

YUKEN

**SOLENOID CONTROLLED PILOT
OPERATED DIRECTIONAL VALVES
DSHG-01/03/04/06/10
PILOT OPERATED DIRECTIONAL VALVES
DHG/04/06/10
MANUALLY OPERATED
DIRECTIONAL VALVES
DMG-01/03/04/06/10
DMT-03/06/10**

**DIRECTIONAL
CONTROLS****General Information****Up to 31.5 MPa (4570 PSI), 1100L/min (291 U.S.GPM)****■ Solenoid controlled Pilot Operated****Valves**

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These valves are composed of a solenoid operated pilot valve and a pilot operated slave valve. When a solenoid is energised the pilot valve directs the flow to move the spool of the slave valve, thus changing the direction of flow in the hydraulic circuit.

● High Pressure High Flow

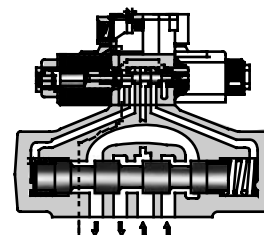
In these valves, the nominal size "04" can provide 300 L/min (79.3 U.S. GPM), "06" can provide 500 L/min (132 U.S.GPM) and "10" can provide 1100 L/min (291 U.S.GPM) in the maximum flow respectively and they can also withstand such a high pressure as 31.5 Mpa {4570 PSI} as the maximum operating pressure. With these features of high pressure and high flow, the valves can make the size or configuration of the equipment compact.

● Low Pressure Drop

As the pressure drop of each size of the valve becomes minimal, the more of energy saving of the equipment is possible.

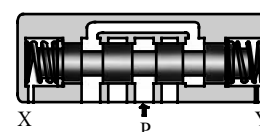
● Easy Change of Pilot and Drain System

The change of the pilot from external to internal and the change of the drain from internal to external or viceversa can be done easily by putting on or removing the relevant plug on the valve.

**■ Pilot Operated Directional Valves**

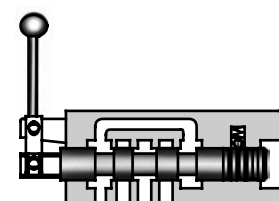
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These valves perform a change over of spool by hydraulic pilot and shift the direction of oil flow.

**■ Manually Operated Directional Valves**

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These valves may be used to manually shift the spool position and change the direction of oil flow.



■ Solenoids

(Only for Solenoid Controlled Pilot Operated Directional Valves)

● Solenoid connectors (DIN Connector)

The solenoid connectors are conform to the international standard ISO 4400 (Fluid power systems and components-Three-pin electrical plug connectors-Characteristics and requirements).

● AC Solenoids

50-60 Hz common service solenoids do not require rewiring when the applied frequency is changed.

● DC Solenoids (Reputable K-Series)

These DC solenoids have surge absorbers for K-series functions. The three advantages of them are as mentioned below:-

1. Since surge voltage can be controlled to a very low figure, electric control devices, such as a computer, can be used without any interference like noise.
2. There being no spark between contacts, the life of the relay becomes longer.
3. Time lag for spool return after de-energisation of the solenoid is very short.

● R Type Solenoids

These are rectifier and surge absorber incorporated direct current solenoids which can be used by connecting directly to the AC power source. They have, like other DC solenoids, such advantages that the sound in on-off operation is quite low and the coils are hardly burnt out even if the spool is stuck at the half way of its changeover for contaminant particles etc. Moreover, they can be used almost permanently without being affected by a surge voltage from the outside. Thus, they are the solenoids of high reliability and durability.

● Insulation Class of Solenoid

Class H

■ Mounting

Mounting surface dimensions conform to ISO 4401, Hydraulic fluid power-Four-port directional control valves-Mounting surfaces.

Model Numbers	ISO Code of Mounting Surface
DSHG-01 DMG-01	ISO 4401-AB-03-4-A
DMG-03	ISO 4401-AC-05-4-A
DSHG-03	ISO 4401-AC-05-4-A*
(S)-DSHG-04 DHG-04 DMG-04	ISO 4401-AD-07-4-A
(S)-DSHG-06 DHG-06 DMG-06	ISO 4401-AE-08-4-A
(S)-DSHG-10 DHG-10 DMG-10	ISO 4401-AF-10-4-A

★ The main ports conform to ISO 4401-AC-05-4-A. The pilot and drain ports conform to the ISO.

Hydraulic Fluids

Fluid Types

Any type of hydraulic fluid, listed in the table below can be used.

Type of Fluids	Remarks
Petroleum Base Oil	Use fluids equivalent to ISO VG32 or VG46.
Synthetic Fluids	Use phosphate ester or polyol ester fluid. When phosphate ester fluid is used, prefix "F-" to the model number because the special seals (fluororubber) are required to be used.
Water Containing Fluids	Use water-glycol fluids or W/O emulsion fluids.

Note) 1: For two types of manually operated directional valves, DMT-06, 06X and DMT-10, 10X, only petroleum base oils and polyol ester type fluids are available.

2: For use with hydraulic fluids other than those listed above, consult your Yuken representatives in advance.

Recommended Viscosity and Oil Temperatures

Always be sure to use hydraulic fluids within the stipulated conditions shown below:

Viscosity: 15 to 400 mm²/s (77 to 1800 SSU), Temperature: -15 to +70°C (5 to 160°F)

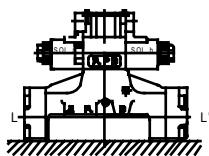
Control of Contamination

Due caution must be paid to maintaining control over contamination of the hydraulic fluids which may otherwise lead to breakdowns and shorten the life of the valve. Please maintain the degree of contamination within NAS 1638-Grade 12. Use 25 µm or finer line filter.

Instructions

Mounting Posture

In case No-spring detent type and No-spring type valves are used in the solenoid de-energised state, install the valve in such a way that the axis L-L' becomes horizontal to get the detent effect firmly. For the valve types other than the above, there are no restrictions on the mounting posture.



Solenoid Energisation

In no-spring type, either solenoid of the two should be energised continuously to avoid malfunction.

For double solenoid valves do not energise both at the same time as it will result in coils burning out.

Valve Tank Port

Avoid connecting the valve tank port to a line with possible surge pressure.

Piping end of tank line should be submerged in oil.

Pilot Drain Port for Solenoid Controlled Pilot Operated Directional Valve

Avoid connecting the valve pilot drain port to a line with possible surge pressure.

Piping end of drain should be submerged in oil.

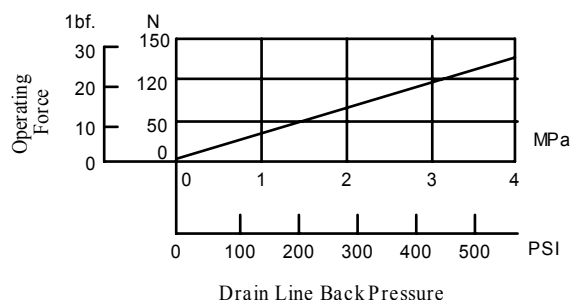
Shockless Type

In order to benefit from a shockless operation, it is necessary to fill the drain line with operating oil.

Only after the tank line has been filled with operating oil, start the operation of the valve on a regular basis.

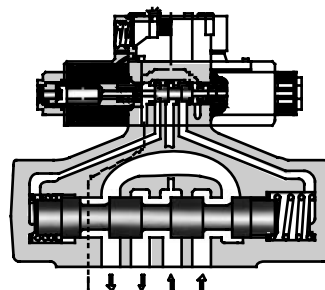
Operating Force for Manual Override Push Pin

Please note that as the back pressure of the drain line rises, manually override push pin turns hard to operate (See the graph below).



Solenoid Controlled Pilot Operated Directional Valves DSHG-01/03/04/06/10 S-DSHG-04/06/10 Sub-plate Mounting

Specifications



■ Specifications

Valve Type	Model Numbers	Max. Flow ^{*1} L/min (U.S.GPM)	Max. Operating Pressure MPa (PSI)	Max. Pilot Pressure MPa (PSI)	Min ^{*2} Required Pilot Pres. MPa (PSI)	Max. T-Line Back Pressure MPa (PSI)		Max. Change-over Frequency min ⁻¹ (Cycles/Min)			Approx. Mass kg (lbs.)
						Ext.Drain	Int.Drain	AC	DC	R	
Standard Type	DSHG-01-3C*-13/1380/1390	40 (10.6)	21 (3050)	21 (3050)	1.0 (150)	16 (2320)	16 (2320)	120	120	120	3.5 (7.7)
	DSHG-01-2B*-13/1380/1390										2.9 (6.4)
	DSHG-03-3C*-13/1390										7.2 (15.9)
	DSHG-03-2N*-13/1390	160 (42.3)	25 (3630)	25 (3630)	0.7 (100)	16 (2320)	16 (2320)	120	120	120	7.2 (15.9)
	DSHG-03-2B*-13/1390										6.6 (14.6)
	(S-)DSHG-04-3C*-51/5190										8.8 (19.4)
Shockless Type	(S-)DSHG-04-2N*-51/5190	300 (79.3)	31.5 (4570)	25 (3630)	0.8 (120)	21 (3050)	16 (2320)	120	120	120	8.8 (19.4)
	(S-)DSHG-04-2B*-51/5190										8.2 (18.1)
	(S-)DSHG-06-3C*-52/5290										12.7 (28)
	(S-)DSHG-06-2N*-52/5290	500 (132)	31.5 (4570)	25 (3630)	0.8 (120) ^{*3}	21 (3050)	16 (2320)	120	120	120	12.7 (28)
	(S-)DSHG-06-2B*-52/5290										12.1 (27)
	(S-)DSHG-06-3H*-52/5290			21 (3050)	1.0 (150)			110	110	110	13.5 (30)
	(S-)DSHG-10-3C*-42/4290	1100 (291)	31.5 (4570)	25 (3630)	1.0 (150) ^{*3}	21 (3050)	16 (2320)	120	120	100	45.3 (100)
	(S-)DSHG-10-2N*-42/4290							100	100	100	45.3 (100)
	(S-)DSHG-10-2B*-42/4290										44.7 (99)
	(S-)DSHG-10-3H*-42/4290			21 (3050)				60	60	50	53.1 (117)

★ 1. The maximum flow means the limited flow without inducing any abnormality to the operation (changeover) of the valve. For details, please refer to the "List of Standard Models and Maximum Flow" on pages 9 to 13.

★ 2. In case of internal drain type valve, the differential pressure between pilot pressure and back pressure at tank port should be kept more than the minimum pilot pressure.

★ 3. The minimum pilot pressure for the valve with pilot piston is 1.8 MPa (260 PSI).

Yuken can offer flanged connection valves described below. Consult Yuken for the details.

Model Numbers	Rated Flow L/min (U.S.GPM)	Max. Pressure MPa (PSI)
DSHF-10-***-27	315 (83)	21 (3050)
DSHF-16-***-37	500 (132)	
DSHF-24-***-28	1200 (317)	
DSHF-32-***-27	2400 (634)	

Solenoid Ratings

Valve Type	Electric source	Coil Type	Frequency (Hz)	Voltage (V)		Current & Power at Rated Voltage		
				Source Rating	Serviceable Range	Inrush (A) *	Holding (A)	Power (W)
Standard Type	AC	A100	50	100	80 - 110	2.42	0.51	—
			60	100	90 - 120	2.14	0.37	
				110		2.35	0.44	
		A120	50	120	96 - 132	2.02	0.42	
			60		108 - 144	1.78	0.31	
		A200	50	200	160 - 220	1.21	0.25	
			60	200	180 - 240	1.07	0.19	
				220		1.18	0.22	
		A240	50	240	192 - 264	1.01	0.21	
			60		216 - 288	0.89	0.15	
Shockless Type	DC (K Series)	D12	—	12	10.8 - 13.2	—	2.45	29
		D24		24	21.6 - 26.4		1.23	
		D48		48	43.2 - 52.8		0.61	
	AC → DC Rectified (R)	R100	50/60	100	90 - 110	—	0.33	29
		R200		200	180 - 220		0.16	

★ Inrush current in the above table show rms values at maximum stroke.

The coil type numbers in the shaded column are handled as optional extras. In case these coils are required to be chosen, please confirm the time of delivery with us before ordering.

CSA Approved Solenoid

The "DSHG" series valve have been approved by the CSA (Canadian Standards Association). consult us for details.

Sub-plates

Valve Model Numbers	Japanese Standard "JIS"			European Design Standard			N. American Design Standard		
	Sub-plate Model Numbers	Thread Size	Approx. Mass kg (lbs.)	Sub-plate Model Numbers	Thread Size	Approx. Mass kg (lbs.)	Sub-plate Model Numbers	Thread Size	Approx. Mass kg (lbs.)
DSHG-01	DSGM-01-30	Rc 1/8	0.8 (1.8)	DSGM-01-3080	1/8 BSP.F	0.8 (1.8)	DSGM-01-3090	1/8 NPT	0.8 (1.8)
	DSGM-01X-30	Rc 1/4	0.8 (1.8)	DSGM-01X-3080	1/4 BSP.F	0.8 (1.8)	DSGM-01X-3090	1/4 NPT	0.8 (1.8)
	DSGM-01Y-30	Rc 3/8	0.8 (1.8)	—	—	—	DSGM-01Y-3090	3/8 NPT	0.8 (1.8)
DSHG-03	DSGM-03-40*	Rc 3/8	3.0 (6.6)	DSGM-03-2180*	3/8 BSP.F	3.0 (6.6)	DSGM-03-2190*	3/8 NPT	3.0 (6.6)
	DSGM-03X-40*	Rc 1/2	3.0 (6.6)	DSGM-03X-2180*	1/2 BSP.F	3.0 (6.6)	DSGM-03X-2190*	1/2 NPT	3.0 (6.6)
	DSGM-03Y-40*	Rc 3/4	4.7 (10.4)	DSGM-03Y-2180*	3/4 BSP.F	4.7 (10.4)	DSGM-03Y-2190*	3/4 NPT	4.7 (10.4)
	DHGM-03Y-10	Rc 3/4	4.7 (10.4)	DHGM-03Y-1080	3/4 BSP.F	4.7 (10.4)	DHGM-03Y-1090	3/4 NPT	4.7 (10.4)
DSHG-04	DHGM-04-20	Rc 1/2	4.4 (9.7)	DHGM-04-2080	1/2 BSP.F	4.4 (9.7)	DHGM-04-2090	1/2 NPT	4.4 (9.7)
	DHGM-04X-20	Rc 3/4	4.1 (9.0)	DHGM-04X-2080	3/4 BSP.F	4.1 (9.0)	DHGM-04X-2090	3/4 NPT	4.1 (9.0)
DSHG-06	DHGM-06-50	Rc 3/4	7.4 (16.3)	DHGM-06-5080	3/4 BSP.F	8.5 (18.7)	DHGM-06-5090	3/4 NPT	7.4 (16.3)
	DHGM-06X-50	Rc 1	7.4 (16.3)	DHGM-06X-5080	1 BSP.F	8.5 (18.7)	DHGM-06X-5090	1 NPT	7.4 (16.3)
DSHG-10	DHGM-10-40	Rc 1-1/4	21.5 (47.4)	DHGM-10-4080	1-1/4 BSP.F	21.5 (47.4)	DHGM-10-4090	1-1/4 NPT	21.5 (47.4)
	DHGM-10X-40	Rc 1-1/2	21.5 (47.4)	DHGM-10X-4080	1-1/2 BSP.F	21.5 (47.4)	DHGM-10X-4090	1-1/2 NPT	21.5 (47.4)

★ DSGM-03* is available only for Internal pilot-Internal drain type (Use DHGM-03Y for other valves).

● Sub-plates are available. Specify the sub-plate model number from the table above.

When sub-plates are not used, the mounting surface should have a good machined finish.

Solenoid Controlled Pilot Operated Directional Valves

DSHG-01 / 03 / 04 / 06 / 10

S-DSHG-04 / 06 / 10

Model Number Designation

Model Number Designation

F- Special Seals	S- Type	DSHG- Series Number	Valve Size	-2 No. of Valve Position	B Spool- Spring Arrangement	2 Spool Type	A Special Two Position Valve	-C2 Models with Pilot Choke	-E Pilot Con- nect- ion	T Drain Con- nect- ion	-R2 Spool Control ³ Modification (Omit if not required)	-A100 Coil Type	-C Manual Override of Pilot Valve	-H Built-in Orifice for Pilot Line	-N Type of Elec- trical Conduc- tion	-52 Design Number	-* Design Standard	-L Models with Reverse Mig- of Solenoid
	None: Stand- ard Type		01	3	C: Spring Centred	2, 3, 4 40, 5, 60 7, 9, 10 11, 12	—	—	—	—	—	AC100, A200, A240 DC: D12, D24 D48	—	—	None: Terminal Box Type	13	None: Japanese Standard "JIS"	—
				2	B: Spring Offset	2, 3, 4 40, 7	—	—	—	—	—	AC100, A200, A240 DC: D12, D24 D48	None: Manual Override Pin	—	—	13	90: N American Design Standard	L (Omit if not required)
F: For Phos- phate Ester Type Fluids (Omit if not required)	DSHG: Solenoid Controlled Pilot Operated Directional Valve, Sub-plate Mounting		03	2	N: No- Spring Offset	2, 3, 4 40, 7	—	—	None: Internal Pilot	None: External Pilot	R2: With Stroke Adjustment, Both Ends RA: With Stroke Adjustment, Port "A" End RB: With Stroke Adjustment, Port "B" End	AC100, A200, A240 DC: D12, D24 D48	—	—	—	51	None: Japanese Standard "JIS" & European Design Standard	—
			04	3	C: Spring Centred	2, 4, 40 60, 10 12, 11	—	C1: With C1 Choke	None: Internal Pilot	T: External Pilot	—	AC100, A200, A240 DC: D12, D24 D48	C: Push Button & Lock Nut	—	N: Plug-in Connector Type	52	80: European Design Standard	L (Omit if not required)
	None: Stand- ard Type		06	2	N: No- Spring Offset	2, 4, 40 (3, 7) ¹	A ^{A2} (Omit if not required)	—	—	—	—	AC100, A200, A240 DC: D12, D24 D48	—	—	—	—	—	—
S: Shock- less Type			10	3	H: Pressure Centred	2, 4, 40 60, 10 12, 11	—	C2: With C2 Choke C1C2: With C1 & C2 Choke (Omit if not required)	—	—	—	AC100, A200, A240 DC: D12, D24 D48	—	H: Refer to 5	N1: Plug-in Connector with Indicator Light	42	Applicable only for DSHG-01 90: N American Design Standard	L (Omit if not required)
				2	N: No- Spring Offset	2, 4, 40 (3, 7) ¹	A ^{A2} (Omit if not required)	—	—	—	—	AC100, A200, A240 DC: D12, D24 D48	—	—	—	—	—	—

Note : In spool type "3", "5", "6", "60", and "7", the combination applicable between pilot system and drain system is as described in the table below.

Pilot Connection	Drain Connection	Care in Application
Internal Pilot	External Drain	Hold back pressure in the tank line so that the difference between pilot pressure and drain pressure is always more than minimum required pilot pressure.
External Pilot (E)	Internal Drain (T)	Combination is not applicable
	External Drain	No restrictions in the combination on us
	Internal Drain (T)	

- ★ 1. Shockless type (S-DSHG) are not available for spool type marked ().
- ★ 2. As for the details of the valve using the neutral position and the side position (either SOL a or SOL b side), please refer to page 14. Furthermore, the spool types other than "2", "4", "40" (3, 7) are also available.
- ★ 3. In spool-spring arrangement "H" (Pressure centred models), the valves with stroke adjustment (R*) and pilot-piston (P*) are not available.
- ★ 4. N1 stands for Plug-in connector with solenoid indicator light. N1 is not available for R-types solenoids.
- ★ 5. In spool-spring arrangement "H" (Pressure centred models), in case the pilot pressure is more than 10 MPa (1450 PSI), please specify that the valve should have the built-in orifice to the pilot line.

In the table above, the symbols and numbers highlighted with shade represent the optional extras. The valves with model number having such optional extras are handles as options, therefore please confirm the time of delivery with us before ordering.

Mounting Bolt

■ Mounting Bolt

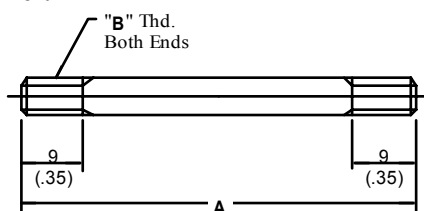
Model Numbers	Mounting Bolt				
	Name	Japanese Standard "JIS" European Design Standard	N. American Design Standard	Qty.	Tightening Torque Nm (in. lbs.)
DSHG-01	Mtg. Bolt Kit ^{★3}	MBK-01-01-30 ^{★1} MBK-01-02-30 ^{★2}	MBK-01-01-3090 ^{★1} MBK-01-02-3090 ^{★2}	1 set	5 - 6 (43 - 52)
DSHG-03	Soc. Hd. Cap Screw	M6 × 35 Lg.	1/4-20 UNC × 1-3/4 Lg.	4	12 - 15 (104 - 130)
(S-)DSHG-04	Soc. Hd. Cap Screw	M6 × 45 Lg.	1/4-20 UNC × 1-3/4 Lg.	2	12 - 15 (104 - 130)
		M10 × 50 Lg.	3/8-16 UNC × 2 Lg.	4	58 - 72 (504 - 625)
(S-)DSHG-06	Soc. Hd. Cap Screw	M12 × 60 Lg.	1/2-13 UNC × 2-1/2 Lg.	6	100 - 123 (868 - 1068)
(S-)DSHG-10	Soc. Hd. Cap Screw	M20 × 75 Lg.	3/4-10 UNC × 3 Lg.	6	473 - 585 (4106 - 5078)

★1. For Internal Pilot-Internal Drain.

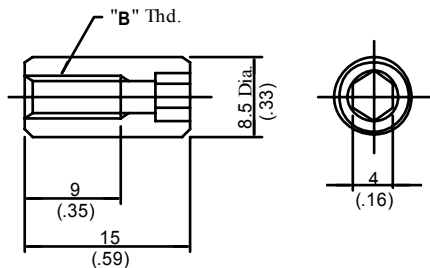
★2. For External Pilot or External Drain.

★3. Mounting bolt kit is common to that of 01 series modular valves.
Refer to figure below for the dimensions of bolt kit.

● Stud Bolt



● Nut



DIMENSIONS IN MILLIMETRES (INCHES)

Model Numbers	A mm (In.)	"B" Thd.
MBK-01-01-30	94 (3.70)	M5
MBK-01-02-30	134 (5.28)	
MBK-01-01-3090	94 (3.70)	No.10-24 UNC
MBK-01-02-3090	134 (5.28)	

Options

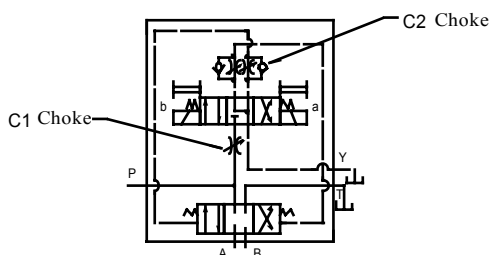
Models with Pilot Choke Adjustment

When the adjustment screw is turned clockwise, changeover speed of the main spool becomes slow. In case of the spring centred valves in particular, making slow of the returning speed of the main spool to the neutral position is possible with a C2 choke valve.

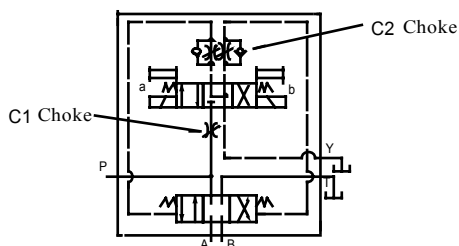
These choke valves can be used in combination with the valves of spring centred, no-spring, offset, pressure centred and the valves with stroke adjustment.

Graphic Symbols (Ex.: Spring Centred)

DSHG-01,06,10



DSHG-03, 04

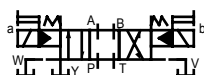


Models with Pilot Piston(P2, PA, PB)

The valves with a pilot piston can be used when the high speed changeover of the main spool is required. However, please note that in case of spring centred valves, there is no change in the returning speed of the main spool to the neutral position even with the pilot piston.

Graphic Symbols (Ex.: Spring Centred)

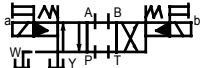
"P2" Models



"PA" Models



"PB" Models

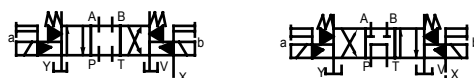


Pressure Centred Models (3H*)

The pressure centred type can be used when the returning of the main spool to the neutral position is required to be firmly.

Graphic Symbols (Ex.: External Pilot-External Drain)

(Only for 3H6, 3H60)

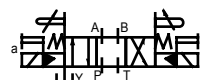


Models with Stroke Adjustment (R2, RA, RB)

When the adjustment screw is screwed in, the main spool stroke becomes short and flow rate reduces.

Graphic Symbols (Ex.: Spring Centred)

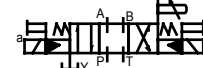
"R2" Models



"RA" Models



"RB" Models



Additional Mass of Options

Add the mass described below to the mass of standard models on page 4, if options are required.

kg (lbs.)

Model Numbers	Model with Pilot Choke Adj.		Models with Pilot Piston		Models with Stroke Adj.	
	C1, C2	C1C2	P2	PA PB	P2	PA PB
DSHG-03	0.65(1.4)	1.3(2.9)	—	—	0.6(1.3)	0.3 (.7)
(S)-DSHG-04	0.65(1.4)	1.3(2.9)	—	—	1.0(2.2)	0.5(1.1)
(S)-DSHG-06	0.65(1.4)	1.3(2.9)	1.0(2.2)	0.5(1.1)	1.2(2.6)	0.6(1.3)
(S)-DSHG-10	0.65(1.4)	1.3(2.9)	3.6(7.9)	1.8(4.0)	3.7(8.2)	1.85(4.1)

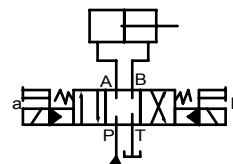
Options on Pilot Valve

The same options to DSG-01 series valves are available. Please refer to the Catalogue No. Pub. EC-0402 for the details.

