

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 | | | | | | | | | | Page |
|---|-----------------|--------------------------------------|--|--|--|--|--|---------|--|--|--|--|------|
| | | | L/min | | | | | U.S.GPM | | | | | |
| 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 | | | | | | | | | | |
| Low Wattage (5W) Type Solenoid Operated Directional Valves | | 16 (2320) | E-DSG-01 | | | | | | | | | | 378 |
| | | | E-DSG-03 | | | | | | | | | | |
| 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 | | | | | | | | | | |
| | | | DSHG-04/S-DSHG-04 | | | | | | | | | | |
| | | 31.5 (4580) | DSHG-06/S-DSHG-06 | | | | | | | | | | |
| | | | DSHG-10/S-DSHG-10 | | | | | | | | | | |
| “G” Series Shockless Type Solenoid Operated Directional Valves | | 25 (3600) | G-DSG-01 | | | | | | | | | | 412 |
| | | | G-DSG-03 | | | | | | | | | | |
| “G” Series Shockless Type Solenoid Controlled Pilot Operated Directional Valves | | 25 (3600) | G-DSHG-04 | | | | | | | | | | 418 |
| | | | G-DSHG-06 | | | | | | | | | | |
| 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 |
|--|------------------------------|
| $\begin{pmatrix} S- \\ L- \\ E- \\ T- \\ G- \end{pmatrix}$ DSG-01 DSHG-01 DMG-01 DCG-01 | ISO 4401-AB-03-4-A |
| $\begin{pmatrix} S- \\ L- \\ E- \\ T- \\ G- \end{pmatrix}$ DSG-03 DMG-03 DCG-03 | ISO 4401-AC-05-4-A |
| DSHG-03 | ISO 4401-AC-05-4-A* |
| $\begin{pmatrix} S- \\ G- \end{pmatrix}$ DSHG-04 DHG-04 DMG-04 | ISO 4401-AD-07-4-A |
| $\begin{pmatrix} S- \\ G- \end{pmatrix}$ 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 sccondance with the ISO original draft.

Interchangeability in Installation between Current and New Design

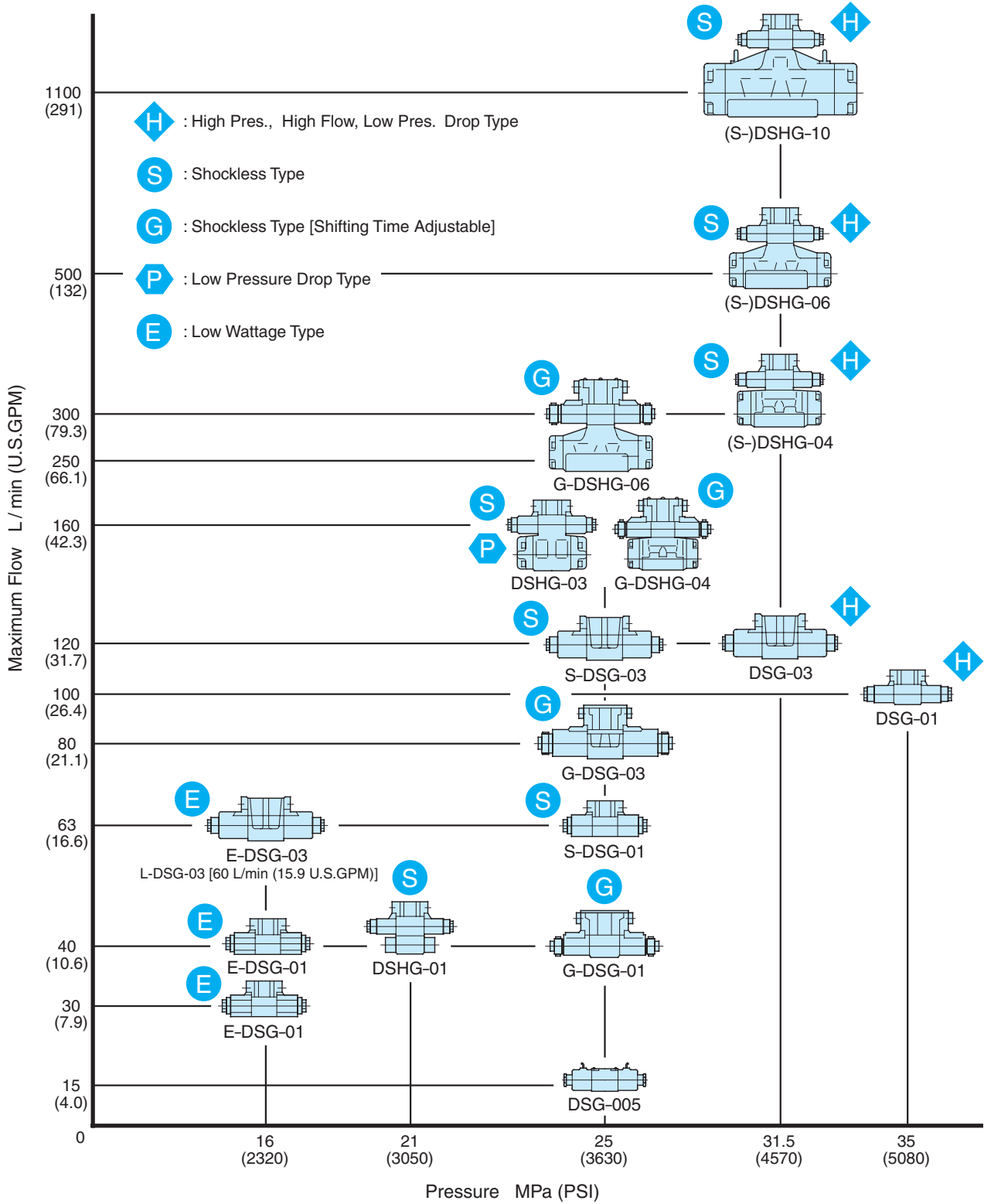
Model change has been made on the following product.

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 |
|---|---|---|------------------------------------|--------------|---|
| | Current | New | | | |
| DSG-005 Series Solenoid Operated Directional Valves | DSG-005-***-*-30/3090 | DSG-005-***-*-40/4090 DSG-005-***-*- $\frac{N}{NI}$ -40/4090 | Yes | — | <ul style="list-style-type: none"> ● High Flow ● Low Pressure Drop ● Din-connector type solenoid in addition |
| DSG-01 Series Solenoid Operated Directional Valves | $\begin{pmatrix} S- \\ L- \\ T- \end{pmatrix}$ DSG-01-***-*-60/6090 | $\begin{pmatrix} S- \\ L- \\ T- \end{pmatrix}$ DSG-01-***-*-70/7090 | Yes | 357 | <ul style="list-style-type: none"> ● 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 | — | <ul style="list-style-type: none"> ● 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 | — | <ul style="list-style-type: none"> ● 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 | — | <ul style="list-style-type: none"> ● Pilot valve has been changed from DSG-01, 60 design to 70 design. |

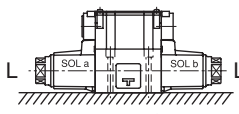
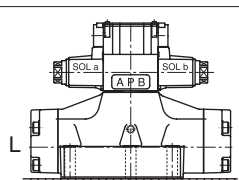
■ Solenoid Operated / Solenoid Controlled Operated Directional Valves

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. |  <p style="text-align: center;">* -DSG-01/03</p> |
| 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. |  <p style="text-align: center;">* -DSHG</p> |

● 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.

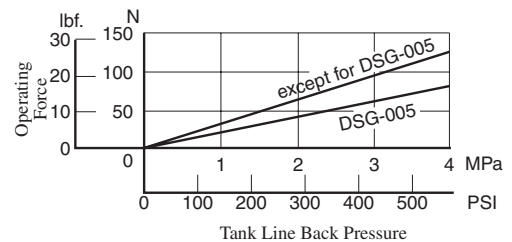
● Shockless Type

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 by 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 overheating 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.

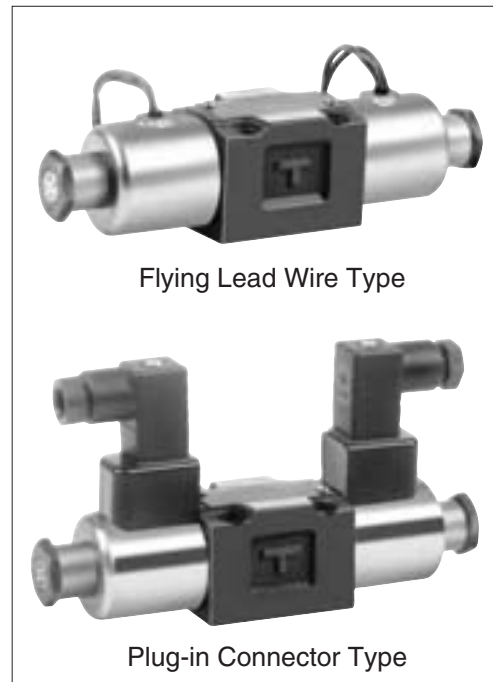
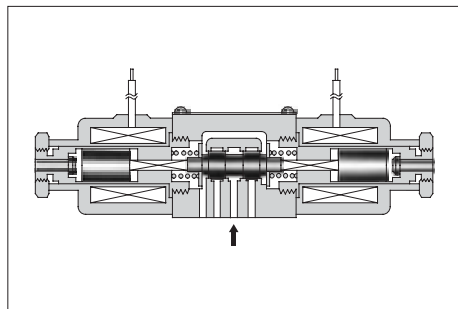
■ Insulation Class of Solenoid

| 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 Operated Directional Valves, DSG-005 Series

These DSG-005 series solenoid directional valves are the products newly developed as a “Mini-series”. Compared with DSG-01 series, the valve are much more compactly manufactured but enjoy a maximum operating pressure of 25 MPa (3630 PSI) and a maximum flow rate of 15 L/min (3.96 U.S.GPM), while contributing further to a space saving requirement. Moreover, using wet armature solenoids, the valves ensure the long life.



Specifications

| Model Numbers | Max. Flow★ L/min (U.S.GPM) | Max. Operating Pressure MPa (PSI) | Max. Tank-Line Back Pressure MPa (PSI) | Max. Changeover Frequency min ⁻¹ (Cycles/min) | Approx. Mass kg (lbs.) |
|------------------------|----------------------------------|---|--|--|------------------------------|
| DSG-005-3C*- *-40/4090 | 15 (3.96) | 25 (3630) | 7 (1020) | 120 | 0.5 (1.1) |
| DSG-005-2B*- *-40/4090 | | | | | 0.4 (.9) |

★ The maximum flow means the limited flow without inducing any abnormality to the operation (changeover) of the valve. The maximum flow differs according to the type and operating conditions. For details, please refer to the “List of Standard Models and Maximum Flow” on pages 338 to 339.

Solenoid Rating

| Electric Source | Coil Type | Frequency (Hz) | Voltage (V) | | Current & Power at Rated Voltage | | |
|------------------|-----------|----------------|---------------|-------------|----------------------------------|-------------|-----------|
| | | | Source Rating | Serviceable | Inrush★ ¹ (A) | Holding (A) | Power (W) |
| AC | A100 | 50 | 100 | 80 – 110 | 0.36 | 0.16 | — |
| | | 60 | | 90 – 120 | 0.34 | 0.11 | |
| | A200 | 50 | 200 | 160 – 220 | 0.18 | 0.08 | |
| | | 60 | | 180 – 240 | 0.17 | 0.05 | |
| DC★ ² | D12 | — | 12 | 10.8 – 13.2 | — | 1.2 | 15 |
| | D24 | — | 24 | 21.6 – 26.4 | | 0.6 | |

★¹ Inrush current in the above table shows rms values at maximum stroke.

★² The Plug-in Connector Type DC solenoid has a built-in surge absorber. The Flying Lead Wire Type has no surge absorber equipped. Install a surge absorber separately.

Model Number Designation

| F- | DSG | -005 | -3 | C | 2 | -D24 | -N | -40 | * |
|--|---|------------|--------------------------|--------------------------|------------|------------------------------------|--|---------------|-----------------------|
| Special Seals | Series Number | Valve Size | Number of Valve Position | Spool-Spring Arrangement | Spool Type | Coil Type | Electrical Conduit Connection | Design Number | Design Standard |
| F: Special Seals for Phosphate Ester Type Fluids (Omit if not required) | DSG: Solenoid Operated Directional Valve | 005 | 3 | C: Spring Centred | 2, 3 40 | AC A100, A200 DC D12, D24 | None: Flying Lead Wire Type N: Plug-in Connector Type N1: Plug-in Connector with Indicator Light | 40 | Refer to [★] |
| | | | 2 | B: Spring Offset | 2, 3 | | | | |

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

Sub-plates

| Piping Size | Japanese Standard "JIS" | | European Design Standard | | N. American Design Standard | | Approx. Mass kg (lbs.) |
|-------------|-------------------------|-------------|--------------------------|-------------|-----------------------------|-------------|------------------------|
| | Sub-plate Model Numbers | Thread Size | Sub-plate Model Numbers | Thread Size | Sub-plate Model Numbers | Thread Size | |
| 1/8 | DSGM-005X-20 | Rc 1/8 | DSGM-005X-2080 | 1/8 BSP.F | DSGM-005X-2090 | 1/8 NPT | 0.8 (1.8) |
| 1/4 | DSGM-005Y-20 | Rc 1/4 | DSGM-005Y-2080 | 1/4 BSP.F | DSGM-005Y-2090 | 1/4 NPT | 0.8 (1.8) |

● 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.

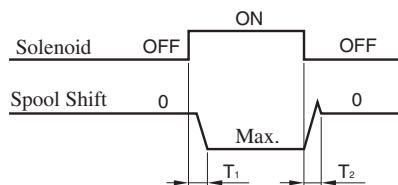
Mounting Bolts

Four socket head cap screws in the table below are included.

| Descriptions | Soc. Hd. Cap Screw (4 Pcs.) | Tightening Torque |
|---|-----------------------------|-------------------------------------|
| Japanese Standard "JIS" European Design Standard | M4 × 35 Lg. | 2.5 - 3.5 Nm (22.1 - 31.0 in. lbs.) |
| N. American Design Standard | No. 8-32 UNC × 1-3/8 Lg. | |

Typical Changeover Time (Example)

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



[Test Conditions]

Pressure: 16 MPa (2320 PSI)

Flow Rate: 7.5 L/min (1.98 U.S.GPM)

Viscosity: 30 mm²/s (141 SSU)

Voltage: Rated Voltage (After coil temperature rises and saturated)

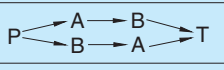
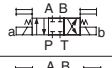


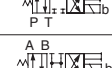
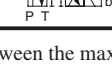
Direction of Flow: P → A → B → T
P → B → A → T

[Result of Measurement]

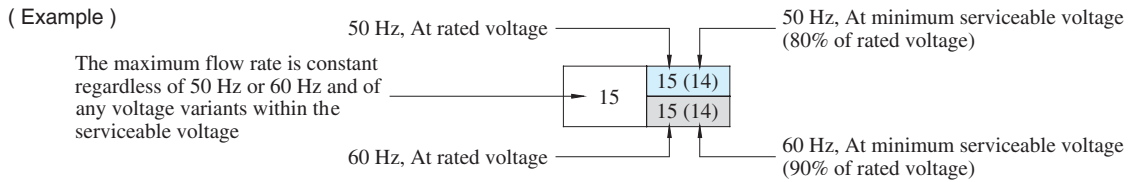
| Model Numbers | Time ms | |
|----------------|----------------|----------------|
| | T ₁ | T ₂ |
| DSG-005-3C2-A* | 16 | 60 |
| DSG-005-3C2-D* | 23 | 40 |
| DSG-005-2B2-A* | 14 | 45 |
| DSG-005-2B2-D* | 15 | 33 |

■ List of Standard Models and The Maximum Flow

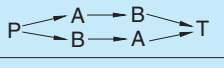
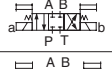


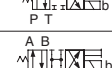
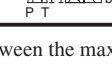
● Models with AC Solenoids : DSG-005-*** -A* -40/4090

| No. of Valve Position | Spool-Spring Arrangement | Model Numbers | Graphic Symbols | Max. Flow L/min | | | | | | | | | | | |
|-----------------------|--------------------------|---------------|---|---|------|------|------|--------------------------|-------|-------|--------|--------------------------|--------|--------|--------|
| | | | |  | | | | P → A [Port "B" Blocked] | | | | P → B [Port "A" Blocked] | | | |
| | | | | Working Pressure MPa | | | | Working Pressure MPa | | | | Working Pressure MPa | | | |
| | | | | 5 | 10 | 16 | 25 | 5 | 10 | 16 | 25 | 5 | 10 | 16 | 25 |
| Three Positions | Spring Centred | DSG-005-3C2 |  | 15 | 15 | 15 | 15 | 15(14) | 15(7) | 12(3) | 4(0.5) | 15(14) | 15(7) | 12(3) | 4(0.5) |
| | | | | | | | | 15(12) | 12(3) | 5(1) | 1(0.5) | 15(12) | 12(3) | 5(1) | 1(0.5) |
| | | DSG-005-3C3 |  | 12 | 12 | 12 | 12 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Three Positions | Spring Centred | DSG-005-3C40 |  | 15 | 15 | 15 | 15 | 15(14) | 15(6) | 12(2) | 4(0.5) | 15(14) | 15(6) | 12(2) | 4(0.5) |
| | | | | | | | | 15(10) | 12(5) | 5(2) | 1(0.5) | 15(10) | 12(5) | 5(2) | 1(0.5) |
| | | DSG-005-2B2 |  | 14 | 14 | 14 | 14 | 2 | 1 | 1 | 1 | 15(14) | 15(10) | 13(5) | 6(0.5) |
| Two Positions | Spring Offset | DSG-005-2B3 |  | 13.5 | 13.5 | 13.5 | 13.5 | 3 | 3 | 3 | 3 | 15 | 15(14) | 15(11) | 15(9) |
| | | | | | | | | | | | | | 15(14) | 15(11) | 15(9) |

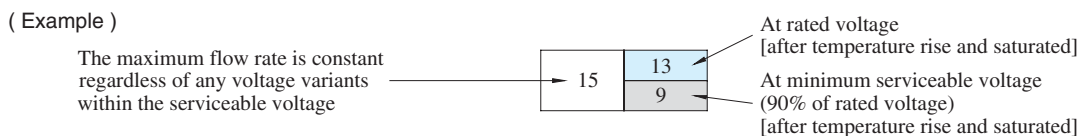
Notes: 1. The relation between the maximum flow in the table above and the frequency/voltage (within the serviceable voltage) is as shown below.



● Models with DC Solenoids : DSG-005-*** -D* -40/4090

| No. of Valve Position | Spool-Spring Arrangement | Model Numbers | Graphic Symbols | Max. Flow L/min | | | | | | | | | | | |
|-----------------------|--------------------------|---------------|---|---|------|------|------|--------------------------|-----|-----|-----|--------------------------|-----|-----|------|
| | | | |  | | | | P → A [Port "B" Blocked] | | | | P → B [Port "A" Blocked] | | | |
| | | | | Working Pressure MPa | | | | Working Pressure MPa | | | | Working Pressure MPa | | | |
| | | | | 5 | 10 | 16 | 25 | 5 | 10 | 16 | 25 | 5 | 10 | 16 | 25 |
| Three Positions | Spring Centred | DSG-005-3C2 |  | 15 | 15 | 15 | 15 | 15 | 8 | 5 | 3 | 15 | 8 | 5 | 3 |
| | | | | | | | | 12 | 5 | 3 | 2 | 12 | 5 | 3 | 2 |
| | | DSG-005-3C3 |  | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Three Positions | Spring Centred | DSG-005-3C40 |  | 15 | 15 | 15 | 15 | 15 | 13 | 8 | 5 | 15 | 13 | 8 | 5 |
| | | | | | | | | 9 | 5.5 | 3.5 | 3.5 | 9 | 5.5 | 3.5 | 3.5 |
| | | DSG-005-2B2 |  | 14 | 14 | 14 | 14 | 8.5 | 4.5 | 6.5 | 6.5 | 15 | 15 | 11 | 9 |
| Two Positions | Spring Offset | DSG-005-2B3 |  | 13.5 | 13.5 | 13.5 | 13.5 | 8 | 7 | 8 | 9 | 15 | 15 | 15 | 13.5 |
| | | | | | | | | | | | | | | | 10.5 |

Notes: 1. The relation between the maximum flow in the table above and the voltage (within the serviceable voltage) is as shown below.

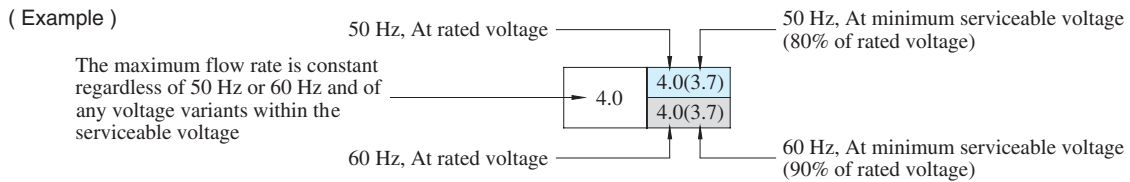


■ List of Standard Models and The Maximum Flow

● Models with AC Solenoids : DSG-005-***-A*-40/4090

| No. of Valve Position | Spool-Spring Arrangement | Model Numbers | Graphic Symbols | Max. Flow U.S.GPM | | | | | | | | | | | |
|-----------------------|--------------------------|---------------|-----------------|----------------------|------|------|------|----------------------|----------|---------|---------|----------------------|----------|----------|----------|
| | | | | | | | | | | | | | | | |
| | | | | Working Pressure PSI | | | | Working Pressure PSI | | | | Working Pressure PSI | | | |
| | | | | 730 | 1450 | 2320 | 3630 | 730 | 1450 | 2320 | 3630 | 730 | 1450 | 2320 | 3630 |
| Three Positions | Spring Centred | DSG-005-3C2 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0(3.7) | 4.0(1.9) | 3.2(.8) | 1.1(.1) | 4.0(3.7) | 4.0(1.9) | 3.2(.8) | 1.1(.1) |
| | | DSG-005-3C3 | | 3.2 | 3.2 | 3.2 | 3.2 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| | | DSG-005-3C40 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0(3.7) | 4.0(1.6) | 3.2(.5) | 1.1(.1) | 4.0(3.7) | 4.0(1.6) | 3.2(.5) | 1.1(.1) |
| Two Positions | Spring Offset | DSG-005-2B2 | | 3.7 | 3.7 | 3.7 | 3.7 | .5 | .3 | .3 | .3 | 4.0(3.7) | 4.0(2.6) | 3.4(1.3) | 1.6(.1) |
| | | DSG-005-2B3 | | 3.6 | 3.6 | 3.6 | 3.6 | .8 | .8 | .8 | .8 | 4.0 | 4.0(3.7) | 4.0(2.9) | 4.0(2.4) |

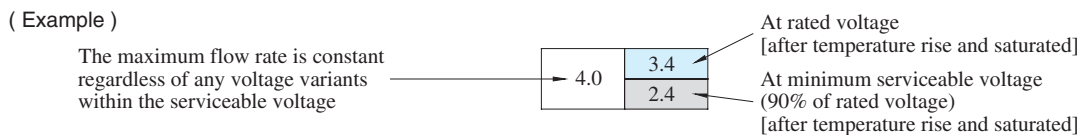
Notes: 1. The relation between the maximum flow in the table above and the frequency/voltage (within the serviceable voltage) is as shown below.



● Models with DC Solenoids : DSG-005-***-D*-40/4090

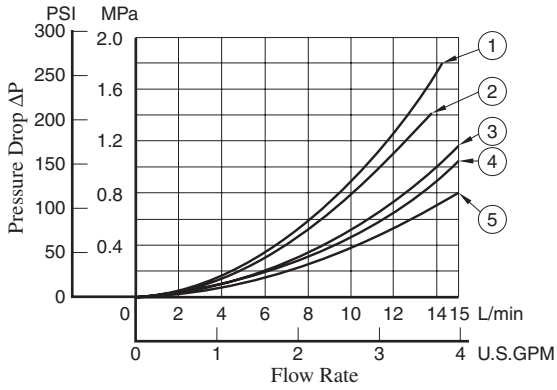
| No. of Valve Position | Spool-Spring Arrangement | Model Numbers | Graphic Symbols | Max. Flow U.S.GPM | | | | | | | | | | | |
|-----------------------|--------------------------|---------------|-----------------|----------------------|------|------|------|----------------------|------|------|------|----------------------|------|------|------|
| | | | | | | | | | | | | | | | |
| | | | | Working Pressure PSI | | | | Working Pressure PSI | | | | Working Pressure PSI | | | |
| | | | | 730 | 1450 | 2320 | 3630 | 730 | 1450 | 2320 | 3630 | 730 | 1450 | 2320 | 3630 |
| Three Positions | Spring Centred | DSG-005-3C2 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 2.1 | 1.3 | .8 | 4.0 | 2.1 | 1.3 | .8 |
| | | DSG-005-3C3 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| | | DSG-005-3C40 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.4 | 2.1 | 1.3 | 4.0 | 3.4 | 2.1 | 1.3 |
| Two Positions | Spring Offset | DSG-005-2B2 | | 3.7 | 3.7 | 3.7 | 3.7 | 2.3 | 1.2 | 1.7 | 1.7 | 4.0 | 4.0 | 2.9 | 2.4 |
| | | DSG-005-2B3 | | 3.6 | 3.6 | 3.6 | 3.6 | 2.1 | 1.9 | 2.1 | 2.4 | 4.0 | 4.0 | 4.0 | 3.6 |

Notes: 1. The relation between the maximum flow in the table above and the voltage (within the serviceable voltage) is as shown below.



Pressure Drop

Pressure drop curves based on viscosity of 30 mm²/s (141 SSU) and specific gravity of 0.850.



| Model Numbers | Pressure Drop Curve Numbers | | | | |
|---------------|-----------------------------|-------|-------|-------|-------|
| | P → A | B → T | P → B | A → T | P → T |
| DSG-005-3C2 | ④ | ④ | ④ | ④ | — |
| DSG-005-3C3 | ⑤ | ⑤ | ⑤ | ⑤ | ③ |
| DSG-005-3C40 | ④ | ④ | ④ | ④ | — |
| DSG-005-2B2 | ① | ① | ④ | ④ | — |
| DSG-005-2B3 | ② | ② | ④ | ④ | — |

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

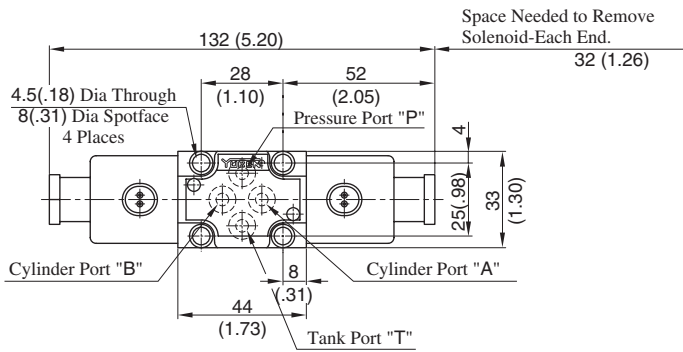
| Viscosity | mm ² /s | 15 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
|-----------|--------------------|------|------|------|------|------|------|------|------|------|------|
| | SSU | 77 | 98 | 141 | 186 | 232 | 278 | 324 | 371 | 417 | 464 |
| Factor | | 0.84 | 0.91 | 1.00 | 1.07 | 1.14 | 1.19 | 1.24 | 1.28 | 1.32 | 1.35 |

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

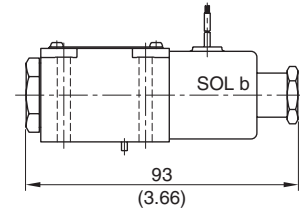
$$\Delta P' = \Delta P (G'/0.850)$$

Flying Lead Wire Type

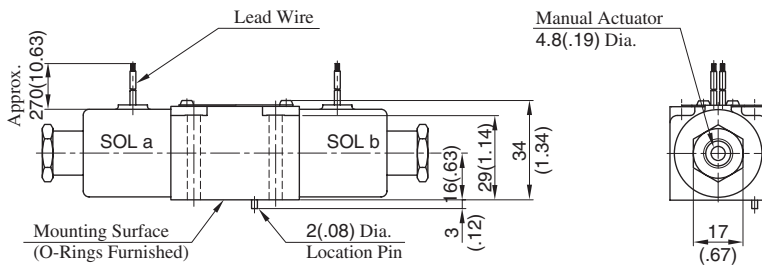
- Spring Centred: DSG-005-3C* - $\frac{A^*}{D^*}$ -40/4090



- Spring Offset: DSG-005-2B* - $\frac{A^*}{D^*}$ -40/4090



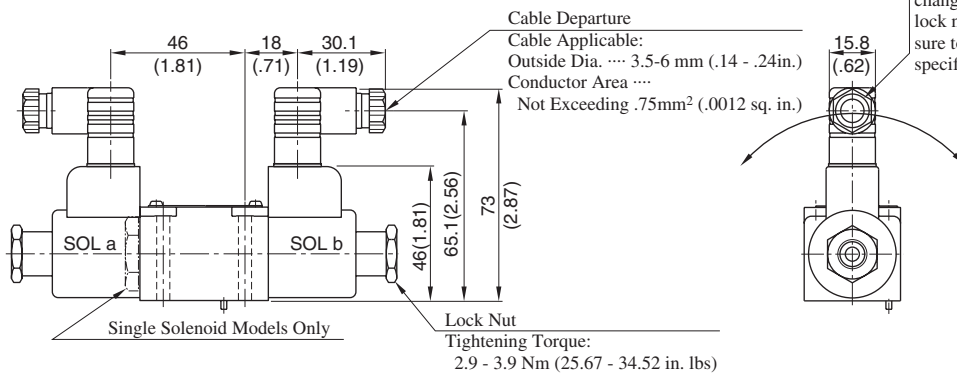
- For other dimensions, refer to "Spring Centred" type.



DIMENSIONS IN
MILLIMETRES (INCHES)

DIN Connector Type / DIN Connector with Indicator Light

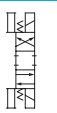
- Spring Centred: DSG-005-3C* - $\frac{A^*}{D^*}$ -N/N1-40/4090
- Spring Offset: DSG-005-2B* - $\frac{A^*}{D^*}$ -N/N1-40/4090



The position of the Plug-in connector can be changed as illustrated below by loosening the lock nut. After completion of the change, be sure to tighten the lock nut with the torque as specified below.

- For other dimensions, refer to "Flying Lead Wire Type".

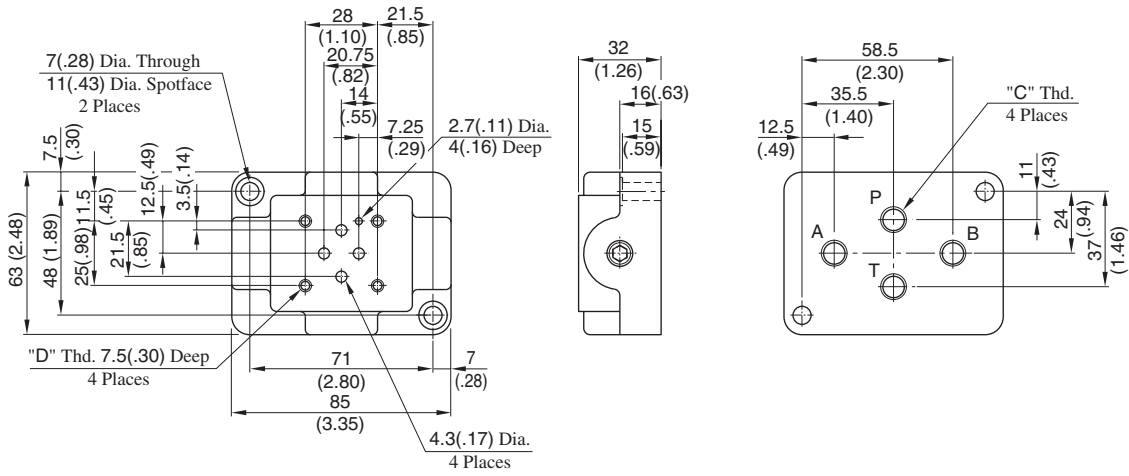
E



DSG-005 Series Solenoid Operated Directional Valves

■ Sub-plates: DSGM-005* -20/2080/2090

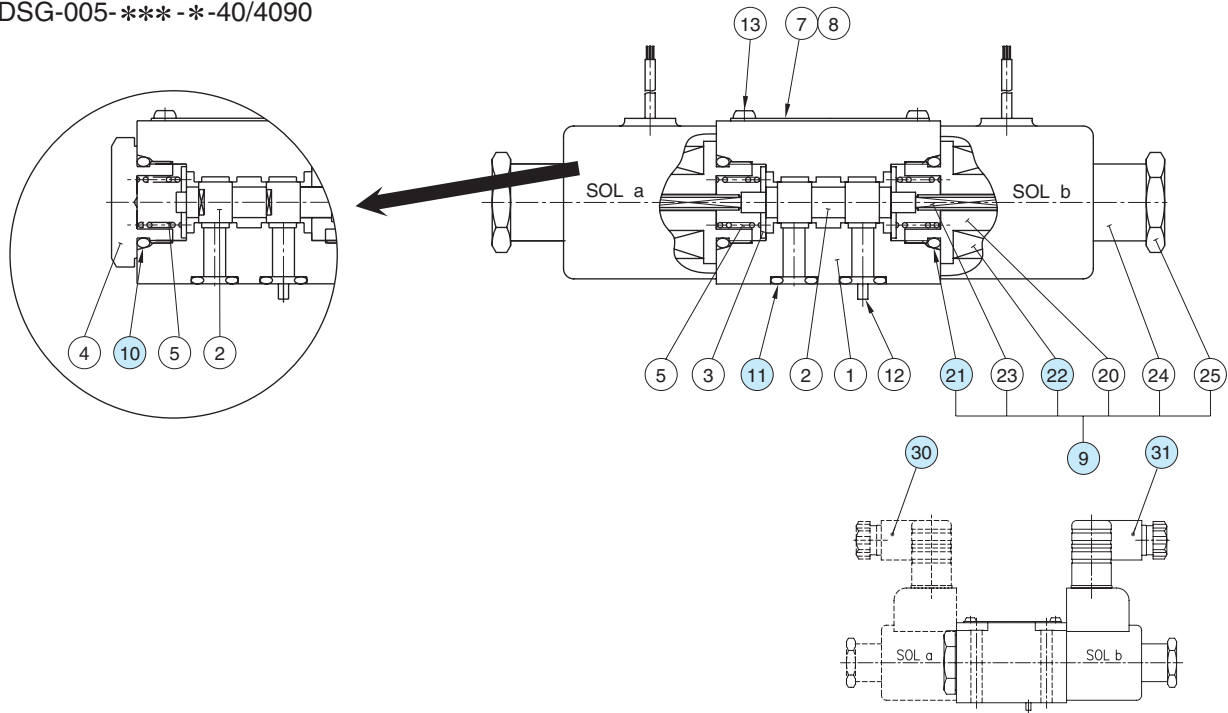
DIMENSIONS IN
MILLIMETRES (INCHES)



| Sub-plate Model Numbers | Piping Size "C" Thd. | "D" Thd. |
|-------------------------|----------------------|--------------|
| DSGM-005X-20 | Rc 1/8 | M4 |
| DSGM-005X-2080 | 1/8 BSP. F | |
| DSGM-005X-2090 | 1/8 NPT | No. 8-32 UNC |
| DSGM-005Y-20 | Rc 1/4 | M4 |
| DSGM-005Y-2080 | 1/4 BSP. F | |
| DSGM-005Y-2090 | 1/4 NPT | No. 8-32 UNC |

■ List of Seals, Solenoid Ass'y, Coil and Connector Ass'y

DSG-005-***-*-40/4090



● List of Seals

| Item | Name of Parts | Part Numbers | Qty. | | Remarks |
|------|---------------|--------------|------|-----|----------------------------|
| | | | 3C* | 2B* | |
| 10 | O-Ring | SO-NB-P14 | — | 1 | |
| 11 | O-Ring | SO-NB-P6 | 4 | 4 | |
| 21 | O-Ring | SO-NB-P14 | 2 | 1 | Included in Solenoid Ass'y |

Note: When ordering seals, please specify the seal kit number "KS-DSG-005-40".

■ Solenoid Ass'y, Coil and Connector Ass'y No.

| Valve Model Number | ⑨ Solenoid Ass'y No. | ⑫ Coil No. | ⑳ Connector Ass'y Part No. | ㉑ Connector Ass'y Part No. | Remarks |
|---------------------|----------------------|-----------------|----------------------------|----------------------------|--|
| DSG-005-***-A100 | SA05-100-40 | C-SA05-100-40 | — | — | Flying Lead Wire Type |
| DSG-005-***-A200 | SA05-200-40 | C-SA05-200-40 | | | |
| DSG-005-***-D12 | SD05-12-40 | C-SD05-12-40 | | | |
| DSG-005-***-D24 | SD-05-24-40 | C-SD-05-24-40 | TK290058-7 | TK290058-7 | Plug-in Connector Type |
| DSG-005-***-A100-N | SA05-100-N-40 | C-SA05-100-N-40 | | | |
| DSG-005-***-A200-N | SA05-200-N-40 | C-SA05-200-N-40 | | | |
| DSG-005-***-D12-N | SD05-12-N-40 | C-SD05-12-N-40 | | | |
| DSG-005-***-D24-N | SD-05-24-N-40 | C-SD-05-24-N-40 | TK290378-9 | TK290378-9 | Plug-in Connector with Indicator Light |
| DSG-005-***-A100-N1 | SA05-100-N-40 | C-SA05-100-N-40 | | | |
| DSG-005-***-A200-N1 | SA05-200-N-40 | C-SA05-200-N-40 | | | |
| DSG-005-***-D12-N1 | SD05-12-N-40 | C-SD05-12-N-40 | | | |
| DSG-005-***-D24-N1 | SD-05-24-N-40 | C-SD-05-24-N-40 | TK290089-2 | TK290089-2 | |
| DSG-005-***-D24-N1 | SD-05-24-N-40 | C-SD-05-24-N-40 | TK290090-0 | TK290090-0 | |

1/8 Solenoid Operated Directional Valves, DSG-01 Series

These are Solenoid Operated Directional Valves of high pressure, high flow and low pressure drop, the features of which can be materialized by employing a powerful wet type solenoid and the rational flow channel design.

High Pressure & High Flow Rate

In comparison to our existing lines, both the pressure and flow of these valves are much increased.

- Max. Operating Pressure: approx. 10 % increased [31.5→35 MPa (4570 →5080 PSI)]
- Max. T-Line Back Pressure: approx. 30 % increased [16→21 MPa (2320 →3050 PSI)]
- Max. Flow Rate: approx. 60 % increased [63→100 L/min (16.64 →26.42 U.S.GPM)]

Low Pressure Drop

The pressure drop of these valves is reduced by 10 % from 1.0 to 0.9 MPa (145 to 131 PSI), in comparison to our existing lines*; the valves effectively reduce the energy consumption of the unit.

{* At Flow Rate: 60 L/min (15.9 U.S.GPM), Spool Type: 3C2 (P→A)}

Compact & Small Mass

Despite of high pressure, high flow and low pressure drop, these valve bodies are compact and lightweight with DC double solenoids; the overall length and mass are reduced from 210 to 205 mm (8.26 to 8.07 inch) and from 2.2 to 1.85 kg (4.85 to 4.08 lbs), respectively.

Shockless type available

In addition to the standard valves for high pressure and high flow, a shockless type capable of minimizing noise and vibration in piping during spool changeover is also available.

Stable Operation

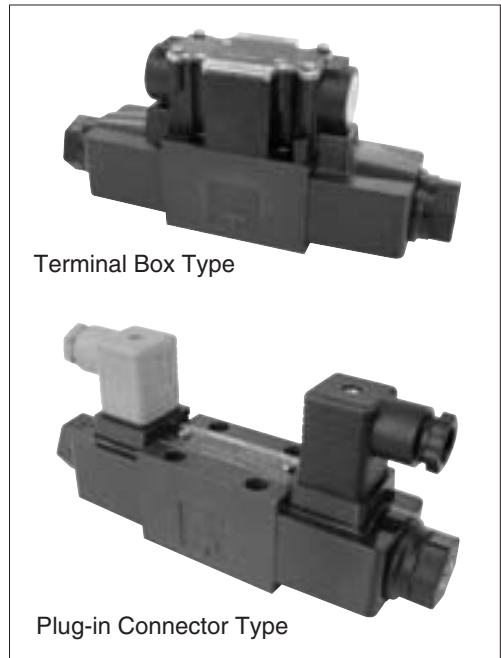
Due to the powerful magnetic and spring force of the solenoids, these valves exhibit a high tolerance to contaminants and especially stable operation.

IP65-equivalent high dust- and water-proof

These valves demonstrate excellent dust- and water-proof characteristics, in compliance with I. E. C. Pub. 529. IP65 and JIS C 0920 IP65 (dust- and jet-proof type).

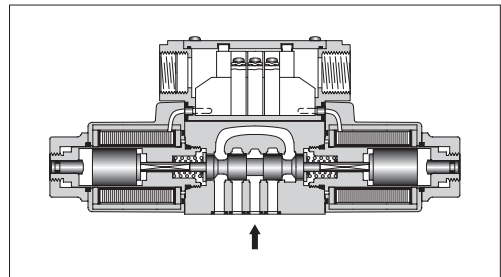
Usable in products of various standards

These standard valves are CE certified for installation in equipment overseas. UL/CSA certified products are also available.



