

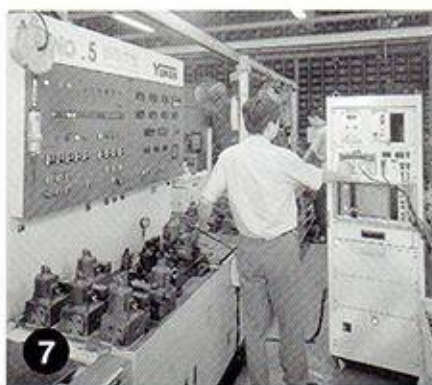
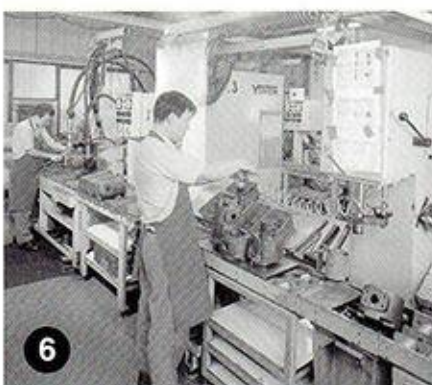


HYDRAULIC EQUIPMENT

D

DIRECTIONAL CONTROL VALVES





1. Front View of the Main Factory

2. Front View of 2nd Factory

3. Power Unit Assembly Line

4. Horizontal Machining Centers

5. Processing Production Line (2nd Factory)

6. Vane Pumps Test Bench

7. Proportional Electro-Hydraulic Controls Test Bench

8. Solenoid Valves Assembly Line

Brief Introduction

The main factory of Yuken Hydraulics (T.W.) Co., Ltd., is located at No. 12 7th Rd., Taichung Industrial Park, Taichung, Taiwan. the area is 9,543 m². 2nd factory is located at No. 6, 7th Rd, the area is 5,623 m².

"To improve Technology, to improve Quality, to strengthen Service, and to satisfy Customers" are our consistent quality promises. In order to keep our promises, we have a strong focus on the promotion of automation and computerization covering sales, design, operations, production management and even quality control, to ensure quality of our products and services. All our employees pursue the organization's Goal - "To work hard, to ameliorate, and to grow perpetually."

As the domestic market was getting saturated gradually, we started exploring overseas market since July, 1996. The achievement has been remarkable. Our market is not only in Asia but also North America, Europe, Middle East and Africa.

- March, 1997, Yuken Hydraulics (T.W.) Co., Ltd., was awarded ISO-9002 certificate and built up international-level quality system.
- January, 1998, We open our second factory located at No.6 7th Rd., Taichung Industrial Park, Taichung, Taiwan, area is 5,623 m².
- February, 2002, Yuken Hydraulics (T.W.) Co., Ltd., was awarded CSA-C/US certificate, to strengthen our competition in North American market.
- May, 2002, Yuken Hydraulics (T.W.) Co., Ltd., was awarded ISO-9001 certificate and scaled new heights of quality system.
- October, 2002, Organization simplified, management institutionalized.
- June, 2003, Production line readjusted, equipment reinforced, production rationalized, striding into a new milestone.
- April, 2005, Proportional Valve was awarded CE certificate.
- November, 2005, Solenoid Valve was awarded CE certificate.
- November, 2008, Solenoid Valves with monitoring switches were patented in Taiwan.
- March, 2009, Solenoid Valves with monitoring switches were patented in China.
- June, 2010, Solenoid Valves with monitoring switches were awarded CE certificate.
- December, 2011, 2nd factory's expansion is finished.

Yuken Hydraulics (T.W.) Co., Ltd. has been leading the Industry here in Taiwan. We will increase technical cooperation with our parent company, Yuken Kogyo Co., Ltd. in the future. We will build an efficient and comprehensive sales network both in domestic and overseas market. Concurrently, we will train our talented people extensively to upgrade quality continuously. All our efforts are to achieve our goal - to grow perpetually!

- Name : **Yuken Hydraulics (T.W.) Co., Ltd.**
- Main Factory : No. 12, 7th Road, Taichung Industrial Park, Taichung, Taiwan.
Tel: 886-4-2359-3077 (Rep.)
Fax: 886-4-2359-2500
Website: <http://www.yuken.com.tw>
- Taichung Office: No. 12, 7th Road, Taichung Industrial Park, Taichung, Taiwan.
(Sales Dept) Tel: 886-4-2359-3077 (Rep.)
Fax: 886-4-2359-8813
- Taipei Office : No. 18-1, Wun Hua 5th Road, Guei Shan Township, Taoyuan County, Taiwan.
(Sales Dept) Tel: 886-3-328-3628 (Rep.)
Fax: 886-3-328-3242
- Established : 1, May, 1969
- Paid in Capital : NTS 90,000,000 (as of January, 2004)
- Line of Business : • Manufacture & sales of Hydraulic Pumps, Pressure Control Valves, Flow Control Valves, Directional Control Valves, Modular Valves, Proportional Electro-Hydraulic Control Valves, Electro-Hydraulic Servo Valves, Power Unit, Hydraulic Cylinders, Hydraulic Motors & Associated Products.
• Design, manufacture & installation of Hydraulic systems.
- Licensor : **YUKEN KOGYO CO., LTD.**

Group of Components



Hydraulic Pumps

Pressure Control Valves

Flow Control Valves

Directional Control Valves

Check Valves

Proportional Electro-Hydraulic Control

A Hydraulic Pump

1 MPa = 10.2 kgf/cm²

Pump Type	Max. Pressure MPa	Nominal Displacement cm ³ /rev										Page
		1	2	5	10	20	50	100	200	500		
ARL1 Series Variable Piston Pumps	7				ARL1						9	
AML1 Series Motor-Pumps	7				AML1						12	
ML1 Series Electric Motors	-	ML1 (0.75 / 1.5 / 2.2 kw)										15
AR Series Variable Piston Pumps	16				AR16	AR22					16	
50T 150T Single Pumps	7					50T		150T			20	
PV2R S-PV2R Series Single Pumps	21 (17.5/16/14)					PV2R1	PV2R2 S-PV2R2	PV2R3 S-PV2R3	PV2R4 S-PV2R4		24	
PV2R S-PV2R Series Double Pumps	21 (17.5/16/14)					PV2R1	PV2R2 S-PV2R2	PV2R3 S-PV2R3	Small Volume Pumps		38	
							PV2R2 S-PV2R2	PV2R3 S-PV2R3	PV2R4 S-PV2R4	Large Volume Pumps		
A ₁₆ SR3, A ₂₂ SR4 Series Piston & Vane Pumps	21 (17.5/16/14)				A16	A22	Piston Pump				48	
								PV2R3 S-PV2R3	PV2R4 S-PV2R4	Vane Pump		
SVPF Series Variable Vane Pump	7				SVPF-12	20	30	40			51	
SVPDF Series Double Variable Vane Pump	7					SVPDF-30	40				52	
SVPDF-30 40 50 60 70 80 90 100 120 150 200 250 300 400 500												

B Pressure Control Valves

Valve Type	Max. Pressure MPa	Max. Flow L/min										Page
		1	2	5	10	20	50	100	200	500	1000	
Remote Control Relief Valves	25	DT-01 DG										53
Direct Type Relief Valves	21			DT-02 DG								53
Pilot Operated Relief Valves	25					BT-03 BG		06	10			53
Low Noise Type Pilot Operated Relief Valves	25					S-BG-03		06				53
Solenoid Controlled Relief Valves	25					BST-03 BSG		06	10			57
Low Noise Type Solenoid Controlled Relief Valves	25					S-BSG-03		06				57
H & HC Type Pressure Control Valves	21					HT/HCT HG/HCG		06	10			61
Pressure Reducing (and Check) Valves	21					RT/RCT RG/RCG		06	10			67
Unloading Relief Valves	21					BUCG-06						72
Balancing Valves	14					RBG-03						73

C Flow Control Valves

Valve Type	Max. Pressure MPa	Max. Flow L/min										Page
		1	2	5	10	20	50	100	200	500	1000	
Flow Control (and Check) Valves	21					FG FCG	03	06 *	10 *			74
(One Way) Restrictors	21					SRCT SRG/SRCG	03	SRCT SRG/SRCG	06	SRCT SRG	10	77
Throttle (and Check) Modules	25					TC1G TC2G						80
Needle Valves	35					GCT GTCR	02					81

D Directional Control Valves 1 MPa = 10.2 kgf/cm²

Valve Type	Max. Pressure MPa	Max. Flow L/min												Page
		1	2	5	10	20	50	100	200	500	1000	2000	8000	
Solenoid Operated Directional Valves	7	DSGL-01												84
Solenoid Operated Directional Valves	31.5	DSG-01 03												86
Solenoid Valves with Monitoring Switch-DSGS	31.5	DSGS-01 03												92
Solenoid Controlled Pilot Operated Directional Valves	31.5	DSHG-04 06 10												94
Solenoid Valves with Monitoring Switch-DSHGN	25	DSHGN-03 04 06												99
Pilot Operated Directional Valves	31.5	DHG-04 06 10												104
Manually Operated Directional Valves	25 (21)	DMT-03 DMG												107
Mechanically Operated Directional Valves	21 (25)	DCT-01 03 DCG												109
Mechanically Operated Directional Valves with Monitoring Switch-DCGS	21 (25)	DCTS-01 03 DCGS												112
Logic Valves with Monitoring Switch-LDLS	30	LDLS-16 25 32 40 50												115
Check Valves	21	CIT-03 06 10												119
		CRT-03 06 10 CRG												
Pilot Controlled Check Valves	25	CPT/CPG 06 10 CPDT/CPDG												121
Poppet Type Directional Valves	21	LVT-03 LVG												123
Prefill Valves	25	PF-80 90 100 125 150 PF-200 (PF-300)												124

E Proportional Electro-Hydraulic Controls

Valve Type	Max. Pressure MPa	Max. Flow L/min												Page
		1	2	5	10	20	50	100	200	500	1000			
Proportional Electro-Hydraulic Pilot Relief Valves	25	EDG-01												131
Proportional Relief Valves	25			EBG-03						06	10 *	* Yuken Kogyo Models	133	
Power Saving Valves	25			EFBG-03						06	10		135	
Power Saving Valves 10Ω~10Ω	25			EFBG-03										141
Power Saving Valves High Performance	25			ELFBG ELFBCG-03						06			143	
Proportional Electro-Hydraulic Directional and Flow Control Valves	25			EDFG-01				EDFHG-03		04	06		149	
Power Amplifiers	-	AME-D2-H1 (Yuken Kogyo Models)		AMN-D-20T		AMN-D-L-20T		SK1115-※-30T		AMN-W-10T		156		

F Other Valves

Valve Type	Max. Pressure MPa	Max. Flow L/min															Page
		1	2	5	10	20	50	100	200	500							
Lift Valves	21	LVST-03															165
Air Bleed Valves	21				AVT-03-05			AVT-03-20								166	
Automatic Shut Off Valves	21	DAS-03-20															166

G Modular Base Plates

Series Number	Max. Pressure MPa	Max. Flow L/min				Page
		0	20	40	60	
Base Plates	31.5	MMC-01				167

* As for the products other than those listed in this catalogue, please consult with our engineers for your requirement.

General Information

Design Standard

The distinctive features of Yuken Standard products is as shown below.

Feature	Domestic Standard	Remarks
Port Tapping	Rc(=PT)	Taper Pipe Thread (ISO 7/1)
Port Tapping (Partial)	G(=PF)	Straight Pipe Thread (ISO 228/1)
Pressure Gauge Tapping	Rc(=PT)	Taper Pipe Thread (ISO 7/1)
Mounting Bolts	Metric	General Purpose Thread (ISO 261)
Mounting Dimensions	Metric	
Conduit Entry	G(=PF)	Straight Pipe Thread (ISO 228/1)
Solenoid Voltages AC/DC	Domestic voltage	Voltage and frequency change according to country
Frequency	50/60 Hz	
Electronic Amplifier Input Supply	Domestic voltage 50/60 Hz	
Graphic Symbol	ISO Standard	ISO 1219
Valve Port Size	Inch	

Design Number

Yuken products have factory applied Design numbers, the key to which is as follows.

Example: 4222T68

42 22 T68

Major Design No. _____ Design No. for modified products in Taiwan
Minor Design No. _____ Omitted: Domestic standard

Design numbers are subject to change. But installation dimensions and specifications remain unchanged for variation in second digit of design numbers (Minor Design No.).

Hydraulic Fluids

Type of hydraulic fluids

- Petroleum base oil-Please use anti-wear type hydraulic oil or R & O (Rust and Oxidation inhibitor) type hydraulic oil equivalent to ISO VG 32 or 46. Do not use VG 68 hydraulic oils in winter; it will cause suction failure or cavitation.
- Fire resistant or other special fluids-Please consult with our sales engineers for your requirement.

Fluid viscosity and temperature range

Please use hydraulic fluids in a range which satisfies the conditions of both viscosity and temperature (specified in table.)

Type of Components	Viscosity Range	Temperature Range
Hydraulic Pumps	20 ~ 400 mm ² /s ★ 1	0 ~ 70°
Pressure Control Valves	15 ~ 400 mm ² /s ★ 2	-15 ~ +70°
Flow Control Valves	FG, FCG : 20 ~ 200 mm ² /s Other : 15 ~ 400 mm ² /s	
Directional Control Valves	15 ~ 400 mm ² /s	
Proportional Electro-Hydraulic Control Valves	EBG : 15 ~ 400 mm ² /s EFBG : 20 ~ 200 mm ² /s	

- ★ 1. When starting the pumps at low speed, maximum viscosity is restricted. (see table above right).
★ 2. If the valve is provided with a vent restrictor (ex.: A-BSG-03), the viscosity range should be 15-200 mm²/s.

Control of contamination

Contamination of the hydraulic fluids may cause any damage to the products or shorten the life of the products, therefore, please maintain the degree of contamination level lower than NAS Class Numbers as shown on the table 1 below

① The suction port line must have a reservoir type filter of 100 μm (150 mesh) and the filter should be installed minimum 50 mm higher than the bottom of the reservoir.

② The return line must have a line filter.

Line type filter ratings

Type of Components	Line Type Filter
Pump's Suction Port	100μm
Circuit System	Piston Pumps: below 10μm E series components: below 20μm Other components: below 25μm

Limit of contamination

Type of Components	NAS Class No.
Piston Pumps	10 or less
E series components	11 or less
Other components	12 or less

General Information

■ Limitation of general properties of fluids

● Limit of fluid purity

Characteristics ¹	Value changed
Specific gravity (15/4°C)	0.05
Colour	2
Flash point (°C) COC	60
Total acid number (mg KOH/g)	0.2
Viscosity (cSt)	10 ~ 15

■ High-pressure specialized hydraulic fluid

Manufacture	Brand
Mobil	Mobil DTE 25
Shell	Shell Tellus Oil 46
China Oil	Aw46, LPS 46

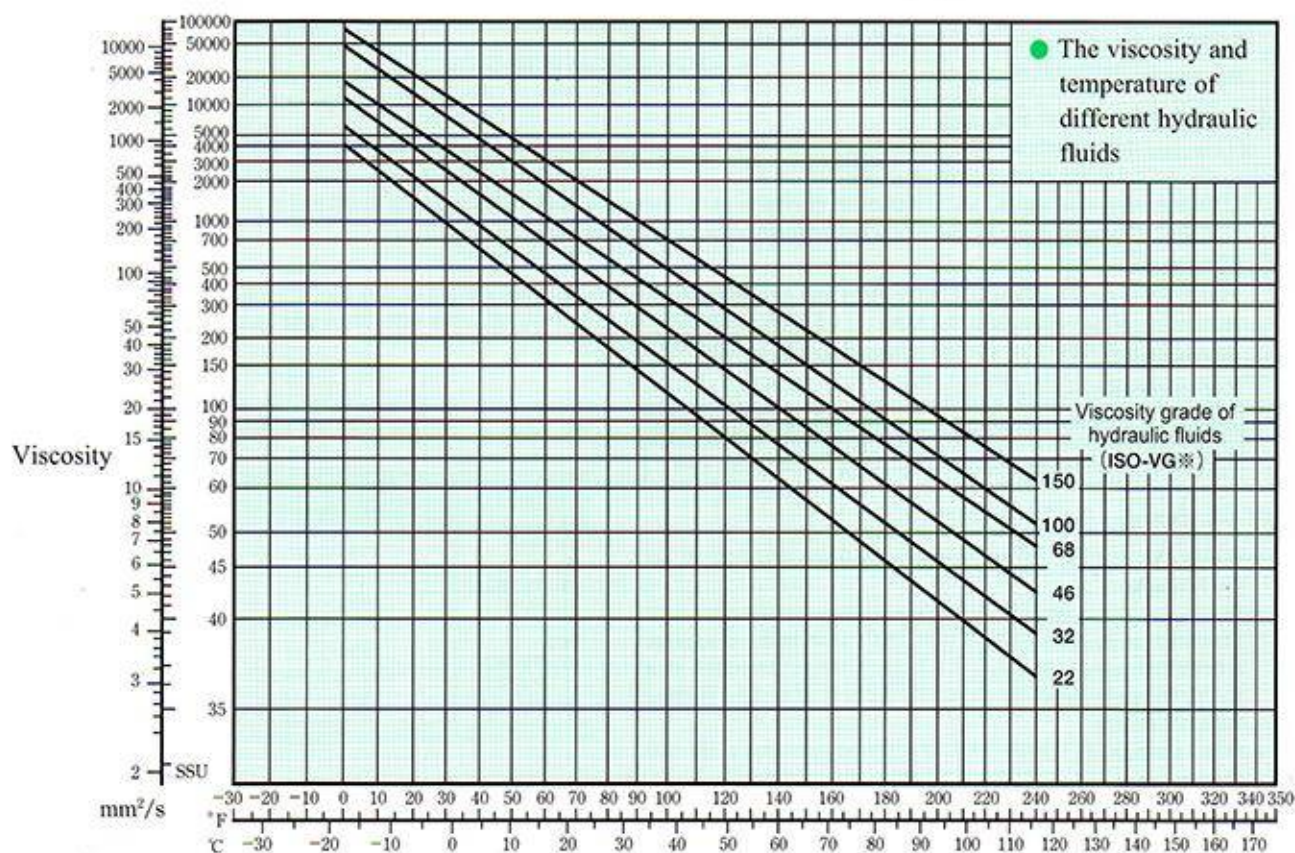
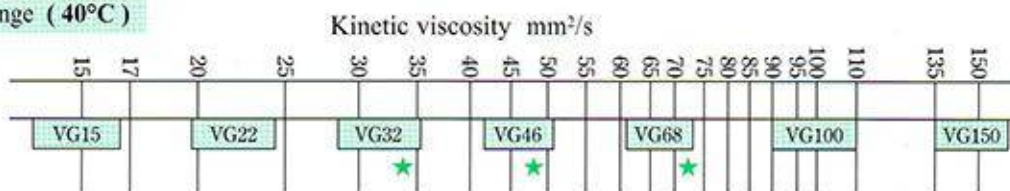
● Limit of water content

Applicable conditions	Limit
Fluid becomes milky with water contained.	To be replaced immediately.
Systems in which operating fluid circulates and returns to reservoir and which are not to be stopped for a long period of time.	1000ppm
System with long piping lines in which operating fluid in circuits does not completely circulate.	500ppm
Systems to be stopped for a long period of time (Safety systems) or systems in which operating fluid in circuits moves little, and precision control systems.	300ppm

■ Viscosity of hydraulic fluids

Viscosity range (40°C)

● ISO
Viscosity
grade
(ISO VG)



General Information

Instructions for hydraulic pump

1. Mounting

When installing piston pumps the filling port should be positioned upwards. When (S)-PV2R Single and Double Vane Pumps are operated below 1200 r/min; we recommend the suction port upwards to suck oil easily.

2. Alignment of Shaft

Employ a flexible coupling whenever possible, and avoid any stress from bending or thrust. Maximum permissible misalignment is less than 0.1 mm. TIR (Total Indicator Reading) and maximum permissible misangular is less than 0.2°.

3. Suction Pressure

★ 1 kPa = 0.01 kgf/cm² = 7.5 mmHg

Model		Suction Pressure Range		
		Min		Max.
		Petroleum base oils	Water containing phosphate esters	
Piston Pumps	ARL1 AR※	-16.7 kPa	—	+50 kPa
Single Pumps	50T 150T	-20 kPa	-16 kPa	+140 kPa
PV2R Single Vane Pumps	(S)-PV2R1 (S)-PV2R2 (S)-PV2R3 (S)-PV2R4	-20 kPa	-16 kPa	+30 kPa
PV2R Double Vane Pumps	(S)-PV2R12 (S)-PV2R13 (S)-PV2R23 (S)-PV2R24 (S)-PV2R34	-20 kPa		
		-20 kPa		
		-20 kPa ★		

- Make sure that the height of the pump suction port is within 1m from the oil level in the reservoir.
- Please follow the instructions of catalogue to choose suitable caliber of suction port pipes; otherwise, it might lead to dangerous cavitation. We suggest the suction port flow rate under 1 m/s.

★ For some displacement of pumps, the Min. suction pressure is restricted by the rotation speed. Please refer to Table 1.

● Table 1: The limitation of Min. suction pressure for specific displacement of hydraulic pumps.

The following hydraulic pumps with rotation speed 1700 r/min are restricted by the Min. suction pressure. (Min. suction pressure of other hydraulic pumps is -150 mmHg)

Model No.	Min. Suction Pressure kPa	
	1700 r/min Below	1700-1800 r/min
(S)-PV2R3-116	-20	0
(S)-PV2R4-237	-20	-13.3
(S)-PV2R※3-※-76	-20	-6.7
(S)-PV2R※3-※-94	-20	-6.7
(S)-PV2R※3-※-116	-20	0
(S)-PV2R※4-※-237	-20	-13.3
(S)-PV2R34-76-※	-20	-6.7
(S)-PV2R34-94-※	-20	-6.7
(S)-PV2R34-116-※	-20	0
(S)-PV2R34-116-237	-20	0

4. Instructions of Piping

- ① In case the pump is installed above the oil level, the suction piping and suction line filter should be located lower than the pump position to prevent air in the suction line.
- ② When using steel pipes for the suction or discharge ports, excessive load from the piping to the pump generates excessive noise. Whenever there is fear of excessive load, please use rubber hoses.

5. Drain Piping

Install drain piping according to the chart and ensure that pressure within the pump housing should be maintained at a normal pressure of less than 0.1 MPa (14.5 PSI) and surge pressure of less than 0.5 MPa (72.5 PSI). Length of piping should be less than 1 m, and the pipe end should be submerged in oil.

Recommended Drain Piping Size:

Model	Piping Fitting Size	Internal Dia. of Pipe
ARL1, AR※	3/8 (Internal Dia. more than Ø8.5)	more than Ø10

6. Hydraulic Pumps Starting

- Before first starting, fill pump case with clean operating oil via the filling port.
- In order to avoid air blockage when starting pumps after long time shut down, to set up air bleeding valve on the discharge sides in advance or to loose discharge piping connection area for bleeding the air in the pipes. To the best of pumps' starting with no loading.
- When temperature is under 15°C in winter or viscosity is 200~400 mm²/s (1000SSU~1800SSU), please refer to the following instructions to start pumps in order to make better internal lubrication, and it will help the suction of the pump and extend the pump's life.
- Starting instructions: to start running pumps for 5 seconds, and then stop it for 10 seconds. To repeat this process 10 times, and then keep it running.

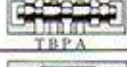
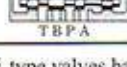
● Table 2: Max. viscosity list of starting at low rotation speed

Model	Rotation speed of starting r/min	Max. viscosity mm ² /s
PV2R1 (S)-PV2R12 (S)-PV2R13 (S)-PV2R14	750	100
	950	200
50T (S)-PV2R2 (S)-PV2R23 (S)-PV2R24	600	100
	950	200

Directional Control Valves

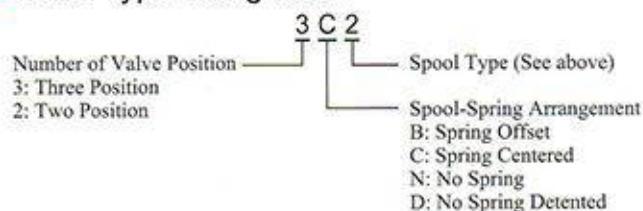
Directional Control Valves are designed to start, stop, control direction, accelerate and decelerate cylinders and hydraulic motors. Directional valves are classified into following five types depending on the operational method: Solenoid Operated Directional Valves, Solenoid Controlled Pilot Operated Directional Valves, Pilot Operated Directional Valves, Manually Operated Directional Valves, and Mechanically Operated Directional Valves.

Types of Spool

Spool No.	Schematic Drawing (Center position)	Functions	Graphic Symbols			
			Three Positions 3※※	Two Positions		
				2B※/2D※/2N※*	2B※A	2B※B
2		Closed Center all Ports				
3		Open Center all Ports				
4		Open Center A. B. & T				
40		Open Center A. B. & T Restricted Flow				
5		Open Center P. A. & T				
60		Open Center P & T Open Crossover				
7		Open Center all Ports Restricted Flow				
8		Two Way				
9		Open Center P. A. & B				
10		Open Center B. & T				
11		Open Center P. & A				
12		Open Center A. & T				

* These 2※※ type valves have no center position.

Valve Type Designation



Solenoid Operated Directional Valves Solenoid Controlled Pilot Operated Directional Valves

These valves have the following features and satisfy the needs of users in the various industries.

■ DC Solenoid (K series) Solenoid Operated Directional Valve

★ These valves differ from conventional DC solenoid operated directional valves and have the following characteristics. ★

1. The surge voltage is very low and will not jam the other electronic systems; therefore, it will not make wrong action to the computers.
2. The spark between the relay contacts has been eliminated and therefore the valve can be operated by miniature relays.
3. Time lag on de-energization is reduced approximately 50%.

