

● Slide column type (solenoid directional valve)

Type	Model	Hydraulic symbol	SWH-G02	SWH-G03	SWL-G02-J*	SWL-G03-J*	SWM-G02
Three -position Spring centered	C2		●	●	●	●	●
	C3		●	●	●	●	
	C4		●	●	●	●	●
	C40		●	●	●	●	
	C5		●	●	●	●	
	C6		●	●	●	●	●
	C60		●	●	●	●	
	C7		●	●	●	●	
	C8		●	●	●	●	
	C9		●	●	●	●	●
Two-position Spring return (Coil b)	C2B		●	●	●	●	
	C3B		●	●	●	●	
	C4B		●	●	●	●	
	C40B		●	●	●	●	
	C5B		●	●	●	●	
	C6B		●	●	●	●	
	C60B		●	●	●	●	
	C7B		●	●	●	●	
	C8B		●	●	●	●	
	C9B		●	●	●	●	
	C5SB		●	●	●	●	
	C8SB		●	●	●	●	
	C9SB		●	●	●	●	
Two-position No spring	N2		●	●	●	●	
	N3		●	●	●	●	

Note : “●” indicates that the slider specification is available.

If you choose a slider other than the list, please contact our technical department.

● Slide column type (Solenoid directional valve)

Type	Model	Hydraulic symbols	SWH-G02	SWH-G03	SWL-G02-J*	SWL-G03-J*	SWM-G02
2-position Mechanical positioning	D2		●	●			
	D3		●	●			
2-position Spring return (Coil b)	B2		●	●	●	●	
	B3		●	●	●	●	
	B4		●	●	●	●	
	B20		●	●	●	●	
	B21		●	●	●	●	
2-position Spring return (Coil a)	B2S		●	●	●	●	
	B3S		●	●	●	●	
	B4S		●	●	●	●	
	B20S		●	●	●	●	
	C2BS		●	●	●	●	
	C3BS		●	●	●	●	
	C4BS		●	●	●	●	
	C40BS		●	●	●	●	
	C5BS		●	●	●	●	
	C6BS		●	●	●	●	
	C60BS		●	●	●	●	
	C7BS		●	●	●	●	
	C8BS		●	●	●	●	
	C9BS		●	●	●	●	
3-position Spring centered	C5S		●	●	●	●	
	C8S		●	●	●	●	
	C9S		●	●	●	●	

Note : "●" indicates that the slider specification is available.

If you choose a slider other than the list, please contact our technical department.

Directional control valve

- Slide column type (Electro-hydraulic directional valve)

Type	Model	Hydraulic symbols	SW-G04	SWH-G04	SW-G06	SWH-G06	SWH-G10	DSH/DSHB-G03
3-position Spring centered	C2		●	●	●	●	●	●
	C3		●	●	●	●	●	●
	C4		●	●	●	●	●	●
	C40		●	●		●		
	C5		●	●		●		
	C6		●	●	●		●	●
	C60					●	●	
	C7		●	●	●	●		●
	C8		●	●	●	●	●	●
	C9		●	●	●	●		●
2-position Spring return (Coil b)	C2B		●	●	●	●	●	●
	C3B		●	●	●	●	●	●
	C4B		●	●	●	●	●	●
	C40B		●	●		●		
	C5B		●	●		●		
	C6B		●	●	●		●	●
	C60B					●	●	
	C7B		●	●	●	●		●
	C8B		●	●	●	●	●	●
	C9B		●	●	●	●		●
	C5SB		●	●		●		
	C8SB		●	●		●		
C9SB		●	●		●			
2-position No spring	N2		●	●	●	●	●	
	N3		●	●	●	●	●	

Note : " ● " indicates that the slider specification is available.

If you choose a slider other than the table, please contact our technical department.

● Slide column type(electro-hydraulic directional control valve)

Type	Model	Hydraulic symbols	SW-G04	SWH-G04	SW-G06	SWH-G06	SWH-G10	DSH/DSHB-G03
2-position Mechanical positioning	D2		●	●	●	●	●	
	D3		●	●	●	●	●	
2-position Spring return (Coil b)	B2		●	●	●	●	●	●
	B3		●	●	●	●	●	●
	B4		●	●	●	●	●	●
	B20							
	B21							
2-position Spring return (Coil a)	B2S		●	●				●
	B3S		●	●				●
	B4S		●	●				●
	B20S							
	C2BS		●	●	●	●	●	●
	C3BS		●	●	●	●	●	●
	C4BS		●	●	●	●	●	●
	C40BS		●			●		
	C5BS		●					
	C6BS		●	●	●	●	●	●
	C60BS							
	C7BS		●	●	●			●
	C8BS		●	●	●	●	●	●
C9BS		●	●	●			●	
3-position Spring centered	C5S		●					
	C8S		●	●				●
	C9S		●					●

Note : “●” indicates that the slider specification is available.

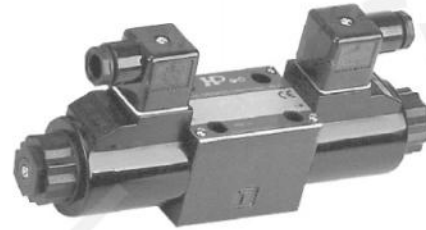
If you choose a slider other than the list, please contact our technical department.

SWH-G02 Series(10,20,31,41,51 type)

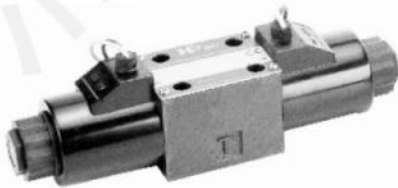
1. Excellent high-thrust electromagnet and flow path design, making SWH series products suitable for high pressure and large flow. The full range of standard features reduce reverse impulse voltage and greatly improve safety.
2. Large thrust electromagnet and improve the spring force design, so that in the polluted working environment still have smooth action.
3. Standard type can be used for high pressure (315bar), large flow (63 l/min).
4. Excellent electrical waterproof and dustproof characteristics.
5. Also provide shock absorber solenoid valve, which can be used for occasions requiring low impact and low noise.
6. For injection molding machine, M3 series special valves are provided to greatly improve the characteristics of the plastic machine.



Model 10



Model 20



Model 31



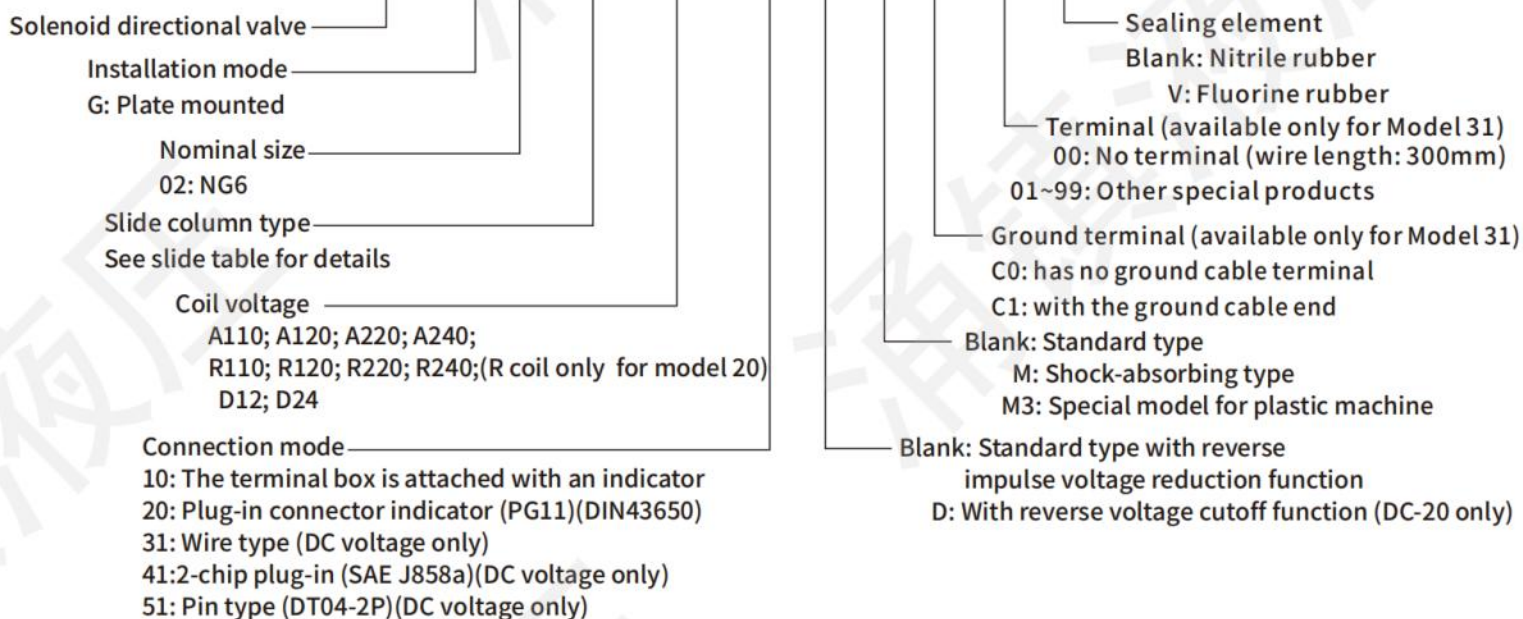
Model 41



Model 51

How to order

SWH - G 02 - C2 - D24 - 20 - D - M - C0 - 00 - V



● Specification

Model	Max. flow (l/min)	Max. pressure (bar)	Max. allowable back pressure(bar)	Max.commutation frequency (Round/min)
SWH-G02-** (Standard)	63	315	160(AC)	300
			210(DC)	
SWH-G02-**-31/41/51	63	315	210	250
SWH-G02-**-M (Shock-absorbing)	40	210	160	120

- Note: 1. The max. flow rate refers to the limit flow rate when the valve is normally reversed, and the max. flow rate varies with the function of the valve core and working conditions;
 2. The characteristic parameters of M3 series are the same as those of standard type;
 3. Protection level: IP 67 equivalent;
 4. Shock resistance: JIS D 1601 3 kinds of class D 70 stage;
 5. Water resistance: JIS D 0203 S2;
 6. Oil temperature: -20°C~+90°C, ambient temperature: -30°C~50°C.

● Solenoid coil function

Power	Coil type	Frequency (Hz)	Voltage		Current and power at rated voltage		
			Rated voltage	Allowable range	Starting current(A)	Holding current(A)	Power (W)
A.C.	A110	50	AC100V	90~110	3.30	0.63	26.5
		60	AC110V	99~121	2.55	0.53	27.5
	A120	50	AC110V	99~121	2.91	0.57	26.5
		60	AC120V	108~132	2.32	0.49	27.5
	A220	50	AC200V	180~220	1.26	0.29	28
		60	AC220V	198~242	1.23	0.26	28.5
	A240	50	AC220V	198~242	1.17	0.28	28
		60	AC240V	216~264	1.14	0.24	28.5
	R110	50/60	AC110V	99~121		0.3	30.0
	R220	50/60	AC220V	198~242		0.15	30.0
	R120	50/60	AC120V	108~132		0.3	30.0
	R240	50/60	AC240V	216~264		0.15	30.0
D.C.	D12	DC12V		10.8~13.2		2.67	32.0
	D24	DC24V		21.6~26.4		1.24	30.0
	GD24	DC28V		24~28		1.14	30.0(28V)

Note:

- The allowable range of voltage variation is $\pm 10\%$ of the rated voltage;
- Short circuit between turns 1500V, not more than three seconds;
- Insulation resistance more than 100M Ω ;
- It is recommended that the selection and use of GD24V coil should be set in the case that the engine is started, but it may also be in the shutdown state, directly driven from the battery. In accordance with the 28VDC design, so the power supply is not recommended for the engine power generation system.

● Pressure drop characteristic curve

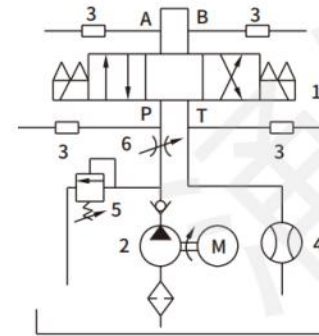
Test system

1. Test item: electromagnetic directional valve
2. Pump
3. Pressure sensor
4. Flow sensor
5. Pressure valve
6. Flow valve

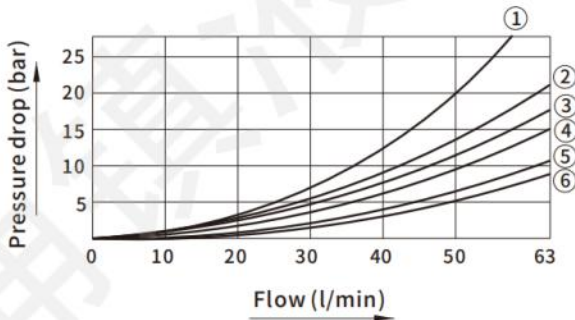
Test condition

Pressure: 70bar
 Flow rate: 63 l/min
 Viscosity: 35cSt
 Voltage: 100% V
 (after temperature rise and stability)

Test circuit

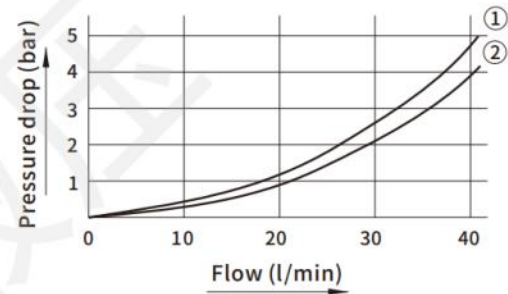


Standard



Model	Pressure drop diagram				
	P→A	B→T	P→B	A→T	P→T
C2	5	5	5	5	—
C3	6	6	6	6	4
C4	5	6	5	6	—
C40	5	5	5	5	—
C5	2	2	2	2	4
C6	1	1	1	1	4
C60	1	1	1	1	3
C7	6	5	6	5	—
C8	5	5	5	6	—
C9	6	5	5	5	—
D2	5	5	5	5	—
D3	5	3	5	3	—
B2	4	5	4	5	—
B3	3	3	5	5	—
B20	2	—	5	—	—
B2S	4	5	4	5	—
B3S	5	5	3	3	—
B20S	5	—	2	—	—

Shock-absorbing



Model	Pressure drop diagram			
	P→A	B→T	P→B	A→T
C2	1	1	1	1
C4	1	2	1	2
B2	1	1	1	1

Viscosity change

Viscosity	cSt	15	20	30	40	50	60	70	80	90	100
	SSU		77	98	141	186	232	278	324	371	417
Coefficient(G')		0.81	0.87	0.96	1.03	1.09	1.14	1.19	1.23	1.27	1.30

Note: For other specific gravity (G'), the pressure drop can be calculated by the formula $\Delta p' = \Delta p / 0.85$

● Reversing time(standard)

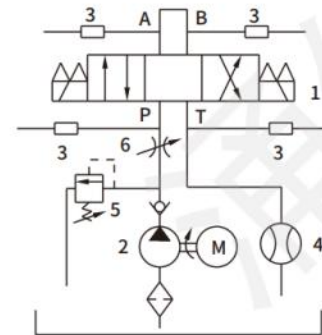
Test system

1. Test item: electromagnetic directional valve
2. Pump
3. Pressure sensor
4. Flow sensor
5. Pressure valve
6. Flow valve

Test condition

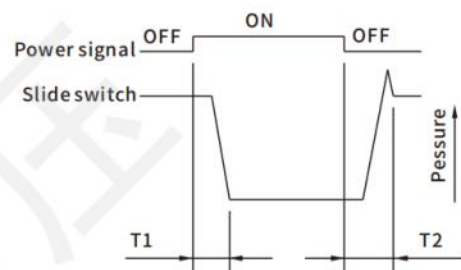
Pressure :160bar
 Flow rate :30 l/min
 Viscosity :35cSt
 Voltage: 100% V
 (after temperature rise and stability)

Test circuit



● Test results

Model	Switching time(ms)	
	T1	T2
SWH-G02-C2-A*Series	14	19
SWH-G02-C2-D*Series	43	17
SWH-G02-C2-R*Series	46	88



● Reversing time (Shock-absorbing)

Test system

1. Test item: electromagnetic directional valve
2. Pump
3. Pressure sensor
4. Flow sensor
5. Pressure valve
6. Flow valve

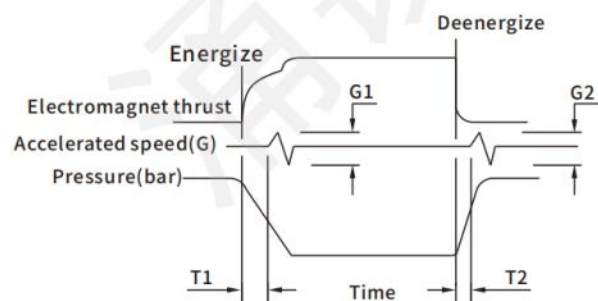
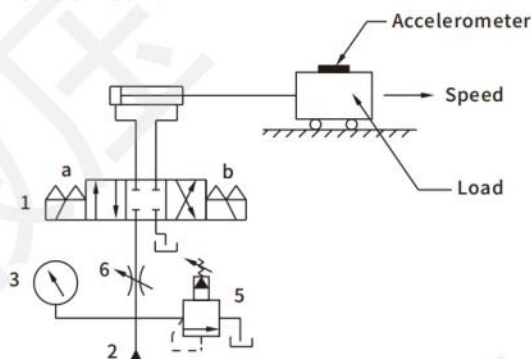
Test condition

Pressure: 70bar
 Load :1000kg
 Cylinder speed :8m/min
 Viscosity :35cSt

● Test results

Type	Model	Time(ms)		Accelerated speed(m/s ²)	
		T1	T2	G1	G2
Shock-absorbing	SWH-G02-C2-D*-M	70	30	12	7
Standard	SWH-G02-C2-D*	35	25	18	15

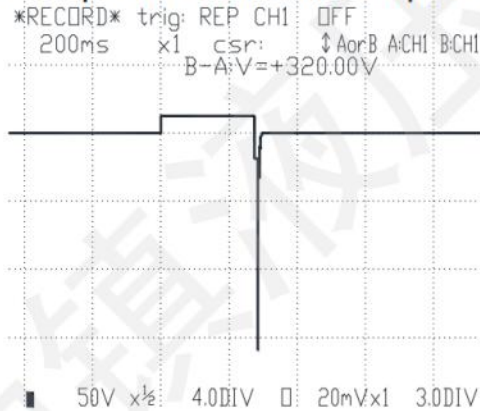
Test circuit



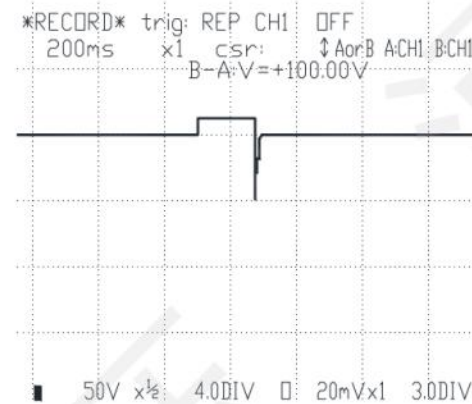
● Electrical shock waveform of electromagnetic coil

With the electromagnetic coil installed DC plug, DC-LS plug, DC-D plug for testing, when the power supply DC24V power off, measured the reverse impact voltage waveform,

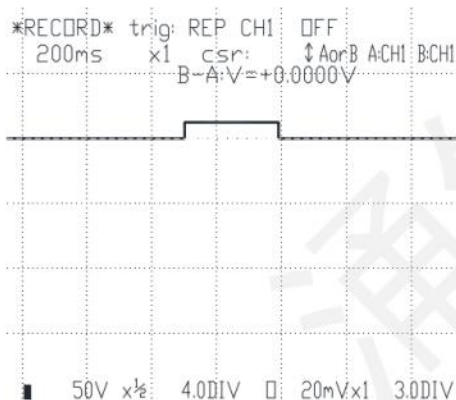
DC-D specifications can completely cut off the reverse voltage



Electrical shock waveform from DC plug solenoid



Electrical shock waveform from DC-LS plug solenoid



Electrical shock waveform from DC-D plug solenoid

Additional functions LS Features

1. Suppress pulsating voltage;
2. Built-in surge absorber can reduce reverse voltage and extend contact life.

Additional functions D features:

1. Built-in bidirectional diode, wiring is not positive or negative;
2. Inhibit reverse voltage to extend contact life.

Dimension

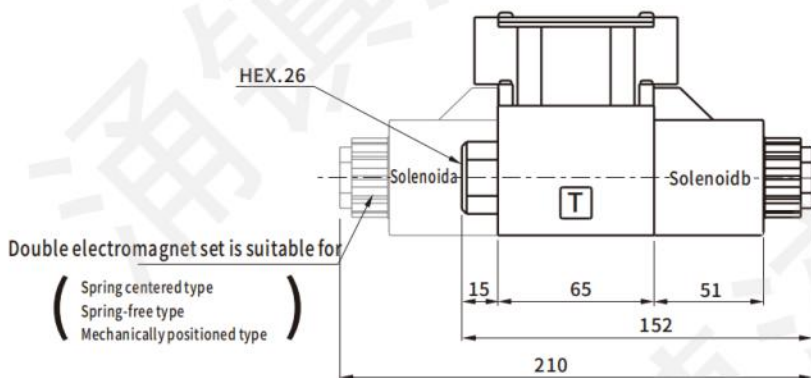
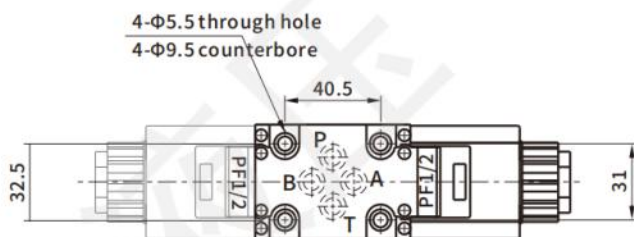
Units: mm

● SWH-G02-**-D/R*-10

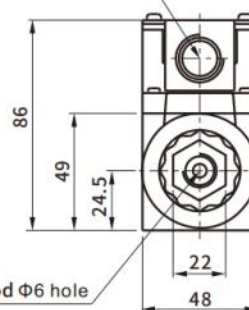
Installation surface: ISO4401-AB-03-4-A

Weight: 2.0/1.6kg

Directional control valve



Electrical conduit interface G1/2" (both ends)

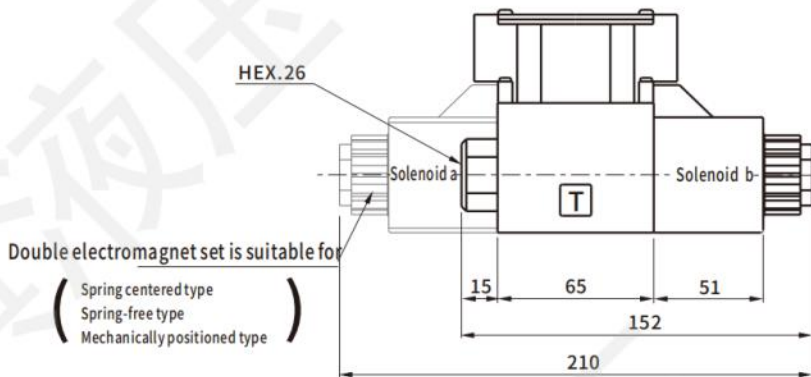
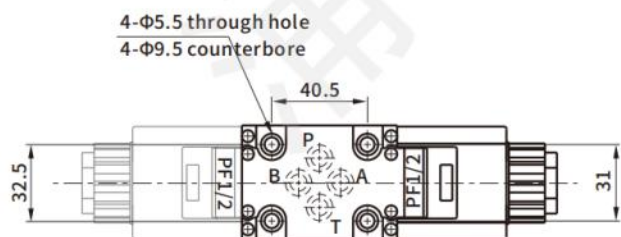


Hand operated push rod Φ 6 hole

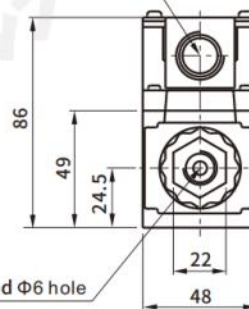
● SWH-G02-**-A*-10-*

Installation surface: ISO4401-AB-03-4-A

Weight: 2.0/1.6kg



Electrical conduit interface G1/2" (both ends)



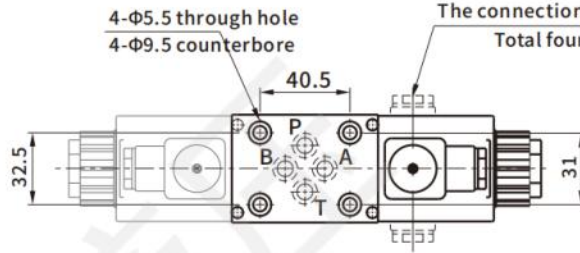
Hand operated push rod Φ 6 hole

● SWH-G02-**-D/R*-20

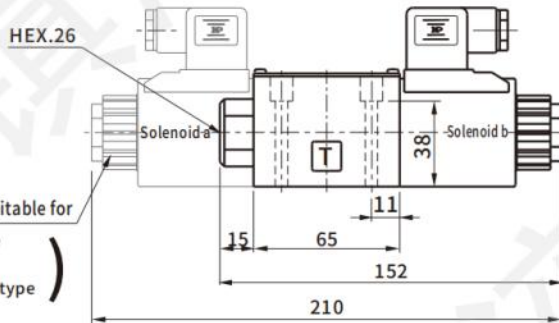
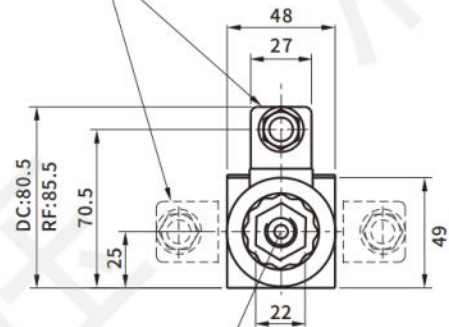
Units:mm

Installation surface: ISO4401-AB-03-4-A

Weight: 2.0/1.6kg



The coil can be fixed with pins
Fixed position, there are three directions

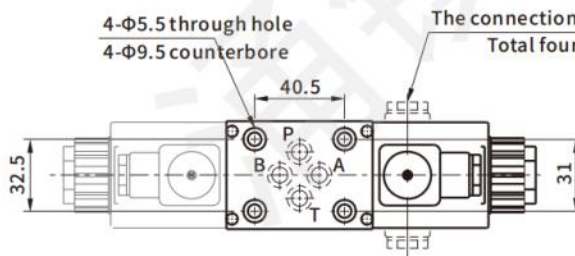


Double electromagnet set is suitable for
(Spring centered type
Spring-free type
Mechanically positioned type)

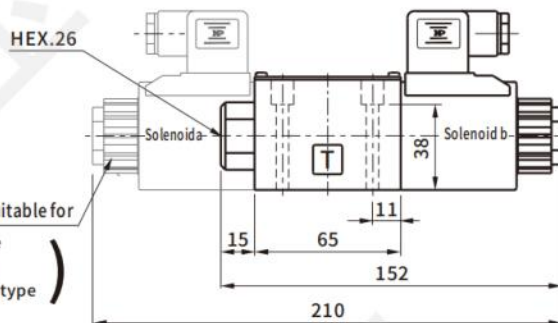
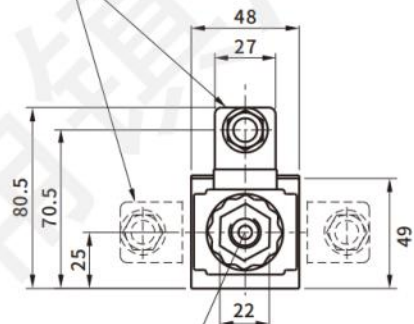
● SWH-G02-**-A*-20

Installation surface: ISO4401-AB-03-4-A

Weight: 2.0/1.6kg



The coil can be fixed with pins
Fixed position, there are three directions



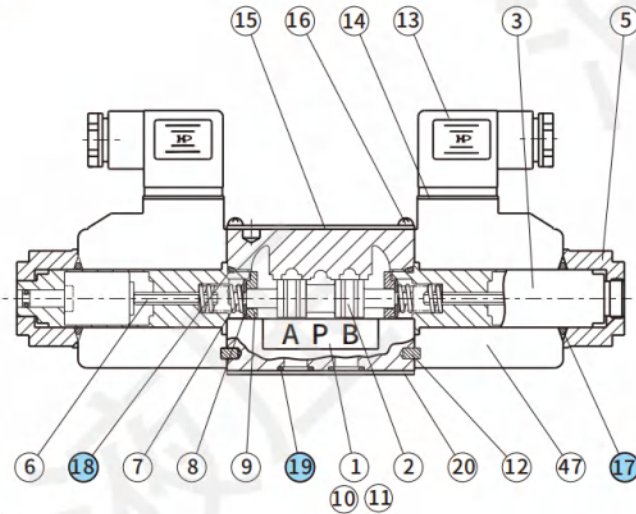
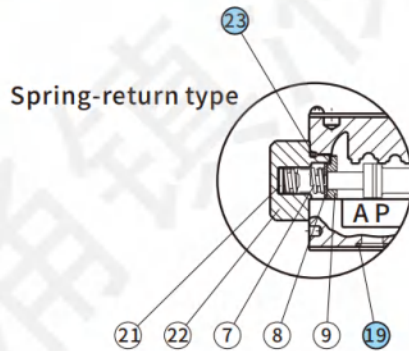
Double electromagnet set is suitable for
(Spring centered type
Spring-free type
Mechanically positioned type)

● Install attachment

Parts	Quantity	Metric standard	Imperial standard	Note
Mounting screw (hex socket screw)	4	M5×45L	NO.10-24UNC×1-3/4"	The torque of the mounting screw is 50~70kgf·cm
Mounting surface O-ring	4	AS568-012	AS568-012	

Seals and electromagnet assemblies

● SWH-G02-**-**-20-*



Sealing elements

No.	Parts	Model	Quantity	Note
17	O-ring	P20 HS70	2	The sliding column type is a two-position spring return type, and the quantity is 1
18	O-ring	P18 HS70	2	The sliding column type is a two-position spring return type, and the quantity is 1
19	O-ring	AS568-012 HS90	4	
23	O-ring	P18 HS70	1	

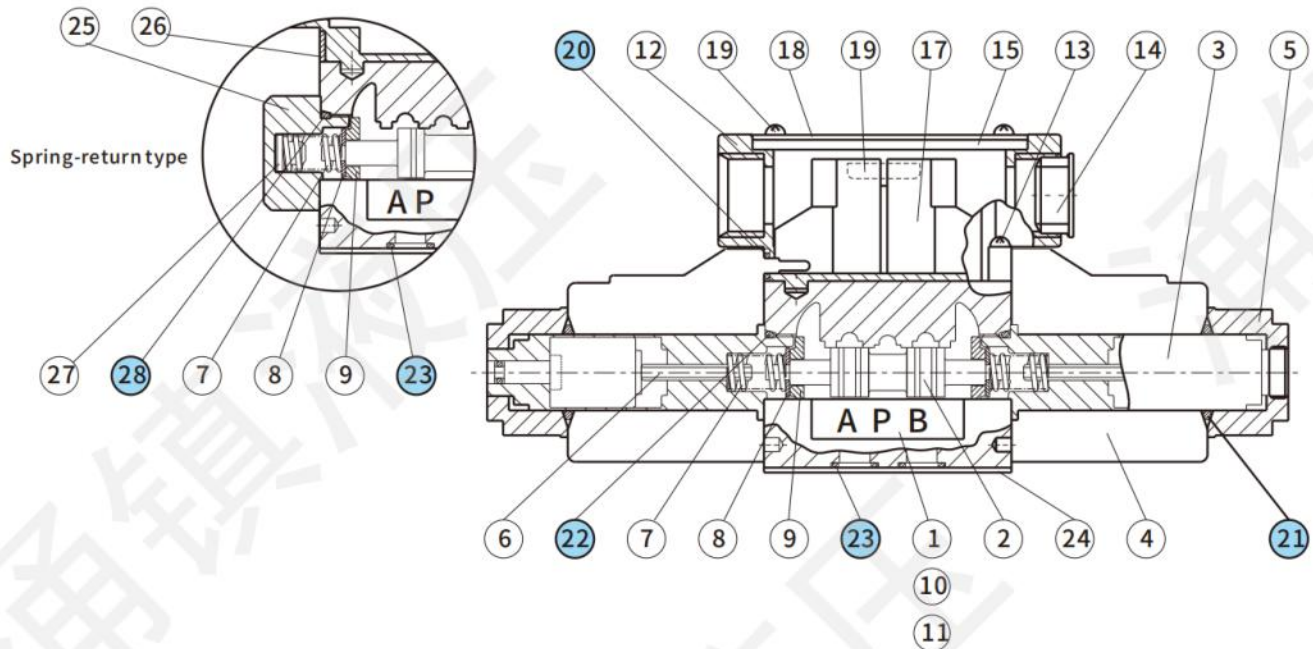
Electromagnet and coil table

Solenoid valve model	Electromagnet type	Coil type	Angle plug type
SWH-G02-**-A240-20-*	SWH-G02-AC Tube	SWH-G02-A240-20 Coil	G02-AC angle plug G02-AC-LS angle plug
SWH-G02-**-A220-20-*		SWH-G02-A220-20 Coil	
SWH-G02-**-A120-20-*		SWH-G02-A120-20 Coil	
SWH-G02-**-A110-20-*		SWH-G02-A110-20 Coil	
SWH-G02-**-R240-20-*	SWH-G02-DC Tube	SWH-G02-R240-20 Coil	G02-RF angle plug G02-RF-LS angle plug
SWH-G02-**-R220-20-*		SWH-G02-R220-20 Coil	
SWH-G02-**-R120-20-*		SWH-G02-R120-20 Coil	
SWH-G02-**-R110-20-*		SWH-G02-R110-20 Coil	
SWH-G02-**-D24-20-*	SWH-G02-DC Tube	SWH-G02-DC24-20 Coil	G02-DC angle plug G02-DC-LS angle plug
SWH-G02-**-D12-20-*		SWH-G02-DC12-20 Coil	

AC and DC power conversion: When the power conversion (AC ↔ DC), need to replace the electromagnet, coil and bend plug;

Voltage conversion: As soon as the coil is replaced, the new voltage specification can be used. For example :AC240(220/50) ↔ AC110(110/60) or DC12 ↔ DC24.

● SWH-G02-**-**-10-*



● Sealing elements

No.	Parts	Model	Quantity	Note
20	O-ring	P4 HS70	4	The sliding column type is a two-position spring return type, and the quantity is 2
21	O-ring	P20 HS70	2	The sliding column type is a two-position spring return type, and the quantity is 1
22	O-ring	P18 HS70	2	The sliding column type is a two-position spring return type, and the quantity is 1
23	O-ring	AS568-012 HS90	4	
28	O-ring	P18 HS70	1	

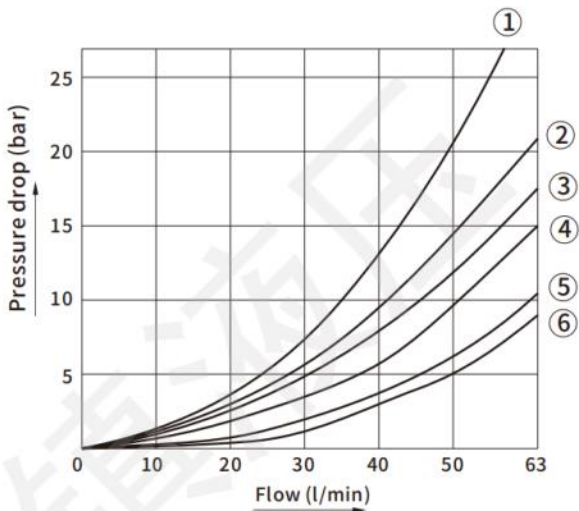
● Electromagnets and coils

Solenoid valve model	Electromagnet type	Coil type	Junction box type
SWH-G02-**-A240-10-*	SWH-G02-AC Tube	SWH-G02-A240-10 Coil	G02-AC junction box G02-AC-LS junction box
SWH-G02-**-A220-10-*		SWH-G02-A220-10 Coil	
SWH-G02-**-A120-10-*		SWH-G02-A120-10 Coil	
SWH-G02-**-A110-10-*		SWH-G02-A110-10 Coil	
SWH-G02-**-D24-10-*	SWH-G02-DC Tube	SWH-G02-DC24-10 Coil	G02-DC junction box G02-DC-LS junction box
SWH-G02-**-D12-10-*		SWH-G02-DC12-10 Coil	

AC and DC power conversion: When the power conversion (AC ↔ DC), need to replace the electromagnet, coil and junction box; Voltage conversion: As soon as the coil is replaced, the new voltage specification can be used. For example: AC240(220/50) ↔ AC110(110/60) or DC12 ↔ DC24.

