

Explosion Proof (Flameproof) Solenoid Operated Directional Valves

DSG-01-*-X*-70**

Notice of Model Change

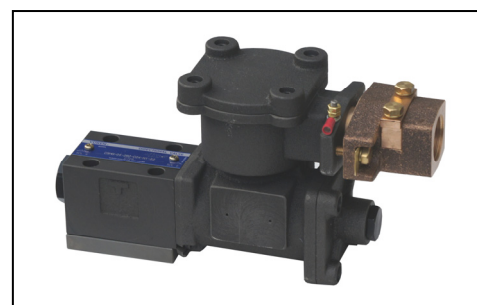
We are pleased to announce that the 1/8 explosion proof (flameproof) solenoid operated directional valves, highly appreciated since their release, will be remodeled, and their design number will be changed from 50 to 70.

■Description of the Change

Sharing common parts with DSG-01 series solenoid operated directional valves with the design number 70, which are highly appreciated for their high pressure, high flow and low pressure drop characteristics, the 1/8 explosion proof (flameproof) solenoid operated directional valves now has high pressure, high flow and low pressure drop characteristics equivalent to those of DSG-01 series valves with the design number 70. Threaded conduit connection type models are provided with a sealing fitting[®] at a cable entrance.

As the design number of the 1/8 explosion proof (flameproof) solenoid operated directional valves will be changed 70, we also announce that solenoid controlled pilot operated directional valves (DSHG-06 and -10), which use a 1/8 explosion proof (flameproof) solenoid operated directional valve as a pilot valve, will also be remodeled.

★An electrical material used in explosion-proof work to seal a gap between the box and the conduit and shut off air.



■Applicable Models

Name	New Model Number	Old Model Number
1/8 Explosion Proof (Flameproof) Solenoid Operated Directional Valves	DSG-01-***-X*-70	DSG-01-***-X*-50
3/4 Solenoid Controlled Pilot Operated Directional Valves (Explosion Proof (Flameproof) Type)	DSHG-06-***- ^D _R *X*-53	DSHG-06-***- ^D _R *X*-51
1 1/4 Solenoid Controlled Pilot Operated Directional Valves (Explosion Proof (Flameproof) Type)	DSHG-10-***- ^D _R *X*-43	DSHG-10-***- ^D _R *X*-41

■Interchangeability between Old and New Models

●Specifications

Item	(New) DSG-01-***-X*-70	(Old) DSG-01-***-X*-50
Max. Flow ^{Note 1)}	100 L/min	35 L/min
Max. Operating Pressure	35 MPa	31.5 MPa (25 MPa in the case of spool types 5 and 60)
Max. T-Line Back Pressure	14 MPa	
Max. Changeover Frequency	300 min ⁻¹ (Models with DC solenoids) 120 min ⁻¹ (Models with R type solenoids)	120 min ⁻¹

Note 1) The Max. flow varies depending on the spool type, operating conditions, etc.; for details, contact us.

2) The specifications of DSHG-06 and -10 remain unchanged.

●Interchangeability in Installation

Though there are dimensional changes in relation to the sealing fitting for the threaded conduit connection type models, interchangeability in installation is maintained.

No.1

PRODUCT NEWS

■Certificate Number

Certificate numbers issued by the Technology Institution of Industrial Safety (TIIS) are as follows.

Certificate Number		
(New) DSG-01-***-*X*-70		(Old) DSG-01-***-*X*-50
Threaded Conduit Connection Type	Flameproof Packing Type	
T67046	T67037	

■Sales Material

For installation drawings, see the table below.

Name	Model Number	Installation Drawing
1/8 Explosion Proof (Flameproof) Solenoid Operated Directional Valves	DSG-01-***-*X*-70	1790S-VA330784-0
3/4 Solenoid Controlled Pilot Operated Directional Valves (Explosion Proof (Flameproof) Type)	DSHG-06-*** ^D _R *X*-53	781S-VA327379-4
1 1/4 Solenoid Controlled Pilot Operated Directional Valves (Explosion Proof (Flameproof) Type)	DSHG-10-*** ^D _R *X*-43	783S-VA327380-2

■Timing of Release

Scheduled to be released after the stock of the old models runs out. (Applied to orders from July 2015. The schedule may be accelerated in case the stock runs out earlier.)

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Explosion Proof (Flameproof) Type Solenoid Operated Directional Valves

The concept of explosion proof (flameproof) construction is that even if explosive gases intrude from outside and explode in the vessel, any causes of explosion will be isolated in the vessel to avoid serious external effects.

Following this concept, the explosion proof (flameproof) type solenoid operated directional valves enclose the solenoid and terminal block in the vessel.

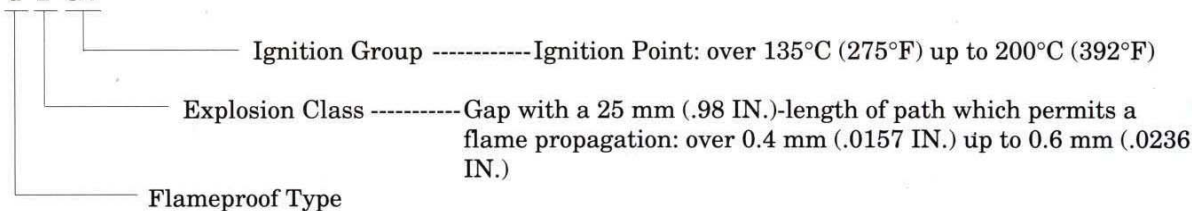
The valve can be used in Division 1 and 2 locations.



Explosion Proof (Flameproof) Type Solenoid Valves

Explosion Proof Code

d 2 G4



Ratings

Model Numbers	Max. Flow * l/min (U.S.GPM)	Max. Operating Pressure bar (PSI)	Max. T-Line Back Pressure bar (PSI)	Max. Change-over Frequency Cycles/Min (min ⁻¹)	Mass kg (lbs)
DSG-01-3C*-X*-50	35 (9.2)	315 (4500)	140 (2000)	120	7.3 (16.1)
DSG-01-2D2*-X*-50		(Spool Type 60 Only)			7.3 (16.1)
DSG-01-2B*-X*-50		250 (3600)			4.1 (9)
DSG-01-3C*-X*-40	100 (26.4)	315 (4500)	100 (1430): At time spool shift is required. 140 (2000): At time spool shift is not required.	240: Model with DC Solenoid. 120: Model with R Type Solenoid.	19 (42)
DSG-01-2D2*-X*-40		(Spool Type 60 Only)			19 (42)
DSG-01-2B*-X*-40		250 (3600)			11 (24.2)

* Maximum flow indicates a ceiling flow. As the ceiling flow depends on the type of spool and operating condition, refer to the list of spool functions on pages 400 to 401 for details.