Terminal Box Type

Plug-in Connector Type



Specifications

| Valve Type | Model Numbers | Max. Flow ^{★2} L/min (U.S.GPM) | Max. Operating Pressure MPa (PSI) | Max. T-Line Back Pressure MPa (PSI) | Max. Changeover Frequency Cycle/min {min ⁻¹ } | Mass kg (lbs.) |
|-------------------------------------|------------------------|---|--------------------------------------|--|---|----------------------|
| Standard Type | DSG-01-3C*-70/7090 | 100 (26.4) | 35 (5080) | 21 (3050) | 300 (R Type Sol. Only) 120 | 1.85 (4.08) |
| | DSG-01-2D2*-70/7090 | | | | | 1.4(3.09) |
| | DSG-01-2B*-70/7090 | | | | | 1.4(3.09) |
| Shockless Type | S-DSG-01-3C*-70/7090 | 63 (16.6) | 25 (3630) | 21 (3050) | 120 | 1.85(4.08) |
| | S-DSG-01-2B2*-70/7090 | | | | | 1.4(3.09) |
| Low Wattage(14W) Type ^{★1} | L-DSG-01-3C*-70/7090 | 40 (10.6) | 16 (2320) | 16 (2320) | 300 (R Type Sol. Only) 120 | 1.85 (4.08) |
| | L-DSG-01-2D2*-70/7090 | | | | | 1.4(3.09) |
| | L-DSG-01-2N*-70/7090 | | | | | |
| | L-DSG-01-2B***-70/7090 | | | | | |

★ 1. For details of L-DSG-01, please contact us.

★ 2. Maximum flow indicates a ceiling flow depends on the type of spool and operating condition, refer to the List of Spool Functions on pages 347 to 351 for details.

Sub-plate

| Piping Size | Japanese Standard "JIS " | | European Design Standard | | N.American Design Standard | | Approx. Mass kg (lbs.) |
|-------------|--------------------------|-------------|--------------------------|-------------|----------------------------|-------------|------------------------|
| | Sub-plate Model Numbers | Thread Size | Sub-plate Model Numbers | Thread Size | Sub-plate Model Numbers | Thread Size | |
| 1/8 | DSGM-01-31 | Rc 1/8 | DSGM-01-3180 | 1/8 BSP.F | DSGM-01-3190 | 1/8 NPT | 0.8 (1.8) |
| 1/4 | DSGM-01X-31 | Rc 1/4 | DSGM-01X-3180 | 1/4 BSP.F | DSGM-01X-3190 | 1/4 NPT | 0.8 (1.8) |
| 3/8 | DSGM-01Y-31 | Rc 3/8 | — | — | DSGM-01Y-3190 | 3/8 NPT | 0.8 (1.8) |

- 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

For socket head cap screws in the table below are included.

| Descriptions | Soc. Hd. Cap Screw (4 pcs.) | Tightening Torque |
|---|-----------------------------|---|
| Japanese Standard "JIS" European Design Standard | M5 × 45 Lg. | 5 - 7 Nm (43 - 60 in. lbs.) Applicable to working pressure more than 25 MPa (3630 PSI): 6 - 7 Nm (52 - 60 in. lbs.) |
| N. American Design Standard | No. 10-24 UNC × 1-3/4 Lg. | |

Solenoid Ratings

| Valve Type | Electric source | Coil Type | Frequency (Hz) | Voltage (V) | | Current & Power at Rated Voltage | | | | |
|-----------------------|------------------|-----------|----------------|---------------|-------------------|----------------------------------|-------------|-----------|-------------|------|
| | | | | Source Rating | Serviceable Range | Inrush (A) ^{*2} | Holding (A) | Power (W) | | |
| Standard Type | AC ^{*1} | A100 | 50 | 100 | 80 - 110 | 2.42 | 0.51 | — | | |
| | | | | 100 | 90 - 120 | 2.14 | 0.37 | | | |
| | | | 60 | 110 | — | 2.35 | 0.44 | | | |
| | | | | A120 | 50 | 120 | 96 - 132 | | 2.02 | 0.42 |
| | | | 60 | | 120 | 108 - 144 | 1.78 | | 0.31 | |
| | | | | A200 | 50 | 200 | 160 - 220 | | 1.21 | 0.25 |
| | | 200 | 180 - 240 | | | 1.07 | 0.19 | | | |
| | | 60 | 220 | | — | 1.18 | 0.22 | | | |
| | | | A240 | | 50 | 240 | 192 - 264 | | 1.01 | 0.21 |
| | | 60 | | | 240 | 216 - 288 | 0.89 | | 0.15 | |
| | | | Shockless Type | | DC (K Series) | — | D12 | | 10.8 - 13.2 | — |
| | | D24 | | 21.6 - 26.4 | | | — | | 1.23 | |
| D48 | 43.2 - 52.8 | — | | 0.61 | | | | | | |
| AC → DC Rectified (R) | 50/60 | R100 | | 100 | 90 - 110 | — | 0.33 | 29 | | |
| | | R200 | | 200 | 180 - 220 | — | 0.16 | | | |
| | | | | — | — | — | — | | — | |

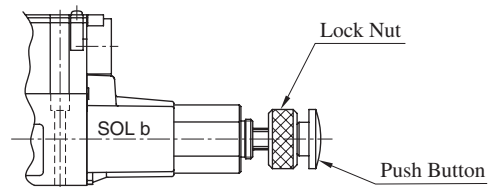
- ★1. AC solenoid is not available in shockless type. R type models with built-in current rectifier is recommended for shockless operation with AC power.
- ★2. Inrush current in the above table show rms values at maximum stroke.
- ★3. There are more coil types other than the above. For details, please make inquiries.

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.

Options

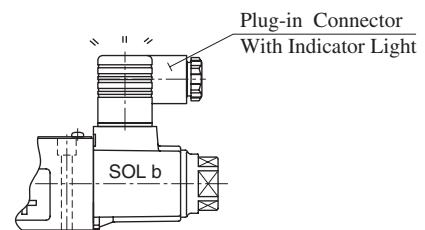
Push Button with Lock Nut

Can be used for manual changeover of spool. The push button can be locked in the pressed condition.



Plug-in Connector with Solenoid Indicator Light

These are the indicator light incorporated plug-in connector type solenoids. Energisation or de-energisation of the solenoid can be easily identified with the incorporated indicator light.



Model Number Designation

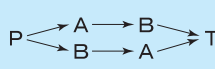
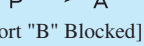
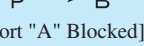





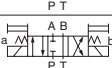
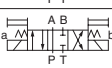



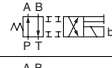


| F- | S- | DSG | -01 | -2 | B | 2 | A | -D24 | -C | -N | -70 | * | -L | |
|--|-------------------------------|--|------------|------------------------------|---------------------------------|--|--|--|---------------------------------------|---|---------------|-------------------------------------|--|--|
| Special Seals | Shockless Type | Series Number | Valve Size | Number of Valve Positions | Spool-Spring Arrangement | Spool Type | Special Two Position Valve (Omit if not required) | Coil Type | Manual Override | Electrical Conduit Connection | Design Number | Design Standard | Models with Reverse Mtg. of Solenoid (Omit if not required) | |
| F: For Phosphate Ester Type Fluids (Omit if not required) | None: Standard Type | DSG: Solenoid Operated Directional Valve | 01 | 3: Three Positions | C: Spring Centred | 2, 3 4, 40 60, 9 10, 11 12 | — | AC: A100 A120 A200 A240 | None: Manual Override Pin | None: Terminal Box Type | 70 | None: Japanese Std. "JIS" | 90: N.American Design Std. | — |
| | | | | 2: Two Positions | D: No-Spring Detented | 2 | — | DC: D12 D24 D48 | | | | | | C: Push Button and Lock Nut (Option) |
| | 3: Three Positions | | | C: Spring Centred | 2 4 | — | DC: D12 D24 D48 | N1: Plug-in Connector Type with Indicator Light (Option) | 90: N. American Design Std. | — | | | | |
| | 2: Two Positions | | | B: Spring Offset | 2 | — | R: (AC→DC) R100 R200 | | | R: (AC→DC) R100 R200 | | L | | |

★1. In case of the special two position valve, please refer to page 352 for details.
 ★2. N1 is not available for R type solenoids.

In the table above, the symbols or 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.

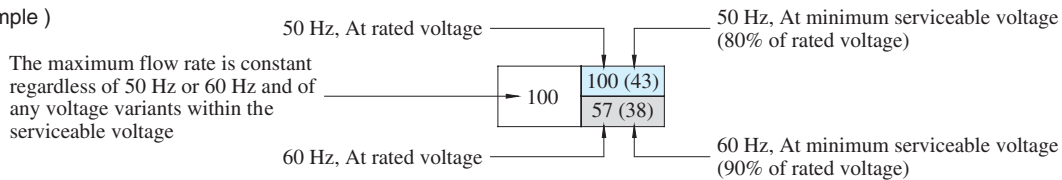
■ List of Standard Models and The Maximum Flow

● Models with AC Solenoids: DSG-01-***-A*

| No. of Valve Positions | Spool-Spring Arrangement | Model Numbers | Graphic Symbols | Max. Flow L/min | | | | | | | | | | | | | | |
|------------------------|--------------------------|---------------|---|---|-------------------|-------------------|-------------------|-------------------|--|-------------------|-------------------|------------------|------------------|---|-------------------|-------------------|------------------|------------------|
| | | | |  | | | | |  | | | | |  | | | | |
| | | | | Working Pressure MPa | | | | | Working Pressure MPa | | | | | Working Pressure MPa | | | | |
| | | | | 10 | 16 | 25 | 31.5 | 35 | 10 | 16 | 25 | 31.5 | 35 | 10 | 16 | 25 | 31.5 | 35 |
| Three Positions | Spring Centred | DSG-01-3C2 |  | 100 | 100 | 100 | 100 | 100 | 100(43) 57(38) | 100(41) 53(31) | 80(21) 29(17) | 60(17) 19(10) | 38(15) 13(9) | 100(43) 57(38) | 100(41) 53(31) | 80(21) 29(17) | 60(17) 19(10) | 38(15) 13(9) |
| | | DSG-01-3C3 |  | 100(80) 90(63) | 100(80) 90(63) | 100(80) 90(63) | 100(77) 90(63) | 100(77) 90(63) | 70(46) 45(30) | 70(46) 45(30) | 70(46) 45(30) | 70(46) 45(30) | 70(46) 45(30) | 70(46) 45(30) | 70(46) 45(30) | 70(46) 45(30) | 70(46) 45(30) | 70(46) 45(30) |
| | | DSG-01-3C4 |  | 90 | 90 | 90 | 90(22) 43(14) | 35(18) 30(11) | 100(38) 50(31) | 76(28) 38(20) | 67(15) 20(10) | 57(10) 16(7) | 35(7) 12(5) | 100(38) 50(31) | 76(28) 38(20) | 67(15) 20(10) | 57(10) 16(7) | 35(7) 12(5) |
| | | DSG-01-3C40 |  | 85 | 85 | 85 | 80(40) 63(15) | 80(22) 25(10) | 85(40) 70(26) | 85(35) 50(24) | 85(24) 32(16) | 60(16) 22(13) | 55(12) 18(10) | 85(40) 70(26) | 85(35) 50(24) | 85(24) 32(16) | 60(16) 22(13) | 55(12) 18(10) |
| | | DSG-01-3C60★ |  | 43(23) 40(23) | 43(23) 40(23) | 42(23) 38(23) | 42(23) 36(23) | 42(23) 35(23) | 54(32) 48(30) | 54(32) 47(30) | 52(32) 47(30) | 52(32) 47(30) | 52(32) 47(30) | 54(32) 48(30) | 54(32) 47(30) | 52(32) 47(30) | 52(32) 47(30) | 52(32) 47(30) |
| | | DSG-01-3C9 |  | 100 | 100 | 100 | 100 | 100 | 20 | 15 | 10 | 10 | 8 | 20 | 15 | 10 | 10 | 8 |
| | | DSG-01-3C10◆ |  | 100 | 100 | 100(63) 80(20) | 100(33) 70(20) | 100(27) 40(19) | 100(50) 100(37) | 100(37) 55(25) | 100(20) 29(14) | 78(16) 20(11) | 62(13) 15(10) | 100(50) 100(37) | 100(37) 55(25) | 100(20) 29(14) | 78(16) 20(11) | 62(13) 15(10) |
| | | DSG-01-3C11◆ |  | 100 | 100 | 100 | 100 | 100 | 23 | 20 | 13 | 10 | 5 | 100(65) 70(50) | 85(52) 57(40) | 72(45) 50(25) | 65(34) 43(19) | 60(27) 35(18) |
| | | DSG-01-3C12◆ |  | 100 | 100 | 100(63) 80(20) | 100(33) 70(20) | 100(27) 40(19) | 100(50) 100(37) | 100(37) 55(25) | 100(20) 29(14) | 78(16) 20(11) | 62(13) 15(10) | 100(50) 100(37) | 100(37) 55(25) | 100(20) 29(14) | 78(16) 20(11) | 62(13) 15(10) |
| Two Positions | No-Spring Detented | DSG-01-2D2 |  | 80 | 80 | 80 | 80 | 80 | 45 | 45 | 45(21) 36(18) | 45(16) 28(13) | 38(13) 22(12) | 50 | 50(45) 50(45) | 50(42) 50(42) | 45(40) 45(40) | 45(40) 45(40) |
| | | DSG-01-2B2 |  | 85 | 85 | 85 | 85 | 85 | 20 | 16 | 16 | 15 | 13 | 85(63) 85(30) | 80(50) 60(33) | 63(40) 50(28) | 44(32) 40(28) | 44(32) 40(28) |
| | Spring Offset | DSG-01-2B3 |  | 70 | 70 | 70 | 70 | 70 | 50 | 50 | 50 | 50 | 50 | 80(70) 70(48) | 80(70) 70(48) | 80(70) 70(48) | 80(70) 70(48) | 80(70) 70(48) |
| | | DSG-01-2B8 |  | — | — | — | — | — | 26 | 17 | 13 | 11 | 10 | 80(50) 35(20) | 70(40) 23(15) | 60(20) 15(8) | 45(10) 10(5) | 30(10) 7(5) |

Notes: 1. The relation between the maximum flow in the table above and the frequency/voltage (within the serviceable voltage) is as shown below.

(Example)



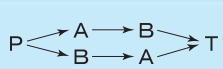
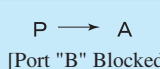
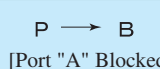
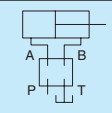
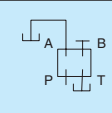
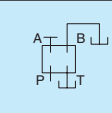







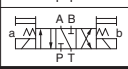




2. For the maximum flow rate in P → T of the valves with a ★ mark, please see [page 351](#).

The valve models with a ◆ mark are handled as Options. If you choose such valves, check the time of delivery beforehand.

DSG-01 Series Solenoid Operated Directional Valves

■ List of Standard Models and The Maximum Flow

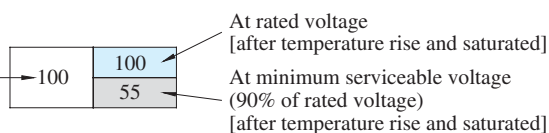
● Models with DC or R Type Solenoids: DSG-01-***-D*/R*

| No. of Valve Positions | Spool-Spring Arrangement | Model Numbers | Graphic Symbols | Max. Flow L/mi | | | | | | | | | | | | | | |
|------------------------|--------------------------|---|---|---|-----|-----|------|-----|--|----|----|------|----|---|----|----|------|----|
| | | | |  | | | | |  [Port "B" Blocked] | | | | |  [Port "A" Blocked] | | | | |
| | | | |  | | | | |  | | | | |  | | | | |
| | | | | Working Pressure MPa | | | | | Working Pressure MPa | | | | | Working Pressure MPa | | | | |
| | | | | 10 | 16 | 25 | 31.5 | 35 | 10 | 16 | 25 | 31.5 | 35 | 10 | 16 | 25 | 31.5 | 35 |
| Three Positions | Spring Centred | DSG-01-3C2 |  | 100 | 100 | 100 | 100 | 100 | 100 | 45 | 28 | 25 | 22 | 100 | 45 | 28 | 25 | 22 |
| | | DSG-01-3C3 |  | 100 | 100 | 100 | 100 | 100 | 78 | 78 | 78 | 78 | 75 | 78 | 78 | 78 | 78 | 75 |
| | | DSG-01-3C4 |  | 90 | 90 | 90 | 50 | 38 | 100 | 58 | 38 | 31 | 29 | 100 | 58 | 38 | 31 | 29 |
| | | DSG-01-3C40 |  | 85 | 85 | 65 | 40 | 33 | 85 | 52 | 30 | 26 | 24 | 85 | 52 | 30 | 26 | 24 |
| | | DSG-01-3C60 |  | 50 | 50 | 50 | 50 | 50 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |
| | | DSG-01-3C9 |  | 100 | 100 | 100 | 100 | 100 | 20 | 15 | 10 | 10 | 8 | 20 | 15 | 10 | 10 | 8 |
| | | DSG-01-3C10 |  | 85 | 85 | 85 | 80 | 40 | 100 | 56 | 36 | 28 | 24 | 100 | 56 | 36 | 28 | 24 |
| | | DSG-01-3C11 |  | 100 | 100 | 100 | 100 | 100 | 23 | 20 | 13 | 10 | 5 | 100 | 60 | 40 | 36 | 32 |
| | | DSG-01-3C12 |  | 85 | 85 | 85 | 80 | 40 | 100 | 56 | 36 | 28 | 24 | 100 | 56 | 36 | 28 | 24 |
| Two Positions | No-Spring Detented | DSG-01-2D2 |  | 75 | 75 | 75 | 75 | 75 | 45 | 45 | 40 | 30 | 27 | 50 | 50 | 50 | 45 | 45 |
| | | | | 70 | 70 | 70 | 70 | 70 | | | 30 | 25 | 22 | | 45 | 42 | 40 | 40 |
| | Spring Offset | DSG-01-2B2 |  | 80 | 80 | 80 | 80 | 80 | 20 | 16 | 16 | 15 | 13 | 46 | 31 | 24 | 22 | 22 |
| | | | | 70 | 70 | 70 | 70 | 70 | 50 | 50 | 50 | 50 | 50 | 32 | 23 | 19 | 18 | 18 |
| | | | | — | — | — | — | — | 26 | 17 | 13 | 11 | 10 | 75 | 75 | 75 | 75 | 75 |
| | | | | — | — | — | — | — | 26 | 17 | 13 | 11 | 10 | 65 | 65 | 65 | 65 | 65 |
| Spring Offset | DSG-01-2B3 |  | 70 | 70 | 70 | 70 | 70 | 50 | 50 | 50 | 50 | 50 | 53 | 35 | 23 | 19 | 17 | |
| | | | — | — | — | — | — | 26 | 17 | 13 | 11 | 10 | 35 | 30 | 17 | 13 | 12 | |

Notes: 1. The relation between the maximum flow in the table above and the voltage (within the serviceable voltage) is as shown below.

(Example)

The maximum flow rate is constant regardless of any voltage variants within the serviceable voltage

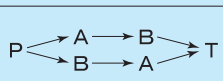
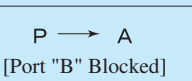
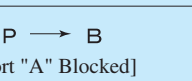








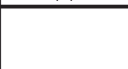
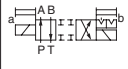

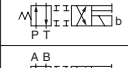

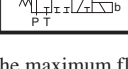


2. For the maximum flow rate in P → T of the valves with a ★ mark, please see page 351.

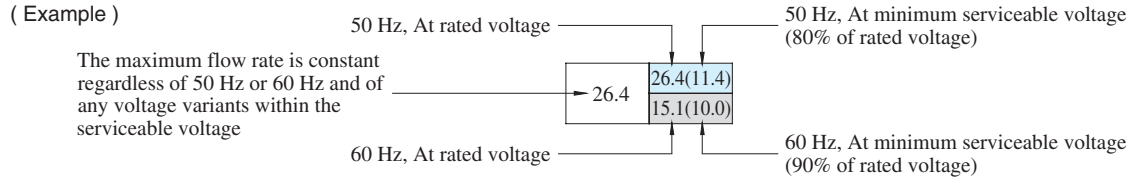
The valve models with a ◆ mark are handled as Options. If you choose suce valves, check the time of delivery beforehand.

■ List of Standard Models and The Maximum Flow

● Models with AC Solenoids: DSG-01-***-A*

| No. of Valve Positions | Spool-Spring Arrangement | Model Numbers | Graphic Symbols | Max. Flow U.S.GPM | | | | | | | | | | | | | | |
|------------------------|--------------------------|---------------|---|---|------------|------------|------------|------------|--|------------|------------|------------|------------|---|------------|------------|------------|------------|
| | | | |  | | | | |  | | | | |  | | | | |
| | | | | Working Pressure PSI | | | | | Working Pressure PSI | | | | | Working Pressure PSI | | | | |
| | | | | 1450 | 2320 | 3630 | 4570 | 5080 | 1450 | 2320 | 3630 | 4570 | 5080 | 1450 | 2320 | 3630 | 4570 | 5080 |
| Three Positions | Spring Centred | DSG-01-3C2 |  | 26.4 | 26.4 | 26.4 | 26.4 | 26.4 | 26.4(11.4) | 26.4(10.8) | 21.1(5.6) | 15.9(4.5) | 10.0(4.0) | 26.4(11.4) | 26.4(10.8) | 21.1(5.6) | 15.9(4.5) | 10.0(4.0) |
| | | DSG-01-3C3 |  | 26.4(21.1) | 26.4(21.1) | 26.4(21.1) | 26.4(21.1) | 26.4(21.1) | 18.5(12.2) | 18.5(12.2) | 18.5(12.2) | 18.5(12.2) | 18.5(12.2) | 18.5(12.2) | 18.5(12.2) | 18.5(12.2) | 18.5(12.2) | 18.5(12.2) |
| | | DSG-01-3C4 |  | 23.8 | 23.8 | 23.8 | 23.8(5.8) | 9.2(4.8) | 23.8(6.9) | 11.4(3.7) | 7.9(2.9) | 13.2(8.2) | 10.0(5.3) | 5.3(2.6) | 4.2(1.9) | 3.2(1.3) | 13.2(8.2) | 10.0(5.3) |
| | | DSG-01-3C40 |  | 22.5 | 22.5 | 22.5 | 21.1(10.6) | 21.1(5.8) | 22.5(10.6) | 22.5(9.3) | 22.5(6.3) | 15.9(4.2) | 14.5(3.2) | 22.5(10.6) | 22.5(9.3) | 22.5(6.3) | 15.9(4.2) | 14.5(3.2) |
| | | DSG-01-3C60 |  | 11.4(6.1) | 11.4(6.1) | 11.1(6.1) | 11.1(6.1) | 11.1(6.1) | 14.2(8.4) | 14.2(8.4) | 13.7(8.4) | 13.7(8.4) | 13.7(8.4) | 14.2(8.4) | 14.2(8.4) | 13.7(8.4) | 13.7(8.4) | 13.7(8.4) |
| | | DSG-01-3C9 |  | 26.4 | 26.4 | 26.4 | 26.4 | 26.4 | 5.3 | 4.0 | 2.6 | 2.6 | 2.1 | 5.3 | 4.0 | 2.6 | 2.6 | 2.1 |
| | | DSG-01-3C10 |  | 26.4 | 26.4 | 26.4(16.6) | 26.4(8.7) | 26.4(7.1) | 26.4(13.2) | 26.4(9.8) | 26.4(5.3) | 20.6(4.2) | 16.4(3.4) | 26.4(13.2) | 26.4(9.8) | 26.4(5.3) | 20.6(4.2) | 16.4(3.4) |
| | | DSG-01-3C11 |  | 26.4 | 26.4 | 26.4 | 26.4 | 26.4 | 6.1 | 5.3 | 3.4 | 2.6 | 1.3 | 26.4(17.2) | 22.5(13.7) | 19.0(13.7) | 17.2(9.0) | 15.9(7.1) |
| | | DSG-01-3C12 |  | 26.4 | 26.4 | 26.4(16.6) | 26.4(8.7) | 26.4(7.1) | 26.4(13.2) | 26.4(9.8) | 26.4(5.3) | 20.6(4.2) | 16.4(3.4) | 26.4(13.2) | 26.4(9.8) | 26.4(5.3) | 20.6(4.2) | 16.4(3.4) |
| Two Positions | No-Spring Detented | DSG-01-2D2 |  | 21.1 | 21.1 | 21.1 | 21.1 | 21.1 | 11.9 | 11.9 | 11.9(5.6) | 11.9(4.2) | 10.0(3.4) | 13.2 | 13.2(11.9) | 13.2(11.1) | 11.9(10.6) | 11.9(10.6) |
| | | DSG-01-2B2 |  | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | 5.3 | 4.2 | 4.2 | 4.0 | 3.4 | 22.5(16.6) | 21.1(13.2) | 16.6(10.6) | 11.6(8.5) | 11.6(8.5) |
| | Spring Offset | DSG-01-2B3 |  | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | 13.2 | 13.2 | 13.2 | 13.2 | 13.2 | 21.1(18.5) | 21.1(18.5) | 21.1(18.5) | 21.1(18.5) | 21.1(18.5) |
| | | DSG-01-2B8 |  | — | — | — | — | — | 6.9 | 4.5 | 3.4 | 2.9 | 2.6 | 21.1(13.2) | 18.5(10.6) | 15.9(5.3) | 11.9(2.6) | 7.9(2.6) |
| | | DSG-01-2B8 |  | — | — | — | — | — | 6.9 | 4.5 | 3.4 | 2.9 | 2.6 | 9.2(5.3) | 6.1(4.0) | 4.0(2.1) | 2.6(1.3) | 1.9(1.3) |

Notes: 1. The relation between the maximum flow in the table above and the frequency/voltage (within the serviceable voltage) is as shown below.



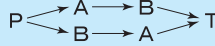
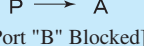

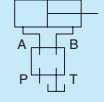
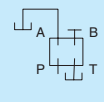
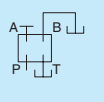







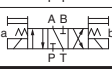





2. For the maximum flow rate in P → T of the valves with a ★ mark, please see page 351.

The valve models with a ◆ mark are handled as Options. If you choose such valves, check the time of delivery beforehand.

DSG-01 Series Solenoid Operated Directional Valves

■ List of Standard Models and The Maximum Flow

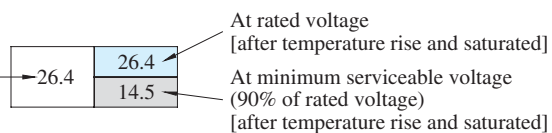
● Models with DC or R Type Solenoids: DSG-01-***-D*/R*

| No. of Valve Positions | Spool-Spring Arrangement | Model Numbers | Graphic Symbols | Max. Flow U.S.GPM | | | | | | | | | | | | | | |
|------------------------|--------------------------|---------------|---|---|------|------|------|------|--|------|------|------|------|---|------|------|------|------|
| | | | |  | | | | |  [Port "B" Blocked] | | | | |  [Port "A" Blocked] | | | | |
| | | | |  | | | | |  | | | | |  | | | | |
| | | | | Working Pressure PSI | | | | | Working Pressure PSI | | | | | Working Pressure PSI | | | | |
| | | | | 1450 | 2320 | 3630 | 4570 | 5080 | 1450 | 2320 | 3630 | 4570 | 5080 | 1450 | 2320 | 3630 | 4570 | 5080 |
| Three Positions | Spring Centred | DSG-01-3C2 |  | 26.4 | 26.4 | 26.4 | 26.4 | 26.4 | 26.4 | 11.9 | 7.4 | 6.6 | 5.8 | 26.4 | 11.9 | 7.4 | 6.6 | 5.8 |
| | | DSG-01-3C3 |  | 26.4 | 26.4 | 26.4 | 26.4 | 26.4 | 20.6 | 20.6 | 20.6 | 20.6 | 19.8 | 20.6 | 20.6 | 20.6 | 20.6 | 19.8 |
| | | DSG-01-3C4 |  | 23.8 | 23.8 | 23.8 | 13.2 | 10.0 | 26.4 | 15.3 | 10.0 | 8.2 | 7.7 | 26.4 | 15.3 | 10.0 | 8.2 | 7.7 |
| | | DSG-01-3C40 |  | 22.5 | 22.5 | 17.2 | 10.6 | 8.7 | 22.5 | 13.7 | 7.9 | 6.9 | 6.3 | 22.5 | 13.7 | 7.9 | 6.9 | 6.3 |
| | | DSG-01-3C60 |  | 13.3 | 13.3 | 13.3 | 13.3 | 13.3 | 17.4 | 17.4 | 17.4 | 17.4 | 17.4 | 17.4 | 17.4 | 17.4 | 17.4 | 17.4 |
| | | DSG-01-3C9 |  | 26.4 | 26.4 | 26.4 | 26.4 | 26.4 | 5.3 | 4.0 | 2.6 | 2.6 | 2.1 | 5.3 | 4.0 | 2.6 | 2.6 | 2.1 |
| | | DSG-01-3C10 |  | 22.5 | 22.5 | 22.5 | 21.1 | 10.6 | 26.4 | 14.8 | 9.5 | 7.4 | 6.3 | 26.4 | 14.8 | 9.5 | 7.4 | 6.3 |
| | | DSG-01-3C11 |  | 26.4 | 26.4 | 26.4 | 26.4 | 26.4 | 6.1 | 5.3 | 3.4 | 2.6 | 1.3 | 26.4 | 15.9 | 10.6 | 9.5 | 8.5 |
| | | DSG-01-3C12 |  | 22.5 | 22.5 | 22.5 | 21.1 | 10.6 | 26.4 | 14.8 | 9.5 | 7.4 | 6.3 | 26.4 | 14.8 | 9.5 | 7.4 | 6.3 |
| Two Positions | No-Spring Detented | DSG-01-2D2 |  | 19.8 | 19.8 | 19.8 | 19.8 | 19.8 | 11.9 | 11.9 | 10.6 | 7.9 | 7.1 | 13.2 | 13.2 | 11.9 | 11.9 | |
| | | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | 7.9 | 6.6 | 5.8 | 13.2 | 11.1 | 10.6 | 10.6 | | | | | |
| | Spring Offset | DSG-01-2B2 |  | 21.1 | 21.1 | 21.1 | 21.1 | 21.1 | 5.3 | 4.2 | 4.2 | 4.0 | 3.4 | 12.2 | 8.2 | 6.3 | 5.8 | 5.8 |
| | | DSG-01-2B3 |  | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | 13.2 | 13.2 | 13.2 | 13.2 | 13.2 | 19.8 | 19.8 | 19.8 | 19.8 | 19.8 |
| | | DSG-01-2B8 |  | — | — | — | — | — | 6.9 | 4.5 | 3.4 | 2.9 | 2.6 | 14.0 | 9.2 | 6.1 | 5.0 | 4.5 |
| | | 9.3 | 7.9 | 4.5 | 3.4 | 3.2 | | | | | | | | | | | | |

Notes: 1. The relation between the maximum flow in the table above and the voltage (within the serviceable voltage) is as shown below.

(Example)

The maximum flow rate is constant regardless of any voltage variants within the serviceable voltage

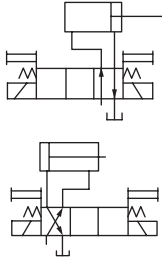


2. For the maximum flow rate in P → T of the valves with a ★ mark, please see page 351.

The valve models with a ◆ mark are handled as Options. If you choose suce valves, check the time of delivery beforehand.

Maximum Flow of Centre By-Pass

In valve type 3C60, in case where the actuator is put on in between the cylinder ports A and B as illustrated below and where the actuator moves and suspended at its stroke end and where the valve is then shifted to the neutral position in the suspended state of the actuator, the maximum flow rates available are those as shown as the table below regardless of any voltage in the range of serviceable voltage.



| Mode Numbers | Graphic Symbol | Max. Flow L/min (U.S.GPM) | | | | |
|----------------------|----------------|---------------------------|-------------------|-------------------|---------------------|-------------------|
| | | 10 MPa (1450 PSI) | 16 MPa (2320 PSI) | 25 MPa (3630 PSI) | 31.5 MPa (4570 PSI) | 35 MPa (5080 PSI) |
| DSG-01-3C60-A*/D*/R* | | 55 (14.5) | 44 (11.6) | 30 (7.9) | 26 (6.9) | 22 (5.8) |

List of Shockless Models and The Maximum Flow

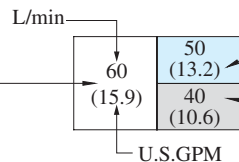
- Models with DC or R Type Solenoids: S-DSG-01-***-D*/R*

| No. of Valve Positions | Spool-Spring Arrangement | Model Numbers | Graphic Symbol | Max. Flow L/min (U.S.GPM) | | | | | | | | |
|------------------------|--------------------------|---------------|----------------|----------------------------|------------------------|------------------------|----------------------------|-----------------------|-----------|----------------------------|-----------------------|-----------------------|
| | | | | | | | | | | | | |
| | | | | Working Pressure MPa (PSI) | | | Working Pressure MPa (PSI) | | | Working Pressure MPa (PSI) | | |
| | | | | 10 (1450) | 16 (2320) | 25 (3630) | 10 (1450) | 16 (2320) | 25 (3630) | 10 (1450) | 16 (2320) | 25 (3630) |
| Three Positions | Spring Centred | S-DSG-01-3C2 | | 63 (16.6) | 63 (16.6) | 40 (10.6) | 40 (10.6) | 32 (8.5) | 25 (6.6) | 40 (10.6) | 32 (8.5) | 25 (6.6) |
| | | S-DSG-01-3C4 | | 60 (15.9) | 50 (13.2) 40 (10.6) | 40 (10.6) 20 (5.3) | 40 (10.6) | 32 (8.5) 16 (4.23) | 16 (4.2) | 40 (10.6) | 32 (8.5) 16 (4.23) | 16 (4.2) 12 (3.17) |
| Two Positions | Spring Offset | S-DSG-01-3B2 | | 50 (13.2) 45 (11.9) | 45 (11.9) 40 (10.6) | 45 (11.9) 40 (10.6) | 30 (7.9) | 30 (7.9) | 30 (7.9) | 60 (15.9) | 40 (10.6) | 40 (10.6) |

Notes: 1. The relation between the maximum flow in the table above and the voltage (within the serviceable voltage) is as shown below.

(Example)

The maximum flow rate is constant regardless of any voltage variants within the serviceable voltage



At rated voltage [after temperature rise and saturated]
At minimum serviceable voltage (90% of rated voltage) [after temperature rise and saturated]

DSG-01 Series Solenoid Operated Directional Valves

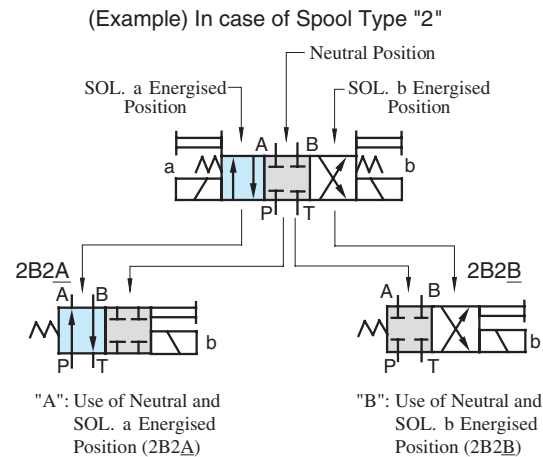
■ Reverse Mounting of Solenoid.

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).



| Model Numbers | Graphic SymbolsG | |
|---------------|--------------------|-------------------|
| | Standard Mtg. Type | Reverse Mtg. Type |
| DSG-01-2B*A | | |
| DSG-01-2B2A | | — |

| Model Numbers | raphic Symbols | |
|---------------|--------------------|-------------------|
| | Standard Mtg. Type | Reverse Mtg. Type |
| DSG-01-2B*B | | |
| DSG-01-2B2B | | — |
| DSG-01-2B3B | | — |
| DSG-01-2B4B | | |
| DSG-01-2B60B | | — |
| DSG-01-2B10B | | — |

In the above table, the graphic symbols in mounting type highlighted with shade are optional extra, therefore, please confirm the time of delivery with us before ordering.

■ Typical Changeover Time

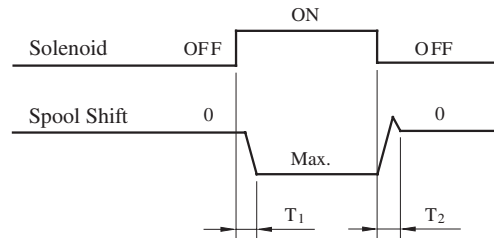
Changeover time varies according to oil viscosity, spool type and hydraulic circuit.

● Standard Type (Without Shockless Function)

[Test Conditions]

Pressure: 16 MPa (2320 PSI)
 Flow Rate: 31.5 L/min (8.3 U.S.GPM)
 Viscosity: 35 mm²/s (164 SSU)
 Voltage: 100 %V
 (After coil temperature rises and saturated)

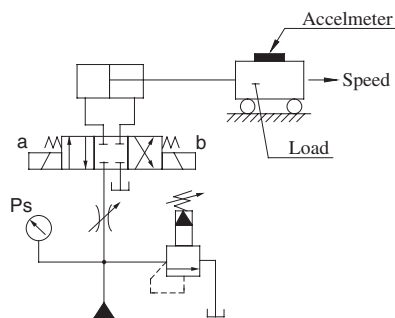
[Result of Measurement]



| Type | Model Numbers | Time ms | |
|---------------|----------------|----------------|----------------|
| | | T ₁ | T ₂ |
| Standard Type | DSG-01-3C2- A* | 15 | 23 |
| | DSG-01-3C2- D* | 48 | 19 |
| | DSG-01-3C2- R* | 50 | 100 |

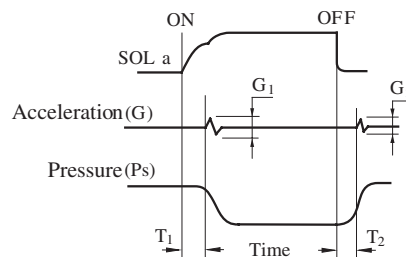
● Shockless Type

[Test Circuit and Conditions]



Setting Pressure (Ps): 7 MPa (1020 PSI)
 Load (W): 1000 kg (2205 lbs.)
 Speed: 8 m/min (26.2 ft./min)
 Viscosity: 35 mm²/s (164 SSU)

[Results of Measurement]



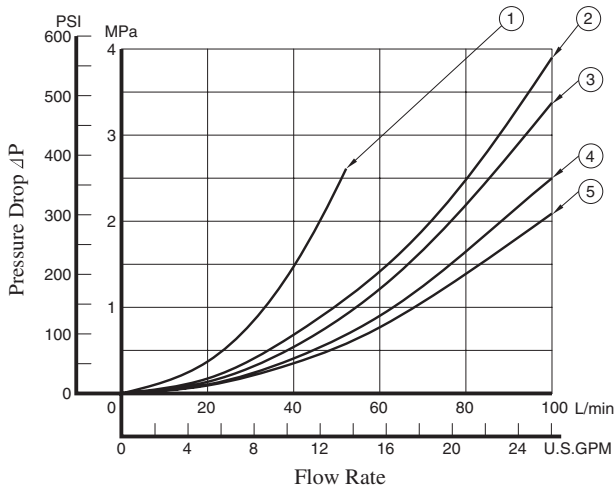
| Type | Model Numbers | Time ms | | Acceleration m/s ² (G) | |
|----------------|------------------|----------------|----------------|-----------------------------------|----------------|
| | | T ₁ | T ₂ | G ₁ | G ₂ |
| Shockless Type | S-DSG-01-3C2- D* | 70 | 30 | 12 (1.2) | 7 (0.7) |
| Standard Type | DSG-01-3C2- D* | 35 | 25 | 18 (1.8) | 15 (1.5) |

DSG-01 Series Solenoid Operated Directional Valves

Pressure Drop

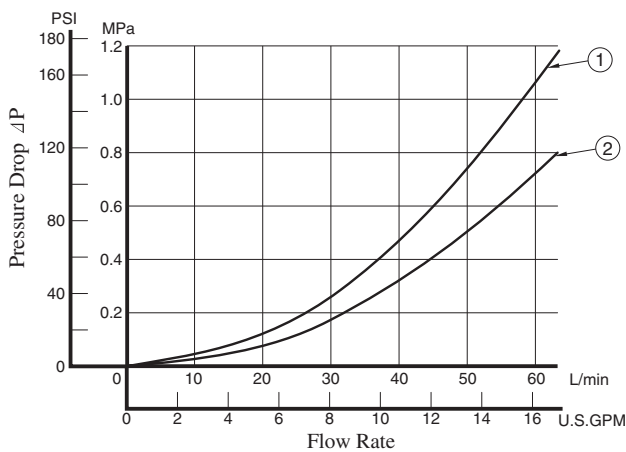
Pressure drop curves based on viscosity of 35 mm²/s (164 SSU) and specific gravity of 0.850.

Standard Type: DSG-01



| Model Numbers | Pressure Drop Curve Number | | | | |
|---------------|----------------------------|-----|-----|-----|-----|
| | P→A | B→T | P→B | A→T | P→T |
| DSG-01-3C2 | ④ | ④ | ④ | ④ | — |
| DSG-01-3C3 | ⑤ | ⑤ | ⑤ | ⑤ | ② |
| DSG-01-3C4 | ④ | ④ | ④ | ④ | — |
| DSG-01-3C40 | ④ | ④ | ④ | ④ | — |
| DSG-01-3C60 | ① | ① | ① | ① | ② |
| DSG-01-3C9 | ⑤ | ③ | ⑤ | ③ | — |
| DSG-01-3C10 | ④ | ⑤ | ④ | ④ | — |
| DSG-01-3C11 | ④ | ④ | ④ | ④ | — |
| DSG-01-3C12 | ④ | ④ | ④ | ⑤ | — |
| DSG-01-2D2 | ⑤ | ④ | ⑤ | ④ | — |
| DSG-01-2B2 | ⑤ | ④ | ⑤ | ④ | — |
| DSG-01-2B3 | ⑤ | ⑤ | ⑤ | ⑤ | — |
| DSG-01-2B8 | ⑤ | — | ④ | — | — |

Shockless Type: S-DSG-01



| Model Numbers | Pressure Drop Curve Number | | | |
|---------------|----------------------------|-----|-----|-----|
| | P→A | B→T | P→B | A→T |
| S-DSG-01-3C2 | ① | ① | ① | ① |
| S-DSG-01-3C4 | ① | ② | ① | ② |
| S-DSG-01-2B2 | ① | ① | ① | ① |

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 |
| 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 (ΔP') may be obtained from the formula below.