Simple and Rational Structure

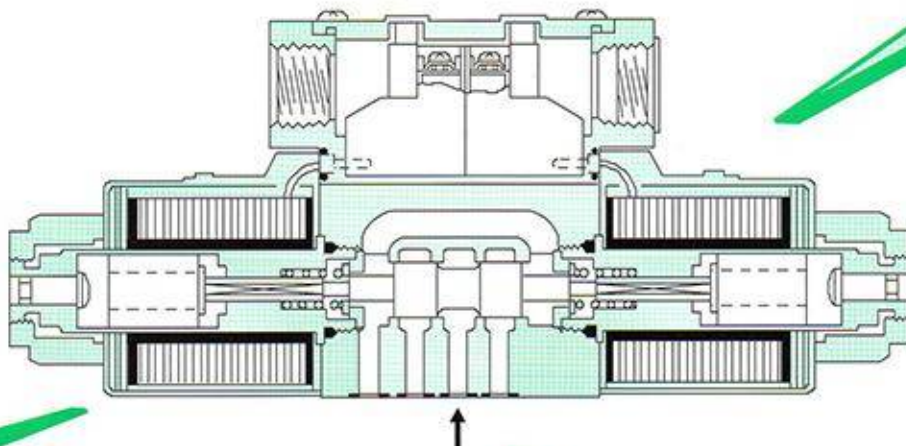
- The terminal-box type is available for electric connection.
- The terminal-box type is equipped with indicator lights as a standard.
- A drip-proof structure is employed to protect the electric devices.
- Simple dismantling and assembling makes maintenance easy.

■ R type solenoid

Remarkably high reliability and long life and other advantages including quiet valve operation. No overheating of coil due to the spool sticking and protection against transient voltage peaks are assured.

Solenoid development is based on learned experiences

- AC Solenoid
Common two terminals for both 50Hz and 60 Hz. For the AC solenoid, rewiring is not required when applied frequency is changed.
- The DC solenoid is the famous "K" series. Advantages of DC control can be fully displayed.
- AC-DC convertible solenoid
This solenoid has high reliability and durability, with no coil burnout.
- Various solenoids available for different voltage.
- Winding and insulation of the solenoids are class H of IEC (Classification of Materials for insulation of Electrical Machinery and Apparatus)



Design Reaching the Ultimate of Wet-Type Solenoid

- Stable operation
Stable operation can be obtained, since these solenoids are resistant to contaminants, with high absorbing power and a strong spring returned force.
- Mould-Type coil
With the mould-type coil, it is excellent in heat radiation so that temperature rise on the solenoid surface can be reduced.
- Lower power consumption
in spite of high absorbing power, power consumption is low.

High Pressure and High Flow Rate Realized by High Technology

High pressure, high flow rate, and small pressure drop are produced by high-power wet type solenoids that are newly developed and the rational passage design of the valve.

Solenoid Operated Directional Valves Max. Pressure 7 MPa

The valve is specially designed for power saving, high efficiency and space saving. Its power consumption is less than DSG-01 series and its mounting dimensions is as same as DSG-01, however its length with double solenoid (DC) is 18 mm less than DSG-01 series. It is available for shoe machine, CNC machine and low-pressure automatic equipment.



Specifications

Valve Size	Model No.	Max. flow L/min	Max. Operating pressure MPa (kgf/cm ²)	Max. T-Line Back Pressure MPa (kgf/cm ²)	Mass kg
1/8	DSGL-01-2B2- $\star$ -60	40	7 (70)	7 (70)	1.5
	$\star$ DSGL-01-2D2- $\star$ -60				2
	DSGL-01-3C $\star$ - $\star$ -60				2

$\star$ The max. flow of 2D2 is 30 L/min.

Model Number Designation

DSGL-01-3C2-A110-N1-60-50Hz

Series Number
(Sub-plate Mounting)

Valve Size : 01

Valve Type
(Please refer to above table)

Coil Type
A110, A220, D12, D24

None: 60Hz or DC
50 Hz : 50Hz only

$\star$ 1: Please make a note of the available range of different frequency. If you want to choose the coil in 50Hz area, please add 50Hz after the design no.

Design Number

Electrical Conduit Connection

None: Normal (Terminal Box Type is only for D12, D24)

N: Plug-In Connector Type Without Indicator Light

N1: Plug-In Connector Type With Indicator Light

Valve Types

Valve Type	3C2	3C4	3C10	3C12
Graphic Symbol				
Valve Type	2B2	2B3	2D2	3C9
Graphic Symbol				

- The valve other than above types are available, please contact our sales engineers for your requirement.
- These 2B2, 2B3 & 2D2 have no center position.

Solenoid Ratings

Electric Source	Coil Type	Serviceable Range		Current & Power at Rated Voltage		
		Frequency (Hz)	Voltage (V)	Inrush (A)	Holding (A)	Power (W)
AC	A110/50Hz	50	100-120	1.56	0.42	23
	A110/60Hz	60	100-120	1.72	0.37	18
	A220/50Hz	50	200-240	0.69	0.21	23
	A220/60Hz	60	200-240	0.82	0.18	18
DC	D12	-	10.8-13.2	-	1.75	20
	D24	-	21.6-26.4	-	0.85	20

Mounting Bolts (Attachment)

Socket Head Cap Screw	Tightening Torque
M5 x 45 Lg 4 Pcs	5~7 N·m

Sub-plate

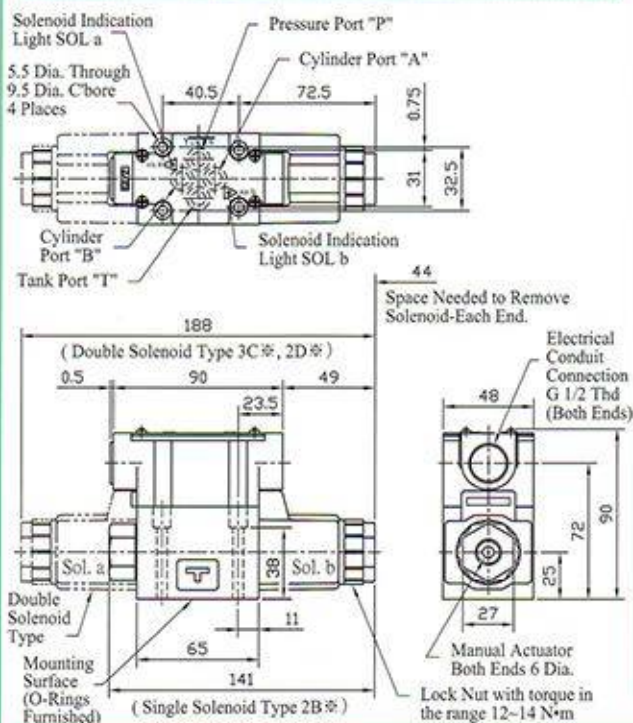
Valve Model No.	Sub-plate Model No.	Piping Size Rc	Mass kg
DSGL-01	DSGM-01-30	1/8	0.8
	DSGM-01X-30	1/4	
	DSGM-01Y-30	3/8	

- Sub-plates are available. When ordering, please specify sub-plate model from the table above.
- Please refer to page 88 for dimension details.

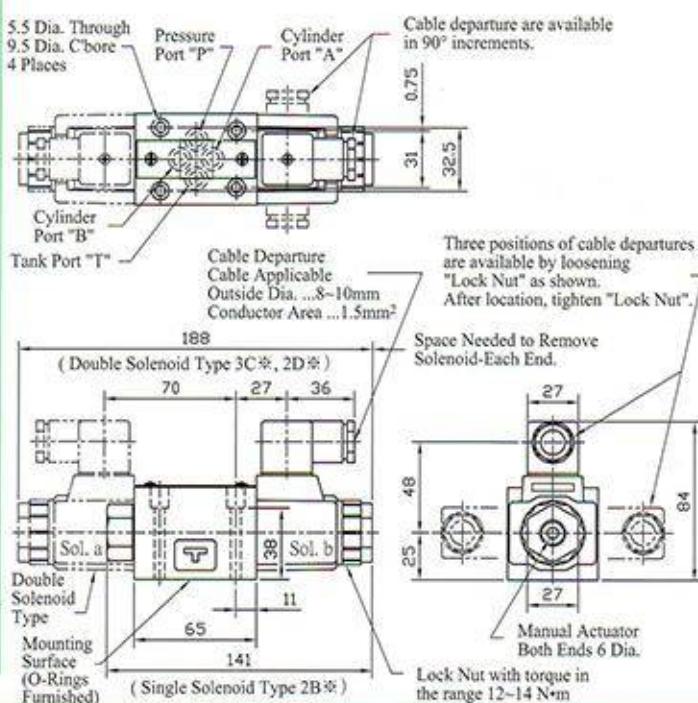
Solenoid Operated Directional Valves Max. Pressure 7 MPa

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

Model with AC solenoids : DSGL-01-***-A*

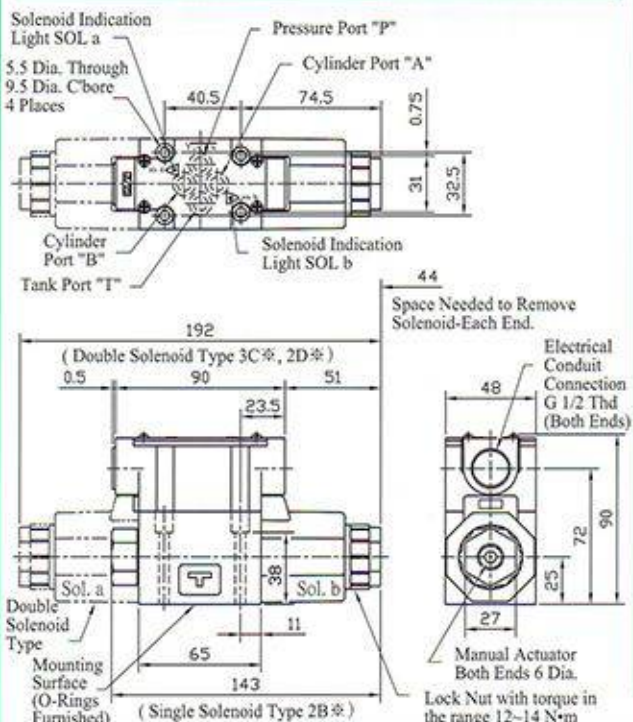


Model with AC solenoids : DSG1-01-***-A*-N/N1

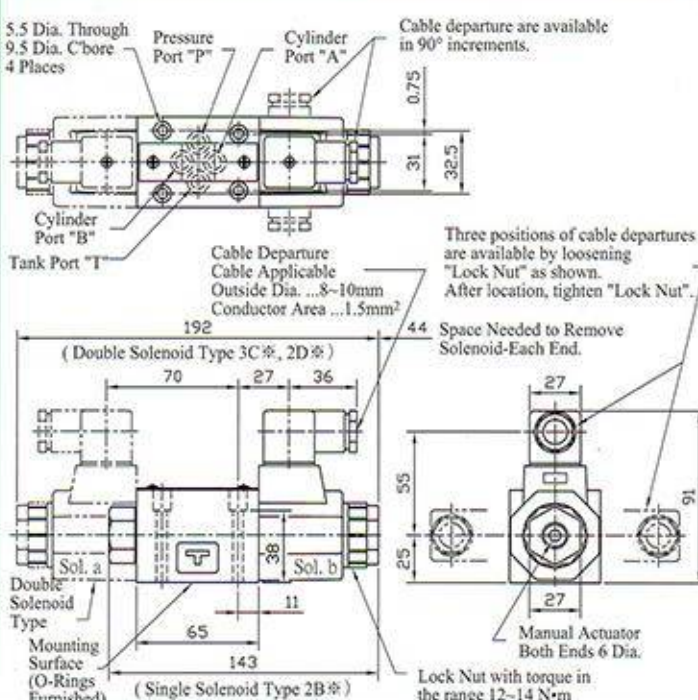


Mounting surface: ISO 4401-AB-03-4-A

Model with DC solenoids : DSGL-01-***-D*



Model with DC solenoids : DSSL-01-***-D*-N/N1



Solenoid Operated Directional Valves Max. Pressure 31.5 MPa

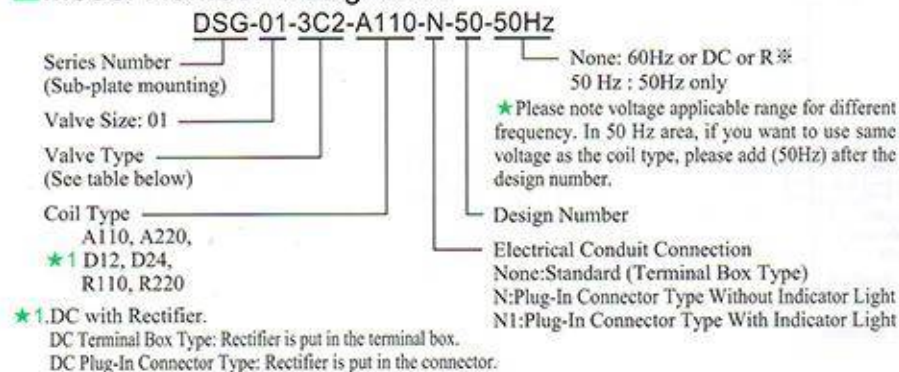
DSG-01 Series

- These valves are adapted with strong wet-type solenoid and circuit designs to accomplish high pressure, large volume flow and lower pressure drop.
- The optimum valve for any system can be utilized since many spool types and various solenoids are all available, along with other optional function.

Specifications

Valve Size	Model Number	Max. Flow L/min	Max. Pressure MPa (kgf/cm ²)	Max. T-Line Back Pressure MPa (kgf/cm ²)	Max. Changeover Frequency Cycle/min	Mass kg
1/8	DSG-01-3C※-※-50	63	31.5 (315) Spool Type 60 only 250	16 (160)	300 R Type only 120	2.2
	DSG-01-2D2-※-50					2.2
	DSG-01-2B※-※-50					1.6

Model Number Designation



Valve Type

Valve Type	3C2	3C3	3C4	3C40	3C60	3C12
Graphic Symbol						
Valve Type	2B2	2B3	2B8	2B2B	2D2	3C9
Graphic Symbol						

- Valves, other than the types above are available, please contact our sales engineer for your requirement.
- 2B2, 2B3, 2B8 & 2D2 type valves have no center position.

Mounting Bolts (Attachment)

Socket Head Cap Screw	Tightening Torque
M5 x 45Lg 4pcs	5 ~ 7 N•m (Applicable to working pressure higher than 25 MPa) 6 ~ 7 N•m

Sub-plate

Valve Model No.	Sub-plate Model No.	Piping Size Rc	Mass kg
DSG-01	DSGM-01-30	1/8	0.8
	DSGM-01X-30	1/4	
	DSGM-01Y-30	3/8	

* Sub-plates are available. When ordering, please specify sub-plate model no. from the table above.

* Please refer to page 88 for dimension details.

Solenoid Rating

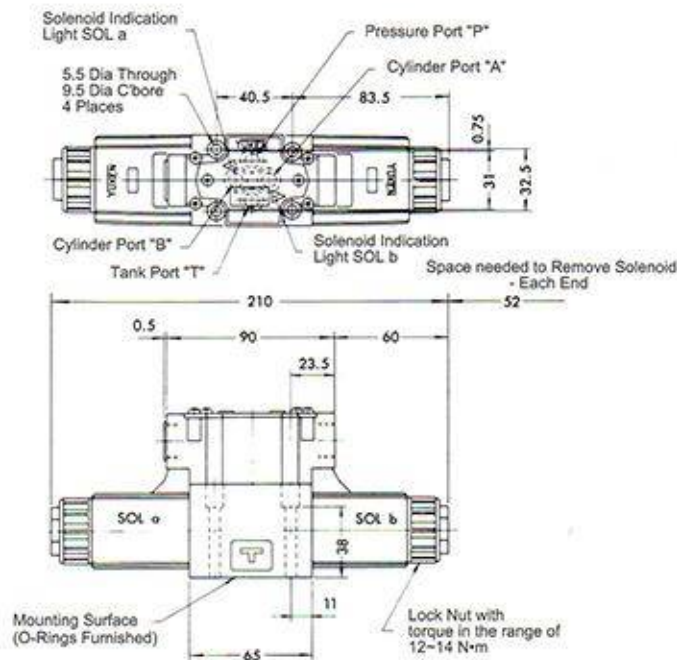
Electric Source	Coil Type	Serviceable Voltage Range		Current & Power at Rated Voltage		
		Frequency (Hz)	Voltage (V)	Inrush (A)	Holding (A)	Power (W)
AC	A110/50Hz	50	100-120	1.68	0.35	18
	A110/60Hz	60	100-120	1.79	0.35	20
	A220/50Hz	50	200-240	0.89	0.20	19
	A220/60Hz	60	200-240	0.90	0.18	21
DC	D12	-	10.8-13.2	-	2.00	24
	D24	-	21.6-26.4	-	1.10	26
AC→DC	R110	50/60	100-120	-	0.33	29
	R220	50/60	200-240	-	0.15	29

There are other coil types available, please contact our sales engineers for your requirement.

Solenoid Operated Directional Valves Max. Pressure 31.5 MPa

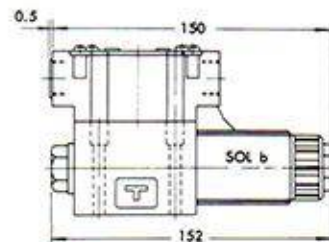
Model with AC solenoids : DSG-01-***-A※

- Spring Centered
- No Spring Detented

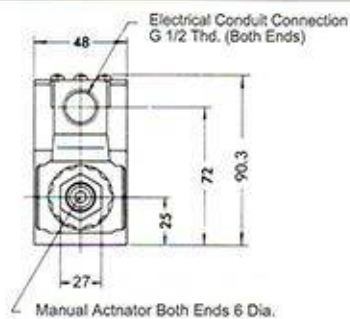


Mounting Surface : ISO 4401-AB-03-4-A

- Spring Offset



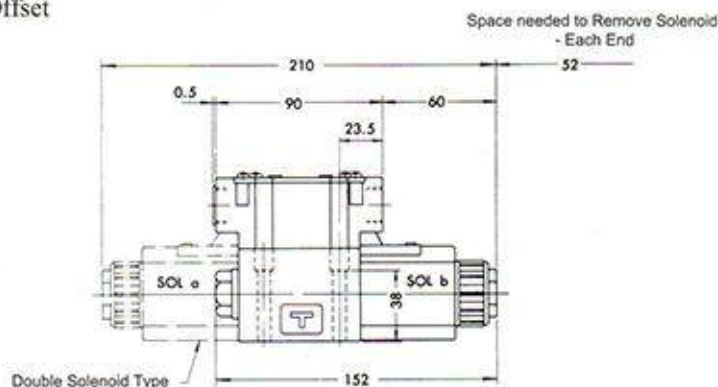
For other dimensions, please refer to left diagram.
Alternative models using solenoid "a" are also available.



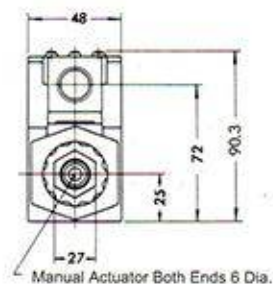
Model with DC solenoids : DSG-01-***-D※

Model with R solenoids : DSG-01-***-R※

- Spring Centered
- No Spring Detented
- Spring Offset



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

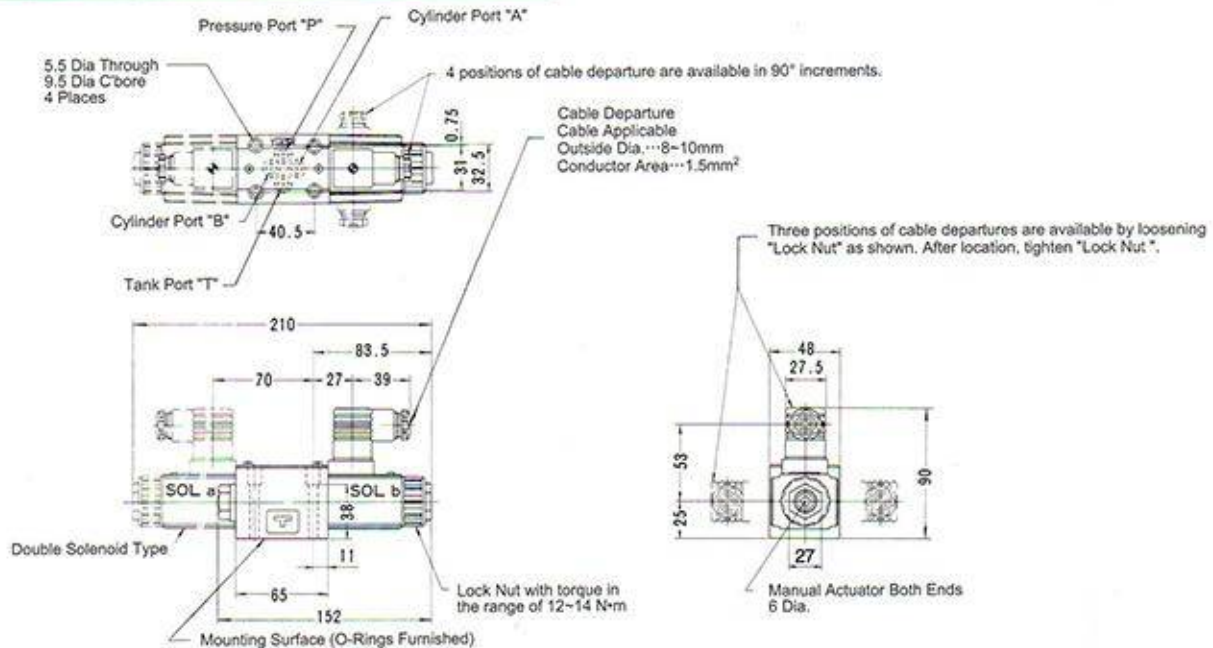


• For other dimensions, please refer to above model with AC solenoid.

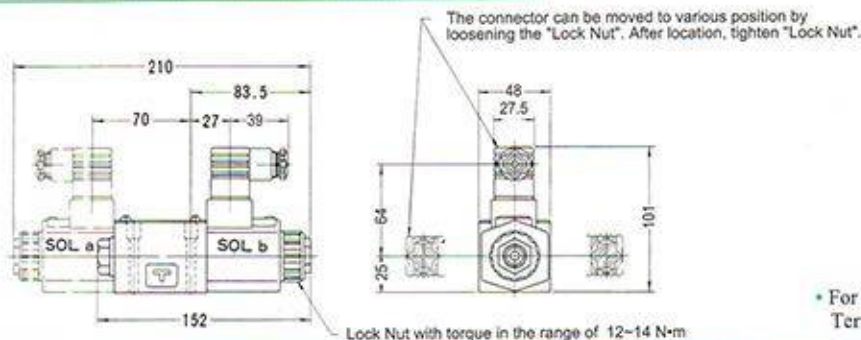
Solenoid Operated Directional Valves Max. Pressure 31.5 MPa

DIN Connector type, DIN Connector Type with Indicator Light

Model with AC Solenoids : DSG-01-※※※-A※-N/N1

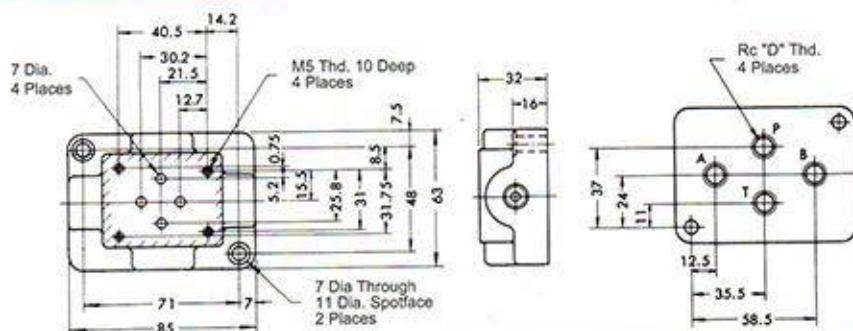


Model with DC solenoids : DSG-01-※※※-D※-N/N1
Model with R solenoids : DSG-01-※※※-R※-N/N1



• For other dimensions, please refer to Terminal Box Type (page 87).

Sub-plate : DSGM-01, 01X, 01Y



Model No.	D
DSGM-01-30	1/8
DSGM-01X-30	1/4
DSGM-01Y-30	3/8

Solenoid Operated Directional Valves Max. Pressure 31.5 MPa



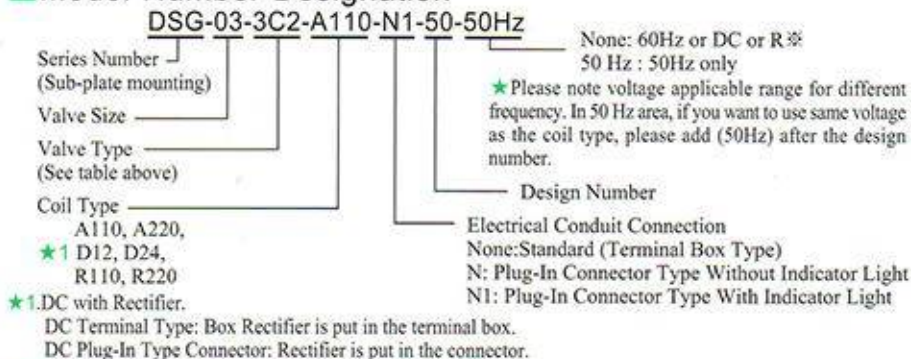
DSG-03 Series

- These valves are adapted with strong wet-type solenoid and circuit designs to accomplish high pressure, large volume flow and lower pressure drop.
- The optimum valve for any system can be utilized since many spool types and various solenoids are all available, along with other optional function.
- The pressure drop caused by the passing of pressurized oil is reduced to approx. 1/2 of the conventional Yuken model.
- Good Light Weight design has accomplished to reduce body weight.

Specifications

Valve Size	Model No	Max. Flow L/min	Max. Pressure MPa (kgf/cm ²)	Max. T-Line Back Pressure MPa (kgf/cm ²)	Max. Changeover Frequency Cycle/min	Mass kg	
						Type of Solenoid	
3/8	DSG-03-2B※-50	120	31.5 (315) Spool Type 60 only 25 (250)	16 (160)	240 (R Type Only 120)	AC	2.9
	DSG-03-2D2※-50					DC	3.6
	DSG-03-3C※-50						5

Model Number Designation



Sub-plate

Valve Model No.	Sub-plate Model No.	Piping Size Rc	Mass kg
DSG-03	DSGM-03-40	Rc	3
	DSGM-03X-40	3/8	
	DSGM-03Y-40	1/2	4.7

•Sub-plates are available. When ordering, please specify sub-plate model no. from the table above.

•Please refer to page 91 for dimension details.

Mounting Bolts (Attachment)

Socket Head Cap Screw	Tightening Torque
M6 x 35Lg 4pcs	12~15 N·m

Valve Type

Valve Type	3C2	3C3	3C4	3C40	3C60	3C12
Graphic Symbol						
Valve Type	2B2	2B3	2B8	2B2B	2D2	3C9
Graphic Symbol						

- Valve, other than the types above are available, please contact our sales engineers for your requirements.
- 2B2,2B3,2B8 & 2D2 type valves have no center position.

