

BEIJING HUADE  
HYDRAULIC INDUSTRIAL  
GROUP CO.,LTD.

**Pilot operated pressure relief valve,  
cartridge connection,type DB..K**

RE 25730/12.2004

Size 6、 10、 20

up to 31.5MPa

up to 330L/min

Replaces:  
RE25730/05.2001

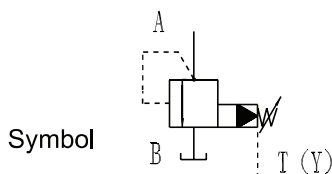
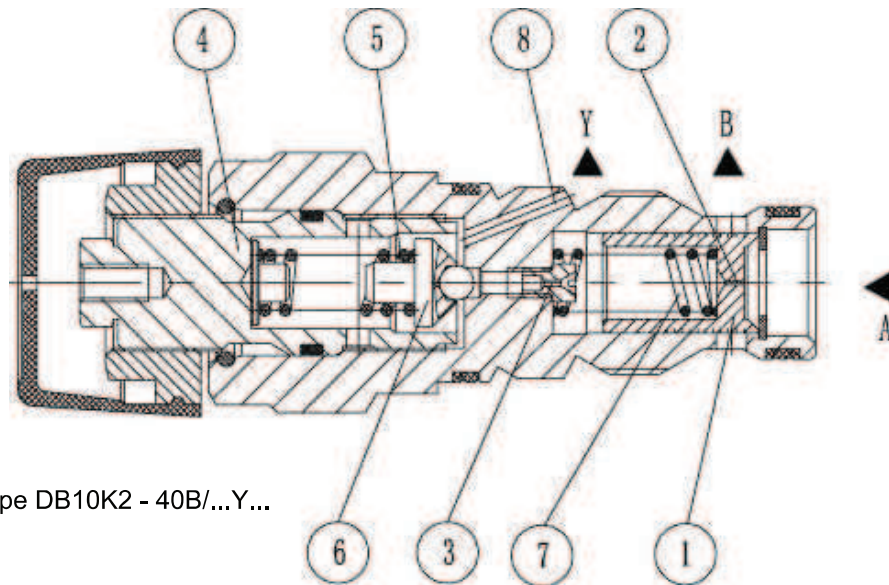
**Features:**

- Cartridge valve
- 4 pressure ranges
- 4 adjustment elements:
  - Rotary knob
  - Sleeve with hexagon and protective cap
  - Lockable rotary knob with scale
  - Rotary knob with scale

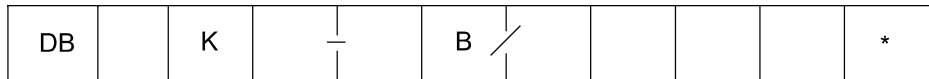


**Functional, section, symbol**

Pressure relief valves type DB..K.. are pilot operated pressure relief valves for installation in cartridge. They are used to limit the pressure in a hydraulic system. Setting of the system pressure is via adjustment element (4). At rest, the valves are closed. Pressure in port A acts on the spool (1). At the same time, pressure is passed through orifice (2) on to the spring loaded side of the spool (1) and through orifice (3) to the pilot poppet (6). If the pressure in port A rises above the value set at spring (5), the pilot poppet (6) opens. Fluid can now flow from the spring loaded side of spool (1), orifice (3), and channel (8) into port Y. The resulting pressure drop moves spool(1) causing this to open the connection from A to B, while the pressure set at spring (5) is maintained. Pilot oil return from the two spring chambers is taken externally via port Y.



## Ordering code



Pressure relief valve = DB

Further details in clear text

Nominal size 6 = 6  
 Nominal size 10 = 10  
 Nominal size 20 = 20

No code = mineral oils  
 V = phosphate ester

Cartridge valve = K

Y = Pilot oil supply internal, drain external  
 XY = Pilot oil supply external, drain external  
 (only to DB20K)

### Adjustment element

Rotary knob = 1  
 Sleeve with hexagon and protective cap = 2  
 Lockable rotary knob with scale = 3  
 Rotary knob with scale = 7

50 = Pressure adjustable up to 5 MPa  
 100 = Pressure adjustable up to 10 MPa  
 200 = Pressure adjustable up to 20 MPa  
 315 = Pressure adjustable up to 31.5 MPa