● Pressure drop characteristic curve

Test conditions: Viscosity: 35cSt;
Pressure 70bar; Flow rate: 63 l/min



Type	P→A	B→T	P→B	A→T	P→T
C2	5	5	5	5	-
C3	6	6	6	6	4
C4	5	6	5	6	-
C40	5	5	5	5	-
C5	2	2	2	2	4
C6	1	1	1	1	4
C60	1	1	1	1	3
C7	6	5	6	5	-
C8	5	5	5	6	-
C9	6	5	5	5	-
D2	5	5	5	5	-
D3	5	3	5	3	-
B2	4	5	4	5	-
B3	3	3	5	5	-
B20	2	-	5	-	-
B2S	4	5	4	5	-
B3S	5	5	3	3	-
B20S	5	-	2	-	-

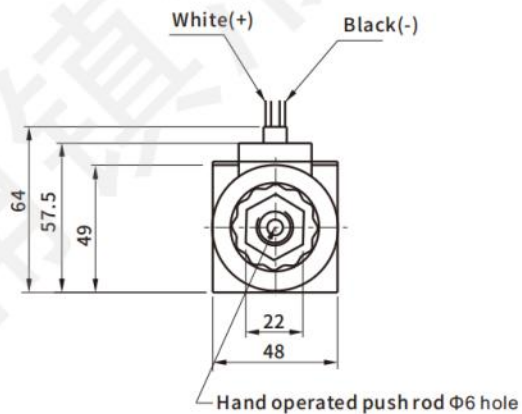
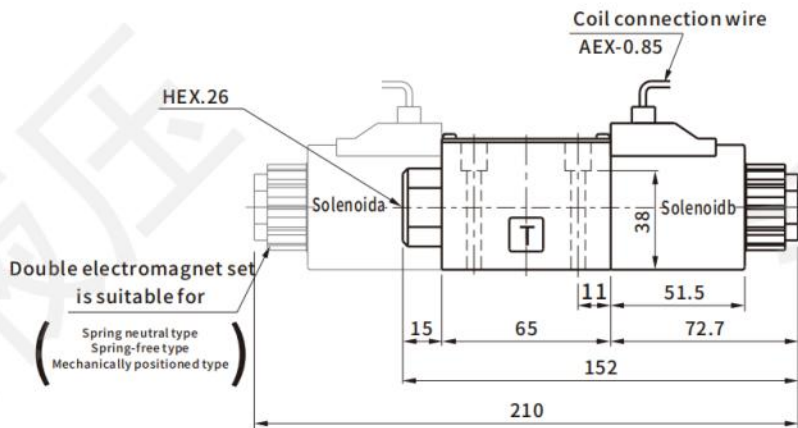
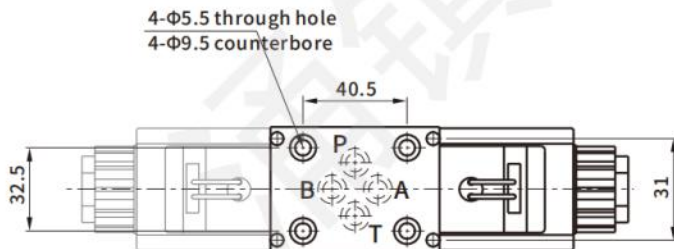
Directional control valve

Dimension

Units: mm

Installation surface: ISO4401-AB-03-4-A

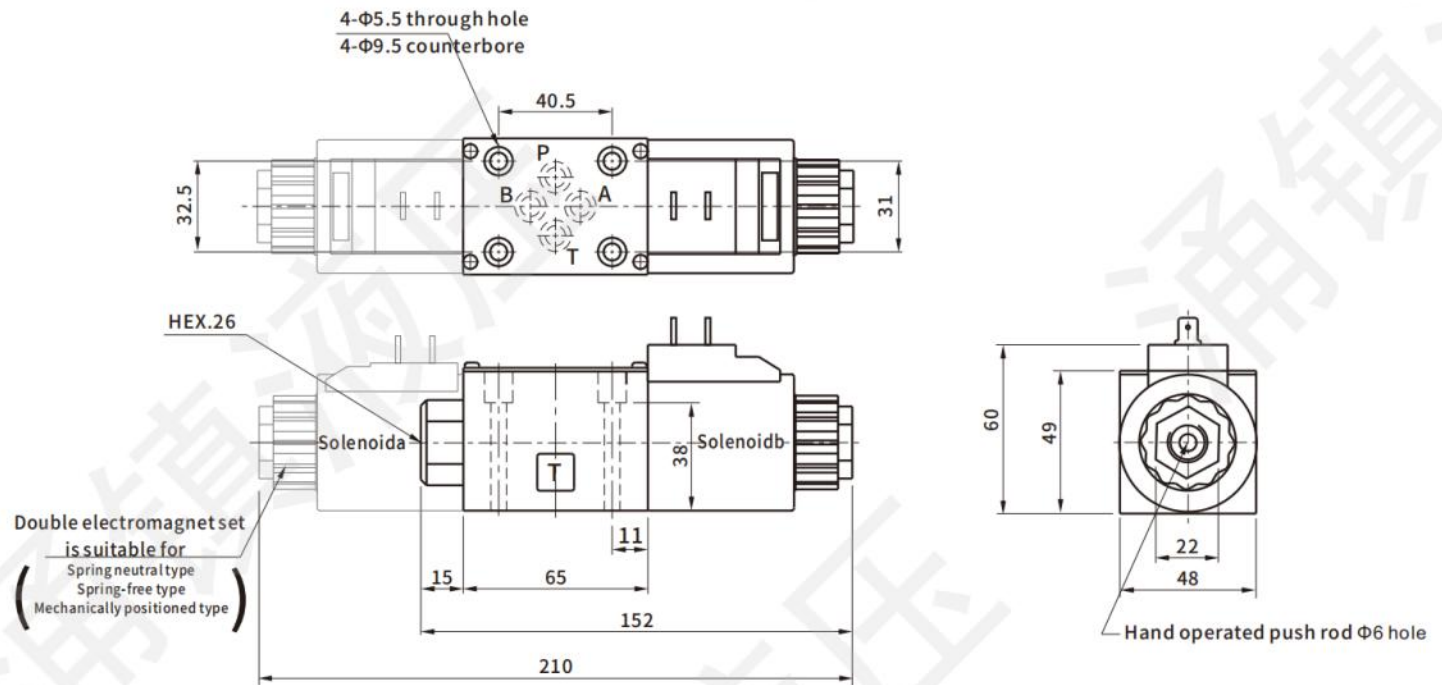
● SWH-G02-**-D*-31-**-**



Units: mm

Installation surface: ISO4401-AB-03-4-A

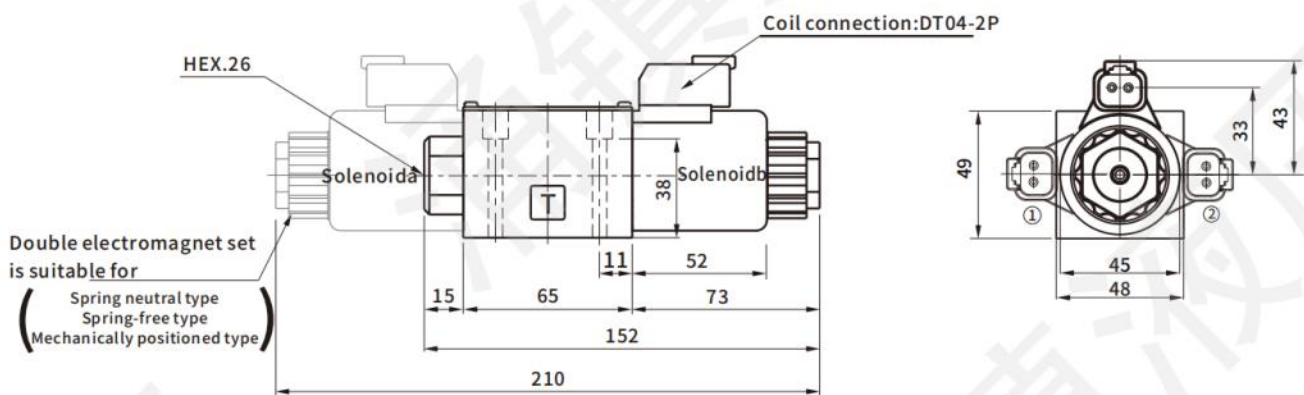
● SWH-G02-**-D*-41-**-



Units: mm

Installation surface: ISO4401-AB-03-4-A

● SWH-G02-**-D*-51



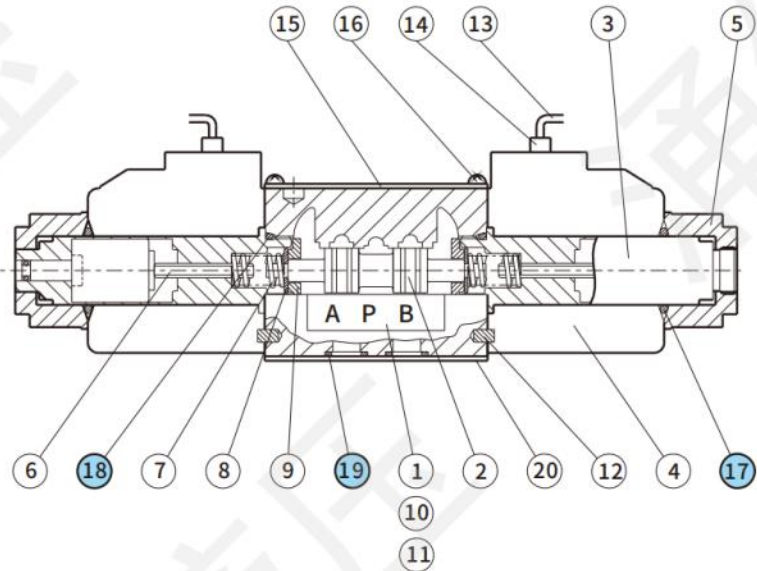
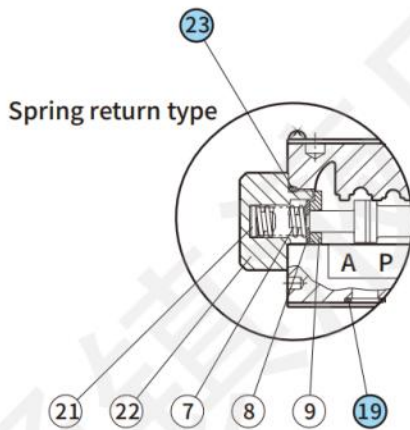
Note :DT04-2P connector model :DT06-2S(customer's own).
The coil connection position can be twisted to the ① or ② position.

● Install attachment

Parts	Quantity	Metric standard	Imperial standard	Note
Mounting screw (hex socket screw)	4	M5×45L	NO.10-24UNC×1-3/4"	The torque of the mounting screw is 50~70kgf·cm
Mounting surface O-ring	4	AS568-012	AS568-012	

Seals and electromagnet assemblies

● SWH-G02-**-**-31/41/51-*



Directional control valve

Sealing elements

No.	Parts	Model	Quantity	Note
17	O-ring	P20 HS70	2	The sliding column type is a two-position spring return type, and the quantity is 1
18	O-ring	P18 HS70	2	The sliding column type is a two-position spring return type, and the quantity is 1
19	O-ring	AS568-012 HS90	4	
23	O-ring	P18 HS70	1	

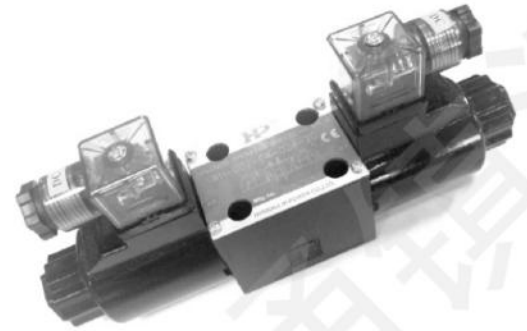
Note: SWH-G02-**-**-41-*** type seals are the same as above.

Electromagnets and coils

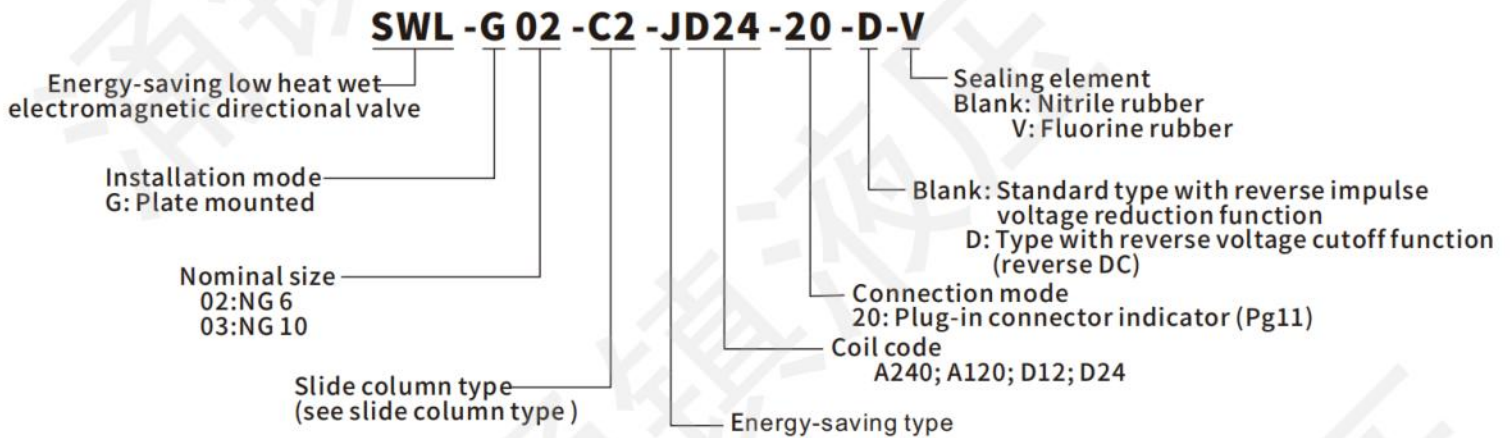
Solenoid valve model	Electromagnet type	Coil type	Note
SWH-G02-**-D**-31-*	SWH-G02-DC Tube	SWH-G02-D**-31 Coil	Voltage conversion: The supply voltage can be changed simply by replacing the coil.
SWH-G02-**-D**-41-*		SWH-G02-D**-41 Coil	
SWH-G02-**-D**-51-*		SWH-G02-D**-51 Coil	

SWL Series

1. Lower working energy consumption: low power consumption, saving energy up to 60% than the general solenoid valve.
2. Lower working temperature: After the general electromagnet continuous working for 1 hour, the electromagnet temperature is as high as 100°C, the energy-saving solenoid valve greatly reduces the working power, and the electromagnet temperature does not exceed 50°C after continuous working for 1 hour under the same conditions.



How to order

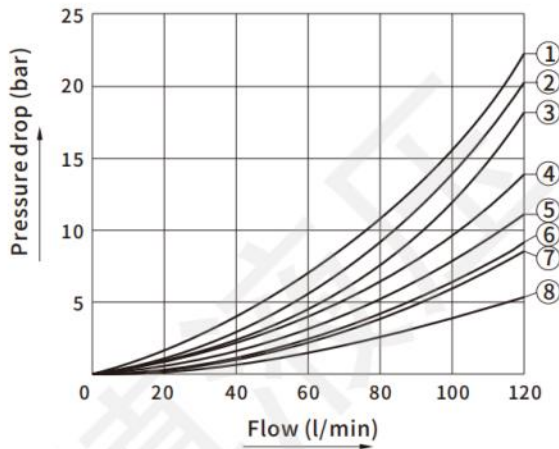


● Specification

Model	Max. pressure (bar)	Max. flow (l/min)	Max. allowable back pressure(bar)	Max. commutation frequency(Round/min)	Fluid cleanliness level
SWL-G02-★-J★-★★	315	63	160(AC)	300	≤ NAS12
			210(DC)		
SWL-G03-★-J★-★★	315	120	160(AC)	240	≤ NAS12
			170(DC)		

● Pressure drop characteristic curve(SWL-G03)

Test conditions: Viscosity: 35cSt;
Pressure :70bar; Flow rate :120 l/min



Model	P→A	B→T	P→B	A→T	P→T
C2	6	6	6	6	-
C3	7	7	7	7	5
C4	6	7	6	7	-
C40	6	7	6	7	-
C5	5	2	2	5	8
C6	2	2	2	2	5
C60	1	1	1	1	4
C7	7	6	7	6	-
C8	6	6	6	7	-
C9	7	6	6	6	-
B2	2	2	6	6	-
B3	3	3	6	6	-
B20	5	-	5	-	-
B2S	6	6	2	2	-
B3S	6	6	3	3	-
B20S	5	-	5	-	-

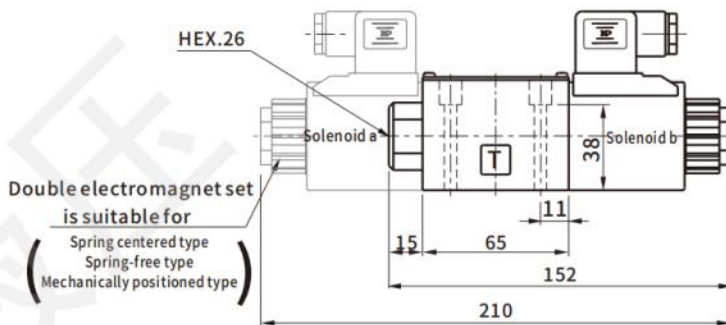
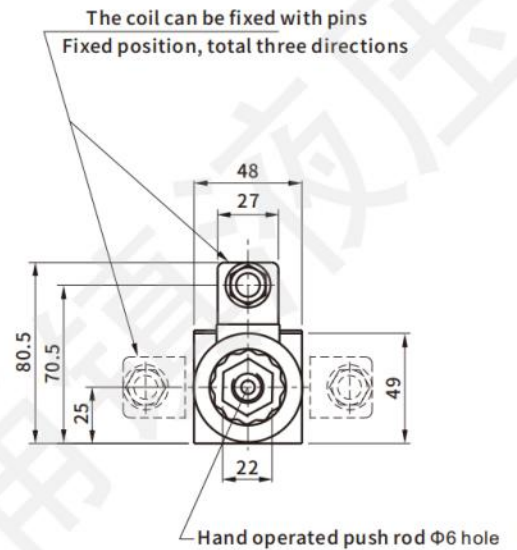
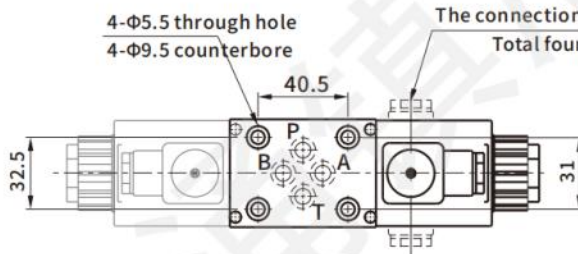
G02 Dimension

● SWL-G02-**-JD*-20-LS

Units:mm

Installation surface: ISO4401-AB-03-4-A

Weight: 2.0/1.6kg

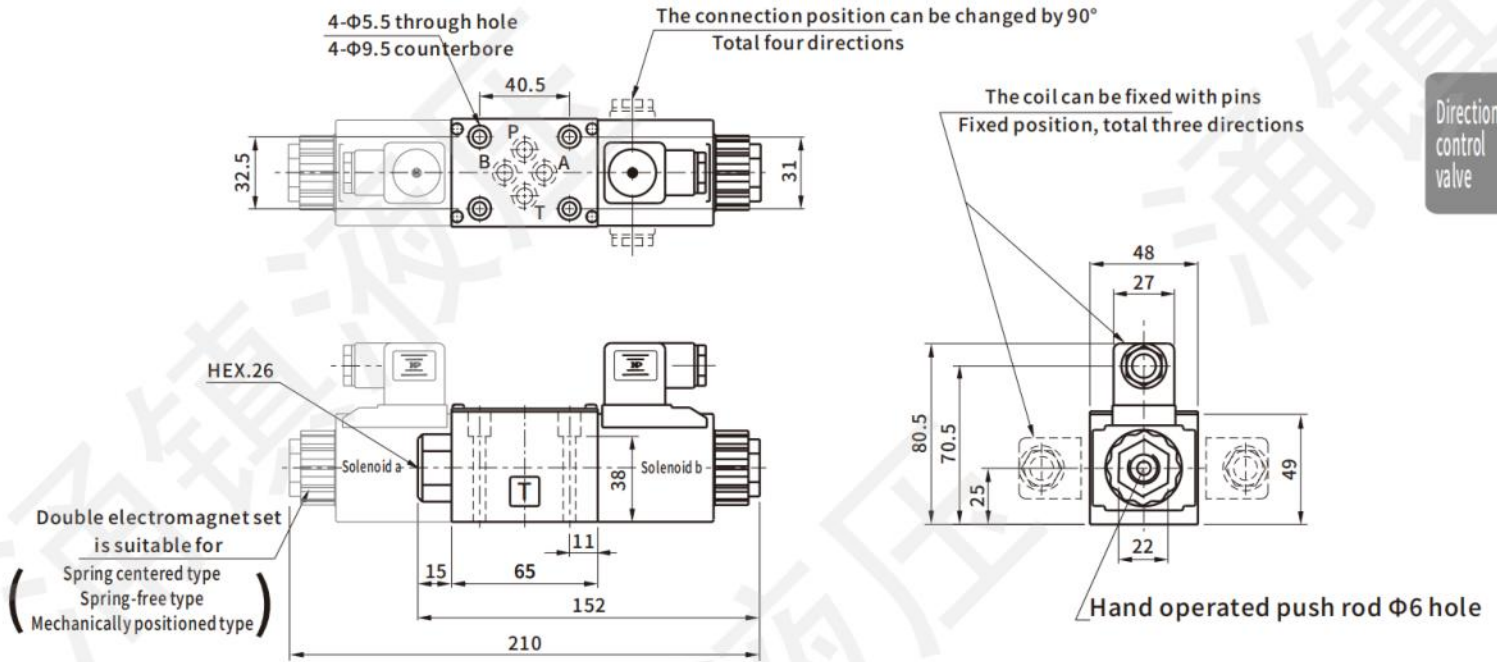


G02 Dimension

Units:mm

● SWL-G02-**-JA*-20-LS

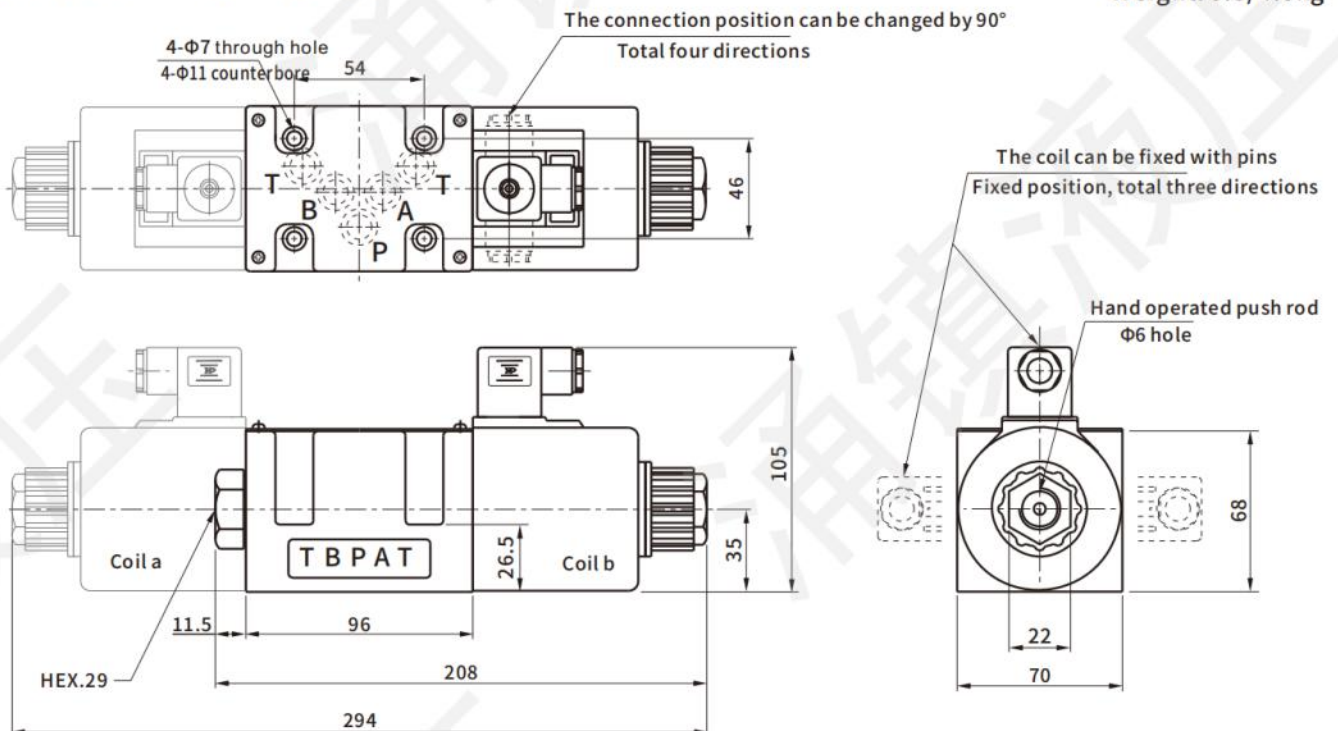
Installation surface: ISO4401-AB-03-4-A
Weight: 2.0/1.6kg



G03 Dimension

● SWL-G03-**-JD*-20-LS

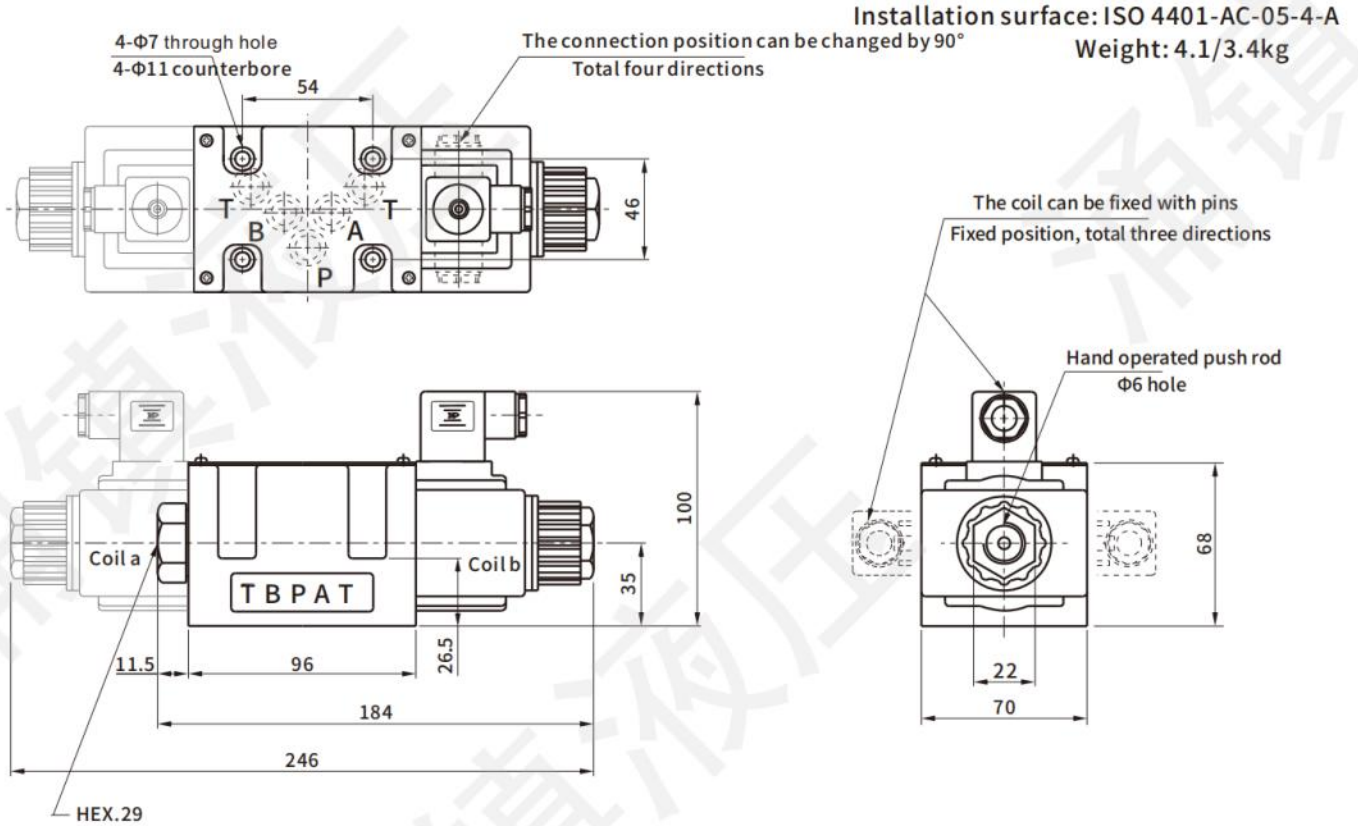
Installation surface: ISO 4401-AC-05-4-A
Weight: 5.5/4.0kg



G03 Dimension

Units:mm

● SWL-G03-**-JA*-20-LS



SWM-G02 Series

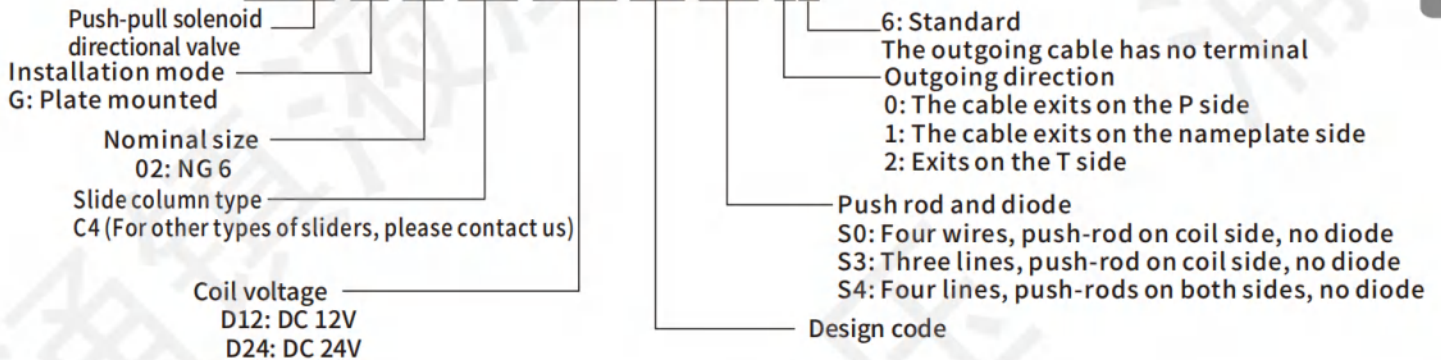
1. Push-pull solenoid valve for transmission, widely used in construction machinery, mining machinery and engineering vehicles, with high cost performance, high precision and other characteristics.
2. Model 35 electromagnet adopts new threaded connection mode, light and reliable, easy installation and maintenance, shock resistance and water resistance are more stable;



Directional control valve

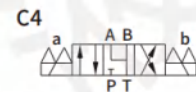
How to order

SWM - G 02 - C4 - D12 - 30 - S0 16

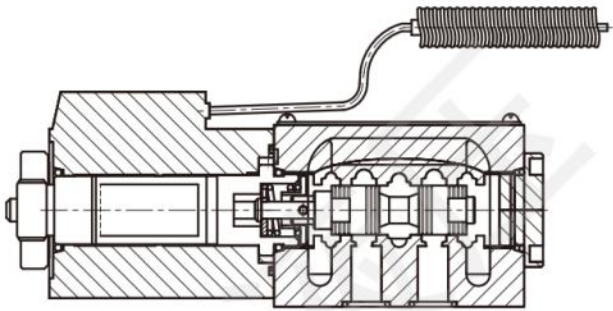


● Specification

SWM-G02 Series		
Max. pressure	bar	210(For port A, B, P) 70(For port T)
Max. flow	L/min	12(at operating pressure = 210kgf/cm ²)
Power	V	D12: DC12V, D24: DC24V
Power Dissipation	W	26
Operating current	A	2.16(12VDC), 1.08(24VDC)
Allowable voltage adj. range	On-load factor100%	-10% ~ +10%(Rated voltage)
	On-load factor75%	-11% ~ +20%(Continuous power within 5 minutes)
	On-load factor50%	-21% ~ +30%(Continuous power within 3 minutes)
Insulation type		H Level
Operating oil and temperature		Mineral based hydraulic oil, -25~+90°C
		Phosphate ester based hydraulic oil, -30 ~ +100°C
		ATF, -30 ~ +130°C
Seismic resistance		JIS D 1601 3 kind D kind 7
Hydrolytic resistance		JIS D 0203 S2
Max. switching frequency	CPM	250
Switching period	ms	Open within 50ms, close within 100ms
Weight	Kg	1.5
Mounting screw		M5×45L, 4 screws Bearing torque70~80Kgf·cm
Cleanliness		Within NAS 12
Surface treatment		Surface film treatment, film thickness5 ~ 15µm
Wire specifications		Automotive wire0.85mm, Diameter of Insulation2.2±0.1mm



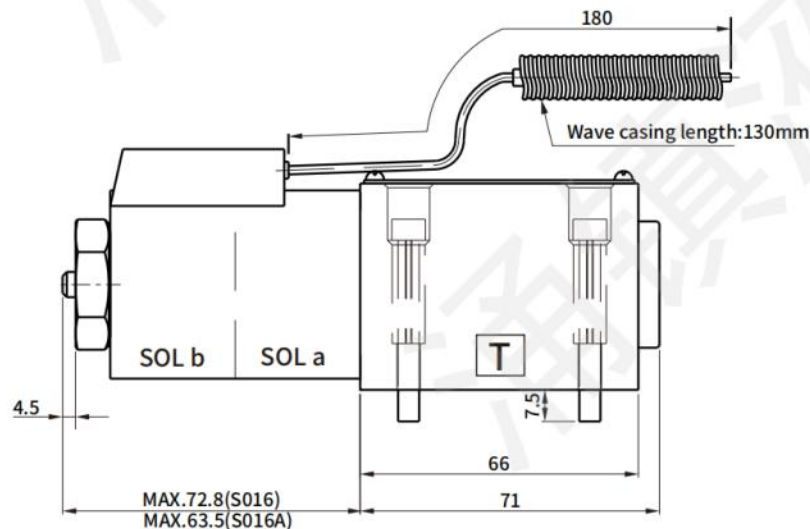
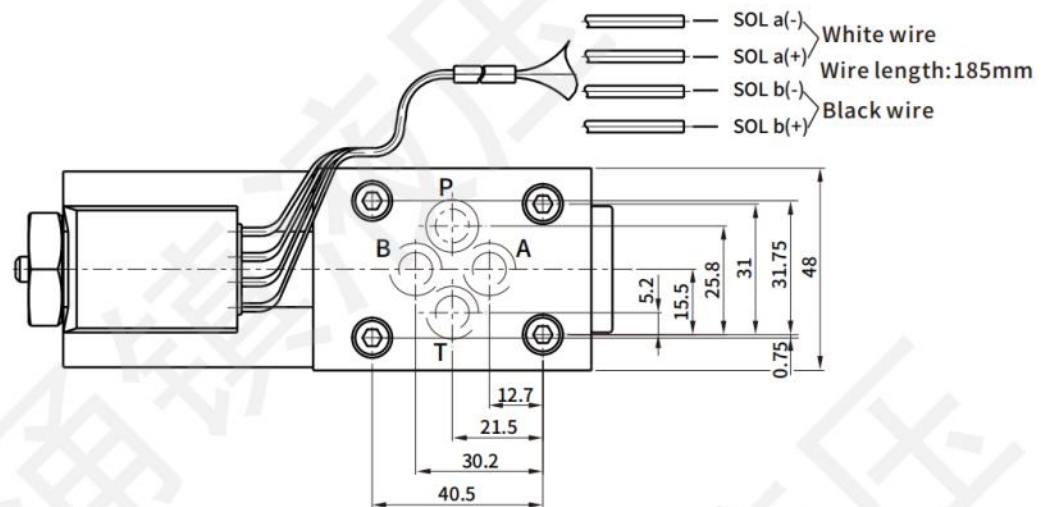
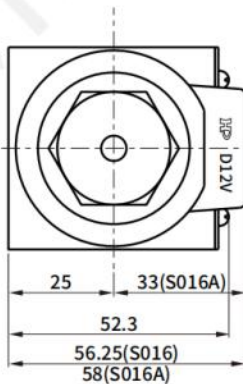
Structure



SWM-G02 Series Instructions:

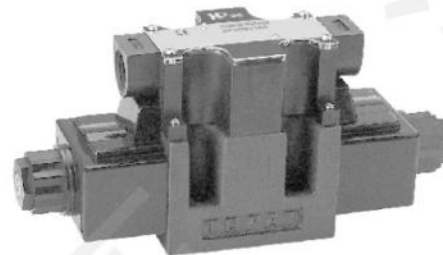
1. If you choose to use the solenoid valve with a diode body, the (+) and (-) poles should be correctly connected, and the solenoid valve cannot be used when the (+) and (-) poles are reversed. If there is no diode, the connection is independent of the (+) and (-) poles.
2. Torque of the mounting screw, 70~80Kgf·cm.
3. The end of the T-hole piping should be connected back to the tank, and the T-hole should be used often with oil.
4. The operating oil should always be used in a clean state. (The pollution level is kept within NAS12).
5. The installation size of the solenoid valve is ISO-401-AB-03-4-A standard specification.

