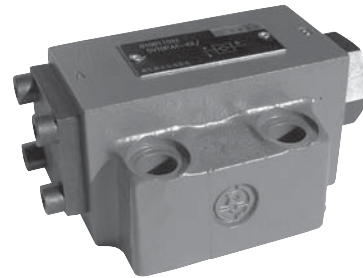


BEIJING HUADE HYDRAULIC INDUSTRIAL GROUP CO.,LTD.	Pilot operated check valves, Types SV and SL...40B/ (new series)			RE 21500/12.2004
	Size 10 to 32	up to 31.5 MPa	up to 550L/min	

Features:

- check valve controlled by fluid
- For subplate mounting, Mounting pattern to DIN 24 340
- Subplate or screw threaded connection
- With or without leakage port
- With or without pre-opening
- Type with pre-opening, dampened decompression
- 4 opening pressures
- Porting pattern to Din 24 340 form A, ISO 4401 and CETOP-RP 121H



Function, section, symbols

SV and SL valves are hydraulic pilot operated check valves in poppet type design which may be opened to allow flow in either direction.

These valves are used for the isolation of operating circuits under pressure, as safeguard against the lowering of a load when a line break occurs or against creeping movements of hydraulically locked-in actuators.

Basically these valves consist of housing (1), poppet (2), compression spring (3), control spool (4) as well as a preopening, as ball poppet valve (5), optionally.

The valve enables free flow from A to B, in the counter direction the poppet (2) is held on its seat by the system pressure, additionally to the spring force.

Through the pressure connection at control port X the control piston (4) is moved to the right. This pushes the poppet (2) from the seat. Now the valve may also have a flow from B to A.

In order to ensure the proper opening of the valve via the control piston (4) a certain minimum control pressure is necessary

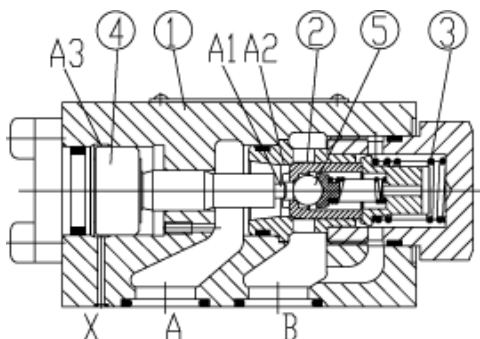
Type SV..A.. and SL..A.. (with pre-opening, section 1)

This valve has a additional pre-opening. Through pressure connection at control port X the control piston (4) is pushed to the right.

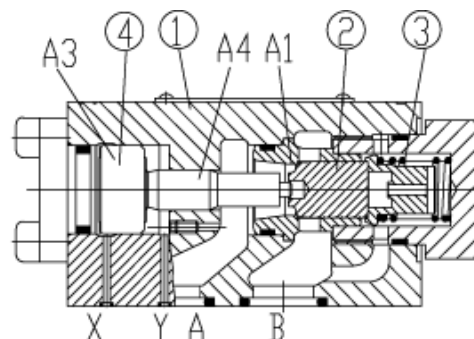
This first pushes the ball (5) and then the poppet (2) from the seat. Now the valve may also have a flow from B to A. Because of the pre-opening there is a dampened decompression of the fluid under pressure. Through this possible pressure shocks are avoided.

Type SL... (with leakage port, section 2)

The function of this valve is principally the same as the valve SV. The difference is the additional leakage port Y. With this the annulus area of the control piston (4) is separated from port A. The pressure present at port A only effects area A_4 of the control piston (4).



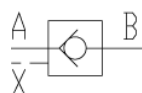
Type SV..PA (without leakage port, with pre-opening)



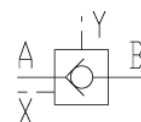
Type SL..PB (with leakage port, without pre-opening)

Symbols:

Type SV



Type SL



Ordering details

		S				-	40	B	/	*
--	--	---	--	--	--	---	----	---	---	---

Without leakage port	=V
With leakage port	=L

Further details in clear text

No code =	Mineral oils
V =	Phosphate ester

Style	SV		SL	
Connection	G	P	G	P

B = The technology of Beijing Huade Hydraulic

Ordering code

Size10	=10	=10	=10	=10
Size16	=15	-	=15	-
Size20	=20	=20	=20	=20
Size25	=25	-	=25	-
Size32	=30	=30	=30	=30

