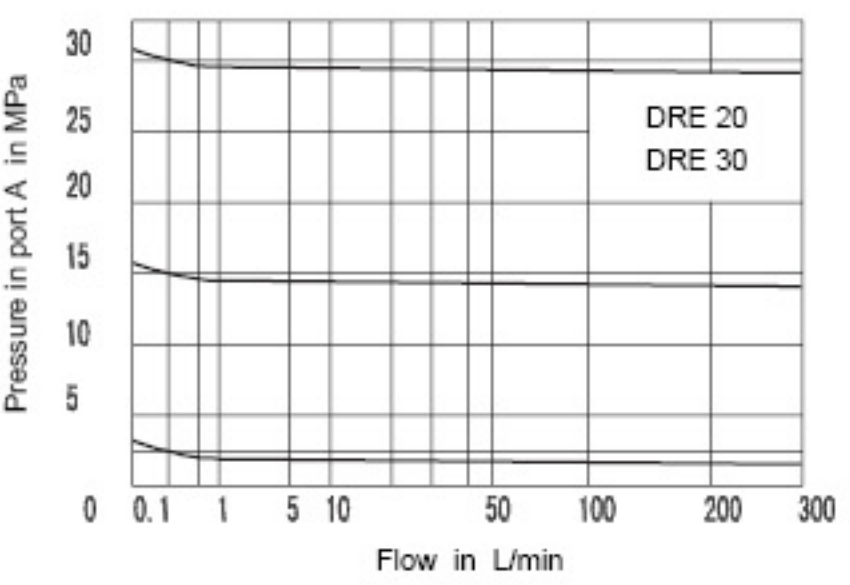
= Δ P is 2MPa DRE10
= Δ P is 10MPa DRE10
= Δ P is 2MPa and 10MPa DRE20 and DRE30

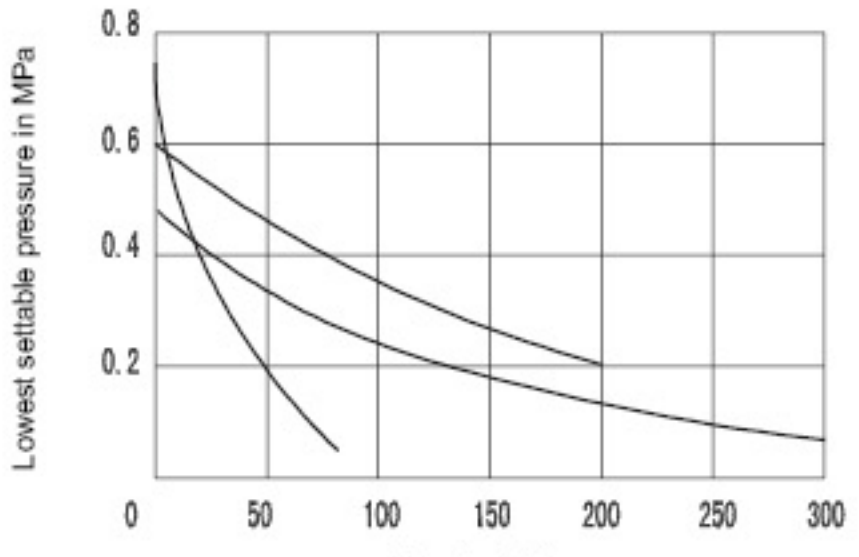
Characteristic curves (measured at V = 41 mm²/s and t = 50°C)