Solenoid Rating

Electric Source	Coil Type	Serviceable Voltage Range		Current & Power at Rated Voltage		
		Frequency (Hz)	Voltage (V)	Inrush (A)	Holding (A)	Power (W)
AC	A110/50Hz	50	100-120	3.90	0.78	39
	A110/60Hz	60	100-120	3.86	0.71	39
	A220/50Hz	50	200-240	1.82	0.34	37
	A220/60Hz	60	200-240	1.85	0.34	39
DC	D12	-	10.8-13.2	-	2.75	33
	D24	-	21.6-26.4	-	1.41	34
AC → DC	R110	50/60	100-120	-	0.42	38
	R220	60/60	200-240	-	0.20	38

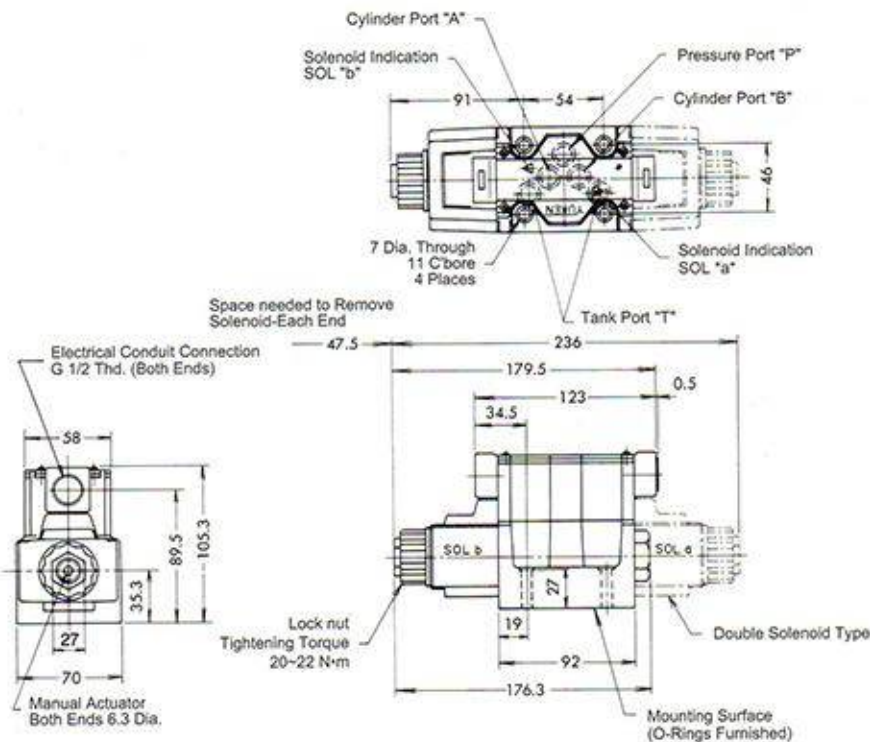
There are other coil types available, please contact our sales engineers for your requirement.

Solenoid Operated Directional Valves Max. Pressure 31.5 MPa

Model with AC solenoids : DSG-03-※※※-A※

- Spring Centered
- No Spring Detented
- Spring Offset

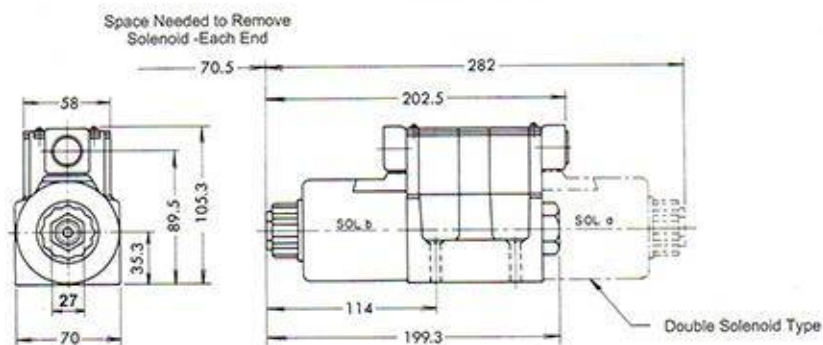
Mounting Surface:ISO 4401-AC-05-4-A-80



Model with DC solenoids : DSG-03-※※※-D※

Model with R solenoids : DSG-03-※※※-R※

Mounting Surface:ISO 4401-AC-85-04-A-80



• For other dimensions, please refer to the above model with AC solenoids.

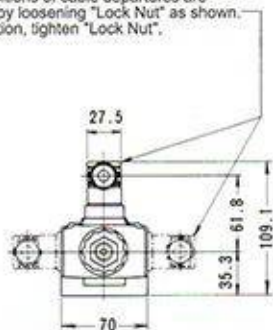
Note: For dimensions of mounting surface, please refer to DSGM-03 type sub-plate on page 91.

Solenoid Operated Directional Valves Max. Pressure 31.5 MPa

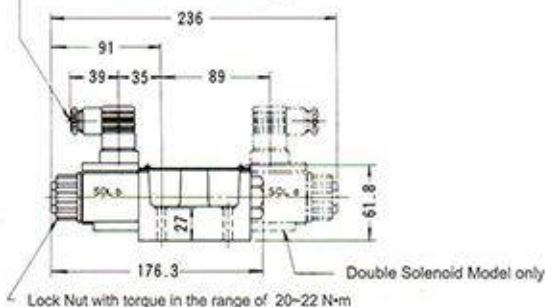
DIN type Connector, DIN Type Connector with Indicator Light

Model with AC Solenoids : DSG-03-***-A*-N/N1

Three positions of cable departures are available by loosening "Lock Nut" as shown. After location, tighten "Lock Nut".



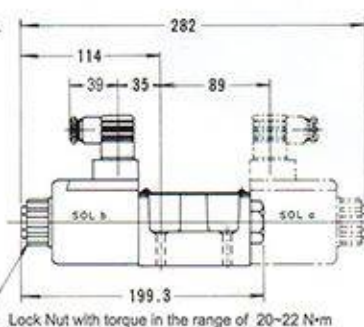
Cable Departure
Cable Applicable
Outside Dia. ...8~10mm
Conductor Area...Not exceeding 1.5mm²



Model with DC solenoids : DSG-03-***-D*-N/N1

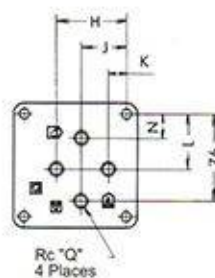
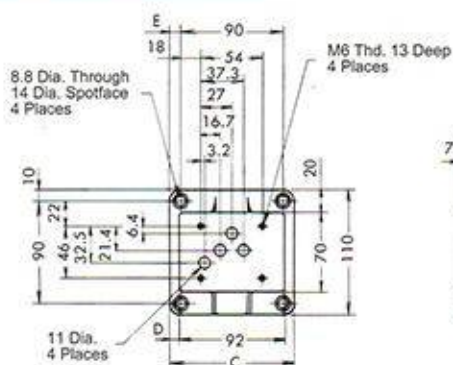
Model with R solenoids : DSG-03-***-R*-N/N1

Three positions of cable departures are available by loosening "Lock Nut" as shown. After location, tighten "Lock Nut".



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

Sub-plate DSGM-03, 03X, 03Y-40



Model No.	C	D	E	F	H	J	K	L	N	Q
DSGM-03-40	110	9	10	32	62	40	16	48	21	3/8
DSGM-03X-40										1/2
DSGM-03Y-40	120	14	15	50	80	45	10	47	16	3/4

Solenoid Valves with Monitoring Switch-(S)-DSGS Max. Pressure 31.5 MPa

Injection Machines and Machine Tools
Patented
To improve the safety of hydraulic machines

China Patent No. ZL200820107394.0
Taiwan Patent No. M344413



- It can monitor the spool position shifting correctly.
- It is adopted with non-contact parts and zero-torn part with long-life.
- It can choose PNP output and directly check the function with little hysteresis.
- There is no special requirement for the water level in the fluid and the pollution.
- Dust-proof and water-proof level is IP 65. It will not be interfered by the external magnetic field.
- D24 Type Solenoid Valves was awarded CE certificate.

It is available for injection moulding machines, machine tools and the other hydraulic machines that need to improve the safety.

WARNING : The Monitoring switch has been set the position after testing. If you reverse any other directions, it may cause the monitoring switch out of function.

Specifications: For the flow and pressure details of valves, please refer to (S)-DSG-01-50

Valve Type	Model	Max. Flow L/min	Max. Pressure MPa	Max. T-Line Back Pressure MPa	Max. Changeover Frequency Cycle / min	Mass kg
Standard Type	DSGS-01-3C*-50(-L)	63	31.5 (Spool Type 60 only 25)	16	300 (R Type nly 120)	3.7
	DSGS-01-2B*-50(-L)					2.4
Shockless Type	S-DSGS-01-3C*-50(-L)	40	16		120	3.7
	S-DSGS-01-2B*-50(-L)					2.4
Standard Type	DSGS-03-3C*-50(-L)	120	31.5 (Spool Type 60 only 25)	16	240 (R Type nly 120)	8.1
	DSGS-03-2B*-50(-L)					5.2
Shockless Type	S-DSGS-03-3C*-50(-L)	120	16		120	8.1
	S-DSGS-03-2B*-50(-L)					5.2

Model Number Designation

S - DSGS - 01 - 3C2 - D24 - SW P 1 C - 50 - L

Shockless Type
None: standard
S: Shockless

Series Number

Valve Size 01, 03

Valve Type *1

Coil Type
R110, R220, D12, D24
*All for plug-in connector type with Indicator light

None: standard
L: Solenoid Valves adverse mounting

Design Number

Connected Type
C: M12 Connector (standard)

Monitoring Switch Contact Type
1: NO normal open (standard)

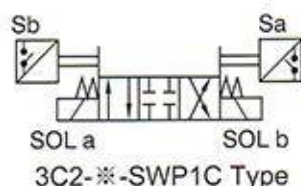
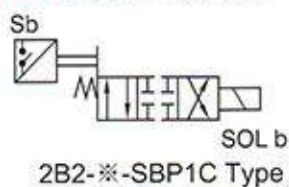
Monitoring Switch Contact
P: PNP (standard)

Monitoring switch position *2
SW: both side
SA: Sa monitoring switch (SOL a)
SB: Sb monitoring switch (SOL b)

*1. Flow rate is as same as (S)-DSG-01/03-50. Please refer to P86 (DSG-01) and P89 (DSG-03)

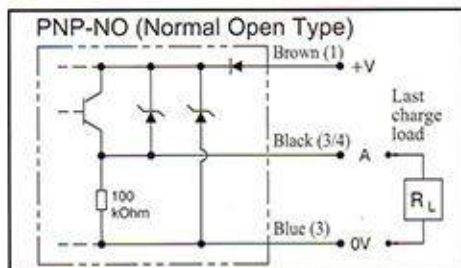
*2. The monitoring switch (Sa) of SOL a is at A port. The monitoring switch (Sb) of SOL a is at B port.

Graphic Symbol



Monitoring Switch and Wiring Diagrams

Item	Specification
Supply Voltage Range	10~30 VDC
Max. Output Current	200 mA (32 VDC max.)
Switching Frequency	600 Hz
Ambient Temperature Range	-25~70 °C
Degree of Protection	IP 67



Mounting Bolts (Attachment)

Valve Model No.	Socket Head Cap Screw	Tightening Torque
(S)-DSGS-01	M5 x 45L 4 Pcs	6~7 N·m
(S)-DSGS-03	M6 x 35L 4 Pcs	12~15 N·m
DSHGS-06	M12 x 60L 6 Pcs	100~123 N·m

Note) This series of valves can not be mounted in vertical way.

Switch M12 Connector with Wire (Options)

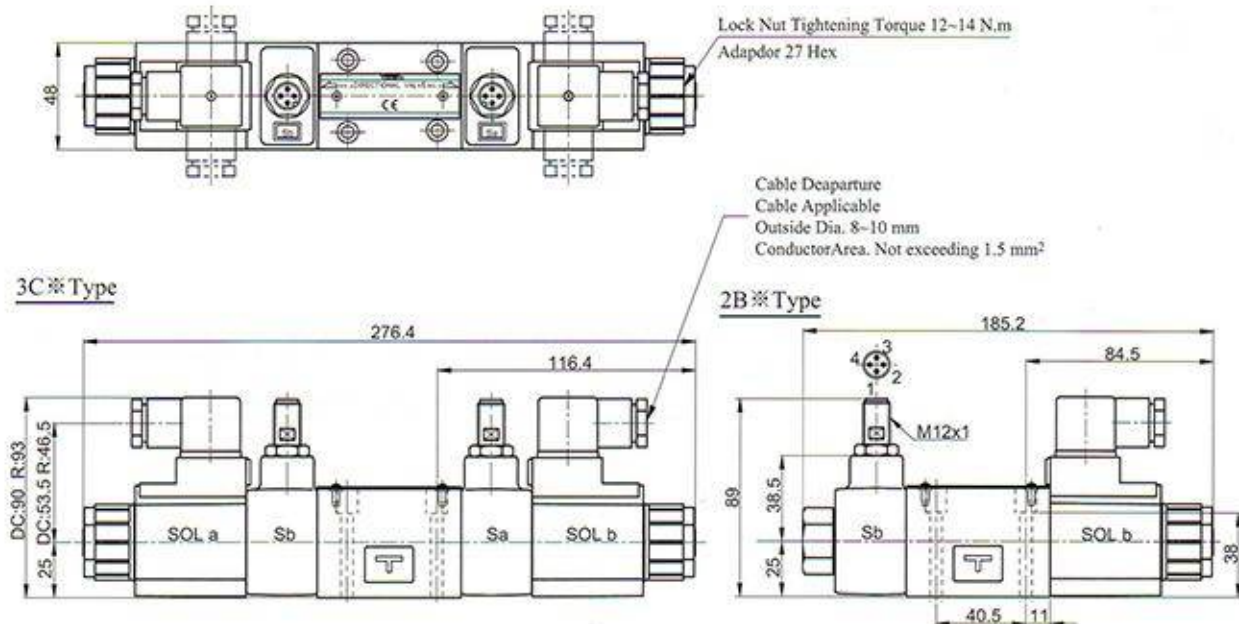
Model	Valve Type	Remark
M124R-PUR-2M (Straight type)	(S)-DSHGS-04*-50(-L)	2M: 2M (Oil Resistance Cables)
M124RL-PUR-2M (90° Type)	(S)-DSHGS-06*-50(-L)	

Solenoid Valves with Monitoring Switch-(S)-DSGS Max. Pressure 31.5 MPa

(S)-DSGS-01

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

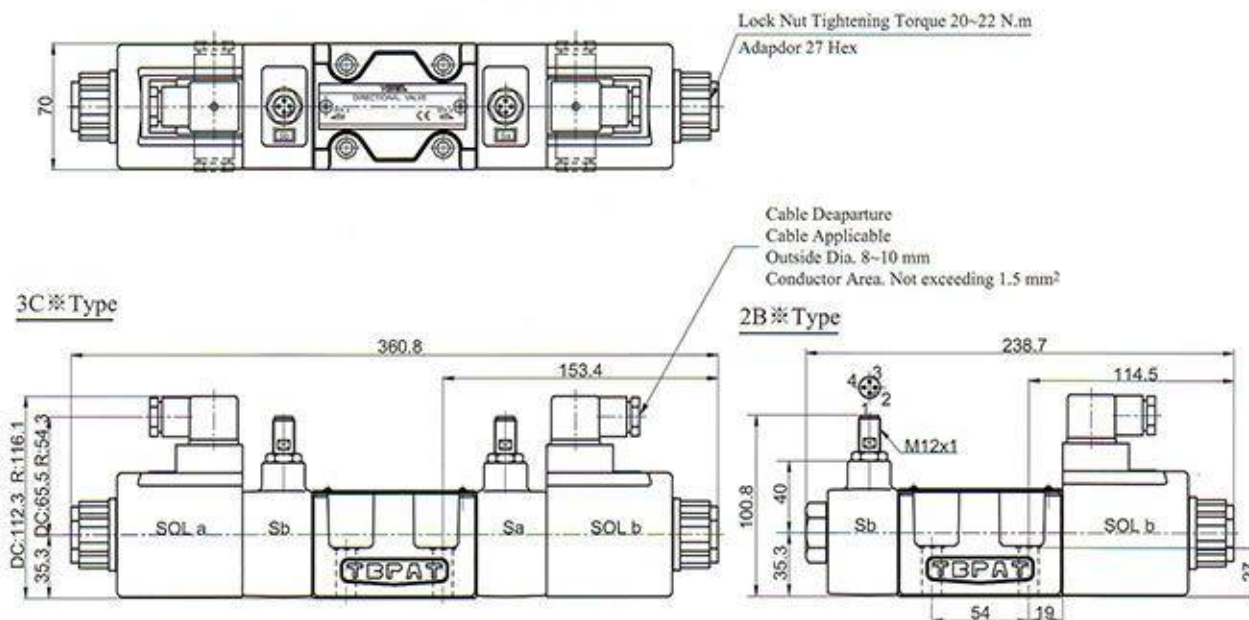
D



Note) For dimensions of valves mounting surface, please refer to DSGM-01 sub-plate on page 88.

(S)-DSGS-03

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



Note) For dimensions of valves mounting surface, please refer to DSGM-03 sub-plate on page 91.

Solenoid Controlled Pilot Operated Directional Valves Max. Pressure 31.5 MPa

DSHG Series

These valves are composed of a solenoid operated pilot valve and a pilot operated slave valve. When a solenoid is energized 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 (315kgf/cm²) along with high flow means compact system design. (e.g. "04" size valve- 300 L/min, "06" size valve- 500 L/min, "10" size valve- 1100 L/min.

Lower Pressure Drop

System energy saving increased as pressure drop of each valve has been greatly reduced.

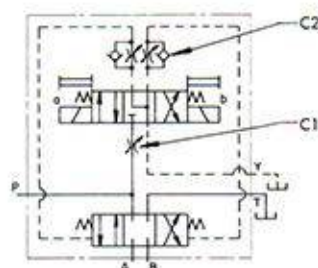
Specifications

Valve Size	Model Number	Max. Flow L/min	Max. Operating Pressure MPa (kgf/cm ²)	Max. Pilot Pressure MPa (kgf/cm ²)	Max. T-Line Back Pressure MPa	Changeover Frequency Cycles/min	Mass kg
1/2	DSHG-04-2B※-50	300	31.5 (315)	0.8~25 (8~250)	21 (16)※2	120	8.2
	DSHG-04-3C※-50						8.8
	DSHG-04-2N※-50						8.8
3/4	DSHG-06-2B※-51	500	31.5 (315)	0.8~25 (8~250)	21 (16)※2	120	12.1
	DSHG-06-3C※-51						12.7
	DSHG-06-2N※-51						12.7
1 1/4	DSHG-10-2B※-41	1100	31.5 (315)	1~21 (10~210)	21 (16)※2	60	44.7
	DSHG-10-3C※-41			1~25 (10~250)		100	45.3
	DSHG-10-2N※-41					120	45.3

※1 - Max. flow depends on the type of spool and operating conditions.

※2 - Please refer to the bracket for T-Line back pressure.

Graphic Symbol with Choke Valve



Model Number Designation

DSHG-04-3C2-C1-ET-A110-N1-※-50HZ

- Series Number (Sub-plate mounting)
- Valve Size 04, 06, 10
- Valve Type (Please refer to next page)
- With pilot choke valve (optional)
 - C1: with C1 Choke valve
 - C2: with C2 Choke valve
 - C1C2: with C1 & C2 Choke valve (Omit if not required)
- Design Number
- Electrical Conduit Connection
- Coil Type
 - A110, A220, D12, D24, R110, R220...etc.
- ※ Drain Connection T: Internal Drain. None: External Drain
- ※ Pilot Connection E: External Pilot. None: Internal pilot

Nobe: 60Hz or DC or R※
50 Hz: 50Hz only

★ Please note voltage applicable range for different frequency. In 50 Hz area, if you want to use same voltage as the coil type, please add (50Hz) after the design number.

※ Classification of application on spool type "3", "5", "60" & "7" has been described as below.

Pilot Connection	Drain Connection	Attention
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	Combination is not available.
External Pilot	External Drain	No limitation in use.
	Internal Drain	

※ Minimum Pilot pressure: 1/2, 3/4 size valve are 0.8 MPa (kgf/cm²), 1-1/4 size valve is 1 MPa (10kgf/cm²).

Solenoid Controlled Pilot Operated Directional Valves Max. Pressure 31.5 MPa

Valve Type

Valve Type	3C2	3C3	3C4	3C40	3C60*
Graphical Symbol					
Valve Type	3C12	2B2*	2B7*	2N2*	2N7*
Graphical Symbol					

- Valves, other than the type above are available, please contact our sales engineers for your requirement.
- The "2B2", "2B7", "2N2" & "2N7" type valves have no center position.

Pilot Valve Type

Valve Model No.	Pilot Valve Model No.
DSHG-04-	2B* DSG-01-2B2-*-50
	3C* DSG-01-3C4-*-50
DSHG-06-	2B* DSG-01-2B2-*-50-L
	3C* DSG-01-3C4-*-50
DSHG-10-	2B* DSG-01-2B2-*-50-L
	3C* DSG-01-3C4-*-50

Please refer to page 86

Sub-plate

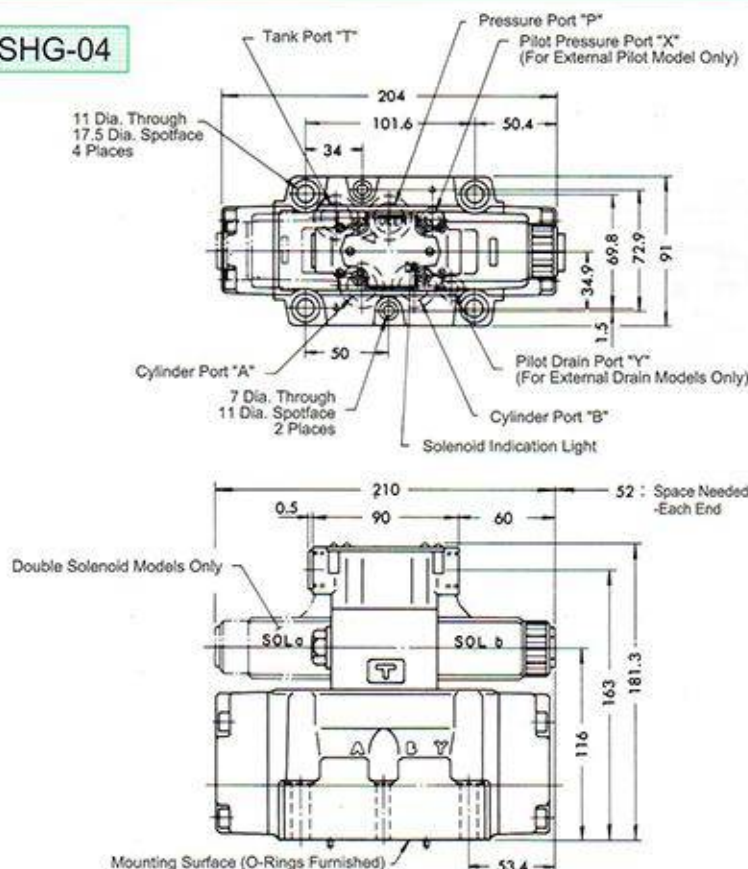
Valve Model No.	Sub-plate Model No.	Piping Size Rc	Mass kg
DSHG-04	DHGM-04-20	1/2	4.4
	DHGM-04X-20	3/4	4.1
DSHG-06	DHGM-06-50	3/4	7.4
	DHGM-06X-50	1	
DSHG-10	DHGM-10-40	1 1/4	21.5
	DHGM-10X-40	1 1/2	

Sub-plates are available. When ordering, please specify sub-plate model from the table above. Please refer to page 97, 98 for dimensions.

