BEIJING HUADE HYDRAULIC INDUSTRIAL GROUP CO.,LTD.	Proportional pressure relief valve Type DBE/DBEM			RC29160/9.2006
	Size 10 ,25 ,32	up to 31.5 MPa	up to 600 L/min	Replaces: RC29160/08.2000

Features:

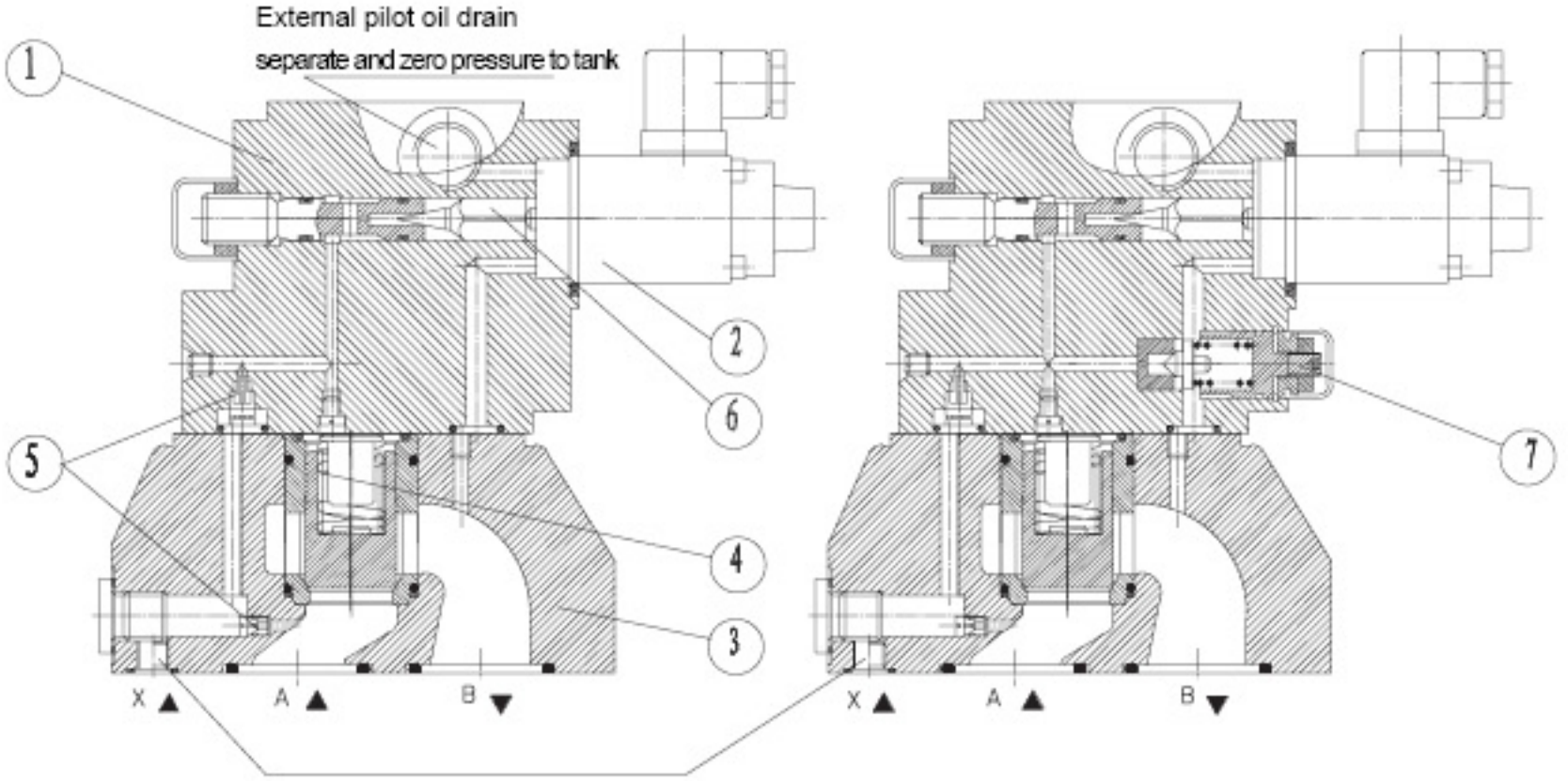
- For subplate mounting:
- Encased in block
- Optional additional maximum pressure limitation by means of a spring loaded pilot control valve
- Valve and electronic control form one source

Functional , section

These valves basically consist of the pilot control valve (1) with proportional solenoid (2) and the main valve (3) with main spool insert (4).

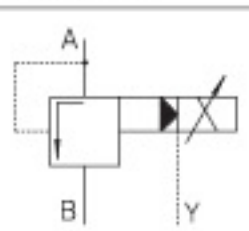
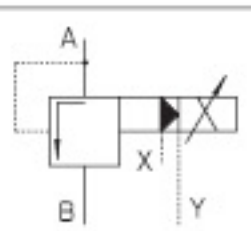
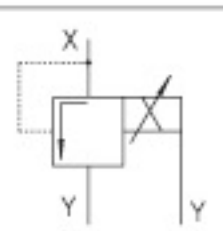
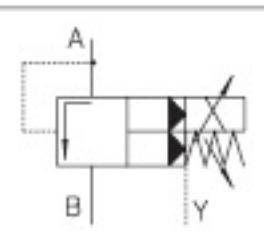
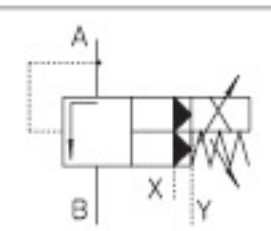
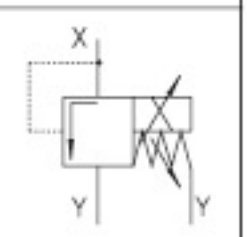
Type DBE:
The adjustment of the pressure is command value dependent via a proportional solenoid (2). The pressure present in port A acts on the underside of the main spool (4). At the same time this pressure acts on the spring loaded side of the main spool (4) via orificies (5). The hydraulic force acts on the pilot poppet (6) When the hydraulic force over comes the solenoid force then the pilot poppet (6) opens. Due to the fact that the pilot oil can now flow to tank via port Y, a pressure drop occurs at the main spool (4) which acts on the main spool and lifts it against the force of the return spring . The connection from A to B is opened and there is no longer any increase in pressure.