Pressure in port A in relation to flow

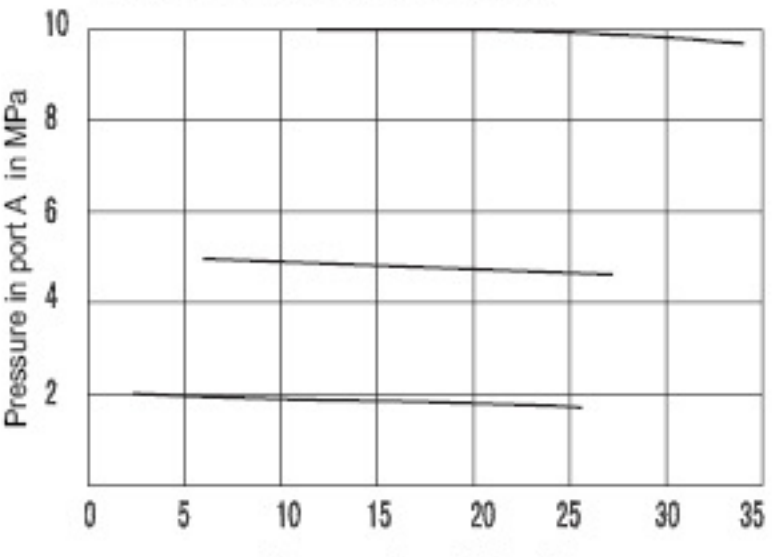


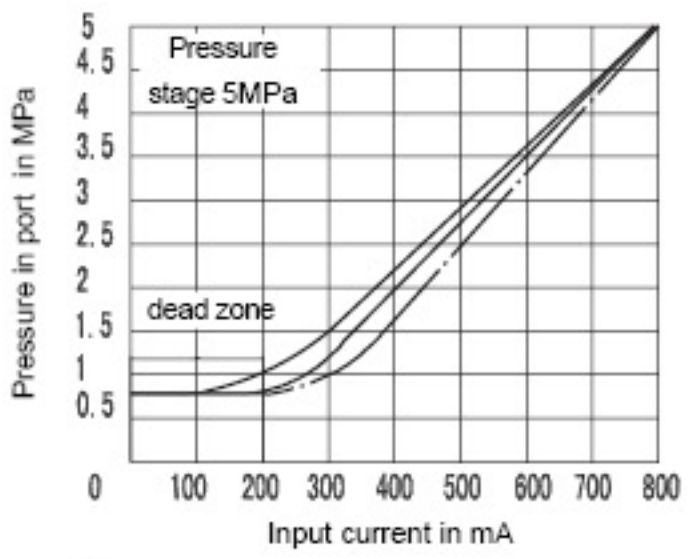
Pressure in port A in relation to flow

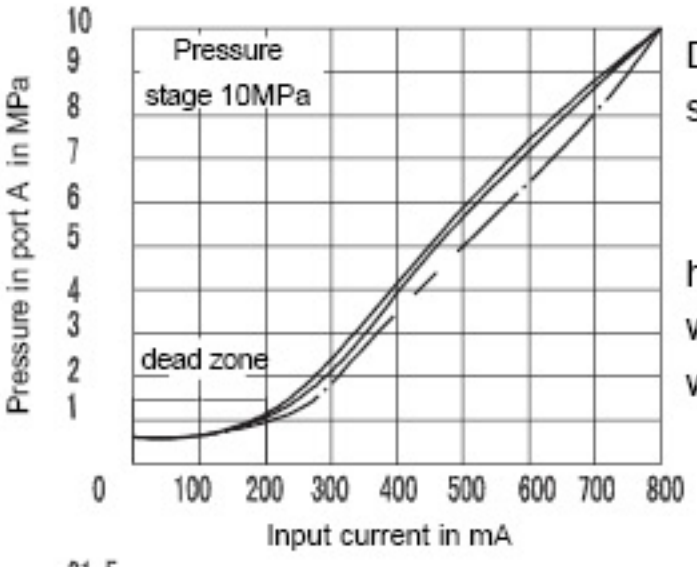




