

## Contact Details

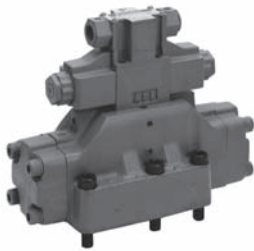
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# Solenoid Pilot Operated Directional Control Valve



## Features

- The highly reliable KSO-G02 adopted as the pilot valve ensures long service life and stable operation.
- This model is best suited to integration into European Safety Standard (CE) compliant equipment since it has dust-/water-proof properties that satisfy the IEC Pub529 IP65 ingress protection grade.

## Nomenclature

※ - JS - G ※※ - ※※ ※ ※ - ※※ - ※  
 1 2 3 4 5 6 7 8 9

### 1 Applicable fluid code

No designation: Petroleum-based hydraulic fluid  
 H: Water-glycol hydraulic fluid  
 F: Phosphate ester hydraulic fluid

### 2 Model No.

JS: J series solenoid pilot operated directional control valve

### 3 Connections

G: Gasket mount type

### 4 Nominal diameter

06: 3/4  
 10: 1 1/4

### 5 Spool type (See the model table)

### 6 Spool operating method (See the model table)

C: Spring center type  
 B: Spring offset type (with SOL.b)  
 N: No-spring type (without detent)

### 7 Voltage code (See the voltage code table)

### 8 Design No.

**(The design No. is subject to change)**

30: Nominal diameter 10 (1 1/4)  
 75: Nominal diameter 06 (3/4)  
 <21 MPa {210 kgf/cm<sup>2</sup> specifications}>  
 85: Nominal diameter 06 (3/4)  
 <25 MPa {250 kgf/cm<sup>2</sup> specifications}>

### 9 Option code (See the option code table)

## Specifications

Model No.	Nominal diameter	Maximum operating pressure MPa {kgf/cm <sup>2</sup> }	Maximum flow rate L/min	Pilot pressure MPa {kgf/cm <sup>2</sup> }	Permissible back pressure MPa {kgf/cm <sup>2</sup> }		Fluid drainage volume at spool switching cm <sup>3</sup>		
					External drain type	Internal drain type	(1)	(2)	(3)
JS-G06 Design No. 75	3/4	21 {210}	300	0.45 to 21 {4.5 to 210}	21 {210}	10 {100}	8.8	10.7	17.6
JS-G06 Design No. 85		25 {250}		0.45 to 25 {4.5 to 250}	25 {250}	16 {160}			
JS-G10	1 1/4	21 {210}	800	0.45 to 21 {4.5 to 210}	21 {210}	7 {70}	34.7	42.1	69.4

Note: Pilot fluid drainage volume (1) Spool operating method: type C (when the spool type/operating method is other than 6C)  
 (2) Spool operating method: type C (when the spool type/operating method is 6C)  
 (3) Spool operating method: type B, N

Refer to KSO-G02 on Page G-12 for the solenoid specifications.

## 7: Voltage code table

Voltage code	Power supply voltage	Voltage code	Power supply voltage
A	AC 100 V (50/60 Hz), AC 110 V (60 Hz)	N	DC 12 V
B	AC 200 V (50/60 Hz), AC 220 V (60 Hz)	P	DC 24 V
C	AC 110 V (50 Hz)	Q	DC 48 V
D	AC 220 V (50 Hz)	R	DC 100 V
J	AC 240 V (50/60 Hz)	S	DC 110 V
K	AC 120 V (50/60 Hz)	T	DC 200 V
L	AC 115 V (50/60 Hz)	U	DC 220 V
M	AC 230 V (50/60 Hz)	E	AC 100 V (50/60 Hz) with rectifier
		F	AC 110 V (50/60 Hz) with rectifier
		G	AC 200 V (50/60 Hz) with rectifier
		H	AC 220 V (50/60 Hz) with rectifier

See the solenoid specification table for KSO-G02 on Page G-12 for solenoid specifications.

