



**Proportional pressure relief valve  
Type DBE/DBEM**

RE24750/06.2004

Size 10 ,25 ,32

up to 31.5 MPa

up to 600 L/min

Replaces:

**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
- Porting pattern to DIN 24 340 form E



**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).

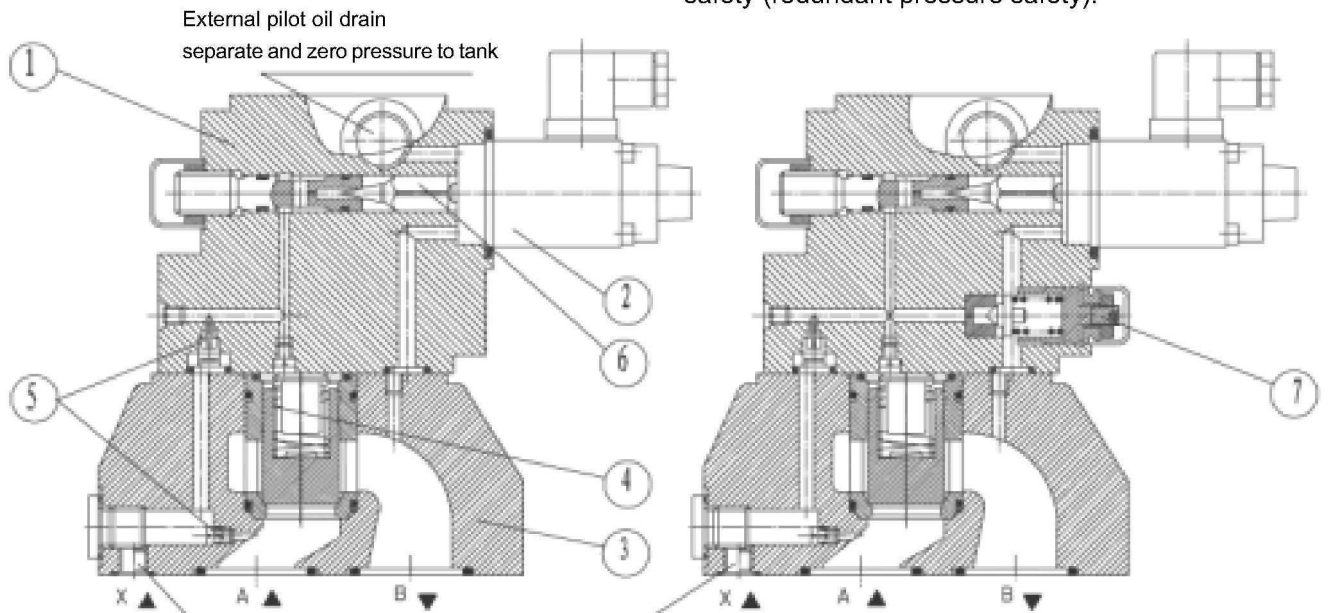