Pressure in port A in relation to flow

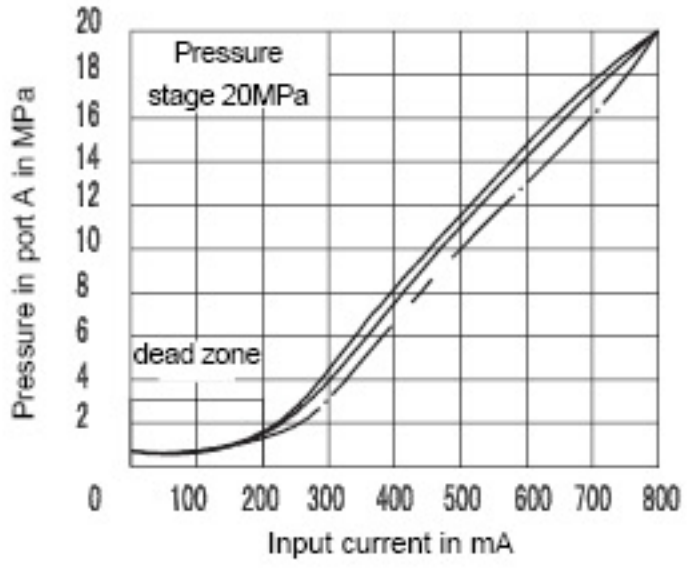


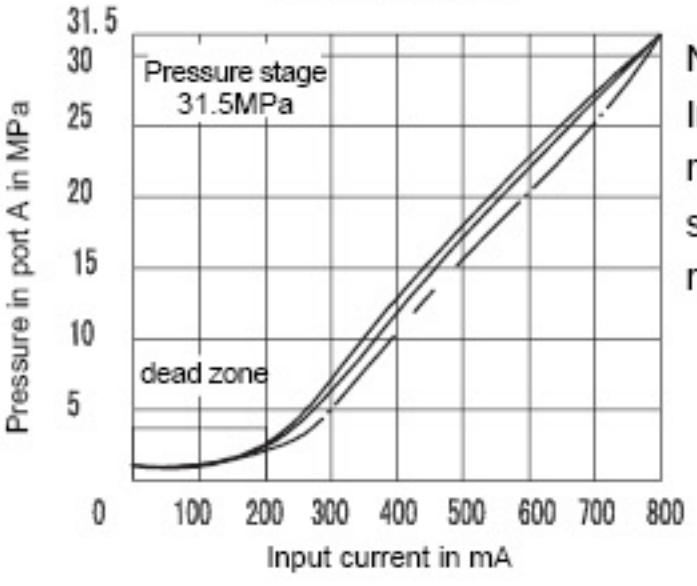




DRE10.20 and 30,measured in flow 6L/min.

