

Poppet Type Directional Valves

These are Solenoid Operated Directional Valves of No Leak Type developed with the aim of responding the demand of the age including energy saving. Because these valves are of no leak type they allow the low viscosity hydraulic fluids to be used as well as the circuit construction which cannot be used by the conventional spool type directional valves because of too much internal leak of pressure oil. The use of the low viscosity hydraulic fluids reduces the pressure loss which can arise from the pressure resistance of the hydraulic fluids, leading to the system energy saving.

Poppet Type Solenoid Operated Directional Valves

High Response High Reliability

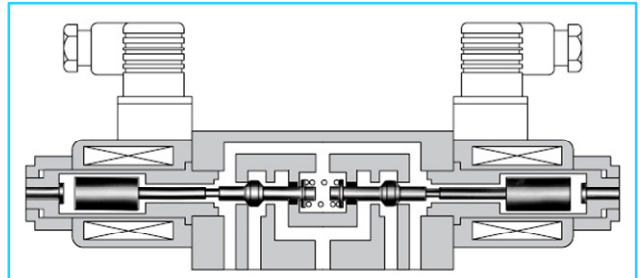
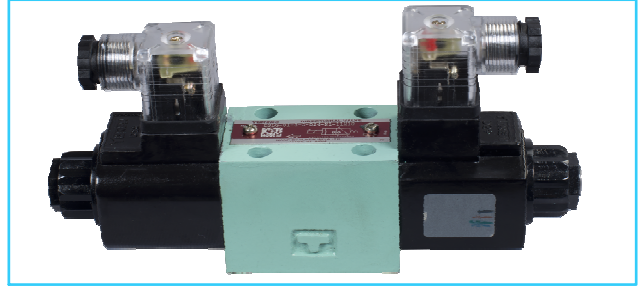
Because these valves are of poppet type, there is no overlap, high response can be achieved. At the same time, hydraulic lock is eliminated.

No Leak

Sheet type seal has been adopted and internal leak is greatly reduced.

ISO Comformant Mounting Surface

Because the mounting surface conforms to ISO 4401-AB-03-4-A, there is an interchangeability with the conventional valves. This makes it possible to use these valves in combination with 01 Series Modular Valves.



Specifications

Model Numbers	Max. Flow L/min	Max. Operating Pressure Kg/cm ²	Max. T-line Back Pressure Kg/cm ²	Max. Changeover Frequency Cycles/min	Mass Kg	Graphic Symbols
DSLГ-01-3-C-※-N1-11H10	16	315	160	240	1.9	
DSLГ-01-3-O-※- N1-11H10						
DSLГ-01-4-O-※- N1-11H10					3.7	

Solenoid Ratings

Electric Source	Coil Type	Frequency Hz	Voltage V		Current & Power at Rated Voltage	
			Source Rating	Serviceable	Holding A	Power W
DC (K Series)	D12	--	12	10.8 – 13.2	2.2	26
	D24	--	24	21.6 – 26.4	1.1	
AC→DC Rectified	R100	50/60	100	90 – 110	0.3	26
	R200	50/60	200	180 - 220	0.15	

Model Number Designation

F-	DSL	-01	-4	-O	-D24	-N	-11H10
Special Seals	Series Number	Valve Size	Number Of Port	Function	Coil Type	Type of Electrical Conduit connection	Design Number
F: Special seals For phosphate Ester type fluid (Omit if not required)	DSL Poppet Type Solenoid Operated Directional Valve (Sub-Plate Mtg.)	01	3 : 3 Port	O: Normally Open C: Normally Closed	DC D12, D24 AC→DC R100, R200	N: Plug-in connector without indicator light N1: Plug-in connector with indicator light	11H10
			4 : 4 Port	O: Normally Open			

Sub-plates

Piping Size	Sub-plate Model Numbers	Thread Size	Approx. Mass Kg.
1/8	DSGM-01-3080	1/8 BSP.F	0.8
1/4	DSGM-01X-3080	1/4 BSP.F	0.8

Sub-plates are available. Specify sub-plate model from the table above.

When sub-plates are not used, the mounting surface should have a good machined finish.

These sub-plates are sharable with those for DSG-01 Series Solenoid Operated Directional Valve. For Dimensions see EIC-E-1001, Page-358.

Mounting Bolts

Valve Model Number	Soc. Hd. Cap Screw	Qty.	Mounting Bolt Ordering Code
DSL-01	M5 x 45 Lg.	4	BKDSG-01-50

Four socket head cap screws in the table are included.

