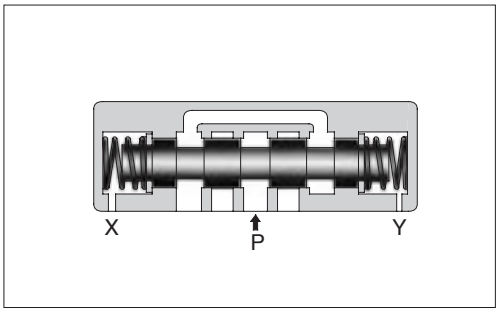
Pilot Operated Directional Valves

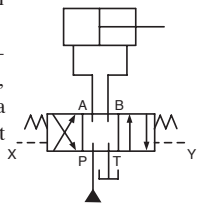
These valves perform a change over of spool by hydraulic pilot and shift the direction of oil flow.



Specifications

Model Numbers	Maximum Flow L/min (U.S.GPM) 10 MPa (1450 PSI)	16 MPa (2320 PSI)	25 MPa (3630 PSI)	31.5 MPa (4570 PSI)	Max.Operating Pressure MPa (PSI)	Max. Pilot Pressure MPa (PSI)	Min. Required Pilot Pressure MPa (PSI)	Max. T-Line Back Pressure MPa (PSI)	Approx. Mass kg (lbs.)
DHG-04-3C∗-50∗	300 (79.3)★1	300 (79.3)★1	300 (79.3)★1	300 (79.3)★1	31.5 (4570)	25 (3630)	0.8 (120)	21 (3050)	7.4 (16.3)
DHG-04-2N∗-50∗	300 (79.3)	300 (79.3)	300 (79.3)	300 (79.3)					7.4 (16.3)
DHG-04-2B∗-50∗	130 (34.3)	70 (18.5)	70 (18.5)	60 (15.9)					7.8 (17.2)
DHG-06-3C∗-50∗	500 (132)★2	500 (132)★2	500 (132)★2	500 (132)★2	31.5 (4570)	25 (3630)	0.8 (120)★4	21 (3050)	11.2 (24.7)
DHG-06-2N∗-50∗	500 (132)	500 (132)	500 (132)	500 (132)					11.2 (24.7)
DHG-06-2B∗-50∗	140 (37)	100 (26.4)	90 (23.8)	80 (21.1)					11.7 (25.8)
DHG-06-3H∗-50∗	500 (132)	500 (132)	500 (132)	500 (132)★2		21 (3050)	1 (150)		12.0 (26.5)
DHG-10-3C∗-40∗	1100 (291)★3	1100 (291)★3	1100 (291)★3	1100 (291)★3	31.5 (4570)	25 (3630)	1 (150)★4	21 (3050)	43.8 (96.6)
DHG-10-2N∗-40∗	1100 (291)	1100 (291)	1100 (291)	1100 (291)					43.8 (96.6)
DHG-10-2B∗-40∗	460 (122)	300 (79.3)	220 (58.1)	200 (52.8)					45.6 (101)
DHG-10-3H∗-40∗	1100 (291)	1100 (291)	1100 (291)	1100 (291)★3		21 (3050)	1 (150)		51.6 (114)

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



★1. Varies depending on the spool type. For more information, see page 388 for the List of "Standard Model and Maximum Flow" (DSHG-04) for Solenoid Controlled Pilot Operated Directional Valves.
★2. Varies depending on the spool type and pilot pressure. For more information, see page 389 for the List of "Standard Model and Maximum Flow" (DSHG-06) related to the Solenoid Controlled Pilot Operated Directional Valves.
★3. Varies depending on the spool type and pilot pressure. For more information, see page 390 for the List of "Standard Model and Maximum Flow" (DSHG-10) related to the Solenoid Controlled Pilot Operated Directional Valves.
★4. Minimum Pilot Pressure for the models with pilot piston is 1.8 MPa (260 PSI).

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

Model Numbers	Rated Flow L/min (U.S.GPM)	Max.Operating Pres. MPa (PSI)
DHF-16-∗∗∗-30∗	500 (132)	21 (3050)
DHF-24-∗∗∗-26∗	1200 (317)	
DHF-32-∗∗∗-21∗	2400 (634)	

Pressure Drop

Same as those for Solenoid Controlled Pilot Operated Directional Valves. See pages 392 and 393 for the related information.

Instruction

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

Model Number Designation

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

★1. For various combination, see the List of Valve Types below.
★2. For the option combinations of the Type (Valve Size) and Options, see the List of Options below.
★3. Refer to the column "valves using neutral position and side position" (Special 2-position valve) on page 426.
★4. In spool-spring arrangement "H" (pressure centred models), in case the pilot pressure is more than 10 MPa (150PSI), please specify that the valve should have the built-in orifice to the pilot line.
★5. Design Standards: None..... Japanese Standard "JIS" and European Design Standard
90..... N. American Design Standard

List of Valve Type

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

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

List of Options

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

Note. ○ Mark: Available
× Mark: Not Available

Sub-plate

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

- Sub-plates are available. Specify the sub-plate model number from the table above.
  When sub-plates are not used, the mounting surface should have a good machined finish.
- Sub-plates are shared with those for Solenoid Controlled Pilot Operated Directional Valves. Refer to pages 401 to 403 for dimensions.

Mounting Bolts

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

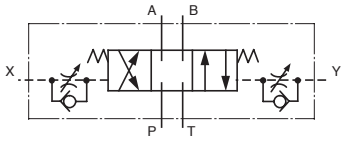
Options

Models with Pilot Choke Adjustment (C2)

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

Graphic Symbols

Spring Centred Models

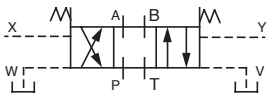


Models with Pilot Piston (P ∗)

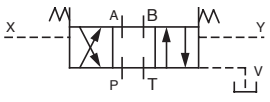
The valves with a pilot piston can be used when the high speed changeover of the spool is required. However, please note that in case of spring centred valves, there is no change in the returning speed of the spool to the neutral position even with the pilot piston.

Graphic Symbols

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



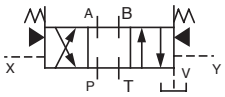
Spring Centred Models with Pilot Piston on Port "A" End (PA)



Pressure Centered Models (3H ∗)

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

Graphic Symbol

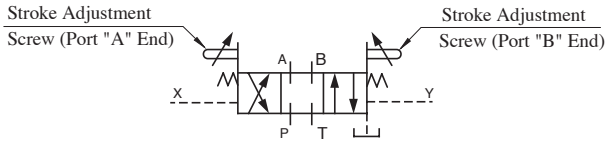


Models with Stroke Adjustment (R ∗)

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

Graphic Symbol

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



Additional Mass of Options

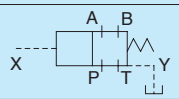
Add the mass described below to the mass of standard models on page 423 if options are required.

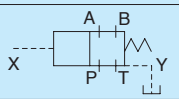
kg (lbs.)

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

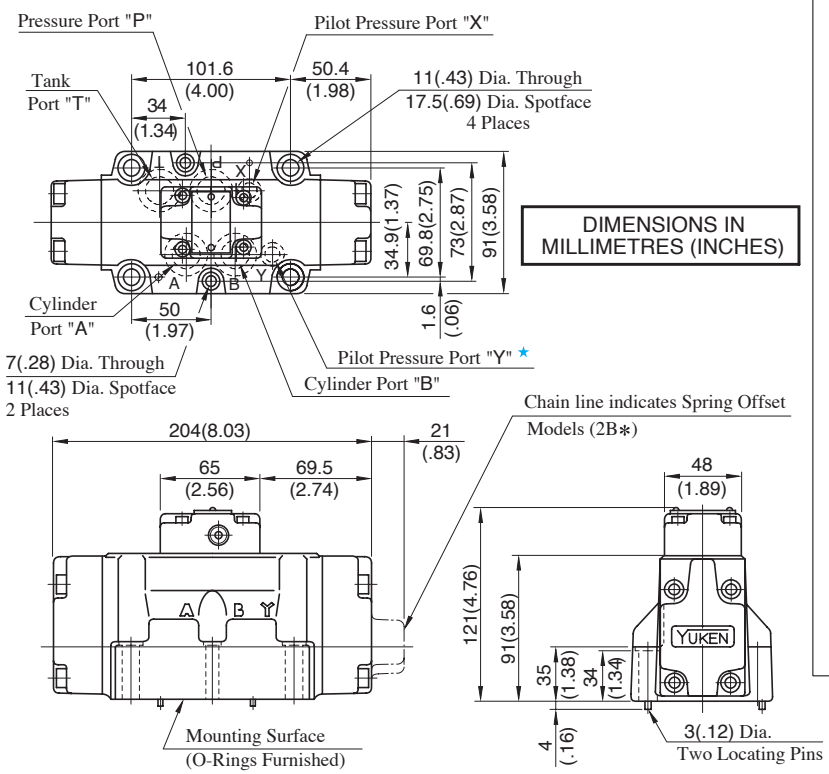
Valves Using Neutral Position and Side Position (Special Two Position Valve)

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

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

Model Numbers	Graphic Symbols
04 DHG-06-2B∗B 10	
DHG-∗-2B2B	
DHG-∗-2B3B	
DHG-∗-2B4B	
DHG-∗-2B40B	
DHG-∗-2B5B	
DHG-∗-2B6B	
DHG-∗-2B60B	
DHG-∗-2B7B	
DHG-∗-2B9B	
DHG-∗-2B10B	
DHG-∗-2B11B	
DHG-∗-2B12B	

DHG-04-∗∗∗-50/5090

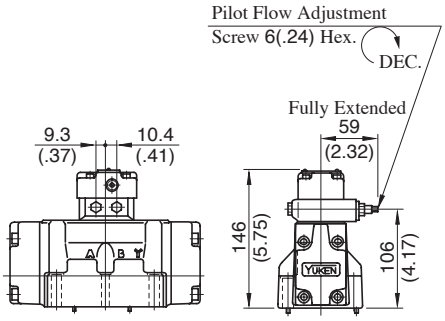


Note: For the valve mounting surface dimensions, see the dimensional drawing of the sharable sub-plate on page 401.

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

Options

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

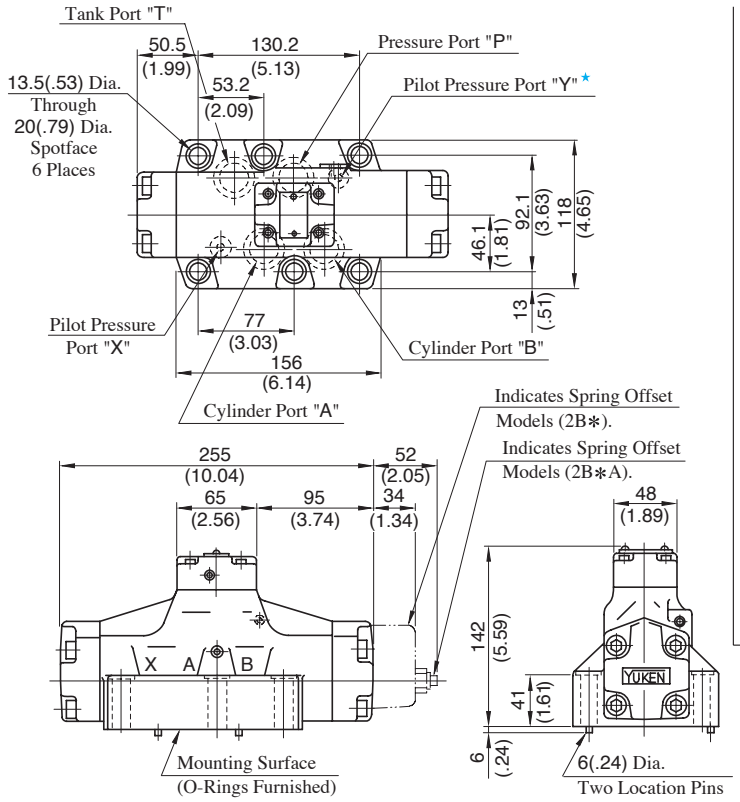


- **Models with Stroke Adj. (R∗)**
  Outside dimensions are the same as those of the main valve of Solenoid Controlled Pilot Operated Directional Valves (DSHG-04). See page 405.

★For Spring Offset Models (2B∗, 2B∗$^{A}_{B}$), it functions as drain port. When that model is used, directly connect it to the reservoir.