hysteresis:
with quiver ———
without quiver —·—·—

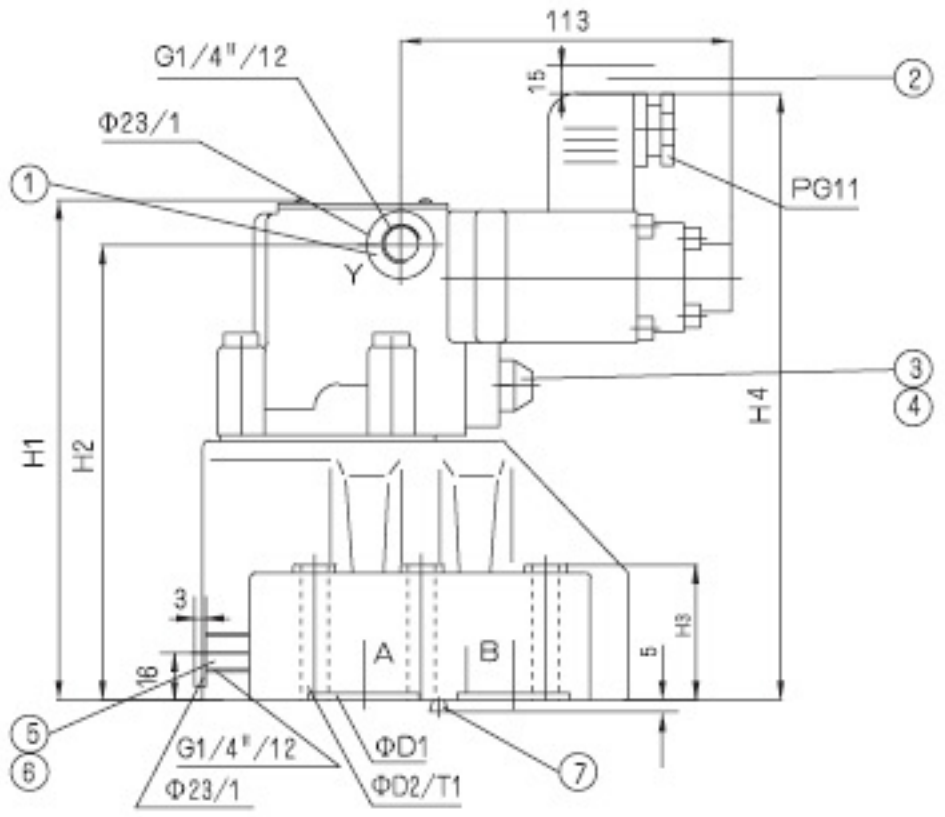


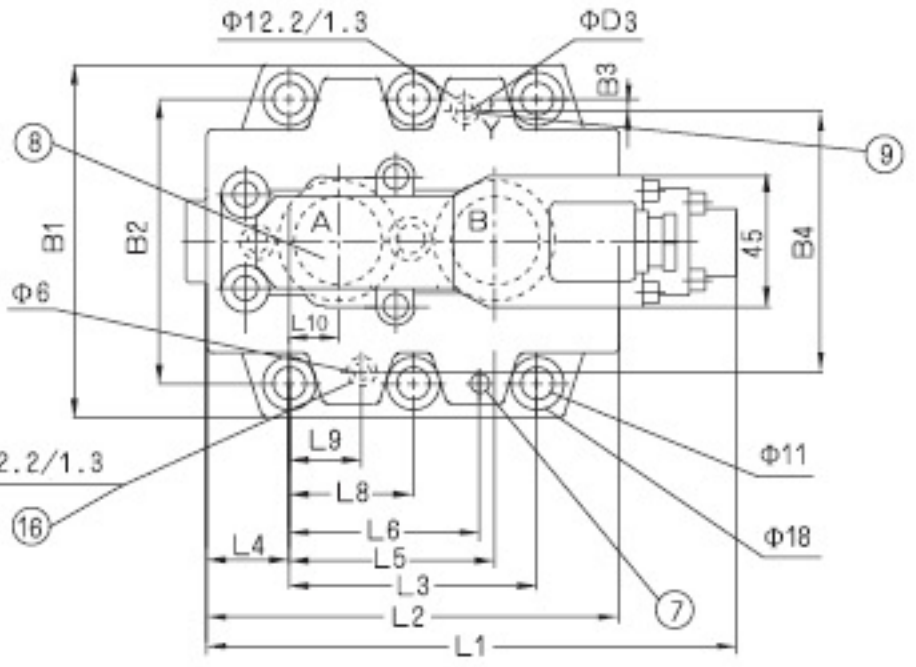


Note:
In order to achieve the minimum setable pressure the bias current must not exceed 100 mA

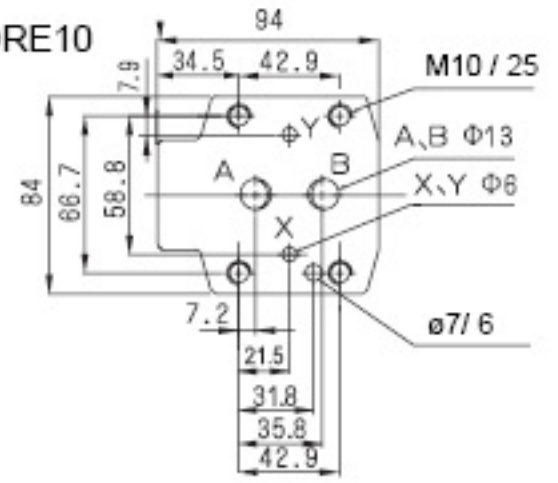
Unit dimensions

(Dimensions in mm)