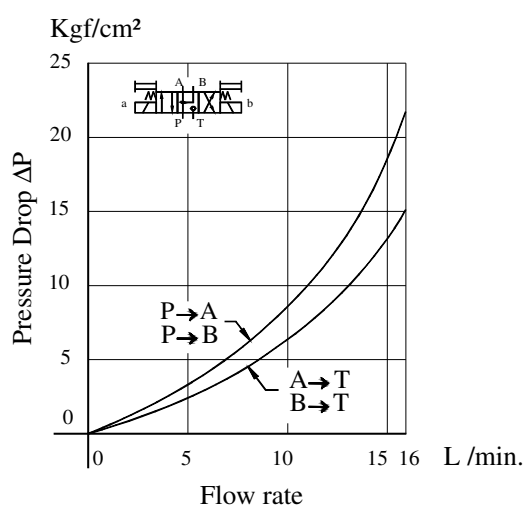
Pressure Drop

The following characteristics are based on the following conditions:

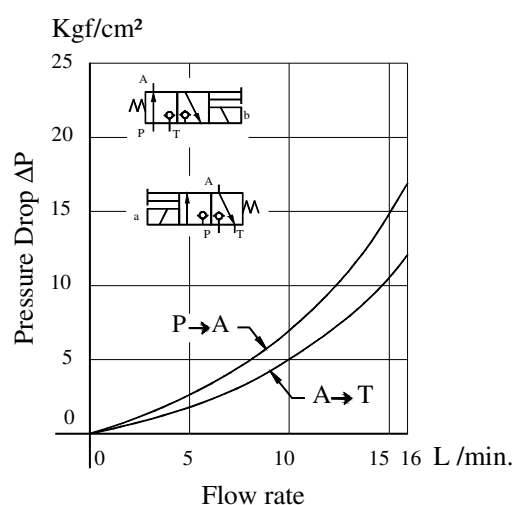
Viscosity : 35 cSt (160 SSU)

Specific Gravity : 0.850

4 Port Valve



3 Port Valve



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

Viscosity	cSt	15	20	30	40	50	60	70	80	90	100
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 ($\Delta P'$) may be obtained from the formula below.

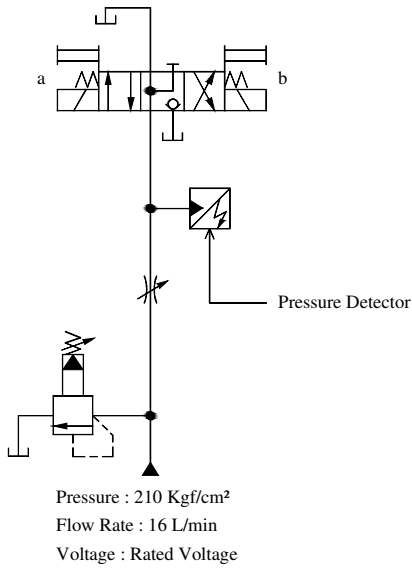
$$\Delta P' = \Delta P (G' / 0.850)$$

Poppet Type Solenoid Operated Directional Valves

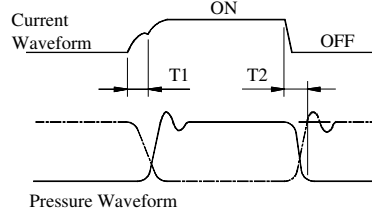
Changeover Time

Changeover time varies according to hydraulic circuit of the model actually used and conditions.
An example of measurement is given in the figure below.

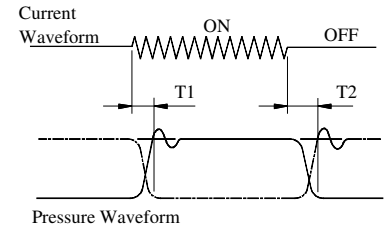
Test Circuit and Conditions



Result of Measurement (DC Solenoid)



(AC → DC Rectified)



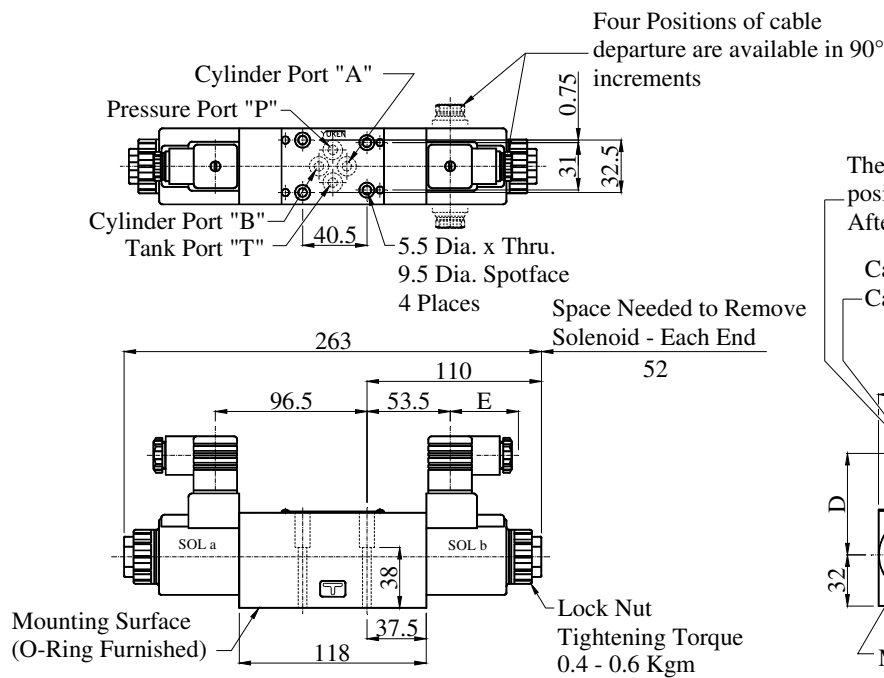
Note: Alternate long and short dash lines in the pressure waveform figure indicate the waveforms for Normally Closed Type 3 Port Valves.