DHG-06-∗∗∗-50/5090

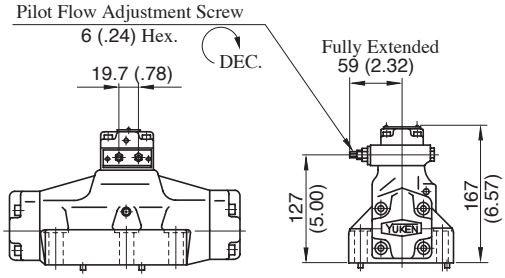
Mounting surface: ISO 4401-AE-08-4-A



Note: For the valve mounting surface dimensions, see the dimensional drawing of the sharable sub-plate in page 402.

Options

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



- **Pressure Centred Models (3H∗)**
- **Models with Stroke Adjustment (R∗)**
- **Models with Pilot Piston (P∗)**

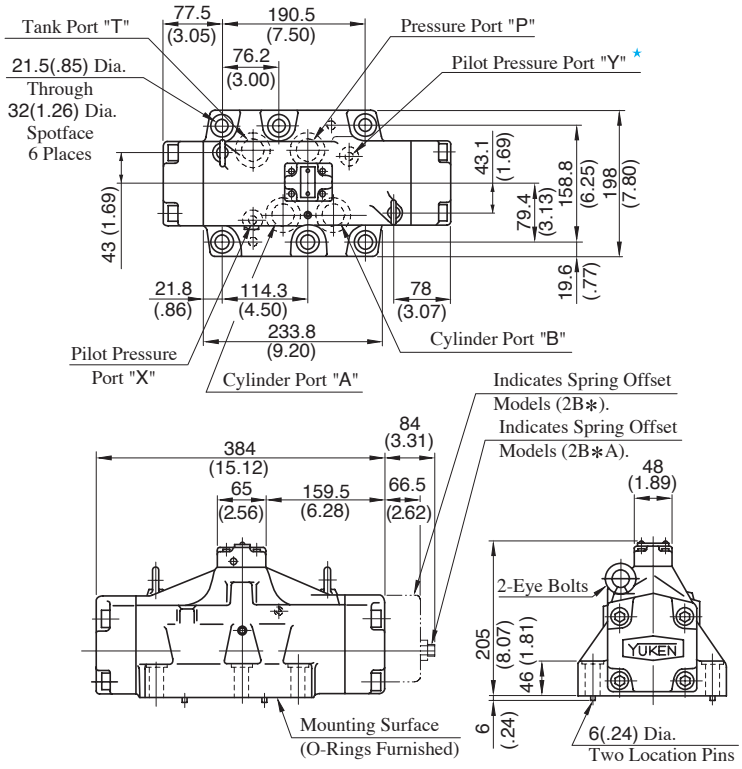
The outside dimensions of the above options are the same as those of the main valve of Solenoid Controlled Pilot Operated Directional Valve (DSHG-06). See page 405.

★ In case of Spring Offset Model (2B∗, 2B∗$^{A}_{B}$), it functions as a drain port. When that model is used, directly connect it to the reservoir.

DIMENSIONS IN MILLIMETRES (INCHES)

DHG-10-∗∗∗-40/4090

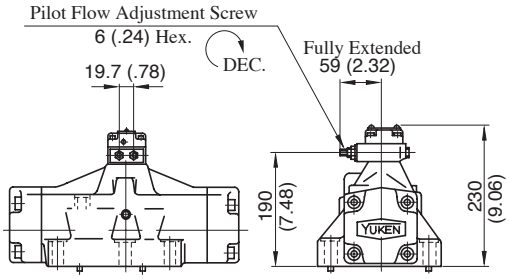
Mounting surface: ISO 4401-AF-10-4-A



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

Options

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



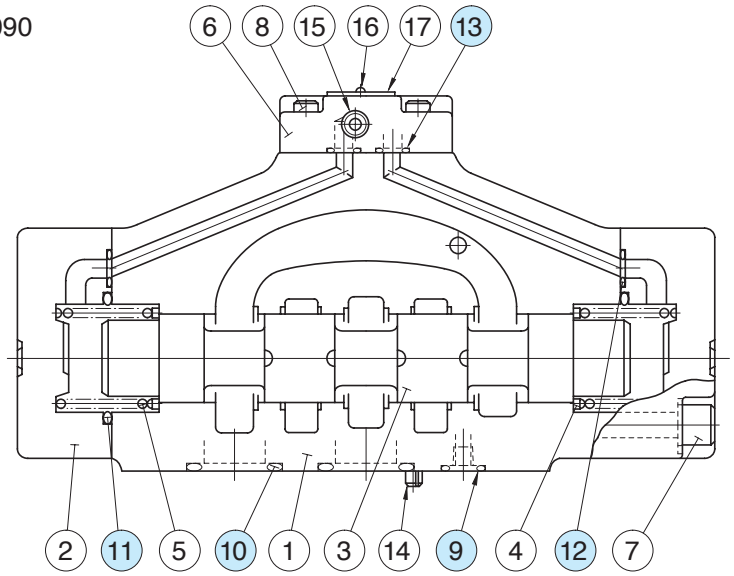
- **Pressure Centred Models (3H∗)**
- **Models with Stroke Adjustment (R∗)**
- **Models with Pilot Piston (P∗)**

The outside dimensions of the above options are the same as those of the main valve of Solenoid Controlled Pilot Operated Directional Valves (DSHG-10). See page 405.

★ In case of Spring Offset Model (2B∗, 2B∗$^{A}_{B}$), in functions as a drain port. When that model is used, directly connect it to the reservoir.

List of Seals

DHG-04-∗∗∗-50/5090
DHG-06-∗∗∗-50/5090
DHG-10-∗∗∗-40/4090



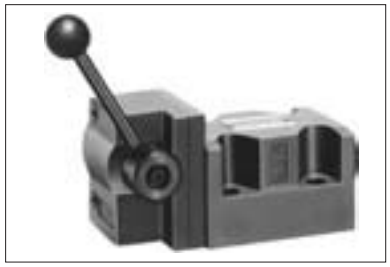
Item	Name of Parts	Part Numbers			Qty
		DHG-04	DHG-06	DHG-10	
9	O-Ring	SO-NB-P9	SO-NB-P14	SO-NB-P20	2
10	O-Ring	SO-NB-P22	SO-NB-P30	SO-NB-P42	4
11	O-Ring	SO-NB-P34	SO-NB-P40	SO-NB-G65	2
12	O-Ring	SO-NB-P9	SO-NB-P10	SO-NB-P14	2
13	O-Ring	SO-NB-P9	SO-NB-P9	SO-NB-P9	4

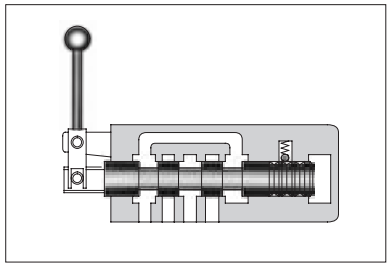
Note: When ordering the o-rings, please specify the seal kit number from the table below.

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

Manually Operated Directional Valves

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





Specifications

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

Note: The maximum flow means the limited flow without inducing any abnormality to the operation (changeover) of the valve. For details, please refer to the "List of Standard Models and Maximum Flow" on pages 386 to 390.

★ 1. Varies depending on the spool type. For details, see the "List of Standard Model and Maximum Flows" for DSG-03 Series Solenoid Operated Directional Valves (page 364 and 366 at 50 Hz rated voltage).

★ 2. The figures in parentheses indicate Max. flow for 3C3,3C5, 3C6 and 3C60.

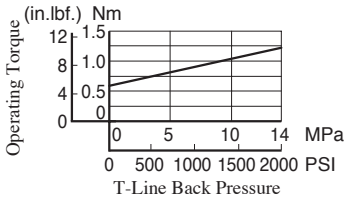
★ 3. Varies depending on the spool type. For the details, see the table in the following page.

★ 4. Varies depending on the spool type. Same as DSHG-10 (at pilot pressure of 1.5 MPa (220 PSI). See page 390.

★ 5. Lever operating torque varies depends on the T-line back pressure. See the right-hand figure.

★ 6. If the T-Line back pressure exceeds 7 MPa (1020 PSI), directly connect the drain port to the reservoir.

DMG-01 Lever Operating Torque



Model Number Designation

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

★Refer to column "valves using neutral position and side position" (special 2-position valve) on page 431.

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

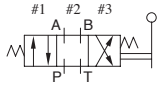
Model Numbers	Rated Flow L/min (U.S.GPM)	Max. Operating Pressure MPa (PSI)
DMF-10-∗∗∗-30∗	315 (83.2)	21 (3050)
DMF-16-∗∗∗-31∗	400 (106)	

Maximum Flow of DMG-04-3C∗

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

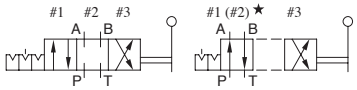
Graphic Symbols

Spring Centred Models (3C∗)

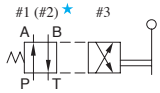


No-Spring Detented Models

3D∗ 2D∗



Spring Offset Models (2B∗)



★. Position #2 is applied for models DMG-01-2B∗ and DM^{T}_{G}-03-2B∗/2D∗.

List of Spool Type

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

Position #3
Position #2
Position #1 (#2, in case of DM^{T}_{G}-01/03-2B∗, DM^{T}_{G}-03-2D∗)

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

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

In addition to the standard two positions valves (2D∗, 2B∗), the following two types of two positions valves are available: Valves with neutral position (#2) and position #1 (2B∗A, 2D∗A), valves with neutral position (#2) and position #3 (2B∗B, 2D∗B).
The ○ mark in the table below indicates the spool type available for each models.

Spring Offset Models

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

★ Position #1
★ Position #2

★ Position #2
★ Position #3

No-spring Detented Models

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

★ Position #1
★ Position #2

★ Position #2
★ Position #3

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

Sub-plates

Valve Model Numbers	Japanese Standard "JIS"			European Design Standard			N. American Design Standard		
	Sub-plate Model Numbers	Thread Size	Approx. Mass kg (1bs.)	Sub-plate Model Numbers	Thread Size	Approx. Mass kg (1bs.)	Sub-plate Model Numbers	Thread Size	Approx. Mass kg (1bs.)
DMG-01	DSGM-01-31	Rc 1/8	0.8 (1.8)	DSGM-01-3080	1/8 BSP.F	0.8 (1.8)	DSGM-01-3190	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-3190	1/4 NPT	0.8 (1.8)
	DSGM-01Y-31	Rc 3/8	0.8 (1.8)	—	—	—	DSGM-01Y-3190	3/8 NPT	0.8 (1.8)
DMG-03	DSGM-03-40	Rc 3/8	3.0 (6.6)	DSGM-03-2180	3/8 BSP.F	3.0 (6.6)	DSGM-03-2190	3/8 NPT	3.0 (6.6)
	DSGM-03X-40	Rc 1/2	3.0 (6.6)	DSGM-03X-2180	1/2 BSP.F	3.0 (6.6)	DSGM-03X-2190	1/2 NPT	3.0 (6.6)
	DSGM-03Y-40	Rc 3/4	4.7 (10.4)	DSGM-03Y-2180	3/4 BSP.F	4.7 (10.4)	DSGM-03Y-2190	3/4 NPT	4.7 (10.4)
DMG-04	DHGM-04-20	Rc 1/2	4.4 (9.7)	DHGM-04-2080	1/2 BSP.F	4.4 (9.7)	DHGM-04-2090	1/2 NPT	4.4 (9.7)
	DHGM-04X-20	Rc 3/4	4.1 (9.0)	DHGM-04X-2080	3/4 BSP.F	4.1 (9.0)	DHGM-04X-2090	3/4 NPT	4.1 (9.0)
DMG-06	DHGM-06-50	Rc 3/4	7.4 (16.3)	DHGM-06-5080	3/4 BSP.F	8.5 (18.7)	DHGM-06-5090	3/4 NPT	7.4 (16.3)
	DHGM-06X-50	Rc 1	7.4 (16.3)	DHGM-06X-5080	1 BSP.F	8.5 (18.7)	DHGM-06X-5090	1 NPT	7.4 (16.3)
DMG-10	DHGM-10-40	Rc 1-1/4	21.5 (47.4)	DHGM-10-4080	1-1/4 BSP.F	21.5 (47.4)	DHGM-10-4090	1-1/4 NPT	21.5 (47.4)
	DHGM-10X-40	Rc 1-1/2	21.5 (47.4)	DHGM-10X-4080	1-1/2 BSP.F	21.5 (47.4)	DHGM-10X-4090	1-1/2 NPT	21.5 (47.4)