■ Certification Number

Model No.	MINISTRY OF LABOUR The Research Institute of Industrial Safety JAPAN	National Research Institute for Pollution and Resources (JAPAN)	The Ship Equipment Inspection Society of Japan
DSG-01	No. 32873 (All Models)	—	—
DSG-03	No. 22127 (X3, X4, X5) No. 22128 (X1, X2, X8-X15)	No. 2082 (Flameproof) (X3 only)	Approved by ABS, JG (X3 only)

■ Solenoid Ratings

● DSG-01

Electric Source	Rated Voltage (V)	Frequency (Hz)	Current (A) ± 5%	Power (W) ± 5%
DC	12	—	2.4	29
	24		1.2	
	48		0.6	
	100		0.29	
	110		0.26	
	115		0.25	
	200		0.15	
	220		0.13	
AC→DC Rectified (R)	100	50/60	0.32	29
	110		0.28	
	115		0.29	
	200		0.17	
	220		0.15	

Note: 1. Serviceable Voltage Range: 90 to 110% of the rated value.

2. Insulation Class of Solenoid: Class H

■ Sub-plates

Valve Model Numbers	Sub-plate Model Numbers	Thread Size Rc	Approx. Mass kg (lbs)
DSG-01	DSGM-01-30	1/8	0.8 (1.8)
	DSGM-01X-30	1/4	
	DSGM-01Y-30	3/8	
DSG-03	DSGM-03-40	3/8	3.0 (6.6)
	DSGM-03X-40	1/2	3.0 (6.6)
	DSGM-03Y-40	3/4	4.7 (10.4)

- 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.

■ Attachment

Valve Model Numbers	Mounting Bolt (Soc. Hd. Cap Screw)	Tightening Torque of Mounting Bolt
DSG-01	M5 x 55 Lg. — 4 Pcs.	5 – 7 Nm (43 – 60 in. lbs) 6 – 7 Nm (52 – 60 in. lbs) (Applicable to working pressure more than 250 bar (3600 PSI).)
DSG-03	M6 x 50 Lg. — 4 Pcs.	12 – 15 Nm (105 – 130 in. lbs)

● DSG-03

Electric Source	Rated Voltage (V)	Frequency (Hz)	Current (A) ± 5%	Power (W) ± 5%
DC	12	—	2.4	26.4
	24		1.1	26.4
	48		0.55	26.4
	100/110		0.26/0.28	26/30.8
	200/220		0.13/0.14	26/30.8
AC→DC Rectified (R)	100/110	50/60	0.3/0.33	30/36.3
	115		0.26	29.9
	200/220		0.15/0.165	30/36.3

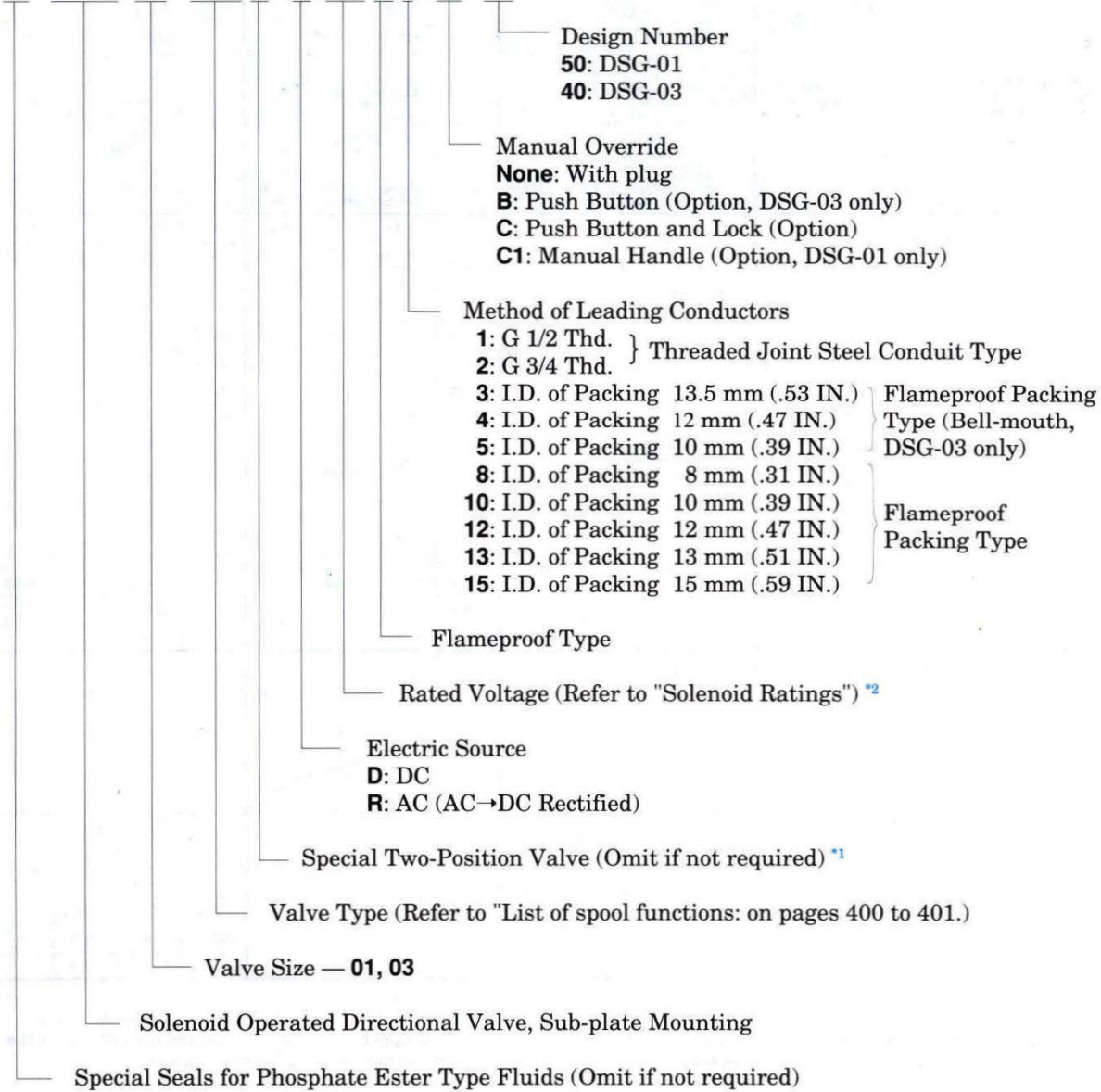
Note: 1. Serviceable Voltage Range: 85 to 110% of the rated value.

2. Insulation Class of Solenoid: Class B

DIRECTIONAL CONTROLS

Model Number Designation

F - DSG - 01 - 2B2 A - R 100 X 1 - C - 50

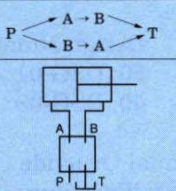
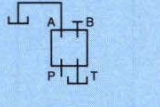

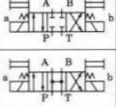
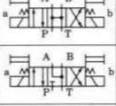
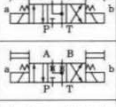
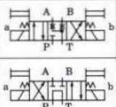
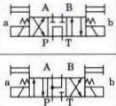
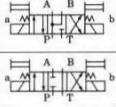
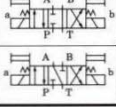
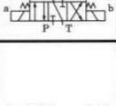
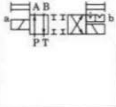
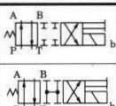
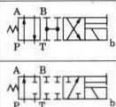
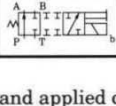


Explosion Proof (Flameproof) Type Solenoid Valves

*1. A special 2-position valve is available which is identical to the standard DSG-01, DSG-03 series valves.

