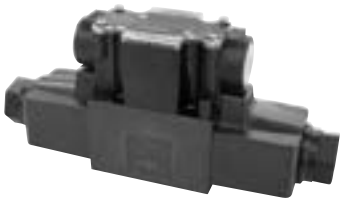
Directional Valves

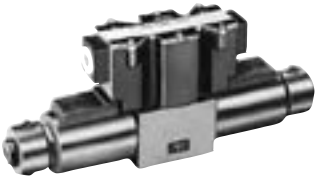
These valve are used for shifting oil flow direction of hydraulic circuit and for actuator starting/stopping as well as the operating direction shifting of actuator.

Solenoid Operated Directional Valves



Solenoid Controlled Pilot Operated Directional Valves

"G" Series Shockless Type Directional Valves



Pilot/Manually/Mechanically Operated Directional Valves

Poppet Type Directional Valves

Check/Pilot Controlled Check Valves

Hydraulic Fluids

1. Type of Fluids

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

Type of Fluids	Remarks
Petroleum Base Oils	Use fluids equivalent to ISO VG32 or VG46.
Synthetic Fluids [1)]	Use phosphate ester or polyol ester type. When phosphate ester type fluid is to be used, prefix "F-" to the model number because a special seal (fluororubber) will be used.
Water Containing Fluids	Use water-glycol fluids or W/O emulsion type fluids.

Notes 1: Not applicable with G-DSG and G-DSHG series valves.
2: For two types of manually operated directional valves, DMT-$\frac{06}{06X}$ and DMT-$\frac{10}{10X}$, only petroleum base oils and polyol ester type fluids are available.
3: Water-glycol fluids cannot be used for two types of solenoid operated poppet type two-way valves; CDST-03✻ and CDSG-03 types.
4: For use with hydraulic fluids other than those listed above, please consult your Yuken representatives is advance.

2. Recommended Viscosity and Oil Temperatures

Use hydraulic fluids which satisfy the both recommended viscosity and oil temperatures given in the table below.

Name	Viscosity	Oil Temperature
DSG-005 series Solenoid Operated Directional Valves	20 – 200 mm²/s (100 – 900 SSU)	–15 – +60°C (5 – 140°F)
Solenoid Operated Directional Valves Solenoid Controlled Pilot Operated Directional Valves Poppet Type Solenoid Operated Directional Valves Multi Purpose Control Valves Solenoid Operated Poppet Type Two-Way Valves Pilot Controlled Directional Valves Manually Operated Directional Valves Mechanically Operated Directional Valves Check Valves Pilot Controlled Check Valves	15 – 400 mm²/s (80 – 1800 SSU)	–15 – +70°C (5 – 160°F)
G Series Shockless Type Solenoid Operated Directional Valves (Shifting Time Adjustable)	15 – 200 mm²/s (80 – 900 SSU)	–15 – +60°C (5 – 140°F)

3. Control of Contamination

Due caution must be paid to maintaining control over contamination of the hydraulic fluids which may otherwise lead to breakdowns and shorter the life of the valve. Please maintain the degree of contamination within NAS 1638-Grade 12. Use 25 µm or finer line filter (In case of DSG-005 series Solenoid Operated Directional Valves, NAS1638-Grade 11. Use 20 µm or finer line filter).

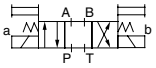
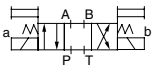
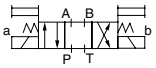
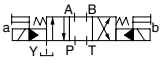
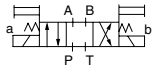
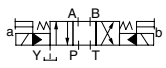
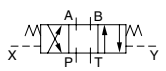
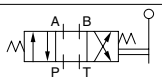
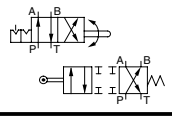
■ Water-proof, dust-proof and vibration-resistance

There properties are in compliance with the following standards.
(The marking of ○ indicates compliance)

Item	Standard	Type	Description		Compliance					
					DSG-005	(S-/T-/L-)DSG-01 DSHG-01 DSHG-03 (S-)DSHG-04 (S-)DSHG-06 (S-)DSHG-10	E-DSG-01 (S-/E-/T-/L-) DSG-03	G-DSG-01 G-DSG-03 G-DSHG-04 G-DSHG-06	DSLG DSLHG DSP✳	CDS✳
★2 Water-proof	**JIS F8001** Water-proof test for marine electric appliance	Class 1 water spray	Drip-proof construction		○	○	○	○	○	○
		Class 2 water spray	Froth-roof construction		×	○	○	○	○	○
	JIS D0203 Damp-proof and Water-proof test for automobile parts	Damp-proof test M1	Test to examine damp-resistance of parts		×	○	○	○	○	○
		Damp-proof test M2	Test to examine functions of part under high temperature and high humidity		×	○	○	○	○	○
		Splash-proof test R1	Test to examine functions of parts which are likely to be exposed to water splash.		○	○	○	○	○	○
		Splash-proof test R2	Test to examine functions of parts which are indirectly exposed to stormy weather or water splash.		×	○	○	○	○	○
	JIS C0920 Water-proof test for electro-mechanical parts an wiring materials	Drip-proof type	Not affected by water dropping at vertical angle of 15 degrees or less.		○	○	○	○	○	○
		Rain-proof type	Not affected by rain fall at vertical angle of 60 degrees or less.		×	○	○	○	○	○
		Froth-proof type	Not affected by water drip from any dirction.		×	○	○	○	○	○
		Jet-flow proof type	Not affected by jet flow from any direction.		×	○	×	×	×	×
	(I.E.C) PUBL. 529	Protection Class 2: Drip-proof type (2)	Not affected by water drip falling at vertical angle of 15 degrees or less.		○	○	○	○	○	○
		Protection Class 3: Rain-proof type	Not affected by rain falling at vertical angle of 60 degrees or less.		×	○	○	○	○	○
		Protection Class 4: Froth-proof type	Not affected by water drip from any direction.		×	○	○	○	○	○
		Protection Class 5: Jet-flow proof type	Not affected by jet flow from any direction.		×	○	×	×	×	×
Dust-proof	(I.E.C) PUBL. 529	Protection Class 6	Fully protected from entry of dust.		○	○	○	○	○	○
Vibration-resistance	**JIS C0911** Vibration test for small electric appliances	Resonace test (IC)	Vibration range: 7-59.5 Hz Duplex amplitude: 0.1 mm		×	○	○	○	○	○
		Fixed frequency resistance test (IIC)	Frequence: 20 Hz	Grade 1: duplex amplitude-0.5 mm	×	○	○	○	○	○
				Grade 2: duplex amplitude-1.2 mm	×	○(2D✳)★1	○(2D✳)★1	○ ★1	○	○
				Grade 3: duplex amplitude-1.8 mm	×	○(2D✳)★1	○(2D✳)★1	○ ★1	○	○
				Grade 4: duplex amplitude-2.4 mm	×	○(2D✳)★1	○(2D✳)★1	○ ★1	○	○
		Variable frequency resistance test (IIIC)	Frequency range: 7-59.5 Hz	Grade 1: duplex amplitude-0.3 mm	×	○(2D✳)★1	○(2D✳)★1	○ ★1	○	○
				Grade 2: duplex amplitude-0.5 mm	×	○(2D✳)★1	○(2D✳)★1	○ ★1	○	×
				Grade 3: duplex amplitude-0.75 mm	×	○(2D✳)★1	○(2D✳)★1	○ ★1	○	×
	JIS D1601 Vibration test for automobile parts	Class 1: mainly for parts of passenger car	Grade A: Parts mounted on spring of body or chassis having relatively low vibration.		×	○(2D✳)★1	○(2D✳)★1	○	○	×
			Grade B: Parts mounted on spring of body or chassis having relatively low vibration.		×	○(2D✳)★1	○(2D✳)★1	○	○	×
			Grade C: Parts mounted in engine having relatively low vibration		×	○(2D✳)★1	○(2D✳)★1	×	○	×

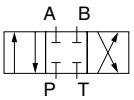
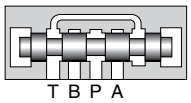
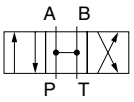
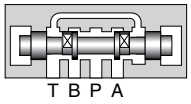
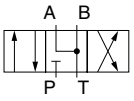
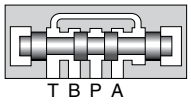
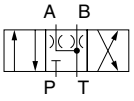
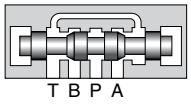
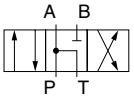
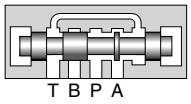
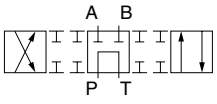
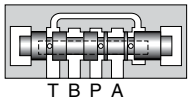
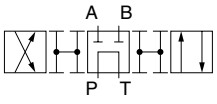
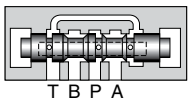
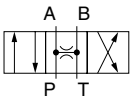
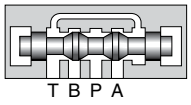
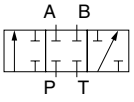
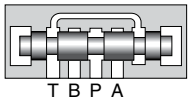
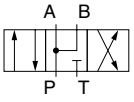
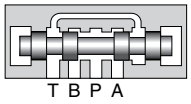
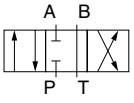
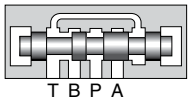
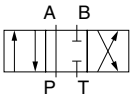
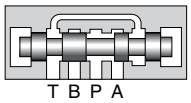
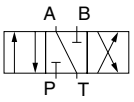
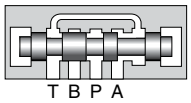
★1 : No-spring detented type (2D✳) and No-spring type (2N✳) can be used when energised continous for position holding.
★2 : For outdoor use, protect equipment with a cover, etc., to prevent direct exposure to water.

