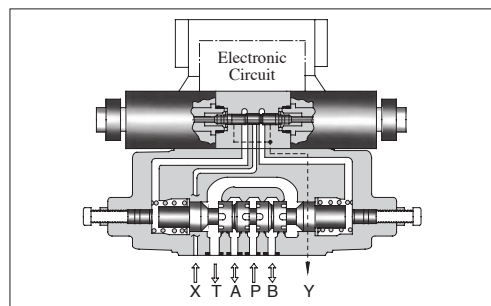
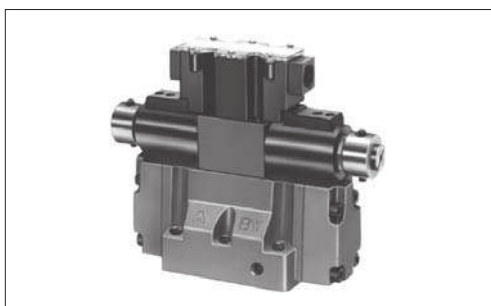


## **“G” Series Shockless Type Solenoid Controlled Pilot Operated Directional Valves**



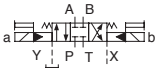
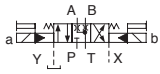
### **Specifications**

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

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

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

## Model Number Designation

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

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

## Sub-plate

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

● Sub-plates are available. Specify the sub-plate model number from the table above.  
When sub-plates are not used, the mounting surface should have a good machined finish.

## Attachment (Mtg. Bolts)

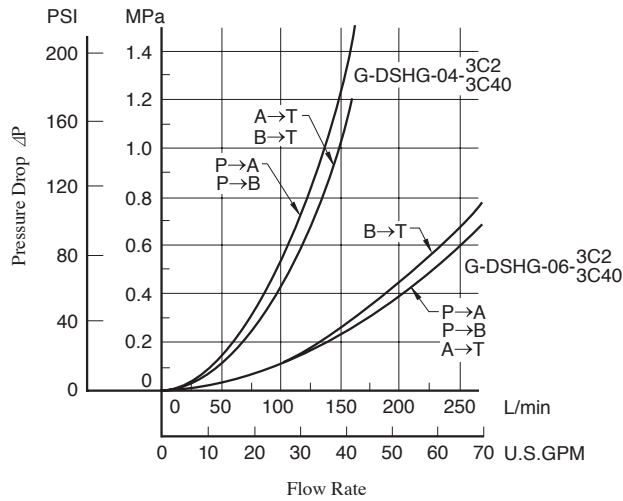
Socket head cap screws in the table below are included.

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

Hydraulic Fluid: Viscosity 30 mm<sup>2</sup>/s (141 SSU), Specific Gravity 0.850

## Pressure Drop

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



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

| Viscosity | mm <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    |                    | 0.84 | 0.91 | 1.00 | 1.07 | 1.14 | 1.19 | 1.24 | 1.28 | 1.32 | 1.35 |

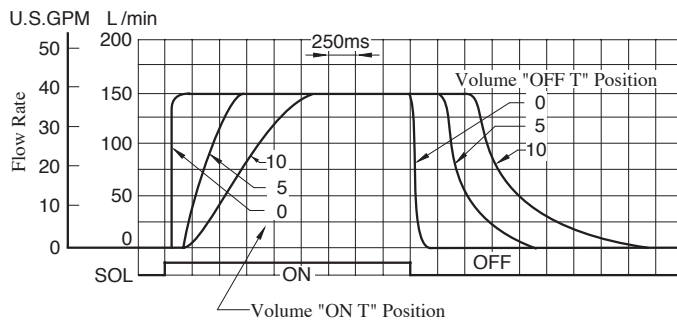
- For any other specific gravity (G'), the pressure drop (ΔP') may be obtained from the formula below.  