40 = Series 40 to 49
(40 to 49: unchanged installation and connection dimensions)

1=	}	Cracking pressure See curve A to B
2=		
3=		
4=		

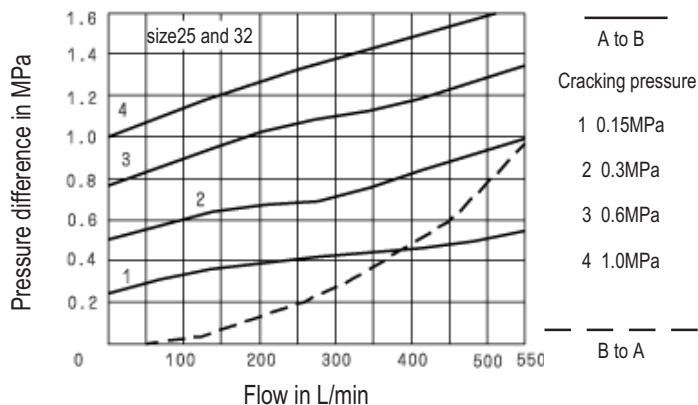
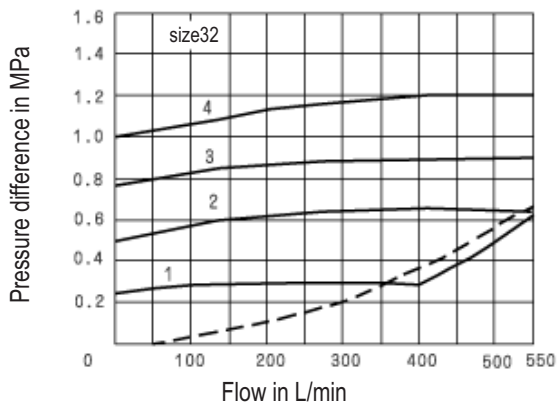
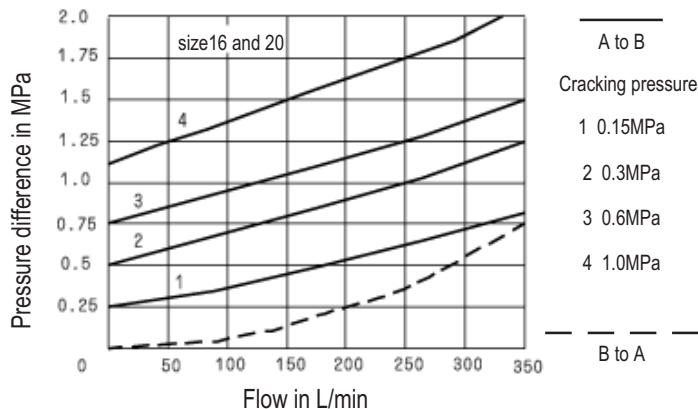
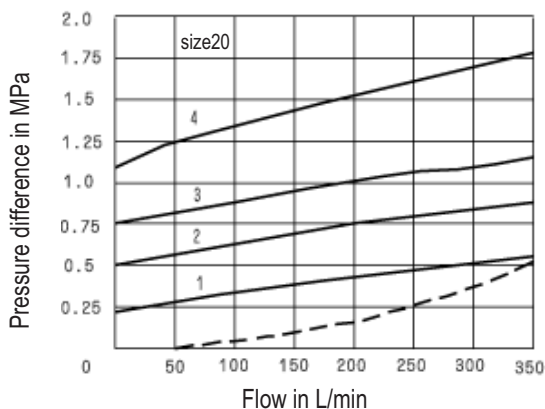
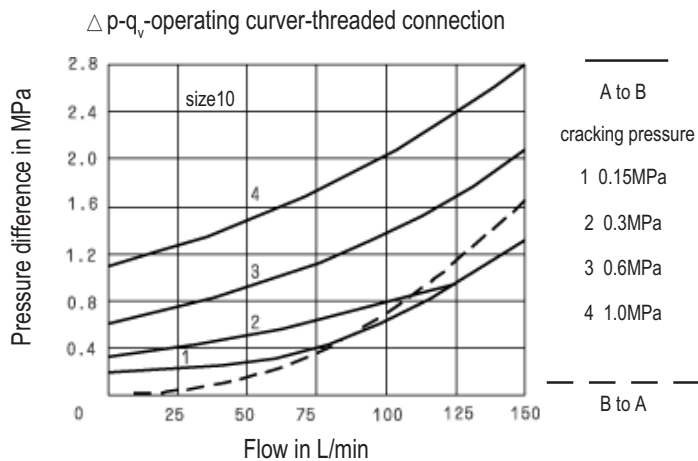
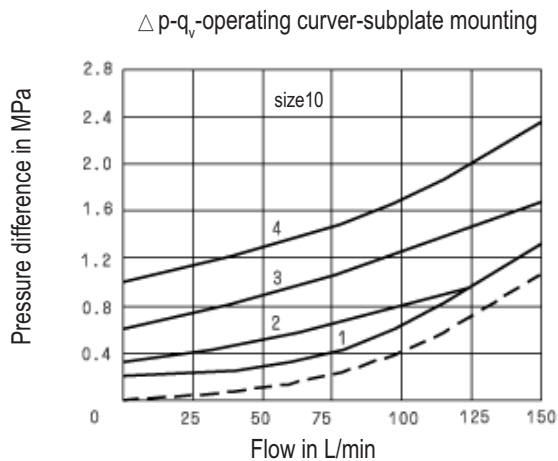
Plate mounting	=P
Thread connection	=G