Type DBEM:
Optionally the valve can be supplied with an additional spring loaded pilot control valve for maximum pressure safety (redundant pressure safety).



Type DBE — Port "X" is bolcked when internal pilot oil supply — Type DBEM

Symbols

					
10 DBE 20- ..Y 30 DBEC30- ..Y	10 DBE 20- ..XY 30	C DBE T- .. DBEC- ..Y	10 DBE 20- ..Y 30 DBEMC30- ..Y	10 DBEM20- ..XY 30	C DBE T- DBEMC- ..Y

Ordering details

DBE | | | | 30 | B | / | | | *

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

Pilot pressure relief valve =No code
Insert pressure relief valve =C
(sign size 10 or 30)
Pilot pressure relief valve without =C
the main spool (signless size)
Pilot pressure relief valve use as remote control=T

Size 10 = 10
Size 25 = 20
Size 32 = 30

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

Technology of Beijing Huade Hydraulic =B

Further details in clear text

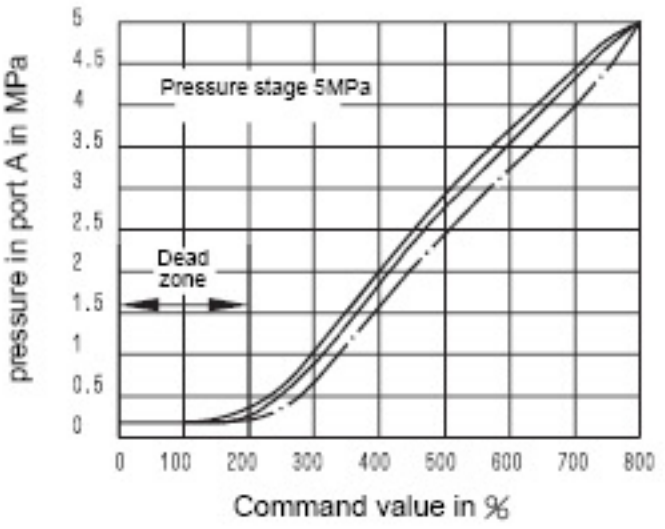
M= mineral oils
V= phosphate ester

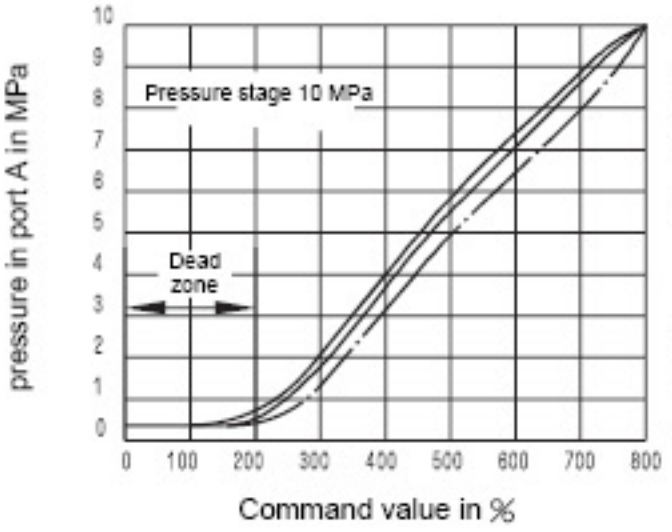
Y= pilot oil supply, internal drain external
XY= pilot oil supply, external drain external

Pressure stage
50= Up to 5.0 MPa
100= Up to 10.0 MPa
200= Up to 20.0 MPa
315= Up to 31.5 MPa

Characteristic curves:(measured at v=36 × $10^{-6}m^2/S$ t=50℃)

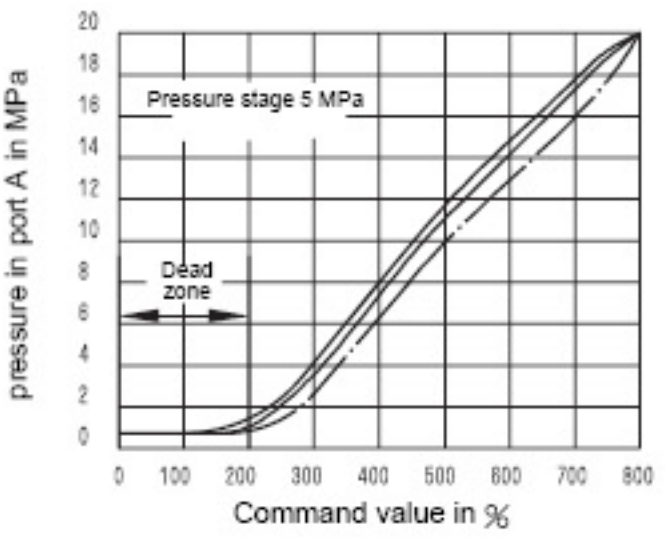
Type DBE10、20、30/DBET input pressure/current curves