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

## Shifting Characteristics

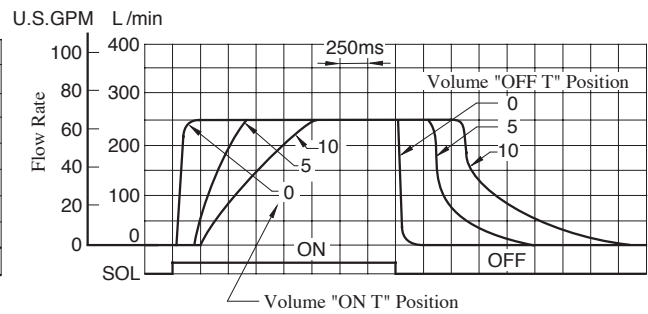
### G-DSHG-04-3C2/3C40

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



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

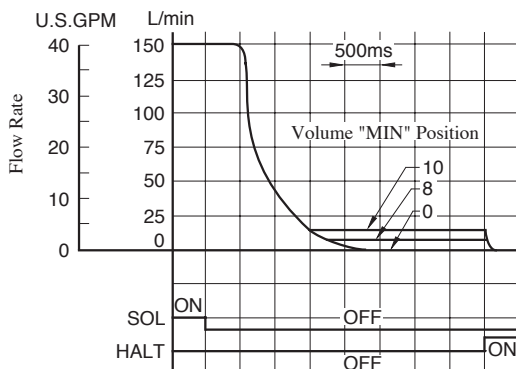
Supply Pressure : 16 MPa (2320 PSI)  
 Flow Rate : 250 L/min (66.1 U.S.GPM)  
 Pilot Pressure : 16 MPa (2320 PSI)