Spool Type	Three Positions				Two Positions			
	Spring Centred				Spring Centred			
	Graphic Symbol	Maximum Flow L/min (U.S.GPM)			Graphic Symbol	Maximum Flow L/min (U.S.GPM)		
	Model Numbers	7 MPa (1020 PSI)	14 MPa (2030 PSI)	21 MPa (3050 PSI)	Model Numbers	7 MPa (1020 PSI)	14 MPa (2030 PSI)	21 MPa (3050 PSI)
"2"	DSHG-01-3C2	40 (10.6)	40 (10.6)	40 (10.6)	DSHG-01-2B2	40 (10.6)	40 (10.6)	40 (10.6)
"3"	DSHG-01-3C3	40 (10.6)	40 (10.6)	40 (10.6)	DSHG-01-2B3	40 (10.6)	40 (10.6)	40 (10.6)
"4"	DSHG-01-3C4	40 (10.6)	40 (10.6)	40 (10.6)	DSHG-01-2B4	40 (10.6)	40 (10.6)	40 (10.6)
"40"	DSHG-01-3C40	40 (10.6)	40 (10.6)	40 (10.6)	DSHG-01-2B40	40 (10.6)	40 (10.6)	40 (10.6)
"5"	DSHG-01-3C5	40 (10.6)	40 (10.6)	40 (10.6)				
"60"	DSHG-01-3C60	40 (10.6)	40 (10.6)	40 (10.6)				
"7"	DSHG-01-3C7	40 (10.6)	40 (10.6)	40 (10.6)	DSHG-01-2B7	40 (10.6)	40 (10.6)	40 (10.6)
"9"	DSHG-01-3C9	40 (10.6)	40 (10.6)	40 (10.6)				
"10"	DSHG-01-3C10	40 (10.6)	40 (10.6)	40 (10.6)				
"11"	DSHG-01-3C11	40 (10.6)	40 (10.6)	40 (10.6)				
"12"	DSHG-01-3C12	40 (10.6)	40 (10.6)	40 (10.6)				

Notes) 1. Max. flow shows value at pilot pressure more than 1 MPa (150 PSI)

2. Max. flow in the table above represents the value in the flow condition of P → A → B → T (or P → B → A → T) as shown in the circuit diagram right.
In case the valve is used in the condition that either A or B port is blocked, the maximum flow differs according to a hydraulic circuit, therefore, please consult us for details.

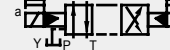


List of Standard Models and Maximum Flow

● Three Positions

Spool Type	Spring Centred			
	Graphic Symbol	Maximum Flow L/m in (U.S.GPM)		
	Model Numbers	7 MPa (1020 PSI)	14 MPa (2030 PSI)	25 MPa (3630 PSI)
"2"	DSHG-03-3C2	160 (42.3)	85 (22.5) 160 (42.3)	60 (15.9) 95 (25.1)
"3"	DSHG-03-3C3	160 (42.3)	160 (42.3)	160 (42.3)
"4"	DSHG-03-3C4	160 (42.3)	85 (22.5) 160 (42.3)	60 (15.9) 95 (25.1)
"40"	DSHG-03-3C40	160 (42.3)	85 (22.5) 160 (42.3)	60 (15.9) 95 (25.1)
"5"	DSHG-03-3C5	160 (42.3)	85 (22.5) 160 (42.3)	60 (15.9) 95 (25.1)
"60"	DSHG-03-3C60	160 (42.3)	160 (42.3)	125 (33.0) 160 (42.3)
"7"	DSHG-03-3C7	160 (42.3)	85 (22.5) 160 (42.3)	60 (15.9) 95 (25.1)
"9"	DSHG-03-3C9	160 (42.3)	85 (22.5) 160 (42.3)	60 (15.9) 95 (25.1)
"10"	DSHG-03-3C10	160 (42.3)	85 (22.5) 160 (42.3)	60 (15.9) 95 (25.1)
"11"	DSHG-03-3C11	160 (42.3)	85 (22.5) 160 (42.3)	60 (15.9) 95 (25.1)
"12"	DSHG-03-3C12	160 (42.3)	85 (22.5) 160 (42.3)	60 (15.9) 95 (25.1)

● Two Positions

Spool Type	No-Spring				Spring Offset			
	Graphic Symbol 	Maximum Flow L /m in (U.S.GPM)			Graphic Symbol 	Maximum Flow L /m in (U.S.GPM)		
	Model Numbers	7 MPa (1020 PSI)	14 MPa (2030 PSI)	25 MPa (3630 PSI)	Model Numbers	7 MPa (1020 PSI)	14 MPa (2030 PSI)	25 MPa (3630 PSI)
"2" 	DSHG-03-2N2	160 (42.3)	160 (42.3)	85 (22.5) 160 (42.3)	DSHG-03-2B2	160 (42.3)	160 (42.3)	85 (22.5) 160 (42.3)
"3" 	DSHG-03-2N3	160 (42.3)	160 (42.3)	85 (22.5) 160 (42.3)	DSHG-03-2B3	160 (42.3)	160 (42.3)	85 (22.5) 160 (42.3)
"4" 	DSHG-03-2N4	160 (42.3)	160 (42.3)	85 (22.5) 160 (42.3)	DSHG-03-2B4	160 (42.3)	160 (42.3)	85 (22.5) 160 (42.3)
"40" 	DSHG-03-2N40	160 (42.3)	160 (42.3)	85 (22.5) 160 (42.3)	DSHG-03-2B40	160 (42.3)	160 (42.3)	85 (22.5) 160 (42.3)
"7" 	DSHG-03-2N7	160 (42.3)	160 (42.3)	85 (22.5) 160 (42.3)	DSHG-03-2B7	160 (42.3)	160 (42.3)	85 (22.5) 160 (42.3)

Notes: 1. The relation between max. flow and pilot pressure in the table above is as shown below.

(Example)

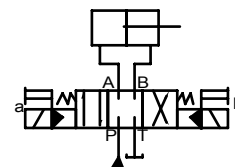
Maximum flow rate is constant regardless of pilot pressure.
Pilot Pressure more than 0.7 MPa (100 PSI).

160 (42.3)	85 (22.5)
	160 (42.3)

Pilot Pressure at 0.7 MPa (100 PSI).

Pilot Pressure at 1 MPa (150 PSI).

2. Max. flow in the table above represents the value in the flow condition of P → A → B → T (or P → B → A → T) as shown in the circuit diagram right.
In case the valve is used in the condition that either A or B port is blocked, the maximum flow differs according to a hydraulic circuit, therefore, please consult us for details.



List of Standard Models and Maximum Flow

● Three Positions

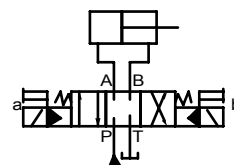
Spool Type	Spring Centred				
	Graphic Symbol	Maximum Flow L /m in (U.S.GPM)			
	Model Numbers	10 MPa (1450 PSI)	16 MPa (2320 PSI)	25 MPa (3630 PSI)	31.5 MPa (4570 PSI)
"2"	DSHG-04-3C2	300 (79.3)	300 (79.3)	200 (52.8)	145 (38.3)
	(S-)DSHG-04-3C2	300 (79.3)	250 (66.1)	120 (31.7)	110 (29.1)
"3"	DSHG-04-3C3	300 (79.3)	300 (79.3)	300 (79.3)	300 (79.3)
"4"	DSHG-04-3C4	300 (79.3)	300 (79.3)	250 (66.1)	165 (43.6)
	(S-)DSHG-04-3C4	300 (79.3)	300 (79.3)	140 (37.0)	110 (29.1)
"40"	DSHG-04-3C40	300 (79.3)	300 (79.3)	200 (52.8)	145 (38.3)
	(S-)DSHG-04-3C40	300 (79.3)	250 (66.1)	120 (31.7)	110 (29.1)
"5"	DSHG-04-3C5	250 (66.1)	250 (66.1)	245 (64.7)	245 (64.7)
"6"	DSHG-04-3C6	300 (79.3)	260 (68.7)	245 (64.7)	235 (62.1)
"60"	DSHG-04-3C60	300 (79.3)	300 (79.3)	300 (79.3)	300 (79.3)
	(S-)DSHG-04-3C60	300 (79.3)	300 (79.3)	300 (79.3)	300 (79.3)
"7"	DSHG-04-3C7	300 (79.3)	300 (79.3)	200 (52.8)	145 (38.3)
"9"	DSHG-04-3C9	300 (79.3)	300 (79.3)	280 (74.0)	250 (66.1)
"10"	DSHG-04-3C10	300 (79.3)	300 (79.3)	200 (52.8)	150 (39.6)
	(S-)DSHG-04-3C10	300 (79.3)	250 (66.1)	120 (31.7)	110 (29.1)
"11"	DSHG-04-3C11	300 (79.3)	260 (68.7)	160 (42.3)	140 (37.0)
"12"	DSHG-04-3C12	300 (79.3)	280 (74.0)	170 (44.9)	135 (35.7)
	(S-)DSHG-04-3C12	300 (79.3)	250 (66.1)	120 (31.7)	110 (29.1)

● Two Positions

Spool Type	No-Spring					Spring Offset				
	Graphic Symbol	Maximum Flow L /m in (U.S.GPM)				Graphic Symbol	Maximum Flow L /m in (U.S.GPM)			
	Model Numbers	10 MPa (1450 PSI)	16 MPa (2320 PSI)	25 MPa (3630 PSI)	31.5 MPa (4570 PSI)	Model Numbers	10 MPa (1450 PSI)	16 MPa (2320 PSI)	25 MPa (3630 PSI)	31.5 MPa (4570 PSI)
"2"	(S-)DSHG-04-2N2	300 (79.3)	300 (79.3)	300 (79.3)	300 (79.3)	(S-) DSHG-04-2B2	300 (79.3)	300 (79.3)	300 (79.3)	300 (79.3)
"3"	DSHG-04-2N3	300 (79.3)	300 (79.3)	300 (79.3)	300 (79.3)	DSHG-04-2B3	300 (79.3)	300 (79.3)	300 (79.3)	300 (79.3)
"4"	(S-)DSHG-04-2N4	300 (79.3)	300 (79.3)	300 (79.3)	300 (79.3)	(S-) DSHG-04-2B4	300 (79.3)	300 (79.3)	300 (79.3)	300 (79.3)
"40"	(S-)DSHG-04-2N40	300 (79.3)	300 (79.3)	300 (79.3)	300 (79.3)	(S-) DSHG-04-2B40	300 (79.3)	300 (79.3)	300 (79.3)	300 (79.3)
"7"	DSHG-04-2N7	300 (79.3)	300 (79.3)	300 (79.3)	300 (79.3)	DSHG-04-2B7	300 (79.3)	300 (79.3)	300 (79.3)	300 (79.3)

Notes:1. Max flow described above shown value at pilot pressure more than 0.8 MPa (120 PSI).

2. Max. flow in the table above represents the value in the flow condition of P → A → B → T (or P → B → A → T) as shown in the circuit diagram right.
In case the valve is used in the condition that either A or B port is blocked, the maximum flow differs according to a hydraulic circuit, therefore, please consult us for details.



List of Standard Models and Maximum Flow

● Three Positions

Spool Type	Spring Centred					Pressure Centred				
	Graphic Symbol	Maximum Flow L/min (U.S.GPM)				Graphic Symbol	Maximum Flow L/min (U.S.GPM)			
	Model Numbers	10 MPa (1450 PSI)	16 MPa (2320 PSI)	25 MPa (3630 PSI)	31.5 MPa (4570 PSI)	Model Numbers	10 MPa (1450 PSI)	16 MPa (2320 PSI)	25 MPa (3630 PSI)	31.5 MPa (4570 PSI)
"2"	(S)-DSHG-06-3C2	500 (132)	500 (132)	410 (108) 500 (132)	310 (81.9) 500 (132)	(S)-DSHG-06-3H2	500 (132)	500 (132)	500 (132)	420 (111) 500 (132)
"3"	DSHG-06-3C3	500 (132)	500 (132)	460 (122)	370 (97.8)	DSHG-06-3H3	500 (132)	500 (132)	500 (132)	500 (132)
"4"	(S)-DSHG-06-3C4	500 (132)	500 (132)	410 (108) 500 (132)	310 (81.9) 500 (132)	(S)-DSHG-06-3H4	500 (132)	500 (132)	500 (132)	420 (111) 500 (132)
"40"	(S)-DSHG-06-3C40	500 (132)	500 (132)	410 (108) 500 (132)	310 (81.9) 500 (132)	(S)-DSHG-06-3H40	500 (132)	500 (132)	500 (132)	420 (111) 500 (132)
"5"	DSHG-06-3C5	500 (132)	500 (132)	425 (112)	350 (92.5)	DSHG-06-3H5	500 (132)	500 (132)	500 (132)	470 (124) 500 (132)
"6"	DSHG-06-3C6	475 (125)	390 (103)	300 (79.3)	230 (60.8)	DSHG-06-3H6	500 (132)	500 (132)	500 (132)	420 (111) 500 (132)
"60"	(S)-DSHG-06-3C60	475 (125)	420 (111)	340 (89.8)	280 (74.0)	(S)-DSHG-06-3H60	500 (132)	500 (132)	500 (132)	420 (111) 500 (132)
"7"	DSHG-06-3C7	500 (132)	500 (132)	450 (119)	360 (95.1)	DSHG-06-3H7	500 (132)	500 (132)	500 (132)	500 (132)
"9"	DSHG-06-3C9	500 (132)	500 (132)	450 (119) 500 (132)	360 (95.1) 500 (132)	DSHG-06-3H9	500 (132)	500 (132)	500 (132)	500 (132)
"10"	(S)-DSHG-06-3C10	500 (132)	500 (132)	410 (108) 500 (132)	310 (81.9) 500 (132)	(S)-DSHG-06-3H10	500 (132)	500 (132)	500 (132)	460 (122) 500 (132)
"11"	DSHG-06-3C11	500 (132)	500 (132)	410 (108) 500 (132)	310 (81.9) 500 (132)	DSHG-06-3H11	500 (132)	500 (132)	500 (132)	460 (122) 500 (132)
"12"	(S)-DSHG-06-3C12	500 (132)	500 (132)	410 (108) 500 (132)	310 (81.9) 500 (132)	(S)-DSHG-06-3H12	500 (132)	500 (132)	500 (132)	460 (122) 500 (132)

● Two Positions

Spool Type	No-Spring					Spring Offset				
	Graphic Symbol	Maximum Flow L/min (U.S.GPM)				Graphic Symbol	Maximum Flow L/min (U.S.GPM)			
	Model Numbers	10 MPa (1450 PSI)	16 MPa (2320 PSI)	25 MPa (3630 PSI)	31.5 MPa (4570 PSI)	Model Numbers	10 MPa (1450 PSI)	16 MPa (2320 PSI)	25 MPa (3630 PSI)	31.5 MPa (4570 PSI)
"2"	(S)-DSHG-06-2N2	500 (132)	500 (132)	500 (132)	500 (132)	(S)-DSHG-06-2B2	500 (132)	500 (132)	500 (132)	500 (132)
"3"	DSHG-06-2N3	500 (132)	500 (132)	500 (132)	500 (132)	DSHG-06-2B3	500 (132)	500 (132)	500 (132)	500 (132)
"4"	(S)-DSHG-06-2N4	500 (132)	500 (132)	500 (132)	500 (132)	(S)-DSHG-06-2B4	500 (132)	500 (132)	500 (132)	500 (132)
"40"	(S)-DSHG-06-2N40	500 (132)	500 (132)	500 (132)	500 (132)	(S)-DSHG-06-2B40	500 (132)	500 (132)	500 (132)	500 (132)
"7"	DSHG-06-2N7	500 (132)	500 (132)	500 (132)	500 (132)	DSHG-06-2B7	500 (132)	500 (132)	500 (132)	500 (132)

Notes: 1. The relation between max. flow and pilot pressure in the table above is as shown below.

(Example)

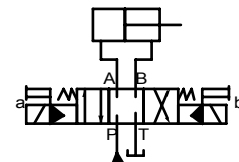
Maximum flow rate is constant regardless of pilot pressure.
Pilot Pressure more than 0.8 MPa (120 PSI).
In case pressure centred models, pilot pressure is more than 1 MPa (150 PSI).

500 (132)	410 (108)
	500 (132)

Pilot Pressure at 0.8 MPa (120 PSI).
In case pressure centred models, pilot pressure is more than 1 MPa (150 PSI)

Pilot Pressure at 1.5 MPa (220 PSI).

2. Max. flow in the table above represents the value in the flow condition of P → A → B → T (or P → B → A → T) as shown in the circuit diagram right.
In case the valve is used in the condition that either A or B port is blocked, the maximum flow differs according to a hydraulic circuit, therefore, please consult us for details.



List of Standard Models and Maximum Flow

● Three Positions

Spool Type	Spring Centred					Pressure Centred				
	Graphic Symbol	Maximum Flow L/m in (U.S.GPM)				Graphic Symbol	Maximum Flow L/m in (U.S.GPM)			
	Model Numbers	10 MPa (1450 PSI)	16 MPa (2320 PSI)	25 MPa (3630 PSI)	31.5 MPa (4570 PSI)	Model Numbers	10 MPa (1450 PSI)	16 MPa (2320 PSI)	25 MPa (3630 PSI)	31.5 MPa (4570 PSI)
"2"	(S-)DSHG-10-3C2	1100 (291)	1100 (291)	950 (251) 1100 (291)	750 (198) 1100 (291)	(S-)DSHG-10-3H2	1100 (291)	1100 (291)	1100 (291)	970 (256) 1100 (291)
"3"	DSHG-10-3C3	1100 (291)	1100 (291)	1060 (280)	895 (236)	DSHG-10-3H3	1100 (291)	1100 (291)	1100 (291)	1050 (277) 1100 (291)
"4"	(S-)DSHG-10-3C4	1100 (291)	1100 (291)	950 (251) 1100 (291)	750 (198) 1100 (291)	(S-)DSHG-10-3H4	1100 (291)	1100 (291)	1100 (291)	970 (256) 1100 (291)
"40"	(S-)DSHG-10-3C40	1100 (291)	1100 (291)	950 (251) 1100 (291)	750 (198) 1100 (291)	(S-)DSHG-10-3H40	1100 (291)	1100 (291)	1100 (291)	970 (256) 1100 (291)
"5"	DSHG-10-3C5	1100 (291)	1100 (291)	980 (259)	850 (225)	DSHG-10-3H5	1100 (291)	1100 (291)	1100 (291)	1000 (264) 1100 (291)
"6"	DSHG-10-3C6	1050 (277)	880 (232)	700 (185)	570 (151)	DSHG-10-3H6	1100 (291)	1100 (291)	1100 (291)	970 (256) 1100 (291)
"60"	(S-)DSHG-10-3C60	1050 (277)	940 (248)	785 (207)	680 (180)	(S-)DSHG-10-3H60	1100 (291)	1100 (291)	1100 (291)	970 (256) 1100 (291)
"7"	DSHG-10-3C7	1100 (291)	1100 (291)	1040 (275) 1100 (291)	870 (230) 1100 (291)	DSHG-10-3H7	1100 (291)	1100 (291)	1100 (291)	1100 (291)
"9"	DSHG-10-3C9	1100 (291)	1100 (291)	1040 (275)	870 (230)	DSHG-10-3H9	1100 (291)	1100 (291)	1100 (291)	1100 (291)
"10"	(S-)DSHG-10-3C10	1100 (291)	1100 (291)	950 (251) 1100 (291)	750 (198) 1100 (291)	(S-)DSHG-10-3H10	1100 (291)	1100 (291)	1100 (291)	1060 (280) 1100 (291)
"11"	DSHG-10-3C11	1100 (291)	1100 (291)	950 (251) 1100 (291)	750 (198) 1100 (291)	DSHG-10-3H11	1100 (291)	1100 (291)	1100 (291)	1060 (280) 1100 (291)
"12"	(S-)DSHG-10-3C12	1100 (291)	1100 (291)	950 (251) 1100 (291)	750 (198) 1100 (291)	(S-)DSHG-10-3H12	1100 (291)	1100 (291)	1100 (291)	1060 (280) 1100 (291)

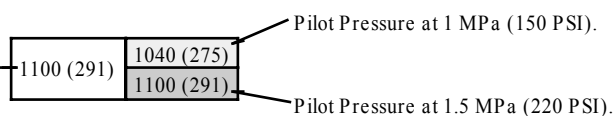
● Two Positions

Spool Type	No-Spring					Spring Offset				
	Graphic Symbol	Maximum Flow L/m in (U.S.GPM)				Graphic Symbol	Maximum Flow L/m in (U.S.GPM)			
	Model Numbers	10 MPa (1450 PSI)	16 MPa (2320 PSI)	25 MPa (3630 PSI)	31.5 MPa (4570 PSI)	Model Numbers	10 MPa (1450 PSI)	16 MPa (2320 PSI)	25 MPa (3630 PSI)	31.5 MPa (4570 PSI)
"2"	(S-)DSHG-10-2N2	1100 (291)	1100 (291)	1100 (291)	1100 (291)	(S-)DSHG-10-2B2	1100 (291)	1100 (291)	1100 (291)	1100 (291)
"3"	DSHG-10-2N3	1100 (291)	1100 (291)	1100 (291)	1100 (291)	DSHG-10-2B3	1100 (291)	1100 (291)	1100 (291)	1100 (291)
"4"	(S-)DSHG-10-2N4	1100 (291)	1100 (291)	1100 (291)	1100 (291)	(S-)DSHG-10-2B4	1100 (291)	1100 (291)	1100 (291)	1100 (291)
"40"	(S-)DSHG-10-2N40	1100 (291)	1100 (291)	1100 (291)	1100 (291)	(S-)DSHG-10-2B40	1100 (291)	1100 (291)	1100 (291)	1100 (291)
"7"	DSHG-10-2N7	1100 (291)	1100 (291)	1100 (291)	1100 (291)	DSHG-10-2B7	1100 (291)	1100 (291)	1100 (291)	1100 (291)

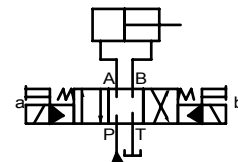
Notes) 1. The relation between max. flow and pilot pressure in the table above is as shown below.

(Example)

Maximum flow rate is constant regardless of pilot pressure.
Pilot Pressure more than 1 MPa (150 PSI).

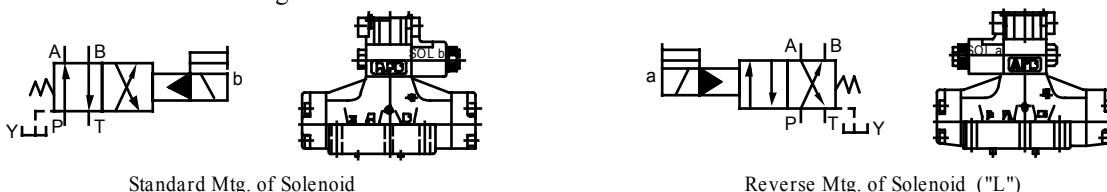


2. Max. flow in the table above represents the value in the flow condition of P → A → B → T (or P → B → A → T) as shown in the circuit diagram right.
In case the valve is used in the condition that either A or B port is blocked, the maximum flow differs according to a hydraulic circuit, therefore, please consult us for details.



Reverse Mounting of Solenoid.

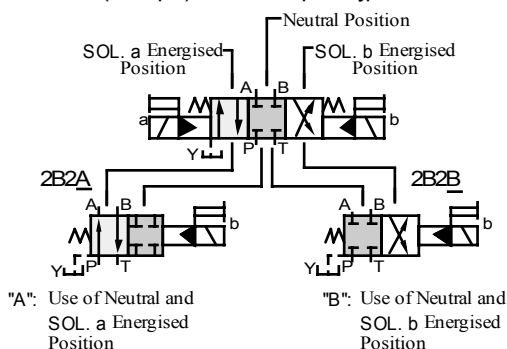
In spring offset type, it is a standard configuration that the solenoid is mounted onto the valve in the SOL b position (side). However, in this particular spool-spring arrangement, the mounting of the solenoid onto the valve in the reverse position - SOL a side - is also available. The graphic symbol for this reverse mounting is as shown below. As for the valve type 2B*A and 2B*B, please refer to the explanation under the heading of "Valves Using Neutral Position and Side Position" given below.



Valves Using Neutral Position and Side Position. (Special Two position Valve)

Besides the use of the standard 2-position valves aforementioned in the "List of Standard Models and Maximum Flow", the 3-position valves also can be used as the 2-position valves using the two of their three positions. In this case, there are two kinds of the valve available. One is the valve using the neutral position and SOL a position (2B*A) and another is the valve using the neutral position and SOL b position (2B*B).

(Example) In case of Spool Type "2"

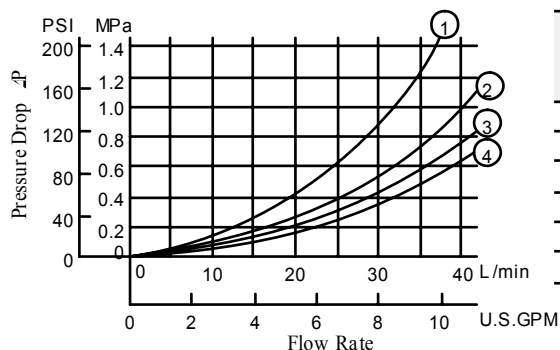


Model Numbers	Graphic Symbols		Model Numbers	Graphic Symbols		Model Numbers	Graphic Symbols	
	Standard Mtg.	Reverse Mtg. Type		Standard Mtg.	Reverse Mtg. Type		Standard Mtg.	Graphic Symbols
DSHG-06-2B*A 10			DSHG-06-2B*B 10			DSHG-06-2N*A 10		
(S-)DSHG-*-2B2A			(S-)DSHG-*-2B2B			(S-)DSHG-*-2N2A		
DSHG-*-2B3A			DSHG-*-2B3B			DSHG-*-2N3A		
(S-)DSHG-*-2B4A			(S-)DSHG-*-2B4B			(S-)DSHG-*-2N4A		
(S-)DSHG-*-2B40A			(S-)DSHG-*-2B40B			(S-)DSHG-*-2N40A		
DSHG-*-2B5A			DSHG-*-2B5B			DSHG-*-2N5A		
DSHG-*-2B6A			DSHG-*-2B6B			DSHG-*-2N6A		
(S-)DSHG-*-2B60A			(S-)DSHG-*-2B60B			(S-)DSHG-*-2N60A		
DSHG-*-2B7A			DSHG-*-2B7B			DSHG-*-2N7A		
DSHG-*-2B9A			DSHG-*-2B9B			DSHG-*-2N9A		
(S-)DSHG-*-2B10A			(S-)DSHG-*-2B10B			(S-)DSHG-*-2N10A		
DSHG-*-2B11A			DSHG-*-2B11B			DSHG-*-2N11A		
(S-)DSHG-*-2B12A			(S-)DSHG-*-2B12B			(S-)DSHG-*-2N12A		

Pressure Drop

Pressure drop curves based on viscosity of 35 mm²/s (164 SSU) and specific gravity of 0.850.

