CNC Netservice
Technical Consulting & Diagnostics

TEKNISK KATALOGUDDRAG / TECHNICAL CATALOGUE EXTRACT

DAIKIN

HYDRAULIC VALVES



Hydraulikventiler til CNC-maskiner og industri

Valve products for CNC and industrial hydraulics

ORIGINALE DAIKIN PRODUKTSIDER | ORIGINAL DAIKIN DATA SHEETS

SØGER DU EN BESTEMT DAIKIN-VENTIL?

Et mindre udvalg lagerføres i Danmark. Kontakt os med det komplette typenummer for pris og forventet leveringstid.

Limited stock in Denmark. Ask for quotation and delivery lead time.

PRIS & LEVERING / QUOTE

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Uddrag af DAIKIN OIL HYDRAULIC EQUIPMENT. Kontroller aktuelle specifikationer.
Varemærker og tekniske originaldata tilhører deres respektive rettighedshavere.

KATALOGINDHOLD

CONTENTS / VALVE SECTIONS

Tekniske ventilafsnit fra det originale DAIKIN-katalog

Udvalgt uden afsnit om pumper, køleenheder og separate ventilcontrollers.

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VIGTIG INFORMATION / IMPORTANT INFORMATION

De originale produktblade gengives uden ændring af tekniske data.

Kataloget kan være ældre. Bekræft ventilspecifikationer ved bestilling.

Products may have changed. Verify specifications and availability.

■ Caution in use of oil hydraulic valve

● Before using a pump/motor, please read the operation manual carefully and use the product properly.

Overall valves

[⚠ Warning] Use it within the max. working pressure regulated.
[⚠ Caution] Use it in the range regulated of flow rate, temperature, working oil and viscosity.
[⚠ Warning] Tighten set bolts of a valve or piping screws with the torque regulated.
[⚠ Warning] Connect properly a connection port of valve with indicated piping or so.
[⚠ Caution] Maintain working oil in the contamination level recommended.
[⚠ Caution] Don't operate a valve manually and quickly.

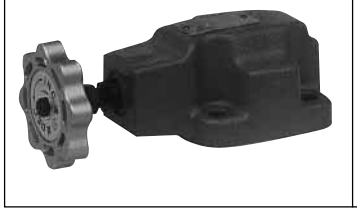
Solenoid valve

[⚠ Warning] Prohibit using a valve out of the permissible supply voltage.
[⚠ Caution] Don't use a valve at more than the max. switching frequency.
[⚠ Danger] Prohibit using a valve in the atmosphere explosive or easy to fire except the products coping with the atmosphere.
[⚠ Caution] Use the product to match the environment, if the product is used under the environment necessary for water proof.
[⚠ Warning] Prohibit wiring under conditions that electricity keeps turning on or valve and hydraulic circuit are pressurized.
[⚠ Caution] Don't touch a surface of solenoid directly by hand, because the solenoid sometimes leads to high temperature.
[⚠ Caution] Use wires of the kinds and diameter which suit the product.
[⚠ Caution] Have a proper ground wiring to the terminal where the grounding is indicated.
[⚠ Caution] Don't supply power to twin-solenoid at the same time.
[⚠ Caution] In case of AC solenoid valve (except a valve with a rectifier), seizure (or snapping of a wire) of solenoid coil may happen when malfunction such that a foreign subject is blocked in a spool or so takes place. Solenoid coil itself is molded with fire-proofing plastics and there will not be dangerous to fire normally, but if the mold has been deteriorated in long time use, risk of catching fire can be expected. The use of DC type solenoid operated valve is recommended, wishing safer condition, under the circumstance that there are many combustible things around the site easy to catch fire.

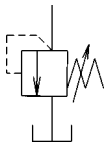
Installation and removal

[⚠ Caution] Don't remove a cap (protective plug) on a valve port just before using (installation or piping) it. Pay attention so that dust or so will not enter the inside of the valve during piping work or installation work.
[⚠ Caution] Put covers on the valve port, valve setting face and pipes removed not so as to invade foreign subjects into the valve when the valve is removed. Don't remove these covers before the reassemble.
[⚠ Caution] Make sure the kind and cleanliness of the oil before supplying working oil.
[⚠ Caution] Concerning a valve with manual handling mechanism, make sure if it can be properly switched by hand or confirm the manual settings, before starting long term operation or restarting after no use for a long time.
[⚠ Caution] Tighten rock nuts of the valve that the setting has been completed. If a cap or a cover is attached, set it on the port.
[⚠ Caution] Don't use a valve for a foot step. Otherwise, it may cause a damage to a valve.
[⚠ Caution] External force should not be loaded onto a valve like striking or dropping valve.
[⚠ Caution] Treat wires and connectors gently not so as to load unnatural force.
[⚠ Caution] Pay attention to pressure remained in a oil circuit when the removal of pipes and valves is needed. Remove those after making sure that the pressure is entirely purged. If the pressure remains, it may lead to injury by splashing oil. If you touch high pressure oil and the oil invades into your skin, see a doctor immediately.
[⚠ Caution] Do an overhaul of a valve in accordance with the handling manual of the manufacturer. Some valves are prohibited overhauling. In that case, never overhaul the valve.
[⚠ Caution] Use new parts for a gasket or a O ring when installing or reassembling a valve.
[⚠ Caution] Do the work of checking, adjusting and overhauling after oil, dust or moisture stuck around a valve or a connector has been cleaned away not so as to invade foreign subjects into a valve or a connector.
[⚠ Caution] Be sure to supply oil up to the regulated level and do the several works such as air purging in the oil circuit, checking up oil leak and seasoning operation, when the unit starts to operate for the first time after the installation, or after checking, adjusting, amending, or after no use for a long time.

Direct operated relief valve (for remote control)



JIS symbols



Features

- This valve is used in remote control mode after connecting to a vent port of a pilot operated pressure control valve such as a relief valve, a reducing valve, etc..

Nomenclature

*	-	JR	-	*	02	-	*	-	22	-	*
1		2		3	4		5		6		7

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents, Working fluid with water/glycol contents
F : Working oil with phosphoric acid ester

(2) Model No.
JR : J series direct operating relief valve

(3) Connections
G : Gasket attached type
T : Screw connection type

(4) Nominal diameter
02 : 1/4

(5) Pressure adjusting range
1 : 0.8~7MPa {8~70kgf/cm²}
3 : 3.5~21MPa {35~210kgf/cm²}

(6) Design number (the design number is subject to change)

(7) Option mark
No mark : Pressure adjusting handle type
T : Pressure adjusting bolt type ★1

Note) ★1 The pressure adjusting type is only applied to the Gasket attached type (G).

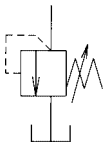
Specifications

Model code	Nom. Dia.	Pressure adjusting range MPa {kgf/cm²}	Max. flow rate L/min	Weight kg
JR-G02-1-22	1/4	0.8~7 {8~70}	1.2	1.5
JR-G02-3-22		3.5~21 {35~210}		
JR-T02-1-22		0.8~7 {8~70}		
JR-T02-3-22		3.5~21 {35~210}		

Direct operated relief valve



JIS symbols



Features

- As the override pressure is small, this valve has almost equivalent performance to a pilot operated type.
- The vibration proof structure makes it possible to prevent chattering even in high pressure.
- Broad range of adjusting is possible and pressure adjusting in low pressure area is easy to do.

Nomenclature

SR	-	*	03	-	1	-	**
1		2	3		4		5

(1) Model No.
SR : S series direct operating relief valves

(2) Connections
G : Gasket attached type
T : Screw connection type

(3) Nominal diameter
03 : 3/8

(4) Pressure adjusting range
1 : 0.3~7MPa {3~70kgf/cm²}

(5) Design number (design number is subject to change)
12 : Screw connection type (T)
13 : Gasket attached type (G)

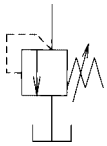
Specifications

Model code	Nom. Dia.	Pressure adjusting range MPa {kgf/cm²}	Max. flow rate L/min	Weight kg
SR-G03-1-13	3/8	0.3~7 {3~70}	30	2.5
SR-T03-1-12				2

Direct operated relief valve



JIS symbols



Features

- As the override pressure is small, this valve has an almost equivalent performance to a pilot operated type.
- The vibration proof structure makes it possible to prevent chattering even in high pressure.

Nomenclature

*	-	HDRIR	-	*	02	-	*
1		2		3	4		5

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents, Working oil with water/glycol contents
F : Working oil with phosphoric acid ester

(2) Model No.
HDRIR : H series direct operating relief valve

(3) Connections
G : Gasket attached type
T : Screw connection type

(4) Nominal diameter
02 : 1/4

(5) Pressure adjusting range
1 : 0.9~7MPa {9~70kgf/cm²}
3 : 3.5~21MPa {35~210kgf/cm²}

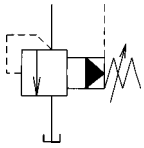
Specifications

Model code	Nom. Dia.	Pressure adjusting range MPa {kgf/cm²}	Max. flow rate L/min	Weight kg
HDRIR-G02-1	1/4	0.9~7 {9~70}	12	2.6
HDRIR-G02-3		3.5~21 {35~210}		
HDRIR-T02-1		0.9~7 {9~70}		1.8
HDRIR-T02-3		3.5~21 {35~210}		

Pilot operated relief valve



JIS symbols



Features

- The broad flow rate range enables the steady pressure control and this valve actuates as a safety valve.
- If a remote control relief valve is connected to a vent port, the main circuit pressure can be controlled by a remote controller.
- This valve will have a function of an unloading valve, if a vent port is used.
- Option for high vent type is available.

Nomenclature

*	-	HDRI	-	*	03	-	*	*
1		2		3	4		5	6

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents, Working oil with water/glycol contents
F : Working oil with phosphoric acid ester

(2) Model No.
HDRI : H series pilot operated relief valve

(3) Connections
G : Gasket attached type
T : Screw connection type

(4) Nominal diameter
03 : 3/8

(5) Pressure adjusting range
1 : 0.5~7MPa {5~70kgf/cm²}
3 : 3.5~21MPa {35~210kgf/cm²}

(6) Vent mark
No mark : Low vent type
V : High vent type

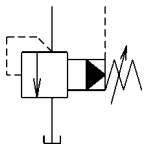
Specifications

Model code	Nom. Dia.	Pressure adjusting range MPa {kgf/cm²}	Max. flow rate L/min	Weight kg
HDRI-G03-1	3/8	0.5~7 {5~70}	30	3.5
HDRI-G03-3		3.5~21 {35~210}		
HDRI-T03-1		0.5~7 {5~70}		2.9
HDRI-T03-3		3.5~21 {35~210}		

Pilot operated relief valve



JIS symbols



Features

- The broad flow rate range enables the steady pressure control and this valve actuates as a safety valve.
- If a remote control relief valve is connected to a vent port, the main circuit pressure can be controlled by a remote controller.
- This valve will have a function of an unloading valve, if a vent port is used.
- Option as high vent type is available.

Nomenclature

*	-	JRB	-	*	**	-	*	*	-	**
1		2		3	4		5	6		7

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents, Working oil with water/glycol contents
F : Working oil with phosphoric acid ester

(2) Model No.
JRB : J series pilot operated relief valve

(3) Connections
G : Gasket attached type
T : Screw connection type
F : Flange connection type

(4) Nominal diameter
06 : 3/4
10 : 1 1/4
16 : 2

(5) Pressure adjusting range
1 : *~7MPa {*~70kgf/cm²}
3 : *~21MPa {*~210kgf/cm²}

(6) Vent mark
No mark : Low vent type
V : High vent type

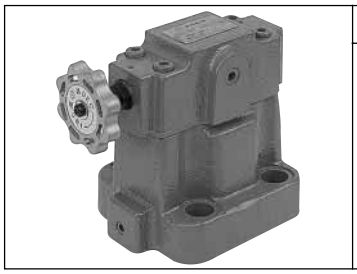
(7) Design number (the design number is subject to change)
12 : Nominal diameter 16 (2)
13 : Nominal diameter 06 (3/4), 10 (1 1/4)

Specifications

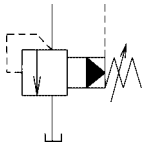
Model code	Nom. Dia.	Pressure adjusting range ★1 MPa{kgf/cm²}	Max. flow rate L/min	Weight kg
JRB-G06-1-13	3/4	*~7 {*~70}	170	6
JRB-G06-3-13		*~21 {*~210}		
JRB-T06-1-13		*~7 {*~70}		4.6
JRB-T06-3-13		*~21 {*~210}		
JRB-F06-1-13		*~7 {*~70}		
JRB-F06-3-13		*~21 {*~210}		
JRB-G10-1-13	1 1/4	*~7 {*~70}	380	9
JRB-G10-3-13		*~21 {*~210}		
JRB-T10-1-13		*~7 {*~70}		8.5
JRB-T10-3-13		*~21 {*~210}		
JRB-F10-1-13		*~7 {*~70}		
JRB-F10-3-13		*~21 {*~210}		
JRB-F16-1-12	2	*~7 {*~70}	700	20
JRB-F16-3-12		*~21 {*~210}		

Note) ★1 As min. adjusting pressure differs from flow rate to flow rate, you might contact us separately.

Pilot operated relief valve



JIS symbols



Features

- Low noise models with high characteristics against noise.
- The broad flow rate range enables the steady pressure control and this valve actuates as a safety valve.
- If a remote control relief valve is connected to a vent port, the main circuit pressure can be controlled by a remote controller.
- This valve will have a function of an unloading valve, if a vent port is used.
- Option as high vent type is available.

Nomenclature

*	-	JRBS	-	G	**	-	*	*	-	30	-	*
(1)		(2)		(3)	(4)		(5)	(6)		(7)		(8)

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents, Working oil with water/glycol contents
F : Working oil with phosphoric acid ester

(2) Model No.
JRBS : J series pilot operated relief valve

(3) Connections
G : Gasket attached type

(4) Nominal diameter
03 : 3/8
06 : 3/4

(5) Pressure adjusting range
1 : *~7MPa {*~70kgf/cm²}
2 : *~16MPa {*~160kgf/cm²}
3 : *~25MPa {*~250kgf/cm²}

(6) Vent mark
No mark : Low vent type
V : High vent type

(7) Design number (design number is subject to change)

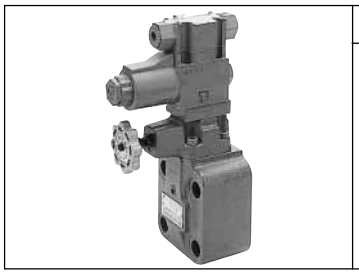
(8) Option mark
No mark : Pressure adjusting handle type
F : Screw adjusting type with a cap
T : Pressure adjusting bolt type

Specifications

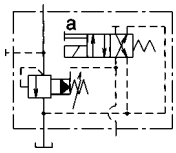
Model code	Nom. Dia.	Pressure adjusting range ★1 MPa {kgf/cm²}	Max. flow rate L/min	Weight kg
JRBS-G03-1-30	3/8	*~7 {*~70}	200	4.7
JRBS-G03-2-30		*~16 {*~160}		
JRBS-G03-3-30		*~25 {*~250}		
JRBS-G06-1-30	3/4	*~7 {*~70}	300	5.8
JRBS-G06-2-30		*~16 {*~160}		
JRBS-G06-3-30		*~25 {*~250}		

Note) ★1 As the min. adjusting pressure differs from flow rate to flow rate, you might contact us separately.

Relief valve with solenoid operated valve



JIS symbols



Features

- The broad flow rate range enables the steady pressure control and this valve actuates as a safety valve.
- As this valve itself has a function as an unloading valve, an unloading circuit becomes no need.
- Option for high vent type is available.

Nomenclature

*	-	JRS	-	*	06	-	*	*	-	*	*	-	40
1		2		3	4		5	6		7	8		9

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents
H : Working oil with water/glycol
F : Working oil with phosphoric acid ester

(2) Model No.
JRS : J series relief valve with solenoid operated valve

(3) Connections
G : Gasket attached type
T : Screw connection type

(4) Nominal diameter
06 : 3/4

(5) Pressure adjusting range
1 : *~7MPa {*~70kgf/cm²}
3 : *~21MPa {*~210kgf/cm²}

(6) Vent mark
No mark : Low vent type
V : High vent type

(7) Circuit mark
A : Normal closed type (On-load at demagnetizing)
B : Normal open type (Unload at demagnetizing)

(8) Solenoid operated valve's voltage mark
A : AC100V (50/60Hz), AC110V (60Hz)
B : AC200V (50/60Hz), AC220V (60Hz)
P : DC24V

(9) Design number (design number is subject to change)

Specifications

Model code	Nom. Dia.	Pressure adjusting range ★1 MPa {kgf/cm²}	Max. flow rate L/min	Weight kg
JRS-G06-1-**-40	3/4	*~7 {*~70}	170	8.1
JRS-G06-3-**-40		*~21 {*~210}		
JRS-T06-1-**-40		*~7 {*~70}		6.7
JRS-T06-3-**-40		*~21 {*~210}		

Model Mark	Model name of solenoid operated valve applied
JRS-*06-*	KSO-G02-2A*-30 (*: Voltage mark)

Note) ★1 As the min. adjusting pressure differs from flow rate to flow rate, you might contact us separately.

Refer to KSO-G02 (page 29) for the specification of solenoid operated valve.

Relief valves with a solenoid valve



JIS symbols

Refer to next page

Features

- Low noise models with high characteristics against noise.
- The switching of the solenoid operated valve enables the circuit unloading, dual pressure control and triple pressure control.
- The broad flow rate range enables the steady pressure control. This valve will have a function of an unloading valve, if a vent port is used.
- Option for high vent type is available.

Nomenclature

*	-	JRSS	-	G	**	-	*	*	-	*	*	*	*	-	50	-	*	*	-	*
1		2		3	4		5	6		7	8	9	10		11		12	13		14

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents
H : Working oil with water/glycol
F : Working oil with phosphoric acid ester

(2) Model No.
JRSS : J series relief valve with solenoid operated valve (Low noise type)

(3) Connections
G : Gasket attached type

(4) Nominal diameter
03 : 3/8
06 : 3/4

(5) Pressure adjusting range
1 : *~7MPa {*~70kgf/cm²}
2 : *~16MPa {*~160kgf/cm²}
3 : *~25MPa {*~250kgf/cm²}

(6) Vent mark
No mark : Low vent type
V : High vent type

(7) Circuit mark
A : Single pressure control (On-load at demagnetizing, Normal closed type)
B : Single pressure control (Unload at demagnetizing, Normal open type)
C : Dual pressure control (High pressure at demagnetizing)
D : Dual pressure control (Low pressure at demagnetizing)
E : Dual pressure control (Unload at demagnetizing)
F : Triple pressure control

(8) Max. adjusting pressureI(MRV valve, adjusting toward right)
<It is applied when the circuit mark is C, D, E or F>
1 : 7MPa {70kgf/cm²}
2 : 16MPa {160kgf/cm²}
3 : 25MPa {250kgf/cm²}

(9) Max. adjusting pressureII (MRV valve, adjusting toward left)
<It is applied when the circuit mark is just F>
1 : 7MPa {70kgf/cm²}
2 : 16MPa {160kgf/cm²}
3 : 25MPa {250kgf/cm²}

(10) Solenoid operated valve's voltage mark
A : AC100V (50/60Hz), AC110V (60Hz)
B : AC200V (50/60Hz), AC220V (60Hz)
P : DC24V

(11) Design number (design number is subject to change)

(12) Option mark
No mark : Pressure adjusting handle type
F : Screw adjusting type with a cap
T : Pressure adjusting bolt type

(13) Drain mark
No mark : Internal drain type
X : Internal drain type ★1

(14) Pilot solenoid operated valve option mark ★1
Refer to the option mark table on page 29.

