

## Solenoid Controlled Pilot Operated Directional Valves

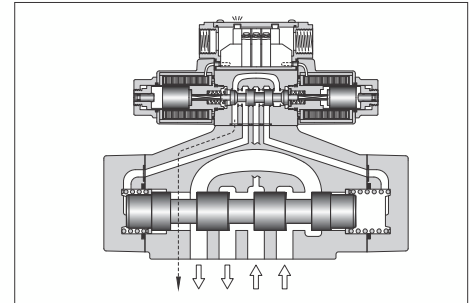
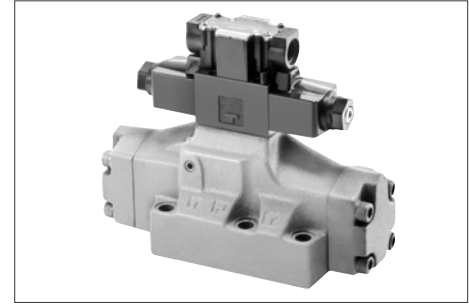
These valves are composed of a solenoid operated pilot valve and a pilot operated slave valve. When a solenoid is energised the pilot valve directs the flow to move the spool of the slave valve, thus changing the direction of flow in the hydraulic circuit.

### 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) <sup>★1</sup> | Max. Operating Pressure MPa (PSI) | Max. Pilot Pressure MPa (PSI) | Min. <sup>★2</sup> Required Pilot Pres. MPa (PSI) | Max. T-Line Back Pressure MPa (PSI) |            | Max. Change-over Frequency Cycles/Min {min <sup>-1</sup> } |     |             | 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 |                                         |                                   |                               |                                                   |                                     |            |                                                            |     |             | 2.7 (6.0)      |
|                           | DSHG-03-3C*-*-14/1490      | 160 (42.3)                              | 25 (3630)                         | 25 (3630)                     | 0.7 (100)                                         | 16 (2320)                           | 16 (2320)  | 120                                                        | 120 | 120         | 6.9 (15.2)     |
|                           | DSHG-03-2N*-*-14/1490      |                                         |                                   |                               |                                                   |                                     |            |                                                            |     |             | 6.9 (15.2)     |
|                           | DSHG-03-2B*-*-14/1490      |                                         |                                   |                               |                                                   |                                     |            |                                                            |     |             | 6.4 (14.1)     |
|                           | (S-)DSHG-04-3C*-*-52/5290  | 300 (79.3)                              | 31.5 (4570)                       | 25 (3630)                     | 0.8 (120)                                         | 21 (3050)                           | 16 (2320)  | 120                                                        | 120 | 120         | 8.5 (18.7)     |
|                           | (S-)DSHG-04-2N*-*-52/5290  |                                         |                                   |                               |                                                   |                                     |            |                                                            |     |             | 8.5 (18.7)     |
| (S-)DSHG-04-2B*-*-52/5290 | 8.0 (17.6)                 |                                         |                                   |                               |                                                   |                                     |            |                                                            |     |             |                |
| Shockless Type            | (S-)DSHG-06-3C*-*-53/5390  | 500 (132)                               | 31.5 (4570)                       | 25 (3630)                     | 0.8 (120) <sup>★3</sup>                           | 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) <sup>★3</sup>                           | 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  |                                         |                                   | 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).

## 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   |                           |                                              |

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)               |

## CSA Approved Solenoid Valve

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



**Model Number Designation**

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

# DIRECTIONAL CONTROLS

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

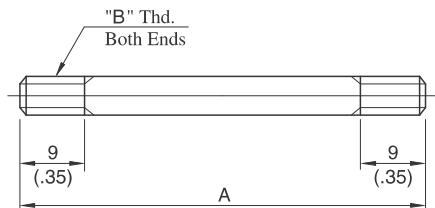
| Model Numbers | Mounting Bolt               |                                                          |                                                              |        |                                            |
|---------------|-----------------------------|----------------------------------------------------------|--------------------------------------------------------------|--------|--------------------------------------------|
|               | Name                        | Japanese Standard "JIS"<br>European Design Standard      | N. American Design Standard                                  | Qty.   | Tightening Torque<br>Nm (in. lbs.)         |
| DSHG-01       | Mtg. Bolt Kit★ <sup>3</sup> | MBK-01-01-30★ <sup>1</sup><br>MBK-01-02-30★ <sup>2</sup> | MBK-01-01-3090★ <sup>1</sup><br>MBK-01-02-3090★ <sup>2</sup> | 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.<br>M10 × 50 Lg.                              | 1/4-20 UNC × 1-3/4 Lg.<br>3/8-16 UNC × 2 Lg.                 | 2<br>4 | 12 - 15 (104 - 130)<br>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.

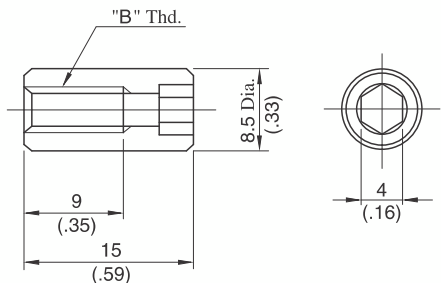
★ 2. For External Pilot or External Drain.

★ 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



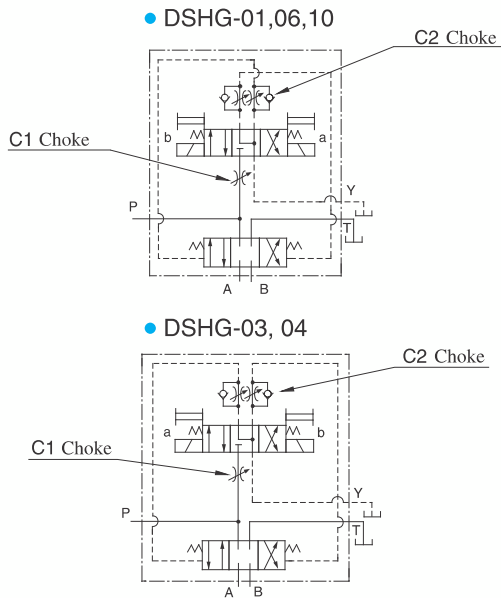
| Model Numbers  | A mm (In.) | "B" Thd.     |
|----------------|------------|--------------|
| MBK-01-01-30   | 94 (3.70)  | M5           |
| MBK-01-02-30   | 134 (5.28) |              |
| MBK-01-01-3090 | 94 (3.70)  | No.10-24 UNC |
| MBK-01-02-3090 | 134 (5.28) |              |

## 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)

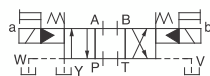


### Models with Pilot Piston(P2, PA, PB)

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

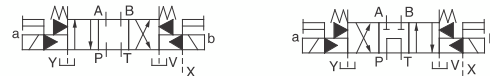


### Pressure Centred Models (3H\*)

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.

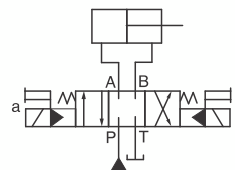
## List of Spool Functions and Maximum Flow (DSHG-01)

| Spool Type | Three Positions |                     |                      |                      | Two Positions  |                     |                      |                      |
|------------|-----------------|---------------------|----------------------|----------------------|----------------|---------------------|----------------------|----------------------|
|            | Spring Centred  |                     |                      |                      | Spring Centred |                     |                      |                      |
|            | Graphic Symbol  | Maximum Flow        |                      |                      | Graphic Symbol | Maximum Flow        |                      |                      |
|            |                 | L/min (U.S.GPM)     |                      |                      |                | L/min (U.S.GPM)     |                      |                      |
|            | Model Numbers   | 7 MPa<br>(1020 PSI) | 14 MPa<br>(2030 PSI) | 21 MPa<br>(3050 PSI) | Model Numbers  | 7 MPa<br>(1020 PSI) | 14 MPa<br>(2030 PSI) | 21 MPa<br>(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)

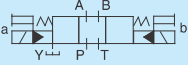
2. Max. flow in the table above represents the value in the flow condition of P → A → B → T (or P → B → A → T) as shown in the circuit diagram right.

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.

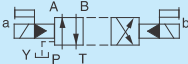
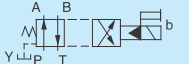


## List of Spool Functions and Maximum Flow (DSHG-03)

### Three Positions

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

### Two Positions

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

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

(Example)

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

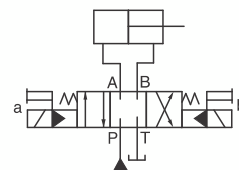
|            |            |
|------------|------------|
| 160 (42.3) | 85 (22.5)  |
|            | 160 (42.3) |

Pilot Pressure at 0.7 MPa (100 PSI).

Pilot Pressure at 1 MPa (150 PSI).

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

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



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

### Three Positions

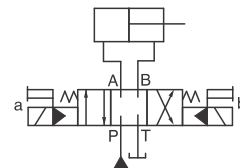
| Spool Type | Spring Centred                   |                      |                      |                      |                        |
|------------|----------------------------------|----------------------|----------------------|----------------------|------------------------|
|            | Graphic Symbol                   | Maximum Flow         |                      |                      |                        |
|            | Model Numbers                    | 10 MPa<br>(1450 PSI) | 16 MPa<br>(2320 PSI) | 25 MPa<br>(3630 PSI) | 31.5 MPa<br>(4570 PSI) |
| "2"        | DSHG-04-3C2<br>(S-)DSHG-04-3C2   | 300 (79.3)           | 300 (79.3)           | 200 (52.8)           | 145 (38.3)             |
| "3"        | DSHG-04-3C3                      | 300 (79.3)           | 300 (79.3)           | 300 (79.3)           | 300 (79.3)             |
| "4"        | DSHG-04-3C4<br>(S-)DSHG-04-3C4   | 300 (79.3)           | 300 (79.3)           | 250 (66.1)           | 165 (43.6)             |
| "40"       | DSHG-04-3C40<br>(S-)DSHG-04-3C40 | 300 (79.3)           | 300 (79.3)           | 200 (52.8)           | 145 (38.3)             |
| "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<br>(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<br>(S-)DSHG-04-3C10 | 300 (79.3)           | 300 (79.3)           | 200 (52.8)           | 150 (39.6)             |
| "11"       | DSHG-04-3C11                     | 300 (79.3)           | 260 (68.7)           | 160 (42.3)           | 140 (37.0)             |
| "12"       | DSHG-04-3C12<br>(S-)DSHG-04-3C12 | 300 (79.3)           | 280 (74.0)           | 170 (44.9)           | 135 (35.7)             |

### Two Positions

| Spool Type | No-Spring        |                      |                      |                      |                        | Spring Offset    |                      |                      |                      |                        |
|------------|------------------|----------------------|----------------------|----------------------|------------------------|------------------|----------------------|----------------------|----------------------|------------------------|
|            | Graphic Symbol   | Maximum Flow         |                      |                      |                        | Graphic Symbol   | Maximum Flow         |                      |                      |                        |
|            | Model Numbers    | 10 MPa<br>(1450 PSI) | 16 MPa<br>(2320 PSI) | 25 MPa<br>(3630 PSI) | 31.5 MPa<br>(4570 PSI) | Model Numbers    | 10 MPa<br>(1450 PSI) | 16 MPa<br>(2320 PSI) | 25 MPa<br>(3630 PSI) | 31.5 MPa<br>(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)             |

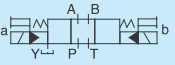
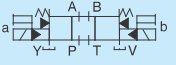
Notes: 1. Max flow described above shown value at pilot pressure more than 0.8 MPa (120 PSI).