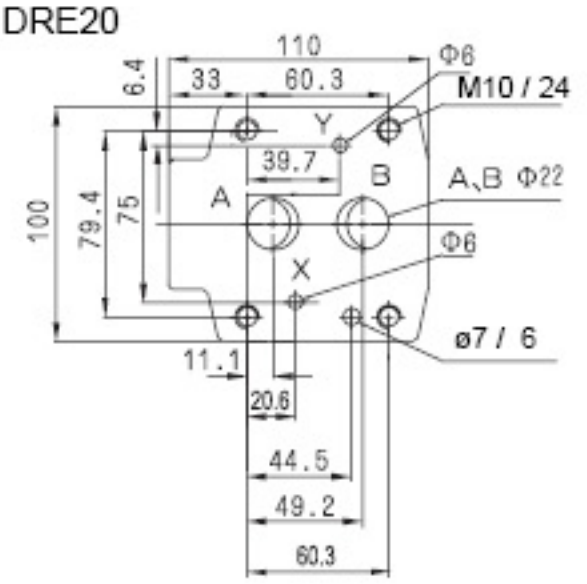




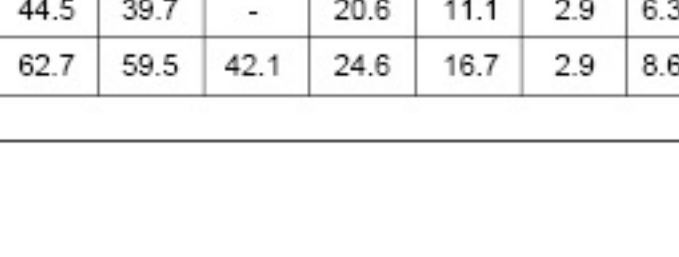
DRE10



DRE20



DRE30



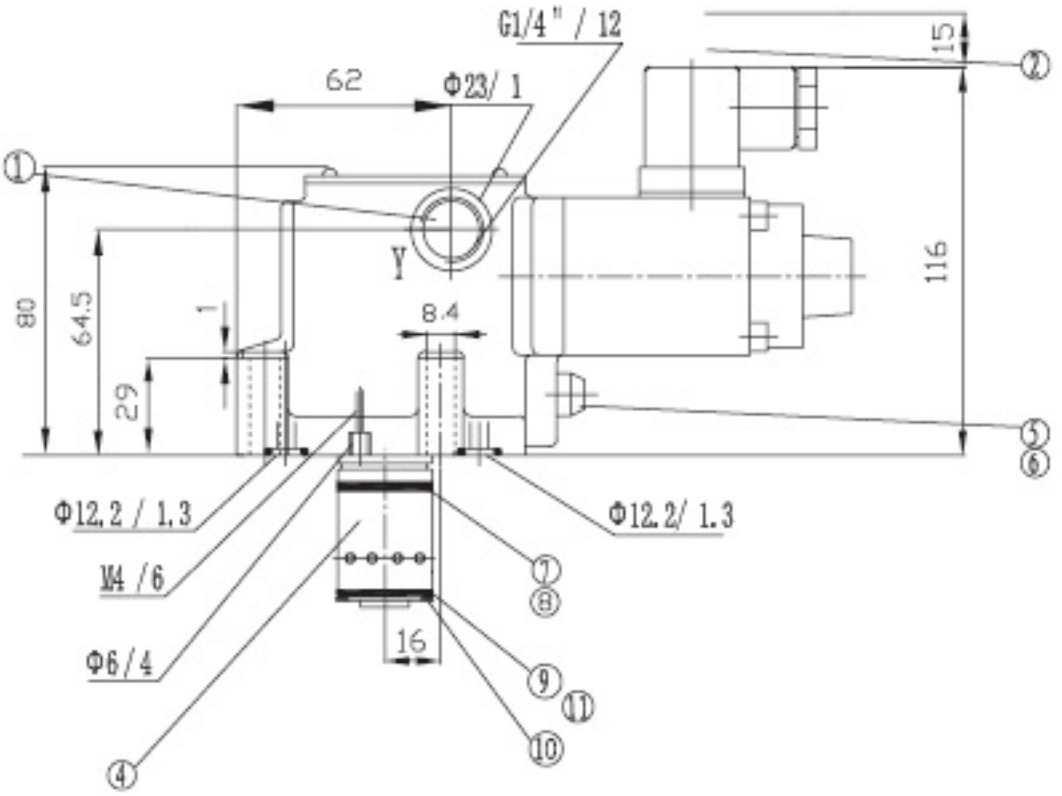
1 As supplied, this port (G 1/4") is plugged. After removing the plug, this port may be used as an external pilot oil drain, separate and at zero pressure to tank.
2 Space required to remove plug-in connector
3 Maximum pressure limitation, type DREM
4 when using these valves, please take note of the guidelines
5 Port X for external control DRE10
6 Pressure gauge connecter for DRE20 and DRE30
7 Locating pin
8 Name plate
9 Pilot oil drain external at zero pressure to tank
10 Blind hole