Solenoid Operated Directional Valves
Solenoid Controlled Pilot Operated Directional Valves
"G" Series Shockless Type Directional Valves
Pilot / Manually / Mechanically Operated Directional Valves

Valve Type	Graphic Symbols	Max. Operating Pressure MPa (PSI)	Maximum Flow (U.S.GPM: .3 .5 1 2 5 10 20 50 100 200 500 1000 / L/min: 1 2 5 10 20 50 100 200 500 1000 2000 5000)	Page
Solenoid Operated Directional Valves		25 (3600)	DSG−005	336
		16 (2320)	L−DSG−01	344
		25 (3600)	S−DSG−01	
		35 (5080)	DSG−01	
		16 (2320)	L−DSG−03	361
		25 (3600)	S−DSG−03	
		31.5 (4580)	DSG−03	
Low Wattage (5W) Type Dolenoid Operated Directional Valves		16 (2320)	E−DSG−01 E−DSG−03	378
Electronic Relay Incorporated Solenoid Operated Directional Valves		25 (3600)	T−S−DSG−01	379
		35 (5080)	T−DSG−01	
		25 (3600)	T−S−DSG−03	379
		31.5 (4580)	T−DSG−03	
Solenoid Controlled Pilot Operated Directional Valve		21 (3050)	DSHG−01	381
		25 (3600)	DSHG−03	
		31.5 (4580)	DSHG−04/S−DSHG−04 DSHG−06/S−DSHG−06 DSHG−10/S−DSHG−10	
"G" Series Shockless Type Solenoid Operated Directional Valves		25 (3600)	G−DSG−01 G−DSG−03	412
"G" Series Shockless Type Solenoid Controlled Pilot Operated Directional Valves		25 (3600)	G−DSHG−04 G−DSHG−06	418
Pilot Operated Directional Valves		31.5 (4580)	DHG−04 06 10	423
Manually Operated Directional Valves		21 (3050)	Threaded Connection (DMT) 03 06 10	429
		31.5 (4580)	Sub-plate connection (DMG) 01 03 04 06 10	
Mechanically Operated Directional Valves		7 (1020)	Rotary (DR T/G) 02	441
		25 (3600)	Cam Operated (DC T/G) 01 03	

Spool Types

Spool types are classified to the condition of flow at the neutral position.

Spool Type	Graphic Symbols	Schematic Drawing (Centre Position)	Functions and Applications
2 (Closed Centre All Ports)			Holds pump pressure and cylinder position at neutral. Care should be paid if used as a 2-position type because shock occurs when each port is blocked in transit.
3 (Open Centre All Ports)			Pump can be unloaded and actuator is floating at neutral. If a 2-position type is used, shock is reduced as each ports is released to tank in transit.
4 (Open Centre A, B&T)			Pump pressure is held and actuator is floated at neutral. 2-position type is used when system pressure is required to be held in transit. Shock during transit is less compared to spool type “2”.
40 (Open Centre A, B&T Restricted Flow)			In a variation of spool type “4”, a restrictor is provided in A-T and B-T ports. Making it faster at stopping the actuator.
5 (Open Centre P, A&T)			It can be used when a pump is unloading at neutral and actuator is halted at one way flow.
6 (Open Centre P&T Closed Crossover)			Pump is unloading and actuator position held at neutral. Suitable for series operation.
60 (Open Centre P&T Open Crossover)			It is a variation of spool type “6”. Shock is reduced as each port is released to tank on transit.
7 (Open Centre All Ports Restricted Flow)			Mainly used as a 2-position type. Shock is reduced on transit.
8 (2-Way)			Pump pressure and cylinder position is held at neutral in the same way as spool type “2”. It is used as 2 way type.
9 (Open Centre P, A&B)			Regenerative circuit is provided at neutral.
10 (Open Centre B&T)			Prevent actuator from one direction drift by leakage of P port at neutral.
11 (Open Centre P&A)			Halt actuator movement positively at B, T ports blocked P, A ports connected at neutral.
12 (Open Centre A&T)			Prevent actuator from one direction drift by leakage of P port at neutral.

Mounting Surface

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

Model Numbers	ISO Code of Mounting Surface
(S–, L–, E–, T–, G–) DSG–01 DSHG–01 DMG–01 DCG–01	ISO 4401–AB–03–4–A
(S–, L–, E–, T–, G–) DSG–03 DMG–03 DCG–03	ISO 4401–AC–05–4–A
DSHG–03	ISO 4401–AC–05–4–A*
(S–, G–) DSHG–04 DHG–04 DMG–04	ISO 4401–AD–07–4–A
(S–, G–) 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 port conform to the ISO 4401–AC–05–4–A.
The pilot and drain ports is sccordance with the ISO original draft.

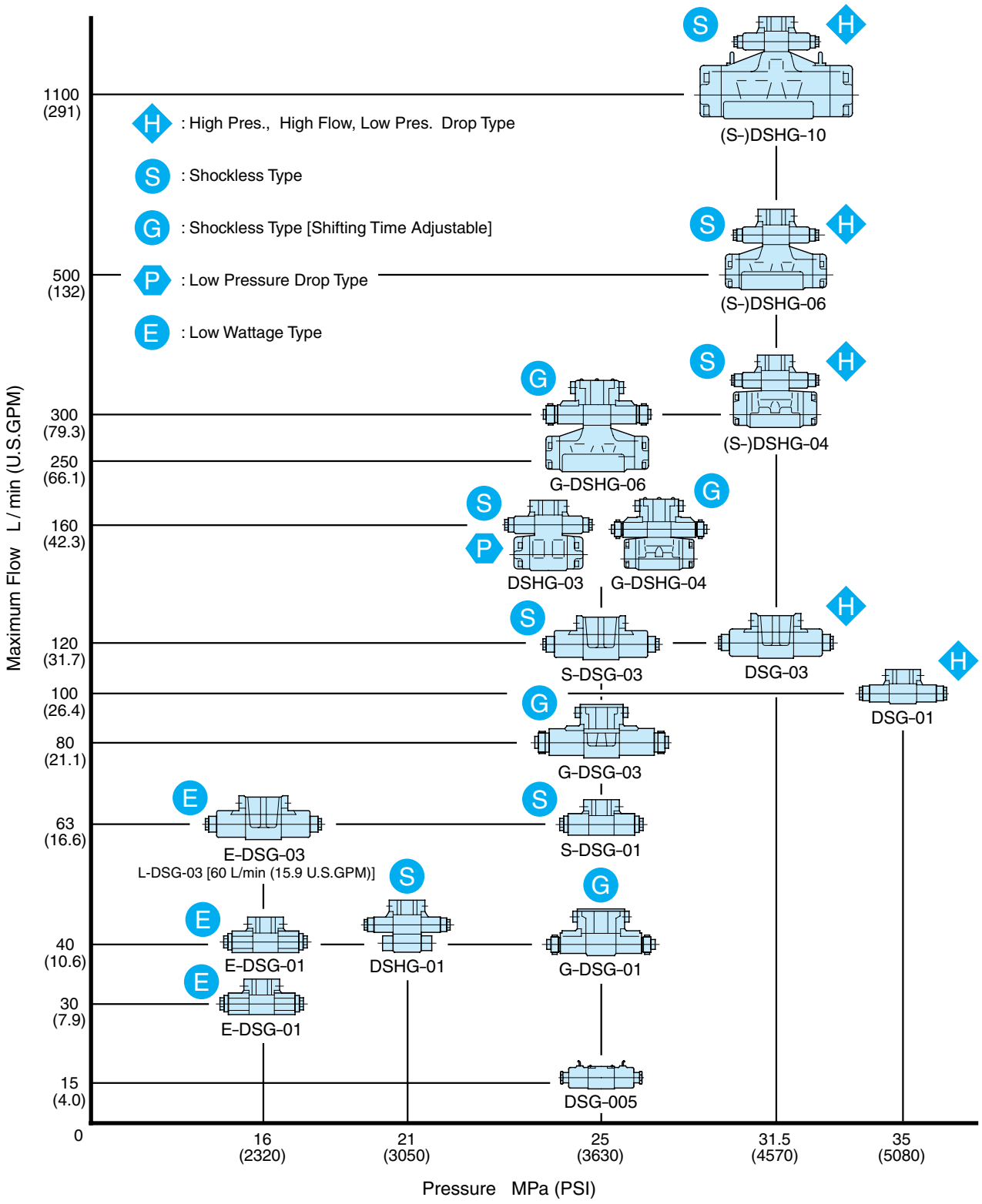
Interchangeability in Installation between Current and New Design

Model change has been made on the following product.
The difference between current and new design has been described on the paragraph of "Interchangeability in Installation between Current and New Design." Refer to relevant pages on each series.