Note) ★1 The drain mark is "X" when the pilot solenoid operated valve's option is equipped with earth terminal (mark; E, EN, ENR etc.) in internal drain type.

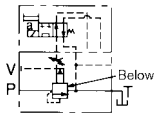
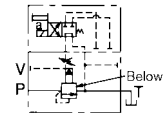
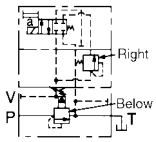
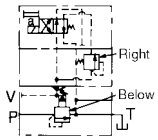
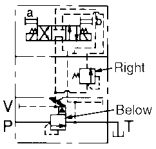
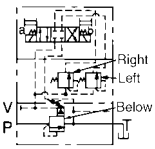
Specification

Model code	Nom. Dia.	Pressure adjusting range ★2 MPa {kgf/cm²}	Max. flow rate L/min	Max. switching frequency Cycle/min
JRSS-G03-1-****-50	3/8	*~7 {*~70}	200	120
JRSS-G03-2-****-50		*~16 {*~160}		
JRSS-G03-3-****-50		*~25 {*~250}		
JRSS-G06-1-****-50	3/4	*~7 {*~70}	300	
JRSS-G06-2-****-50		*~16 {*~160}		
JRSS-G06-3-****-50		*~25 {*~250}		

Note) ★2 As the min. adjusting pressure differs from flow rate to flow rate, you might contact us separately.

Refer to KSO-G02 (page 29) for the specification of solenoid operated valve.

(7) : JIS hydraulic symbols

Circuit mark		A		B		C		D		E			F		
JIS hydraulic symbols															
Model of solenoid operated valve * Voltage mark		KSO-G02-3A * -30-66H		KSO-G02-3A * -30-T66		KSO-G02-2A * -30-H2		KSO-G02-2A * -30-M		KSO-G02-66C * -30			KSO-G02-2C * -30		
Model of MRV valve		—		—		MRV-S2-*-10		MRV-S2-*-10		MRV-S2-*-10			MRV-W1-**-10		
Solenoid valve in excited state	SOL.a	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	OFF	ON	OFF
	SOL.b	—	—	—	—	—	—	—	—	OFF	OFF	ON	OFF	OFF	ON
Working state		Set pressure (Below)	Unload	Unload	Set pressure (Below)	Set pressure (Below)	Set pressure (Right)	Set pressure (Right)	Set pressure (Below)	Unload	Set pressure (Below)	Set pressure (Right)	Set pressure (Below)	Set pressure (Left)	Set pressure (Right)

Note) “Below”, “Right” and “Left” in above table stand for the handle position of pressure adjusting in the exterior dimension’s drawing.
“Below”: Main valve’s pressure adjusting handle
“Right” : MRV valve’s pressure adjusting handle (applied for dual or triple pressure control)
“Left” : MRV valve’s pressure adjusting handle (applied only for triple pressure conrol)

Weight

Model code	Nom. Dia.	Weight kg	Model code	Nom. Dia.	Weight kg
JRSS-G03-**-A	3/8	6.4	JRSS-G06-**-A	3/4	7.5
JRSS-G03-**-B			JRSS-G06-**-B		
JRSS-G03-**-C		7.9	JRSS-G06-**-C		9
JRSS-G03-**-D			JRSS-G06-**-D		
JRSS-G03-**-E		8.2	JRSS-G06-**-E		9.3
JRSS-G03-**-F		8.8	JRSS-G06-**-F		9.9

Pressure control valve



JIS symbols

Refer to next page

Features

- This is a direct acting type pressure control valve which can be used for a sequence valve, an unload valve, a counter balance valve and a relief valve in a combination of either internal or external pilot and drain.

Nomenclature

*	-	JQ	*	-	*	**	-	*	*	-	**	-	*
1		2	3		4	5		6	7		8		9

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents, Working oil with water/glycol
F : Working oil with phosphoric acid ester

(2) Model No.
JQ : JQ type pressure control valve

(3) Check valve mark
No mark : Without check valve
C : With check valve

(4) Connections
G : Gasket attached type
T : Screw connection type
F : Flange connection type

(5) Nominal diameter
03 : 3/8
06 : 3/4
10 : 1 1/4
16 : 2

(6) Function mark (refer to JIS hydraulic symbols) ★1
1, 2, 3, 4

(7) Pressure adjusting range
A : 0.25~0.85MPa {2.5~8.5kgf/cm²}
C : 0.85~3.5MPa {8.5~35kgf/cm²}
E : 3.5~14MPa {35~140kgf/cm²}
D : 1.75~7MPa {17.5~70kgf/cm²} ★2

(8) Design number (design number is subject to change)
12 : Gasket attached type (G), Screw connection type (T)
20 : Flange connection type (F)
<In case of nominal diameter; 06 (3/4), 10 (1 1/4)>
21 : Flange connection type (F)
<In case that nominal diameter; 16 (2)>

(9) Option number
No mark : Single pilot type (Internal or external pilot type)
W : Double pilot type (Internal and external pilot type)

Note) ★1 2nd type is supplied as the standard products. If type 1,3, or 4 type is necessary, you might exchange it in accordance with exchange manual attached in the product. After exchanging, make an correction of the carved seal on the name plate of model code.
★2 Pressure adjusting range: D type is just applied to the case with a nominal diameter 16 (2).

Specification

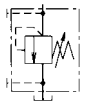
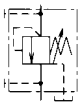
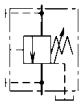
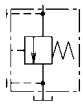
Model code			Nom. Dia.	Max. operating pressure MPa {kgf/cm²}	Pressure adjusting range MPa {kgf/cm²}	Max.flow rate L/min
Gasket attached type(G)	Screw connection type(T)	Flange connection type(F)				
JQ(C)-G03-*A-12	JQ(C)-T03-*A-12	—	3/8	21 {210}	0.25~0.85 {2.5~8.5}	50
JQ(C)-G03-*C-12-(W)	JQ(C)-T03-*C-12-(W)	—			0.85~3.5 {8.5~35}	
JQ(C)-G03-*E-12-(W)	JQ(C)-T03-*E-12-(W)	—			3.5~14 {35~140}	
JQ(C)-G06-*A-12	JQ(C)-T06-*A-12	JQC-F06-*A-20	3/4		0.25~0.85 {2.5~8.5}	120
JQ(C)-G06-*C-12-(W)	JQ(C)-T06-*C-12-(W)	JQC-F06-*C-20-(W)			0.85~3.5 {8.5~35}	
JQ(C)-G06-*E-12-(W)	JQ(C)-T06-*E-12-(W)	JQC-F06-*E-20-(W)			3.5~14 {35~140}	
JQ(C)-G10-*A-12	JQ(C)-T10-*A-12	JQC-F10-*A-20	1 1/4		0.25~0.85 {2.5~8.5}	280
JQ(C)-G10-*C-12-(W)	JQ(C)-T10-*C-12-(W)	JQC-F10-*C-20-(W)			0.85~3.5 {8.5~35}	
JQ(C)-G10-*E-12-(W)	JQ(C)-T10-*E-12-(W)	JQC-F10-*E-20-(W)			3.5~14 {35~140}	
—	—	JQC-F16-*D-21	2		1.75~7 {17.5~70}	500
—	—	JQC-F16-*E-21			3.5~14 {35~140}	

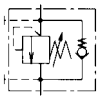
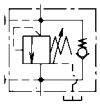
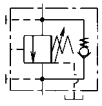
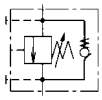
Weight (kg)

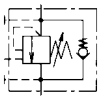
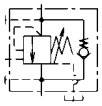
Model No.	①	②	③	Model No.	①	②	③	Model No.	②	③
JQ(C)-G03	3.5	3.8	4.3	JQ(C)-T03	2.9	3.1	3.6	JQC-F06	6.2	7.1
JQ(C)-G06	6	6.5	7.4	JQ(C)-T06	5	5.4	6.3	JQC-F10	3.5	15.2
JQ(C)-G10	11.5	12.8	14.5	JQ(C)-T10	9.8	11.1	12.8	JQC-F16	38.8	—

Note) Weight ① Single pilot type without check valve
② Single pilot type with check valve
③ Double pilot type with check valve

(6) : JIS hydraulic symbols

Model code	JQ-***-1*	JQ-***-2*	JQ-***-3*	JQ-***-4*
Name	Relief	Sequence valve	Sequence valve	Unload valve
Pilot method	Internal pilot type	Internal pilot type	External pilot type	External pilot type
Drain method	Internal drain type	External drain type	External drain type	Internal drain type
JIS hydraulic symbols				

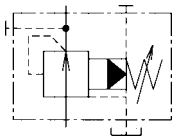
Model code	JQC-***-1*	JQC-***-2*	JQC-***-3*	JQC-***-4*
Name	Counter balance valve	Sequence valve with check valve	Sequence valve with check valve	Counter balance valve
Pilot method	Internal pilot type	Internal pilot type	External pilot type	External pilot type
Drain method	Internal drain type	External drain type	External drain type	Internal drain type
JIS hydraulic symbols				

Model code	JQC-***-1*-W	JQC-***-2*-W
Name	Counter balance valve	Counter balance valve
Pilot method	Internal · External pilot type	Internal · External pilot type
Drain method	Internal drain type	External drain type
JIS hydraulic symbols		

Low pressure reducing valve



JIS symbols



Features

- Used when pressure in a partial oil circuit is set lower than a main circuit.
- Even if the primary main circuit varies, the secondary pressure can be kept constant.
- If a remote control relief valve is connected to a vent port, the branch circuit pressure can be controlled.
- The structure to prevent surge pressure is available as option.

Nomenclature

*	-	SGB	-	G	03	-	1	-	20	-	**
1		2		3	4		5		6		7

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents, Working oil with water/glycol
F : Working oil with phosphoric acid ester

(2) Model No. SGB : S series low pressure reducing valve

(3) Connections G : Gasket attached type

(4) Nominal diameter 03 : 3/8

(5) Pressure adjusting range
1 : 0.15~0.7MPa {1.5~70kgf/cm²}

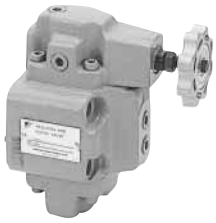
(6) Design number (design number is subject to change)

(7) Option mark
No mark : Without surge pressure prevention structure
SP : With surge pressure prevention structure

Specifications

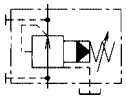
Model code	Nom. Dia.	Max. operating pressure MPa {kgf/cm²}	Pressure adjusting range MPa {kgf/cm²}	Max. flow rate L/min	Weight kg
SGB-G03-1-20	3/8	14 {140}	0.15~7 {1.5~70}	30	3.5

Reducing valve/Reducing valve with check valve

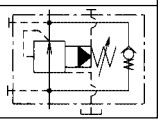


JIS symbols

JGB



JGBC



Features

- Used when pressure in a partial oil circuit is set lower than a main circuit.
- Even if the primary main circuit varies, the secondary pressure can be kept constant.
- If a remote control relief valve is connected to a vent port, the branch circuit pressure can be controlled.

Nomenclature

*	-	JGB	*	-	*	**	-	*	-	**
1		2	3		4	5		6		7

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents, Working oil with water/glycol
F : Working oil with phosphoric acid ester

(2) Model No.
JGB : J series reducing valve

(3) Check valve mark
No mark : Without check valve
C : With check valve

(4) Connections
G : Gasket attached type
T : Screw connection type
F : Flange connection type

(5) Nominal diameter
03 : 3/8
06 : 3/4
10 : 1 1/4
16 : 2

(6) Pressure adjusting range
1 : 0.8~7MPa {8~70kgf/cm²}
3 : 3.5~21MPa {35~210kgf/cm²}

(7) Design number (design number is subject to change)
10 : Gasket attached type (G), Screw connection type (T)
<In case of nominal diameter 03 (3/8)>
11 : Gasket attached type (G), Screw connection type (T)
<In case of nominal diameter 06 (3/4), 10 (1 1/4)>
20 : Flange connection type (F)
<In case of nominal diameter 06 (3/4), 10 (1 1/4)>
21 : Flange connection type (F)
<In case of nominal diameter 16 (2)>

Specifications (kg)

Model code			Nom.	Max. operating pressure	Pressure adjusting range	Max.flow rate	Drain rate
Gasket attached type (G)	Screw connection type (T)	Flange connection type (F)	Dia.	MPa {kgf/cm²}	MPa {kgf/cm²}	L/min	L/min
JGB(C)-G03-1-10	JGB(C)-T03-1-10	—	3/8	21 {210}	0.8~7 {8~70}	50	0.8~1
JGB(C)-G03-3-10	JGB(C)-T03-3-10	—			3.5~21 {35~210}		
JGB(C)-G06-1-11	JGB(C)-T06-1-11	JGBC-F06-1-20	3/4		0.8~7 {8~70}	120	0.9~1.1
JGB(C)-G06-3-11	JGB(C)-T06-3-11	JGBC-F06-3-20			3.5~21 {35~210}		
JGB(C)-G10-1-11	JGB(C)-T10-1-11	JGBC-F10-1-20	1 1/4		0.8~7 {8~70}	280	1.2~1.5
JGB(C)-G10-3-11	JGB(C)-T10-3-11	JGBC-F10-3-20			3.5~21 {35~210}		
—	—	JGBC-F16-1-21	2		0.8~7 {8~70}	500	2~2.4
—	—	JGBC-F16-3-21			3.5~21 {35~210}		

Weight (kg)

Model No.	①	②	Model No.	①	②	Model No.	②
JGB(C)-G03	3.9	4.2	JGB(C)-T03	3.3	3.6	JGBC-F06	6.8
JGB(C)-G06	6.2	6.6	JGB(C)-T06	5.7	6.1	JGBC-F10	13.8
JGB(C)-G10	11.8	13.1	JGB(C)-T10	10	11.3	JGBC-F16	37.7

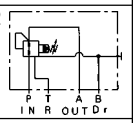
Note) Weight ① without check valve ② with check valve

Relief reducing valve (Balancing valve)

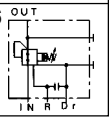


JIS symbols

SGR-G02



SGR-G03, 06



Features

- The combination circuit with a reducing valve, a relief valve and check valve controlled a system, but this relief valve gets together all these three valves into one unit and functions as a balancing valve.
- As the pressure variation corresponding to a load flow rate variation is small, the control accuracy increases.
- Pressure can be regulated by the handle.
- As it is a external drain type, the back pressure in the return line doesn't influence the performance.

Nomenclature

*	-	SGR	-	G	**	-	*	-	10
1		2		3	4		5		6

SGR	-	G	02	-	2	-	10	-	46
2		3	4		5		6		7

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents, Working oil with water/glycol
F : Working oil with phosphoric acid ester

(2) Model No.
SGR : S series relief reducing valve

(3) Connections
G : Gasket attached type

(4) Nominal diameter
02 : 1/4
03 : 3/8
06 : 3/4

(5) Pressure adjusting range
1 : 0.7~7MPa {7~70kgf/cm²}
2 : 1.2~16MPa {12~160kgf/cm²}

(6) Design number (design number is subject to change)

(7) Management mark

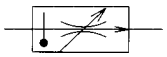
Specifications

Model code	Nom. Dia.	Max. operating pressure MPa {kgf/cm²}	Pressure adjusting range MPa {kgf/cm²}	Max. flow rate L/min	Drain rate L/min	Weight kg
SGR-G02-1-10	1/4	10.5 {105}	0.7~7 {7~70}	20	0.6~0.7	2.2
SGR-G02-2-10-46		17.5 {175}	1.2~16 {12~160}			
SGR-G03-1-10	3/8	10.5 {105}	0.7~7 {7~70}	40		3.3
SGR-G06-1-10	3/4	17.5 {175}	0.7~7 {7~70}	100	0.9~1.3	6.5
SGR-G06-2-10			1.2~16 {12~160}		1.1~1.6	

Flow control valve (with compensation of pressure · temperature)



JIS symbols



Features

- Since the compensation of pressure and temperature are equipped, the set flow rate is kept constant, even if load pressure and oil temperature vary.
- The flow control level is possible to regulate so small value as 0.01L/min.
- The structure to minimize a jumping phenomena.

Nomenclature

*	-	SF	-	G	02	-	***	-	15
1		2		3	4		5		6

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents, Working oil with water/glycol
F : Working oil with phosphoric acid ester

(2) Model No.
SF : S series flow control valve

(3) Connections
G : Gasket attached type

(4) Nominal diameter
02 : 1/4

(5) Max. regulating flow
002 : 0.2L/min
006 : 0.6L/min
030 : 3 L/min
060 : 6 L/min
150 : 15 L/min

(6) Design number (design number is subject to change)

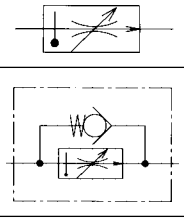
Specifications

Model code	Nom. Dia.	Max. operating pressure MPa {kgf/cm²}	Flow regulating range L/min	Weight kg
SF-G02-002-15	1/4	7 {70}	0.01~0.2	0.8
SF-G02-006-15			0.01~0.6	
SF-G02-030-15			0.01~3	
SF-G02-060-15			0.01~6	
SF-G02-150-15			0.01~15	

Flow control valves · Flow control valve with check valve (with compensation of pressure and temperature)



JIS symbols



Features

- Since the compensation of pressure and temperature are equipped, the set flow rate is kept constant, even if load pressure and oil temperature vary.
- Possible to regulate very small to large amount.
- As flow regulating handle can be rotate 4 cycles, small adjusting and resetting is easily conducted.
- Options like a handle rocking key or a structure to prevent jumping are available.