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

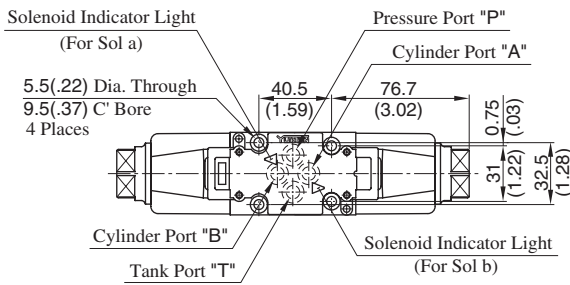
Mounting surface: ISO 4401-AB-03-4-A

TERMINAL BOX TYPE

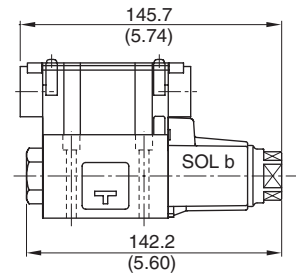
Models with AC Solenoids

- Double Solenoid: Spring Centred & No-Spring Detented

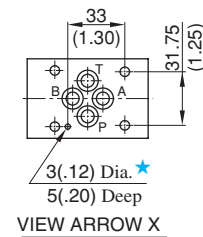
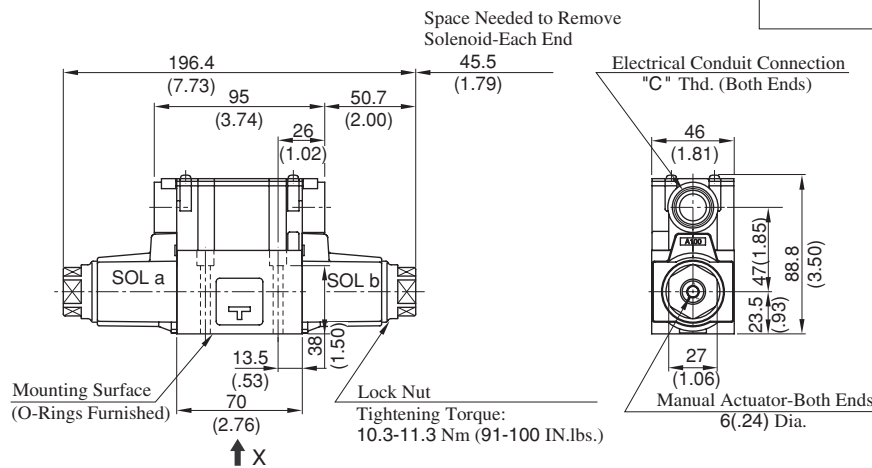
DSG-01-^{3C*}/_{2D2}-A*-70/7090



- Single Solenoid: Spring Offset
DSG-01-2B*-A*-70/7090



- For other dimensions, refer to "spring Centred and No-Spring Detented" models.
- Solenoid being mounted in the reverse position SOL a side is also available.



| Model Numbers | "C" Thd. |
|--------------------|----------|
| DSG-01-***-A*-70 | G 1/2 |
| DSG-01-***-A*-7090 | 1/2 NPT |

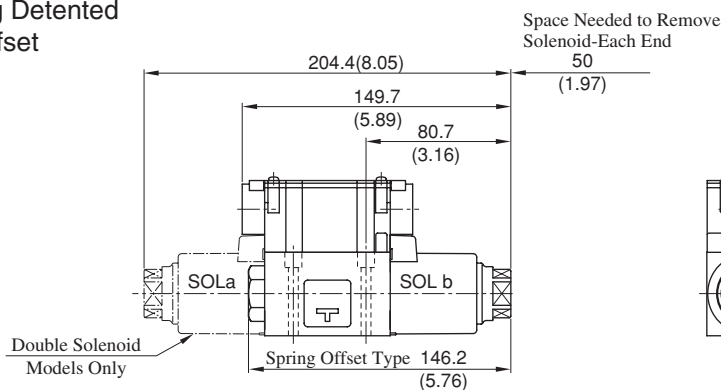
- ★ Locating pin can be fitted to this hole to conform with ISO4401-03-02-94. However, locating pin is not provided to standard design valve. When ordering valve with a locating pin, please consult Yuken.

DIMENSIONS IN MILLIMETRES (INCHES)

Models with DC Solenoids: (S-)DSG-01- ***-D*-70/7090

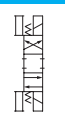
Models with R Type Solenoids: (S-)DSG-01- ***-R*-70/7090

- Spring Centred
- No-Spring Detented
- Spring Offset



- For other dimensions, refer to models with AC solenoids.

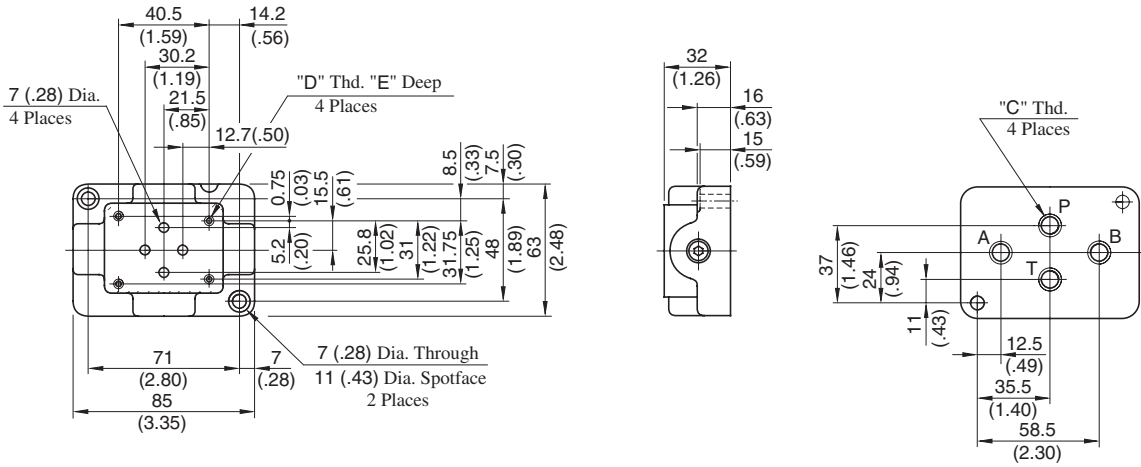
E



DSG-01 Series Solenoid Operated Directional Valves

■ Sub-plate : DSGM-01/01X/01Y-31/3180/3190

**DIMENSIONS IN
MILLIMETRES (INCHES)**

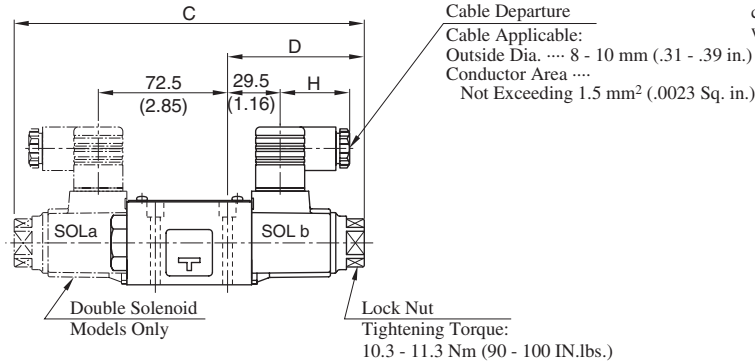


| Sub-plate Model Numbers | Piping Size "C" Thd. | "D" Thd. | "E" mm(IN.) |
|-------------------------|----------------------|---------------|-------------|
| DSGM-01-31 | Rc 1/8 | M5 | 10 (.39) |
| DSGM-01-3180 | 1/8 BSP.F | | |
| DSGM-01-3190 | 1/8 NPT | No.10-24 UNC | 12 (.47) |
| DSGM-01X-31 | Rc 1/4 | M5 | 10 (.39) |
| DSGM-01X-3180 | 1/4 BSP.F | | |
| DSGM-01X-3190 | 1/4 NPT | No.10-24 UNC | 12 (.47) |
| DSGM-01Y-31 | Rc 3/8 | M5 | 10 (.39) |
| DSGM-01Y-3190 | 3/8 NPT | No. 10-24 UNC | 12 (.47) |

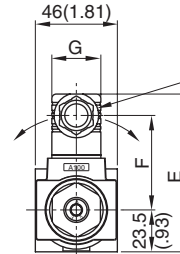
PLUG-IN CONNECTOR TYPE (N) PLUG-IN CONNECTOR WITH INDICATOR LIGHT (N1)

- Models with AC Solenoids: DSG-01-***-A*-N₁-70/7090
- Models with DC Solenoids: (S-)DSG-01-***-D*-N₁-70/7090
- Models with R Solenoids: (S-)DSG-01-***-R*-N-70/7090

DIMENSIONS IN
MILLIMETRES (INCHES)



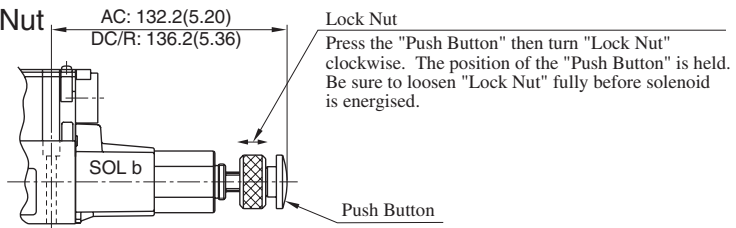
The position of the Plug-in connector can be changed as illustrated below by loosening the lock nut. After completion of the change, be sure to tighten the lock nut with the torque as specified below.



| Model Numbers | C | D | E | F | G | H |
|----------------------|-----------------|----------------|-----------------|----------------|----------------|--------------|
| DSG-01-***-A*-N* | 196.4 (7.73) | 76.7 (3.02) | 88.5 (3.48) | 53 (2.09) | 27.5 (1.08) | 39 (1.54) |
| (S-)DSG-01-***-D*-N* | 204.4 (8.05) | 80.7 (3.18) | 99.5 (3.92) | 64 (2.52) | 27.5 (1.08) | 39 (1.54) |
| (S-)DSG-01-***-R*-N | 204.4 (8.05) | 80.7 (3.18) | 102.5 (4.04) | 57.2 (2.25) | 34 (1.34) | 53 (2.09) |

● For other dimensions, refer to "Terminal Box type" (Page 356).

Models with Push Button & Lock Nut (S-)DSG-01-***-*-C



Interchangeability in Installation Current and New Design

In order to achieve higher pressure, higher flow, lower pressure drop DSG-01 valves has been upgraded from the 60 design series to the 70 design series.

The figures in the table below are the comparison between the current and the new design valves.

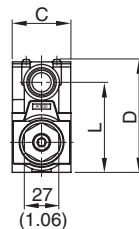
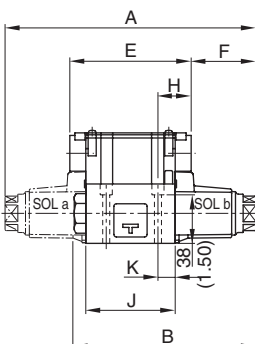
Specifications

| Design Number | Max. Flow L/min (U.S.GPM) | Max. Operating Pressure MPa (PSI) | Max. T-Line Back Pres. MPa (PSI) | Max. Changeover Frequency Cycle/min (min ⁻¹) | Pressure Drop* MPa (PSI) {P→A} | Mass kg (lbs.) | |
|--------------------|---------------------------------|---|--|--|--------------------------------------|----------------|-----------|
| | | | | | | 3C*/2D* | 2B* |
| New Design: 70 | 100(26.4) | 35(5080) | 21(3050) | 300 (R Type sol. Only 120) | 0.9(130) | 1.85(4.08) | 1.4(3.09) |
| Current Design: 60 | 63(16.6) | 31.5(4570) | 16(2320) | | 1.0(145) | 2.2(4.85) | 1.6(3.53) |

* Flow Rate: 60 L/min (15.9 U.S.GPM), Viscosity: 30 mm²/s (141 SSU), Spool type "2" (Closed centre)

Interchangeability in Installation

Interchangeability in installation is maintained though there are minor differences in dimension as in the following table.



| Coil Type | Design Number | A | B | C | D | E | F | H | J | K | L |
|-----------|---------------------|-----------------|-----------------|--------------|----------------|--------------|----------------|---------------|--------------|---------------|----------------|
| AC | New Design : 70 | 196.4 (7.73) | 142.2 (5.60) | 46 (1.81) | 88.8 (3.50) | 95 (3.74) | 50.7 (2.00) | 26 (1.02) | 70 (2.76) | 13.5 (.53) | 70.5 (2.78) |
| | Current Design : 60 | 191.4 (7.54) | 142.7 (5.62) | 48 (1.89) | 90.3 (3.56) | 90 (3.54) | 50.7 (2.00) | 23.5 (.93) | 65 (2.56) | 11 (.43) | 72 (2.83) |
| DC R | New Design : 70 | 204.4 (8.05) | 146.2 (5.76) | 46 (1.81) | 88.8 (3.50) | 95 (3.74) | 54.7 (2.15) | 26 (1.02) | 70 (2.76) | 13.5 (.53) | 70.5 (2.78) |
| | Current Design : 60 | 210 (8.27) | 152 (5.98) | 48 (1.89) | 90.3 (3.56) | 90 (3.54) | 60 (2.36) | 23.5 (.93) | 65 (2.56) | 11 (.43) | 72 (2.83) |

Details of Receptacle

| Type of Electrical Conduit Connection | Double Solenoid Type | Single Solenoid Type |
|---------------------------------------|----------------------|----------------------|
| Terminal Box Type | | |
| Plug-in Connector Type | | |

- ★1. There are two grounding terminals. You can use either one.
- ★2. If you do not need the common plate, remove it.
- ★3. With DC solenoids, polarity is no question.

⚠ DANGER

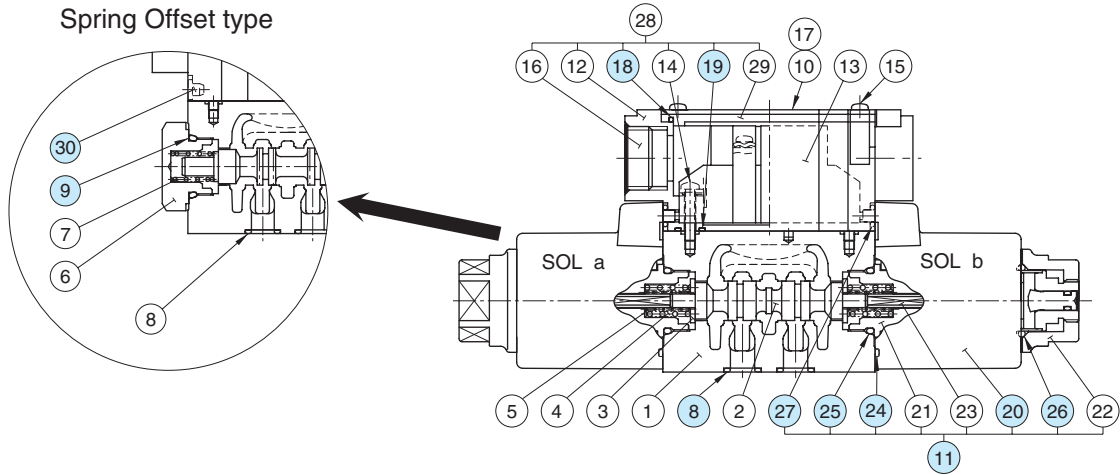
- Do not perform wiring while the power is on. Doing so may result in electric shock, burns or death.
- Make the wiring properly. Improper wiring will cause an irregular movement of the machine, resulting in a grave accident.

Electrical Circuit

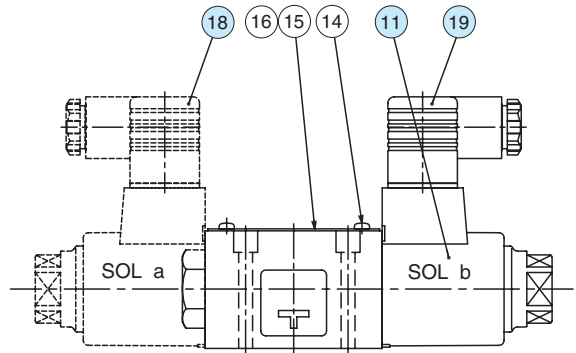
| Type of Electrical Conduit Connection | Electric Source | | |
|---------------------------------------|-----------------|----|-----------------|
| | AC | DC | AC→DC Rectified |
| Terminal Box Type | | | |
| Plug-in Connector Type | | | |

List of Seals

*-DSG-01-***-*-70/7090



*-DSG-01-***-*-N/N1-70/7090



List of Seals

| Item | Name of Parts | Part Numbers | Qty. | | | Remarks |
|------|---------------|-------------------------|------|-----|-----|--|
| | | | 3C* | 2D* | 2B* | |
| 8 | O-Ring | SO-NB-A-012 (NBR, Hs90) | 4 | 4 | 4 | |
| 9 | O-Ring | SO-NB-P18 | — | — | 1 | |
| 18 | Packing | 1790S-VK421290-8 | 1 | 1 | 1 | |
| 19 | O-Ring | S6 | 2 | 2 | 2 | |
| 24 | O-Ring | AS 568-026 (NBR, Hs70) | 2 | 2 | 1 | } Included in Solenoid Ass'y (Item 11) |
| 25 | O-Ring | SO-NB-P18 | 2 | 2 | 1 | |
| 26 | O-Ring | SO-NA-P20 | 2 | 2 | 1 | |
| 27 | O-Ring | SO-NA-P4 | 4 | 4 | 2 | |
| 30 | Plug | 1790S-VK418329-9 | — | — | 2 | |

★ When ordering the O-Rings, please specify the seal kit number from the table below.

| Valve Model Numbers | Seal Kit No. | O-Ring Details for Seal Kit |
|--------------------------|----------------|--|
| *-DSG-01-***-*-70/7090 | KS-DSG-01-70 | (8)(4 Pcs.), (9) & (25) (2 Pcs., see above), (27) (4 Pcs.) |
| *-DSG-01-***-*-N-70/7090 | KS-DSG-01-N-70 | (8)(4 Pcs.), (9) & (25) (2 Pcs., see above) |

● Solenoid Ass'y, Coil, Receptacle and Connector Refer to [page 360](#) for the details of these parts.

■ Solenoid Ass'y, Coil, Receptacle and Connector Ass'y No.

| Valve Model Numbers | ⑪ Solenoid Ass'y No. | ⑫ Coil No. | ⑬ Receptacle Part No. | ⑱ Connector Ass'y Part No. | ⑲ Connector Ass'y Part No. | Remarks | | |
|-------------------------|-------------------------|----------------|--------------------------|-------------------------------|-------------------------------|-------------------|--|--------------|
| DSG-01-***-A100-70* | SA1-100-70 | C-SA1-100-70 | R1-70 | — | — | Terminal Box Type | | |
| DSG-01-***-A120-70* | SA1-120-70 | C-SA1-120-70 | | | | | | |
| DSG-01-***-A200-70* | SA1-200-70 | C-SA1-200-70 | | | | | | |
| DSG-01-***-A240-70* | SA1-240-70 | C-SA1-240-70 | | | | | | |
| DSG-01-***-D12-70* | SD1-12-70 | C-SD1-12-70 | KR1-A-70 | | | | | |
| DSG-01-***-D24-70* | SD1-24-70 | C-SD1-24-70 | KR1-B-70 | | | | | |
| DSG-01-***-D48-70* | SD1-48-70 | C-SD1-48-70 | RR1-70 | | | | | |
| DSG-01-***-R100-70* | SR1-100-70 | C-SR1-100-70 | KR1-A-70 | | | | | |
| DSG-01-***-R200-70* | SR1-200-70 | C-SR1-200-70 | | | | | | |
| S-DSG-01-***-D12-70* | SD1-12-S-70 | C-SD1-12-70 | KR1-B-70 | | | | | |
| S-DSG-01-***-D24-70* | SD1-24-S-70 | C-SD1-24-70 | RR1-70 | | | | | |
| S-DSG-01-***-D48-70* | SD1-48-S-70 | C-SD1-48-70 | | | | | | |
| S-DSG-01-***-R100-70* | SR1-100-S-70 | C-SR1-100-70 | RR1-70 | | | | | |
| S-DSG-01-***-R200-70* | SR1-200-S-70 | C-SR1-200-70 | | | | | | |
| DSG-01-***-A100-N-70* | SA1-100-N-70 | C-SA1-100-N-70 | — | | | | GDM-211-A-11 | GDM-211-B-11 |
| DSG-01-***-A120-N-70* | SA1-120-N-70 | C-SA1-120-N-70 | | | | | | |
| DSG-01-***-A200-N-70* | SA1-200-N-70 | C-SA1-200-N-70 | | | | | | |
| DSG-01-***-A240-N-70* | SA1-240-N-70 | C-SA1-240-N-70 | | | | | | |
| DSG-01-***-D12-N-70* | SD1-12-N-70 | C-SD1-12-N-70 | | | | | | |
| DSG-01-***-D24-N-70* | SD1-24-N-70 | C-SD1-24-N-70 | | | | | | |
| DSG-01-***-D48-N-70* | SD1-48-N-70 | C-SD1-48-N-70 | | GDME-211-R-A-10 | GDME-211-R-B-10 | | | |
| DSG-01-***-R100-N-70* | SR1-100-N-70 | C-SR1-100-N-70 | | | | | | |
| DSG-01-***-R200-N-70* | SR1-200-N-70 | C-SR1-200-N-70 | | | | | | |
| S-DSG-01-***-D12-N-70* | SD1-12-S-N-70 | C-SD1-12-N-70 | | GDM-211-A-11 | GDM-211-B-11 | | | |
| S-DSG-01-***-D24-N-70* | SD1-24-S-N-70 | C-SD1-24-N-70 | | | | | | |
| S-DSG-01-***-D48-N-70* | SD1-48-S-N-70 | C-SD1-48-N-70 | | | | | | |
| S-DSG-01-***-R100-N-70* | SR1-100-S-N-70 | C-SR1-100-N-70 | | GDME-211-R-A-10 | GDME-211-R-B-10 | | | |
| S-DSG-01-***-R200-N-70* | SR1-200-S-N-70 | C-SR1-200-N-70 | | | | | | |
| DSG-01-***-A100-N1-70* | SA1-100-N-70 | C-SA1-100-N-70 | | — | GDML-211-1-11 | GDML-211-1-11 | Plug-in Connector with Indicator Light | |
| DSG-01-***-A120-N1-70* | SA1-120-N-70 | C-SA1-120-N-70 | | | | | | |
| DSG-01-***-A200-N1-70* | SA1-200-N-70 | C-SA1-200-N-70 | | | | | | |
| DSG-01-***-A240-N1-70* | SA1-240-N-70 | C-SA1-240-N-70 | | | | | | |
| DSG-01-***-D12-N1-70* | SD1-12-N-70 | C-SD1-12-N-70 | GDML-211-2-11 | | GDML-211-2-11 | | | |
| DSG-01-***-D24-N1-70* | SD1-24-N-70 | C-SD1-24-N-70 | GDML-211-3-11 | | GDML-211-3-11 | | | |
| DSG-01-***-D48-N1-70* | SD1-48-N-70 | C-SD1-48-N-70 | GDML-211-1-11 | | GDML-211-1-11 | | | |
| S-DSG-01-***-D12-N1-70* | SD1-12-S-N-70 | C-SD1-12-N-70 | GDML-211-2-11 | | GDML-211-2-11 | | | |
| S-DSG-01-***-D24-N1-70* | SD1-24-S-N-70 | C-SD1-24-N-70 | GDML-211-3-11 | | GDML-211-3-11 | | | |
| S-DSG-01-***-D48-N1-70* | SD1-48-S-N-70 | C-SD1-48-N-70 | GDML-211-1-11 | | GDML-211-1-11 | | | |

Note: The connector assembly is not included in the solenoid assembly.

3/8 Solenoid Operated Directional Valves, DSG-03 Series

These are epoch-making solenoid operated valves of high pressure, high flow which have been developed incorporating a unique design concept into every part of the valve including the solenoid. With wet type solenoids, these valves ensure the low noise and the long life, moreover, ensure no leakage of oil outside of the valves.

Wide Range of Models

Choose the optimum valve to meet your need from a large selection available. The DSG-03 50 design series solenoid operated directional valves are classified into the two basic models.

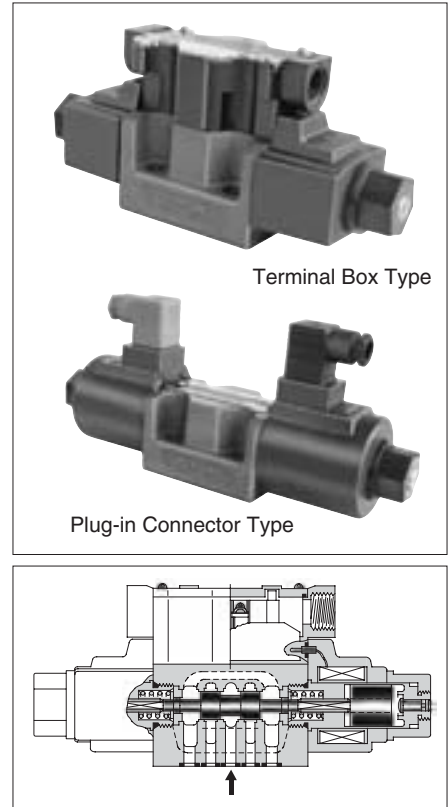
- Standard type Useable at high pressure: 31.5 MPa (4570 PSI) and high flow: 120 L/min (31.7 U.S.GPM)
- Shockless type A noise at spool changeover and a vibration in piping can be reduced to a minimum.

Stable Operation

With a strong magnet and spring force, the valves are tough against contamination and thus ensure a stable operation.

Usable in products of various standards

CE/UL/CSA certified products are available.



Specifications

| Valve Type | Model Numbers | Max. Flow L/min (U.S.GPM) | Max. Operating Pressure MPa (PSI) | Max. T-Line Back Pres. MPa (PSI) | Max. Changeover Frequency min ⁻¹ (Cycles/Min) | Approx. Mass kg(1bs.) | |
|------------------------|-----------------------|------------------------------|---|-------------------------------------|---|-----------------------|-----------|
| | | | | | | Type of Solenoid | |
| | | | | | | AC | DC, R, RQ |
| Standard Type | DSG-03-3C*-50/5090 | 120 (31.7) | 31.5 (4570) [Spool Type 60 Only] 25 (3630)] | 16 (2320) | 240 (R Type Sol. Only) 120 | 3.6 (7.9) | 5 (11) |
| | DSG-03-2D2*-50/5090 | | | | | 2.9 (6.4) | 3.6 (7.9) |
| | DSG-03-2B*-50/5090 | | | | | — | 3.6 (7.9) |
| Shockless Type | S-DSG-03-3C*-50/5090 | 120 (31.7) | 25 (3630) | 16 (2320) | 120 | — | 5 (11) |
| | S-DSG-03-2B2*-50/5090 | | | | | — | 3.6 (7.9) |
| Low Wattage (14W) Type | L-DSG-03-3C*-50/5090 | 60 (15.9) | 16 (2320) | 16 (2320) | 240 (R Type Sol. Only) 120 | 3.6 (7.9) | 5 (11) |
| | L-DSG-03-2D2*-50/5090 | | | | | 2.9 (6.4) | 3.6 (7.9) |
| | L-DSG-03-2B*-50/5090 | | | | | 2.9 (6.4) | 3.6 (7.9) |

★1 For details of L-DSG-03, please contact us.

★2 The maximum flow means the limited flow without inducing any abnormality to the operation (changeover) of the valve. The maximum flow differs according to the spool type and operating conditions. For details, please refer to the "List of Standard Models and Maximum Flow" on pages 364 to 368.

Sub-plate

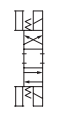
| Piping Size | Japanese Standard "JIS" | | European Design Standard | | N.American Design Standard | | Approx. Mass kg (lbs.) |
|-------------|-------------------------|-------------|--------------------------|-------------|----------------------------|-------------|------------------------|
| | Sub-plate Model Numbers | Thread Size | Sub-plate Model Numbers | Thread Size | Sub-plate Model Numbers | Thread Size | |
| 3/8 | DSGM-03-40 | Rc 3/8 | DSGM-03-2180 | 3/8 BSP.F | DSGM-03-2190 | 3/8 NPT | 3.0 (6.6) |
| 1/2 | DSGM-03X-40 | Rc 1/2 | DSGM-03X-2180 | 1/2 BSP.F | DSGM-03X-2190 | 1/2 NPT | 3.0 (6.6) |
| 3/4 | DSGM-03Y-40 | Rc 3/4 | DSGM-03Y-2180 | 3/4 BSP.F | DSGM-03Y-2190 | 3/4 NPT | 4.7 (10.4) |

- 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.

Mounting Bolts

For socket head cap screws in the table below are included.

| Descriptions | Soc. Hd. Cap Screw (4 pcs.) | Tightening Torque |
|---|-----------------------------|------------------------------------|
| Japanese Standard "JIS" European Design Standard | M6 × 35 Lg. | 12 - 15 Nm (106 - 133 in. lbs.) |
| N. American Design Standard | 1/4-20 UNC × 1-1/2 Lg. | |



Solenoid Ratings

| Valve Type | Electric source | Coil Type | Frequency (Hz) | Voltage (V) | | Current & Power at Rated Voltage | | |
|----------------|--|-----------|----------------|---------------|-------------------|----------------------------------|-------------|-----------|
| | | | | Source Rating | Serviceable Range | Inrush (A) ^{★2} | Holding (A) | Power (W) |
| Standard Type | AC ^{★1} | A100 | 50 | 100 | 80 - 110 | 5.37 | 0.90 | — |
| | | | 60 | 100 | 90 - 120 | 4.57 | 0.63 | |
| | | | | 110 | | 5.03 | 0.77 | |
| | | A120 | 50 | 120 | 96 - 132 | 4.48 | 0.75 | |
| | | | 60 | | 108 - 144 | 3.81 | 0.52 | |
| | | A200 | 50 | 200 | 160 - 220 | 2.69 | 0.45 | |
| | | | | | 180 - 240 | 2.29 | 0.31 | |
| | | | 60 | 220 | | 2.52 | 0.38 | |
| | | | | | A240 | 50 | 240 | |
| | | 60 | 216 - 288 | 1.91 | | | | |
| Shockless Type | DC (K Series) | D12 | — | 12 | 10.8 - 13.2 | — | 3.16 | 38 |
| | | D24 | | 24 | 21.6 - 26.4 | | 1.57 | |
| | | D100 | | 100 | 90 - 110 | | 0.38 | |
| | AC→DC Rectified (R) | R100 | 50/60 | 100 | 90 - 110 | — | 0.43 | 38 |
| | | R200 | | 200 | 180 - 220 | | 0.21 | |
| | AC→DC Rectified (RQ) (Quick Return) | RQ100 | 50/60 | 100 | 90 - 110 | — | 0.43 | 38 |

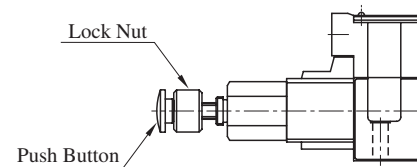
- ★1. AC solenoid is not available in shockless type.
R or RQ type models with built-in current rectifier is recommended for shockless operation with AC power.
- ★2. Inrush current in the above table show rms values at maximum stroke.
- ★3. There are more coil types other than the above. For details, please make inquiries .

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 .

Options

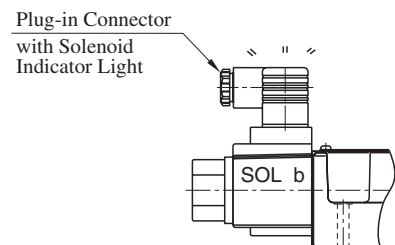
● Push Button with Lock Nut

Can be used for manual changeover of spool. The push button can be locked in the pressed condition.



● Plug-in Connector with Solenoid Indicator Light

These are the indicator light incorporated plug-in connector type solenoids. Energisation or de-energisation of the solenoid can be easily identified with the incorporated indicator light.



● M8 Mounting Bolts.

As the mounting bolts, M6 socket head cap screws are used for the standard valves, however, M8 socket head cap screws are also available for supply as optional extras. In case the M8 screws are required, suffix "02" to the design number of both valve and sub-plate model number like below.

(Example)

Valve: DSG-03-3C2-A100-5002
Sub-plate: DSGM-03-4002

The valve is supplied with 4 pcs. hexagon socket head cap screws M8 × 38 Lg.

Model Number Designation

| F- | S- | DSG | -03 | -2 | B | 2 | A | -D24 | -C | -N | -50 | * | -L |
|--|-------------------------------|--|------------|--|-----------------------------|---|--|--|--|---|---------------|--|--|
| Special Seals | Shockles Type | Series Number | Valve Size | Number of Valve Positions | Spool-Spring Arrangement | Spool Type | Special Two Position Valve (Omit if not required) | Coil Type | Manual Override | Electrical Conduit Connection | Design Number | Design Standard | Models with Reverse Mtg. of Solenoid (Omit if not required) |
| F: For Phosphate Ester Type Fluids (Omit if not required) | None: Standard Type | DSG: Solenoid Operated Directional Valve | 03 | 3: Three Positions | C: Spring Centred | 2, 3 | — | AC: A100 A120 A200 A240 | None: Manual Override Pin | None: Terminal Box Type | 50 | None: Japanese Std. "JIS" 90: N.American Design Std. | — |
| | | | | | | 4,40 5 ,60 9, 10 11 , 12 | | DC: D12 D24 D100 | | | | | |
| | 2: Two Positions | | | D: No-Spring Detented | 2 | — | R: (AC→DC) R100 R200 | | | | | | |
| | | | | | B: Spring Offset | | 2 3 8 | A ⁺¹ B ⁺¹ RQ (AC→DC) RQ100 | | | | | |
| S: Shockles Type | | | | 3: Three Positions | C: Spring Centred | 2 4 | — | DC: D12 D24 D100 | C: Push Button and Lock Nut (Option) | N: ⁺² Plug-in Connector Type N1: ⁺³ Plug-in Connector Type with Indicator Light (Option) | | None: Japanese Std. "JIS" and European Design Std. 90: N.American Design Std. | — |
| | | | | | | R: (AC DC) R100 R200 | | | | | | | |
| 2: Two Positions | B: Spring Offset | | | 2 | — | RQ: (AC DC) RQ100 | | | | | | | |
| | | | | A ⁺¹ B ⁺¹ | | | | | | | | | |

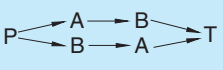
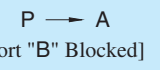
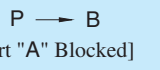
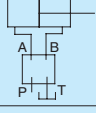
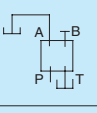
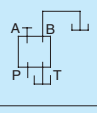






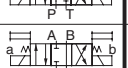

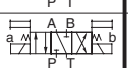
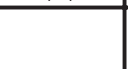
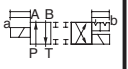


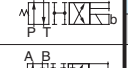
- ★ 1. In case of the special two position valve, please refer to [page 369](#) for details.
- ★ 2. N is not available for RQ-type solenoids .
- ★ 3. N1 is not available for R and RQ-type solenoids .

In the table above, the symbols or 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.



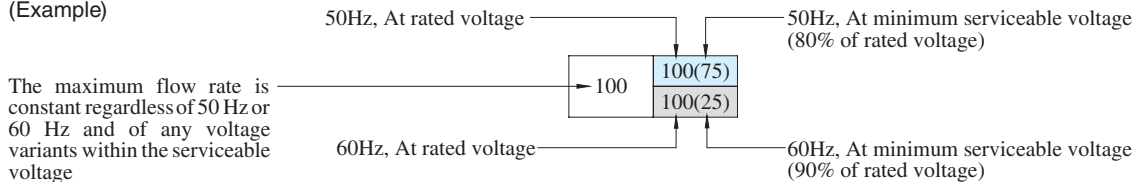
■ List of Standard Models and The Maximum Flow

● Models with AC Solenoids: DSG-03-***-A*

| No. of Valve Positions | Spool-Spring Arrangement | Model Numbers | Graphic Symbols | Max. Flow L/min | | | | | | | | | | | | |
|------------------------|--------------------------|---------------|---|---|------|--------|--------|--|---------|---------|---------|---|---------|---------|---------|---------|
| | | | |  | | | |  | | | |  | | | | |
| | | | |  | | | |  | | | |  | | | | |
| | | | | Working Pressure MPa | | | | Working Pressure MPa | | | | Working Pressure MPa | | | | |
| | | 10 | 16 | 25 | 31.5 | 10 | 16 | 25 | 31.5 | 10 | 16 | 25 | 31.5 | | | |
| Three Positions | Spring Centred | DSG-03-3C2 |  | 100 | 100 | 100 | 100 | 100(70) | 100(48) | 96(28) | 65(24) | 100(70) | 100(48) | 96(28) | 65(24) | |
| | | DSG-03-3C3 |  | 90 | 90 | 90 | 90 | 100(81) | 100(81) | 100(81) | 100(81) | 100(81) | 100(81) | 100(81) | 100(81) | 100(81) |
| | | DSG-03-3C4 |  | 80 | 80 | 80(65) | 80(25) | 100(58) | 100(33) | 76(22) | 46(19) | 100(58) | 100(33) | 76(22) | 46(19) | |
| | | DSG-03-3C40 |  | 100 | 100 | 100 | 100 | 100(75) | 100(62) | 100(39) | 84(21) | 48(18) | 100(62) | 100(39) | 84(21) | 48(18) |
| | | DSG-03-3C5 |  | 30 | 30 | 30 | 30 | 26 | 21 | 18 | 16 | 30 | 28 | 28 | 28 | |
| | | DSG-03-3C60 |  | 70 | 70 | 70 | — | 100 | 100 | 100 | — | 100 | 100 | 100 | — | |
| | | DSG-03-3C9 |  | 100 | 100 | 100 | 100 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | |
| | | DSG-03-3C10 |  | 80 | 80 | 80(30) | 80(20) | 100(55) | 100(36) | 60(21) | 34(16) | 100(55) | 100(36) | 60(21) | 34(16) | |
| | | DSG-03-3C11 |  | 100 | 100 | 100 | 100 | 100(80) | 100(65) | 85(35) | 62(28) | 100(80) | 100(65) | 85(35) | 62(28) | |
| | | DSG-03-3C12 |  | 90 | 90 | 90(30) | 90(20) | 100(55) | 100(36) | 60(21) | 34(16) | 100(55) | 100(36) | 60(21) | 34(16) | |
| Two Positions | No-Spring Detented | DSG-03-2D2 |  | 100 | 100 | 100 | 100 | 40 | 40 | 30 | 28 | 60 | 60 | 40 | 35 | |
| | | Spring Offset | DSG-03-2B2 |  | 100 | 100 | 100 | 100 | 100(90) | 100(90) | 100(90) | 100(90) | 34 | 24 | 20 | 19 |
| | | | DSG-03-2B3 |  | 100 | 100 | 100 | 100 | 100(75) | 100(75) | 100(75) | 100(75) | 57 | 57 | 57 | 57 |
| | | | DSG-03-2B8 |  | — | — | — | — | 26 | 19 | 18 | 16 | 100(35) | 87(15) | 61(9) | 49(7) |

Notes : 1. The relation between the maximum flow in the table above and the frequency/voltage (within the serviceable voltage) is as shown below.

(Example)

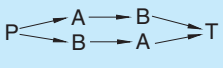
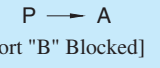
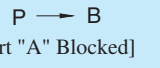






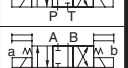
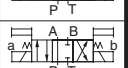

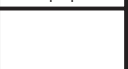
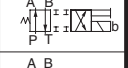
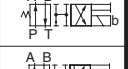
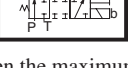
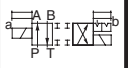


2. For the maximum flow rate in P→T of the valves with a ★ mark, please see page 368.

The valve models with a ◆ mark are handled as Options. If you choose such valves, check the time of delivery beforehand.

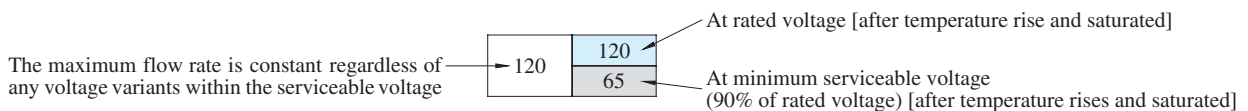
■ List of Standard Models and The Maximum Flow

- Models with DC Solenoids: DSG-03-***-D*
- Models with R Type Solenoids: DSG-03-***-R*
- Models with RQ Type Solenoids: DSG-03-***-RQ100*

| No. of Valve Positions | Spool-Spring Arrangement | Model Numbers | Graphic Symbols | Max. Flow L/min | | | | | | | | | | | |
|------------------------|--------------------------|---------------|---|---|-----|-----|------|--|-----|-----|------|---|-----|-----|------|
| | | | |  | | | |  | | | |  | | | |
| | | | | Working Pressure MPa | | | | Working Pressure MPa | | | | Working Pressure MPa | | | |
| | | | | 10 | 16 | 25 | 31.5 | 10 | 16 | 25 | 31.5 | 10 | 16 | 25 | 31.5 |
| Three Positions | Spring Centred | DSG-03-3C2 |  | 120 | 120 | 120 | 120 | 120 | 120 | 80 | 55 | 120 | 120 | 80 | 55 |
| | | DSG-03-3C3 |  | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 |
| | | DSG-03-3C4 |  | 120 | 120 | 120 | 120 | 120 | 120 | 84 | 64 | 120 | 120 | 84 | 64 |
| | | DSG-03-3C40 |  | 120 | 120 | 120 | 120 | 120 | 120 | 62 | 49 | 120 | 120 | 62 | 49 |
| | | DSG-03-3C5 |  | 50 | 50 | 50 | 50 | 35 | 24 | 21 | 20 | 45 | 45 | 45 | 45 |
| | | DSG-03-3C60 |  | 120 | 120 | 120 | — | 120 | 120 | 120 | — | 120 | 120 | 120 | — |
| | | DSG-03-3C9 |  | 120 | 120 | 120 | 120 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | | DSG-03-3C10 |  | 120 | 120 | 120 | 65 | 120 | 112 | 60 | 51 | 120 | 112 | 60 | 51 |
| | | DSG-03-3C11 |  | 120 | 120 | 120 | 120 | 100 | 100 | 80 | 65 | 100 | 100 | 80 | 65 |
| | | DSG-03-3C12 |  | 120 | 120 | 120 | 65 | 120 | 120 | 62 | 51 | 120 | 120 | 62 | 51 |
| Two Positions | Spring Offset | DSG-03-2B2 |  | 110 | 110 | 110 | 110 | 68 | 47 | 38 | 38 | 120 | 114 | 75 | 63 |
| | | DSG-03-2B3 |  | 120 | 120 | 120 | 120 | 77 | 77 | 77 | 77 | 120 | 120 | 120 | 120 |
| | | DSG-03-2B8 |  | — | — | — | — | 53 | 33 | 24 | 23 | 120 | 120 | 62 | 47 |
| | | DSG-03-2D2 |  | 120 | 120 | 120 | 120 | 45 | 37 | 30 | 28 | 60 | 60 | 40 | 35 |

Notes) 1. The relation between the maximum flow in the table above and the voltage (within the serviceable voltage) is as shown below.