Name	Model Numbers		Interchangeability in Installation	Related Page	Major Changes
	Currrent	New			
DSG–005 Series Solenoid Operated Directional Valves	DSG–005–✱✱✱–✱–30/3090	DSG–005–✱✱✱–✱–40/4090 DSG–005–✱✱✱–✱–N–40/4090 N1	Yes	—	● High Flow ● Low Pressure Drop ● Din-connector type solenoid in addition
DSG–01 Series Solenoid Operated Directional Valves	(S–, L–, T–) DSG–01–✱✱✱–✱–60/6090	(S–, L–, T–) DSG–01–✱✱✱–✱–70/7090	Yes	357	● High Pressure and High Flow ● Low Pressure Drop
1/8,3/8 Solenoid Controlled Pilot Operated Directional Valves	DSHG–01–✱✱✱–✱–13/1390 DSHG–03–✱✱✱–✱–13/1390	DSHG–01–✱✱✱–✱–14/1490 DSHG–03–✱✱✱–✱–14/1490	Yes	—	● Pilot valve has been changed from DSG-01, 60 design to 70 design.
1/2 Solenoid Controlled Pilot Operated Directional Valves	(S–) DSHG–04–✱✱✱–✱–51/5190	(S–) DSHG–04–✱✱✱–✱–52/5290	Yes	—	● Pilot valve has been changed from DSG-01, 60 design to 70 design.
3/4,1–1/4 Solenoid Controlled Pilot Operated Directional Valves	(S–) DSHG–06–✱✱✱–✱–52/5290 (S–) DSHG–10–✱✱✱–✱–42/4290	(S–) DSHG–06–✱✱✱–✱–53/5390 (S–) DSHG–10–✱✱✱–✱–43/4390	Yes	—	● Pilot valve has been changed from DSG-01, 60 design to 70 design.

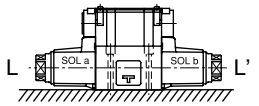
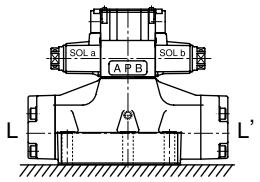
Solenoid Operated / Solenoid Controlled Operated Directional Valves

WIDE RANGE OF MODELS – Choose the optimum valve to meet your needs from a largeselection available.



Instructions

Mounting

DSG-005	No mounting restrictions for any model.	
∗-DSG-01 ∗-DSG-03	No-spring detented models not energised continuously must be installed so that the spool axis L-L' is horizontal. Otherwise there is no mounting restrictions.	 ∗-DSG-01/03
DSHG-01 DSHG-03 (S-) DSHG-04 (S-) DSHG-06 (S-) DSHG-10	No-spring models not energised continuously must be installed so that the spool axis L-L' is horizontal. Otherwise there is no mounting restrictions.	 ∗-DSHG

Energisation

1. No-Spring Type
   One of two solenoids should be energised continuously to avoid malfunction.
2. On 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 Valve

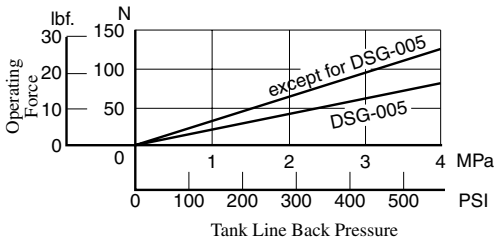
Avoid connecting the valve pilot drain port to a line with possible surge pressure.
Piping end of drain should be submerged in oil.

Shockless Type

In order to benefit from a shockless operation, it is necessary to fill the tank line with operating oil.
Only after the tank line has been filled with operating oil should the valve be used on a regular basis.

Operating Force be Manual Actuator

Take care as the operating force by the manual actuator increases in proportion to the tank line back pressure. (See the graph right.)



Solenoid

Solenoid connector (DIN connector)

The solenoid connector is in accordance with the international standard ISO 4400 (Fluid power systems and components-Three-pin electrical plug connectors-Characteristics and requirements).

AC Solenoid

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

DC Solenoid (K-series Solenoid Operated Directional Valve)

These valves differ from conventional DC solenoid operated directional valves and have the following characteristics:

1. The spark between the relay contacts has been eliminated and therefore the valve can be operated by miniature relays.
2. The surge voltage is approximately 10 % of that normally experienced.
3. Time lag on de-energisation is reduced by approximately 50 %.

R type Models with Current Rectifier and DC Solenoid

Specially designed DC solenoid and receptacle (or connector) containing AC-DC rectifier and transient peak suppressor are provided. Connection to be made to AC power source as with conventional AC solenoid. Remarkably high reliability and long life and other advantages including quiet valve operation. No over-heating of coil due to the spool sticking and protection against transient voltage peaks are assured.

RQ type Models with Current rectifier and Quick Return Solenoid

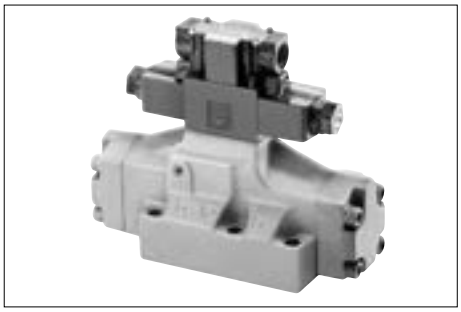
Valve characteristics are identical to R type except for the fast return time of the spool after deenergisation.

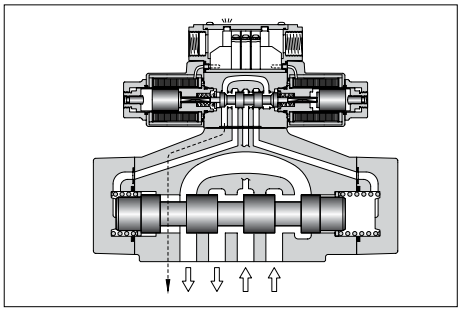
Insulation Class of Solenoid

Model numbers	Insulation Class
DSG-005, DSG-01, S-DSG01 L-DSG-01, E-DSG-01, T-DSG-01 DSG-03, S-DSG-03, L-DSG-03 E-DSG-03, T-DSG-03 DSHG-01/03/04/06/10, S-DSHG-04/-06/10	Class H
G-DSG-01, G-DSG-03	Class F

Solenoid Controlled Pilot Operated Directional Valves

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**
  High pressure [31.5 MPa (4570 PSI)] along which high flow means compact system design.

- **Lower Pressure Drop**
  System energy saving increased as pressure drop of each valve has been greatly reduced.

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 Frequecy Cycles/Min {min⁻¹}			Mass kg (1bs.)
						Ext. Drain	Int. Drain	AC	DC	R	
Standard Type	DSHG-01-3C∗-∗-14/1480/1490	40 (10.6)	21 (3050)	21 (3050)	1.0 (145)	16 (2320)	16 (2320)	120	120	120	3.2 (7.1)
	DSHG-01-2B∗-∗-14/1480/1490										2.7 (6.0)
	DSHG-03-3C∗-∗-14/1490	160 (42.3)	25 (3630)	25 (3630)	0.7 (100)	16 (2320)	16 (2320)	120	120	120	6.9 (15.2)
	DSHG-03-2N∗-∗-14/1490										6.9 (15.2)
	DSHG-03-2B∗-∗-14/1490										6.4 (14.1)
	(S-)DSHG-04-3C∗-∗-52/5290	300 (79.3)	31.5 (4570)	25 (3630)	0.8 (120)	21 (3050)	16 (2320)	120	120	120	8.5 (18.7)
	(S-)DSHG-04-2N∗-∗-52/5290										8.5 (18.7)
	(S-)DSHG-04-2B∗-∗-52/5290										8.0 (17.6)
Shockless Type	(S-)DSHG-06-3C∗-∗-53/5390	500 (132)	31.5 (4570)	25 (3630)	0.8 (120) ★3	21 (3050)	16 (2320)	120	120	120	12.4 (27.3)
	(S-)DSHG-06-2N∗-∗-53/5390										12.4 (27.3)
	(S-)DSHG-06-2B∗-∗-53/5390										11.9 (26.2)
	(S-)DSHG-06-3H∗-∗-53/5390			21 (3050)	1.0 (145)			110	110	110	13.2 (29.1)
	(S-)DSHG-10-3C∗-∗-43/4390	1100 (291)	31.5 (4570)	25 (3630)	1.0 (145) ★3	21 (3050)	16 (2320)	120	120	100	45.0 (99.2)
	(S-)DSHG-10-2N∗-∗-43/4390							100	100	100	45.0 (99.2)
	(S-)DSHG-10-2B∗-∗-43/4390			21 (3050)				60	60	50	44.5 (98.1)
	(S-)DSHG-10-3H∗-∗-43/4390										52.9 (116.6)

★1. Maximum flow indicates a ceiling flow. As the ceiling flow depends on the type of spool and operating condition, refer to the List of Spool Functions on pages 386 to 390 for details.
★2. Pilot pressure of internal pilot drain models must always exceed tank line back pressure by a minimum required pilot pressure.
★3. Min. pilot pressure of with pilot piston in 1.8 MPa (260 PSI).