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

- Sub-plate dimensions appearing page

Subplate Model Numbers	Page
DSGM-01∗	356
DSGM-03∗	373
DHGM-04∗	401
DHGM-06∗	402
DHGM-10∗	403

Mounting Bolts

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

Instructions

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

Pressure Drop

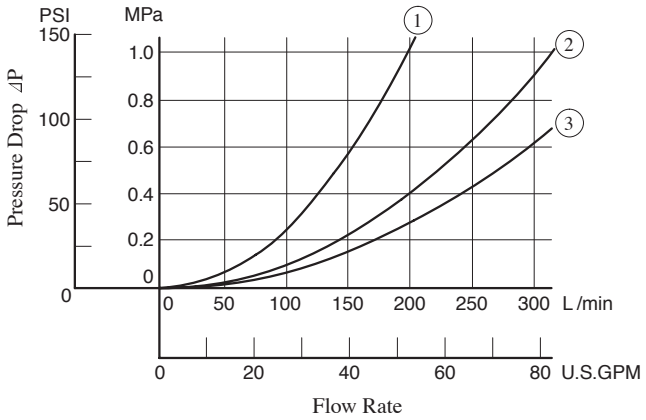
The following characteristics are based on the following conditions: viscosity of the fluid: 35 mm^2/s (164 SSU) and Specific Gravity: 0.850

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

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

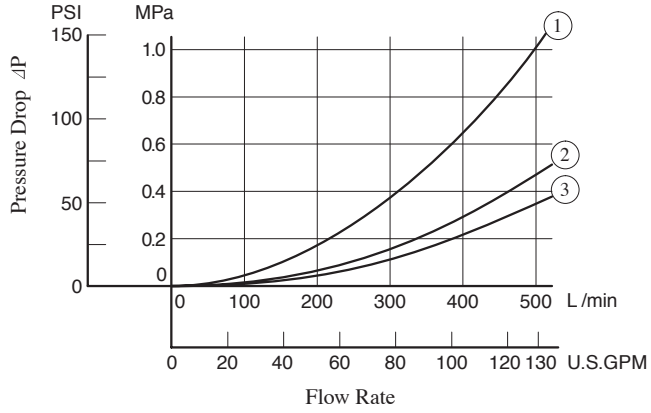
- For any other specific gravity (G'), the pressure drop (⊿P') may be obtained from the formula below.
⊿P' = ⊿P (G'/G) where, ⊿P is a value on the following chart and G is 0.850.

- DMT-06, 06X



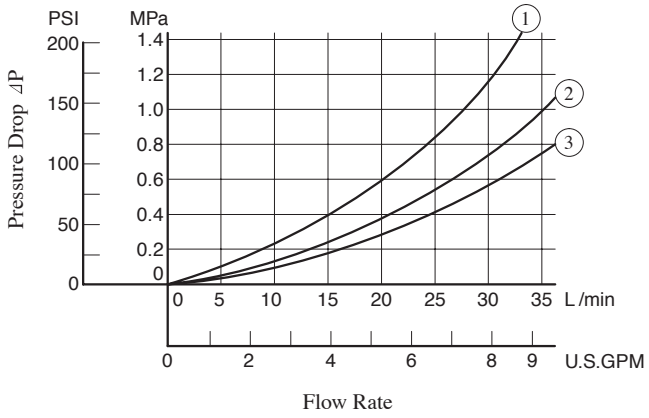
Spool Type	Pressure Drop Curve Number				
	P→A	B→T	P→B	A→T	P→T
2	②	②	②	②	
3	③	②	③	②	②
4	②	③	②	②	—
40	②	②	②	②	—
5	③	②	②	②	—
6	③	②	③	②	①
60	③	②	③	②	①
7	②	②	②	②	—
8	②	—	②	—	—
9	③	②	③	②	—
10	②	②	②	②	—
11	③	②	②	②	—
12	②	②	②	②	—

DMT-10, 10X



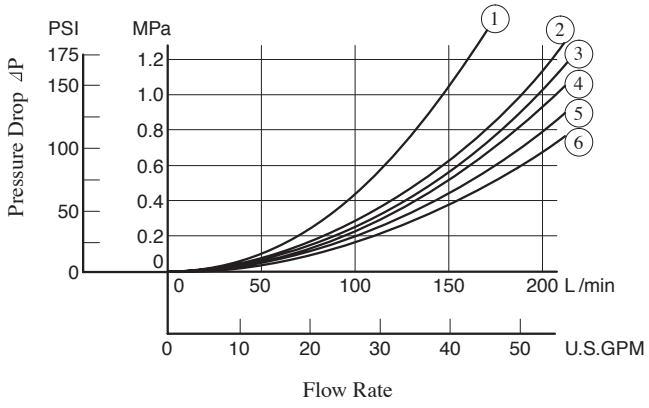
Spool Type	Pressure Drop Curve Number				
	P→A	B→T	P→B	A→T	P→T
2	③	②	③	②	—
3	③	②	③	②	②
4	③	②	③	②	—
40	③	②	③	②	—
5	③	②	③	②	—
6	③	③	③	③	①
60	③	③	③	③	①
7	③	②	③	②	—
8	③	—	③	—	—
9	③	②	③	②	—
10	③	②	③	②	—
11	③	②	③	②	—
12	③	②	③	②	—

DMG-01



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

DMG-04



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

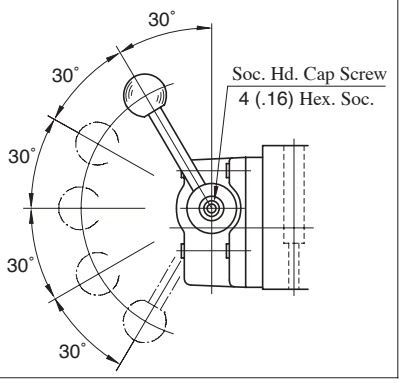
● For **DMT-03** , **DMG-03**, **DMG-06**, and **DMG-10**, refer to the table below then see the related page.

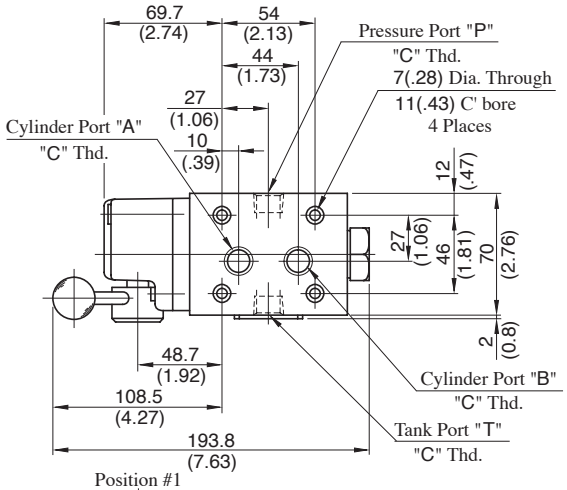
Model Number	Pressure Drop Characteristics	Page	Remarks
DMT-03 DMG-03	Same as DSG-03 Series Solenoid Operated Directional Valves (Standard Type)	371	3D∗ is same as 3C∗
DMG-06	Same as Solenoid Controlled Pilot Operated Directional Valves (DSHG-06)	393	
DMG-10	Same as Solenoid Controlled Pilot Operated Directional Valves (DSHG-10)	393	

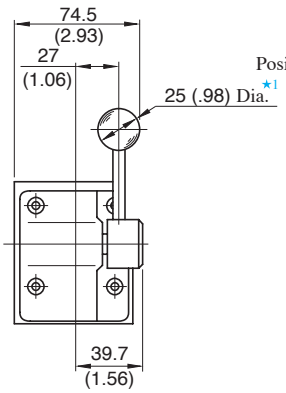
DMT-03-∗∗∗-50/5080/5090

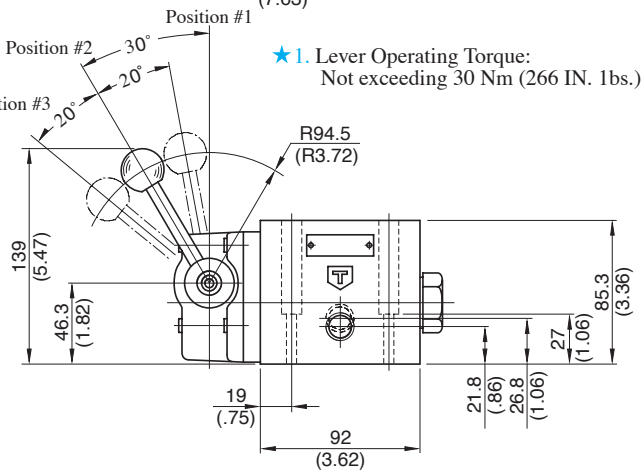
How to Change Lever Position:

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







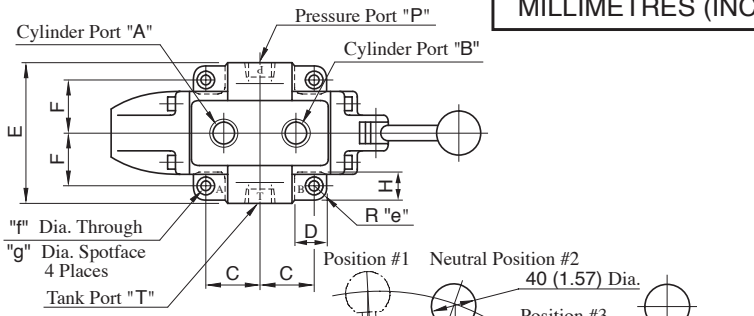


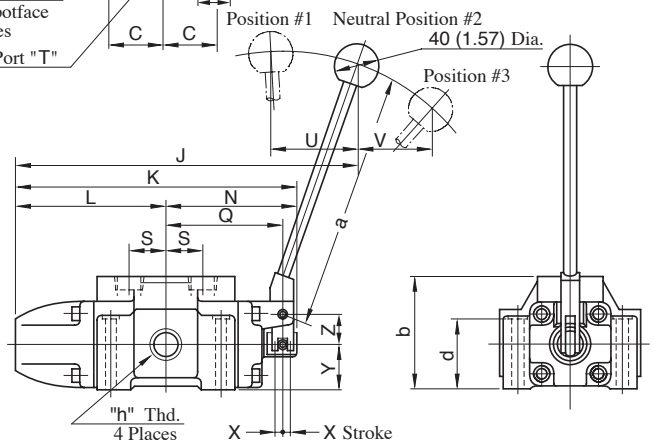
★1. Lever Operating Torque:
Not exceeding 30 Nm (266 IN. 1bs.)

Model Numbers	"C" Thd.
DMT-03-∗∗∗-50	Rc 3/8
DMT-03-∗∗∗-5080	3/8 BSP.F
DMT-03-∗∗∗-5090	3/8 NPT

DIMENSIONS IN MILLIMETRES (INCHES)

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





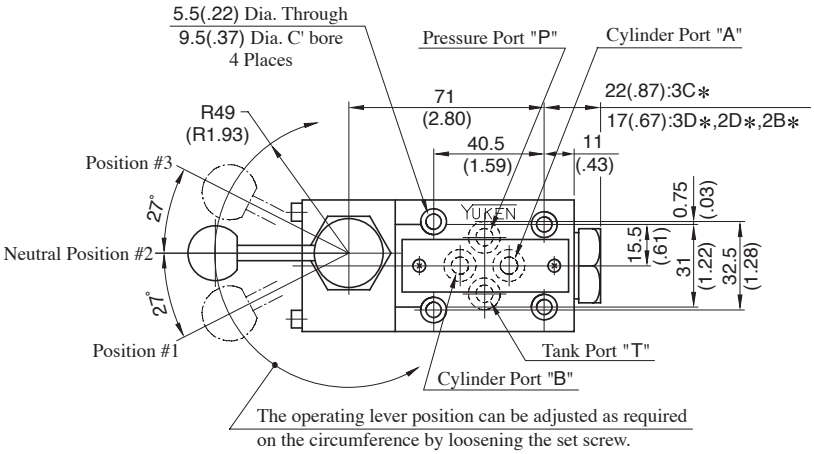
Model Numbers	"h" Thd.
DMT-06-∗∗∗-30 DMT-06X-∗∗∗-30	Rc 3/4 Rc 1
DMT-06-∗∗∗-3080 DMT-06X-∗∗∗-3080	3/4 BSP.F 1 BSP.F
DMT-06-∗∗∗-3090 DMT-06X-∗∗∗-3090	3/4 NPT 1 NPT
DMT-10-∗∗∗-30 DMT-10X-∗∗∗-30	Rc 1-1/4 Rc 1-1/2
DMT-10-∗∗∗-3080 DMT-10X-∗∗∗-3080	1-1/4 BSP.F 1-1/2 BSP.F
DMT-10-∗∗∗-3090 DMT-10X-∗∗∗-3090	1-1/4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