**Type DBE:**

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

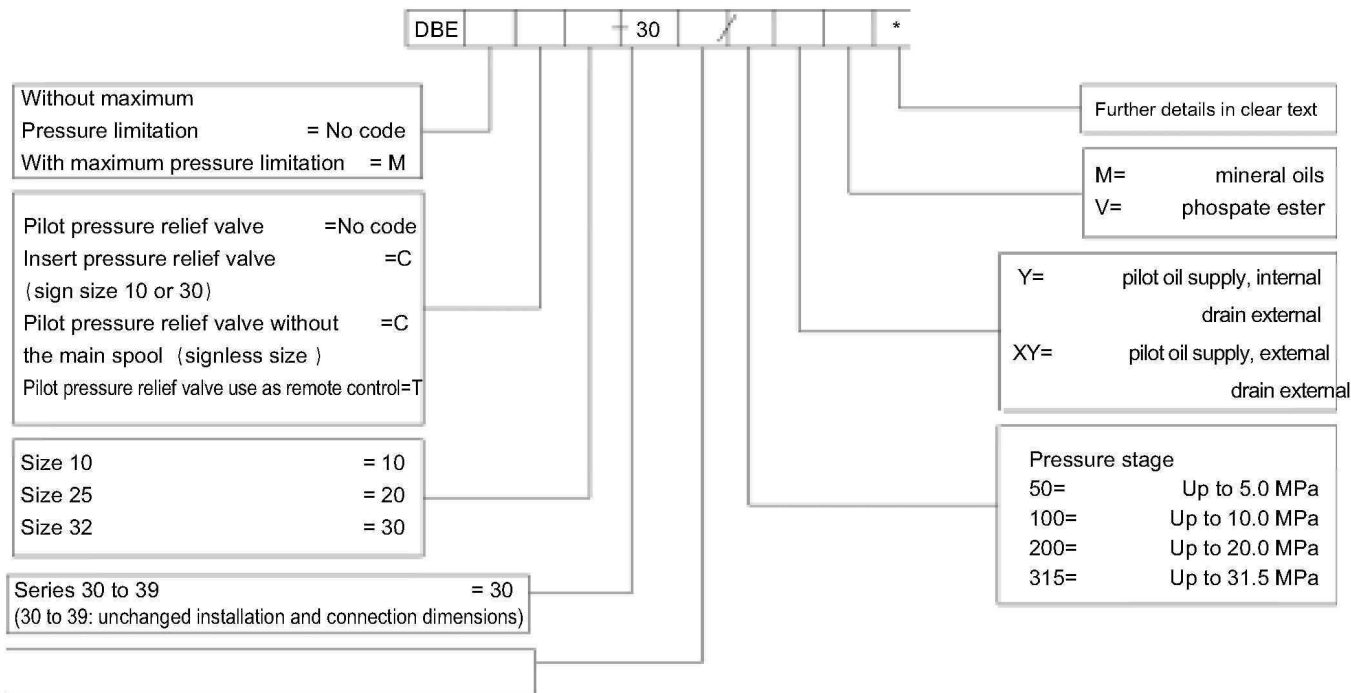
Type DBEM

Port "X" is blocked when internal pilot oil supply

**Symbols**

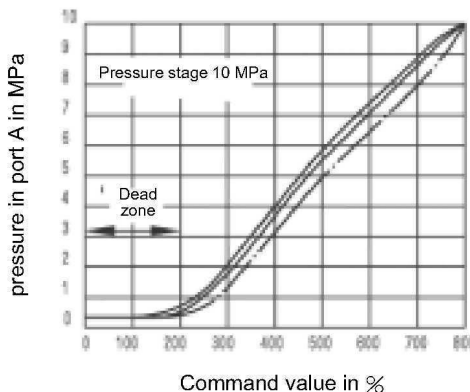
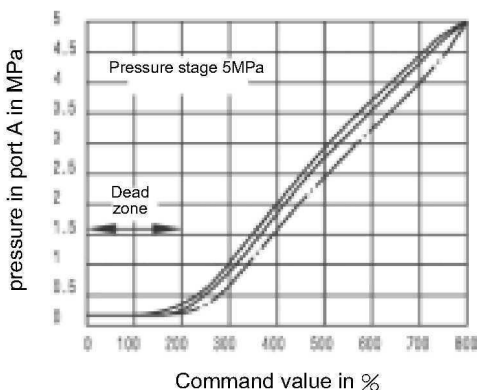
10 DBE 20- ..Y 30 DBEC30- ..Y	10 DBE 20- ..XY 30	C T .. DBEC- ..Y	10 DBE 20- ..Y 30 DBEMC30- ..Y	10 DBEM20- ..XY 30	C T .. DBEMC- ..Y