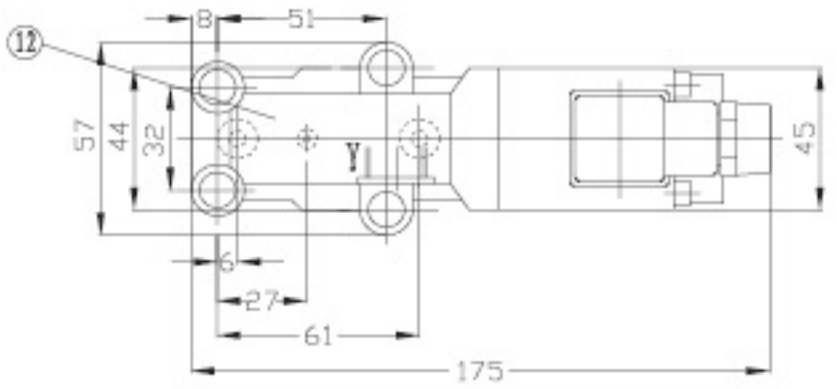
NS	O-ring (A、B)	O-ring (X、Y)	B1	B2	B3	B4	D1	D2	D3
10	17.12 × 2.62	9.25 × 1.78	85	66.7	7.9	58.8	15	21.8	4.2
25	28.17 × 3.53	9.25 × 1.78	102	79.4	6.4	73	25	34.8	6
32	34.52 × 3.53	9.25 × 1.78	120	96.8	3.8	92.8	31	41	6