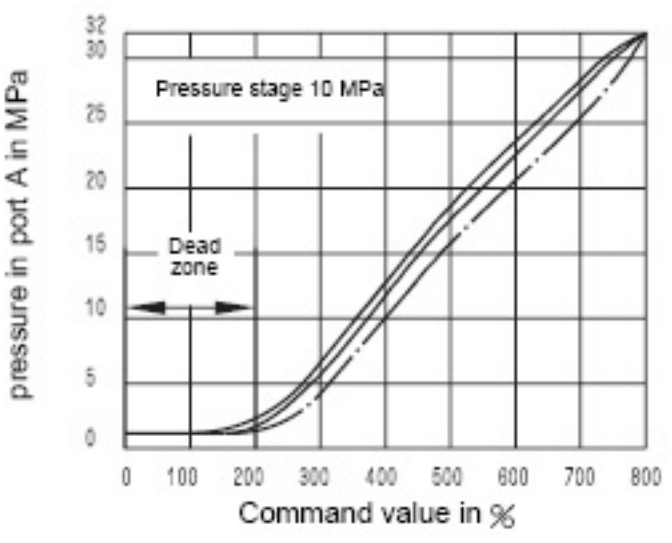




Type DBE10、20 and 30 (measured at a flow of 27 L/min)
Type DBET(measured at a flow of 0.8 L/min)

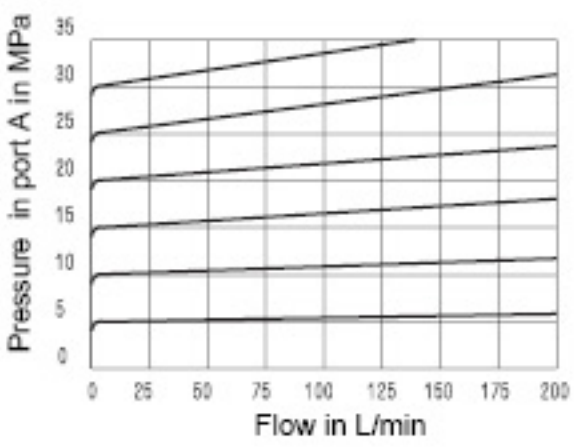
Hysteresis:
With surge ————
Without surge —·—·—

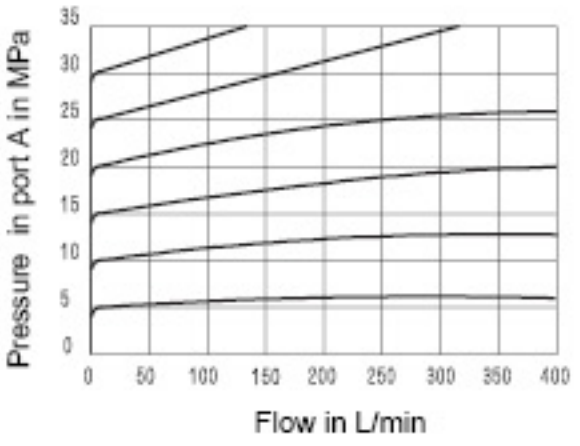


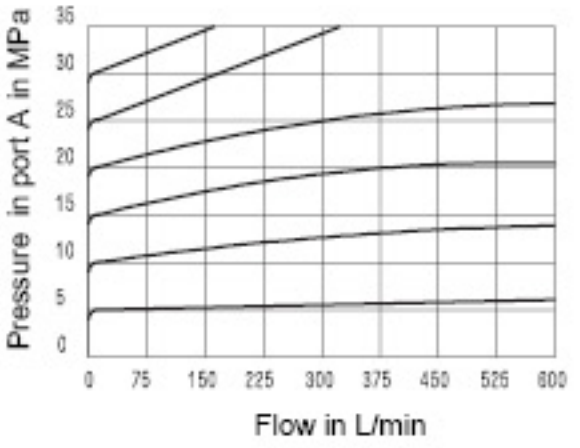


Note: So that the minimum settable pressure can be achieved the bias current must not exceed 100 mA.