(Example)



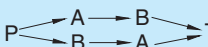
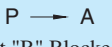
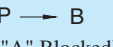
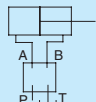
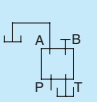
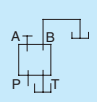
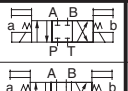


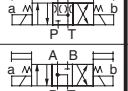
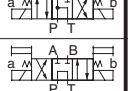


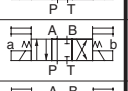
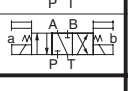
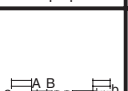
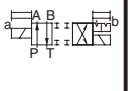
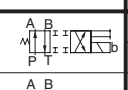
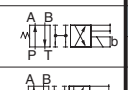
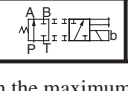
2. For the maximum flow rate in P → T of the valves with a ★ mark, please see [page 368](#).

The valve models with a ◆ mark are handled as Options. If you choose such valves, check the time of delivery beforehand.

DSG-03 Series Solenoid Operated Directional Valves

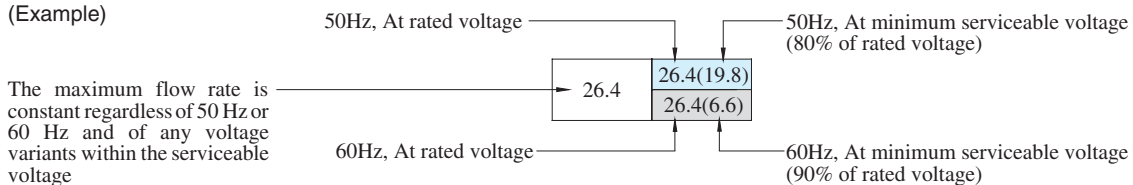
■ List of Standard Models and The Maximum Flow

● Models with AC Solenoids: DSG-03-***-A*

| No. of Valve Positions | Spool-Spring Arrangement | Model Numbers | Graphic Symbole | Max. Flow U.S.GPM | | | | | | | | | | | | |
|------------------------|--------------------------|---------------|---|---|------|-------------|-------------|--|-------------|-------------|-------------|---|-------------|-------------|-------------|-------------|
| | | | |  | | | |  [Port "B" Blocked] | | | |  [Port "A" Blocked] | | | | |
| | | | |  | | | |  | | | |  | | | | |
| | | | | Working Pressure PSI | | | | Working Pressure PSI | | | | Working Pressure PSI | | | | |
| | | 1450 | 2320 | 3630 | 4570 | 1450 | 2320 | 3630 | 4570 | 1450 | 2320 | 3630 | 4570 | | | |
| Three Positions | Spring Centred | DSG-03-3C2 |  | 26.4 | 26.4 | 26.4 | 26.4 | 26.4 (18.5) | 26.4 (12.7) | 25.4 (7.4) | 17.2 (6.3) | 26.4 (18.5) | 26.4 (12.7) | 25.4 (7.4) | 17.2 (6.3) | |
| | | DSG-03-3C3 |  | 23.8 | 23.8 | 23.8 | 23.8 | 26.4 (21.4) | 26.4 (21.4) | 26.4 (21.4) | 26.4 (21.4) | 26.4 (21.4) | 26.4 (21.4) | 26.4 (21.4) | 26.4 (21.4) | 26.4 (21.4) |
| | | DSG-03-3C4 |  | 21.1 | 21.1 | 21.1 (17.2) | 21.1 (6.6) | 26.4 (15.3) | 26.4 (8.7) | 20.1 (5.8) | 12.2 (5.0) | 26.4 (15.3) | 26.4 (8.7) | 20.1 (5.8) | 12.2 (5.0) | |
| | | DSG-03-3C40 |  | 26.4 | 26.4 | 26.4 | 26.4 (19.8) | 26.4 (16.4) | 26.4 (10.3) | 22.2 (5.5) | 12.7 (4.8) | 26.4 (16.4) | 26.4 (10.3) | 22.2 (5.5) | 12.7 (4.8) | |
| | | DSG-03-3C5 |  | 7.9 | 7.9 | 7.9 | 7.9 | 6.9 | 5.5 | 4.8 | 4.2 | 7.9 | 7.4 | 7.4 | 7.4 | |
| | | DSG-03-3C60 |  | 18.5 | 18.5 | 18.5 | — | 26.4 | 26.4 | 26.4 | — | 26.4 | 26.4 | 26.4 | — | |
| | | DSG-03-3C9 |  | 26.4 | 26.4 | 26.4 | 26.4 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | |
| | | DSG-03-3C10 |  | 21.1 | 21.1 | 21.1 (7.9) | 21.1 (5.3) | 26.4 (14.5) | 26.4 (9.5) | 15.9 (5.5) | 9.0 (4.2) | 26.4 (14.5) | 26.4 (9.5) | 15.9 (5.5) | 9.0 (4.2) | |
| | | DSG-03-3C11 |  | 26.4 | 26.4 | 26.4 | 26.4 | 26.4 (21.1) | 26.4 (17.2) | 22.5 (9.2) | 16.4 (7.4) | 26.4 (21.1) | 26.4 (17.2) | 22.5 (9.2) | 16.4 (7.4) | |
| | | DSG-03-3C12 |  | 23.8 | 23.8 | 23.8 (7.9) | 23.8 (5.3) | 26.4 (14.5) | 26.4 (9.5) | 15.9 (5.5) | 9.0 (4.2) | 26.4 (14.5) | 26.4 (9.5) | 15.9 (5.5) | 9.0 (4.2) | |
| Two Positions | No-Spring Detented | DSG-03-2D2 |  | 26.4 | 26.4 | 26.4 | 26.4 | 10.6 | 10.6 | 7.9 | 7.4 | 15.9 | 15.9 | 10.6 | 9.2 | |
| | | Spring Offset | DSG-03-2B2 |  | 26.4 | 26.4 | 26.4 | 26.4 | 9.0 | 6.3 | 5.3 | 5.0 | 26.4 (16.4) | 26.4 (16.4) | 26.4 (11.6) | 24.8 (9.8) |
| | | | DSG-03-2B3 |  | 26.4 | 26.4 | 26.4 | 26.4 | 15.1 | 15.1 | 15.1 | 15.1 | 26.4 (20.9) | 26.4 (19) | 26.4 (16.9) | 26.4 (15.6) |
| | | | DSG-03-2B8 |  | — | — | — | — | 6.9 | 5.0 | 4.8 | 4.2 | 26.4 (9.2) | 23 (4.0) | 16.1 (2.4) | 12.9 (1.8) |

Notes: 1. The relation between the maximum flow in the table above and the voltage (within the serviceable voltage) is as shown below.

(Example)




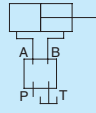
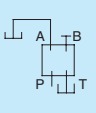
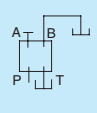
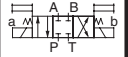

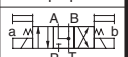
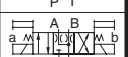

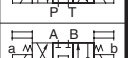
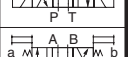
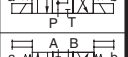
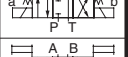
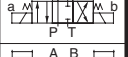

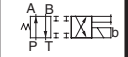

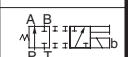


2. For the maximum flow rate in P → T of the valves with a ★ mark, please see page 368.

The valve models with a ◆ mark are handled as Options. If you choose such valves, check the time of delivery beforehand.

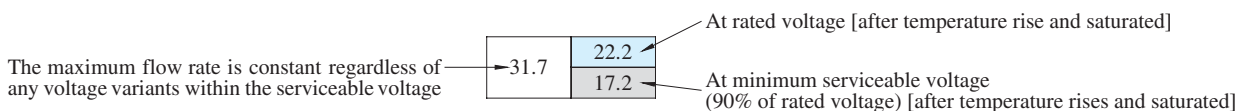
■ List of Standard Models and The Maximum Flow

- Models with DC Solenoids: DSG-03-***-D*
- Models with R Type Solenoids: DSG-03-***-R*
- Models with RQ Type Solenoids: DSG-03-***-RQ100*

| No. of Valve Positions | Spool-Spring Arrangement | Model Numbers | Graphic Symbols | Max. Flow U.S. GPM | | | | | | | | | | | |
|------------------------|--------------------------|---------------|---|---|------|------|------|--|------|------|------|---|------|------|------|
| | | | |  | | | |  [Port "B" Blocked] | | | |  [Port "A" Blocked] | | | |
| | | | |  | | | |  | | | |  | | | |
| | | | | Working Pressure PSI | | | | Working Pressure PSI | | | | Working Pressure PSI | | | |
| | | | | 1450 | 2320 | 3630 | 4570 | 1450 | 2320 | 3630 | 4570 | 1450 | 2320 | 3630 | 4570 |
| Three Positions | Spring Centred | DSG-03-3C2 |  | 31.7 | 31.7 | 31.7 | 31.7 | 31.7 | 31.7 | 21.1 | 14.5 | 31.7 | 31.7 | 21.1 | 14.5 |
| | | DSG-03-3C3 |  | 31.7 | 31.7 | 31.7 | 31.7 | 31.7 | 31.7 | 31.7 | 31.7 | 31.7 | 31.7 | 31.7 | 31.7 |
| | | DSG-03-3C4 |  | 31.7 | 31.7 | 31.7 | 31.7 | 31.7 | 31.7 | 22.2 | 16.9 | 31.7 | 31.7 | 22.2 | 16.9 |
| | | DSG-03-3C40 |  | 31.7 | 31.7 | 31.7 | 31.7 | 31.7 | 31.7 | 16.4 | 12.9 | 31.7 | 31.7 | 16.4 | 12.9 |
| | | DSG-03-3C5 |  | 13.2 | 13.2 | 13.2 | 13.2 | 9.2 | 6.3 | 5.5 | 5.3 | 11.9 | 11.9 | 11.9 | 11.9 |
| | | DSG-03-3C60 |  | 31.7 | 31.7 | 31.7 | — | 31.7 | 31.7 | 31.7 | — | 31.7 | 31.7 | 31.7 | — |
| | | DSG-03-3C9 |  | 31.7 | 31.7 | 31.7 | 31.7 | 26.4 | 26.4 | 26.4 | 26.4 | 26.4 | 26.4 | 26.4 | 26.4 |
| | | DSG-03-3C10 |  | 31.7 | 31.7 | 31.7 | 17.2 | 31.7 | 29.6 | 15.9 | 13.5 | 31.7 | 29.6 | 15.9 | 13.5 |
| | | DSG-03-3C11 |  | 31.7 | 31.7 | 31.7 | 31.7 | 26.4 | 26.4 | 21.1 | 17.2 | 26.4 | 26.4 | 21.1 | 17.2 |
| | | DSG-03-3C12 |  | 31.7 | 31.7 | 31.7 | 17.2 | 31.7 | 31.7 | 16.4 | 13.5 | 31.7 | 31.7 | 16.4 | 13.5 |
| Two Positions | No-Spring Detented | DSG-03-2D2 |  | 31.7 | 31.7 | 31.7 | 31.7 | 11.9 | 9.8 | 7.9 | 7.4 | 15.9 | 15.9 | 10.6 | 9.2 |
| | Spring Offset | DSG-03-2B2 |  | 29.1 | 29.1 | 29.1 | 29.1 | 18 | 12.4 | 10 | 10 | 31.7 | 30.1 | 19.8 | 16.6 |
| | | DSG-03-2B3 |  | 31.7 | 31.7 | 31.7 | 31.7 | 20.3 | 20.3 | 20.3 | 20.3 | 31.7 | 31.7 | 31.7 | 27.2 |
| | | DSG-03-2B8 |  | — | — | — | — | 14 | 8.7 | 6.3 | 6.1 | 31.7 | 31.7 | 16.4 | 12.4 |

Notes) 1. The relation between the maximum flow in the table above and the voltage (within the serviceable voltage) is as shown below.

(Example)



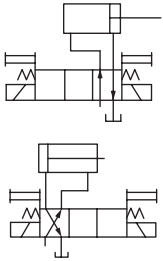
2. For the maximum flow rate in P → T of the valves with a ★ mark, please see [page 368](#).

The valve models with a ◆ mark are handled as Options. If you choose such valves, check the time of delivery beforehand.

DSG-03 Series Solenoid Operated Directional Valves

Maximum Flow of Centre By-Pass

In valve type 3C3, 3C5 and 3C60, in case where the actuator is put on in between the cylinder ports A and B as illustrated below and where the actuator moves and suspended at its stroke end and where the valve is then shifted to the neutral position in the suspended state of the actuator, the maximum flow rates available are those as shown as the table below regardless of any voltage in the range of serviceable voltage.



| Model Numbers | Graphic Symbols | Max. Flow L/min (U.S.GPM) | | | |
|-------------------------|-----------------|---------------------------|-------------------|-------------------|---------------------|
| | | 10 MPa (1450 PSI) | 16 MPa (2320 PSI) | 25 MPa (3630 PSI) | 31.5 MPa (4570 PSI) |
| DSG-03-3C3-A* | | 100 (26.4) | 100 (26.4) | 100 (26.4) | 100 (26.4) |
| DSG-03-3C3-D*/R*/RQ100 | | 120 (31.7) | 120 (31.7) | 120 (31.7) | 120 (31.7) |
| DSG-03-3C5-A* | | 26 (6.9) | 21 (5.5) | 18 (4.8) | 16 (4.2) |
| DSG-03-3C5-D*/R*/RQ100 | | 35 (9.2) | 24 (6.3) | 21 (5.5) | 20 (5.3) |
| DSG-03-3C60-A* | | 84 (22.2) | 52 (13.7) | 52 (13.7) | — |
| DSG-03-3C60-D*/R*/RQ100 | | 68 (18.0) | 65 (17.2) | 61 (16.1) | — |

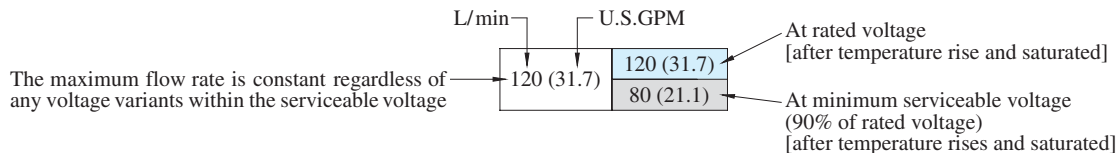
List of Shockless Models and The Maximum Flow

- Models with DC Solenoids: S-DSG-03-***-D*
- Models with R Type Solenoids: S-DSG-03-***-R*
- Models with RQ Type Solenoids: S-DSG-03-***-RQ100

| No. of Valve Positions | Spool-Spring Arrangement | Model Numbers | Graphic Symbols | Max. Flow L/min (U.S.GPM) | | | | | | | | | | | |
|------------------------|--------------------------|---------------|-----------------|----------------------------|------------|------------|------------|----------------------------|------------|-----------|-----------|----------------------------|------------|------------|-----------|
| | | | | | | | | P → A [Port "B" Blocked] | | | | P → B [Port "A" Blocked] | | | |
| | | | | | | | | | | | | | | | |
| | | | | Working Pressure MPa (PSI) | | | | Working Pressure MPa (PSI) | | | | Working Pressure MPa (PSI) | | | |
| | | | | 5 (730) | 10 (1450) | 16 (2320) | 25 (3630) | 5 (730) | 10 (1450) | 16 (2320) | 25 (3630) | 5 (730) | 10 (1450) | 16 (2320) | 25 (3630) |
| Three Positions | Spring Centred | S-DSG-03-3C2 | | 120 (31.7) | 120 (31.7) | 120 (31.7) | 120 (31.7) | 120 (31.7) | 120 (31.7) | 75 (19.8) | 50 (13.2) | 120 (31.7) | 120 (31.7) | 75 (19.8) | 50 (13.2) |
| | | S-DSG-03-3C4 | | 120 (31.7) | 120 (31.7) | 85 (22.5) | 65 (17.2) | 120 (31.7) | 120 (31.7) | 75 (19.8) | 40 (10.6) | 120 (31.7) | 120 (31.7) | 75 (19.8) | 40 (10.6) |
| Two Positions | Spring Offset | S-DSG-03-2B2 | | 120 (31.7) | 100 (26.4) | 75 (19.8) | 40 (10.6) | 39 (10.3) | 39 (10.3) | 39 (10.3) | 39 (10.3) | 120 (31.7) | 120 (31.7) | 105 (27.7) | 60 (15.9) |
| | | | | | | | | | | | | | | 80 (21.1) | 50 (13.2) |

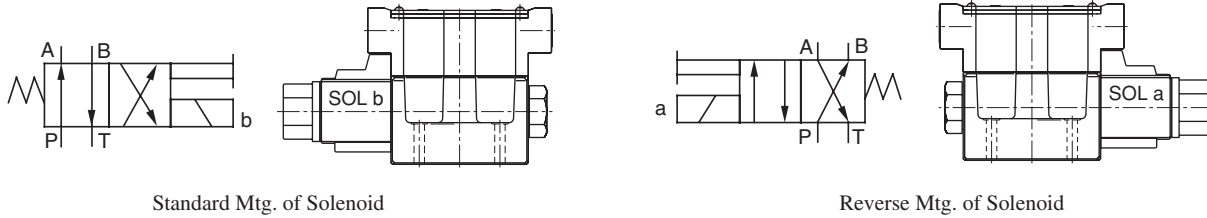
Note: The relation between the maximum flow in the table above and the voltage (within the serviceable voltage) is as shown below.

(Example)



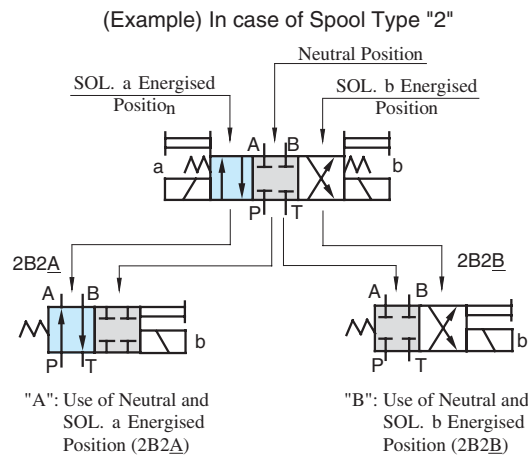
Reverse Mounting of Solenoid

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).



| Model Numbers | Graphic SymbolsG | |
|------------------|--------------------|-------------------|
| | Standard Mtg. Type | Reverse Mtg. Type |
| (S-) DSG-03-2B*A | | |
| (S-) DSG-03-2B2A | | — |

| Model Numbers | raphic Symbols | |
|------------------|--------------------|-------------------|
| | Standard Mtg. Type | Reverse Mtg. Type |
| DSG-03-2B*B | | |
| (S-) DSG-03-2B2B | | |
| DSG-03-2B3B | | — |
| (S-) DSG-03-2B4B | | — |
| DSG-03-2B60B | | — |
| DSG-03-2B10B | | — |

In the above table, the graphic symbols in mounting type highlighted with shade are optional extra, therefore, please confirm the time of delivery with us before ordering.

■ Typical Changeover Time

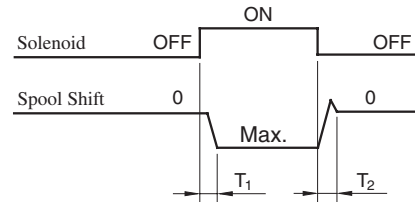
Changeover time varies according to oil viscosity, spool type and hydraulic circuit.

● **Standard Type** (Without Shockless Function)

[Test Conditions]

Pressure: 16 MPa (2320 PSI)
 Flow Rate: 70 L/min (18.5 U.S.GPM)
 Viscosity: 30 mm²/s (140 SSU)
 Voltage: 100 %V (After coil temperature rises and saturated)

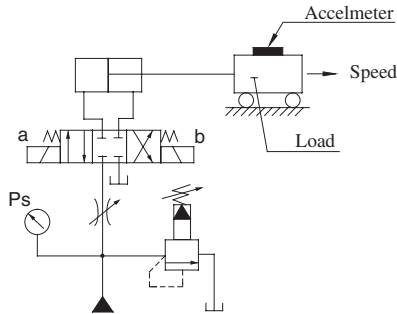
[Result of Measurement]



| Type | Model Numbers | Changeover Time ms | |
|---------------|------------------|--------------------|----------------|
| | | T ₁ | T ₂ |
| Standard Type | DSG-03-3C2-A* | 27 | 22 |
| | DSG-03-3C2-D* | 97 | 30 |
| | DSG-03-3C2-R* | 97 | 204 |
| | DSG-03-3C2-RQ100 | 97 | 41 |

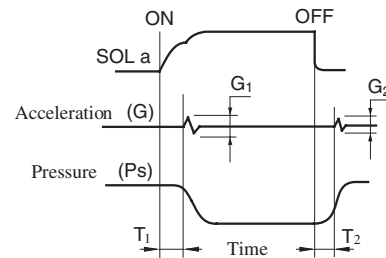
● **Shockless Type**

[Test Circuit and Conditions]



Setting Pressure (Ps): 7 MPa (1020 PSI)
 Load (W): 1000 kg (2205 lbs.)
 Speed: 8.8 m/min (28.9 ft./min)
 Viscosity: 30 mm²/s (140 SSU)

[Result of Measurement]

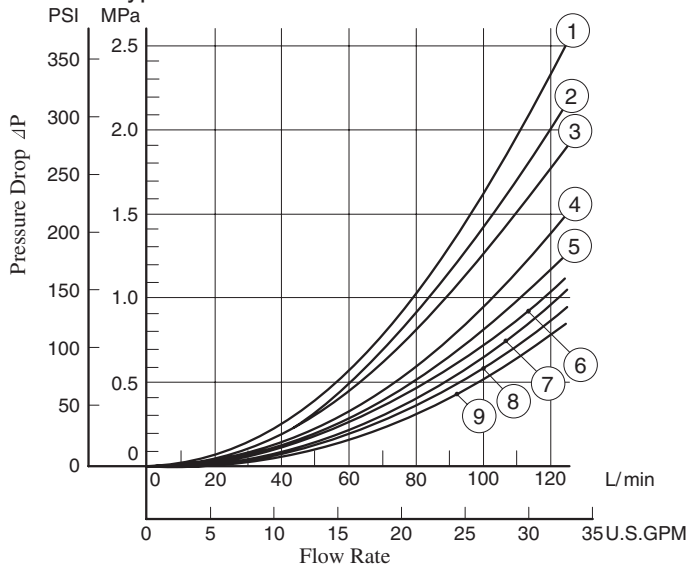


| Type | Model Numbers | Time ms | | Acceleration m/s ² (G) | |
|----------------|--------------------|----------------|----------------|-----------------------------------|----------------|
| | | T ₁ | T ₂ | G ₁ | G ₂ |
| Shockless Type | S-DSG-03-3C2-D* | 110 | 120 | 6.4 (.65) | 6.4 (.65) |
| | S-DSG-03-3C2-R* | 110 | 220 | | |
| | S-DSG-03-3C2-RQ100 | 110 | 120 | | |

Pressure Drop

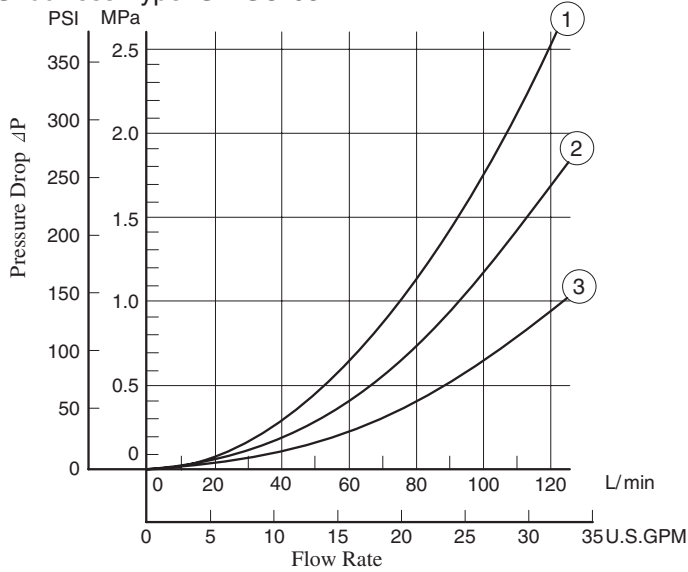
Pressure drop curves based on viscosity of 35 mm²/s (164 SSU) and specific gravity of 0.850.

Standard Type: DSG-03



| Model Numbers | Pressure Drop Curve Number | | | | |
|---------------|----------------------------|-----|-----|-----|-----|
| | P→A | B→T | P→B | A→T | P→T |
| DSG-03-3C2 | ⑦ | ⑦ | ⑦ | ⑦ | — |
| DSG-03-3C3 | ⑨ | ⑨ | ⑨ | ⑨ | ⑤ |
| DSG-03-3C4 | ⑦ | ⑧ | ⑦ | ⑧ | — |
| DSG-03-3C40 | ⑦ | ⑦ | ⑦ | ⑦ | — |
| DSG-03-3C5 | ⑨ | ⑦ | ⑦ | ⑨ | ① |
| DSG-03-3C60 | ⑥ | ⑤ | ⑥ | ⑤ | ① |
| DSG-03-3C9 | ⑨ | ⑦ | ⑨ | ⑦ | — |
| DSG-03-3C10 | ⑦ | ⑧ | ⑦ | ⑦ | — |
| DSG-03-3C11 | ⑨ | ⑦ | ⑦ | ⑦ | — |
| DSG-03-3C12 | ⑦ | ⑦ | ⑦ | ⑧ | — |
| DSG-03-2D2 | ④ | ③ | ⑥ | ⑥ | — |
| DSG-03-2B2 | ② | ① | ⑦ | ⑦ | — |
| DSG-03-2B3 | ③ | ② | ⑨ | ⑨ | — |
| DSG-03-2B8 | ⑥ | — | ⑤ | — | — |

Shockless Type: S-DSG-03



| Model Numbers | Pressure Drop Curve Number | | | |
|---------------|----------------------------|-----|-----|-----|
| | P→A | B→T | P→B | A→T |
| S-DSG-03-3C2 | ② | ② | ② | ② |
| S-DSG-03-3C4 | ② | ② | ③ | ③ |
| S-DSG-03-2B2 | ① | ② | ② | ② |

● 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 |
| 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 (ΔP') may be obtained from the formula below.

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

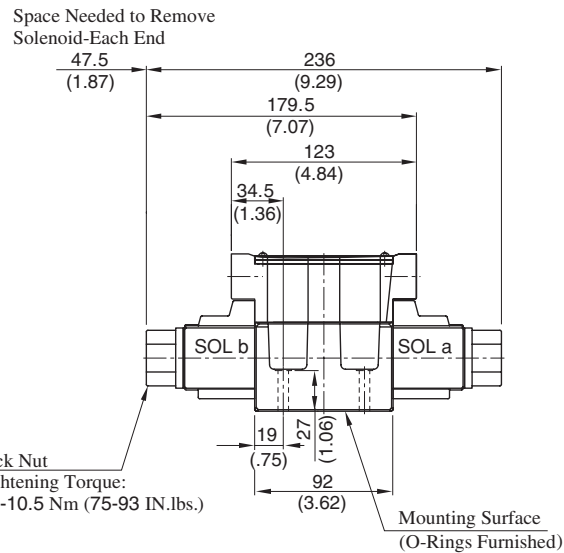
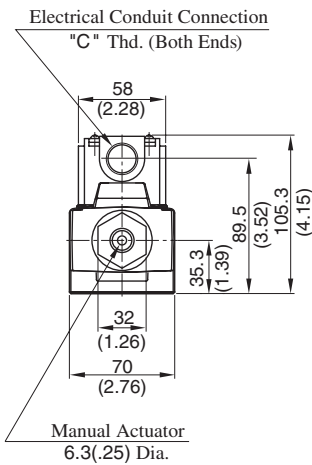
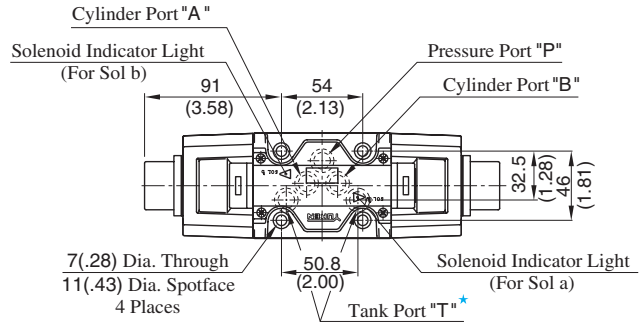
F
DSG-03 Series Solenoid Operated Directional Valves

TERMINAL BOX TYPE

■ Models with AC Solenoids: DSG-03- ***-A* -50/5090

● Double Solenoid: Spring Centred & No-Spring Detented

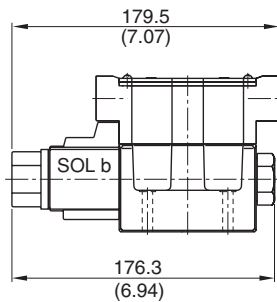
| Model Numbers | "C" Thd. |
|----------------------|----------|
| DSG-03- ***-A* -50 | G 1/2 |
| DSG-03- ***-A* -5090 | 1/2 NPT |



★. Of the two of tank port "T", the tank port 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)

● Single Solenoid: Spring Offset

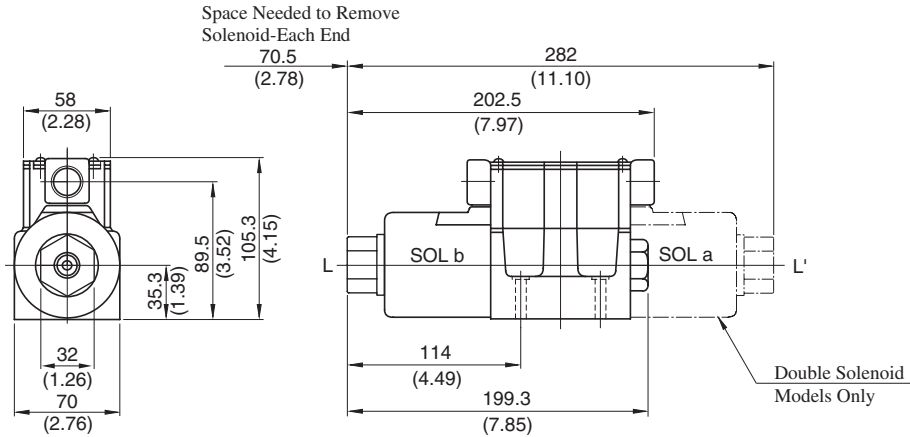


- For other dimensions, refer to "Spring Centred and No-Spring Detented" models.
- Solenoid being mounted in the reverse position -SOL a side- is also available.

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

TERMINAL BOX TYPE

- Models with DC Solenoids : (S-)DSG-03- *** -D* -50/5090
- Models with R Type Solenoids : (S-)DSG-03- *** -R* -50/5090
- Models with RQ Type Solenoids : (S-)DSG-03- *** -RQ100-50/5090
- Double Solenoid: Spring Centred & No-Spring Detented
- Single Solenoid: Spring Offset

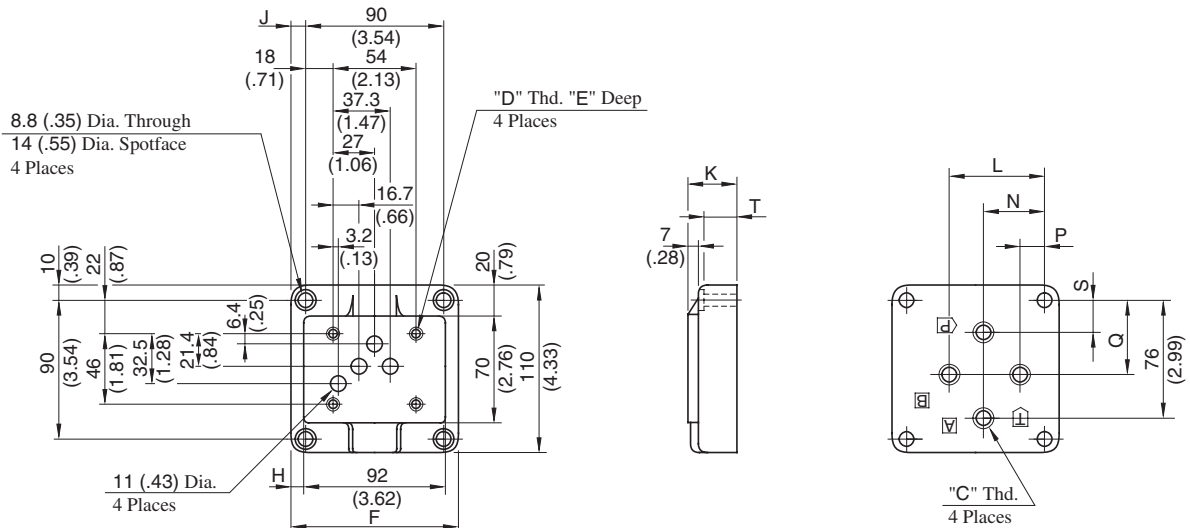


● For other dimensions, refer to Models with AC solenoids (Page 372).

DIMENSIONS IN
MILLIMETRES (INCHES)

Sub- plates

DSGM-03*-40/2180/2190

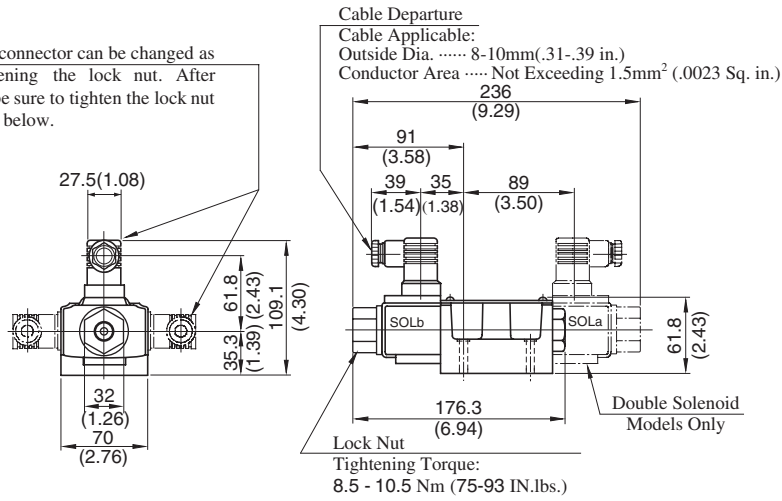


| Sub-plate Model Numbers | Piping Size "C" Thd. | "D" Thd. | Dimensions mm (Inches) | | | | | | | | | | |
|----------------------------|-------------------------|----------|------------------------|----------|-------|--------|--------|--------|-------|--------|-------|--------|----|
| | | | E | F | H | J | K | L | N | P | Q | S | T |
| DSGM-03-40 | Rc 3/8 | M6 | 13 (.51) | 110 | 9 | 10 | 32 | 62 | 40 | 16 | 48 | 21 | 24 |
| DSGM-03-2180 | 3/8 BSP.F | | (4.33) | (.35) | (.39) | (1.26) | (2.44) | (1.57) | (.63) | (1.89) | (.83) | (.94) | |
| DSGM-03-2190 | 3/8 NPT | | 1/4-20 UNC | 15 (.59) | | | | | | | | | |
| DSGM-03X-40 | Rc 1/2 | M6 | 13 (.51) | 110 | 9 | 10 | 32 | 62 | 40 | 16 | 48 | 21 | 24 |
| DSGM-03X-2180 | 1/2 BSP.F | | (4.33) | (.35) | (.39) | (1.26) | (2.44) | (1.57) | (.63) | (1.89) | (.83) | (.94) | |
| DSGM-03X-2190 | 1/2 NPT | | 1/4-20 UNC | 15 (.59) | | | | | | | | | |
| DSGM-03Y-40 | Rc 3/4 | M6 | 13 (.51) | 120 | 14 | 15 | 50 | 80 | 45 | 10 | 47 | 16 | 42 |
| DSGM-03Y-2180 | 3/4 BSP.F | | (4.72) | (.55) | (.59) | (1.97) | (3.15) | (1.77) | (.39) | (1.85) | (.63) | (1.65) | |
| DSGM-03Y-2190 | 3/4 NPT | | 1/4-20 UNC | 15 (.59) | | | | | | | | | |

■ **PLUG-IN CONNECTOR TYPE (N)**
PLUG-IN CONNECTOR WITH INDICATOR LIGHT (N1)

● **Models with AC Solenoids: DSG-03- *** -A* - $\frac{N}{N1}$ -50/5090**

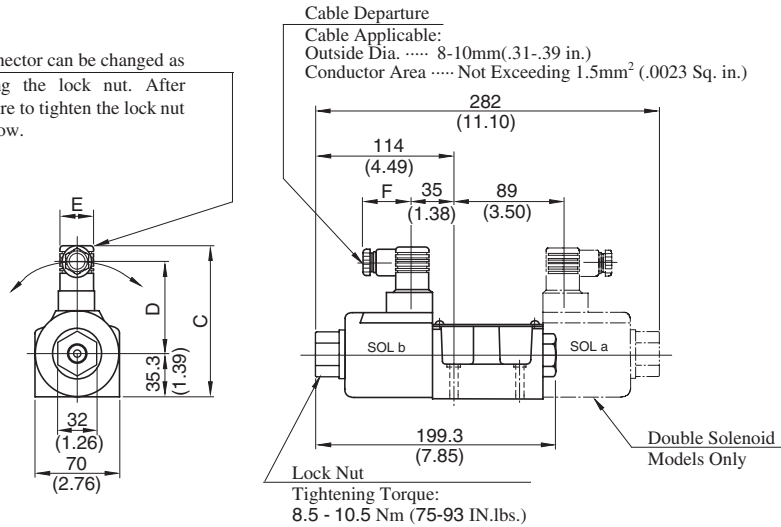
The position of the Plug-in connector can be changed as illustrated below by loosening the lock nut. After completion of the change, be sure to tighten the lock nut with the torque as specified below.



● **Models with DC Solenoids: (S-)DSG-03- *** -D* - $\frac{N}{N1}$ -50/5090**

● **Models with R Type Solenoids: (S-)DSG-03- *** -R* -N-50/5090**

The position of the Plug-in connector can be changed as illustrated below by loosening the lock nut. After completion of the change, be sure to tighten the lock nut with the torque as specified below.



| Model Numbers | Dimensions mm (Inches) | | | |
|---|------------------------|-------------|-------------|-----------|
| | C | D | E | F |
| DSG-03- *** -D* - $\frac{N}{N1}$ -50/5090 | 121.1 (4.77) | 73.8 (2.91) | 27.5 (1.08) | 39 (1.54) |
| DSG-03- *** -R* -N-50/5090 | 124.9 (4.92) | 62.6 (2.46) | 34 (1.34) | 53 (2.09) |

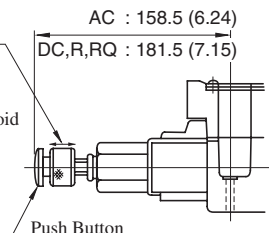
● For other dimensions, refer to "Terminal Box Type" (Page 372 - 373).

DIMENSIONS IN MILLIMETRES (INCHES)

■ **Options**

Models with Push Button & Lock Nut: (S-)DSG-03- * -*C(- $\frac{N}{N1}$)-50/5090**

Lock Nut
 Press the "Push Button" then turn "Lock Nut" clockwise. The position of the "Push Button" is held.
 Be sure to loosen "LockNut" fully before solenoid is energised



Details of Receptacle

| Type of Electrical Conduit Connection | Double Solenoid Type | Single Solenoid Type |
|---------------------------------------|----------------------|----------------------|
| Terminal Box Type | | |
| Plug-in Connector Type | | |

- ★1. There are two grounding terminals. You can use either one.
- ★2. If you do not need the common plate, remove it.
- ★3. With DC solenoids, polarity is no question.

⚠ DANGER

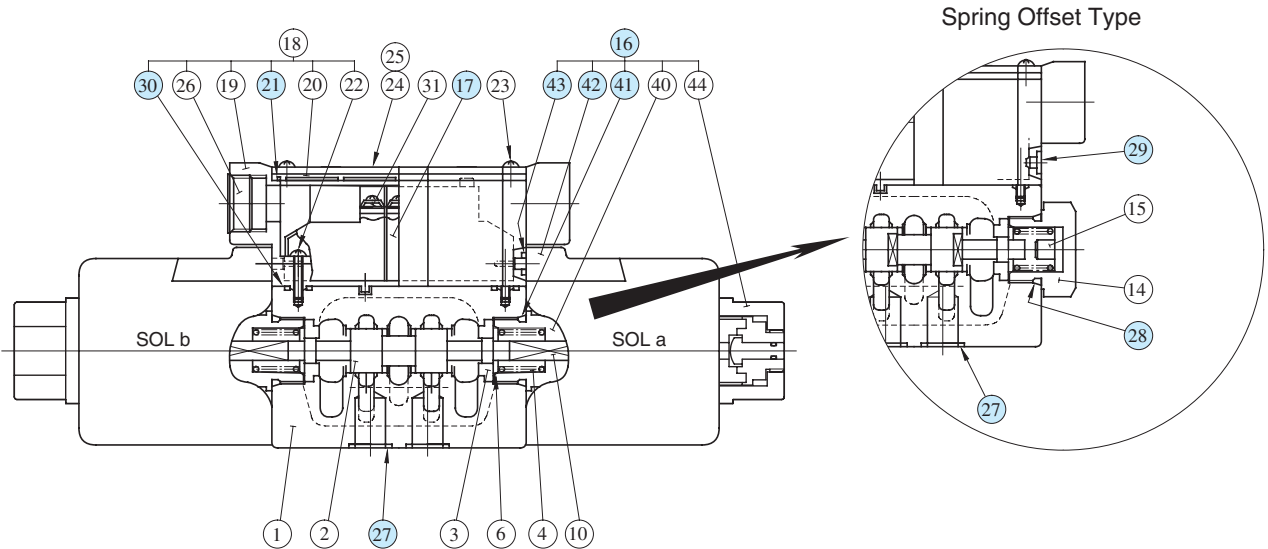
- Do not perform wiring while the power is on. Doing so may result in electric shock, burns or death.
- Make the wiring properly. Improper wiring will cause an irregular movement of the machine, resulting in a grave accident.