## Low Speed Operating Flow Characteristics

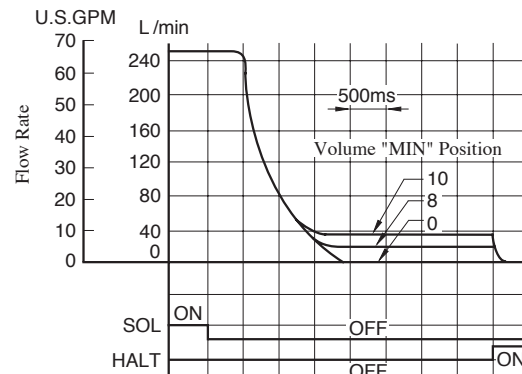
### G-DSHG-04-3C2/3C40

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



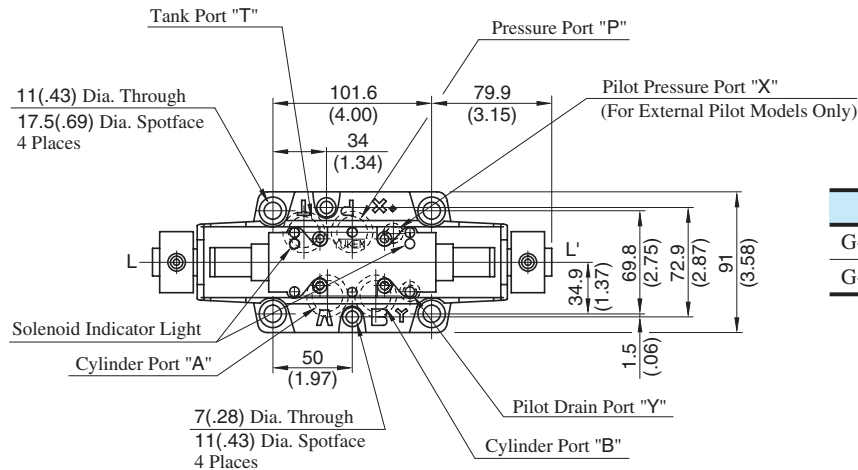
### G-DSHG-06-3C2/3C40

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

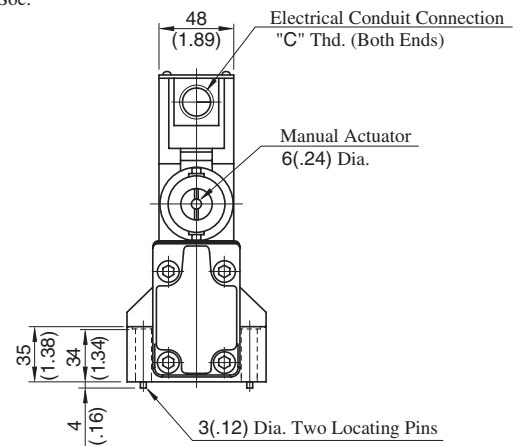
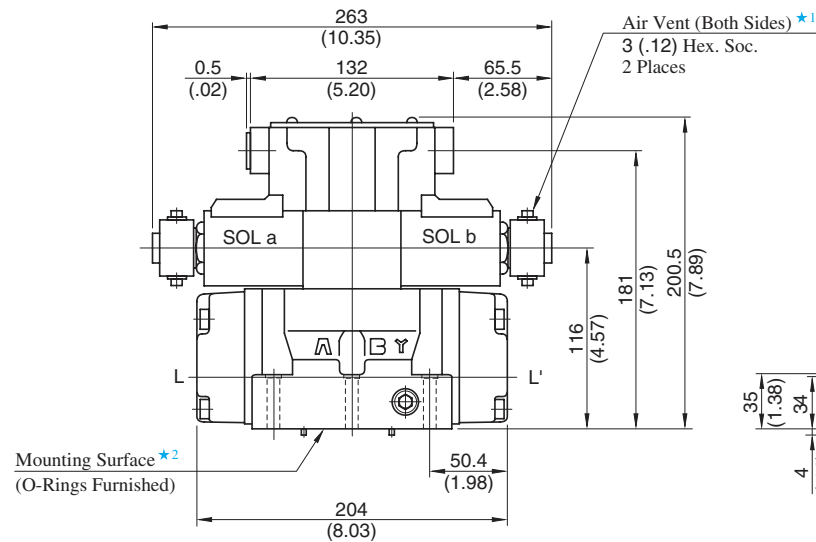


G-DSHG-04-3C\*-50/5090

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



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



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

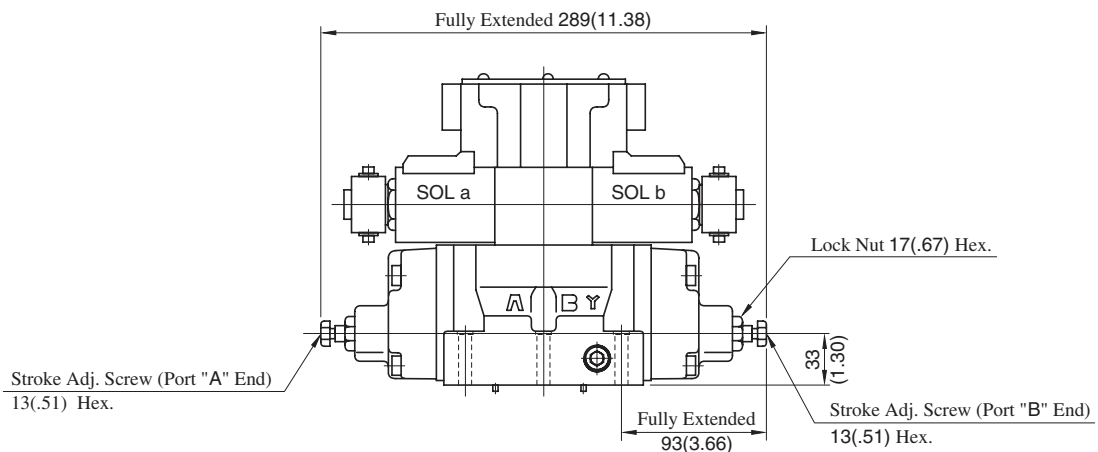
★2. O-rings for ports: SO-NB-P22 for P/A/B/T ports  
SO-NB-P9 for X/Y ports