Dimension



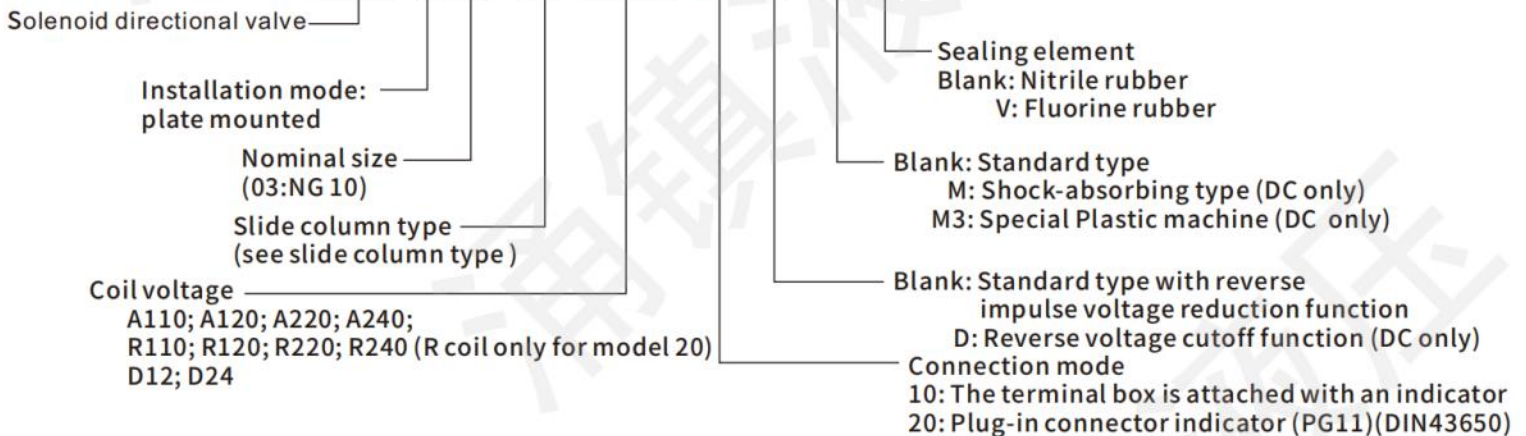
SWH-G03 Series(Model 10、 20)

1. Excellent high-thrust electromagnet and flow path design, making SWH series products suitable for high voltage and large flow, the whole system standard to reduce the reverse impulse voltage function, greatly improve safety;
2. Large thrust electromagnet and improve the spring force design, so that there is still a smooth movement in the polluted working environment;
3. Standard type can be used for high pressure (315bar), large flow (120 l/min);
4. Excellent electrical waterproof and dustproof characteristics;
5. Also provide shock-absorbing solenoid valve, which can be used for occasions requiring low impact and low noise of reversing;
6. For injection molding machine, M3 series special valves are provided to greatly improve the characteristics of the plastic machine.



How to order

SWH-G 03-C2-A220-10 -D -M -V



● Specification

Model	Max. flow (l/min)	Max. pressure (bar)	Max. allowable back pressure(bar)	Max. commutation frequency(Round/min)
SWH-G03-★★ (Standard)	120	315	160(AC)	240
			170(DC)	
SWH-G03-★★-M (Shock-absorbing)	80	210	160	120

Note:

1. The max. flow rate refers to the limit flow rate of the valve when it is normally reversed. The max. flow rate varies with the function of the valve core and working conditions.
2. The characteristic parameters of M3 series are the same as those of standard type.

● Solenoid coil function

Power	Coil type	Voltage (V)			Current and power at rated voltage		
		Rated voltage	Frequency (Hz)	Allowable range ($\pm 10\%$)	Starting current (A)	Holding current (A)	Power (W)
A.C.	A110	AC100	50	90~110	4.95	0.95	43
		AC110	60	99~121	4.06	0.84	46.5
	A120	AC110	50	99~121	4.40	0.86	43
		AC120	60	108~132	3.68	0.78	46.5
	A220	AC200	50	180~220	2.14	0.44	43.5
		AC220	60	198~242	2.03	0.42	47.5
	A240	AC220	50	198~242	2.04	0.43	43.5
		AC240	60	216~264	1.86	0.39	47.5
	R110	AC110	50/60	100~120		0.39	41
	R220	AC220	50/60	198~242		0.20	41
	R120	AC120	50/60	108~132		0.35	38
	R240	AC240	50/60	216~264		0.175	38
D.C.	D12	DC12		10.8~13.2		3.43	40.8
	D24	DC24		21.6~26.4		1.75	42
	GD24	DC28		24~28		1.51	42

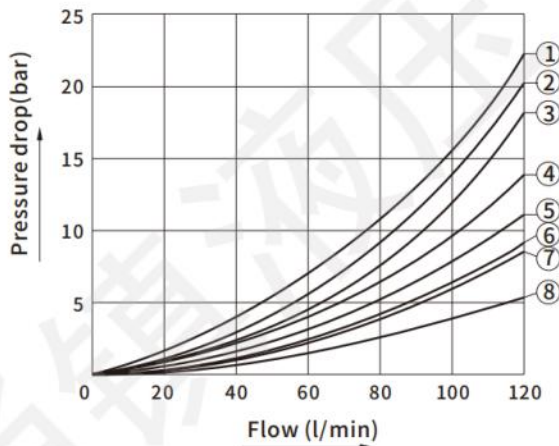
Note:

1. The allowable range of voltage variation is $\pm 10\%$ of the rated voltage;
2. Resistance voltage 1500v/sec;
3. The insulation resistance is greater than 100M Ω .
4. It is recommended that the selection and use of GD24V coil should be set in the case that the engine is started, but it may also be in the shutdown state, directly driven from the battery. In accordance with the 28VDC design, so the power supply is not recommended for the engine power generation system.

● Pressure drop characteristic curve

Test conditions: Viscosity: 35cSt;
Pressure :70bar; Flow rate :120 l/min

SWH-G03-★★(Standard)

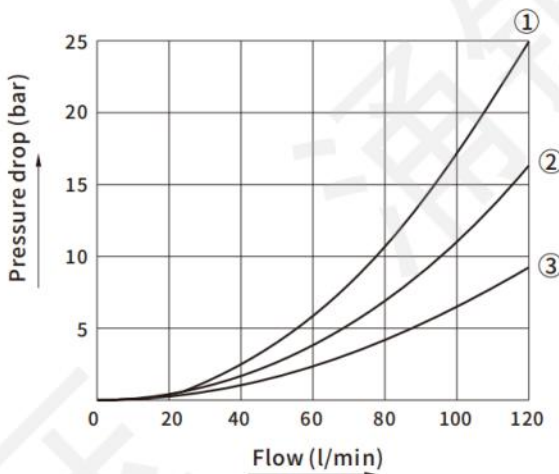


Model	P→A	B→T	P→B	A→T	P→T
C2	6	6	6	6	-
C3	7	7	7	7	5
C4	6	7	6	7	-
C40	6	7	6	7	-
C5	5	2	2	5	8
C6	2	2	2	2	5
C60	1	1	1	1	4
C7	7	6	7	6	-
C8	6	6	6	7	-
C9	7	6	6	6	-
B2	2	2	6	6	-
B3	3	3	6	6	-
B20	5	-	5	-	-
B2S	6	6	2	2	-
B3S	6	6	3	3	-
B20S	5	-	5	-	-

Directional control valve

SWH-G03-★★-M(Shock-absorbing)

Test conditions: Viscosity: 35cSt;
Pressure :70bar; Flow rate :120 l/min



Model	P→A	B→T	P→B	A→T	P→T
C2	2	2	2	2	-
C3	2	2	3	3	-
B2	1	2	2	2	-

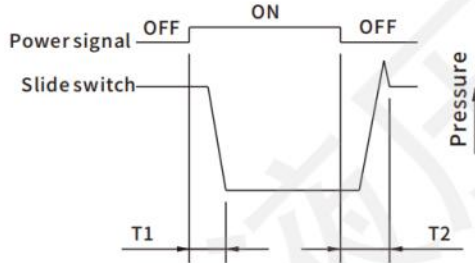
Viscosity change

Viscosity	cSt	15	20	30	40	50	60	70	80	90	100
	SSU		77	98	141	186	232	278	324	371	417
Coefficient(G')		0.81	0.87	0.96	1.03	1.09	1.14	1.19	1.23	1.27	1.30

For other specific gravity (G'), the pressure drop can be calculated by the formula $\Delta p' = \Delta p(G'/0.85)$.

● Reversing time(Standard)

Test conditions: Pressure: 160bar; Flow rate: 30 l/min;
Viscosity :35cSt; Voltage :100%V(after temperature rise and stability)

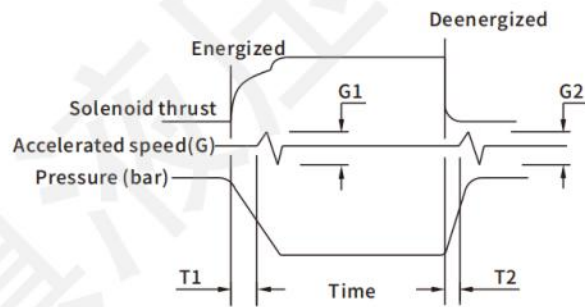
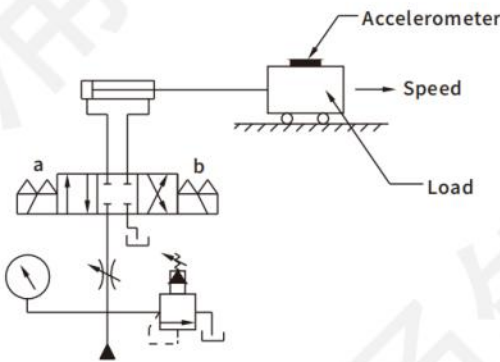


● Test results

Model	Switching time(ms)	
	T1	T2
SWH-G03-C2-A*Series	24	21
SWH-G03-C2-D*Series	80	28
SWH-G03-C2-R*Series	80	190

● Reversing time(Shock-absorbing)

Test circuit and conditions



Test conditions: Pressure: 70bar; Load: 1000kg
Viscosity: 35cSt; Cylinder speed: 8.8m/min

● Test results

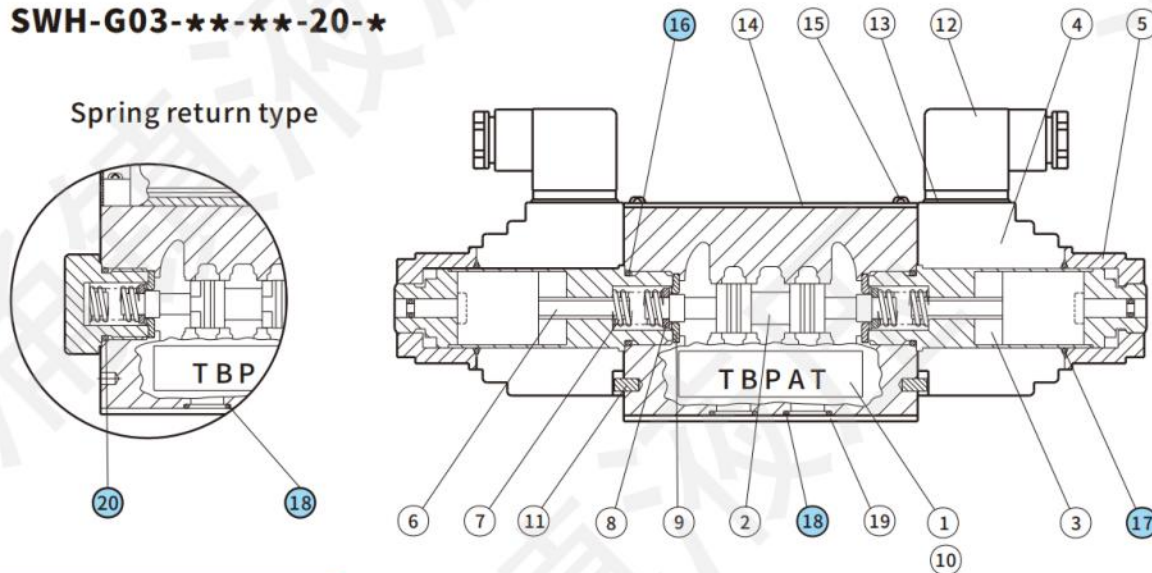
Type	Model	Time(ms)		Accelerated speed(G/m/s ²)	
		T1	T2	G1	G2
Shock-absorbing	SWH-G03-C2-D*-**M	110	120	6.5	6.5
Standard	SWH-G03-C2-D*-**	70	40	14	12

● Install attachment

Parts	Quantity	Metric standard	Imperial standard	Note
Mounting screw (hex socket screw)	4	M6×35L	1/4"-20UNC×1-3/8"	The torque of the mounting screw is 120~150kgf·cm
Mounting surface O-ring	5	AS568-014	AS568-014	

Seals and electromagnet assemblies

● SWH-G03-**-**-20-*



Sealing elements

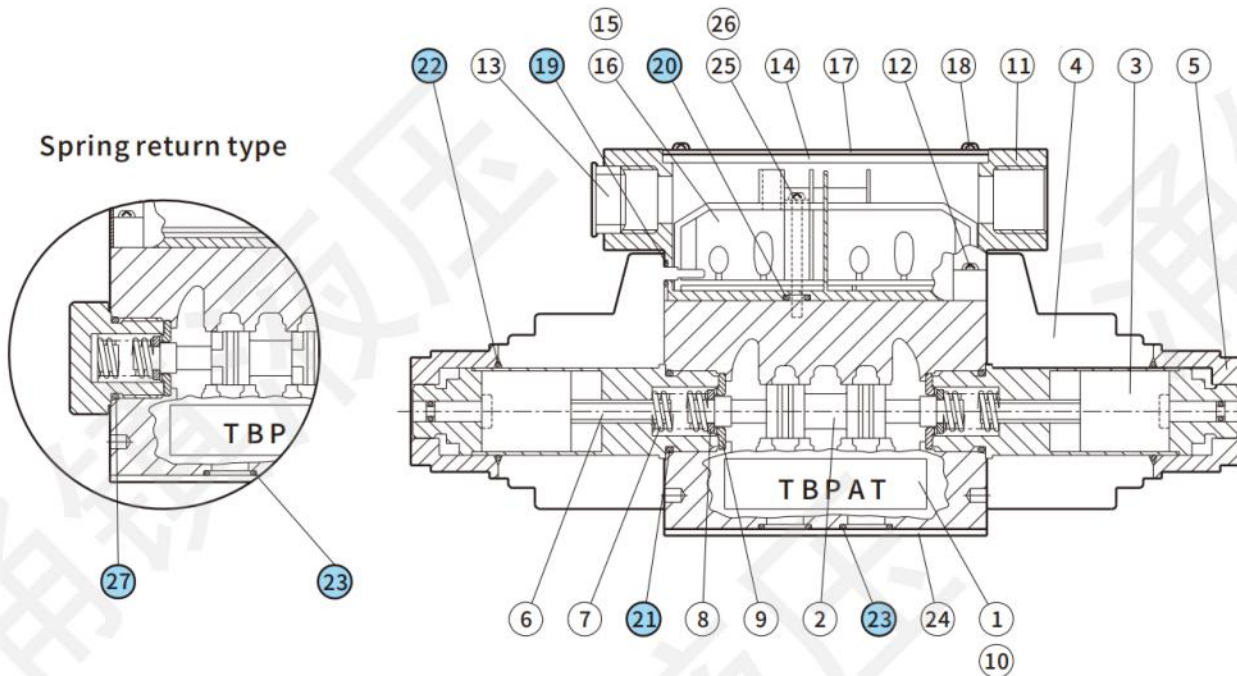
No.	Parts	Model	Quantity	Note
16	O-ring	P21 HS70	2	The sliding column type is a two-position spring return type, and the quantity is 1
17	O-ring	AS568-120 HS70	2	The sliding column type is a two-position spring return type, and the quantity is 1
18	O-ring	AS568-014 HS90	5	
20	O-ring	P21 HS70	1	

Electromagnets and coils

Solenoid valve model	Electromagnet type	Coil type	Angle plug type
SWH-G03-**-A*-20-**	SWH-G03-AC Tube	SWH-G03-A*-20 Coil	G03-AC angle plug G03-AC-LS angle plug
SWH-G03-**-D*-20-**	SWH-G03-DC Tube	SWH-G03-D*-20 Coil	G03-DC angle plug G03-DC-LS angle plug
SWH-G03-**-R*-20-**	SWH-G03-DC-M Tube	SWH-G03-R*-20 Coil	G03-RF angle plug G03-RF-LS angle plug

AC and DC power conversion: When the power conversion (AC↔DC), need to replace the electromagnet, coil and bend plug;
Voltage conversion: As soon as the coil is replaced, the new voltage specification can be used. For example :
AC240(220/50) ↔ AC110(110/60) or DC12↔DC24.

● **SWH-G03-**-**-10-***



Directional control valve

Sealing elements

No.	Parts	Model	Quantity	Note
19	O-ring	P4 HS70	4	The sliding column type is a two-position spring return type, and the quantity is 2
20	O-ring	P5 HS70	2	
21	O-ring	P21 HS70	2	The sliding column type is a two-position spring return type, and the quantity is 1
22	O-ring	AS568-120 HS70	2	The sliding column type is a two-position spring return type, and the quantity is 1
23	O-ring	AS568-014 HS90	5	
27	O-ring	P21 HS70	1	

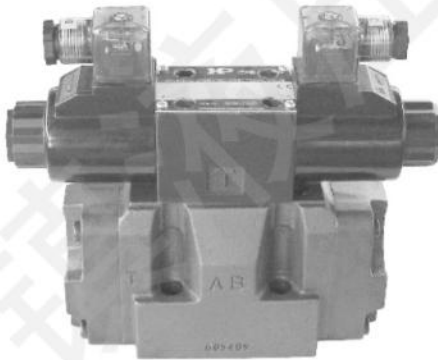
Electromagnets and coils

Solenoid valve model	Electromagnet type	Coil type	Junction box type
SWH-G03-**-A*-10-*	SWH-G03-AC TUBE	SWH-G03-A*-10 Coil	G03-AC Junction box G03-AC-LS Junction box
SWH-G03-**-D*-10-*	SWH-G03-DC TUBE	SWH-G03-D*-10 Coil	G03-DC Junction box G03-DC-LS Junction box
SWH-G03-**-R*-10-*	SWH-G03-DC-M TUBE	SWH-G03-R*-10 Coil	G03-RF Junction box G03-RF-LS Junction box

AC and DC power conversion: When the power conversion (AC ↔ DC), need to replace the electromagnet, coil and junction box; Voltage conversion: As soon as the coil is replaced, the new voltage specification can be used. For example : AC240(220/50) ↔ AC110(110/60) or DC12 ↔ DC24.

DSH/DSHB Series

1. Low voltage impact function greatly improves the safety of electrical appliances.
2. The slider type is complete to choose from, which can meet various applications.
3. For injection molding machine to provide a series of special valves, greatly improve the characteristics of the plastic machine.
4. Excellent electrical waterproof and dustproof characteristics.



How to order

DSH - G 03 - C2 - E T - D24 - 20 - AB - V

Electro-hydraulic directional valve
DSH Series
DSHB High voltage series

Installation mode
G: Plate mounted

Nominal size
03: NG 10

Slide column type
C2, C4, B2(regular inventory)

For other types, please consult our technical department

Control type
Blank: Internal control
E: External control

Sealing element
Blank: Nitrile rubber
V: Fluorine rubber

Blank: no stroke adjustment device
AB: Both sides of AB are attached with stroke adjustment devices
A: A side is attached with a stroke adjustment device
B: B side is attached with stroke adjustment device

Connection mode
10: The terminal box is attached with an indicator
20: Plug-in connector indicator (PG11)
31: Wiring indicator
51: DT04-2P

Coil voltage
A240; A220; A120; A110
R240; R220; R120; R110(only for model 20)
D12; D24

Oil drainage
Blank: Internal leakage
T: External leakage

● Specification

Model	Max. flow (l/min)	Max. pressure (bar)	Max. control pressure(bar)	Min. control pressure (bar)	Max. allowable back pressure(bar)	
					External leakage	Internal leakage
DSH-G03-★★	160	250	250	7	160	160
DSHB-G03-★★	160	350	250	10	160	160

- Note: 1. The max. flow rate refers to the limit flow rate when the valve is normally reversed, and it varies with the function of the valve core and working conditions.
2. Slide column type C3, C5, C6, C60 requires external pressure control.

Characteristic parameters and curves

Slide column function

Slide column type (spring centered)	Max. flow l/min		
	Operating pressure(bar)		
	70	140	250
C2	160	85	60
		160	95
C3	160	160	160
C4	160	85	60
		160	95
C5	160	85	60
		160	95
C7	160	85	60
		160	95
C8S	160	85	60
		160	95
C9	160	85	60
		160	95

Slide column type (spring return)	Max. flow l/min		
	Operating pressure(bar)		
	70	140	250
B2	160	160	85
			160
B3	160	160	85
			160
B4	160	160	85
			160

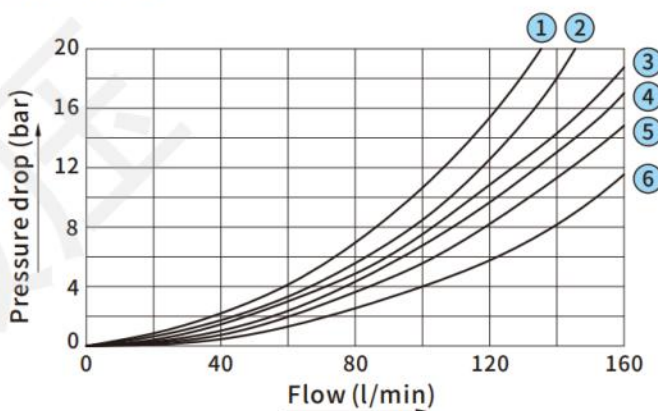
Slide column type (No spring)	Max. flow l/min		
	Operating pressure(bar)		
	70	140	250
N2	160	160	85
			160
N3	160	160	85
			160

Note:

- The flow value shown in the table above is the value when the control pressure is greater than 7.0bar.
- The values in the double columns indicate the maximum flow rate when the control pressure is 7bar, and the maximum flow rate when the control pressure is 10bar.
- The maximum flow rate of the slide column function table is the value of P→A→B→T (or P→B→A→T).
If you need to apply the maximum flow rate of the hydraulic circuit with "A" or "B" oil port blocked, please contact the technical department of our company.

Pressure drop characteristic curve

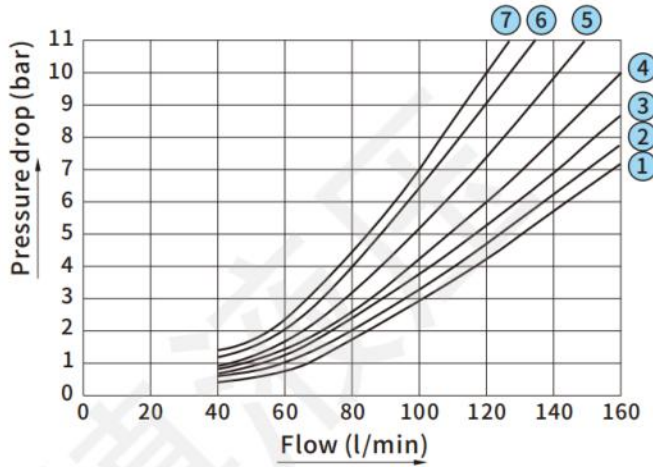
DSH-G03-★★



Test conditions: Viscosity: 35cSt specific gravity: 0.850

Model	P→A	B→T	P→B	A→T	P→T
C2	3	3	4	4	-
C3	5	5	5	6	4
C4	3	5	4	6	-
C5	6	3	4	6	2
C6	4	3	4	4	1
C7	6	3	6	4	-
C8	3	5	4	4	-

DSHB-G03-**



Test conditions: Viscosity: 35cSt specific gravity: 0.850

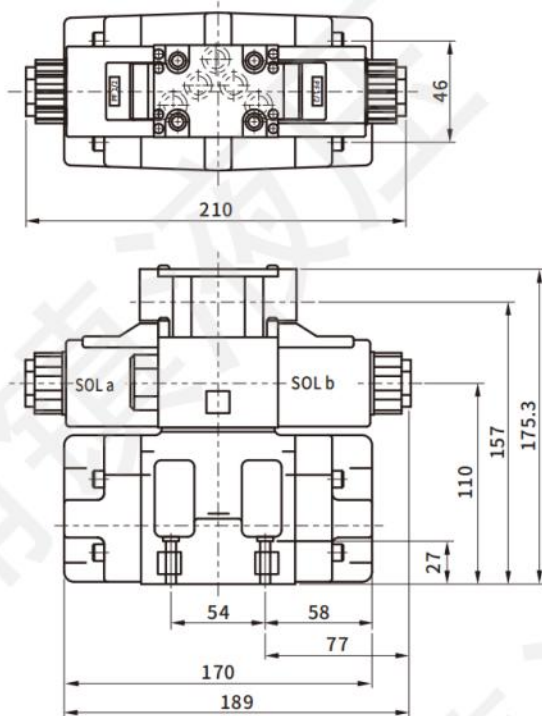
Model	P→A	P→B	A→T	B→T
C2	2	2	4	5
B2S	2	2	4	5
B2	2	2	4	5
C5	1	4	1	4
C6	4	2	2	6
C3	4	4	1	4
C4	1	2	1	3
C5S	4	1	3	4
B3	4	4	1	4
B4	1	2	1	3
C7	4	4	3	4
C8	2	3	1	4
C8S	3	3	3	4

Oil control instructions

Oil control mode	Model	Instructions
Internal control internal leakage	DSH-G03-**-**	Invalid combination (slider type: C3, C5, C6, C60)
Internal control external leakage	DSH-G03-**-T-**-**	Maintain the return oil pressure so that the pressure difference between the control pressure and the back pressure is greater than the minimum required control pressure
External control internal leakage	DSH-G03-**-E-**-**	Unlimited use
External control external leakage	DSH-G03-**-ET-**-**	Unlimited use

Dimensions

DSH-G03-**-10

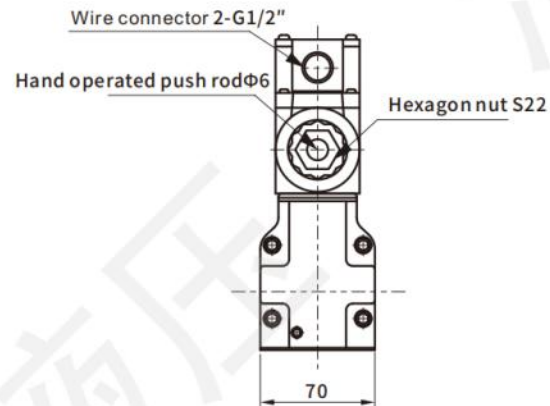


Installation surface: ISO 4401-05-05-0-05

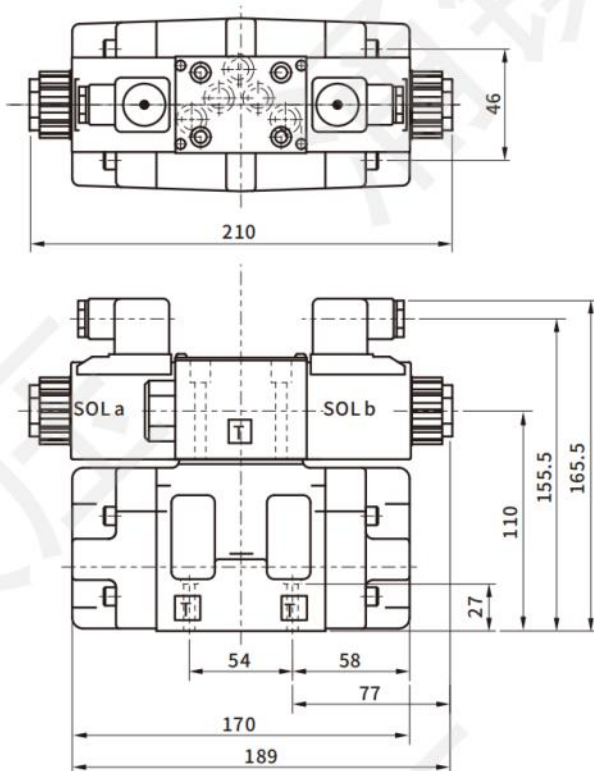
Weight: 6.6/7.2kg

Main valve operation:
 P→A Solenoid a supplies power
 P→B Solenoid b supplies power
 Please note Solenoid a and b positions

Directional control valve



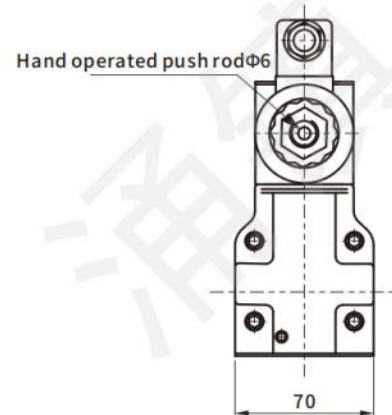
DSH-G03-**-20



Installation surface: ISO 4401-05-05-0-05

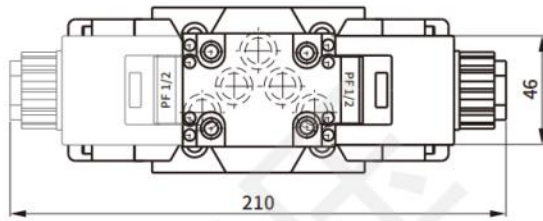
Weight: 6.6/7.2kg

Main valve operation:
 P→A Solenoid a supplies power
 P→B Solenoid b supplies power
 Please note Solenoid a and b positions

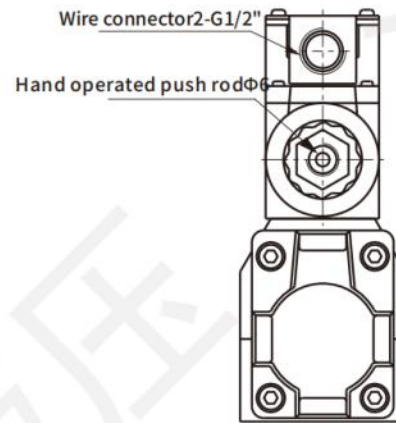
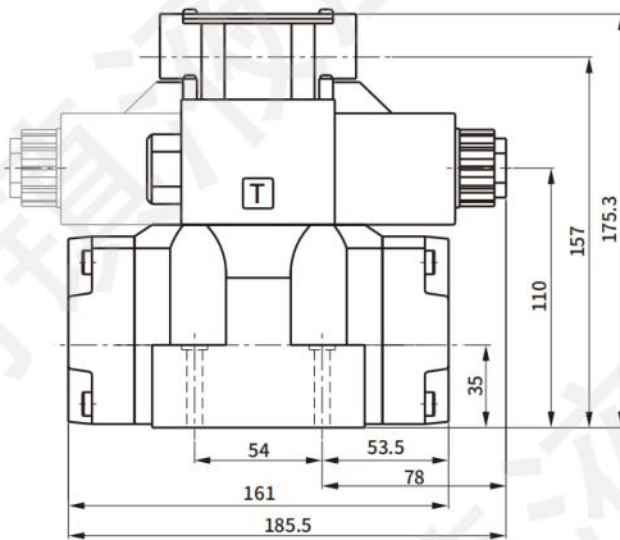


● **DSHB-G03-**-10**

Installation surface: ISO 4401-05-05-0-05

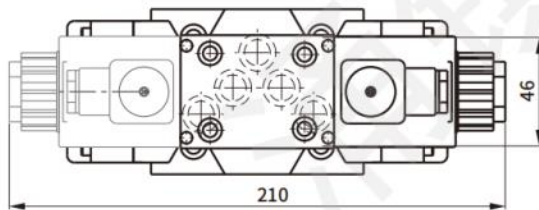


Main valve operation:
 P→A SOL a supplies power
 P→B SOL b supplies power
 Please note SOL a and b positions

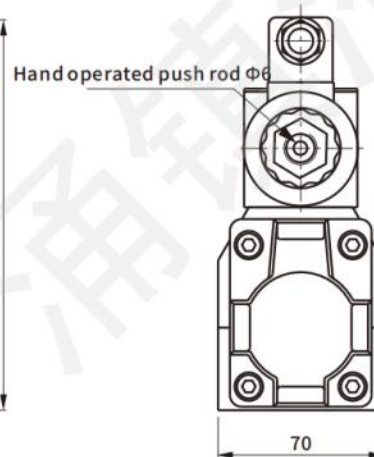
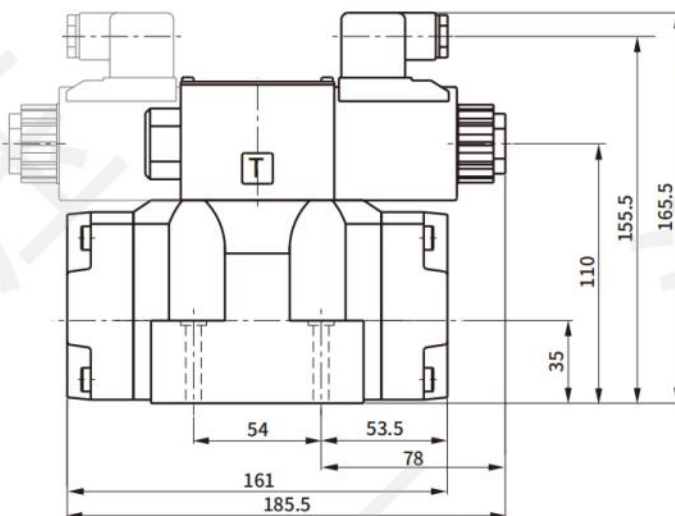


● **DSHB-G03-**-20**

Installation surface: ISO 4401-05-05-0-05



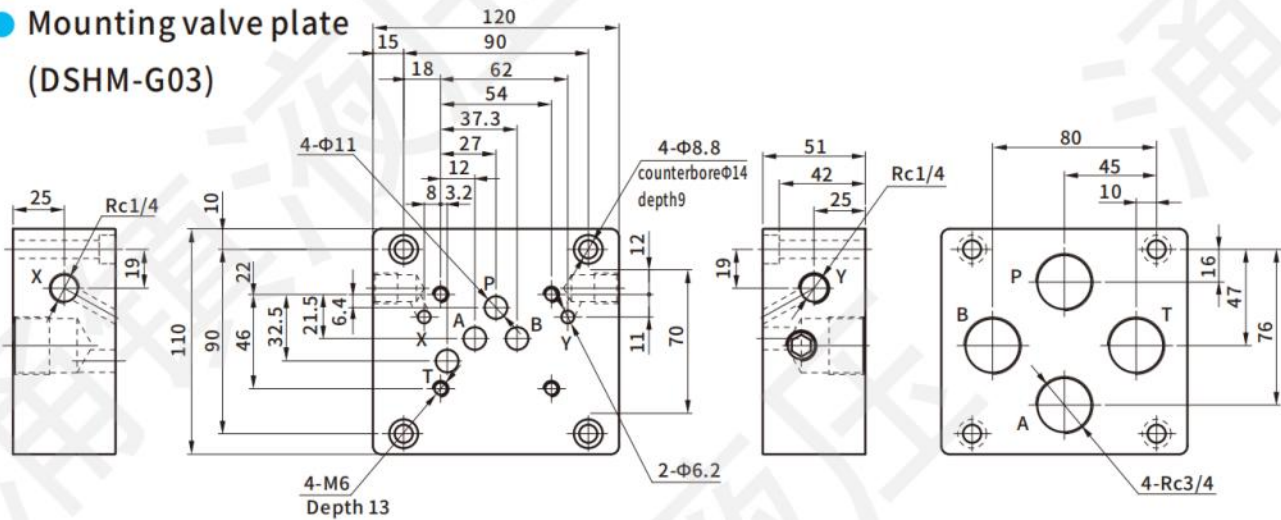
Main valve operation:
 P→A SOL a supplies power
 P→B SOL b supplies power
 Please note SOL a and b positions



● Install attachment

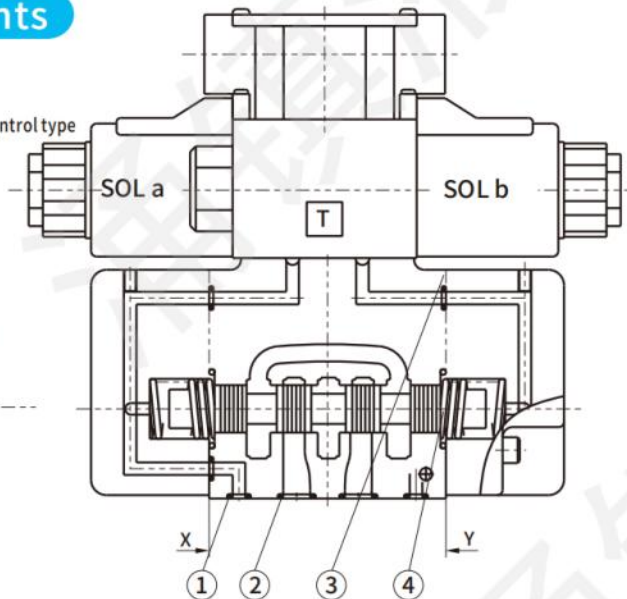
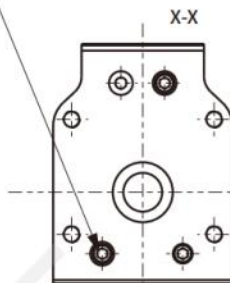
Model	Quantity	Mounting screw (hex socket screw)	The torque of the mounting screw is
DSH/DSHB-G03-★★	4	M6×40L	120~150kgf·cm

● Mounting valve plate (DSHM-G03)



Sealing elements

Hexagonal oil plug (PT 1/16) for external control type
Remove the internal control type



Hexagonal oil plug (PT 1/16) for leaky type
Remove when internal leakage type



DSHB Series

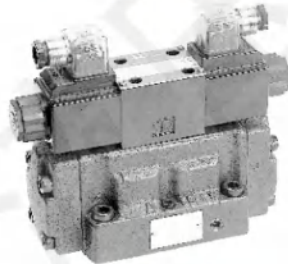
No.	Parts	Model	Quantity
1	R-ring	11.18×1.6×1.78	2
2	R-ring	13×1.6×2	5

DSH Series

No.	Parts	Model	Quantity
1	O-ring	P9	2
2	O-ring	AS568-014(NBR,HS90)	5
3	O-ring	P9	6
4	O-ring	P28	2

SW/SWH Series

1. Excellent flow channel design, making SWH-G04, 06 series products suitable for high pressure (350bar), flow up to 300 l/min, 650 l/min;
2. Another low voltage impact function greatly improves the safety of electrical appliances;
3. Slide column form is complete for choice, can meet a variety of applications;
4. For injection molding machine to provide a series of special valves, greatly improve the characteristics of the plastic machine;
5. Excellent electrical waterproof and dustproof characteristics.