Electrical Circuit

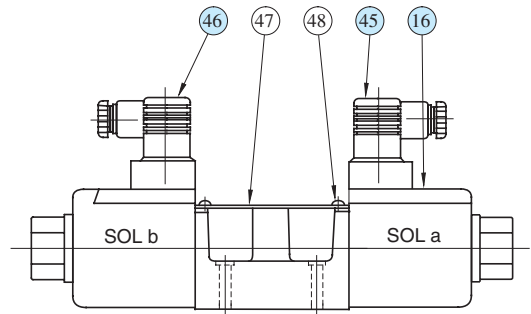
| Type of Electrical Conduit Connection | Electric Source | | |
|---------------------------------------|-----------------|----|-----------------|
| | AC | DC | AC→DC Rectified |
| Terminal Box Type | | | |
| Plug-in Connector Type | | | |

■ List of Seals

*-DSG-03-***-*-50/5090



*-DSG-03-***-N/N1-50/5090



● List of Seals

| Item | Name of Parts | Part Numbers | Qty. | | | Remarks |
|------|---------------|-----------------------|------|-----|----|--|
| | | | 3C | 2D2 | 2B | |
| 21 | Gasket | 1751S-VK418689-6 | 1 | 1 | 1 | |
| 27 | O-Ring | SO-NB-A014(NBR, Hs90) | 5 | 5 | 5 | |
| 28 | O-Ring | SO-NB-P21 | — | — | 1 | |
| 29 | Plug | 1790S-VK418329-9 | — | — | 2 | |
| 30 | O-Ring | S6 | 2 | 2 | 2 | |
| 41 | O-Ring | SO-NB-P21 | 2 | 2 | 1 | } Included in Solenoid Ass'y (Item 16) |
| 43 | O-Ring | SO-NA-P4 | 4 | 4 | 2 | |

★ When ordering the O-Rings, please specify the seal kit number from the table below.

| Valve Model Numbers | Seal Kit No. | O-Ring Details for Seal Kit |
|------------------------|----------------|--|
| DSG-03-***-*-50/5090 | KS-DSG-03-50 | 27(5 Pcs.), 28 & 41(2 Pcs., see above), 43(4 Pcs.) |
| DSG-03-***-*-N-50/5090 | KS-DSG-03-N-50 | 27(5 Pcs.), 28 & 41(2 Pcs., see above) |

● Solenoid Ass'y, Coil, Receptacle and Connector

Refer to [Page 377](#) for the details of these parts.

Solenoid Ass'y, Coil, Receptacle and Connector Ass'y No.

| Valve Model Numbers | (16) Solenoid Ass'y No. | (42) Coil No. | (17) Receptacle Part No. | (45) Connector Ass'y Part No. | (46) Connector Ass'y Part No. | Remarks | |
|--------------------------|----------------------------|------------------|-----------------------------|----------------------------------|----------------------------------|------------------------|--|
| DSG-03-***-A100-50* | SA3-100-51 | C-SA3-100-51 | R3-60 | — | — | Terminal Box Type | |
| DSG-03-***-A120-50* | SA3-120-51 | C-SA3-120-51 | | | | | |
| DSG-03-***-A200-50* | SA3-200-51 | C-SA3-200-51 | | | | | |
| DSG-03-***-A240-50* | SA3-240-51 | C-SA3-240-51 | | | | | |
| DSG-03-***-D12-50* | SD3-12-51 | C-SD3-12-51 | KR3-A-60 | | | | |
| DSG-03-***-D24-50* | SD3-24-51 | C-SD3-24-51 | KR3-C-60 | | | | |
| DSG-03-***-D100-50* | SD3-100-51 | C-SD3-100-51 | | | | | |
| DSG-03-***-R100-50* | SR3-100-51 | C-SR3-100-51 | RR3-60 | | | | |
| DSG-03-***-R200-50* | SR3-200-51 | C-SR3-200-51 | QR3-C-60 | | | | |
| DSG-03-***-RQ100-50* | SR3-100-51 | C-SR3-100-51 | | | | | |
| S-DSG-03-***-D12-50* | SD3-12-S-51 | C-SD3-12-51 | KR3-A-60 | | | | |
| S-DSG-03-***-D24-50* | SD3-24-S-51 | C-SD3-24-51 | KR3-C-60 | | | | |
| S-DSG-03-***-D100-50* | SD3-100-S-51 | C-SD3-100-51 | | | | | |
| S-DSG-03-***-R100-50* | SR3-100-S-51 | C-SR3-100-51 | RR3-60 | | | | |
| S-DSG-03-***-R200-50* | SR3-200-S-51 | C-SR3-200-51 | QR3-C-60 | | | | |
| S-DSG-03-***-RQ100-50* | SR3-100-51 | C-SR3-100-51 | | | | | |
| DSG-03-***-A100-N-50* | SA3-100-N-51 | C-SA3-100-N-51 | — | GDM-211-A-11 | GDM-211-B-11 | Plug-in Connector Type | |
| DSG-03-***-A120-N-50* | SA3-120-N-51 | C-SA3-120-N-51 | | | | | |
| DSG-03-***-A200-N-50* | SA3-200-N-51 | C-SA3-200-N-51 | | | | | |
| DSG-03-***-A240-N-50* | SA3-240-N-51 | C-SA3-240-N-51 | | | | | |
| DSG-03-***-D12-N-50* | SD3-12-N-51 | C-SD3-12-N-51 | | | | | |
| DSG-03-***-D24-N-50* | SD3-24-N-51 | C-SD3-24-N-51 | | | | | |
| DSG-03-***-D100-N-50* | SD3-100-N-51 | C-SD3-100-N-51 | | | | | |
| DSG-03-***-R100-N-50* | SR3-100-N-51 | C-SR3-100-N-51 | | | | | |
| DSG-03-***-R200-N-50* | SR3-200-N-51 | C-SR3-200-N-51 | | GDME-211-R-A-10 | GDME-211-R-B-10 | | |
| S-DSG-03-***-D12-N-50* | SD3-12-S-N-51 | C-SD3-12-N-51 | | GDM-211-A-11 | GDM-211-B-11 | | |
| S-DSG-03-***-D24-N-50* | SD3-24-S-N-51 | C-SD3-24-N-51 | | | | | |
| S-DSG-03-***-D100-N-50* | SD3-100-S-N-51 | C-SD3-100-N-51 | | GDME-211-R-A-10 | GDME-211-R-B-10 | | |
| S-DSG-03-***-R100-N-50* | SR3-100-S-N-51 | C-SR3-100-N-51 | | | | | |
| S-DSG-03-***-R200-N-50* | SR3-200-S-N-51 | C-SR3-200-N-51 | | GDM-211-A-11 | GDM-211-B-11 | | Plug-in Connector with Indicator Light |
| DSG-03-***-A100-N1-50* | SA3-100-N-51 | C-SA3-100-N-51 | | | | | |
| DSG-03-***-A120-N1-50* | SA3-120-N-51 | C-SA3-120-N-51 | | | | | |
| DSG-03-***-A200-N1-50* | SA3-200-N-51 | C-SA3-200-N-51 | | | | | |
| DSG-03-***-A240-N1-50* | SA3-240-N-51 | C-SA3-240-N-51 | | | | | |
| DSG-03-***-D12-N1-50* | SD3-12-N-51 | C-SD3-12-N-51 | | | | | |
| DSG-03-***-D24-N1-50* | SD3-24-N-51 | C-SD3-24-N-51 | | | | | |
| DSG-03-***-D100-N1-50* | SD3-100-N-51 | C-SD3-100-N-51 | | | | | |
| S-DSG-03-***-D12-N1-50* | SD3-12-S-N-51 | C-SD3-12-N-51 | | | | | |
| S-DSG-03-***-D24-N1-50* | SD3-24-S-N-51 | C-SD3-24-N-51 | | | | | |
| S-DSG-03-***-D100-N1-50* | SD3-48-S-N-51 | C-SD3-100-N-51 | | | | | |

Note : The connector assembly is not included in the solenoid assembly.

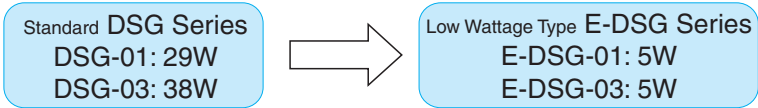


DSG-03 Series Solenoid Operated Directional Valves

Low Wattage (5W) Type Solenoid Operated Directional Valves

2 type of Direct Acting type Solenoid Operated Directional Valves, E-DSG-01/03, with suppressed consumption power 5W were launched in series.

- Because these valves only 5W of power which enables remarkable reduction of operating cost.



- Since these valves operate on only 5W, they can be driven through the output circuit of a programmed or sequence controller. This feature simplifies the electric circuitry and enables savings in initial cost.
- These low wattage valves minimize coil surface temperature.
- CE certified products are available.



Specifications

| Model Numbers | Max. Flow L/min (U.S.GPM) | Max. Operating Pressure MPa (PSI) | Max. T-Line Back Pressure MPa (PSI) | Max. Changeover Frequency Cycle/min {min ⁻¹ } | Mass kg (lbs.) |
|--------------------|---------------------------------|--------------------------------------|---|--|-------------------|
| E-DSG-01-3C*-D*-60 | 30 (7.9) | 16 (2320) | 16 (2320) | 240 | 2.2 (4.85) |
| E-DSG-01-2N2-D*-60 | | | | | 2.2 (4.85) |
| E-DSG-01-2D2-D*-60 | | | | | 2.2 (4.85) |
| E-DSG-01-2B*-D*-60 | | | | | 1.6 (3.53) |
| E-DSG-03-3C*-D*-50 | 63 (16.6) | 16 (2320) | 16 (2320) | 240 | 5 (11.03) |
| E-DSG-01-2D2-D*-50 | | | | | 5 (11.03) |
| E-DSG-01-2B2-D*-50 | | | | | 3.6 (7.94) |

★ Maximum flow indicates a ceiling flow depends on the type of spool and operating condition.

Solenoid Ratings

| Model Numbers | Electric source | Coil Type | Voltage (V) | | Current & Power at Rated Voltage | |
|---------------|-----------------|-----------|---------------|-------------------|----------------------------------|-----------|
| | | | Source Rating | Serviceable Range | Inrush (A) | Power (W) |
| E-DSG-01 | DC (K Series) | D12 | 12 | 10.8 – 13.2 | 0.43 | 5 |
| | | D24 | 24 | 21.6 – 26.4 | 0.23 | |
| E-DSG-03 | | D12 | 12 | 10.8 – 13.2 | 0.44 | 5 |
| | | D24 | 24 | 21.6 – 26.4 | 0.22 | |

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 .

For details, please contact us.

Electronic Relay Incorporated Solenoid Operated Directional Valves

Drive power source and signal are separate.

The valve is actuated by operating a built-in switch using a very small current signal (about 10 mA) when the solenoid is energised.

- **A Direct Drive by a programmable controller is now possible.**

As the valve can be actuated by a very small current, as we have mentioned, a Direct Drive is possible on the output circuit of the programmable controller or sequence controller.

- **Simple construction and stable operation.**

Since the valve is a direct type, the construction is quite simple. Also the solenoid is the well proven wet armature type, which can withstand contamination. Therefore a stable operation can be obtained.



Specifications

| Valve Type | Model Numbers | Max. Flow ★ L/min (U.S.GPM) | Max. Operating Pressure MPa (PSI) | Max. T-Line Back Pressure MPa (PSI) | Max. Changeover Frequency Cycle/min {min ⁻¹ } | Mass kg (lbs.) |
|----------------|-----------------------------|-----------------------------------|--|---|---|----------------------|
| Standard Type | T-DSG-01-3C*-D24*-70/7090 | 100 (26.4) | 35 (5080) | 21 (3050) | 300 | 1.85 (4.08) |
| | T-DSG-01-2D2-D24*-70/7090 | | | | | |
| | T-DSG-01-2B*-D24*-70/7090 | | | | | |
| Shockless Type | T-S-DSG-01-3C*-D24*-70/7090 | 63 (16.6) | 25 (3630) | 21 (3050) | 120 | 1.85 (4.08) |
| | T-S-DSG-01-2B2-D24*-70/7090 | | | | | |
| Standard Type | T-DSG-03-3C*-D24*-50/5090 | 120 (31.7) | 31.5 (4570) { Spool Type 60 Only } 25 (3630) | 16 (2320) | 240 | 5 (11.03) |
| | T-DSG-03-2D2-D24*-50/5090 | | | | | |
| | T-DSG-03-2B*-D24*-50/5090 | | | | | |
| Shockless Type | T-S-DSG-03-3C*-D24*-50/5090 | 120 (31.7) | 25 (3630) | 16 (2320) | 120 | 5 (11.03) |
| | T-S-DSG-03-2B2-D24*-50/5090 | | | | | |

★ Maximum flow indicates a ceiling flow. As the ceiling flow depends on the type of spool and operating condition the same as those for standard DSG-01/03, refer to the List of Spool Functions on pages 347 - 351 (DSG-01) and 364 - 368 (DSG-03) for details.

Model Number Designation

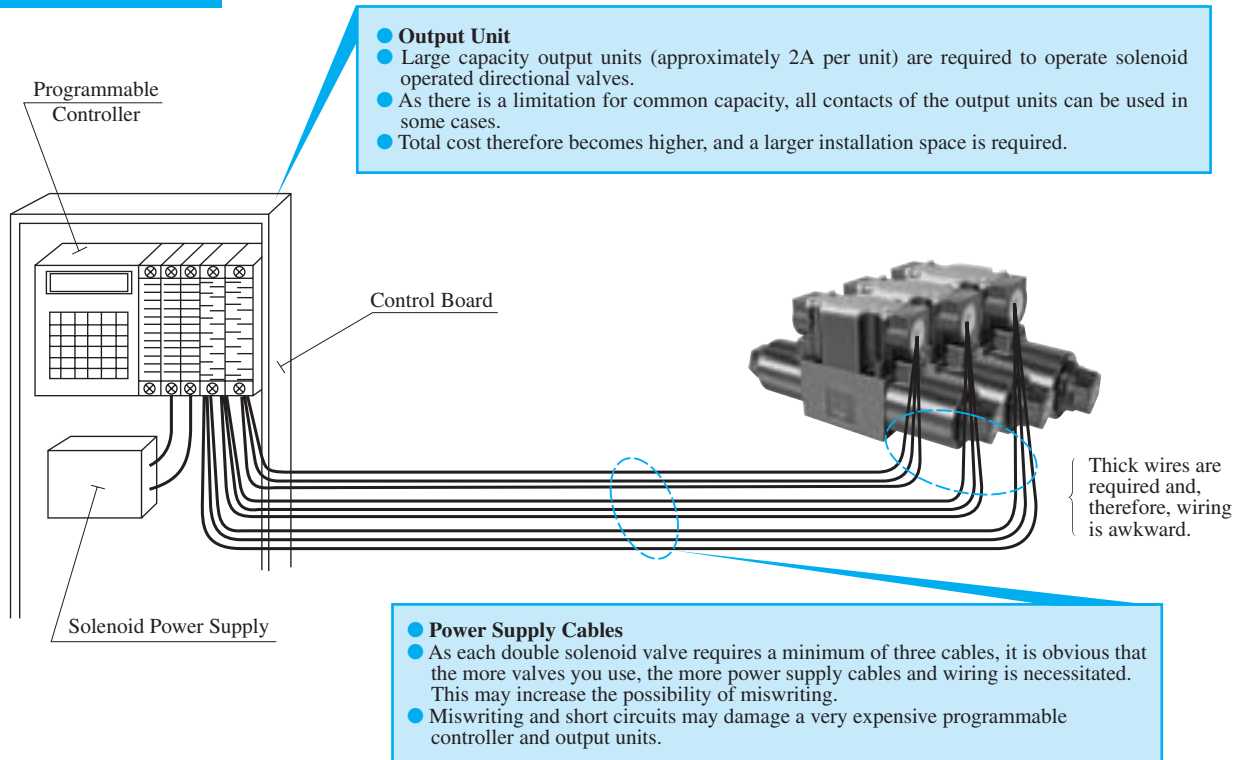
| F- | T- | S- | DSG | -03 | -2 | B | 2 | A | -D24 | M | -70 | * | -L |
|---------------|--|------|---------------|------------|--------------------------|--------------------------|------------|----------------------------|-----------|--------------------------------|---------------|-----------------|---------------------------------------|
| Special Seals | Control Type | Type | Series Number | Valve Size | Number of Valve Position | Spool-Spring Arrangement | Spool Type | Special Two Position Valve | Coil Type | Supply Type of Signal Power | Design Number | Design Standard | Models with Alternate Offset Solenoid |
| | T: Electronic Relay Incorporated Type | | | 01 | | | | | DC D24 | None: Internal Signal Power | 70 | | |
| | | | | 03 | | | | | | M: External Signal Power | 50 | | |

★ Please refer to the valve type DSG-01 and DSG-03 shown on page 346 and 363 for the area shaded.

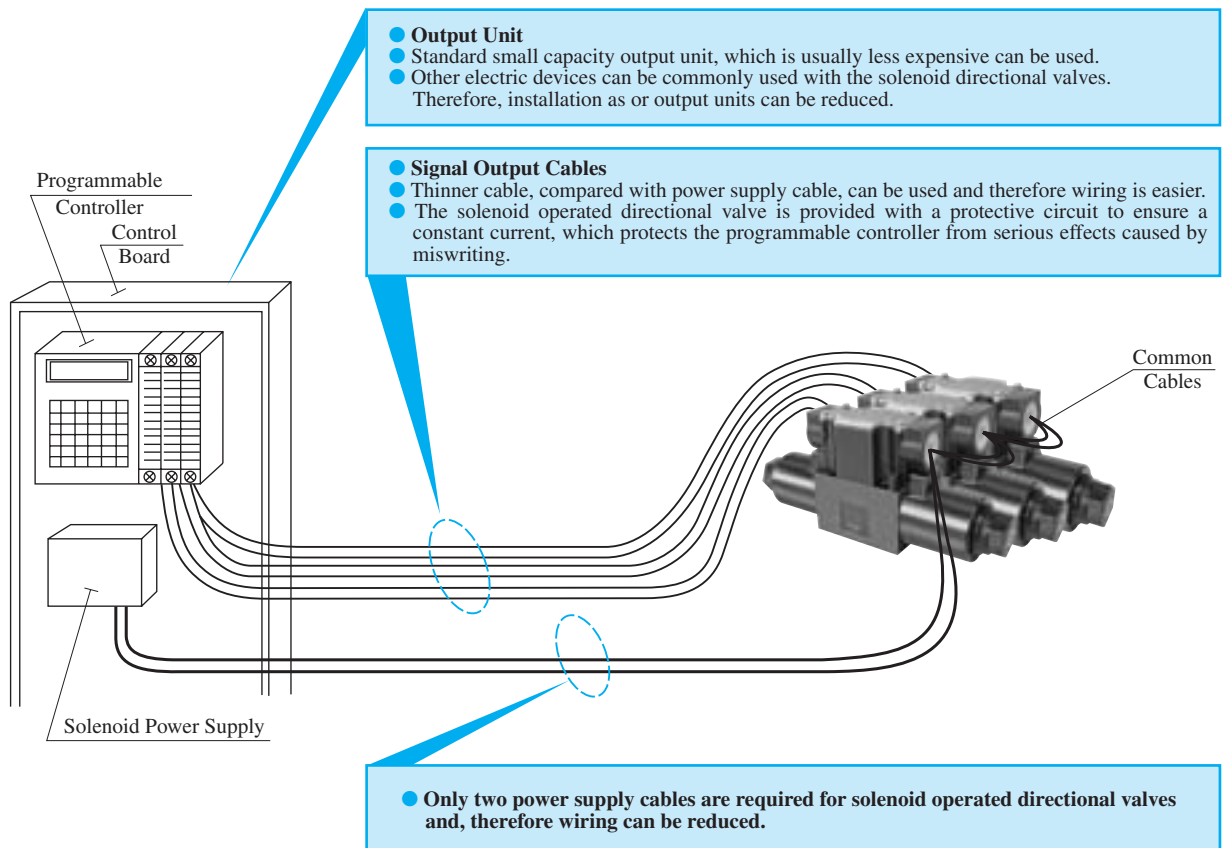
For details, please contact us.

Comparison of The Conventional Type and The Electronic Relay Incorporated Type

Conventional Type



Electronic Relay Incorporated Type



Solenoid Controlled Pilot Operated Directional Valves

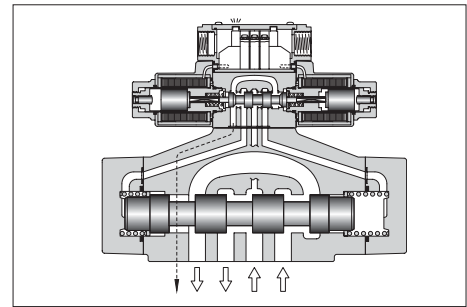
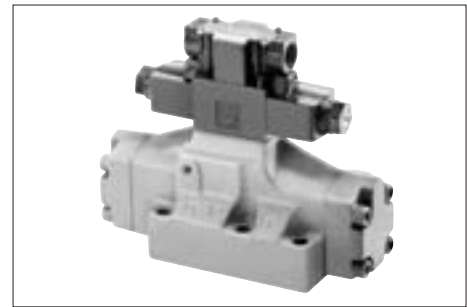
These valves are composed of a solenoid operated pilot valve and a pilot operated slave valve. When a solenoid is energised the pilot valve directs the flow to move the spool of the slave valve, thus changing the direction of flow in the hydraulic circuit.

High Pressure High Flow

High pressure [31.5 MPa (4570 PSI)] along with 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 L/min (U.S.GPM) ^{*1} | 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 Cycles/Min {min ⁻¹ } | | | Mass kg (lbs.) |
|---------------------------|----------------------------|---|-----------------------------------|-------------------------------|---|-------------------------------------|------------|--|-------------|-------------|----------------|
| | | | | | | 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 | | | | | | | | | | |
| | 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) |
| | Shockless Type | (S-)DSHG-04-3C*-*-52/5290 | 300 (79.3) | 31.5 (4570) | 25 (3630) | 0.8 (120) | 21 (3050) | 16 (2320) | 120 | 120 | 120 |
| (S-)DSHG-04-2N*-*-52/5290 | | 8.5 (18.7) | | | | | | | | | |
| (S-)DSHG-04-2B*-*-52/5290 | | 8.0 (17.6) | | | | | | | | | |
| (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.

Solenoid Controlled Pilot Operated Directional Valves

■ 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 | — | — | C1: With C1 Choke C2: With C2 Choke C1C2: With C1 & C2 Choke (Omit if not required) | None: Internal Pilot | None: External 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 | — | | | | |
| | | | | 2 | N: No-Spring | 2 3 4 40 7 | — | | | | |
| | | | 04 | 3 | C: Spring Centred | 2, 4, 40 60, 10, 12 (3, 5, 6) ^{*1} (7, 9, 11) | — | | | | |
| | | | | 2 | N: No-Spring | 2, 4, 40 (3, 7) ^{*1} | A ^{*2} (Omit if not required) | | | | |
| | 06 | | 3 | H: Pressure Centred | 2, 4, 40 60, 10, 12 (3, 5, 6) ^{*1} (7, 9, 11) | — | | | | | |
| | | | | C: Spring Centred | 2, 4, 40 (3, 7) ^{*1} | A ^{*2} (Omit if not required) | | | | | |
| | 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} (Omit if not required) | Coil Type | Manual Override of Pilot Valve | Bult-in Orifice for Pilot Line | Type of Electrical Conduit Connection | Design Number | Design Standard | Models with Reverse Mtg. of Solenoid |
| — | AC: A100 , A200 A120 , A240 | | — | | 14 | None: Japanese Standard "JIS" | — L (Omit if not required) |
| R2 : With Stroke Adjustment, Both Ends | DC: D12 , D24 D48 | None : Manual Override Pin | — | None: Terminal Box Type | 14 | 90: N. American Design Standard | — L (Omit if not required) |
| RA : With Stroke Adjustment, Port "A" End | AC → DC R100 , R200 | | — | | | | |
| RB : With Stroke Adjustment, Port "B" End | AC: A100 , A200 A120 , A240 | C : Push Button & Lock Nut | — | | 52 | None: Japanese Standard "JIS" & European Design Standard | — L (Omit if not required) |
| | DC: D12 , D24 D48 | | — | | N: Push-in Connector Type | 53 | 80: European Design Standard (Applicable only for DSHG-01) |
| R2 : With Stroke Adj., Both Ends | AC → DC R100 , R200 | | — | H : Refer to ^{★5} | N1 : Push-in Connector with Indicator Light ^{★4} | 43 | 90: N. American Design Standard |
| RA : With Stroke Adj., Port "A" End | | | — | | | | — L (Omit if not required) |
| RB : With Stroke Adj., Port "B" End | | | — | | | | — L (Omit if not required) |
| P2 : With Pilot Piston, Both Ends | | | — | | | | — L (Omit if not required) |
| PA : With Pilot Piston, Port "A" End | | | — | | | | — L (Omit if not required) |
| PB : With Pilot Piston, Port "B" End | | | — | | | | — 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 (lbs.) | Sub-plate Model Numbers | Thread Size | Approx. Mass kg (lbs.) | Sub-plate Model Numbers | Thread Size | Approx. Mass kg (lbs.) |
| DSHG-01 | DSGM-01-31 | 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

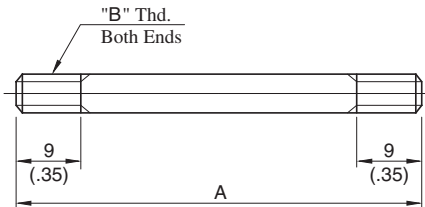
| Model Numbers | Mounting Bolt | | | | |
|---------------|------------------------------|--|--|-------|------------------------------------|
| | Name | Japanese Standard "JIS" European Design Standard | N. American Design Standard | Qty. | Tightening Torque Nm (in. lbs.) |
| DSHG-01 | Mtg. Bolt Kit ★ 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.

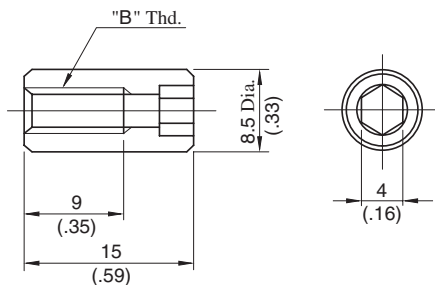
★ 2. For External Pilot or External Drain.

★ 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)

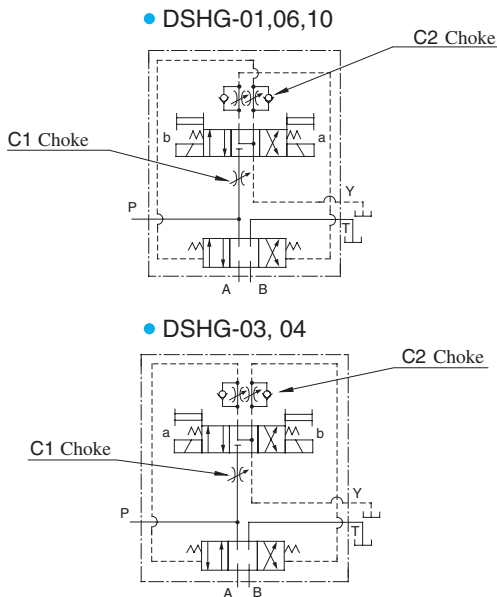
| Model Numbers | A mm (In.) | "B" Thd. |
|----------------|------------|--------------|
| MBK-01-01-30 | 94 (3.70) | M5 |
| MBK-01-02-30 | 134 (5.28) | |
| MBK-01-01-3090 | 94 (3.70) | No.10-24 UNC |
| MBK-01-02-3090 | 134 (5.28) | |

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)

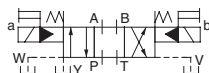


Models with Pilot Piston (P2, PA, PB)

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 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

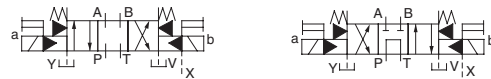


Pressure Centred Models (3H*)

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)

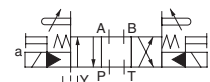


Models with Stroke Adjustment (R2, RA, RB)

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

Graphic Symbols (Ex.: Spring Centred)

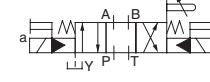
"R2" Models



"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.

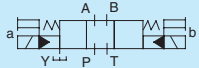
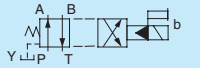











kg (lbs.)

| 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 [page 345](#) for the details.

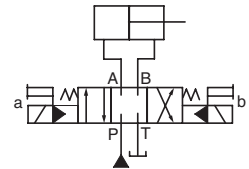
■ List of Spool Functions and Maximum Flow (DSHG-01)

| 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 Spool Functions and Maximum Flow (DSHG-03)

Three Positions

| Spool Type | Spring Centred | | | |
|------------|----------------|---------------------------------|-------------------------|--------------------------|
| | Graphic Symbol | Maximum Flow L/min (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/min (U.S.GPM) | | | Graphic Symbol | Maximum Flow L/min (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.

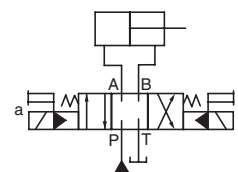
(Example)

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.



E
Solenoid Controlled
Pilot Operated Directional Valves

■ List of Spool Functions and Maximum Flow (DSHG-04/S-DSHG-04)

● Three Positions

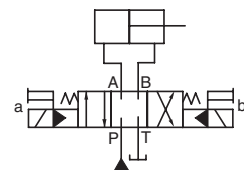
| Spool Type | Spring Centred | | | | | |
|---------------|----------------------|----------------------|----------------------|------------------------|------------|--|
| | Graphic Symbol | Maximum Flow | | | | |
| | | L/min (U.S.GPM) | | | | |
| Model Numbers | 10 MPa (1450 PSI) | 16 MPa (2320 PSI) | 25 MPa (3630 PSI) | 31.5 MPa (4570 PSI) | | |
| "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 | | | | Graphic Symbol | Maximum Flow | | | |
| | | L/min (U.S.GPM) | | | | | 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-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 Spool Functions and Maximum Flow (DSHG-06/S-DSHG-06)

Three Positions

| Spool Type | Spring Centred | | | | | Pressure Centred | | | | |
|------------|------------------|----------------------|----------------------|------------------------|-------------------------|------------------|----------------------|----------------------|----------------------|------------------------|
| | Graphic Symbol | Maximum Flow | | | | Graphic Symbol | Maximum Flow | | | |
| | 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 | | | | Graphic Symbol | Maximum Flow | | | |
| | 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) |

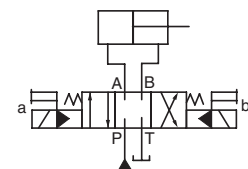
Notes: 1. The relation between max. flow and pilot pressure in the table above is as shown below.

(Example)

Maximum flow rate is constant regardless of pilot pressure. → 500 (132)
 Pilot Pressure more than 0.8 MPa (120 PSI).
 In case pressure centred models, pilot pressure is more than 1 MPa (150 PSI).

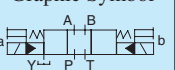
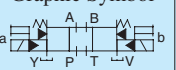












| | |
|-----------|--|
| 410 (108) | → Pilot Pressure at 0.8 MPa (120 PSI). In case pressure centred models, pilot pressure is more than 1 MPa (150 PSI) |
| 500 (132) | → Pilot Pressure at 1.5 MPa (220 PSI). |

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.

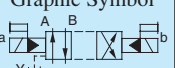
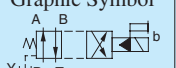







■ List of Spool Functions and Maximum Flow (DSHG-010/S-DSHG-10)

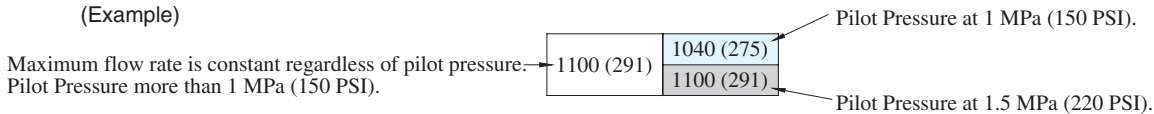
● Three Positions

| 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-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) |

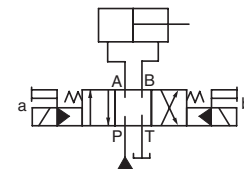
● Two Positions

| Spool Type | No-Spring | | | | | Spring Offset | | | | |
|--|---|---------------------------------|----------------------|----------------------|------------------------|--|---------------------------------|----------------------|----------------------|------------------------|
| | Graphic Symbol  | Maximum Flow L/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-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)

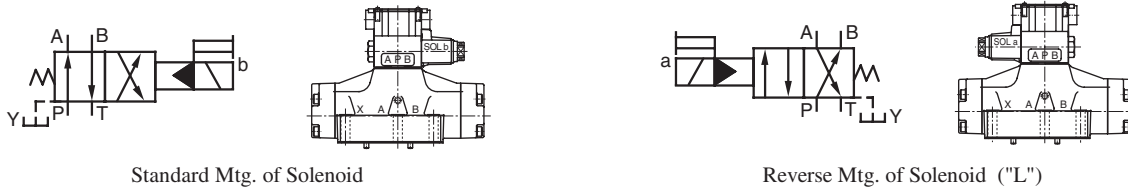


2. Max. flow in the table above represents the value in the flow condition of P → A → B → T (or P → B → A → T) as shown in the circuit diagram right.
In case the valve is used in the condition that either A or B port is blocked, the maximum flow differs according to a hydraulic circuit, therefore, please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



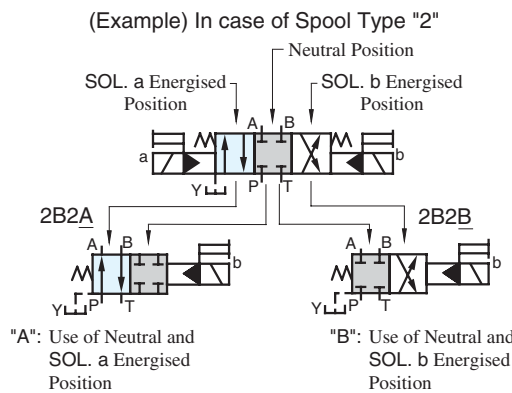
Reverse Mounting of Solenoid.

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).



| 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 | | |

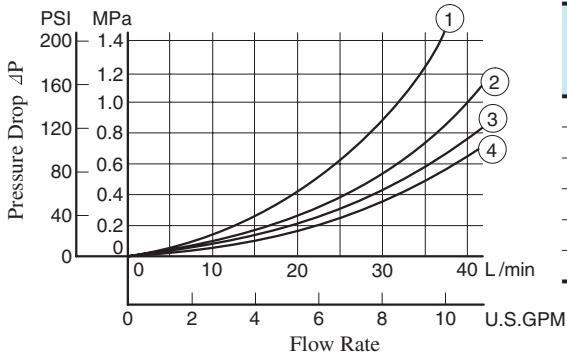
| Model Numbers | Graphic Symbols | |
|--------------------------|-----------------|-------------------|
| | Standard Mtg. | Reverse Mtg. Type |
| 04 DSHG-06-2B*B 10 | | |
| (S-)DSHG-*-2B2B | | |
| DSHG-*-2B3B | | |
| (S-)DSHG-*-2B4B | | |
| (S-)DSHG-*-2B40B | | |
| DSHG-*-2B5B | | |
| DSHG-*-2B6B | | |
| (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 | |

Pressure Drop

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

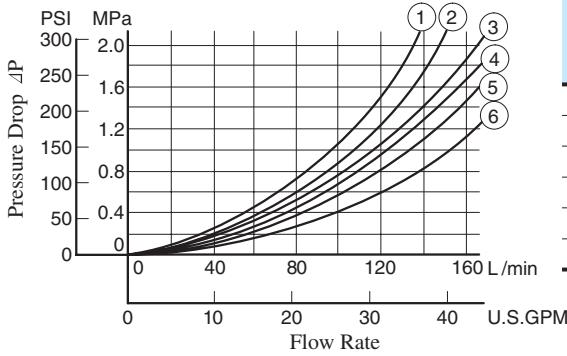
DSHG-01



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 | | | | | | |

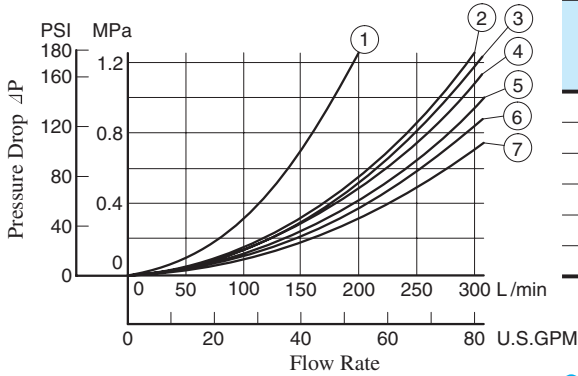
DSHG-03



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



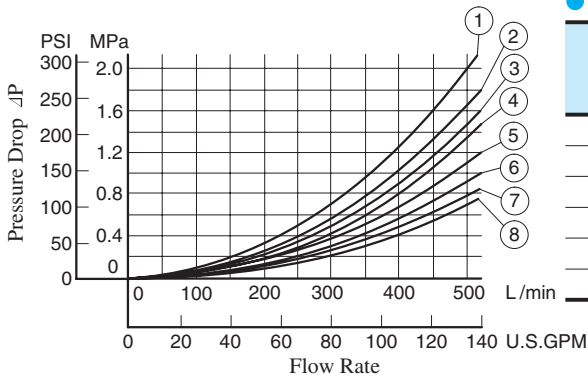
DSHG-04

| 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 | ⑦ | 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 | — |

DSHG-06, S-DSHG-06



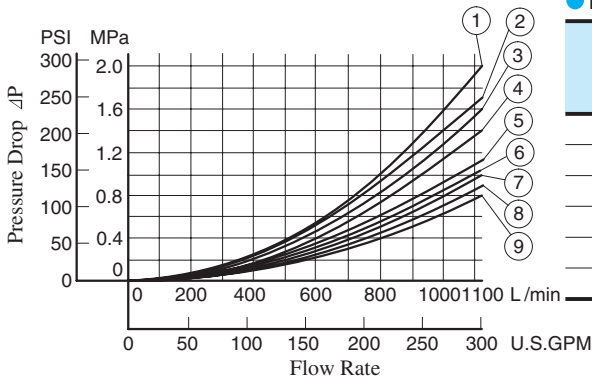
DSHG-06

| 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 |
| 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 (ΔP') 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.