*2. Where rated voltage of DSG-03 is 100/110•200/220V, model designation comes to:
 rated voltage 100/110V→100
 200/220V→200

List of Spool Functions (DSG-01)

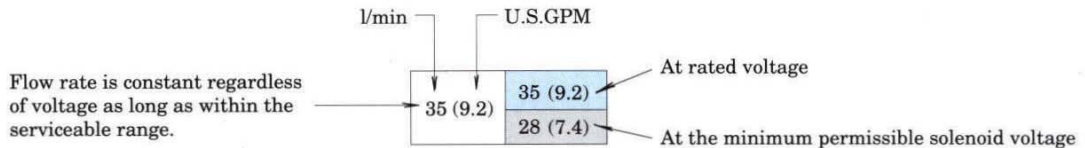
No. of Valve Positions	Spool-Spring Arrangement	Model Numbers	Graphic Symbols	Max. Flow l/min (U.S.GPM)												
																
				70 bar (1000 PSI)	140 bar (2000 PSI)	210 bar (3000 PSI)	315 bar (4500 PSI)	70 bar (1000 PSI)	140 bar (2000 PSI)	210 bar (3000 PSI)	315 bar (4500 PSI)	70 bar (1000 PSI)	140 bar (2000 PSI)	210 bar (3000 PSI)	315 bar (4500 PSI)	
Three Positions	Spring Centred	DSG-01-3C2		35 (9.2)	35 (9.2)	35 (9.2)	35 (9.2)	35 (9.2)	18 (4.8)	15 (4.0)	8 (2.1)	35 (9.2)	18 (4.8)	15 (4.0)	8 (2.1)	
		DSG-01-3C3		30 (7.9)	30 (7.9)	30 (7.9)	30 (7.9)	—	—	—	—	—	—	—	—	—
		DSG-01-3C4		35 (9.2)	35 (9.2)	35 (9.2)	30 (7.9)	35 (9.2)	18 (4.8)	15 (4.0)	8 (2.1)	35 (9.2)	18 (4.8)	15 (4.0)	8 (2.1)	
		DSG-01-3C40		35 (9.2)	35 (9.2)	35 (9.2)	35 (9.2)	35 (9.2)	18 (4.8)	15 (4.0)	8 (2.1)	35 (9.2)	18 (4.8)	15 (4.0)	8 (2.1)	
		DSG-01-3C60		30 (7.9)	30 (7.9)	30 (7.9)	—	30 (7.9)	30 (7.9)	30 (7.9)	—	30 (7.9)	30 (7.9)	—	—	—
		DSG-01-3C9		30 (7.9)	30 (7.9)	30 (7.9)	30 (7.9)	—	—	—	—	—	—	—	—	—
		DSG-01-3C10		35 (9.2)	35 (9.2)	35 (9.2)	35 (9.2)	35 (9.2)	18 (4.8)	15 (4.0)	8 (2.1)	35 (9.2)	18 (4.8)	15 (4.0)	8 (2.1)	
		DSG-01-3C12		35 (9.2)	35 (9.2)	35 (9.2)	35 (9.2)	35 (9.2)	18 (4.8)	15 (4.0)	8 (2.1)	35 (9.2)	18 (4.8)	15 (4.0)	8 (2.1)	
Two Positions	No-Spring Detented	DSG-01-2D2		35 (9.2)	35 (9.2)	35 (9.2)	35 (9.2)	23 (6.1)	23 (6.1)	23 (6.1)	15 (4.0)	23 (6.1)	23 (6.1)	23 (6.1)	15 (4.0)	
		DSG-01-2B2		30 (7.9)	30 (7.9)	30 (7.9)	30 (7.9)	15 (4.0)	10 (2.6)	7 (1.8)	—	25 (6.6)	13 (3.4)	10 (2.6)	—	
	Spring Offset	DSG-01-2B3		35 (9.2)	35 (9.2)	35 (9.2)	35 (9.2)	25 (6.6)	25 (6.6)	25 (6.6)	—	35 (9.2)	25 (6.6)	20 (5.3)	—	
		DSG-01-2B8		—	—	—	—	15 (4.0)	10 (2.6)	7 (1.8)	—	25 (6.6)	13 (3.4)	10 (2.6)	—	

Note: 1. Maximum flow rates and applied current.

- The single column describes maximum flow rates regardless of voltage as long as it is within the serviceable voltage range.

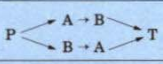


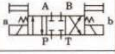

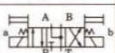
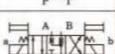
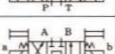
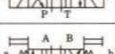
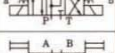
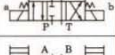
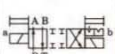
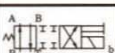
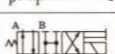
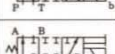
- Where two figures are shown in the same column, the upper is at rated voltage and the latter is at the minimum permissible solenoid voltage.

(Example)



DIRECTIONAL CONTROLS

List of Spool Functions (DSG-03)

No. of Valve Positions	Spool-Spring Arrangement	Model Numbers	Graphic Symbols	Max. Flow l/min (U.S.GPM)									
				 P → A B → A			 P → A [Port "B" Blocked]			 P → B [Port "A" Blocked]			
				100 bar (1430 PSI)	160 bar (2285 PSI)	250 bar (3600 PSI)	100 bar (1430 PSI)	160 bar (2285 PSI)	250 bar (3600 PSI)	100 bar (1430 PSI)	160 bar (2285 PSI)	250 bar (3600 PSI)	
Three Positions	Spring Centred	DSG-03-3C2		100 (26.4)	100 (26.4)	100 (26.4)	100 (26.4)	100 (26.4)	60 (15.9)	100 (26.4)	100 (26.4)	60 (15.9)	
		DSG-03-3C3		100 (26.4)	90 (23.8)	90 (23.8)	—	—	—	—	—	—	—
		DSG-03-3C4		100 (26.4)	100 (26.4)	100 (26.4)	100 (26.4)	100 (26.4)	60 (15.9)	100 (26.4)	100 (26.4)	60 (15.9)	
		DSG-03-3C40		100 (26.4)	100 (26.4)	100 (26.4)	100 (26.4)	100 (26.4)	60 (15.9)	100 (26.4)	100 (26.4)	60 (15.9)	
		DSG-03-3C60		70 (18.5)	70 (18.5)	70 (18.5)	100 (26.4)	100 (26.4)	80 (21.1)	100 (26.4)	100 (26.4)	80 (21.1)	
		DSG-03-3C9		100 (26.4)	100 (26.4)	100 (26.4)	—	—	—	—	—	—	—
		DSG-03-3C10		100 (26.4)	100 (26.4)	100 (26.4)	100 (26.4)	100 (26.4)	60 (15.9)	100 (26.4)	100 (26.4)	100 (26.4)	
		DSG-03-3C12		100 (26.4)	100 (26.4)	100 (26.4)	100 (26.4)	100 (26.4)	60 (15.9)	100 (26.4)	100 (26.4)	100 (26.4)	
Two Positions	No-Spring Detented	DSG-03-2D2		100 (26.4)	100 (26.4)	100 (26.4)	70 (18.5)	70 (18.5)	60 (15.9)	70 (18.5)	70 (18.5)	60 (15.9)	
		Spring Offset	DSG-03-2B2		100 (26.4)	100 (26.4)	100 (26.4)	60 (15.9)	30 (7.9)	25 (6.6)	100 (26.4)	80 (21.1)	50 (13.2)
	DSG-03-2B3			100 (26.4)	100 (26.4)	100 (26.4)	70 (18.5)	70 (18.5)	70 (18.5)	100 (26.4)	80 (21.1)	60 (15.9)	
	DSG-03-2B8			—	—	—	60 (15.9)	30 (7.9)	25 (6.6)	100 (26.4)	80 (21.1)	50 (13.2)	