B= Technology of Beijing Huade Hydraulic

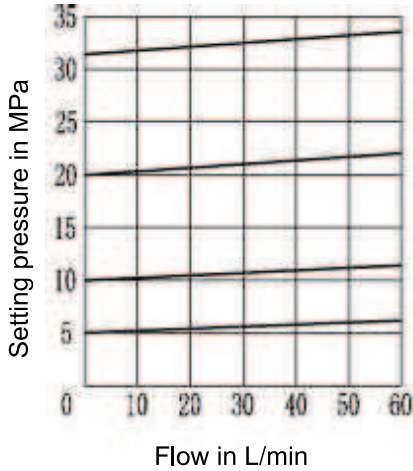
Series 40 to 49 = 40 (size 6 and 10)  
 (40 to 49: unchanged installation and connection dimensions)  
 Series 10 to 19 = 10 (size 20)  
 (10 to 19: unchanged installation and connection dimensions)

## Technical data

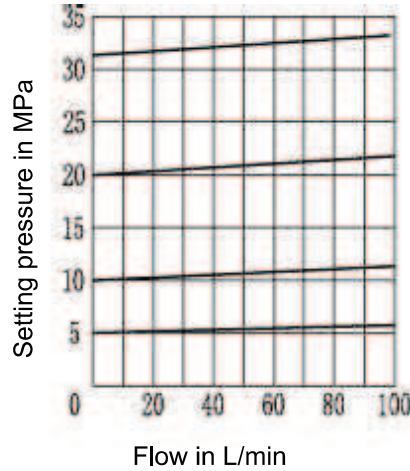
Nominal size	6	10	20
Pressure fluid	Mineral oil (for NBR seal), or phosphate ester (for FPM seal)		
Pressure fluid - temperature range (°C)	-30 to +80		
Viscosity range (mm <sup>2</sup> /s)	10 to 800		
Degree of fluid contamination	Maximum permissible degree of contamination of the fluid is to NAS 1638, class 9.		
Operating pressure, max. (MPa)	up to 31.5		
Pressure adjustable, max. (MPa)	up to 5, up to 10, up to 20, up to 31.5		
Flow, max. (L/min)	up to 60	up to 100	up to 300
Weight (Kg)	approx.0.15	approx.0.2	approx.0.35

**Characteristic curves** (measured at  $v = 41 \text{ mm}^2/\text{s}$  and  $t = 50^\circ \text{ C}$ )

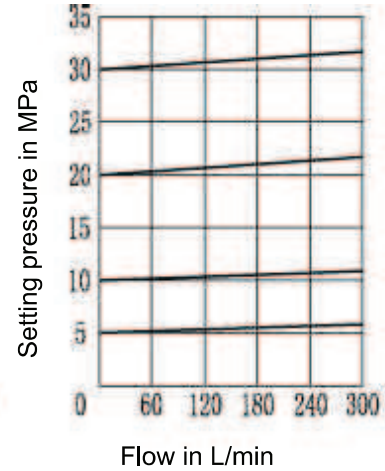
DB6K  
 $p_E$ - $q_v$  characteristic curve



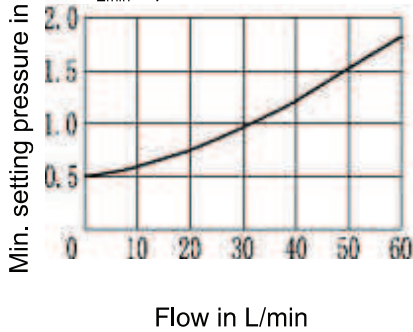
DB10K  
 $p_E$ - $q_v$  characteristic curve



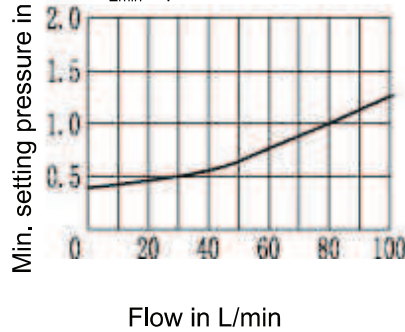
DB20K  
 $p_E$ - $q_v$  characteristic curve



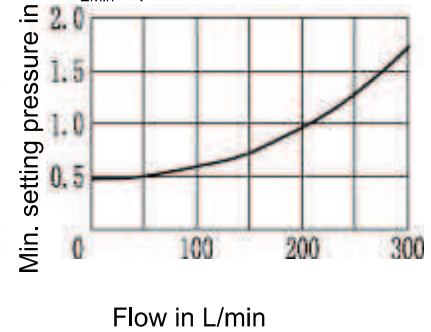
DB6K  
 $p_{Emin}$ - $q_v$  characteristic curve