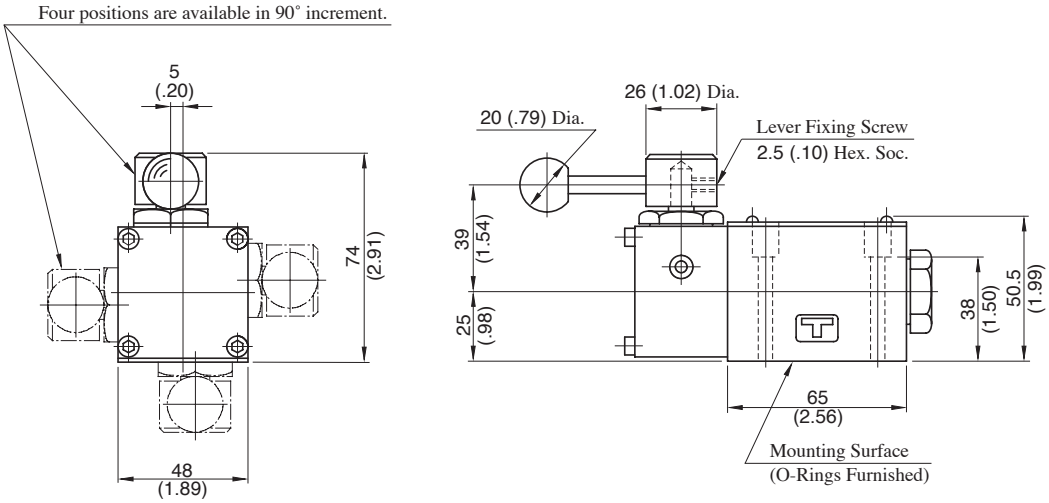
Model No.	Dimension mm (Inches)																					
	C	D	E	F	H	J	K	L	N	Q	S	U	V	X	Y	Z	a	b	d	e	f	g
DMT-06	50	30	126	47.5	24	320	255	137	118	107	33.5	86	76	9	40	25	250	100	63.5	12	11	17.5
DMT-06X	(1.97)	(1.18)	(4.96)	(1.87)	(.94)	(12.60)	(10.04)	(5.39)	(4.65)	(4.21)	(1.32)	(3.39)	(2.99)	(.35)	(1.57)	(.98)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

DMG-01-∗∗∗-10/1090

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

DIMENSIONS IN MILLIMETRES (INCHES)



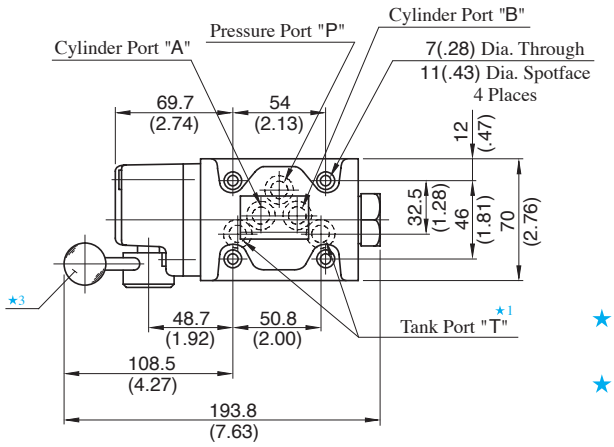


Note: For the valve mounting surface dimensions, see the dimensional drawing of the sharable sub-plate in page 356.

DMG-03-∗∗∗-50/5090

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

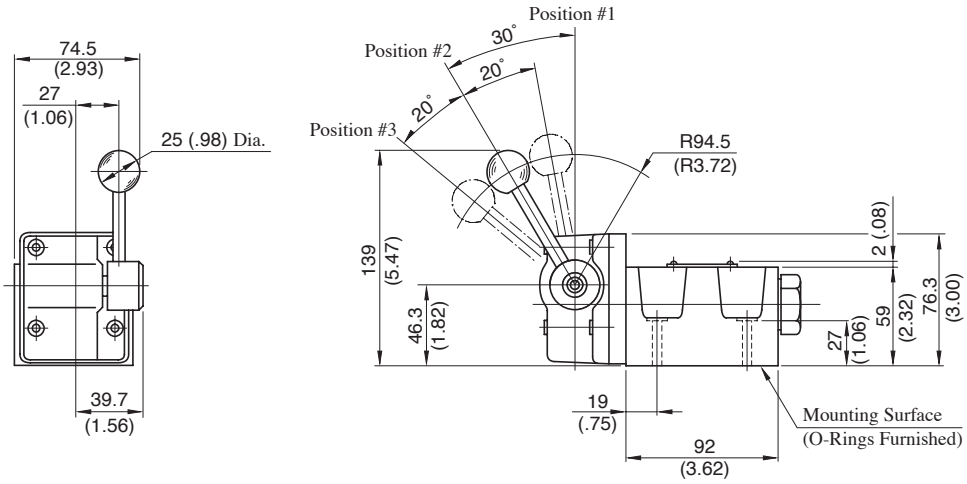
DIMENSIONS IN MILLIMETRES (INCHES)



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

★2. The position of operating lever can be changed as required. For the detail, see the DMT-03 in the previous page.

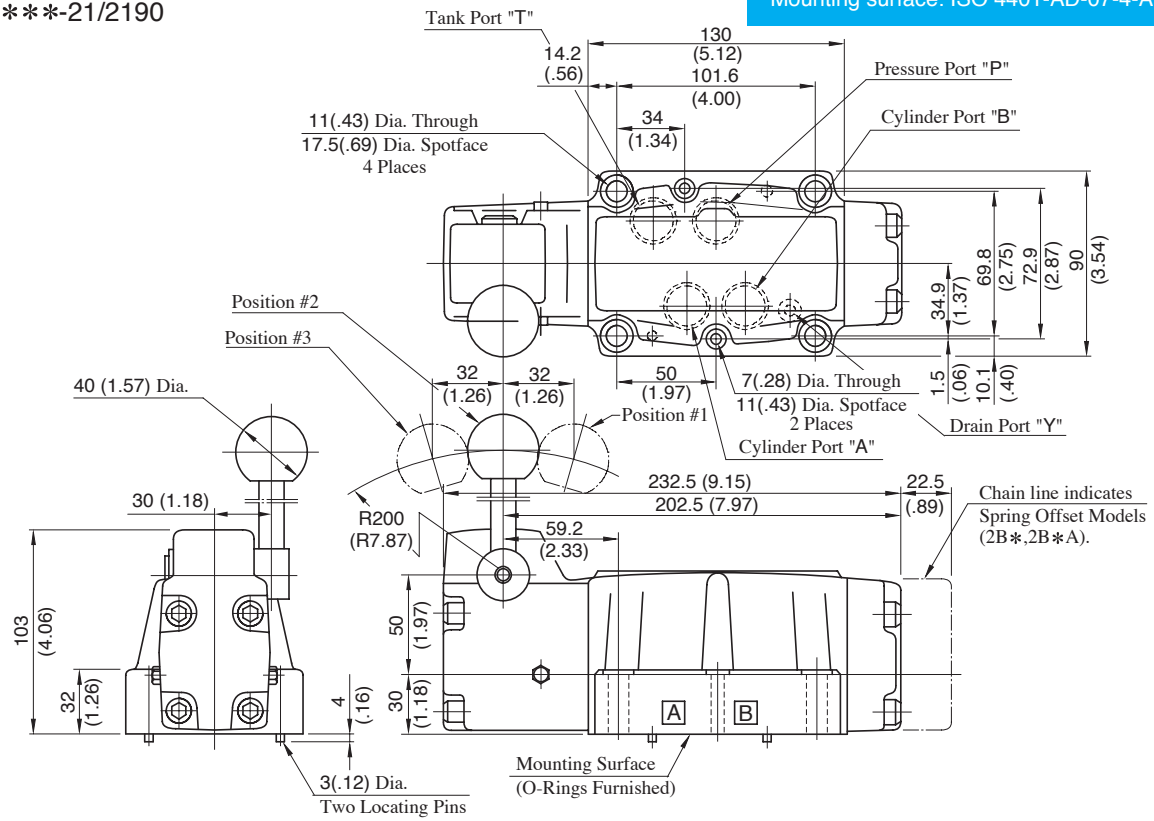
★3. Lever Operating Torque:
Not exceeding 30 Nm (266 IN. 1bs.)



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

DMG-04-∗∗∗-21/2190

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

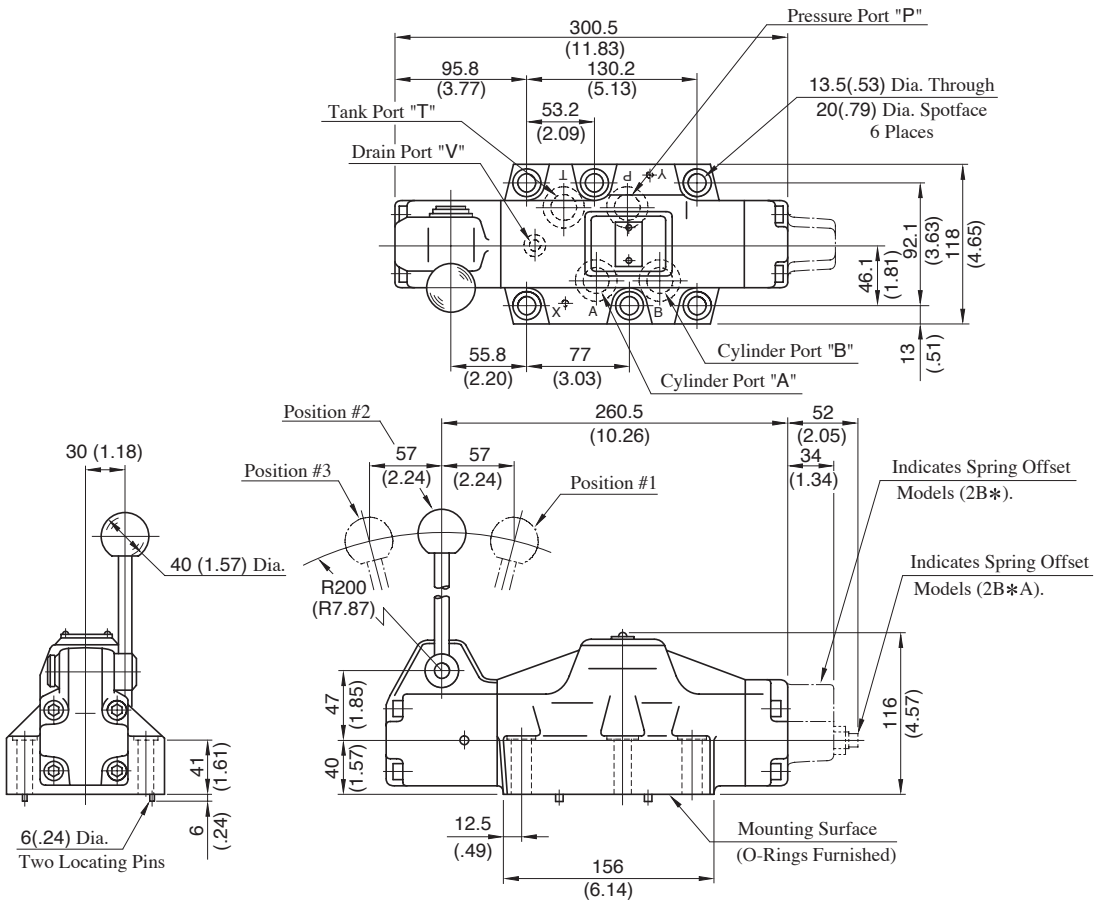


Note: For the valve mounting surface dimensions, see the dimensional drawing of the sharable sub-plate in page 401.