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.

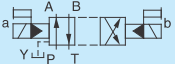
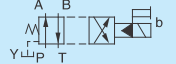


## List of Spool Functions and Maximum Flow (DSHG-06/S-DSHG-06)

### Three Positions

| Spool Type                                                                               | Spring Centred                                                                                      |                                 |                      |                        |                         | Pressure Centred                                                                                     |                                 |                      |                      |                        |
|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|---------------------------------|----------------------|------------------------|-------------------------|------------------------------------------------------------------------------------------------------|---------------------------------|----------------------|----------------------|------------------------|
|                                                                                          | Graphic Symbol<br> | Maximum Flow<br>L/min (U.S.GPM) |                      |                        |                         | Graphic Symbol<br> | Maximum Flow<br>L/min (U.S.GPM) |                      |                      |                        |
|                                                                                          | Model Numbers                                                                                       | 10 MPa<br>(1450 PSI)            | 16 MPa<br>(2320 PSI) | 25 MPa<br>(3630 PSI)   | 31.5 MPa<br>(4570 PSI)  | Model Numbers                                                                                        | 10 MPa<br>(1450 PSI)            | 16 MPa<br>(2320 PSI) | 25 MPa<br>(3630 PSI) | 31.5 MPa<br>(4570 PSI) |
| "2"     | (S-)DSHG-06-3C2                                                                                     | 500 (132)                       | 500 (132)            | 410 (108)<br>500 (132) | 310 (81.9)<br>500 (132) | (S-)DSHG-06-3H2                                                                                      | 500 (132)                       | 500 (132)            | 500 (132)            | 420 (111)<br>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)<br>500 (132) | 310 (81.9)<br>500 (132) | (S-)DSHG-06-3H4                                                                                      | 500 (132)                       | 500 (132)            | 500 (132)            | 420 (111)<br>500 (132) |
| "40"    | (S-)DSHG-06-3C40                                                                                    | 500 (132)                       | 500 (132)            | 410 (108)<br>500 (132) | 310 (81.9)<br>500 (132) | (S-)DSHG-06-3H40                                                                                     | 500 (132)                       | 500 (132)            | 500 (132)            | 420 (111)<br>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)<br>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)<br>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)<br>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)<br>500 (132) | 360 (95.1)<br>500 (132) | DSHG-06-3H9                                                                                          | 500 (132)                       | 500 (132)            | 500 (132)            | 500 (132)              |
| "10"  | (S-)DSHG-06-3C10                                                                                    | 500 (132)                       | 500 (132)            | 410 (108)<br>500 (132) | 310 (81.9)<br>500 (132) | (S-)DSHG-06-3H10                                                                                     | 500 (132)                       | 500 (132)            | 500 (132)            | 460 (122)<br>500 (132) |
| "11"  | DSHG-06-3C11                                                                                        | 500 (132)                       | 500 (132)            | 410 (108)<br>500 (132) | 310 (81.9)<br>500 (132) | DSHG-06-3H11                                                                                         | 500 (132)                       | 500 (132)            | 500 (132)            | 460 (122)<br>500 (132) |
| "12"  | (S-)DSHG-06-3C12                                                                                    | 500 (132)                       | 500 (132)            | 410 (108)<br>500 (132) | 310 (81.9)<br>500 (132) | (S-)DSHG-06-3H12                                                                                     | 500 (132)                       | 500 (132)            | 500 (132)            | 460 (122)<br>500 (132) |

### Two Positions

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

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

(Example)

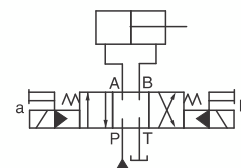
Maximum flow rate is constant regardless of pilot pressure.  
Pilot Pressure more than 0.8 MPa (120 PSI).  
In case pressure centred models, pilot pressure is more than 1 MPa (150 PSI).

|           |           |
|-----------|-----------|
| 500 (132) | 410 (108) |
|           | 500 (132) |

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

Pilot Pressure at 1.5 MPa (220 PSI).

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



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

### Three Positions

| Spool Type | Spring Centred   |                      |                      |                          |                         | Pressure Centred |                      |                      |                      |                          |
|------------|------------------|----------------------|----------------------|--------------------------|-------------------------|------------------|----------------------|----------------------|----------------------|--------------------------|
|            | Graphic Symbol   | Maximum Flow         |                      |                          |                         | Graphic Symbol   | Maximum Flow         |                      |                      |                          |
|            | Model Numbers    | 10 MPa<br>(1450 PSI) | 16 MPa<br>(2320 PSI) | 25 MPa<br>(3630 PSI)     | 31.5 MPa<br>(4570 PSI)  | Model Numbers    | 10 MPa<br>(1450 PSI) | 16 MPa<br>(2320 PSI) | 25 MPa<br>(3630 PSI) | 31.5 MPa<br>(4570 PSI)   |
| "2"        | (S-)DSHG-10-3C2  | 1100 (291)           | 1100 (291)           | 950 (251)<br>1100 (291)  | 750 (198)<br>1100 (291) | (S-)DSHG-10-3H2  | 1100 (291)           | 1100 (291)           | 1100 (291)           | 970 (256)<br>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)<br>1100 (291) |
| "4"        | (S-)DSHG-10-3C4  | 1100 (291)           | 1100 (291)           | 950 (251)<br>1100 (291)  | 750 (198)<br>1100 (291) | (S-)DSHG-10-3H4  | 1100 (291)           | 1100 (291)           | 1100 (291)           | 970 (256)<br>1100 (291)  |
| "40"       | (S-)DSHG-10-3C40 | 1100 (291)           | 1100 (291)           | 950 (251)<br>1100 (291)  | 750 (198)<br>1100 (291) | (S-)DSHG-10-3H40 | 1100 (291)           | 1100 (291)           | 1100 (291)           | 970 (256)<br>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)<br>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)<br>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)<br>1100 (291)  |
| "7"        | DSHG-10-3C7      | 1100 (291)           | 1100 (291)           | 1040 (275)<br>1100 (291) | 870 (230)<br>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)<br>1100 (291)  | 750 (198)<br>1100 (291) | (S-)DSHG-10-3H10 | 1100 (291)           | 1100 (291)           | 1100 (291)           | 1060 (280)<br>1100 (291) |
| "11"       | DSHG-10-3C11     | 1100 (291)           | 1100 (291)           | 950 (251)<br>1100 (291)  | 750 (198)<br>1100 (291) | DSHG-10-3H11     | 1100 (291)           | 1100 (291)           | 1100 (291)           | 1060 (280)<br>1100 (291) |
| "12"       | (S-)DSHG-10-3C12 | 1100 (291)           | 1100 (291)           | 950 (251)<br>1100 (291)  | 750 (198)<br>1100 (291) | (S-)DSHG-10-3H12 | 1100 (291)           | 1100 (291)           | 1100 (291)           | 1060 (280)<br>1100 (291) |

### Two Positions

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

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

(Example)

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

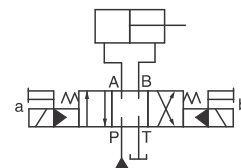
|            |            |
|------------|------------|
| 1100 (291) | 1040 (275) |
|            | 1100 (291) |

Pilot Pressure at 1 MPa (150 PSI).

Pilot Pressure at 1.5 MPa (220 PSI).

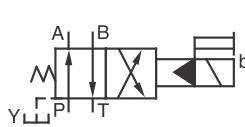
2. Max. flow in the table above represents the value in the flow condition of P → A → B → T (or P → B → A → T) as shown in the circuit diagram right.

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

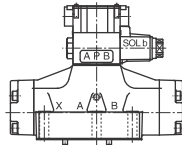


## Reverse Mounting of Solenoid.

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



Standard Mtg. of Solenoid

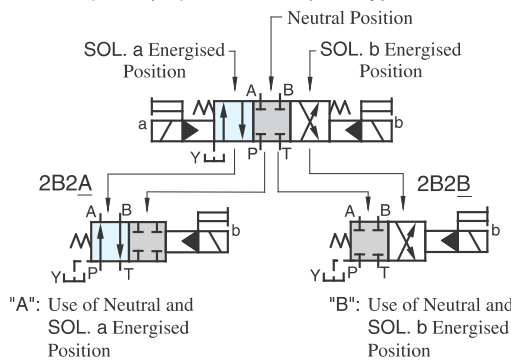


Reverse Mtg. of Solenoid ("L")

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

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

(Example) In case of Spool Type "2"



| Model Numbers            | Graphic Symbols |                   |
|--------------------------|-----------------|-------------------|
|                          | Standard Mtg.   | Reverse Mtg. Type |
| 04<br>DSHG-06-2B*A<br>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         |                 |                   |

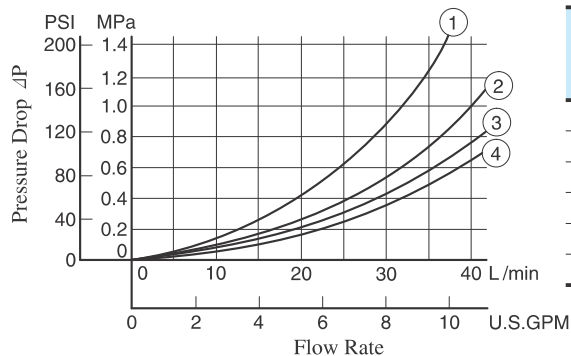
| Model Numbers            | Graphic Symbols |                   |
|--------------------------|-----------------|-------------------|
|                          | Standard Mtg.   | Reverse Mtg. Type |
| 04<br>DSHG-06-2B*B<br>10 |                 |                   |
| (S-)DSHG-*-2B2B          |                 |                   |
| 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.   | Reverse Mtg. Type |
| 04<br>DSHG-06-2N*A<br>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 mm<sup>2</sup>/s (164 SSU) and specific gravity of 0.850.