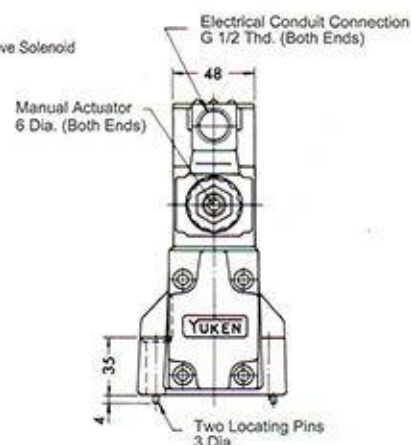
Mounting Bolts (Attachment)

Valve Model No.	Socket Head Cap Screw	Q'ty	Tightening Torque N·m (kgf.m)
DSHG-04	M6 x 45 Lg	2	12~15 (1.2~1.5)
	M10 x 50 Lg	4	58~72 (5.9~7.3)
DSHG-06	M12 x 60 Lg	6	100~123 (10.2~12.5)
DSHG-10	M20 x 75 Lg	6	473~585 (48.2~59.7)

DSHG-04



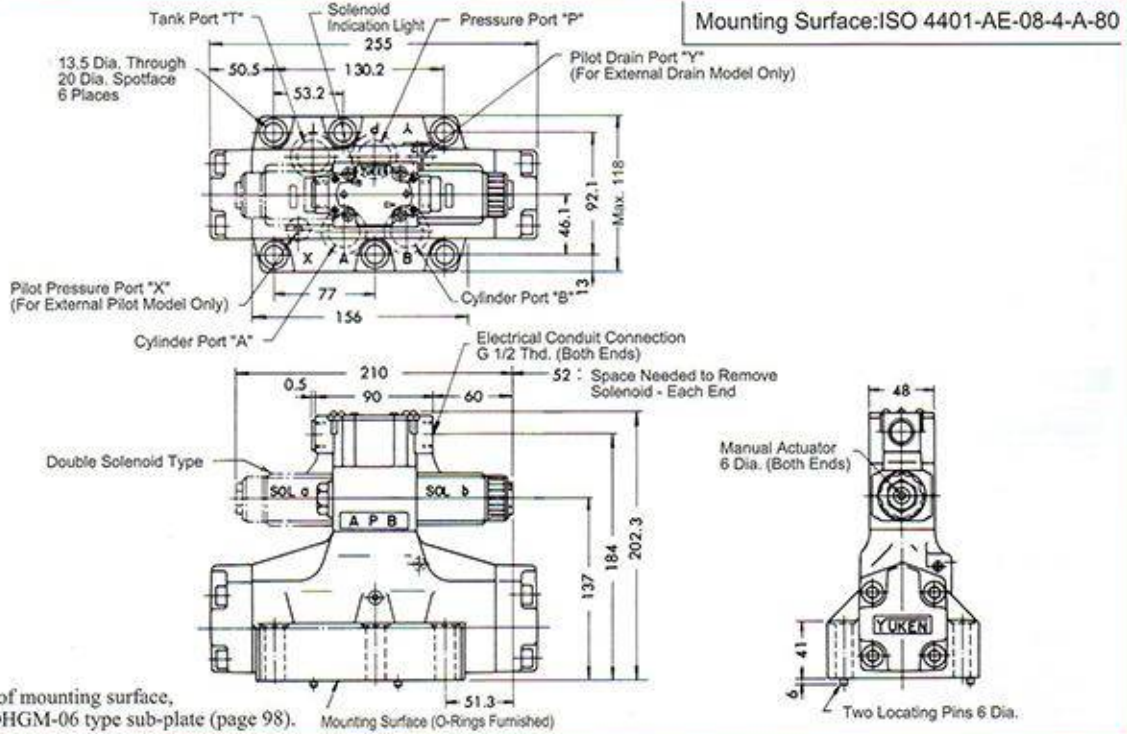
Mounting Surface: ISO 4401-AD-07-4-A-80



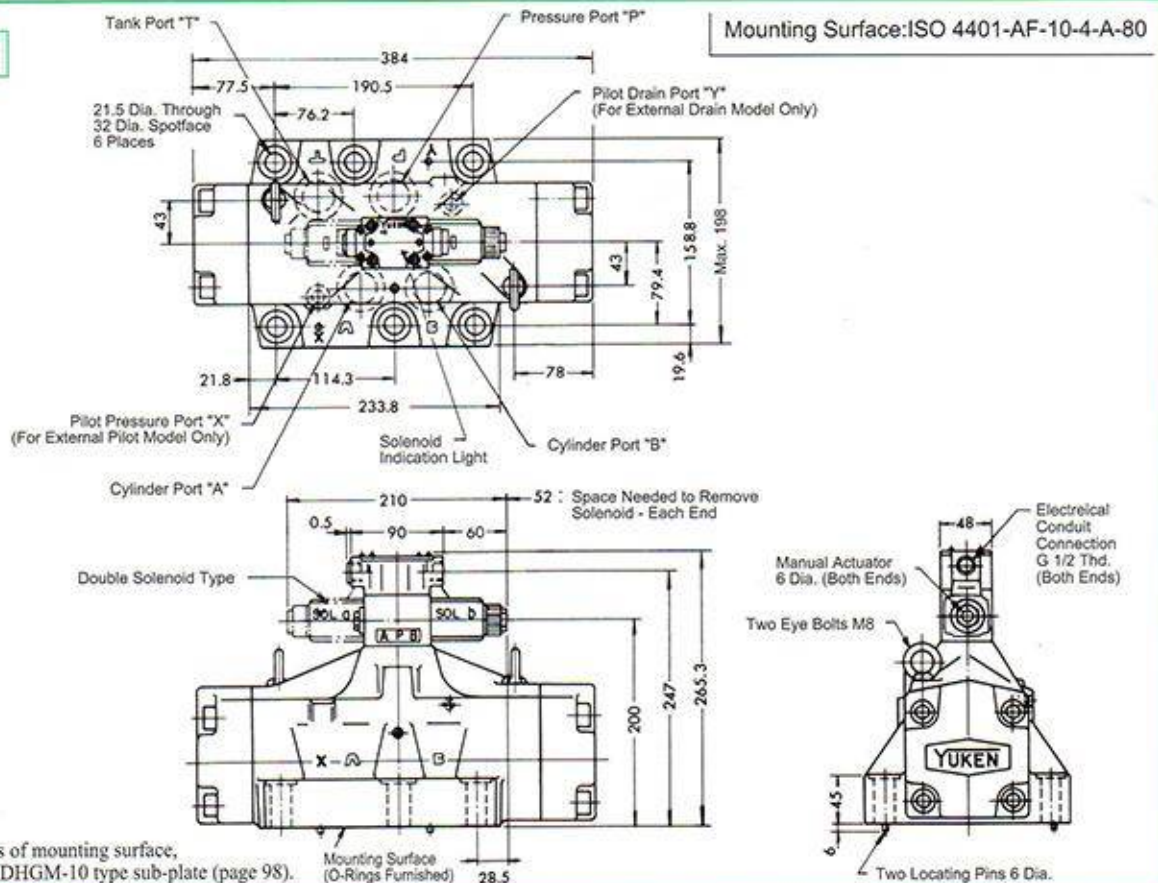
Note: For dimensions of mounting surface, please refer to DHGM-04 type sub-plate (page 97).

Solenoid Controlled Pilot Operated Directional Valves Max. Pressure 31.5 MPa

DSHG-06



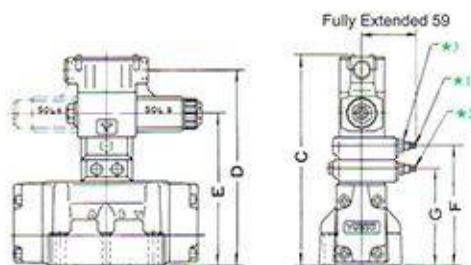
DSHG-10



Solenoid Controlled Pilot Operated Directional Valves Max. Pressure 31.5 MPa

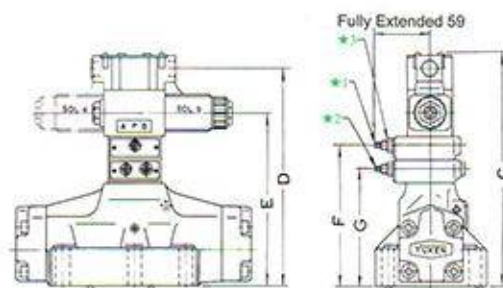
Options-Model with Pilot Choke Valve

DSHG-04-※※※-C1,C2,C1C2



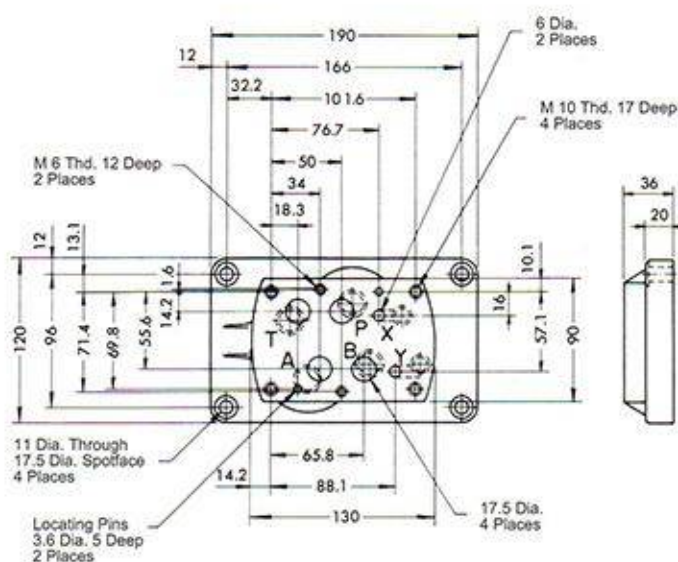
- *1. C1 Choke Adj. (TC1G-01)
Screw 6 Hex, Lock Nut 12 Hex
- *2. C2 Choke Adj. (TC2G-01)
Screw 6 Hex, Lock Nut 12 Hex

DSHG-06-※※※-C1,C2,C1C2
10

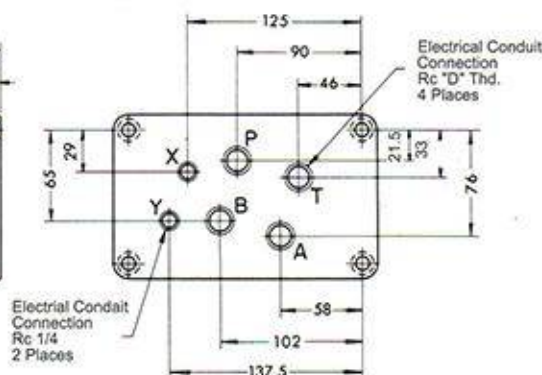


Model No.	C	D	E	F	G
DSHG-04-※※※-C1	206.3	188	141	106	-
DSHG-04-※※※-C2				-	106
DSHG-04-※※※-C1C2	231.3	213	166	131	106
DSHG-06-※※※-C1	227.3	209	162	127	-
DSHG-06-※※※-C2				-	127
DSHG-06-※※※-C1C2	252.3	234	187	152	127
DSHG-10-※※※-C1	290.3	272	225	190	-
DSHG-10-※※※-C2				-	190
DSHG-10-※※※-C1C2	315.3	297	250	215	190

Sub-Plate: DHGM-04 / 04X-20

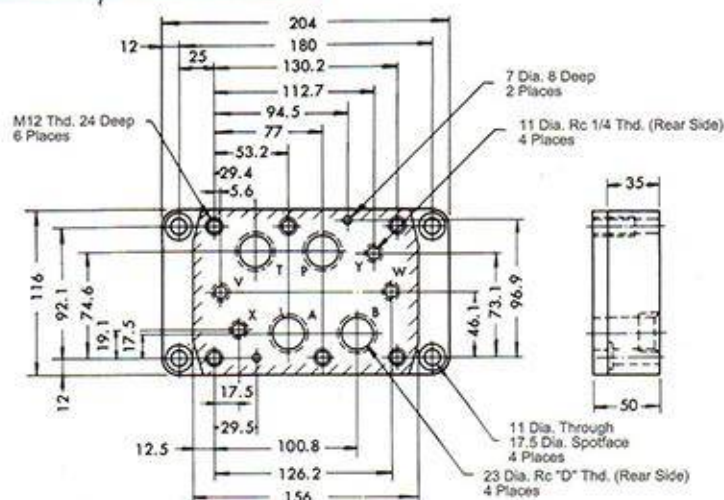


Sub-plate Model No.	D
DHGM-04-20	1/2
DHGM-04X-20	3/4



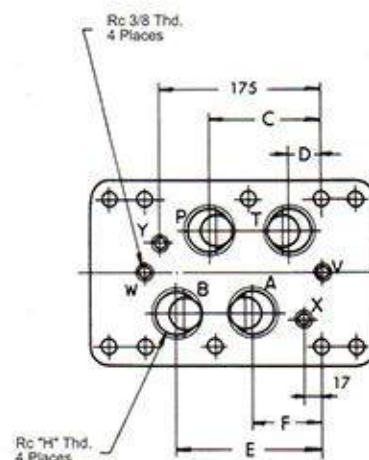
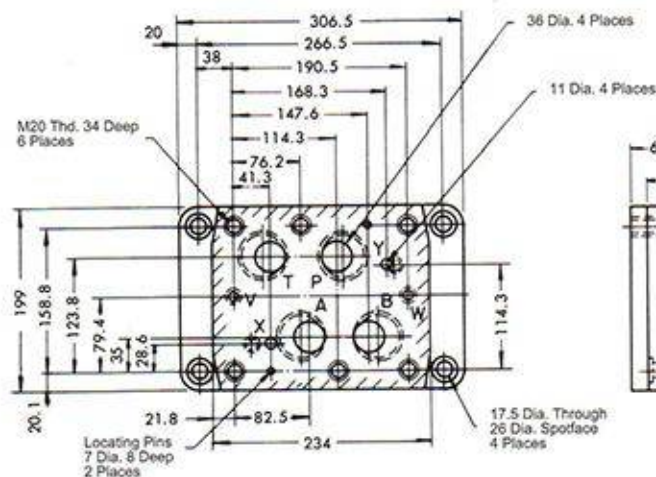
Solenoid Controlled Pilot Operated Directional Valves Max. Pressure 31.5 MPa

Sub-plate DHGM-06 / 06X-50



Model No.	D
DHGM-06-50	3/4
DHGM-06X-50	1

Sub-plate DHGM-10 / 10X-40



Model No.	C	D	E	F	H
DHGM-10-40	114	41	147.5	82.5	1-1/4
DHGM-10X-40	118	36	156.5	74.5	1-1/2

Note: For Uses of Port "X" "Y", "V" and "W"

Valve Types		X	Y	V*W*
Solenoid Controlled Pilot Operated Directional Valves (DSHG)	Spring Centered	Used as pilot port only on external pilot type valves.	Used as drain port only on external drain type valves.	Not used (Plug is not required)
	No Spring	To be plugged on internal pilot type valves	To be plugged on internal drain type valves	
Pilot Operated Directional Valves (DHG)	Spring Centered	Used as pilot pressure port / drain port	Used as pilot pressure port / drain port	
	Spring Offset	Used as pilot pressure port	Used as pilot drain port	

* DHGM-04, 04X types do not have these ports. (Port "V" and Port "W")

Solenoid Valves with Monitoring Switch-DSHGN

Max. Pressure 25 MPa

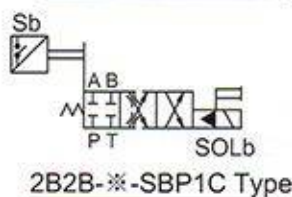
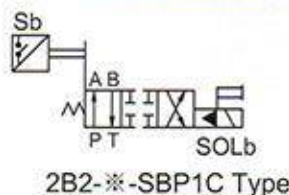
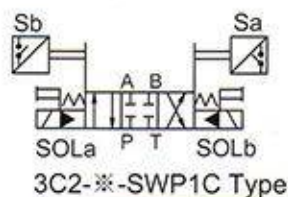

- It can monitor the spool position shifting correctly.
- It is adopted with non-contact parts and zero-torn part with long-life.
- There are two monitoring switch contact for PNP and NPN type.
- It can directly check the function with little hysteresis.
- There is no special requirement for the water and the pollution of the hydraulic fluid.
- Dust-proof and water-proof level is IP 65.
- It will not be interfered by the external magnetic field.

WARNING : The Monitoring switch has been set the position after testing. If you reverse any other directions, it may cause the monitoring switch out of function.

Specifications: For the flow and pressure drop details, please refer to DSHG-03/04/06

Model	Max. Flow L/min	Max. Pressure MPa	Max. T-Line Back Pressure MPa	Max. Changeover Frequency Cycle / min	Mass kg		
					SW	SA	SB
DSHGN-03-3C2-※-10	160	25	16	120	9.3	8.5	8.5
DSHGN-03-2B2B-※-10(-L)					8.8	8.0	8.0
DSHGN-03-2B2-※-10(-L)					9.3	8.0	8.5
DSHGN-04-3C2-※-50	300	25	21 (Internal Drain : 16)	120	10.2	9.6	9.6
DSHGN-04-2B2B-※-50(-L)					9.7	9.0	9.0
DSHGN-04-2B2-※-50(-L)					10.1	9.4	9.5
DSHGN-06-3C2-※-51	500	25	21 (Internal Drain : 16)	120	15.0	13.9	13.9
DSHGN-06-2B2B-※-51(-L)					14.4	13.3	13.3
DSHGN-06-2B2-※-51(-L)					15.1	14.3	14.0

Graphic Symbol



Sub-plate

Valve Model No.	Sub-plate Model No.	Piping Size Rc	Mass kg
DSHGN-03	DHGM-03Y-10	3/4	4.7
DSHGN-04	DHGM-04-20	1/2	4.4
	DHGM-04X-20	3/4	4.1
DSHGN-06	DHGM-06-50	3/4	7.4
	DHGM-06X-50	1	

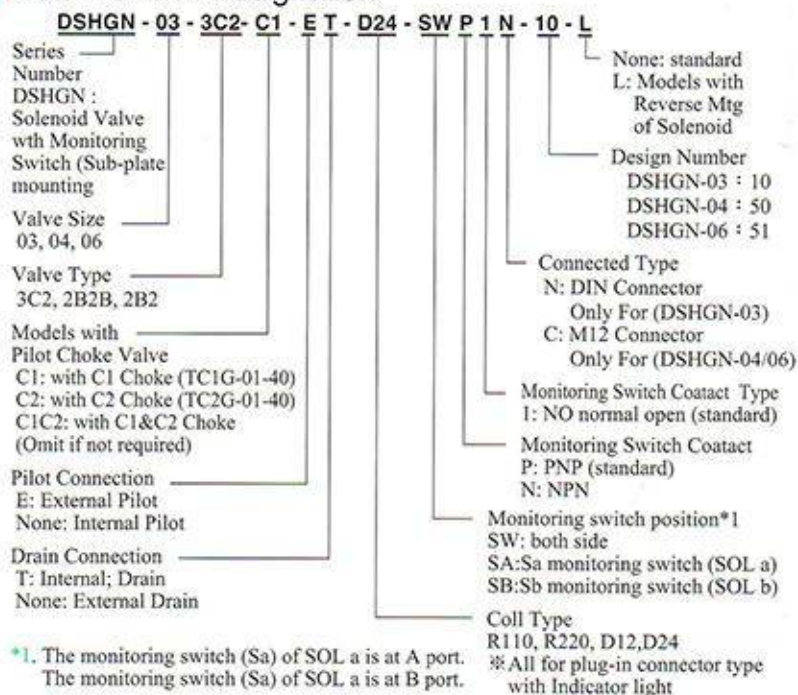
*Sub-plates are available. When ordering, please specify sub-plate model no. from the table above.

*Please refer to page P97(DHGM-04), P98(DHGM-06), P103(DHGM-03)

Mounting Bolts (Attachment)

Valve Model No.	Socket Head Cap Screw	Tightening Torque
DSHGN-03	M6 x 35L 4 Pcs	11.8~14.7 N·m
DSHGN-04	M6 x 45L 2 Pcs	11.8~14.7 N·m
	M10 x 50L 4 Pcs	57.9~71.6 N·m
DSHGN-06	M12 x 60L 6 Pcs	100~122.6 N·m

Model Number Designation



Switch M12 Connector with Leading Wire (Options)

Model	Valve Type	Remark
M124R-PUR-2M (Straight type)	DSHGN-04-※-※-※-C-50(-L)	2M: 2M (Oil Resistance Cables)
M124RL-PUR-2M (90° Type)	DSHGN-06-※-※-※-C-51(-L)	

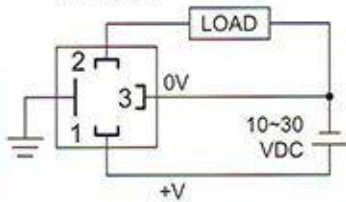
Solenoid Valves with Monitoring Switch-DSHGN

Max. Pressure 25 MPa

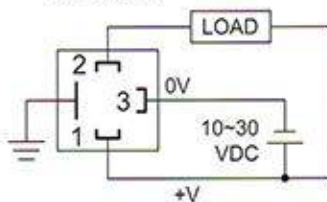
Monitoring Switch and Wiring Diagrams

DSHGN-03

PNP N.O.



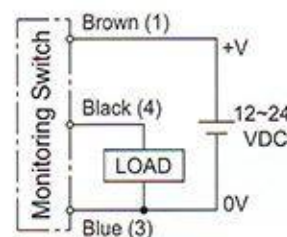
NPN N.O.



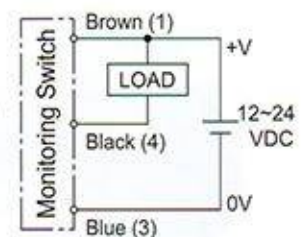
- ※1. Current Consumption : DSHGN-03 ≤ 15mA : DSHGN-04/06 ≤ 13mA
※2. Max. Output Current : Under 200mA

DSHGN-04/06

PNP N.O.



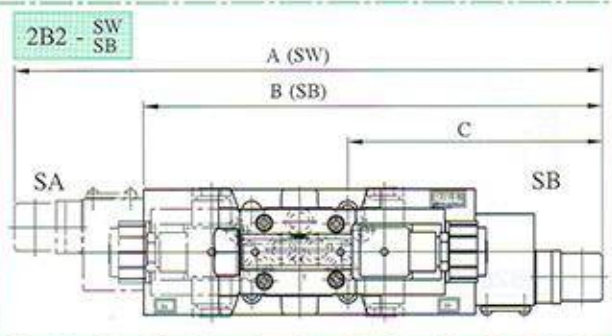
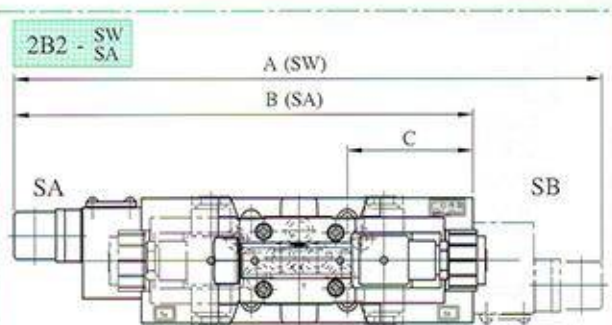
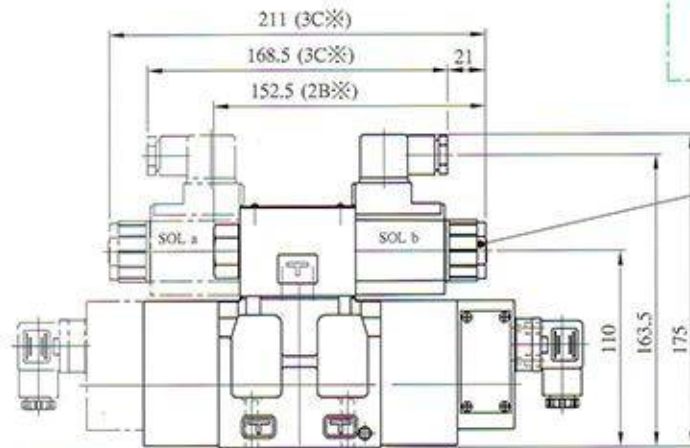
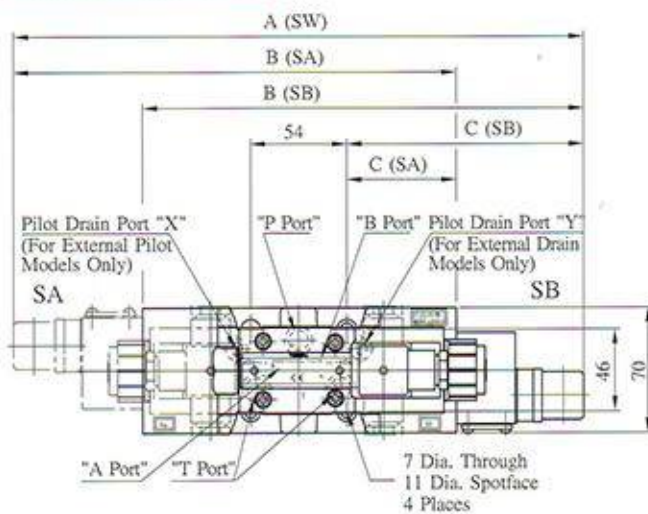
NPN N.O.