Yuken can offer flanged connection valves described below.
Consult us 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)	21 (3050)
DSHF-24-∗∗∗-∗-28∗	1200 (317)	21 (3050)
DSHF-32-∗∗∗-∗-27∗	2400 (634)	21 (3050)

Solenoid Ratings

Solenoid ratings of pilot valve are identical with those of standard solenoid valve. Refer to relevant solenoid ratings described on the page below.

Model Numbers	Pilot Valve Model Numbers	Solenoid Ratings described on the page below
DSHG-01	DSG-01-∗∗∗-∗-70∗	345
DSHG-03		
(S-)DSHG-04		
(S-)DSHG-06		
(S-)DSHG-10		

CSA Approved Solenoid Valve

Available to supply DSHG-06 series valve approved by the CSA (Canadian Standards Association).
Consult us for details.

Model Number Designation

F-	S-	DSHG	-06	-2	B	2	A	-C2	-E	T
Special Seals	Type	Series Number	Valve Size	No. of Valve Position	Spool-Spring Arrangement	Spool Type	Special Two Position Valve	Models with Pilot Choke Valve	Pilot Connection	Drain Connection
F: For Phosphate Ester Type Fluids (Omit if not required)	**None**: Standard Type	**DSHG**: Solenoid Controlled Pilot Operated Directional Valve, Sub-plate Mounting	**01**	**3**	**C**: Spring Centred	**2, 3, 4 40, 5, 60 7, 9, 10 11, 12**	—	—	**None**: Internal Pilot **E**: External Pilot	**None**: External Drain **E**: Internal Drain
				2	**B**: Spring Offset	**2, 3, 4 40, 7**				
			03	**3**	**C**: Spring Centred	**2, 3, 4 40, 5, 60 7, 9, 10 11, 12**	—	**C1**: With C1 Choke **C2**: With C2 Choke **C1C2**: With C1 & C2 Choke (Omit if not required)		
				2	**N**: No-Spring	**2 3 4 40 7**				
					B: Spring Offset					
	None: Standard Type **S**: Shock-less Type		**04**	**3**	**C**: Spring Centred	**2, 4, 40 60, 10, 12 (3, 5, 6 7, 9, 11)** ★1	—			
				2	**N**: No-Spring	**2, 4, 40 (3, 7)** ★1	**A** ★2 (Omit if not required)			
					B: Spring Offset	**2, 4, 40 (3, 7)** ★1	**A** ★2 **B** ★2 (Omit if not required)			
			06	**3**	**H**: Pressure Centred **C**: Spring Centred	**2, 4, 40 60, 10, 12 (3, 5, 6 7, 9, 11)** ★1	—			
			10	**2**	**N**: No-Spring	**2, 4, 40 (3, 7)** ★1	**A** ★2 (Omit if not required)			
					B: Spring Offset	**2, 4, 40 (3, 7)** ★1	**A** ★2 **B** ★2 (Omit if not required)			

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.
	Internal Drain (T)	Combination is not applicable
External Pilot (E)	External Drain Internal Drain (T)	No restrictions in the combination on us

-R2	-A100	-C	-H	-N	-53	-*	-L
Spool Control ★3 Modification (Omit if not required)	Coil Type	Manual Override of Pilot Valve	Bult-in Orifice for Pilot Line	Type of Elec-trical Conduit Connection	Design Number	Design Standard	Models with Reverse Mtg. of Solenoid
——	AC: **A100** , **A200** **A120** , **A240** DC: **D12** , **D24** **D48** AC → DC **R100** , **R200**	**None** : Manual Override Pin	——	**None**: Terminal Box Type	**14**	**None**: Japanese Standard "JIS"	—— **L** (Omit if not required)
R2: With Stroke Adjustment, Both Ends **RA**: With Stroke Adjustment, Port "A" End **RB**: With Stroke Adjustment, Port "B" End					**14**	**90**: N. American Design Standard	**L** (Omit if not required)
	AC: **A100** , **A200** **A120** , **A240** DC: **D12** , **D24** **D48** AC → DC **R100** , **R200**	**C**: Push Button & Lock Nut	——	**N**: Push-in Connector Type	**52**	**None**: Japanese Standard "JIS" & European Design Standard	—— **L** (Omit if not required)
R2: With Stroke Adj., Both Ends **RA**: With Stroke Adj., Port "A" End **RB**: With Stroke Adj., Port "B" End **P2**: With Pilot Piston, Both Ends **PA**: With Pilot Piston, Port "A" End **PB**: With Pilot Piston, Port "B" End			—— **H**: Refer to ★5 ——	**N1**: Push-in ★4 Connector with Indicator Light	**53** **43**	**80**: European Design Standard (Applicable only for DSHG-01) **90**: N. American Design Standard	—— **L** (Omit if not required)

★1. Shekless 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 391. 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. NI stands for Plug-in connector with solenoid indicator light. NI is not available for R-type 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.

Sub-plates

Valve Model Numbers	Japanese Standard "JIS"			European Design Standard			N. American Design Standard		
	Sub-plate Model Numbers	Thread Size	Approx. Mass kg (1bs.)	Sub-plate Model Numbers	Thread Size	Approx. Mass kg (1bs.)	Sub-plate Model Numbers	Thread Size	Approx. Mass kg (1bs.)
DSHG-01	DSGM-01-31	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-31	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-31	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.

Mounting Bolt

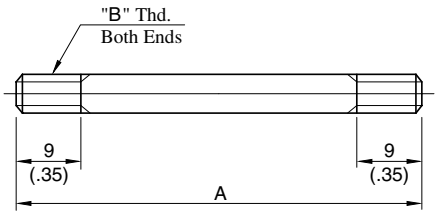
Model Numbers	Mouting Bolt				
	Name	Japanese Standard "JIS" European Design Standard	N. American Design Standard	Qty.	Tightening Torque Nm (in. 1bs.)
DSHG-01	Mtg. Bolt Kit★3	MBK-01-01-30★1 MBK-01-02-30★2	MBK-01-01-3090★1 MBK-01-02-3090★2	1 set	5 - 6 (43 - 52)
DSHG-03	Soc. Hd. Cap Screw	M6 × 35 Lg.	1/4-20 UNC × 1-3/4 Lg.	4	12 - 15 (104 - 130)
(S-)DSHG-04	Soc. Hd. Cap Screw	M6 × 45 Lg. M10 × 50 Lg.	1/4-20 UNC × 1-3/4 Lg. 3/8-16 UNC × 2 Lg.	2 4	12 - 15 (104 - 130) 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.

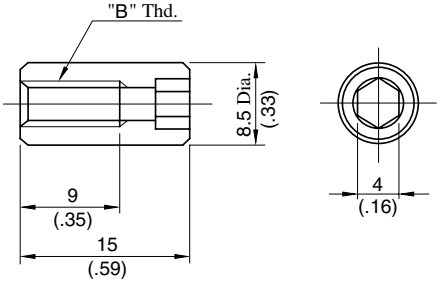
★2. For External Pilot or External Drain.

★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)	

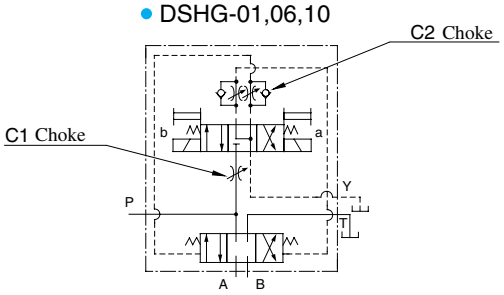
Options

Models with Pilot Choke Adjustment

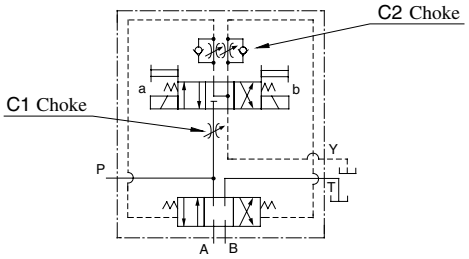
When the adjustment screw is turned clockwise, changeover speed of the main spool becomes slow. In case of the spring centred valves in particular, making slow of the returning speed of the main spool to the neutral position is possible with a C2 choke valve. These choke valves can be used in combination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

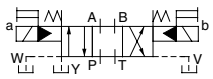


Models with Pilot Piston(P2, PA, PB)

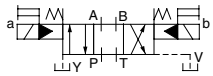
The valves with a pilot piston can be used when the high speed changeover of the main spool is required. However, please not that in case of spring centered valves, there is no change in the returning speed of the main spool to the neutral position even with the pilot piston.