Settsble Pressure in relation to the flow

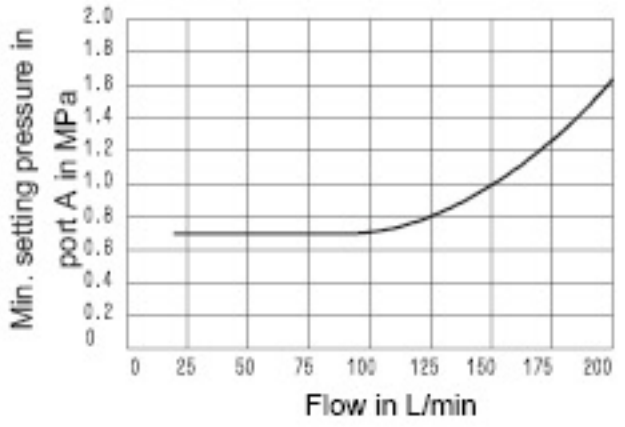




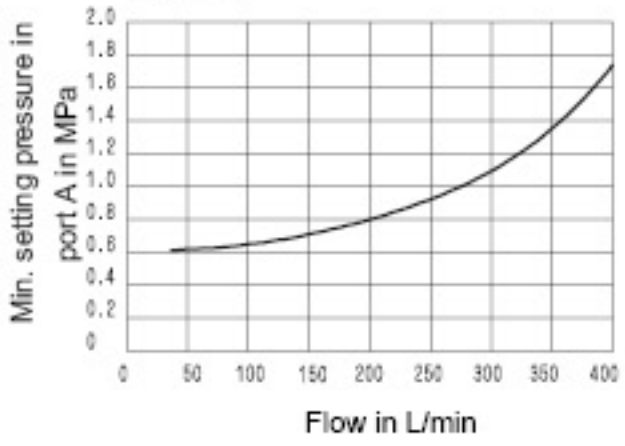


Min. settable pressure in relation to flow

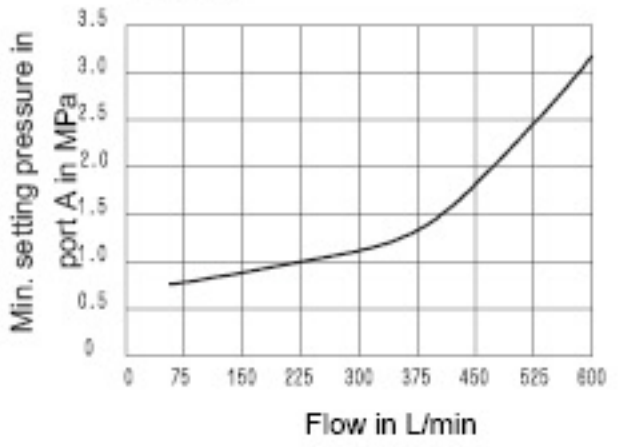
DBE10



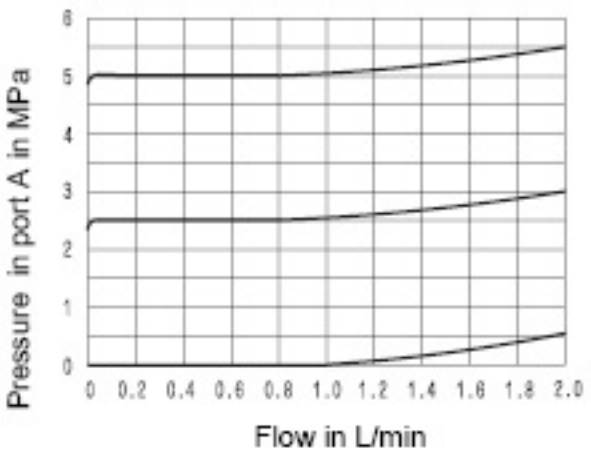
DBE20



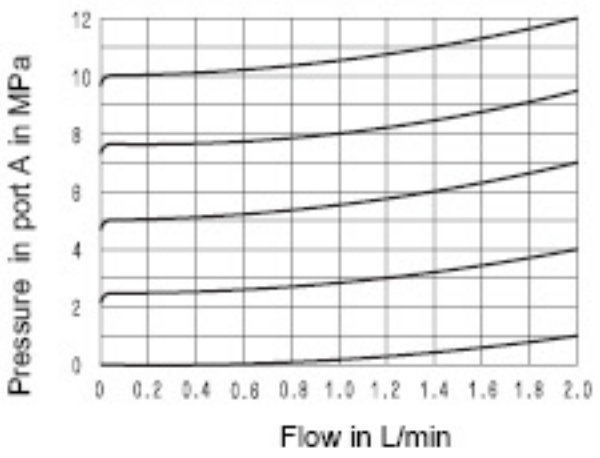
DBE30



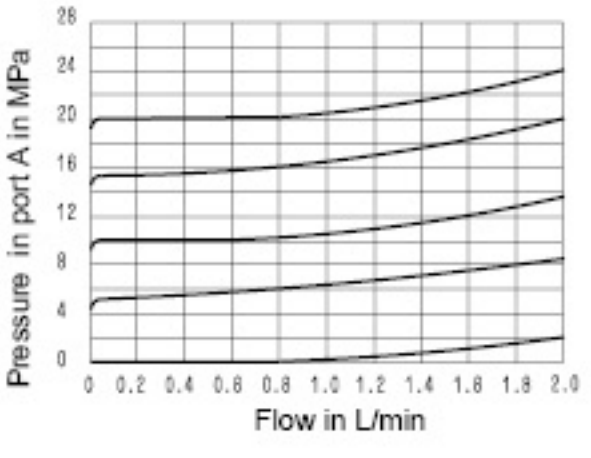
DBET-30/50 and DBEMT-30/50



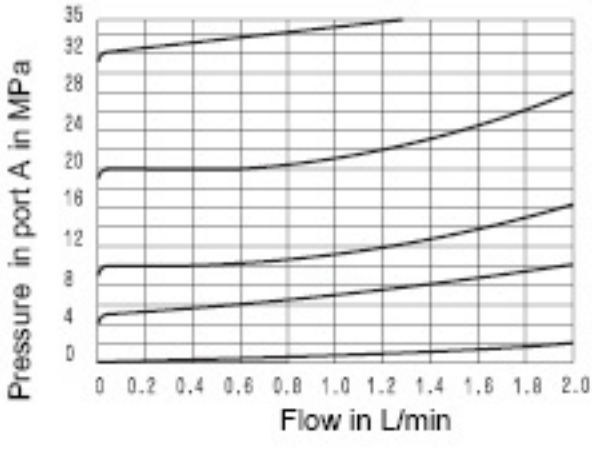
DBET-30/100 and DBEMT-30/100



DBET-30/200 and DBEMT-30/200



DBET-30/315 and DBEMT-30/315



Technical data

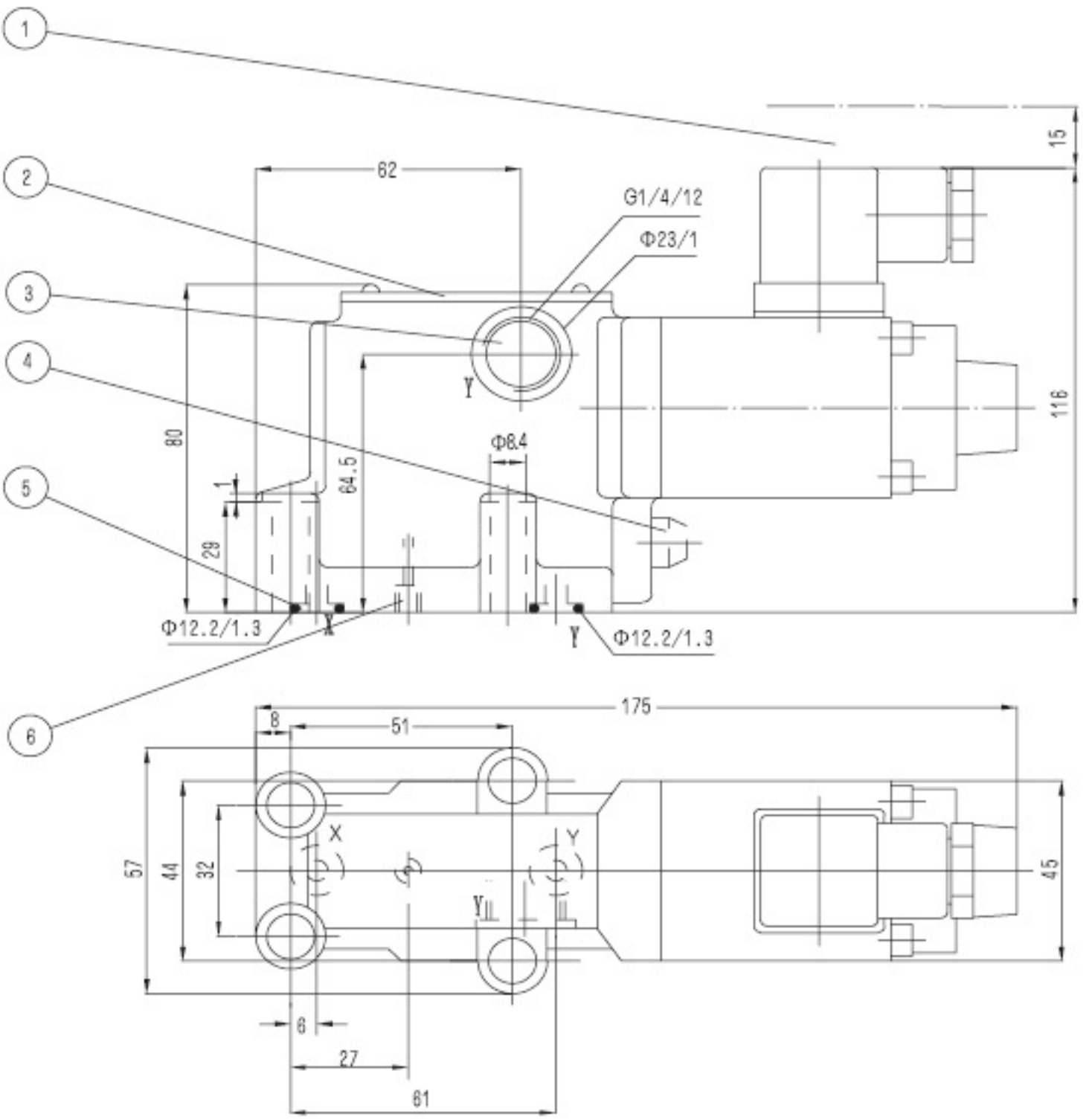
Hydraulic data

Max. operating pressure Ports A、B and X	(MPa)	31.5			
Return pressure	(MPa)	Port Y, separate and at zero pressure to tank			
Max. settable pressure	(MPa)	5、10、20、31.5, same as pressure stage			
Min. settable pressure	(MPa)	see characteristic curves			
Max. pressure safety	(MPa)	settable pressure			
		5	10	20	31.5
		1 to 6^{+2}	1 to 12^{+2}	1 to 22^{+2}	1 to 34^{+2}