Nomenclature

*	-	JF	*	-	G	**	-	***	-	**	-	*	*
1		2	3		4	5		6		7		8	9

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents, Working oil with water/glycol
F : Working oil with phosphoric acid ester

(2) Model No.
JF : J series flow control valve

(3) Check valve mark
No mark : Without check valve
C : With check valve

(4) Connections
G : Gasket attached type

(5) Nominal diameter
02 : 1/4 03 : 3/8

(6) Max. regulating flow
30 : 30L/min 105 : 105L/min

(7) Design number (design number is subject to change)
15 : Model No. JF-G02, JFC-G02
16 : Model No. JF-G03
17 : Model No. JFC-G03

(8) Option mark I
No mark : Without a flow regulating handle rock key
L : With a flow regulating handle rock key

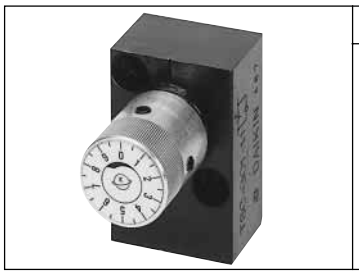
(9) Option mark II
No mark : Without a structure to prevent jumping
N : With a structure to prevent jumping

Specifications

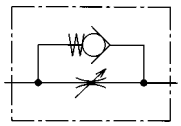
Model code	Nom. Dia.	Max. operating pressure MPa {kgf/cm²}	Flow regulating range★1 L/min	Free flow L/min	Check valve clacking pressure MPa {kgf/cm²}	Weight kg
JF-G02-30-15	1/4	21 {210}	*~30	30	0.035 {0.35}	3.9
JFC-G02-30-15						
JF-G03-105-16	3/8		*~105	105		8.3
JFC-G03-105-17						

Note) ★1 The minimal regulating flow rate is differs from the pressure differentials between the inlet and outlet. Contact us separately.

Small size throttle valves with a check valve



JIS symbols



Features

- As a check valve is built in, one way stream is the regulating flow and the reverse stream is free flow.
- As a leak from the check valve is little, a very small flow regulating is possible up to entire close.

Nomenclature

TSC	-	*	01	-	**
1		2	3		4

(1) Model No.
TSC : Small size throttle valve with a check valve.

(2) Connections
G : Gasket attached type
T : Screw connection type

(3) Nominal diameter
01 : 1/8

(4) Design number (design number is subject to change)
No mark : Connections screw connection type (T)
11 : Connections Gasket attached type (G)

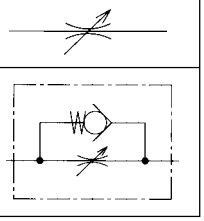
Specifications

Model code	Nom. Dia.	Max. operating pressure MPa {kgf/cm²}	Max. regulating flow rate L/min	Check valve clacking pressure MPa {kgf/cm²}	Weight kg
TSC-G01-11	1/8	7 {70}	Refer to the performance curve	0.1 {1}	0.2
TSC-T01				0.08 {0.8}	0.1

Throttle valves · Throttle valves with check valve



JIS symbols



Features

- A structure with good balance of pressure makes it possible to operate a handle easily.
- Compact design enables to reduce a installation space.
- Easy adjusting of small amount flow rate.

Nomenclature

*	-	HDFT	*	-	*	**
1		2	3		4	5

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents, Working oil with water / glycol
F : Working oil with phosphoric acid ester

(2) Model No.
HDFT : H series throttle valve

(3) Check valve mark
No mark : Without check valve
C : With check valve

(4) Connections
G : Gasket attached type
T : Screw connection type
F : Flange connection type

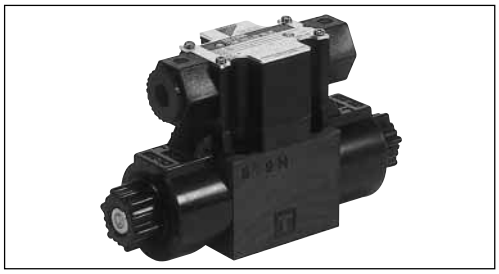
(5) Nominal diameter
03 : 3/8
06 : 3/4
10 : $1^{1}/_{4}$
16 : 2

Specifications

Model code	Nom. Dia.	Max. operating pressure MPa {kgf/cm²}	Max. regulating flow rate L/min	Check valve clacking pressure MPa {kgf/cm²}	Weight kg
HDFT (C)-G03	3/8	21 {210}	30	0.2 {2}	2.7
HDFT (C)-T03					1.5
HDFT (C)-G06	3/4		75		4.2
HDFT (C)-T06					3.6
HDFT (C)-F06					9.5
HDFT (C)-G10	$1^{1}/_{4}$		190	0.15 {1.5}	11
HDFT (C)-T10					9.4
HDFT (C)-F10					11★1
HDFT (C)-F16	2		470	0.2 {2}	21★1

Note) ★1 The weight of a flange connection type includes flange and bolts.

Low watt type solenoid operated valve



Features

- A solenoid valve adopting low watt coil (DC: 5W, AC: 12W).
- Possible to drive directly by means of programable sequence controller due to the low current characteristics.

Nomenclature

*	-	LS	-	G	02	-	**	*	*	-	30	-	***
1		2		3	4		5	6	7		8		9

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents
F : Working oil with phosphoric acid ester

(2) Model No.
LS : Low watt type solenoid operated valve

(3) Connections
G : Gasket attached type

(4) Nominal diameter
02 : 1/4

(5) Spool symbol (refer to model list)

(6) Spool operating systems
C : Spring center type
A : Spring off-set type (with SOLa)
B : Spring off-set type (with SOLb)
N : No spring type (without detente)
D : No spring type (with detente)

(7) Voltage mark (refer to solenoid specifications table)

(8) Design number (the design number is subject to change)

(9) Option mark ★1
C : DIN connector type (without lamp)
CL : DIN connector type (with lamp)
CI : DIN connector without plug
N : with surge killer ★2
E : with earth terminal (coping with CE standards) ★3

Note) ★1 When more than two options are doubled, line up in the alphabetical order.
★2 Surge killer is only applied to a terminal box type.
★3 A product coping with CE standards with an earth terminals is only the case that the voltage mark is A or P. (Spool operating systems except A or P don't cope with CE standards)

Specifications

Model No.	Nom. Dia.	Max. operating pressure MPa {kgf/cm²}	Max. flow rate ★4 L/min	Permissible back pressure MPa {kgf/cm²}	Max. switching frequency cycle/min
LS-G02	1/4	7 {70}	30 (15)	7 {70}	240

Note) ★4 Spool method : Max. flow rate at 66C of working method is 15L/min.

(7) : Solenoid specifications

Voltage mark	Power supply voltage	Starting current A	Holding current A	Holding watt W	Permissible volt variation %
A	AC100V(50Hz)	1.13	0.31	12.0	80~110
	AC100V(60Hz)	1.02	0.22	8.5	90~121
	AC110V(60Hz)	1.13	0.26	11.2	82~110
B	AC200V(50Hz)	1.13	0.31	12.0	80~110
	AC200V(60Hz)	1.02	0.22	8.5	90~121
	AC220V(60Hz)	1.13	0.26	11.2	82~110
P	DC24V	—	0.216	5.2	90~110

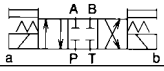
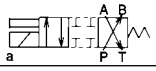
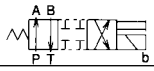
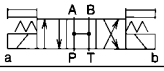
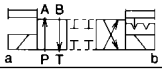
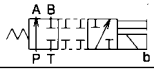
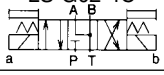
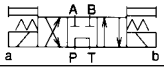
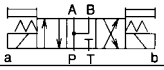
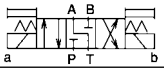
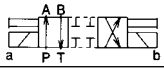
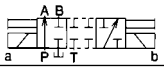
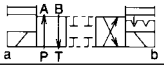
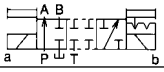
Time rating	Insluation resist.	Dielectric spec.	Insulation level.
Continuous	50 MΩ	AC1500V 1min	B class

Note) ○The current and watts are at 20°C.
○The starting current is the value when the moving iron core is at farthest place from the rigid iron core.

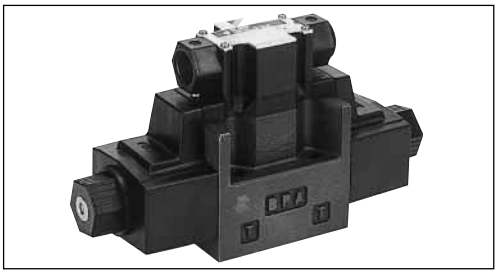
Weight (kg)

Double solenoid		Single solenoid	
AC	DC	AC	DC
1.6	2.2	1.3	1.6

(5) : Model list

Model code JIS hydraulic symbols		
Spool operating method		
C,N,D type	A type	B type
LS-G02-2C 	LS-G02-2A 	LS-G02-2B 
LS-G02-3C 	LS-G02-20A 	LS-G02-20B 
LS-G02-4C 	—	—
LS-G02-44C 	—	—
LS-G02-66C 	—	—
LS-G02-7C 	—	—
LS-G02-8C 	—	—
LS-G02-9C 	—	—
LS-G02-2N 	—	—
LS-G02-20N 	—	—
LS-G02-2D 	—	—
LS-G02-20D 	—	—

Solenoid operated valve



Features

- Realized high pressure and large flow rate such as 35MPa {350kgf/cm²}, 100L/min. (G02), 160L/min. (G03).
- Mostly suits for the structure not only with dust-proof and water-proof complying with IEC Pub529 IP65, but also coping with Europe safety standards (CE).

Nomenclature

*	-	KSO	-	G	**	-	**	*	*	-	**	-	***	-	***
1		2		3	4		5	6	7		8		9		10

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents
H : Working oil with water / glycol contents
F : Working oil with phosphoric acid ester

(2) Model No.
KSO : K series solenoid operated valve

(3) Connections
G : Gasket attached type

(4) Nominal diameter
02 : 1/4
03 : 3/8

(5) Spool method (refer to model list)

(6) Spool operating systems
C : Spring center type
A : Spring off-set type (with SOLa)
B : Spring off-set type (with SOLb)
N : No spring type (without detente)
D : No spring type (with detente)

(7) Voltage mark (refer to solenoid specifications table)

(8) Design number (design number is subject to change)
20 : Nominal diameter 03 (3/8)
30 : Nominal diameter 02 (1/4)

(9) Option mark (refer to the option mark list)

(10) Auxiliary spool symbol (refer to the model list)

Specifications

Model No.	Nom. Dia.	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Permissible back pressure MPa {kgf/cm²}	Max. switching frequency			Insulation skin
					AC, DC	With rectifier	Surge killer built-in DIN connector with lump	
KSO-G02	1/4	35 {350} (25 {250}) ★1	100	17.5 {175}	240	120	100	IEC Pub529 IP65
KSO-G03	3/8		160 (DC), 130 (AC)	16 {160}			60	

Note) ★1 Max. operating pressure: Spool symbol/operating method 5C, 66C or 51C is 25MPa {250kgf/cm²}.

(7) : Solenoid specifications

- **KSO-G02**

Voltage mark	Supply voltage	Starting amperes A	Holding current A	Holding power W	Permissible volts variation %	Voltage mark	Supply voltage	Starting amperes A	Holding current A	Holding power W	Permissible volts variation %
A	AC100V (50Hz)	2.42	0.51	21.5	80~110	M	AC230V (50Hz)	1.05	0.22	21.5	80~110
	AC100V (60Hz)	2.14	0.37	18	90~121		AC230V (60Hz)	0.93	0.16	18	90~120
	AC110V (60Hz)	2.35	0.44	22.5	82~110						
B	AC200V (50Hz)	1.21	0.26	21.5	80~110	N	DC12V	—	2.35	28.2	90~110
	AC200V (60Hz)	1.07	0.19	18	90~121	P	DC24V	—	1.22	29.2	90~110
	AC220V (60Hz)	1.18	0.22	22.5	82~110	Q	DC48V	—	0.61	29.3	90~110
C	AC110V (50Hz)	2.2	0.46	21.5	80~110	R	DC100V	—	0.35	34.8	90~110
D	AC220V (50Hz)	1.1	0.23	21.5	80~110	S	DC110V	—	0.32	35	90~110
J	AC240V (50Hz)	1.01	0.21	21.5	80~110	T	DC200V	—	0.18	35.4	90~110
	AC240V (60Hz)	0.89	0.15	18	90~120	U	DC220V	—	0.15	33.6	90~110
K	AC120V (50Hz)	2.02	0.43	21.5	80~110	E	AC100V with rectifier	—	0.38	33.5	90~110
	AC120V (60Hz)	1.78	0.31	18	90~120	F	AC110V with rectifier	—	0.34	32.8	90~110
L	AC115V (50Hz)	2.1	0.44	21.5	80~110	G	AC200V with rectifier	—	0.2	36.8	90~110
	AC115V (60Hz)	1.86	0.32	18	90~120	H	AC220V with rectifier	—	0.17	34	90~110

(7) : Solenoid specification table

● KSO-G03

Voltage mark	Supply voltage	Starting amperes A	Holding current A	Holding power W	Permissible volts variation %	Voltage mark	Supply voltage	Starting amperes A	Holding current A	Holding power W	Permissible volts variation %
A	AC100V (50Hz)	5.7	0.88	37	80~110	M	AC230V (50Hz)	2.5	0.35	37	80~110
	AC100V (60Hz)	4.9	0.64	33	90~121		AC230V (60Hz)	2.1	0.26	33	90~120
	AC110V (60Hz)	5.4	0.77	41	82~110						
B	AC200V (50Hz)	2.9	0.44	37	80~110	N	DC 12V	—	3.08	37	90~110
	AC200V (60Hz)	2.4	0.32	33	90~121	P	DC 24V	—	1.6	38	90~110
	AC220V (60Hz)	2.7	0.39	41	82~110	Q	DC 48V	—	0.77	37	90~110
C	AC110V (50Hz)	5.2	0.74	37	80~110	R	DC 100V	—	0.37	37	90~110
D	AC220V (50Hz)	2.6	0.37	37	80~110	S	DC 110V	—	0.34	37	90~110
J	AC240V (50Hz)	2.4	0.34	37	80~110	T	DC 200V	—	0.19	38	90~110
	AC240V (60Hz)	2	0.25	33	90~120	U	DC 220V	—	0.17	38	90~110
K	AC120V (50Hz)	4.8	0.68	37	80~110	E	AC100V with rectifier	—	0.42	37	90~110
	AC120V (60Hz)	4.1	0.5	33	90~120	F	AC110V with rectifier	—	0.39	38	90~110
L	AC115V (50Hz)	5	0.7	37	80~110	G	AC200V with rectifier	—	0.2	36	90~110
	AC115V (60Hz)	4.3	0.52	33	90~120	H	AC220V with rectifier	—	0.19	37	90~110

Note) ○Current and power are at 20°C.
○The starting current is the value when the moving iron core is at farthest place.

Time rating	Dielectric resistance	Dielectric characteristics	Insulation class	
			KSO-G02	KSO-G03
Continuous	50 MΩ	AC1500V one min	B class (Coils: AC: H class, DC: F class)	B class (Coils: H class)

(9) : Option mark table

Option mark	Option' contents					KSO-G02	KSO-G03	Note
No mark	Terminal box type	With lump	Without earth terminal		Without surge killer	○	○	
N					With surge killer	○	○	
NR					Surge killer with resistance	○	○	★2
E			With earth terminal	Coping with CE standards	Without surge killer	○	○	★3
EN					With surge killer	○	○	★3
ENR					Surge killer with resistance	○	○	★2, 3
QR			With quick return circuit built-in rectifier			—	○	★4
C	DIN connector type	Without lump	With earth terminal		Without surge killer	○	○	
CE				Coping with CE standards		○	○	★3
CL		With lump				○	○	
CLE				Coping with CE standards		○	○	★3
N-CL					With surge killer	○	—	
N-CLE				Coping with CE standards		○	—	★3
CI	DIN connector type	With quick return circuit built-in rectifier				○	○	
L	Lead wire type	Without lump	Without earth terminal		Without surge killer	○	○	
8		Set bolts: M8				—	○	

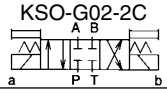
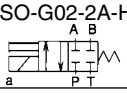
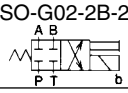
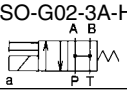
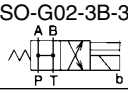
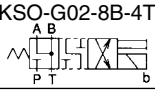
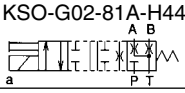
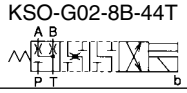
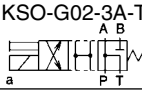
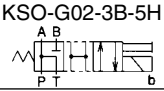
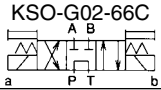
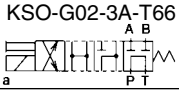
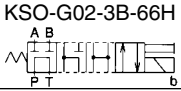
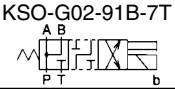
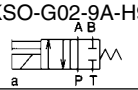
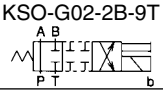
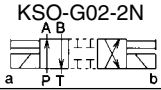
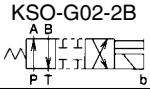
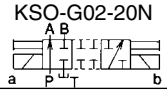
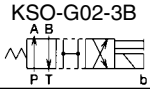
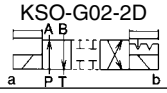
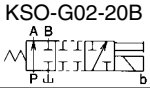
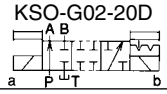
Note) ★2 Applies only when the voltage mark is P.
★3 Products coping with CE standards are applied only when the voltage mark is A or P.
★4 Applies when the voltage mark is E, F, G, or H. Exclusive use driver is attached for this option. (One driver is attached to one solenoid).
Model : SSQ-101 (Voltage mark : E, F)
Model : SSQ-201 (Voltage mark : G, H)
○If the options are doubled more than two, line up them in the alphabetical order.