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### 9: Option code table

Code	Option details
No designation	Internal pilot, external drain type
X	Internal pilot, internal drain type
Y	External pilot, external drain type
Z	External pilot, internal drain type
D	No-spring type (with detent)
P	With spool lock structure (solenoid valve)

See the option code table of KSO-G02 on Page G-12 for the options for solenoid pilot valves.

Note: ○ If two or more options are selected, sort the option codes in alphabetical order.

### Solenoid pilot valve model code

Model code	Applicable solenoid valve model code (※: Voltage code)
JS-G※※-※※C※-※※	KSO-G02-4C※-30
JS-G※※-※※B※-※※	KSO-G02-2A※-30
JS-G※※-※※N※-※※	KSO-G02-2N※-30
JS-G※※-※※N※-※※-D	KSO-G02-2D※-30

Note: Select KSO-G02-※※※-30-BGM for JS-G06.

### Mass (kg)

Details		JS-G06		JS-G10	
		AC	DC, with rectifier	AC	DC, with rectifier
Terminal box type	Double solenoid	13.3	13.7	45.8	46.2
	Single solenoid	13	13.2	45.5	45.7
DIN connector type	Double solenoid	13.3	13.6	45.8	46.1
	Single solenoid	12.9	13.1	45.4	45.6
Lead wire type	Double solenoid	13.2	13.5	45.7	46
	Single solenoid	12.9	13.1	45.4	45.5

### Sub-plate model code

- The sub-plate is not provided with the valve. Order it separately if required by specifying the model code given in the table below.

Model code	Nominal diameter	Connection port diameter	Mass kg
JS-06M	3/4	Rc3/4	5.2
JS-06M08		Rc1	
JS-10M	1 1/4	Rc1 1/4	17
JS-10M12		Rc1 1/2	

Refer to Page S-9 for the dimensions of the sub-plate.

### Handling

#### ● Pilot

- With the internal drain type, maintain the pressure difference between the pilot pressure and the back pressure of the tank line no lower than the minimum pilot pressure of 0.45 MPa {4.5 kgf/cm<sup>2</sup>}.
- When using the product with spool type 3, 33, 5, 6 or 66 as the internal pilot type, insert a resistance valve with a cracking pressure of 0.45 MPa {4.5 kgf/cm<sup>2</sup>} minimum in the tank line and set it as the external drain type.

#### ● Drainage

- Directly connect the drain piping to the tank without merging it with other tank piping.
- External pilot type products can be used as internal drain type regardless of the model.
- Internal pilot type products can be used as internal drain type when the spool type is 2, 4, 44, 7, 8, 9 or 27.

### Pilot throttle valve

To suppress shocks at switching by adjusting the switching speed of the spool, stack one of the following O2 size stack valves below the solenoid pilot valve. When using stack valves, order mounting bolts separately by referring to the table below since the required mounting bolts vary depending on the stacking height.

Stack valve model code	Mounting bolt model code	Hexagon socket head cap bolt	Tightening torque N·m {kgf·cm}
MT-02W-55	HB101	M5 × 85, 4 pcs.	6 to 8 {60 to 80}
MT-02P-65			
MT-02W-55, MT-02P-65	HB102	M5 × 125, 4pcs.	