Max. pressure safety Adjustable pressure range	(MPa)	rated pressure			
		5	10	20	31.5
		6 to 8	12 to 14	22 to 24	34 to 36
Max. flow	(L/min)	10	20	30	
		200	400	600	
Pilot flow	(L/min)	0.7 to 2			
Linearity	(%)	± 3.5			
Repeatability	(%)	< ± 2			
Typical variation	(%)	< ± 2 Max. pressure			
Hysteresis	(%)	With surge ± 1.5 of Max.pressure, Without surge ± 4.5 of Max.pressure			
Switching time	(ms)	30 to 150			
Pressure fluid		Mineral oil(for NBR seal),Phosphate ester (for FPM seal)			
Viscosity range	(mm^2/s)	2.8 to 380			
Pressure fluid temperature range	(℃)	-20 to +70			
Degree of contamination	(μm)	≤ 20(recommendation 10)			

Electrical technical data

Amplifier		VT-200$^{S}_{X}$40 supplied with valve together
Supply voltage		DC
Min. control current	(A)	0.1
Max. control current	(A)	0.8
Coil resistance	(Ω)	Cold value at 20℃ is 19.5; Max. warm value is 28.8
Pressure fluid temperature range	(℃)	+50
Working state		Continue
Valve protection		IP65
Electrical connections		plug