Graphic Symbols (Ex.: Spring Centred)

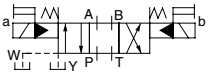
- "P2" Models



- "PA" Models



- "PB" Models



Pressure Centred Models (3H∗)

The pressure centered 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)

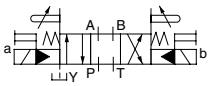
(Only for 3H6, 3H60)

Models with Stroke Adjustment (R2, RA, RB)

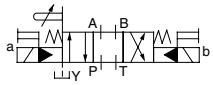
When the adjustment screw is screwed in , the main spool stroke becomes short and flow rate reduces.

Graphic Symbols (Ex.: Spring Centred)

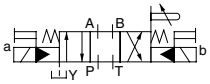
- "R2" Models



- "RA" Models



- "RB" Models



Additional Mass of Options

Add the mass described below to the mass of standard models on page 381, if options are required.

kg (1lbs.)

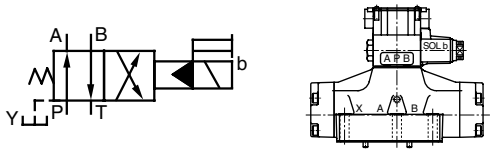
Model Numbers	Model with Pilot Choke Adj.		Models with Pilot Piston		Models with Stroke Adj.	
	C1, C2	C1C2	P2	PA PB	P2	PA PB
DSHG-03	0.65(1.4)	1.3(2.9)	—	—	0.6(1.3)	0.3 (.7)
(S-)DSHG-04	0.65(1.4)	1.3(2.9)	—	—	1.0(2.2)	0.5(1.1)
(S-)DSHG-06	0.65(1.4)	1.3(2.9)	1.0(2.2)	0.5(1.1)	1.2(2.6)	06(1.3)
(S-)DSHG-10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

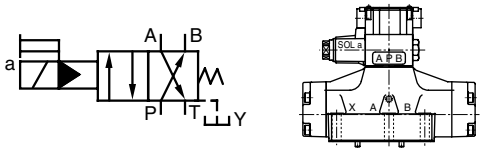
The same options to DSG-01 series valves are available. Please refer to page 345 for the details.

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.



Standard Mtg. of Solenoid

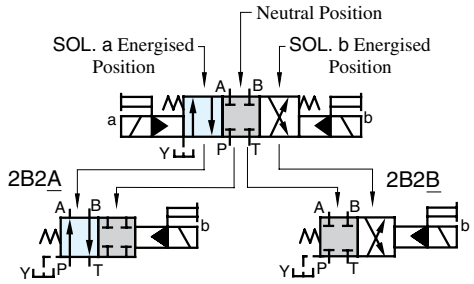


Reverse Mtg. of Solenoid ("L")

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"



"A": Use of Neutral and SOL. a Energised Position

"B": Use of Neutral and SOL. b Energised Position

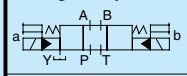
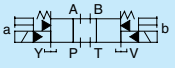
Model Numbers	Graphic Symbols	
	Standard Mtg.	Reverse Mtg. Type
04 DSHG-06-2B∗A 10		
(S-)DSHG-∗-2B2A		
DSHG-∗-2B3A		
(S-)DSHG-∗-2B4A		
(S-)DSHG-∗-2B40A		
DSHG-∗-2B5A		
DSHG-∗-2B6A		
(S-)DSHG-∗-2B60A		
DSHG-∗-2B7A		
DSHG-∗-2B9A		
(S-)DSHG-∗-2B10A		
DSHG-∗-2B11A		
(S-)DSHG-∗-2B12A		

Model Numbers	Graphic Symbols	
	Standard Mtg.	Reverse Mtg. Type
04 DSHG-06-2B∗B 10		
(S-)DSHG-∗-2B2B		
DSHG-∗-2B3B		
(S-)DSHG-∗-2B4B		
(S-)DSHG-∗-2B40B		
DSHG-∗-2B5B		
DSHG-∗-2B6B		
(S-)DSHG-∗-2B60B		
DSHG-∗-2B7B		
DSHG-∗-2B9B		
(S-)DSHG-∗-2B10B		
DSHG-∗-2B11B		
(S-)DSHG-∗-2B12B		

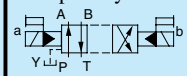
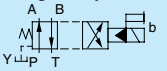
Model Numbers	Graphic Symbols
	Standard Mtg.
04 DSHG-06-2N∗A 10	
(S-)DSHG-∗-2N2A	
DSHG-∗-2N3A	
(S-)DSHG-∗-2N4A	
(S-)DSHG-∗-2N40A	
DSHG-∗-2N5A	
DSHG-∗-2N6A	
(S-)DSHG-∗-2N60A	
DSHG-∗-2N7A	
DSHG-∗-2N9A	
(S-)DSHG-∗-2N10A	
DSHG-∗-2N11A	
(S-)DSHG-∗-2N12A	

List of Spool Functions and Maxmum Flow (DSHG-06/S-DSHG-06)

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)

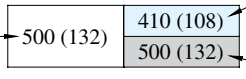
Two Positions

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)

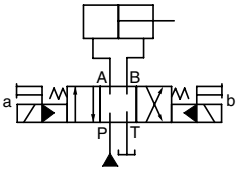
Maximum flow rate is constant regardless of pilot pressure.
Pilot Pressure more than 0.8 MPa (120 PSI).
In case pressure centred models, pilot pressure is more than 1 MPa (150 PSI).



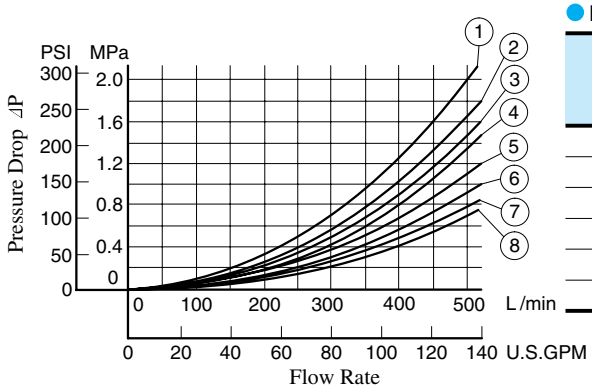
Pilot Pressure at 0.8 MPa (120 PSI).
In case pressure centred models, pilot pressure is more than 1 MPa (150 PSI)

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.



DSHG-06, S-DSHG-06



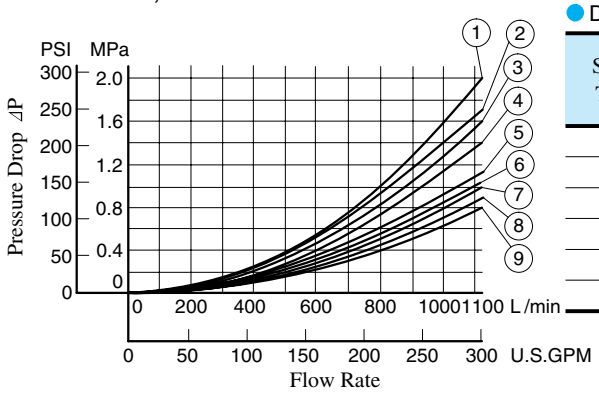
DSHG-06

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.

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

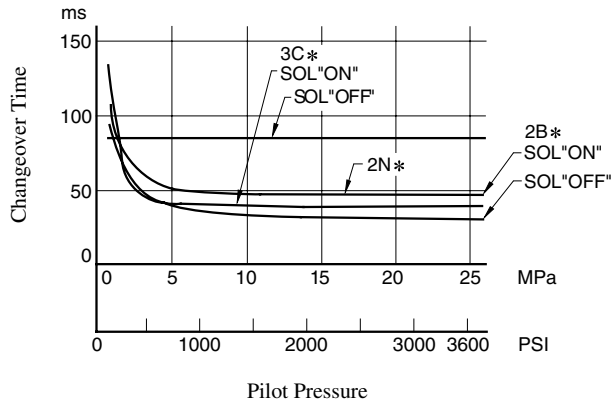
Typical Changeover Time

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

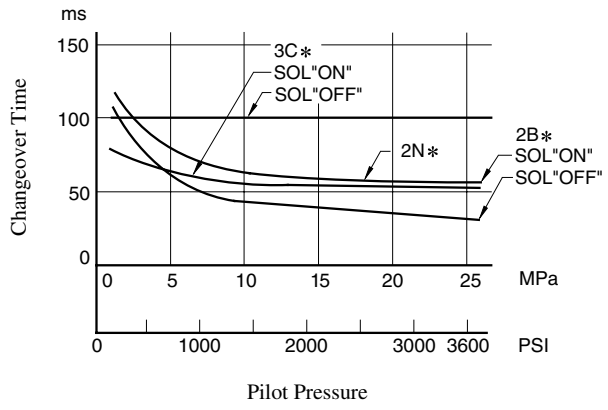
● Test Conditions

Coil Type : D∗(Models with DC solenoids)
Voltage : Rated Voltage
Oil Viscosity : 35 mm^2/s (164 SSU)