DSHGN-03

Mounting Surface: ISO 4401-05-05-0-94

3C2 - SW / SA / SB
2B2B - SW / SA / SB



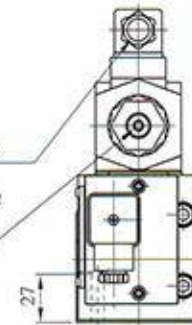
Lock Nut Tightening Torque 10~12 N·m

27 Hex

Cable Departure Cable Application Outside Dia. 8~10 mm

Conductor Area, not exceeding 1.5 mm²

Manual Actuator 6 Dia. (Both Ends)



ITEM	A	B		C	
	SW	SA	SB	SA	SB
DSHGN-03-3C2-※	320	248.5	247.5	61.5	133
DSHGN-03-2B2B-※					
DSHGN-03-2B2-※	330	257.5	257.5	70.5	143

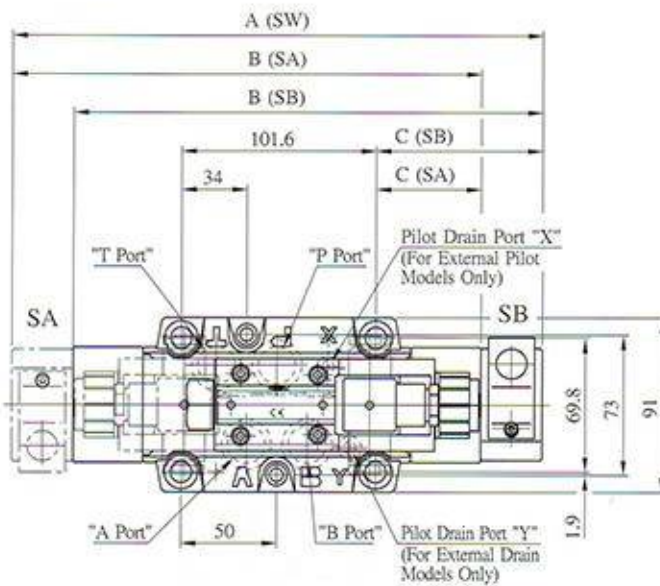
Solenoid Valves with Monitoring Switch-DSHGN

Max. Pressure 25 MPa

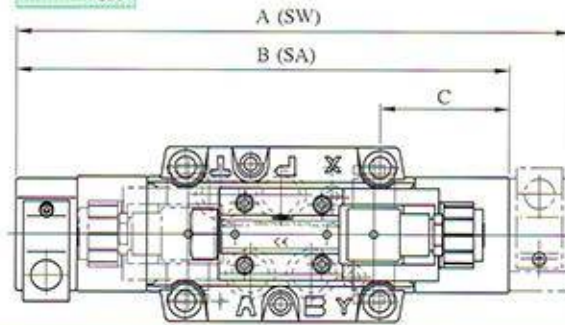
DSHGN-04

Mounting Surface: ISO 4401-AD-07-4-A-80

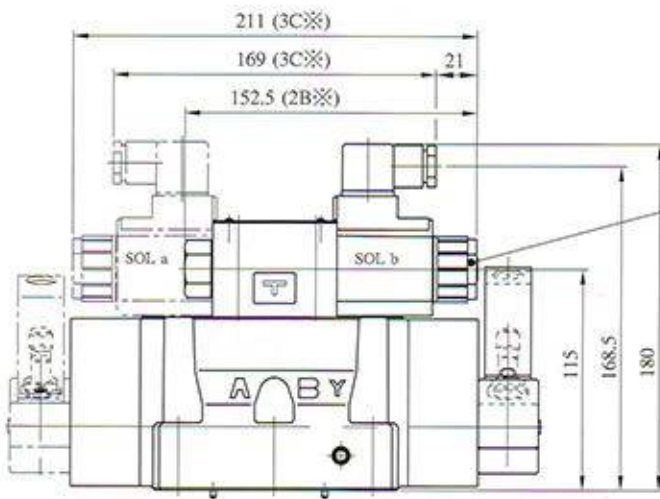
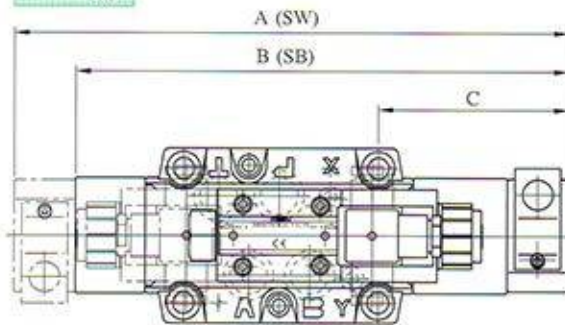
3C2
2B2B - SW / SA / SB



2B2 - SW
SA



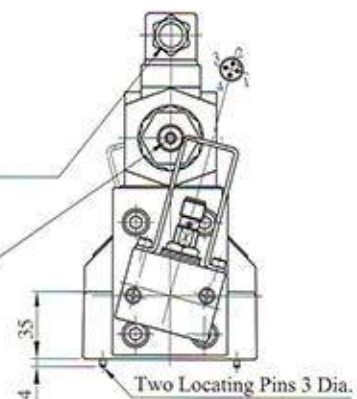
2B2 - SW
SB



Lock Nut Tightening
Torque 10~12 N·m
27 Hex

Cable Departure
Cable Application
Outside Dia. 8~10 mm
Conductor Area,
not exceeding 1.5 mm²

Manual Actuator
6 Dia. (Both Ends)



ITEM	A	B		C	
	SW	SA	SB	SA	SB
DSHGN-04-3C2-※	277	240.5	240.5	50.4	87.5
DSHGN-04-2B2B-※					
DSHGN-04-2B2-※	289.5	253	253	62.9	99.4

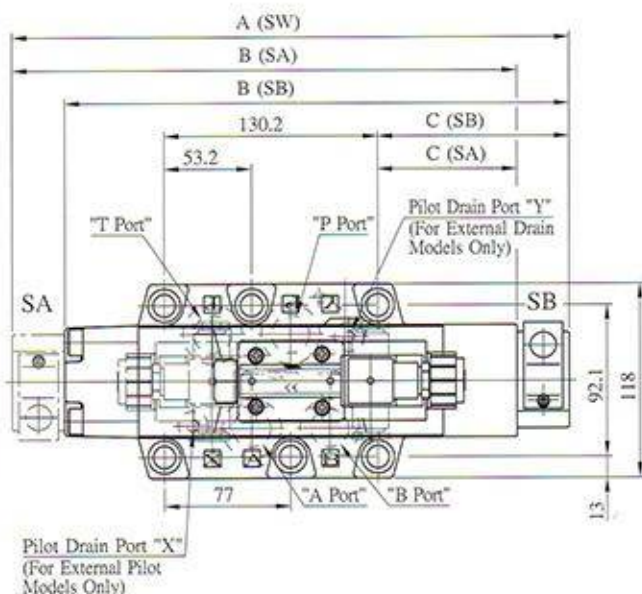
Solenoid Valves with Monitoring Switch-DSHGN

Max. Pressure 25 MPa

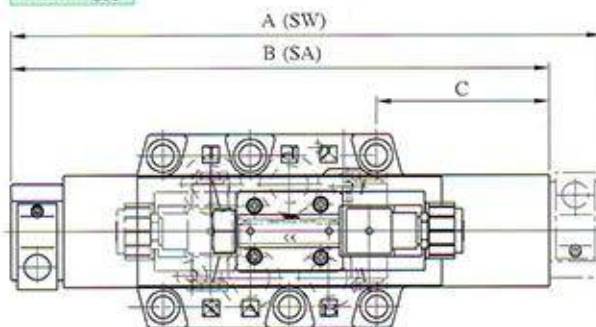
DSHGN-06

Mounting Surface: ISO 4401-AE-08-4-A-80

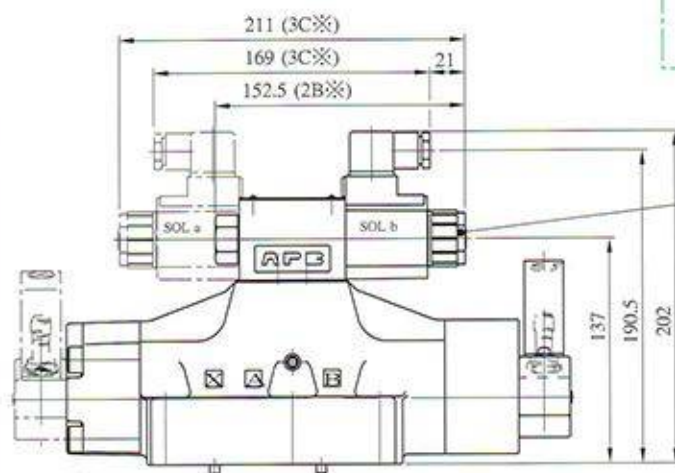
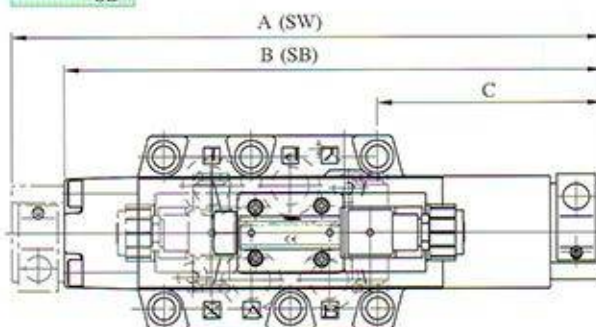
3C2
2B2B - SW / SA / SB



2B2 - SW
SA



2B2 - SW
SB



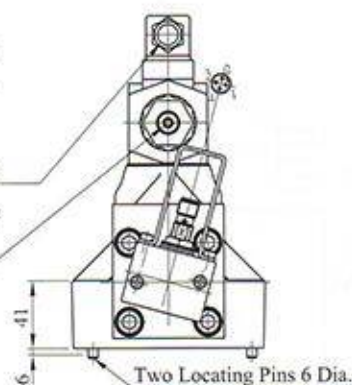
Lock Nut Tightening
Torque 10-12 N·m

27 Hex

Cable Departure
Cable Application
Outside Dia. 8-10 mm

Conductor Area,
not exceeding 1.5 mm²

Manual Actuator
6 Dia. (Both Ends)

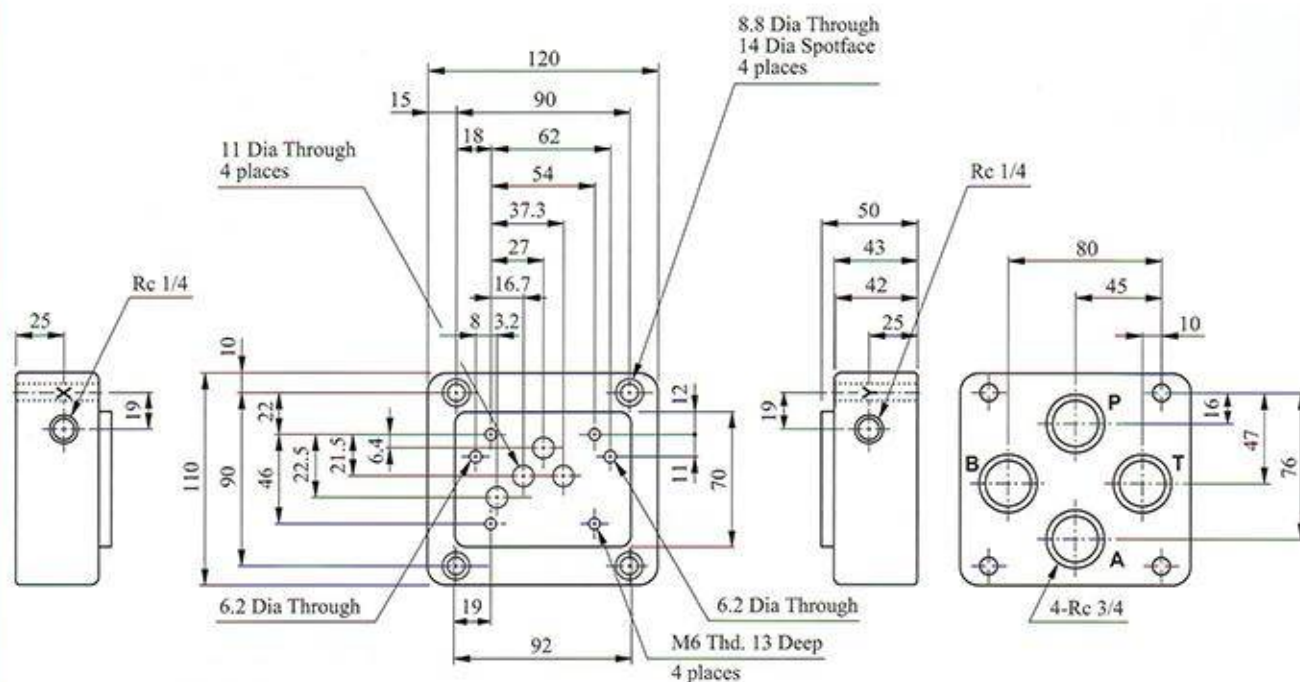


ITEM	A	B		C	
	SW	SA	SB	SA	SB
DSHGN-06-3C2-※	340	297.5	297.5	74.5	117.5
DSHGN-06-2B2B-※	360.5	318.5	318	95.5	137.5

Solenoid Valves with Monitoring Switch-DSHGN

Max. Pressure 25 MPa

■ Sub-Plate: DHGM-03Y



D

Pilot Operated Directional Valves Max. Pressure 31.5 MPa

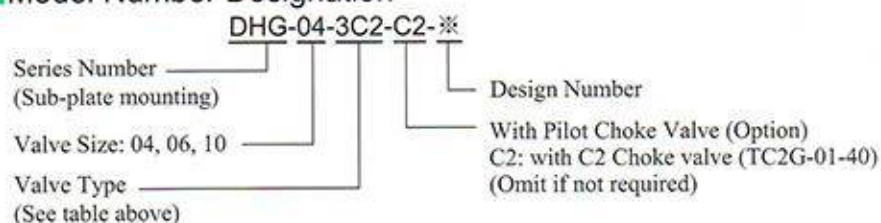
The valves control the direction of flow by way of the pilot pressure provided from a remote source.



Specifications

Valve Size	Model No.	Max. Flow L/min	Max. Pilot Pressure MPa (kgf/cm ²)	Min. Pilot Pressure MPa (kgf/cm ²)	Max. T-Line Back Press. MPa (kgf/cm ²)	Mass kg
1/2	DHG-04-2B※-50	130	31.5 (315)	0.8-25 (8-250)	21 (210)	7.8
	DHG-04-3C※-50	300				7.4
	DHG-04-2N※-50	300				7.4
3/4	DHG-06-2B※-50	140	31.5 (315)	0.8-25 (8-250)	21 (210)	11.7
	DHG-06-3C※-50	500				11.2
	DHG-06-2N※-50	500				11.2
1 1/4	DHG-10-2B※-40	460	31.5 (315)	1.0-25 (10-250)	21 (210)	45.6
	DHG-10-3C※-40	1100				43.8
	DHG-10-2N※-40	1100				43.8

Model Number Designation



Valve Type

Valve Type	3C2	3C4	3C40	3C5	3C60
Graphic Symbol					
Valve Type	3C12	2B2*	2B7*	2N2*	2N7*
Graphic Symbol					

* Valves, other than the type above are available, please contact our sales engineers for your requirement.
* The 2B2, 2B7, 2N2 & 2N7 type valves have no center position.

Sub-plate

Valve Model No.	Sub-plate Model No.	Piping Size Rc	Mass kg
DHG-04	DHGM-04-20	1/2	4.4
	DHGM-04X-20	3/4	4.1
DHG-06	DHGM-06-50	3/4	7.4
	DHGM-06X-50	1	
DHG-10	DHGM-10-40	1 1/4	21.5
	DHGM-10X-40	1 1/2	

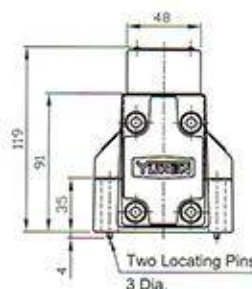
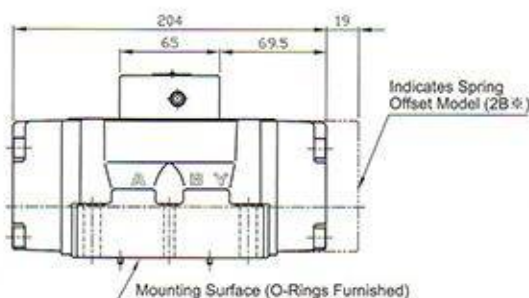
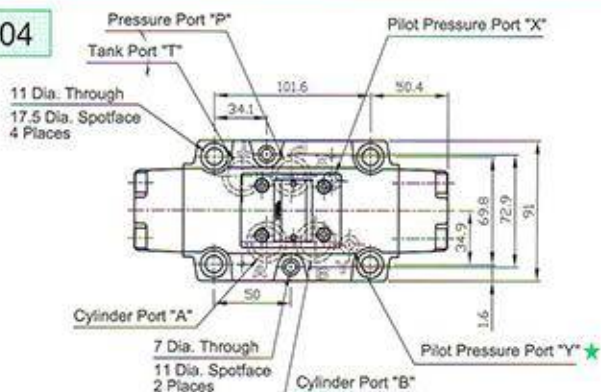
• Sub-plates are available. When ordering, please specify sub-plate model no. from the table above.
• Please refer to page 97, 98 for dimensions.

Mounting Bolts (Attachment)

Valve Model No.	Socket Head Cap Screw	Qty	Tightening Torque N·m (kgf·m)
DHG-04	M6 x 45 Lg	2	12~15 (1.2~1.5)
	M10 x 50 Lg	4	58~72 (5.9~7.3)
DHG-06	M12 x 60 Lg	6	100~123 (10.2~12.5)
DHG-10	M20 x 75 Lg	6	473~585 (48.2~59.7)

Pilot Operated Directional Valves Max. Pressure 31.5 MPa

DHG-04

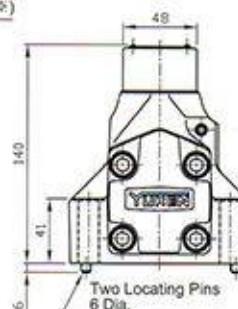
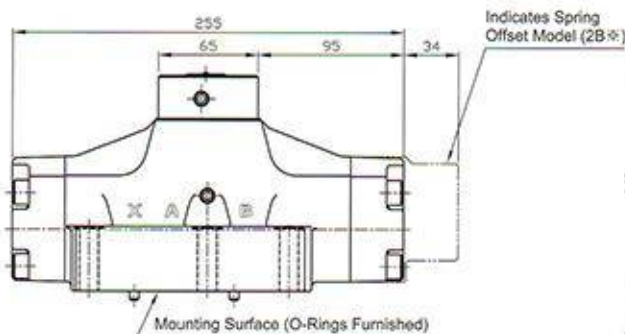
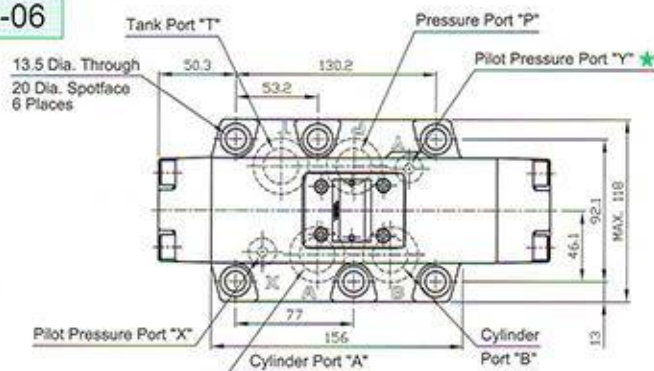


Note: For dimensions of mounting surface, please refer to DHGM-04 type sub-plate (page 97).

Mounting Surface: ISO 4401-AD-07-4-A-80

★ In case of Spring Offset model (2B※)
It functions as a drain port.
When the model is used, please connect it
directly to the reservoir.

DHG-06



Note: For dimensions of mounting surface, please refer to DHGM-06 type sub-plate (page 98).

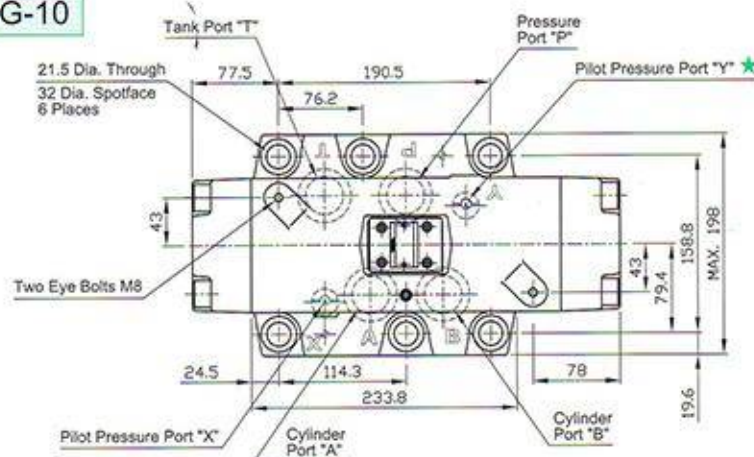
Mounting Surface: ISO 4401-AE-08-4-A-80

★ In case of Spring Offset model (2B※)
It functions as a drain port.
When the model is used, please connect it
directly to the reservoir.

Pilot Operated Directional Valves

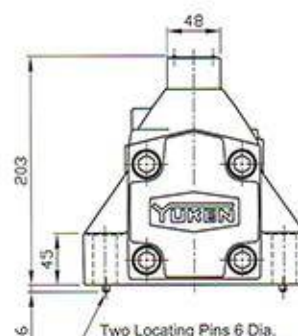
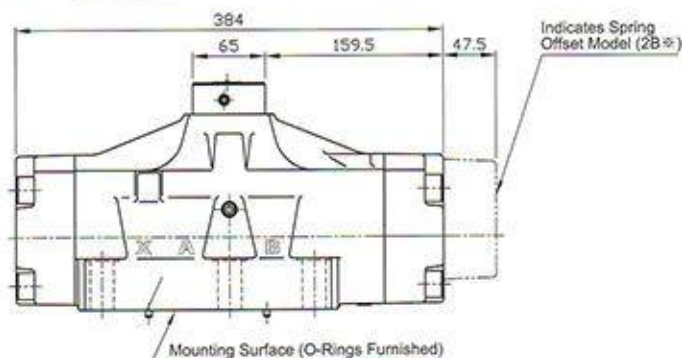
Max. Pressure 31.5 MPa

DHG-10



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

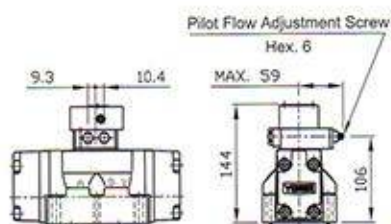
★ In case of Spring Offset model (2B※)
It functions as a drain port.
When the model is used, please connect it
directly to the reservoir.



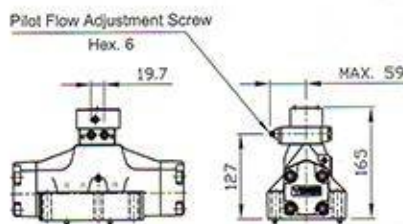
Note: For dimensions of mounting surface, please refer to DHGM-10 type sub-plate (page 98).

Options with Choke Valves

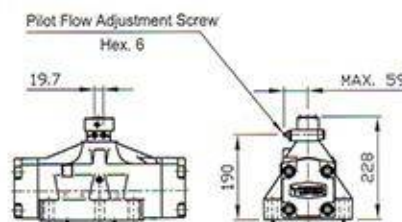
DHG-04-※※※-C2



DHG-06-※※※-C2



DHG-10-※※※-C2

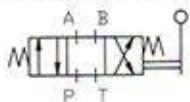


Manually Operated Directional Valves Max. Pressure 25 MPa

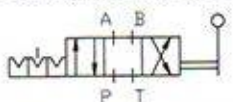


■ Graphic Symbol

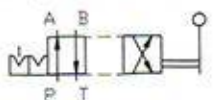
Spring Centered Models 3C*



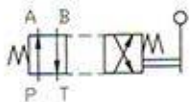
No-Spring Detented Models 3D✕



No-Spring Detented Models 2D✕



Spring Offset Models 2B※



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

■ Specifications

Valve Size	Model No.	Max. Flow L/min	Max. Pressure MPa (kgf/cm ²)	Max. T-Line Back Pressure MPa (kgf/cm ²)	Mass Kg.
3/8	DM※-03-2B※-50	100	25 (250)	16 (160)	DMT:5 DMG:4
	DM※-03-2D※-50				
	DM※-03-3C※-50				
	DM※-03-3D※-50				

■ Model Number Designation

Series — DM
 Number — T-03-3C2-50
 Type of Connection —
 T: Threaded Connection
 G: Sub-plate Mounting
 Valve Size: 03 —
 Valve Type —
 Please refer to left graphic Symbol and page 82.
 Design Number —

Note: For other valve types,
please contact our sales engineers.

■ Sub-plates

Valve Model No.	Sub-plate Model No.	Piping Size Re	Mass kg
DMG-03	DSGM-03-40	3/8	3
	DSGM-03X-40	1/2	
	DSGM-03Y-40	3/4	4.7

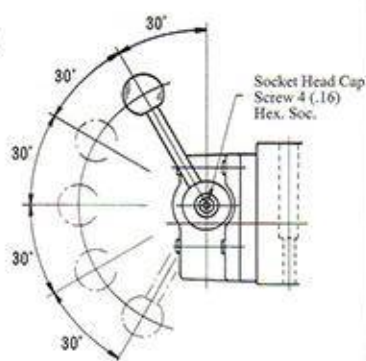
■ Mounting Bolts (Attachment)

Model No.	Socket Head Cap Screw	Q'ty	Tightening Torque N·m
DMG-03	M6 x 35 Lg	4	12~15

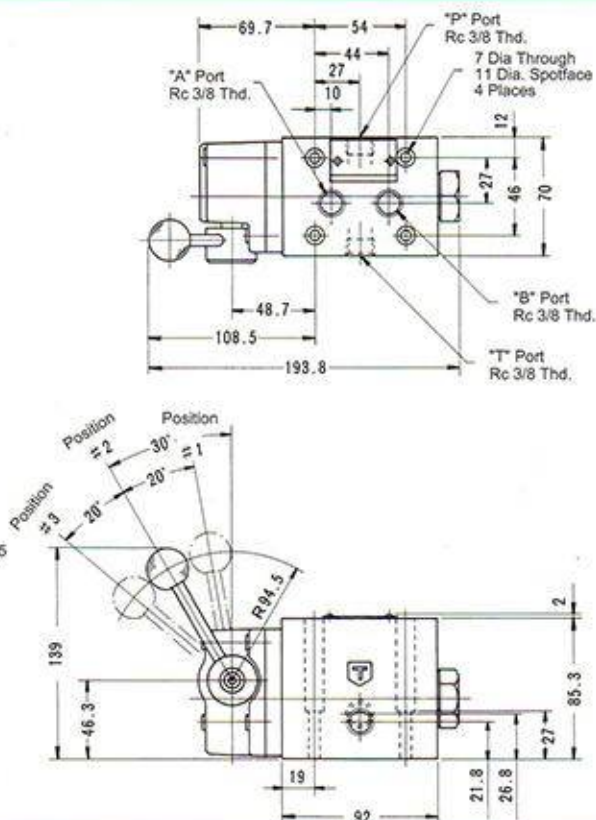
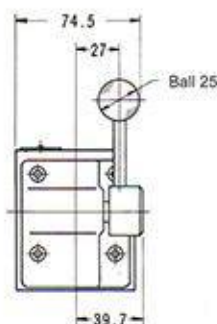
DMT-03

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, set the lever at the required position and tighten it with Soc. Hd. Cap Screw firmly.



* Lever Operating Torque
Not exceeding 30 N•m (3.06 kgf•m)

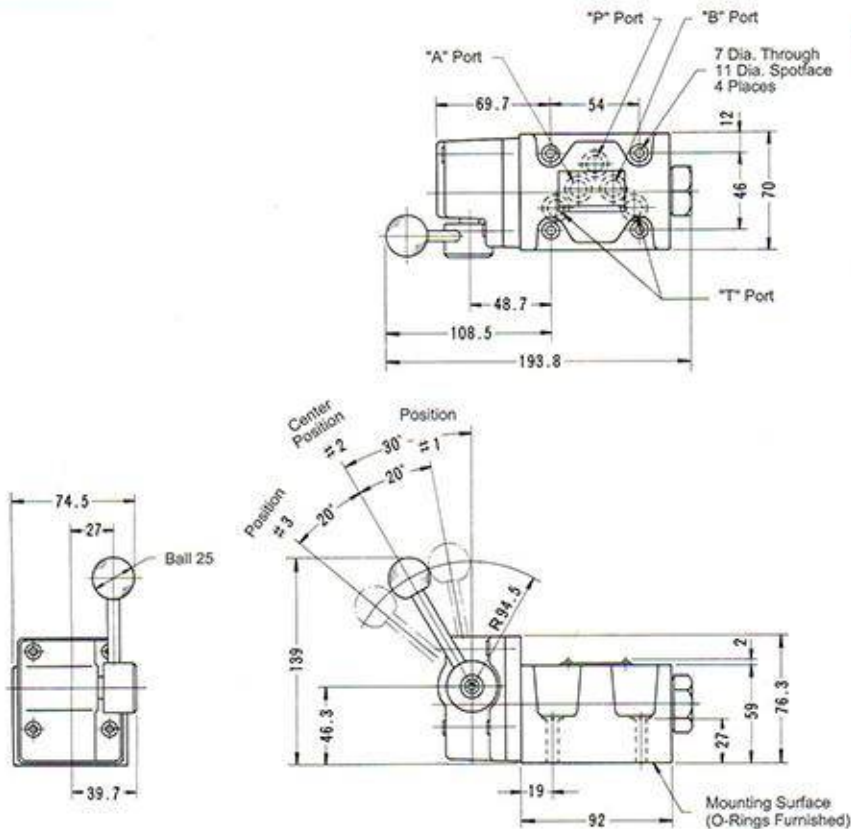


Manually Operated Directional Valves Max. Pressure 25 MPa

DMG-03

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

- ★1. The position of operating the lever can be changed as required. For the details, please see the DMT-03 in the previous page.
- ★2. Max. torque of operating the lever:
30 N·m (3.06 kgf·m)



Note: For dimensions of mounting surface, please refer to the dimensional drawing of the sharable sub-plate (page 91).