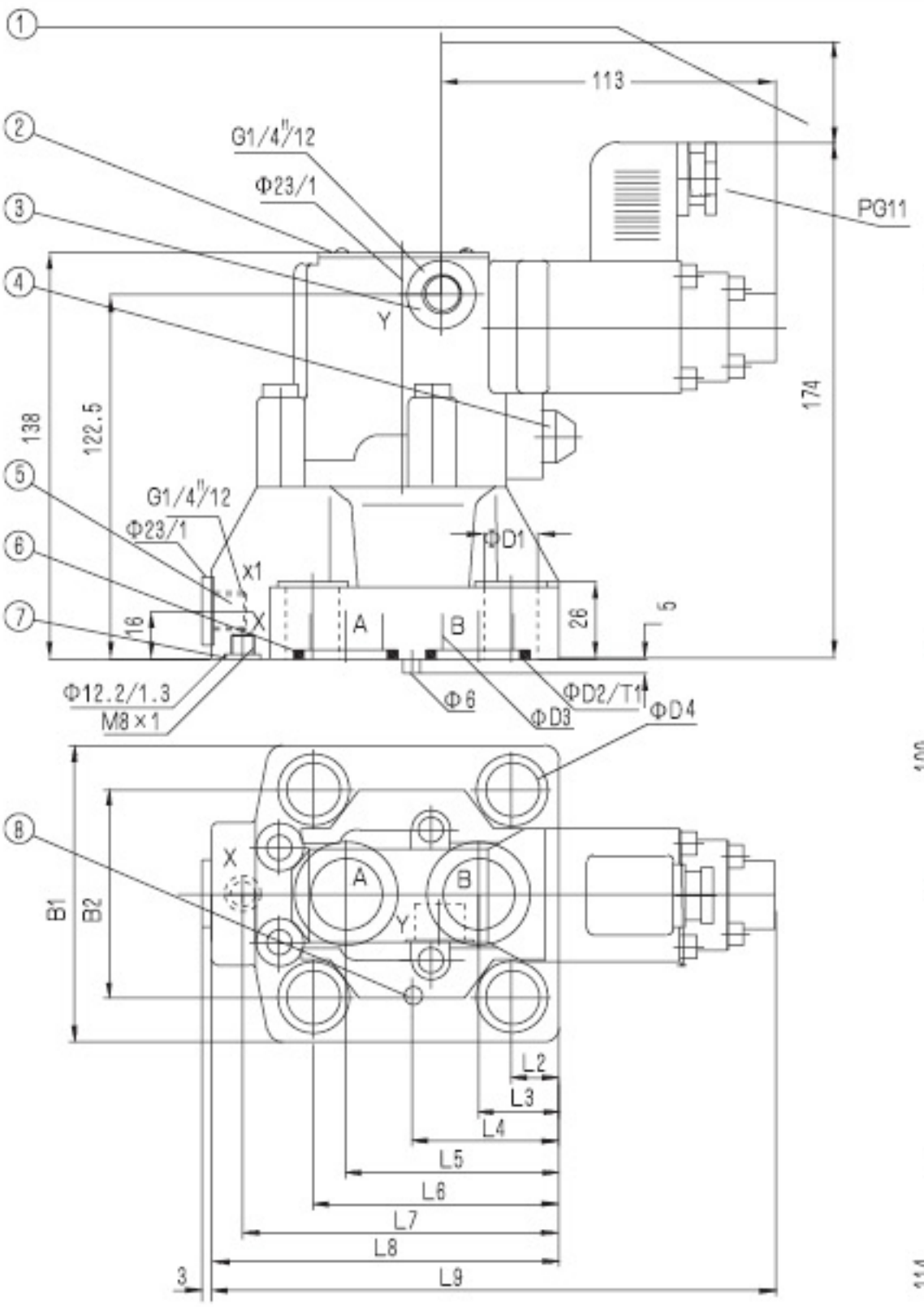
Unit dimensions **(Dimensions in mm)**

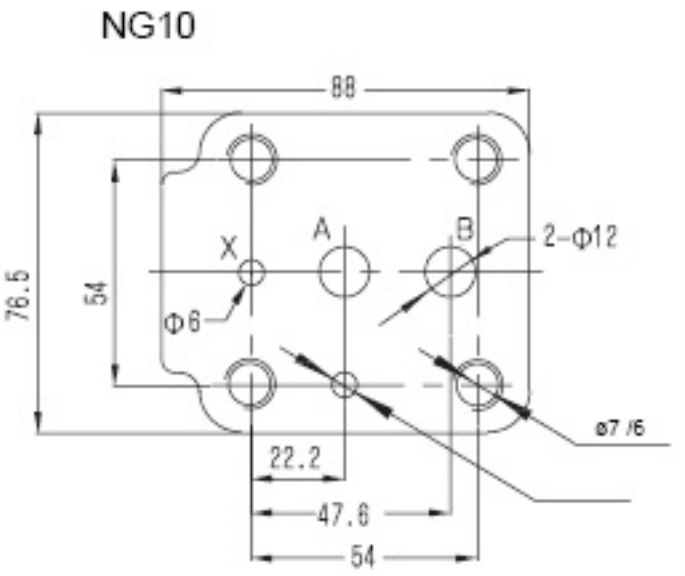


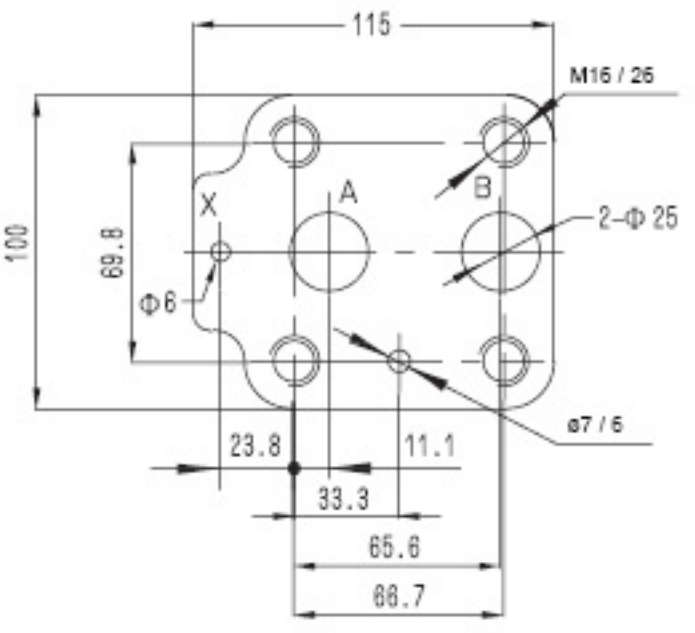
1. Space required to remove plug-in connector
2. Nameplate
3. Port for pilot oil drain external
4. Maximum pressure limitation
5. O-ring 9.25X1.78 （for ports X and Y）
6. The hole is blocked in DBET/DBEMT and fix throttle in DBEC/DBEMC SubplateG51/01，see page 87