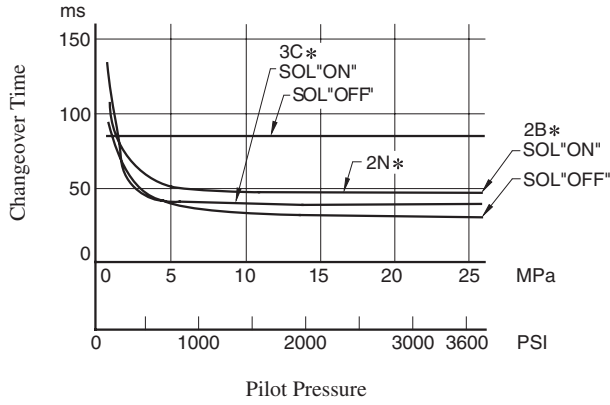
● Test Conditions

Coil Type : D*(Models with DC solenoids)

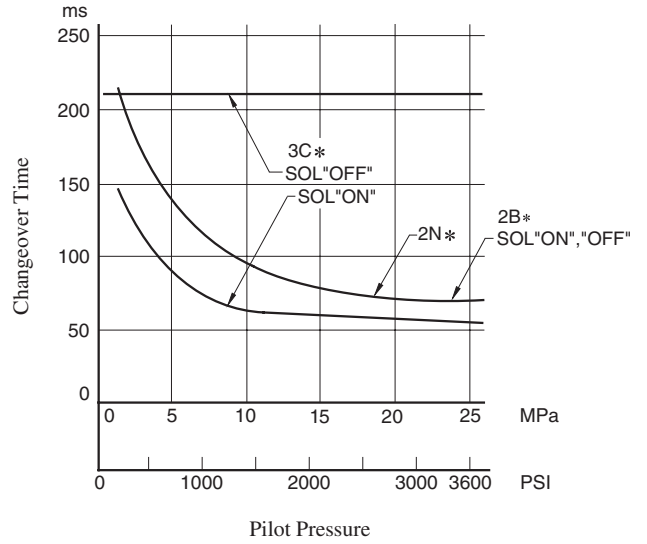
Voltage : Rated Voltage

Oil Viscosity : 35 mm²/s (164 SSU)

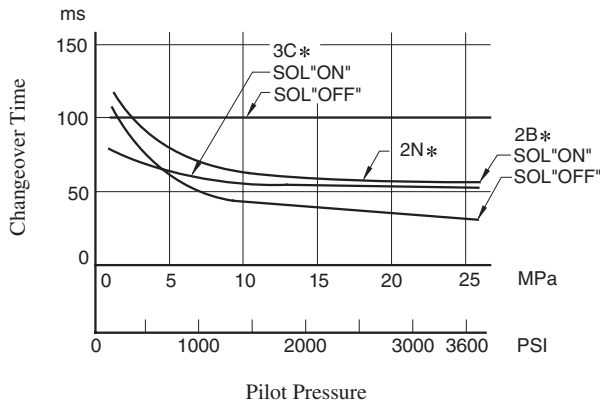
● DSHG-04



● DSHG-10



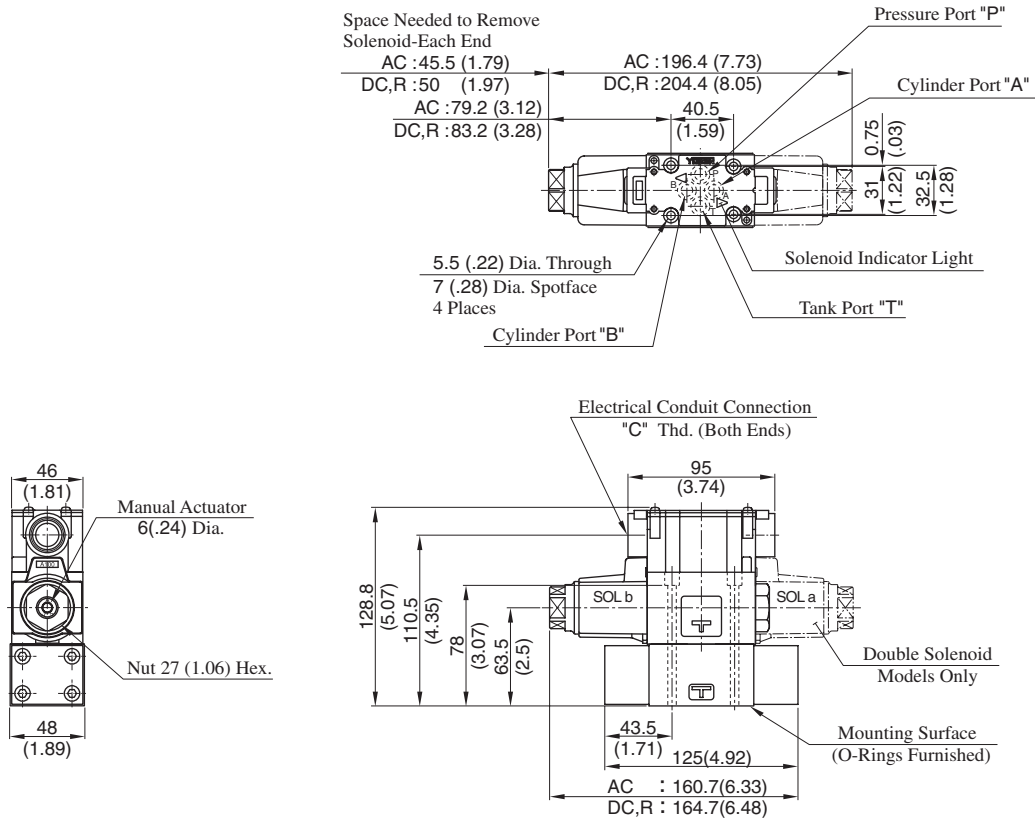
● DSHG-06



Terminal Box type: DSHG-01-***-*-14/1490

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

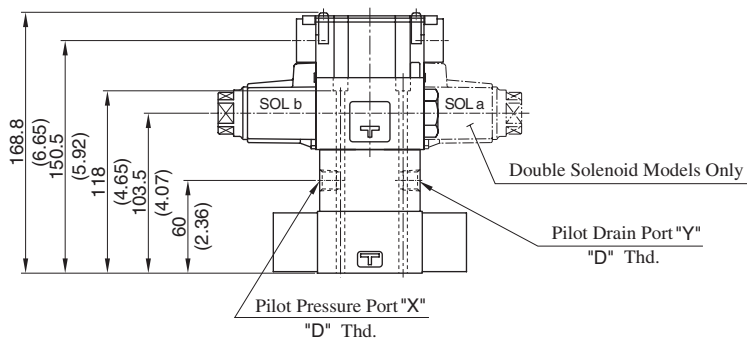
● Internal Pilot - Internal Drain



| Model Numbers | "C" Thd. | "D" Thd. |
|--------------------|----------|----------|
| DSHG-01-***-*-14 | G 1/2 | Rc 1/4 |
| DSHG-01-***-*-1490 | 1/2 NPT | 1/4 NPT |

DIMENSIONS IN MILLIMETRES (INCHES)

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

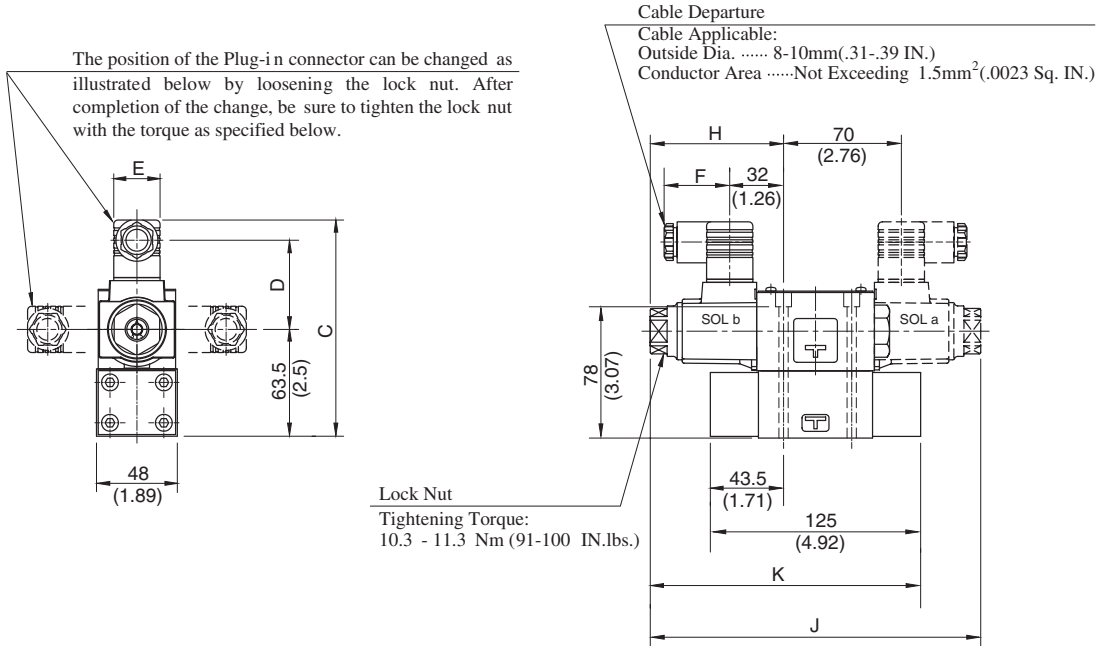


● For other dimensions, refer to "Internal Pilot Internal Drain".

E
Solenoid Controlled Pilot Operated Directional Valves

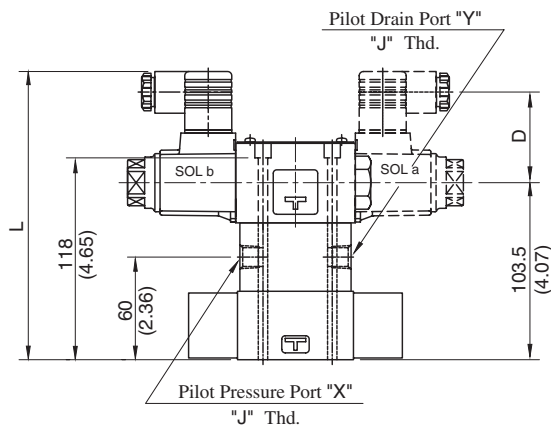
■ Plug-in Connector Type: DSHG-01-***-*-N₁-14/1480/1490

● Internal Pilot-Internal Drain



DIMENSIONS IN MILLIMETRES (INCHES)

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



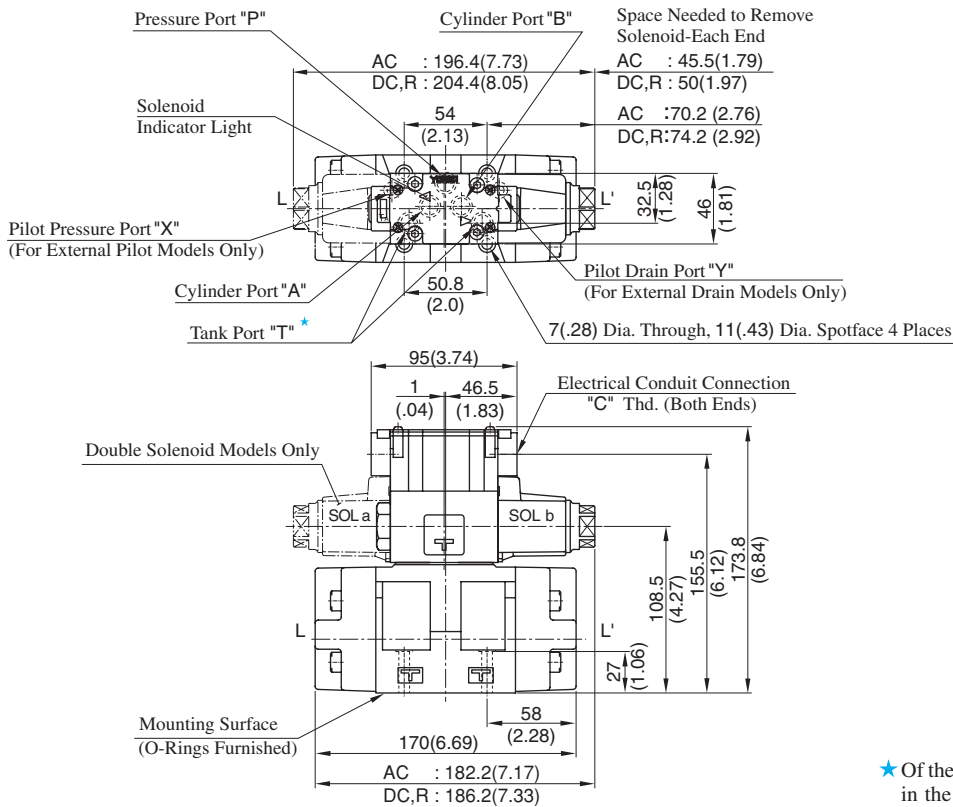
| Model Numbers | "J" Thd. |
|-----------------------|-----------|
| DSHG-01-***-*-N*-14 | Rc 1/4 |
| DSHG-01-***-*-N*-1480 | 1/4 BSP.F |
| DSHG-01-***-*-N*-1490 | 1/4 NPT |

| Model Numbers | Dimensions mm (Inches) | | | | | | | |
|-----------------------|------------------------|-------------|-------------|-----------|-------------|--------------|--------------|--------------|
| | C | D | E | F | H | J | K | L |
| DSHG-01-***-*-A*-N/N1 | 128.5 (5.06) | 53 (2.09) | 27.5 (1.08) | 39 (1.54) | 79.2 (3.12) | 196.4 (7.73) | 160.7 (6.33) | 168.5 (6.63) |
| DSHG-01-***-*-D*-N/N1 | 139.5 (5.49) | 64 (2.52) | 27.5 (1.08) | 39 (1.54) | 83.2 (3.28) | 204.4 (8.05) | 164.7 (6.48) | 179.5 (7.07) |
| DSHG-01-***-*-R*-N | 142.5 (5.61) | 57.2 (2.25) | 34 (1.34) | 53 (2.09) | | | | 182.5 (7.19) |

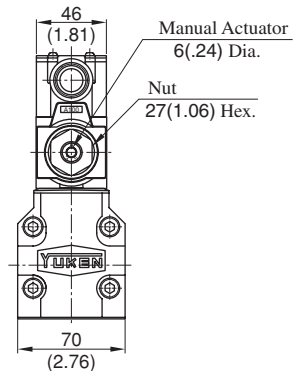
● For other dimensions, refer to "Terminal Box Type".

Terminal Box Type: DSHG-03-***-*-14/1490

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



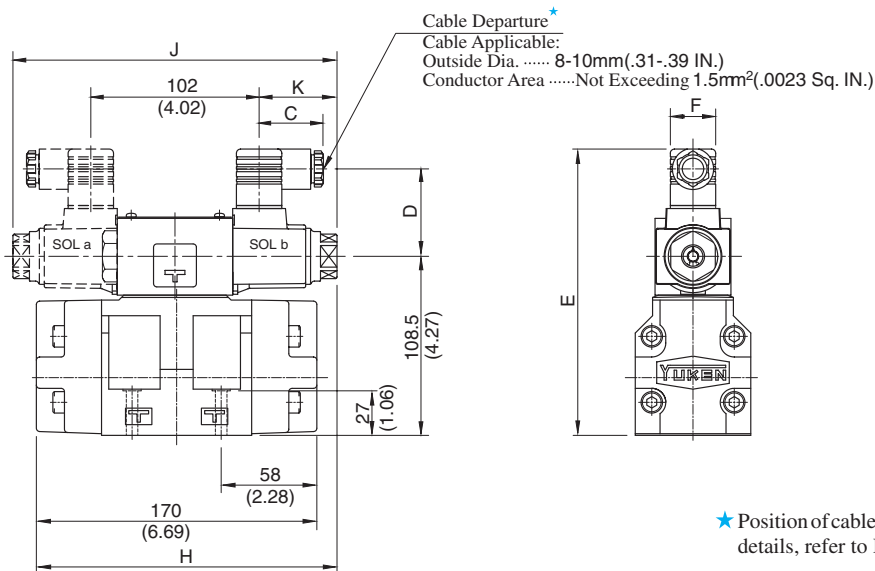
| Model Numbers | "C" Thd. |
|--------------------|----------|
| DSHG-03-***-*-14 | G 1/2 |
| DSHG-03-***-*-1490 | 1/2 NPT |



★ Of the two of tank port "T", the tank port 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}-14/1490



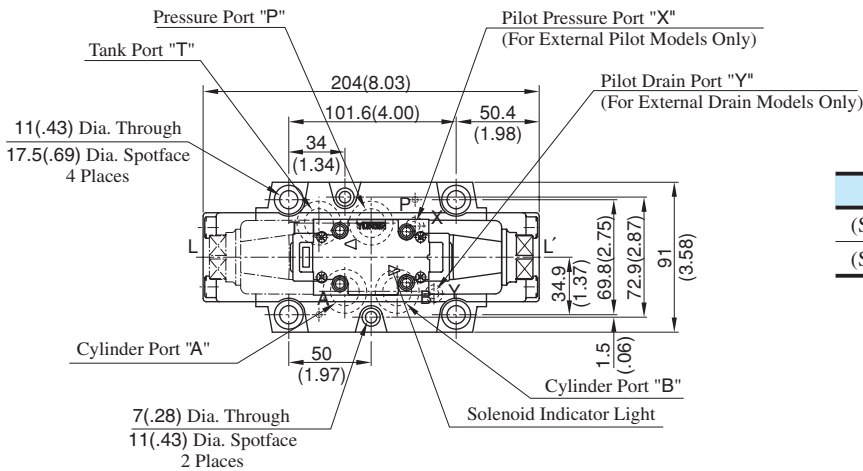
★ Position of cable departure can be changed. For details, refer to DSHG-01 valve on [page 396](#).

| Model Numbers | Dimensions mm (Inches) | | | | | | |
|-----------------------|------------------------|-------------|--------------|-------------|--------------|--------------|-------------|
| | C | D | E | F | H | J | K |
| DSHG-03-***-*-A*-N/N1 | 39 (1.54) | 53 (2.09) | 173.5 (6.83) | 27.5 (1.08) | 182.2 (7.17) | 196.4 (7.73) | 47.2 (1.86) |
| DSHG-03-***-*-D*-N/N1 | 39 (1.54) | 64 (2.52) | 184.5 (7.26) | 27.5 (1.08) | 186.2 (7.33) | 204.4 (8.05) | 51.2 (2.02) |
| DSHG-03-***-*-R*-N | 53 (2.09) | 57.2 (2.25) | 187.5 (7.38) | 34 (1.34) | | | |

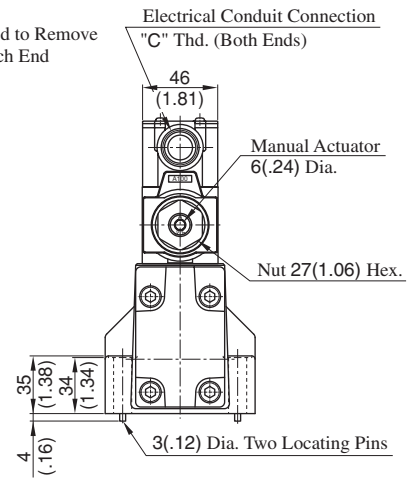
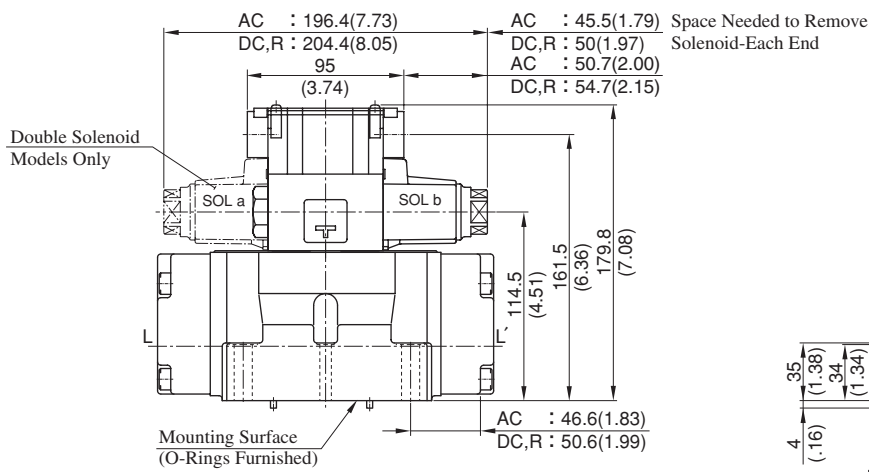
• For other dimensions, refer to "Terminal Box Type".

■ Terminal Box Type: (S-)DSHG-04-***-*-52/5290

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

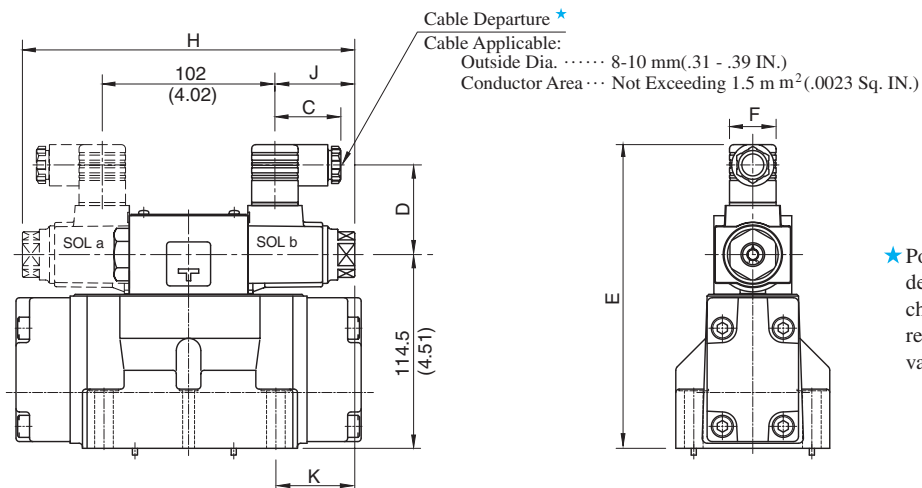


| Model Numbers | "C" Thd. |
|------------------------|----------|
| (S-)DSHG-04-***-*-52 | G 1/2 |
| (S-)DSHG-04-***-*-5290 | 1/2 NPT |



DIMENSIONS IN MILLIMETRES (INCHES)

■ Plug-in Connector Type: (S-)DSHG-04-***-*-N_{N1}-52/5290



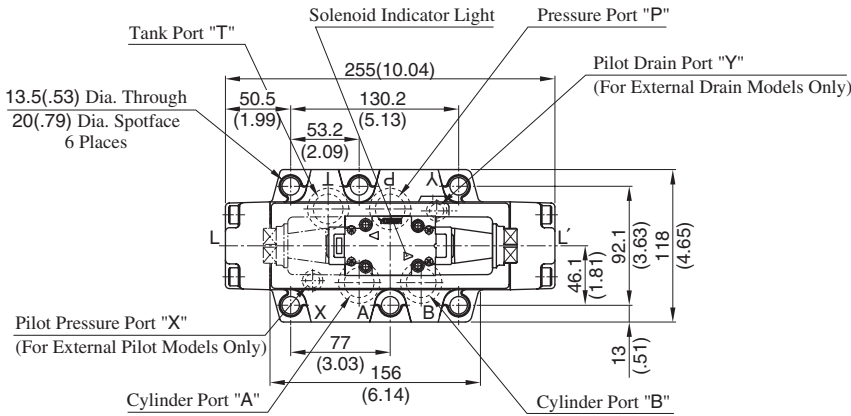
★ Position of cable departure can be changed. For details, refer to DSHG-01 valve on [page 396](#).

| Model Numbers | Dimensions mm (Inches) | | | | | | |
|-------------------------|------------------------|-------------|--------------|-------------|--------------|-------------|-------------|
| | C | D | E | F | H | J | K |
| (S-)DSHG-04-***-A*-N/N1 | 39 (1.54) | 53 (2.09) | 173.5 (6.83) | 27.5 (1.08) | 196.4 (7.73) | 47.2 (1.86) | 45.6 (1.80) |
| (S-)DSHG-04-***-D*-N/N1 | 39 (1.54) | 64 (2.52) | 184.5 (7.26) | 27.5 (1.08) | 204.4 (8.05) | 51.2 (2.02) | 49.6 (1.95) |
| (S-)DSHG-04-***-R*-N | 53 (2.09) | 57.2 (2.25) | 187.6 (7.39) | 34 (1.34) | | | |

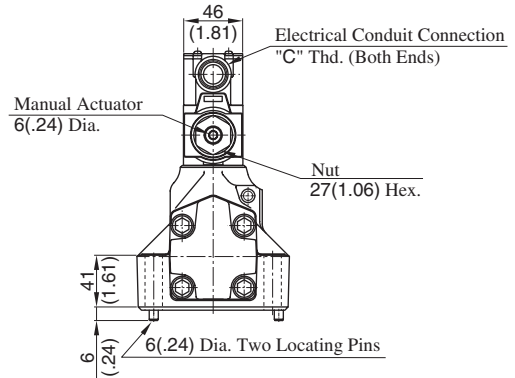
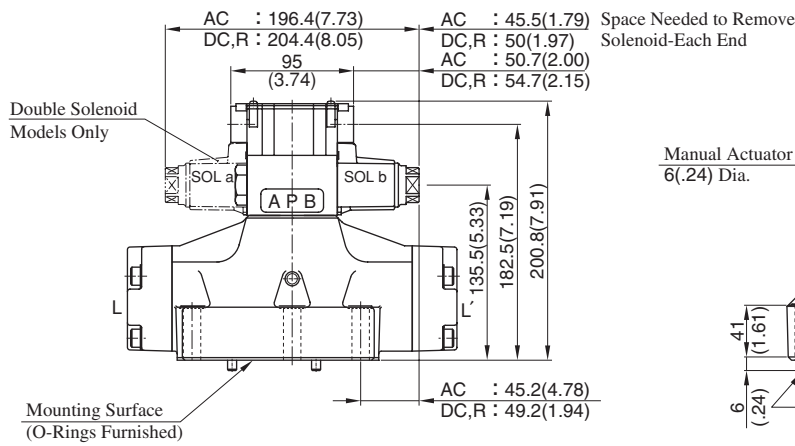
● For other dimensions, refer to "Terminal Box Type".

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

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

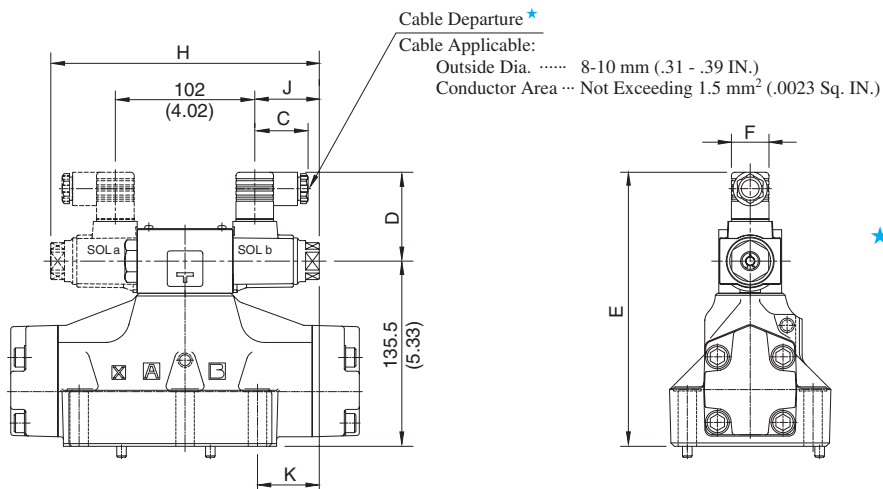


| Model Numbers | "C" Thd. |
|------------------------|----------|
| (S-)DSHG-06-***-*-53 | G 1/2 |
| (S-)DSHG-06-***-*-5390 | 1/2 NPT |



DIMENSIONS IN MILLIMETRES (INCHES)

Plug-in Connector Type: (S-)DSHG-06-***-*-N₁-53/5390



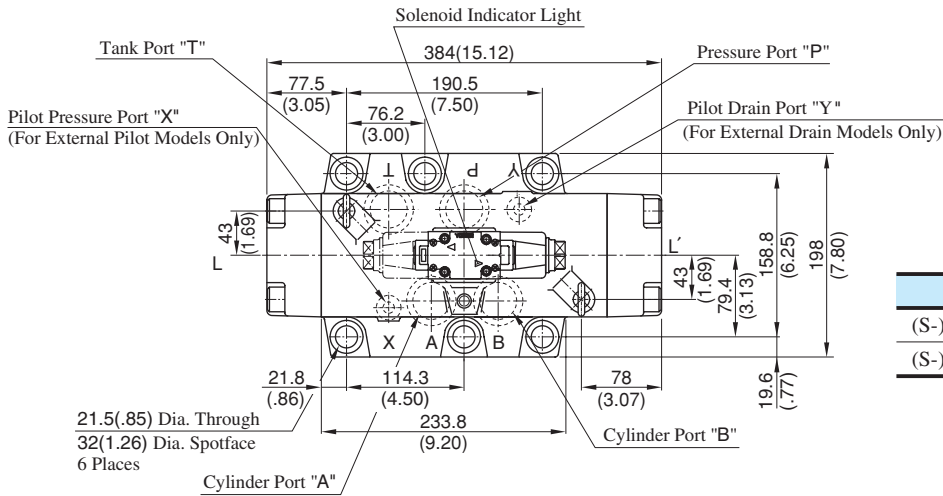
★ Position of cable departure can be changed. For details, refer to DSHG-01 valve on [page 396](#).

| 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) | | | |

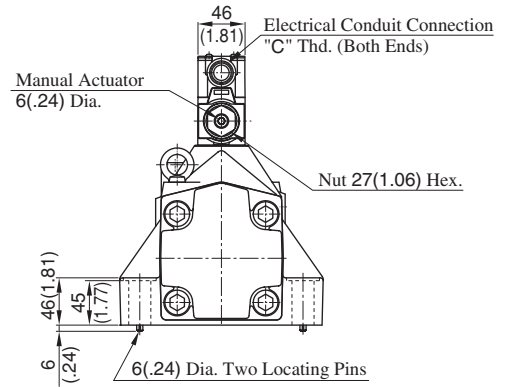
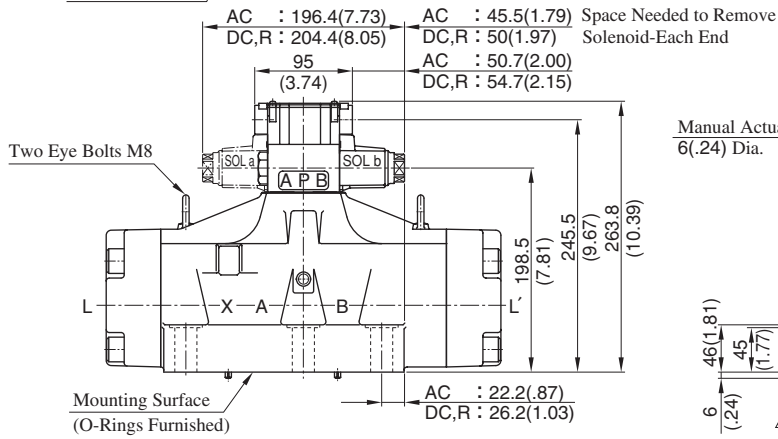
• For other dimensions, refer to "Terminal Box Type".

■ Terminal Box Type: (S-)DSHG-10-***-*-43/4390

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

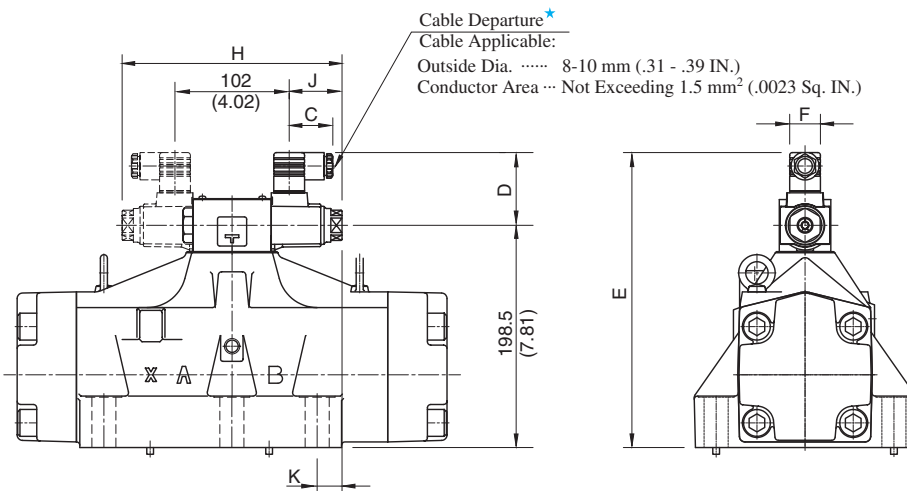


| Model Numbers | "C" Thd. |
|------------------------|----------|
| (S-)DSHG-10-***-*-43 | G 1/2 |
| (S-)DSHG-10-***-*-4390 | 1/2 NPT |



DIMENSIONS IN MILLIMETRES (INCHES)

■ Plug-in Connector Type: (S-)DSHG-10-***-*-N₁-43/4390



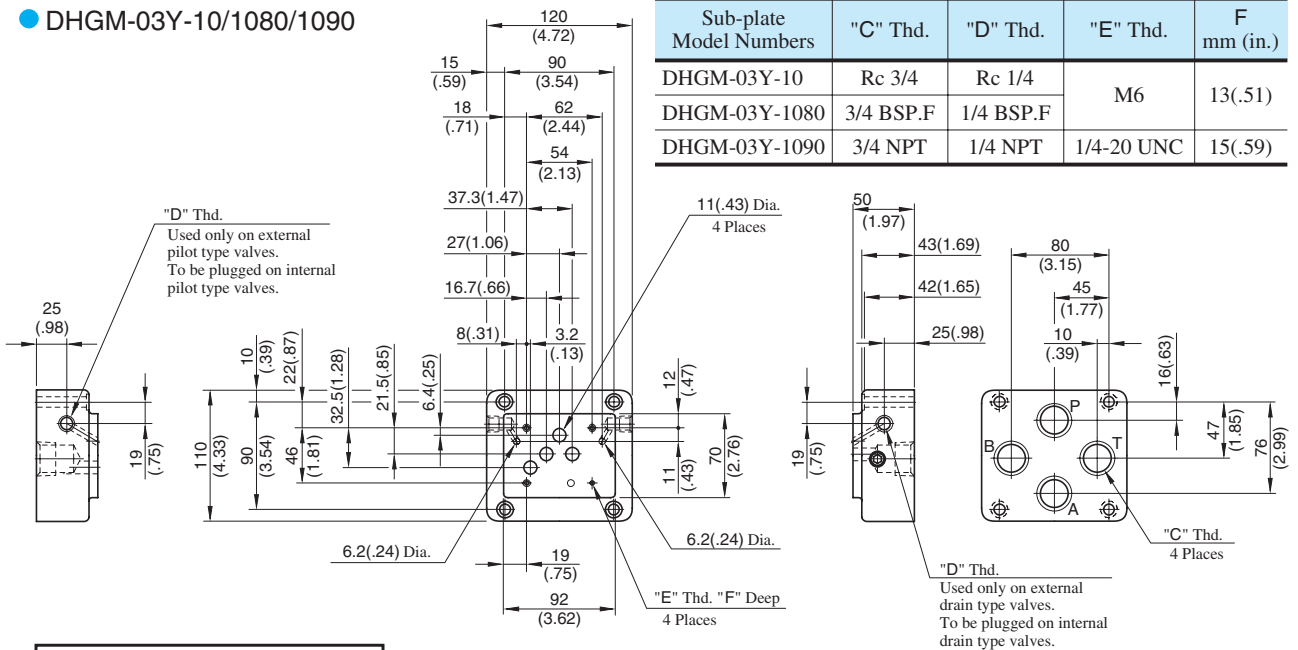
★ Position of cable departure can be changed. For details, refer to DSHG-01 valve on page 396.

| Model Numbers | Dimensions mm (Inches) | | | | | | |
|-------------------------------------|------------------------|-------------|---------------|-------------|--------------|-------------|-------------|
| | C | D | E | F | H | J | K |
| (S-)DSHG-10-***-A*-N/N ₁ | 39 (1.54) | 53 (2.09) | 263.5 (10.37) | 27.5 (1.08) | 196.4 (7.73) | 47.2 (1.86) | 22.2 (.87) |
| (S-)DSHG-10-***-D*-N/N ₁ | 39 (1.54) | 64 (2.52) | 274.5 (10.81) | 27.5 (1.08) | 204.4 (8.05) | 51.2 (2.02) | 26.2 (1.03) |
| (S-)DSHG-10-***-R*-N | 53 (2.09) | 57.2 (2.25) | 277.5 (10.93) | 34 (1.34) | | | |

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

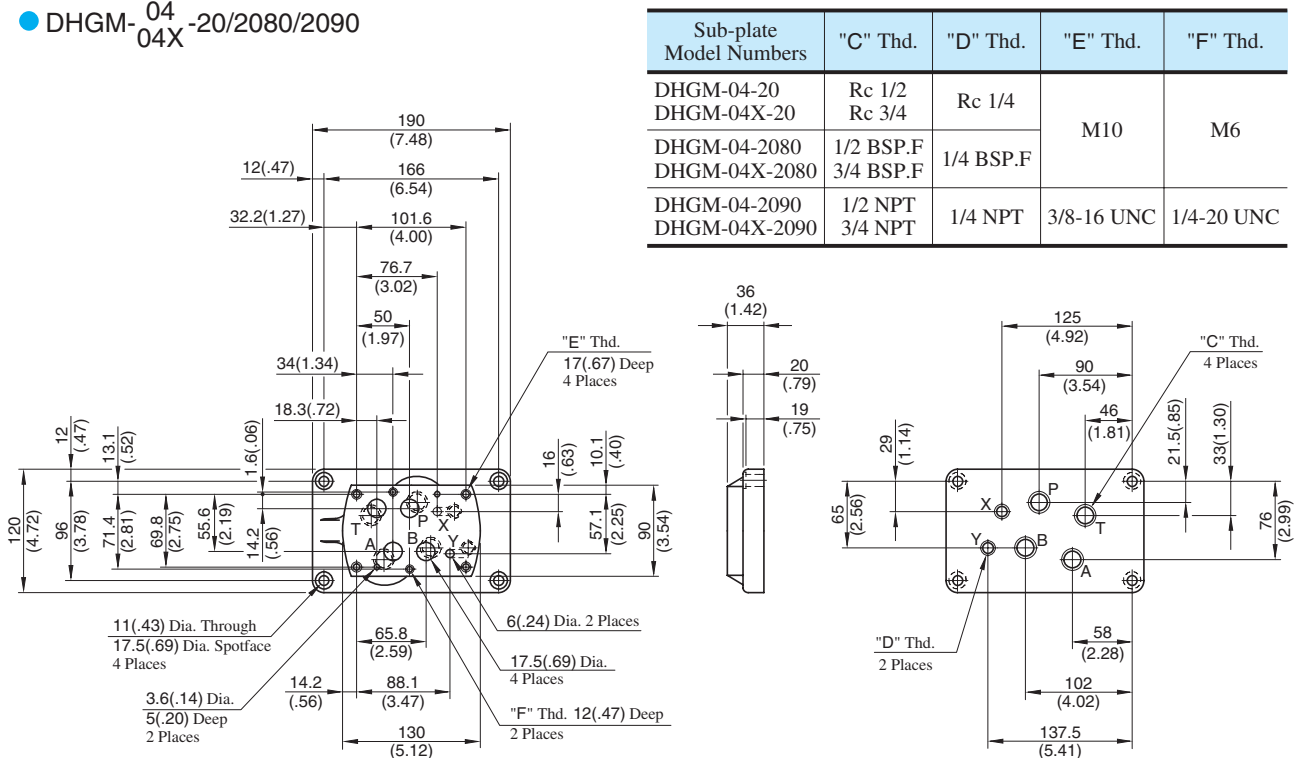
Sub-plate

● DHGM-03Y-10/1080/1090



DIMENSIONS IN
MILLIMETRES (INCHES)

● DHGM-04-20/2080/2090

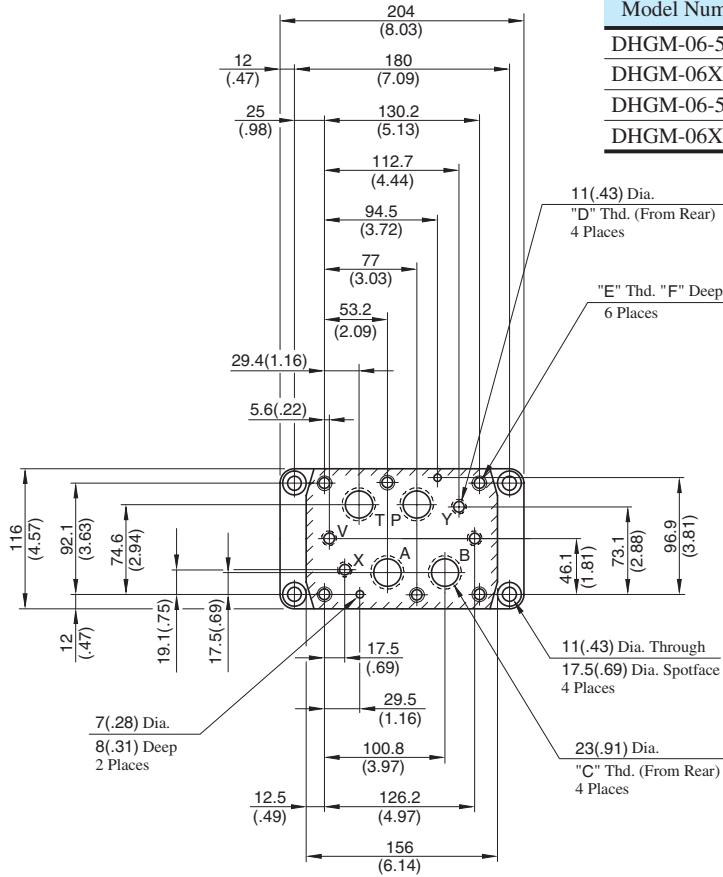


| Sub-plate Model Numbers | "C" Thd. | "D" Thd. | "E" Thd. | "F" Thd. |
|-------------------------------|------------------------|-----------|------------|------------|
| DHGM-04-20 DHGM-04X-20 | Rc 1/2 Rc 3/4 | Rc 1/4 | M10 | M6 |
| DHGM-04-2080 DHGM-04X-2080 | 1/2 BSP.F 3/4 BSP.F | 1/4 BSP.F | | |
| DHGM-04-2090 DHGM-04X-2090 | 1/2 NPT 3/4 NPT | 1/4 NPT | 3/8-16 UNC | 1/4-20 UNC |

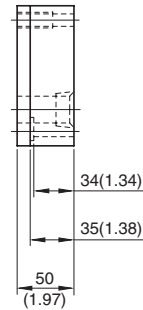
| Valve Types | | Pilot Pressure Port "X" | Port "Y" |
|---|--------------------------|--|--|
| Solenoid Controlled Pilot Operated Directional Valves | | Used only on external pilot type valves. To be plugged on internal pilot type valves. | Used as drain port only on external drain type valves. To be 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 |

Sub-plate

● DHGM-06
06X -50/5090

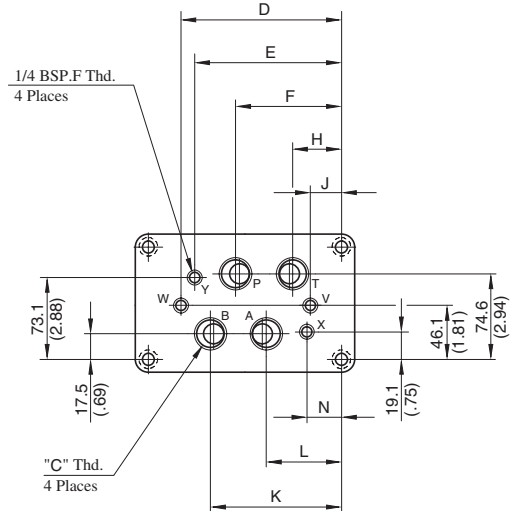
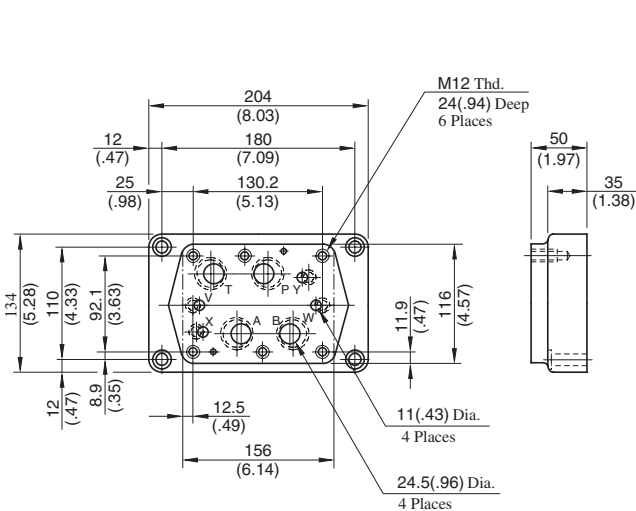


| Sub-plate Model Numbers | "C" Thd. | "D" Thd. | "E" Thd. | F mm (in.) |
|-------------------------|----------|----------|------------|------------|
| DHGM-06-50 | Rc 3/4 | Rc 1/4 | M12 | 24 (.94) |
| DHGM-06X-50 | Rc 1 | | | |
| DHGM-06-5090 | 3/4 NPT | 1/4 NPT | 1/2-13 UNC | 26 (1.02) |
| DHGM-06X-5090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



DIMENSIONS IN MILLIMETRES (INCHES)

● DHGM-06
06X -5080



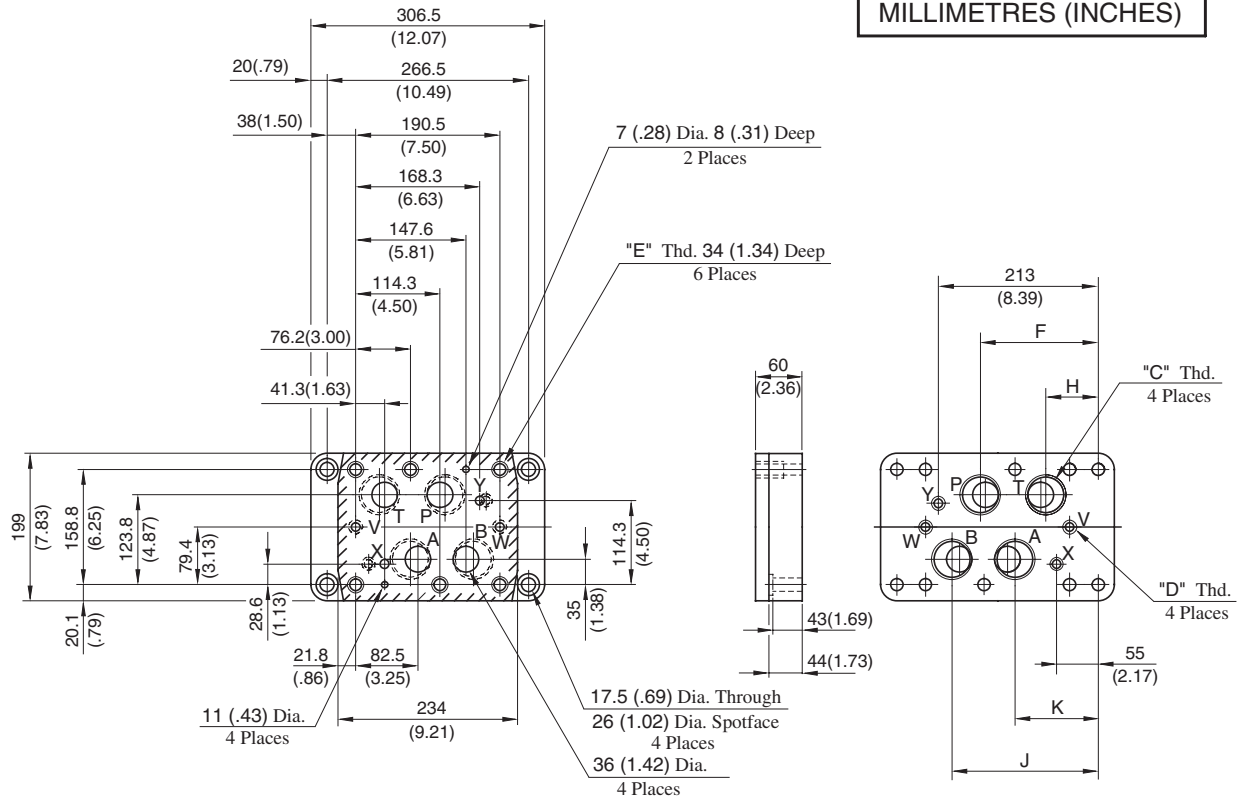
| Sub-plate Model Numbers | "C" Thd. | Dimensions mm (Inches) | | | | | | | |
|-------------------------|-----------|------------------------|--------------|------------|-------------|-------------|--------------|-------------|-------------|
| | | D | E | F | H | J | K | L | N |
| DHGM-06-5080 | 3/4 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.