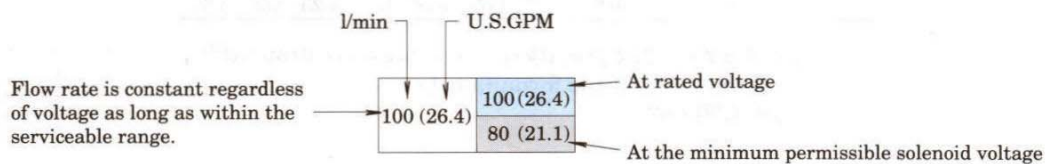
Note: 1. Valves fitted with spool type "8" the tank port acts as a drain port, and should be connected directly to the reservoir with a maximum allowable back pressure of 3.5 bar (50 PSI).

2. Maximum flow rates and applied current.

- The single column describes maximum flow rates regardless of voltage as long as it is within the serviceable voltage range.
- Where two figures are shown in the same column, the upper is at rated voltage and the latter is at the minimum permissible solenoid voltage.

3. The maximum flow marked * is 100 l/min (26.4 U.S. GPM) when no-spring detented type is energised continuously.

(Example)

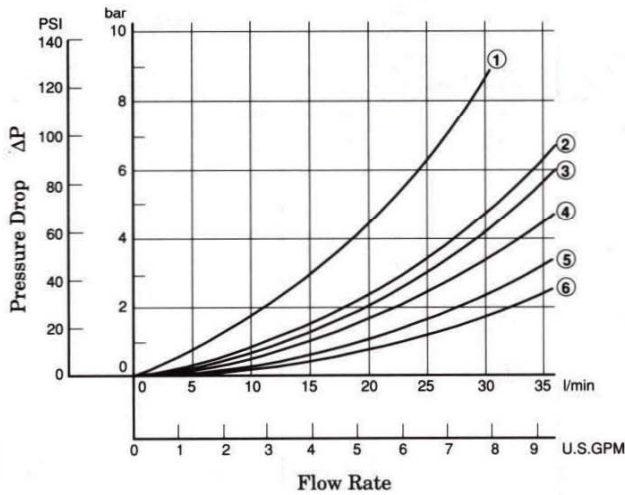


Explosion Proof (Flameproof) Type Solenoid Valves

■ Pressure Drop

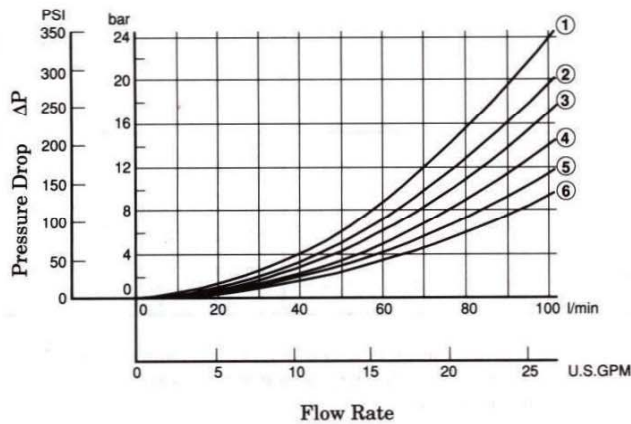
Pressure drop curves based on viscosity of 35 cSt (160 SSU) and specific gravity of 0.850.

● DSG-01



Model Numbers	Pressure Drop Curve Numbers				
	P→A	B→T	P→B	A→T	P→T
DSG-01-3C2	⑤	⑤	⑤	⑤	—
DSG-01-3C3	⑥	⑥	⑥	⑥	④
DSG-01-3C4	⑤	⑥	⑤	⑥	—
DSG-01-3C40	⑤	⑤	⑤	⑤	—
DSG-01-3C60	①	①	①	①	④
DSG-01-3C9	⑥	⑤	⑥	⑤	—
DSG-01-3C10	⑤	⑥	⑤	⑤	—
DSG-01-3C12	⑤	⑤	⑤	⑥	—
DSG-01-2D2	⑤	②	⑤	②	—
DSG-01-2B2	②	②	⑤	⑤	—
DSG-01-2B3	③	③	⑤	⑥	—
DSG-01-2B8	⑤	—	⑤	—	—

● DSG-03



Model Numbers	Pressure Drop Curve Numbers				
	P→A	B→T	P→B	A→T	P→T
DSG-03-3C2	④	③	④	③	—
DSG-03-3C3	⑥	⑤	⑥	⑤	⑤
DSG-03-3C4	④	⑥	④	⑥	—
DSG-03-3C40	④	④	④	④	—
DSG-03-3C60	④	④	④	④	①
DSG-03-3C9	⑥	③	⑥	③	—
DSG-03-3C10	④	④	④	③	—
DSG-03-3C12	④	③	④	⑤	—
DSG-03-2D2	④	③	④	③	—
DSG-03-2B2	③	②	④	③	—
DSG-03-2B3	③	②	④	④	—
DSG-03-2B8	⑤	—	①	—	—

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

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

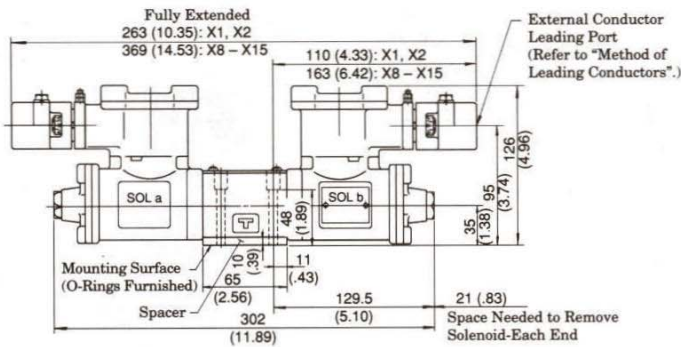
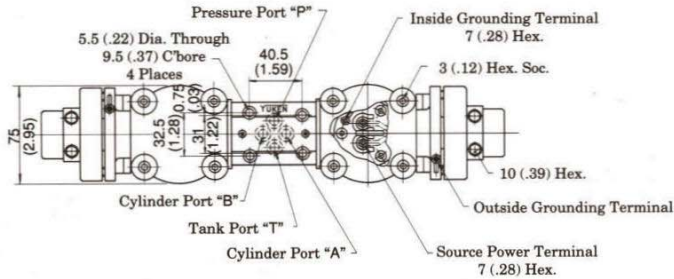
- For any other specific gravity (G'), the pressure drop ($\Delta P'$) may be obtained from the formula below.