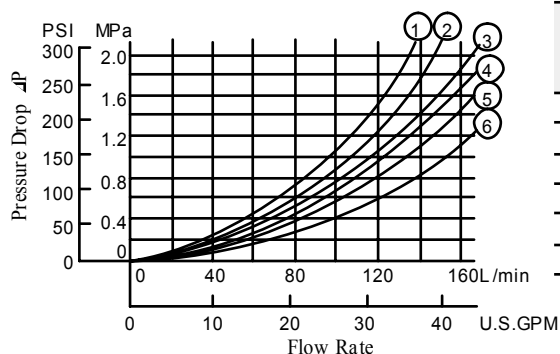
● DSHG-01



● DSHG-01

Spool Type	Pressure Drop Curve Numbers					Spool Type	Pressure Drop Curve Numbers				
	P→A	B→T	P→B	A→T	P→T		P→A	B→T	P→B	A→T	P→T
2	③	②	③	②	—	7	③	②	③	②	—
3	④	②	④	②	②	9	④	②	④	②	—
4	③	②	③	②	—	10	③	②	③	②	—
40	③	②	③	②	—	11	③	②	③	②	—
5	③	②	③	②	①	12	③	②	③	②	—
60	③	②	③	②	①						

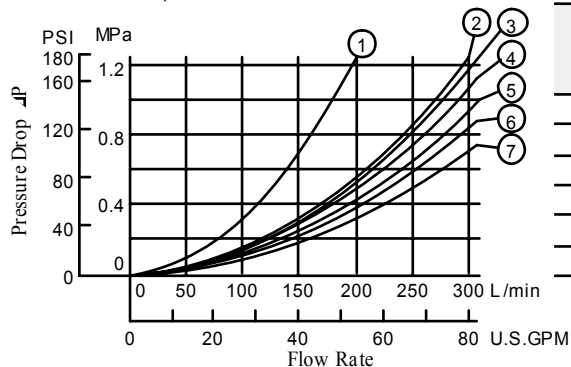
● DSHG-03



● DSHG-03

Spool Type	Pressure Drop Curve Numbers					Spool Type	Pressure Drop Curve Numbers				
	P→A	B→T	P→B	A→T	P→T		P→A	B→T	P→B	A→T	P→T
2	③	③	④	④	—	7	③	③	④	④	—
3	⑤	⑤	⑤	⑥	④	9	⑥	③	⑥	④	—
4	③	⑤	④	⑥	—	10	③	⑤	④	④	—
40	③	③	④	④	—	11	⑥	③	④	④	—
5	⑥	③	④	⑥	②	12	③	③	④	⑥	—
60	③	③	④	④	①						

● DSHG-04, S-DSHG-04



● DSHG-04

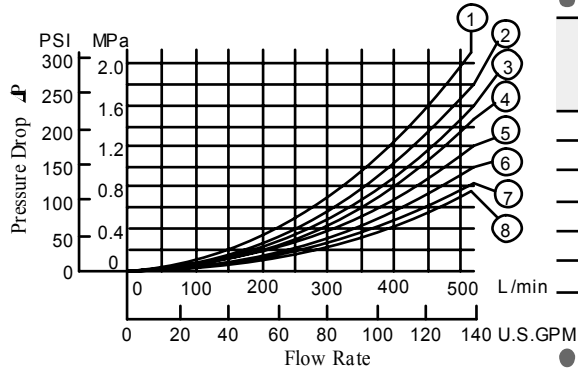
Spool Type	Pressure Drop Curve Numbers					Spool Type	Pressure Drop Curve Numbers				
	P→A	B→T	P→B	A→T	P→T		P→A	B→T	P→B	A→T	P→T
2	⑤	④	⑤	⑥	—	60	⑦	⑤	⑦	⑦	②
3	⑤	③	⑤	⑤	①	7	⑤	④	⑤	⑥	—
4	⑤	③	⑤	⑤	—	9	⑤	④	⑤	⑥	—
40	⑤	④	⑤	⑥	—	10	⑤	②	⑤	⑥	—
5	⑦	④	⑤	⑤	⑤	11	⑥	④	⑤	⑥	—
6	⑤	③	⑤	⑥	①	12	⑤	④	⑤	⑤	—

● S-DSHG-04

Spool Type	Pressure Drop Curve Numbers					Spool Type	Pressure Drop Curve Numbers				
	P→A	B→T	P→B	A→T	P→T		P→A	B→T	P→B	A→T	P→T
2	②	②	②	④	—	60	⑥	④	⑥	⑦	②
4	②	③	②	⑤	—	10	②	②	②	④	—
40	②	④	②	⑥	—	12	②	②	②	⑤	—

Pressure Drop

● DSHG-06, S-DSHG-06



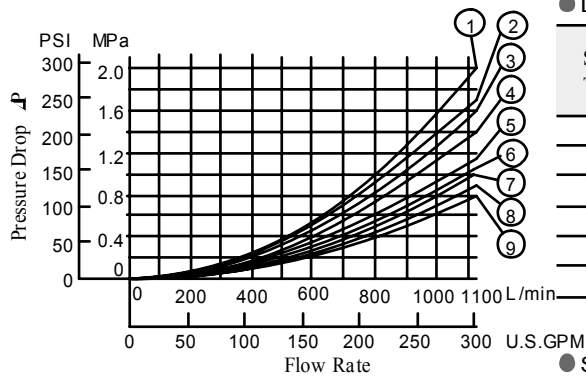
● DSHG-06

Spool Type	Pressure Drop Curve Numbers					Spool Type	Pressure Drop Curve Numbers				
	P→A	B→T	P→B	A→T	P→T		P→A	B→T	P→B	A→T	P→T
2	8	5	8	7	—	60	6	5	6	7	1
3	6	4	6	7	4	7	6	4	6	7	—
4	8	5	8	7	—	9	6	5	6	7	—
40	8	5	8	7	—	10	8	5	8	7	—
5	8	4	5	7	1	11	8	4	5	7	—
6	5	3	5	4	1	12	8	5	8	7	—

● S-DSHG-06

Spool Type	Pressure Drop Curve Numbers					Spool Type	Pressure Drop Curve Numbers				
	P→A	B→T	P→B	A→T	P→T		P→A	B→T	P→B	A→T	P→T
2	6	1	6	2	—	60	6	2	6	3	1
4	6	2	6	2	—	10	8	5	8	7	—
40	8	5	8	7	—	12	8	5	8	7	—

● DSHG-10, S-DSHG-10



● DSHG-10

Spool Type	Pressure Drop Curve Numbers					Spool Type	Pressure Drop Curve Numbers				
	P→A	B→T	P→B	A→T	P→T		P→A	B→T	P→B	A→T	P→T
2	9	6	9	8	—	60	8	5	8	5	3
3	7	6	7	7	5	7	7	6	7	7	—
4	9	6	9	6	—	9	7	6	7	8	—
40	9	6	9	8	—	10	9	5	9	8	—
5	9	6	8	6	1	11	9	6	8	7	—
6	5	3	5	2	2	12	9	7	9	6	—

● S-DSHG-10

Spool Type	Pressure Drop Curve Numbers					Spool Type	Pressure Drop Curve Numbers				
	P→A	B→T	P→B	A→T	P→T		P→A	B→T	P→B	A→T	P→T
2	8	3	8	4	—	60	8	4	8	4	2
4	8	5	8	6	—	10	9	5	9	8	—
40	9	6	9	8	—	12	9	7	9	6	—

● For any other viscosity, multiply the factors in the table below.

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

● For any other specific gravity (G'), the pressure drop (P') may be obtained from the formula right.

$$P' = P(G'/0.850)$$

Changeover time varies according to oil viscosity, spool type and hydraulic circuit.

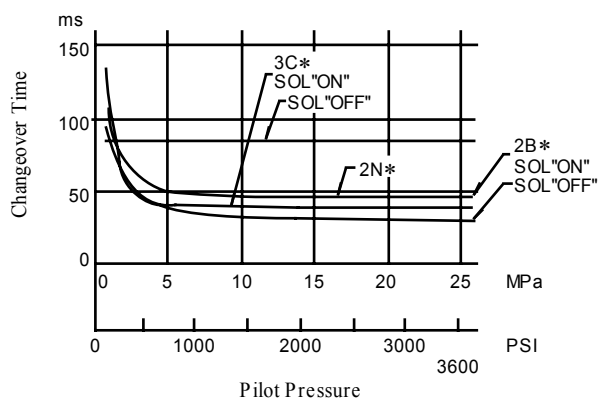
● Test Conditions

Coil Type : D* (Models with DC solenoids)

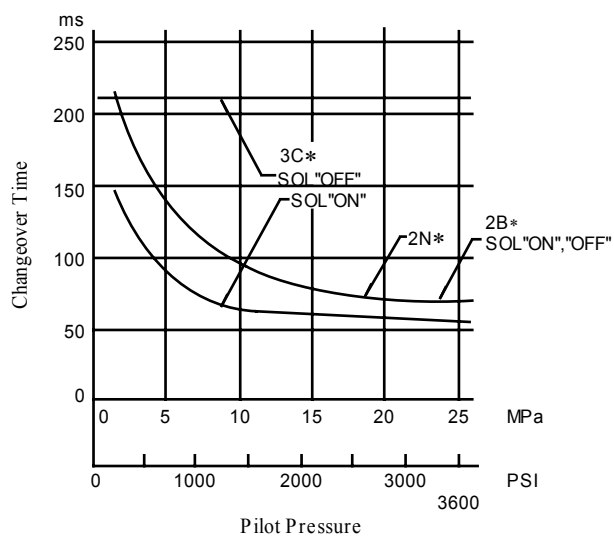
Voltage : Rated Voltage

Oil Viscosity : 35 mm²/s (164 SSU)

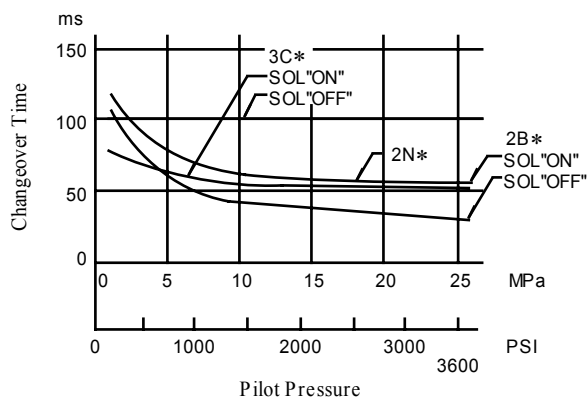
● DSHG-04



● DSHG-10



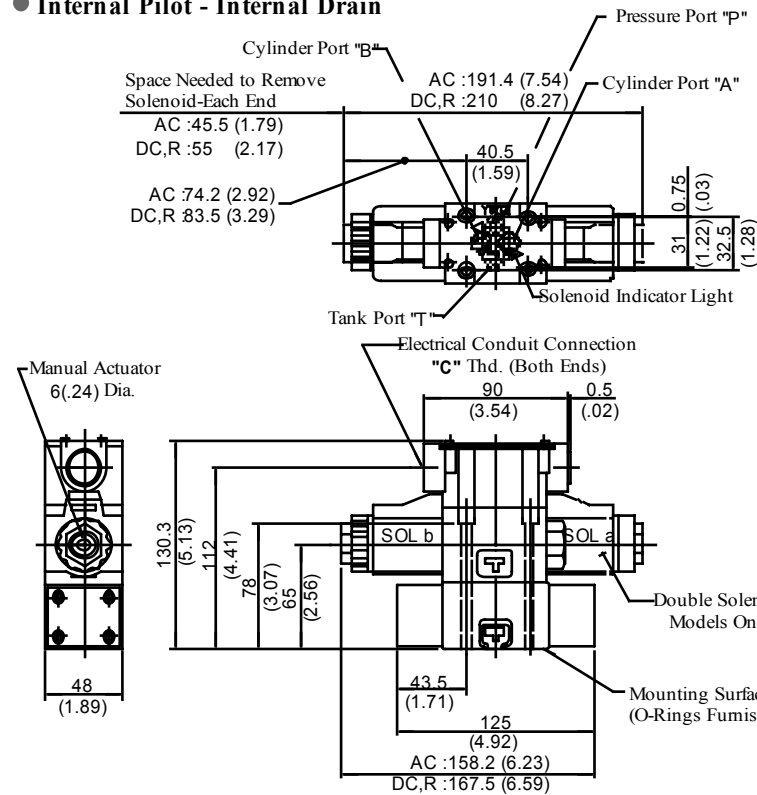
● DSHG-06



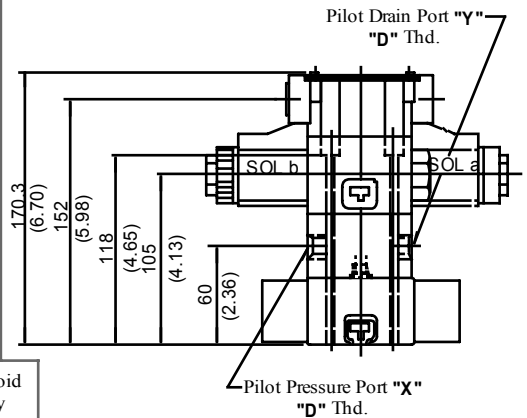
■ Terminal Box type: DSHG-01-***-13/1390

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

● Internal Pilot - Internal Drain



- External Pilot - External Drain
- External Pilot - Internal Drain
- Internal Pilot - External Drain



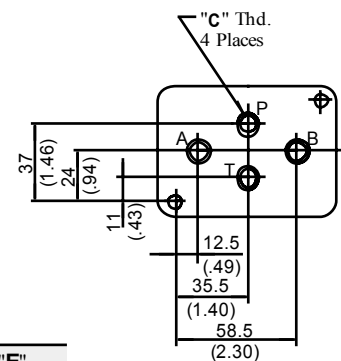
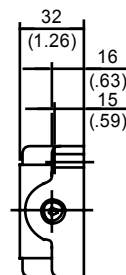
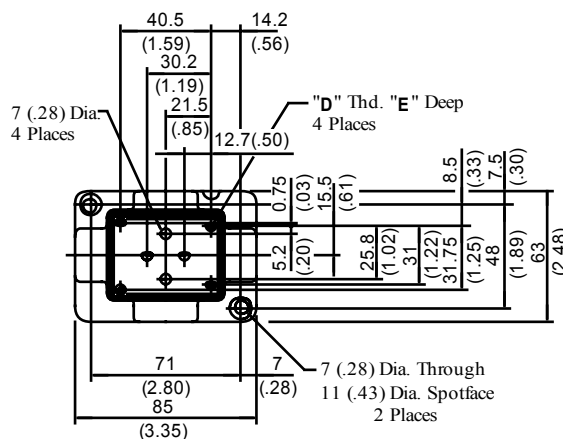
● For other dimensions, refer to "Internal Pilot Internal Drain".

Model Numbers	"C" Thd.	"D" Thd.
DSHG-01-***-13	G 1/2	Rc 1/4
DSHG-01-***-1390	1/2 NPT	1/4 NPT

DIMENSIONS IN
MILLIMETRES (INCHES)

■ Sub- plates

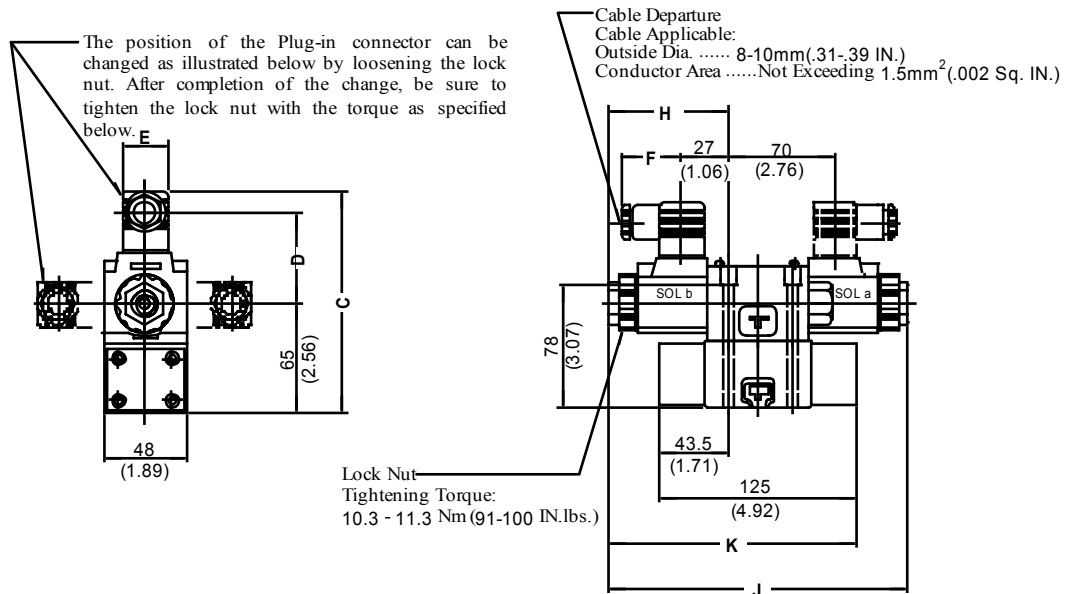
DSGM-01*-30/3080/3090



Sub-plate Model Numbers	Piping Size "C" Thd.	"D" Thd.	"E" mm (IN.)
DSGM-01-30	Rc 1/8	M5	10 (.39)
DSGM-01-3080	1/8 BSP.F		
DSGM-01-3090	1/8 NPT	No. 10-24 UNC	12 (.47)
DSGM-01X-30	Rc 1/4	M5	10 (.39)
DSGM-01X-3080	1/4 BSP.F		
DSGM-01X-3090	1/4 NPT	No. 10-24 UNC	12 (.47)
DSGM-01Y-30	Rc 3/8	M5	10 (.39)
DSGM-01Y-3090	3/8 NPT		

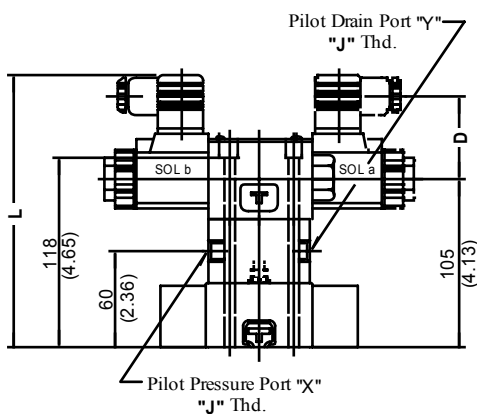
■ Plug-in Connector Type: DSHG-01-***-N_{N1}-13/1380/1390

● Internal Pilot-Internal Drain



- External Pilot-External Drain
- External Pilot-Internal Drain
- Internal Pilot-External Drain

DIMENSIONS IN
MILLIMETRES (INCHES)



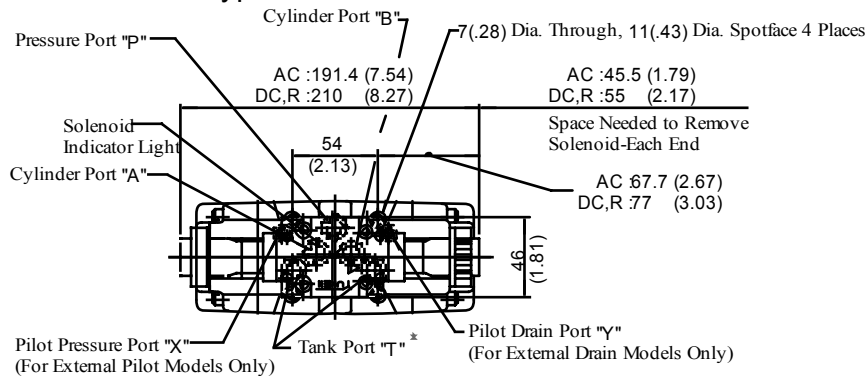
Model Numbers	"J" Thd.
DSHG-01-***-N*-13	Rc 1/4
DSHG-01-***-N*-	1/4 BSP.F
1380	1/4 NPT

Model Numbers	Dimensions mm (Inches)							
	C	D	E	F	H	J	K	L
DSHG-01-***-A*-N/ N1	130 (5.12)	53 (2.09)	27.5 (1.08)	39 (1.54)	74.2 (2.92)	191.4 (7.54)	158.2 (6.23)	170 (6.69)
DSHG-01-***-D*-N/ N1	141 (5.55)	64 (2.52)	27.5 (1.08)	39 (1.54)	83.5 (3.29)	210 (8.27)	167.5 (6.59)	181 (7.13)
DSHG-01-***-D*-N/ 1380	144 (5.67)	57.2 (2.25)	34 (1.34)	53 (2.09)				184 (7.24)

• For other dimensions, refer to "Terminal Box Type".

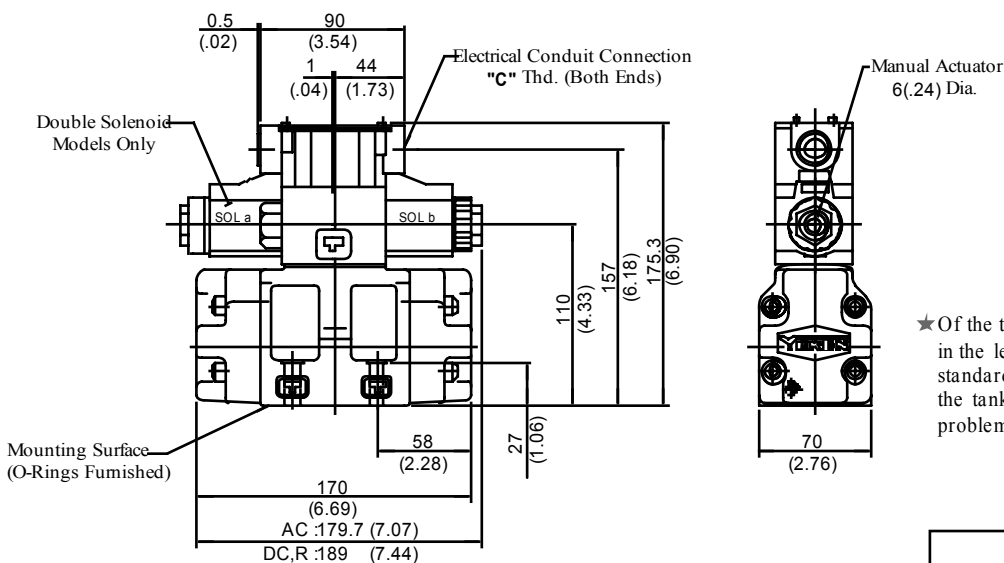
Installation Drawing

■ Terminal Box Type: DSHG-03-***-13/1390



Mounting surface: ISO 4401-AC-05-4-A
(The pilot and drain ports in accordance with the ISO original draft)

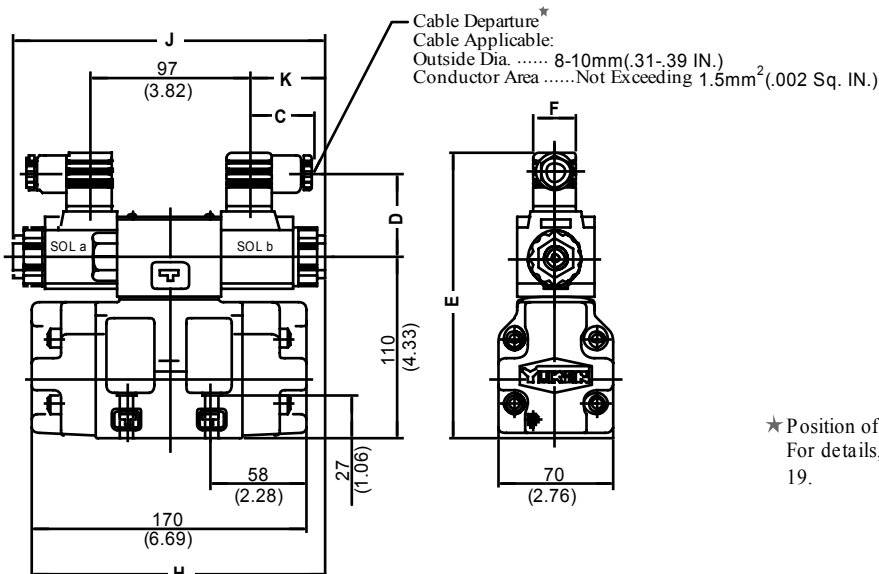
Model Numbers	"C" Thd.
DSHG-03-***-13	G 1/2
DSHG-03-***-	1/2 NPT



★ Of the two of tank port "T", the tankport in the left side is normally used in our standard sub-plate, though, either side of the tank port "T" can be used without problem.

**DIMENSIONS IN
MILLIMETRES (INCHES)**

■ Plug-in Connector Type: DSHG-03-***-N_{N1}-13/1390



★ Position of cable departure can be changed.
For details, refer to DSHG-01 valve on page 19.

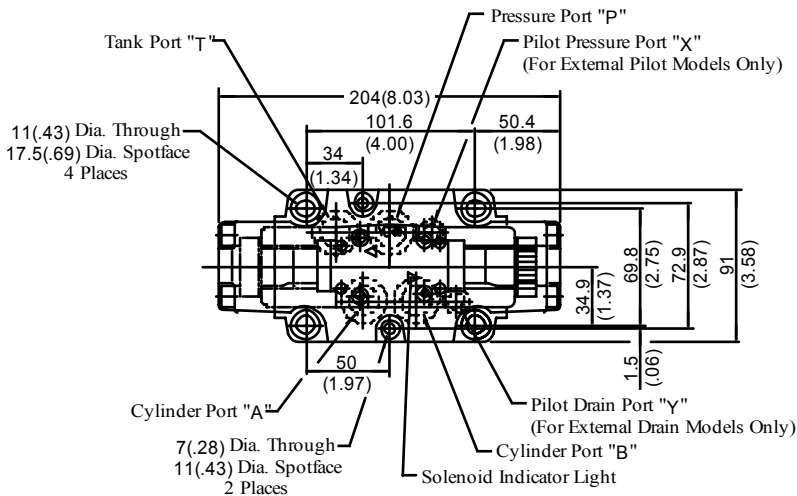
Model Numbers	Dimensions mm (Inches)						
	C	D	E	F	H	J	K
DSHG-03-***-A*-N /	39 (1.54)	53 (2.09)	175 (6.89)	27.5 (1.08)	179.7 (7.07)	191.4 (7.54)	47.2 (1.86)
N1	39 (1.54)	64 (2.52)	186 (7.32)	27.5 (1.08)	189 (7.44)	210 (8.27)	56.5 (2.22)
DSHG-03-***-D*-N /	53 (2.09)	57.2 (2.25)	189 (7.44)	34 (1.34)			

● For other dimensions, refer to "Terminal Box Type".