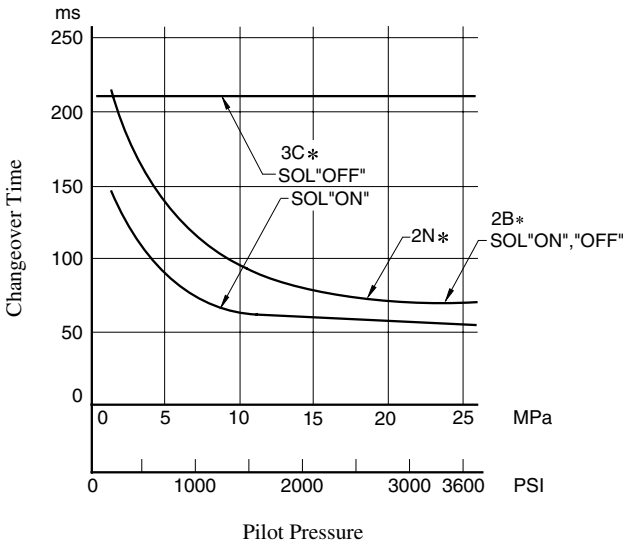
● DSHG-04



● DSHG-06

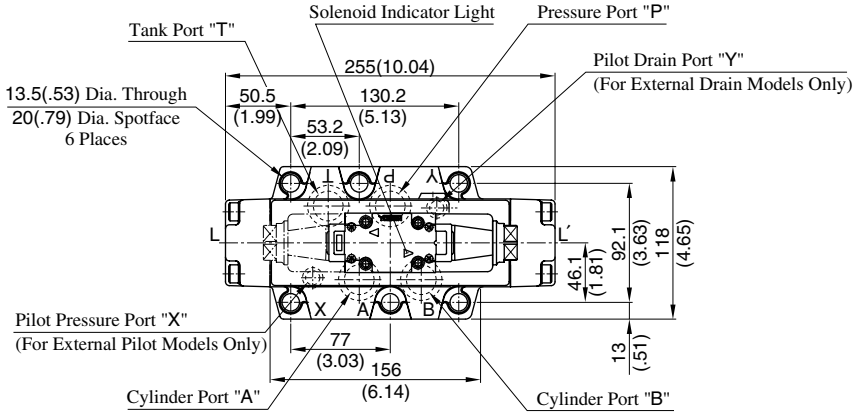


● DSHG-10

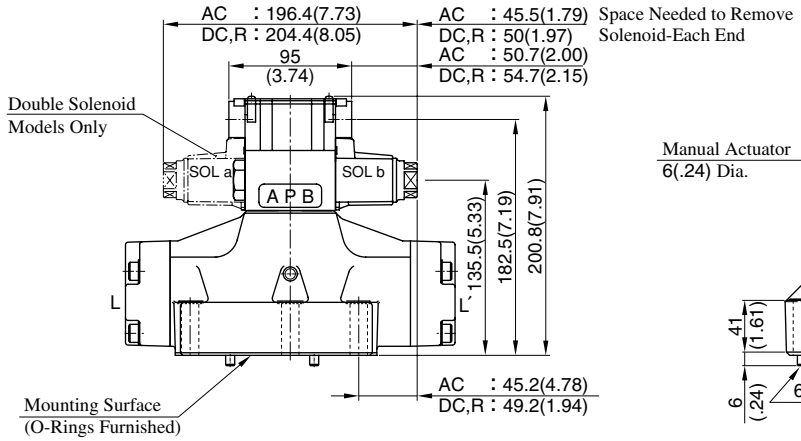


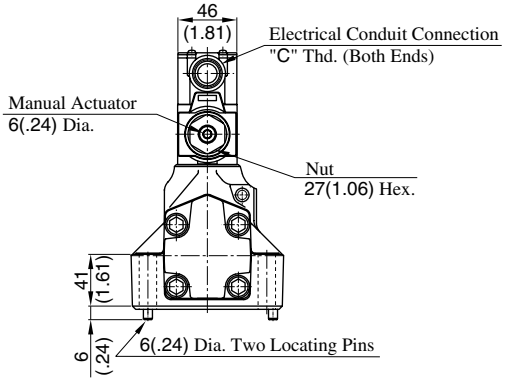
Terminal Box Type: (S-)DSHG-06-∗∗∗-∗-53/5390

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



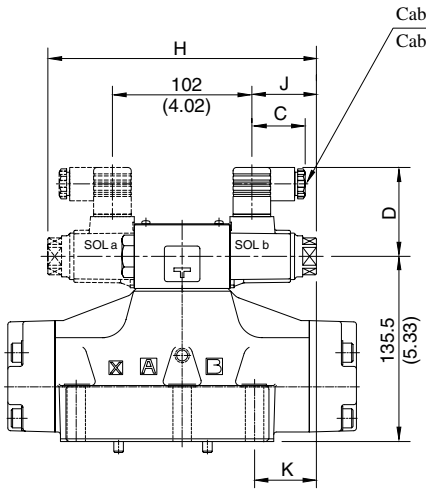
Model Numbers	"C" Thd.
(S-)DSHG-06-∗∗∗-∗-53	G 1/2
(S-)DSHG-06-∗∗∗-∗-5390	1/2 NPT

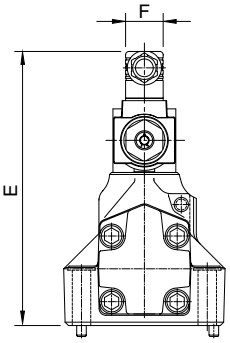




DIMENSIONS IN MILLIMETRES (INCHES)

Plug-in Connector Type: (S-)DSHG-06-∗∗∗-∗-$^{N}_{N1}$-53/5390





★ Position of cable departure can be changed. For details, refer to DSHG-01 valve on page 396.

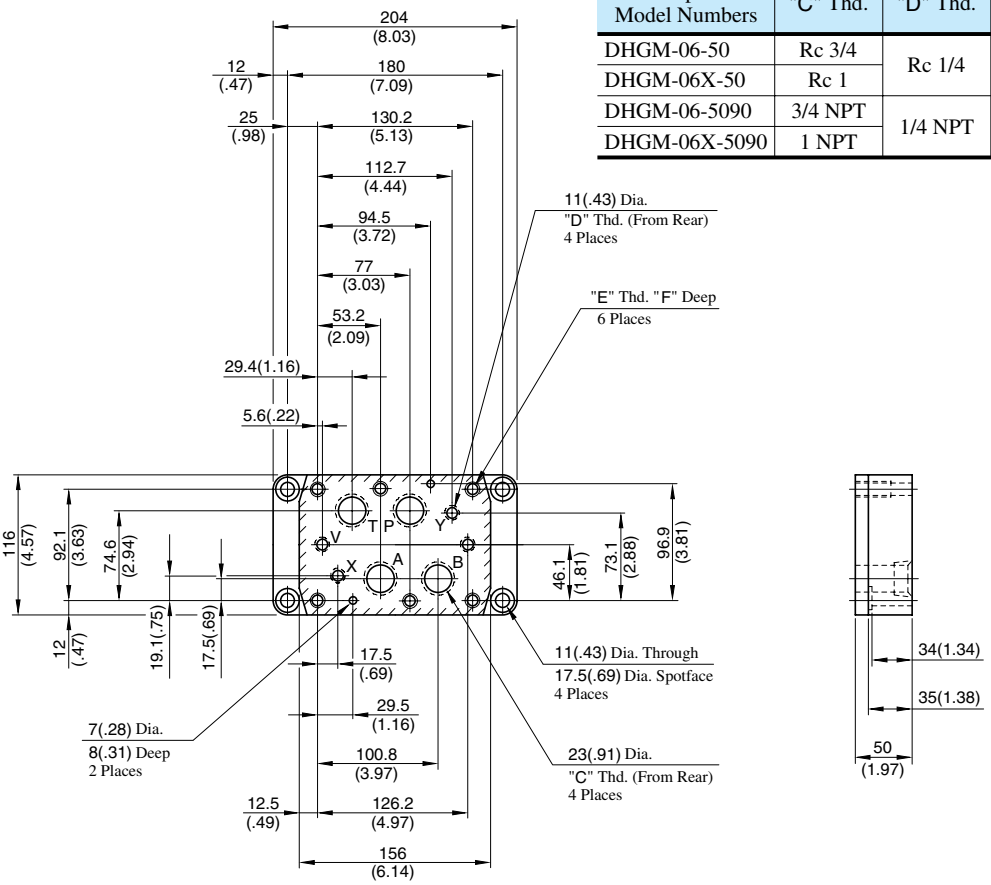
Model Numbers	Dimensions mm (Inches)						
	C	D	E	F	H	J	K
(S-)DSHG-06-∗∗∗-A∗-N/N1	39 (1.54)	53 (2.09)	200.5 (7.95)	27.5 (1.08)	196.4 (7.73)	47.2 (1.86)	45.2 (1.78)
(S-)DSHG-06-∗∗∗-D∗-N/N1	39 (1.54)	64 (2.52)	211.5 (8.33)	27.5 (1.08)	204.4 (8.05)	51.2 (2.02)	49.2 (1.94)
(S-)DSHG-06-∗∗∗-R∗-N	53 (2.09)	57.2 (2.25)	214.5 (8.44)	34 (1.34)			