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

DIRECTIONAL CONTROLS

■ Spring Centred: DSG-01-3C* $\frac{R}{D}$ *X*-50

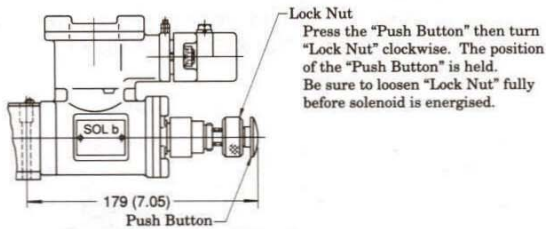
■ No-Spring Detented: DSG-01-2D2- $\frac{R}{D}$ *X*-50



Options

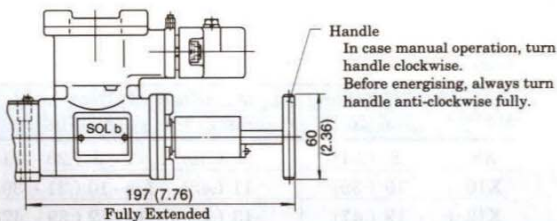
Models with Push Button & Lock:

DSG-01-***- $\frac{R}{D}$ *X*-C-50



Models with Manual Handle:

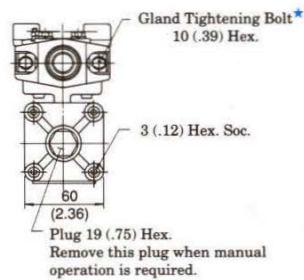
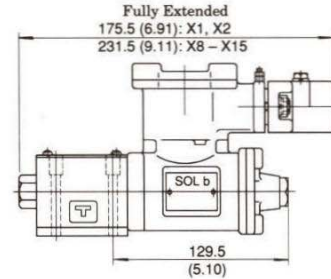
DSG-01-***- $\frac{R}{D}$ *X*-C1-50



DIMENSIONS IN MILLIMETRES (INCHES)

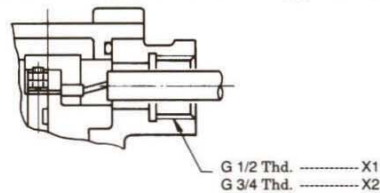
Mounting Surface:
ISO 4401-AB-03-4-A

■ Spring Offset:
DSG-01-2B* $\frac{R}{D}$ *X*-50

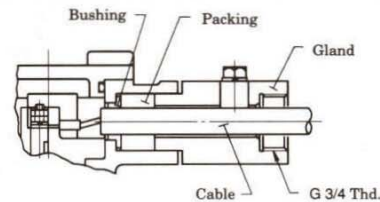


Method of Leading Conductors

Threaded Joint Steel Conduit Type (X1, X2)



Flameproof Packing Type (X8, X10, X12, X13, X15)



Model	I.D. of Packing mm (In.)	I.D. of Bushing mm (In.)	O.D. of Cable mm (In.)
X8	8 (.31)	9 (.35)	7 - 8 (.28 - .31)
X10	10 (.39)	11 (.43)	8 - 10 (.31 - .39)
X12	12 (.47)	13 (.51)	10 - 12 (.39 - .47)
X13	13 (.51)	14 (.55)	12 - 13 (.47 - .51)
X15	15 (.59)	16 (.63)	13 - 15 (.51 - .59)

None: In case of flameproof packing type, tighten the gland tightening bolt * so that packing is held sufficient compression.

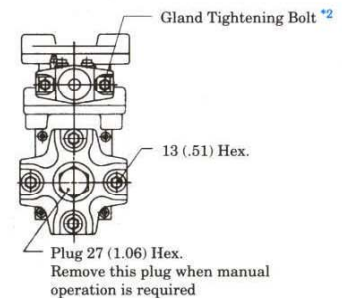
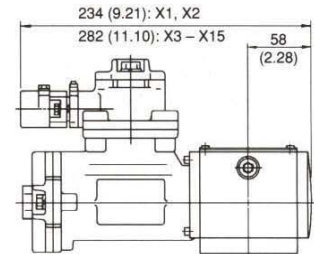
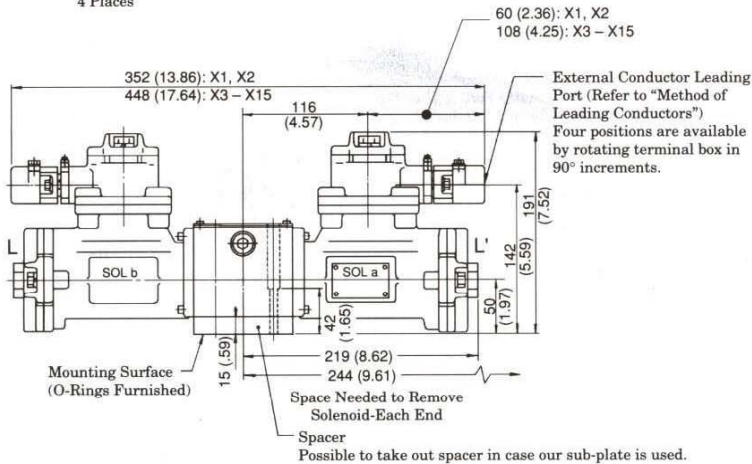
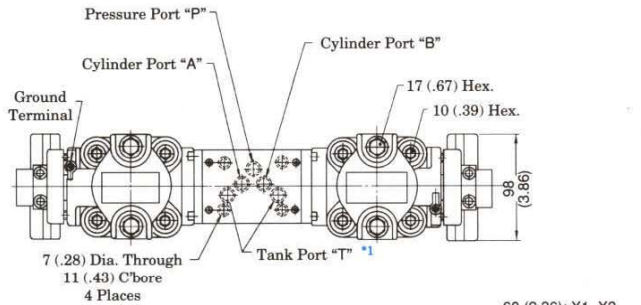
Explosion Proof (Flameproof) Type Solenoid Valves

■ Spring Centred: DSG-03-3C* $\frac{R}{D}$ *X*-40

■ No-Spring Detented: DSG-03-2D2- $\frac{R}{D}$ *X*-40

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

■ Spring Offset:
DSG-03-2B* $\frac{R}{D}$ *X*-40



DIMENSIONS IN MILLIMETRES (INCHES)

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

*2. In case of flameproof packing type, tighten the gland tightening bolt so that packing is held under sufficient compression.