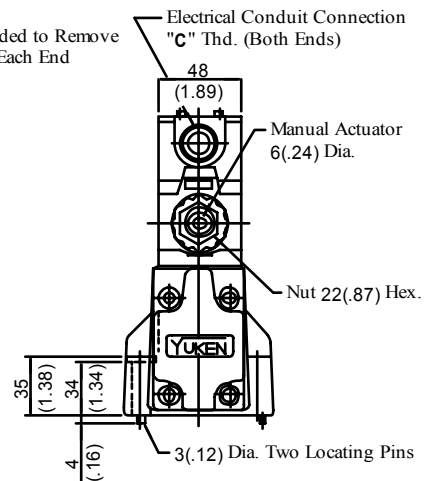
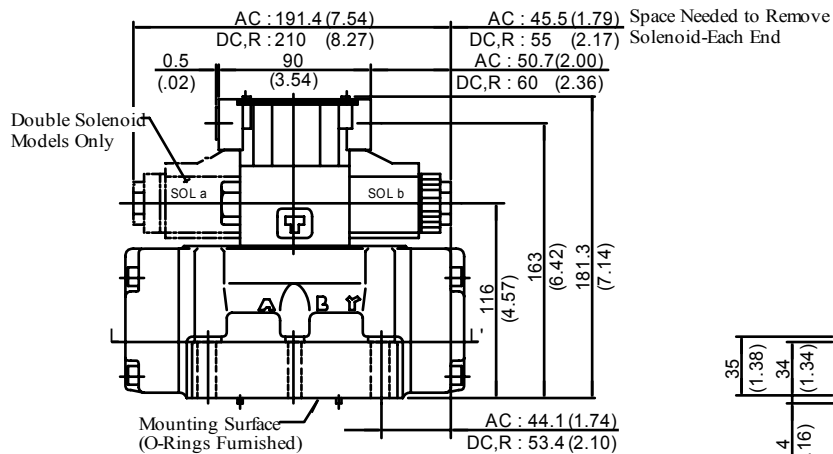
Installation Drawing

■ Terminal Box Type: (S-)DSHG-04-***-51/5190

Mounting surface:
ISO 4401-AD-07-4-

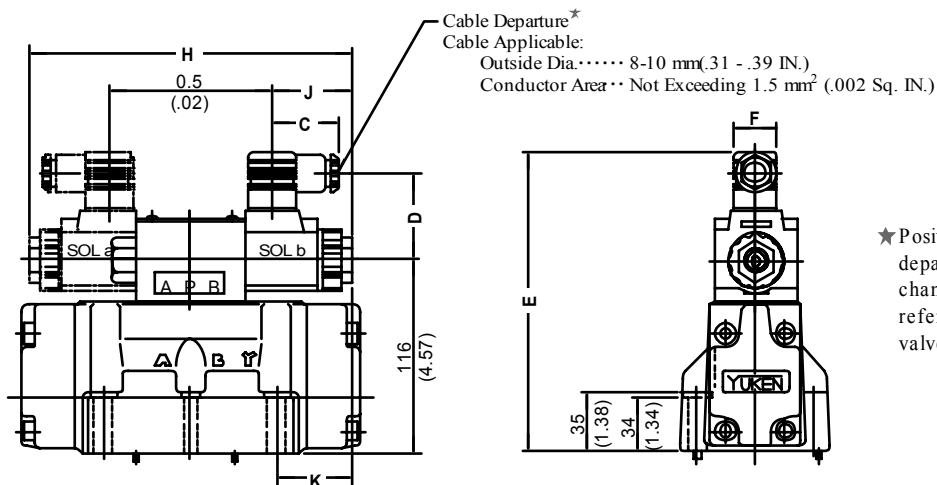


Model Numbers	"C" Thd.
(S-)DSHG-04-***-51	G 1/2
(S-)DSHG-04-***-5190	1/2 NPT



**DIMENSIONS IN
MILLIMETRES (INCHES)**

■ Plug-in Connector Type: (S-)DSHG-04-***-N₁-51/5190



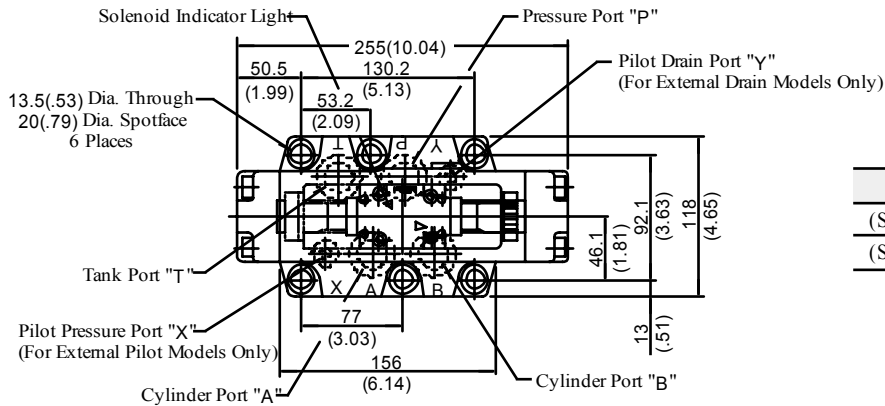
★ Position of cable departure can be changed. For details, refer to DSHG-01 valve on page 19.

Model Numbers	Dimensions mm (Inches)						
	C	D	E	F	H	J	K
(S-)DSHG-04-***-A*-N/N1	39 (1.54)	53 (2.09)	181 (7.13)	27.5 (1.08)	191.4 (7.54)	47.2 (1.86)	44.1 (1.74)
(S-)DSHG-04-***-D*-N/N1	39 (1.54)	64 (2.52)	192 (7.56)	27.5 (1.08)	210 (8.27)	56.5 (2.22)	53.4 (2.10)
(S-)DSHG-04-***-R*-N	53 (2.09)	57.2 (2.25)	195 (7.68)	34 (1.34)			

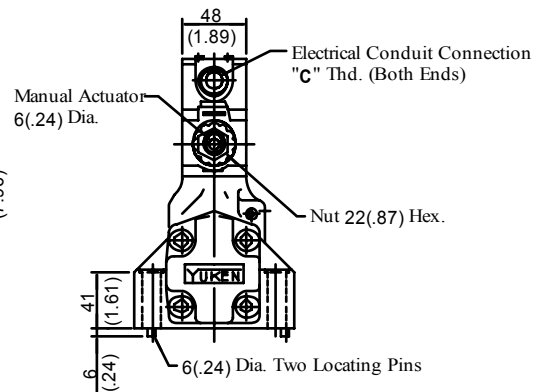
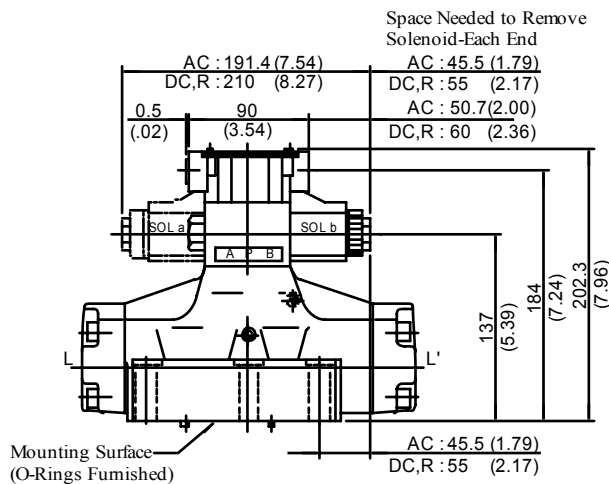
• For other dimensions, refer to "Terminal Box Type".

■ Terminal Box Type: (S-)DSHG-06-***-52/5290

Mounting surface:
ISO 4401-AE-08-4-

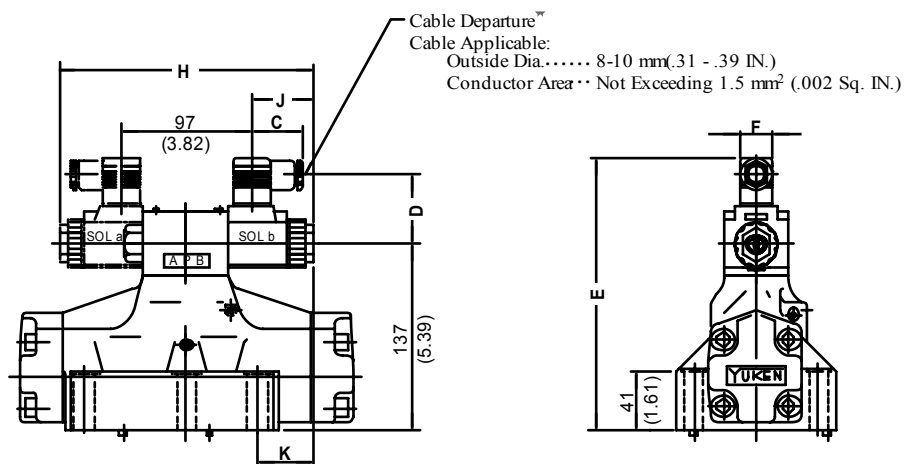


Model Numbers	"C" Thd.
(S-)DSHG-06-***-52	G 1/2
(S-)DSHG-06-***-5290	1/2 NPT



DIMENSIONS IN
MILLIMETRES (INCHES)

■ Plug-in Connector Type: (S-)DSHG-06-***-N₁-52/5290



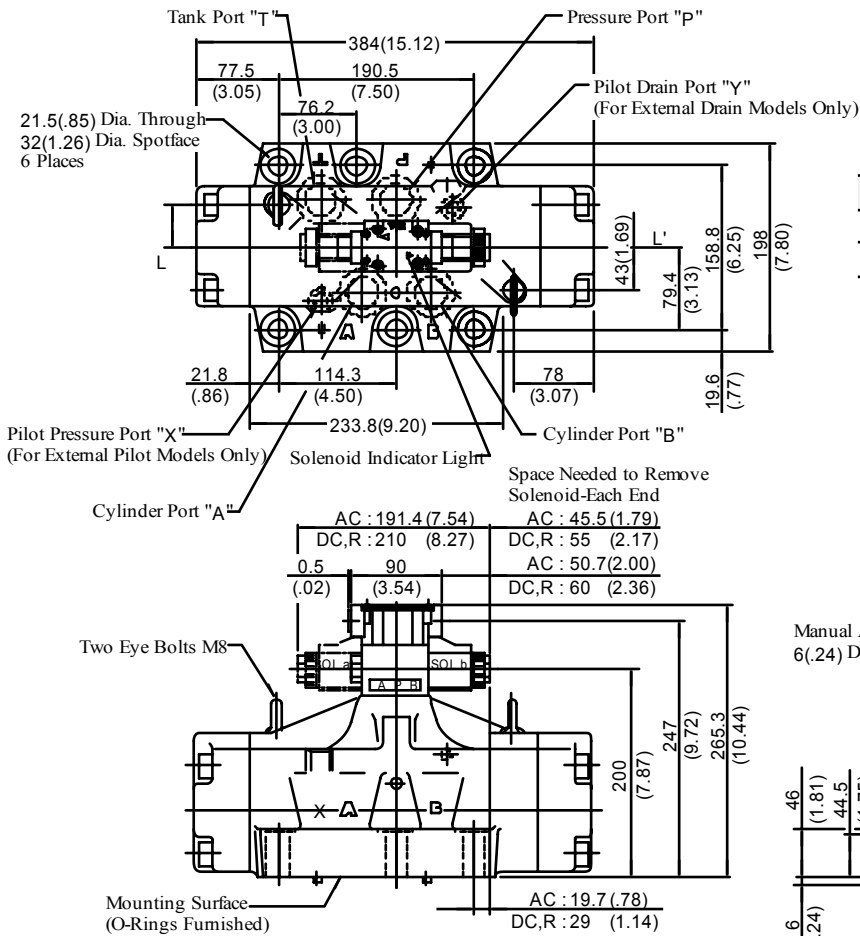
★ Position of cable departure can be changed. For details, refer to DSHG-01 valve on page 19.

Model Numbers	Dimensions mm (Inches)						
	C	D	E	F	H	J	K
(S-)DSHG-06-***-A*-N/N1	39 (1.54)	53 (2.09)	202 (7.95)	27.5 (1.08)	191.4 (7.54)	47.2 (1.86)	42.7 (1.68)
(S-)DSHG-06-***-D*-N/N1	39 (1.54)	64 (2.52)	213 (8.39)	27.5 (1.08)	210 (8.27)	56.5 (2.22)	52 (2.05)
(S-)DSHG-06-***-R*-N	53 (2.09)	57.2 (2.25)	216 (8.50)	34 (1.34)			

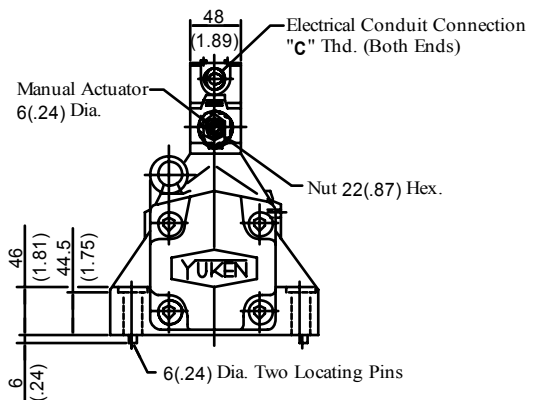
• For other dimensions, refer to "Terminal Box Type".

■ Terminal Box Type: (S-)DSHG-10-***-42/4290

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

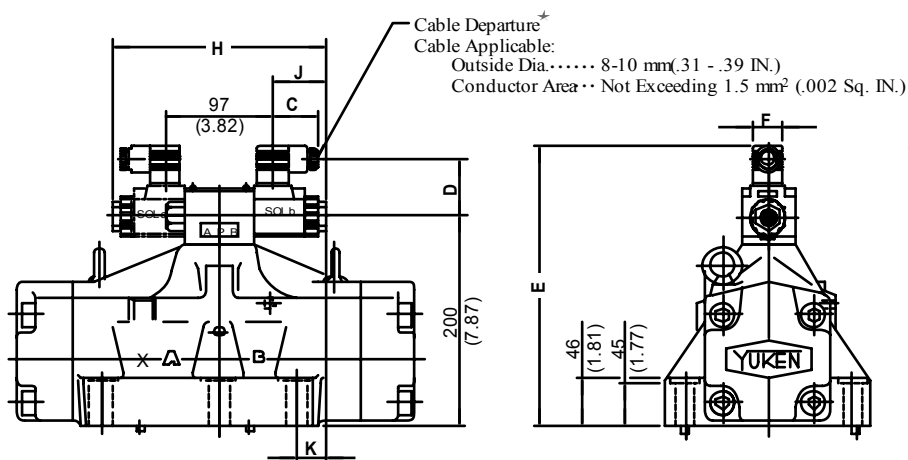


Model Numbers	"C" Thd.
(S-)DSHG-10-***-42	G 1/2
(S-)DSHG-10-***-4290	1/2 NPT



**DIMENSIONS IN
MILLIMETRES (INCHES)**

■ Plug-in Connector Type: (S-)DSHG-10-***-N₁-42/4290



★ Position of cable departure can be changed. For details, refer to DSHG-01 valve on page 19.

Model Numbers	Dimensions mm (Inches)						
	C	D	E	F	H	J	K
(S-)DSHG-10-***-A*-N/N1	39 (1.54)	53 (2.09)	265 (10.43)	27.5 (1.08)	191.4 (7.54)	47.2 (1.86)	19.7 (.78)
(S-)DSHG-10-***-D*-N/N1	39 (1.54)	64 (2.52)	276 (10.87)	27.5 (1.08)	210 (8.27)	56.5 (2.22)	29 (1.14)
(S-)DSHG-10-***-R*-N	53 (2.09)	57.2 (2.25)	279 (10.98)	34 (1.34)			

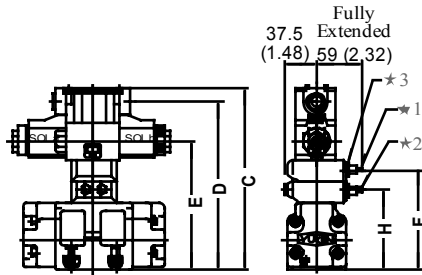
• For other dimensions, refer to "Terminal Box Type".

Options

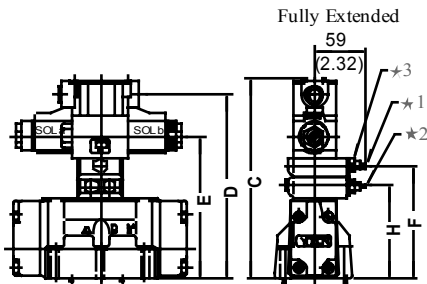
Models with Pilot Choke Valve

■ Terminal Box Type

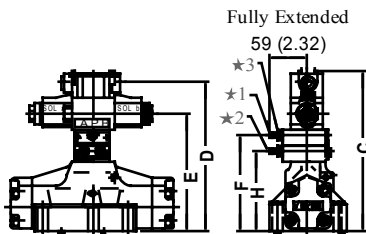
● DSHG-03-***-C1/C2/C1C2



● (S-)DSHG-04-***-C1/C2/C1C2

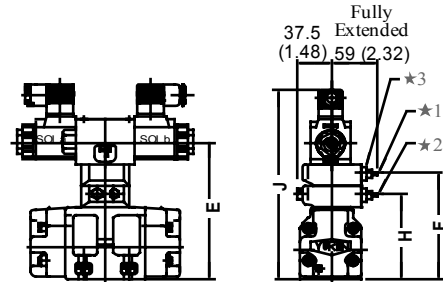


● (S-)DSHG-06-10-***-C1/C2/C1C2

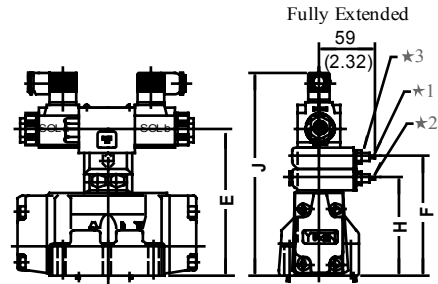


■ Plug-in Connector Type

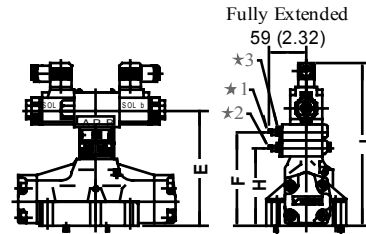
● DSHG-03-***-C1/C2/C1C2-N_{N1}



● (S-)DSHG-04-***-C1/C2/C1C2-N_{N1}



● (S-)DSHG-06-10-***-C1/C2/C1C2-N_{N1}



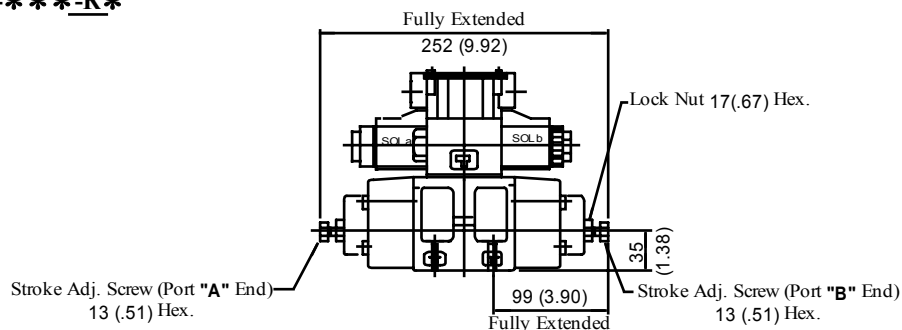
- ★1. "C1" Choke Adj. Screw 6 (.24) Hex.
★2. "C2" Choke Adj. Screw 6 (.24) Hex.
★3. Lock Nut 12 (.47) Hex.

DIMENSIONS IN
MILLIMETRES (INCHES)

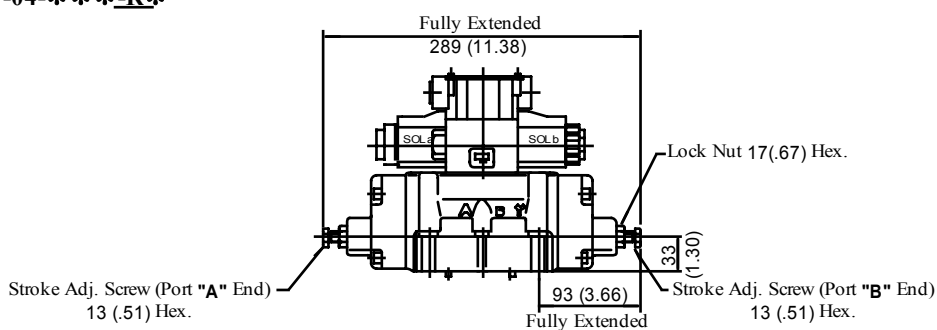
Model Numbers	Dimensions mm (Inches)							
	C	D	E	F	H	J		
						AC SOL	DC SOL	R SOL
DSHG-03-***-C1	200.3 (7.89)	182 (7.17)	135 (5.31)	100 (3.94)	—	200 (7.87)	211 (8.31)	214 (8.43)
DSHG-03-***-C2				—	100 (3.94)			
DSHG-03-***-C1C2	225.3 (8.87)	207 (8.15)	160 (6.30)	125 (4.92)	100 (3.94)	225 (8.86)	236 (9.29)	239 (9.41)
(S-) DSHG-04-***-C1	206.3 (8.12)	188 (7.40)	141 (5.55)	106 (4.17)	—	206 (8.11)	217 (8.54)	220 (8.66)
(S-) DSHG-04-***-C2				—	106 (4.17)			
(S-) DSHG-04-***-C1C2	231.3 (9.11)	213 (8.39)	166 (6.54)	131 (5.16)	106 (4.17)	231 (9.09)	242 (9.53)	245 (9.65)
(S-) DSHG-06-***-C1	227.3 (8.95)	209 (8.23)	162 (6.38)	127 (5.00)	—	227 (8.94)	238 (9.37)	241 (9.49)
(S-) DSHG-06-***-C2				—	127 (5.00)			
(S-) DSHG-06-***-C1C2	252.3 (9.93)	234 (9.21)	187 (7.36)	152 (5.98)	127 (5.00)	252 (9.92)	263 (10.35)	266 (10.47)
(S-) DSHG-10-***-C1	290.3 (11.43)	272 (10.71)	225 (8.86)	190 (7.48)	—	390 (15.35)	401 (15.79)	404 (15.91)
(S-) DSHG-10-***-C2				—	190 (7.48)			
(S-) DSHG-10-***-C1C2	315.3 (12.41)	297 (11.69)	250 (9.84)	215 (8.46)	190 (7.48)	415 (16.34)	426 (16.77)	429 (16.89)

Models with Stroke Adjustment

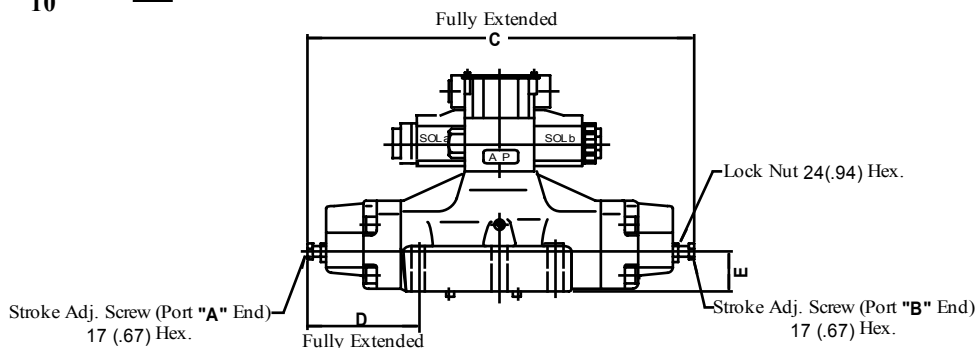
● DSHG-03-***-R*



● (S-)DSHG-04-***-R*



● (S-)DSHG-⁰⁶/₁₀-***-R*

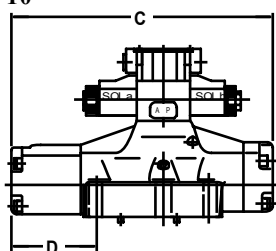


Model Numbers	C	D	E
(S-)DSHG-06-***-	376 (14.80)	111 (4.37)	40 (1.57)
R2	558 (21.97)	164.5 (6.48)	65 (2.56)

DIMENSIONS IN
MILLIMETRES (INCHES)

Pressure Centred Models

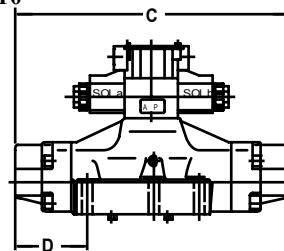
● (S-)DSHG-⁰⁶/₁₀-3H*



Model Numbers	C	D
(S-)DSHG-06-3H	306.5 (12.07)	102 (4.02)
*	456 (17.95)	149.5 (5.89)

Models with Pilot Piston

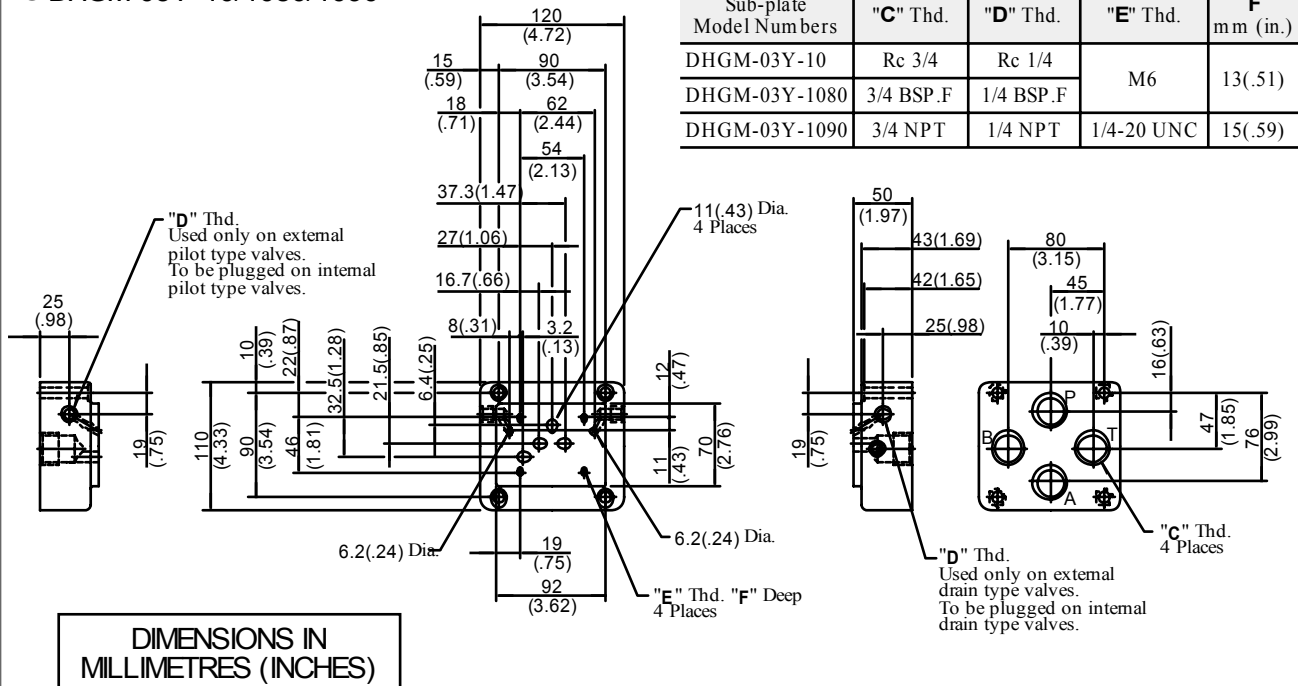
● (S-)DSHG-⁰⁶/₁₀-***-P*



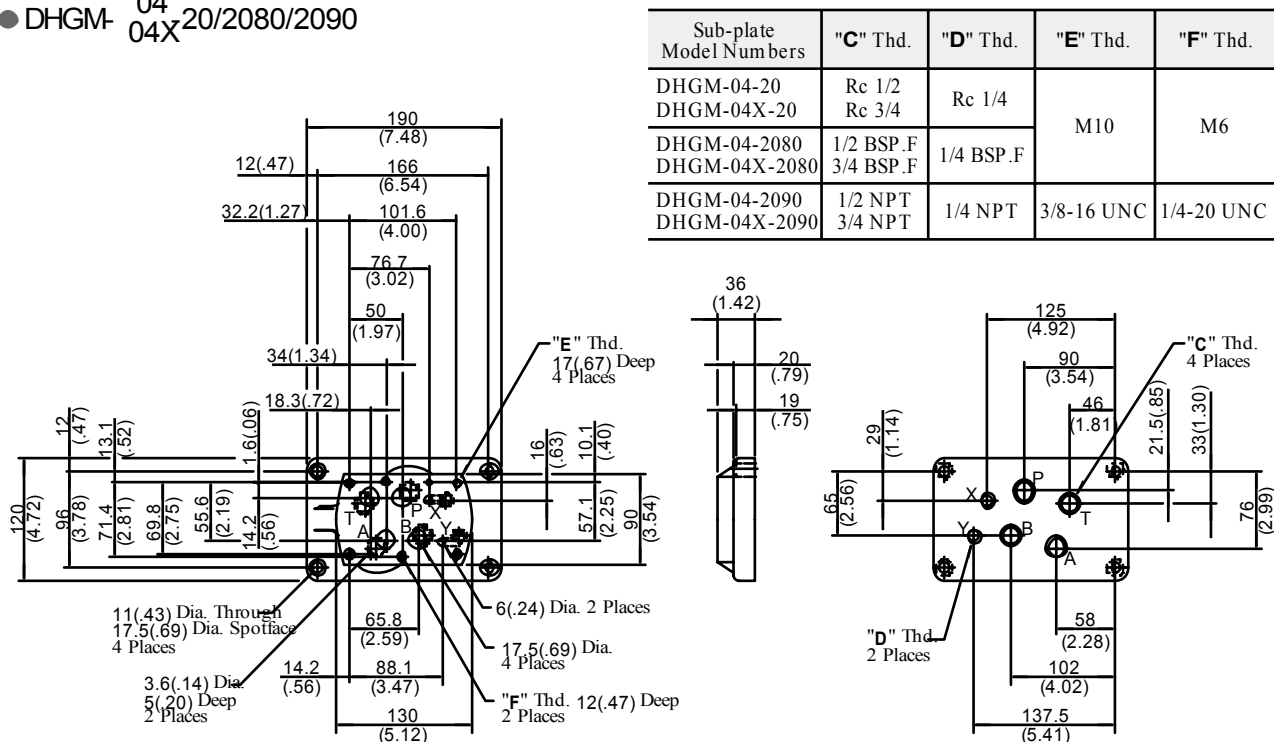
Model Numbers	C	D
(S-)DSHG-06-***-	323 (12.72)	84 (3.31)
P2	479 (18.86)	125 (4.92)