A=	With pre-opening
B=	Without pre-opening

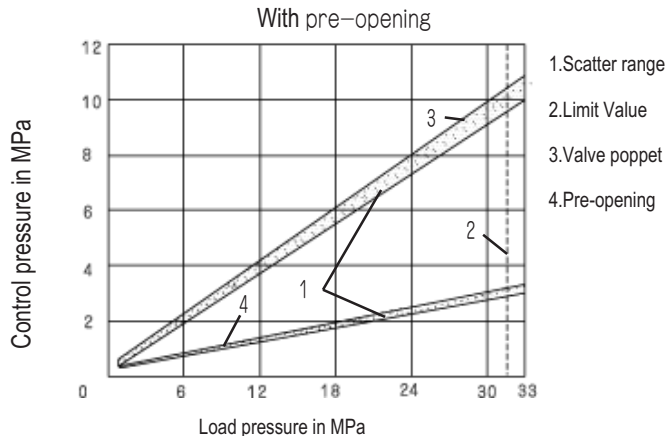
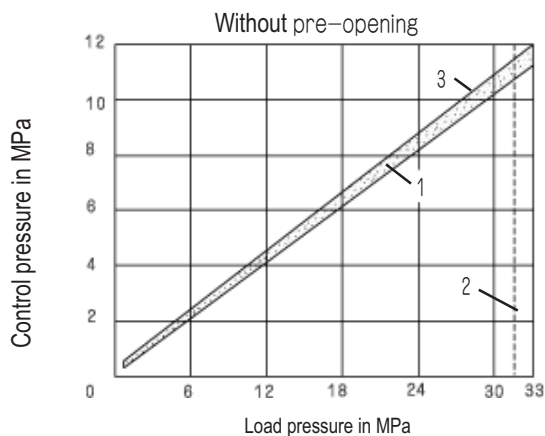
Technical data

Style		10	16	20	25	30	
Weight	- subplate mounting (kg)	1.8	-	4.7	-	7.8	
	- threaded connection (kg)	2.1	5.4	5.4	10	10	
Installation position	(MPa)	Optional					
Direction of flow	(MPa)	From A to B free, from B to A through opening					
Operating pressure, max.	(MPa)	0.5~31.5					
Control pressure, max.	(MPa)	0.5~31.5					
Control volume - port X	(cm ³)	2.5	10.8	10.8	19.27	19.27	
Control volume - port Y	(cm ³)	2.0	9.6	9.6	17.5	17.5	
Control areas	- area A1	(cm ²)	1.3	3.46	3.46	5.72	5.72
	- area A2	(cm ²)	0.33	0.7	0.7	1.33	1.33
	- area A3	(cm ²)	3.8	10.17	10.17	16.61	16.61
	- area A4	(cm ²)	0.79	1.13	1.13	1.54	1.54
Pressure fluid		Mineral oils(for NBR seal) or phosphate ester(for FPM seal)					
Pressure fluid temperature range	(°C)	- 30 to + 80					
Viscosity range	(mm ² /s)	2.8 to 500					