Sub-plate

● DHGM-10
10X -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 | 152 (5.98) | 79 (3.11) | 185.5 (7.30) | 120.5 (4.74) |
| DHGM-10-4080 | 1-1/4 BSP.F | 3/8 BSP.F | M20 | | | | |
| 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 | 156 (6.14) | 74 (2.91) | 194.5 (7.66) | 112.5 (4.43) |
| DHGM-10X-4080 | 1-1/2 BSP.F | 3/8 BSP.F | M20 | | | | |
| 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 | | Spring Centred No-spring | Used as pilot pres. port | Used |
| 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) |

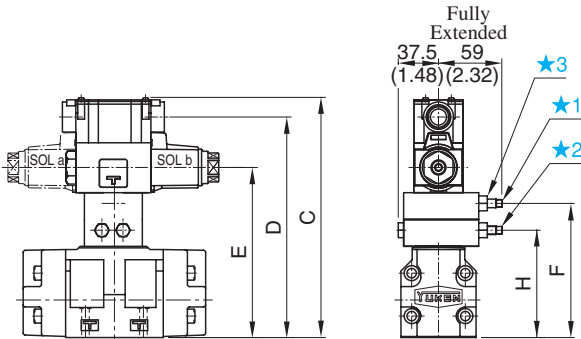
★ As the thread is provided on the body, plug either port on the sub-plate or port on the body.

Options

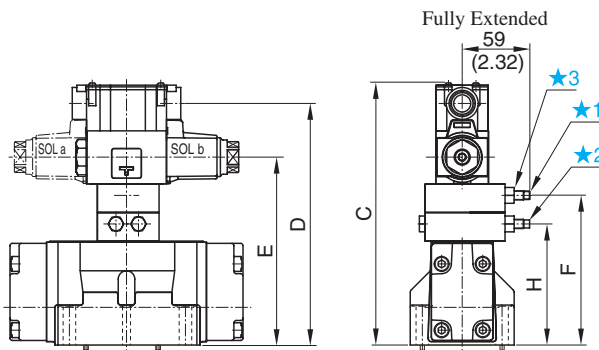
Models with Pilot Choke Valve

Terminal Box Type

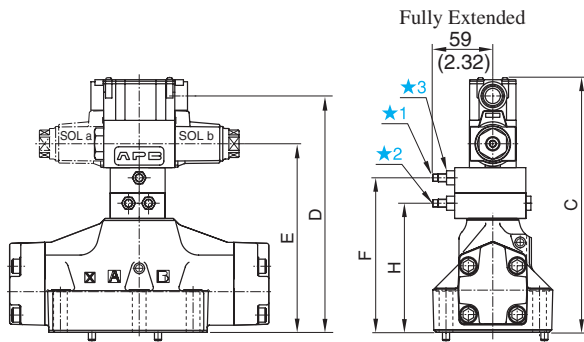
- DSHG-03- *** -C1/C2/C1C2



- (S-)DSHG-04- *** -C1/C2/C1C2

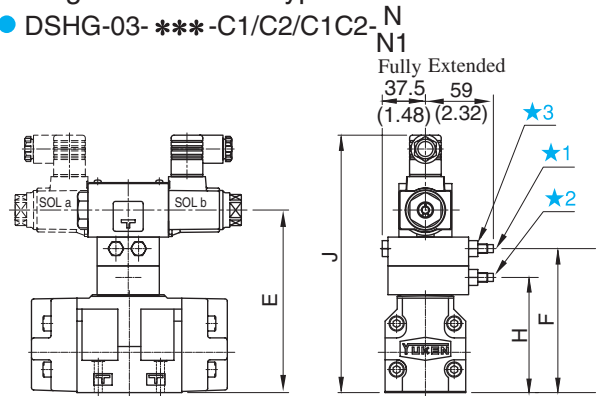


- (S-)DSHG-06⁰⁶/₁₀ - *** -C1/C2/C1C2

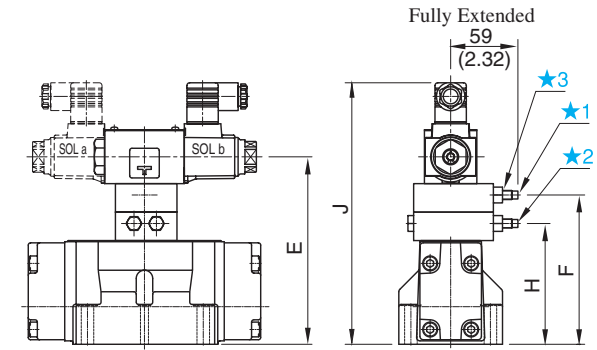


Plug-in Connector Type

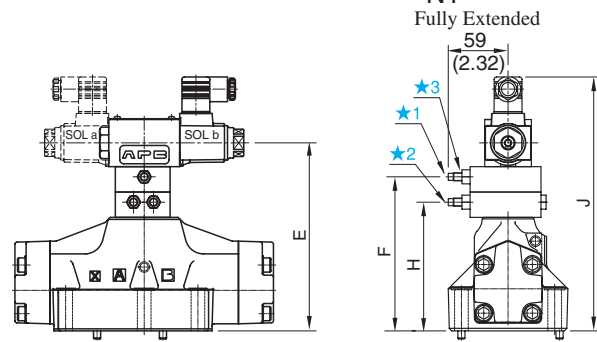
- DSHG-03- *** -C1/C2/C1C2-N_{N1}



- (S-)DSHG-04- *** -C1/C2/C1C2-N_{N1}



- (S-)DSHG-06⁰⁶/₁₀ - *** -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.

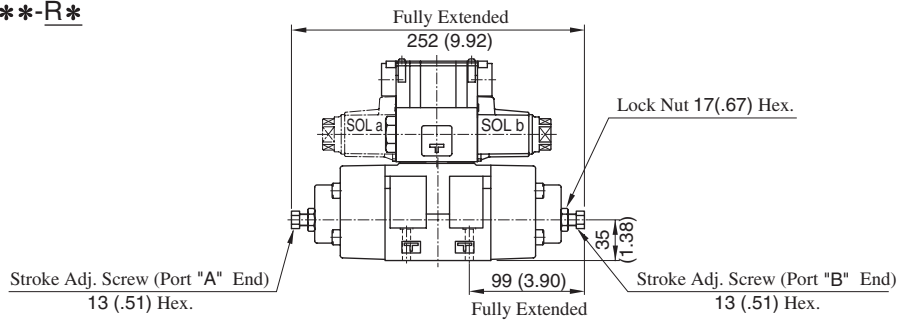
DIMENSIONS IN MILLIMETRES (INCHES)

| 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) | |

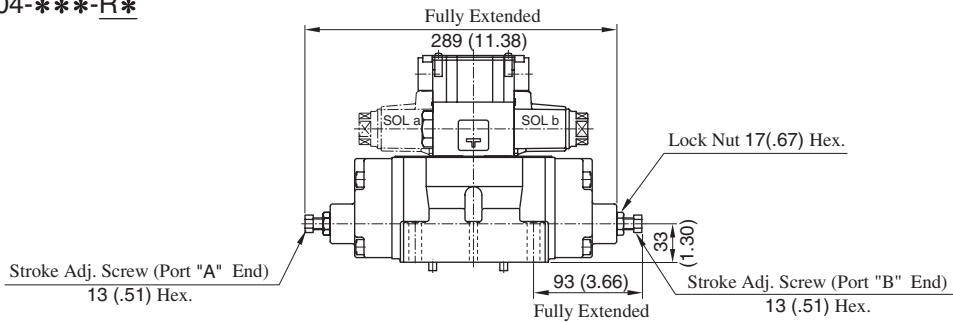
Options

Models with Stroke Adjustment

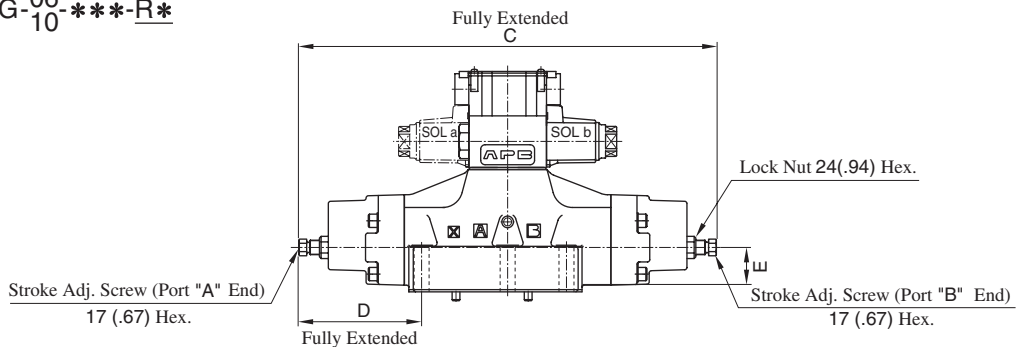
- DSHG-03-***-R*



- (S-)DSHG-04-***-R*



- (S-)DSHG-⁰⁶/₁₀-***-R*

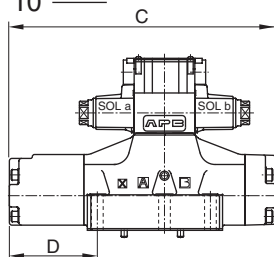


| Model Numbers | C | D | E |
|--------------------|-------------|--------------|-----------|
| (S-)DSHG-06-***-R2 | 376 (14.80) | 111 (4.37) | 40 (1.57) |
| (S-)DSHG-10-***-R2 | 558 (21.97) | 164.5 (6.48) | 65 (2.56) |

DIMENSIONS IN MILLIMETRES (INCHES)

Pressure Centred Models

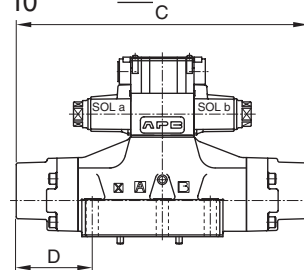
- (S-)DSHG-⁰⁶/₁₀-3H*



| 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-⁰⁶/₁₀-***-P*

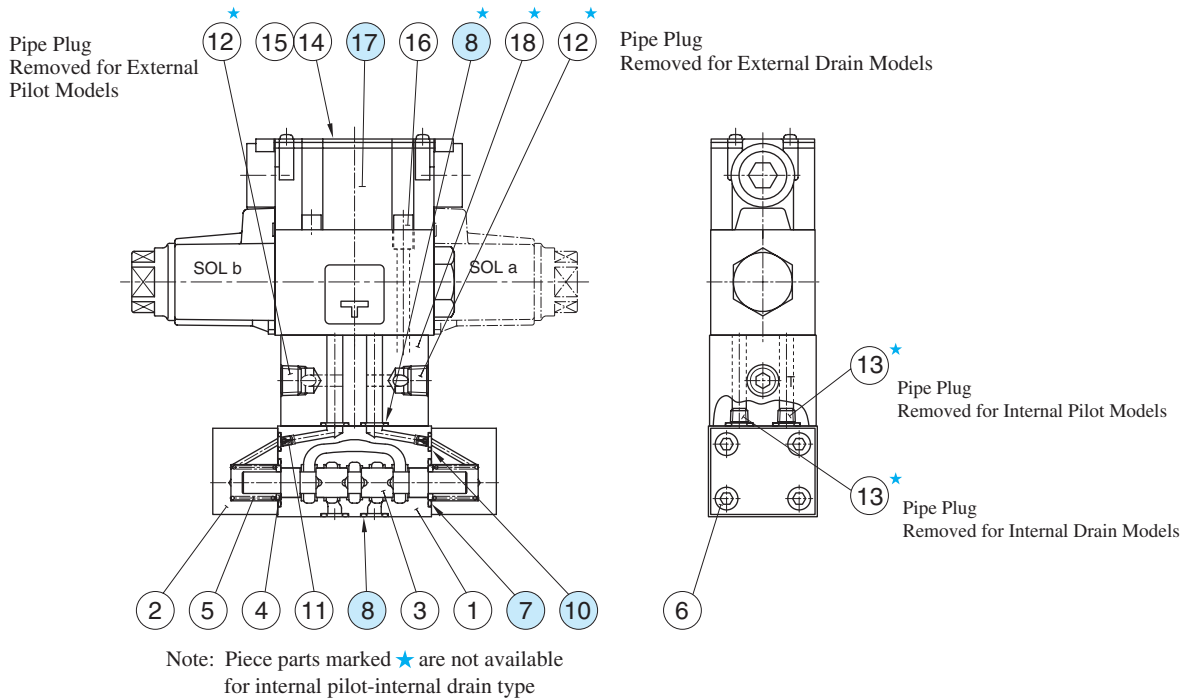


| Model Numbers | C | D |
|--------------------|-------------|------------|
| (S-)DSHG-06-***-P2 | 323 (12.72) | 84 (3.31) |
| (S-)DSHG-10-***-P2 | 479 (18.86) | 125 (4.92) |

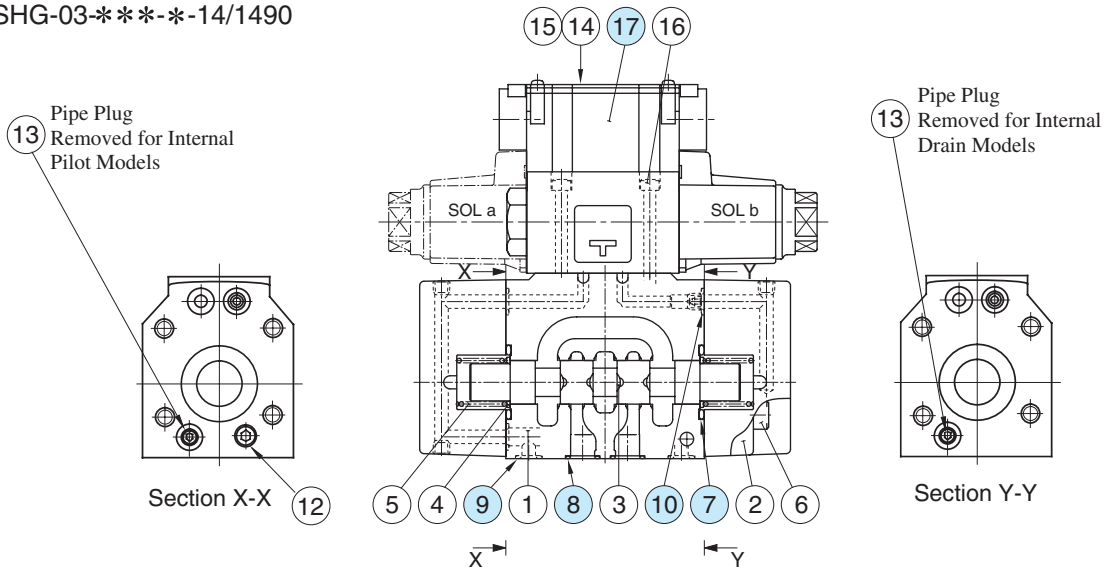
E
Solenoid Controlled Pilot Operated Directional Valves

List of Seals and Pilot Valves

DSHG-01-***-14/1480/1490



DSHG-03-***-14/1490



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 |

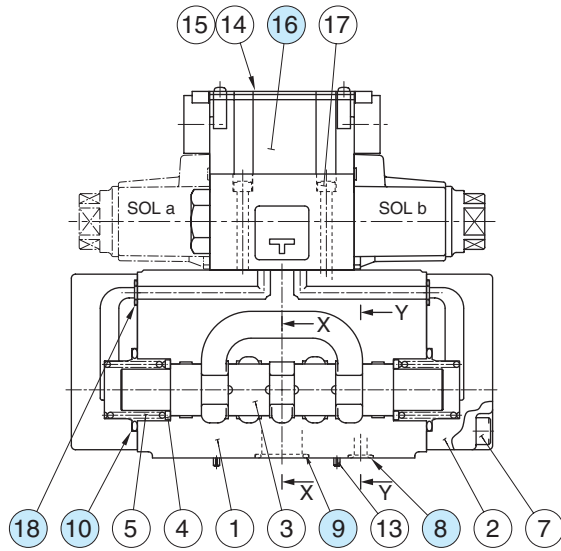
★ Quantities in the () are applicable to internal pilot-internal drain.
 Note: When ordering the o-rings, please specify the seal kit number listed in [page 408](#). In addition to the above o-rings, o-rings for pilot valve is included in the seal kit.
 For the detail of the pilot valve o-rings, see [page 359](#).

Pilot Valves

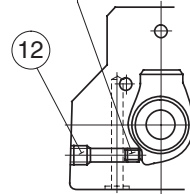
See [page 408](#) for the pilot valve model numbers to be used.

List of Seals and Pilot Valves

(S-)DSHG-04-***-52/5290

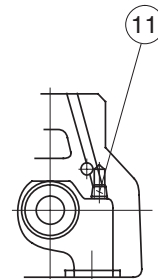


11 Pipe Plug Removed for Internal Drain Models



Section Y-Y

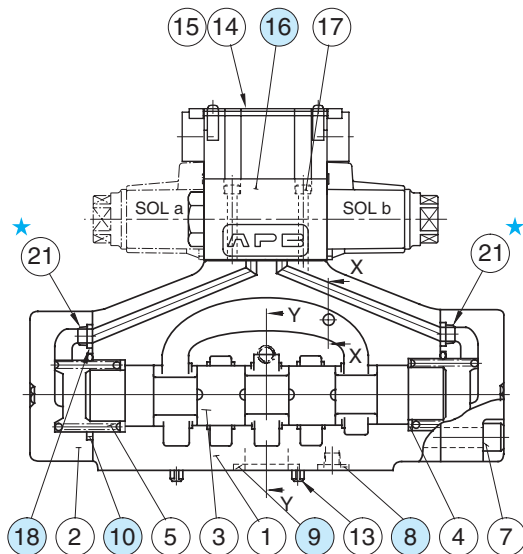
Pipe Plug Removed for Internal Pilot Models



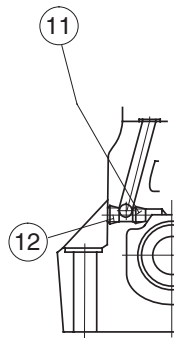
Section X-X

(S-)DSHG-06-***-53/5390

(S-)DSHG-10-***-43/4390

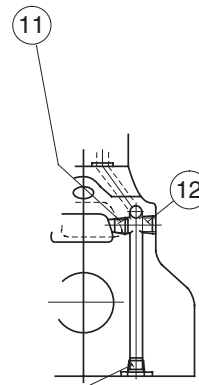


Pipe Plug Removed for Internal Pilot Models



Section Y-Y

Pipe Plug Removed for Internal Drain Models



Section X-X

11 Pipe Plug Removed for External Drain Models

Note: Item ② 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 |

Pilot Valves

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

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.

List of Seal Kits and Pilot Valves

| Valve Model Numbers | Pilot Valve Model Numbers | Seal Kit Numbers |
|--|---|--|
| DSHG-01-3C*-★-▲-14 DSHG-01-3C*-★-N-1480 DSHG-01-3C*-★-▲-1490 | DSG-01-3C4-★-▲-70 DSG-01-3C4-★-N-70 DSG-01-3C4-★-▲-7090 | KS-DSHG-01-▲-14 (For Internal Pilot-Internal Drain) |
| DSHG-01-2B*-★-▲-14 DSHG-01-2B*-★-N-1480 DSHG-01-2B*-★-▲-1490 | DSG-01-2B2-★-▲-70-L DSG-01-2B2-★-N-70-L DSG-01-2B2-★-▲-7090-L | KS-DSHG-01-ET-▲-14 (Except for Internal Pilot-Internal Drain) |
| DSHG-03-3C*-★-▲-14 DSHG-03-3C*-★-▲-1490 | DSG-01-3C4-★-▲-70 DSG-01-3C4-★-▲-7090 | KS-DSHG-03-▲-14 |
| DSHG-03-2B*-★-▲-14 DSHG-03-2B*-★-▲-1490 | DSG-01-2B2-★-▲-70 DSG-01-2B2-★-▲-7090 | |
| DSHG-03-2N*-★-▲-14 DSHG-03-2N*-★-▲-1490 | DSG-01-2D2-★-▲-70 DSG-01-2D2-★-▲-7090 | |
| (S-)DSHG-04-3C*-★-▲-52 (S-)DSHG-04-3C*-★-▲-5290 | DSG-01-3C4-★-▲-70 DSG-01-3C4-★-▲-7090 | KS-DSHG-04-▲-52 |
| (S-)DSHG-04-2B*-★-▲-52 (S-)DSHG-04-2B*-★-▲-5290 | DSG-01-2B2-★-▲-70 DSG-01-2B2-★-▲-7090 | |
| (S-)DSHG-04-2N*-★-▲-52 (S-)DSHG-04-2N*-★-▲-5290 | DSG-01-2D2-★-▲-70 DSG-01-2D2-★-▲-7090 | |
| (S-)DSHG-06-3C*-★-▲-53 (S-)DSHG-06-3C*-★-▲-5390 | DSG-01-3C4-★-▲-70 DSG-01-3C4-★-▲-7090 | KS-DSHG-06-▲-53 |
| (S-)DSHG-06-2B*-★-▲-53 (S-)DSHG-06-2B*-★-▲-5390 | DSG-01-2B2-★-▲-70-L DSG-01-2B2-★-▲-7090-L | |
| (S-)DSHG-06-2N*-★-▲-53 (S-)DSHG-06-2N*-★-▲-5390 | DSG-01-2D2-★-▲-70 DSG-01-2D2-★-▲-7090 | |
| (S-)DSHG-10-3C*-★-▲-43 (S-)DSHG-10-3C*-★-▲-4390 | DSG-01-3C4-★-▲-70 DSG-01-3C4-★-▲-7090 | KS-DSHG-10-▲-43 |
| (S-)DSHG-10-2B*-★-▲-43 (S-)DSHG-10-2B*-★-▲-4390 | DSG-01-2B2-★-▲-70-L DSG-01-2B2-★-▲-7090-L | |
| (S-)DSHG-10-2N*-★-▲-43 (S-)DSHG-10-2N*-★-▲-4390 | DSG-01-2D2-★-▲-70 DSG-01-2D2-★-▲-7090 | |

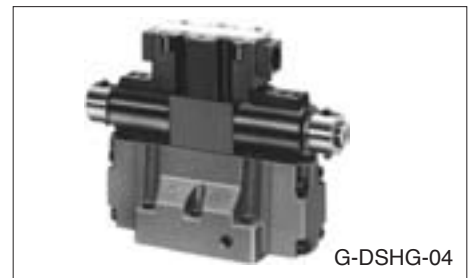
Notes) 1: Fill coil type (a symbol representing current/voltage) in section marked ★. Likewise, in section marked ▲, fill a symbol representing the type of electrical conduit connection (None: Terminal Box Type, N: Plug-in Connector Type).
2: For the details of the pilot valves, see [page 359 to 360](#).

“G” Series Shockless Type Solenoid Operated / Solenoid Controlled Pilot Operated Directional Valves

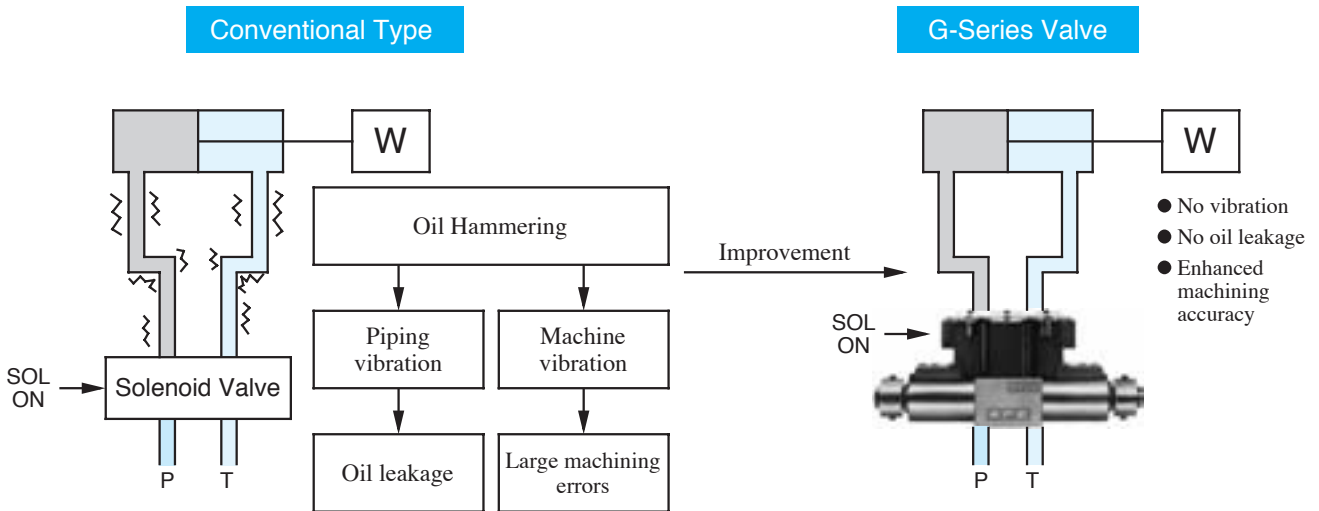
The G-Series Solenoid Operated Directional Valves incorporate electronic circuits to enable adjustment of the spool shifting time.

A special spool shape that minimises shock is used, shocks caused by the actuator starting and stopping, as well as vibration due to oil hammering. The shifting time of conventional Solenoid Operated, Shockless, and Directional Valves is constant and cannot be adjusted.

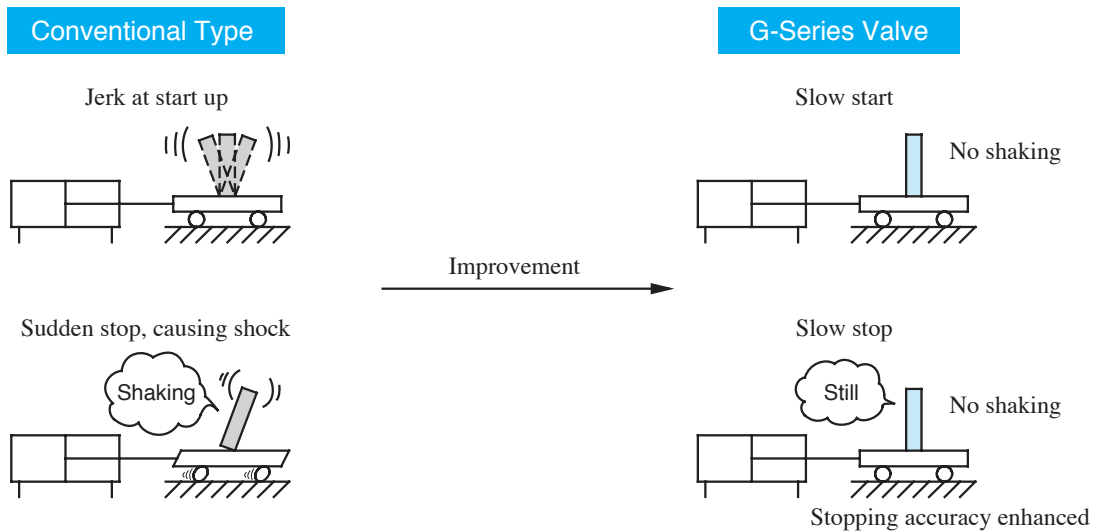
As the shifting time of the G-Series valves can be adjusted, it can be set at an optimal level to minimise shocks to the machine.



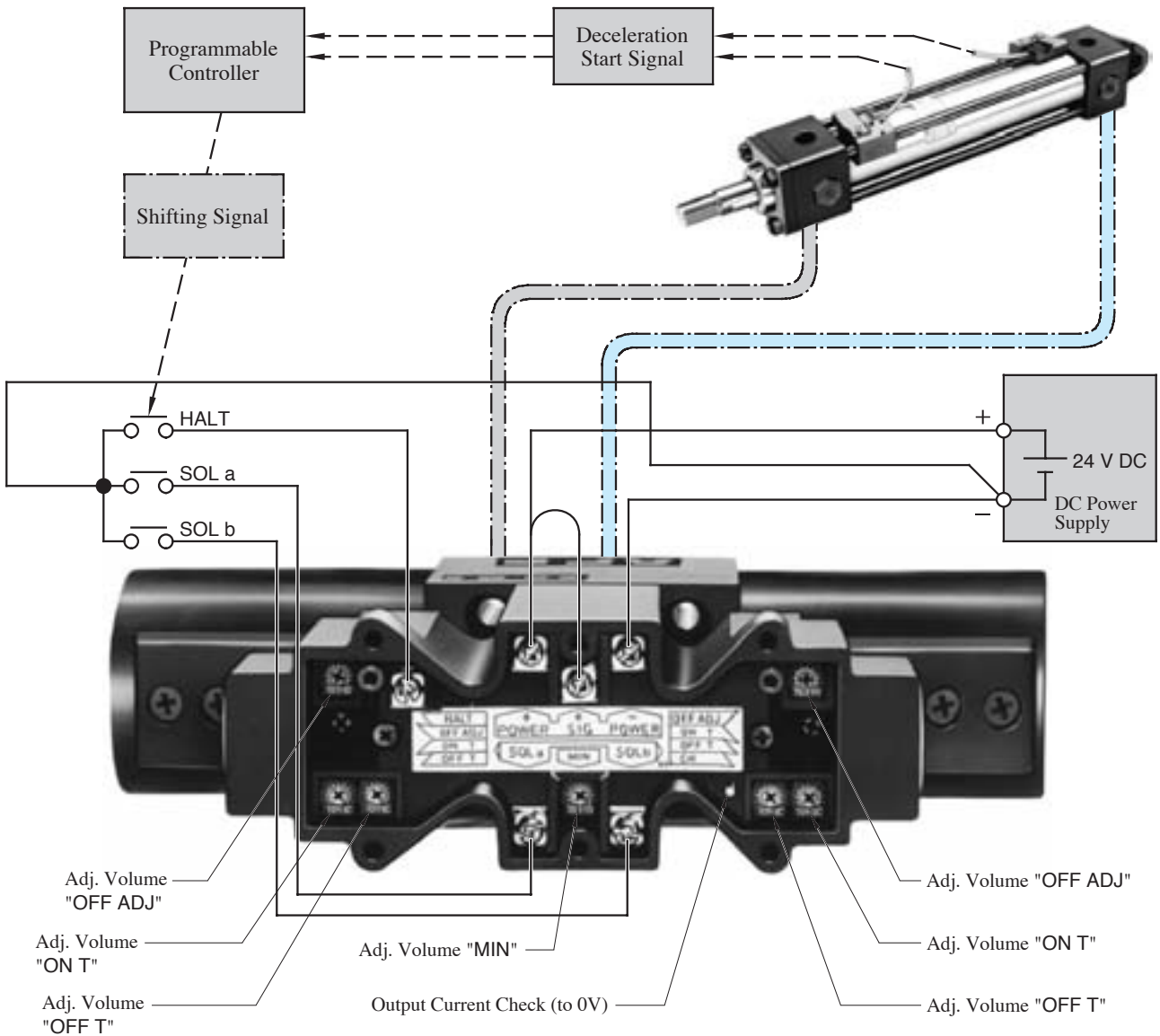
1 Reduces oil hammering during spool changeover.



2 Reduces shock caused by acceleration and deceleration

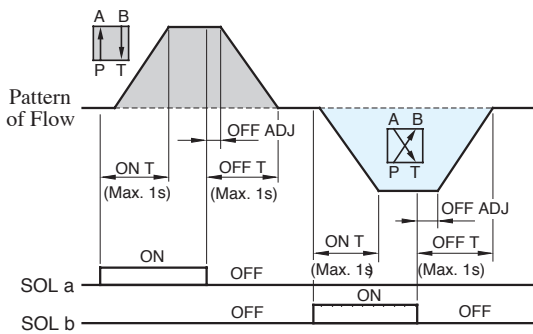


■ System Diagram (Example of sink type wiring)

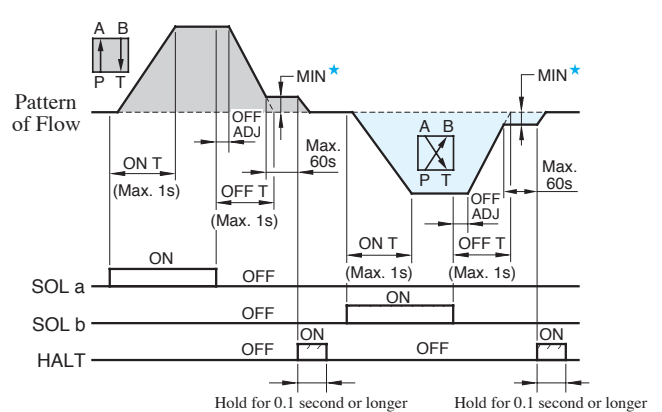


■ Relationships between SOL signals and flow patterns

● Without HALT functions



● With HALT functions



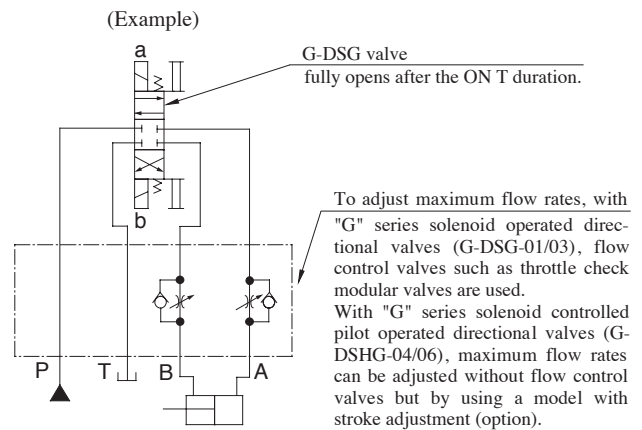
★ The minimum adjustment volume is common for SOL a and b, and it is not possible to set a different volume for each SOL a and b individually. If the HALT functions are not used, set the minimum adjustment volume to zero.

Instructions

Adjustment of maximum flow rate

The G-Series Solenoid Operated Directional Valves cannot be adjusted for maximum flow rates.

To adjust maximum flow rates, use flow control valves. In G-series solenoid controlled pilot operated directional valves (G-DSHG-04/06), the maximum flow rate can be adjusted by use of the valve with stroke adjustment screw of optional extra.

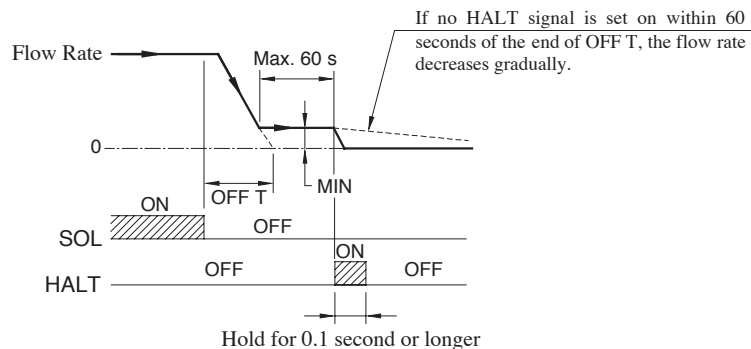


How to use HALT functions

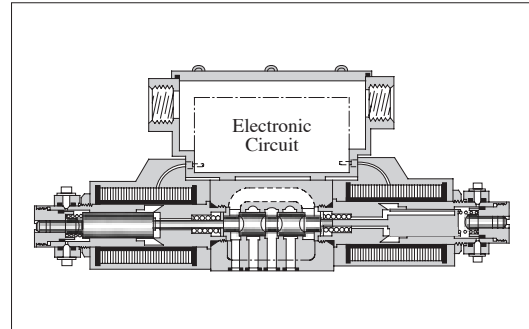
The HALT functions are used to drive the actuator at a low speed to the stop position while keeping a slight flow after OFF T.

A flow rate (min. flow rate) during a low-speed operation can be set with the minimum adjusting volume (The minimum adjusting volume is common for SOL a and b. Individual setting is not possible for SOL a and b.) When HALT signal is on, the min. flow rate becomes zero and the actuator stops. Here, take care to keep the HALT signal on for longer than 0.1 second. The min. flow rate gets to "0" after about 60 seconds following the OFF T. If the HALT functions are not used, set the minimum adjusting volume to zero.

The HALT functions are not applicable to the spool function "2B7".



■ “G” Series Shockless Type Solenoid Operated Directional Valves



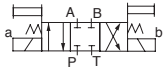
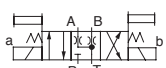

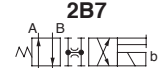
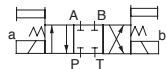
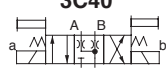
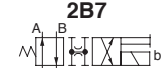
■ Specifications

| Descriptions | | Model Numbers | G-DSG-01-***-*-50/5090 | G-DSG-03-***-*-50/5090 |
|--|--------------------|---|--|---------------------------------|
| Max. Flow ^{★1} | L/min (U.S.GPM) | | 10 (2.6), 20 (5.3), 30 (7.9), 40 (10.6) | 40 (10.6), 60 (15.9), 80 (21.1) |
| Max. Operating Pres. ^{★2} | MPa (PSI) | | 25 (3630) | 25 (3630) |
| Max. T-Line Back Pres. | MPa (PSI) | | 16 (2320) | 16 (2320) |
| Electric Power Supply | Voltage | 24 V DC (21 - 28 V DC Included Ripple): Use a stable power supply | | |
| | Input Power at 24V | | 36 W | 36 W |
| Shifting signal, low speed operation halt signal (can be used in common with electric power supply). | Voltage | 5 - 48 V DC (Use a stable power supply) | | |
| | Current | Constant at 10 mA (A constant-current circuit is used) | | |
| | Input interface | Sink Type, Source Type | | |
| Shifting time range (for ON and OFF) | | | 0.1 - 1 s | 0.3 - 1 s |
| Low speed operation flow rate (min. flow rate) range (for SOL a and b) L/min (U.S.GPM) | | | 0.5 - 5 (.13 - 1.3) | 1 - 10 (.26 - 2.6) |
| Low speed operation flow rate (min. flow rate) hold time | | | Max. 60 s (After 60 seconds, the flow rate decreases gradually.) | |
| Ambient Temperature | | | 0 - 50 °C (32 - 122 °F) with circulated air | |
| Approx. Mass | Single Solenoid | | 2.1 kg (4.6 lbs.) | 5.3 kg (11.7 lbs.) |
| | Double Solenoid | | 3.0 kg (6.6 lbs.) | 7.5 kg (16.5 lbs.) |

★1. The maximum flow rates may vary according to the operating pressure. Refer to Maximum Flow Rates Characteristics on pages 414 and 415 for details.