DIMENSIONS IN MILLIMETRES (INCHES)

DMG-06-∗∗∗-50/5090

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

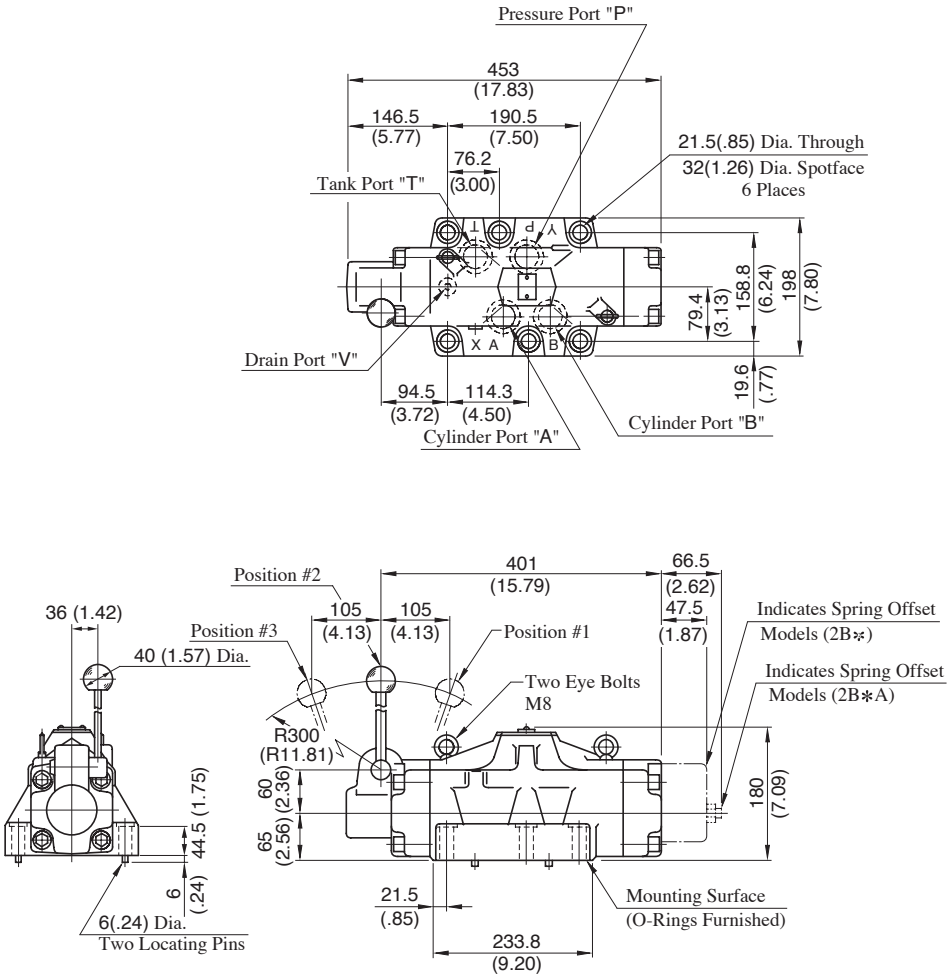


Note: For the valve mounting surface dimensions, see the dimensional drawing of the sharable sub-plate in page 402.

DMG-10-∗∗∗-50/5090

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

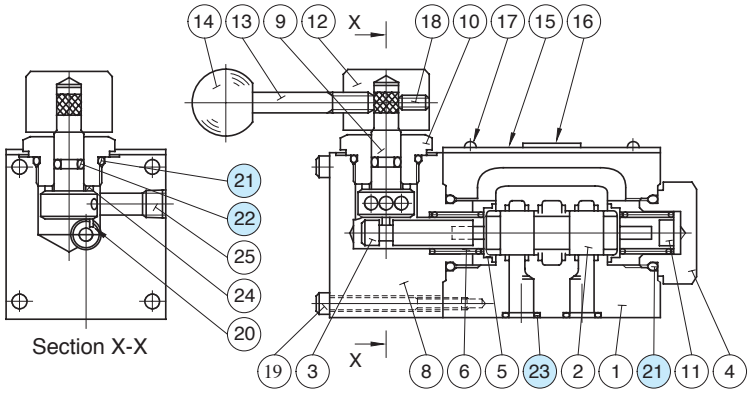
DIMENSIONS IN MILLIMETRES (INCHES)



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

List of Seals

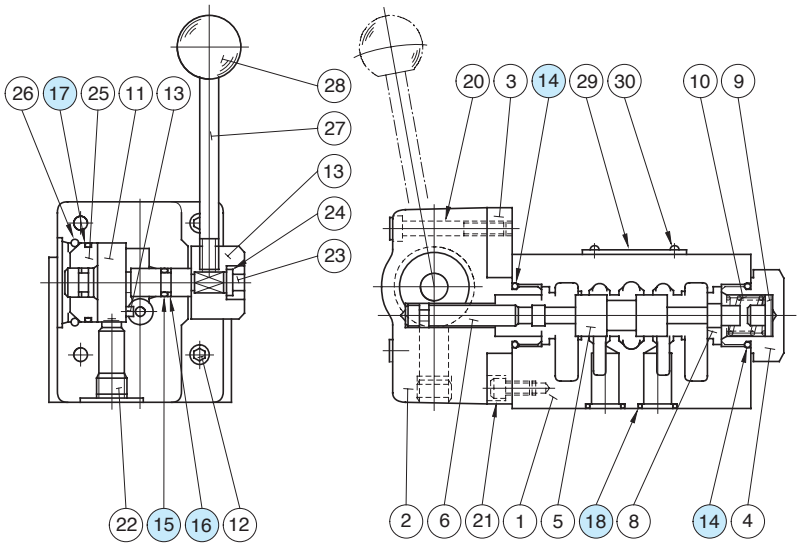
DMG-01-∗∗∗-10/1090



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

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

DMT-03-∗∗∗-50/5080/5090
DMG-03-∗∗∗-50/5090



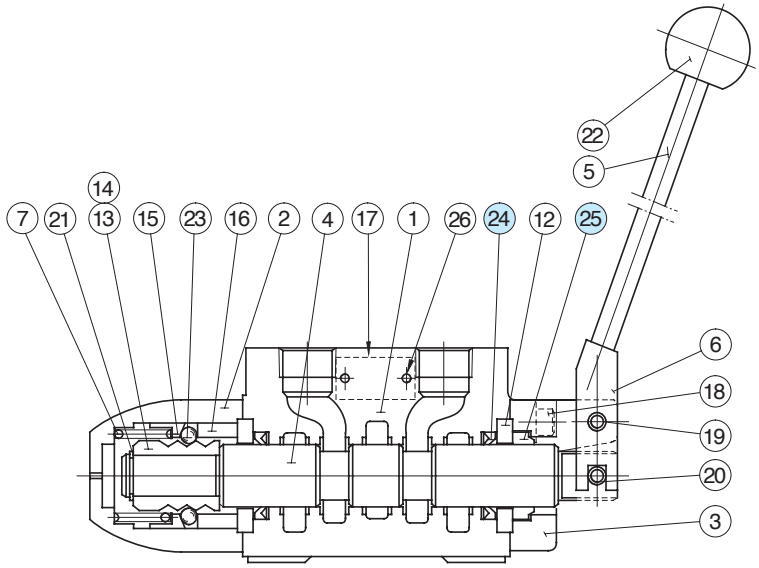
Item	Name of Parts	Part Numbers	Qty.
14	O-Ring	SO-NB-P21	2
15	O-Ring	SO-NA-P8	2
16	Back Up Ring	SO-BB-P8	2
17	O-Ring	SO-NB-A023	1
18	O-Ring	SO-NB-A014	5

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

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

List of Seals

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



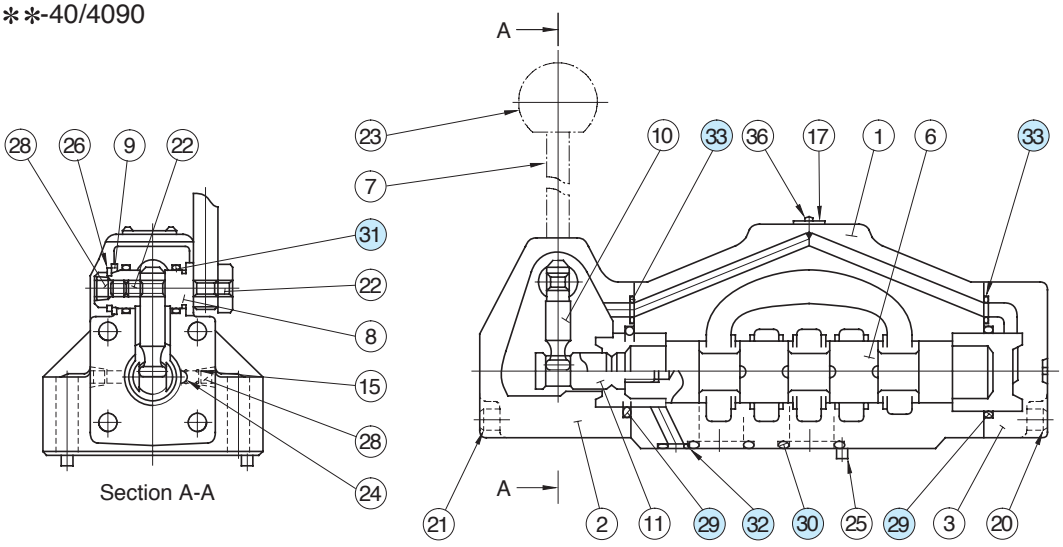
Item	Name of Parts	Part Numbers		Qty.
		DMT-06∗	DMT-10∗	
24	Packing	UPI 32 • 40 • 6Y	UPI 40 • 55 • 10Y	2
25	Dust Seal	DKI 32 • 44 • 7 • 10	DKI 40 • 52 • 7 • 10	1

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

● List of Seal Kits

Valve Model Numbers	Seal Kit Numbers
DMT-06∗-∗∗∗-30/3080/3090	KS-DMT-06-30
DMT-10∗-∗∗∗-30/3080/3090	KS-DMT-10-30

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



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

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

● List of Seal Kits

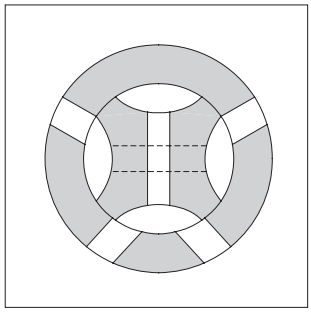
Valve Model Numbers	Seal Kit Numbers
DMG-04∗-∗∗∗-21/2190	KS-DMG-04-21
DMG-06∗-∗∗∗-50/5090	KS-DMG-06-50
DMG-10-∗∗∗-40/4090	KS-DMG-10-40

Mechanically Operated Directional Valves

These valves are chiefly used to shift the pilot circuit. Rotary Type Directional Valves and Cam Operated Type Directional Valves are available.

Rotary Type Directional Valves

These valves are used to rotate the spool either manually or by way of cam and shift the direction of oil flow. The detented mechanism incorporated in these valves prevents the valve from being changed over by itself due to vibrations or any other shocks.



Specifications

Model Numbers		Rated Flow L/min (U.S.GPM)	Max. Operating Pressure MPa (PSI)	Max. T-Line Pressure MPa (PSI)	Approx. Mass kg (lbs.)	
Threaded Connection	Sub-plate Mounting				DRT Type	DRG Type
DRT-02-∗D∗-20∗	DRG-02-∗D∗-20∗	16 (4.2)	7 (1020)	7 (1020)★	4.7 (10.4)	3.4 (7.5)

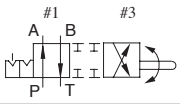
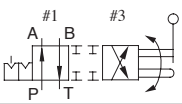
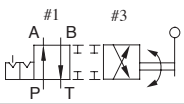
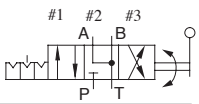
★ When a back pressure of more than 3 MPa (435 PSI) is generated in the tank port, be sure to use External Drain Type.

Model Number Designation

F-	DR	G	-02	-2	D	2	-A	-R	-20	∗
Special Seals	Series Connection	Type of Mounting	Valve Size	No. of Valve Position	Spool-Spring Arrangement	Spool Type	Operation Type	Drain Connection	Design Number	Design Standards
F: Special seals for phosphate ester type fluids (Omit if not required)	**DR**: Rotary Type Directinal Valve	**T**: Threaded Connection	**02**	**2**	**D**: No-spring Detented	**2**	**A**: Reversing Dog **B**: Reversing Dog & Manual **C**: Manual	**None**: Intrenal Drain **R**: External Drain	**20**	**None**: Japanese Std. "JIS" **80**: European Design Std. **90**: N. American Design Std.
		G: Sub-plate Mounting	**02**	**3**		**4**			**20**	**None**: Japanese Std. "JIS" & European Design Std. **90**: N. American Design Std.