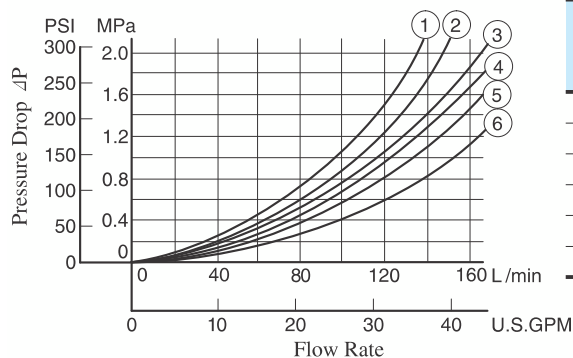
### DSHG-01



### 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   |            |                             |     |     |     |     |

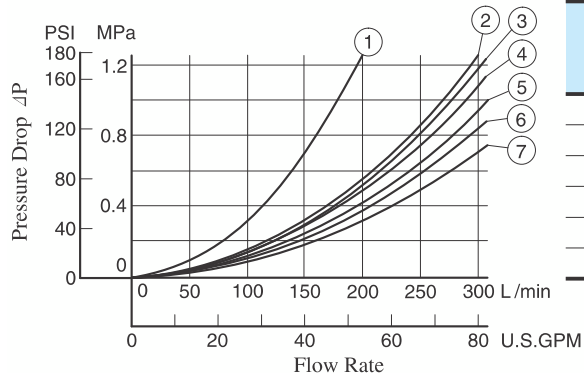
### DSHG-03



### 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



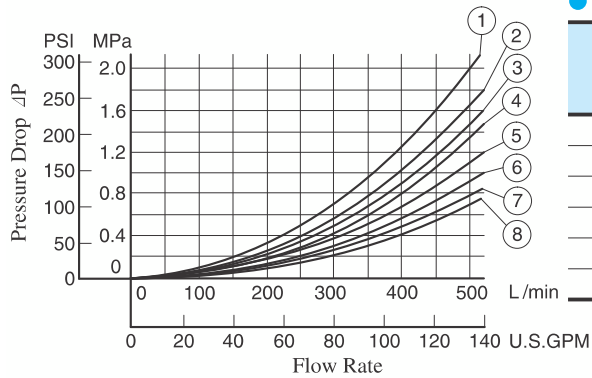
### DSHG-04

| 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



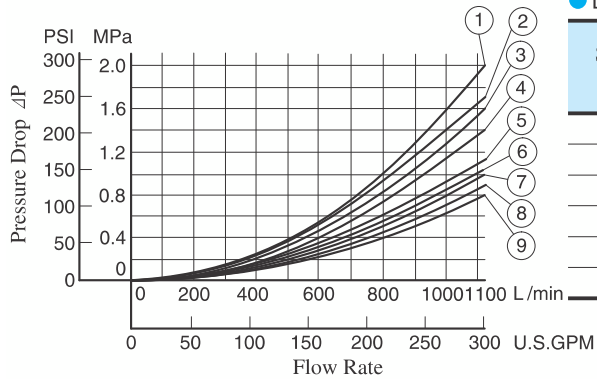
### DSHG-06

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

● For any other specific gravity (G'), the pressure drop (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.

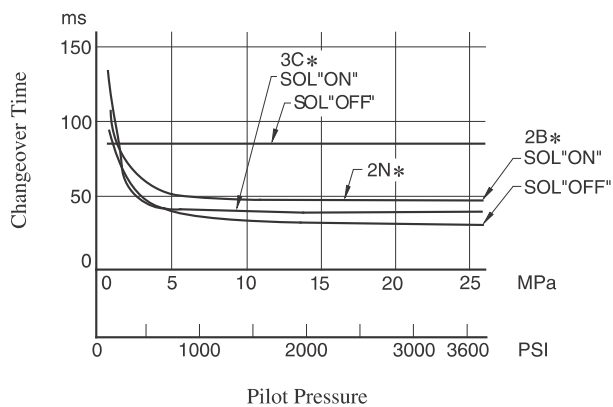
### Test Conditions

Coil Type : D\*(Models with DC solenoids)

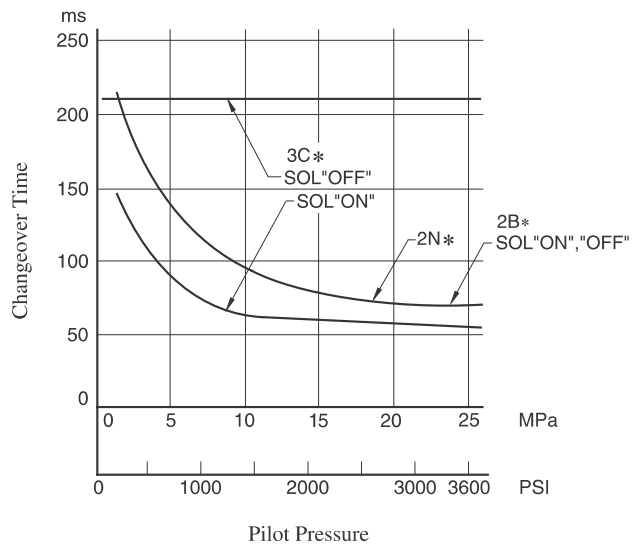
Voltage : Rated Voltage

Oil Viscosity : 35 mm<sup>2</sup>/s (164 SSU)