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

Sub-plate

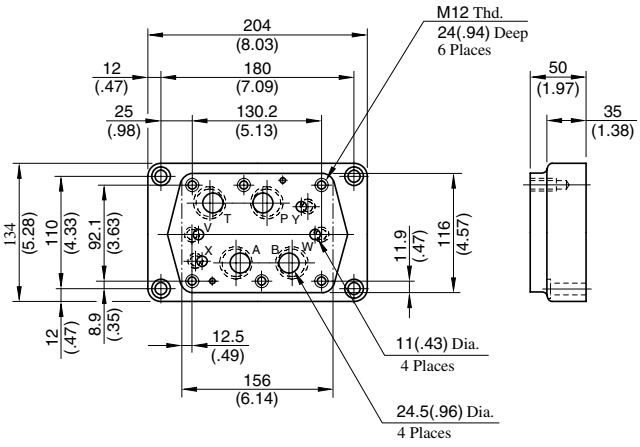
DHGM-$^{06}_{06X}$-50/5090

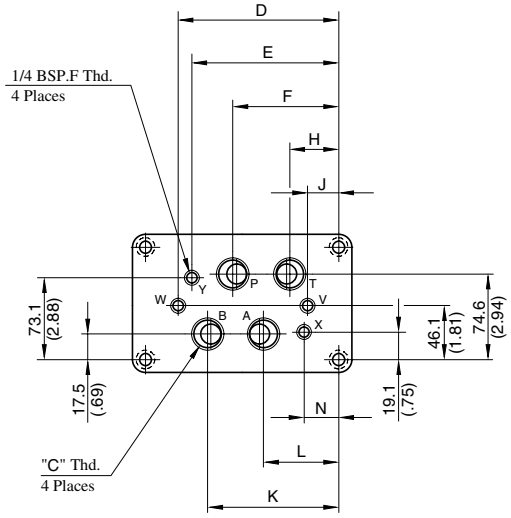
Sub-plate Model Numbers	"C" Thd.	"D" Thd.	"E" Thd.	F mm (in.)
DHGM-06-50	Rc 3/4	Rc 1/4	M12	24 (.94)
DHGM-06X-50	Rc 1			
DHGM-06-5090	3/4 NPT	1/4 NPT	1/2-13 UNC	26 (1.02)
DHGM-06X-5090	1 NPT			



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)

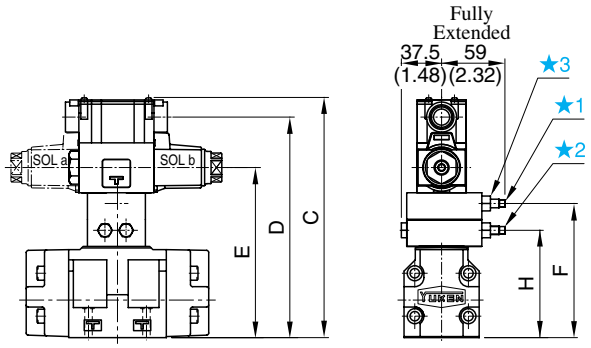
For other dimensions, refer to "DHGM-06∗-50/5090" above.
∗ For Uses of Port "X", "Y", "V", "W", refer to DHGM-10∗ on the following page.

Options

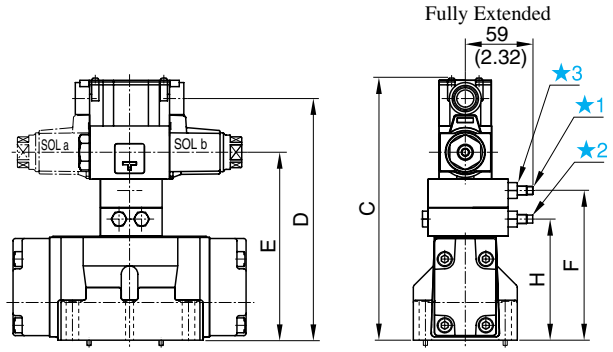
Models with Pilot Choke Valve

Terminal Box Type

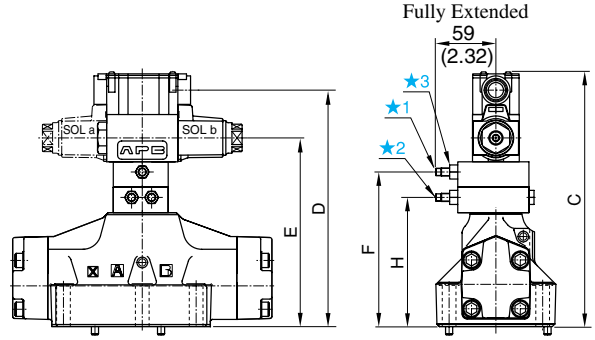
● DSHG-03- ✱✱✱-C1/C2/C1C2



● (S-)DSHG-04- ✱✱✱ -C1/C2/C1C2

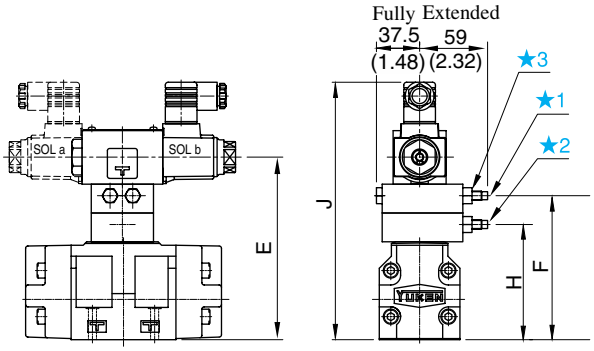


● (S-)DSHG-$^{06}_{10}$ - ✱✱✱-C1/C2/C1C2

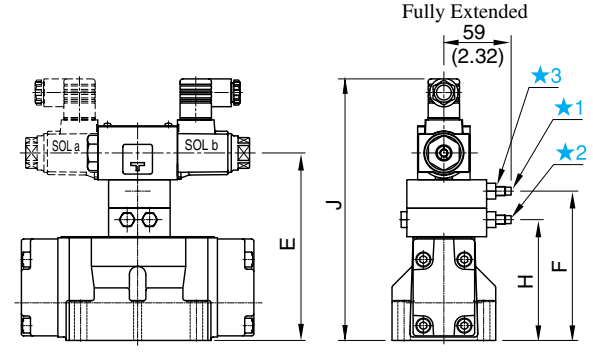


Plug-in Connector Type

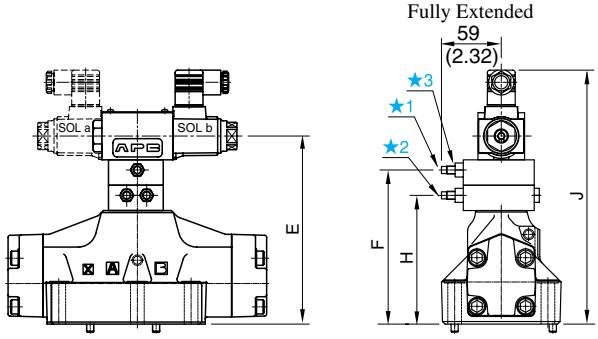
● DSHG-03- ✱✱✱-C1/C2/C1C2-$^{N}_{N1}$



● (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.

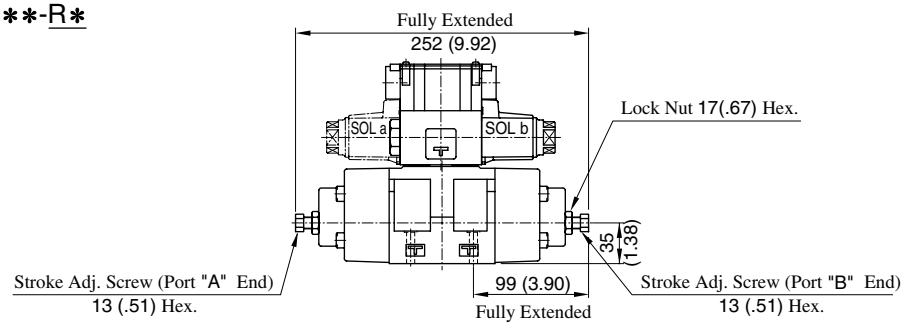
DIMENSIONS IN MILLIMETRES (INCHES)