SW-G***
(Common Type)

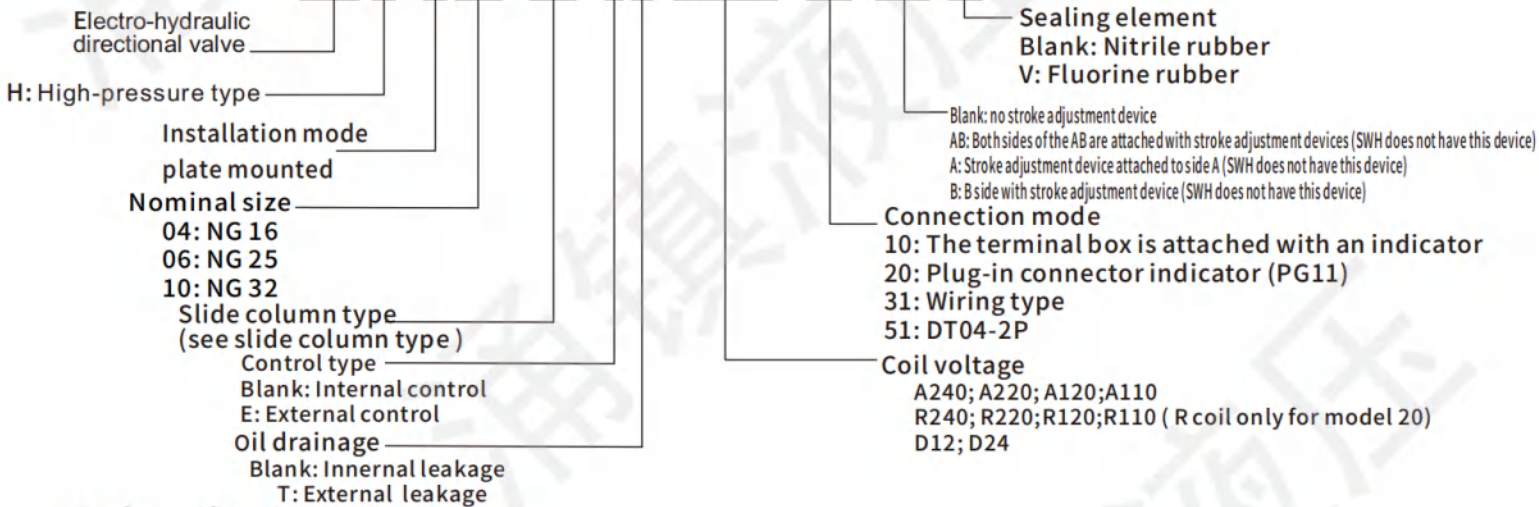


SWH-G***
(High-pressure Type)

Directional control valve

How to order

SWH-G04-C2-ET-A240-10-AB-V



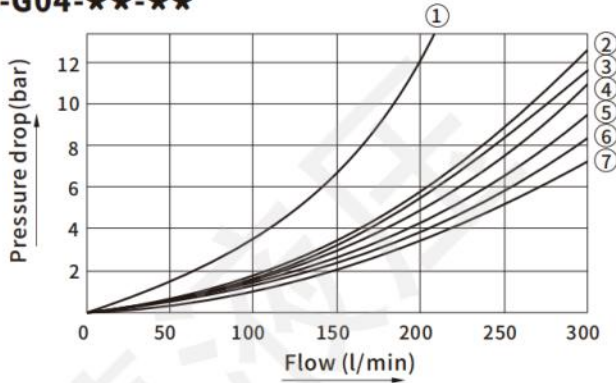
● Specification

Model	Max. flow (l/min)	Max. pressure (bar)	Max. control pressure (bar)	Min. control pressure (bar)	Max. allowable back pressure	
					External leakage	Internal leakage
SW-G04-***	300	315	250	8	210	160
SW-G06-***	500			8		
SWH-G04-*** (High-pressure type)	300	350	250	14 (extrocontrol) / 4.5 (introcontrol)	250	160
SWH-G06-*** (High-pressure type)	650			13 (extrocontrol) / 4.5 (introcontrol)		
SWH-G10-*** (High-pressure type)	1100			10 (extrocontrol) / 4.5 (introcontrol)		
SWH-G04-*** (Special valve for pump truck)	300	350	250	14 (extrocontrol) / 4.5 (introcontrol)	250	160
SWH-G06-*** (Special valve for pump truck)	650			13 (extrocontrol) / 4.5 (introcontrol)		

Note: The max. flow rate refers to the limit flow rate when the valve is normally reversed.
The max. flow rate varies with the spool function and working conditions. See the slide function table for details.
Slide column type C3, C5, C6, C60 requires external pressure control.

● Pressure drop characteristic curve

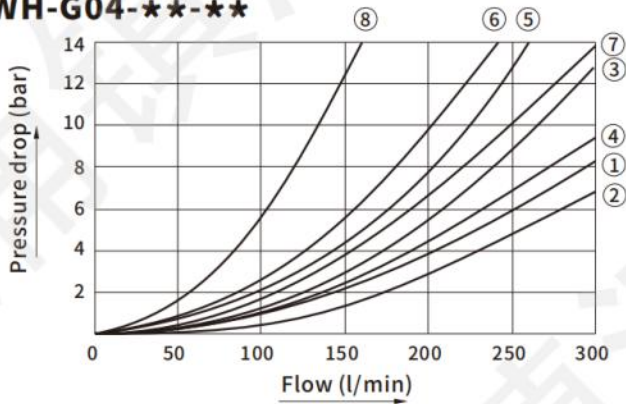
SW-G04-**-**



Test conditions: viscosity 35cSt; Specific gravity: 0.850

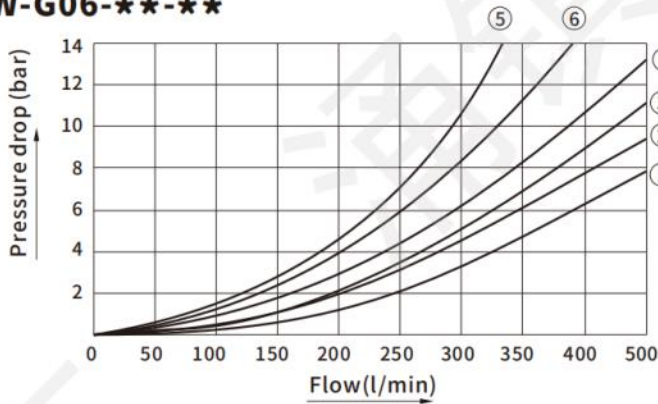
Model	P→A	B→T	P→B	A→T	P→T
C2	5	4	5	6	-
C3	5	3	5	5	7
C4	5	3	5	5	-
C40	5	4	5	6	-
C5	7	4	5	5	5
C6	5	3	5	6	1
C60	7	5	7	7	2
C7	5	4	5	6	-
C8	5	4	5	5	-
C9	6	4	5	6	-

SWH-G04-**-**



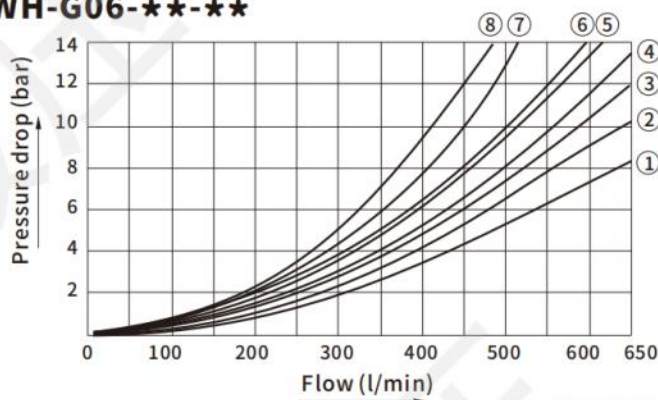
Model	P→A	P→B	A→T	B→T	P→T
C2	1	1	1	1	-
C3	2	2	3	3	-
C4	1	1	3	3	-
C40	2	2	3	3	-
C5	2	1	3	3	-
C6	4	4	3	3	6
C7	2	2	4	3	-
B2	1	1	1	1	-
B3	2	2	3	3	-

SW-G06-**-**



Model	P→A	P→B	A→T	B→T
C2	2	2	1	4
C3	2	2	1	3
C4	2	2	1	3
C40	2	2	1	4
C5	1	2	1	2
C6	2	2	2	4
C7	2	2	1	4

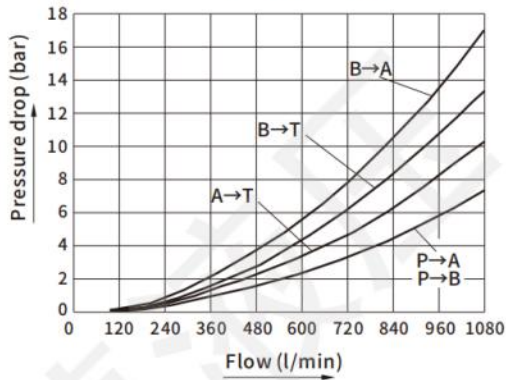
SWH-G06-**-**



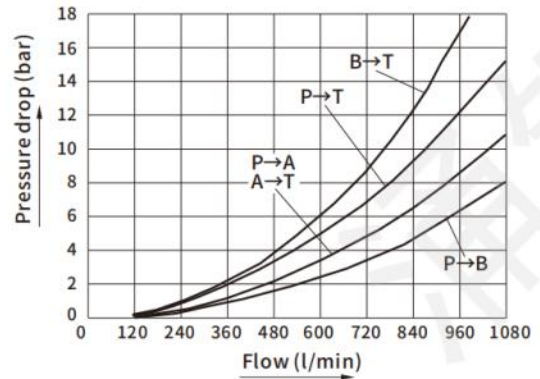
Model	P→A	P→B	A→T	B→T
C2	1	1	1	3
C3	4	4	3	4
C4	2	2	3	5
C40	2	2	3	5
C5	1	4	3	3
C6	3	1	2	4
C7	4	4	1	4

SWH-G10-**-***

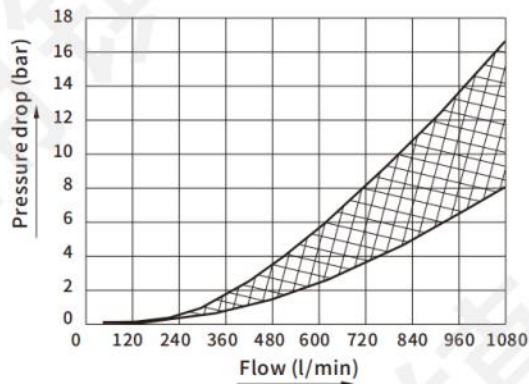
(Slide type: C2)



(Slide type: C6)



(Suitable for all slide type)



● Viscosity change

Viscosity	cSt(mm ² /s)	15	20	30	40	50	60	70	80	90	100
	SSU	77	98	141	186	232	278	324	371	417	464
Coefficient(G')		0.81	0.87	0.96	1.03	1.09	1.14	1.19	1.23	1.27	1.30

Note: For different specific gravity (G'), the pressure drop (G') can be calculated by $\Delta P' = \Delta P(G'/0.85)$

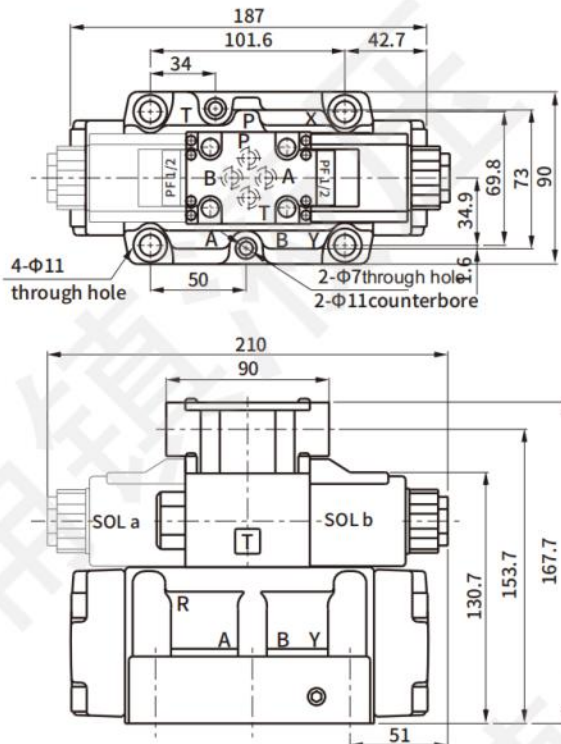
● Oil control instructions

Oil control mode	Model	Instructions
Internal control internal leakage	SW-G*-**-***	Invalid combination (slide type: C3, C5, C6, C60)
Internal control external leakage	SW-G*-**-T-***	Maintain the return oil pressure so that the pressure difference between the control pressure and the back pressure is always greater than the required minimum control pressure
External control internal leakage	SW-G*-**-E-***	Unlimited use
External control external leakage	SW-G*-**-ET-***	Unlimited use

Dimensions

Units: mm

● SW-G04-**-10



Installation surface: ISO 4401-AD-07-4-A

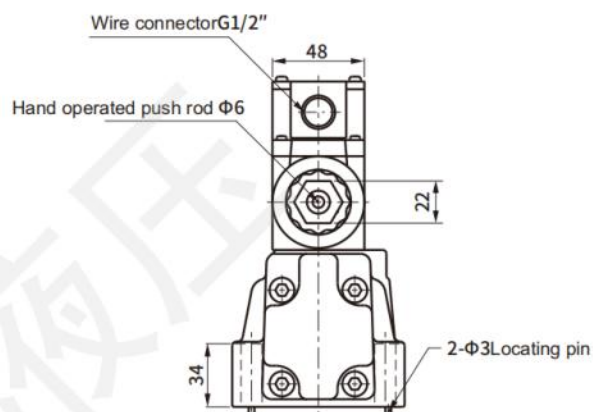
Weight: 8.2/7.9kg

Main valve operation:

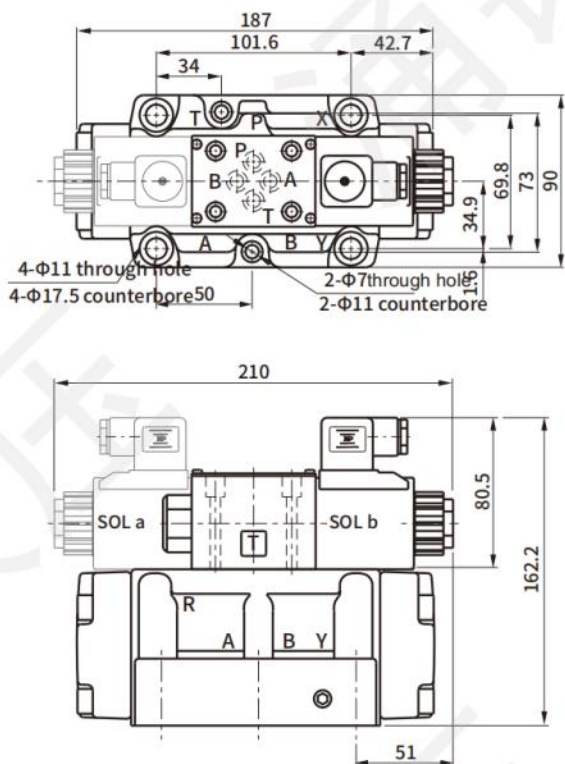
P→A SOL a supplies power

P→B SOL b supplies power

Please note SOL a and b positions



● SW-G04-**-20



Installation surface: ISO 4401-AD-07-4-A

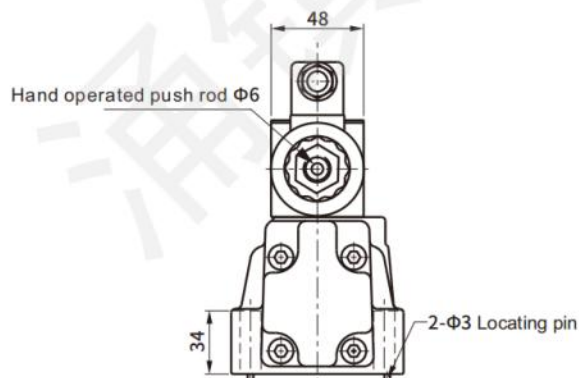
Weight: 8.2/7.9kg

Main valve operation:

P→A SOL a supplies power

P→B SOL b supplies power

Please note SOL a and b positions

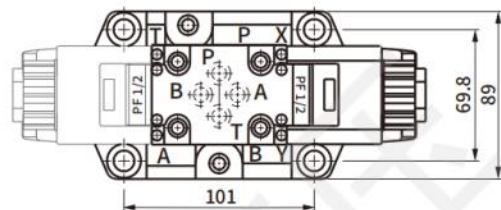


● SWH-G04-**-10

Units: mm

Installation surface: ISO 4401-AD-07-4-A

Weight: 8.2/7.9kg



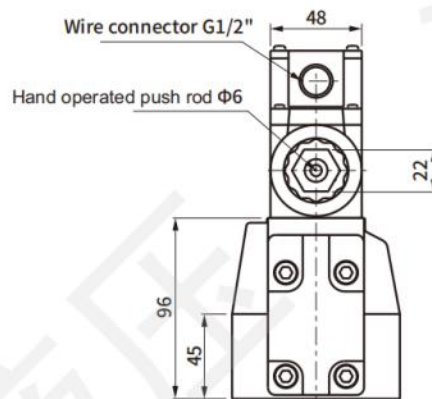
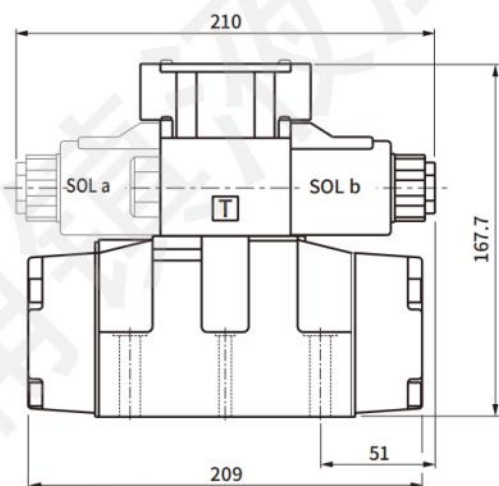
Main valve operation:

P→A SOL a supplies power

P→B SOL b supplies power

Please note SOL a and b positions

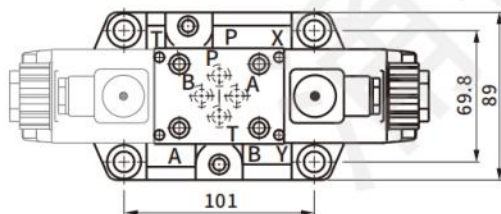
Directional control valve



● SWH-G04-**-20

Installation surface: ISO 4401-AD-07-4-A

Weight: 8.2/7.9kg

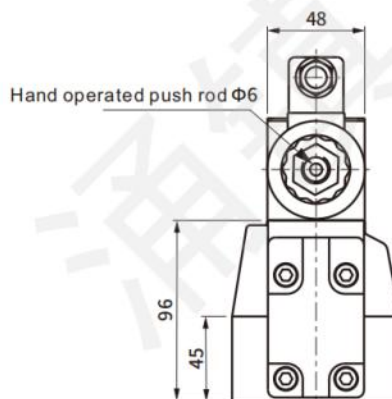
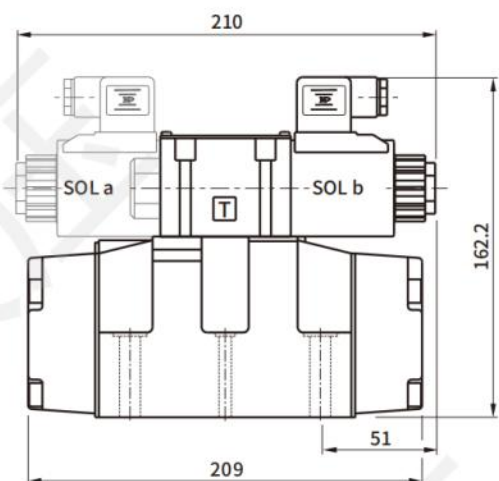


Main valve operation:

P→A SOL a supplies power

P→B SOL b supplies power

Please note SOL a and b positions

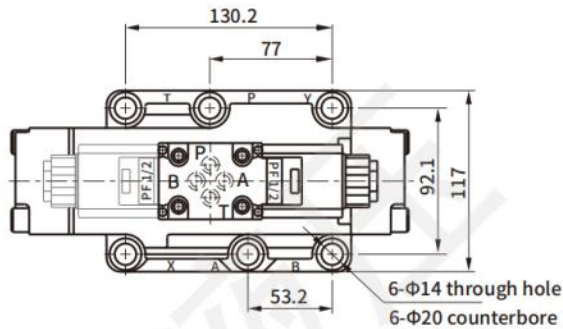


● SW-G06-**-10

Units: mm

Installation surface: ISO 4401-AE-08-4-A

Weight: 12.8/12.5kg

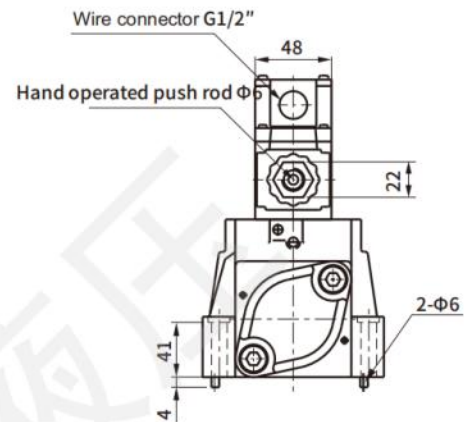
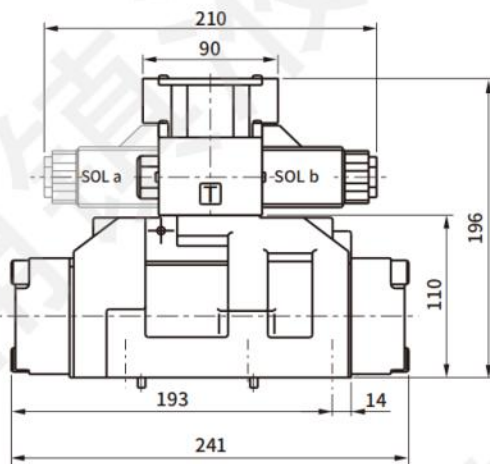


Main valve operation:

P→A SOL a supplies power

P→B SOL b supplies power

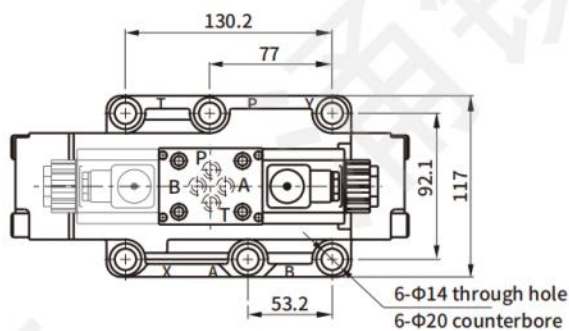
Please note SOL a and b positions



● SW-G06-**-20

Installation surface: ISO 4401-AE-08-4-A

Weight: 12.8/12.5kg

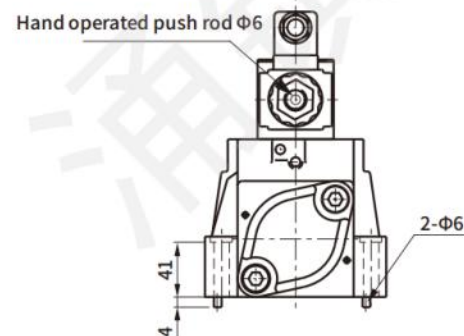
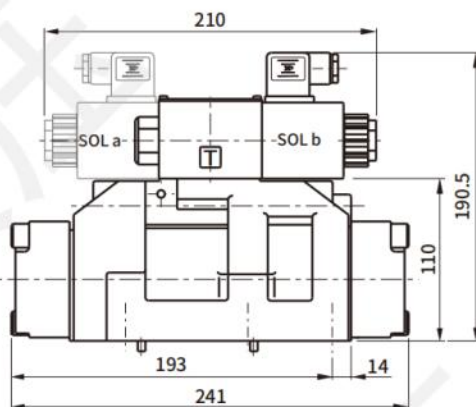


Main valve operation:

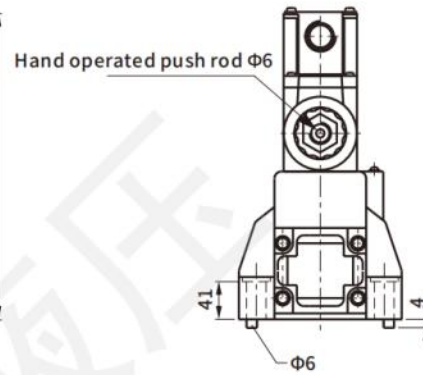
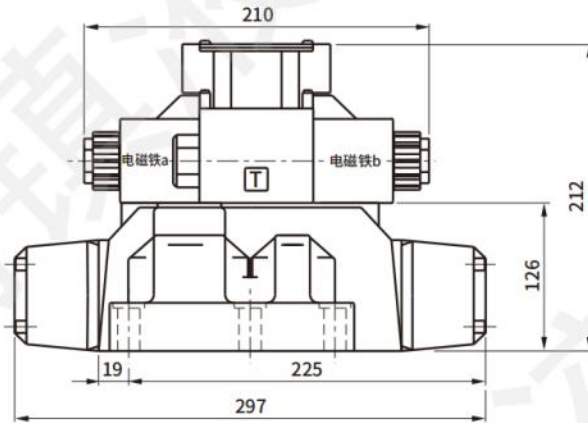
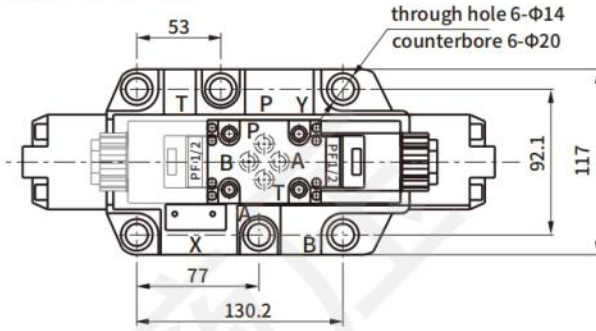
P→A SOL a supplies power

P→B SOL b supplies power

Please note SOL a and b positions



● SWH-G06-**-10

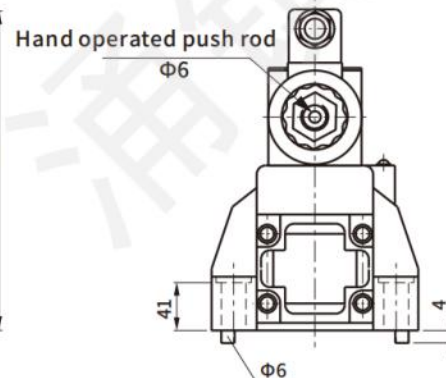
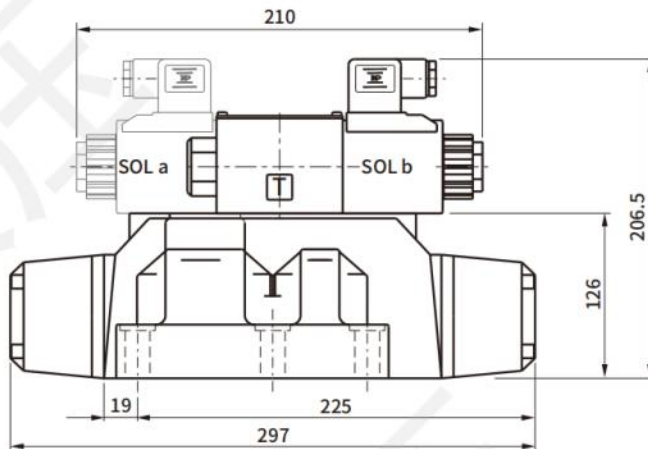
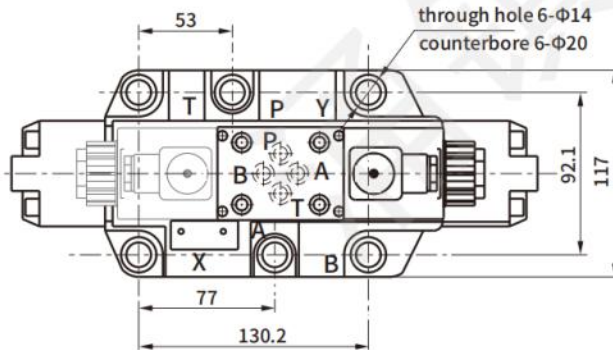


Units: mm
 Installation surface: ISO 4401-AE-08-4-A
 Weight: 15.6/17.4kg

Main valve operation:
 P→A SOL a supplies power
 P→B SOL b supplies power
 Please note SOL a and b positions

Directional control valve

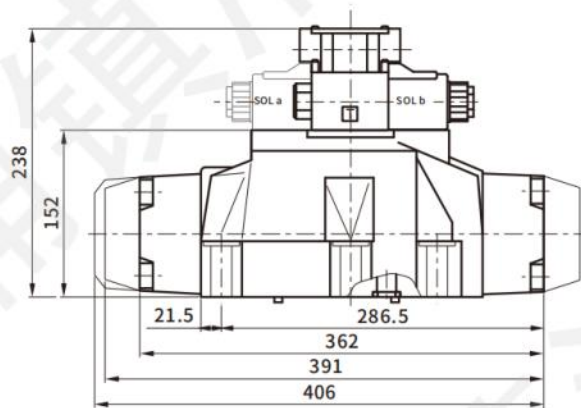
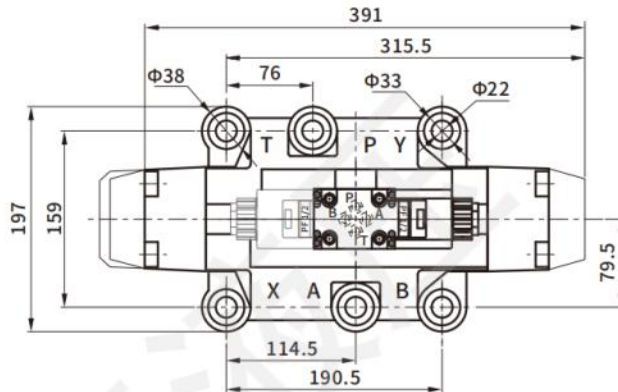
● SWH-G06-**-20



Installation surface: ISO 4401-AE-08-4-A
 Weight: 15.6/17.4kg

Main valve operation:
 P→A SOL a supplies power
 P→B SOL b supplies power
 Please note SOL a and b positions

● SWH-G10-**-10



Units: mm

Installation surface: ISO 4401-AF-10-4-A

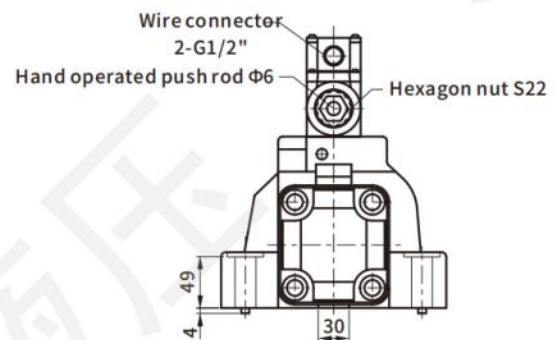
Weight: 40.5/41kg

Main valve operation:

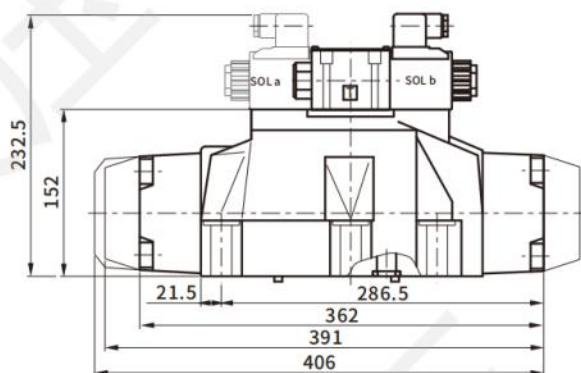
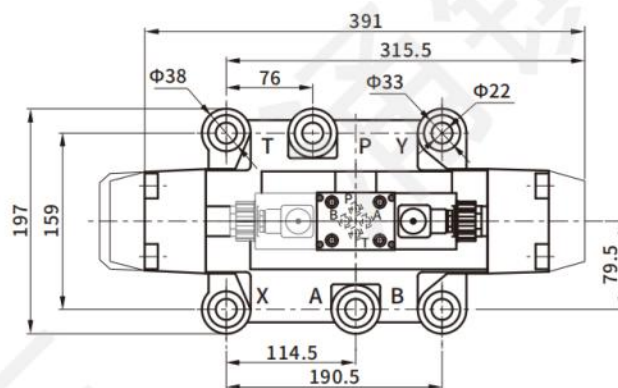
P→A SOL a supplies power

P→B SOL b supplies power

Please note SOL a and b positions



● SWH-G10-**-20



Installation surface: ISO 4401-AF-10-4-A

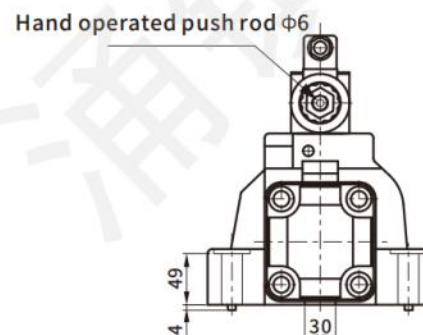
Weight: 40.5/41kg

Main valve operation:

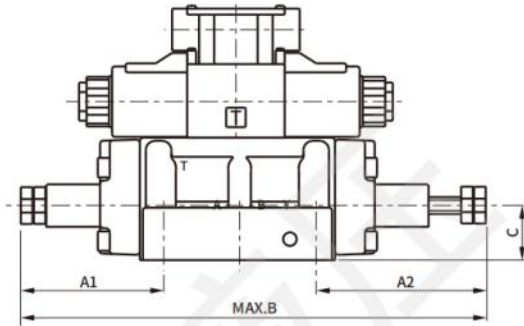
P→A SOL a supplies power

P→B SOL b supplies power

Please note SOL a and b positions



- With stroke adjustment type(SW-G04/06 model)



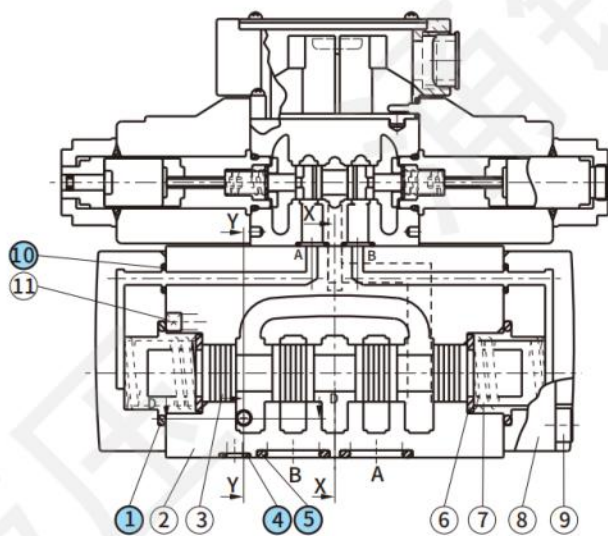
Model	A1	A2	B	C
SW-G04-**-AB	96.4	135.5	333.5	31
SW-G06-**-AB	98.5	163.5	392	40

- Install attachment

Model	Quantity	Mounting screw (hex socket screw)	The torque of the mounting screw is
SW-G04 Series	2	M6×40L	120~150 kgf·cm
	4	M10×45L	580~720 kgf·cm
SWH-G04Series	2	M6×55L	120~150 kgf·cm
	4	M10×60L	580~720 kgf·cm
SW-G06Series	6	M12×60L	1000~1230 kgf·cm
SWH-G06Series	6	M12×60L	1000~1230 kgf·cm
SWH-G10Series	6	M20×80L	4730~5850 kgf·cm

Sealing elements

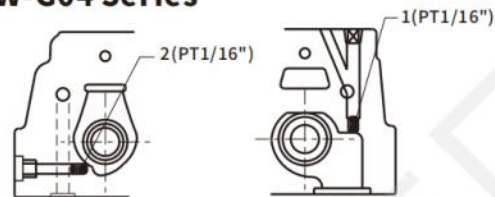
- SW/SWH-G04-**-**



SW-G04 Series

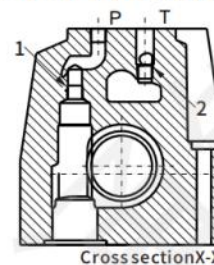
No.	Parts	Model	Quantity
1	O-ring	P34,HS70	2
4	O-ring	P9,HS70	2
5	O-ring	P22A, HS70	4
10	O-ring	P9,HS70	2

SW-G04 Series



Cross section Y-Y Cross section X-X
 Internal control:1 Open; External control:1 block
 Internal leakage:2 open; External leakage:2 blocked

SWH-G04 Series

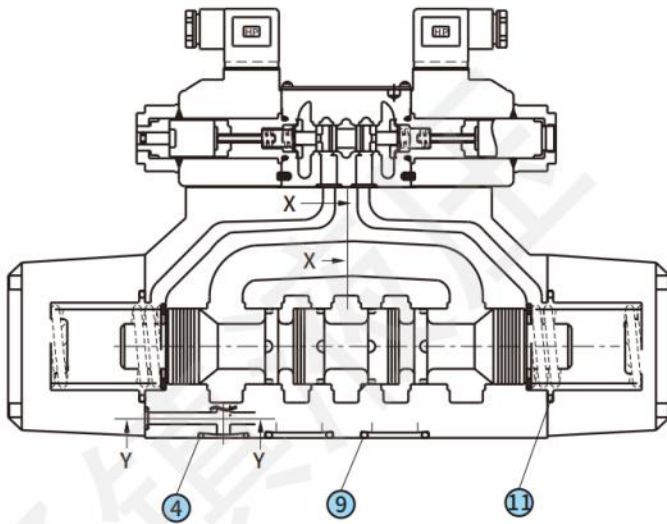


Cross section X-X
 Internal control :1 Open; External control:1 block
 Internal leakage:2 open; External leakage:2 blocked

SWH-G04 Series

No.	Parts	Model	Quantity
1	O-ring	G35,HS70	2
4	O-ring	P9,HS70	2
5	O-ring	P22A, HS70	4
10	O-ring	P8,HS70	2

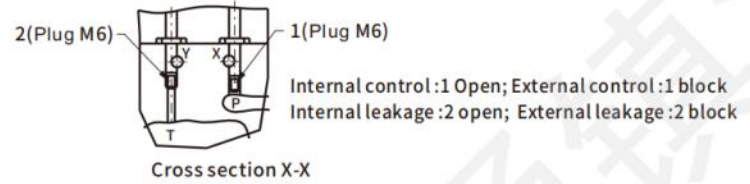
● **SW/SWH-G06-**-****



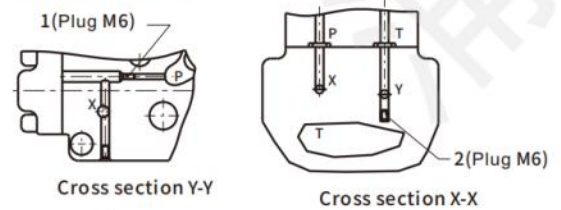
SW-G06 Series

No.	Parts	Model	Quantity
11	O-ring	G40, HS70	2
4	O-ring	P20, HS70	2
9	O-ring	P28, HS70	4

SW-G06 Series



SWH-G06 Series

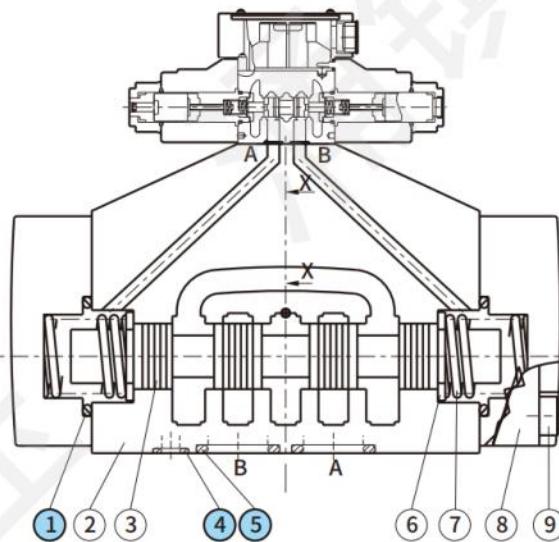


Internal control :1 open; External control :1 block
Internal leakage :2 open; External leakage :2 block

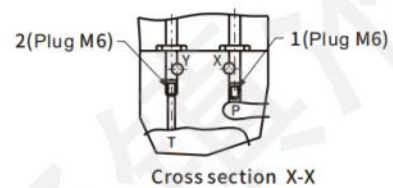
SWH-G06 Series

No.	Parts	Model	Quantity
11	O-ring	G45, HS70	2
4	O-ring	P20, HS70	2
9	O-ring	P28, HS70	4

● **SWH-G10-**-****



SWH-G10 Series

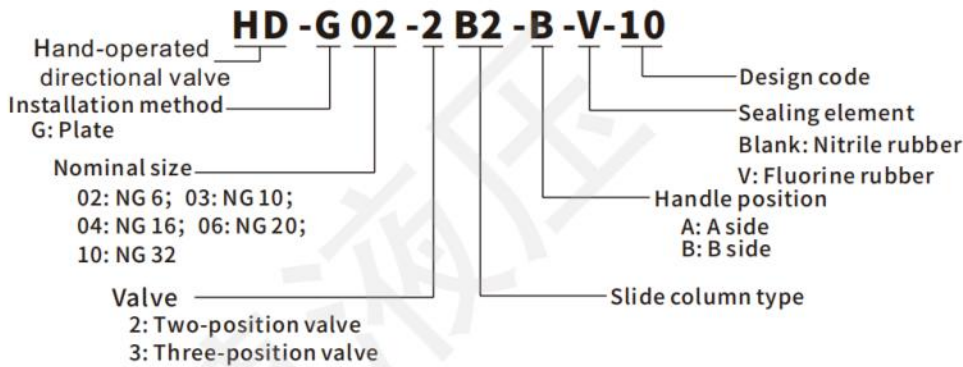


Internal control :1 Open; External control :1 block
Internal leakage :2 open; External leakage :2 block

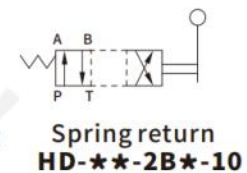
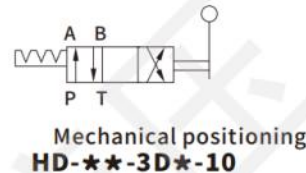
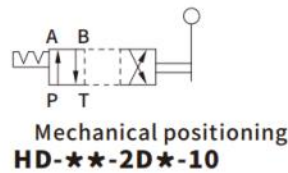
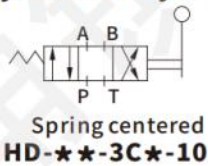
No.	Parts	Model	Quantity
1	O-ring	ID42*T3, HS90	2
4	O-ring	ID19*T3, HS90	2
5	O-ring	ID42.5*T3, HS90	4

HD Series

How to order



Hydraulic symbol



Slide column type

Model	Three-position (Spring centered)
C2	
C3	
C4	
C5	
C6	

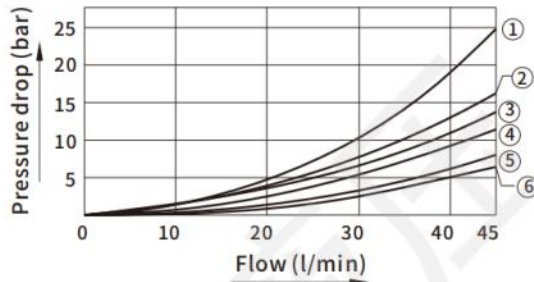
Model	Three-position (Mechanical positioning)
D2	
D3	
D4	
D6	
Model	Two-position (Mechanical positioning)
D2	
D3	

Model	Two-position (Spring return)
B2	
B3	
B20	
Model	Two-position (Spring return)
B2S	
B3S	
B20S	

Specification

Model	Max. flow (l/min)	Max. pressure (bar)	Max. allowable back pressure (bar)	Weight (kg)
HD-G02-**-10	60	315	160	1.5
HD-G03-**-10	100		150	4.0
HD-G04-**-10	300	350	250	7.5
HD-G06-**-10	450			11.8
HD-G10-**-10	1100			49.5

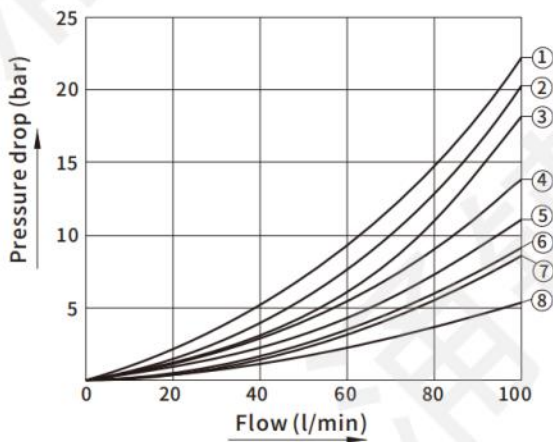
HD-G02-**-**



Model	Pressure drop curve				
	P→A	B→T	P→B	A→T	P→T
C2	5	5	5	5	-
C3	6	6	6	6	4
C4	5	6	5	6	-
C5	2	2	2	2	4
C6	2	2	2	2	4
D2	5	5	5	5	-
D3	5	3	5	3	-
D4	5	6	5	6	-
D6	2	2	2	2	4
B2	5	5	5	5	-
B3	5	6	5	6	-
B20	5	-	5	-	-

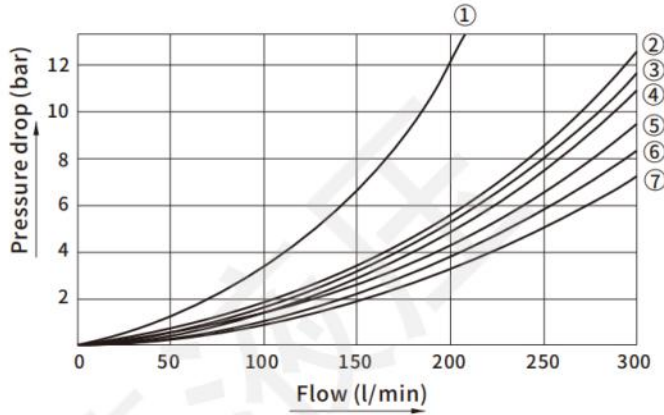
Directional control valve

HD-G03-**-**



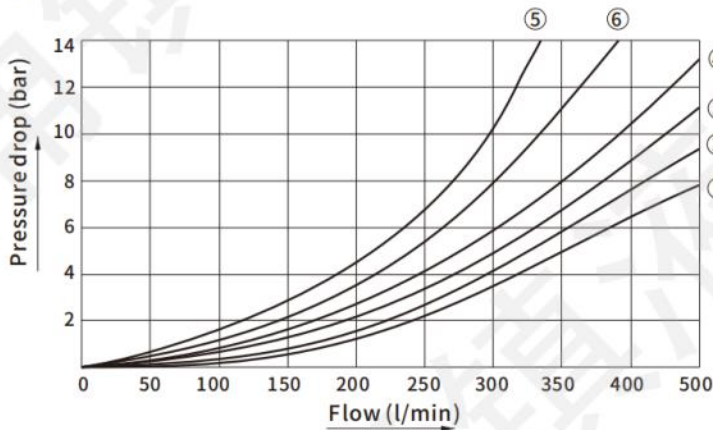
Model	Pressure drop curve				
	P→A	B→T	P→B	A→T	P→T
C2	6	6	6	6	-
C3	7	7	7	7	5
C4	6	7	6	7	-
C5	5	2	2	5	8
C6	2	2	2	2	5
B2	2	2	6	6	-
B3	3	3	6	6	-
B20	5	-	5	-	-
D2	6	6	6	6	-
D3	7	7	7	7	-
D6	2	2	2	2	5

HD-G04-**-**



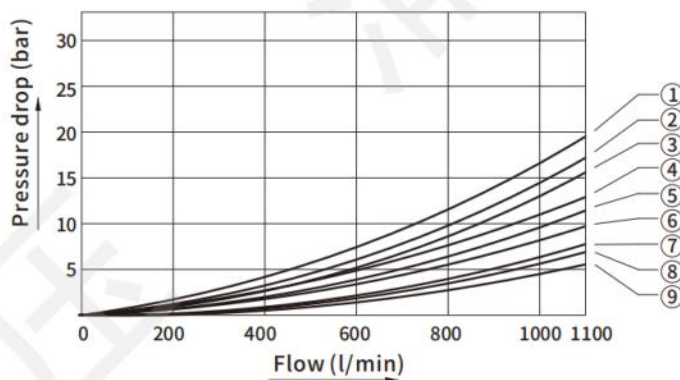
Model	Pressure drop curve				
	P→A	B→T	P→B	A→T	P→T
C2	5	4	5	6	-
C3	5	3	5	5	7
C4	5	3	5	5	-
C5	7	4	5	5	5
C6	5	3	5	6	1
C7	5	4	5	6	-
C8	5	4	5	5	-
C9	6	4	5	6	-

HD-G06-**-**



Model	Pressure drop curve			
	P→A	P→B	A→T	B→T
C2	2	2	1	4
C3	2	2	1	3
C4	2	2	1	3
C5	1	2	1	2
C6	2	2	2	4
C7	2	2	1	4

HD-G10-**-**



Model	Pressure drop curve				
	P→A	B→T	P→B	A→T	P→T
C2	9	6	9	8	-
C3	7	6	7	7	5
C4	9	6	9	6	-
C5	9	6	8	6	1
C6	5	3	5	4	2
C7	7	6	7	7	-
C8	7	6	7	7	-
C9	7	6	7	8	-

● Viscosity change

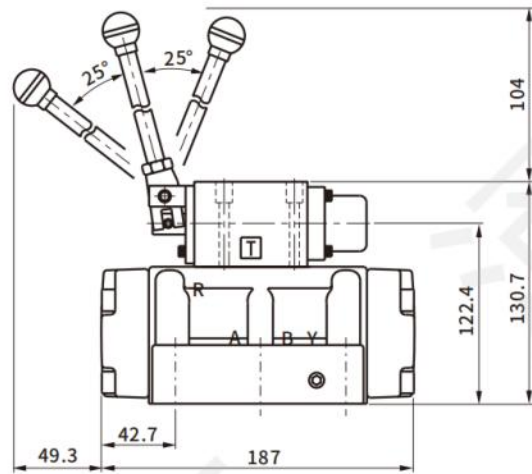
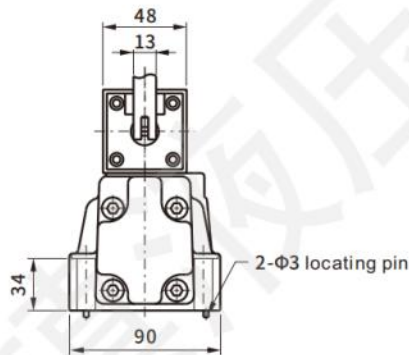
Viscosity	cSt	15	20	30	40	50	60	70	80	90	100
	SSU	77	98	141	186	232	278	324	371	417	464
Coefficient(G')	0.81	0.87	0.96	1.03	1.09	1.14	1.19	1.23	1.27	1.30	

Note: The pressure drop (P') at different specific gravity can be calculated using $\Delta P' = \Delta P(G'/0.85)$.

Units: mm

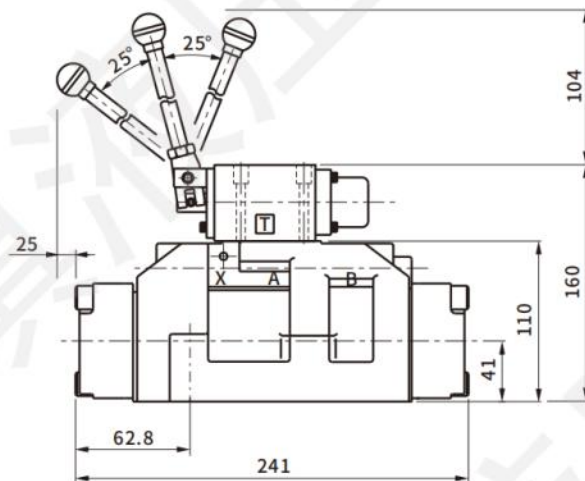
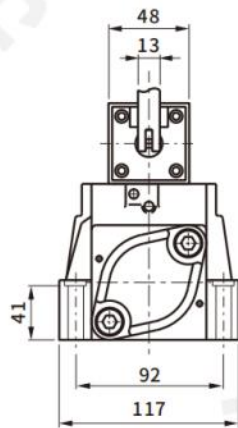
● **HD-G04-**-10**

Installation surface: ISO 4401-AD-07-4-A



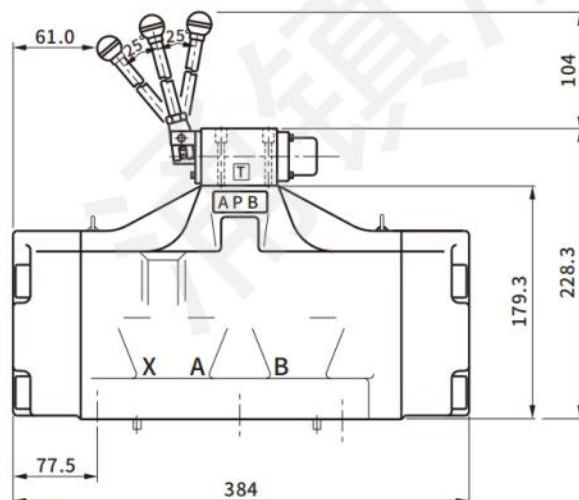
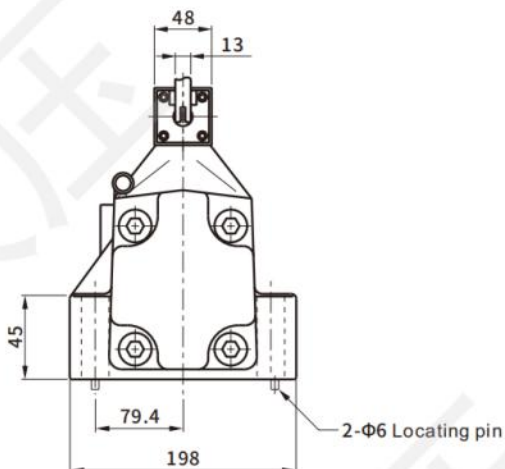
● **HD-G06-**-10**

Installation surface: ISO 4401-AE-08-4-A



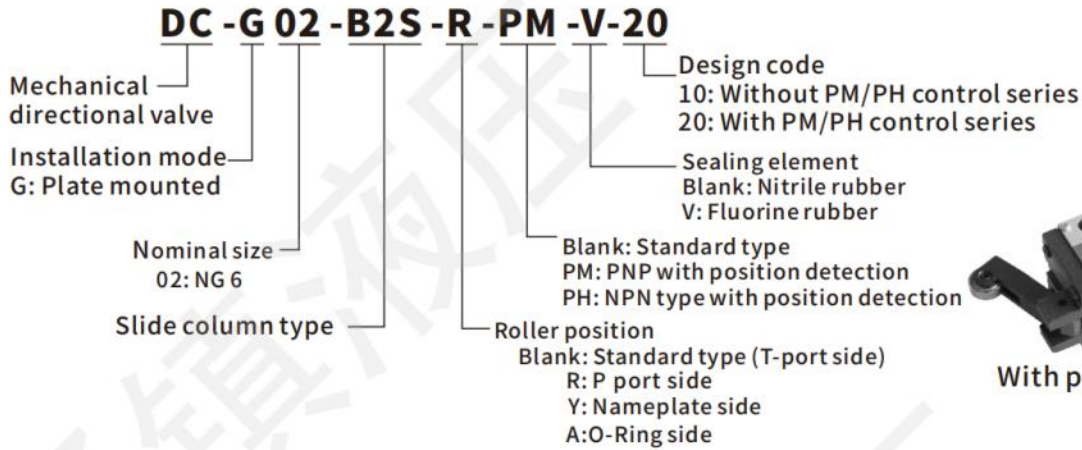
● **HD-G10-**-10**

Installation surface: ISO 4401-AF-10-4-A



DC Series

How to order



Standard



With position limit switch

Directional control valve

Slide column type

Model	Symbol	Model	Symbol	Model	Symbol	Model	Symbol
B2		B2-PM/PH		B2S		B2S-PM/PH	
B3		B3-PM/PH		B3S		B3S-PM/PH	
B20		B20-PM/PH		B20S		B20S-PM/PH	

Roller position and flow direction

Model	Symbol	Roller position and flow direction	
		Reset position	Commutation end position
DC-G02-B2S-★		 All ports close 0 3.8 4.6 9.5	 All ports open 0 3.8 4.6 9.5
DC-G02-B3S-★		 All ports open 0 3.8 4.6 9.5	 All ports close 0 3.8 4.6 9.5
DC-G02-B20S-★		 All ports close Port A & T close 0 3.8 4.6 9.5	 All ports open Port B & T close 0 3.8 4.6 9.5

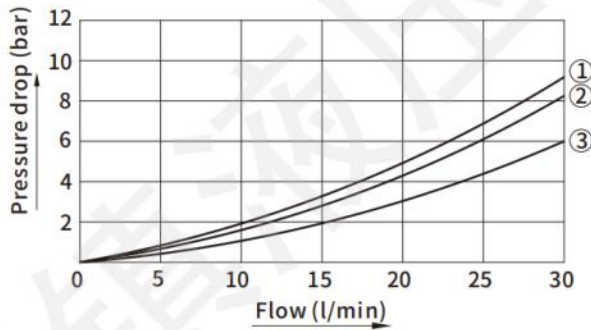
Specification

Model	Max. flow (l/min)	Max. pressure (bar)	Max. allowable back pressure (bar)	Weight (kg)		Position detector contact load current
				Standard	PM/PH	
DC-G02-B*-★★-10/20	30	210	70	1.1	1.57	≤400mA

Characteristic parameters and curves

Pressure drop characteristic curve

DC-G02--****



Test conditions: Viscosity: 35cSt; Specific gravity: 0.850

Model	P→A	B→T	P→B	A→T
DC-G02-B2S-10/20	2	2	3	3
DC-G02-B3S-10/20	2	2	3	3
DC-G02-B20S-10/20	3	-	3	-

Directional control valve

Viscosity change

Viscosity	cSt	15	20	30	40	50	60	70	80	90	100
	SSU	77	98	141	186	232	278	324	371	417	464
Coefficient(G')		0.81	0.87	0.96	1.03	1.09	1.14	1.19	1.23	1.27	1.30

Note: The pressure drop (P') at different specific gravity can be calculated using $\Delta P' = \Delta P(G'/0.85)$.

Install attachment

Parts	Quantity	Metric standard	Imperial standard	Note
DC-G02-**-10/20				
Mounting screw (hex socket screw)	4	M5×45L	NO.10-24UNC×1-3/4"	The torque of the mounting screw is 50~70kgf·cm
Mounting surface O-ring	4	AS568-012	AS568-012	

Plate type

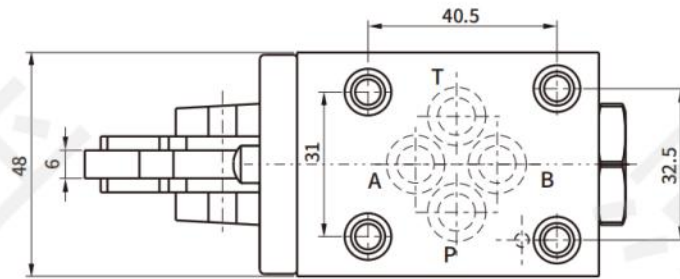
Please refer to the appendix for detailed dimensions and appearance of M02 series installation valves.

Dimensions

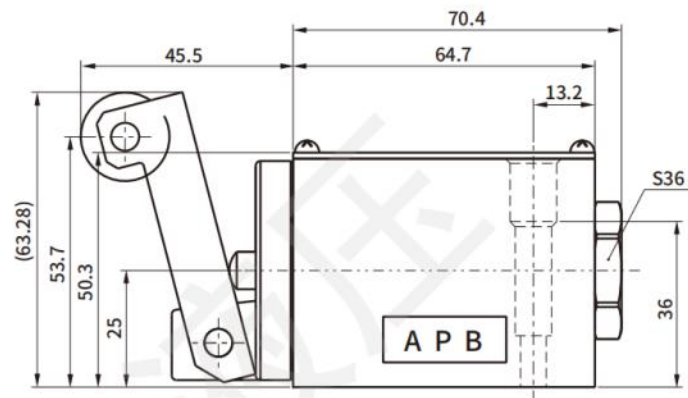
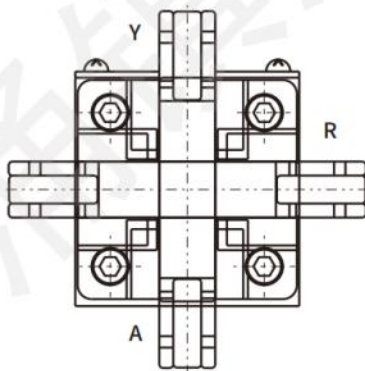
Units: mm

● DC-G02-B*-10

Installation surface: ISO 4401-AB-03-4-A

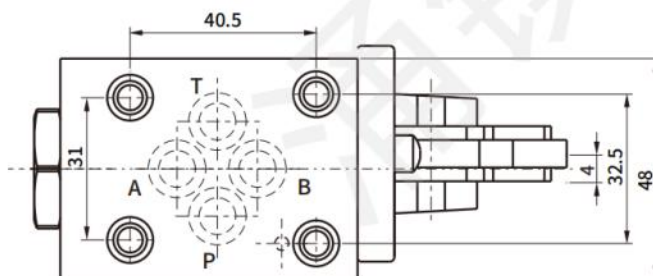


Roller position diagram

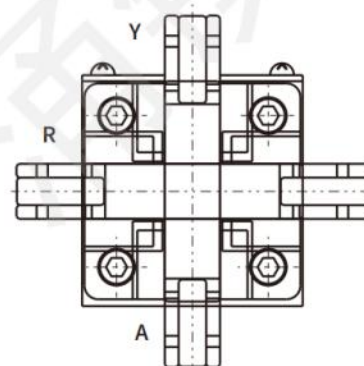
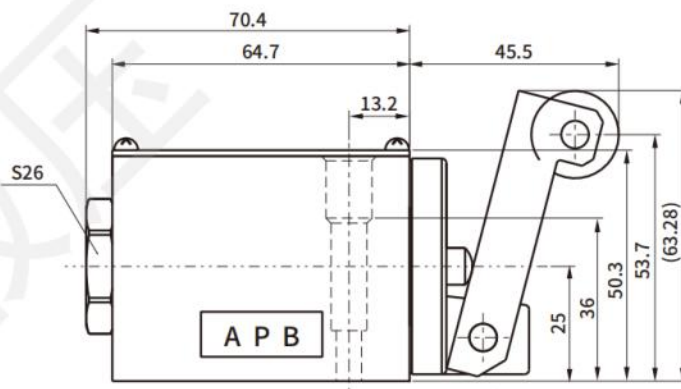


● DC-G02-B*-S-10

Installation surface: ISO 4401-AB-03-4-A



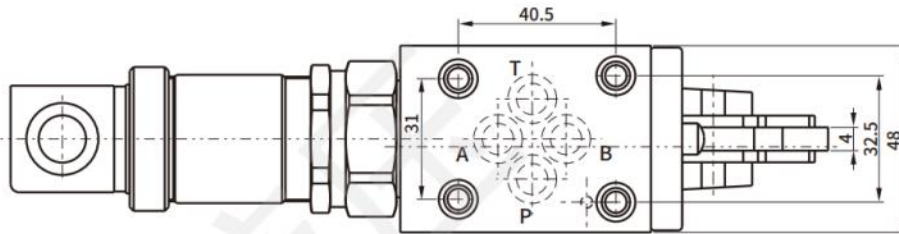
Roller position diagram



DC-G02-B*S-PM/PH-20

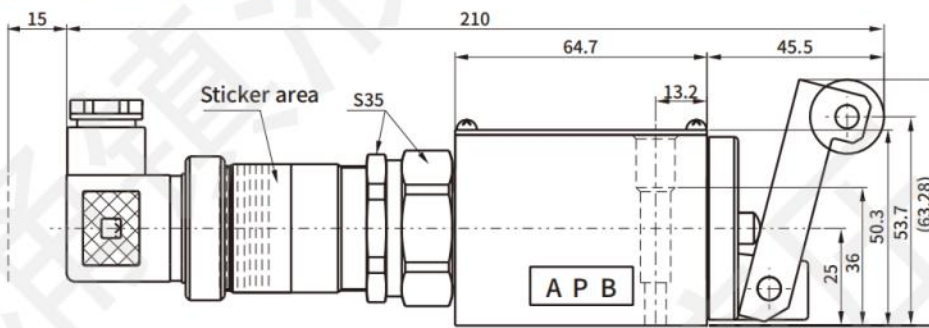
Units: mm

Installation surface: ISO 4401-AB-03-4-A

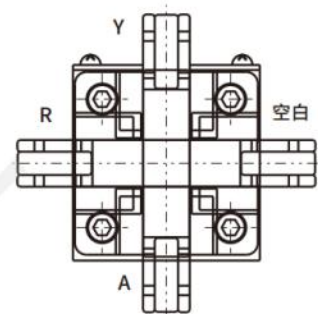


Directional control valve

Space required to remove plug



Roller position diagram



Note: The sensor of B* is on the B side

Electrical wiring diagram

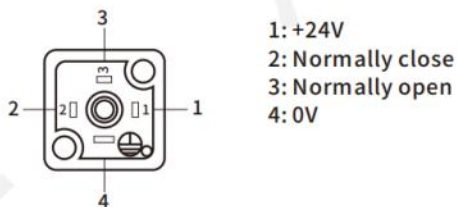
PM/PH Position detector, electrical wiring diagram.

DIN 43650

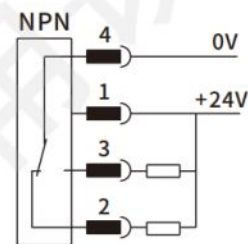
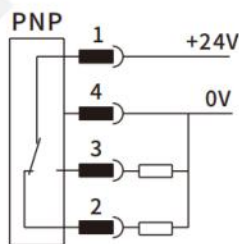
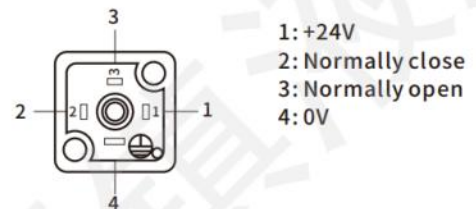
plug connection diagram



PMD24-*(PNP type)
Line position of inductive switch



PHD24-*(NPN type)
Line position of inductive switch

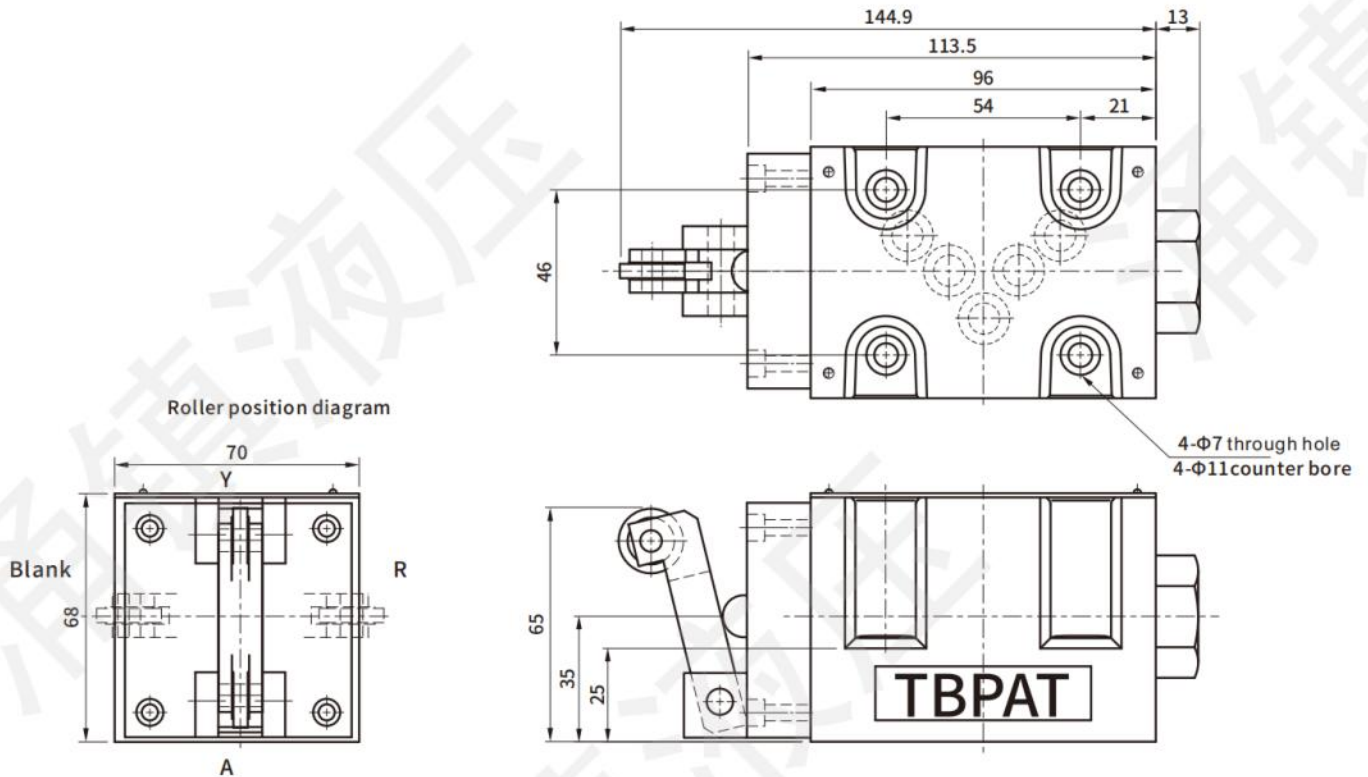


Note: The insert position marked in 4 is connected to 0V voltage and cannot be grounded.