Note: When selecting the Model type, be sure to give the model number from the following Graphic Symbols.
No combinations other than those in the table below are allowed.

Graphic Symbols

No. of Position	2-Position Type			3-Position Type
Operation Type	Reversing Dog Operation	Reversing Dog & Manual Operation	Manual Operation	Manual Operation
Graphic Symbols				
Model No.	DR∗-02-2D2-A	DR∗-02-2D2-B	DR∗-02-2D2-C	DR∗-02-3D4-C

Instructuions

● Changeover Torque

When the pressure of pressure port "P" and cylinder port "A" (or "B") is set to 7 MPa (1020 PSI), the valve changeover torque will be as right side table:

Changeover Torque

Tank Port Back Pres. MPa (PSI)	Torque Nm (in. 1bs.)
0	1.0 (8.9)
3 (435)	4.8 (42.5)

● 2-Way directional valves

Be sure to use the External Drain Type Valve of spool type "2" and plug the tank port.

Sub-plates

Drain Connection	Japanese Standard "JIS"		European Design Standard		N.American Design Standard		Approx. Mass kg (1lbs.)
	Sub-plate Model Numbers	Thread Size	Sub-plate Model Numbers	Thread Size	Sub-plate Model Numbers	Thread Size	
For Internal Drain	DRGM-02-20 DRGM-02X-20	Rc 1/4 Rc 3/8	DRGM-02-2080 DRGM-02X-2080	1/4 BSP.F 3/8 BSP.F	DRGM-02-2090 DRGM-02X-2090	1/4 NPT 3/8 NPT	1.9 (4.2)
For External Drain	DRGM-02-R-20 DRGM-02X-R-20	Rc 1/4 Rc 3/8	DRGM-02-R-2080 DRGM-02X-R-2080	1/4 BSP.F 3/8 BSP.F	DRGM-02-R-2090 DRGM-02X-R-2090	1/4 NPT 3/8 NPT	

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

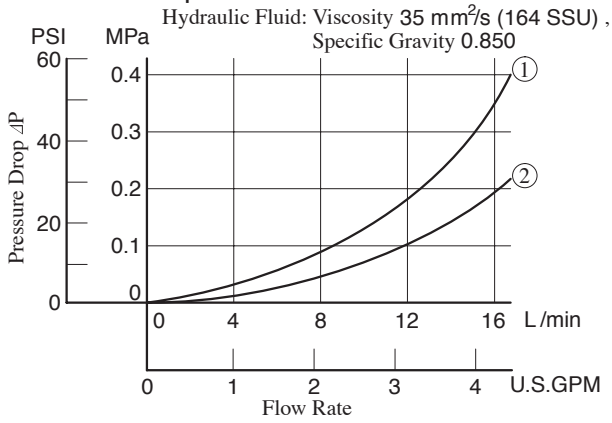
Mounting Bolts

The Sub-plate Mounting Type Valves (DRG-02) only are furnished with the following mounting bolts.

Model Numbers	Socket Head Cap Screw (5 Pcs.)	
	Japanese Standard "JIS" European Design Standard	N. American Design Standard
DRG-02	M8 × 45 Lg.	5/16-18 UNC × 1-3/4 Lg.

Pressure Drop

Hydraulic Fluid: Viscosity 35 mm²/s (164 SSU), Specific Gravity 0.850



Valve Type	Pressure Drop Curve No.			
	P→A	B→T	P→B	A→T
2D2	②	②	②	②
3D4	②	②	①	②

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

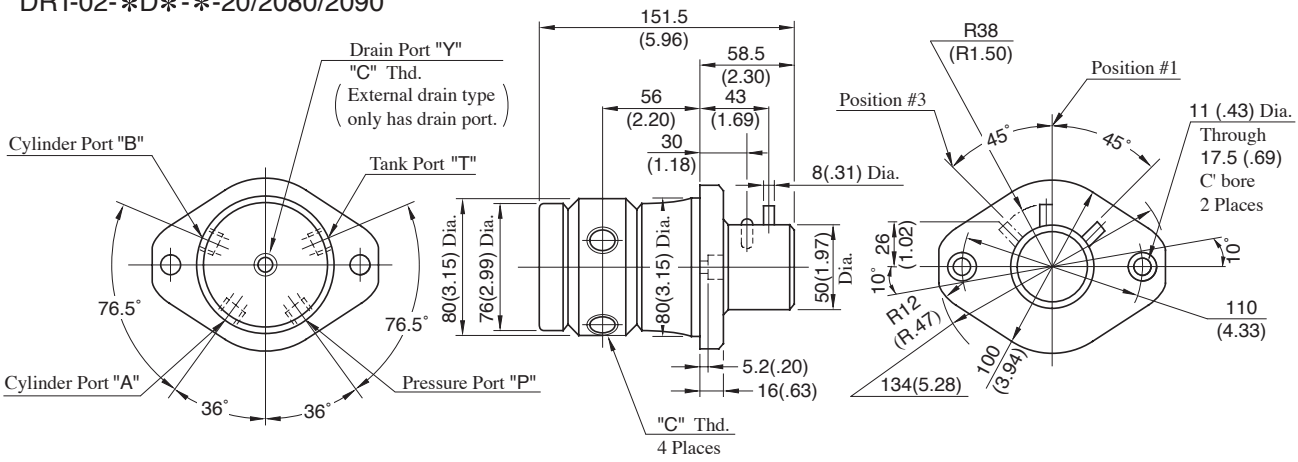
Viscosity	mm²/s	15	20	30	40	50	60	70	80	90	100
	SSU	77	98	141	186	232	278	324	371	417	464
Factor		0.81	0.87	0.96	1.03	1.09	1.14	1.19	1.23	1.27	1.30

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

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

DRT-02-∗D∗-∗-20/2080/2090

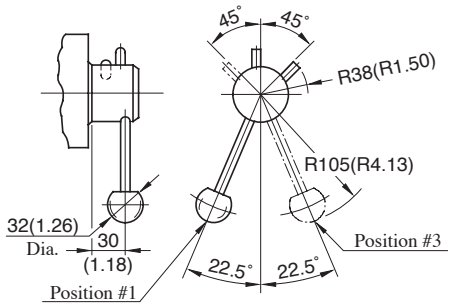
● **Type "A" : Reversing Dog Operation**



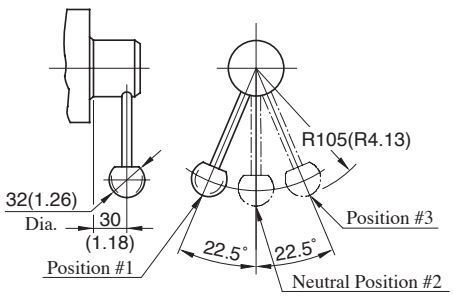
Model Numbers	"C" Thd.
DRT-02-∗D∗-∗-20	Rc 1/4
DRT-02-∗D∗-∗-2080	1/4 BSP.F
DRT-02-∗D∗-∗-2090	1/4 NPT

DIMENSIONS IN MILLIMETRES (INCHES)

● **Type "B": Reverseing Dog and Manual Operation**



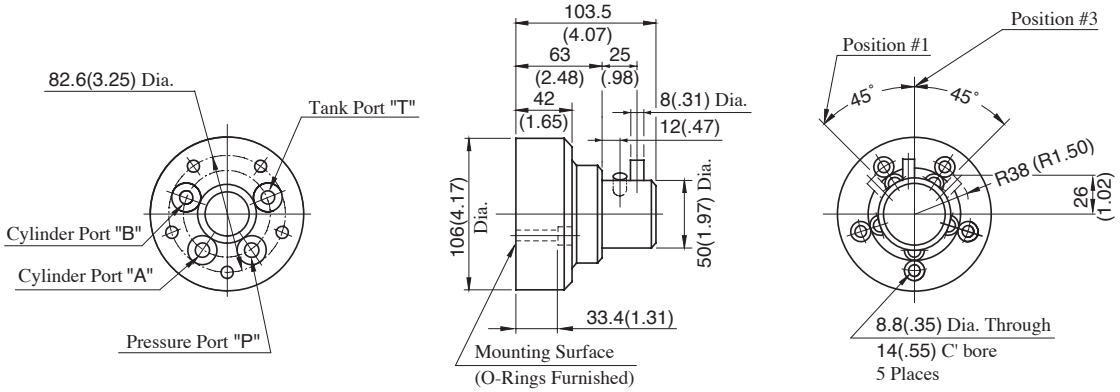
● **Type "C": Manual Operation**



For other dimensions, refer to "Reversing Dog Operation".

DRG-02-∗D∗-∗-20/2090

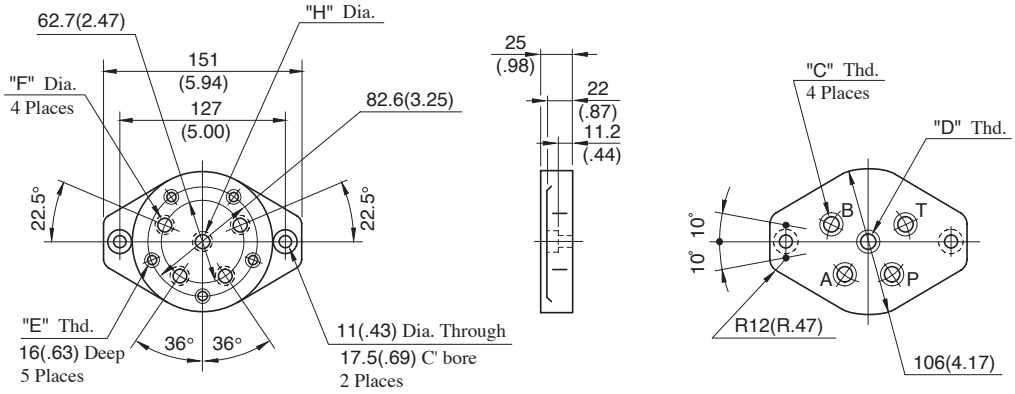
● Type "A": Reversing Dog Operation



For information on Type "B": reversing Dog and Manual Operation and Type "C": Manual Operation, see DRT-02 on the previous page.

DIMENSIONS IN MILLIMETRES (INCHES)

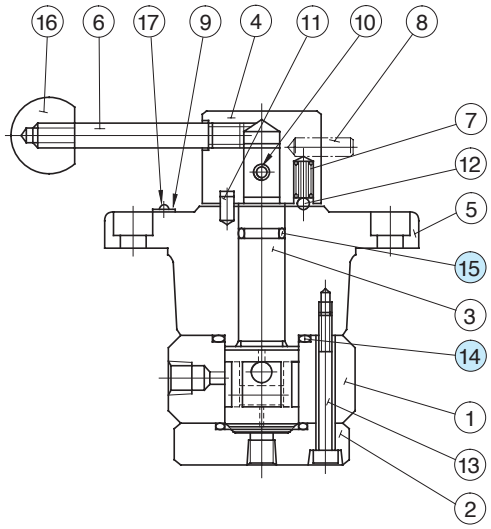
Sub-plates : DRGM-$^{02}_{02X}$-∗-20/2080/2090



Sub-plate Model Numbers	"C" Thd.	"D" Thd.	"E" Thd.	mm (Inches)		Remarks
				F	H	
DRGM-02-20 DRGM-02X-20	Rc 1/4 Rc 3/8	—	M8	11 (.43)	—	For Internal Drain
DRGM-02-2080 DRGM-02X-2080	1/4 BSP.F 3/8 BSP.F	—	M8	11.7 (.46)		
DRGM-02-2090 DRGM-02X-2090	1/4 NPT 3/8 NPT	—	5/16-18 UNC	11 (.43)		
DRGM-02-R-20 DRGM-02X-R-20	Rc 1/4 Rc 3/8	Rc 1/4	M8	11 (.43)	11 (.43)	For External Drain
DRGM-02-R-2080 DRGM-02X-R-2080	1/4 BSP.F 3/8 BSP.F	1/4 BSP.F	M8	11.7 (.46)	11.7 (.46)	
DRGM-02-R-2090 DRGM-02X-R-2090	1/4 NPT 3/8 NPT	1/4 NPT	5/16-18 UNC	11 (.43)	11 (.43)	

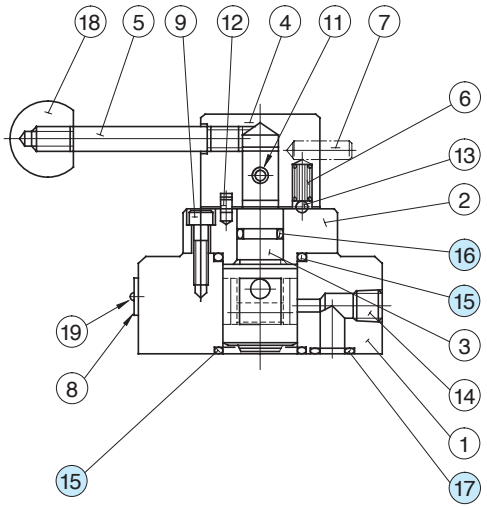
List of Seals

DRT-02-∗D∗-∗-20/2080/2090



Item	Name of Parts	Part Numbers	Qty.	Remarks
14	O-Ring	SO-NB-G35	2	Included in Seal Kit (Kit No.: KS-DRT-02-20)
15	O-Ring	SO-NA-P16	1	

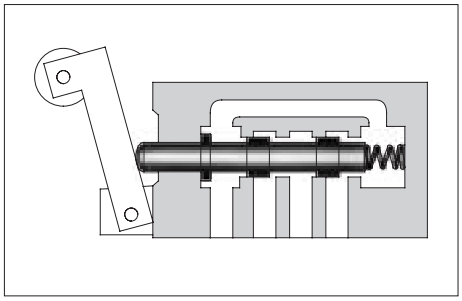
DRG-02-∗D∗-∗-20/2090



Item	Name of Parts	Part Numbers	Qty.	Remarks
15	O-Ring	SO-NB-G35	2	Included in Seal Kit (Kit No.: KS-DRG-02-20)
16	O-Ring	SO-NA-P16	1	
17	O-Ring	SO-NB-P16	4	

Cam Operated Directional Valves

These valves may be used to shift the direction of oil flow by depressing the spool by way of a cam.