Installation Drawing

● DHGM-03Y-10/1080/1090

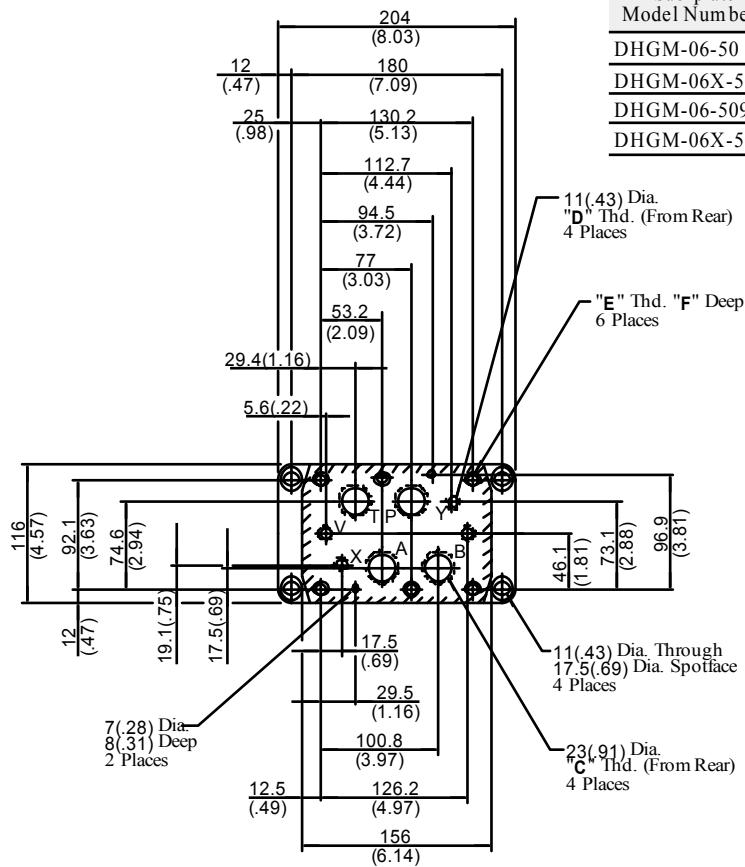


● DHGM-04 20/2080/2090

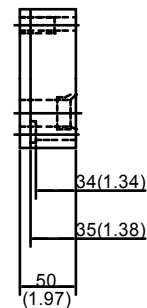


Valve Types		Pilot Pressure Port "X"	Port "Y"
Solenoid Controlled Pilot Operated Directional Valves		Used only on external pilot type valves. To be plugged on internal pilot type valves.	Used as drain port only on external drain type valves. To be plugged on internal drain type valves.
Pilot Operated Directional Valves	Spring Centred No-spring	Used	Used as pilot pressure port
	Spring Offset		Used as pilot drain port
Manually Operated Directional Valves		Not used (plug is not required)	Used as drain port

● DHGM- 06 06X 50/5090

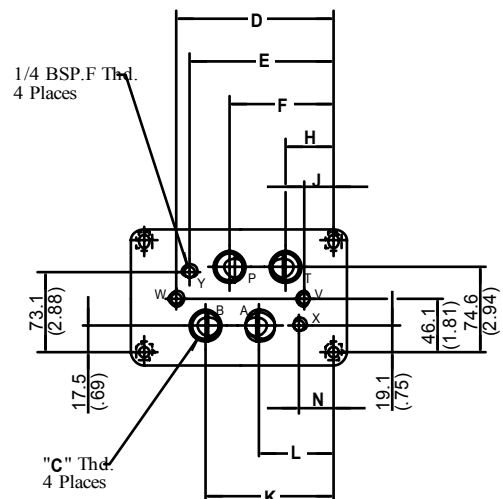
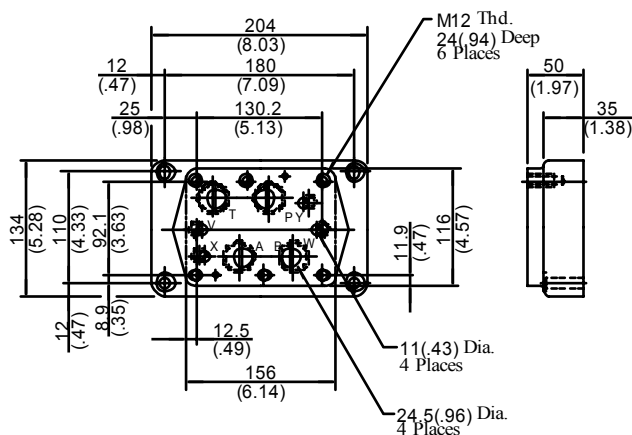


Sub-plate Model Numbers	"C" Thd.	"D" Thd.	"E" Thd.	F mm (in.)
DHGM-06-50	Rc 3/4	Rc 1/4	M12	24 (.94)
DHGM-06X-50	Rc 1			
DHGM-06-5090	3/4 NPT	1/4 NPT	1/2-13 UNC	26 (1.02)
DHGM-06X-5090	1 NPT			



DIMENSIONS IN
MILLIMETRES (INCHES)

● DHGM- 06 06X 5080

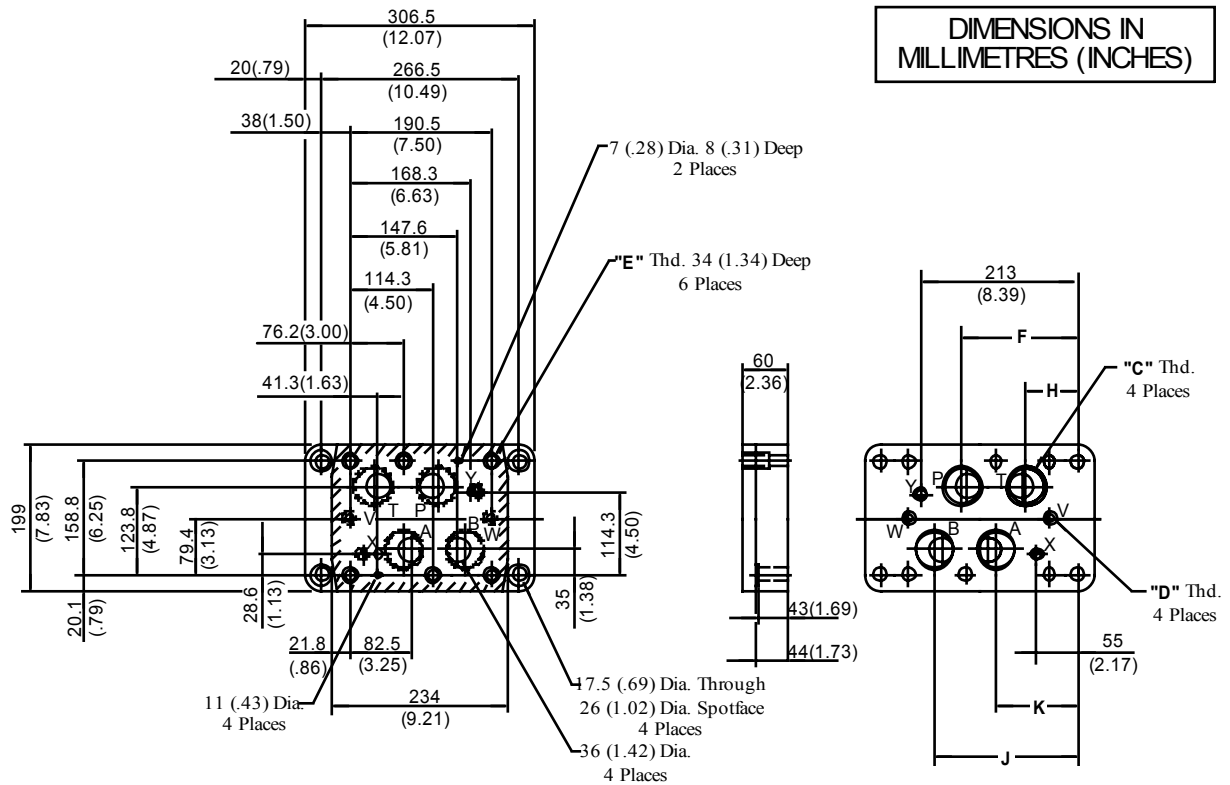


Sub-plate Model Numbers	"C" Thd.	Dimensions mm (Inches)							
		D	E	F	H	J	K	L	N
DHGM-06-5080	3/4 BSP.F	151.2 (5.95)	137.7 (5.42)	102 (4.02)	54.4 (2.14)	30.6 (1.20)	125.8 (4.95)	78.2 (3.08)	42.5 (1.67)
DHGM-06X-5080	1 BSP.F	155.2 (6.11)	148 (5.83)	106 (4.17)	50 (1.97)	25 (.98)	130 (5.12)	74 (2.91)	32 (1.26)

For other dimensions, refer to "DHGM-06*-50/5090" above.

* For Uses of Port "X", "Y", "V", "W", refer to DHGM-10* on the following page.

● DHGM-10¹⁰X-40/4080/4090



Sub-plate Model Numbers	"C" Thd.	"D" Thd.	"E" Thd.	Dimensions mm (Inches)			
				F	H	J	K
DHGM-10-40	Rc 1-1/4	Rc 3/8	M20				
DHGM-10-4080	1-1/4 BSP.F	3/8 BSP.F	M20	152 (5.98)	79 (3.11)	185.5 (7.30)	120.5 (4.74)
DHGM-10-4090	1-1/4 NPT	3/8 NPT	3/4-10 UNC				
DHGM-10X-40	Rc 1-1/2	Rc 3/8	M20				
DHGM-10X-4080	1-1/2 BSP.F	3/8 BSP.F	M20	156 (6.14)	74 (2.91)	194.5 (7.66)	112.5 (4.43)
DHGM-10X-4090	1-1/2 NPT	3/8 NPT	3/4-10 UNC				

Note: Uses of port "X", "Y", "V", and "W"

Valve Types		Pilot Pres. Port "X"	Port "Y"	Drain Port "V"	Drain Port "W"
Solenoid Controlled Pilot Operated Directional Valves	Spring Centred, No-spring, Spring Offset	Used only on external pilot type valves.	Used as drain port only on external drain type valves.	Not used (plug is not required)	
	Pressure Centred			Used	Not used
	With Pilot Piston, Both Ends	To be plugged on internal pilot type valves.	To be plugged on " internal drain type valves.	Used	Used
	With Pilot Piston, Port "A" End			Used	Not used (plug is required)
	With Pilot Piston, Port "B" End			Not used (plug is required)	Used
Pilot Operated Directional Valves	Spring Centred, No-spring	Used	Used as pilot pres. port	Not used (plug is not required)	
	Spring Offset		Used as pilot drain port		
	Pressure Centred		Used as pilot pres. port	Used	Not used
	With Pilot Piston, Both Ends			Used	Used
	With Pilot Piston, Port "B" End			Not used (plug is required)	Used
	With Pilot Piston Port "A" End		Used as pilot pres. port	Used	Not used (plug is required)
	Spring Centred No-spring Spring Offset		Used as pilot drain port		
Manually Operated Directional Valves		Not used (plug is not required)	Not used (plug is not required)	Used	Not used (plug is not required)

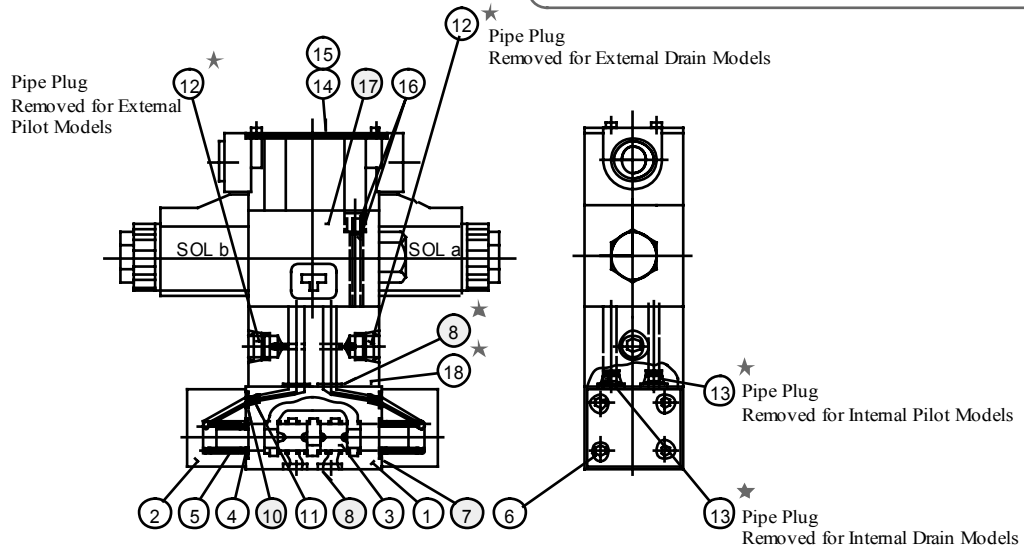
★ As the thread is provided on the body, plug either port on the sub-plate or port on the body.

DSHG-01-***-13/1380/1390



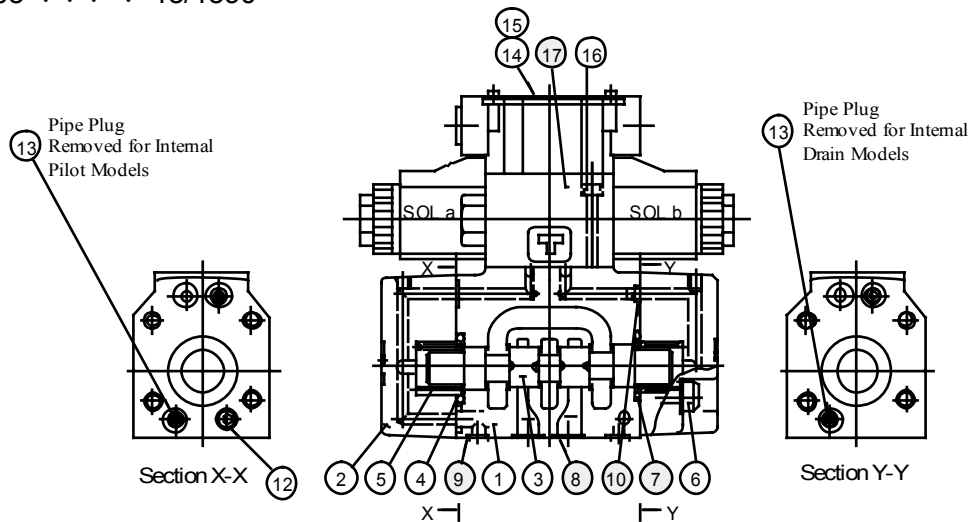
CAUTION

When making replacement of seals or pilot valves, please do it carefully after reading through the relevant instructions in the Operator's Manual.



Note: Piece parts marked★ are not available for internal pilot-internal drain type

DSHG-03-***-13/1390



● List of Seals

Item	Name	DSHG-01		DSHG-03	
		Part Numbers	Qty.	Part Numbers	Qty.
7	O-Ring	JASO-1018-1A	2	SO-NB-P28	2
8	O-Ring	SO-NB-P9	8(4)*	SO-NB-A104	5
9	O-Ring	—	—	SO-NB-P9	2
10	O-Ring	SO-NB-P5	2	SO-NB-P9	6

★ Quantities in the () are applicable to internal pilot-internal drain.

Note: When ordering the o-rings, please specify the seal kit number listed in page 31. In addition to the above o-rings, o-rings for pilot valve is included in the seal kit.

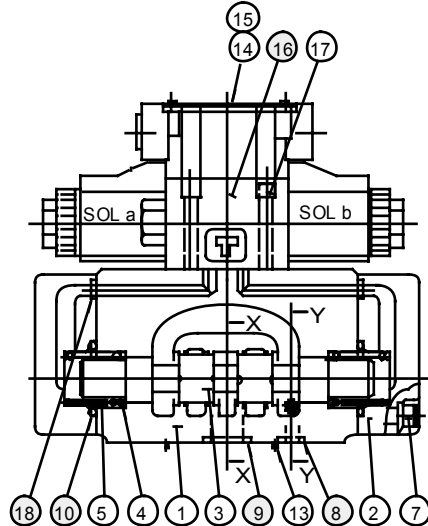
For the detail of the pilot valve o-rings, see the catalogue No. Pub. EC-0402.

● Pilot Valves

See page 31 for the pilot valve model numbers to be used.

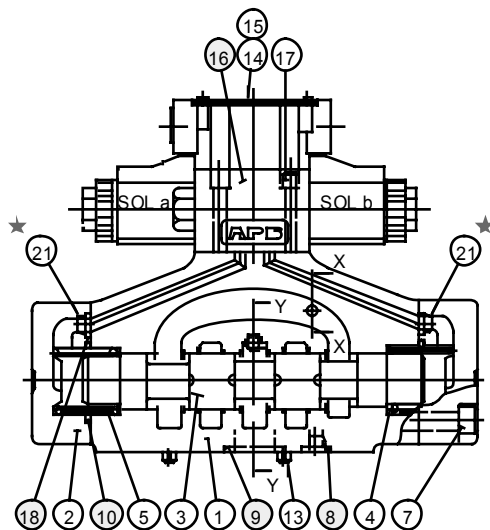
Spare Parts List

(S-)DSHG-04-***-51/5190



(S-)DSHG-06-***-52/5290

(S-)DSHG-10-***-42/4290



Note: Item ⑪ orifice marked ★ is applicable to pressure centred models (3H★) with pilot pressure more than 10 MPa (1450 PSI).

● List of Seals

Item	Name	Part Numbers			Qty.
		(S-)DSHG-04	(S-)DSHG-06	(S-)DSHG-10	
8	O-Ring	SO-NB-P9	SO-NB-P14	SO-NB-P20	2
9		SO-NB-P22	SO-NB-P30	SO-NB-P42	4
10		SO-NB-P34	SO-NB-P40	SO-NB-P65	2
18		SO-NB-P9	SO-NB-P10	SO-NB-P14	2

Note: When ordering the o-rings, please specify the seal kit number listed in page 31. In addition to the above o-rings, o-rings for pilot valve is included in the seal kit.

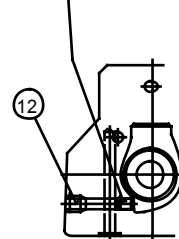
For the detail of the pilot valve o-rings, see the catalogue No. Pub. EC-0402.



CAUTION

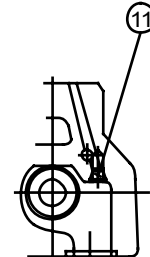
When making replacement of seals or pilot valves, please do it carefully after reading through the relevant instructions in the Operator's Manual.

Pipe Plug
Removed for Internal
Drain Models



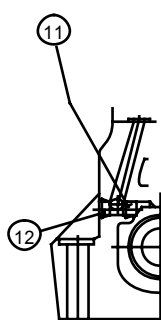
Section Y-Y

Pipe Plug
Removed for Internal
Pilot Models



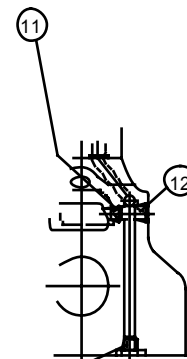
Section X-X

Pipe Plug
Removed for Internal
Pilot Models



Section Y-Y

Pipe Plug
Removed for Internal
Drain Models



Section X-X

Pipe Plug
Removed for External
Drain Models

● Pilot Valves

See page 31 for the pilot valve model numbers to be used.

Valve Model Numbers	Pilot Valve Model Numbers	Seal Kit Numbers
DSHG-01-3C*-★-▲-13 DSHG-01-3C*-★-N-1380 DSHG-01-3C*-★-▲-1390	DSG-01-3C4*-★-▲-60 DSG-01-3C4*-★-N-60 DSG-01-3C4*-★-▲-6090	KS-DSHG-01-▲-13 (For Internal Pilot-Internal Drain)
DSHG-01-2B*-★-▲-13 DSHG-01-2B*-★-N-1380 DSHG-01-2B*-★-▲-1390	DSG-01-2B2*-★-▲-60-L DSG-01-2B2*-★-N-60-L DSG-01-2B2*-★-▲-6090-L	KS-DSHG-01-ET-▲-13 (Except for Internal Pilot-Internal Drain)
DSHG-03-3C*-★-▲-13 DSHG-03-3C*-★-▲-1390	DSG-01-3C4*-★-▲-60 DSG-01-3C4*-★-▲-6090	KS-DSHG-03-▲-13
DSHG-03-2B*-★-▲-13 DSHG-03-2B*-★-▲-1390	DSG-01-2B2*-★-▲-60 DSG-01-2B2*-★-▲-6090	
DSHG-03-2N*-★-▲-13 DSHG-03-2N*-★-▲-1390	DSG-01-2D2*-★-▲-60 DSG-01-2D2*-★-▲-6090	
(S-)DSHG-04-3C*-★-▲-51 (S-)DSHG-04-3C*-★-▲-5190	DSG-01-3C4*-★-▲-60 DSG-01-3C4*-★-▲-6090	KS-DSHG-04-▲-51
(S-)DSHG-04-2B*-★-▲-51 (S-)DSHG-04-2B*-★-▲-5190	DSG-01-2B2*-★-▲-60 DSG-01-2B2*-★-▲-6090	
(S-)DSHG-04-2N*-★-▲-51 (S-)DSHG-04-2N*-★-▲-5190	DSG-01-2D2*-★-▲-60 DSG-01-2D2*-★-▲-6090	
(S-)DSHG-06-3C*-★-▲-52 (S-)DSHG-06-3C*-★-▲-5290	DSG-01-3C4*-★-▲-60 DSG-01-3C4*-★-▲-6090	KS-DSHG-06-▲-52
(S-)DSHG-06-2B*-★-▲-52 (S-)DSHG-06-2B*-★-▲-5290	DSG-01-2B2*-★-▲-60-L DSG-01-2B2*-★-▲-6090-L	
(S-)DSHG-06-2N*-★-▲-52 (S-)DSHG-06-2N*-★-▲-5290	DSG-01-2D2*-★-▲-60 DSG-01-2D2*-★-▲-6090	
(S-)DSHG-10-3C*-★-▲-42 (S-)DSHG-10-3C*-★-▲-4290	DSG-01-3C4*-★-▲-60 DSG-01-3C4*-★-▲-6090	KS-DSHG-10-▲-42
(S-)DSHG-10-2B*-★-▲-42 (S-)DSHG-10-2B*-★-▲-4290	DSG-01-2B2*-★-▲-60-L DSG-01-2B2*-★-▲-6090-L	
(S-)DSHG-10-2N*-★-▲-42 (S-)DSHG-10-2N*-★-▲-4290	DSG-01-2D2*-★-▲-60 DSG-01-2D2*-★-▲-6090	

Notes) 1: Fill coil type (a symbol representing current/voltage) in section marked ★. Likewise, in section marked ▲, fill a symbol representing the type of electrical conduit connection (None: Terminal Box Type, N: Plug-in Connector Type).

2: For the details of the pilot valves, see the catalogue No. Pub.EC-0402.

● DSHG-01, 03

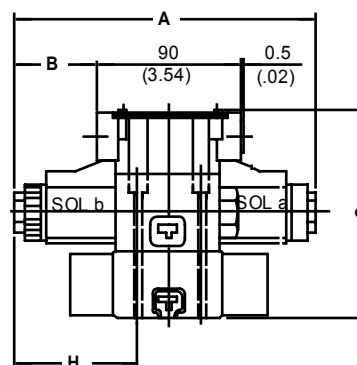
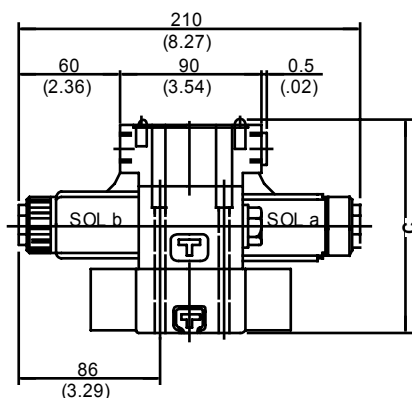
In accordance with the improvement of the pilot valve (DSG-01), DSHG-01 and -03 have been model-changed (from 12-design to 13-design).