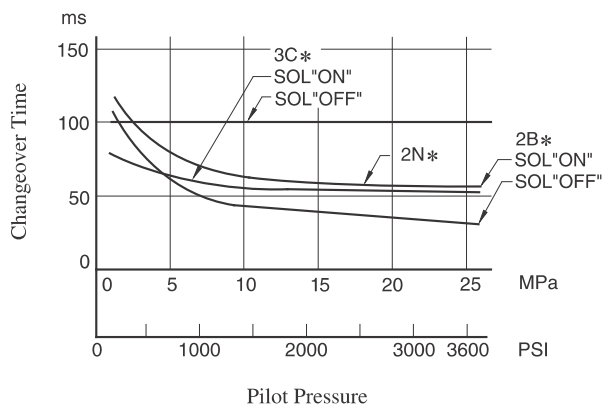
### DSHG-04



### DSHG-10

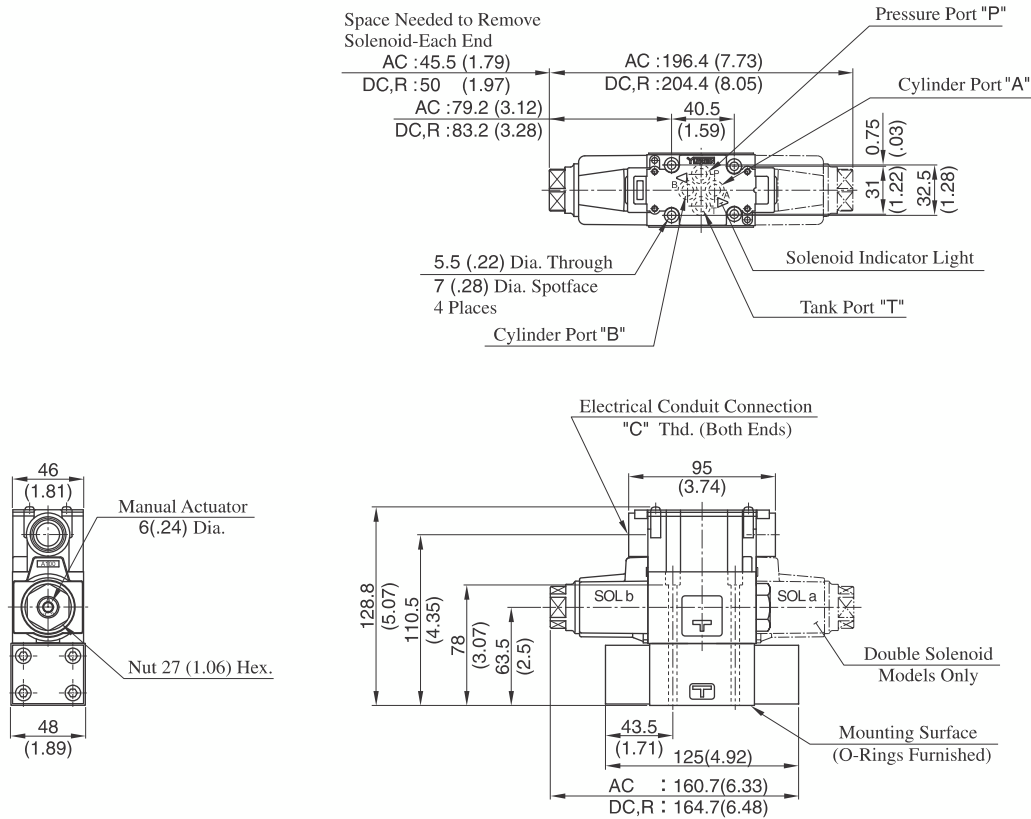


### DSHG-06



- Terminal Box type: DSHG-01-\*\*\*-\*-14/1490
- Internal Pilot - Internal Drain

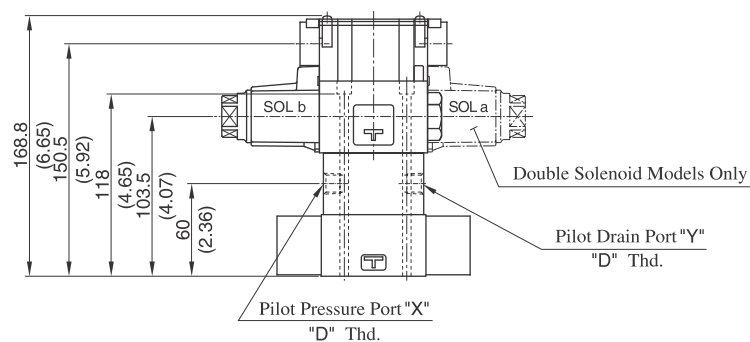
Mounting surface: ISO 4401-AB-03-4-A



| 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

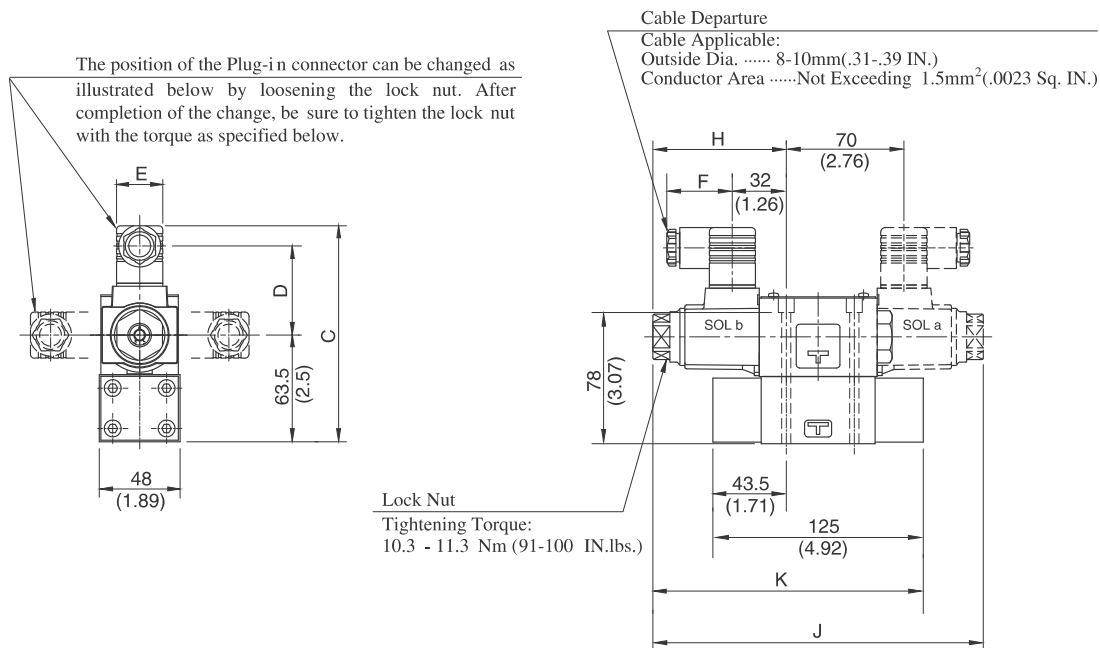


For other dimensions, refer to "Internal Pilot Internal Drain".

# ■ Plug-in Connector Type: DSHG-01-\*\*\*-N<sub>1</sub>-14/1480/1490

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

## ● Internal Pilot-Internal Drain

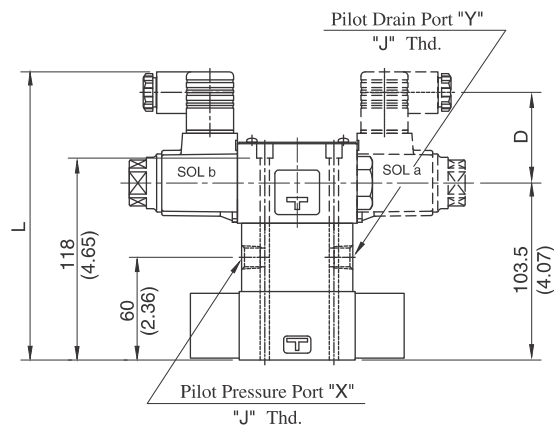


DIMENSIONS IN  
MILLIMETRES (INCHES)

## ● External Pilot-External Drain

## ● External Pilot-Internal Drain

## ● Internal Pilot-External Drain



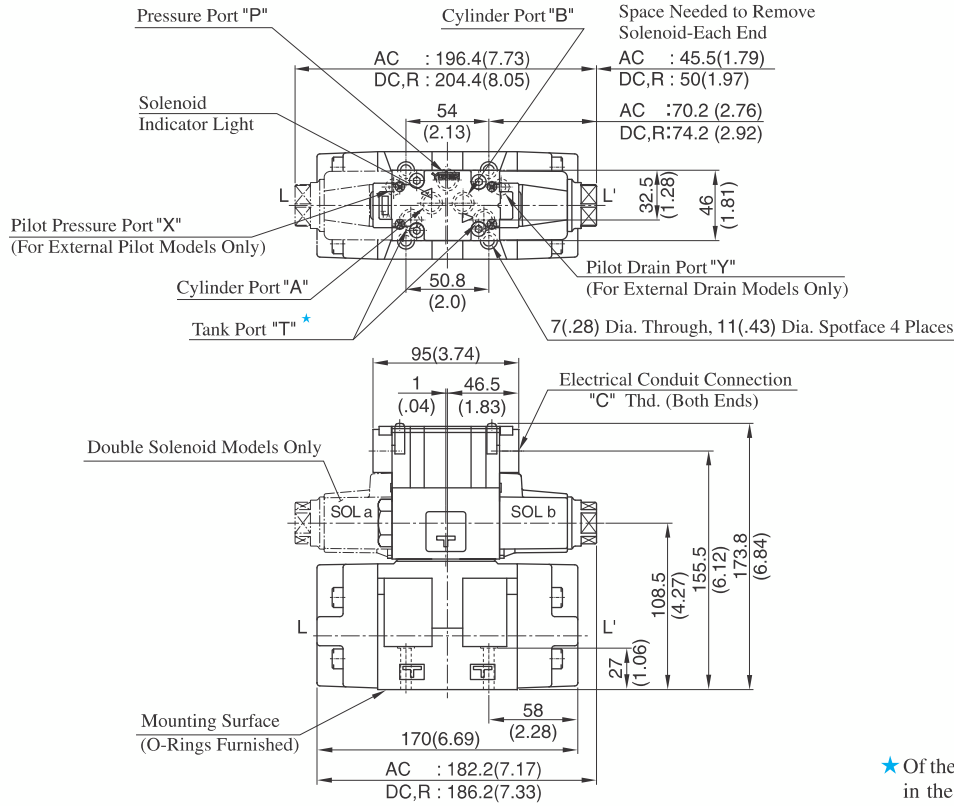
| Model Numbers       | "J" Thd.  |
|---------------------|-----------|
| DSHG-01-***-N*-14   | Rc 1/4    |
| DSHG-01-***-N*-1480 | 1/4 BSP.F |
| DSHG-01-***-N*-1490 | 1/4 NPT   |

| 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)

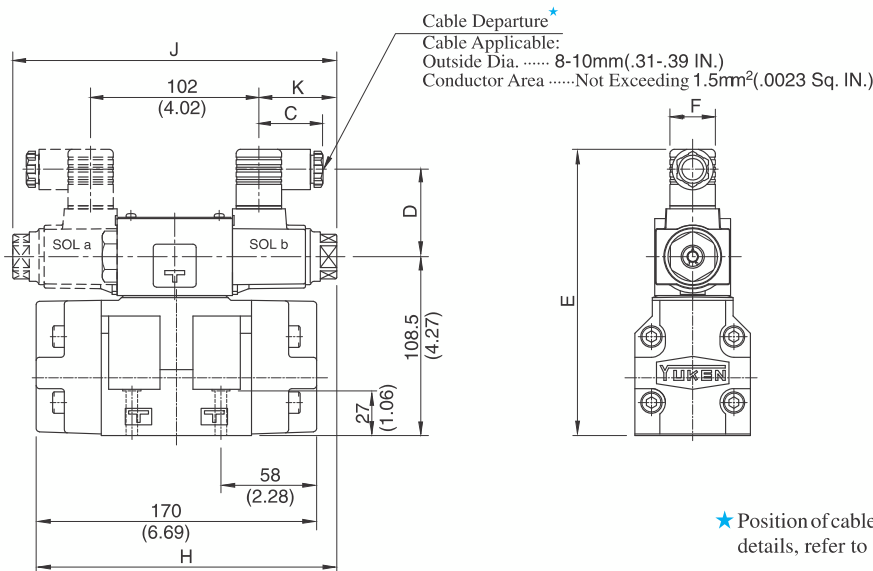


| Model Numbers      | "C" Thd. |
|--------------------|----------|
| DSHG-03-***-*-14   | G 1/2    |
| DSHG-03-***-*-1490 | 1/2 NPT  |

★ 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<sub>1</sub>-14/1490



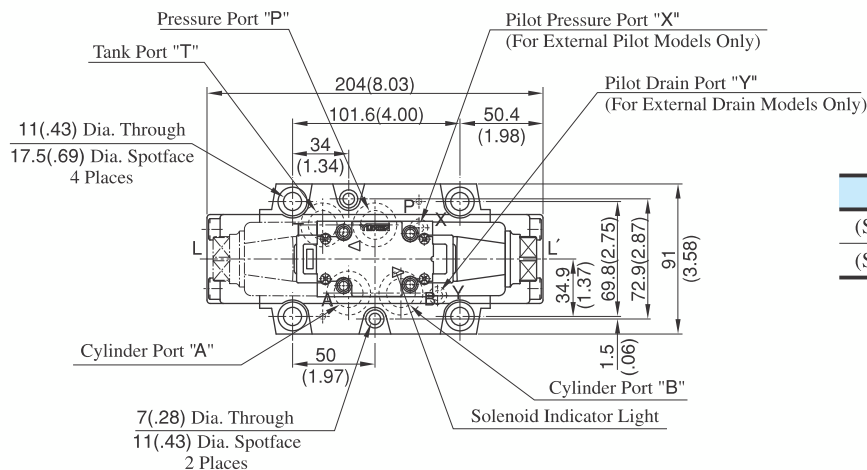
★ Position of cable departure can be changed. For details, refer to DSHG-01 valve on [page 396](#).

| 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)   |              |              |             |

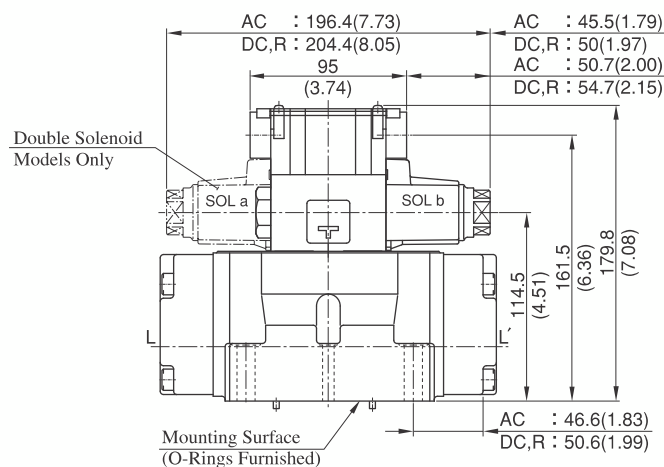
• For other dimensions, refer to "Terminal Box Type".