● **DC-G03-B*S-10**

Units: mm

Installation surface: ISO 4401-AC-05-4-A



Install attachment

Parts	Quantity	Metric standard	Imperial standard	Note
DC-G02-**-10				
Mounting screw (hex socket screw)	4	M5×45L	NO.10-24UNC×1-3/4"	The torque of the mounting screw is 50~70kgf·cm
Mounting surface O-ring	4	AS568-012	AS568-012	
DC-G03-**-10				
Mounting screw (hex socket screw)	4	M6×35L	1/4"-20UNC×1-3/8"	The torque of the mounting screw is 120~150kgf·cm
Mounting surface O-ring	5	AS568-014	AS568-014	

● **Plate type**

Please refer to the appendix for detailed dimensions and appearance of M02 series installation valves.

SWJ-G02 Series

1. The maximum pressure of direct acting solenoid stop valve is 350bar.
2. No leakage, long-term high-pressure state still ensure flexible switching.
3. Independent electrical connection, electromagnet coil can turn 90°.
4. When replacing the coil, you do not need to open the pressure chamber.



How to order

SWJ - G02 - 2301 - D24 - 20 - V

Electromagnetic stop valve

Nominal size

6: NG 6

10: NG10

Function code

See hydraulic symbols

Sealing element

Blank: Nitrile rubber

V: Fluorine rubber

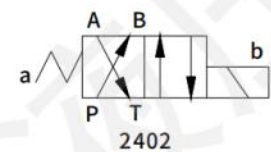
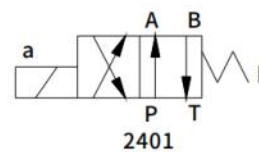
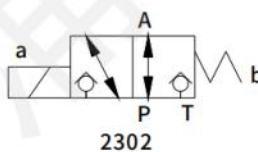
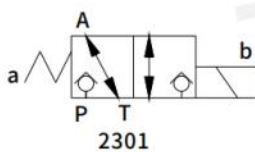
Design code

Coil voltage

D24:24V DC

D205:205V DC

Hydraulic symbols

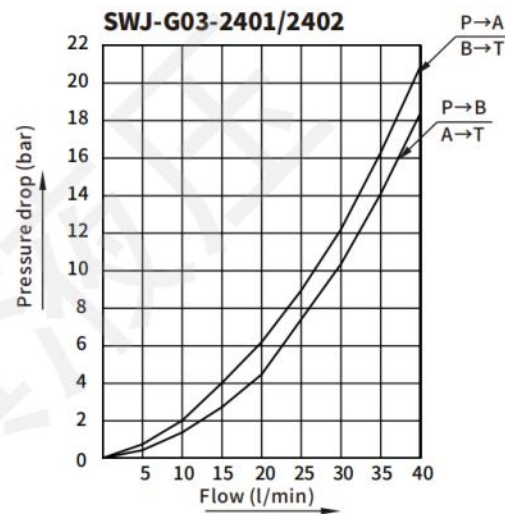
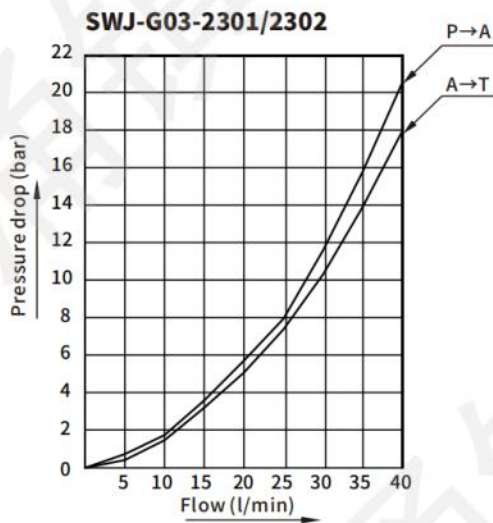
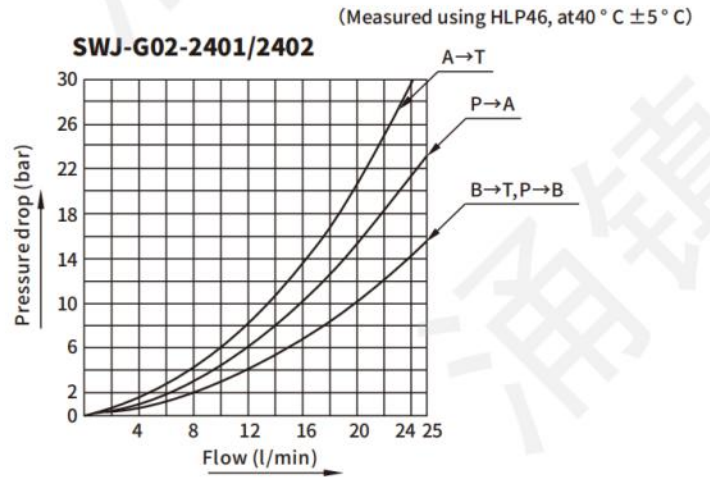
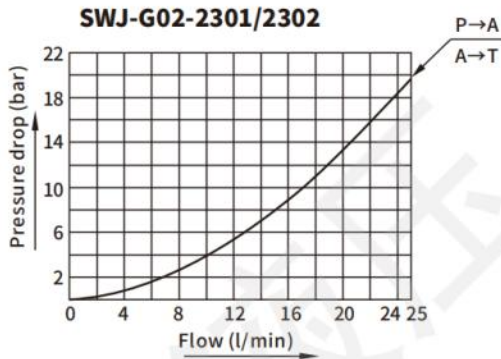


● NG 6/10 specification

Model	Rated pressure (bar)	Max. flow (l/min)	Voltage		Allowable voltage error	Power	
SWJ-G02	350	25	DC	24V;205V	±10%	30W	
			AC	Only through the rectifier			
SWJ-G03	350	40	DC	24V;205V	±10%	30W	
			AC	Only through the rectifier			
Switching time ms(Installation position: electromagnet horizontal installation)							
NG 6							
Pressure (bar)	Flow (l/min)	Directing-current solenoid					
		Function code 2301, 2302, 2401, 2402					
		t _{on} Non-tank pressure				t _{off}	
		2301	2302	2401	2402	2301/2302	2401/2402
70	25	40	45	50	50	10	15
140	25	40	60	50	50	10	15
210	25	45	60	60	50	10	15
280	25	45	60	60	50	10	15
315	25	45	65	65	50	10	15
350	25	45	65	65	50	10	15
NG 10							
Pressure (bar)	Flow (l/min)	Directing-current solenoid					
		Function 2301, 2302, 2401, 2402					
		t _{on} Non-tank pressure				t _{off}	
		2301	2302	2401	2402	2301/2302	2401/2402
70	40	30	40	40	35	10	10
140	40	30	40	40	35	10	10
210	40	35	45	45	35	10	10
280	40	35	45	45	35	10	10
315	40	35	50	50	35	10	10
350	40	45	50	50	40	10	10
Operating temperature	-40~120°C						
Filter fineness	≤25 μm						
Oil	Petroleum-based liquids or synthetic liquids with lubricating components have a viscosity range of 7.4 ~ 420 cSt.						

Directional control valve

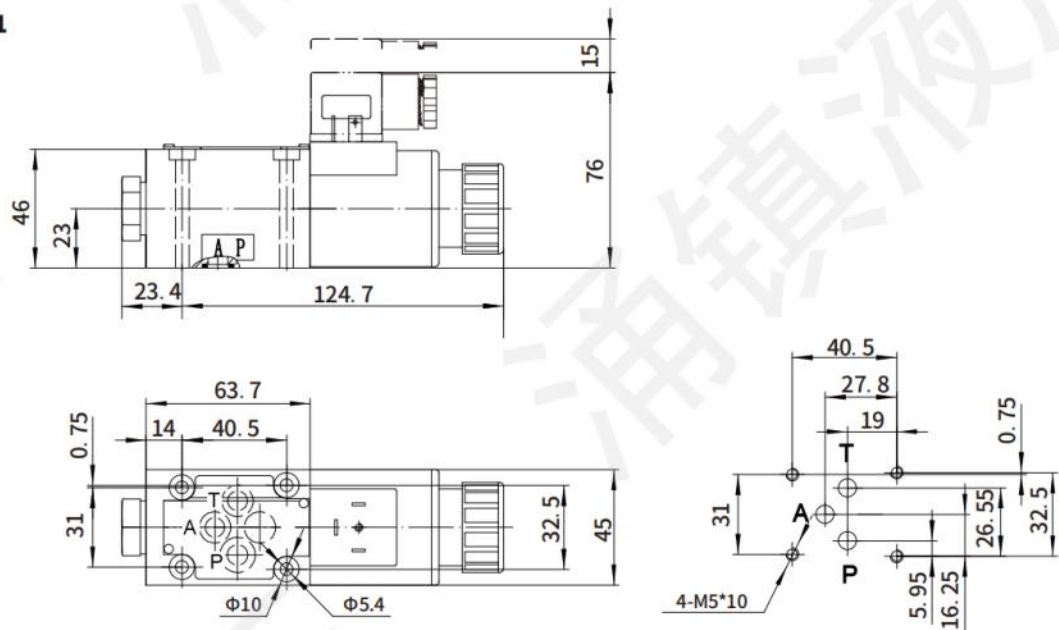
● Characteristic curve



Dimensions

● SWJ-G02-2301

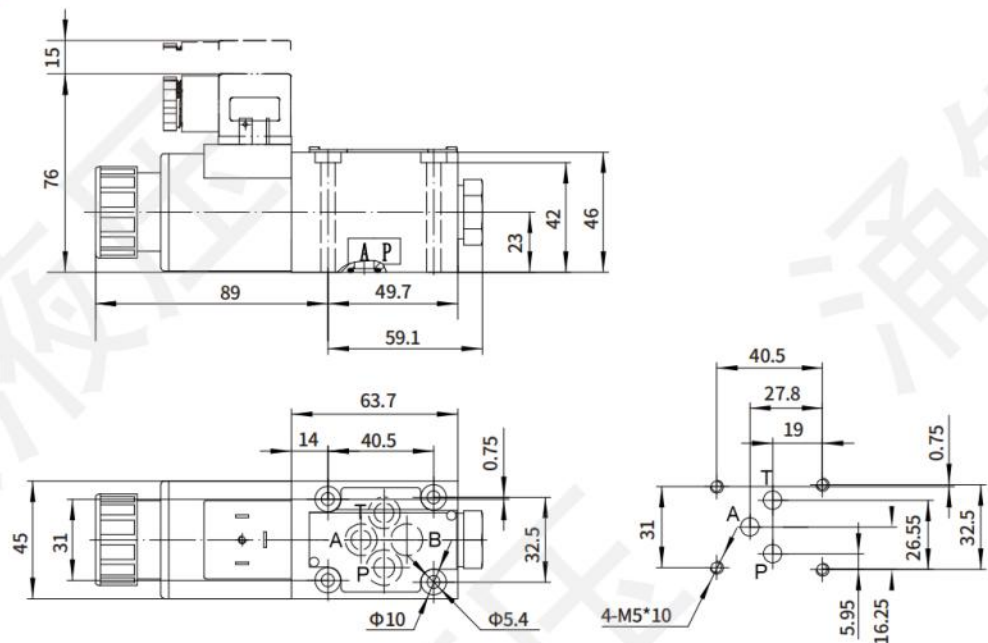
Units: mm



Dimensions

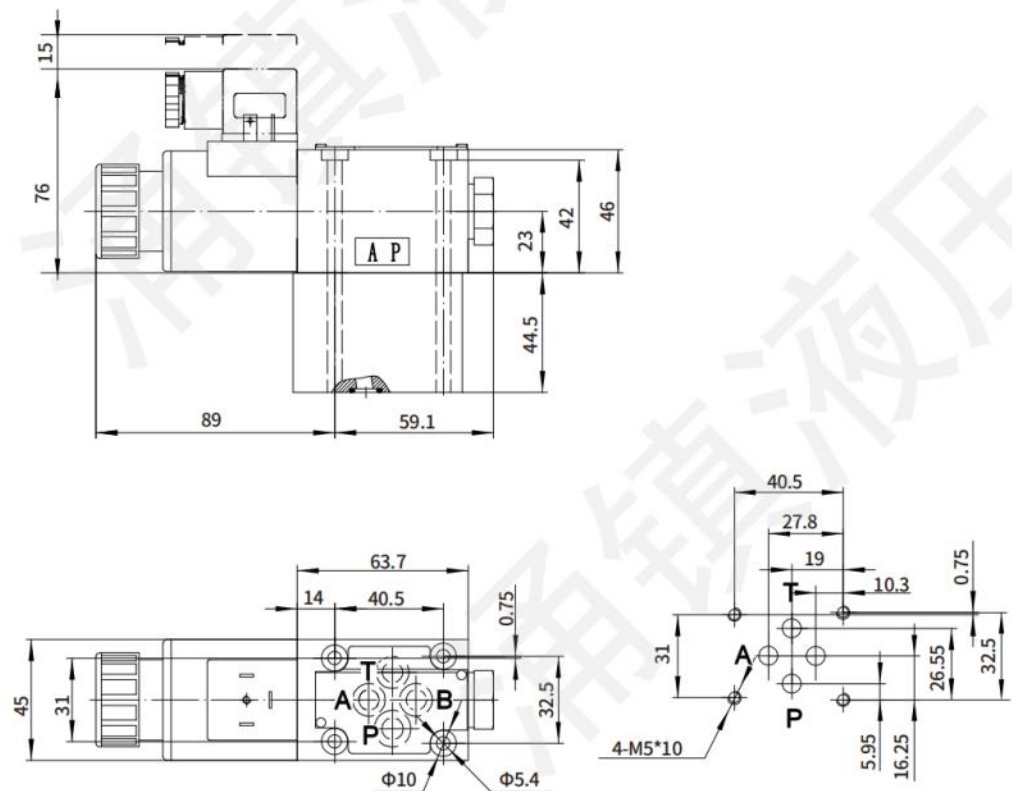
● SWJ-G02-2302

Units: mm



● SWJ-G02-2401

Units: mm

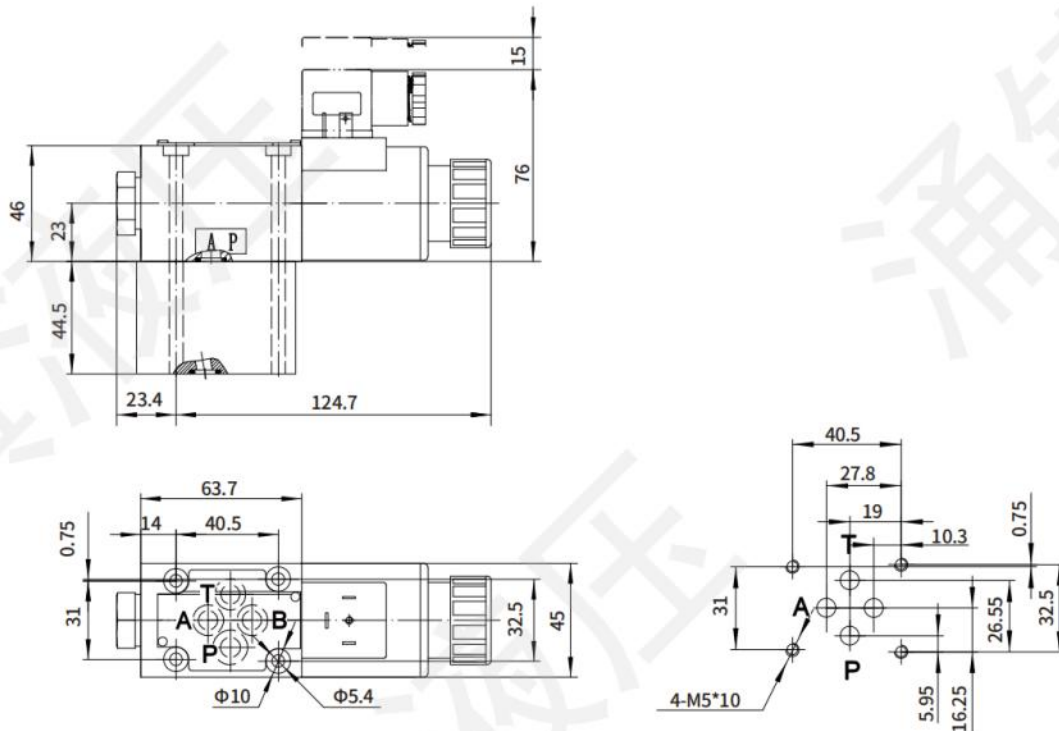


Directional control valve

Dimensions

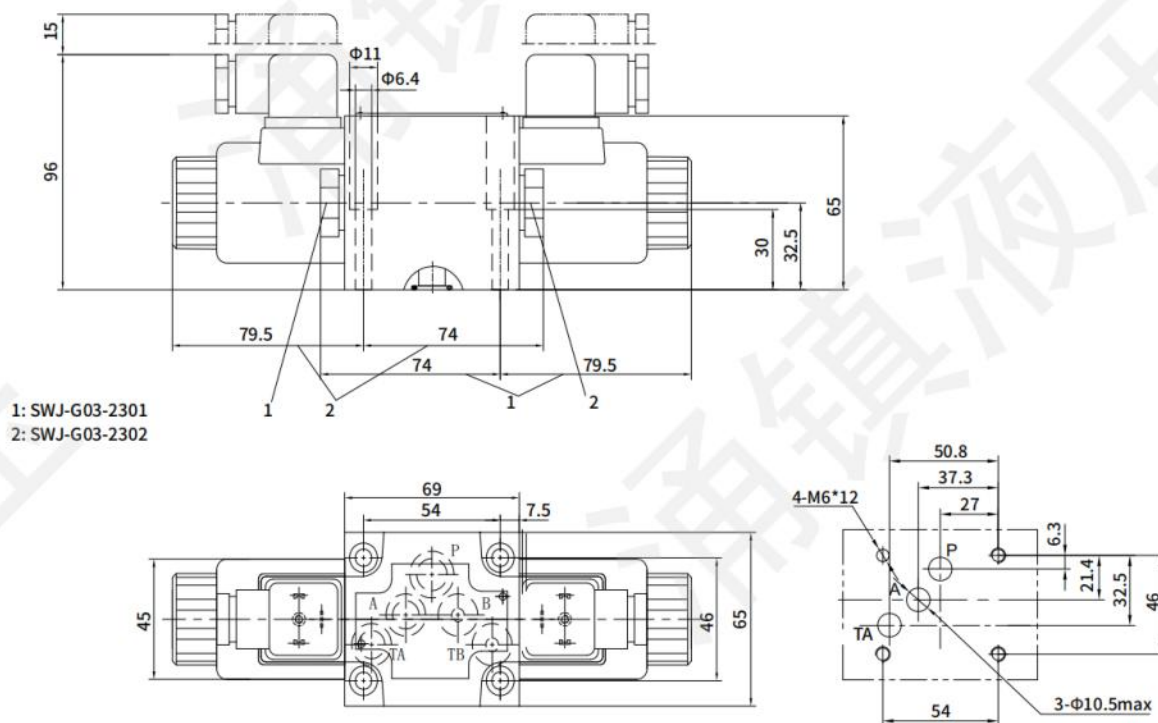
● **SWJ-G02-2402**

Units: mm



● **SWJ-G03-2301/2302**

Units: mm



SWH Series

1. Use normally open or normally closed sensors to accurately and directly detect the median and conversion position of the spool;
2. Proximity switch specifications provide PNP and NPN two options;
3. Fast reaction time, high safety factor, long life;
4. Compact structure, small shape, easy installation and wiring;
5. The "AB" detection position is suitable for both double-headed electromagnets and single-headed electromagnets.

Directional control valve

How to order

● Solenoid directional safety valve

SWH -G02 -B2 -D24 -20 -V-PM B D24 -20

G02: NG 6 solenoid directional valve
G03: NG 10 solenoid directional valve

Slide column type
(See slide column type list for details)

Coil voltage
D24: DC 24V

Solenoid valve connection mode
20: Plug-in connector with indicator light (Pg11)

Approach switch connector
10: M12 connector plug
20: DIN43650 standard plug

Approach switch voltage
D24: DC 24V

Detection position
B: Check that coil b is actuated and the spool is in place
A: Check that coil a is actuated and the spool is in place
AB: Check that the valve core is in place
O: Detects neutral reset of the spool

Approach switch type
PM: PNP type
PH: NPN type

Sealing element
Blank: Nitrile rubber
V: Fluorine rubber

● Electro-hydraulic directional safety valve

SWH -G04 -C2 -E T -D24 -20 -V-PM B D24 -20

Electro-hydraulic directional valve
H: High-pressure model

Nominal size
G04: Plate mounted, NG 16
G06: Plate mounted, NG 20

Slide column type
(See slide column type list for details)

Control type
Blank: Internal control
E: External control

Oil leakage
Blank: Internal leakage
T: External leakage

Coil voltage
D24: DC 24V

Approach switch connector
10: M12 connector plug
20: DIN43650 standard plug

Approach switch voltage
D24: DC 24V

Detection position
B: Check that coil b is actuated and the spool is in place
A: Check that coil a is actuated and the spool is in place
AB: Check that the valve core is in place
O: Detects neutral reset of the spool

Approach switch type
PM: PNP type
PH: NPN type

Sealing element
Blank: Nitrile rubber
V: Fluorine rubber

Solenoid valve connection mode
20: Plug-in connector with indicator light (Pg11)

Pressure drop characteristic curve

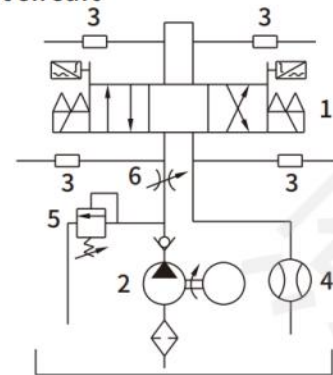
Test system

1. Test item: Solenoid directional valve
2. Pump
3. Pressure sensor
4. Flow sensor
5. Pressure valve
6. Flow valve

Test condition

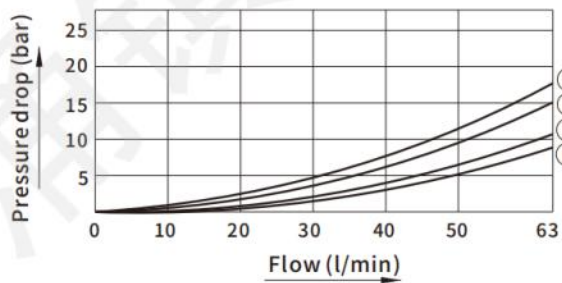
Pressure: 70bar
 Flow rate: 63 l/min(SWH-G02 series)
 120 l/min(SWH-G03 series)
 Viscosity: 35cSt
 Voltage: 100% V
 (after temperature rise and stability)

Test circuit



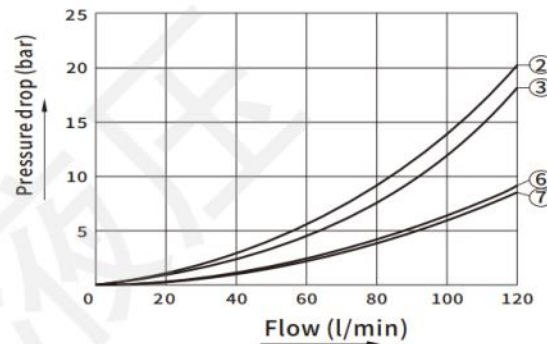
● Solenoid directional valve

SWH-G02-**-**



Model	Pressure drop curve				
	P→A	B→T	P→B	A→T	P→T
C2	5	5	5	5	-
C4	5	6	5	6	-
B2	4	5	4	5	-
B3	3	3	5	5	-

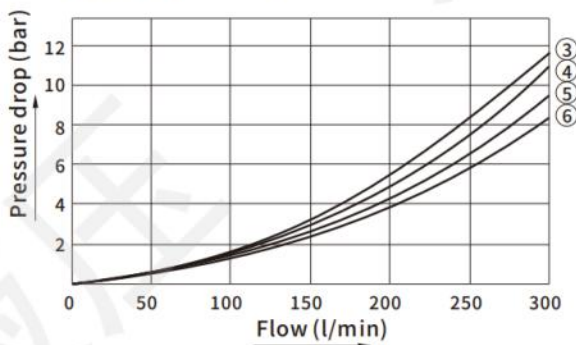
SWH-G03-**-**



Model	P→A	B→T	P→B	A→T	P→T
	C2	6	6	6	6
C4	6	7	6	7	-
B2	2	2	6	6	-
B3	3	3	6	6	-

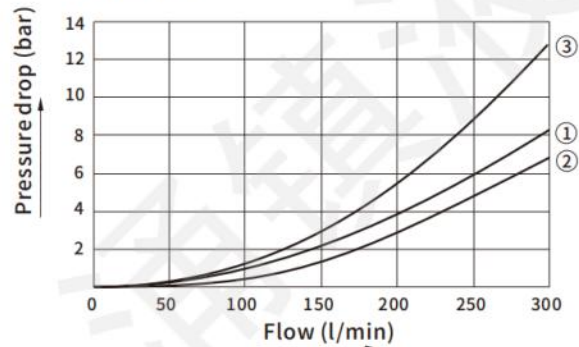
● Electro-hydraulic directional valve

SW-G04-**-**



Model	P→A	B→T	P→B	A→T
	C2	5	4	5
C4	5	3	5	5
B2	5	4	5	6
B3	5	3	5	5

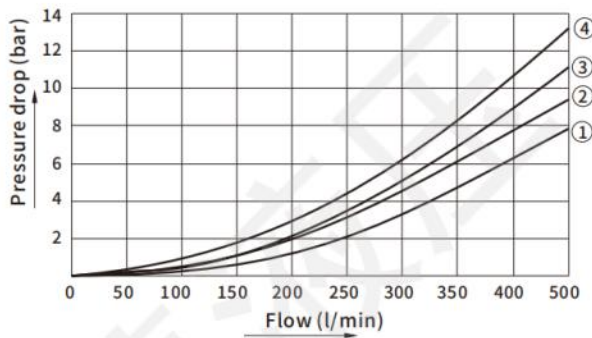
SWH-G04-**-**



Model	P→A	P→B	A→T	B→T
	C2	1	1	1
C4	1	1	3	3
B2	1	1	1	1
B3	2	2	3	3

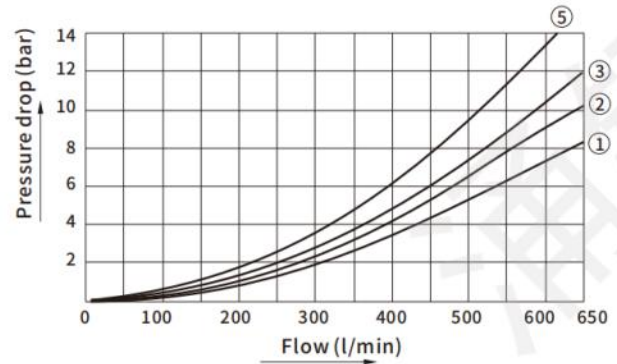
● Electro-hydraulic directional valve

SW-G06-**-**



Model	P→A	P→B	A→T	B→T
C2	2	2	1	4
C4	2	2	1	3
B2	2	2	1	4
B3	2	2	1	3

SWH-G06-**-**



Model	P→A	P→B	A→T	B→T
C2	1	1	1	3
C4	2	2	3	5
B2	1	1	1	3
B3	2	2	3	5

Directional control valve

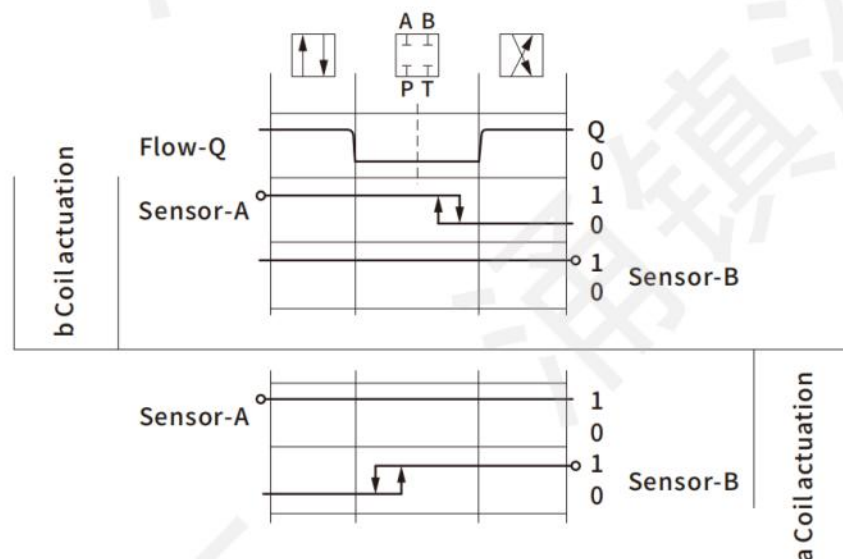
Viscosity change

Viscosity	cSt	15	20	30	40	50	60	70	80	90	100
	SSU		77	98	141	186	232	278	324	371	417
Coefficient(G')		0.81	0.87	0.96	1.03	1.09	1.14	1.19	1.23	1.27	1.30

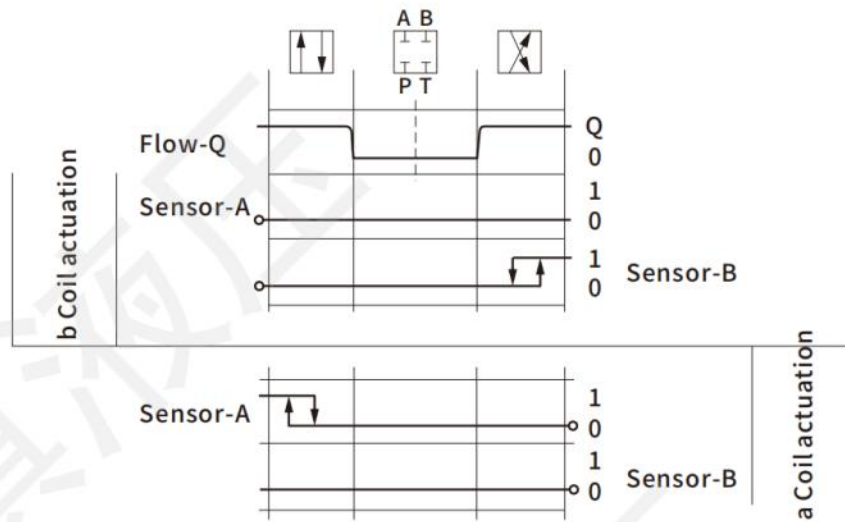
Note: For other specific gravity (G'), the pressure drop can be calculated by the formula $\Delta p' = \Delta p(G'/0.85)$

Actuation diagram

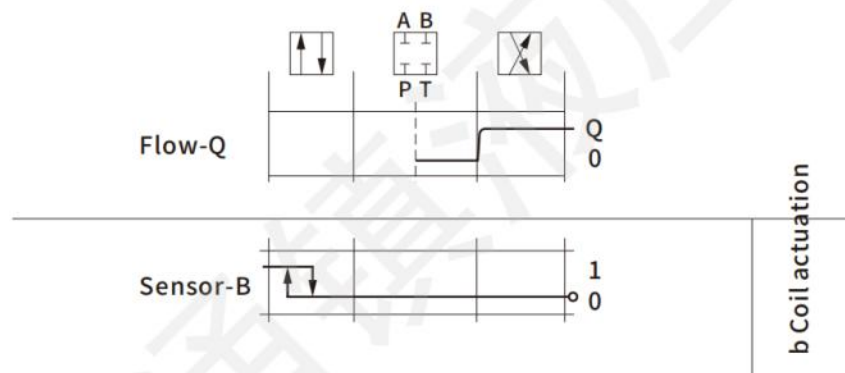
● PM/PH O D24-20



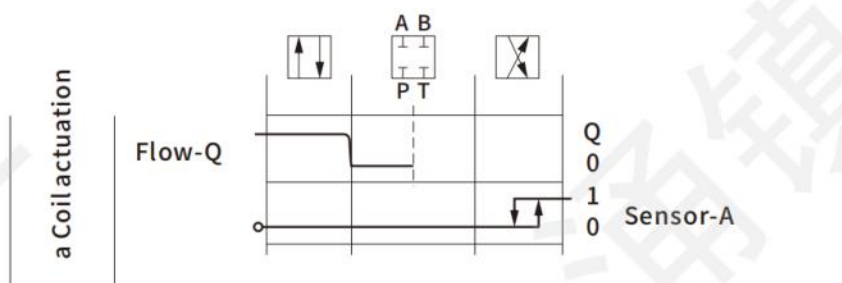
● PM/PH AB D24-20



● PM/PH B D24-20



● PM/PH A D24-20



Electrical diagram

PM/PH-20 Position detector, electrical wiring diagram.

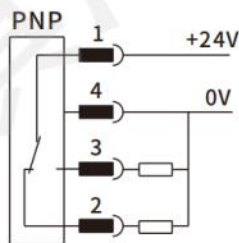
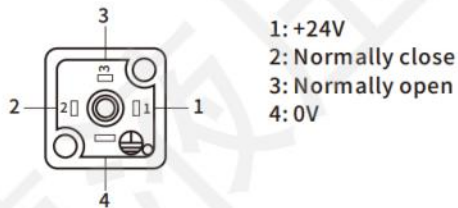
DIN 43650

plug connection diagram



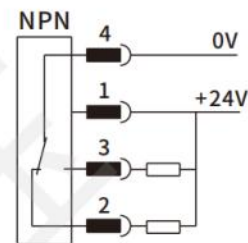
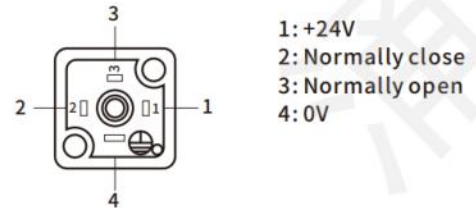
PM*D24-*(PNP type)

Line position of inductive switch



PH*D24-*(NPN type)

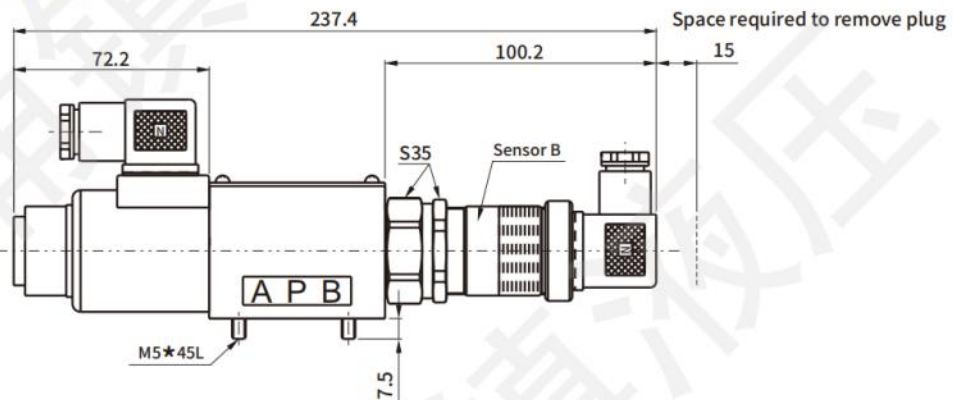
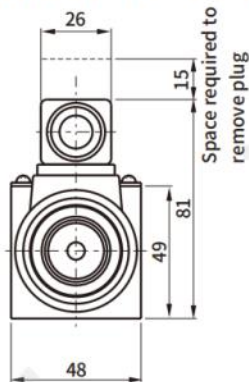
Line position of inductive switch



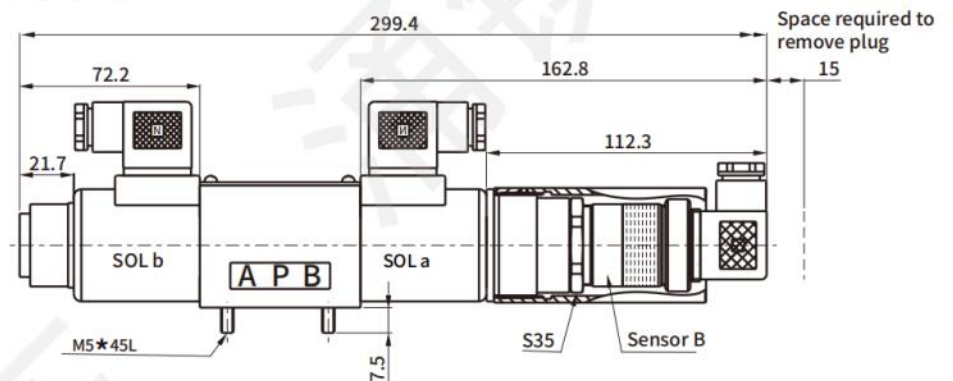
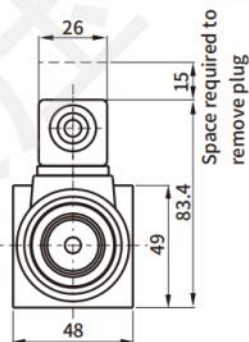
Note: The insert position marked in 4 is connected to 0V voltage and cannot be grounded.