## Ordering details



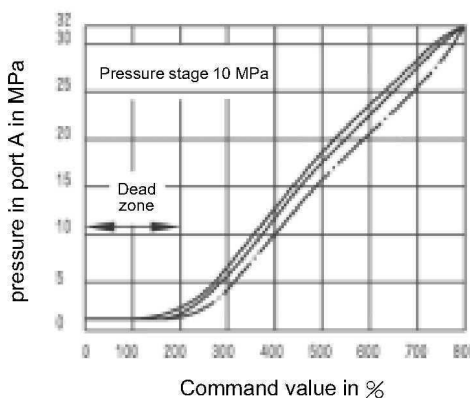
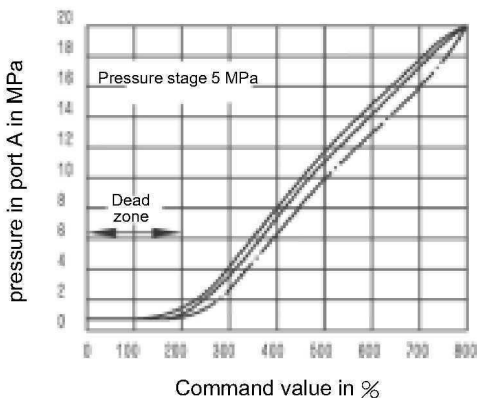
## Characteristic curves:( measured at $v=36 \times 10^{-6}m^2/S$ $t=50^\circ C$ )

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



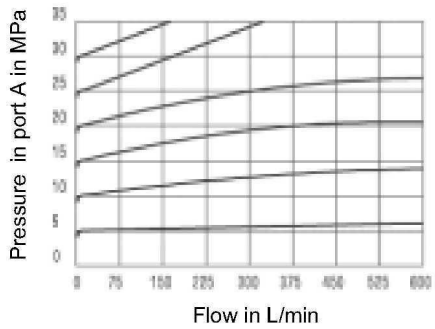
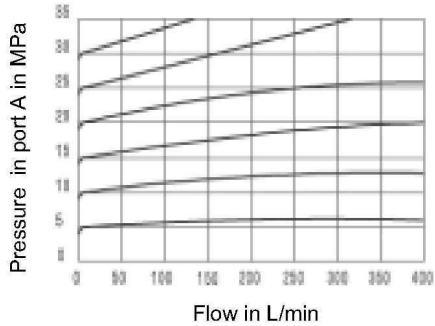
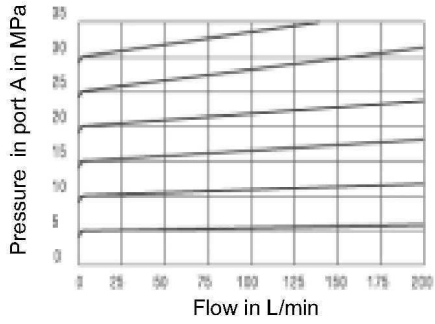
Type DBE10, 20 and 30 (measured at a flow of 27 L/min)  
Type DBET (measured at a flow of 0.8 L/min)

Hysteresis:  
With surge \_\_\_\_\_  
Without surge - - - - -

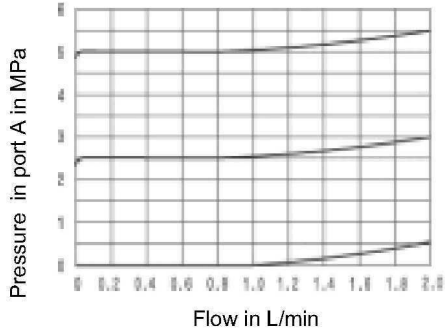


Note: So that the minimum settable pressure can be achieved the bias current must not exceed 100 mA.

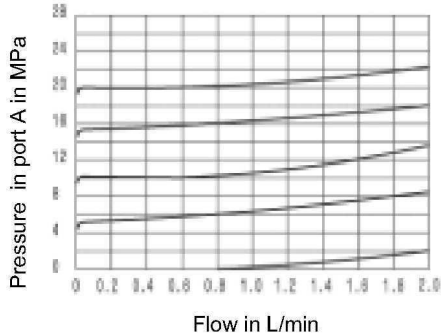
Settable Pressure in relation to the flow