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

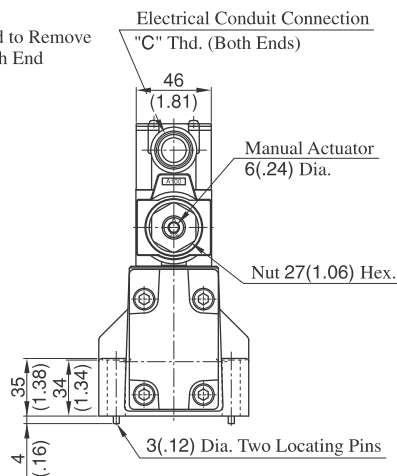
Mounting surface:  
ISO 4401-AD-07-4-A



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

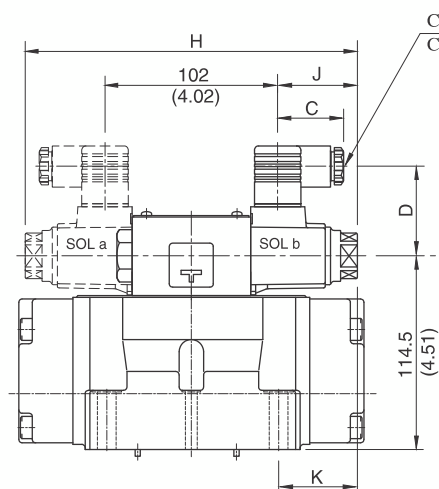


Space Needed to Remove  
Solenoid-Each End

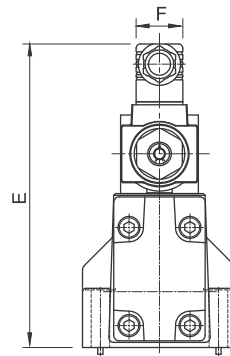


DIMENSIONS IN  
MILLIMETRES (INCHES)

■ Plug-in Connector Type: (S-)DSHG-04-\*\*\*-\*-N<sub>1</sub>-52/5290



Cable Departure ★  
Cable Applicable:  
Outside Dia. .... 8-10 mm(.31 - .39 IN.)  
Conductor Area ... Not Exceeding 1.5 m<sup>2</sup>(.0023 Sq. IN.)



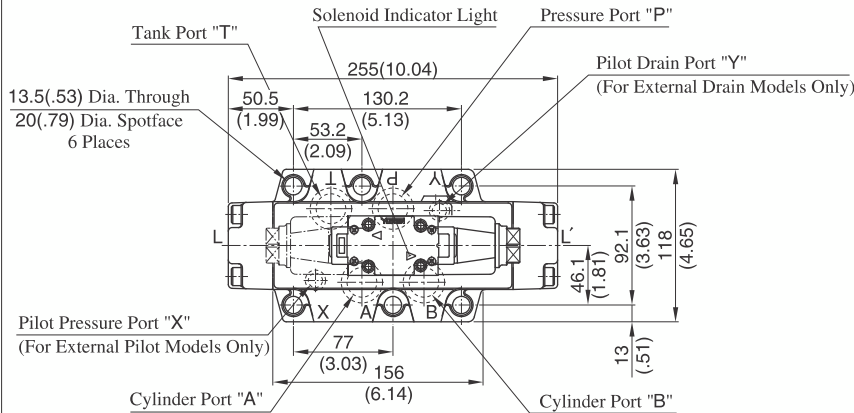
★ Position of cable  
departure can be  
changed. For details,  
refer to DSHG-01  
valve on [page 396](#).

| 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)   |              |             |             |

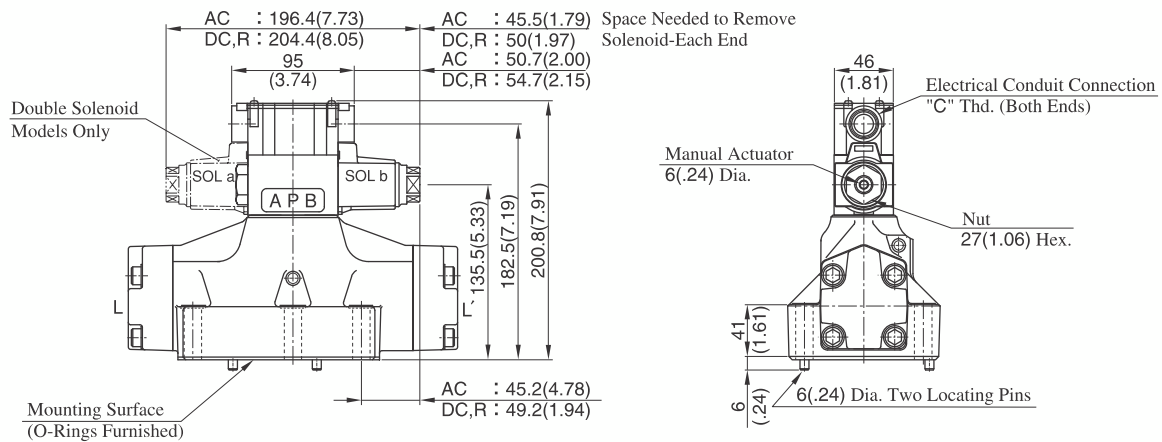
• For other dimensions, refer to "Terminal Box Type".

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

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

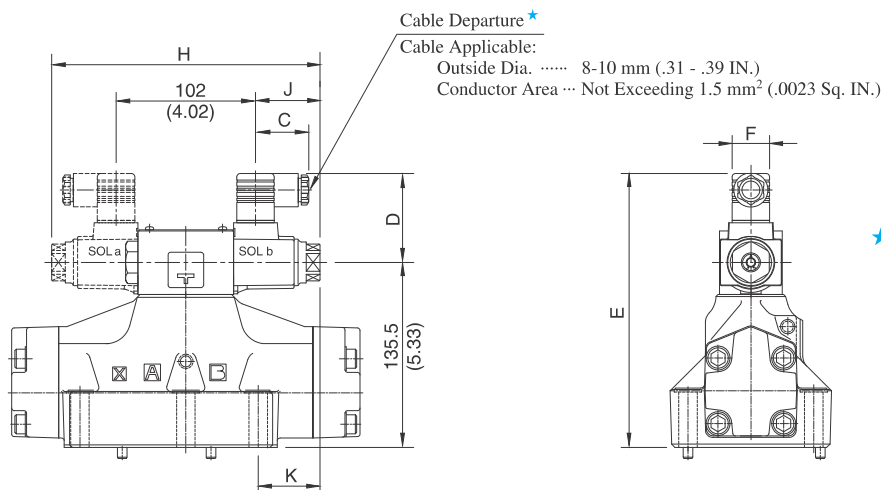


| Model Numbers          | "C" Thd. |
|------------------------|----------|
| (S-)DSHG-06-***-*-53   | G 1/2    |
| (S-)DSHG-06-***-*-5390 | 1/2 NPT  |



DIMENSIONS IN  
MILLIMETRES (INCHES)

## Plug-in Connector Type: (S-)DSHG-06-\*\*\*-\*-N<sub>1</sub>-53/5390



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

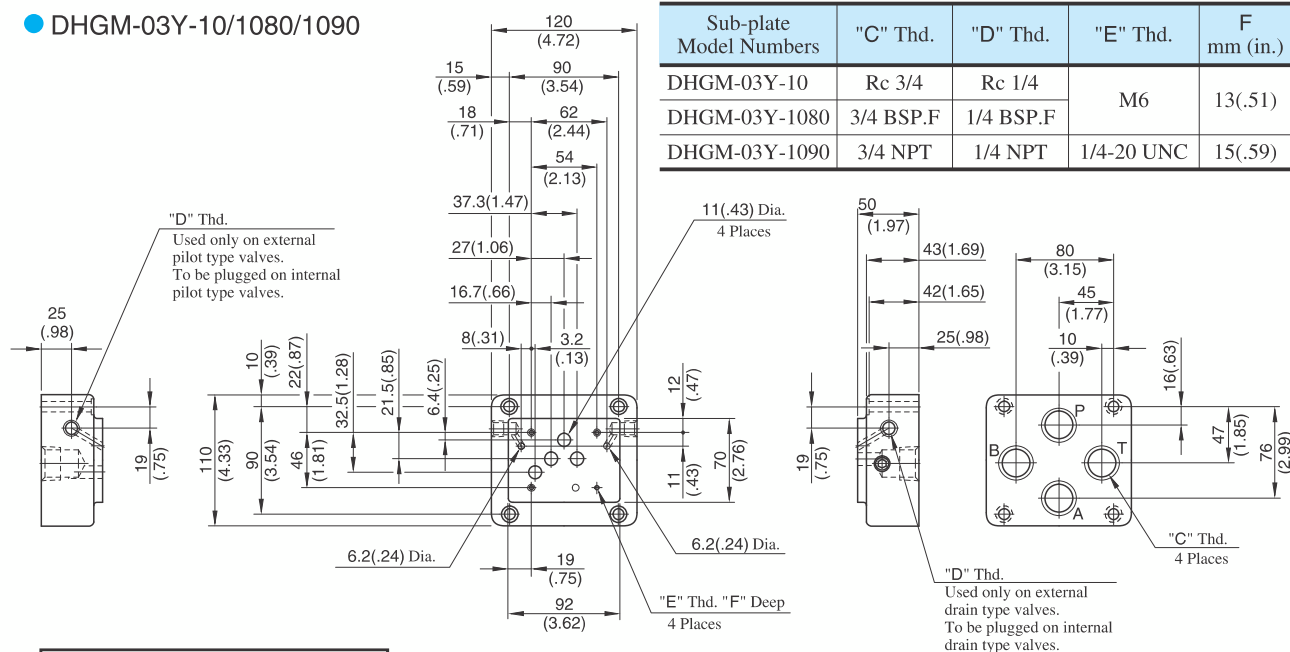
| Model Numbers           | Dimensions mm (Inches) |             |              |             |              |             |             |
|-------------------------|------------------------|-------------|--------------|-------------|--------------|-------------|-------------|
|                     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