★2. At pressures more than 21 MPa (3050 PSI), the "shockless effect" is slightly less if compared it with that at 16 MPa (2320 PSI).

Model Number Designation

| G-DSG | -01 | -10 | -2B7 | -S | -50 | * | -L |
|---|------------|--|---|--|---------------|------------------|--|
| Series Number | Valve Size | Metred Flow Capacity | Spool Type | Input Interface | Design Number | Design Standards | Models with Alternate Offset Solenoid |
| G-DSG : G Series Shockless Type Solenoid Operated Directional Valve, Sub-plate Mounting | 01 | None: 40 L/min 10 : 10 L/min 20 : 20 L/min | 3C2  3C40  | None: Sink Type (Standard) S: Source Type | 50 | Refer to ★ | L Applicable only for 2B7 (Omit if not required)  |
| | | None: 30 L/min 10 : 10 L/min 20 : 20 L/min | 2B7  | | | | |
| | 03 | None: 80 L/min 40 : 40 L/min 60 : 60 L/min | 3C2  3C40  | | 50 | | |
| | | None: 60 L/min 40 : 40 L/min | 2B7  | | | | |

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

Sub-plate

| Valve Model Numbers | Japanese Standard "JIS" | | European Design Standard | | N. American Design Standard | | Approx. Mass kg (lbs.) |
|---------------------|-------------------------|-------------|--------------------------|-------------|-----------------------------|-------------|------------------------|
| | Sub-plate Model Numbers | Thread Size | Sub-plate Model Numbers | Thread Size | Sub-plate Model Numbers | Thread Size | |
| G-DSG-01 | DSGM-01-31 | Rc 1/8 | DSGM-01-3180 | 1/8 BSPF | DSGM-01-3190 | 1/8 NPT | 0.8 (1.8) |
| | DSGM-01X-31 | Rc 1/4 | DSGM-01X-3180 | 1/4 BSPF | DSGM-01X-3190 | 1/4 NPT | 0.8 (1.8) |
| | DSGM-01Y-31 | Rc 3/8 | — | — | DSGM-01Y-3190 | 3/8 NPT | 0.8 (1.8) |
| G-DSG-03 | DSGM-03-40 | Rc 3/8 | DSGM-03-2180 | 3/8 BSPF | DSGM-03-2190 | 3/8 NPT | 3.0 (6.6) |
| | DSGM-03X-40 | Rc 1/2 | DSGM-03X-2180 | 1/2 BSPF | DSGM-03X-2190 | 1/2 NPT | 3.0 (6.6) |
| | DSGM-03Y-40 | Rc 3/4 | DSGM-03Y-2180 | 3/4 BSPF | DSGM-03Y-2190 | 3/4 NPT | 4.7 (10.4) |

● 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.

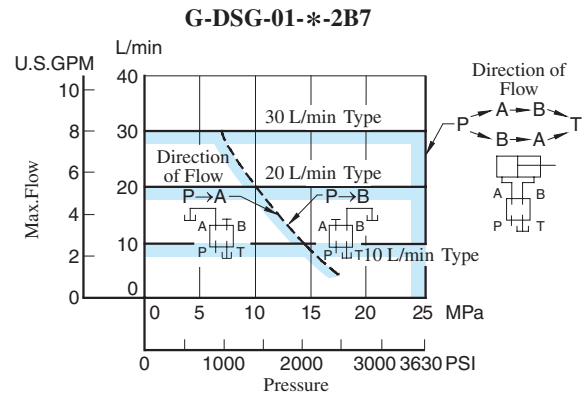
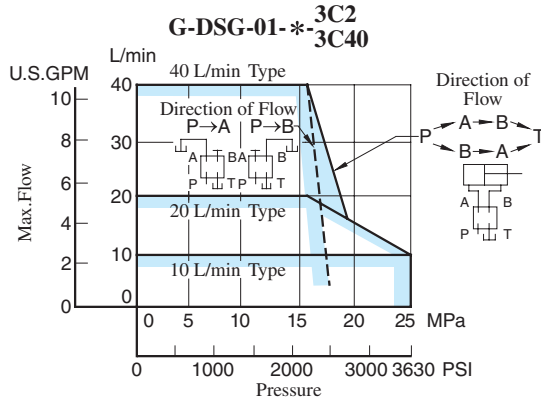
Attachment (Mtg. Bolt)

Four socket head cap screws in the table below are included.

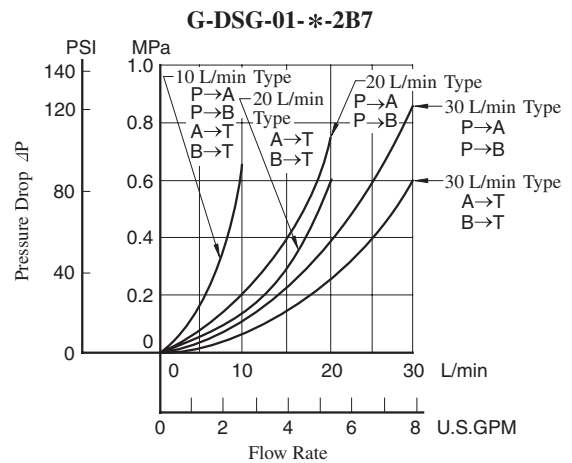
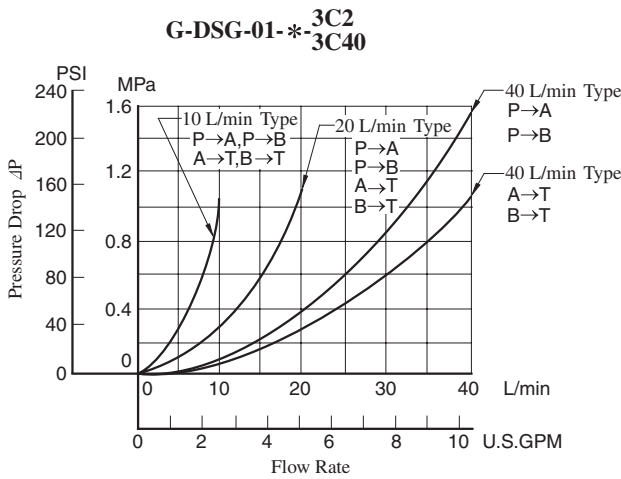
| Model Numbers | Socket Head Cap Screw (4 pcs.) | | |
|---------------|--|-----------------------------|-----------------------------|
| | Japanese Standard "JIS" & European Design Standard | N. American Design Standard | Tightening Torque |
| G-DSG-01 | M5 × 45 Lg. | No.10-24 UNC × 1-3/4 Lg. | 5-7 Nm (44-62 in. lbs.) |
| G-DSG-03 | M6 × 35 Lg. | 1/4-20 UNC × 1-1/2 Lg. | 12-15 Nm (106-133 in. lbs.) |

Typical Performance Characteristics of "G-DSG-01" at Viscosity 30 mm²/s (141 SSU), Specific Gravity 0.850

■ Maximum Flow Rate



■ Pressure Drop



- For any other viscosity, multiply the factors in the table right.
- For any other specific gravity (G'), the pressure drop (ΔP') may be obtained from the formula below.

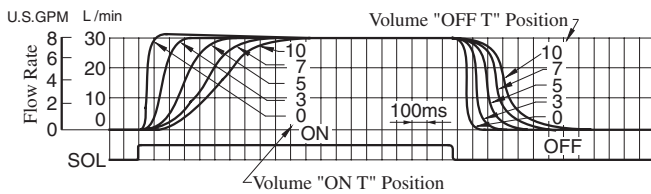
$$\Delta P' = \Delta P (G'/0.850)$$

| Viscosity | mm ² /s | 15 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
|-----------|--------------------|------|------|------|------|------|------|------|------|------|------|
| | | SSU | 77 | 98 | 141 | 186 | 232 | 278 | 324 | 371 | 417 |
| Factor | | 0.84 | 0.91 | 1.00 | 1.07 | 1.14 | 1.19 | 1.24 | 1.28 | 1.32 | 1.35 |

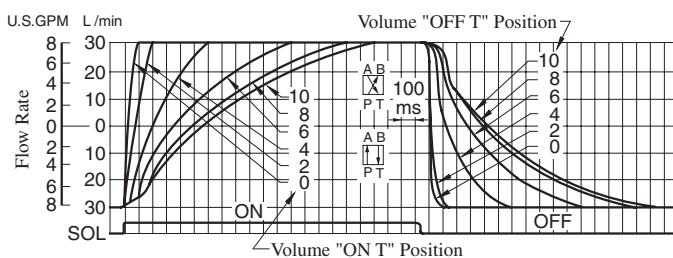
■ Shifting Characteristics

Supply Pressure : 16 MPa (2320 PSI)
Flow Rate : 30 L/min (7.9 U.S.GPM)

● 3C2, 3C40

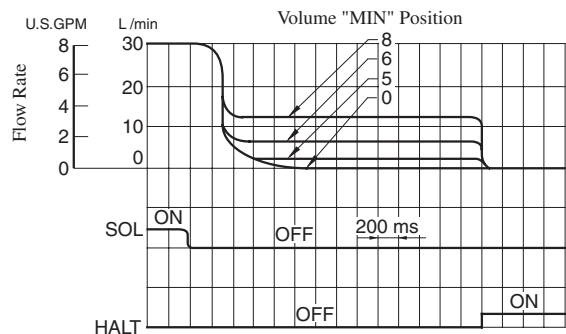


● 2B7



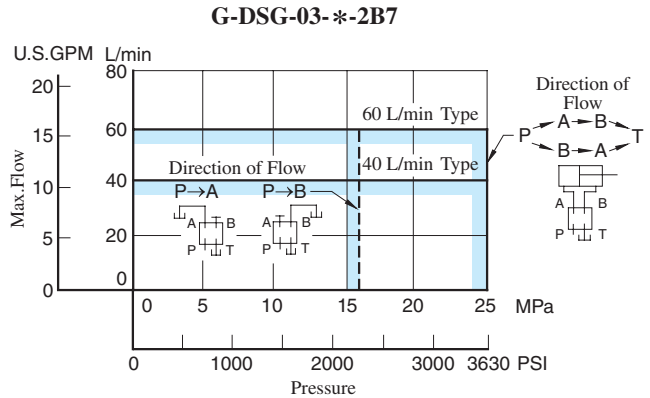
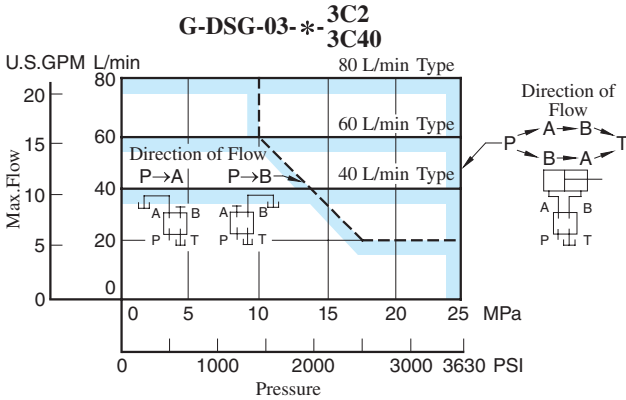
■ Low Speed Operating Flow Characteristics

Supply Pressure : 16 MPa (2320 PSI)
Flow Rate : 30 L/min (7.9 U.S.GPM)

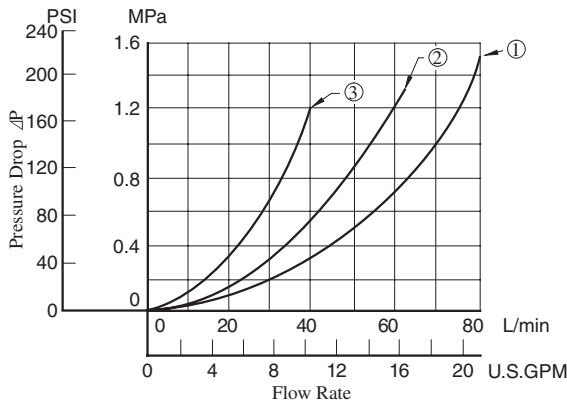


Typical Performance Characteristics of "G-DSG-03" at Viscosity 30 mm²/s (141 SSU), Specific Gravity 0.850

Maximum Flow Rate



Pressure Drop



| Model Numbers | Pressure Drop Curve Numbers* |
|--------------------------------------|------------------------------|
| G-DSG-03- ³ C2 3C40 | ① |
| G-DSG-03-40- ³ C2 3C40 | ③ |
| G-DSG-03-60- ³ C2 3C40 | ② |
| G-DSG-03-2B7 | ① |
| G-DSG-03-40-2B7 | ③ |

* The numbers of the pressure drop curves are the same for P→A, P→B, A→T and B→T.

- For any other viscosity, multiply the factors in the table right.
- For any other specific gravity (G'), the pressure drop (ΔP') may be obtained from the formula below.

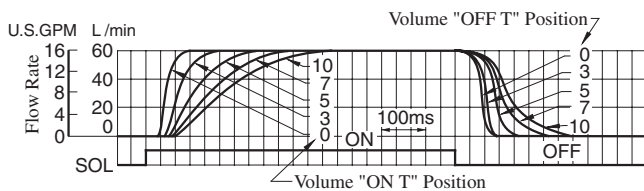
$$\Delta P' = \Delta P (G'/0.850)$$

| 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 | | 0.84 | 0.91 | 1.00 | 1.07 | 1.14 | 1.19 | 1.24 | 1.28 | 1.32 | 1.35 |

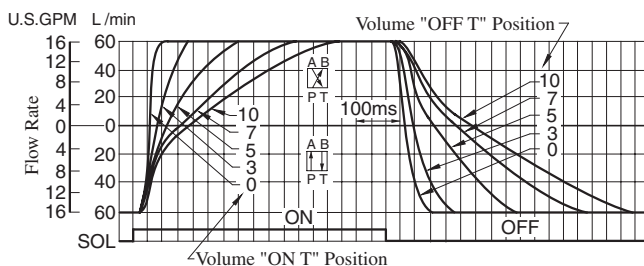
Shifting Characteristics

Supply Pressure : 16 MPa (2320 PSI)
Flow Rate : 60 L/min (15.9 U.S.GPM)

● 3C2, 3C40

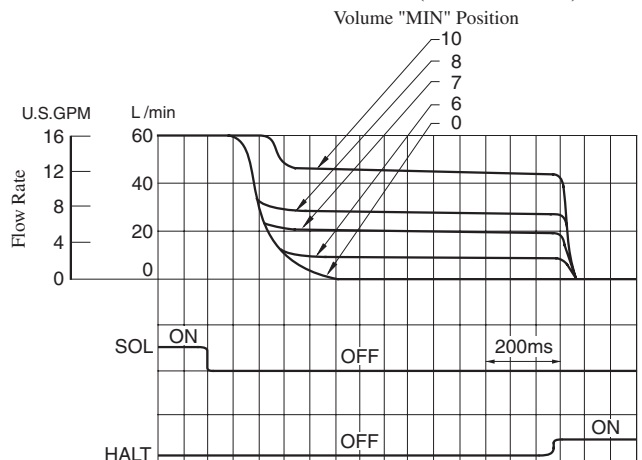


● 2B7



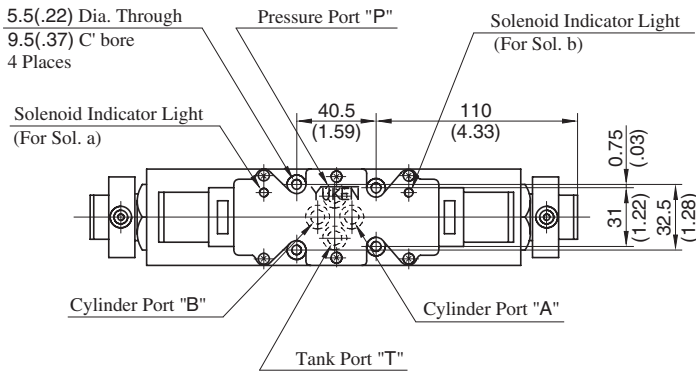
Low Speed Operating Flow Characteristics

Supply Pressure : 16 MPa (2320 PSI)
Flow Rate : 60 L/min (15.9 U.S.GPM)

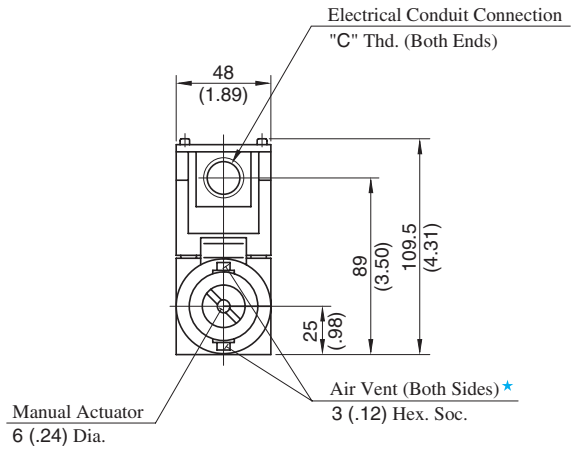
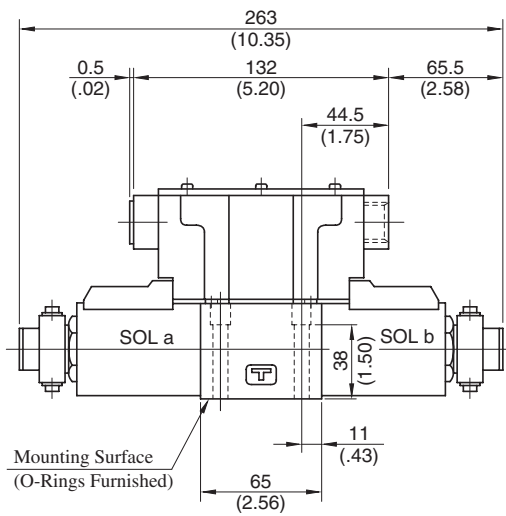


G-DSG-01-**-3C2/3C40-**-50/5090

Mounting Surface:
ISO4401-AB-03-4-A



| Model Numbers | "C" Thd. |
|-------------------|----------|
| G-DSG-01-***-50 | G 1/2 |
| G-DSG-01-***-5090 | 1/2 NPT |

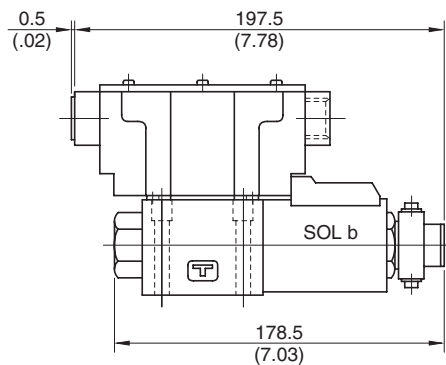


★ Air vent position around valve longitudinal axis can be optionally selected.

Note: For the valve mounting surface dimensions, see the dimensional drawing of the sharable sub-plate in [page 356](#).

**DIMENSIONS IN
MILLIMETRES (INCHES)**

G-DSG-01-**-2B7-**-50/5090

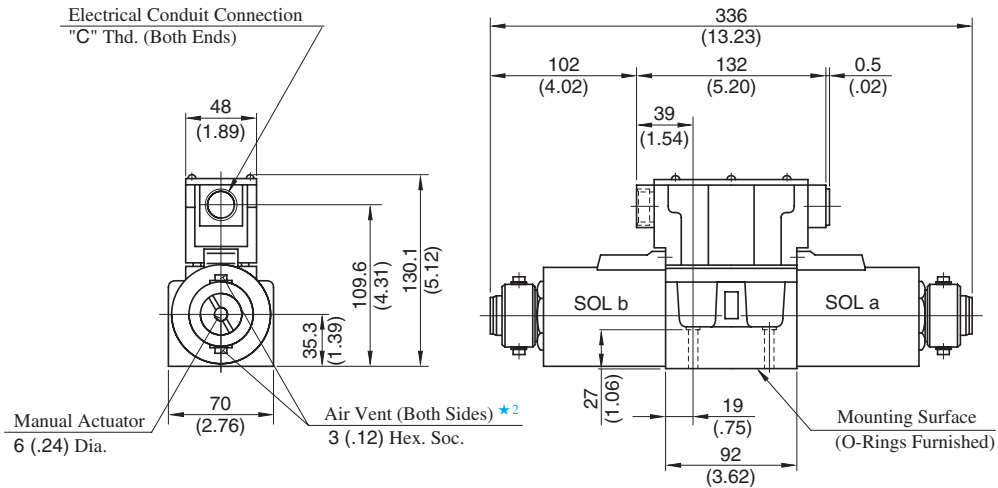
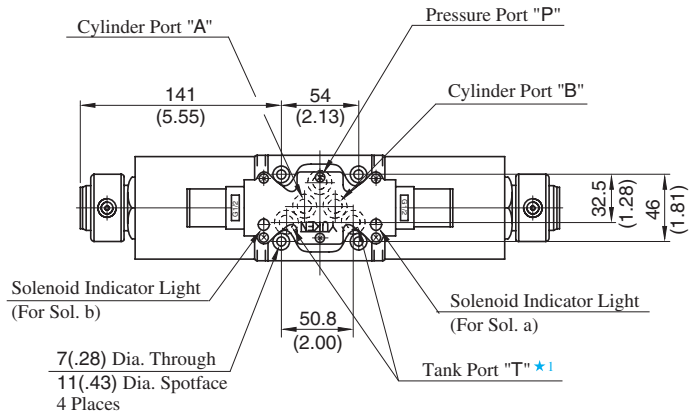


• For other dimensions, refer to the drawing above.

G-DSG-03-**-3C2/3C40-**-50/5090

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

| Model Numbers | "C" Thd. |
|---------------------|----------|
| G-DSG-03-**-**-50 | G 1/2 |
| G-DSG-03-**-**-5090 | 1/2 NPT |



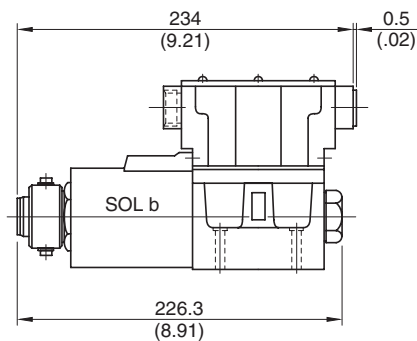
★1. Although the tank port is shown on the left in our sub-plate, either may be used.

★2. Air vent position around valve longitudinal axis can be optionally selected.

Note: For the valve mounting surface dimensions, see the dimensional drawing of the sharable sub-plate in [page 373](#).

DIMENSIONS IN
MILLIMETRES (INCHES)

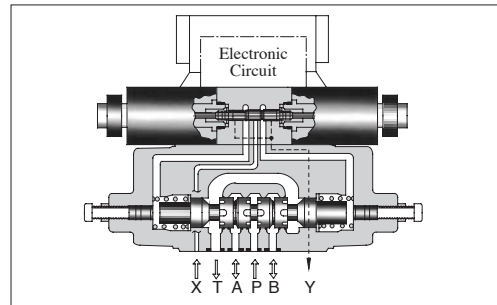
G-DSG-03-**-2B7-**-50/5090



• For other dimensions, refer to the drawing above.

E
 "G" Series Shockless Type
 Solenoid Operated Directional Valves

■ “G” Series Shockless Type Solenoid Controlled Pilot Operated Directional Valves



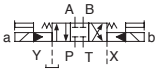

■ Specifications

| Descriptions | | Model Numbers | G-DSHG-04-3C*-**-50/5090 | G-DSHG-06-3C*-**-50/5090 |
|---|--------------------|---------------|---|-------------------------------|
| Max. Flow | L/min (U.S.GPM) | | 160 (42.3) ★ ¹ | 250 (66.1) ★ ¹ |
| Max. Operating Pres. | MPa (PSI) | | 25 (3630) | 25 (3630) |
| Max. T-Line Back Pres. | MPa (PSI) | | 16 (2320) | 16 (2320) |
| Max. Drain Line Back Pressure | MPa (PSI) | | 3 (440) | 3 (440) |
| Max. Pilot Pressure | MPa (PSI) | | 16 (2320) | 16 (2320) |
| Min. Required Pilot Pres. | MPa (PSI) | | 1.5 (220) ★ ² | |
| Pilot Flow L/min (U.S.GPM) | at Normal | | 1 (0.3) | 1 (0.3) |
| | at Transition | | 4 (1.1) | 6 (1.6) |
| Electric Power Supply | Voltage | | 24 V DC (21 - 28 V DC Included Ripple): Use a stable power supply | |
| | Input Power at 24V | | 36 W | 36 W |
| Shifting signal, low speed operation halt signal (can be used in common with electric power supply) | Voltage | | 5 - 48 V DC (Use a stable power supply) | |
| | Current | | Constant at 10 mA (A constant-current circuit is used) | |
| | Input interface | | Sink Type, Source Type | |
| Shifting time range (for ON and OFF) | | | ON: 0.06 - 1.5 s, OFF: 0.1 - 2 s | ON: 0.1 - 1 s, OFF: 0.2 - 2 s |
| Low speed operation flow rate (min. flow rate) range (for SOL a and b) | L/min (U.S.GPM) | | 5 - 20 (1.3 - 5.3) | 10 - 30 (2.6 - 7.9) |
| Low speed operation flow rate (min. flow rate) hold time | | | Max. 60 s (After 60 seconds, the flow rate decreases gradually.) | |
| Ambient Temperature | | | 0 - 50 °C (32 - 122 °F) with circulated air | |
| Approx. Mass | | | 12 kg (26.5 lbs.) | 15 kg (33.1 lbs.) |

★1. The maximum flow rate is constant irrespective of the working pressure.

★2. Be sure that the difference between pilot pressure and drain port back pressure is larger than the minimum pilot pressure.

Model Number Designation

| G-DSHG | -04 | -3C2 | -E | -R2 | -S | -50 | * |
|---|------------|--|--------------------------------|---|--------------------------------------|---------------|------------------|
| Series Number | Valve Size | Spool Type | Pilot Connection | Spool Control Modification (Omit if not required) | Input Interface | Design Number | Design Standards |
| G-DSHG : G Series Shockless Type Solenoid Controlled Pilot Operated Directional Valve, Sub-plate Mounting | 04 | 3C2  | None: Internal Pilot | R2: With Stroke Adjustment, Both Ends RA: With Stroke Adjustment, Port "A" End RB: With Stroke Adjustment, Port "B" End | None: Sink Type (Standard) | 50 | Refer to ★ |
| | 06 | 3C40  | E: External Pilot | S: Source Type | 50 | | |

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

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.) |
| G-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) |
| G-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) |

● 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.

Attachment (Mtg. Bolts)

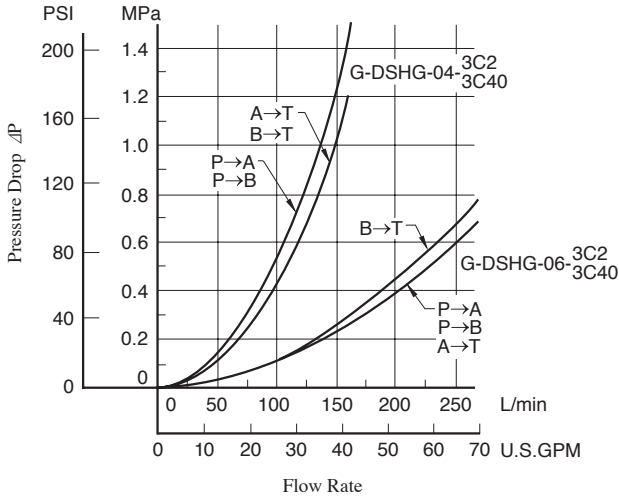
Socket head cap screws in the table below are included.

| Model Numbers | Socket Head Cap Screw | | | |
|---------------|--|-----------------------------|------|---------------------------------|
| | Japanese Standard "JIS" & European Design Standard | N. American Design Standard | Qty. | Tightening Torque Nm (in. lbs.) |
| G-DSHG-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) |
| G-DSHG-06 | M12 × 60 Lg. | 1/2-13 UNC × 2-1/2 Lg. | 6 | 100-123 (885-1089) |

Hydraulic Fluid: Viscosity 30 mm²/s (141 SSU), Specific Gravity 0.850

Pressure Drop

G-DSHG-04/06-3C2/3C40



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

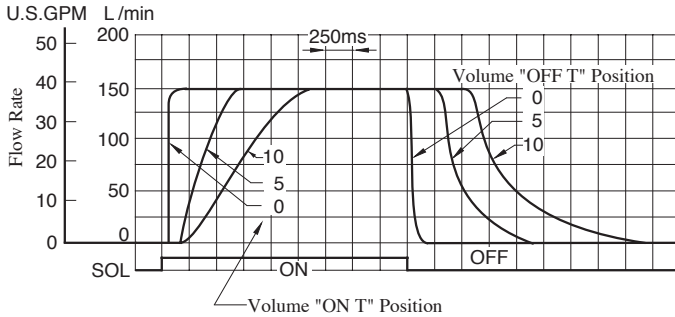
| Viscosity | mm ² /s | 15 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
|-----------|--------------------|------|------|------|------|------|------|------|------|------|------|
| | SSU | 77 | 98 | 141 | 186 | 232 | 278 | 324 | 371 | 417 | 464 |
| Factor | | 0.84 | 0.91 | 1.00 | 1.07 | 1.14 | 1.19 | 1.24 | 1.28 | 1.32 | 1.35 |

For any other specific gravity (G'), the pressure drop (ΔP') may be obtained from the formula below.
 $\Delta P' = \Delta P (G'/0.850)$

Shifting Characteristics

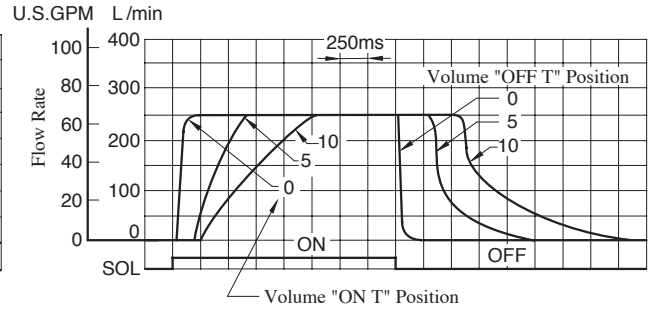
G-DSHG-04-3C2/3C40

Supply Pressure : 16 MPa (2320 PSI)
 Flow Rate : 150 L/min (39.6 U.S.GPM)
 Pilot Pressure : 16 MPa (2320 PSI)



G-DSHG-06-3C2/3C40

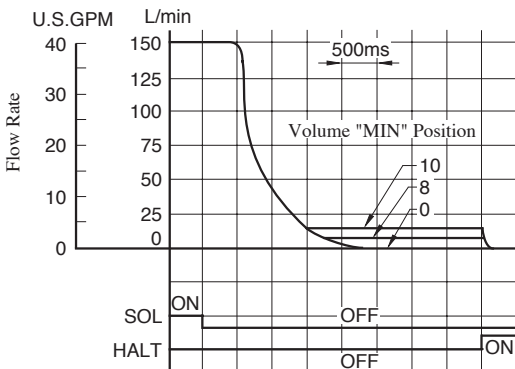
Supply Pressure : 16 MPa (2320 PSI)
 Flow Rate : 250 L/min (66.1 U.S.GPM)
 Pilot Pressure : 16 MPa (2320 PSI)



Low Speed Operating Flow Characteristics

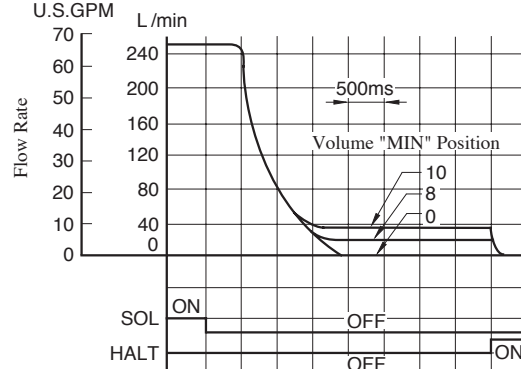
G-DSHG-04-3C2/3C40

Supply Pressure : 16 MPa (2320 PSI)
 Flow Rate : 150 L/min (39.6 U.S.GPM)
 Pilot Pressure : 16 MPa (2320 PSI)



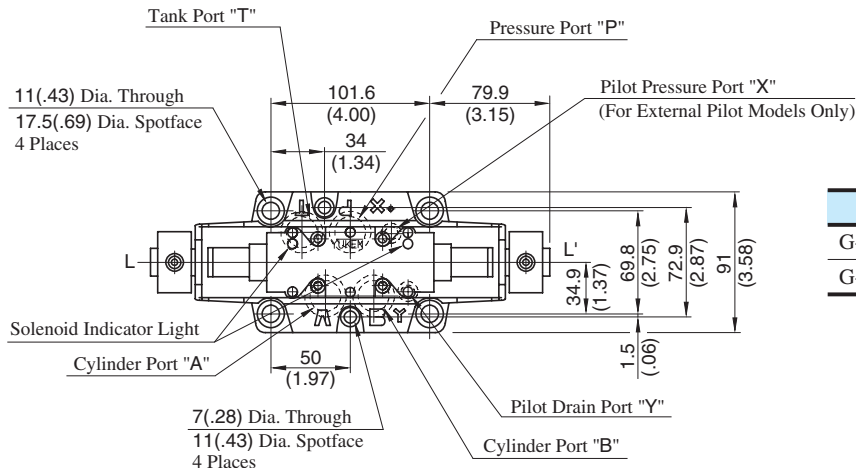
G-DSHG-06-3C2/3C40

Supply Pressure : 16 MPa (2320 PSI)
 Flow Rate : 250 L/min (66.1 U.S.GPM)
 Pilot Pressure : 16 MPa (2320 PSI)

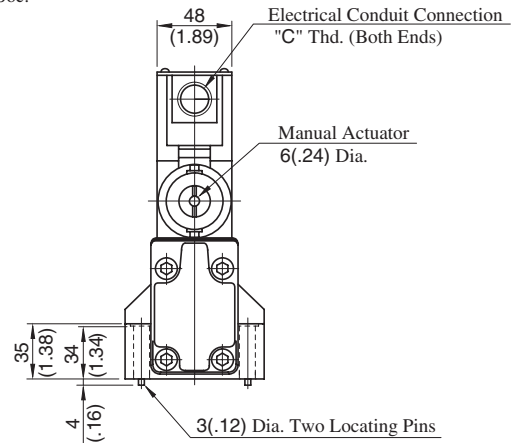
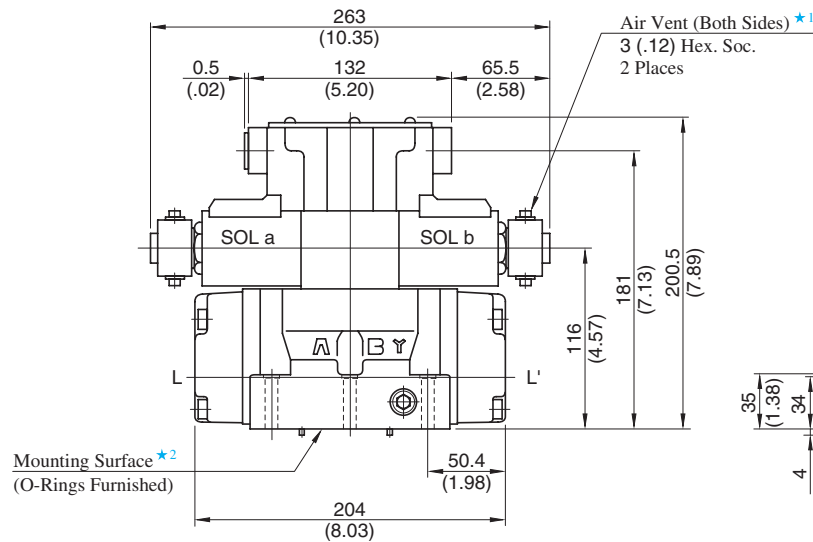


G-DSHG-04-3C*-**-50/5090

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



| Model Numbers | "C" Thd. |
|-----------------------|----------|
| G-DSHG-04-3C*-**-50 | G 1/2 |
| G-DSHG-04-3C*-**-5090 | 1/2 NPT |



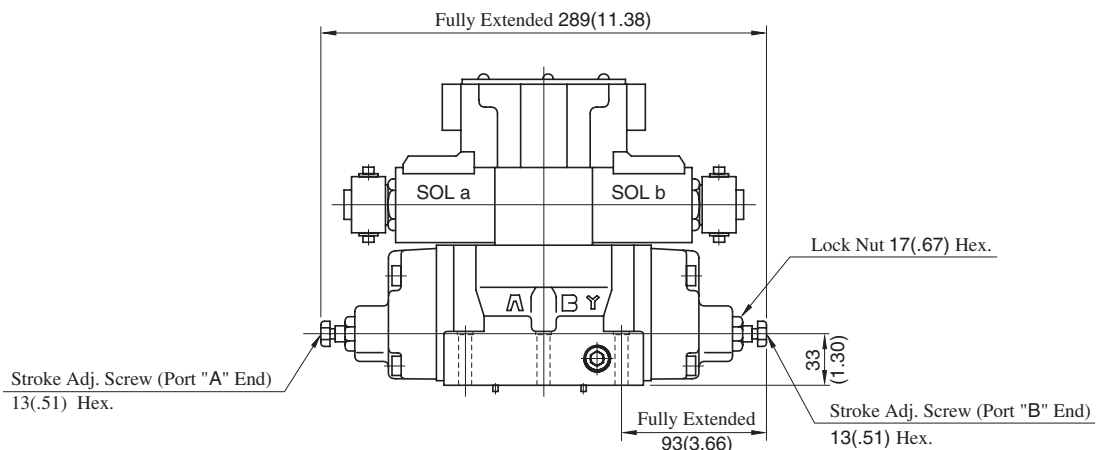
- *1. Air vent position around valve longitudinal axis can be optionally selected.
- *2. O-rings for ports: SO-NB-P22 for P/A/B/T ports
SO-NB-P9 for X/Y ports

Note: For the valve mounting surface dimensions, see the dimensional drawing of the sharable sub-plate on [page 401](#).

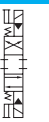
DIMENSIONS IN
MILLIMETRES (INCHES)

● Models with Stroke Adjustment (Option)

G-DSHG-04-3C*-**-R*-**-50/5090



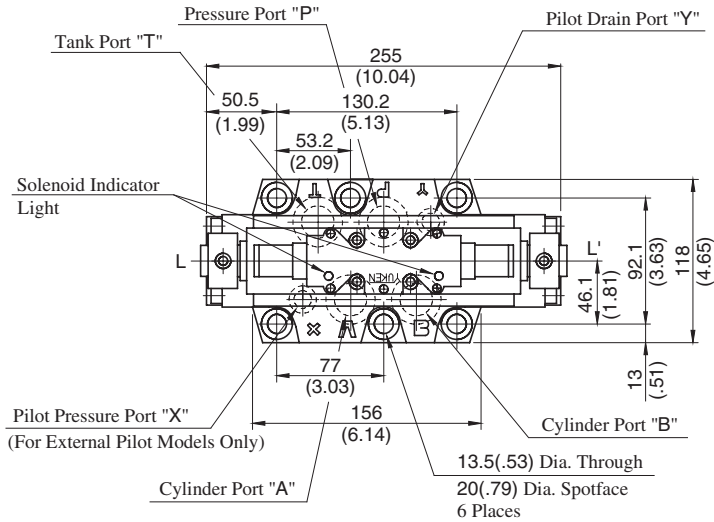
E



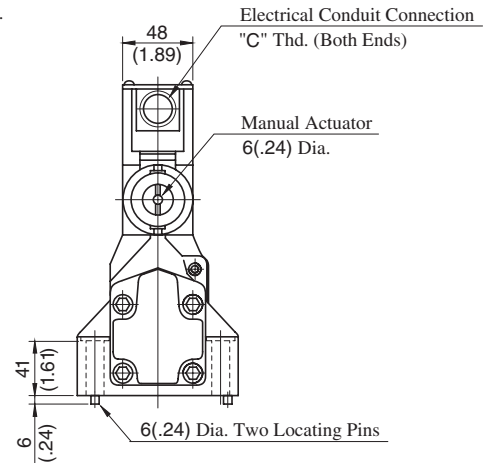
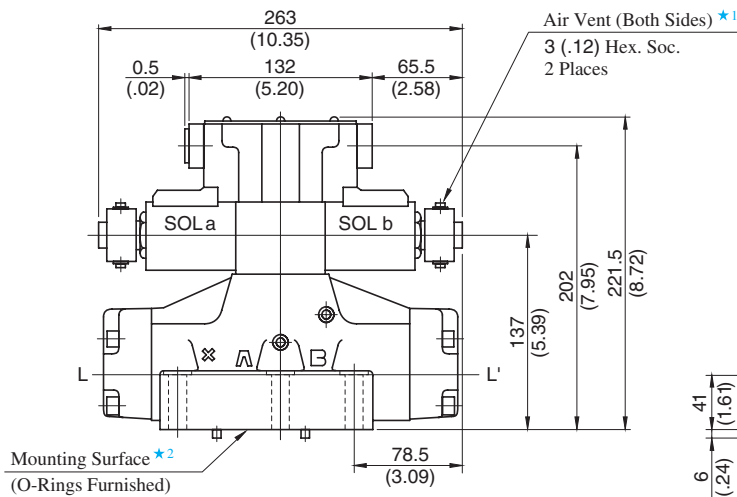
"G" Series Shockless Type Solenoid Controlled Pilot Directional Valves

G-DSHG-06-3C*-*-50/5090

Mounting Surface:
ISO4401-AE-08-4-A



| Model Numbers | "C" Thd. |
|----------------------|----------|
| G-DSHG-06-3C*-*-50 | G 1/2 |
| G-DSHG-06-3C*-*-5090 | 1/2 NPT |



- ★ 1. Air vent position around valve longitudinal axis can be optionally selected.
 - ★ 2. O-rings for ports: SO-NB-P30 for P/A/B/T ports
SO-NB-P14 for X/Y ports
- Note: For the valve mounting surface dimensions, see the dimensional drawing of the sharable sub-plate in [page 403](#).

DIMENSIONS IN
MILLIMETRES (INCHES)

● **Models with Stroke Adjustment (Option)**

G-DSHG-06-3C*-*-R*-*-50/5090