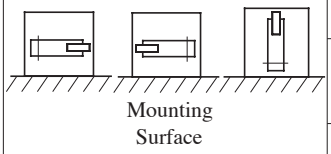


Specifications

Model Numbers		Max. Flow ★ L/min (U.S.GPM)	Max. Operating Pressure MPa (PSI)	Max. T-Line Pressure MPa (PSI)	Approx. Mass kg (lbs.)	
Threaded Connection	Sub-plate Mounting				DCT Type	DCG Type
DCT-01-2B∗-40∗	DCG-01-2B∗-40∗	30 (7.9)	21 (3050)	7 (1020)	1.1 (2.4)	1.1 (2.4)
DCT-03-2B∗-50∗	DCG-03-2B∗-50∗	100 (26.4)	25 (3630)	10 (1450)	4.5 (9.9)	3.8 (8.4)

★ Max. flow indicates the ceiling flow which does not affect the normal function (changeover) of valves.

Model Number Designation

F-	DC	T	-01	-2	B	2	-R	-40	∗
Special Seals	Series Number	Type of Connection	Valve Size	No. of Valve Position	Spool-Spring Arrangement	Spool Type	Roller Position	Design Number	Design Standards
F: Special seals for phosphate ester type fluids (Omit if not required)	**DC**: Cam Operated Directional Valve	**T**: Threaded Connection	**01**	**2**	**B**: Spring Offset	**2**	None (Normal Position) R Y (DC∗-01 only)  Mounting Surface	**40**	**None**: Japanese Standard "JIS" **80**: European Design Standard **90**: N. American Design Standard
			03			**3**		**50**	
		G: Sub-plate Mounting	**01**			**8**		**40**	**None**: Japanese Standard "JIS" & European Design Standard **90**: N. American Design Standard
			03					**50**	

Sub-plates

Valve Model Numbers	Japanese Standard "JIS"		European Design Standard		N. American Design Standard		Approx. Mass kg (1bs.)
	Sub-plate Model Numbers	Thread Size	Sub-plate Model Numbers	Thread Size	Sub-plate Model Numbers	Thread Size	
DCG-01	DSGM-01-31	Rc 1/8	DSGM-01-3180	1/8 BSP.F	DSGM-01-3190	1/8 NPT	0.8 (1.8)
	DSGM-01X-31	Rc 1/4	DSGM-01X-3180	1/4 BSP.F	DSGM-01X-3190	1/4 NPT	0.8 (1.8)
	DSGM-01Y-31	Rc 3/8	—	—	DSGM-01Y-3190	3/8 NPT	0.8 (1.8)
DCG-03	DSGM-03-41	Rc 3/8	DSGM-03-2180	3/8 BSP.F	DSGM-03-2190	3/8 NPT	3.0 (6.6)
	DSGM-03X-41	Rc 1/2	DSGM-03X-2180	1/2 BSP.F	DSGM-03X-2190	1/2 NPT	3.0 (6.6)
	DSGM-03Y-41	Rc 3/4	DSGM-03Y-2180	3/4 BSP.F	DSGM-03Y-2190	3/4 NPT	4.7 (10.4)

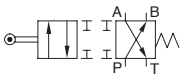
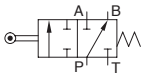
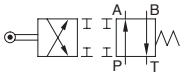
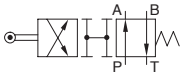
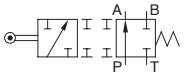
● Sub-plates are available. Specify the sub-plate model number from the table above.
When sub-plates are not used, the mounting surface should have a good machined finish.

Mounting Bolts

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. 1bs)
DCT-01	M5 × 45 Lg.	No. 10-24 UNC × 1-3/4 Lg.	2	5-7 (43-60)
DCG-01	M5 × 45 Lg.	No. 10-24 UNC × 1-3/4 Lg.	4	5-7 (43-60)
DCG-03	M6 × 35 Lg.	1/4-20 UNC × 1-1/2 Lg.	4	12-15 (105-130)

Direction of Oil Flow for Roller Position

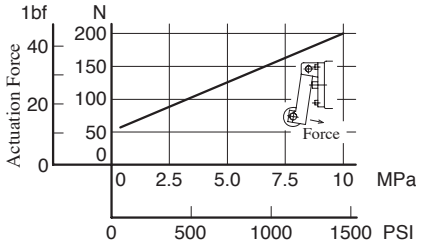
Model Numbers	Graphic Symbols	Roller Position and Direction of Oil Flow Roller Stroke from Offset Position mm(Inches) Extended(Offset) ⟷ Depressed
DCT DCG-01-2B2		P → B, A → T | All ports blocked | P → A, B → T 0 | 3.8 (.150) | 4.6 (.181) | 9.5 (.374)
DCT DCG-01-2B3		P → B, A → T | All ports open | P → A, B → T 0 | 3.8 (.150) | 4.6 (.181) | 9.5 (.374)
DCT DCG-01-2B8		P → B, A&T ports blocked | P → A, B&T ports blocked 0 | 3.8 (.150) | 9.5 (.374)
DCT DCG-03-2B2		P → A, B → T | All ports blocked | P → B, A → T 0 | 3.4 (.134) | 3.8 (.150) | 7 (.276)
DCT DCG-03-2B3		P → A, B → T | All ports open | P → B, A → T 0 | 3.0 (.118) | 4.0 (.157) | 7 (.276)
DCT DCG-03-2B8		P → A, B&T ports blocked | All ports blocked | P → B, A&T ports blocked 0 | 3.6 (.142) | 4.7 (.185) | 7 (.276)

Instructions

Valve Type "2B8"

Tank port "T" functions as a drain port. Directly connect it to the reservoir. [Max. allowable back pressure 0.35 MPa (50 PSI)].

Actuation Force

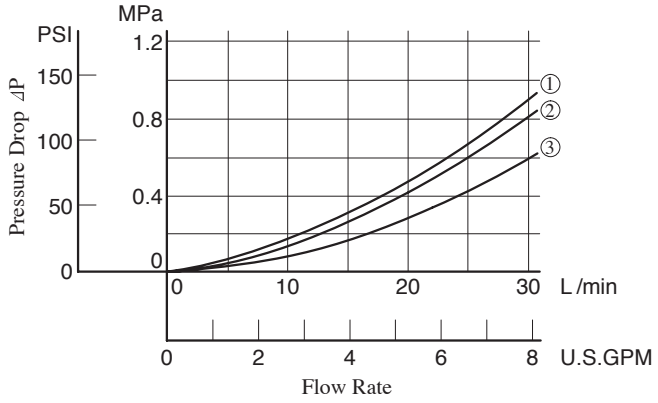


T-Line Back Pressure

Pressure Drop

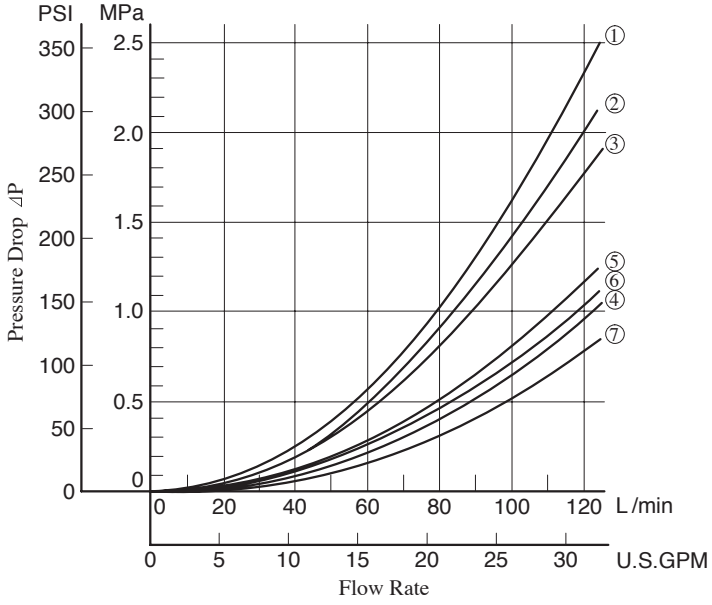
Pressure drop curves based on viscosity of 35 mm^2/s (164 SSU) and specific gravity of 0.850.

DCT DCG -01



Model Numbers	Pressure Drop Curve No.			
	P→A	B→T	P→B	A→T
DCT-01-2B2	①	①	②	①
DCT-01-2B3				
DCT-01-2B8	②	—	②	—
DCG-01-2B2	②	②	③	③
DCG-01-2B3				
DCG-01-2B8	③	—	③	—

DCT DCG -03



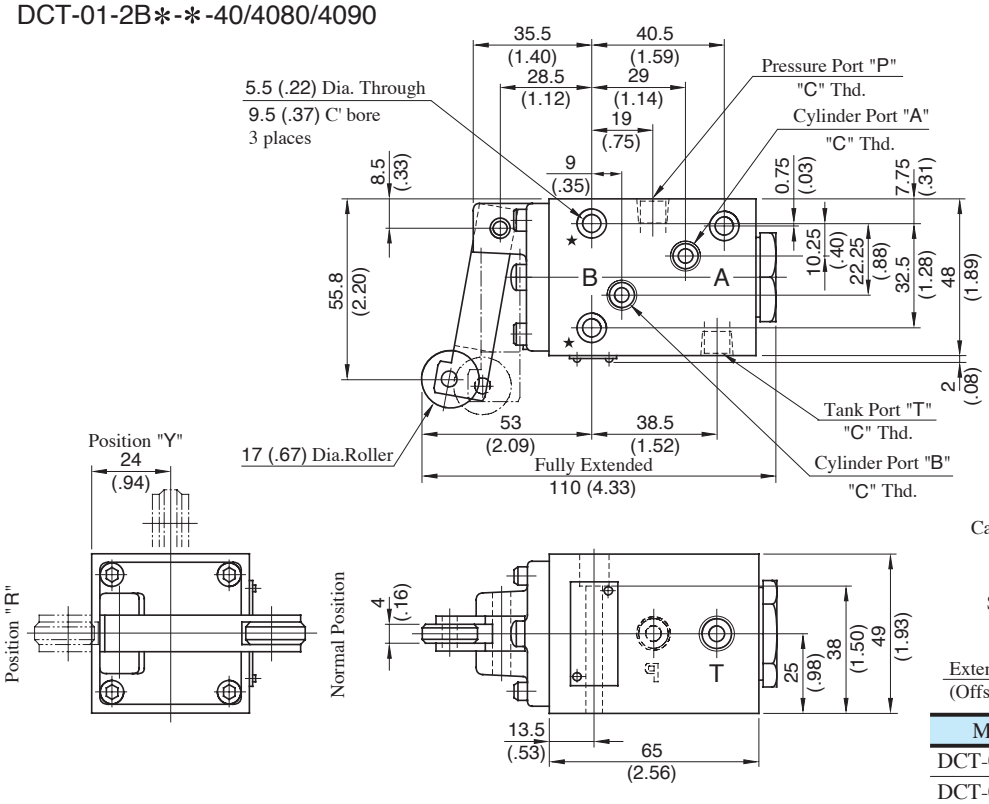
Model Numbers	Pressure Drop Curve No.			
	P→A	B→T	P→B	A→T
DCG-03-2B2	②	①	④	④
DCG-03-2B3	③	②	⑦	⑦
DCG-03-2B8	⑥	—	⑤	—

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

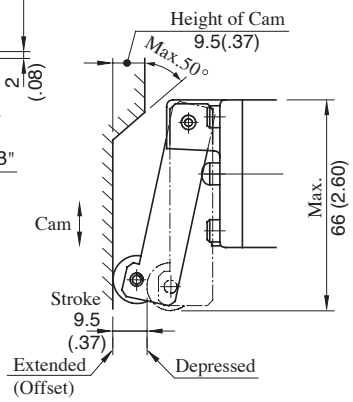
Viscosity	mm^2/s	15	20	30	40	50	60	70	80	90	100
	SSU	77	98	141	186	232	278	324	371	417	464
Factor		0.81	0.87	0.96	1.03	1.09	1.14	1.19	1.23	1.27	1.30

- For any other specific gravity (G'), the pressure drop (⊿ P') may be obtained from the formula below.
  ⊿P' = ⊿P (G'/G) where, ⊿P is a value on the above chart and G is 0.850.