Weight (kg)

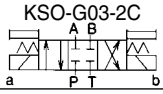
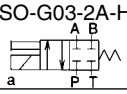
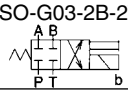
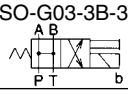
Application		KSO-G02		KSO-G03	
		AC	DC, with rectifier	AC	DC, with rectifier
Terminal box type	Double solenoid	1.8	2.2	4.4	5.8
	Single solenoid	1.5	1.7	3.7	4.4
DIN connector type	Double solenoid	1.8	2.1	4.3	5.7
	Single solenoid	1.4	1.6	3.6	4.3
Lead wire type	Double solenoid	1.7	2	4.3	5.7
	Single solenoid	1.4	1.5	3.6	4.3

(5)(10) : Model list

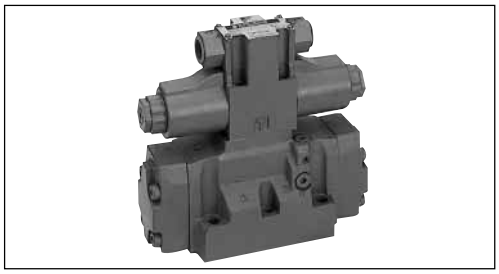
● KSO-G02

Model code JIS hydraulic symbols		
Spool operating method		
C, N, D type	A type	B type
KSO-G02-2C 	KSO-G02-2A-H2 	KSO-G02-2B-2T 
KSO-G02-3C 	KSO-G02-3A-H3 	KSO-G02-3B-3T 
KSO-G02-4C 	KSO-G02-81A-H4 	KSO-G02-8B-4T 
KSO-G02-44C 	KSO-G02-81A-H44 	KSO-G02-8B-44T 
KSO-G02-5C 	KSO-G02-3A-T5 	KSO-G02-3B-5H 
KSO-G02-66C 	KSO-G02-3A-T66 	KSO-G02-3B-66H 
KSO-G02-7C 	KSO-G02-9A-H7 	KSO-G02-91B-7T 
KSO-G02-8C 	KSO-G02-2A-H8 	KSO-G02-8B-8T 
KSO-G02-9C 	KSO-G02-9A-H9 	KSO-G02-2B-9T 
KSO-G02-2N 	—	KSO-G02-2B 
KSO-G02-20N 	—	KSO-G02-3B 
KSO-G02-2D 	—	KSO-G02-20B 
KSO-G02-20D 	—	—

● KSO-G03

Model code JIS hydraulic symbols		
Spool operating method		
C, D type	A type	B type
KSO-G03-2C 	KSO-G03-2A-H2 	KSO-G03-2B-2T 
KSO-G03-3C 	KSO-G03-3A-H3 	KSO-G03-3B-3T 
KSO-G03-4C	KSO-G03-81A-H4	KSO-G03-8B-4T
KSO-G03-44C	KSO-G03-81A-H44	KSO-G03-8B-44T
KSO-G03-5C	KSO-G03-3A-T5	KSO-G03-3B-5H
KSO-G03-66C	KSO-G03-3A-T66	KSO-G03-3B-66H
KSO-G03-7C	KSO-G03-9A-H7	KSO-G03-91B-7T
KSO-G03-8C	KSO-G03-2A-H8	KSO-G03-8B-8T
KSO-G03-9C	KSO-G03-9A-H9	KSO-G03-2B-9T
KSO-G03-2D	—	KSO-G03-2B
KSO-G03-20D	—	KSO-G03-3B
—	—	KSO-G03-20B

Solenoid controlled pilot operated directional control valve



Features

- Realize high pressure and large flow rate such as 35MPa {350kgf/cm²}, 300L/min.
- Mostly suits for the structure not only with dust-proof and water-proof complying with IEC Pub529 IP65, but also coping with Europe safety standards (CE).
- Since check valve built-in type for pilot pressure is available, a resistance valve for raising pilot pressure is not necessary.
- A hydro-center type is required, when a main valve spool will be demanded to return to the neutral securely.

Nomenclature

*	-	KSH	-	G	04	-	**	*	*	-	20	-	*	*	-	*
1		2		3	4		5	6	7		8		9	10		11

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents.
H : Working oil with water / glycol contents
F : Working oil with phosphoric acid ester

(2) Model No.
KSH : K series solenoid controlled pilot operated directional control valve

(3) Connections
G : Gasket attached type

(4) Nominal diameter
04 : 1/2

(5) Spool method (refer to model list)

(6) Spool operating systems
C : Spring center type
B : Spring off-set type (with SOLb)
D : No spring type (with detente)
H : Hydro-center type

(7) Voltage mark (refer to solenoid specifications table)

(8) Design number (design number is subject to change)

(9) Main valve's option mark (refer to the mark table)

(10) Pilot solenoid operated valve's option mark
Refer to the option mark table KSO-G02 (page 29).

(11) Pilot stack valve mark (refer to the option mark table)

Specifications

Model No.	Nom. Dia.	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Pilot pressure★1 MPa {kgf/cm²}		Permissible back pressure MPa {kgf/cm²}		Max. switching frequency cycle/min.
						External drain type	Internal drain type	
KSH-G04	1/2	35 {350}	300	①	0.8~25 {8~250}	21 {210}	16 {160}	120★2
				②	1.2~25 {12~250}			
				③	0.44~25 {4.4~250}			

Note) ★1 The pilot pressure differs depending on the following structure.

Spool operating system	Exhausting oil volume at spool switching cm³
C type	4
B, D type	8
H type	6

①	Spool operating system : C,B, and D type
②	Spool operating system : H type
③	With a check valve for pilot pressure (spool method: 3,5,6,66)

Note) ★2 Max. switching frequency of the surge killer built-in DIN connector type (option mark : N-CL (E)) is100 times/min.
Refer to KSO-G02 on page 29 for the solenoid operated valve's specifications.

(7) : Voltage mark table

Voltage mark	Supply voltage	Voltage mark	Supply voltage
A	AC100V (50/60Hz), AC110V (60Hz)	N	DC12V
B	AC200V (50/60Hz), AC220V (60Hz)	P	DC24V
C	AC110V (50Hz)	Q	DC48V
D	AC220V (50Hz)	R	DC100V
J	AC240V (50/60Hz)	S	DC110V
K	AC120V (50/60Hz)	T	DC200V
L	AC115V (50/60Hz)	U	DC220V
M	AC230V (50/60Hz)	E	AC100V (50/60Hz) with rectifier
		F	AC110V (50/60Hz) with rectifier
		G	AC200V (50/60Hz) with rectifier
		H	AC220V (50/60Hz) with rectifier

Refer to the solenoid specifications KSO-G02 on page 29 for the solenoid specifications.

(9)(11) : Option mark table

(9)Mark	Option contents
No mark	Internal pilot, external drain type
X	Internal pilot, internal drain type
Y	External pilot, external drain type
Z	External pilot, internal drain type
S	With stroke adjusting mechanism ★3
T	With check valve for pilot pressure

(11)Mark	Option contents ★4
No mark	Without stack valve
W	With MT-02W-60
R	With MG-02P-1-60-S02
RR	With MG-02P-1-60-R02
G	With MT-02W-60, MG-02P-1-60-S02
GR	With MT-02W-60, MG-02P-1-60-R02

Note) ○When option marks will be doubled by more than two, after separating (9) with (10), line up them in alphabetical order.
○TY and TZ will never be doubled.
★3 The valve with stroke regulating structure cannot cope with hydro-center.
★4 With MT-02W-60 : Use this If a shock of switching is required.
With MG-02P-1-60-*02 : Use this if the operating pressure is over 25MPa {250kgf/m^2}.

Weight (kg)

Application		AC	DC, with rectifier
Terminal box type	Double solenoid	9	9.4
	Single solenoid	8.7	8.9
DIN connector type	Double solenoid	9	9.3
	Single solenoid	8.6	8.8
Lead wire type	Double solenoid	8.9	9.2
	Single solenoid	8.6	8.7

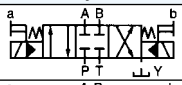
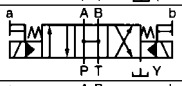
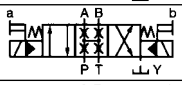
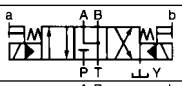
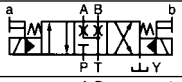
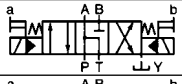
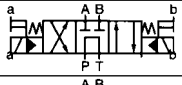
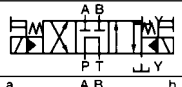
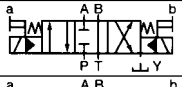
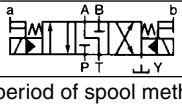
Note) If the following option is used, the weight becomes heavier corresponding to the weight in the table below.

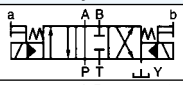
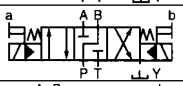
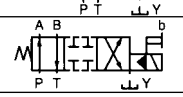
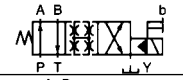
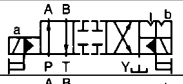
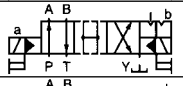
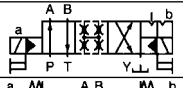
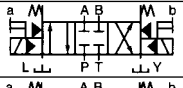
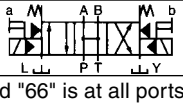
Application	Mark	Weight kg
Hydro-center type	H	1.3
With stroke adjusting mechanism	S	2.2
With MT-02W-60	W	1.4
With MG-02P-1-60-*02	R, RR	1.3
With MT-02W-60, MG-02P-1-60-*02	G, GR	2.7

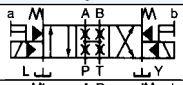
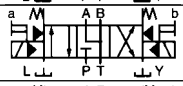
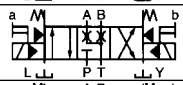
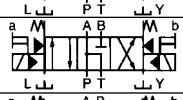
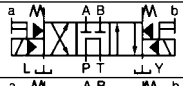
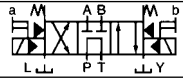
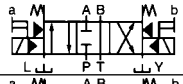
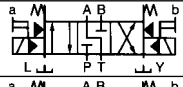
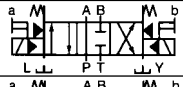
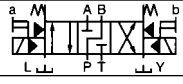
Pilot solenoid operated valve model code

Model code	Solenoid operated model code (*Voltage mark)
KSH-G04-**C*-20	KSO-G02-4C*-30
KSH-G04-**B*-20	KSO-G02-2B*-30
KSH-G04-**D*-20	KSO-G02-2D*-30
KSH-G04-**H*-20	KSO-G02-7C*-30

(5) : Model list

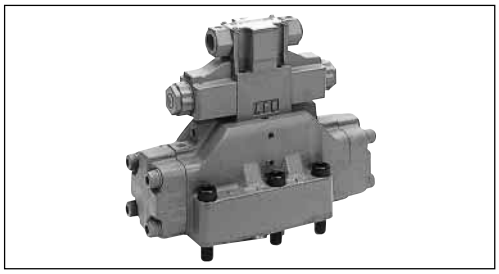
Model code	JIS symbols
KSH-G04-2C	
KSH-G04-3C	
KSH-G04-33C	
KSH-G04-4C	
KSH-G04-44C	
KSH-G04-5C	
KSH-G04-6C	
KSH-G04-66C	
KSH-G04-8C	
KSH-G04-81C	

Model code	JIS symbols
KSH-G04-9C	
KSH-G04-91C	
KSH-G04-2B	
KSH-G04-3B	
KSH-G04-33B	
KSH-G04-2D	
KSH-G04-3D	
KSH-G04-33D	
KSH-G04-2H	
KSH-G04-3H	

Model code	JIS symbols
KKSH-G04-33H	
KSH-G04-4H	
KSH-G04-44H	
KSH-G04-5H	
KSH-G04-6H	
KSH-G04-66H	
KSH-G04-8H	
KSH-G04-81H	
KSH-G04-9H	
KSH-G04-91H	

Note) ○In a transient period of spool method 6, all ports are blocked and "66" is at all ports open.

Solenoid controlled pilot operated directional control valve



Features

- As a polot valve adopts a high reliable KSO-G02, it polongs a life and can get secure operated.
- In addition to dust-proof and water-proof structure compliying with IEC Pu529 and Ip65, it best suits the products coping with The Europe safety standards (CE).

Nomenclature

*	-	JS	-	G	06	-	**	*	*	-	**	-	*
1		2		3	4		5	6	7		8		9

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents
H : Working oil with water/glycol contents
F : Working oil with phosphoric acid ester

(2) Model No.
JS : J series solenoid controlled pilot operated directional control valve

(3) Connections
G : Gasket attached type

(4) Nominal diameter
06 : 3/4

(5) Spool method (refer to model list)

(6) Spool operating systems
C : Spring center type
B : Spring off-set type (with SOLb)
N : No spring type (without detente)

(7) Voltage mark (refer to solenoid specifications table)

(8) Design number (design number is subject to change)
75 : < In case of 21MPa {210kgf/cm²} >
85 : < In case of 25MPa {250kgf/cm²} >

(9) Option mark (refer to mark table)

Specifications

Model No.	Nom. Dia.	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Pilot pressure MPa {kgf/cm²}	Permissible back pressure MPa {kgf/cm²}		Exhausting oil spool switching cm³		
					External drain type	Internal drain type	①	②	③
JS-G06 75	3/4	21 {210}	300	0.45~21 {4.5~210}	21 {210}	10 {100}	8.8	10.7	17.6
JS-G06 85		25 {250}		0.45~25 {4.5~250}	25 {250}	16 {160}			

Note) Pilot oil exhaust volume
① Spool operating method : C type (In case spool type · operating type are except 6C)
② Spool operating method : C type (In case spool type · operating type are 6C)
③ Spool operating method : B, N type

Refer to KSO-G02 (page 29) for the solenoid operated valve.

(7) : Voltage mark table

Voltage mark	Supply voltage	Voltage mark	Supply voltage
A	AC100V (50/60Hz), AC110V (60Hz)	N	DC12V
B	AC200V (50/60Hz), AC220V (60Hz)	P	DC24V
C	AC110V (50Hz)	Q	DC48V
D	AC220V (50Hz)	R	DC100V
J	AC240V (50/60Hz)	S	DC110V
K	AC120V (50/60Hz)	T	DC200V
L	AC115V (50/60Hz)	U	DC220V
M	AC230V (50/60Hz)	E	AC100V (50/60Hz) with rectifier
		F	AC110V (50/60Hz) with rectifier
		G	AC200V (50/60Hz) with rectifier
		H	AC220V (50/60Hz) with rectifier

Refer to KSO-G02 (page 29) solenoid specifications.

(9) : Option mark table

Mark	Option contents
No mark	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 detente)
P	With spool rock mechanism (solenoid operated valve)

Pilot solenoid operated valve model No.

Model code	Adopted solenoid valve model code (*: voltage mark)
JS-G06-**C-**	KSO-G02-4C*-30
JS-G06-**B-**	KSO-G02-2A*-30
JS-G06-**N-**	KSO-G02-2N*-30
JS-G06-**N-**-D	KSO-G02-2D*-30

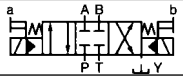
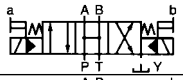
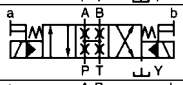
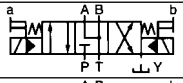
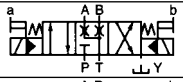
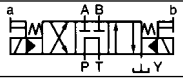
Refer to KSO-G02 (page 29) option mark for the pilot solenoid operated valve's option.

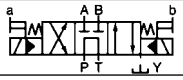
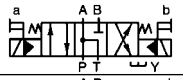
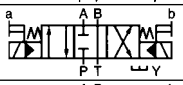
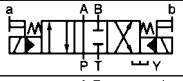
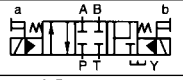
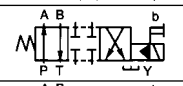
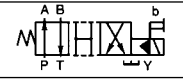
Note) ○If the options are doubled more than two, line up them in the alphabetical order.

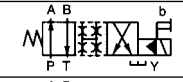
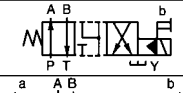
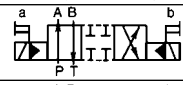
Weight (kg)

Application		JS-G06	
		AC	DC, with rectifier
Terminal box type	Double solenoid	13.3	13.7
	Single solenoid	13	13.2
DIN connector	Double solenoid	13.3	13.6
	Single solenoid	12.9	13.1
Lead wire type	Double solenoid	13.2	13.5
	Single solenoid	12.9	13.1

(5) : Model list

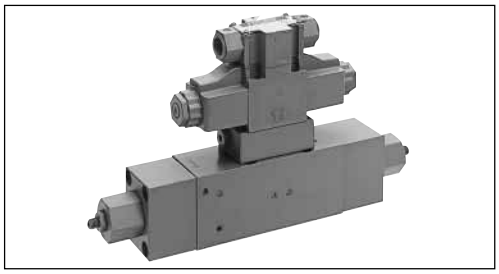
Model code	JIS symbols
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JS-G06-3C	
JS-G06-33C	
JS-G06-4C	
JS-G06-44C	
JS-G06-5C	
JS-G06-6C	

Model code	JIS symbols
JS-G06-66C	
JS-G06-7C	
JS-G06-8C	
JS-G06-9C	
JS-G06-27C	
JS-G06-2B	
JS-G06-3B	

Model code	JIS symbols
JS-G06-33B	
JS-G06-4B	
JS-G06-2N	
JS-G06-3N	
JS-G06-33N	
JS-G06-4N	

Note) ○In a transient period of spool method 6, all ports are blocked and "66" is at all ports open.

Solenoid controlled pilot operated directional control valve



Features

- The combined application with pressure compensation valve (MUV, MDM) makes it possible to gain the flow characteristics with pressure compensation corresponding to the regulating amount of the flow adjusting screw.
- This valve by itself has a shock-less effect as a solenoid pilot switching valve. If 02 size stack valve (throttle valve, reducing valve) is used for a pilot system, more efficient shock-less effect can be expected.
- Possible to stack in multiple linking to a solenoid proportional switching valve and multiple types.

Nomenclature

*	-	MEP	**	*	*	*	*	*	*	-	60	-	*	*
1		2	3	4	5	6	7	8	9		10		11	12

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents
H : Working oil with water/glycol contents
F : Working oil with phosphoric acid ester

(2) Model No.
MEP : Solenoid controlled pilot operated directional control valve

(3) Nominal diameter
12 : 1/2
16 : 3/4
20 : 1
25 : $1^1/_4$
32 : $1^1/_2$

(4) Spool symbol (refer to model list)

(5) Flow type (refer to the specifications)
1 : Q1 flow
2 : Q2 flow
3 : QMAX flow

(6) Spool operating systems
C : Spring center type
B : Spring off-set type (with SOLb)
N : No spring type (without detente)

(7) Voltage mark (refer to solenoid specifications table)

(8) Pilot · Drain mark
X : Internal pilot, internal drain type
Y : External pilot, internal drain type
Z : External pilot, internal drain type
N : Internal pilot, external drain type

*The combination of a pilot and drain cannot be changed.

(9) Pilot stack valve mark
O : Without stack valve
W : with MT-02W-55
P : with MG-02P-1-55
G : with MT-02W-55, MG-02P-1-55

(10) Design number (design number is subject to change)

(11) Spool differential pressure mark
No mark : Differential pressure 0.6MPa {6kgf/cm²}
3 : Differential pressure 0.3MPa {3kgf/cm²}

(12) Option mark of pilot solenoid operated valve ★1
No mark : Terminal box type
D : No spring type (with detente)

Regarding options except above options, refer to KSO-G02 (page 29) option mark table.

Specifications

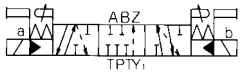
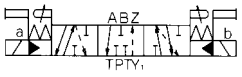
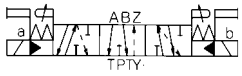
Model No.	Nom. Dia.	Connections	Max. operating pressure★1 MPa {kgf/cm²}	Max. flow rate L/min			Pilot pressure★1 MPa {kgf/cm₂}	Permissible back pressure MPa {kgf/cm²}	Exhausting oil volume at spool switching cm³
				Q1	Q2	QMAX			
MEP12	12	1/2	21 {210}	25	50	75	8~14 {80~140}	10 {100}	1.4
MEP16	16	3/4		50	100	130			3.1
MEP20	20	1		80	160	200			5.9
MEP25	25	$1^1/_4$		125	250	300			9.9
MEP32	32	$1^1/_2$		200	400	500			15.4

Note) ★1 When the max. operating pressure exceeds 14MPa {140kgf/cm²}, choose an external pilot type with pilot pressure in 14Mpa {140kgf/cm²} or less. In case that the pressure in an internal pilot exceeds 14MPa {140kgf/cm²}, choose an option with MG-02P-1-55 (Option mark: P).