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

DIMENSIONS IN  
MILLIMETRES (INCHES)

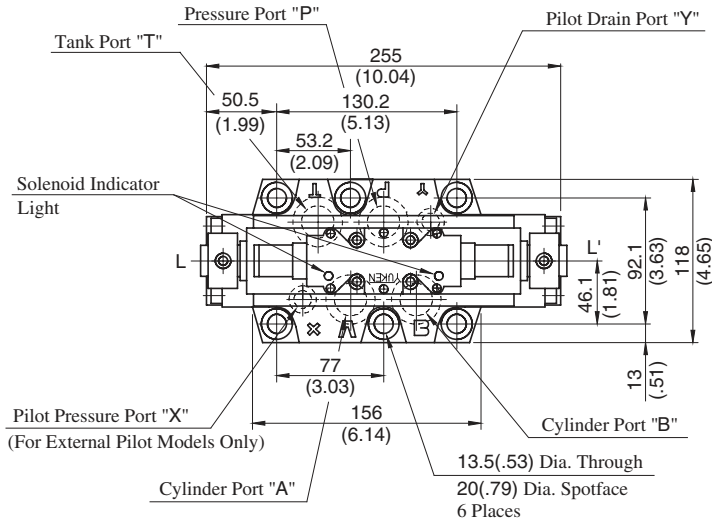
## ● Models with Stroke Adjustment (Option)

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

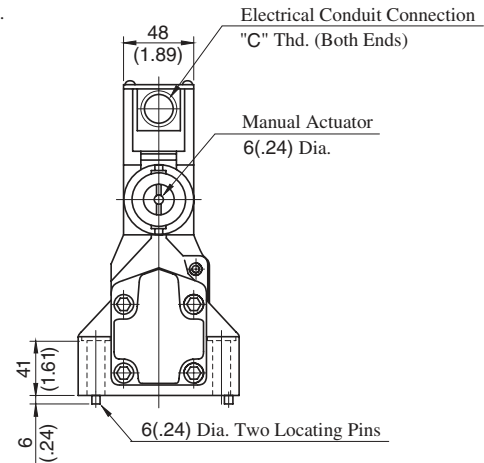
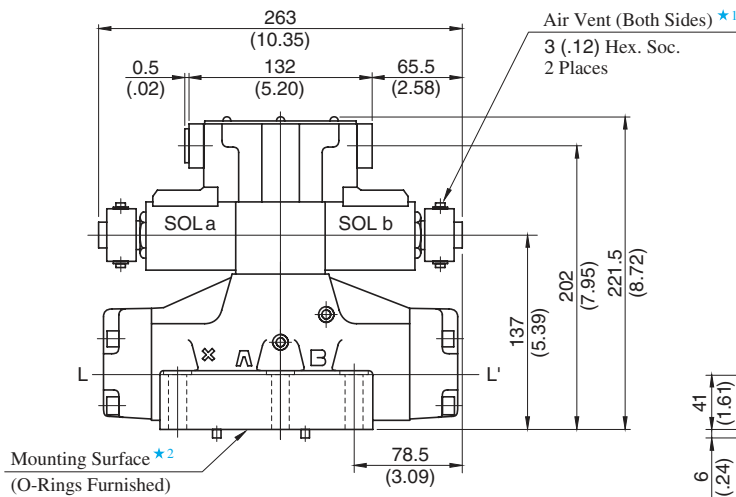


G-DSHG-06-3C\*-\*\*-50/5090

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



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



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

★2. O-rings for ports: SO-NB-P30 for P/A/B/T ports  
SO-NB-P14 for X/Y ports

Note: For the valve mounting surface dimensions, see the dimensional drawing of the sharable sub-plate in [page 403](#).

DIMENSIONS IN  
MILLIMETRES (INCHES)

### ● Models with Stroke Adjustment (Option)

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