DCT-01-2B∗-∗-40/4080/4090



Cam and Roller Travel

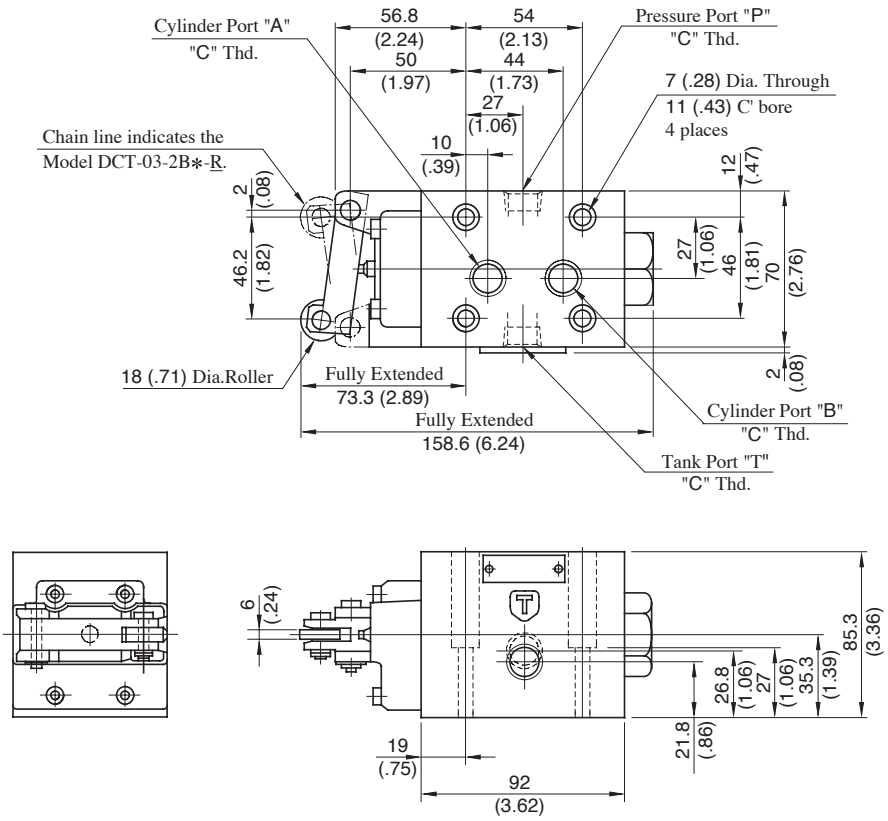


Model Numbers	"C" Thd.
DCT-01-2B∗-∗-40	Rc 1/8
DCT-01-2B∗-∗-4080	1/8 BSP.F
DCT-01-2B∗-∗-4090	1/8 NPT

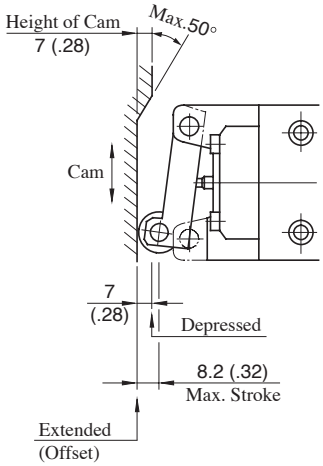
Note: When mounting the valve, be sure to use two mounting holes marked with ★.

DIMENSIONS IN MILLIMETRES (INCHES)

DCT-03-2B∗-∗-50/5080/5090



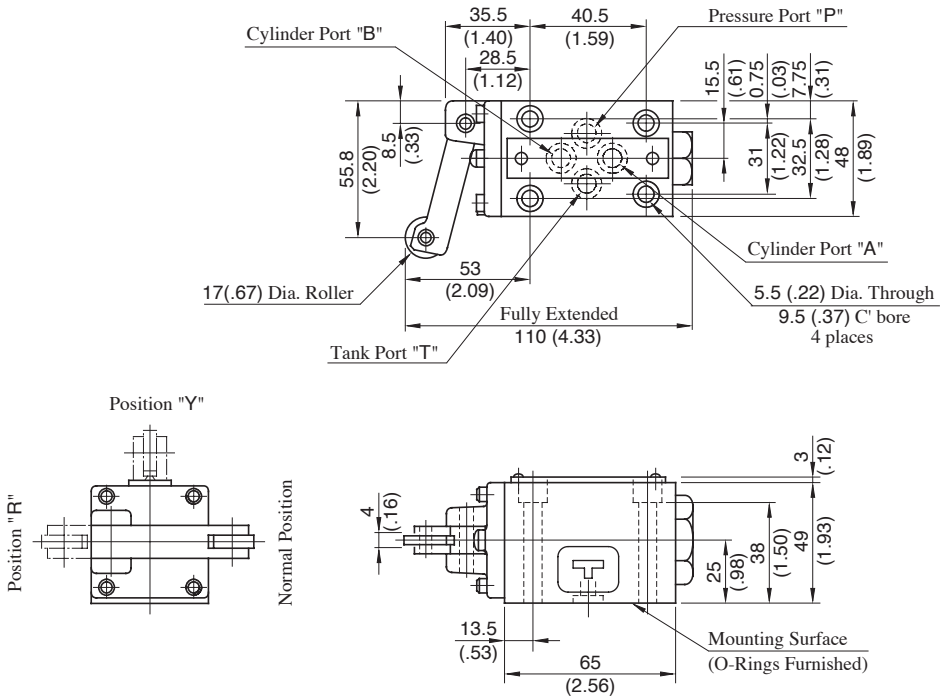
Cam and Roller Travel



Model Numbers	"C" Thd.
DCT-03-2B∗-∗-50	Rc 3/8
DCT-03-2B∗-∗-5080	3/8 BSP.F
DCT-03-2B∗-∗-5090	3/8 NPT

DCG-01-2B∗-∗-∗40/4090

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



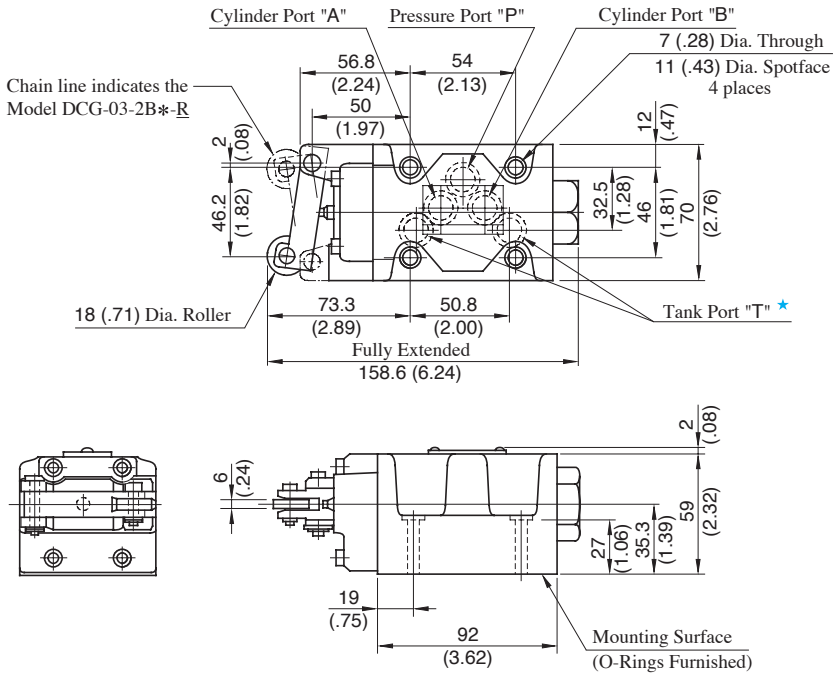
Note1: For the cam and roller travel, see DCT-01 in the previous page.

Note2: For the valve mounting surface dimensions, see the dimensional drawing of the sharable sub-plate in page 356.

DIMENSIONS IN MILLIMETRES (INCHES)

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

DCG-03-2B∗-∗-∗50/5090



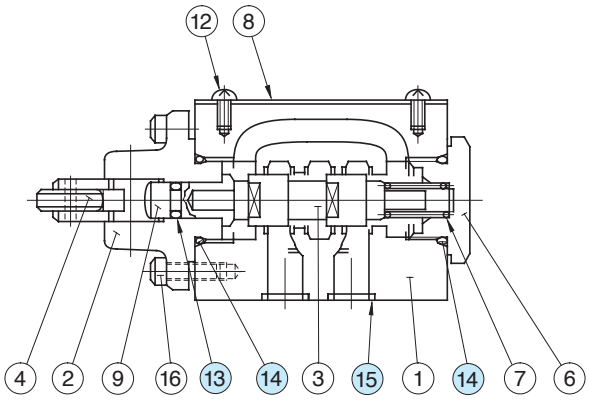
★. Although the tank port is shown on the left in our sub-plate, either may be used.

Note1: For the cam and roller travel, see DCT-03 in the previous page.

Note2: For the valve mounting surface dimensions, see the dimensional drawing of the sharable sub-plate in page 373.

List of Seals

DCT-01-2B∗-∗-40/4080/4090
DCG-01-2B∗-∗-40/4090



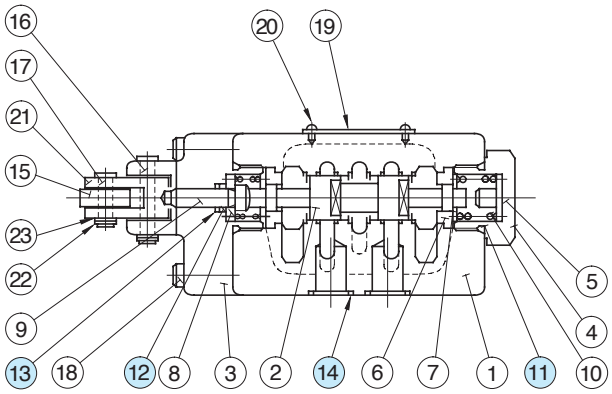
Item	Name of Parts	Part Numbers	Quantity	
			DCT-01	DCG-01
13	O-Ring	SO-NA-P5	1	1
14	O-Ring	SO-NB-P18	2	2
15	O-Ring	SO-NB-P9	0	4

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

● List of Seal Kit No.

Valve Mdel Numbers	Seal Kit Numbers
DCT-01-2B∗-∗-40/4080/4090	KS-DCT-01-40
DCG-01-2B∗-∗-40/4090	KS-DCG-01-40

DCT-03-2B∗-∗-50/5080/5090
DCG-03-2B∗-∗-50/5090



Item	Name of Parts	Part Numbers	Quantity	
			DCT-03	DCG-03
11	O-Ring	SO-NB-P21	2	2
12	O-Ring	SO-NA-P6	1	1
13	Back Up Ring	SO-BE-P6	1	1
14	O-Ring	SO-NB-A014	0	5

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

● List of Seal Kit No.

Valve Mdel Numbers	Seal Kit Numbers
DCT-03-2B∗-∗-50/5080/5090	KS-DCT-03-50
DCG-03-2B∗-∗-50/5090	KS-DCG-03-50