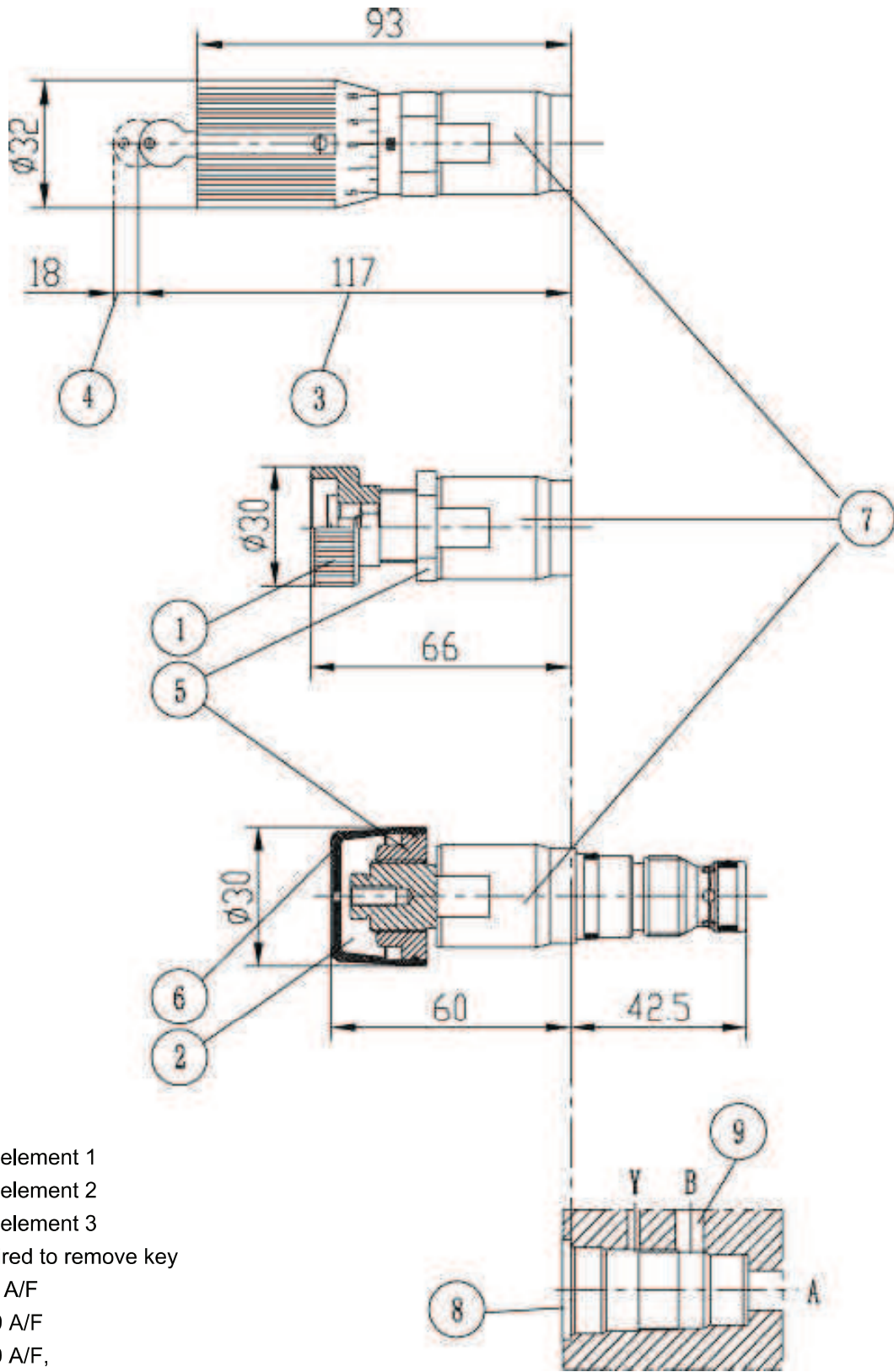
DB10K  
 $p_{Emin}$ - $q_v$  characteristic curve