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



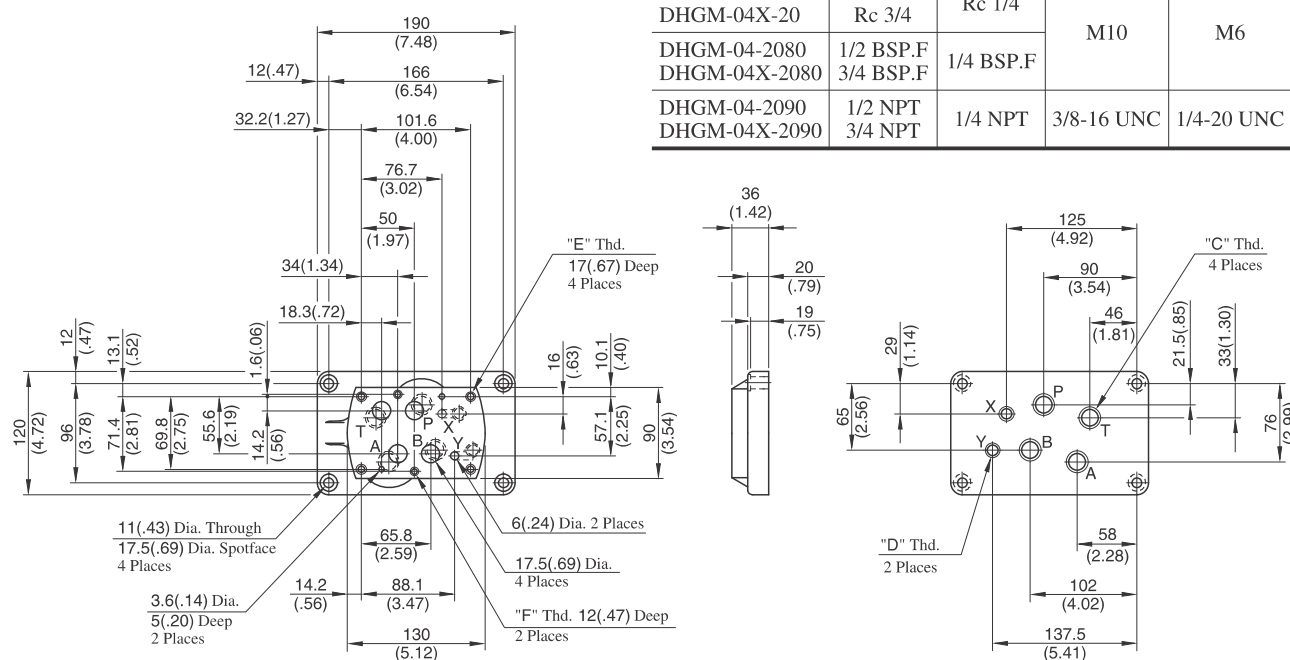
■ Sub-plate

● DHGM-03Y-10/1080/1090



DIMENSIONS IN  
MILLIMETRES (INCHES)

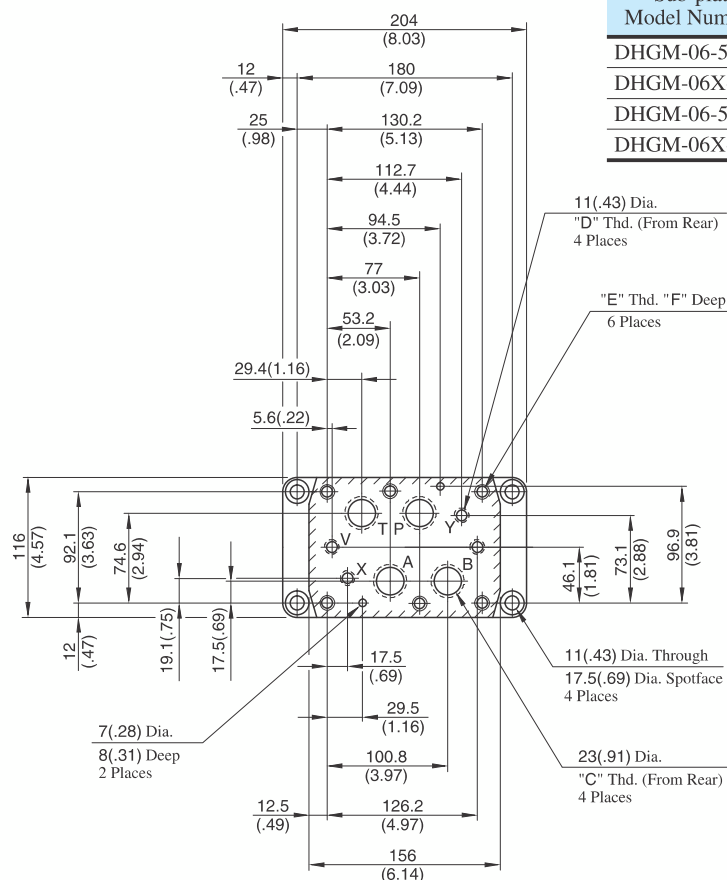
● DHGM-<sup>04</sup><sub>04X</sub>-20/2080/2090



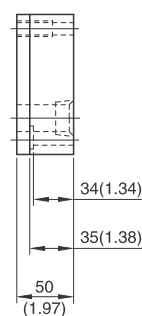
| Valve Types                                           |                          | Pilot Pressure Port "X"                                                                  | Port "Y"                                                                                               |
|-------------------------------------------------------|--------------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Solenoid Controlled Pilot Operated Directional Valves |                          | Used only on external pilot type valves.<br>To be plugged on internal pilot type valves. | Used as drain port only on external drain type valves.<br>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-<sup>06</sup><sub>06X</sub>-50/5090

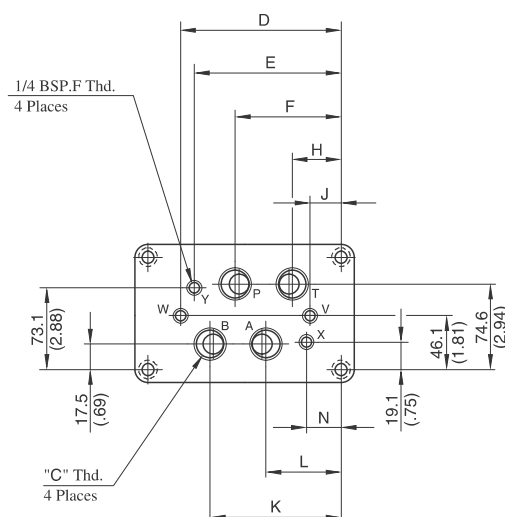
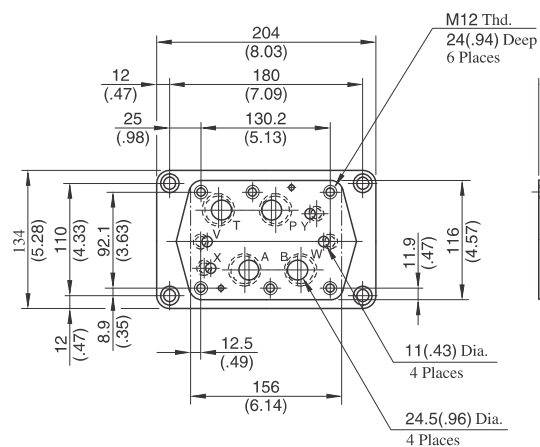


| Sub-plate<br>Model Numbers | "C" Thd. | "D" Thd. | "E" Thd.   | F<br>mm (in.) |
|----------------------------|----------|----------|------------|---------------|
| DHGM-06-50                 | Rc 3/4   | Rc 1/4   | M12        | 24 (.94)      |
| DHGM-06X-50                | Rc 1     |          |            |               |
| 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-<sup>06</sup><sub>06X</sub>-5080



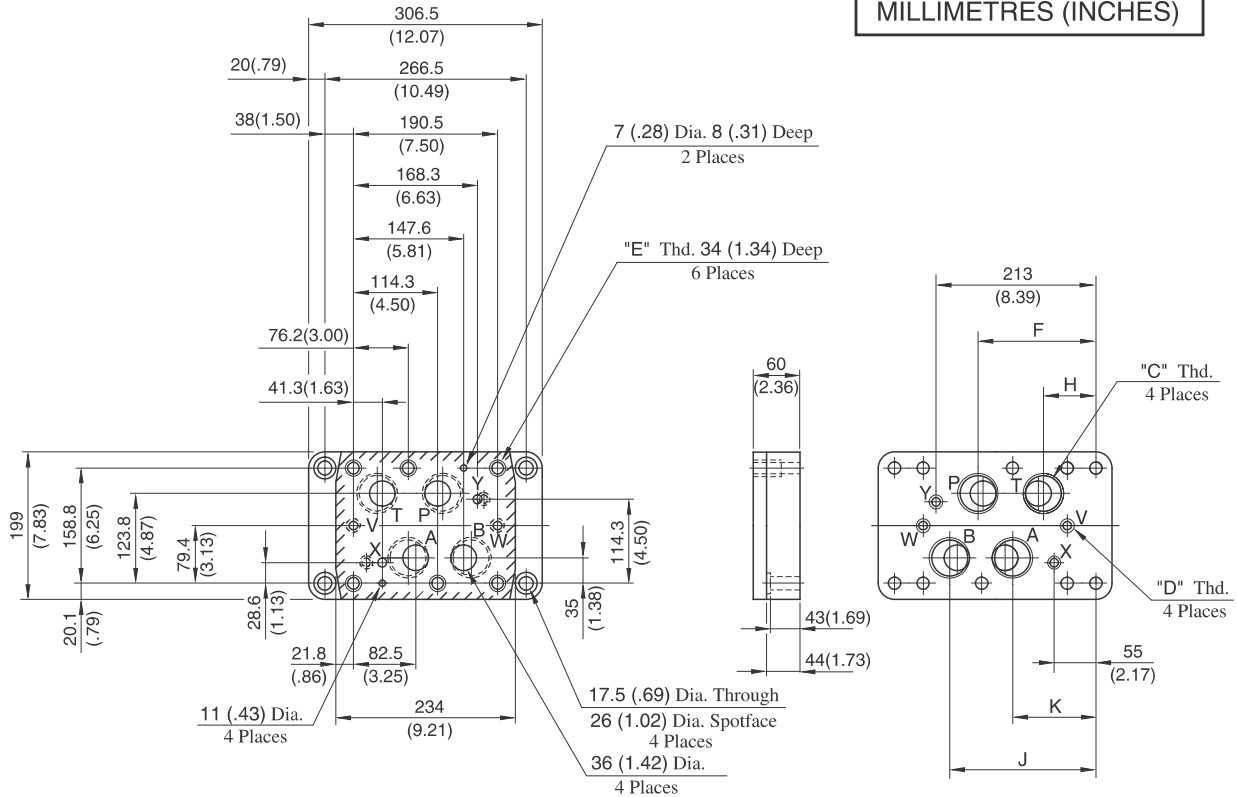
| Sub-plate<br>Model Numbers | "C" Thd.  | Dimensions mm (Inches) |              |            |             |             |              |             |             |
|----------------------------|-----------|------------------------|--------------|------------|-------------|-------------|--------------|-------------|-------------|
|                            |           | 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<br>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          |                                              | Used as pilot pres. port                               | Not used (plug is required)     | Used                            |
|                                                       | With Pilot Piston Port "A" End           |                                              |                                                        | Used                            | Not used (plug is required)     |
| 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.