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## 5 6: Model table

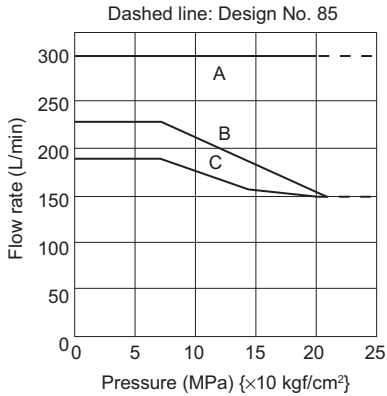
Model code	JIS graphic symbols for hydraulic system	Maximum flow rate L/min		Pressure – Flow rate characteristics (See the performance curves)		Pressure drop characteristics (See performance curves)					
		JS-G06	JS-G10	JS-G06	JS-G10	JS-G06			JS-G10		
						P → A P → B	A → T B → T	P → T	P → A P → B	A → T B → T	P → T
JS-G***-2C		300	800	A	F	⑥	⑤	-	⑦	⑥	-
JS-G***-3C		150	400	B	G	⑦	⑥	⑥	⑦	⑥	⑦
JS-G***-33C		150	400	B	G	⑥	⑤	-	⑦	⑦	-
JS-G***-4C		300	800	A	F	⑤	⑥	-	⑥	⑦	-
JS-G***-44C		300	800	A	F	⑥	⑥	-	⑦	⑦	-
JS-G***-5C		150	340	C	H	⑦ ⑤	⑥ ⑤	⑥	⑦ ⑥	⑦	⑤
JS-G***-6C		100 (85)	340	E	H	②	① ②	②	②	① ③	②
JS-G**66C		150	340	C	H	② ⑥	③ ⑥	②	③ ⑥	④ ⑥	③
JS-G***-7C		300	800	A	F	⑦	⑦ ⑥	-	⑦	⑦	-
JS-G***-8C		300	800	A	F	⑥	⑤ ⑥	-	⑦	⑦	-
JS-G***-9C		300	800	A	F	⑥	⑤	-	⑦	⑦	-
JS-G***-27C		150 (130)	400	D	G	③	④	-	⑤	⑥	-
JS-G***-2B		300	800	A	F	⑥	⑤	-	⑦	⑥	-
JS-G***-3B		300	800	A	F	⑦	⑥	-	⑦	⑥	-
JS-G***-33B		300	800	A	F	⑥	⑤	-	⑦	⑦	-
JS-G***-4B		300	800	A	F	⑤	⑥	-	⑥	⑦	-
JS-G***-2N		300	800	A	F	⑥	⑤	-	⑦	⑥	-
JS-G***-3N		300	800	A	F	⑦	⑥	-	⑦	⑥	-
JS-G***-33N		300	800	A	F	⑥	⑤	-	⑦	⑦	-
JS-G***-4N		300	800	A	F	⑤	⑥	-	⑥	⑦	-

Note: ○ In the transient period of switching, all ports are blocked with spool type/operating method 6C, and all ports are open with spool type/operating method 66C.  
○ The values in parentheses indicate the maximum flow rate with design No. 85 products.

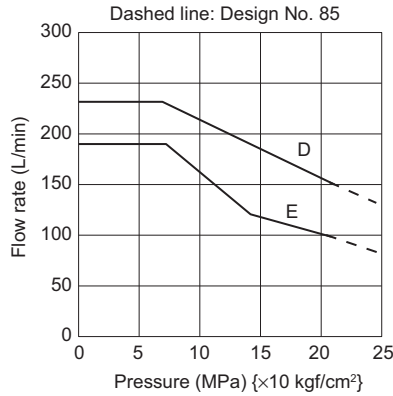
## Performance curves (viscosity: 32 mm<sup>2</sup>/s {cSt})