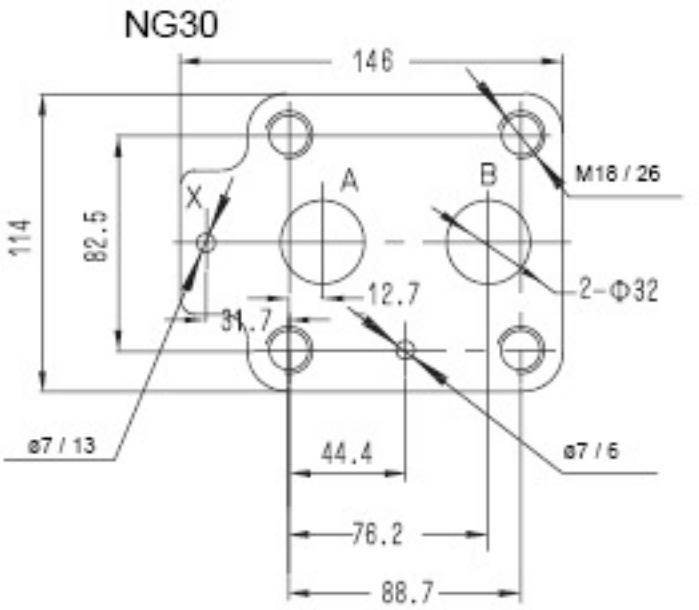
Unit dimensions (type DBE/DBEM)

(Dimensions in mm)









1. Space required to remove plug-in connector
2. Nameplate
3. Pilot oil drain,external
4. Maximum pressure limitation
5. Pilot oil supply external(optionally at port X or X1)
6. O-ring (for ports A, B)
7. O-ring 9.25X1.78 (for port X)
8. Locating pin

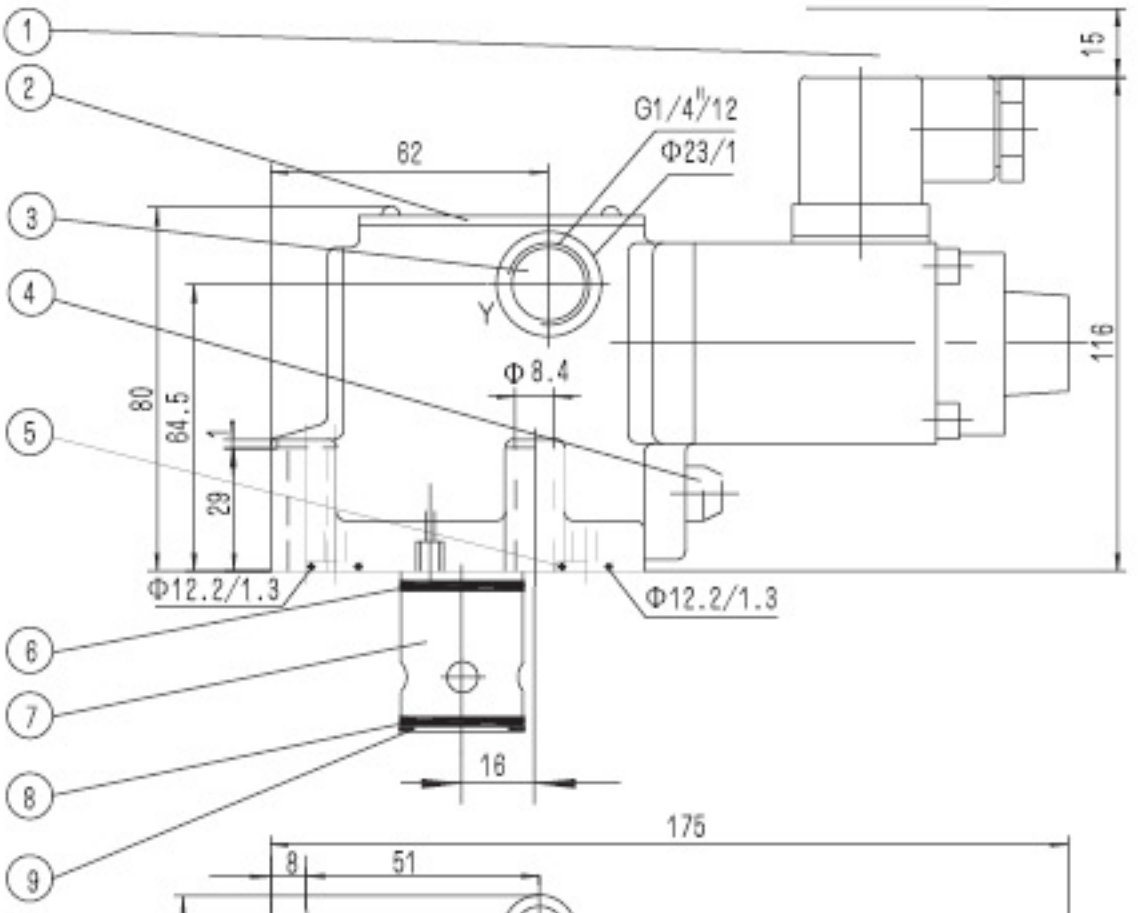
Subplates (see page 89):

NG10	NG20	NG30	
G545/01	G408/01	G410/01	G410/01
G546/02	G409/01	G411/01	G411/01

Size	B1	B2	Φ D1	Φ D2	Φ D3	Φ D4	O-ring (ports A and B)	Valve fixing screws:
10	78	54	18	21.8	12	14	17.12 × 2.62	M12 × 50-10.9, M_A = 84Nm
20	100	70	24	34.8	24	18	28.17 × 3.53	M16 × 50-10.9, M_A = 206Nm
30	115	82.5	28	41	30	20	34.25 × 3.53	M18 × 50-10.9, M_A = 267Nm