Manually Operated Directional Valves Max. Pressure 25 MPa

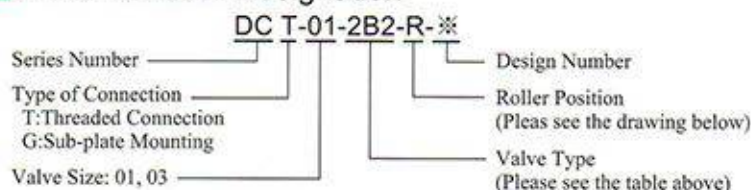


These valves may be used to shift the direction of oil flow by depressing the spool by way of a cam.

Specifications

Valve Size	Model No	Max. Flow L/min	Max. Pressure MPa (kgf/cm ²)	Max. T-Line Back Press. MPa (kgf/cm ²)	Mass kg
1/8	DCT-01-2B※-40	30	21 (210)	7.0 (70)	1.1
	DCG-01-2B※-40				
3/8	DCT-03-2B※-50	100	25 (250)	10.0 (100)	4.5
	DCG-03-2B※-50				3.8

Model Number Designation

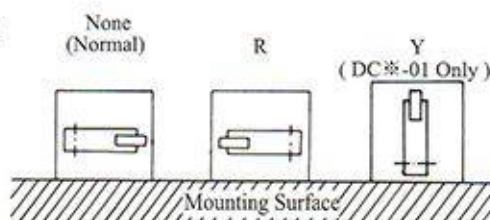


Valve Type Note: 01 and 03 graphic symbols are different.

Valve Type	2B2	2B3	2B8*
DCG-01			
DCT-03			

*Valve type 2B8, Tank port "T" functions as a drain port. Please connect it directly to the reservoir (Max. allowable T-line back pressure 0.35 MPa)

Roller Position



Mounting Bolts (Attachment)

Model No.	Socket Head Cap Screw	Q'ty	Tightening Torque N•m (kgf•m)
DCT-01	M5 x 45 Lg	2	5~7 (0.5~0.7)
DCG-01	M5 x 45 Lg	4	
DCG-03	M6 x 35 Lg	4	12~15 (1.2~1.5)

※DCT-03 Type is without mounting bolts.

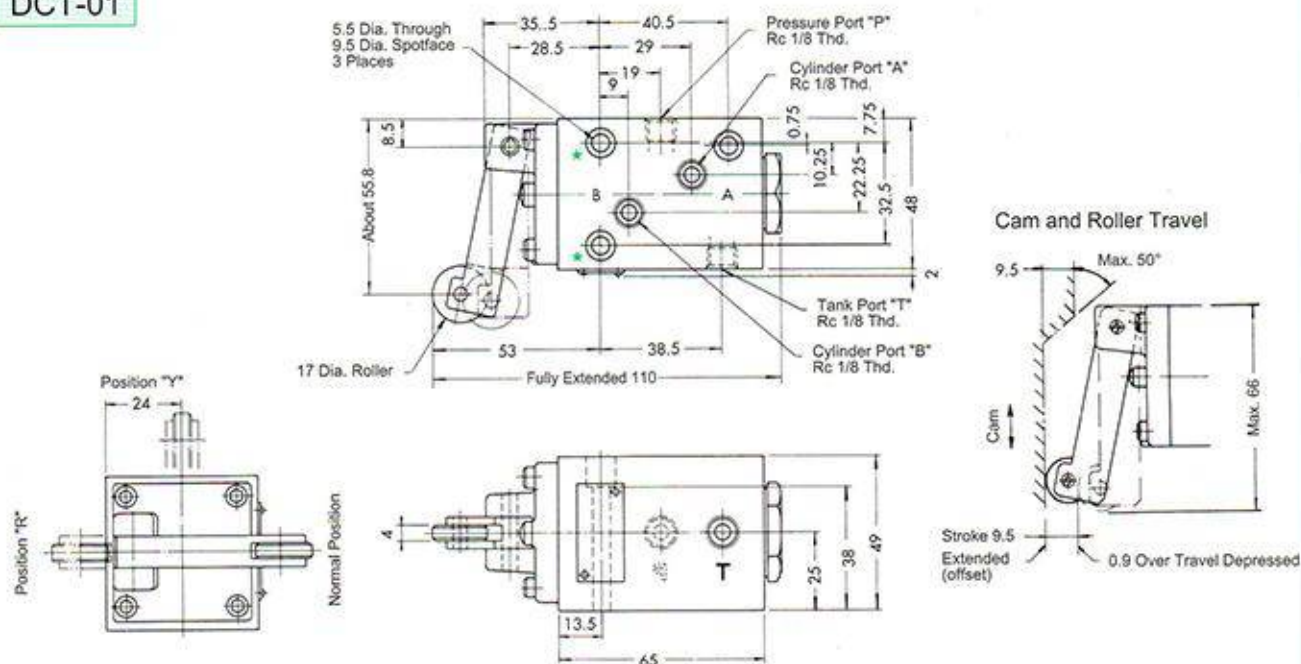
Sub-plate

Valve Model No.	Sub-plate Model No.	Piping Size Rc	Mass kg
DCG-01	DSGM-01-30	1/8	0.8
	DSGM-01X-30	1/4	
	DSGM-01Y-30	3/8	
DCG-03	DSGM-03-40	3/8	3
	DSGM-03X-40	1/2	3
	DSGM-03Y-40	3/4	4.7

• When ordering sub-plate, please specify sub-plate model no. from the table above.
• Please refer to page 88 (DSGM-01) and page 91 (DSGM-03) for dimensions.

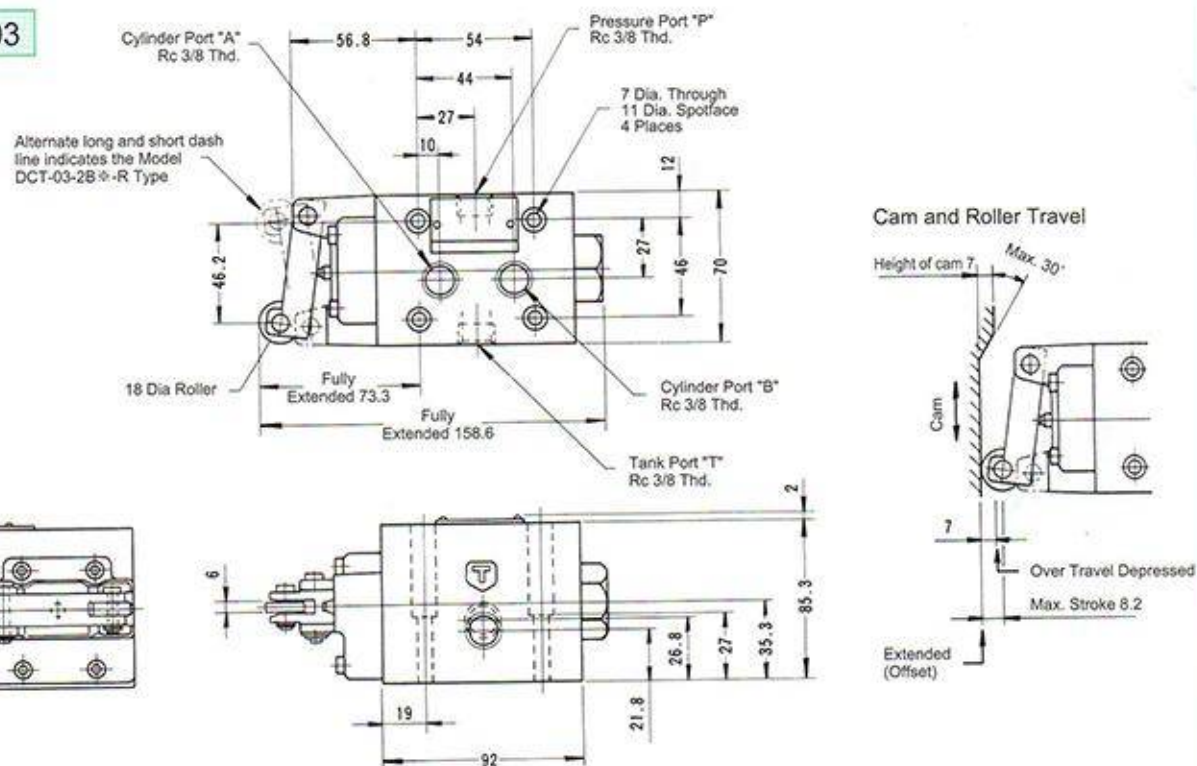
Mechanically Operated Directional Valves Max. Pressure 25 MPa

DCT-01



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

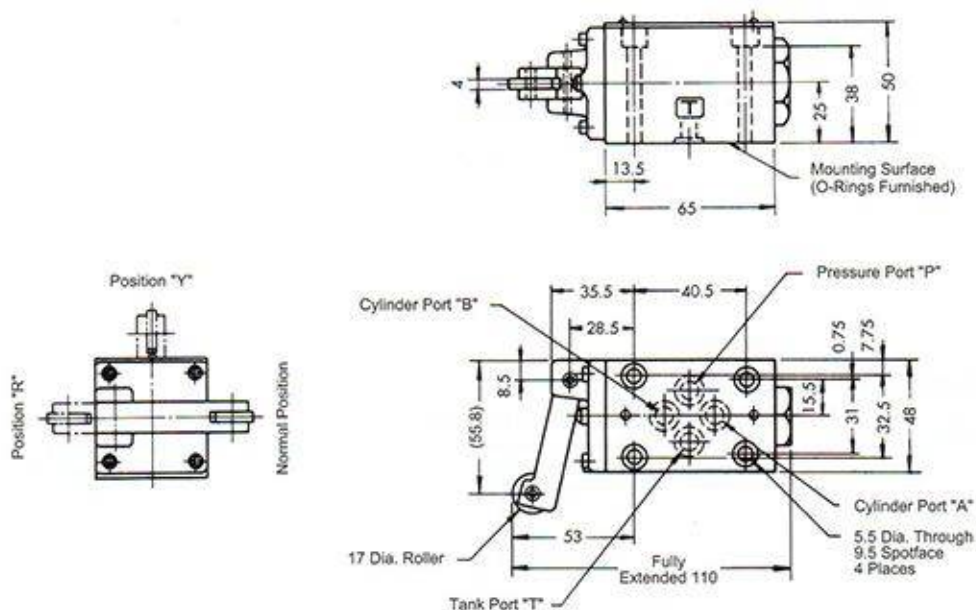
DCT-03



Mechanically Operated Directional Valves Max. Pressure 25 MPa

DCG-01

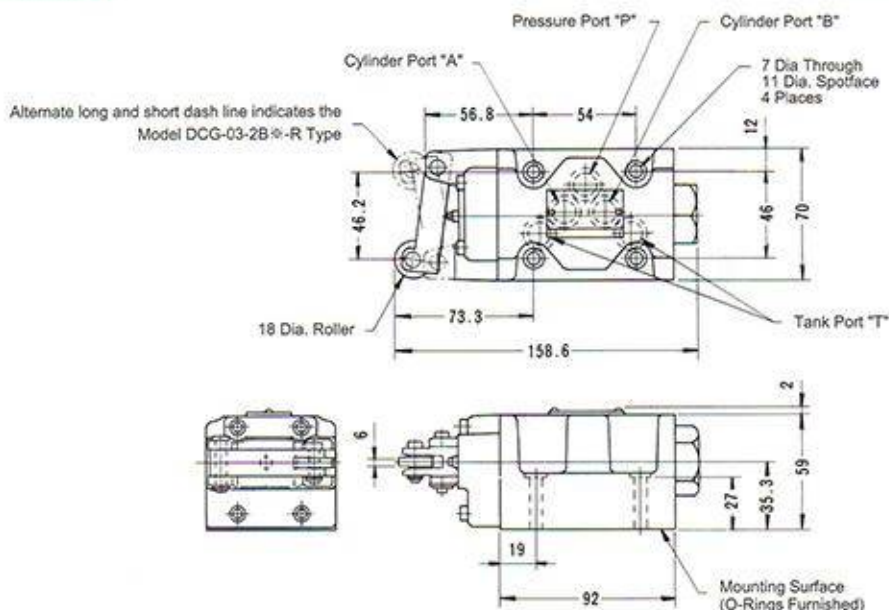
Mounting Surface:ISO 4401-AB-03-4-A



- Note:1. For the cam and roller travel, please refer to DCT-01 in the previous page.
 2. For the valve's mounting surface dimensions, please refer to DSGM-01 type sub-plate (page 88).

DCG-03

Mounting Surface:ISO 4401-AC-05-4-A-80



- Note:1. For the cam and roller travel, please refer to DCT-03 in the previous page.
 2. For the valve's mounting surface dimensions, please refer to DSGM-03 type sub-plate (page 91).

Max. Pressure 25 MPa



- The monitoring switch can monitor the spool shifting to make sure the safety door open or close correctly.
- The monitoring switch is secluded from the outside circumstance and will not be influenced by the pollution.
- Degree of protection is IP 65.
- It will not be interfered by the external magnetic field.

Valve size	Model No.	Max. Flow L/min	Max. Pressure MPa	Max. T-Line Back Pressure MPa	Mass kg
1/8	DCGS-01-2B※-40	30	21	5	1.8
	DCTS-01-2B※-40				1.8
3/8	DCGS-03-2B※-50	100	25	5	3.4
	DCTS-03-2B※-50				4.7

Rated Voltage (V) $\pm 10\%$	Load available (A)	Life time (Cycle)
AC 125 AC 250 DC 24	0.08 ~ 0.2	3×10^6 (Operating frequency 30 cycle/min)

- ※ 1. Max. changeover frequency :60 cycle/min.
2. Ambient temperature: 0 ~ 70°C, under 60%RH.
3. When DC current controlled, please use surge absorber to control the circuit.

Valve Type	2B2	2B3	2B8 ★
DCGS-01 DCTS-01			
DCGS-03 DCTS-03			

- ★2B8 Type: Tank port "T" functioned as a drain port and connect it directly to the reservoir.
(Max. allowable T-line back pressure: 0.35 MPa)

Item	Spool Position		
	Switching	Crossover	Returning
NO			
NC			

Model No.	Socket Head Cap. Screw	Tightening Torque
DCGS-01	M5 x 45L 4 Pes	5~7 N·m
DCTS-01	M5 x 45L 2 Pes	
DCGS-03	M6 x 35L 4 Pes	12~15 N·m

DCTS-03 type is without mounting bolts

Series Number — **DCGS - 01 - 2B2 - R - 3** — Design Number
 DCGS:Sub-Plate Mounting — Roller Position:
 DCTS:Threaded Connection — (Please See The Below Table)
 Valve Size:01, 03 — Valve Type:
 (Please See The above Table)

The diagram illustrates three different mounting configurations for a device. Each configuration is shown within a rectangular frame above a hatched area labeled 'Mounting Surface'.

- None (Normal):** Shows a device with a single horizontal pin extending from its left side into the mounting surface.
- R:** Shows a device with two horizontal pins extending from its left side into the mounting surface.
- Y (Only available for DCGS-01):** Shows a device with a single vertical pin extending from its bottom into the mounting surface.

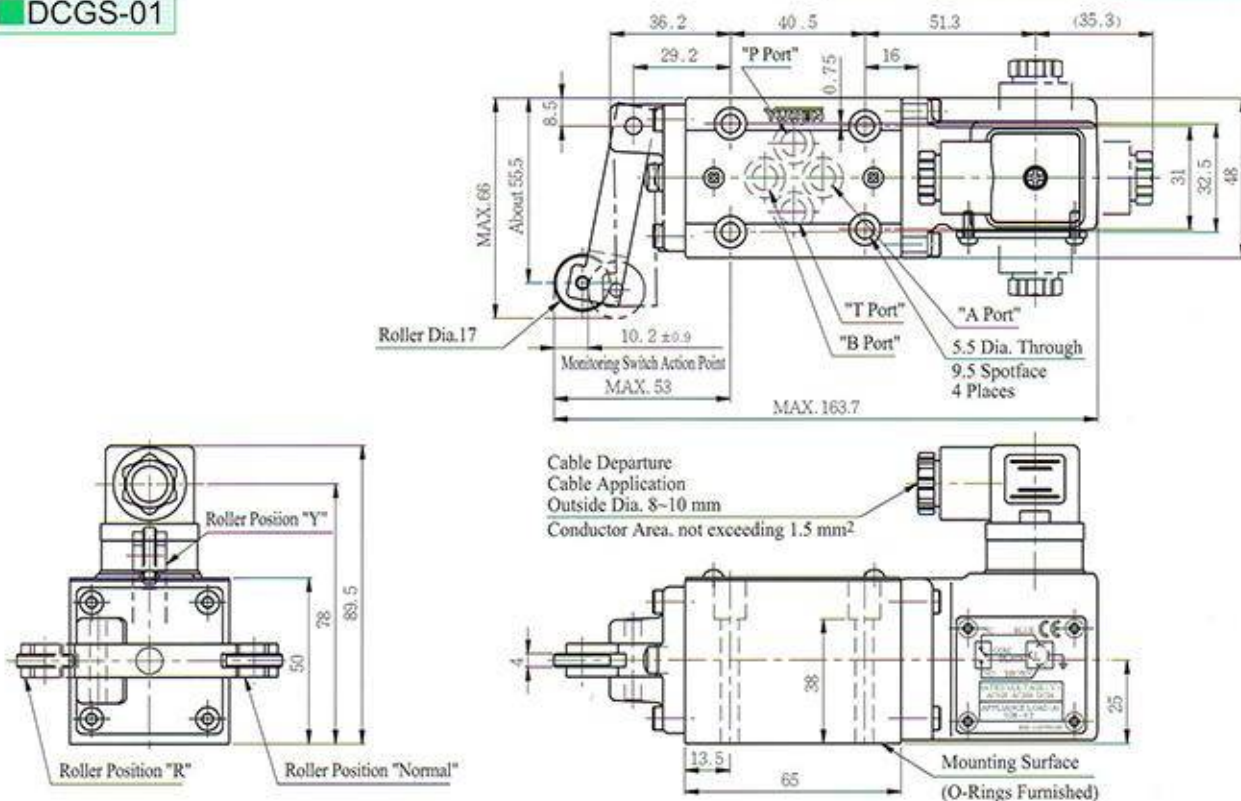
Mechanically Operated Directional Valves with Monitoring Switch-DCGS

Max. Pressure 25 MPa

D

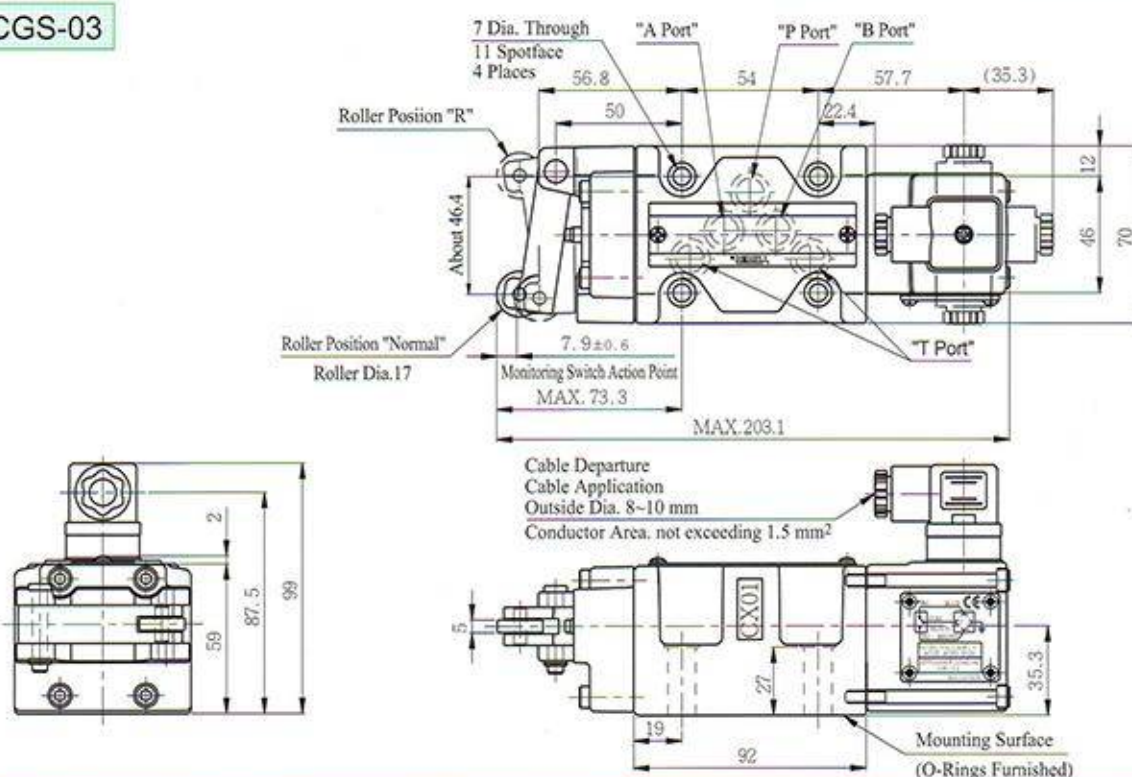
DCGS-01

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



DCGS-03

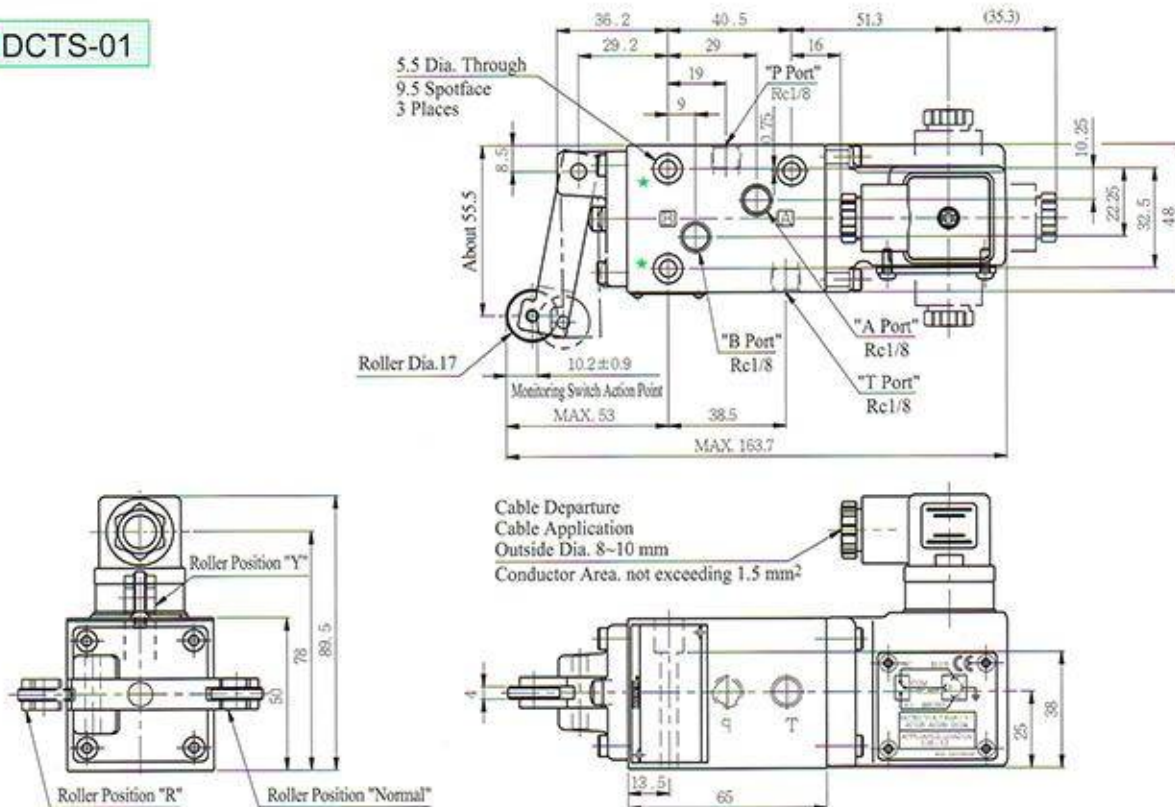
Mounting Surface:ISO 4401-AC-05-4-A



Mechanically Operated Directional Valves with Monitoring Switch-DCGS

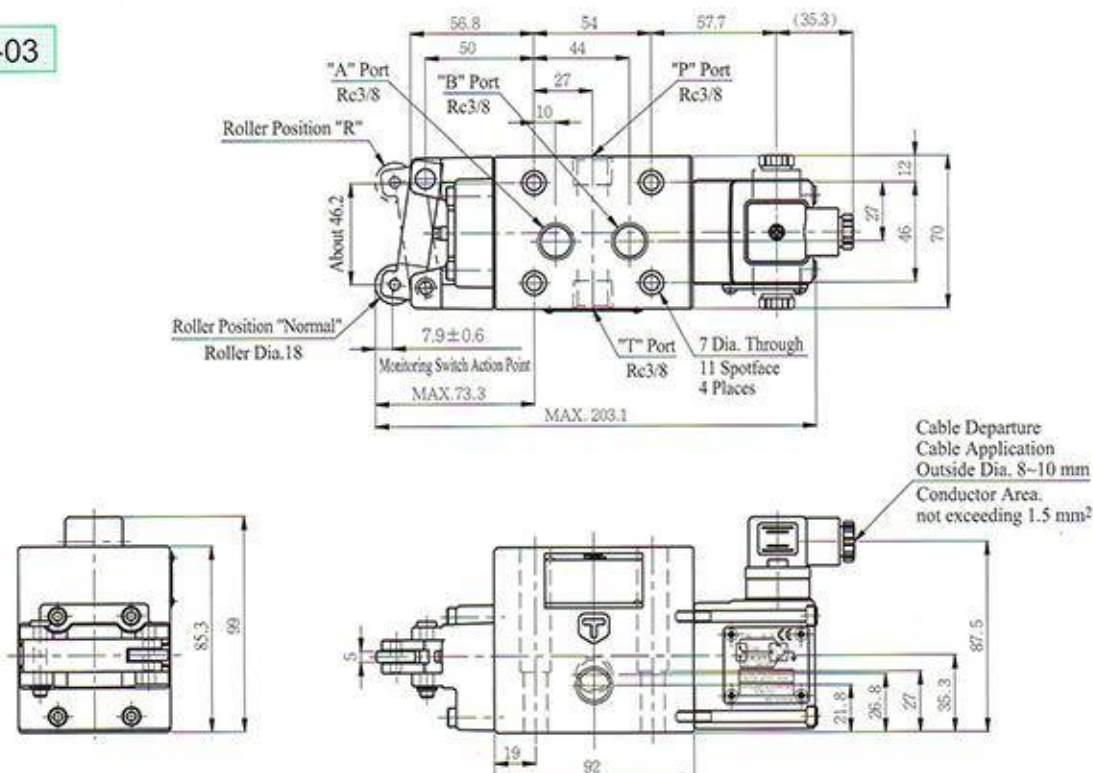
Max. Pressure 25 MPa

DCTS-01



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

DCTS-03



Logic Valve With Monitoring Switch

Max. Pressure 30 MPa


- The Limits Switch is connected to the poppet to monitor the open and close position of the logic valve
- Upon the poppet opening, we can sense the signal immediately.
- The poppet has the cushion function and low shocking of the shifting movement.
- Water-proof, Dust-proof IP 65