● JS-G06

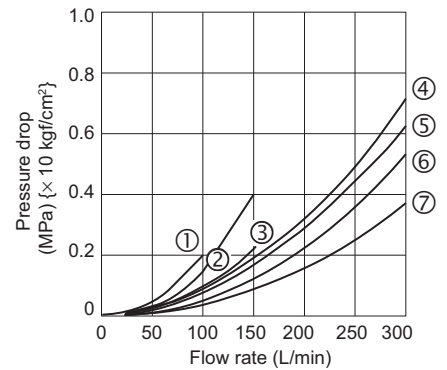
Pressure – Flow rate characteristics



Pressure – Flow rate characteristics

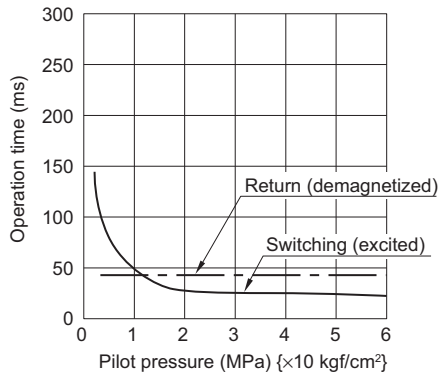


Pressure drop characteristics



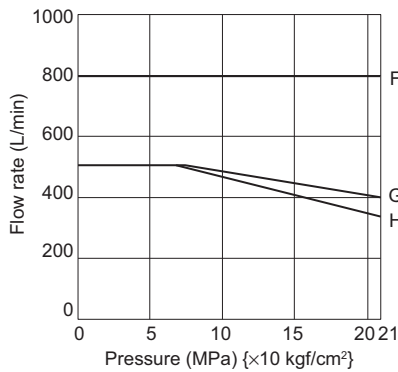
Operation time characteristics

JS-G06-2C (AC)

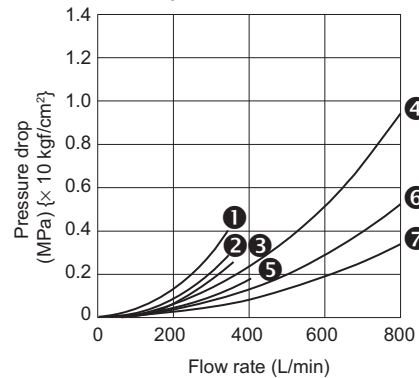


● JS-G10

Pressure – Flow rate characteristics

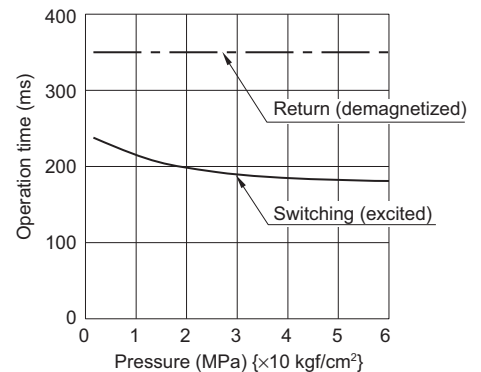


Pressure drop characteristics



Operation time characteristics

JS-G10-2C (AC)



Note: The operation time may change slightly depending on the conditions of use (pressure, flow rate, hydraulic fluid viscosity, etc.).

## Pilot/drain type setting guide

● Either the internal or external pilot and drain types can be set by fitting/removing plugs.