Solenoid Type	Model Numbers	Time ms		Remarks
		T1	T2	
DC	DSL-G-01-4-O-D※	55	30	4 port valve, normally open
	DSL-G-01-3-O-D※	55	30	3 port valve, normally open
	DSL-G-01-3-C-D※	70	25	3 port valve, normally closed
AC→DC Rectified	DSL-G-01-4-O-D※	55	150	4 port valve, normally open
	DSL-G-01-3-O-D※	55	150	3 port valve, normally open
	DSL-G-01-3-C-D※	70	150	3 port valve, normally closed

4 Port Valve

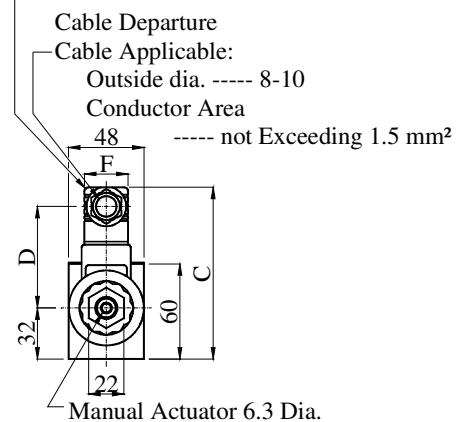
Normally Open: DSL-G-01-4-O-※-N1-11H10

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



DIMENSIONS IN
MILLIMETRES

The connector can be moved to various positions by loosening the "Lock Nut". After location tighten "Lock Nut".



Model Numbers	Dimensions mm			
	C	D	E	F
DSL-G-01-4-O-D-※-N1-	108	65	39	27.5
DSL-G-01-4-O-R-※-N1-	111	57.2	51	34

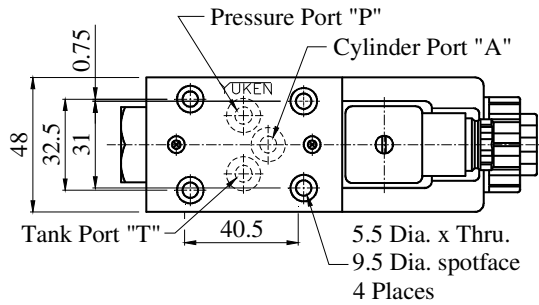
- The information on 3 Port Valves is provided in the following Page
- For the information on the valve mounting dimensions, see the dimensional drawing of the shared sub-plate (DSGM-01※), on EIC-E-1001 page 358.