Model No.	Current	New
	DSHG-01-***-12*	DSHG-01-***-13*
Descriptions	DSHG-01-***-12*	DSHG-01-***-13*
Specifications	No changes	
Interchangeability in Mtg.	Yes	
Pilot Valve	DSG-01-***-50*	DSG-01-***-60*
For details, refer to the Catalogue No. Pub. EC-0402		

Current

New

● DSHG-01

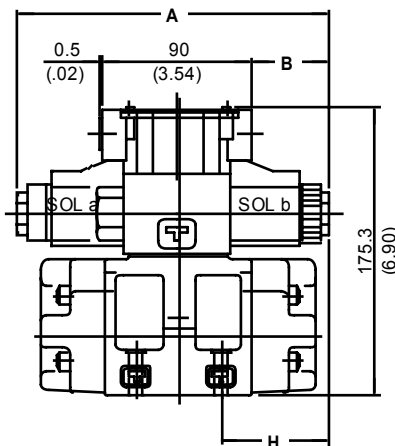
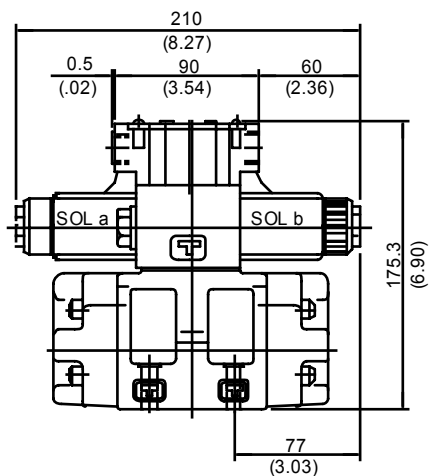


Model No.	C
DSHG-01-T	130.3 (5.13)
DSHG-01-E/ET/None	170.3 (6.70)

DIMENSIONS IN
MILLIMETRES (INCHES)

Model No.		A	B	C	H
DSHG-01-T	AC	191.4 (7.54)	50.7 (2.00)	130.3 (5.13)	76.7 (3.02)
	DC	210 (8.27)	60 (2.36)		86 (3.39)
	R				
DSHG-01-ET/None	AC	191.4 (7.54)	50.7 (2.00)	170.3 (6.70)	76.7 (3.02)
	DC	210 (8.27)	60 (2.36)		86 (3.39)
	R				

● DSHG-03



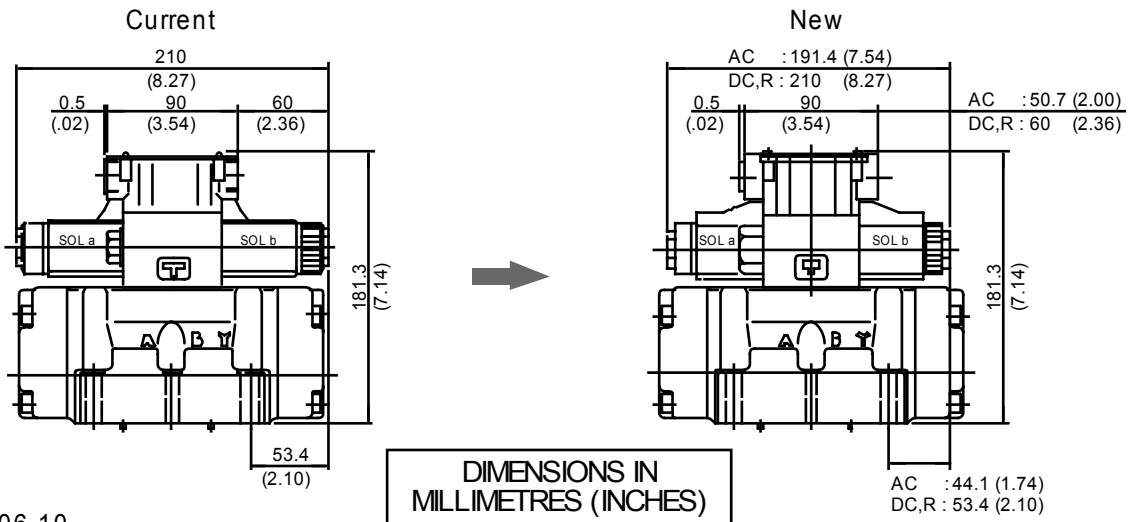
Model No.		A	B	H
DSHG-03	AC	191.4 (7.54)	50.7 (2.00)	67.7 (2.67)
	DC	210 (8.27)	60 (2.36)	77 (3.03)
	R			

Interchangeability between Current and New

● (S)-DSHG-04

(S-) DSHG-04 has been model changed in accordance with the improvement of the pilot valve (DSG-01).
For details, see the following.

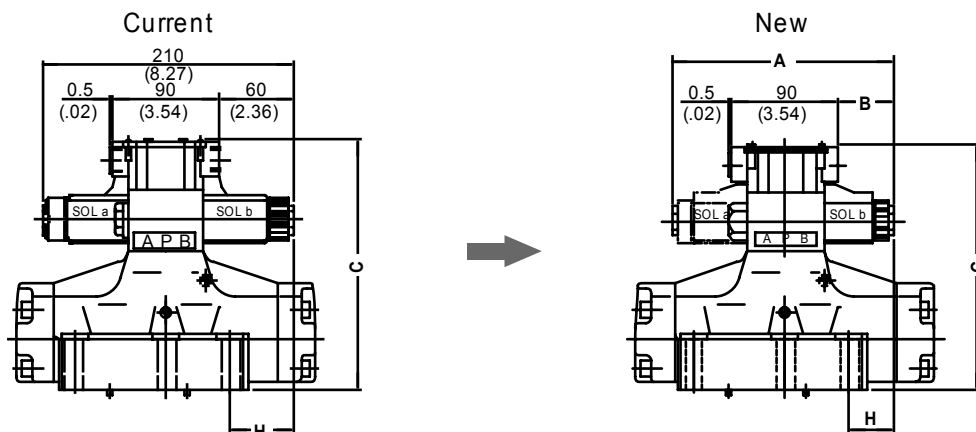
Descriptions	Model No.	Current (S-)DSHG-04-***-50	New (S-)DSHG-04-***-51
Specifications		No changes	
Interchangeability in Mtg.		Yes	
Pilot Valve		DSG-01-***-50*	DSG-01-***-60*
For details, refer to the Catalogue No. Pub. EC-0402.			



● (S)-DSHG-06,10

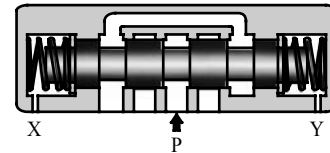
(S-) DSHG-06 and -10 have been model changed in accordance with the improvement of the pilot valve (DSG-01).
For details, see below.

Descriptions	Model No.	Current (S-)DSHG-06-***-51	New (S-)DSHG-06-***-52
Specifications		No changes	
Interchangeability in Mtg.		Yes	
Pilot Valve		DSG-01-***-50*	DSG-01-***-60*
For details, refer to the Catalogue No. Pub. EC-0402			



Model No.	C	H
(S)-DSHG-06	202.3 (7.96)	51.3 (2.02)
(S)-DSHG-10	265.3 (10.44)	28.5 (1.12)

Model No.	A	B	C	H
(S)-DSHG-06	AC 191.4 (7.54)	50.7 (2.00)	202.3 (7.96)	42.7 (1.68)
	DC 210 (8.27)	60 (2.36)		52 (2.05)
	R			
(S)-DSHG-10	AC 191.4 (7.54)	50.7 (2.00)	265.3 (10.44)	19.7 (.78)
	DC 210 (8.27)	60 (2.36)		29 (1.14)
	R			

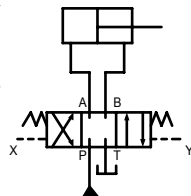


Specifications

Model Numbers	Maximum Flow L/min (U.S.GPM)				Max. Operating Pressure MPa (PSI)	Max. Pilot Pressure MPa (PSI)	Min. Required Pilot Pressure MPa (PSI)	Max. T-Line Back Pressure MPa (PSI)	Approx. Mass kg (lbs.)
	10 MPa (1450 PSI)	16 MPa (2320 PSI)	25 MPa (3630 PSI)	31.5 MPa (4570 PSI)					
DHG-04-3C*-50	300 (79.3) ¹	300 (79.3) ¹	300 (79.3) ¹	300 (79.3) ¹	31.5 (4570)	25 (3630)	0.8 (120)	21 (3050)	7.4 (16.3)
*	300 (79.3)	300 (79.3)	300 (79.3)	300 (79.3)					7.4 (16.3)
DHG-04-2N*-50	130 (34.3)	70 (18.5)	70 (18.5)	60 (15.9)					7.8 (17.2)
*	500 (132) ²	500 (132) ²	500 (132) ²	500 (132) ²	31.5 (4570)	25 (3630)	0.8 (120) ⁴	21 (3050)	11.2 (24.7)
DHG-04-2B*-50	500 (132)	500 (132)	500 (132)	500 (132)					11.2 (24.7)
*	140 (37)	100 (26.4)	90 (23.8)	80 (21.1)					11.7 (25.8)
DHG-06-3C*-50	500 (132)	500 (132)	500 (132)	500 (132) ³	31.5 (4570)	25 (3630)	1 (150)	21 (3050)	12.0 (26.5)
*	1100 (291) ³	1100 (291) ³	1100 (291) ³	1100 (291) ³					43.8 (96.6)
DHG-06-2N*-50	1100 (291)	1100 (291)	1100 (291)	1100 (291)					43.8 (96.6)
*	460 (122)	300 (79.3)	220 (58.1)	200 (52.8)	31.5 (4570)	25 (3630)	1 (150) ⁴	21 (3050)	45.6 (101)
DHG-06-2B*-50	1100 (291)	1100 (291)	1100 (291) ³	1100 (291) ³					51.6 (114)

Note: Max. flow in the table above represents the value in the flow condition of P → A → B → T (or P → B → A → T) as shown in the circuit diagram right.

In case the valves is used in the condition that either A or B port is blocked, the maximum flow differs according to a hydraulic circuit, therefore, please consult us for details.



- ★ 1. Varies depending on the spool type. For more information, see page 11 for the List of "Standard Model and Maximum Flow" (DSHG-04) for Solenoid Controlled Pilot Operated Directional Valves.
- ★ 2. Varies depending on the spool type and pilot pressure. For more information, see page 12 for the List of "Standard Model and Maximum Flow" (DSHG-06) related to the Solenoid Controlled Pilot Operated Directional Valves.
- ★ 3. Varies depending on the spool type and pilot pressure. For more information, see page 13 for the List of "Standard Model and Maximum Flow" (DSHG-10) related to the Solenoid Controlled Pilot Operated Directional Valves.
- ★ 4. Minimum Pilot Pressure for the models with pilot piston is 1.8 MPa (260PSI).

Yuken can offer flanged connection valves described below. For details, contact Yuken.

Model Numbers	Rated Flow L/min (U.S.GPM)	Max. Operating Pres. MPa (PSI)
DHF-16-***-30	500 (132)	21 (3050)
*	1200 (317)	
DHF-24-***-26	2400 (634)	

Pressure Drop

Same as those for Solenoid Controlled Pilot Operated Directional Valves. See pages 15 and 16 for the related information.

Instruction

- In case of Spring Offset Models, directly connect the pilot pressure port "Y" to the reservoir as a drain port.

Model Number Designation

F-	DH	G	-04	-2	B	2	A	-C2	-RA	-H	-50	*
Special Seals	Series Number	Type of Connection	Valve Size	Number of Valve Positions	Spool-Spring Arrangement	Spool Type	Special Two Position Valve	Model with Pilot Choke Valve (Options) ^{★2}	Spool Control Modification (Options) ^{★2}	Built-in Orifice for Pilot Line	Design Number	Design Standard
F: Special Seals for Phosphate ester type fluids (Omit if not required)	DH: Pilot Operated Directional Valve	G: Sub-plate Mounting	04		C: Spring Centred				R2: With Stroke Adjustment, Both Ends RA: With Stroke Adjustment, Port A End RB: With Stroke Adjustment, Port B End P2: With Pilot Piston, Both Ends PA: With Pilot Piston, Port A End PB: With Pilot Piston, Port B End	—	50	Refer to ^{★5}
			06	3	H: Pressure Centred (Option) ^{★2}	2 • 3 4 • 40 5 • 6 60 • 7	A ^{★3} , B ^{★3} (Omit if not required)	C2: With C2 Choke		50		
				2	N: No-Spring	9 • 10 11 • 12			H: Refer to ^{★4}			
			10	Refer to ^{★1}						40		

★1. For various combination, see the List of Valve Types below.

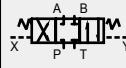
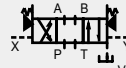
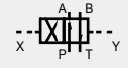
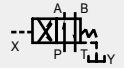
★2. For the option combinations of the Type (Valve Size) and Options, see the List of Options below.

★3. Refer to the column "valves using neutral position and side position" (Special 2-position valve) on page 36.

★4. In spool-spring arrangement "H" (pressure centred models), in case the pilot pressure is more than 10 MPa (150 PSI), please specify that the valve should have the built-in orifice to the pilot line.

★5. Design Standards: None..... Japanese Standard "JIS" and European Design Standard
90..... N. American Design Standard

List of Valve Type

Spool Type	Valve Types				
	Three Positions		Two Positions		
	Spring Centred	Pressure [★] Centred	No-Spring	Spring Offset	
	Graphic Symbols				
					
2		3C2	3H2	2N2	2B2
3		3C3	3H3	2N3	2B3
4		3C4	3H4	2N4	2B4
40		3C40	3H40	2N40	2B40
5		3C5	3H5		
6		3C6	3H6		
60		3C60	3H60		
7		3C7	3H7	2N7	2B7
9		3C9	3H9		
10		3C10	3H10		
11		3C11	3H11		
12		3C12	3H12		

★: Pressure Centered Models are not available for the Valve Size of "04".

List of Options

Model Numbers	Option Code							
	3H*	C2	R2	RA	RB	P2	PA	PB
DHG-04-3C*	×	○	○	○	○	×	×	×
DHG-04-2N*	×	○	○	○	○	×	×	×
DHG-04-2B*	×	○	×	○	×	×	×	×
DHG-06-3C*	×	○	○	○	○	○	○	○
DHG-06-2N*	×	○	○	○	○	○	○	○
DHG-06-2B*	×	○	×	○	×	×	○	×
DHG-06-3H*	○	○	×	×	×	×	×	×
DHG-10-3C*	×	○	○	○	○	○	○	○
DHG-10-2N*	×	○	○	○	○	○	○	○
DHG-10-2B*	×	○	×	○	×	×	○	×
DHG-10-3H*	○	○	×	×	×	×	○	×

Note. ○ Mark: Available
× Mark: Not Available

■ Sub-plate

Valve Model Numbers	Japanese Standard "JIS"			European Design Standard			N. American Design Standard		
	Sub-plate Model Numbers	Thread Size	Approx. Mass kg (lbs.)	Sub-plate Model Numbers	Thread Size	Approx. Mass kg (lbs.)	Sub-plate Model Numbers	Thread Size	Approx. Mass kg (lbs.)
DHG-04	DHGM-04-20	Rc 1/2	4.4 (9.7)	DHGM-04-2080	1/2 BSP.F	4.4 (9.7)	DHGM-04-2090	1/2 NPT	4.4 (9.7)
	DHGM-04X-	Rc 3/4	4.1 (9.0)	DHGM-04X-2080	3/4 BSP.F	4.1 (9.0)	DHGM-04X-2090	3/4 NPT	4.1 (9.0)
DHG-06	DHGM-06-50	Rc 3/4	7.4 (16.3)	DHGM-06-5080	3/4 BSP.F	8.5 (18.7)	DHGM-06-5090	3/4 NPT	7.4 (16.3)
	DHGM-06X-	Rc 1	7.4 (16.3)	DHGM-06X-5080	1 BSP.F	8.5 (18.7)	DHGM-06X-5090	1 NPT	7.4 (16.3)
DHG-10	DHGM-10-40	Rc 1-1/4	21.5 (47.4)	DHGM-10-4080	1-1/4 BSP.F	21.5 (47.4)	DHGM-10-4090	1-1/4 NPT	21.5 (47.4)
	DHGM-10Y-	Rc 1-1/2	21.5 (47.4)	DHGM-10Y-4080	1-1/2 BSP.F	21.5 (47.4)	DHGM-10X-4090	1-1/2 NPT	21.5 (47.4)

- Sub-plates are available. Specify the sub-plate model number from the table above.
When sub-plates are not used, the mounting surface should have a good machined finish.
- Sub-plates are shared with those for Solenoid Controlled Pilot Operated Directional Valves. Refer to pages 26 to 28 for dimensions.

■ Mounting Bolts

Model Numbers	Socket Head Cap Screw			
	Japanese Standard "JIS" European Design Standard	N. American Design Standard	Qty.	Tightening Torque Nm (in. lbs)
DHG-04	M6 × 45 Lg.	1/4-20 UNC × 1-3/4 Lg.	2	12-15 (106-133)
	M10 × 50 Lg.	3/8-16 UNC × 2 Lg.	4	58-72 (513-637)
DHG-06	M12 × 60 Lg.	1/2-13 UNC × 2-1/2 Lg.	6	100-123 (885-1089)
DHG-10	M20 × 75 Lg.	3/8-16 UNC × 2 Lg.	6	473-585 (4186-5177)

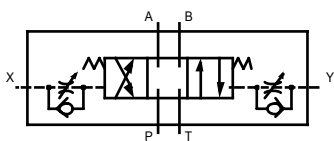
■ Options

● Models with Pilot Choke Adjustment (C2)

When the adjustment screw is turned clockwise, changeover speed of the spool becomes slow. In case of the spring centred valves in particular, making slow of the returning speed of the spool to the neutral position is possible with a C2 choke valve.
These choke valves can be used in combination with valves of spring centred, no spring, spring offset, pressure centred and the valves with stroke adjustment.

Graphic Symbols

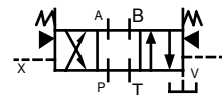
Spring Centred Models



● Pressure Centred Models (3H*)

The pressure centred type can be used when the returning of the spool to the neutral position is required to be done firmly.

Graphic Symbol

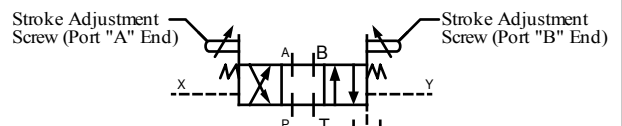


● Models with Stroke Adjustment (R*)

When the adjustment screw is screwed in, the spool stroke becomes short and flow rate reduces

Graphic Symbol

Spring Centred Models with Stroke Adjustment on Both Ends (R2)

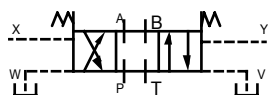


● Models with Pilot Piston (P*)

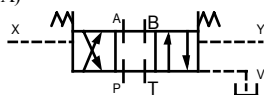
The valves with a pilot piston can be used when the high speed changeover of the spool is required. However, please note that in case of spring centred valves, there is no change in the returning speed of the spool to the neutral position even with the pilot piston.

Graphic Symbols

Spring Centred Models with Pilot Piston on Both Ends (P2)



Spring Centred Models with Pilot Piston on Port "A" End (PA)



● Additional Mass of Options

Add the mass described below to the mass of standard models on page 34 if options are required.

Model Numbers	With Pilot Choke Valve	kg (lbs.)			
		With Pilot Piston		With Stroke Adjustment	
		P2	PA PB	R2	RA RB
DHG-04	0.65 (1.4)	—	—	1.0 (2.2)	0.5 (1.1)
DHG-06	0.65 (1.4)	1.0 (2.2)	0.5 (1.1)	1.2 (2.6)	0.6 (1.3)
DHG-10	0.65 (1.4)	3.6(7.9)	1.8 (4.0)	3.7 (8.2)	1.85 (4.1)

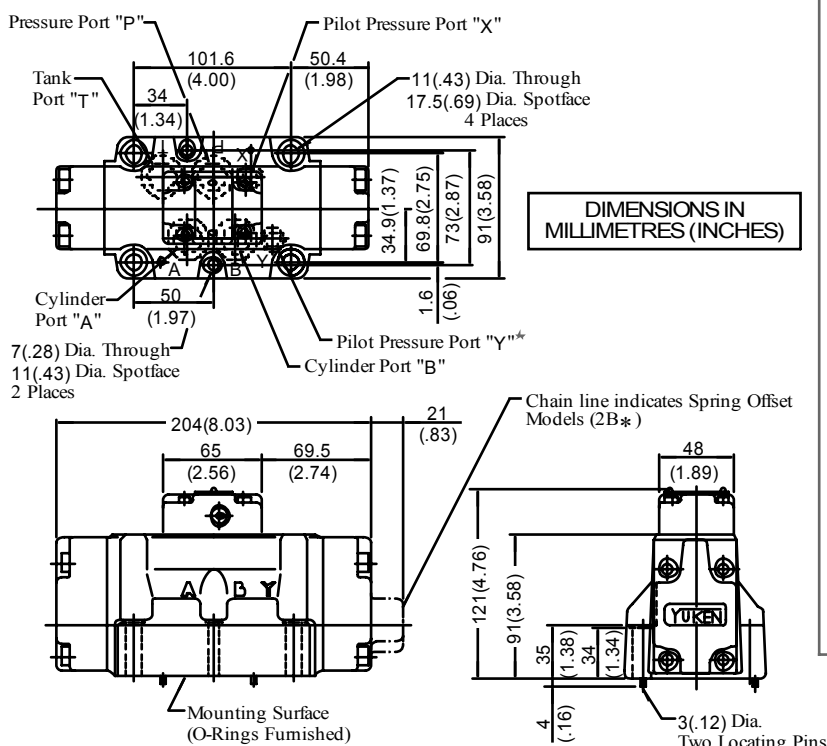
Valves Using Neutral Position and Side Position (Special Two Position Valve)

In addition to the standard two positions valves (2B*), the following two types of two positions valves are available: valves with neutral position and pilot Y pressure position (2B*A), valves with neutral position and pilot X pressure position (2B*B).

Model Numbers	Graphic Symbols
04 DHG-06-2B* <u>A</u> 10	
DHG-* -2B2A	
DHG-* -2B3A	
DHG-* -2B4A	
DHG-* -2B40A	
DHG-* -2B5A	
DHG-* -2B6A	
DHG-* -2B60A	
DHG-* -2B7A	
DHG-* -2B9A	
DHG-* -2B10A	
DHG-* -2B11A	
DHG-* -2B12A	

Model Numbers	Graphic Symbols
04 DHG-06-2B* <u>B</u> 10	
DHG-* -2B2B	
DHG-* -2B3B	
DHG-* -2B4B	
DHG-* -2B40B	
DHG-* -2B5B	
DHG-* -2B6B	
DHG-* -2B60B	
DHG-* -2B7B	
DHG-* -2B9B	
DHG-* -2B10B	
DHG-* -2B11B	
DHG-* -2B12B	

DHG-04-***-50/5090



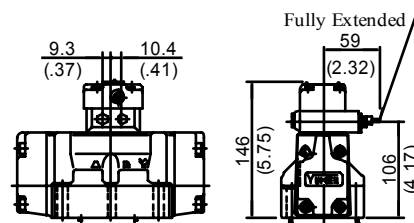
Note: For the valve mounting surface dimensions, see the dimensional drawing of the sharable sub-plate on page 26.

Mounting Surface: ISO 4401-AD-07-4-

Options

Models with Pilot Choke Valve DHG-04-***-C2

Pilot Flow Adjustment Screw 6(.24) Hex. DEC.



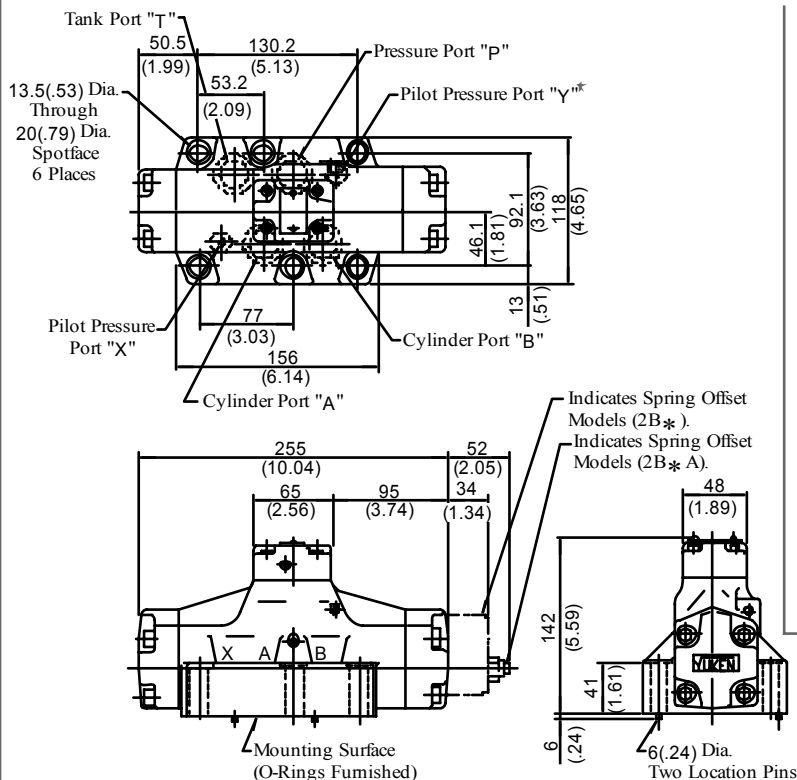
Models with Stroke Adj. (R*)

Outside dimensions are the same as those of the main valve of Solenoid Controlled Pilot Operated Directional Valves (DSHG-04). See page 25.

★ For Spring Offset Models (2B*, 2B*A), it functions as drain port. When that model is used, directly connect it to the reservoir.

DHG-06-***-50/5090

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

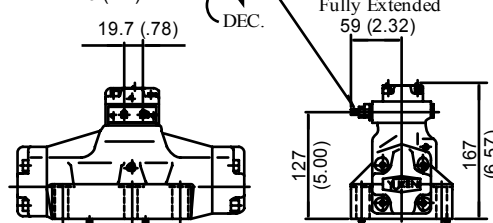


Note: For the valve mounting surface dimensions, see the dimensional drawing of the sharable sub-plate in page 27.

Options

Models with Pilot Choke Valve DHG-06-***-C2

Pilot Flow Adjustment Screw
6 (0.24) Hex.



Pressure Centred Models (3H*)

Models with Stroke Adjustment (R*)

Models with Pilot Piston (P*)

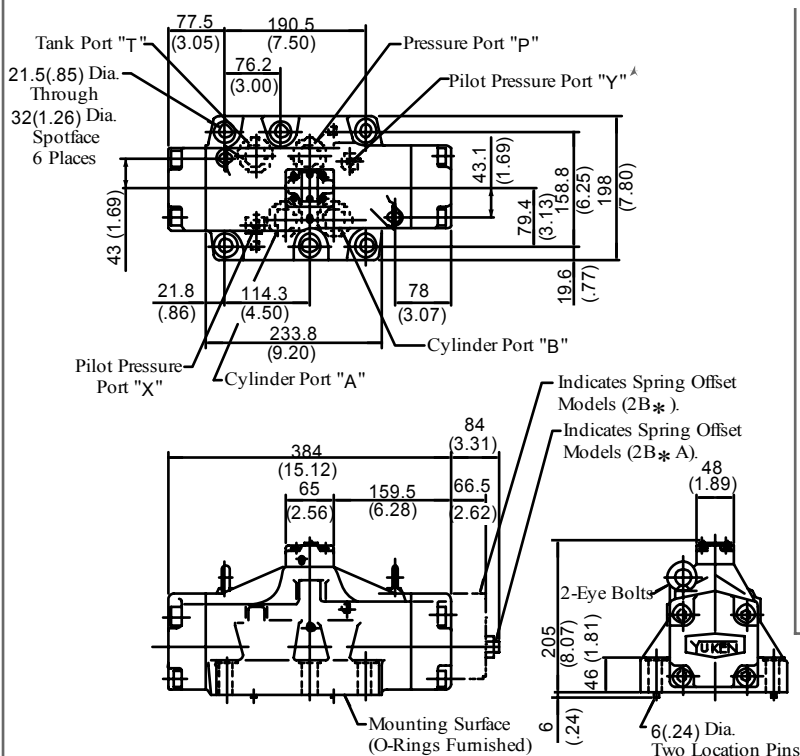
The outside dimensions of the above options are the same as those of the main valve of Solenoid Controlled Pilot Operated Directional Valve (DSHG-06). See page 25.

★ In case of Spring Offset Model (2B*, 2B*^A_B), it functions as a drain port. When that model is used, directly connect it to the reservoir.