★2 The max. flow rate Q1 and Q2 show the case with inlet valve block having a spring for a differential pressure 0.6MPa {6kgf/cm²} or 0.3MPa {3kgf/cm²}, and QMAX. means the case with a inlet valve block having a spring for a differential pressure MPa {6kgf/cm²}. When applying multiple linkage with a pressure compensation valve, there will be a case that the flow rate will not reach the maximum flow rate in the second link or later. Have a guideline in the 3rd link with 80% of the max. flow rate.

Refer to KSO-G02 (page 29) for the solenoid operated valve's specifications.

(4) : Spool type table

Spool method meter in spool ★3	JIS hydraulic symbols	Spool type meter out spool ★4	JIS hydraulic symbols
A		P	
B		Q	
C		R	
D		S	
F			

Note) ★3 Although the max. open levels from P to A, from P to B depend on Q1, Q2, or QMAX, the open levels from A to T, from B to T is only influenced by QMAX.

★4 Although the max. open level from A to T and from B to T differ depending on Q1, Q2 and QMAX, the open level of either from P to A, and from P to B corresponds to three times of QMAX only.

○ Spool corresponds to a solenoid proportional switching valve (MEV).

(7) : Voltage mark table

Voltage mark	Supply voltage	Voltage mark	Supply voltage
A	AC100V (50/60Hz), AC110V (60Hz)	N	DC12V
B	AC200V (50/60Hz), AC220V (60Hz)	P	DC24V
C	AC110V (50Hz)	Q	DC48V
D	AC220V (50Hz)	R	DC100V
J	AC240V (50/60Hz)	S	DC110V
K	AC120V (50/60Hz)	T	DC200V
L	AC115V (50/60Hz)	U	DC220V
M	AC230V (50/60Hz)	E	AC100V (50/60Hz) with rectifier
		F	AC110V (50/60Hz) with rectifier
		G	AC200V (50/60Hz) with rectifier
		H	AC220V (50/60Hz) with rectifier

Refer to KSO-G02(page 29) solenoid specifications for the solenoid specs.

Weight (kg)

Model No.	①	②	③	④
MEP12	6.5	7.9	7.8	9.2
MEP16	9	10.4	10.3	11.7
MEP20	14.4	15.8	15.7	17.1
MEP25	19.1	20.5	20.4	21.8
MEP32	27.9	29.3	29.2	30.6

Note) Weight

①Pilot stack valve mark: O (without stack valve)

②Pilot stack valve mark: W (with MT-02W-55)

③Pilot stack valve mark: P (with MG-02P-1-55)

④Pilot stack valve mark: G (with MT-02W-55, MG-02P-1-55)

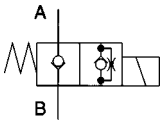
Pilot solenoid operated valve model No.

Model code	Adopted solenoid valve model code (*: voltage mark)
MEP****C***-60-**	KSO-G02-4C*-30
MEP****B***-60-**	KSO-G02-8B*-30-4T
MEP****N***-60-**	KSO-G02-2N*-30
MEP****N***-60-*D	KSO-G02-2D*-30

Seat style solenoid operated valve



JIS symbols



Features

- Fluid adhering phenomena will never happen even if it is used for long time in pressurized condition.

Nomenclature

*	-	JSC	-	*	01	-	2	*	-	10	-	*
1		2		3	4		5	6		7		8

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents
F : Working oil with phosphoric acid ester

(2) Model No.
JSC : J series seat style solenoid operated valve

(3) Connections
G : Gasket attached type
C : Cartridge attached type

(4) Nominal diameter
01 : 1/8

(5) Max. operating pressure
2 : 25Mpa {250 kgf/cm^2}

(6) Voltage mark (refer to solenoid specifications table)

(7) Design number (design number is subject to change)

(8) Option mark (refer to mark table)
No mark : Lead wire type
C : DIN connector type (without lump)
CL : DIN connector type (with lump)

Specifications

Model No.	Nom. Dia.	Max. operating pressure MPa {kgf/cm^2}	Max. flow rate L/min	Max. switching frequency. cycle/min	Leak amount cm^3/min	Weight kg	
						Gasket attached type (G)	Cartridge attached type (C)
JSC-*01	1/8	25 {250}	15	240	0.25 or less	0.97	0.27

(6) : Solenoid specifications table

Voltage mark	Supply voltage	Starting amperes A	Holding current A	Holding power W	Permissible volts variation %	Voltage mark	Supply voltage	Starting amperes A	Holding current A	Holding power W	Permissible volts variation %
A	AC100V (50Hz)	0.362	0.258	17	80~110	D	AC220V (50Hz)				
	AC100V (60Hz)	0.318	0.208	14	90~121		AC230V(60Hz)				
	AC110V (60Hz)	0.356	0.244	18	82~110		AC240V(60Hz)				
B	AC200V (50Hz)	0.183	0.13	17	80~110	N	DC 12V	—	1.48	17.8	90~110
	AC200V (60Hz)	0.158	0.104	14	90~121	P	DC 24V	—	0.74	17.8	90~110
	AC220V (60Hz)	0.178	0.121	18	82~110	Q	DC 48V	—			90~110
C	AC110V (50Hz)					R	DC 100V	—			90~110
	AC115V (60Hz)					S	DC 110V	—			90~110
	AC120V (60Hz)					T	DC 200V	—			90~110
J	AC240V (50Hz)					U	DC 220V	—			90~110

Note) Current or power are at 20°C.

Time ratings	Insulation resistance	Dielectric voltage	Insulation class
Continuous	50 MΩ	AC1500V one minute	B class (H class for coils)

Manually operated valve



Features

- Direction control valve to switch the oil flow direction by handling a spool with a manual arm directly.
- Combining with 02 size stack valve, possible to make structure of many kind of circuit.

Nomenclature

*	-	JM	-	G	02	-	*	*	-	20	-	*
1		2		3	4		5	6		7		8

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents, Working oil with water / glycol contents
F : Working oil with phosphoric acid ester

(2) Model No.
JM : J series manually operated valve

(3) Connections
G : Gasket attached type

(4) Nominal diameter
02 : 1/4

(5) Spool type (refer to model list)

(6) Spool operating systems
C : Spring center type
B : Spring off-set type (with SOLb)
N : No spring type (without detente) 3 positions valve
E : No spring type (with detente) 2 positions valve

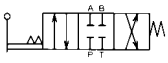
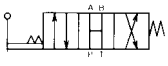
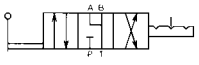
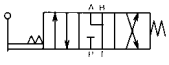
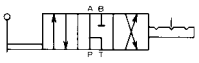
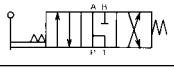
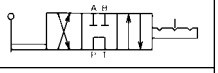
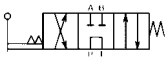
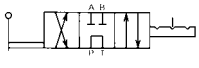
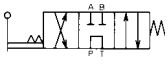
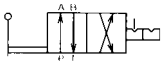
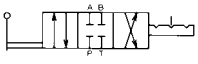
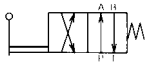
(7) Design number (design number is subject to change)

(8) Option mark
No mark : Lever A at port side
G : Lever B at port side

Specifications

Model No.	Nom. Dia.	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Permissible back pressure MPa {kgf/cm²}	Weight kg
JM-G02	1/4	21 {210}	30	7 {70}	1.4

(5) : Model list

Model code	JIS symbols	Model code	JIS symbols
JM-G02-2C		JM-G02-3N	
JM-G02-3C		JM-G02-4N	
JM-G02-4C		JM-G02-5N	
JM-G02-5C		JM-G02-6N	
JM-G02-6C		JM-G02-66N	
JM-G02-66C		JM-G02-2E	
JM-G02-2N		JM-G02-2B	

Note) In the switching transient period of spool model and operating method 6C and 6N, all ports are blocked and in case of 66C and 66N, all port are opened.

Inline check valve



JIS symbols



Features

- Since when it is built in the line, if its reaches a clacking pressure, it lets a check valve push to open and flow oil to one direction, preventing a reverse stream.

Nomenclature

*	-	HDIN	-	*	**	-	**
1		2		3	4		5

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents,
Working oil with water / glycol contents
F : Working oil with phosphoric acid ester ★1

(2) Model No.
HDIN : J series inline check valve

(3) Connections
T : Screw connections
F : Flange connection

(4) Nominal diameter
03 : 3/8
06 : 3/4
10 : $1^{1}/_{4}$
12 : $1^{1}/_{2}$
16 : 2
24 : 3

(5) Clacking pressure mark ★2
05 : 0.05MPa {0.5kgf/cm²}
45 : 0.45MPa {4.5kgf/cm²}

Note) ★1 "F" is not necessary even for phosphoric acid ester oil in case of a screw connection.
★2 Regarding clacking pressure except above mentioned pressure, refer to clacking pressure tables.

(5) : Clacking pressure table

Mark	0	01	015	02	10	12	15	20	25	30	35	56	60	90
Model No.	Clacking pressure MPa {kgf/cm²}													
	0 {0}	0.01 {0.1}	0.015 {0.15}	0.02 {0.2}	0.1 {1}	0.12 {1.2}	0.15 {1.5}	0.2 {2}	0.25 {2.5}	0.3 {3}	0.35 {3.5}	0.56 {5.6}	0.6 {6}	0.9 {9}
HDIN-T03	○	—	—	○	○	—	○	○	—	—	○	○	○	○
HDIN-T06	○	—	○	○	○	—	○	○	—	—	○	○	○	○
HDIN-F06	○	—	○	○	○	—	○	○	—	—	○	○	○	○
HDIN-T10	○	—	—	○	○	○	○	○	○	○	○	—	○	—
HDIN-F10	○	—	—	○	○	○	○	○	○	○	○	—	○	—
HDIN-F12	○	—	—	—	○	—	○	○	—	—	○	—	—	—
HDIN-F16	○	—	—	○	○	—	○	○	○	—	○	—	○	—
HDIN-F24	○	○	—	—	○	—	—	○	—	—	○	—	—	—

Specifications

Model code	Nom. Dia.	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Weight kg
HDIN-T03-**	3/8	21 {210}	30	0.3
HDIN-T06-**	3/4		75	0.7
HDIN-F06-**				3.2
HDIN-T10-**	$1^{1}/_{4}$		190	2.7
HDIN-F10-**				6.9
HDIN-F12-**	$1^{1}/_{2}$		240	13
HDIN-F16-**	2		370	16
HDIN-F24-**	3		1060	43

Note) The weight of flange connection type (F) includes flange and bolts.

Light angle check valve



JIS symbols



Features

- Since when it is built in the line, if its reaches a clacking pressure, it lets a check valve push to open and flow oil to one direction, preventing a reverse stream.

Nomenclature

*	-	JCA	-	*	**	-	**	-	20
1		2		3	4		5		6

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents, Working oil with water / glycol contents
F : Working oil with phosphoric acid ester

(2) Model No.
JCA : J series light angle check valve

(3) Connections
G : Gasket attached type
T : Screw connections
F : Flange connection

(4) Nominal diameter
03 : 3/8
06 : 3/4
10 : 1 1/4
16 : 2
24 : 3

(5) Clacking pressure mark ★1
04 : 0.04MPa {0.4kgf/cm²}
50 : 0.5MPa {5kgf/cm²}

(6) Design number (design number is subject to change)

Note) ★1 Refer to the clacking pressure table for the clacking pressure other than the above mention.

Specifications

Model code	Nom. Dia.	Max. Operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Weight kg
JCA-G03-**-20	3/8	25 {250}	60	1.7
JCA-T03-**-20				0.9
JCA-G06-**-20	3/4		200	2.9
JCA-T06-**-20				1.7
JCA-F06-**-20				3.7
JCA-G10-**-20	1 1/4		400	5.5
JCA-T10-**-20				5.6
JCA-F10-**-20			500	7.6
JCA-F16-**-20	2		800	20
JCA-F24-**-20	3		1000	62.5

Note) The weight of flange connection type (F) includes flange and bolts.

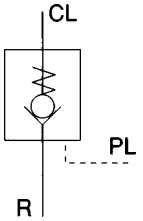
(5) : Clacking pressure table

Mark	0	01	02	20	35
Model No.	Clacking pressure MPa {kgf/cm²}				
	0 {0}	0.01 {0.1}	0.02 {0.2}	0.2 {2}	0.35 {3.5}
JCA-*03	○	○	○	○	○
JCA-*06	○	○	—	○	○
JCA-*10	○	—	—	○	○
JCA-F16	○	—	—	○	○
JCA-F24	○	—	—	○	○

Pilot check valve



JIS symbols



Features

- When the pressure reaches a clacking pressure, it pushes a check valve to open and let oil flow only to one direction. Besides, oil can flow to reverse direction by pushing up the check valve caused by external pilot pressure.
- Decompression type, which opens a small check valve before a main valve will open, is available.

Nomenclature

*	-	JCP	*	-	*	**	-	**	-	20	-	*
1		2	3		4	5		6		7		8

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents, Working oil with water / glycol contents
F : Working oil with phosphoric acid ester

(2) Model No.
JCP : J series pilot check valve

(3) Decompression mark
No mark : Direct operating type
D : Decompression type

(4) Connections
G : Gasket attached type
T : Screw connections
F : Flange connection

(5) Nominal diameter
03 : 3/8
06 : 3/4
10 : 1 1/4
16 : 2

(6) Clacking pressure mark
04 : 0.04MPa {0.4kgf/cm²}
20 : 0.2MPa {2kgf/cm²}
35 : 0.35MPa {3.5kgf/cm²}
50 : 0.5MPa {5kgf/cm²}

(7) Design number (design number is subject to change)

(8) Drain mark
No mark : External drain type
Z : Internal drain type

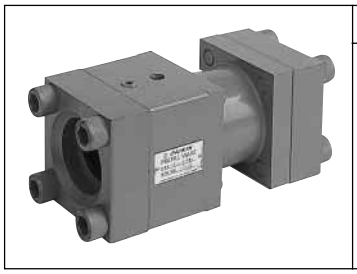
*The combination of external drain type and internal drain type cannot be exchanged.

Specifications

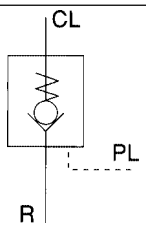
Model code	Nom. Dia.	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Area rate ★1	Weight kg
JCP(D)-G03-**-20	3/8	25 {250}	60	①2.47:1 ②30.25:1	3.3
JCP(D)-T03-**-20					3
JCP(D)-G06-**-20	3/4		200	①2.46:1 ②31.36:1	5.4
JCP(D)-T06-**-20					5.5
JCP(D)-F06-**-20					6.6
JCP(D)-G10-**-20	1 1/4		400	①2.50:1 ②29.47:1	8.5
JCP(D)-T10-**-20		21 {210}			9.6
JCP(D)-F10-**-20		25 {250}			11.6
JCP(D)-F16-**-20	2		800	①2.48:1 ②27.56:1	31.9

Note) ★1 Area rate
① Pilot piston: Large check valve
② Pilot piston: Small check valve (Decompression type)

Prefill valve



JIS symbols



Features

- This valve is used as a suction/exhaust valve between an oil hydraulic cylinder and a tank. In a quick forward stroke of a large press machine, this valve sucks oil from a tank to an oil hydraulic cylinder, while in an pressurization process, it obstructs a reverse flow from a hydraulic cylinder to a tank , and in a return process, exhausting oil from a hydraulic cylinder to a tank.

Nomenclature

*	-	HPF	-	F	**	-	*	-	**	-	*
1		2		3	4		5		6		7

(1) Nomenclature of applied fluid
No mark : Working oil with petroleum contents, Working oil with water / glycol contents
F : Working oil with phosphoric acid ester

(2) Model No.
HPF : H series pre-fill valve

(3) Connections
F : Flange connection

(4) Nominal diameter
16 : 2
20 : 2 1/2
24 : 3
32 : 4

(5) Clacking pressure mark
1 : 0.005MPa {0.05kgf/cm²}
2 : 0.015MPa {0.15kgf/cm²}

(6) Design number (design number is subject to change)
10 : Nominal diameter 16 (2), 24 (3), 32 (4)
20 : Nominal diameter 20 (2 1/2)

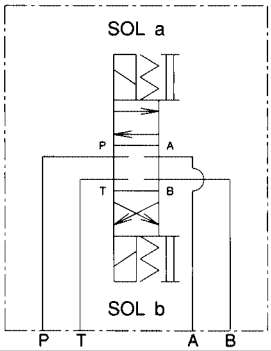
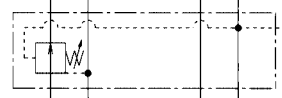
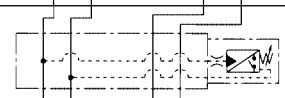
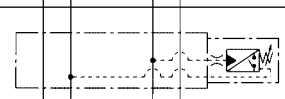
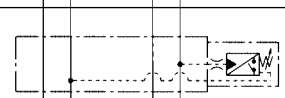
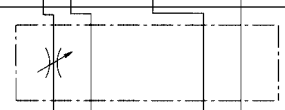
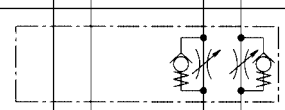
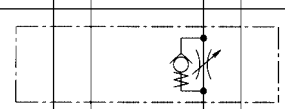
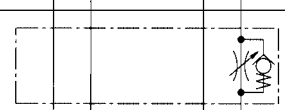
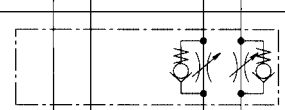
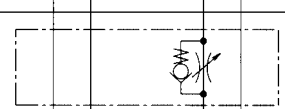
(7) Option mark
No mark : with flange ★1
N : without flange
Note) ★1 In case that flange is attached, R side flange or CL side flange is attached to the nominal diameter 16, 20 and 24, while R side flange is attached to the nominal diameter 32.

Specifications

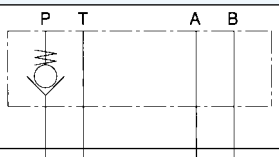
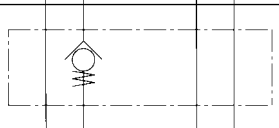
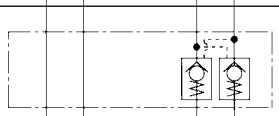
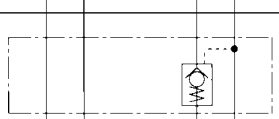
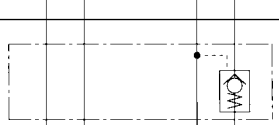
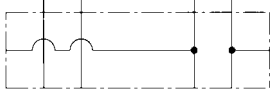
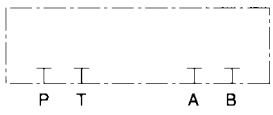
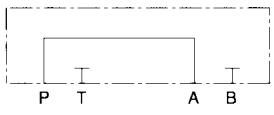
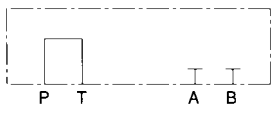
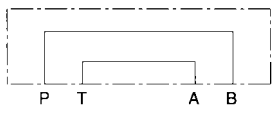
Model code	Nom. Dia.	Max. operating pressure MPa {kgf/cm²}			Max. flow rate L/min		Area ratio	Weight ★2
		CL side	R side	Pilot pressure	R→CL	CL→R	Seat: Pilot piston	kg
HPF-F16-*-10	2	25 {250}	2 {20}	25 {250}	160	320	1.66:1	6.1
HPF-F20-*-20	2 1/2				320	640	2.37:1	12
HPF-F24-*-10	3				500	1000	2.93:1	15.5
HPF-F32-*-10	4				900	1800	3.05:1	18.9

Note) ★2 It doesn't include weights of flange and bolts.