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

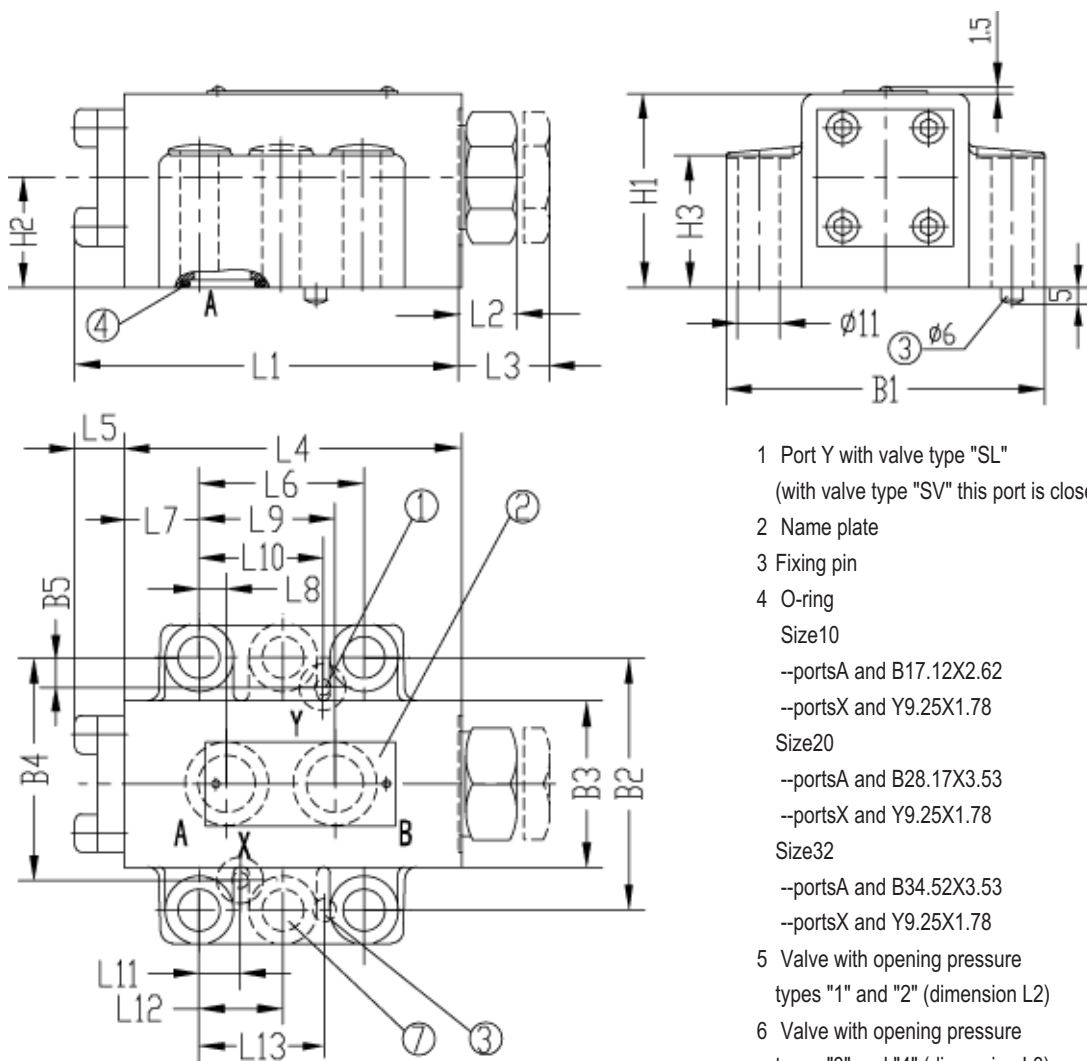


Control pressure-load pressure-operating curves



Unit dimensions: for subplate mounting

(Dimensions in mm)