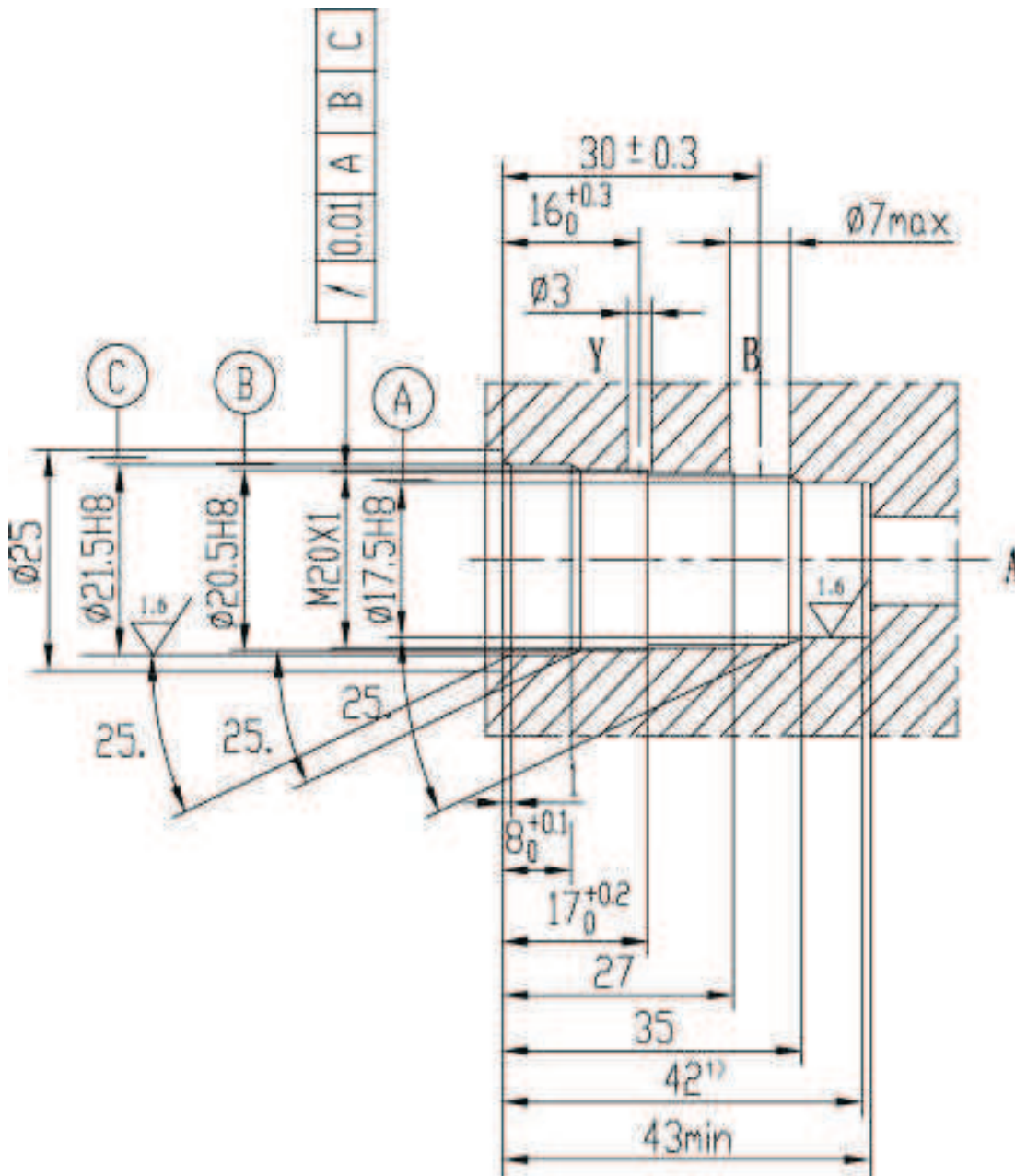
DB20K  
 $p_{Emin}$ - $q_v$  characteristic curve