DBET-30/50 and DBEMT-30/50

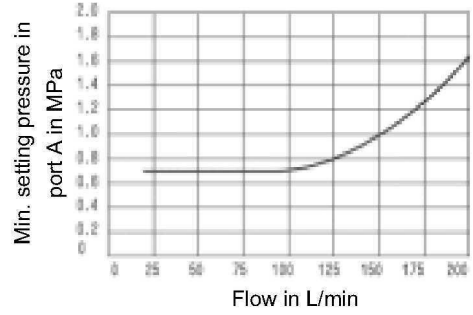


DBET-30/200 and DBEMT-30/200

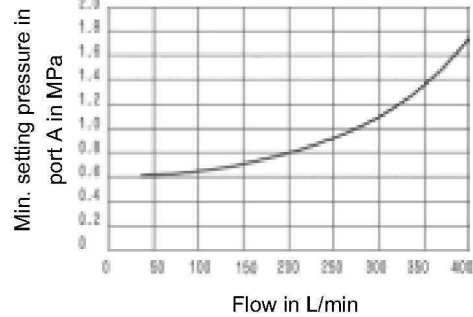


Min. settable pressure in relation to flow

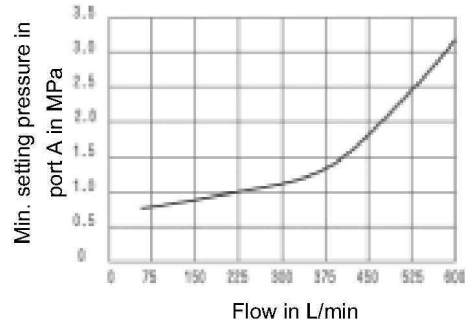
DBE10



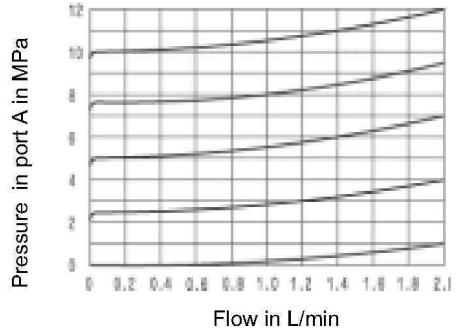
DBE20



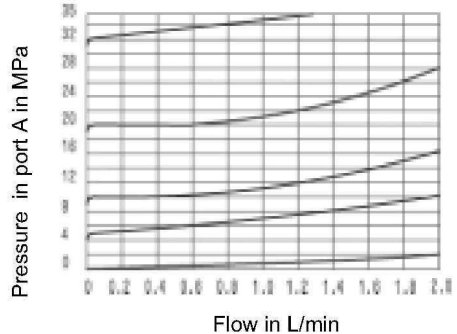
DBE30



DBET-30/100 and DBEMT-30/100



DBET-30/315 and DBEMT-30/315



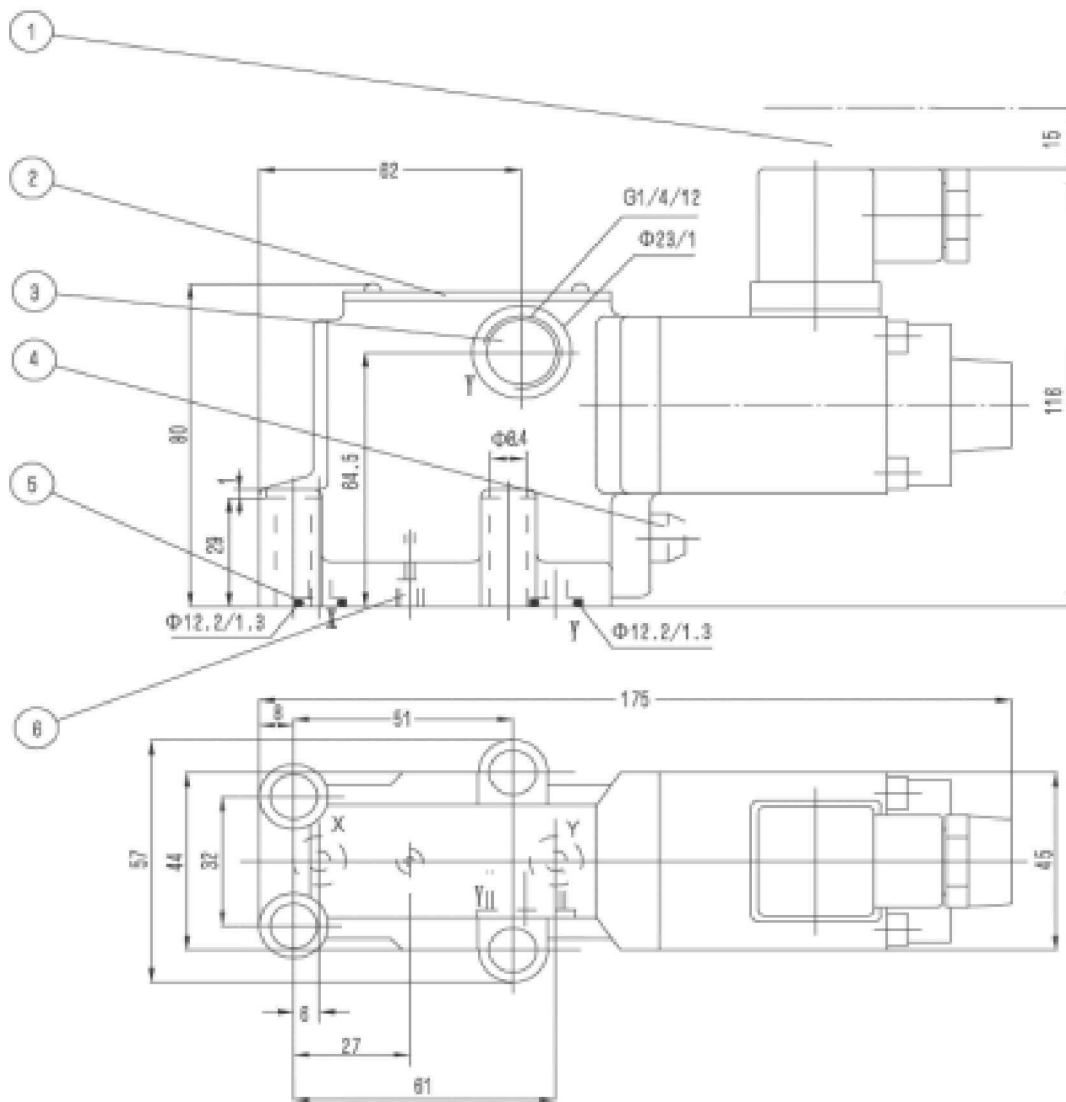
## Technical data

### 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 <sup>+2</sup>	1 to 12 <sup>+2</sup>	1 to 22 <sup>+2</sup>	1 to 34 <sup>+2</sup>
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 <sup>2</sup> /s)	2.8 to 380			
Pressure fluid temperature range		(°C)	-20 to +70			
Degree of contamination		( μ m)	≤ 20(recommendation 10)			

### Electrical technical data

Amplifier		VT-200 <sub>X</sub> 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°C is 19.5; Max. warm value is 28.8
Pressure fluid temperature range	(°C)	+50
Working state		Continue
Valve protection		IP65
Electrical connections		plug