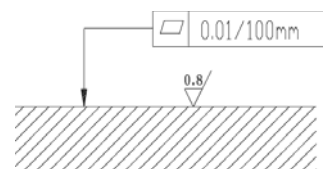
- 1 Port Y with valve type "SL"
(with valve type "SV" this port is closed)
- 2 Name plate
- 3 Fixing pin
- 4 O-ring
Size10
--portsA and B17.12X2.62
--portsX and Y9.25X1.78
Size20
--portsA and B28.17X3.53
--portsX and Y9.25X1.78
Size32
--portsA and B34.52X3.53
--portsX and Y9.25X1.78
- 5 Valve with opening pressure types "1" and "2" (dimension L2)
- 6 Valve with opening pressure types "3" and "4" (dimension L3)
- 7 6 valve fixing holes with type SV/SL 30 (valves fitting screws included in goods)
Size10
4 M10 × 50-10.9 (GB/T70.1-2000) M_A=75N.m
Size20
4 M10 × 70-10.9 (GB/T70.1-2000) M_A=75N.m
Size30
6 M10 × 85-10.9 (GB/T70.1-2000) M_A=75N.m

Valve type	Size	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10
SV	10	100.8	15.5	15.5	87.8	13	42.9	18.5	7.2	35.8	-
	20	135	17.7	47.7	117	18	60.3	27.5	11.1	49.2	-
	30	156.1	36.1	46.1	134	22.1	84.2	39	16.7	67.5	-
SL	10	100.8	15.5	15.5	87.8	13	42.9	18.5	7.2	35.8	21.5
	20	135	17.7	47.7	117	18	60.3	27.5	11.1	49.2	39.5
	30	156.1	36.1	46.1	134	22.1	84.2	39	16.7	67.5	59.5

Valve type	Size	L11	L12	L13	B1	B2	B3	B4	B5	H1	H2	H3
SV	10	21.5	-	31.8	84	66.7	44	58.8	-	51	29	36
	20	20.6	-	44.5	100	79.4	61	73	-	70	37	55
	30	24.6	42.1	62.7	118	96.8	75	92.8	-	85	42.5	70
SL	10	21.5	-	31.8	84	66.7	44	58.8	7.9	51	29	36
	20	20.6	-	44.5	100	79.4	61	73	6.4	70	37	55
	30	24.6	42.1	62.7	118	96.8	75	92.8	3.8	85	42.5	70