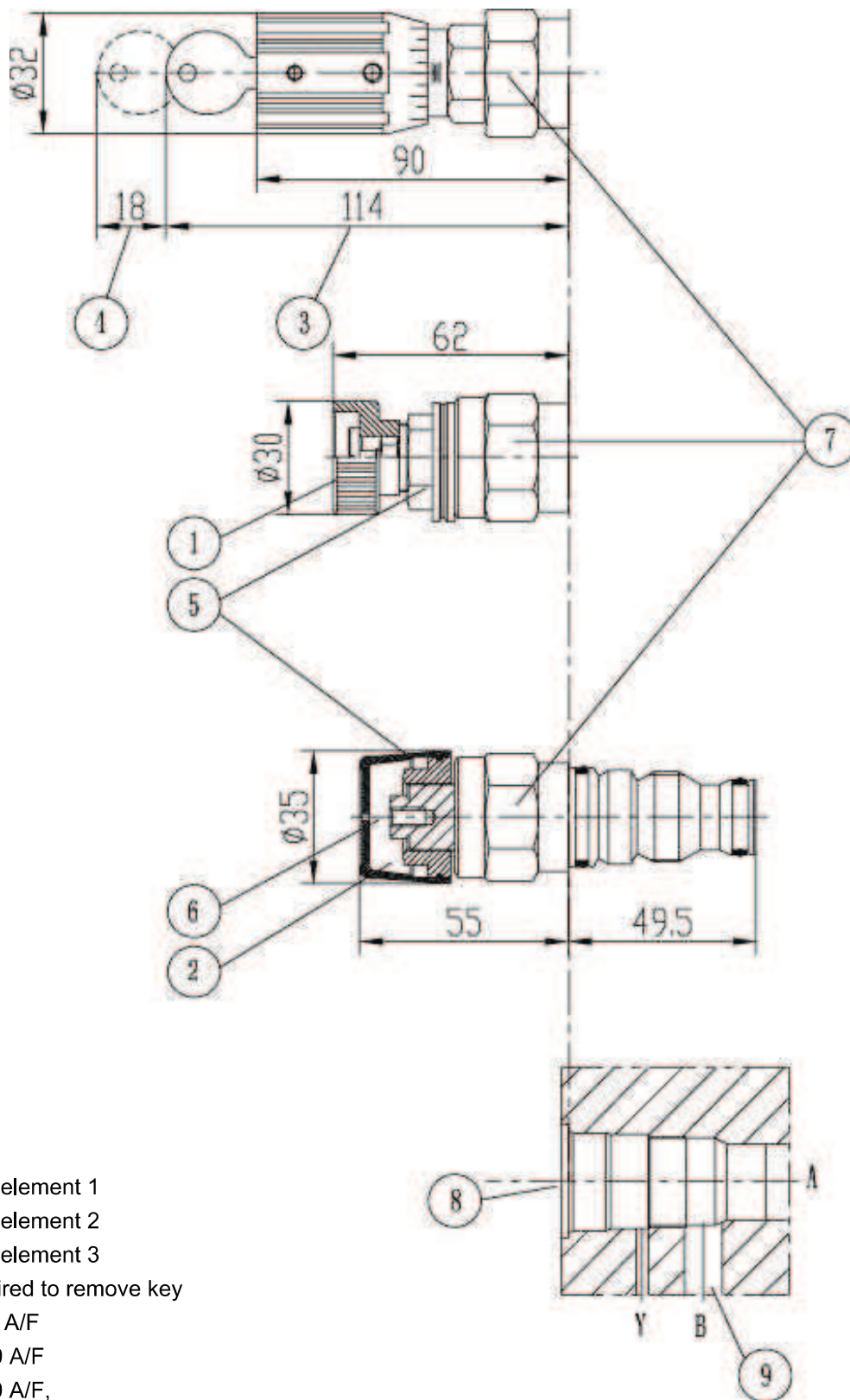
**The characteristic curves are valid for an initial outlet pressure of zero over the entire flow range!**