Model Numbers	Dimensions mm (Inches)							
	C	D	E	F	H	J		
						AC SO L	DC SO L	R SOL
DSHG-03- ✱✱✱ -C1	198.8 (7.83)	180.5 (7.11)	133.5 (5.26)	100 (3.94)	—	198.5 (7.81)	209.5 (8.25)	212.5 (8.37)
DSHG-03- ✱✱✱ -C2				—	100 (3.94)			
DSHG-03- ✱✱✱ -C1C2	223.8 (8.81)	205.5 (8.09)	158.5 (6.24)	125 (4.92)	100 (3.94)	223.5 (8.80)	234.5 (9.23)	237.5 (9.35)
(S-) DSHG-04- ✱✱✱ -C1	204.8 (8.06)	186.5 (7.34)	139.5 (5.49)	106 (4.17)	—	204.5 (8.05)	215.5 (8.48)	218.5 (8.60)
(S-) DSHG-04- ✱✱✱ -C2				—	106 (4.17)			
(S-) DSHG-04- ✱✱✱ -C1C2	229.8 (9.05)	211.5 (8.33)	164.5 (6.48)	131 (5.16)	106 (4.17)	229.5 (9.04)	240.5 (9.47)	243.5 (9.59)
(S-) DSHG-06- ✱✱✱ -C1	225.8 (8.89)	207.5 (8.17)	160.5 (6.32)	127 (5.00)	—	225.5 (8.88)	236.5 (9.31)	239.5 (9.43)
(S-) DSHG-06- ✱✱✱ -C2				—	127 (5.00)			
(S-) DSHG-06- ✱✱✱ -C1C2	250.8 (9.87)	232.5 (9.15)	185.5 (7.30)	152 (5.98)	127 (5.00)	250.5 (9.86)	261.5 (10.30)	264.5 (10.41)
(S-) DSHG-10- ✱✱✱ -C1	288.8 (11.37)	270.5 (10.65)	223.5 (8.80)	190 (7.48)	—	288.5 (11.36)	299.5 (11.79)	302.5 (11.91)
(S-) DSHG-10- ✱✱✱ -C2				—	190 (7.48)			
(S-) DSHG-10- ✱✱✱ -C1C2	313.8 (12.35)	295.5 (11.63)	248.5 (9.78)	215 (8.46)	190 (7.48)	313.5 (12.34)	324.5 (12.78)	327.5 (12.89)

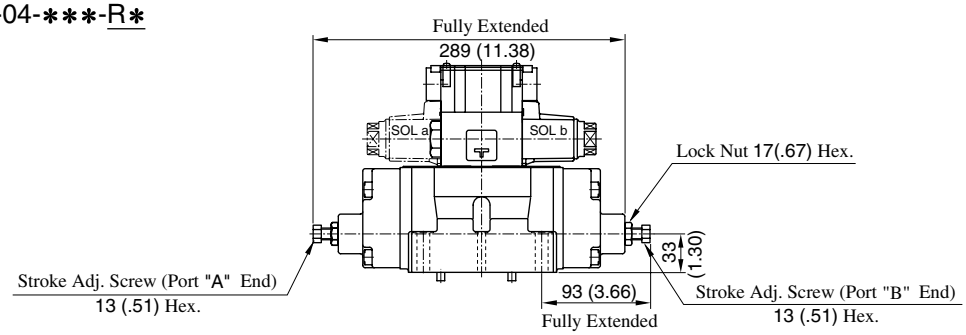
Options

Models with Stroke Adjustment

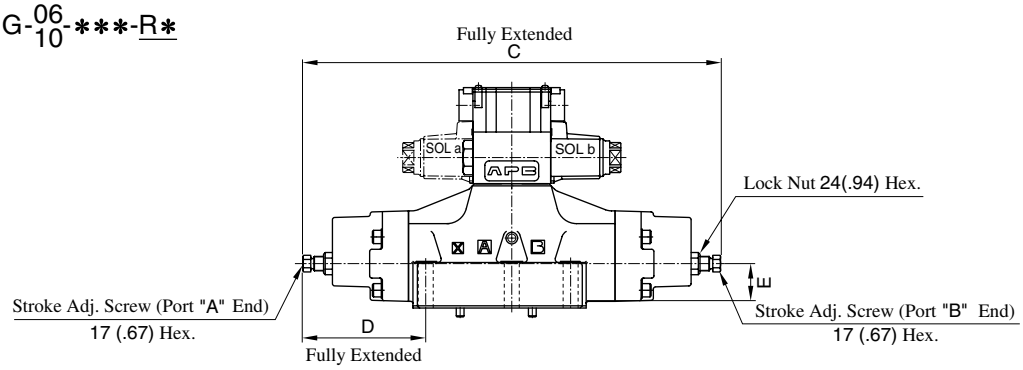
● DSHG-03-∗∗∗-R∗



● (S-)DSHG-04-∗∗∗-R∗



● (S-)DSHG-$\frac{06}{10}$-∗∗∗-R∗

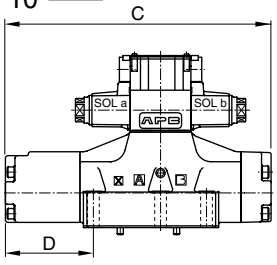


Model Numbers	C	D	E
(S-)DSHG-06-∗∗∗-R2	376 (14.80)	111 (4.37)	40 (1.57)
(S-)DSHG-10-∗∗∗-R2	558 (21.97)	164.5 (6.48)	65 (2.56)

DIMENSIONS IN MILLIMETRES (INCHES)

Pressure Centred Models

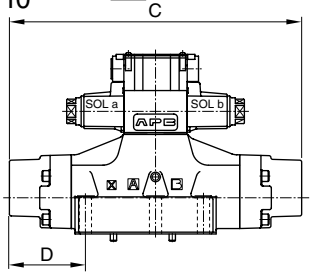
● (S-)DSHG-$\frac{06}{10}$-3H∗



Model Numbers	C	D
(S-)DSHG-06-3H∗	306.5 (12.07)	102 (4.02)
(S-)DSHG-10-3H∗	456 (17.95)	149.5 (5.89)

Models with Pilot Piston

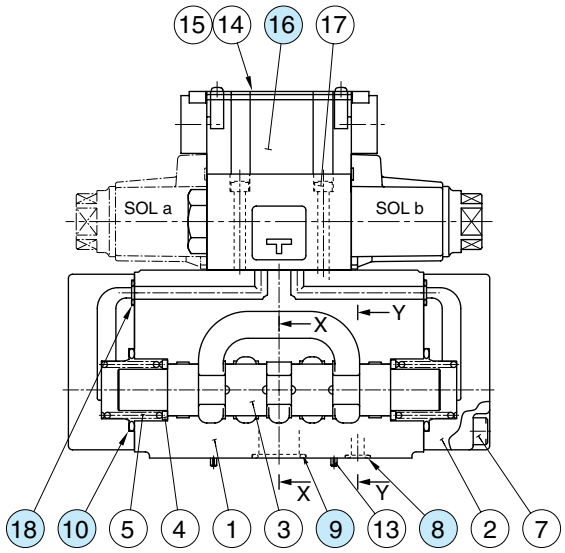
● (S-)DSHG-$\frac{06}{10}$-∗∗∗-P∗

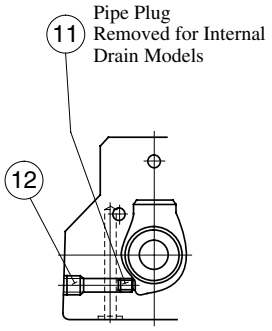


Model Numbers	C	D
(S-)DSHG-06-∗∗∗-P2	323 (12.72)	84 (3.31)
(S-)DSHG-10-∗∗∗-P2	479 (18.86)	125 (4.92)

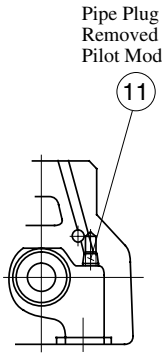
List of Seals and Pilot Valves

(S-)DSHG-04-∗∗∗-∗-52/5290



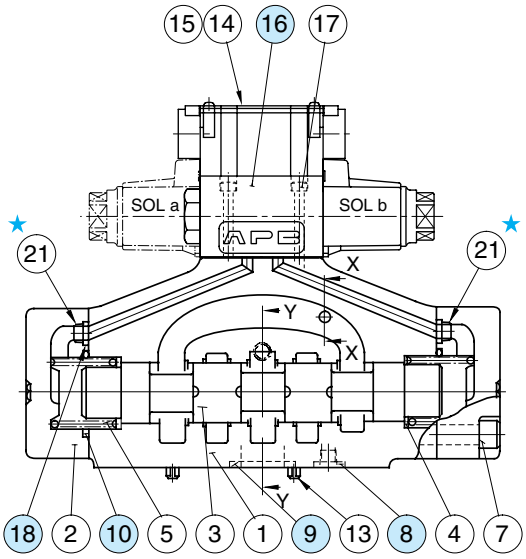


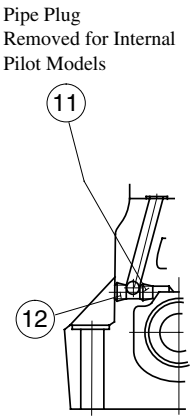
Section Y-Y



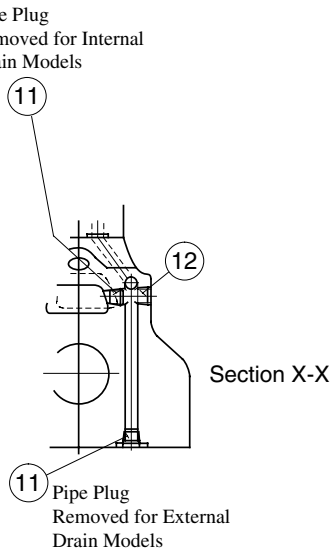
Section X-X

(S-)DSHG-06-∗∗∗-∗-53/5390
(S-)DSHG-10-∗∗∗-∗-43/4390





Section Y-Y



Section X-X

Note: Item ㉑ 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 408. 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 page 359.

Pilot Valves

See page 408 for the pilot valve model numbers to be used.