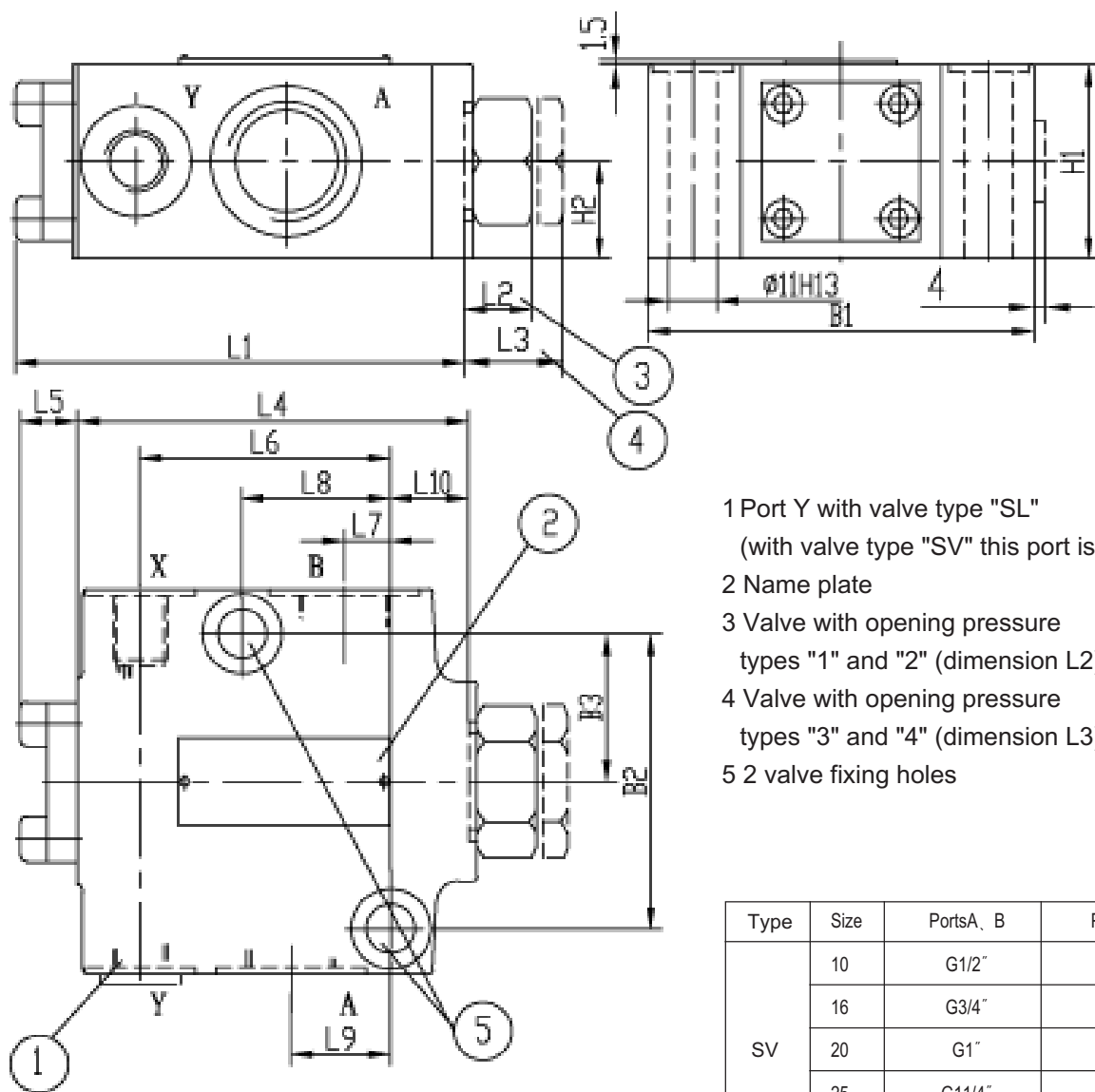
Subplate:
must be ordered separately.see page204
Size10 G460/01(G3/8") G461/01(G1/2")
Size20 G412/01(G3/4") G413/01(G1")
Size30 G414/01(G1¹/₄) G415/01(G1¹/₂)

Required surface finish of mating piece



Unit dimensions: for subplate mounting

(Dimensions in mm)



- 1 Port Y with valve type "SL"
(with valve type "SV" this port is closed)
- 2 Name plate
- 3 Valve with opening pressure types "1" and "2" (dimension L2)
- 4 Valve with opening pressure types "3" and "4" (dimension L3)
- 5 2 valve fixing holes

Type	Size	Ports A, B	Ports X, Y
SV	10	G1/2"	G1/4"
	16	G3/4"	G1/4"
	20	G1"	G1/4"
	25	G1 1/4"	G1/4"
	30	G1 1/2"	G1/4"
SL	10	G1/2"	G1/4"
	16	G3/4"	G1/4"
	20	G1"	G1/4"
	25	G1 1/4"	G1/4"
	30	G1 1/2"	G1/4"

Valve type	Size	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	B1	B2	B3	H1	H2
SV	10	100.8	15.5	15.5	87.8	13	56.5	10.5	33.5	22.5	17.3	87	66.7	33.4	44	22
	16;20	133	17.7	47.7	115	18	74.5	17	50.5	36	27	105	79.4	39.7	68	34
	25;32	156.1	35.7	45.7	134	22.1	101	24	84	49	18	130	96.8	48.4	85	42.5
SL	10	100.8	15.5	15.5	87.8	13	56.5	10.5	33.5	22.5	17.3	87	66.7	33.4	44	22
	16;20	133	17.7	47.7	115	18	74.5	17	50.5	36	27	105	79.4	39.7	68	34
	25;32	156.1	35.7	45.7	134	22.1	101	24	84	49	18	130	96.8	48.4	85	42.5

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 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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