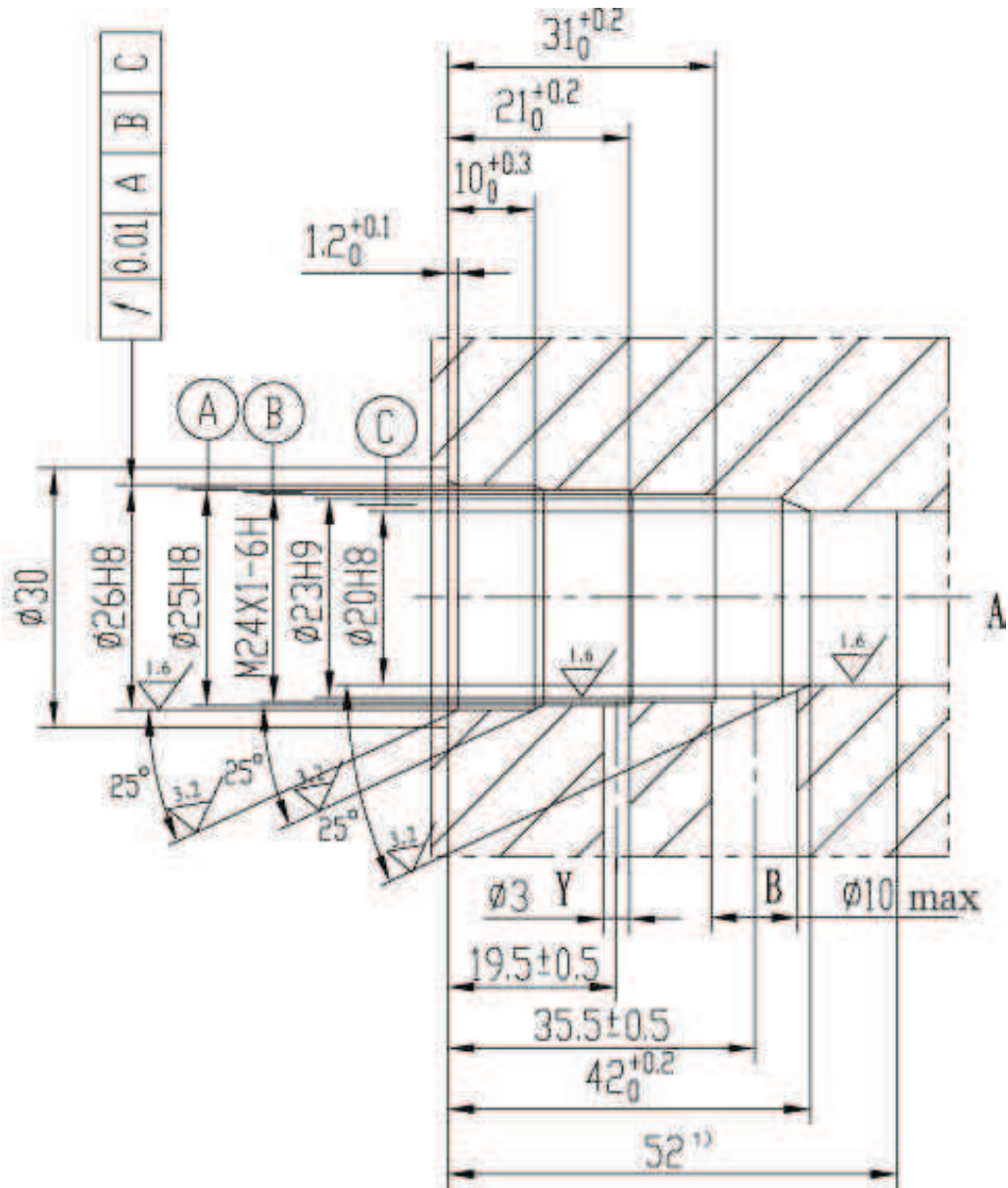
- 1. Adjustment element 1
- 2. Adjustment element 2
- 3. Adjustment element 3
- 4. Space required to remove key
- 5. Lock nut 24 A/F
- 6. Hexagon 10 A/F
- 7. Hexagon 30 A/F,  
Tightening torque  $M_A=50Nm$
- 8. Fixing hole
- 9. Port B arranged as required around periphery