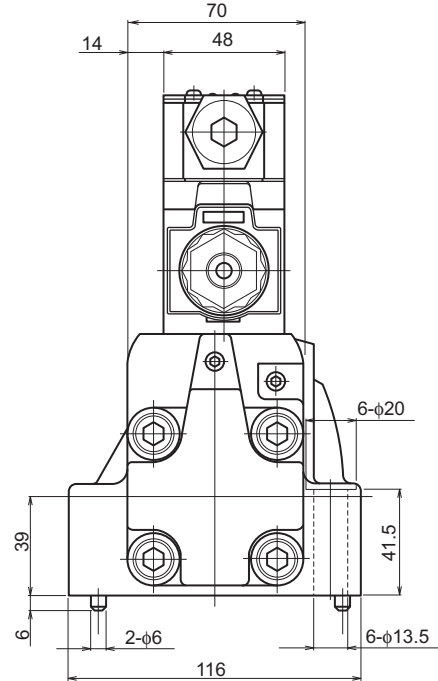
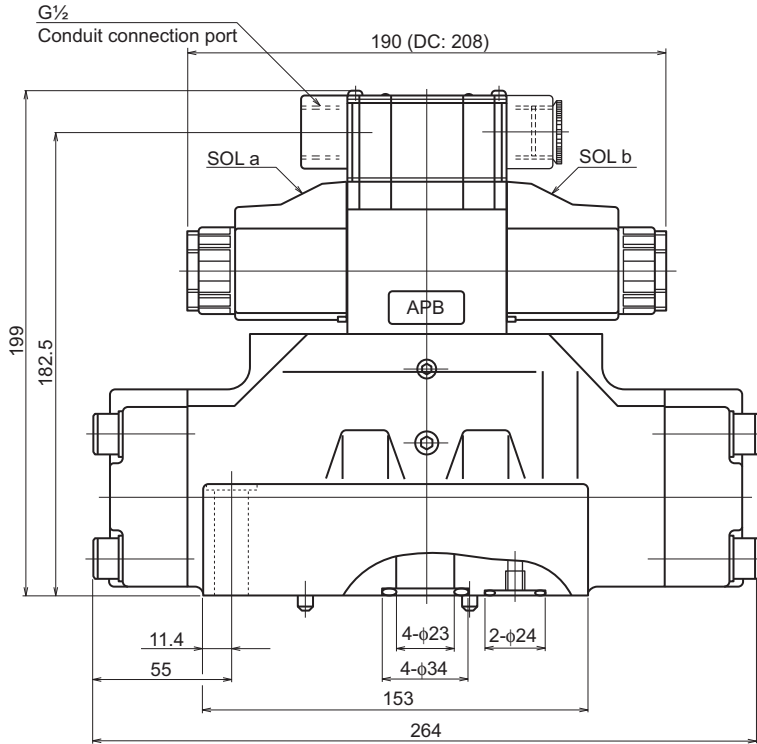
	Pilot type	Port X	Plug B	Drain type	Plug A	Plug C (Port Y)	Hexagon socket taper thread plug	Tightening torque N·m {kgf·cm}
No designation	Internal	With plug	Without plug	External	With plug	Without plug	NPTF <sup>1</sup> / <sub>16</sub> (G06)	6 to 7.5 {60 to 75} (G06)
X	Internal	With plug	Without plug	Internal	Without plug	With plug		
Y	External	Without plug	With plug	External	With plug	Without plug		
Z	External	Without plug	With plug	Internal	Without plug	With plug	R <sup>1</sup> / <sub>8</sub> (G10)	13 to 14.5 {130 to 145} (G10)
Guide	The pilot type can be set by changing port X and plug B.			The drain type can be set by changing plugs A and C.				

○ See the sectional structural diagram on page G-60 for the positions of plugs A, B and C.  
Do not wrap the plugs with sealing tape.

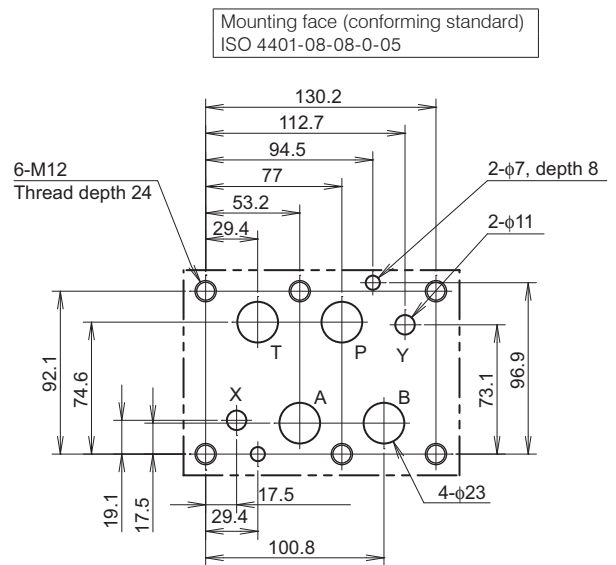
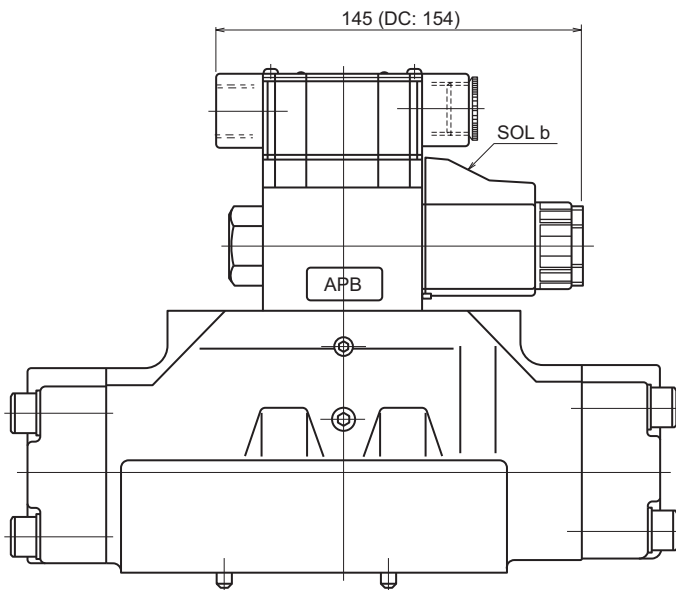
**External dimension diagram**