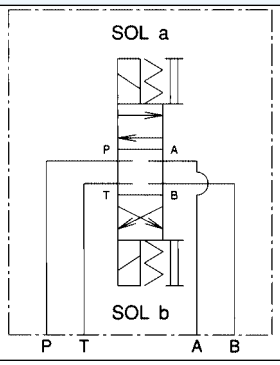
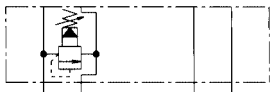
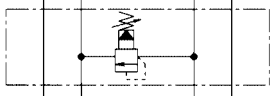
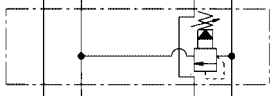
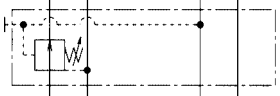
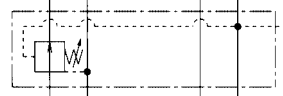
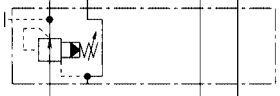
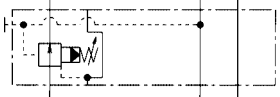
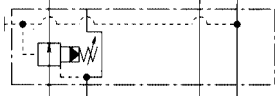
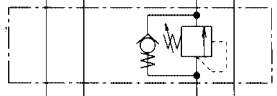
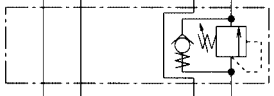
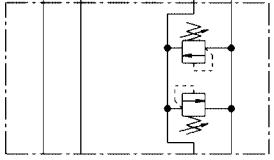
01 Series modular stack valve model list

Kinds	Name	Model code	JIS symbols	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Height mm	Weight kg	Pressure adjusting range Clacking pressure MPa {kgf/cm²}
Direction control valves	Solenoid operated valves	MS-G01		7 {70}	9	—	—	—
Pressure control valves	P port reducing valves	MG-01P-**-10		7 {70}	9	30	0.47	Pressure adjusting range 03:0.3~3.5 {3~35} 1:0.8~7 {8~70}
	A port reducing valves	MG-01A-**-10						
	B port reducing valves	MG-01B-**-10						
	P port pressure switches	MPS-01P-**-10		16 {160}	9	35	1.2	Pressure adjusting range 1:0.5~7 {5~70} 2:0.5~16 {5~160}
	A port pressure switches	MPS-01A-**-10						
	B port pressure switches	MPS-01B-**-10						
Flow control valves	P port throttle valves	MT-01P-10		7 {70}	9	30	0.42	—
	Meter out AB port throttle valves	MT-01W-10					0.46	Check valve Clacking pressure 0.05 {0.5}
	Meter out A port throttle valves	MT-01A-10					0.43	
	Meter out B port throttle valves	MT-01B-10						
	Meter in AB port throttle valves	MT-01Wi-10					0.46	
	Meter in A port throttle valves	MT-01Ai-10					0.43	
	Meter in B port throttle valves	MT-01Bi-10						

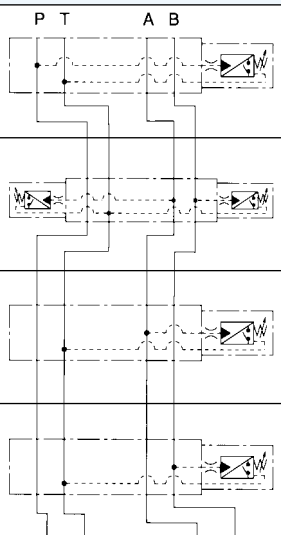
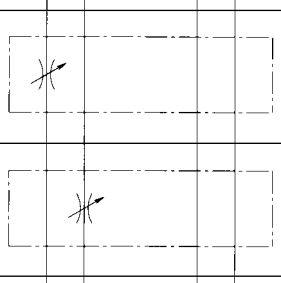
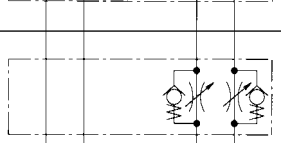
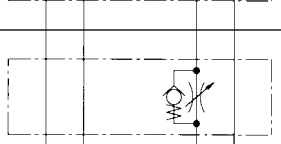
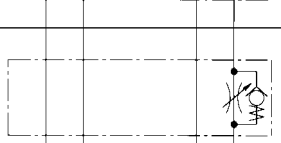
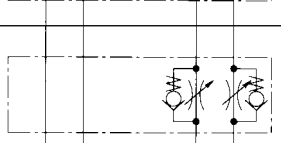
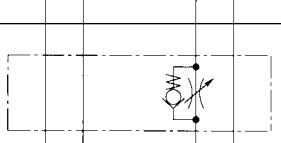
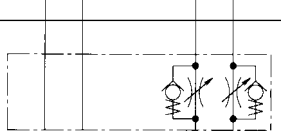
01 Series modular stack valve model list

Kinds	Name	Model code	JIS symbols	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Height mm	Weight kg	Pressure adjusting range Clacking pressure MPa {kgf/cm²}
Direction control valves	P port check valves	MC-01P-**-10		7 {70}	9	30	0.4	Check valve Clacking pressure 10:0.1 {1} 50:0.5 {5}
	T port check valves	MC-01T-**-10						
	AB port pilot check valves	MP-01W-**-10					0.42	Check valve Clacking pressure 20:0.2 {2} 50:0.5 {5}
	A port pilot check valves	MP-01A-**-10						
	B port pilot check valves	MP-01B-**-10						
Blocks/set bolts	P port Pressure take out blocks	BG-01P-10		7 {70}	9	30	0.4	—
	A, B, port pressure take out blocks	BG-01AB-10						
	Blocking blocks	BS-01-10			—	36	0.48	
	Bypass blocks	BD-01PA-10			9			
	Bypass blocks	BD-01PT-10						
	Bypass blocks	BE-01-10						
	Manifold blocks	BT-*01-10	—			70	—	*Linkage number (1~6 linkages)
	Set bolts	HB010*	—	—	—	—	—	Hexagonal bolts with a hole: M5

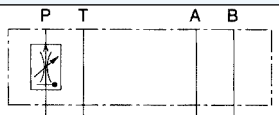
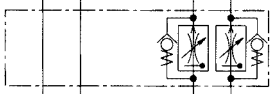
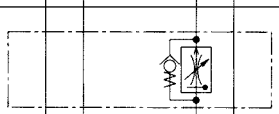
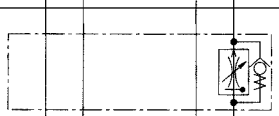
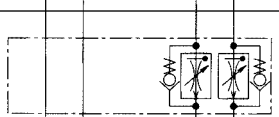
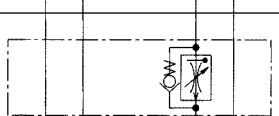
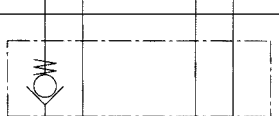
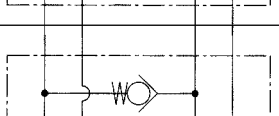
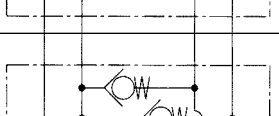
02 Series modular stack valve model list

Kinds	Name	Model code	JIS symbols	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Height mm	Weight kg	Pressure adjusting range Clacking pressure MPa {kgf/cm²}
Direction control valves	Solenoid operated valves	KSO-G02		35 {350}	100	—	—	—
Pressure control valves	P port relief valves	MR-02P-*-55		25 {250}	40	40	1.4	Pressure adjusting range 1:*~7 {*~70} 2:3.5~16 {35~160} 3:3.5~25 {35~250}
	A port relief valves	MR-02A-*-55						
	B port relief valves	MR-02B-*-55						
	P port reducing valves	MG-02P-**-55					1.1	Pressure adjusting range 03:0.3~3.5 {3~35} 1:0.7~7 {7~70} 2:3.5~16 {35~160}
	A port reducing valves	MG-02A-**-55						
	B port reducing valves	MG-02B-**-55						
	P port low pressure reducing valves	MGB-02P-03-55		7 {70}	20		1.4	Pressure adjusting range 03:0.15~3.5 {1.5~35}
	A port low pressure reducing valves	MGB-02A-03-55						
	B port low pressure reducing valves	MGB-02B-03-55						
	P port sequence valves	MQ-02P-2*-55		25 {250}	40		1.1	Pressure adjusting range 1:0.8~7 {8~70} 3:3.5~21 {35~210}
	A port counter balance valves	MQC-02A-2-55					1.4	Pressure adjusting range 2:0.7~14 {7~140} check valve clacking pressure 0.05 {0.5}
	B port counter balance valves	MQC-02B-2-55						
	Brake valves	MB-02W-*-65		35 {350}	20		1.5	Pressure adjusting range 1:0.8~7 {8~70} 3:3.5~21 {35~210}

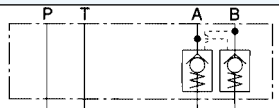
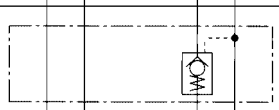
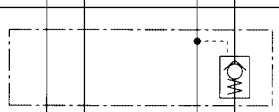
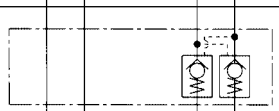
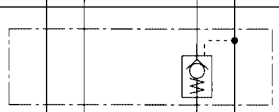
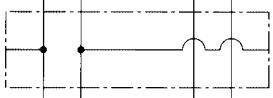
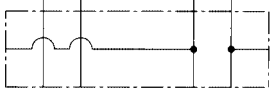
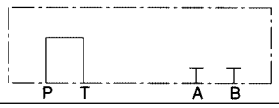
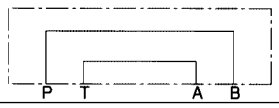
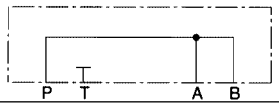
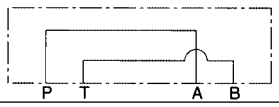
02 Series modular stack valve model list

Kinds	Name	Model code	JIS symbols	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Height mm	Weight kg	Pressure adjusting range Clacking pressure MPa {kgf/cm²}
Pressure control valves	P port pressure switch	MPS-02P-**-60			40	40	1.8	Pressure adjusting range 1:0.5~7 {5~70} 2:0.5~16 {5~160} 3:0.8~25 {8~250}
	AB port pressure switch	MPS-02W-**-60						
	A port pressure switch	MPS-02A-**-60						
	B port pressure switch	MPS-02B-**-60						
Flow control valves	P port throttle valves	MT-02P-65		35 {350}	40	40	0.9	—
	T port throttle valves	MT-02T-65						
	P port throttle valves with check valve	MTC-02P-55		25 {250}			1.0	Check valve Clacking pressure 0.04 {0.4}
	Meter out AB port throttle valves	MT-02W-55					1.3	Check valve Clacking pressure 0.08 {0.8}
	Meter out A port throttle valves	MT-02A-55					1.0	
	Meter out B port throttle valves	MT-02B-55						
	Meter in AB port throttle valves	MT-02Wi-55					1.3	
	Meter in A port throttle valves	MT-02Ai-55					1.0	
	Meter in B port throttle valves	MT-02Bi-55						
	Meter out AB port throttle valves	MT-02W-55-32 MT-02W-55-33					1.4	

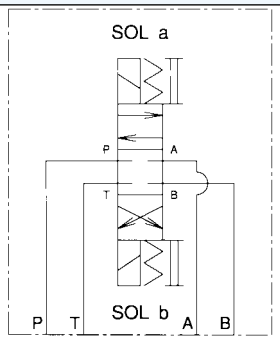
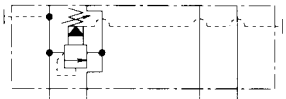
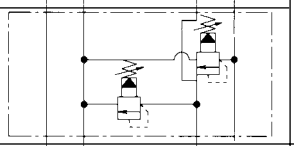
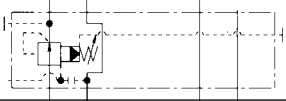
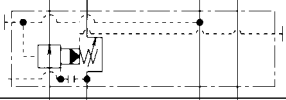
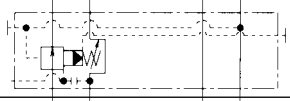
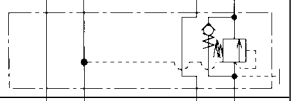
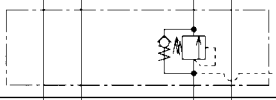
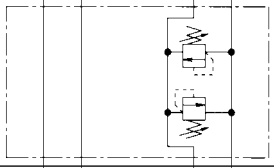
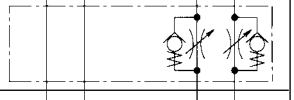
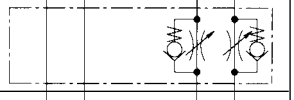
02 Series modular stack valve model list

Kinds	Name	Model code	JIS symbols	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Height mm	Weight kg	Pressure adjusting range Clacking pressure MPa {kgf/cm²}
Flow control valves	P port flow adjusting valve	MF-02P-45		21 {210}	20		1.2	—
	Meter out AB port flow adjusting valve	MF-02W-50		25 {250}	40	40	2	Check valve Clacking pressure 0.08 {0.8}
	Meter out A port flow adjusting valve	MF-02A-50					1.8	
	Meter out B port flow adjusting valve	MF-02B-50						
	Meter in AB port flow adjusting valve	MF-02Wi-50					2	
	Meter in A port flow adjusting valve	MF-02Ai-50					1.8	
	Meter in B port flow adjusting valve	MF-02Bi-50						
Direction control valves	P port check valve	MC-02P-**-65		35 {350}	40	40	0.9	Check valve Clacking pressure 05:0.05 {0.5} 50:0.5 {5}
	A port check valve	MC-02A-**-65						
	B port check valve	MC-02B-**-65						
	T port check valve	MC-02T-**-65						
	P-A port check valve	MC-02PA-**-65						
	P-B port check valve	MC-02PB-**-65						
	AB port check valve	MC-02AB-**-55		25 {250}			1.1	Check valve Clacking pressure 05:0.05 {0.5} 50:0.5 {5}
	Vacuum check valve	MC-02W-55					1	Check valve Clacking pressure 0.015 {0.15}

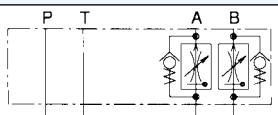
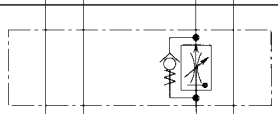
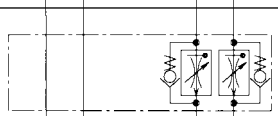
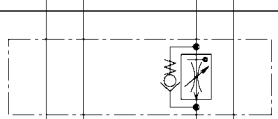
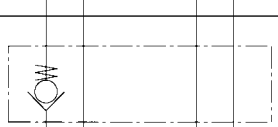
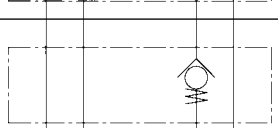
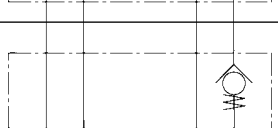
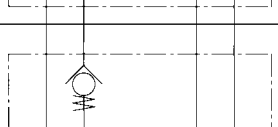
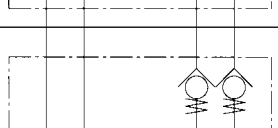
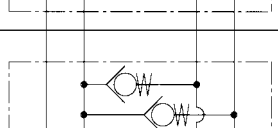
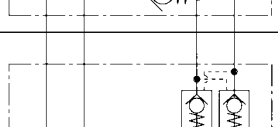
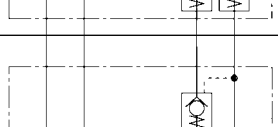
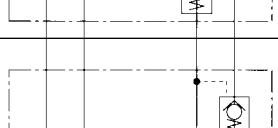
02 Series modular stack valve model list

Kinds	Name	Model code	JIS symbols	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Height mm	Weight kg	Pressure adjusting range Clacking pressure MPa {kgf/cm²}
Direction control valves	AB port pilot check valve	MP-02W-**-55		25 {250}	40	40	1.1	Check valve Clacking pressure 20:0.2 {2} 50:0.5 {5}
	A port pilot check valve	MP-02A-**-55						
	B port pilot check valve	MP-02B-**-55						
	AB port decompression type pilot check valve	MPD-02W-**-55						
	A port decompression type pilot check valve	MPD-02A-**-55						
	B port decompression type pilot check valve	MPD-02B-**-55						
Block/Set bolts	PT port pressure take-out block	BG-02PT-55		25 {250}	40	40	1	—
	AB port pressure take-out block	BG-02AB-55						
	Blocking block	BS-02-55			—			
	Bypass block	BD-02PA-55			40			
	Bypass block	BD-02PT-55						
	Bypass block	BE-02-55						
	Bypass block	BF-02-55						
	Bypass block	BH-02-55						
	Manifold block	BT-*02-50	—			72	—	*: Link number (1~6 linkage)
	Set bolts	HB10*	—	—	—	—	—	Hexagonal bolts with a hole: M5

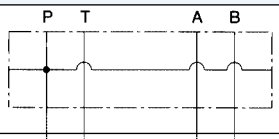
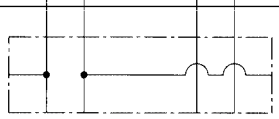
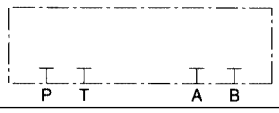
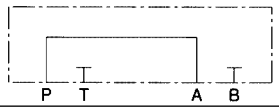
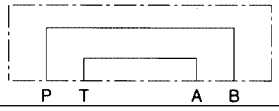
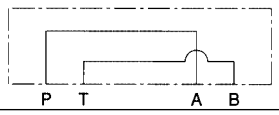
03 Series modular stack valve model list