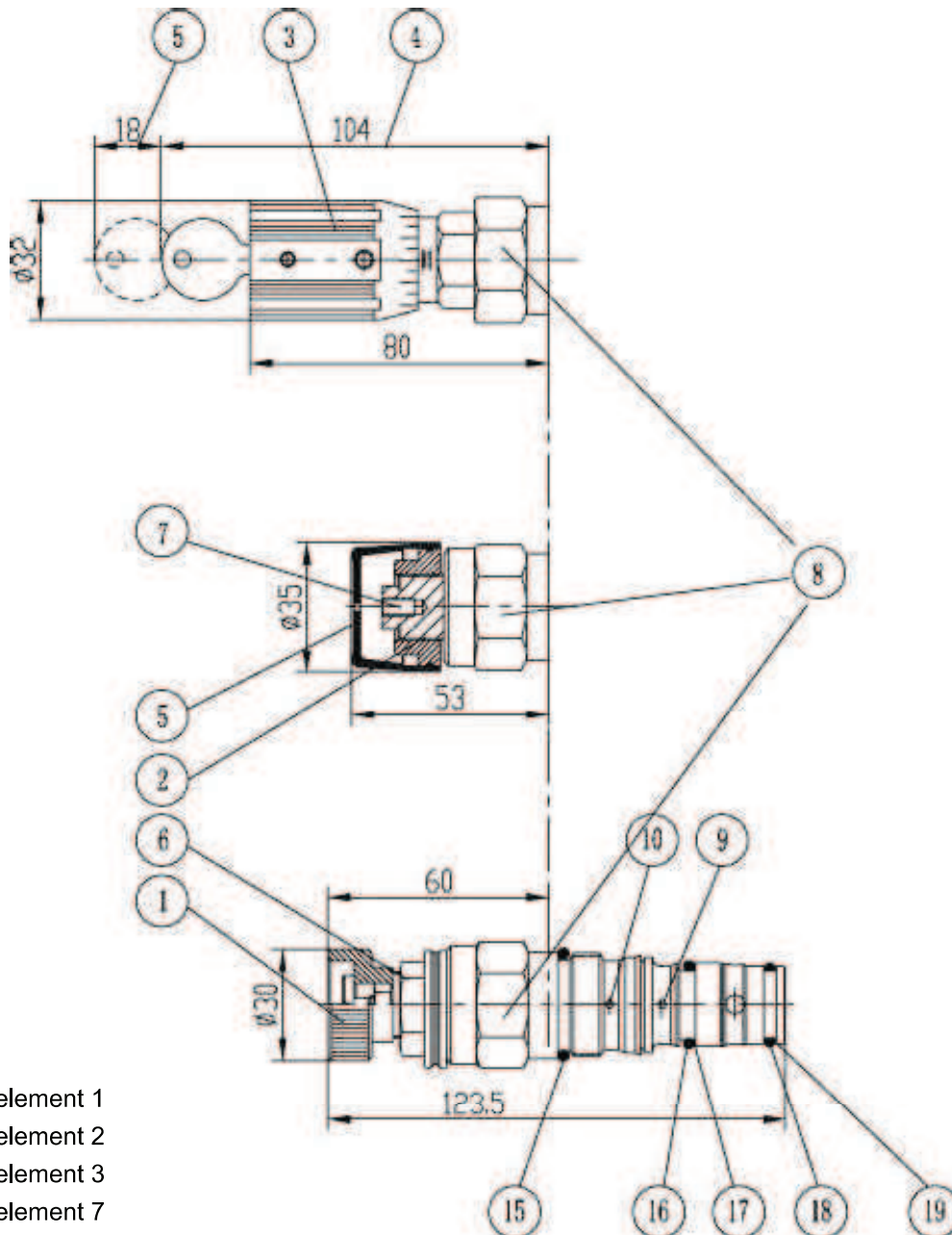
1) Depth of fit



- 1. Adjustment element 1
- 2. Adjustment element 2
- 3. Adjustment element 3
- 4. Space required to remove key
- 5. Lock nut 24 A/F
- 6. Hexagon 10 A/F
- 7. Hexagon 30 A/F,  
Tightening torque  $M_A=50Nm$
- 8. Fixing hole
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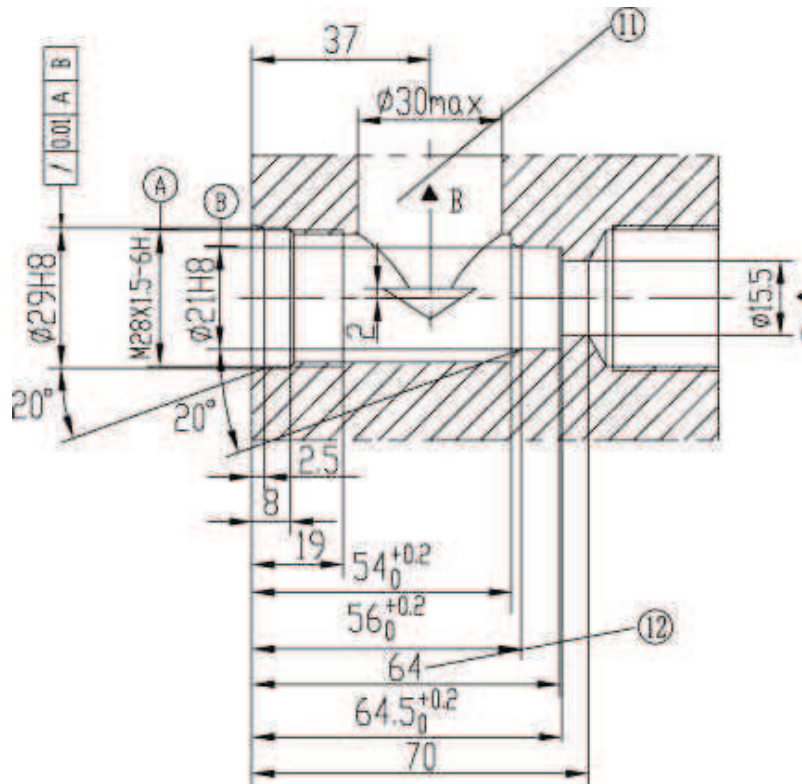
1) Depth of fit