Dimensions

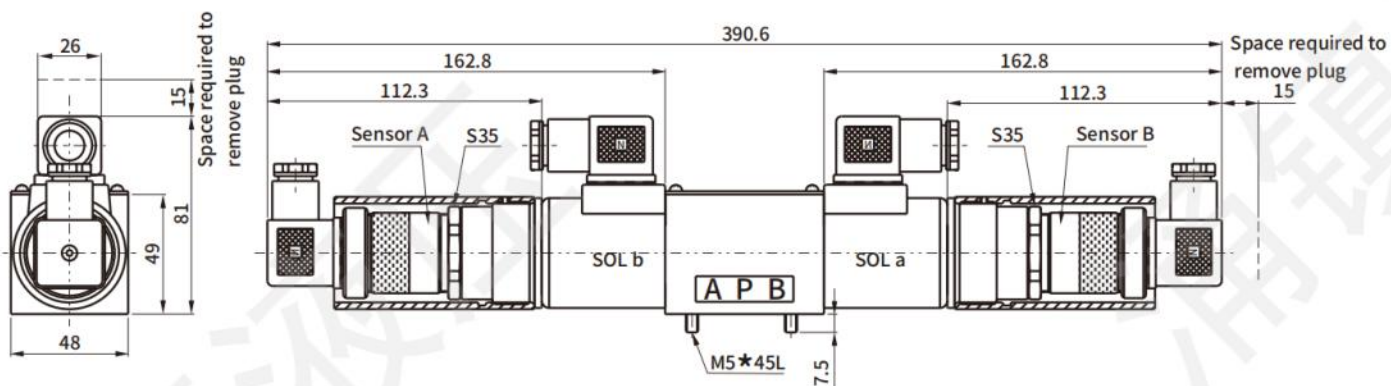
SWH-G02-B*-D24-20-P*BD24-20



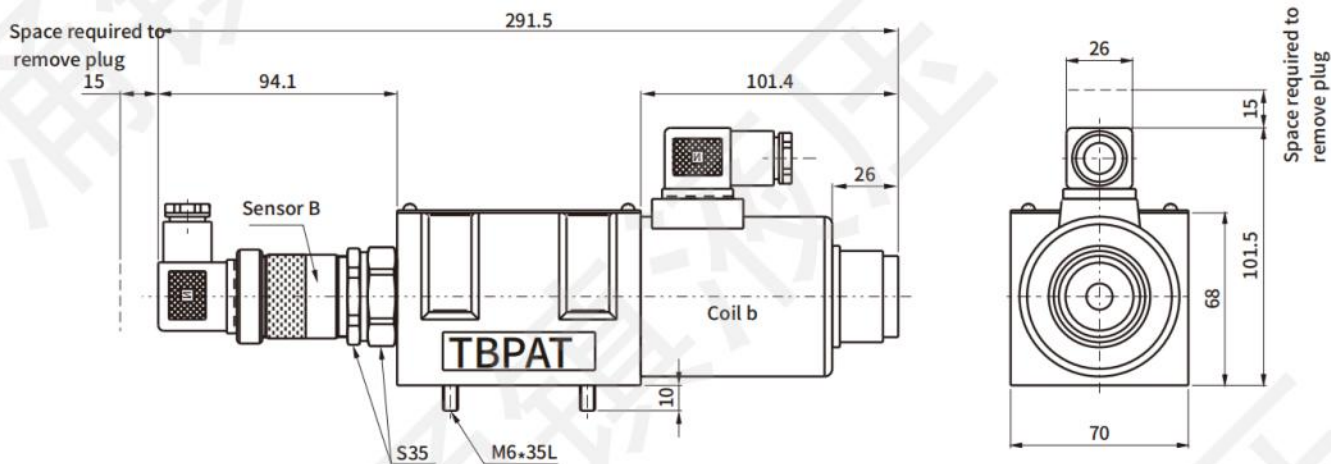
SWH-G02-C*-D24-20-P*BD24-20



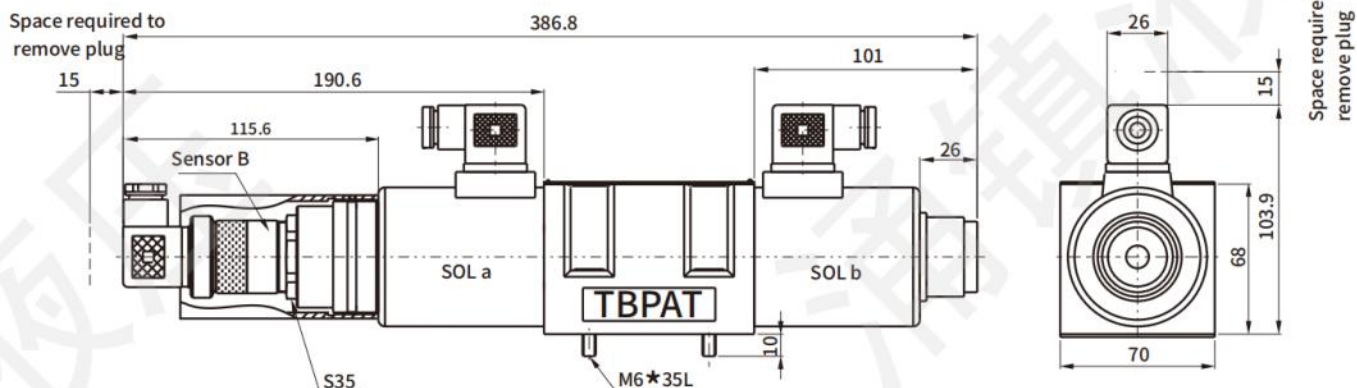
● **SWH-G02-C*-D24-20-P*O(AB)D24-20**



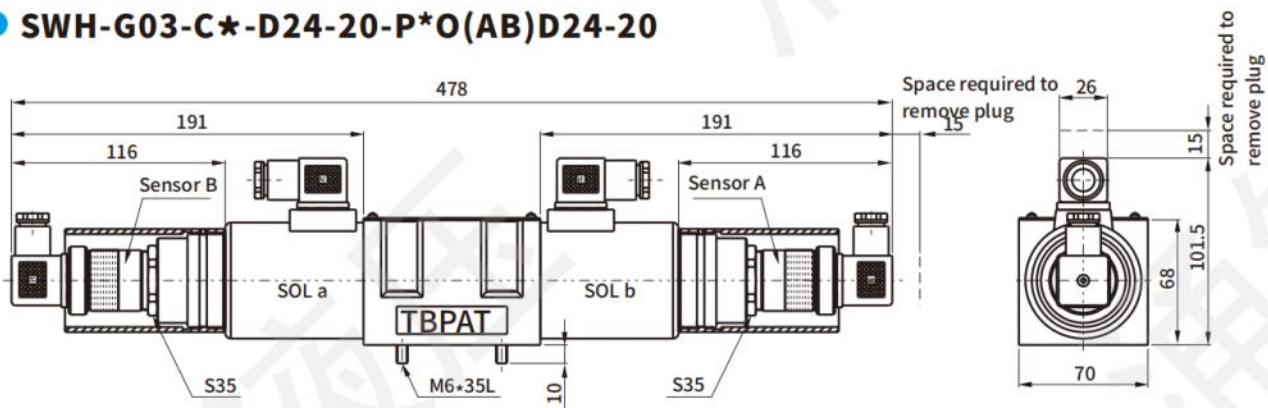
● **SWH-G03-B*-D24-20-P*BD24-20**



● **SWH-G03-C*-D24-20-P*BD24-20**

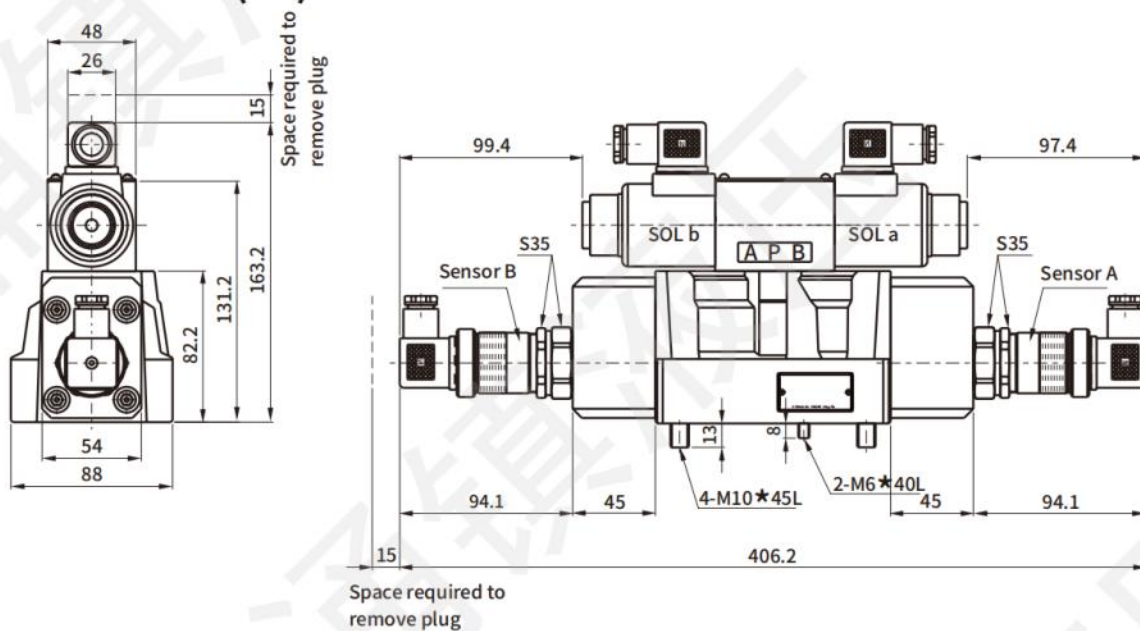


● **SWH-G03-C★-D24-20-P*O(AB)D24-20**

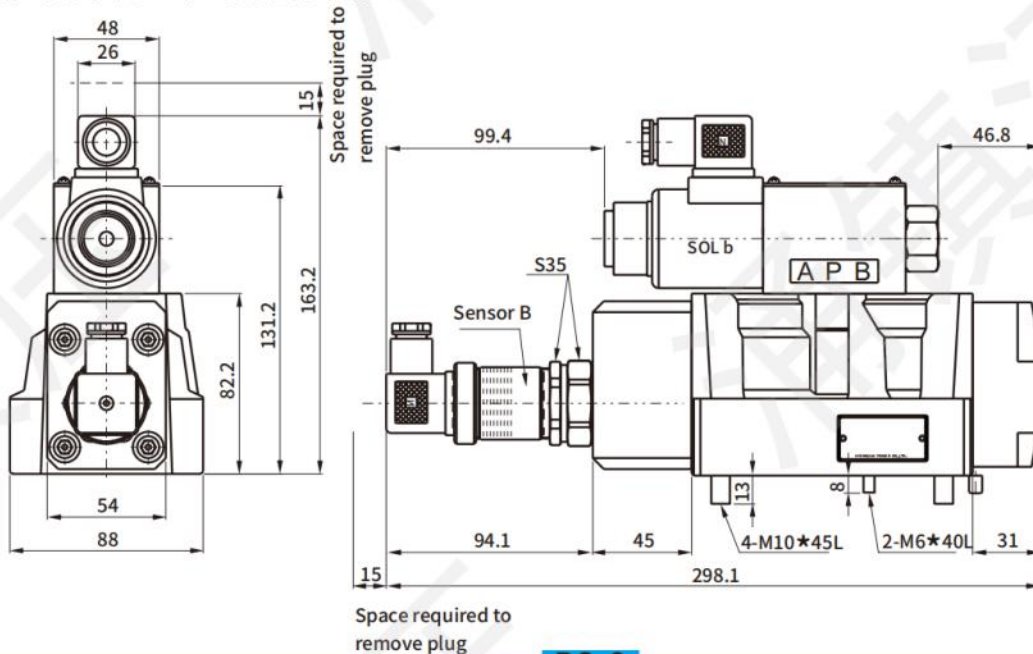


Directional control valve

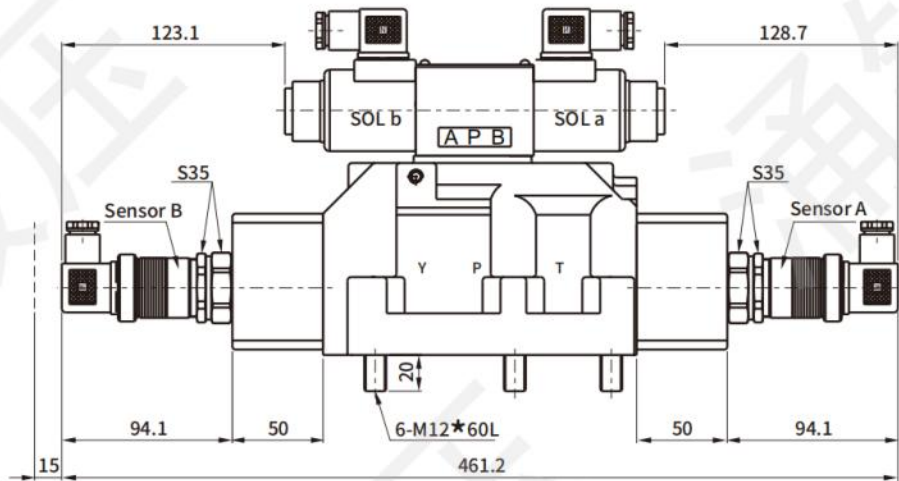
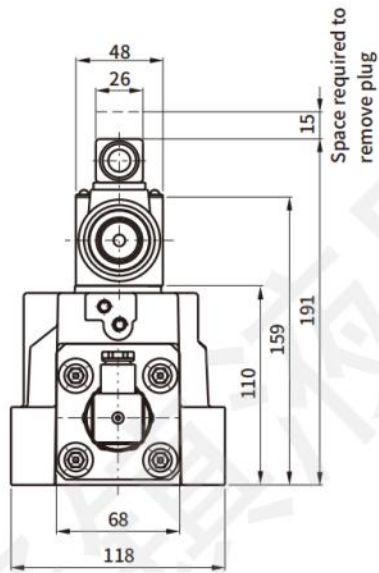
● **SW-G04-C★-P*O(AB)D24-20**



● **SW-G04-B★-P*BD24-20**

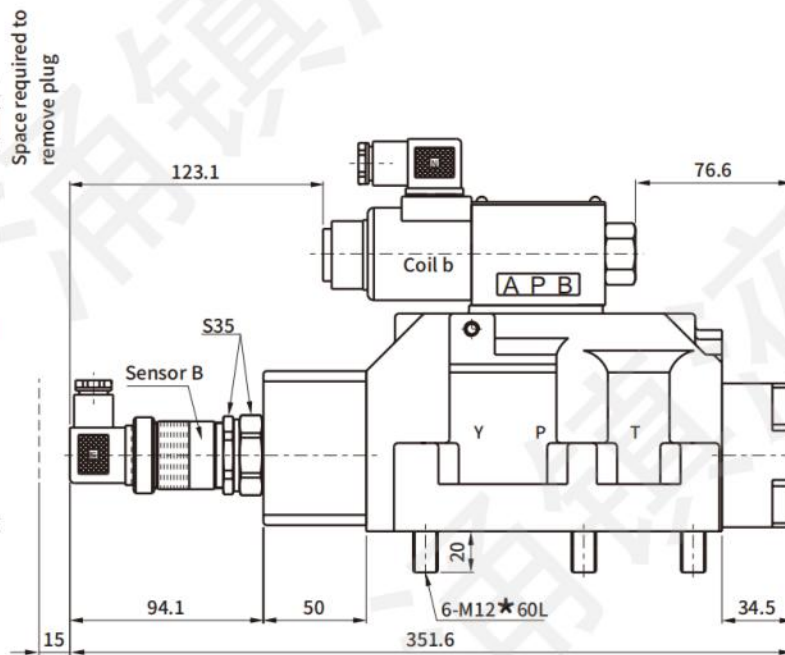
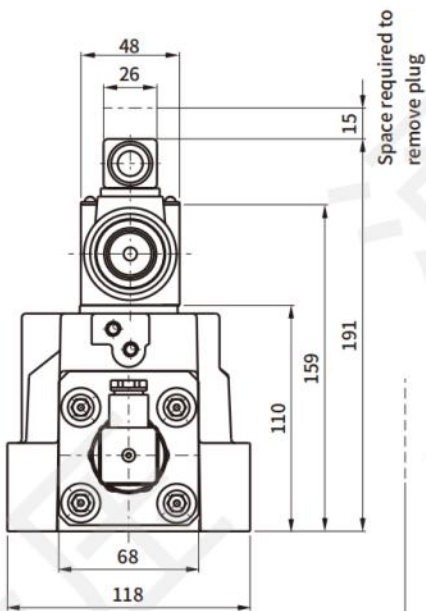


● SW-G06-C*-P* O(AB) D24-20



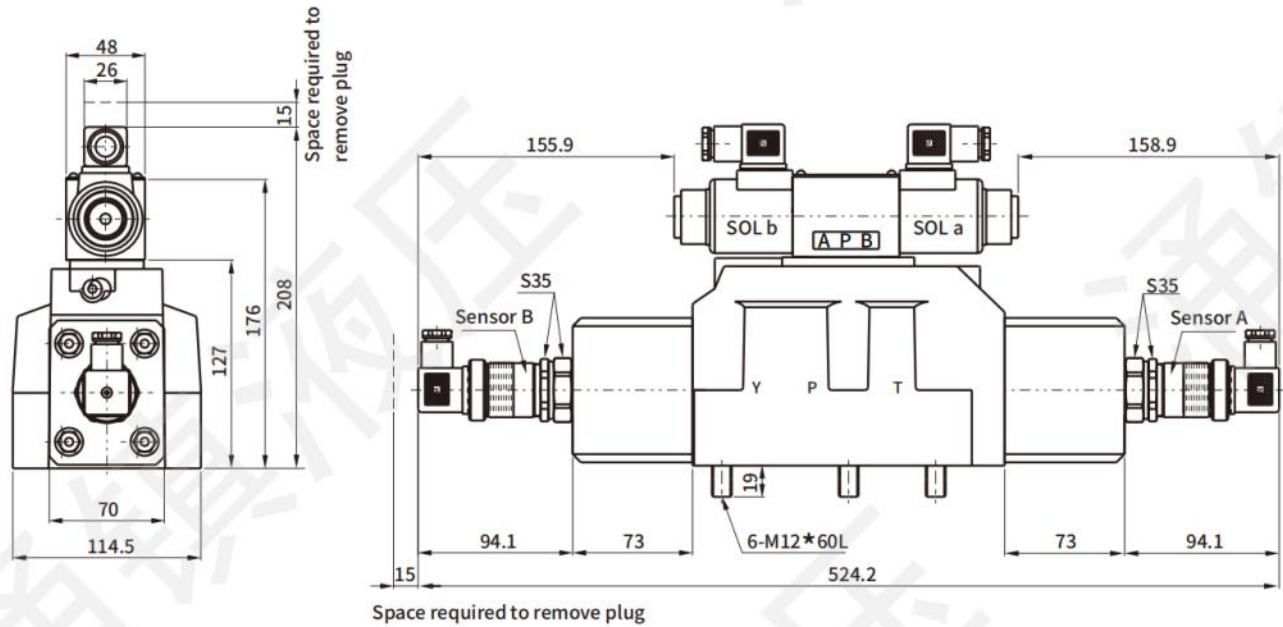
Directional control valve

● SW-G06-B*-P* BD24-20

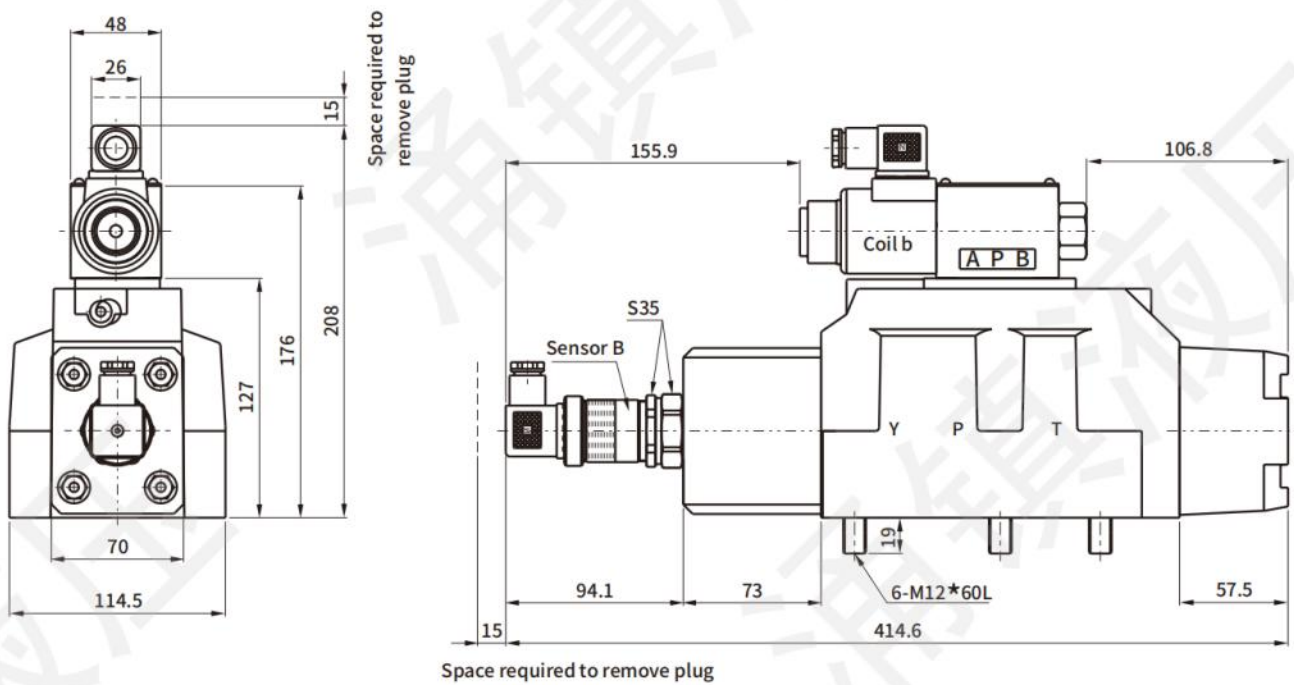


Space required to remove plug

● SWH-G06-C*-P* O(AB) D24-20



● SWH-G06-B*-P* BD24-20



LSV Series

LSV series safety valve is mainly for plastic machinery and die casting machinery industry development, its role is to ensure that the equipment in the case of safety doors closed, it can operate normally and avoid improper operation when the operator is not closed, which may cause personal injury and equipment damage.



LSV*A



LSV*ZE/ZF



LSV*W

How to order

LSV 16 A 10 -V -PM D24 -20

Two-way cartridge safety valve with position detection

Nominal size

16: NG16; 25: NG25
32: NG32; 40: NG40;
50: NG50;

Function model

(See the list below for details)

Starting pressure

10:1.0bar; 20:2.0bar
40:4.0bar

Approach switch connector

10:M12 connector plug
20:DIN43650 standard plug

Approach switch voltage

D24: DC24V

Approach switch type

PM: PNP type

PH: NPN type

Sealing element

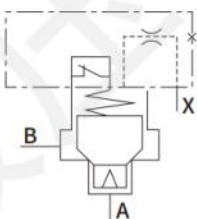
Blank: Nitrile rubber

V: Fluorine rubber

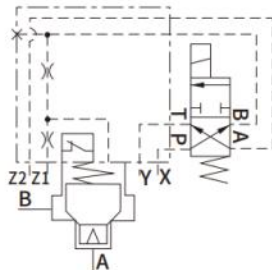
Function model

Standard

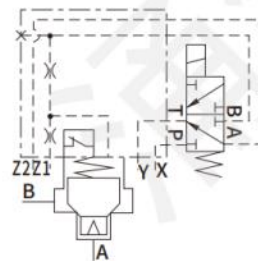
LSV*A



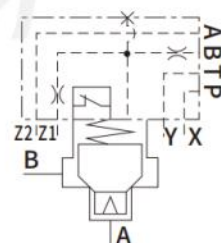
LSV*B



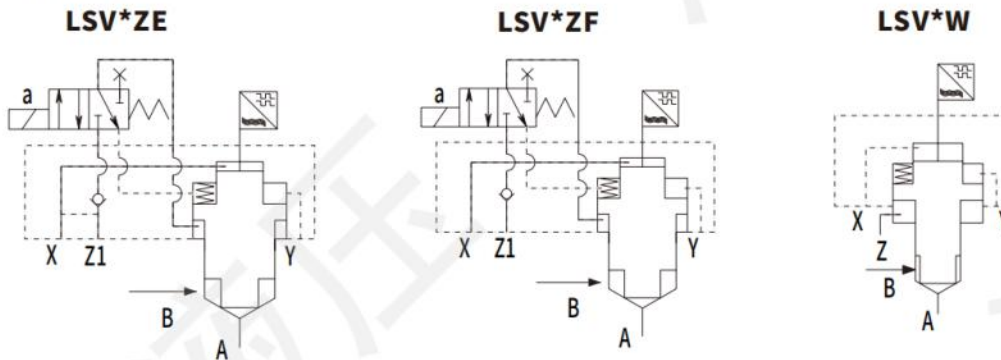
LSV*C



LSV*D



Active



Directional control valve

● Specification

Type	Model	Max. pressure (bar)	Max. flow (l/min)	Starting pressure (bar)	Area ratio Aa:Bb	Voltage/Max. output load (V/mA)	With pilot solenoid directional valve (V)	Mounting cavity
Standard	LSV16A**	320	130	10: 1 bar 20: 2 bar 40: 4 bar	1.53: 1	24/400	--	ISO 7368
	LSV25A**		350		1.93: 1			
	LSV32A**		500		1.61: 1			
	LSV40A**		850		1.56: 1			
	LSV50A**		1400		1.67: 1			
Active	LSV16ZE/ZF**	320	130	40: 4 bar	2.27: 1	24/400	DC24	ISO 7368
	LSV25ZE/ZF**		350		1.93: 1			
	LSV32ZE/ZF**		500		1.61: 1			
	LSV40ZE/ZF**		850		1.56: 1			
	LSV50ZE/ZF**		1400		1.67: 1			
Active	LSV16W**	320	80	40: 4 bar	6.26: 1	24/400	--	W Dedicated cavity
	LSV25W**		270		8.76: 1			
	LSV32W**		400		7.38: 1			
	LSV40W**		650		10.26: 1			

Appliances diagram

● PM/PH-10 Approach switch, electrical wiring signal

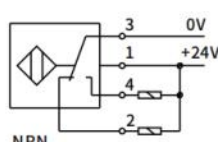
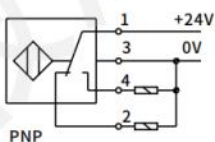
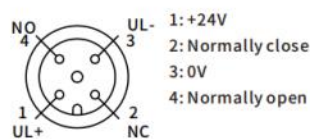
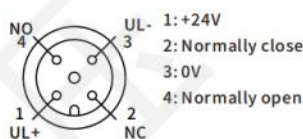
M12 connector plug connection diagram

PMD24-10(PNP type)

PHD24-10(NPN type)

Line position of approach switch

Line position of approach switch



Note: Pin 3 is connected to 0V voltage and cannot be grounded.

● PM/PH-20 Approach switch, electrical wiring signal

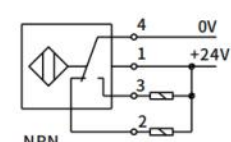
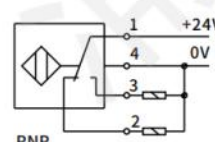
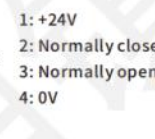
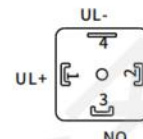
DIN 43650 standard plug connection diagram

PMD24-20(PNP type)

PHD24-20(NPNT type)

Line position of approach switch

Line position of approach switch



Note: PIN4 is connected to 0V voltage and cannot be grounded.

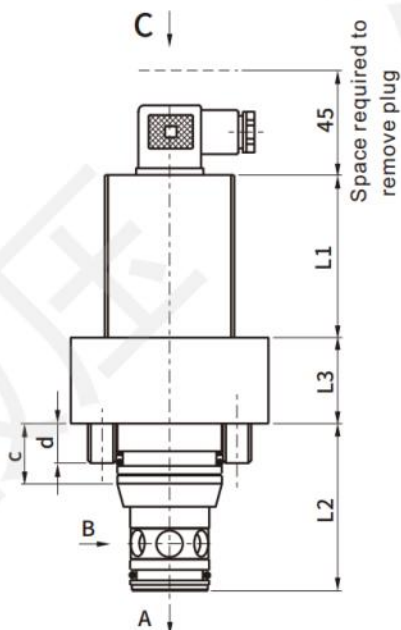
Structure

Model	LSV*A*-20	LSV*ZE*-20	LSV*ZF*-20	LSV*W*-20
Structure				
Hydraulic symbols				

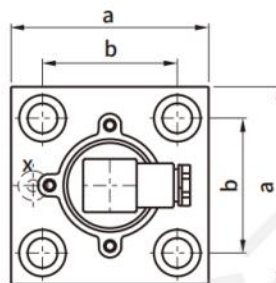
Directional control valve

Dimensions

- Standard: LSV*A*-20 (ISO 7368 Mounting cavity)



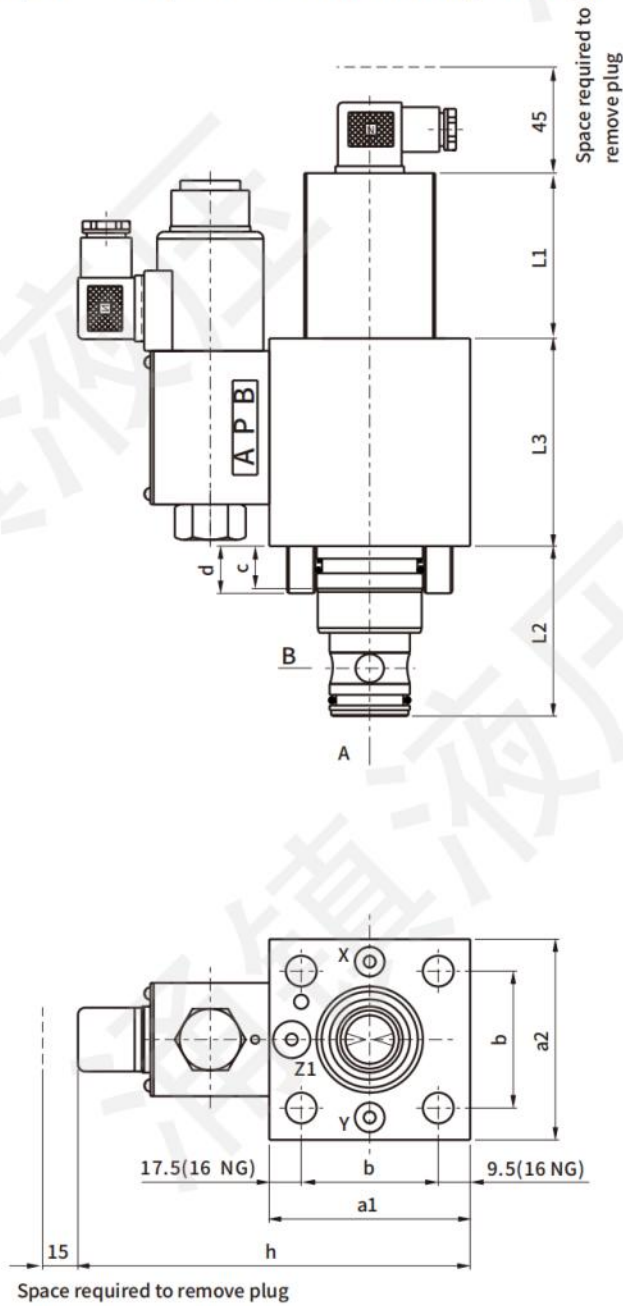
C section view



Size	L1	L2	L3	a	b	c	d	Mounting screws	Tightening torque(N.M)
LSV-16A	70	56	57	65	46	10.5	13	4-M8*55	33
LSV-25A	70	72	37	85	58	26	17	4-M12*40	115
LSV-32A	70	85	40	102	70	26	21	4-M16*45	281
LSV-40A	70	105	50	125	85	30	26	4-M20*55	553
LSV-50A	70	122	60	140	100	32	32	4-M20*70	553

Mounting screws (included in the scope of supply)

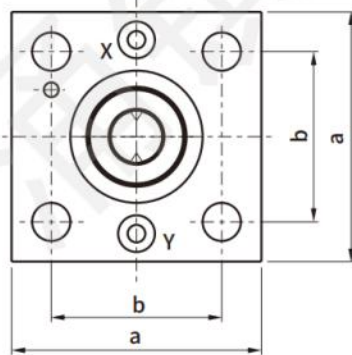
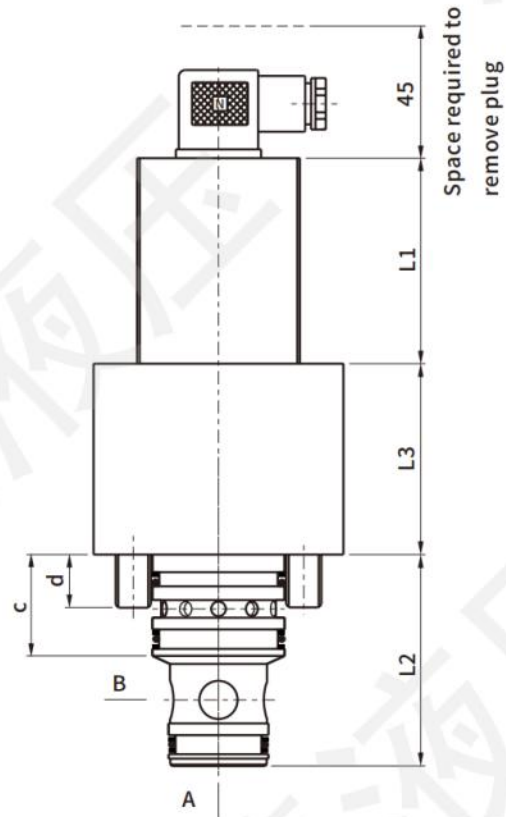
● Active: LSV*ZE/ZF-*-20(ISO 7368 Mounting cavity)



Size	L1	L2	L3	a1	a2	b	c	d	h	Mounting screws	Tightening torque(N.M)
LSV16ZE/ZF	70	56	78	73	65	46	16.3	12	154	4-M8*70	33
LSV25ZE/ZF	70	72	88	85	85	58	18	20	166	4-M12*95	115
LSV32ZE/ZF	70	85	108	102	102	70	16.9	24	183	4-M16*115	281
LSV40ZE/ZF	70	105	119	125	125	85	27.5	32	206	4-M20*130	553
LSV50ZE/ZF	70	122	125.5	140	140	100	29	32	221	4-M20*135	553

Mounting screws (included in the scope of supply)

● Active: LSV*W-*-20(W Dedicated cavity)



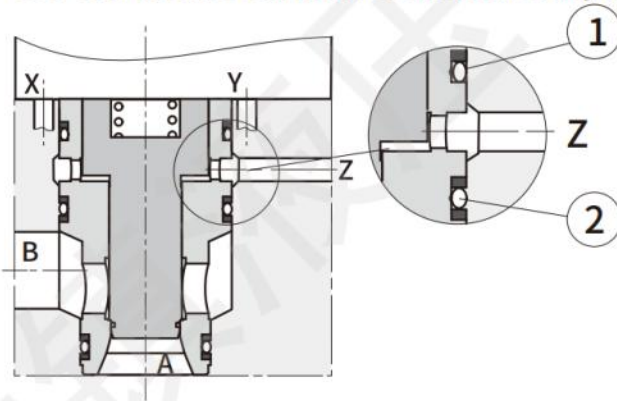
Size	L1	L2	L3	a	b	c	d	Mounting screws	Tightening torque(N.M)
LSV16W	70	56	55	65	46	24.5	15	4-M8*40	33
LSV25W	70	72	65	85	58	34.5	18	4-M12*70	115
LSV32W	70	85	70	102	70	36.6	25	4-M16*85	281
LSV40W	70	105	85	125	85	45	36	4-M20*90	553

Mounting screws (included in the scope of supply)

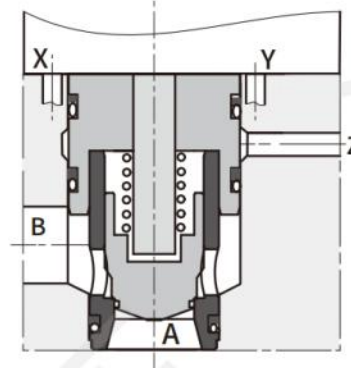
Mounting cavity

● W Dedicated cavity hole installation

LSV*W is installed in the W dedicated cavity hole

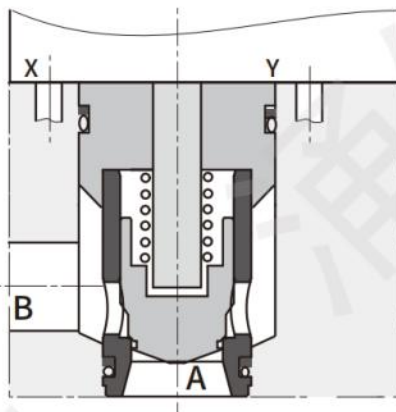


LSV*ZE is installed in the W dedicated cavity hole

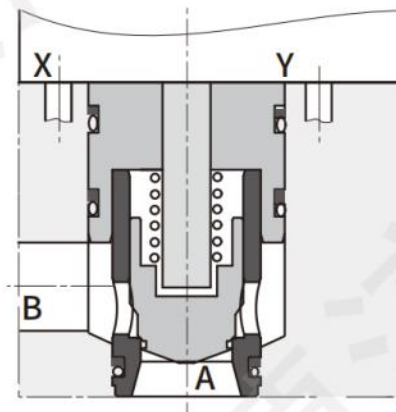


● ISO 7368 cavity hole installation

LSV*A is installed with ISO cavity hole



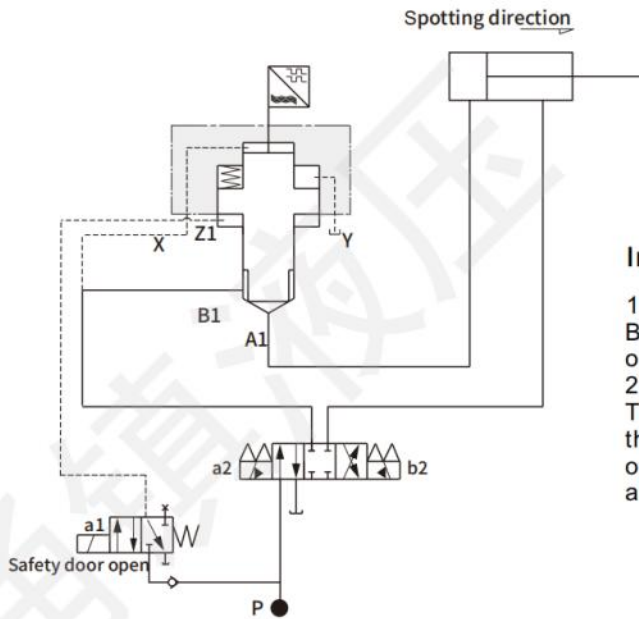
LSV*ZE is installed with ISO cavity hole



Based on the above installation diagram:

1. LSV*W type can only be installed in special non-ISO cavity holes. Z-guide holes in non-ISO cavity holes must have -1 and -2 seals. A guide groove must be machined between the installation position of sealing ring 1 and sealing ring 2 to avoid damage to the installation of sealing ring 2.
2. In non-ISO internal machining guide grooves, special forming tools are required.
3. LSV*ZE can be used in non-ISO cavity holes to replace LSV*W valves. It can also be used in ISO cavity holes to facilitate the processing of integrated oil circuit blocks.