● JS-G06

- Spring center type
- No-spring type



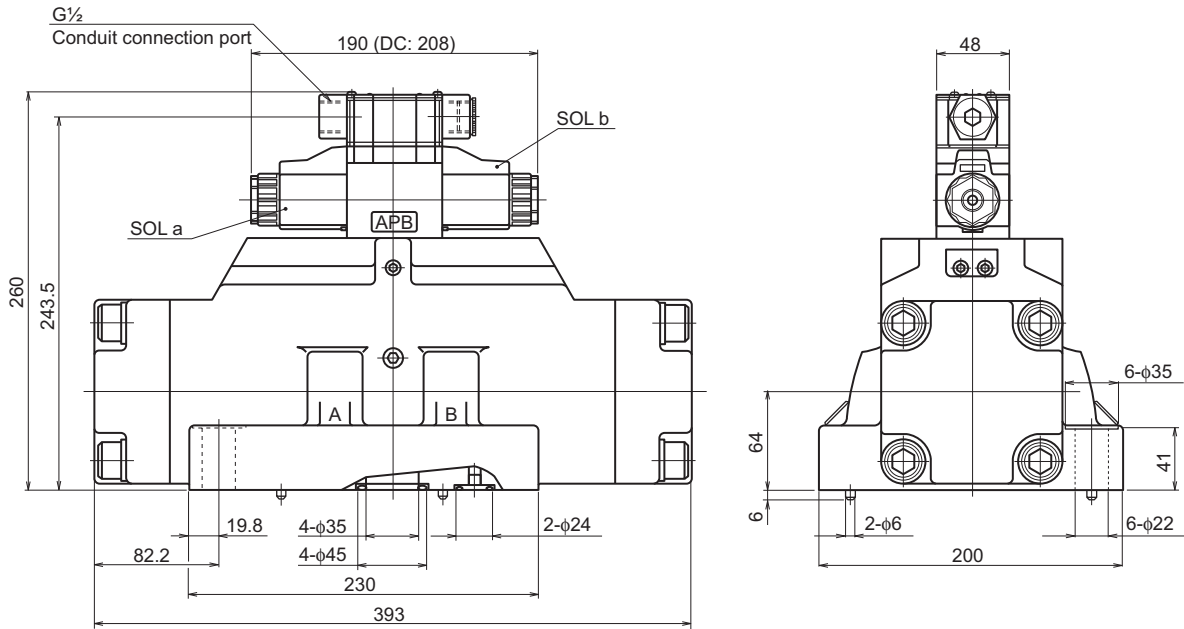
● Spring offset type



**External dimension diagram**

● JS-G10

- Spring center type
- No-spring type



● Spring offset type