3 Port Valves

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

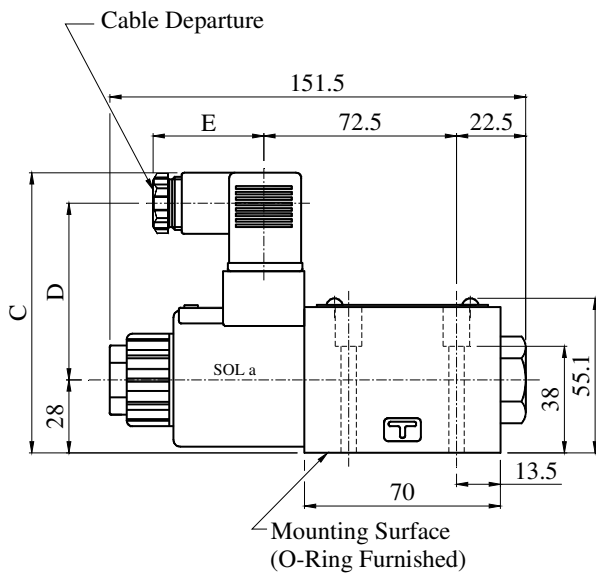
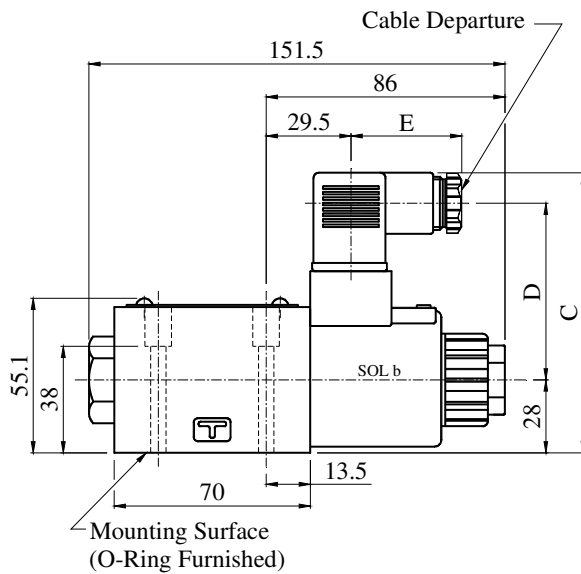
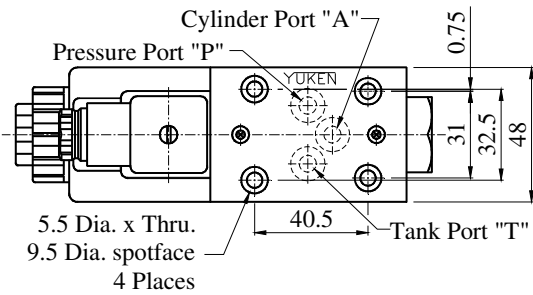
Normally Open Type:

DSLGL-01-3-O-※-N1-11H10



Normally Closed Type:

DSLGL-01-3-C-※-N1-11H10



Model Numbers	Dimensions mm		
	C	D	E
DSLGL-01-3-O-D-※-N1-	104	64	39
DSLGL-01-3-O-R-※-N1-	107	57.2	53

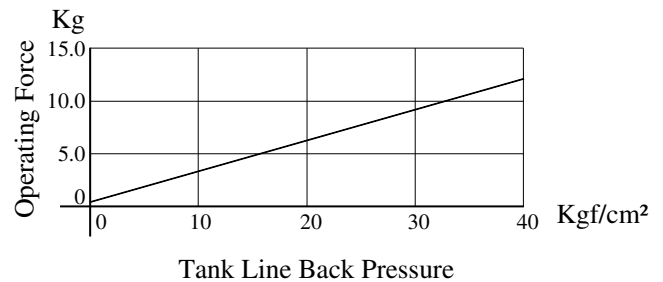
Cable departure position can be changed. See "4 Port valve" in the previous page for the details.

**DIMENSIONS IN
MILLIMETRES**

Instructions

- Mounting**
No mounting restrictions for any models.
- Solenoid Shifting**
On double solenoid valve do not energise both at the same time.
- Valve Tank Port**
Avoid connection the valve tank port to a line with possible surge pressure.
- Operating Force by Manual Actuator**
Take care as the operating force by the manual actuator increases in proportion to the tank line back pressure. (See the graph right.)

Operating Force by Manual Actuator



■ Solenoid Assy., Coil, Connector Assy. Number

Valve Model Numbers	Solenoid Assy. Numbers	Coil Numbers	Connector Assy. Part Numbers
DSLGL-01-※-※-D12-N-11※	SDIL-12-N-20	C-SD1-12-N-60	GDM-211-A-11
DSLGL-01-※-※-D24-N-11※	SDIL-24-N-20	C-SD1-24-N-60	
DSLGL-01-※-※-R100-N-11※	SDIL-100-N-20	C-SR1-100-N-60	GDME-211-R-B-10
DSLGL-01-※-※-R200-N-11※	SDIL-200-N-20	C-SR1-200-N-60	

■ Spare Parts List

● List of Seals

Sl. No.	Name of Part	Part Number	Qty.	
			4 Port Valve	3 Port Valve
1	O-ring	SO-NB-P18	—	1
2	O-ring	SO-NB-P14	2	1
3	O-ring	SO-NB-P12	2	1
4	O-ring	SO-NB-P11	2	1
5	O-ring	SO-NB-P9	4	3
6	O-ring	SO-NA-P5	2	1
7	Back-Up Ring	2705-VK414322-8	2	1
8	O-ring	SO-NB-P18	2*	1*

* O-Ring of sl. no. "8" is included in solenoid assembly

Note: When ordering the seals, please specify the seal kit number as shown above.

● List of Seal kits

Valve Model Numbers	Seal Kit Numbers
DSLGL-01-3-O-※-N-11※	KS-DSLGL-01-3-N-11
DSLGL-01-3-C-※-N-11※	
DSLGL-01-4-O-※-N-11※	KS-DSLGL-01-4-N-11