Model Number Designation

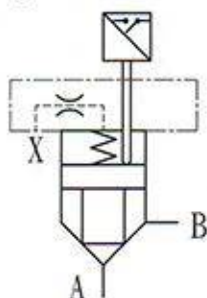
Series No. LDLS: Logic valve with Monitoring Switch	Valve Size 16, 25, 32, 40, 50	Cracking Pressure MPa (kgf/cm ²) None : Without spring 05 : 0.05 (0.5) 20 : 0.2 (2) 35 : 0.35 (3.5)	Design No. Monitoring Switch Connector 1:N.O (Normal Open) 2:N.C (Normal Close) Monitoring Switch Contact P : PNP N.O. (Standard) N : NPN N.O.
Model No. Designation: LDLS - 16 - 05 - X08 - P 1 - 20			* Location of orifice X Pilot port None : No orifice (standard) X08 : Designation of orifice ø0.8 X10 : Designation of orifice ø1.0 X12 : Designation of orifice ø1.2 X14 : Designation of orifice ø1.4 X16 : Designation of orifice ø1.6 X18 : Designation of orifice ø1.8 X20 : Designation of orifice ø2.0 X25 : Designation of orifice ø2.5

Specifications

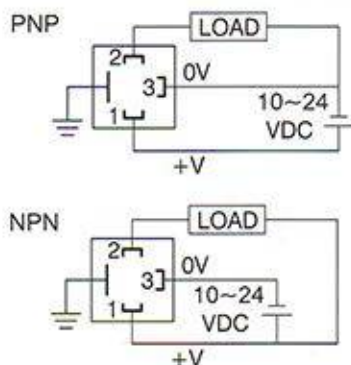
Model No.	Rated Flow L/min	Cracking Pressure MPa (kgf/cm ²)	Max. Operating Pressure MPa (kgf/cm ²)	Mass (kg) With mounting Bolts
LDLS-16-※-20	130	05 : 0.05 (0.5) 20 : 0.2 (2) 35 : 0.35 (3.5)	30 (306)	2.1
LDLS-25-※-20	350			3.5
LDLS-32-※-20	500			5.0
LDLS-40-※-20	850			9.0
LDLS-50-※-20	1400			14.1

Note : 1. Rated flow : at the valves of no spring type and the pressure drop of 0.3 MPa, .
2. The actual pressure drop please refer to the following page, flow vs pressure drop curve

Graphic Symbol



Mounting Switch Wiring Diagram



Mounting Switch Movement Range

		Logic Valve Poppet Position		
		Poppet Close	Cushion Position	Poppet Open
Monitoring Switch Movement	N.O. (Normal Open)			
	N.C. (Normal Close)			

Mounting Bolts

Model No.	Socket Head Cap Screw	Q'ty	Tightening Torque N·m
LDLS-16	M8 x 50L	4	31 ~ 38
LDLS-25	M12 x 55L	4	104 ~ 127
LDLS-32	M16 x 60L	4	253 ~ 310
LDLS-40	M20 x 70L	4	493 ~ 603
LDLS-50	M20 x 90L	4	493 ~ 603

Monitoring Switch Specifications

Rated Voltage (V)	Load Available (A)
DC10-30V	MAX. 200 mA

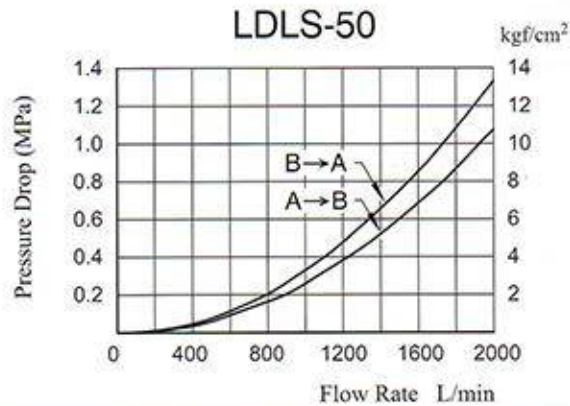
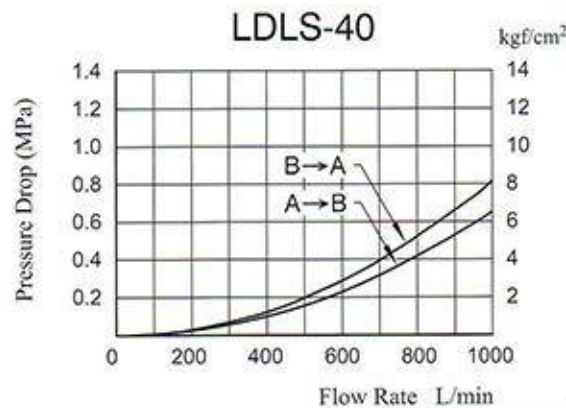
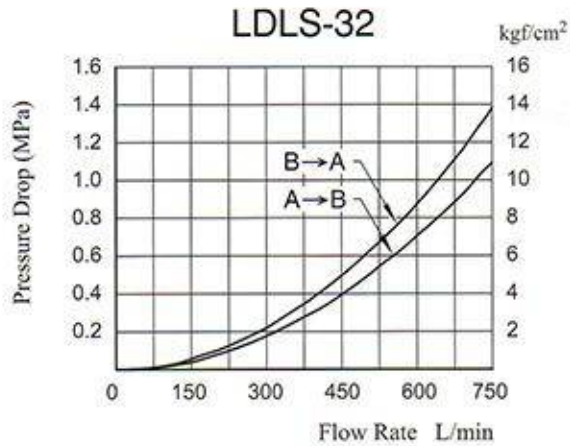
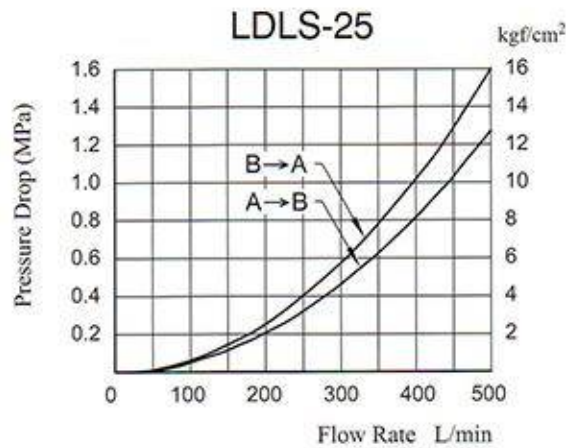
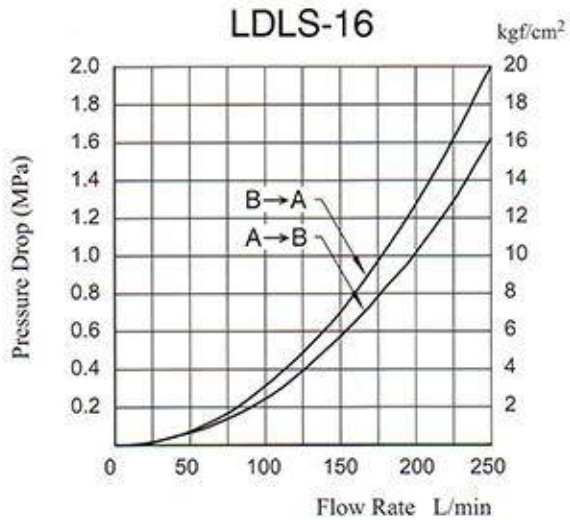
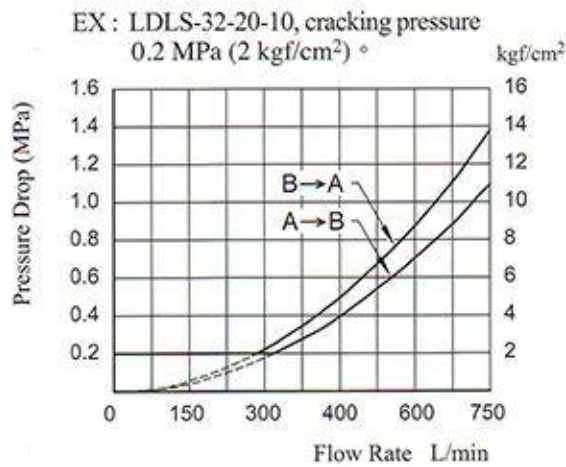
Note : 1. Switching Frequency 1000HZ
2. Ambient Temperature Range -25~70°C
3. When DC current is controlled, please use surge absorber to control the circuit.

Logic Valve With Monitoring Switch

Max. Pressure 30 MPa

LDLS -※ Flow vs Pressure Drop Curve (ISO VG46 Oils, 50°C. Fluid Viscosity 35 cSt)

This pressure drop curve is based on non-spring type, if select the cracking pressure of 05, 20, 35, the pressure drop under the cracking pressure is as same as the cracking pressure

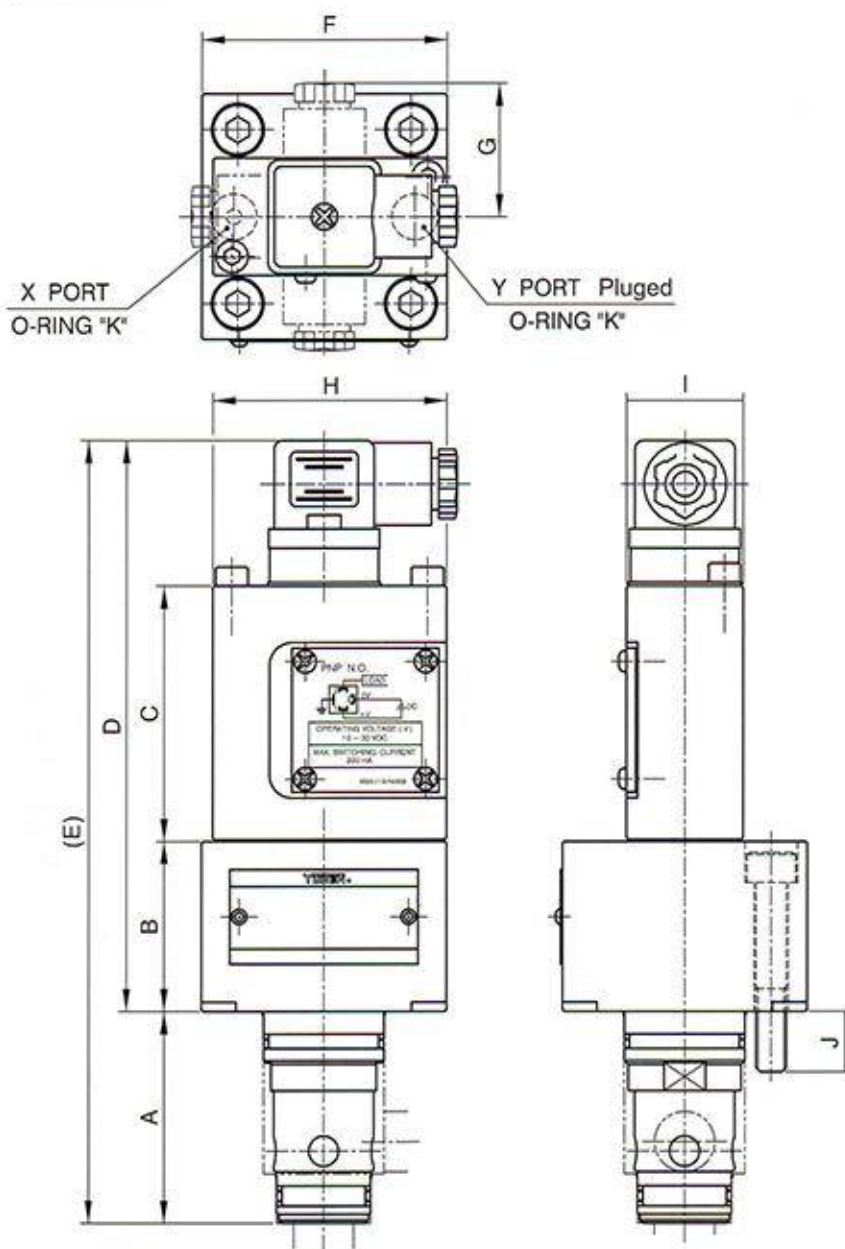


Logic Valve With Monitoring Switch

Max. Pressure 30 MPa

D

LDLS - ※ Dimensions



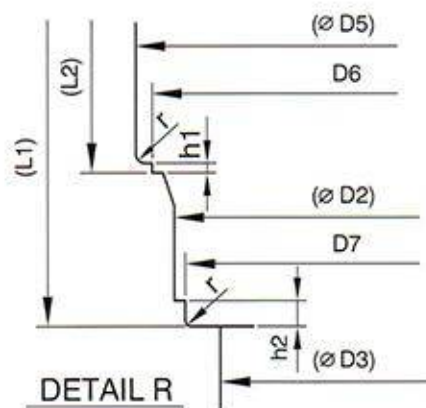
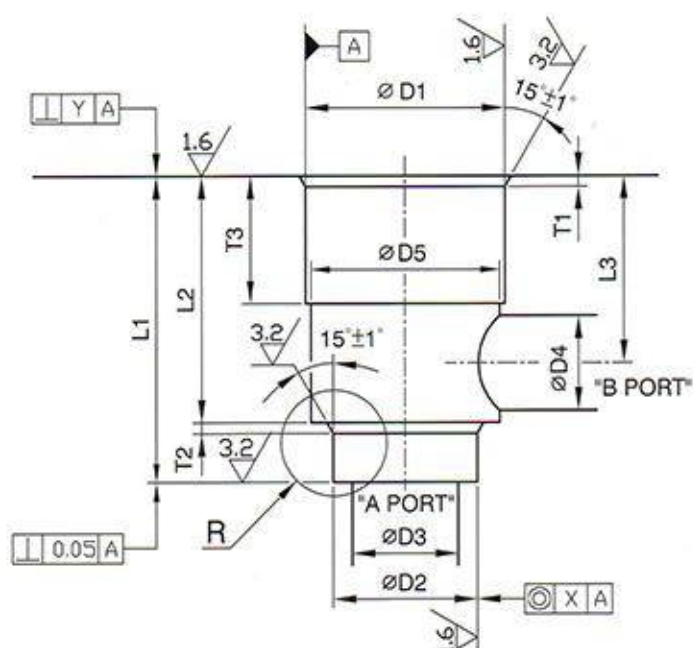
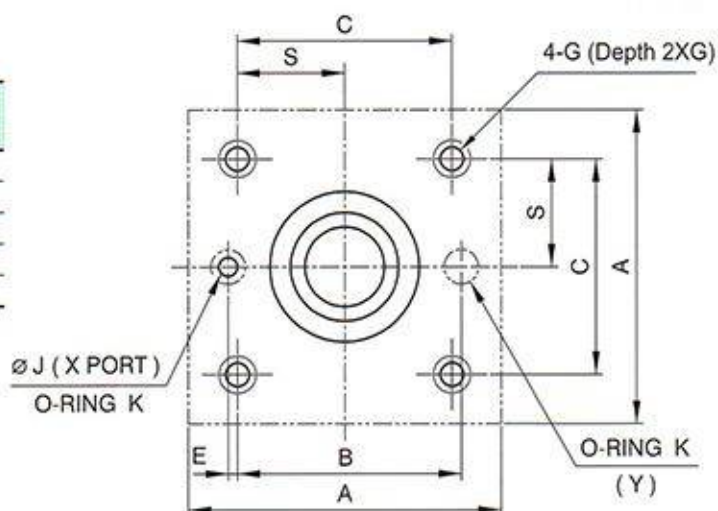
Model No.	A	B	C	D	E	F	G	H	I	J	K
LDLS-16	56	45	67.5	106	207	65	36	62	31	16	SO-NB-P9
LDLS-25	72	50		156	228	85				20	SO-NB-P9
LDLS-32	85	52		158	243	102				24	SO-NB-P11
LDLS-40	105	65		171	276	127				33	SO-NB-P14
LDLS-50	122	82		188	310	142				37	SO-NB-P14

Logic Valve With Monitoring Switch

Max. Pressure 30 MPa

LDLS - ※ Mounting Dimensions

Model No.	A +1 +0	B ±0.2	C ±0.2	S ±0.2	E ±0.2	G	J	K
LDLS-16	65	47	46	23	1	M8	4	P9
LDLS-25	85	62	58	29	4	M12	6	P9
LDLS-32	102	76	70	35	6	M16	8	P11
LDLS-40	125	92.5	85	42.5	7.5	M20	10	P14
LDLS-50	140	108	100	50	8	M20	10	P14



Model No.	L1		L2		L3 ±0.3
	Base dimension	Allowance	Base dimension	Allowance	
LDLS-16	56	+0.1 +0	43	+0.1 +0	34
LDLS-25	72		58		44
LDLS-32	85		70		52
LDLS-40	105		87		64
LDLS-50	122		100		72

Model No.	D1		D2		D3	D4	D5 Min.	D6	D7 Min.	T1	T2	T3 +0.5 +0	h1	h2	r Max.	X	Y
	Base dimension	Allowance	Base dimension	Allowance													
LDLS-16	32	+0.039 +0	25	+0.033 +0	16	31.5	28.5	24.6	2	2	20	0.2	2	0.8	0.03	0.05	
LDLS-25	45		34	+0.039 +0	25	44.5	39.5	33.6	2.5	2.5	30						
LDLS-32	60	+0.046	45	+0.046 +0	32	59.5	52.5	44.6	2.5	2.5	30	0.3	3 5	0.05	0.1		
LDLS-40	75	+0	55		40	74	65	54.6	3	3	30						
LDLS-50	90	+0.054 +0	68	+0	50	89	75	67.6	3	3	35						

Check Valves

Max. Pressure 21 MPa



CIT Type



CRG Type

These valves allow free flow in one direction and prevent flow in the reverse direction. Cracking pressure specified is the pressure required to open the valve and allow free flow.

Specifications

Valve Size	Model No.		Rated Flow L/min	Cracking Pressure MPa (kgf/cm ²)	Mass kg	
	Threaded Connection	Sub-plate Mounting			Threaded Connection	Sub-plate Mounting
3/8	CIT-03-※-30T	-	30	0.05 (0.5)	0.18	-
3/4	CIT-06-※-30T	-	80	0.2 (2)	0.65	-
1-1/4	CIT-10-※-30T	-	200	0.35 (3.5)	2.1	-
3/8	CRT-03-※-31	CRG-03-※-30	30	0.50 (5)	-	-
3/4	CRT-06-※-31	CRG-06-※-30	100	0.2 (2)	1.6	4.1
1-1/4	CRT-10-※-30	CRG-10-※-30	250	0.35 (3.5)	5.5	7.8
				0.5 (5)		

* There is 50T design for CRG series, that is ISO 5781 mounting dimension, Please contact our sales people for details.

Model Number Designation

Series Number CI: In-Line Check Valve	CI	T-03-05-30T	Design Number
Type of Connection T: Threaded Connection	T		Cracking Pressure CIT
Valve Size 03, 06, 10	03, 06, 10		05 : 0.05 Mpa 20 : 0.20 Mpa 35 : 0.35 Mpa 50 : 0.50 Mpa
Series Number CR: Right Angle Check Valve	CR	T-03-5-※	Design Number
Type of Connection T: Threaded Connection G: Sub-plate Mounting	T, G		Cracking Pressure CRG
Valve Size	03, 06, 10		05 : 0.035 Mpa 30 : 0.20 Mpa 50 : 0.35 Mpa 75 : 0.50 Mpa

Graphic Symbol



Sub-plate

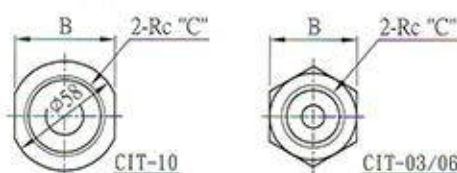
Valve Model No.	Sub-plate Model No.	Piping Size Rc	Mass kg
CRG-03	CRGM-03-30	Rc 3/8	0.9
CRG-06	CRGM-06-30	Rc 3/4	2.7
CRG-10	CRGM-10-30	Rc 1-1/4	6.6

Sub-plates are available. When ordering, please specify sub-plate model no. from the table above. For dimension of the sub-plate, please see page 114.

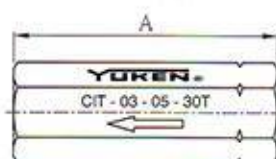
Mounting Bolts (Attachment)

Model No.	Socket Head Cap Screw	Q'ty	Tightening Torque N·m
CRG-03	M10 x 60Lg	4	60 ~ 74
CRG-06	M16 x 60Lg	4	253 ~ 310
CRG-10	M20 x 75Lg	4	493 ~ 603

CIT-03, 06, 10

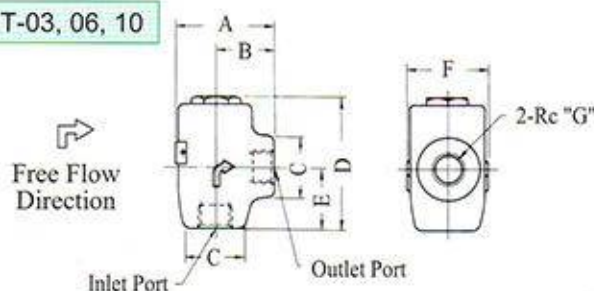


Free Flow Direction



Model No.	A	B	C
CIT-03	70	23	3/8
CIT-06	90	35	3/4
CIT-10	133	53	1-1/4

CRT-03, 06, 10

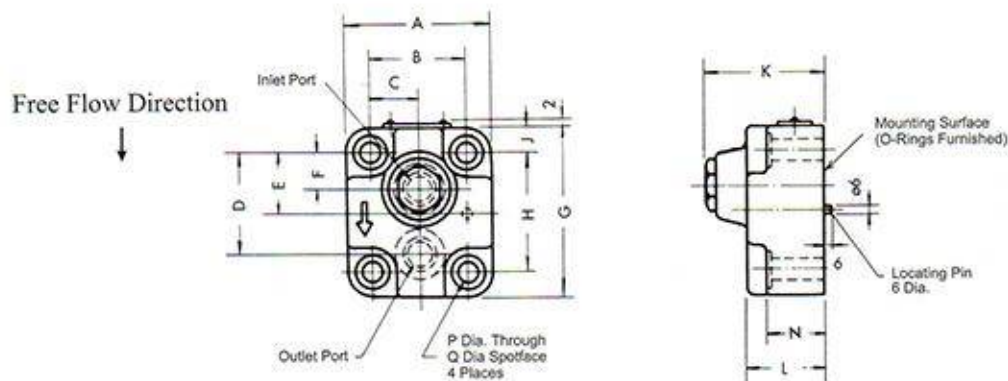


Model No.	A	B	C	D	E	F	G
CRT-03	59	36	ø36	78	33	47	3/8
CRT-06	74.5	47	ø45	106	51	57	3/4
CRT-10	105	65	ø80	126	62	83	1-1/4

Check Valves

Max. Pressure 21 MPa

CRG-03, 06, 10

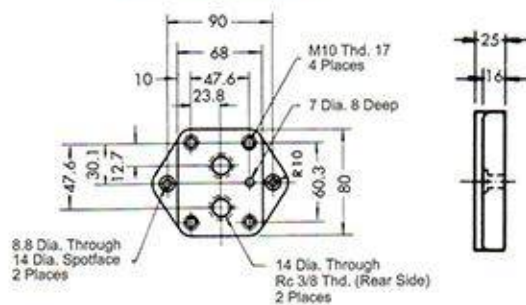


Model No.	A	B	C	D	E	F	G	H	J	K	L	N	P	Q
CRG-03	68	47.6	23.8	47.6	30.1	12.7	80	60.3	10	72	55	46	11	17.5
CRG-06	98	65.1	32.6	68.2	40.5	22.2	114	80.9	16.5	81	53	38	17.5	26
CRG-10	130	92.1	46.1	71.4	46	20.6	130	92.1	19	96	65	47	21.5	32

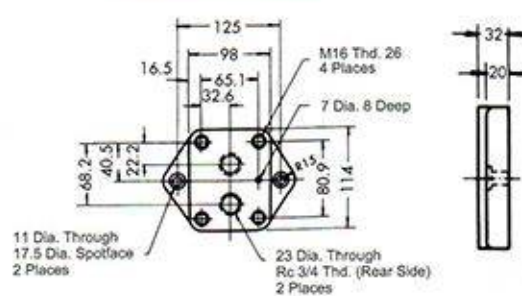
Note: For dimensions of valve's mounting surface, please refer to the diagram below.