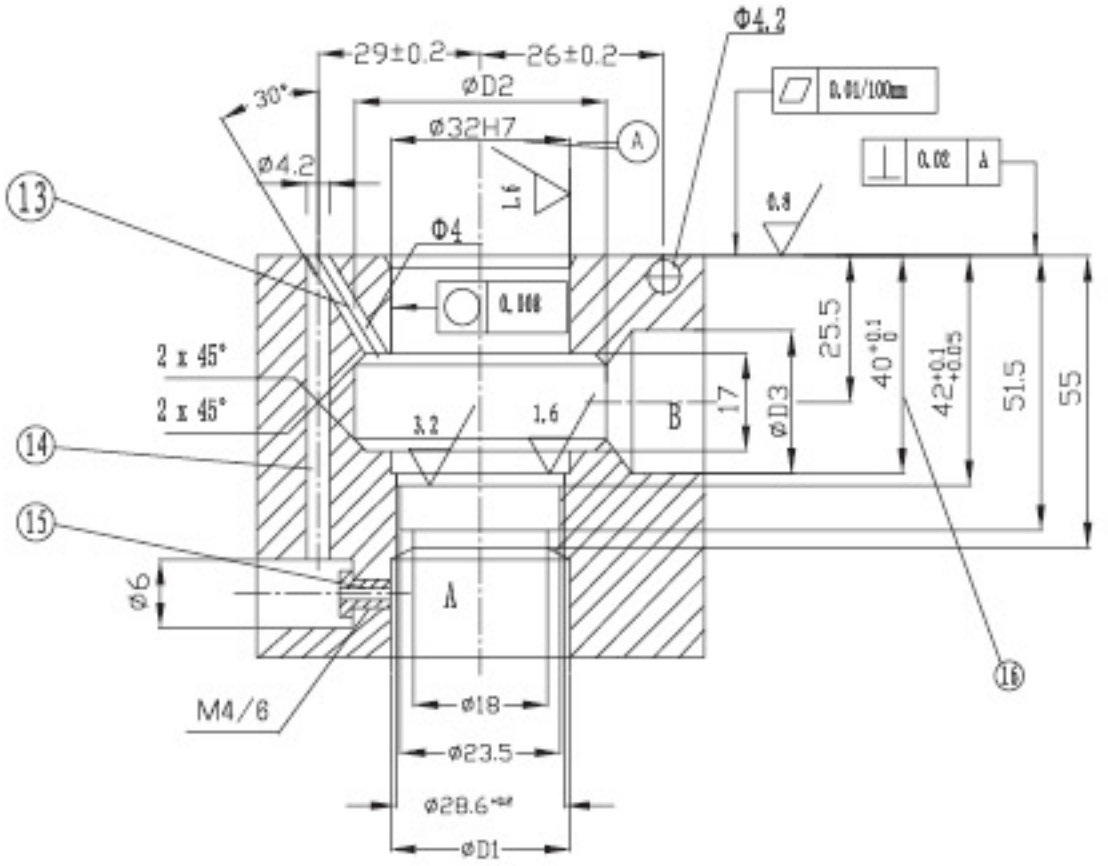
Subplates
G 460/01; G461/01
G 412/01; G413/01
G 414/01; G415/01
See page 88

size	H1	H2	H3	H4	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	T1	Weight
10	152	136.5	28	188	181	96	42.9	35.5	35.8	31.8	21.5	-	21.5	7.2	2	4.5kg
25	162	146.5	38	198	177	112	60.3	33.5	49.2	44.5	39.7	-	20.6	11.1	2.9	6.3kg
32	170	154.5	46	206	176.5	140	84.2	28	67.5	62.7	59.5	42.1	24.6	16.7	2.9	8.6kg

Unit dimensions **(Dimensions in mm)**







1 Pilot oil drain external at zero pressure to tank
2 Space required to remove plug-in connector
3 O-ring 9.25X1.78
4 Main spool core assembly
5 Maximum pressure limitation, type DREM
6 When using these valves, please take note of the guidelines
7 O-ring 9.25X1.78
8 O-ring 27.3X2.4
9 O-ring 27.3X2.4
10 Retainer ring 32/28.4x0.8(FPM)
11 O-ring with retainer ring must be input the hole before assemble the main spool core
12 Name plate
13 Pilot oil
15 Orifice hole
16 Assort depth

NS	D1	D2	D3	Code no. for main spool core assembly		Fixing screws	Torque(Nm)	Weight
				NBR	FPM			
10	10	40	10	360 727	360 728	4-M8 × 10-10.9 GB/T70.1-2000	20	1.5kg
25	20	45	20	360 729	306 730			
32	30	45	30					