Method of Leading Conductors

Threaded Joint Steel Conduit Type
(X1, X2)

Flameproof Packing Type (Bell-mouth)
(X3, X4, X5)

Flameproof Packing Type
(X8, X10, X12, X13, X15)

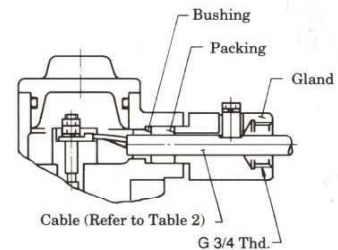
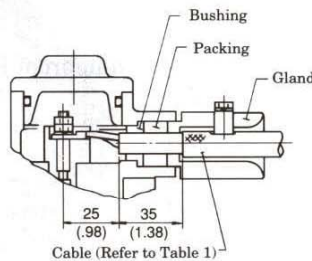
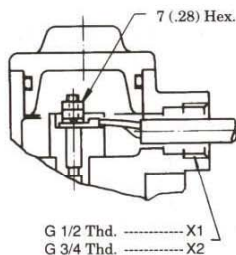


Table 1

Model	I.D. of Packing mm (In.)	I.D. of Bushing mm (In.)	Recommended Cable
X3	13.5 (.53)	14 (.55)	(H-DBYCY-2.0) L-DPYCY-2.0
X4	13 (.51)	13 (.51)	H-DPYCY-2.0 H-DPYCY-1.25
X5	11 (.43)	11 (.43)	L-DPYCY-1.25

Table 2

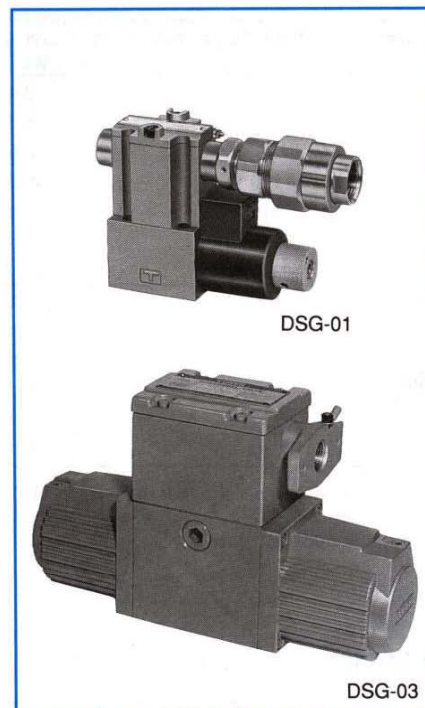
Model	I.D. of Packing mm (In.)	I.D. of Bushing mm (In.)	O.D. of Cable mm (In.)
X8	8 (.31)	9 (.35)	7 - 8 (.28 - .31)
X10	10 (.39)	11 (.43)	8 - 10 (.31 - .39)
X12	12 (.47)	13 (.51)	10 - 12 (.39 - .47)
X13	13 (.51)	14 (.55)	12 - 13 (.47 - .51)
X15	15 (.59)	16 (.63)	13 - 15 (.51 - .59)

● Request Yuken on drawings for optionals such as with push button (B), push button with lock (C).

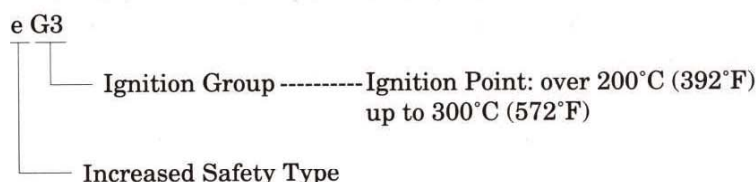
Explosion Proof (Increased Safety) Type Solenoid Operated Directional Valves

The concept of explosion proof (increased safety) construction is that higher safety levels should be provided to electric devices in which any causes of explosion (i.e. such as sparking or heat generating) cease to exist.

Following this concept, safety of the explosion proof (increased safety) type solenoid operated directional valve is increased in respect of the temperature-rise, the insulation and the like. However, it is not advised for use in division 1 locations.



Explosion Proof Code



Certification No. of the Research Institute of Industrial Safety (JAPAN)

- DSG-01 ----- Models with DC Solenoid: No. 32043
Models with R Type Solenoid: No. 33366
(with a built-in rectifier)
- DSG-03 ----- No. 37196 – No. 37199, No. 21691

Ratings

Model Numbers	Max. Flow * l/min (U.S.GPM)	Max. Operating Pressure bar (PSI)	Max. T-Line Back Pressure bar (PSI)	Max. Change-over Frequency Cycles/Min [min ⁻¹]	Mass kg (lbs)
DSG-01-3C*-#Y*-50	35 (9.2)	315 (4500)	140 (2000)	120	2.8 (6.2)
DSG-01-2D2-*Y*-50		(Spool Type 60 Only)			2.8 (6.2)
DSG-01-2B*-#Y*-50		250 (3600)			2.2 (4.9)
DSG-03-3C*-#Y*-40	100 (26.4)	315 (4500)	100 (1430): At time spool shift is required.	240: Models with DC Solenoid.	7.6 (16.8)
DSG-03-2D2-*Y*-40		(Spool Type 60 Only)	140 (2000): At time spool shift is not required.	120: Models with R Type Solenoid.	7.6 (16.8)
DSG-03-2B*-#Y*-40		250 (3600)			6.1 (13.5)

* Maximum flow indicates a ceiling flow. As the ceiling flow depends on the type of spool and operating condition, refer to the List of Spool functions of flameproof type on pages 400 to 401 for details.

Sub-plates & Attachment (Mounting Bolt)

Sub-plate and mounting bolt is common with standard DSG-01/03 series valves. Refer to page 363 (DSG-01) and page 380 (DSG-03).

Explosion Proof (Increased Safety) Type Solenoid Valves

Solenoid Ratings

DSG-01

Electric Source	Rated Voltage (V)	Frequency (Hz)	Current (A) ±5%	Power (W) ±5%
DC	12	—	2.4	29
	24		1.2	
	48		0.6	
	100		0.29	
	110		0.26	
	200		0.15	
	220		0.13	
AC→DC Rectified (R)	100	50/60	0.32	29
	110		0.28	
	120		0.27	
	200		0.17	
	220		0.15	
	240		0.14	

Note: 1. Serviceable Voltage Range: 90 to 110% of the rated value
2. Insulation Class of Solenoid: Class H