- |  |   |
|--|---|
| 1. Adjustment element 1  |   |
| 2. Adjustment element 2  |   |
| 3. Adjustment element 3  |   |
| 4. Adjustment element 7  |   |
| 5. Space required to remove key  |   |
| 6. Lock nut 22 A/F   |   |
| 7. Hexagon 10 A/F  |   |
| 8. Hexagon 30 A/F  |   |
|  | Tightening torque $M_A = 50Nm$                          |
| 9. Port B arranged as required around periphery  |   |
| 10. Hole is used for port Y of DB20K...-10/..XY and DB20K...-10/...Y...  |   |
| 11. The collocation of hole B, as follows: DB...K...-10/... Y... X、Y and the collocation of hole B, as follows drawing (=) DB...K...-10/...XY... |   |
|  | 12. Fit for depth                                       |
|  | 13. Drilling hole $\Phi 2.5$ as required (type X and Y) |
|  | 14. Hole A ,optional                                    |
|  | 15. O-ring 23.47X2.62                                   |
|  | 16. O-ring 17.12X2.62                                   |
|  | 17. Retainer ring 18.4X22.6X0.6                         |
|  | 18. O-ring 17.17X1.78                                   |
|  | 19. Retainer ring 18.2X21.1X0.6                         |

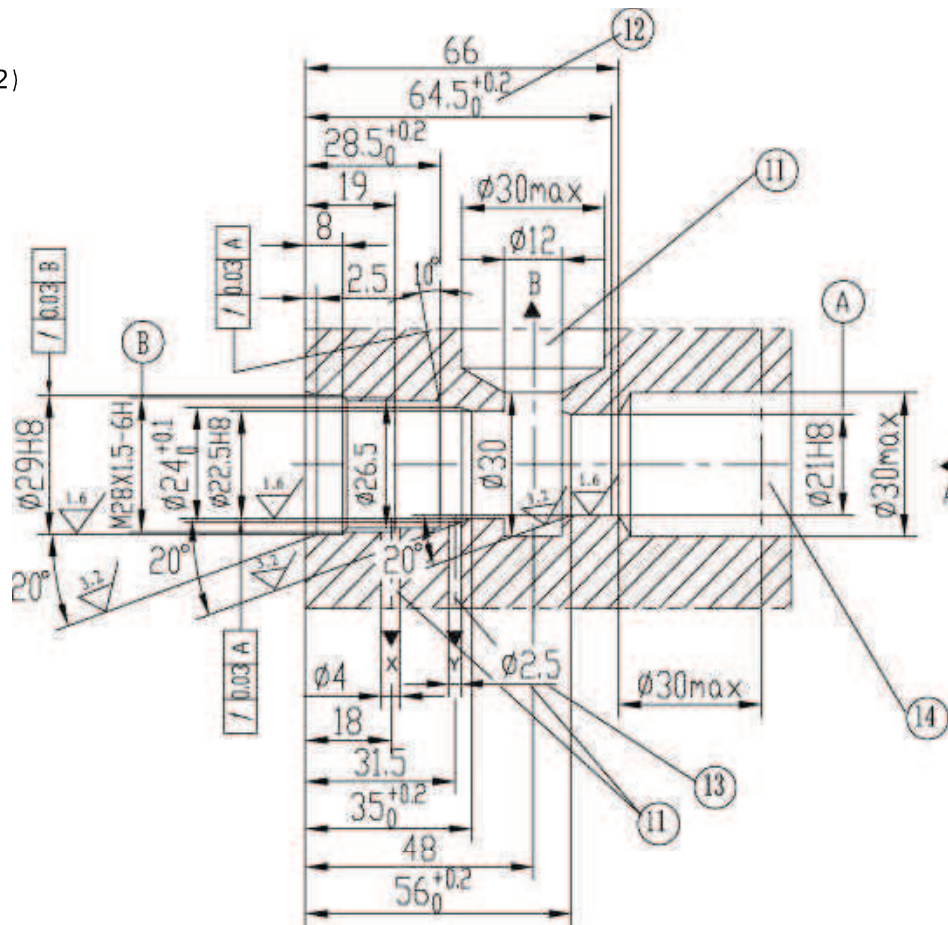
Type DB20K-10B/...Y...

drawing (1)



Type DB20K-10B/...XY...

drawing (2)



## Notice

1. The fluid must be filtered. Minimum filter fineness is 20  $\mu\text{m}$ .
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 separately.
4. Valve fixing bolts/screws must be high tensile (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  $\sqrt{0.8}$ .
6. Surface straightness of mating piece is required to 0.01/100mm.

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