**DIMENSIONS IN
MILLIMETRES (INCHES)**

DHG-10-***-40/4090

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

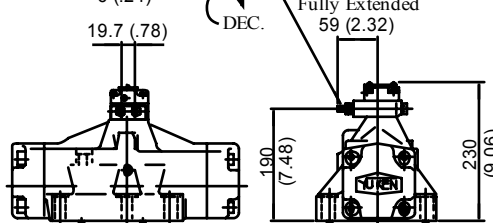


Note: For the valve mounting surface dimensions, see the dimensional drawing of the sharable sub-plate in page 28.

Options

Models with Pilot Choke Valve DHG-10-***-C2

Pilot Flow Adjustment Screw
6 (0.24) Hex.



Pressure Centred Models (3H*)

Models with Stroke Adjustment (R*)

Models with Pilot Piston (P*)

The outside dimensions of the above options are the same as those of the main valve of Solenoid Controlled Pilot Operated Directional Valves (DSHG-10). See page 25.

★ In case of Spring Offset Model (2B*, 2B*^A_B), it functions as a drain port. When that model is used, directly connect it to the reservoir.



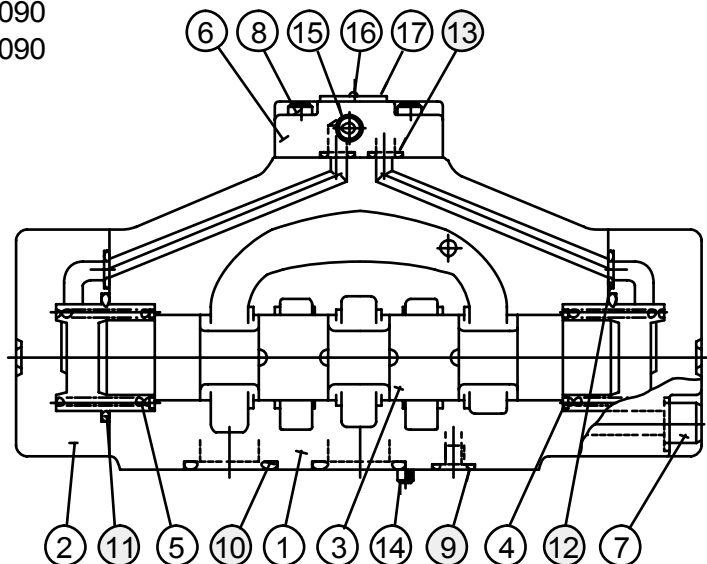
CAUTION

When making replacement of seals, please do it carefully after reading through the relevant instructions in the Operator's Manual.

DHG-04-***-50/5090

DHG-06-***-50/5090

DHG-10-***-40/4090

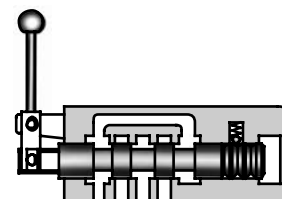


Item	Name of Parts	Part Numbers			Qty
		DHG-04	DHG-06	DHG-10	
9	O-Ring	SO-NB-P9	SO-NB-P14	SO-NB-P20	2
10	O-Ring	SO-NB-P22	SO-NB-P30	SO-NB-P42	4
11	O-Ring	SO-NB-P34	SO-NB-P40	SO-NB-G65	2
12	O-Ring	SO-NB-P9	SO-NB-P10	SO-NB-P14	2
13	O-Ring	SO-NB-P9	SO-NB-P9	SO-NB-P9	4

Note: When ordering the o-rings, please specify the seal kit number from the table below.

Valve Model Numbers	Seal Kit Numbers
DHG-04-***-50/5090	KS-DHG-04-50
DHG-06-***-50/5090	KS-DHG-06-50
DHG-10-***-40/4090	KS-DHG-10-40

Specifications



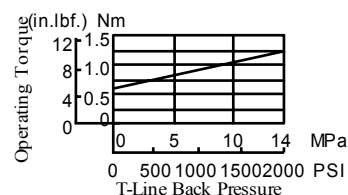
Specifications

Model Numbers	Maximum Flow L/min (U.S.GPM)				Max. Operating Pressure MPa (PSI)	Max. T-Line Back Pressure MPa (PSI)	Approx. Mass kg (lbs.)
	7 MPa (1020 PSI)	14 MPa (2030 PSI)	21 MPa (3050 PSI)	31.5 MPa (4570 PSI)			
Threaded Connections	DMT-03-3C*-50*	100 (26.4) ^{*1}	100 (26.4) ^{*1}	100 (26.4) ^{*1}	25 (3630)	16 (2320)	5.0 (11.0)
	DMT-03-3D*-50*	100 (26.4)	100 (26.4)	100 (26.4)			
	DMT-03-2D*-50*	100 (26.4)	100 (26.4)	100 (26.4)			
	DMT-03-2B*-50*	100 (26.4) ^{*1}	100 (26.4) ^{*1}	100 (26.4) ^{*1}			
	DMT-06*-3C*-30*	300 {200} ^{*2} (79.3 {52.8})	300 {120} ^{*2} (79.3 {31.7})	300 {100} ^{*2} (79.3 {26.4})	21 (3050)	At time spool shift is required: 7 (1020) At time spool shift is not required: 21 (3050)	12.9 (28.5)
	DMT-06*-3D*-30*	300 (79.3)	300 (79.3)	300 (79.3)			
	DMT-06*-2D*-30*	200 (52.8)	120 (31.7)	100 (26.4)			
	DMT-10*-3C*-30*	500 {315} ^{*2} (132 {83.2})	500 {315} ^{*2} (132 {83.2})	500 {315} ^{*2} (132 {83.2})	21 (3050)	At time spool shift is required: 7 (1020) At time spool shift is not required: 21 (3050)	22 (48.5)
	DMT-10*-3D*-30*	500 (132)	500 (132)	500 (132)			
	DMT-10*-2D*-30*	315 (83.2)	315 (83.2)	315 (83.2)			
Sub-Plate Mounting	DMG-01-3C*-10*	35 (9.2)	35 (9.2)	35 (9.2)	25 (3630)	14 (2030) ^{*5}	1.8 (4.0)
	DMG-01-3D*-10*						
	DMG-01-2D*-10*						
	DMG-01-2B*-10*						
	DMG-03-3C*-50*	100 (26.4) ^{*1}	100 (26.4) ^{*1}	100 (26.4) ^{*1}	25 (3630)	16 (2320)	4.0 (8.8)
	DMG-03-3D*-50*	100 (26.4)	100 (26.4)	100 (26.4)			
	DMG-03-2D*-50*	100 (26.4)	100 (26.4)	100 (26.4)			
	DMG-03-2B*-50*	100 (26.4) ^{*1}	100 (26.4) ^{*1}	100 (26.4) ^{*1}			
	DMG-04-3C*-21*	200 (52.8) ^{*3}	200 (52.8) ^{*3}	105 (27.7) ^{*3}	21 (3050)	21 (3050) ^{*6}	7.4 (16.3)
	DMG-04-3D*-21*	200 (52.8)	200 (52.8)	200 (52.8)			
	DMG-04-2D*-21*	200 (52.8)	200 (52.8)	200 (52.8)			7.9 (17.4)
	DMG-04-2B*-21*	90 (23.8)	60 (15.9)	50 (13.2)			
	DMG-06-3C*-50*	500 (132)	500 (132)	500 (132)	31.5 (4570)	21 (3050) ^{*6}	11.5 (25.4)
	DMG-06-3D*-50*	500 (132)	500 (132)	500 (132)			
	DMG-06-2D*-50*	500 (132)	500 (132)	500 (132)			12 (26.5)
	DMG-06-2B*-50*	420 (111)	300 (79.3)	250 (66.1)			
	DMG-10-3C*-40*	1100 (291) ^{*4}	1100 (291) ^{*4}	1100 (291) ^{*4}	31.5 (4570)	21 (3050) ^{*6}	48.2 (106)
	DMG-10-3D*-40*	1100 (291)	1100 (291)	1100 (291)			
	DMG-10-2D*-40*	1100 (291)	1100 (291)	1100 (291)			50 (110)
	DMG-10-2B*-40*	670 (177)	350 (92.5)	260 (68.7)			

Note: The maximum flow means the limited flow without inducing any abnormality to the operation (changeover) of the valve. For details, please refer to the "List of Standard Models and Maximum Flow" on pages 9 to 13.

- ★ 1. Varies depending on the spool type. For details, see the "List of Standard Model and Maximum Flows" for DSG-03 Series Solenoid Operated Directional Valves (catalogue No. Pub EC-0403, at 50 Hz rated voltage).
- ★ 2. The figures in parentheses indicate Max. flow for 3C3, 3C5, 3C6 and 3C60.
- ★ 3. Varies depending on the spool type. For the details, see the table in the following page.
- ★ 4. Varies depending on the spool type. Same as DSHG-10 (at pilot pressure of 1.5 MPa (220 PSI)). See page 13.
- ★ 5. Lever operating torque varies depends on the T-line backpressure. See the right-hand figure.
- ★ 6. If the T-Line backpressure exceeds 7 MPa (1020 PSI), directly connect the drain port to the reservoir.

DMG-01 Lever Operating Torque



Model Number Designation

F-	DM	T	-03	-2	B	2	A	-50	*				
Special Seals	Series Number	Type of Connection	Valve Size	No. of Valve Position	Spool-Spring Arrangement	Spool Type	Special Two Position Valve	Design Number	Design Standard				
F: Special Seals for Phosphate ester type fluids (Omit if not required)	DM: Manually Operated Directional Valves	T: Threaded Connection	03	3	C: Spring Centred	2 • 3 4 • 40 5 • 6 60 • 7 8 • 9 10 • 11 12	A*,B* (Omit it if not required)	50	None: Japanese Std. "JIS" 80: European Design Std. 90: N. American Design Std.				
			06 (Piping size 3/4) 06X (Piping size 1)					30					
			10 (Piping size 1-1/4) 10X (Piping size 1-1/2)					30					
			01					10					
		G: Sub-plate Mounting	03	2	D: No-Spring Detented	B: Spring Offset		50	None: Japanese Std. "JIS" and European Design Std. 90: N. American Design Std.				
			04					21					
			06					50					
			10					40					
			See the table below for combinations.										

★ Refer to column "valves using neutral position and side position" (special 2-position valve) on page 42.

Yuken can offer flanged connection valves described below. For details, contact us.

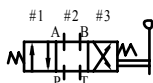
Model Numbers	Rated Flow L/min (U.S.GPM)	Max. Operating Pressure MPa (PSI)
DMF-10-***-30*	315 (83.2)	21 (3050)
DMF-16-***-31*	400 (106)	

Maximum Flow of DMG-04-3C*

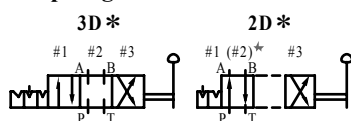
Model Numbers	Max. Flow L/min (U.S.GPM)		
	7 MPa (1020 PSI)	14 MPa (2030 PSI)	21 MPa (3050 PSI)
DMG-04-3C2	200 (52.8)	130 (34.3)	85 (22.5)
DMG-04-3C3	180 (47.6)	90 (23.8)	70 (18.5)
DMG-04-3C4	200 (52.8)	200 (52.8)	90 (23.8)
DMG-04-3C40	200 (52.8)	200 (52.8)	105 (27.7)
DMG-04-3C5	80 (21.1)	50 (13.2)	40 (10.6)
DMG-04-3C6	90 (23.8)	60 (15.9)	55 (14.5)
DMG-04-3C60	140 (37.0)	70 (18.5)	55 (14.5)
DMG-04-3C7	200 (52.8)	75 (19.8)	55 (14.5)
DMG-04-3C9	200 (52.8)	125 (33.0)	100 (26.4)
DMG-04-3C10	200 (52.8)	130 (34.3)	85 (22.5)
DMG-04-3C11	200 (52.8)	150 (39.6)	85 (22.5)
DMG-04-3C12	200 (52.8)	200 (52.8)	95 (25.1)

Graphic Symbols

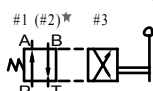
Spring Centred Models (3C*)



No-Spring Detented Models



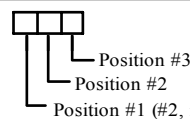
Spring Offset Models (2B*)



★. Position #2 is applied for models DMG-01-2B* and DMG-03-2B*/2D*.

List of Spool Type

Spool Type	DMG-01			DMT-03 DMG-03			DMT-06 * DMT-10		DMG-04 DMG-06 DMG-10	
	3C 3D	2D	2B	3C 3D	2D	2B	3C 3D	2D 2B	3C 3D	2D 2B
2	O	O	O	O	O	O	O	O	O	O
3	O	O	O	O	—	O	O	O	O	O
4	O	—	—	O	—	—	O	O	O	O
40	O	—	—	O	—	—	O	O	O	O
5	O	—	—	—	—	—	—	—	—	—
6	—	—	—	—	—	—	O	—	O	—
60	—	—	—	—	—	—	—	—	O	—
7	O	O	—	—	—	—	O	O	O	O
8	O	O	O	—	—	O	O	O	—	—
9	O	—	—	O	—	—	O	—	O	—
10	O	—	—	O	—	—	O	—	O	—
11	O	—	—	—	—	—	O	—	O	—
12	O	—	—	O	—	—	O	—	O	—



Note: The O mark indicate the spool type available for each type.

Valves Using Neutral Position and Side Position

■ Valves Using Neutral Position and Side Position (Special Two Position Valve)

In addition to the standard two positions valves (2D*, 2B*), the following two types of two positions valves are available: Valves with neutral position (#2) and position #1 (2B*A, 2D*A), valves with neutral position (#2) and position #3 (2B*B, 2D*B).

The ○ mark in the table below indicates the spool type available for each models.

● Spring Offset Models

Valve Type	Graphic Symbols	Model			Valve Type	Graphic Symbols	Model			
		DMT-03 DMG-03	DMT-06* DMT-10*	DMG-04 DMG-06 DMG-10			DMG-01	DMT-03 DMG-03	DMT-06* DMT-10*	DMG-04 DMG-06 DMG-10
2B2A		○	○	○	2B2B		○	○	○	○
2B3A		○	○	○	2B3B		○	○	○	○
2B4A		—	○	○	2B4B		○	○	○	○
2B40A		—	○	○	2B40B		○	—	○	○
—	—	—	—	—	2B5B		○	—	—	—
2B5A		—	○	○	—		—	—	○	○
2B6A		—	—	○	2B6B		—	—	—	○
—		—	○	—	—		—	—	○	—
2B60A		—	—	○	2B60B		○	○	—	○
—		—	○	—	—		—	—	○	—
2B7A		—	○	○	2B7B		○	—	○	○
2B8A		—	○	—	2B8B		○	—	○	—
2B9A		—	○	○	2B9B		○	—	○	○
2B10A		—	○	○	2B10B		○	○	○	○
2B11A		—	○	○	2B11B		○	—	○	○
2B12A		—	○	○	2B12B		○	○	○	○

★ Position #1
★ Position #2

★ Position #2
★ Position #3

● No-spring Detented Models

Valve Type	Graphic Symbols	Model		Valve Type	Graphic Symbols	Model		
		DMT-06* DMT-10*	DMG-04 DMG-06 DMG-10			DMG-01	DMT-06* DMT-10*	DMG-04 DMG-06 DMG-10
2D2A		○	○	2D2B		○	○	○
2D3A		○	○	2D3B		○	○	○
2D4A		○	○	2D4B		○	○	○
2D40A		○	○	2D40B		○	○	○
—	—	—	—	2D5B		○	—	—
2D5A		○	○	—		—	○	○
2D6A		—	○	2D6B		—	—	○
—		○	—	—		—	○	—
2D60A		—	○	2D60B		○	—	○
—		○	—	—		—	○	—
2D7A		○	○	2D7B		○	○	○
2D8A		○	—	2D8B		○	○	—
2D9A		○	○	2D9B		○	○	○
2D10A		○	○	2D10B		○	○	○
2D11A		○	○	2D11B		○	○	○
2D12A		○	○	2D12B		○	○	○

★ Position #1
★ Position #2

★ Position #2
★ Position #3

★. Position number is determined with three position type (3C* and 3D*) as the standard.

Sub-plates / Mounting Bolts / Pressure Drop

Sub-plates

Valve Model Numbers	Japanese Standard "JIS"			European Design Standard			N. American Design Standard		
	Sub-plate Model Numbers	Thread Size	Approx. Mass kg (lbs.)	Sub-plate Model Numbers	Thread Size	Approx. Mass kg (lbs.)	Sub-plate Model Numbers	Thread Size	Approx. Mass kg (lbs.)
DMG-01	DSGM-01-30	Rc 1/8	0.8 (1.8)	DSGM-01-3080	1/8 BSP.F	0.8 (1.8)	DSGM-01-3090	1/8 NPT	0.8 (1.8)
	DSGM-01X-30	Rc 1/4	0.8 (1.8)	DSGM-01X-3080	1/4 BSP.F	0.8 (1.8)	DSGM-01X-3090	1/4 NPT	0.8 (1.8)
	DSGM-01Y-30	Rc 3/8	0.8 (1.8)	—	—	—	DSGM-01Y-3090	3/8 NPT	0.8 (1.8)
DMG-03	DSGM-03-40	Rc 3/8	3.0 (6.6)	DSGM-03-2180	3/8 BSP.F	3.0 (6.6)	DSGM-03-2190	3/8 NPT	3.0 (6.6)
	DSGM-03X-40	Rc 1/2	3.0 (6.6)	DSGM-03X-2180	1/2 BSP.F	3.0 (6.6)	DSGM-03X-2190	1/2 NPT	3.0 (6.6)
	DSGM-03Y-40	Rc 3/4	4.7 (10.4)	DSGM-03Y-2180	3/4 BSP.F	4.7 (10.4)	DSGM-03Y-2190	3/4 NPT	4.7 (10.4)
DMG-04	DHGM-04-20	Rc 1/2	4.4 (9.7)	DHGM-04-2080	1/2 BSP.F	4.4 (9.7)	DHGM-04-2090	1/2 NPT	4.4 (9.7)
	DHGM-04X-20	Rc 3/4	4.1 (9.0)	DHGM-04X-2080	3/4 BSP.F	4.1 (9.0)	DHGM-04X-2090	3/4 NPT	4.1 (9.0)
DMG-06	DHGM-06-50	Rc 3/4	7.4 (16.3)	DHGM-06-5080	3/4 BSP.F	8.5 (18.7)	DHGM-06-5090	3/4 NPT	7.4 (16.3)
	DHGM-06X-50	Rc 1	7.4 (16.3)	DHGM-06X-5080	1 BSP.F	8.5 (18.7)	DHGM-06X-5090	1 NPT	7.4 (16.3)
DMG-10	DHGM-10-40	Rc 1-1/4	21.5 (47.4)	DHGM-10-4080	1-1/4 BSP.F	21.5 (47.4)	DHGM-10-4090	1-1/4 NPT	21.5 (47.4)
	DHGM-10X-40	Rc 1-1/2	21.5 (47.4)	DHGM-10X-4080	1-1/2 BSP.F	21.5 (47.4)	DHGM-10X-4090	1-1/2 NPT	21.5 (47.4)

- Sub-plates are available. Specify the sub-plate model number from the table above. When sub-plates are not used, the mounting surface should have a good machined finish.
- Sharable with Solenoid Operated Directional Valves and Solenoid Controlled Pilot Operated Directional Valves. For dimensions, refer to the right table then see the corresponding pages.

- Sub-plate dimensions appearing page

Subplate Model Numbers	Page
DSGM-01*	18
DSGM-03*	47
DHGM-04*	26
DHGM-06*	27
DHGM-10*	28

Mounting Bolts

Valve Model Numbers	Socket Head Cap Screw			
	Japanese Standard "JIS"	N. American Design Standard	Qty.	Tightening Torque Nm (in. lbs.)
DMG-01	M5 × 45 Lg.	No. 10-24 UNC × 1-3/4 Lg.	4	5-7 (44-62)
DMG-03	M6 × 35 Lg.	1/4-20 UNC × 1-3/4 Lg.	4	12-15 (106-133)
DMG-04	M6 × 40 Lg.	1/4-20 UNC × 1-1/2 Lg.	2	12-15 (106-133)
	M10 × 45 Lg.	3/8-16 UNC × 1-3/4 Lg.	4	58-72 (513-637)
DMG-06	M12 × 60 Lg.	1/2-13 UNC × 2-1/2 Lg.	6	100-123 (885-1089)
DMG-10	M20 × 75 Lg.	3/4-10 UNC × 3 Lg.	8	473-585 (4195-5177)

Instructions

- Avoid connecting the Tank Port "T" to a line with possible surge pressure.

Pressure Drop

The following characteristics are based on the following conditions: viscosity of the fluid: 35 mm²/s (164 SSU) and Specific Gravity: 0.850

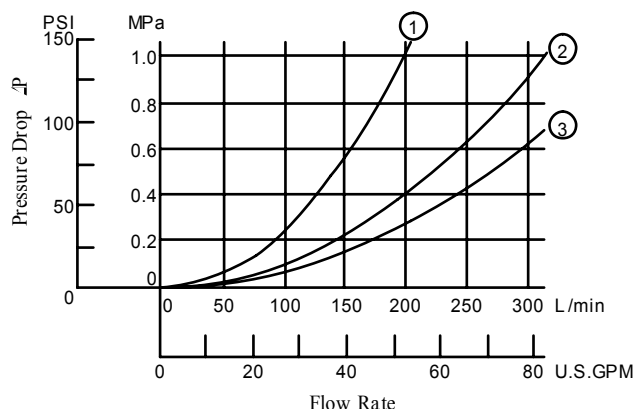
- For any other viscosity, multiply the factors in the table below.

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

- For any other specific gravity (G'), the pressure drop (P') may be obtained from the formula below.

$$P' = P (G'/G)$$
where, P is a value on the following chart and G is 0.850.

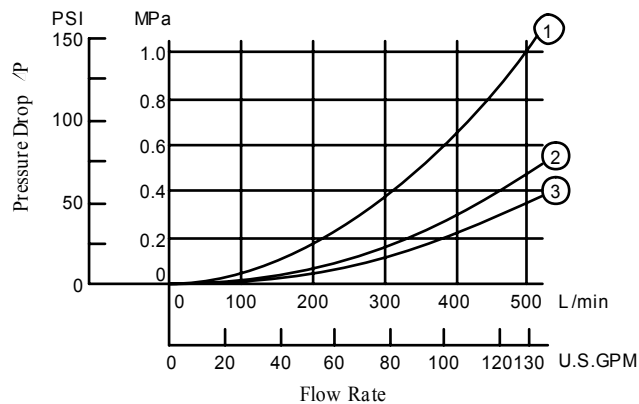
DMT-06, 06X



Spool Type	Pressure Drop Curve Number				
	P→A	B→T	P→B	A→T	P→T
2	②	②	②	②	—
3	③	②	③	②	②
4	②	③	②	②	—
40	②	②	②	②	—
5	③	②	②	②	—
6	③	②	③	②	①
60	③	②	③	②	①
7	②	②	②	②	—
8	②	—	②	—	—
9	③	②	③	②	—
10	②	②	②	②	—
11	③	②	②	②	—
12	②	②	②	②	—

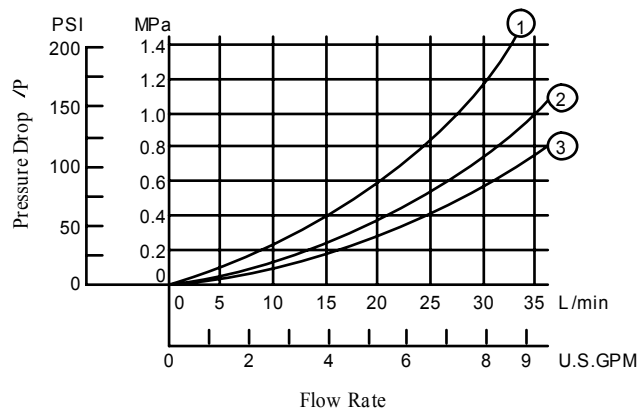
Pressure Drop

DMT-10, 10X



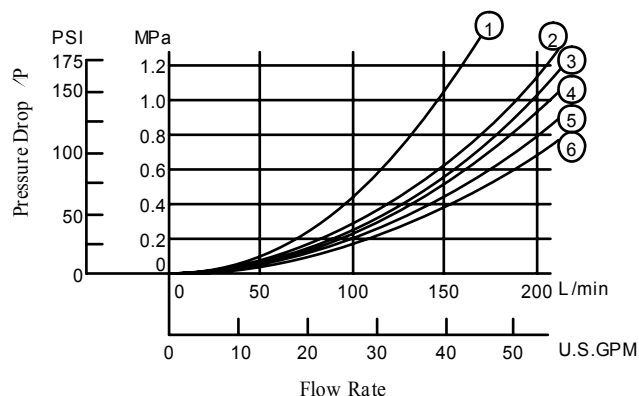
Spool Type	Pressure Drop Curve Number				
	P → A	B → T	P → B	A → T	P → T
2	③	②	③	②	—
3	③	②	③	②	②
4	③	②	③	②	—
40	③	②	③	②	—
5	③	②	③	②	—
6	③	③	③	③	①
60	③	③	③	③	①
7	③	②	③	②	—
8	③	—	③	—	—
9	③	②	③	②	—
10	③	②	③	②	—
11	③	②	③	②	—
12	③	②	③	②	—

DMG-01



Valve type				Pressure Drop Curve Number				
3C*	3D*	2D*	2B*	P → A	B → T	P → B	A → T	P → T
3C2	3D2	2D2		③	③	③	③	—
3C3	3D3	2D3		③	③	③	③	②
3C4	3D4			③	③	③	③	—
3C40	3D40			③	③	③	③	—
3C5	3D5			②	①	①	①	③
3C60	3D60			①	①	①	①	③
3C7	3D7	2D7		③	③	③	③	—
3C8	3D8	2D8		③	—	③	—	—
3C9	3D9			③	③	③	③	—
3C10	3D10			③	③	③	③	—
3C11	3D11			③	③	③	③	—
3C12	3D12			③	③	③	③	—
		2B2		②	②	③	③	—
		2B3		②	②	③	③	—
		2B8		③	—	③	—	—

DMG-04



Spool Type	Pressure Drop Curve Number				
	P → A	B → T	P → B	A → T	P → T
2	⑤	②	⑤	④	—
3	⑥	③	⑥	⑤	③
4	⑤	④	⑤	⑤	—
40	⑤	④	⑤	⑤	—
5	⑤	②	④	⑤	①
6	②	③	④	②	①
60	②	③	④	②	①
7	⑤	②	⑤	⑤	—
9	⑥	②	⑥	⑤	—
10	⑤	④	⑤	⑤	—
11	⑤	④	⑤	⑤	—
12	⑤	③	⑤	⑤	—

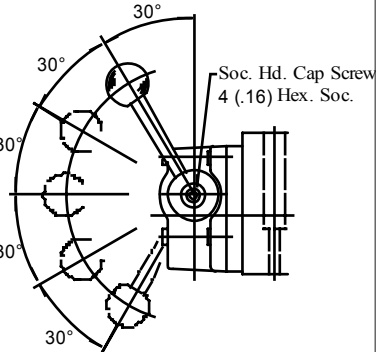
For DMT-03, DMG-03, DMG-06, and DMG-10, refer to the table below then see the related page.