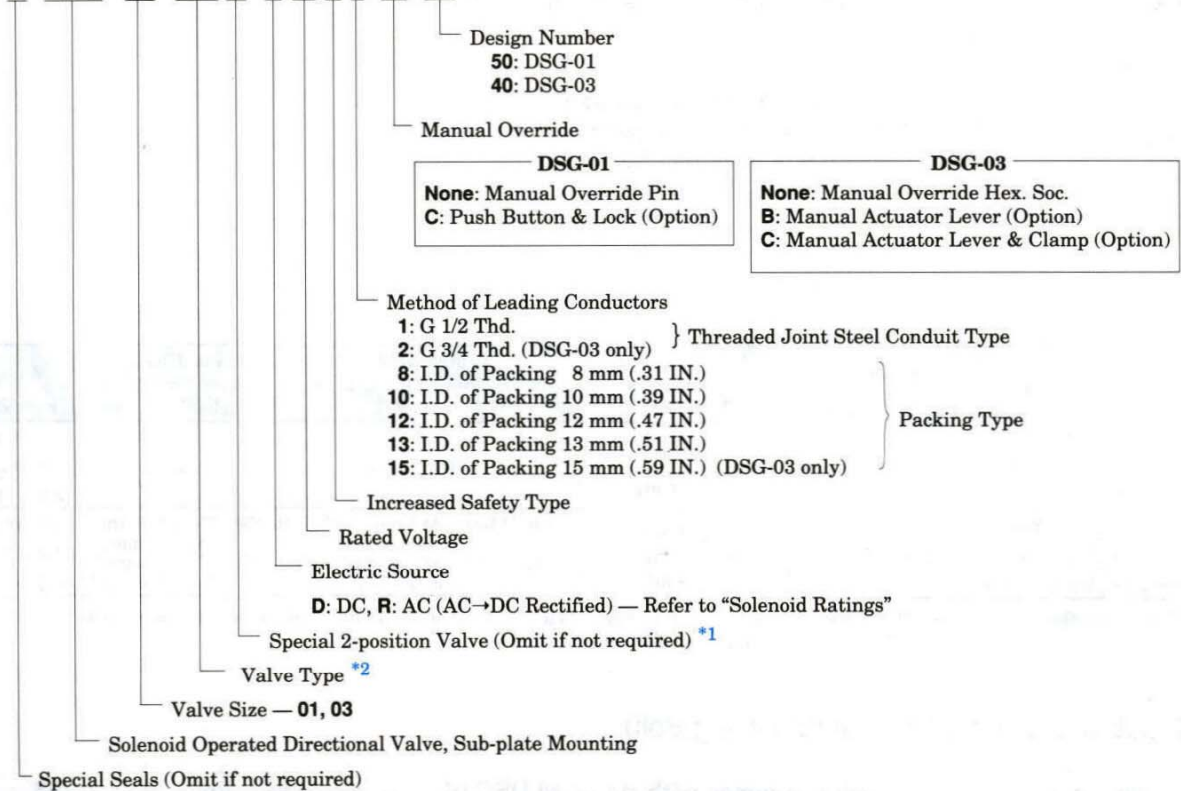
DSG-03

Electric Source	Rated Voltage (V)	Frequency (Hz)	Current (A) ±5%	Power (W) ±5%
DC	12	—	3.0	36
	24		1.5	
	48		0.76	
	100		0.37	37
	110		0.33	36
	200		0.18	
	220		0.17	37
AC→DC Rectified (R)	100	50/60	0.42	42
	110		0.38	
	200		0.21	
	220		0.19	

Note: 1. Serviceable Voltage Range: 85 to 110% of the rated value
2. Insulation Class of Solenoid: Class H

Model Number Designation

F - DSG - 01 - 2B2 A - D 24 Y 1 - C - 50



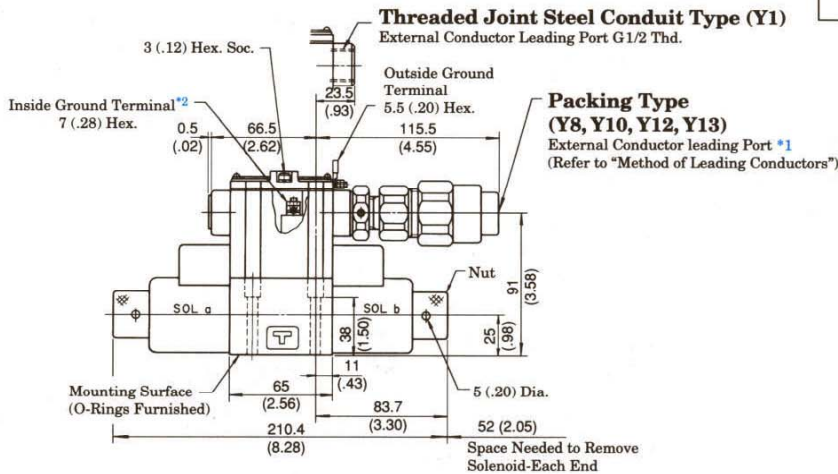
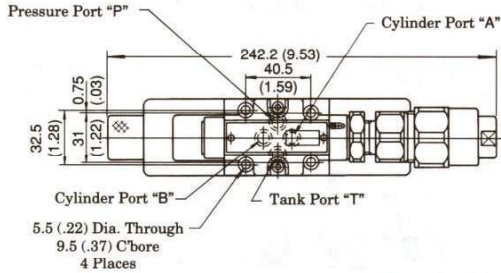
*1. A special 2-position valve is available which is identical to the standard DSG-01, DSG-03 series valves.

*2. Refer to pages 400 and 401 showing "List of Spool Functions" as the same valve types as those of flameproof type are available.

DIRECTIONAL CONTROLS

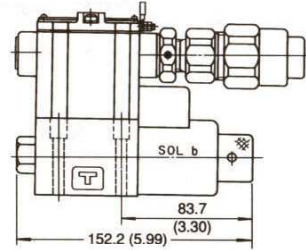
■ Spring Centred: DSG-01-3C*-R_D*Y*-50

■ No-Spring Detented: DSG-01-2D2-R_D*Y*-50

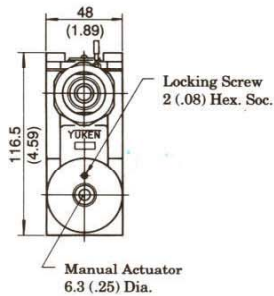


Mounting Surface:
ISO 4401-AB-03-4-A

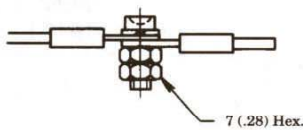
■ Spring Offset:
DSG-01-2B*-R_D*Y*-50



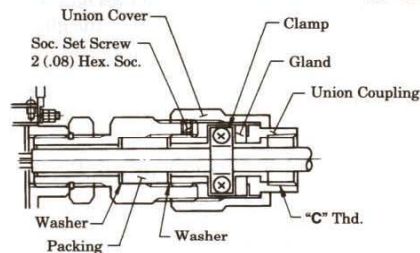
DIMENSIONS IN
MILLIMETRES (INCHES)



- *1. The direction of external conductor leading port can be altered Sol. a side.
- *2. Wiring in the terminal box. After wiring as shown below, tape fully with adhesive tapes for electrical insulation.