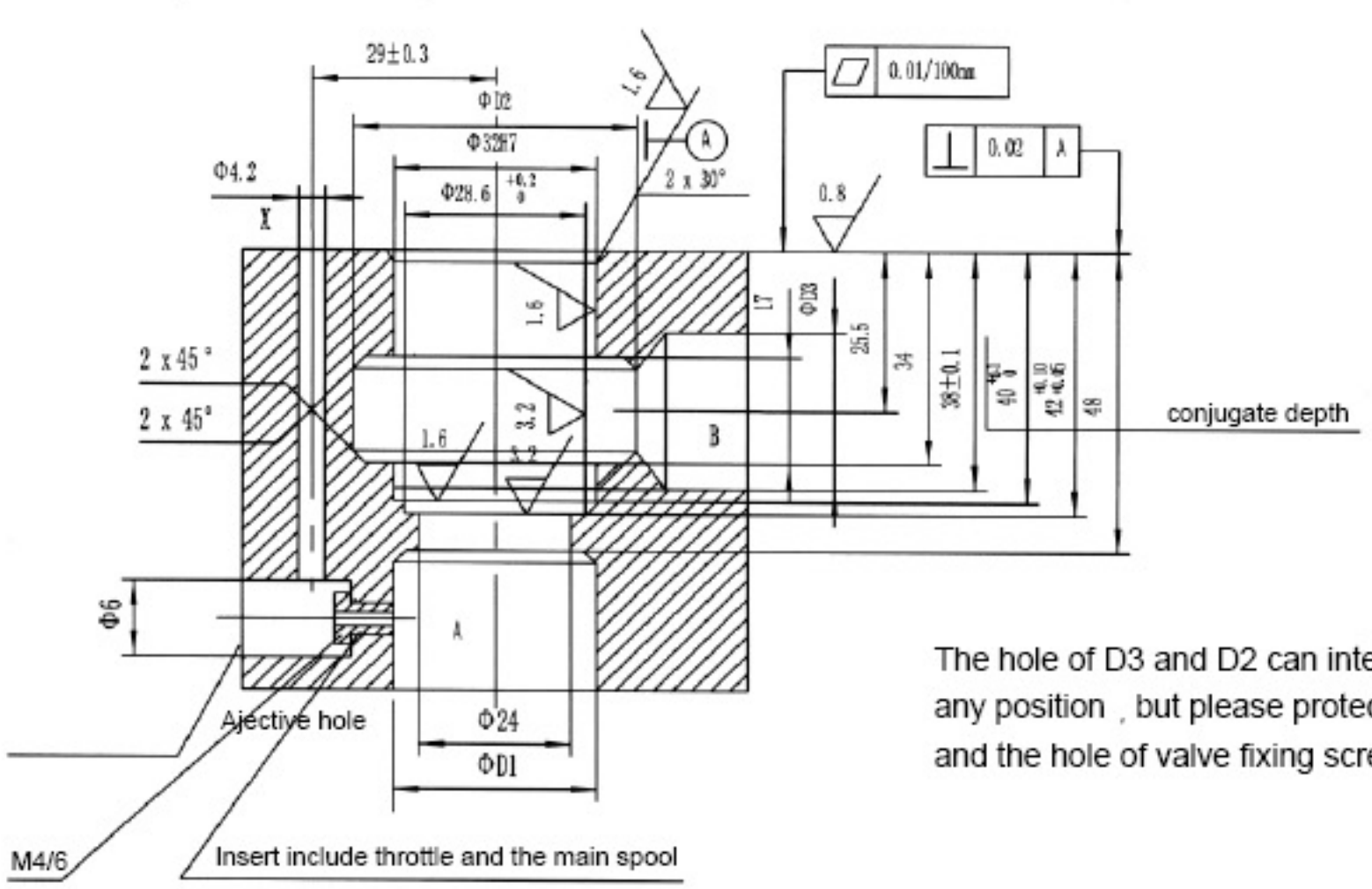
Size	L2	L3	L4	L5	L6	L7	L8	L9	T1	Weight (Kg)
10	12.5	18.9	44.3	44.3	66.5	66.5	90	176.5	2	4.1
20	16	27.1	49.4	71.6	82.5	106.5	117	190	2.9	4.5
30	17.5	61.9	30	93.7	106.4	138.2	148	200	2.9	6

Unit dimensions **(Dimensions in mm)**



1. Space required to remove plug-in connector
2. Nameplate
3. Pilot oil drain external(port Y)
4. Maximum pressure safety
5. O-ring 9.25X1.78
6. O-ring 27.3X2.4 (*)
7. The main spool
9. Retainer ring 32/28.4X0.8 (*)

(*) This kind of ring should be installed before installing insert housing



The hole of D3 and D2 can intersect at any position , but please protect port X and the hole of valve fixing screw

Size	The ordering code of the main spool		Φ D1	Φ D2	Φ D3	Valve fixing screw	MA	Weight (kg)
10	207341 (NBR)	307342 (FPM)	25	40	10	M8 × 40-10.9 (GB/T70.1-2000) must be ordered separately	20Nm	1.5
20			32	45	25			
30					32			

NOTICE

1. The fluid must be filtered. Minimum filter fineness is 20 μm.
2. The tank must be sealing up and an air filter must be installed on air entrance.
3. Products without subplate when leaving factory, if need them, please ordering specially.
4. Valve fixing screws must be high intensity level (class 10.9). Please select and use them according to the parameter listed in the sample book.
5. Roughness of surface linked with the valve is required to 

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