Model Number	Pressure Drop Characteristics	Page	Remarks
DMT-03 DMG-03	Same as DSG-03 Series Solenoid Operated Directional Valves (Standard Type)	Catalogue No. Pub. EC-0403	3D* is same as 3C*
DMG-06	Same as Solenoid Controlled Pilot Operated Directional Valves (DSHG-06)	16	
DMG-10	Same as Solenoid Controlled Pilot Operated Directional Valves (DSHG-10)	16	

DMT-03-***-50/5080/5090

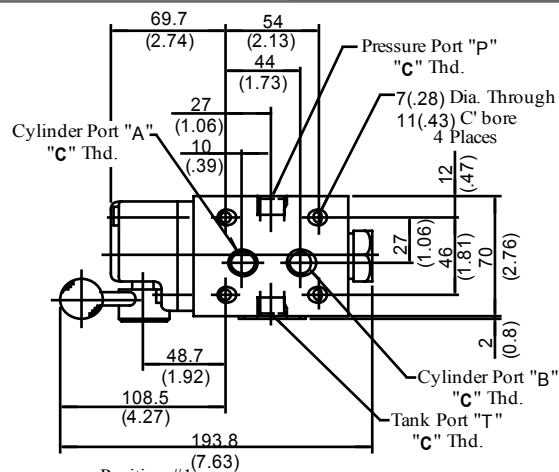
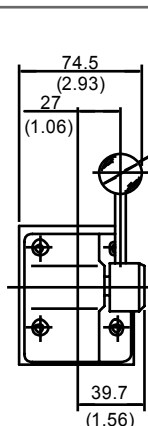
How to Change Lever Position:

The lever position can be changed to any position in five different positions shown on the sketch in the right. For the lever position change, remove the Soc. Hd. Cap Screw and lever once, set the lever at the required position and tighten it with the Soc. Hd. Cap Screw firmly.

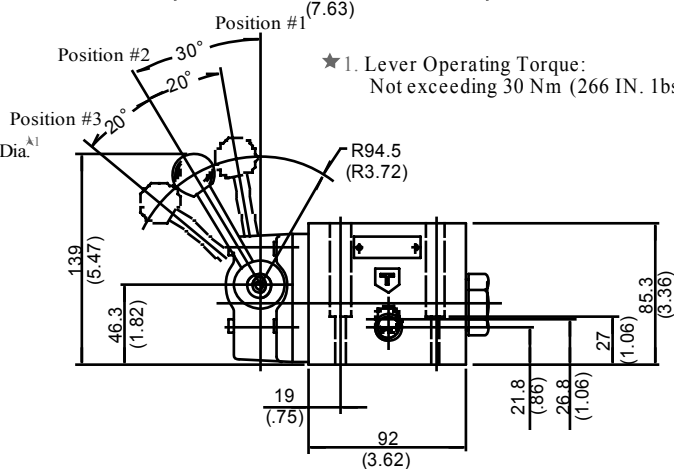


Model Numbers	"C" Thd
DMT-03-***-50	Rc 3/8
DMT-03-***-	3/8 BSP.F
5080	3/8 NPT

DIMENSIONS IN
MILLIMETRES (INCHES)



★ 1. Lever Operating Torque:
Not exceeding 30 Nm (266 IN. lbs.)

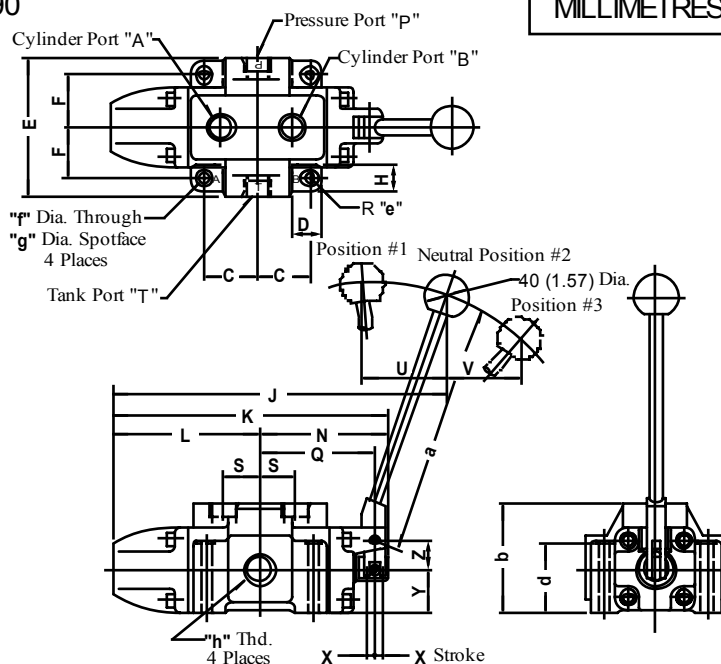


DMT-06, 06X-***-30/3080/3090

DMT-10, 10X-***-30/3080/3090

DIMENSIONS IN
MILLIMETRES (INCHES)

Model Numbers	"h" Thd.
DMT-06-***-30	Rc 3/4
DMT-06X-***-	Rc 1
DMT-06-***-3080	3/4 BSP.F
DMT-06X-***-	1 BSP.F
DMT-06-***-3090	3/4 NPT
DMT-06X-***-	1 NPT
DMT-10-***-30	Rc 1-1/4
DMT-10X-***-	Rc 1-1/2
DMT-10-***-3080	1-1/4 BSP.F
DMT-10X-***-	1-1/2 BSP.F
DMT-10-***-3090	1-1/4 NPT
DMT-10X-***-	1-1/2 NPT

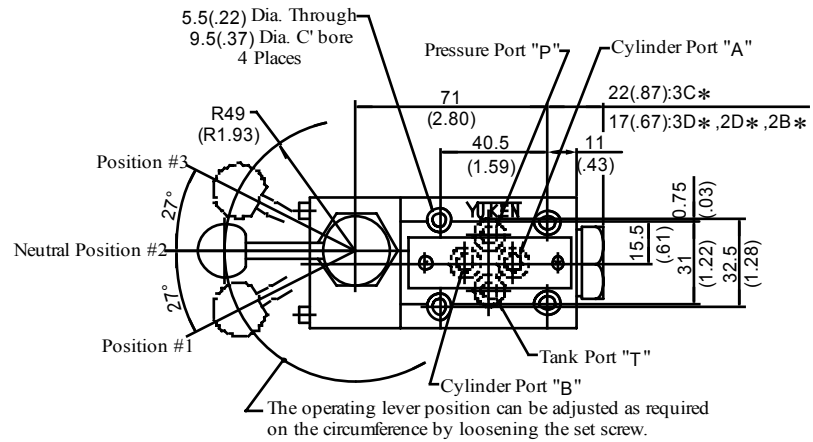


Model No.	Dimension mm (Inches)																					
	C	D	E	F	H	J	K	L	N	Q	S	U	V	X	Y	Z	a	b	d	e	f	g
DMT-06	50	30	126	47.5	24	320	255	137	118	107	33.5	86	76	9	40	25	250	100	63.5	12	11	17.5
DMT-06X	(1.97)	(1.18)	(4.96)	(1.87)	(.94)	(12.60)	(10.04)	(5.39)	(4.65)	(4.21)	(1.32)	(3.39)	(2.99)	(.35)	(1.57)	(.98)	(9.84)	(3.94)	(2.50)	(.47)	(.43)	(.69)
DMT-10	66	40	160	62.5	33	402	320	173	147	135	40	102	90	12.5	50	35	300	120	78.5	15	13.5	21
DMT-10X	(2.60)	(1.57)	(6.30)	(2.46)	(1.30)	(15.83)	(12.60)	(6.81)	(5.79)	(5.31)	(1.57)	(4.02)	(3.54)	(.49)	(1.97)	(1.38)	(11.81)	(4.72)	(3.09)	(.59)	(.53)	(.83)

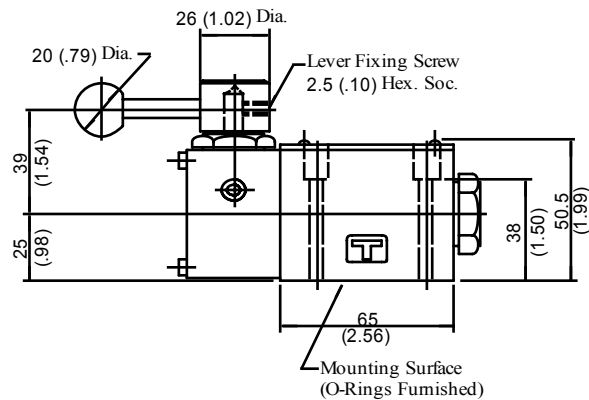
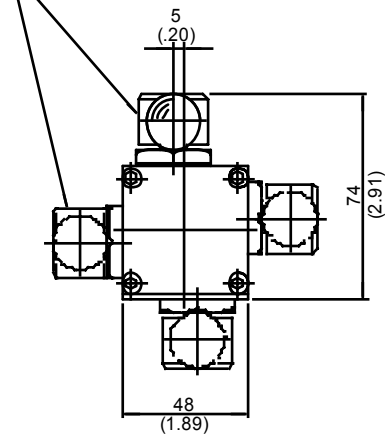
DMG-01-***-10/1090

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

**DIMENSIONS IN
MILLIMETRES (INCHES)**



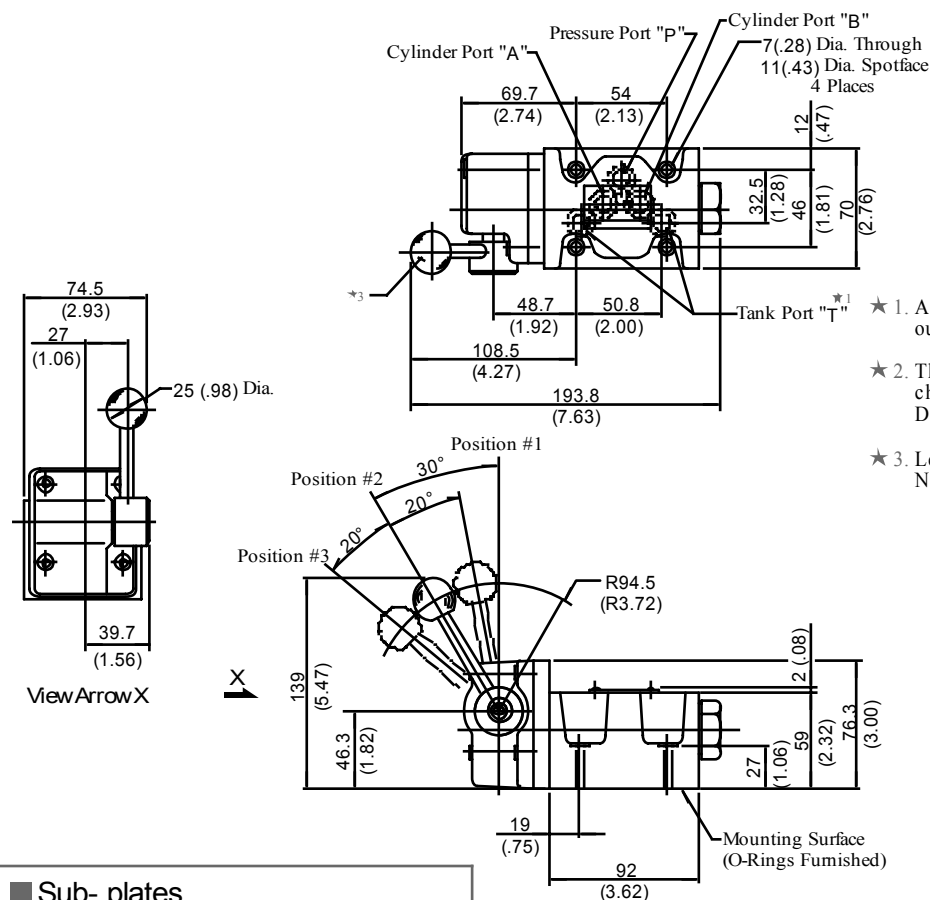
Four positions are available in 90° increment.



Note: For the valve mounting surface dimensions, see the dimensional drawing of the sharable sub-plate in page 18.

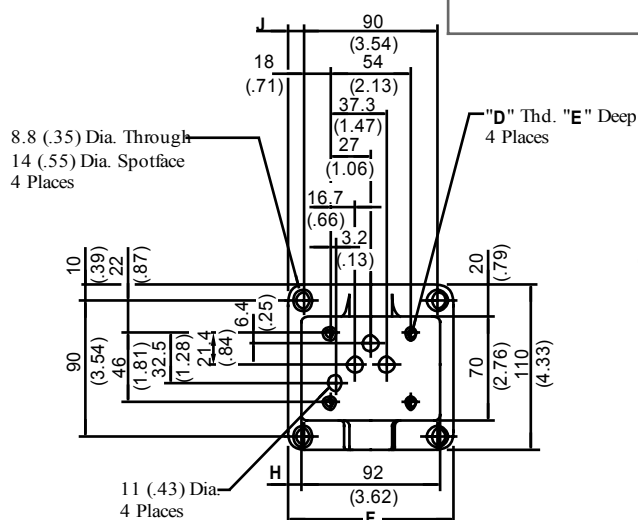
DMG-03-***-50/5090

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

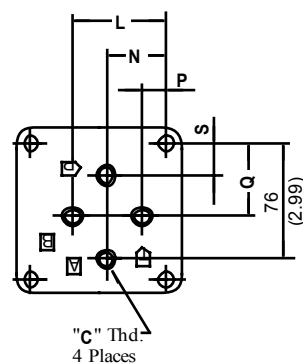
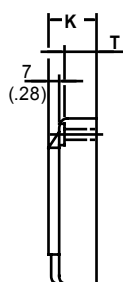


- ★ 1. Although the tankport is shown on the left in our sub-plate either may be used.
- ★ 2. The position of operating lever can be changed as required. For the detail, see the DMT-03 in the previous page.
- ★ 3. Lever Operating Torque:
Not exceeding 30 Nm (266 IN. lbs.)

Sub- plates DSGM-03*-40/2180/2190



DIMENSIONS IN
MILLIMETRES (INCHES)

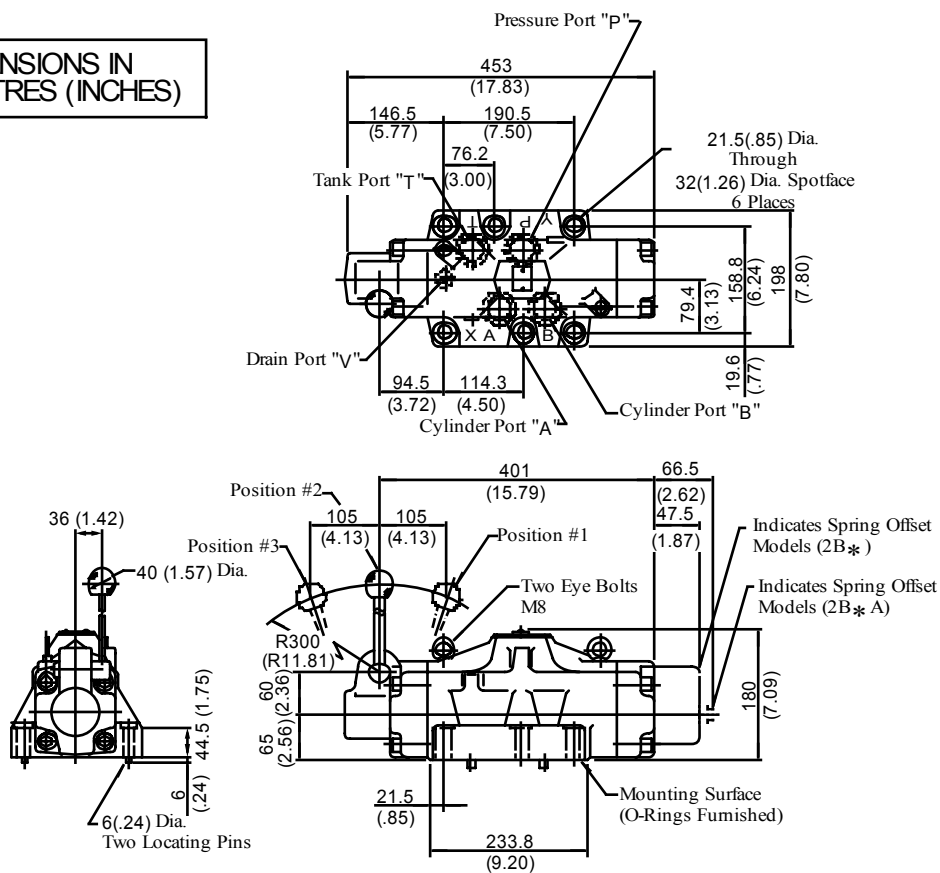


Sub-plate Model Numbers	Piping Size "C" Thd.	"D" Thd.	Dimensions mm (Inches)										
			E	F	H	J	K	L	N	P	Q	S	T
DSGM-03-40	Rc 3/8	M6	13 (.51)	110 (4.33)	9 (.35)	10 (.39)	32 (1.26)	62 (2.44)	40 (1.57)	16 (.63)	48 (1.89)	21 (.83)	24 (.94)
DSGM-03-2180	3/8 BSP.F		15 (.59)	110 (4.33)	9 (.35)	10 (.39)	32 (1.26)	62 (2.44)	40 (1.57)	16 (.63)	48 (1.89)	21 (.83)	24 (.94)
DSGM-03-2190	3/8 NPT		15 (.59)	110 (4.33)	9 (.35)	10 (.39)	32 (1.26)	62 (2.44)	40 (1.57)	16 (.63)	48 (1.89)	21 (.83)	24 (.94)
DSGM-03X-40	Rc 1/2	M6	13 (.51)	110 (4.33)	9 (.35)	10 (.39)	32 (1.26)	62 (2.44)	40 (1.57)	16 (.63)	48 (1.89)	21 (.83)	24 (.94)
DSGM-03X-2180	1/2 BSP.F		15 (.59)	110 (4.33)	9 (.35)	10 (.39)	32 (1.26)	62 (2.44)	40 (1.57)	16 (.63)	48 (1.89)	21 (.83)	24 (.94)
DSGM-03X-2190	1/2 NPT		15 (.59)	110 (4.33)	9 (.35)	10 (.39)	32 (1.26)	62 (2.44)	40 (1.57)	16 (.63)	48 (1.89)	21 (.83)	24 (.94)
DSGM-03Y-40	Rc 3/4	M6	13 (.51)	120 (4.72)	14 (.55)	15 (.59)	50 (1.97)	80 (3.15)	45 (1.77)	10 (.39)	47 (1.85)	16 (.63)	42 (1.65)
DSGM-03Y-2180	3/4 BSP.F		15 (.59)	120 (4.72)	14 (.55)	15 (.59)	50 (1.97)	80 (3.15)	45 (1.77)	10 (.39)	47 (1.85)	16 (.63)	42 (1.65)
DSGM-03Y-2190	3/4 NPT		15 (.59)	120 (4.72)	14 (.55)	15 (.59)	50 (1.97)	80 (3.15)	45 (1.77)	10 (.39)	47 (1.85)	16 (.63)	42 (1.65)

DMG-10-***-50/5090

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

DIMENSIONS IN
MILLIMETRES (INCHES)



Note: For the valve mounting surface dimensions, see the dimensional drawing of the sharable sub-plate in page 28.

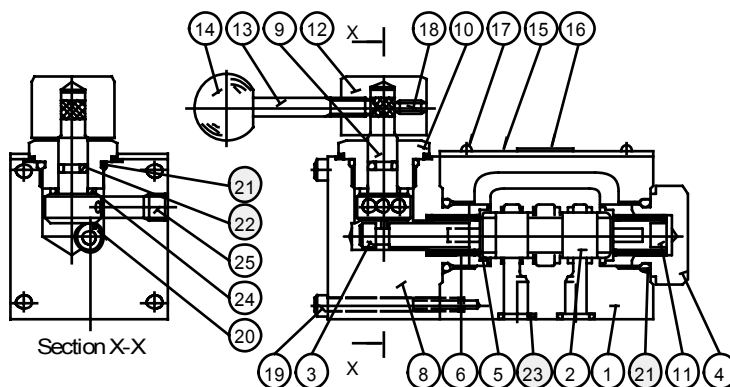
Spare Parts List

DMG-01-***-10/1090



CAUTION

When making replacement of seals, please do it carefully after reading through the relevant instructions in the Operator's Manual.

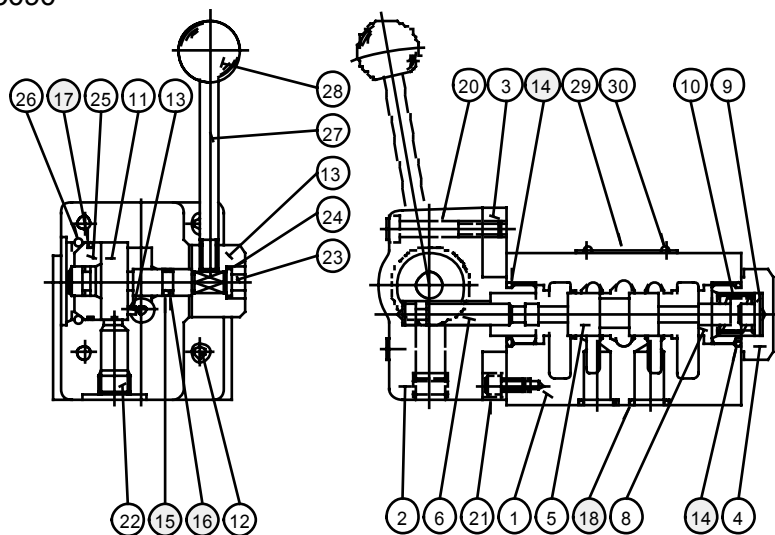


Item	Name of Parts	Part Numbers	Qty.
21	O-Ring	SO-NB-P18	3
22	O-Ring	SO-NA-P6	1
23	O-Ring	SO-NB-P9	4

Note: When ordering the o-ring, please specify the seal kit number (KS-DMG-01-10).

DMT-03-***-50/5080/5090

DMG-03-***-50/5090



Item	Name of Parts	Part Numbers	Qty.
14	O-Ring	SO-NB-P21	2
15	O-Ring	SO-NA-P8	2
16	Back Up Ring	SO-BB-P8	2
17	O-Ring	SO-NB-A023	1
18	O-Ring	SO-NB-A014	5

Valve Model Numbers	Seal Kit Numbers
DMT-03-***-50/5080/5090	KS-DMT-03-50
DMG-03-***-50/5090	KS-DMG-03-50

Note: 1. O-rings of Item 18 are not used for DMT-03.
2. When ordering the seals, please specify the seal kit number from the table right.

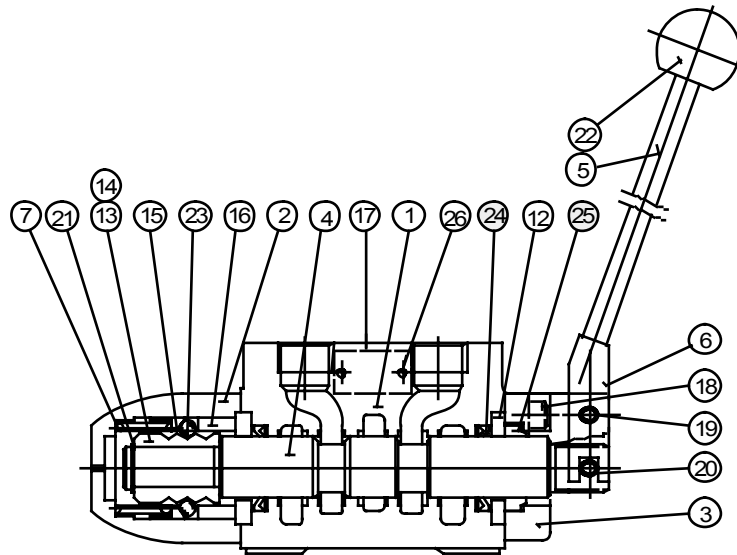
Spare Parts List

DMT-06, 06X-***-30/3080/3090
DMT-10, 10X-***-30/3080/3090



CAUTION

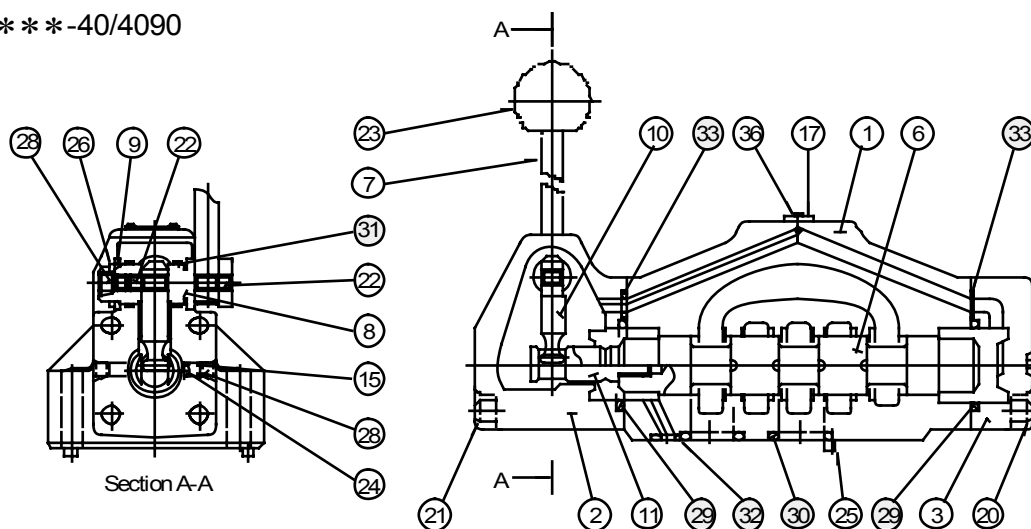
When making replacement of seals, please do it carefully after reading through the relevant instructions in the Operator's Manual.



Item	Name of Parts	Part Numbers		Qty.
		DMT-06*	DMT-10*	
24	Packing	UPI 32 • 40 • 6Y	UPI 40 • 55 • 10Y	2
25	Dust Seal	DKI 32 • 44 • 7 • 10	DKI 40 • 52 • 7 • 10	1

Note: When ordering the seals, please specify the seal kit number from the table below.

DMG-04-***-21/2190
DMG-06-***-50/5090
DMG-10-***-40/4090



● List of Seal Kits

Item	Name of Parts	Part Numbers			Qty.
		DMG-04	DMG-06	DMG-10	
29	O-Ring	SO-NB-P34	SO-NB-P40	SO-NB-G65	2
30	O-Ring	SO-NB-P22A	SO-NB-P30	SO-NB-P42	4
31	O-Ring	SO-NA-P20	SO-NA-P20	SO-NA-P25	2
32	O-Ring	SO-NB-P9	SO-NB-P14	SO-NB-P20	1
33	O-Ring	SO-NB-P9	SO-NB-P10	SO-NB-P14	2

Valve Model Numbers	Seal Kit Numbers
DMT-06***-30/3080/3090	KS-DMT-06-30
DMT-10***-30/3080/3090	KS-DMT-10-30
DMG-04***-21/2190	KS-DMG-04-21
DMG-06***-50/5090	KS-DMG-06-50
DMG-10***-40/4090	KS-DMG-10-40

Note: When ordering the seals, please specify the seal kit number from the table right.