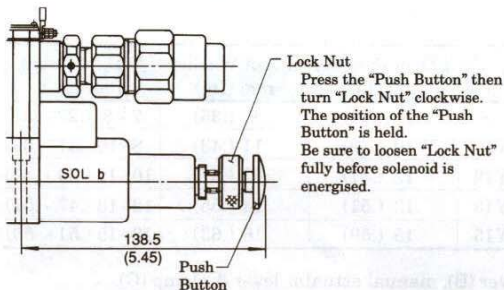
Method of Leading Conductors (Packing Type)



Options

Models with Push Button & Lock:

DSG-01-***-R_D*Y*-C-50

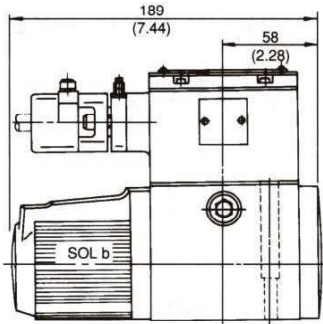


Model	"C" Thd.	I.D. of Packing mm (In.)	I.D. of Washer mm (In.)	O.D. of Cable mm (In.)
Y8	G 1/2	8 (.31)	9 (.35)	7 - 8 (.28 - .31)
Y10		10 (.39)	11 (.43)	8 - 10 (.31 - .39)
Y12	G 3/4	12 (.47)	13 (.51)	10 - 12 (.39 - .47)
Y13		13 (.51)	14 (.55)	12 - 13 (.47 - .51)

- Note: After wiring in the terminal box, treat wiring as below.
1. Press packing by way of screwing in gland. Then set socket set screw and fix gland.
 2. Fix cable by clamp.
 3. Set union coupling and screwing in union cover.

Explosion Proof (Increased Safety) Type Solenoid Valves

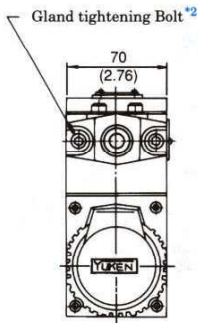
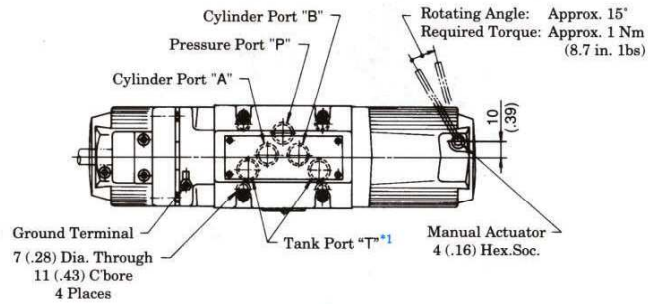
■ Spring Offset:
DSG-03-2B*_R_D*Y*-40



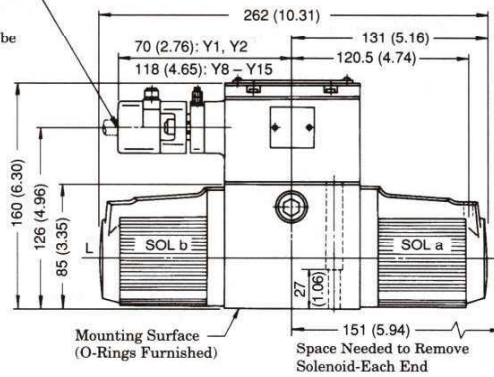
Mounting Surface:
ISO 4401-AC-05-4-A

■ Spring Centred: DSG-03-3C*_R_D*Y*-40

■ No-Spring Detented: DSG-03-2D2*_R_D*Y*-40



External Conductor Leading Port (Refer to "Method of Leading Conductors")
Leading port position can be changed Sol "a" side.

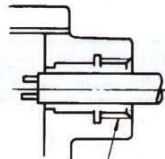


*1. Although the tank port is shown on the left in our sub-plate, either may be used.

*2. In case of packing type, tighten the gland tightening bolt so that packing is held under sufficient compression.

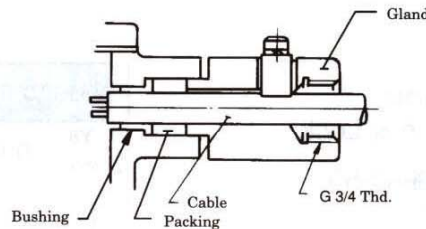
Method of Leading conductors

Threaded Joint Steel Conduit Type
(Y1, Y2)



G 1/2 Thd. Y1
G 3/4 Thd. Y2

Packing Type
(Y8, Y10, Y12, Y13, Y15)



DIMENSIONS IN
MILLIMETRES (INCHES)

Note: Crimp-style terminals [conductor area: 1.04-2.63 mm² (.0016-.0041 sq.in.)] are furnished with terminal block for external conductor in the terminal box.

Model	I.D. of Packing mm (In.)	I.D. of Washer mm (In.)	O.D. of Cable mm (In.)
Y8	8 (.31)	9 (.35)	7 - 8 (.28 - .31)
Y10	10 (.39)	11 (.43)	8 - 10 (.31 - .39)
Y12	12 (.47)	13 (.51)	10 - 12 (.39 - .47)
Y13	13 (.51)	14 (.55)	12 - 13 (.47 - .51)
Y15	15 (.59)	16 (.63)	13 - 15 (.51 - .59)

● Request Yuken on drawings of options such as with manual actuator lever (B), manual actuator lever & clamp (C).

YUKEN Explosion Proof Type Valves (certified by Industrial Safety Research Institution authorised by Minister of Labour, Japan)

Flameproof Enclosure Type

Model: DSG-01/03-***-***X*-50

Exposition Proof Code: **d2G4**

Increased Safety Type

Model: DSG-01/03-***-***Y*-51/50

Exposition Proof Code: **eG3**

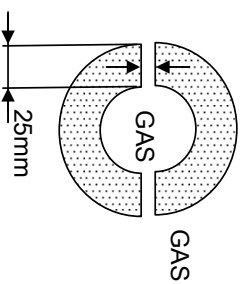
EXPLOSION PROOF CODE DESIGNATION

1. Explosion Proof Construction

Code	Kind of Explosion Proof Structure
d	Flameproof Enclosure
o	Oil - Immersion
f	Pressurized Apparatus
e	Increased Safety
i	Intrinsically Safety
s	Special Type of Protection

2. Explosion Class

Code	Min. gap with 25mm length of path □ which permits a flame propagation
1	over 0.6mm
2	over 0.4mm up to 0.6mm
3	up to 0.6mm



3. Ignition Group

Code	Ignition Temperature
G1	over 450 degrees Celsius
G2	over 300 up to 450 degrees Celsius
G3	over 200 up to 300 degrees Celsius
G4	over 135 up to 200 degrees Celsius
G5	over 100 up to 135 degrees Celsius
G6	over 85 up to 100 degrees Celsius

4. Typical Explosive Gas

Explosion Class	Ignition Group				
	G1	G2	G3	G4	G5
1	Acetone Ammonia Carbon Monoxide	Ethanol Acetic Acid 1 - Butanol	Gasoline Hexan	Acetaldehyde Ethl Ether	
2	Coal Gas	Ethylene			
3	Water Gas Hydrogen Gas	Acetylene			Carbon Dioxide