Kinds	Name	Model code	JIS symbols	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Height mm	Weight kg	Pressure adjusting range Clacking pressure MPa {kgf/cm²}
Direction control valves	Solenoid operated valve	KSO-G03		35 {350}	130 (AC) 160 (DC)	—	—	—
Pressure control valves	P port relief valve	MR-03P-*-40		25 {250}	80	55	3.4	Pressure adjusting range 1:0.7~7 {7~70} 3:3.5~25 {35~250}
	AB port relief valve	MR-03W-*-45					3.9	Pressure adjusting range 1:0.8~7 {8~70} 3:3.5~25 {35~250}
	P port reducing valve	MG-03P-**-40		25 {250} 16 {160}			4	Pressure adjusting range 03:0.3~7 {3~70} 1:0.7~7 {7~70} 3:3.5~25 {35~250}
	A port reducing valve	MG-03A-**-40						
	B port reducing valve	MG-03B-**-40						
	P port sequence valve	MQ-03P-2*-40		25 {250}			3.9	Pressure adjusting range A:0.25~0.85 {2.5~8.5} C:0.5~3.5 {5~35} E:2~14 {20~140} MQC-03* Check valve Clacking pressure 0.05 {0.5}
	B port counter balance valve	MQ-03B-1*-40						
	A port counter balance valve	MQC-03A-1*-40						
	B port counter balance valve	MQC-03B-1*-40						
	Break valve	MB-03W-*-45			30		4.8	Pressure adjusting range 1:0.8~7 {8~70} 3:3.5~21 {35~210}
Flow control valves	P port throttle valve	MT-03P-40		25 {250}	80	55	2.3	—
	Meter out AB port throttle valve	MT-03W-40					3.1	Check valve Clacking pressure 0.16 {1.6}
	Meter in AB port throttle valve	MT-03Wi-40						
	P port flow adjusting valve	MF-03P-45			60			—

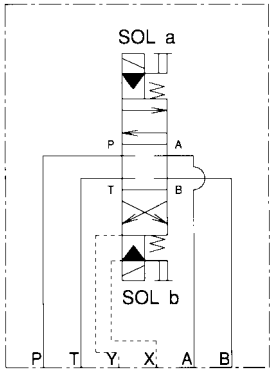
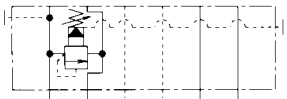
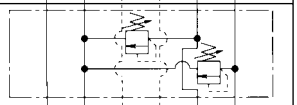
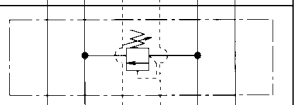
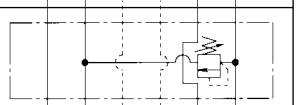
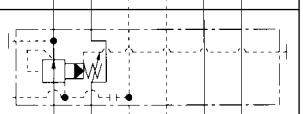
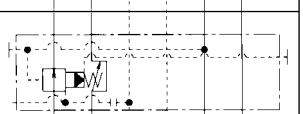
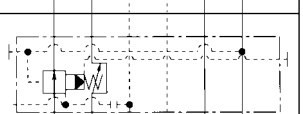
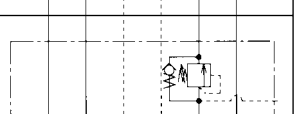
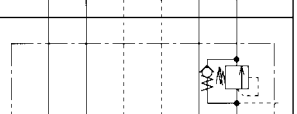
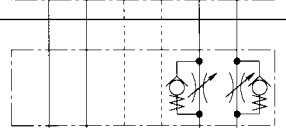
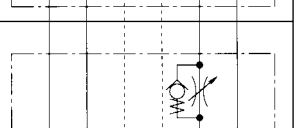
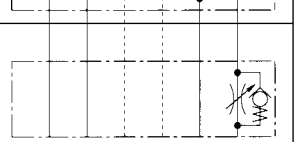
03 Series modular stack valve model list

Kinds	Name	Model code	JIS symbols	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Height mm	Weight kg	Pressure adjusting range Clacking pressure MPa {kgf/cm²}
Flow control valves	Meter out AB port flow adjusting valve	MF-03W-45		25 {250}	60	55	5	Check valve Clacking pressure 0.1 {1}
	Meter out A port flow adjusting valve	MF-03A-45					4.6	
	Meter out B port flow adjusting valve	MF-03B-45						
	Meter in AB port flow adjusting valve	MF-03Wi-45					5	
	Meter in A port flow adjusting valve	MF-03Ai-45					4.6	
	Meter in B port flow adjusting valve	MF-03Bi-45						
Direction control valves	P port check valve	MC-03P-**-40		25 {250}	80	55	2.1	Check valve Clacking pressure 05:0.05 {0.5} 45:0.45 {4.5}
	A port check valve	MC-03A-**-40						
	B port check valve	MC-03B-**-40						
	T port check valve	MC-03T-**-40					2.9	
	AB port check valve	MC-03AB-**-40					3.5	
	Vacuum check valve	MC-03W-40-56					4.5	Check valve Clacking pressure 0.01 {0.1}
	AB port pilot check valve	MP-03W-**-40					3.5	Check valve Clacking pressure 20:0.2 {2} 50:0.5 {5}
	A port pilot check valve	MP-03A-**-40						
	B port pilot check valve	MP-03B-**-40						

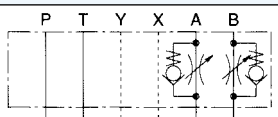
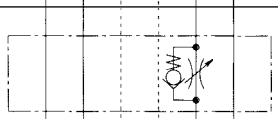
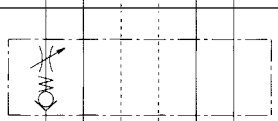
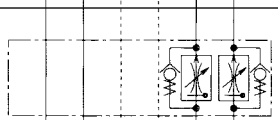
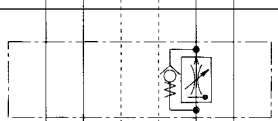
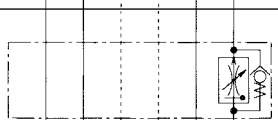
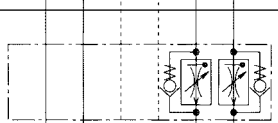
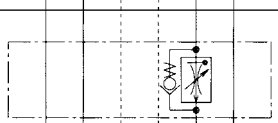
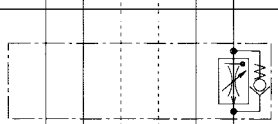
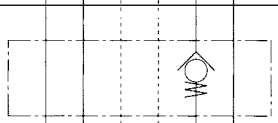
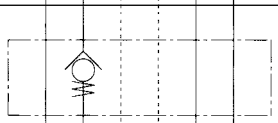
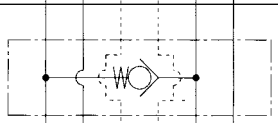
03 Series modular stack valve model list

Kinds	Name	Model code	JIS symbols	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Height mm	Weight kg	Pressure adjusting range Clacking pressure MPa {kgf/cm²}
Block/Set bolts	P port pressure take-out block	BG-03PP-40-40		25 {250}	80	55	2.6	—
	PT port pressure take-out block	BS-03PT-40-70						
	Blocking block	BS-03-40			—	26.5	2.6	—
	Bypass block	BD-03PA-40			80	32	1.4	—
	Bypass block	BE-03-40						
	Bypass block	BH-03-40						
	Manifold block	BT-*03-40	—			95		*: Link number (1~6 linkage)
	Set bolts	HB30* SB30*	—	—	—	—	—	Hexagonal bolts with a hole : M6 Stud bolts : M6

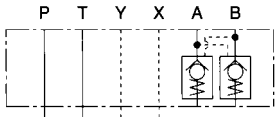
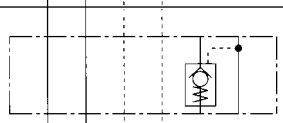
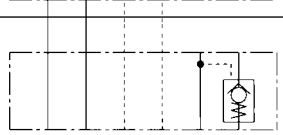
04 Series modular stack valve model list

Kinds	Name	Model code	JIS symbols	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Height mm	Weight kg	Pressure adjusting range Clacking pressure MPa {kgf/cm²}
Direction control valves	Solenoid pilot switching valve	KSH-G04		35 {350}	300	—	—	—
Pressure control valves	P port relief valve	MR-04P-*-10		35 {350}	300	70	7	Pressure adjusting range 1:*~7 {*~70} 2:2~16 {20~160} 3:3.5~25 {35~250}
	AB port direct operating relief valve	MRD-04W-*-10			50 (300)		6.5	Pressure adjusting range 1:0.8~7 {8~70} 3:3.5~25 {35~250} 4:7~35 {70~350}
	A port direct operating relief valve	MRD-04A-*-10						
	B port direct operating relief valve	MRD-04B-*-10						
	P port reducing valve	MG-04P-*-10			300		8	Pressure adjusting range 1:0.8~7 {8~70} 2:2~16 {20~160} 3:3.5~25 {35~250}
	A port reducing valve	MG-04A-*-10						
	B port reducing valve	MG-04B-*-10						
	A port counter balancing valve	MQC-04A-1*-10						Pressure adjusting range A:0.25~0.85 {2.5~8.5} C:0.5~3.5 {5~35} E:2~14 {20~140}
	B port counter balancing valve	MQC-04B-1*-10						
Flow control valves	Meter out AB port throttle valve	MT-04W-10		35 {350}	300	70	6.5	Check valve Clacking pressure 0.1 {1}
	Meter out A port throttle valve	MT-04A-10						
	Meter out B port throttle valve	MT-04B-10						

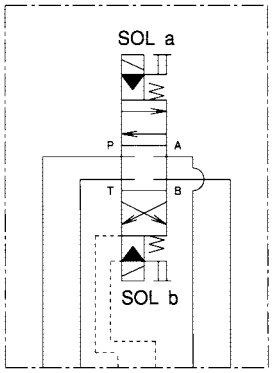
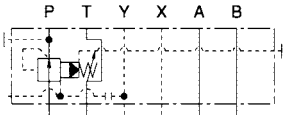
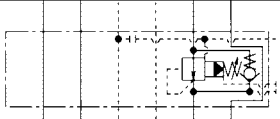
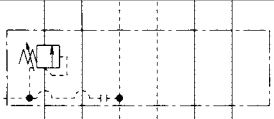
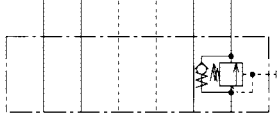
04 Series modular stack valve model list

Kinds	Name	Model code	JIS symbols	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Height mm	Weight kg	Pressure adjusting range Clacking pressure MPa {kgf/cm²}
Flow control valves	Meter in AB port throttle valve	MT-04Wi-10		35 {350}	300	70	6.5	Check valve Clacking pressure 0.1 {1}
	Meter in A port throttle valve	MT-04Ai-10						
	Meter in B port throttle valve	MT-04Bi-10						
	P port throttle valve with check valve	MTC-04P-10					4.5	Check valve Clacking pressure 0.04 {0.4}
	Meter out AB port flow adjusting valve	MF-04W-**-10				85	11	Check valve Clacking pressure 0.1 {1}
	Meter out A port flow adjusting valve	MF-04A-**-10						
	Meter out B port flow adjusting valve	MF-04B-**-10						
	Meter in AB port flow adjusting valve	MF-04Wi-**-10						
	Meter in A port flow adjusting valve	MF-04Ai-**-10						
	Meter in B port flow adjusting valve	MF-04Bi-**-10						
Direction control valves	P port check valve	MC-04P-**-10		35 {350}	300	70	4.5	Check valve Clacking pressure 04:0.04 {0.4} 10:0.1 {1} 20:0.2 {2} 35:0.35 {3.5} 50:0.5 {5} 60: 0.6 {6}
	A port check valve	MC-04A-**-10						
	T port check valve	MC-04T-**-10					6	
	PA port check valve	MC-04PA-**-10					4.5	
	Vacuum check valve	MC-04W-01-10					6	Check valve Clacking pressure 01:001 {0.1}

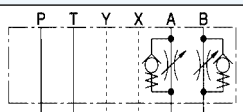
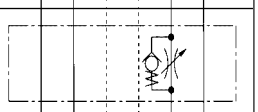
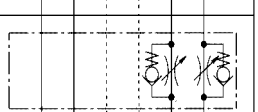
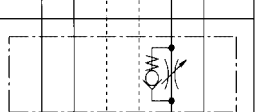
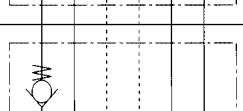
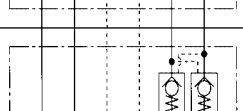
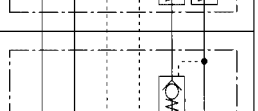
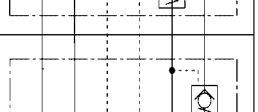
04 Series modular stack valve model list

Kinds	Name	Model code	JIS symbols	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Height mm	Weight kg	Pressure adjusting range Clacking pressure MPa {kgf/cm²}
Direction control valves	AB port pilot check valve	MPD-04W-**-10		35 {350}	300	70	6.8	Check valve Clacking pressure 20:0.2 {2} 50:0.5 {5}
	A port pilot check valve	MPD-04A-**-10						
	B port pilot check valve	MPD-04B-**-10						
Set bolts	Set bolts	HB104**** HB064**** SB104**** SB064****	—	—	—	—	—	Hexagonal bolts with a hole: M10 Hexagonal bolts with a hole: M6 Stud bolts: M10 Stud bolts: M6

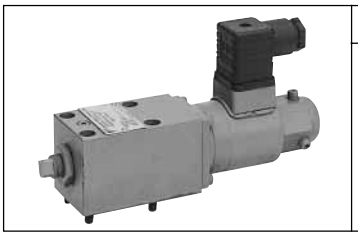
06 Series modular stack valve model list

Kinds	Name	Model code	JIS symbols	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Height mm	Weight kg	Pressure adjusting range Clacking pressure MPa {kgf/cm²}
Direction control valves	Solenoid operated valve	JS-G06		25 {250}	300	—	—	—
Pressure control valves	P port reducing valve	MG-06P-*-11		21 {210}	120	88.9	11.6	Pressure adjusting range 1:0.8~7 {8~70} 2:3.5~14 {35~140} 3:10.5~21 {105~210}
	B port reducing valve	MG-06B-*-11				70	13.3	
	P port sequence valve	MQ-06P-2*-11				88.9	11	Pressure adjusting range A:0.25~0.85 {2.5~8.5} B:0.5~1.75 {5~17.5} C:0.85~3.5 {8.5~35} D:1.75~7 {17.5~70} E:3.5~14 {35~140}
	B port counter balance valve	MQ-06B-1*-11				101.6	12.8	

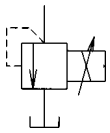
06 Series modular stack valve model list

Kinds	Name	Model code	JIS symbols	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Height mm	Weight kg	Pressure adjusting range Clacking pressure MPa {kgf/cm²}
Flow control valves	Meter out AB port throttle valves	MT-06W-20		31.5 {315}	500	90	13.6	Check valve Clacking pressure 0.15 {1.5}
	Meter out A port throttle valves	MT-06A-20						
	Meter out B port throttle valves	MT-06B-20						
	Meter in AB port throttle valves	MT-06Wi-20						
	Meter in A port throttle valves	MT-06Ai-20						
	Meter in B port throttle valves	MT-06Bi-20						
Direction control valves	P port check valves	MC-06P-**-10		21 {210}	120	88.9	10.5	1:0.8~7 {8~70} 3:3.5~21 {35~210}
	AB port pilot check valves	MPD-06W-**-20		31.5 {315}	500	90	13.6	Check valve Clacking pressure 20:0.2 {2} 50:0.5 {5}
	A port pilot check valves	MPD-06A-**-20						
	B port pilot check valves	MPD-06B-**-20						

Solenoid proportional pilot relief valve



JIS symbols



Features

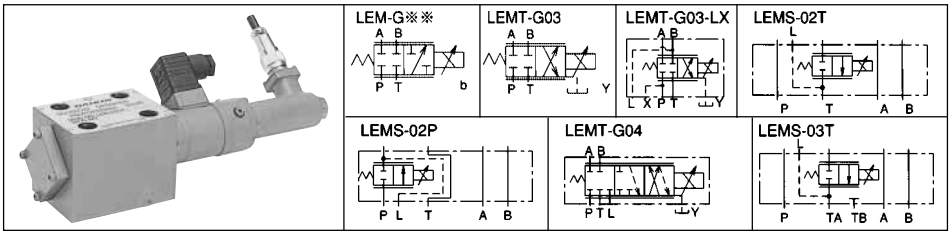
- Applied for remote control operations as a pilot valve of a variable displacement piston pump or as a pilot operating type pressure control valve such as a relief valve or a reducing valve.

Specifications

Model code	Nom. Dia.	Pressure adjusting range ★1 MPa {kgf/cm²}	Max. flow rate L/min	Hysteresis	Repeated characteristics	Weight kg
JRP-G02-03-*-30	1/4	*~3.5 {*~35}	1	Less than 3% of the max. adjusting pressure	Less than 1% of the max. adjusting pressure	1.8
JRP-G02-1-*-30		*~7 {*~70}				
JRP-G02-2-*-30		*~16 {*~160}				
JRP-G02-3-*-30		*~25 {*~250}				

Note) ★1 As the minimum adjusting pressure varies depending on the flow rate, contact us separately.
○ When using as a pilot valve for a main valve, the lowest adjusting pressure differs depending on the main valve.

Direct type solenoid proportional throttle valve



Features

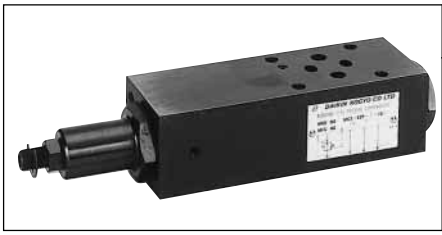
- Proportional throttle switching valve to carry out feed-back control of spool position by detecting the variation of the spool with a differential transformer, as the proportional solenoid directly drives the spool.
- A combination of a pressure compensation valve and an exclusive driver makes it possible to create a proportional flow control in high accuracy.
- LEMS valve is stack type one and can carry out the T port 's meter-out control in a proportional flow control system in high accuracy by means of attaching stack under a solenoid operated valve in combination of an exclusive reducing type pressure compensation valve.

Specifications

Model code	Nom. Dia.	Max. operating pressure MPa {kgf/cm²}	Rated flow rate ★1 L/min	T port permissible back pressure MPa {kgf/cm²}	18- Hysteresis resolution power repeated characteristics	Coil resistance (20˚C) Ω	Initial current (Nominal) mA	Rated flow current (Nominal) mA
LEM -G02-F-20	1/4	21 {210}	25	2.5 {25}	Less than 1 % or less to the rated input voltage.	26	300	700
LEM -G03-F-20	3/8		50					
LEMT-G03-F-20	3/8			21 {210}				
LEMT-G04-F-20	1/2		130			13	500	1540
LEMS-02* -30	1/4		25	2.5 {25}		26	300	700
LEMS-03T -20	3/8	16 {160}	50					

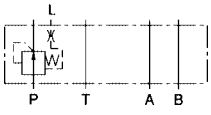
Note) ★1 The rated flow rate is the one in combination of a pressure compensation valve (pressure differentials: 0.6MPa {6kgf/cm²}).

Stack type reducing type pressure compensation valve (LEMS use)

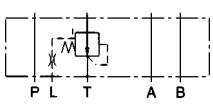


JIS symbols

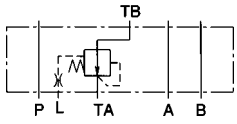
MGS−02P



MGS−02T



MGS−03T



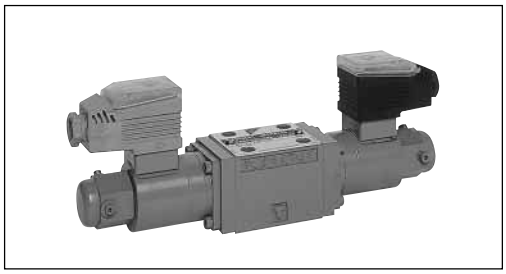
Features

- The combination use with LEMS valve enables proportional flow rate control with reducing type pressure compensation.