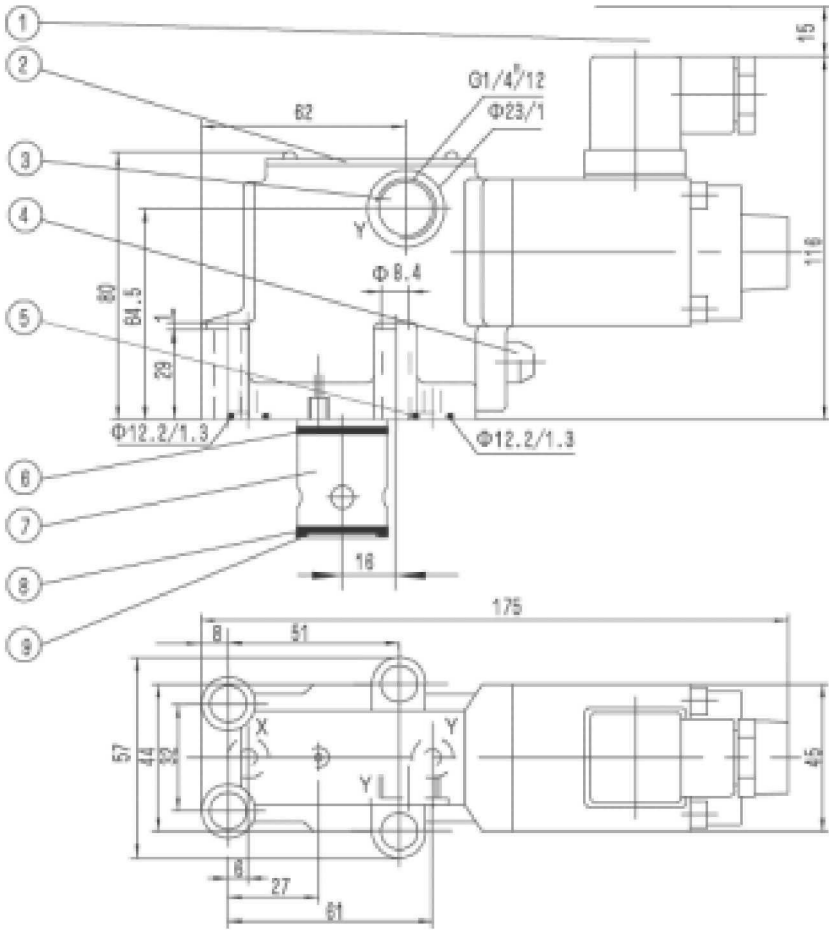


1. Space required to remove plug-in connector
2. Nameplate
3. Port for pilot oil drain external
4. Maximum pressure limitation
5. O-ring 9.25X1.78 (for ports X and Y)
6. The hole is blocked in DBET/DBEMT and fix throttle in DBEC/DBEMC  
SubplateG51/01, see page 87

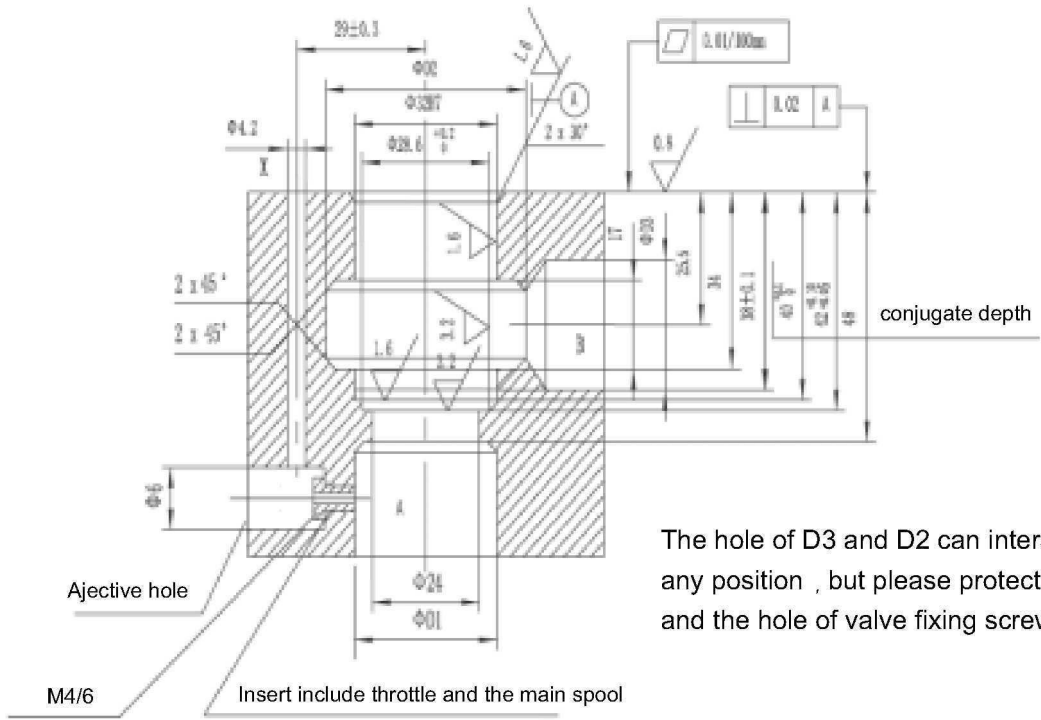


**Unit dimensions**

**(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	20Nm	1.5
20			32	45	25	(GB/T70.1-2000) must		
30			32	32	be ordered separately			

## Notice

1. The fluid must be filtered. Minimum filter fineness is 20  $\mu\text{m}$ .
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  $\frac{0.8}{\sqrt{\text{mm}}}$ .
6. Surface finish of mating piece is required to 0.01/100mm.