Sub-plate

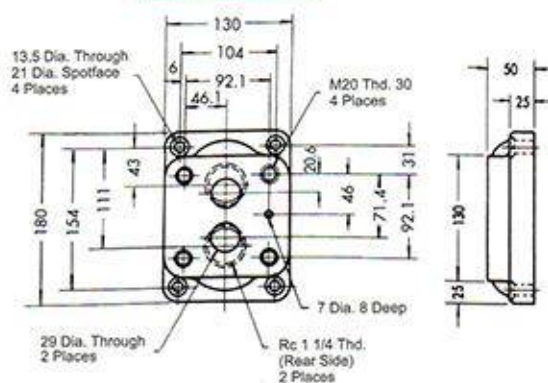
CRGM-03-30



CRGM-06-30



CRGM-10-30



Pilot Controlled Check Valves

Max. Pressure 25 MPa



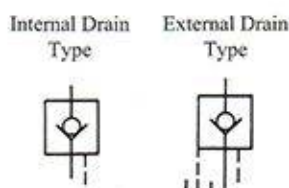
These check valves allow free flow in one direction and prevent reverse flow in the reverse direction until operated by a pilot pressure to allow free reverse flow. The specified cracking pressure is required to open the valve to allow free flow direction.

Specifications

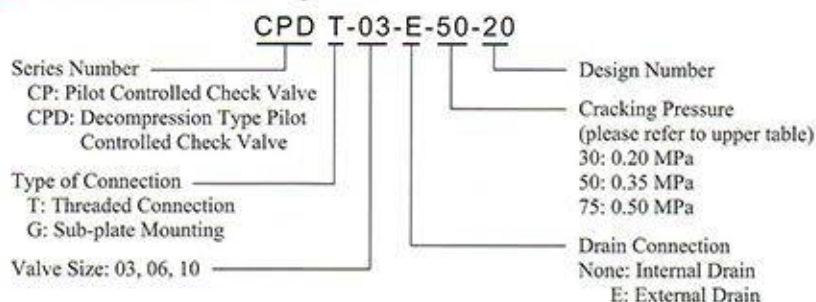
Valve Size	Model No.		Rated Flow L/min	Cracking Pressure MPa (kgf/cm ²)	Mass kg	
	Threaded Connection	Sub-plate Mounting			Threaded	Sub-Plate
3/8	CP※T-03-※-※-20	CP※G-03-※-※-20	50	0.20 (2)	3.4	4.5
3/4	CP※T-06-※-※-20	CP※G-06-※-※-20	125	0.35 (3.5)	5.2	7
1-1/4	CP※T-10-※-※-20	CP※G-10-※-※-20	315	0.50 (5)	11.6	12

D

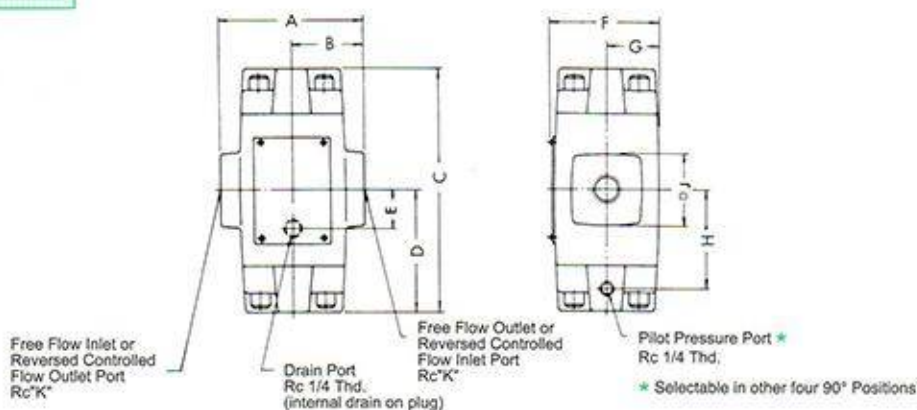
Graphic Symbol



Model Number Designation



CPT -03, 06, 10
CPDT



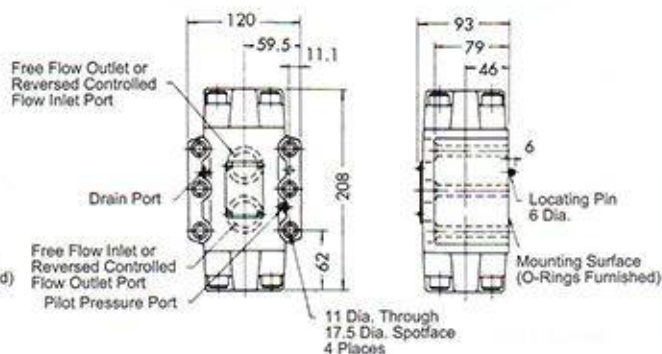
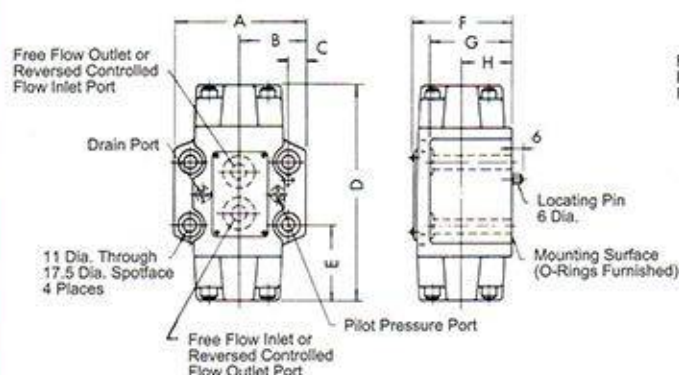
Model No.	A	B	C	D	E	F	G	H	J	K
CP※T-03	80	40	144	72	21	66	32	58	36	3/8
CP※T-06	96	48	168	84	26	78	38	70	60	3/4
CP※T-10	140	70	208	104	35	92	45	84	79	1-1/4

Pilot Controlled Check Valves

Max. Pressure 25 MPa

CPG
CPDG -03, 06

CPG
CPDG -10



Model No.	A	B	C	D	E	F	G	H
CPG-G-03	90	44.5	11.1	144	50.6	68	59	35
CPG-G-06	102	51	11.3	168	54	80	69	40

Note: For dimensions of mounting surface, please refer to HGM type sub-plate (page 66).

Sub-plate

Valve Model no.	Sub-plate Model No.	Piping Size Rc	Mass kg
CPG CPDG -03	HGM-03-20	3/8	1.6
	HGM-03X-20	1/2	1.6
CPG CPDG -06	HGM-06-20	3/4	2.4
	HGM-06X-20	1	3.0
CPG CPDG -10	HGM-10-20	1-1/4	4.8
	HGM-10X-20	1-1/2	5.7

Sub-plates are available. When ordering, please specify sub-plate model no. from the table above. Please refer to page 66.

Mounting Bolts (Attachment)

Model No.	Socket Head Cap Screw	Q'ty.	Tightening Torque N·m
CPG-G-03	M10 x 70 Lg	4	60 ~ 74
CPG-G-06	M10 x 80 Lg	4	
CPG-G-10	M10 x 90 Lg	6	

Poppet Type Directional Valves Max. Pressure 21 MPa



These valves are of poppet type structure, therefore, response time is quicker than that of spool type valves, moreover the valves have little internal leakage. (below 0.25cm³/min)

Specifications

Model Number	Max. T-Line Back Pressure MPa (kgf/cm ²)	Max. Flow L/min	Mass kg
LVT-03-※-30	16 (160)	40	4.3
LVG-03-※-30			

Sub-plate

Valve Model No.	Piping Size Rc	Mass kg
LVGM-03-10	3/8	1.9
LVGM-03X-10	1/2	

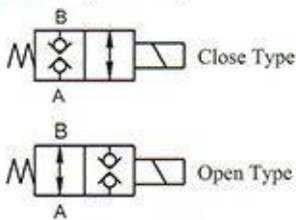
Sub-plates are available. When ordering, please specify sub-plate model no. from the table above.

Model Number Designation

Series Number: LV T-03-0-R220-N1-30
 Type of Connection: T: Threaded Connection, G: Sub-plate Mounting
 Valve Size: 0: Open Type, None: Close
 Design Number: R220
 Electrical Conduit Connection: N1
 Coil Type: 30
 Design Number: R110, R220, D24
 Coil Type: R110, R220, D24
 ★ When used in AC electric source, please select R* type coils.
 ★ The coil type is the same as that of the solenoid operated directional valve DSG-03.

D

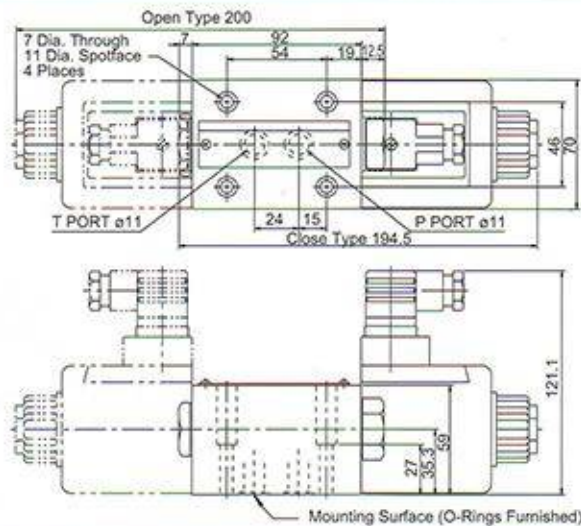
Graphic Symbol



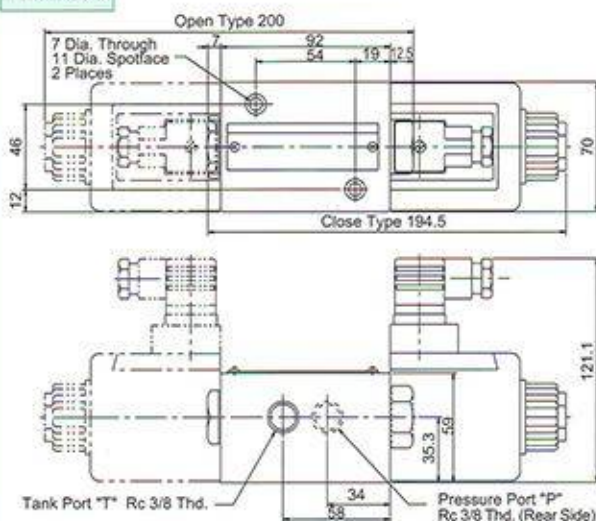
Mounting Bolts (Attachment)

Model No.	Socket Head Cap Screw	Q'ty	Tightening Torque N·m
LVT-03	M6 x 35 Lg	2	12~15
LVG-03	M6 x 35 Lg	4	12~15

LVG-03

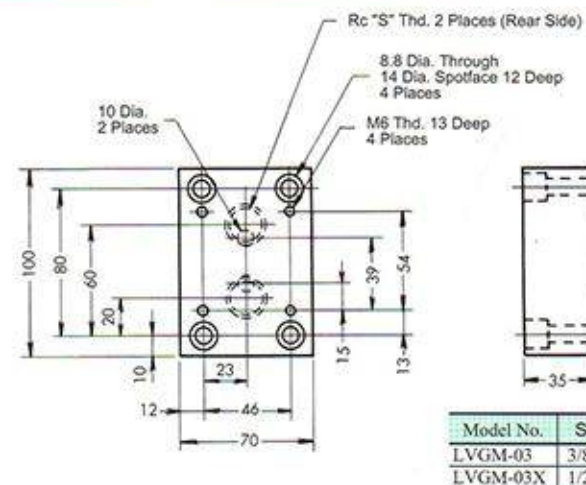


LVT-03



Sub-Plate

LVGM-03, 03X-10



Model No.	S
LVGM-03	3/8
LVGM-03X	1/2

Prefill Valve

Max. Pressure 25 MPa



These valves are physically small, however, offer high flow rate without internal leakage. Before opening the valves, Please make sure to decompress the pressure first.

Specifications

1 MPa = 10.2 kgf/cm²

Valve Size	Model Number	Max. Flow L/min	Cracking Pressure MPa	Mass kg
3	PF-80-※-20	400	0.012	8
3 1/2	PF-90-※-20	630	0.012	11.3
4	PF-100-※-20	1000	0.012	14.5
5	PF-125-※-20	1600	0.012	23
6	PF-150-※-20	2500	0.013	37

Note 1. To avoid possible shock, decompress the pressure in the cylinder line first before the valve operates, otherwise the valve does not perform well.
(The pilot pressure should be 4.5 times more higher than the main pressure)
Note 2. The pressure drop is about 0.3 MPa in the maximum flow rate on the table above.
Note 3. The pilot pressure should be kept below 14.0 MPa.
Note 4. The high pressure drop is not easy to happen in reality, selecting according to the calculation, 70% of the max. flow rate will be the best choice.

Mounting Bolts

Model No.	Socket Head Cap Screw	Qty	Tightening Torque N·m
PF-80	M16 x 55 Lg	6	253 ~ 310
PF-90	M18 x 65 Lg	6	352 ~ 431
PF-100	M20 x 70 Lg	6	493 ~ 603
PF-125	M20 x 80 Lg	12	
PF-150	M20 x 95 Lg	16	

Note: Use high tension bolts of which strength are 12.9T.
No bolts and nuts are supplied in case the P and T pipe flanges are not ordered.

Graphic Symbol



Model Number Designation

PF-80-FT-20

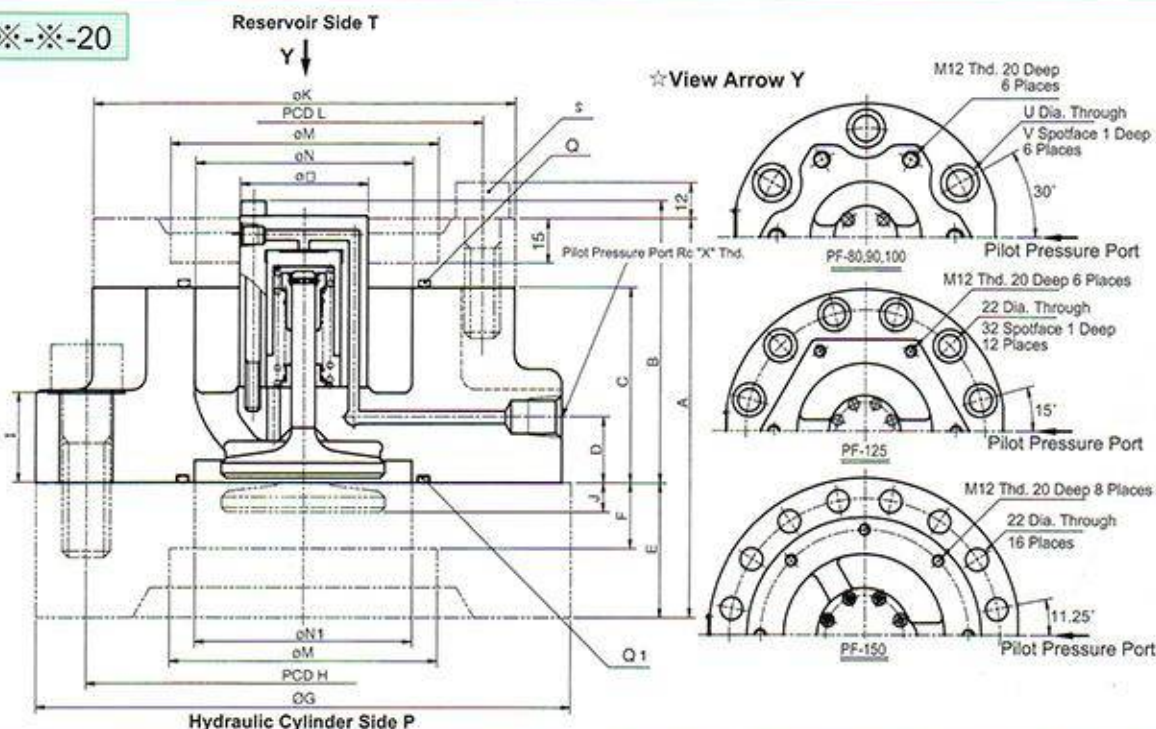
Series Number (Flange Connection) — Design Number

Type of Pipe Flange
None: Without Pipe Flange
FP: P Port With Pipe Flange
FT: T Port With Pipe Flange (Standard)
FW: P Port & T Port With Pipe Flange

Flange's Mass / kg

Model Number	P Port with Pipe Flange	T Port with Pipe Flange
PF-80	6.6	2.2
PF-90	8.8	2.6
PF-100	14.2	2.6
PF-125	25.5	4
PF-150	28	8

PF-※-※-20



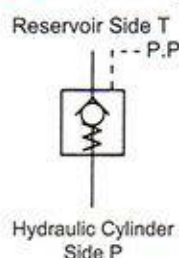
Model No.	Valve Size	A	B	C	D	E	F	G	H	I	J	K	L	M	N	N1	O	Q	Q1	S	U	V	X
PF-80	3	133	94	65	22	45	22	180	146	30	10	142	120	90.2	71	71	43	G80	G80	6-M12x40	18	26	Rc 1/4
PF-90	3 1/2	145	119	72	27	50	30	200	165	38	13	160	135	101.6	88	88	50	G100	G100	6-M12x40	20	29	Rc 1/4
PF-100	4	157	132.5	74	31.5	60	32	230	191	40	18	170	148	115.5	106	106	56	G115	G115	6-M12x40	22	32	Rc 1/4
PF-125	5	188	165	85	43	80	50	270	230	50	23.5	200	175	141.2	130	130	69	G140	G140	6-M12x40	22	-	Rc 1/4
PF-150	6	208	204	105	45	80	40	300	260	64	25	225	200	167	156	168	95	G170	G180	8-M12x40	22	-	Rc 3/8

Decompression Type Prefill Valve

Max. Pressure 25 MPa



Graphic Symbol



This valve is physically small, and easy to install, with high flow rate and little internal leakage: no need to install decompression valve and it can decompress pressure and open the valve at the same time. While decompressing, the min. cracking pressure is only 12~17% of the main cylinder.

Specifications

1 MPa = 10.2 kgf/cm²

Valve Size	Model Number	Max. Flow L/min	Mass kg
3	PDF-80-※-※-20	400	8.1
3 1/2	PDF-90-※-※-20	630	11.4
4	PDF-100-※-※-20	1000	14.6
5	PDF-125-※-※-20	1600	23.2
6	PDF-150-※-※-20	2500	37.5

Note 1. While the Max. flow rate showed in the above table, the pressure drop is about 0.03 MPa.

Note 2. Regarding the pilot pressure, please refer the characteristics as follows.

Note 3. The high pressure drop is not easy to happen in reality, selecting according to the calculation, 70% of the max. flow rate will be the best choice.

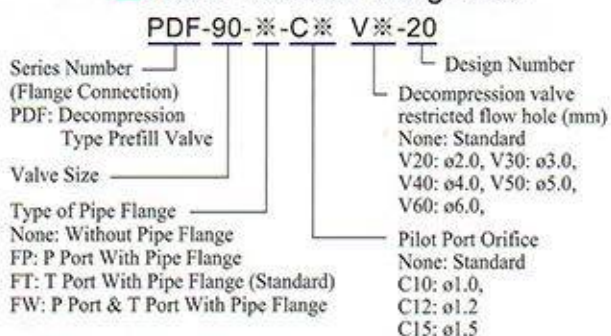
Mounting Bolts

Model No.	Socket Head Cap Screw	Qty	Tightening Torque N·m
PDF-80	M16 x 55 Lg	6	253 ~ 310
PDF-90	M18 x 65 Lg	6	352 ~ 430
PDF-100	M20 x 70 Lg	6	493 ~ 603
PDF-125	M20 x 80 Lg	12	
PDF-150	M20 x 95 Lg	16	

*) Use high tension bolts of which strength are 12.9T.

*) No bolts and nuts are supplied in case the P and T pipe flanges are not ordered.

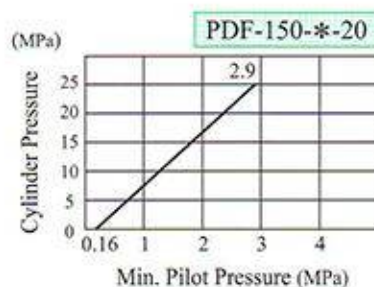
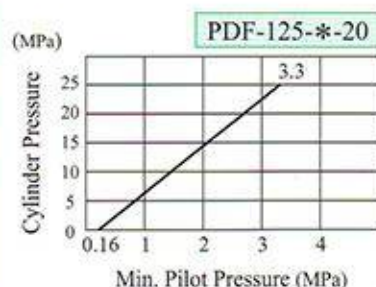
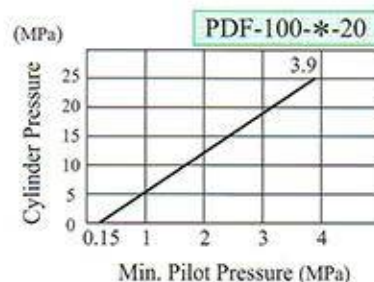
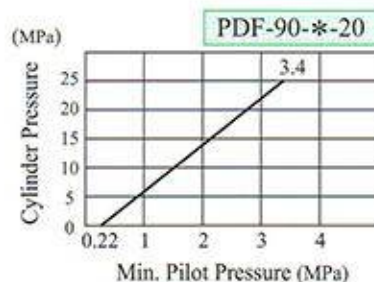
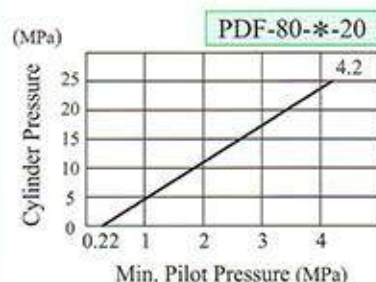
Model Number Designation



Flange's Mass / kg

Model Number	Flange's Mass / kg	
	P Port with Pipe Flange	T Port with Pipe Flange
PDF-80-※-20	6.6	2.2
PDF-90-※-20	8.8	2.6
PDF-100-※-20	14.2	2.6
PDF-125-※-20	25.5	4
PDF-150-※-20	28	8

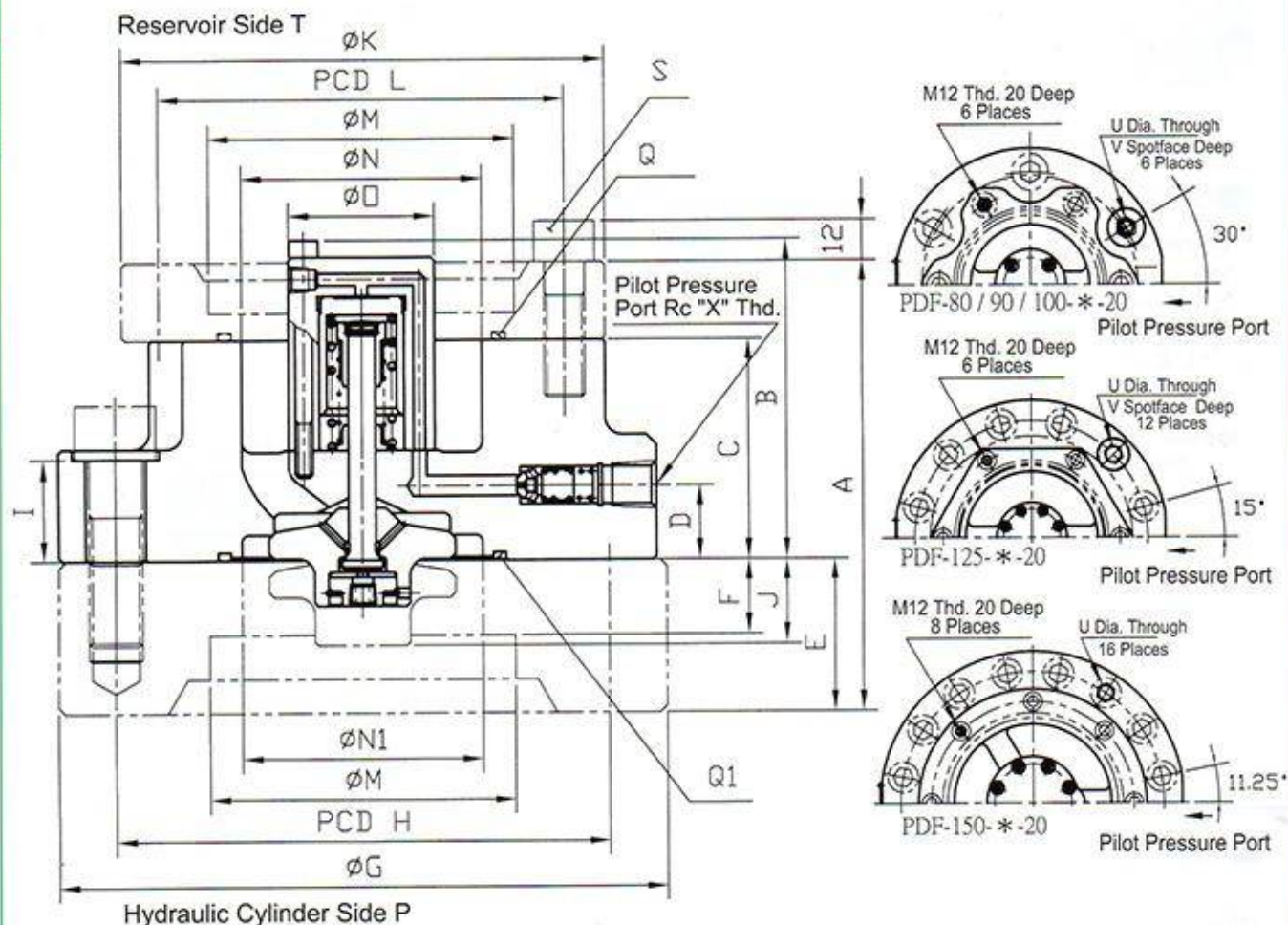
Min. Pilot Pressure While Decompressing



Decompression Type Prefill Valve

Max. Pressure 25 MPa

PDF-80/90/100/125/150-※-20



Model No.	Valve Size	A	B	C	D	E	F	G	H	I	J	K	L	M	N	N1	O	Q	Q1	S	U	V	X
PDF-80	3	133	94	65	22	45	22	180	146	30	10	142	120	90.2	71	71	43	G80	G80	6-M12x40	18	26	Rc 1/4
PDF-90	3 1/2	145	119	72	27	50	30	200	165	38	13	160	135	101.6	88	88	50	G100	G100	6-M12x40	20	29	Rc 1/4
PDF-100	4	157	132.5	74	31.5	60	32	230	191	40	18	170	148	115.5	106	106	56	G115	G115	6-M12x40	22	32	Rc 1/4
PDF-125	5	188	165	85	43	80	50	270	230	50	23.5	200	175	141.2	130	130	69	G140	G140	6-M12x40	22	32	Rc 1/4
PDF-150	6	208	204	105	45	80	40	300	260	64	25	225	200	167	156	168	95	G170	G180	8-M12x40	22	-	Rc 3/8

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