Application



Instruction of active type

1. State of electromagnet a1 before power transmission: B1 and X cavity are connected, the two-way spool cannot be opened, and the mold closing cylinder cannot be closed.
2. After electromagnet a1 is powered: The pressure in the P chamber reaches the Z1 chamber through the check valve, and the two-way spool is forced to open. The pressure source is from B1 to A1, and the mold closing cylinder is carried out.

Directional control valve

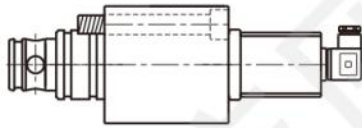
Position detector parameter

● Position detector

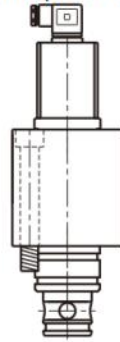
Installation mode	Sensing position adjustable type	
Level of protection	IEC1P65	
Operating frequency	500Hz	
Static current	<10mA	
Dynamic current	<10mA	
Return difference	0~0.1mm	
Supply voltage	DC10~30V	
Load current	≤400mA	
No-load current	≤15mA	
Output leakage current	<0.1mA	
Pressure drop	≤3.0VDC	
Temperature effect	In the temperature range of -25~+70°C, the detection distance of +25°C is less than ±20%.	
Voltage effect	Within 10% of the rated power supply voltage, the detection distance of the rated power supply voltage is less than ±2.5%.	
Ambient humidity	45~85%RH	
Circuit protection	Positive and negative reverse polarity protection	With
	Short circuit protection	With
	Zener protection	With
Connection mode	M12 Socket type	
Operating temperature	-25~+80°C	
Insulation class of enamelled wire	F (150°C)	
Voltage resistant insulation class	500VDC <1μA	

● Installation method

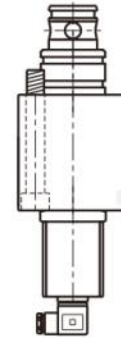
Install the two-way cartridge safety valve with position detection.
The cartridge valve cannot be installed upside down (as shown in the following figure).



Correct installation

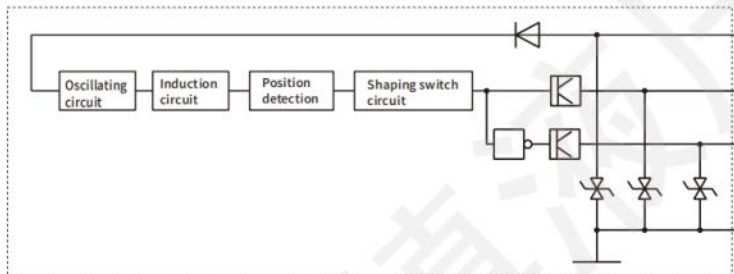


Correct installation



Misinstallation

● Position detector circuit diagram



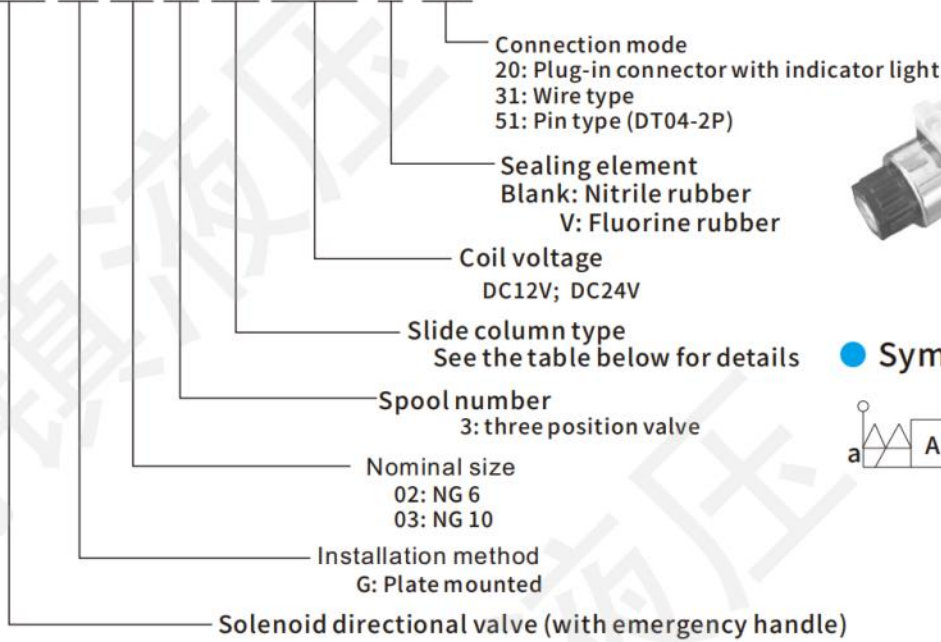
● Switching signal

Valve travel		Cone valve
Leakage		
Signal		A: Switching range A+B: Over lap C: Microthrottle range

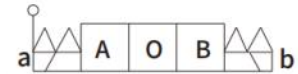
SWD-G02 Series

How to order

SWD - G 02 - 3 C2 - D24 - V - 20



Symbol



Slide column type

C2	C3	C4	C6

Note: For other specifications, please consult the technical department.

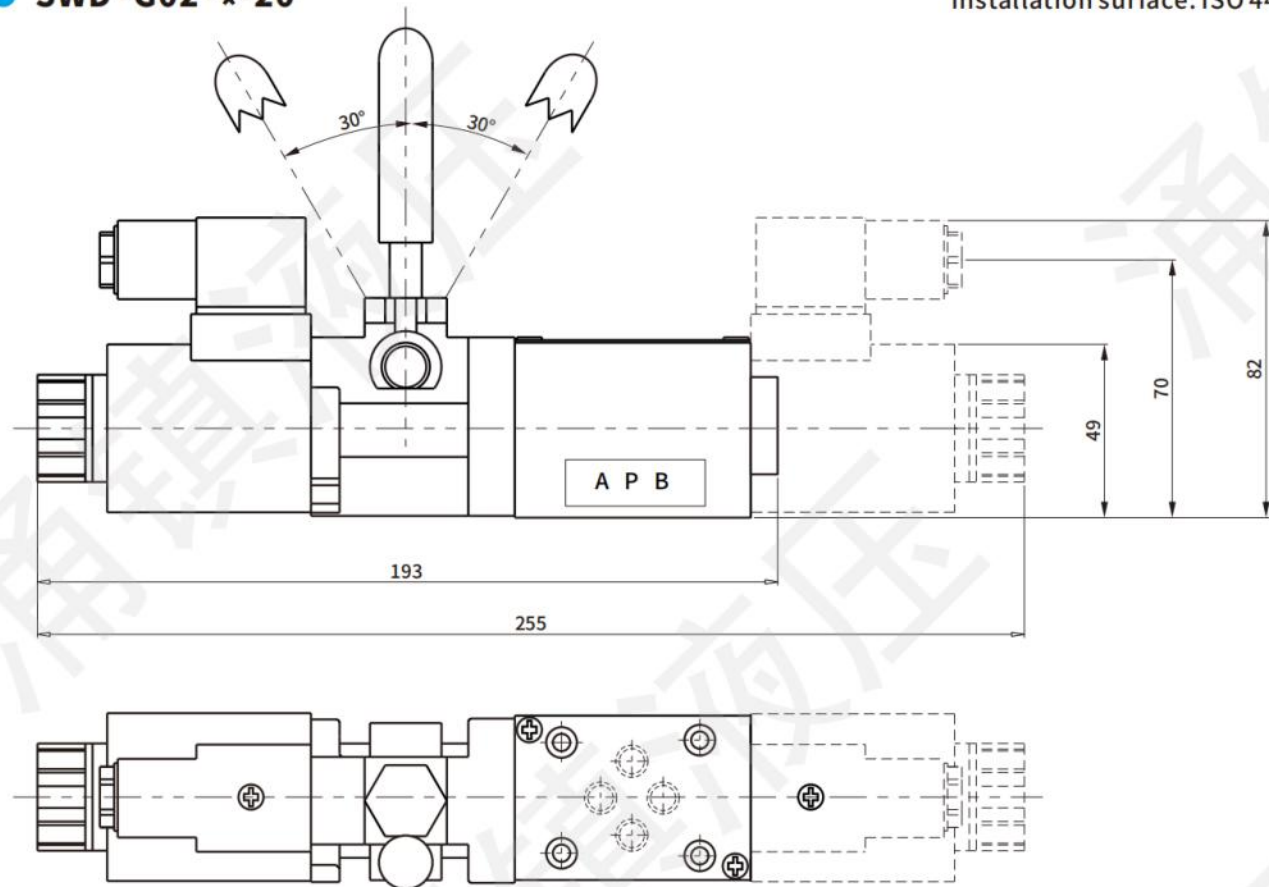
Specification

Model	Max. pressure (bar)	Max. flow (L/min)
SWD-G02-**	350	60
SWD-G03-**	350	120

Dimensions

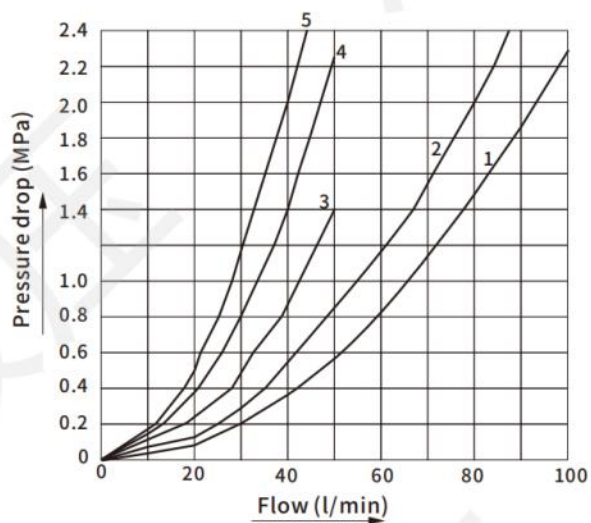
● SWD -G02 -*-20

Installation surface: ISO 4401-AB-03-4-A



Characteristic curve

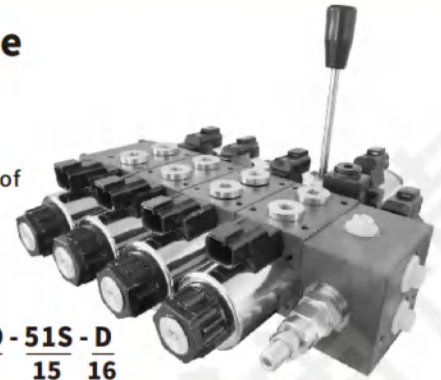
● Pressure loss characteristic



Action mode	P→A	P→B	A→T	B→T	P→T
C2	2	2	2	2	-
C3	1	1	1	1	1
C4	2	2	1	1	-
C6	5	5	4	4	3

SWS/SWSD Solenoid sectional directional valve

1. Modular design, can customize the fuel supply link
2. Optional emergency handle to assist operation
3. According to customer needs, increase the functions of pressure holding, throttling, overflow and so on
4. The principle of MSWS series electromagnetic multiway valve is the same as that of SWS series, the difference is that MSWS series integrates pressure holding and throttling functions



Directional control valve

How to order

1Unit
2Units

SWS / 2 - T02 - A3 - B / C2 - A - C1 / C4 - A - C1 / 2 / M1 / D24 - FBC - V - NO - 51S - D
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

1	Specification	SWS-T02	Solenoid sectional directional valve
		SWSD-T02	Solenoid sectional directional valve (with emergency handle)
		MSWS-T02	Solenoid sectional directional valve (integrated)
2	Number of spools	2	1-7units optional
3	Nominal size	T02	NG 6
4	Main safety valve	Blank	No main safety valve
		A*	Safety valve is on A side, A1:70bar, A2:160bar, A3:250bar, A4:315bar
		B*	Safety valve is on B side, B1:70bar, B2:160bar, B3:250bar, B4:315bar
5	Oil circuit connection mode	B	Parallel
		C	Series
		BC	Series and parallel
6	Spool function	See slide function table for details	
7	Emergency handle direction	Blank	No emergency handle
		A	On the A side of the body (only for B2 function option)
		B	On the B side of the body (only for B2S function option)
8	Additional function	Blank	No additional functions
		C1	A oil port with hydraulic lock
		C2	B oil port with hydraulic lock
		C3	AB oil port with hydraulic lock
		T1	A oil port with inlet throttle
		T2	B oil port with inlet throttle
		T3	AB oil port with inlet throttle
		A*	A oil port pressure regulation, with three digits to represent the pressure value, unit: bar
		B*	B oil port pressure regulation, with three digits to represent the pressure value, unit: bar
AB*	AB oil port pressure regulation, with three digits to represent the pressure value, unit: bar		
9	Oil port position	1	P/T on the side, same side, A/B up (standard)
		2	P/T on the same side, P/T/A/B up
		3	P/T on the side, different sides, A/B up
		4	P/T on different sides, P/T/A/B up
10	Specification of oil thread	G1	The P/T/A/B oil port thread is G3/8
		G2	The P/T oil port thread is G1/2 and the AB oil port thread is G3/8
		M1	P/T port thread M22, A/B port thread M18
11	Coil voltage	D12	DC12V
		D24	DC24V
		GD12	DC14V
		GD24	DC28V
12	Explosion	Blank	No explosion proof requirement
		FBC	Exd II C T4
13	Sealing element	Blank	Nitrile rubber
		V	Fluororubber
14	Solenoid unloading valve	Blank	No solenoid unloading valve
		NC	Normally closed
		NO	Normally open
15	Mode of connection	20S	DIN43650
		51S	DT04-2P
16	Mounting	Blank	Right-angle mounting
		D	Bottom mounting

Slide column function

Type	SWS Hydraulic symbols	SWSD Hydraulic symbols
Three-position Spring centered	C2	C2
	C4	C4
Two-position Spring return	B2	B2
	B2S	B2S
Two-position Mechanical positioning	D2	D2

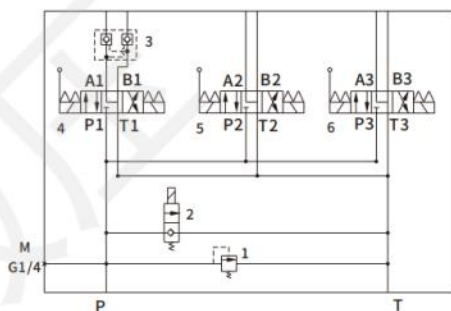
Solenoid valve technical parameters

Model	Rated pressure (bar)	Max. flow (l/min)	Voltage	Allowable voltage variation range	Protection level
SWS/SWSD-T02	315	40	DC 12 DC 24	±10%	IP 67 (51S)
MSWS-T02	315	80	GD 12 GD 24		
Operating temperature	-40~120°C				
Degree of contamination	NAS1638 level 9 or ISO4406 level 20/18/15				
Oil	Petroleum-based liquids or synthetic liquids with lubricating components have a viscosity range of 7.4 to 420 cSt				

Apply thread specification

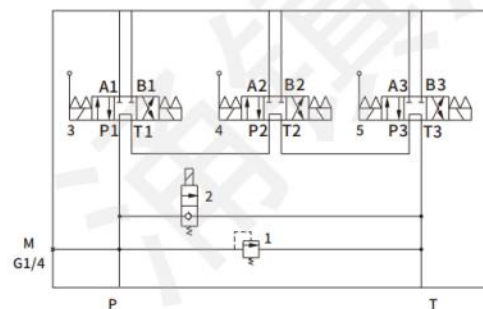
Model	P	A/B	T	M
SWS/SWSD-T02	G3/8	G3/8	G3/8	G1/4
	G1/2	G3/8	G1/2	G1/4
MSWS-T02	M22	M18	M22	M14

Principle of parallel oil circuit



1. Relief valve
2. Electromagnetic pressure relief valve
3. Hydraulic control check valve
- 4/5/6. Solenoid directional valve with auxiliary handle.

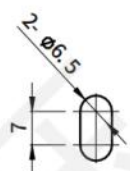
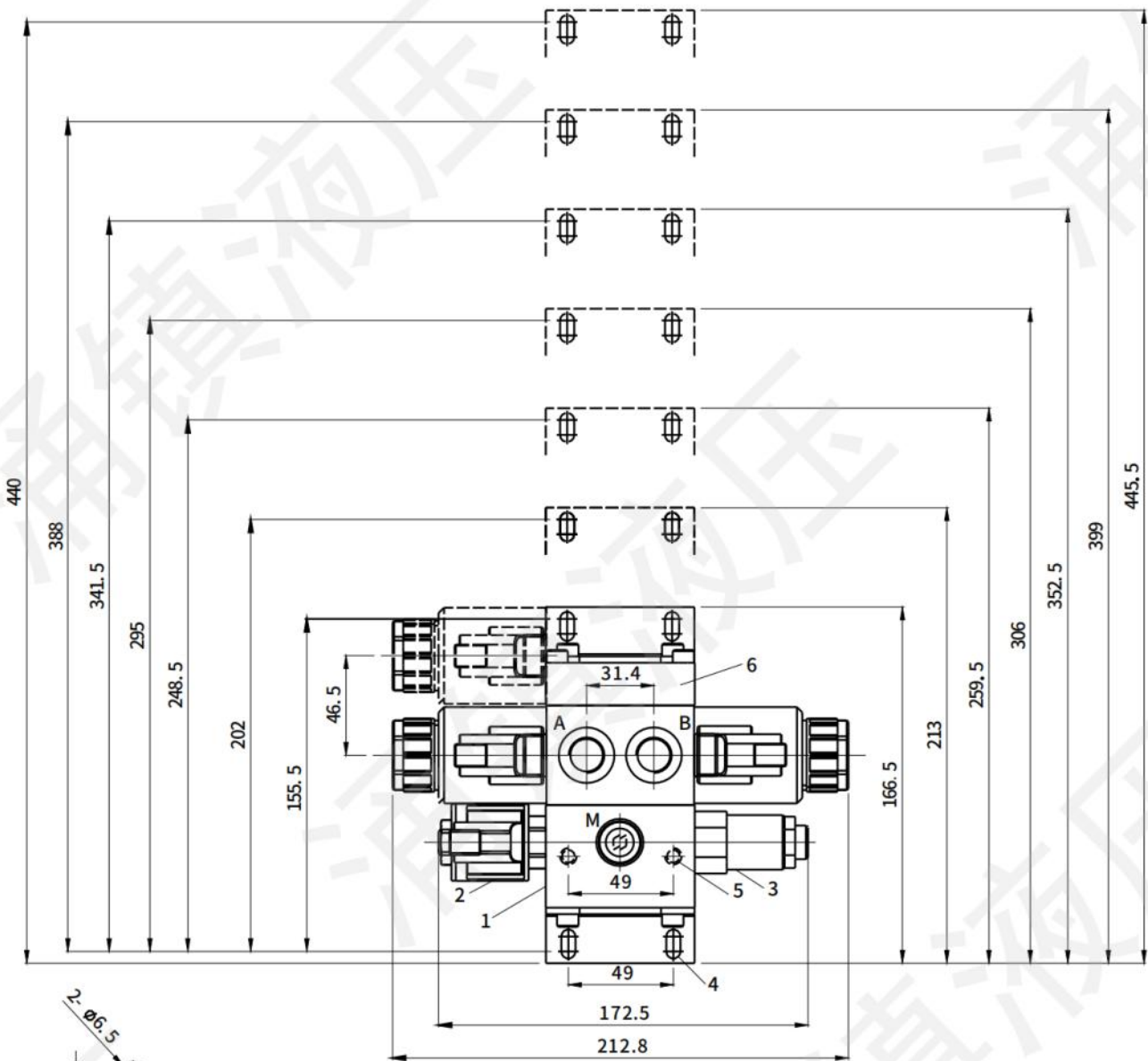
Principle of series oil circuit



1. Relief valve
2. Electromagnetic pressure relief valve
- 3/4/5. Solenoid directional valve with auxiliary handle.

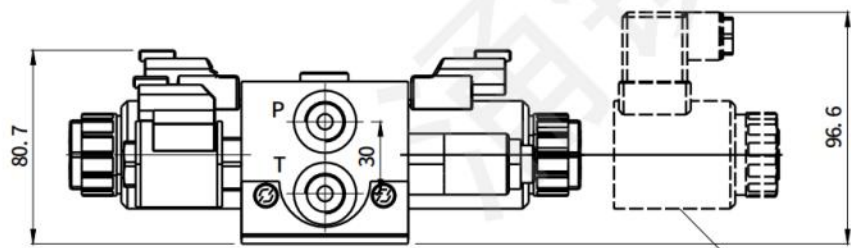
Dimensions

● SWS/2-T02-*-20-*



Mounting hole size (2:1)

- 1. Oil inlet unit
- 2. Electromagnetic pressure relief valve (optional)
- 3. Relief valve (optional)
- 4. Right Angle mounting (M6)
- 5. Bottom mounting (M6)(optional)
- 6. Tail cover

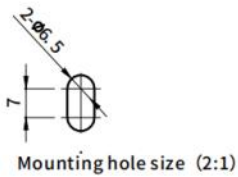
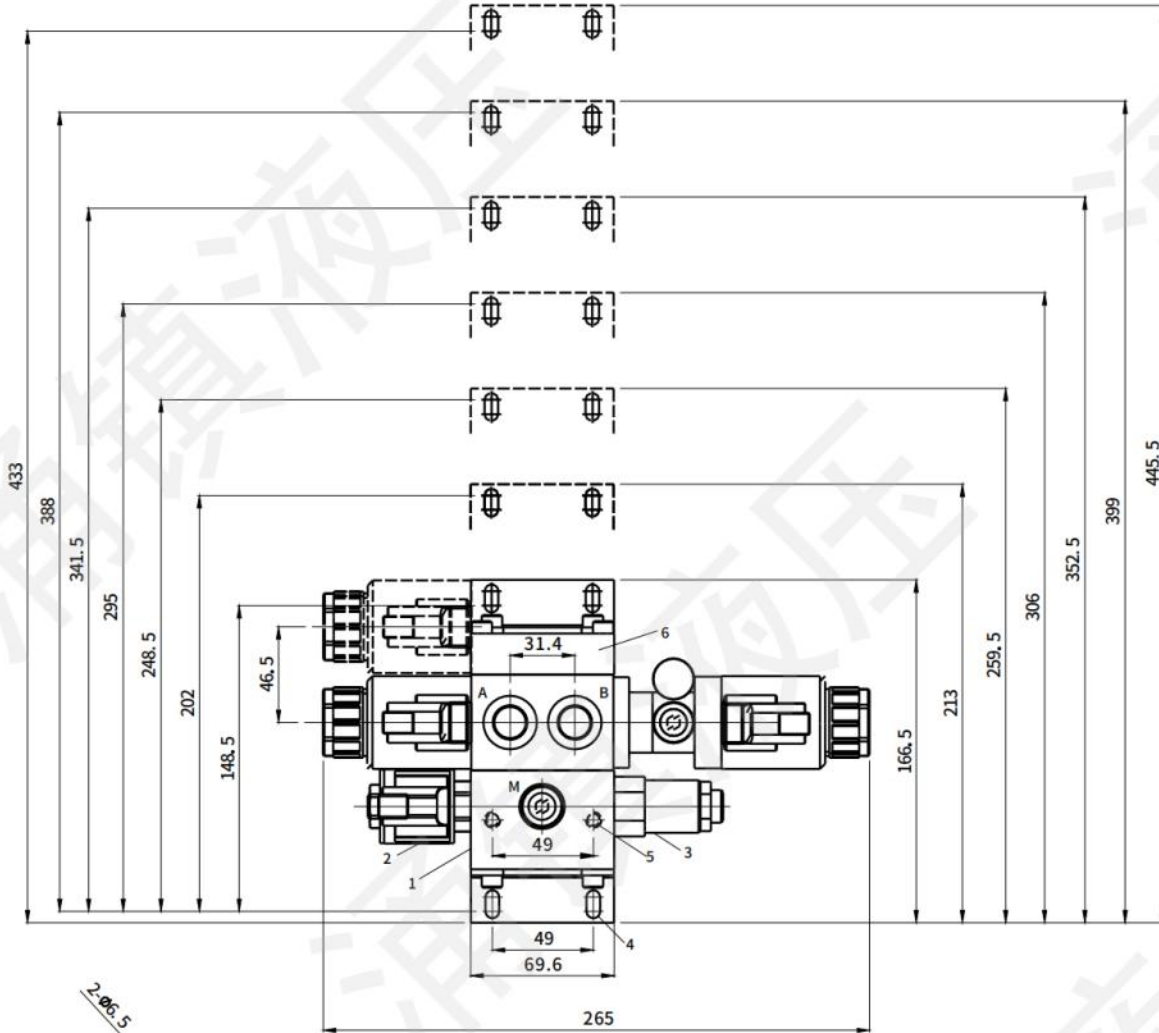


20S Plug socket

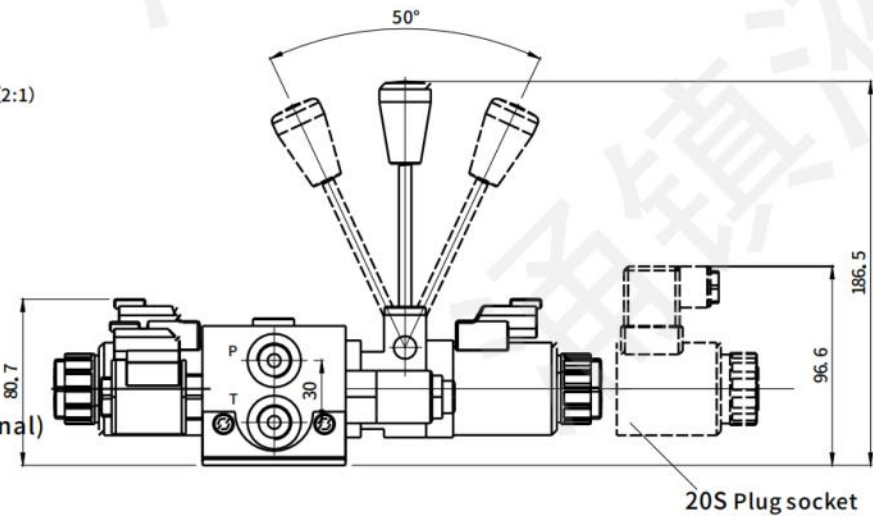
Directional control valve

Dimensions

● **SWSD /2 -T02 -* -20 -***

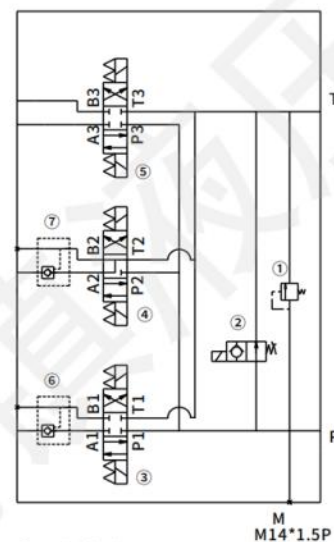
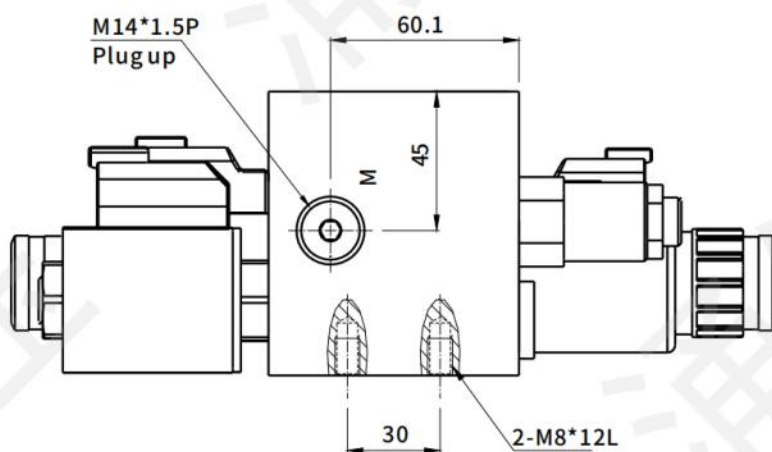
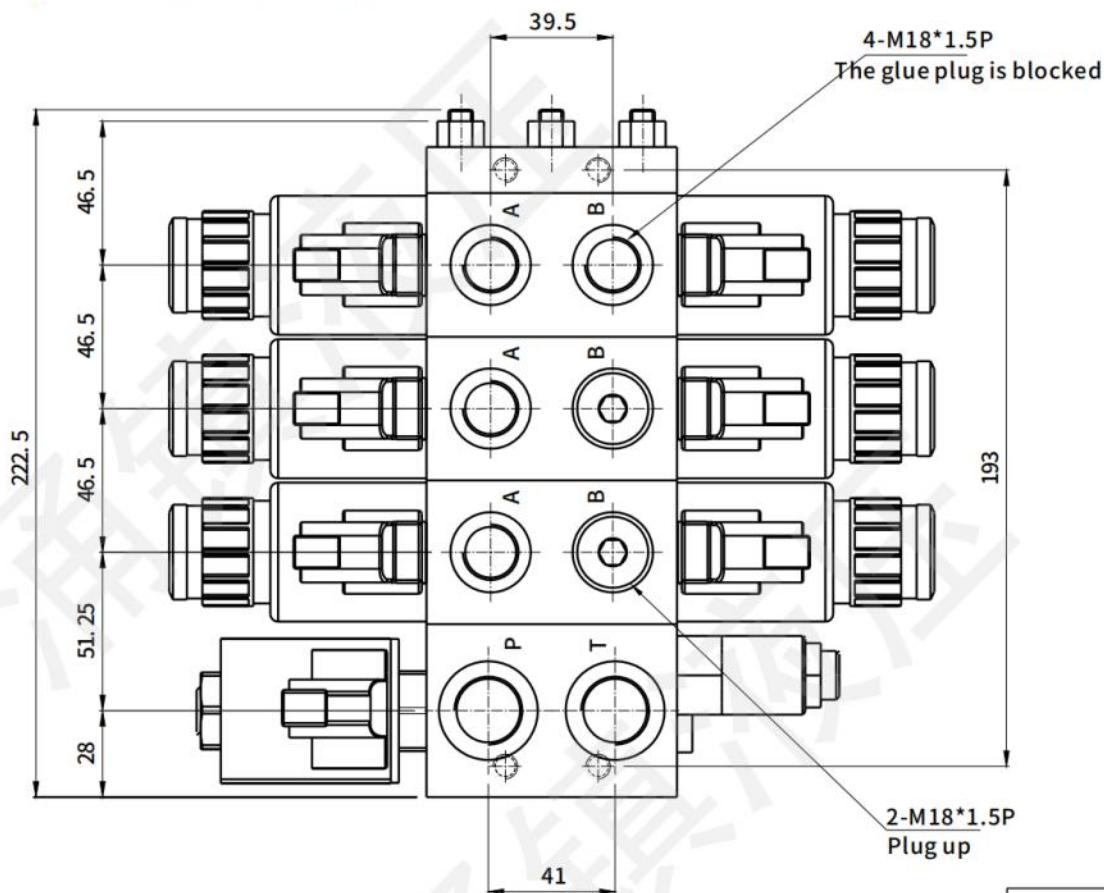


1. Oil inlet unit
2. Electromagnetic pressure relief valve (optional)
3. Relief valve (optional)
4. Right Angle mounting (M6)
5. Bottom mounting (M6) (optional)
6. Tail cover



Dimensions

MSWS/3-T02-*-20-*

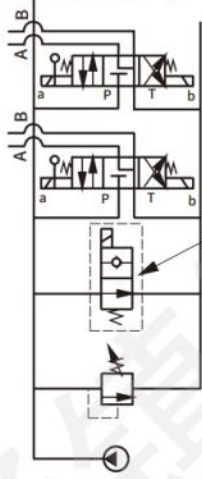


- ①. Relief valve
- ②. Electromagnetic relief valve (normally open)
- ③/④/⑤. Solenoid sectional directional valve
- ⑥/⑦/⑧. Pilot Operated Check Valve

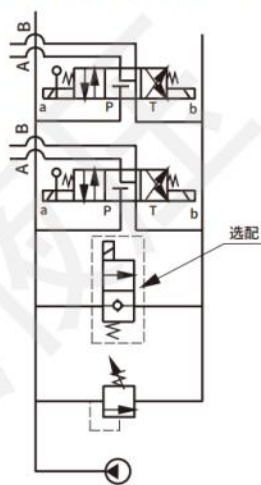
Directional control valve

- SWSD Oil inlet with pressure relief valve - action mode

Normally open

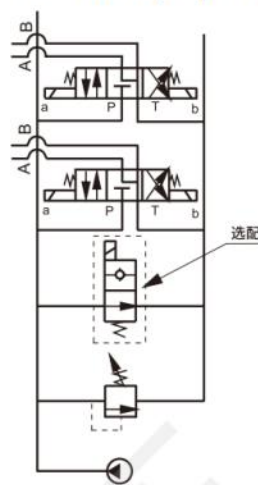


Normally close



- SWS Oil inlet with pressure relief valve - action mode

Normally open



Normally close