E



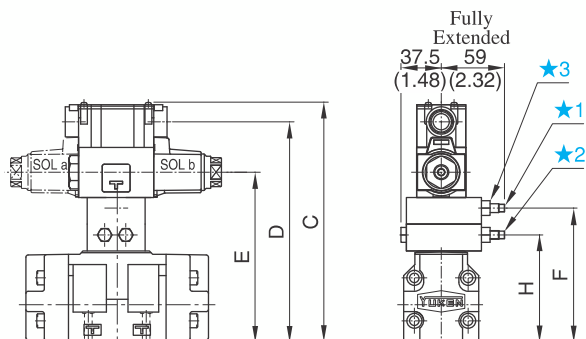
Solenoid Controlled  
Pilot Operated Directional Valves

## Options

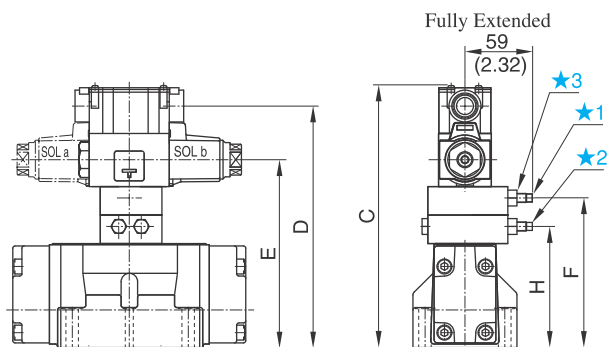
### Models with Pilot Choke Valve

#### Terminal Box Type

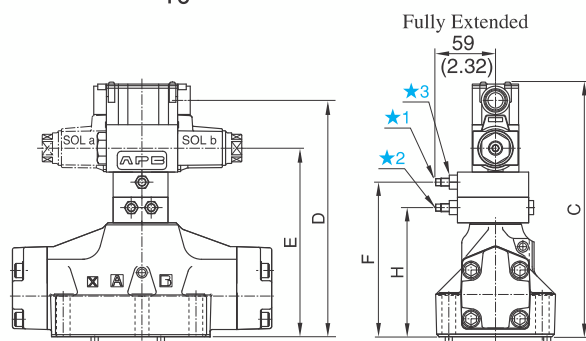
- DSHG-03- \*\*\* -C1/C2/C1C2



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

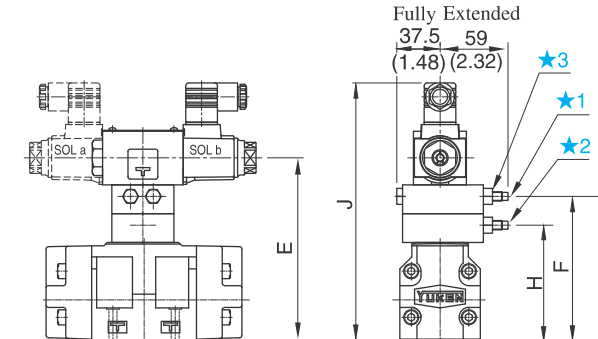


- (S-)DSHG-06<sup>06</sup><sub>10</sub> - \*\*\* -C1/C2/C1C2

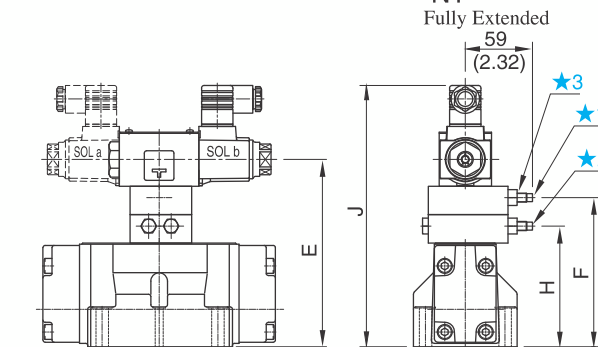


#### Plug-in Connector Type

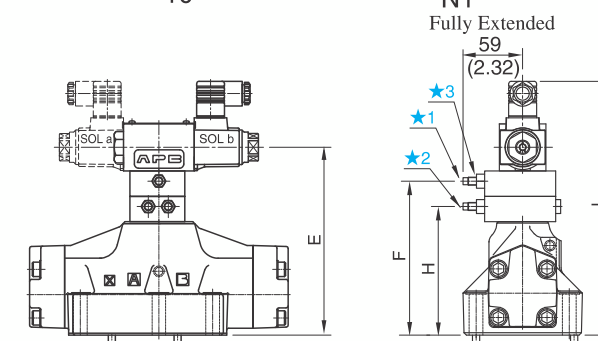
- DSHG-03- \*\*\* -C1/C2/C1C2-<sup>N</sup><sub>N1</sub>



- (S-)DSHG-04- \*\*\* -C1/C2/C1C2-<sup>N</sup><sub>N1</sub>



- (S-)DSHG-06<sup>06</sup><sub>10</sub> - \*\*\* -C1/C2/C1C2-<sup>N</sup><sub>N1</sub>



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

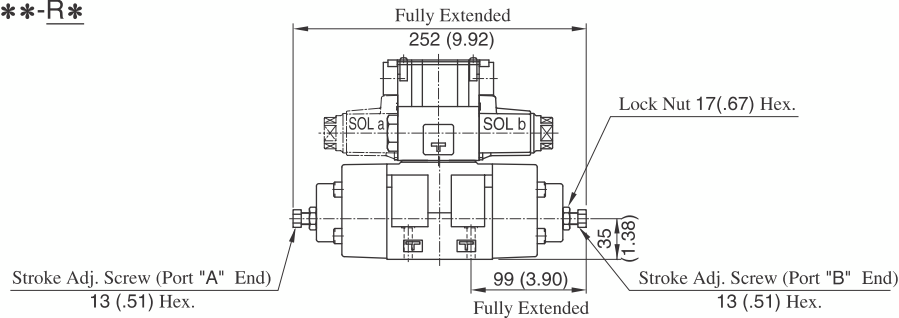
**DIMENSIONS IN  
MILLIMETRES (INCHES)**

| Model Numbers           | Dimensions mm (Inches) |               |              |            |            |               |               |               |
|-------------------------|------------------------|---------------|--------------|------------|------------|---------------|---------------|---------------|
|                         | C                      | D             | E            | F          | H          | J             |               |               |
| DSHG-03- *** -C1        | 198.8 (7.83)           | 180.5 (7.11)  | 133.5 (5.26) | 100 (3.94) | —          | AC SO L       | DC SO L       | R SOL         |
| DSHG-03- *** -C2        |                        |               |              | —          | 100 (3.94) | 198.5 (7.81)  | 209.5 (8.25)  | 212.5 (8.37)  |
| 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) | 229.5 (9.04)  | 240.5 (9.47)  | 243.5 (9.59)  |
| (S-) DSHG-04- *** -C1C2 | 229.8 (9.05)           | 211.5 (8.33)  | 164.5 (6.48) | 131 (5.16) | 106 (4.17) | 225.5 (8.88)  | 236.5 (9.31)  | 239.5 (9.43)  |
| (S-) DSHG-06- *** -C1   | 225.8 (8.89)           | 207.5 (8.17)  | 160.5 (6.32) | 127 (5.00) | —          | 250.5 (9.86)  | 261.5 (10.30) | 264.5 (10.41) |
| (S-) DSHG-06- *** -C2   |                        |               |              | —          | 127 (5.00) | 288.5 (11.36) | 299.5 (11.79) | 302.5 (11.91) |
| (S-) DSHG-06- *** -C1C2 | 250.8 (9.87)           | 232.5 (9.15)  | 185.5 (7.30) | 152 (5.98) | 127 (5.00) | 313.5 (12.34) | 324.5 (12.78) | 327.5 (12.89) |
| (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) | 313.5 (12.34) | 324.5 (12.78) | 327.5 (12.89) |
| (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) |

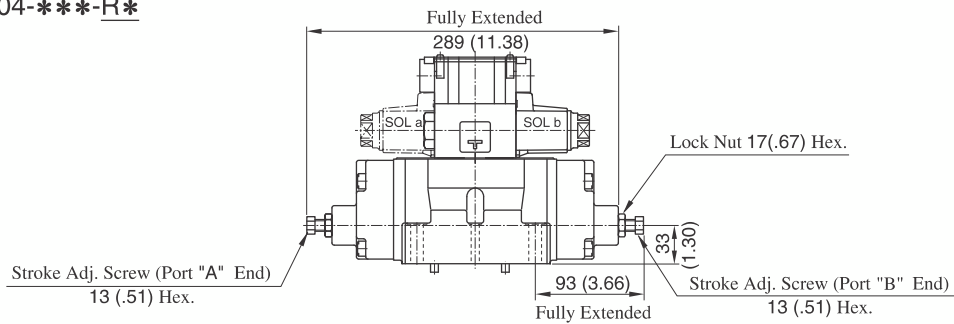
## Options

### Models with Stroke Adjustment

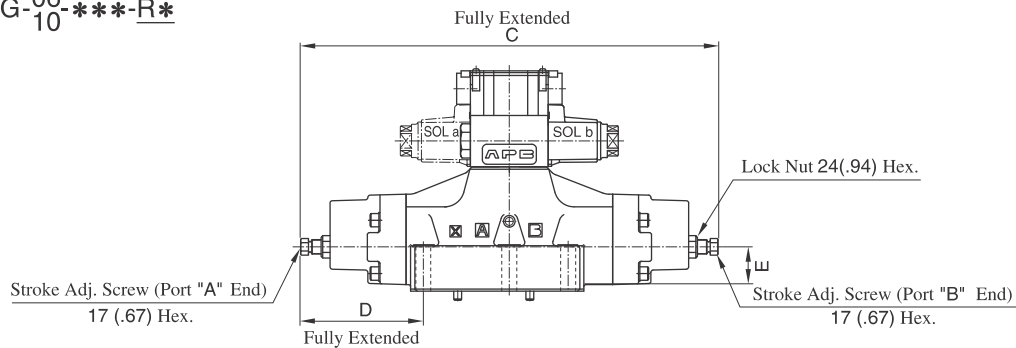
#### ● DSHG-03-\*\*\*-R\*



#### ● (S-)DSHG-04-\*\*\*-R\*



#### ● (S-)DSHG-<sup>06</sup>/<sub>10</sub>-\*\*\*-R\*

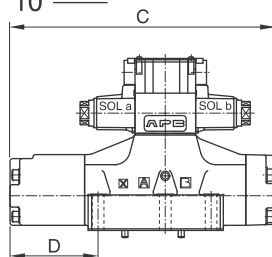


| Model Numbers      | C           | D            | E         |
|--------------------|-------------|--------------|-----------|
| (S-)DSHG-06-***-R2 | 376 (14.80) | 111 (4.37)   | 40 (1.57) |
| (S-)DSHG-10-***-R2 | 558 (21.97) | 164.5 (6.48) | 65 (2.56) |