Specifications

Model code	Nom. Dia.	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Weight kg
MGS-02P-20	1/4	21 {210}	25	1.2
MGS-02T-20				
MGS-03T-10	3/8	16 {160}	50	3.4

Direct type solenoid proportional switching valve



Features

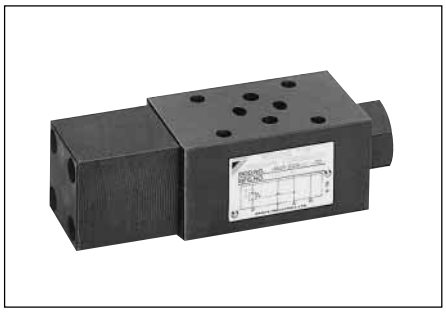
- The valve switching four directions enables the control of the actuator's round process.
- This valve itself can be used for a shock-less switching valve.
- With a differential transformer
  - ○ A proportional solenoid directly drives a spool and detects the variation of the position, carrying out a feed back control for the spool position.
  - ○ The combination of a pressure compensation valve and an exclusive driver makes it possible to do a proportional flow control in high accuracy.
- Without differential transformer
  - ○ Mounts an exclusive driver (ZDN-2-10).
  - ○ The combination with a pressure compensation valve enables it to use as an easy type flow control valve.

Specifications

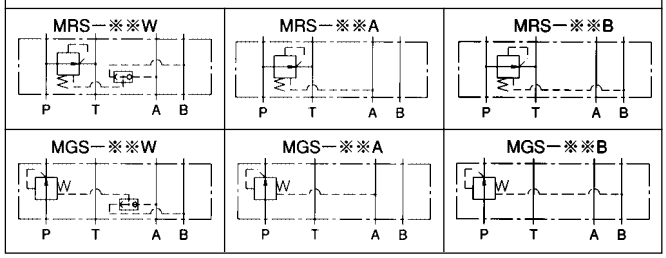
Model code	Nom. Dia.	Max. operating pressure MPa {kgf/cm²}	Rated flow rate ★1 L/min	Permissible back pressure MPa {kgf/cm²}	Hysteresis resolution power repeated characteristics	Weight kg	
						Double solenoid	Double solenoid
KSP-G02-**1-10	1/4	35 {350}	10	2.5 {25}	5% or less	2.7	2.1
KSP-G02-**2-10			18				
KSP-G02-**1-10-M			10		0.5% or less	3.1	2.5
KSP-G02-**2-10-M			18				
KSP-G02-**3-10-M			30				
KSP-G03-**4-10	3/8		40	16 {160}	8% or less	6.5	4.8
KSP-G03-**5-10			50				

Note) ★1 The rated flow rate is the one under differential pressure; ΔP= 1MPa {10kgf/cm²}.

Stack type pressure compensation valve (KSP use)



JIS symbols



Features

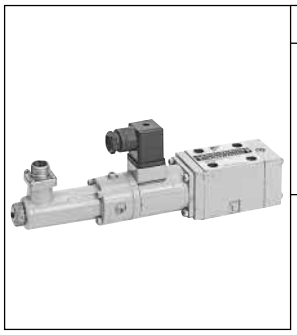
- The combination with KPS vale enables it to carry out a proportional flow control with pressure compensation.

Specifications

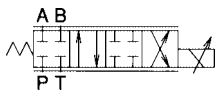
Model code	Nom. Dia.	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min	Weight kg	
				①	②
MRS-02W-**-70	1/4	35 {350}	35	1.8	2
MRS-02A (B)-**-70				1.6	1.8
MGS-02W-**-70				1.8	2
MGS-02A (B)-**-70				1.6	1.8
MGS-03W-**-70	3/8		68	4	4.4
MGS-03A (B)-**-70				3.9	4.3

Note) Weight ① Differential pressure mark 05
② Differential pressure mark 10, 15

Direct type servo valve



JIS symbols



Features

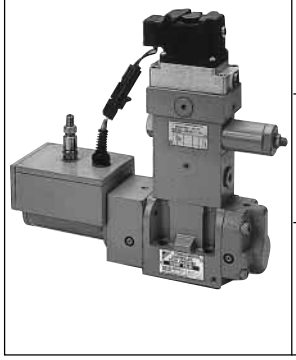
- In combination with exclusive driver, it can have a high response and suits the closed loop controls of position , speed and pressure for a main machine's actuator. (Frequency response: 130Hz/-3dB±10% amplitude)
- Since a proportional solenoid directly drives a spool, the leak volume can keep a least value compared to a nozzle flapper type servo valve.
- When an exclusive driver is used, it becomes all port block (fail safefunction) at power off.

Specifications

Model code	Max. operating pressure MPa {kgf/cm²}	Rated flow rate ★1 L/min	T-port permissible back pressure MPa {kgf/cm²}	Pressure gain	Hysteresis resolution power repeated characteristics	Solenoid rated voltage v	Max. current mA	Weight kg
KSPS-G02-1*-10	35 {350}	10	2.5 {25}	1 type: 2% or less 2 type: 4% or less	1% or less	DC12	1700	2.5
KSPS-G02-2*-10		20						
KSPS-G02-4*-10		40						
KSPS-G02-1*-10-E		10	16 {160}					
KSPS-G02-2*-10-E		20						
KSPS-G02-4*-10-E		40						

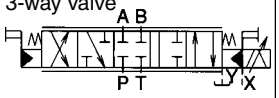
Note) ★1 The rated flow rate is the one at 1 land differential pressure: ΔP = 3.5 MPa {35kgf/cm²}.

Solenoid pilot type servo valve

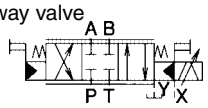


JIS symbols

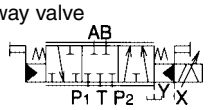
3-way valve



4-way valve



5-way valve



Features

- Suits a closed loop control of position, speed and pressure of main machine's actuator.
- As a pilot valve adopts large sized orifice nozzle for a nozzle flapper type,anti-contaminant characteristics is strengthen.
- A driver is mounted on a valve.
- As option with pressure sensor is provided, closed loop control can be easily performed.

Specifications

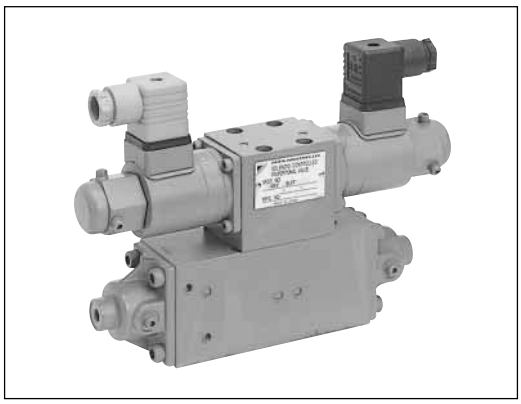
Model code	Nom. Dia.	Max. operating pressure MPa {kgf/cm²}	Rated flow rate ★1 L/min	Drain line permissible back pressure MPa {kgf/cm²}	Hysteresis resolution power repeated characteristics	Pilot valve			Weight kg
						Supply pressure MPa {kgf/cm²}	Required flow rate L/min	Saturated amperes mA	
JSES-G03-3-20	3/8	21 {210}	190	1.4 {14}	0.5% or less	3~5 {30~50}	2.7~3.5	250	9.9
JSES-G03-41-20			45						
JSES-G03-42-20			95						
JSES-G03-43-20			190						
JSES-G03-5-20			360						
JSES-G04-3-20	1/2		540			3~7 {30~70}	4.2~6.5		11.5
JSES-G04-4-20			500						

Note) ★1 The rated flow rate is the one under the conditions bellow.

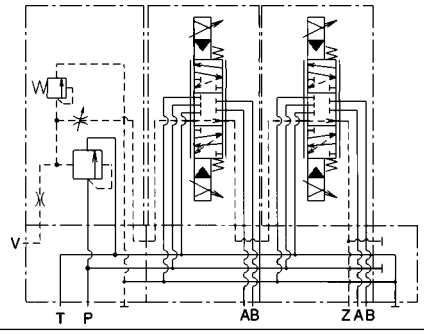
○ Servo type 3,5 : 1 land differential pressure ΔP = 3.5 MPa {35kgf/cm²}
(For servo type 5, it is a value when P1→A and P2→B join together.)

○ Servo type 4 : Valve differential pressure ΔP = 7MPa {70kgf/cm²}

Solenoid controlled proportional valve (with pressure compensation • multiple linking)



Oil hydraulic circuit (Example)



Features

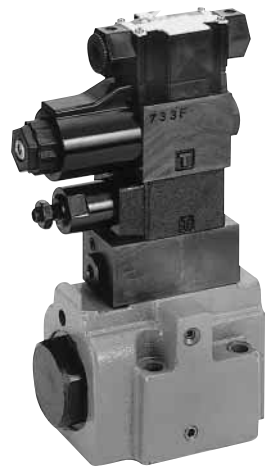
- A stack type control valve with proportional flow characteristics of a pressure compensation type. The current and flow rate are proportional in spite of the load size.
- Possible to make a structure of a power-much circuit outputting the required pressure and flow rate in combination of variable volume type pumps.
- Possible to control the flow rate at A port and B port individually.
- As assembled in the order of an inlet valve block and a solenoid proportional valve, each valve block is mounted on a manifold block. The manifold block and sub-block are separated by every valve, and tightened with the through bolts together with the end plate corresponding to the required switching valve's linkage number (Max. eight links).—(Block-built system).

Specifications

Port size	Nom. Dia.	Max. operating pressure MPa {kgf/cm²}	Rated flow rate r/min		Max. flow rate L/min	T-port permissible back pressure MPa {kgf/cm²}	Relief valve · unload valve	
			Q1	Q2	QMAX		Pressure adjusting range MPa {kgf/cm²}	Unload pressure MPa {kgf/cm²}
12	1/2	21 {210}	25	50	75	2.5 {25}	3 type:0.3~21 {3~210} 6 type:0.6~21 {6~210}	3 type:0.3 {3} 6 type:0.6 {6}
16	3/4		50	100	130			
20	1		80	160	200			
25	1¼		125	250	300			
32	1½		200	400	500			

Port size	Pilot pressure MPa {kgf/cm²}	Pilot exhausting oil cm³	Initial current (nominal) mA		Max. flow current (nominal) mA		Coil resistance (20˚C) Ω
			DC24V solenoid	DC12V solenoid	DC24V solenoid	DC12V solenoid	
12	1.2~21 {12~210}	1.4	300	600	700	1400	DC24V solenoid 26 DC12V solenoid 6.5
16		3.1					
20		5.9					
25		9.9					
32		15.4					

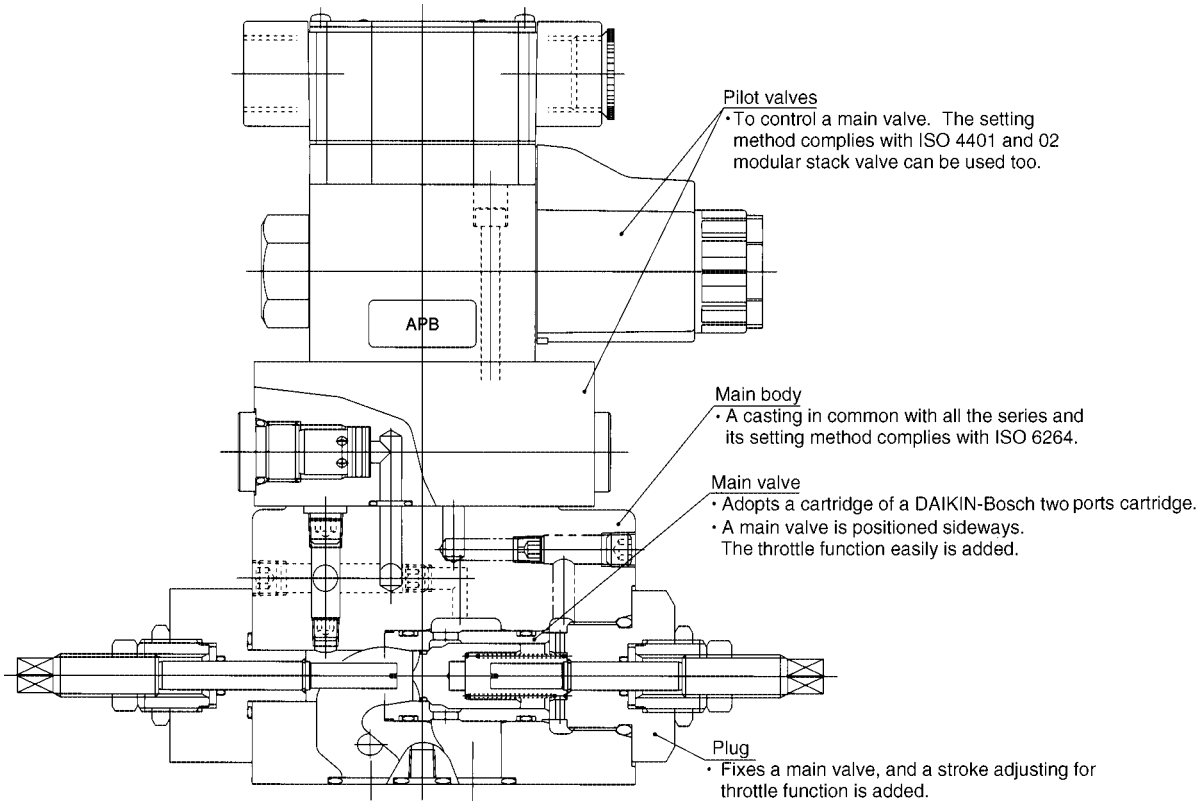
Two ports, four ports multiple purpose valve



Features

- Adopts DAIKIN-Bosch two port cartridge valve, which has many results and complies with international standards, for the main valve. Accordingly, the reliability is outstanding.
- The setting dimensions comply with ISO 6264 (C2 type) and ISO 4401 (C4 type).
- The compounding , which plural functions are packed into one valve, enables a system to create compactness.
- The series are expanding the almost existing valve functions and further the new valve functions which have never been found are being developed.
  (1) C2 type low pressure relief valve [C2RL*] possible to adjust pressure from 0Mpa {0kgf/cm²}.
  (2) C2 type low pressure reducing valve [C2GL*] possible to adjust pressure from 0Mpa {0kgf/cm²} and has a good response of descending pressure.
  (3) C2type solenoid operated valve (with two speed throttle function) [C2S*] possible to use for a speed acceleration and reduction valve.
  (4) C4 type solenoid operated valve condensing four functions; differential circuit necessary at press circuit construction, counter balance valve, decompression function and throttling functions, into one valve.

Basic structure



Specifications

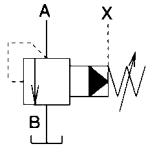
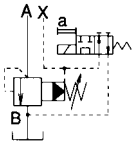
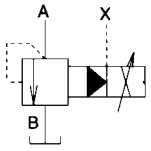
Model code	Max. operating pressure MPa {kgf/cm²}	Max. flow rate L/min
C2**-G03	25 {250}	200
C2**-G06		500
C4 S*-G06		400
C4 S*-G10		800

Note) Pay attention to what pressure, flow specifications, handling differ depending on the valve functions.

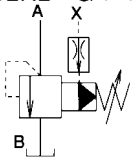
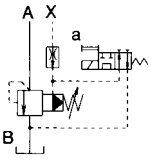
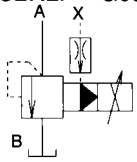
Model expansion

Two port pressure control valve

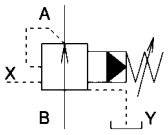
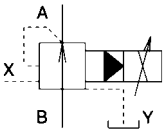
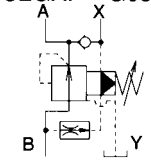
C2 type relief valve

Basic function	With solenoid operated valve	Solenoid proportional control
C2R−G※※	C2RS−G※※	C2RP−G※※
		

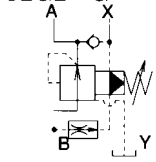
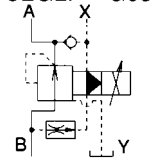
C2 type low pressure relief valve

Basic function	With solenoid operated valve	Solenoid proportional control
C2RL−G※※	C2RLS−G※※	C2RLP−G03
		

C2 type reducing valve

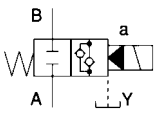
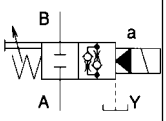
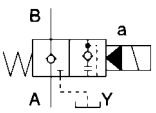
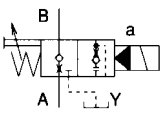
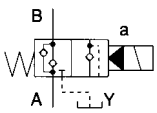
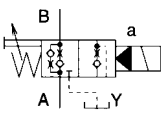
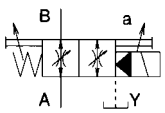
Basic function	Solenoid proportional control	Solenoid proportional control big flow rate type
C2G−G※※	C2GP−G03	C2GXP−G03
		

C2 type low pressure reducing valve

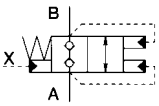
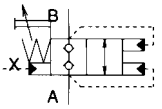
Basic function	Solenoid proportional control
C2GL−G※※	C2GLP−G03
	

Two ports flow / direction control valve

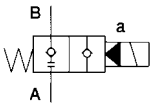
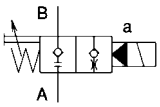
C2 type solenoid operated valve

Basic function	With throttle function	With a series check valve	With a series check valve/throttle function	With a parallel check valve function	With a parallel check valve/throttle function	Two speed throttling function
C2S−G※※	C2ST−G※※	C2SCS−G※※	C2SCST−G※※	C2SCH−G※※	C2SCHT−G※※	C2SW−G※※
						

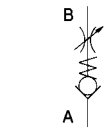
C2 type pilot operated switching valve

Basic function	With throttle function
C2H−G※※	C2HT−G※※
	

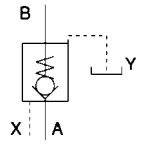
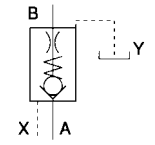
C2 type solenoid operated valve

Basic function	With throttle function
C2SL−G※※	C2SLT−G※※
	

C2 type check valve

Basic function	With throttle function
C2C−G※※	C2CT−G※※
	

C2 type pilot check valve

Basic function	with throttle function
C2P−G※※	C2PT−G※※
	

4 ports directions control valve

C4 type solenoid pilot valve

Basic function	With throttle function	With A port counter balance valve function	With B port decompression function	With A port counter balance valve and a B port decompression function
C4S−G※※	C4ST−G※※	C4S※−G※※−Q	C4S※−G※※−※D	C4S※−G※※−※QD