DIMENSIONS IN  
MILLIMETRES (INCHES)

### Pressure Centred Models

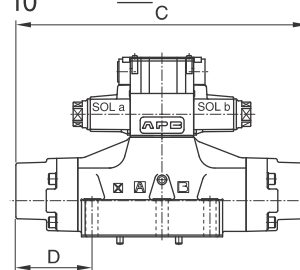
#### ● (S-)DSHG-<sup>06</sup>/<sub>10</sub>-3H\*



| 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

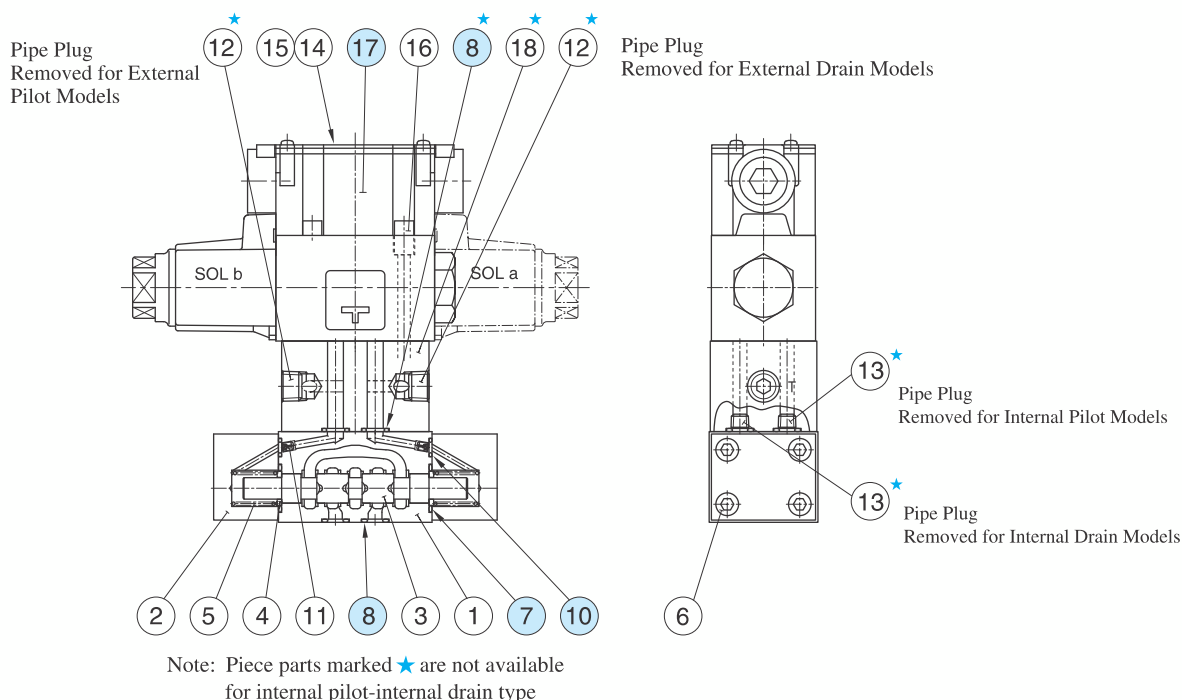
#### ● (S-)DSHG-<sup>06</sup>/<sub>10</sub>-\*\*\*-P\*



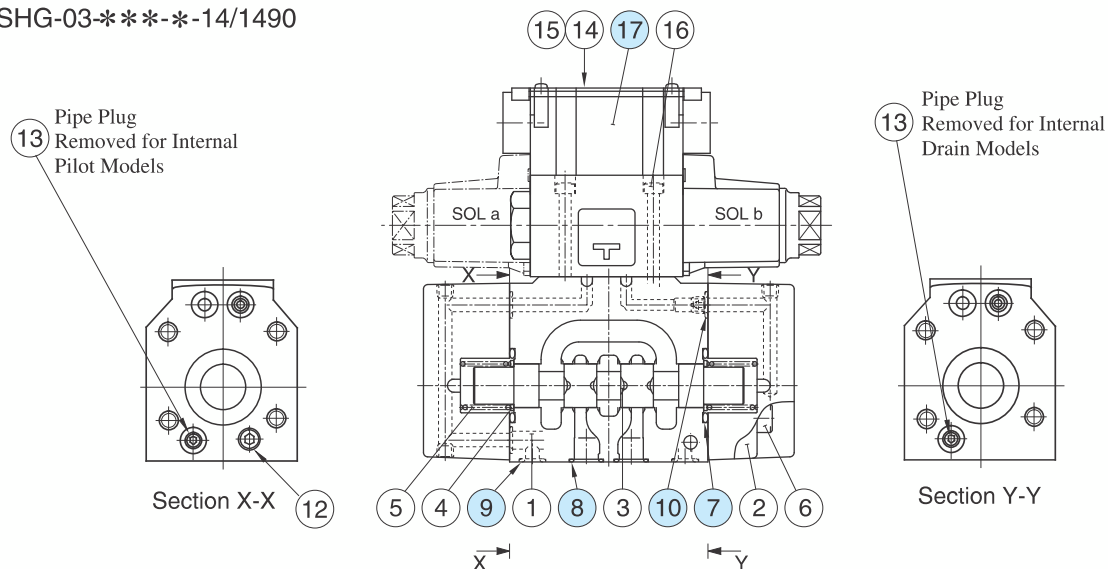
| Model Numbers      | C           | D          |
|--------------------|-------------|------------|
| (S-)DSHG-06-***-P2 | 323 (12.72) | 84 (3.31)  |
| (S-)DSHG-10-***-P2 | 479 (18.86) | 125 (4.92) |

## List of Seals and Pilot Valves

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.

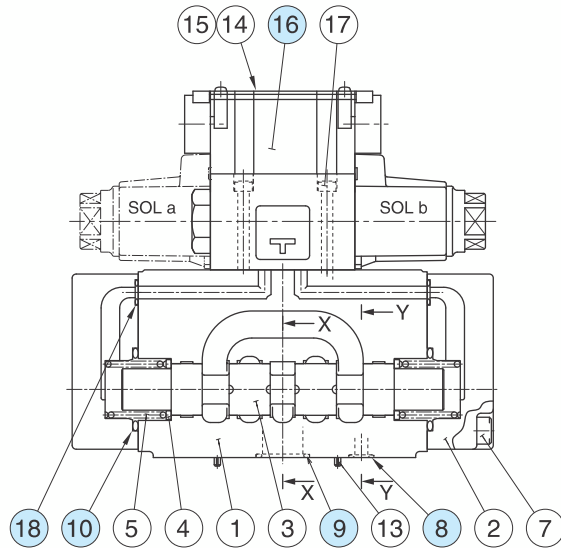
For the detail of the pilot valve o-rings, see [page 359](#).

### Pilot Valves

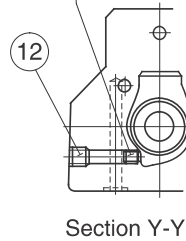
See [page 408](#) for the pilot valve model numbers to be used.

## List of Seals and Pilot Valves

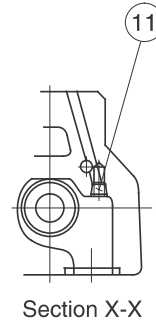
(S-)DSHG-04-\*\*\*-52/5290



11 Pipe Plug  
Removed for Internal  
Drain Models

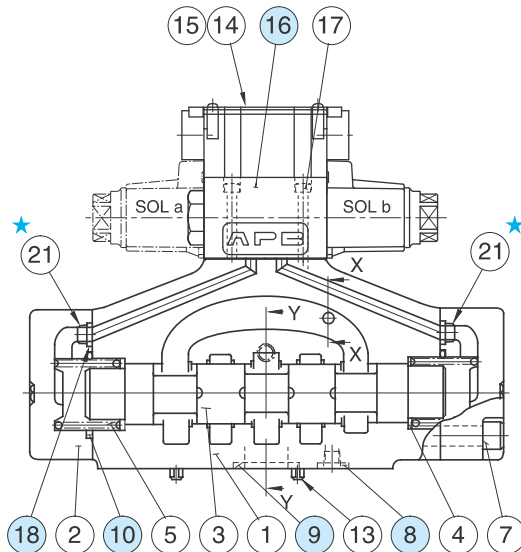


Pipe Plug  
Removed for Internal  
Pilot Models

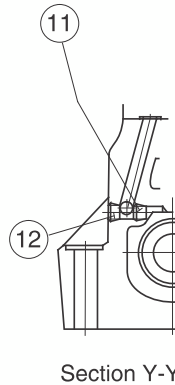


(S-)DSHG-06-\*\*\*-53/5390

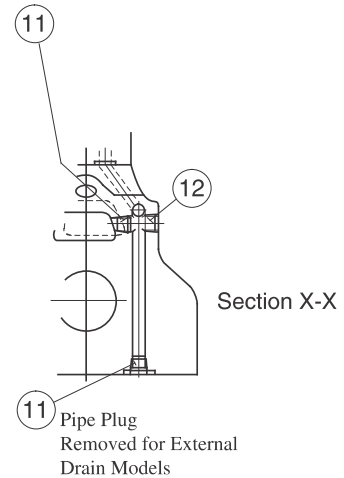
(S-)DSHG-10-\*\*\*-43/4390



Pipe Plug  
Removed for Internal  
Pilot Models



Pipe Plug  
Removed for Internal  
Drain Models



Note: Item ②① orifice marked ★ is applicable to pressure centred models (3H\*) with pilot pressure more than 10 MPa (1450 PSI).

### List of Seals

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

Note: When ordering the o-rings, please specify the seal kit number listed in [page 408](#). In addition to the above o-rings, o-rings for pilot valve is included in the seal kit.

For the detail of the pilot valve o-rings, see [page 359](#).

### Pilot Valves

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

## List of Seal Kits and Pilot Valves

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