

Product News

NO. 13
02E



Energy-Saving Type Solenoid Operated Directional Valves

HE-DSG-01-*-D24-70**

Release of New Products

We are pleased to announce the release of “energy-saving type solenoid operated directional valves” with high pressure/flow and reduced holding power as an addition to our highly reputable solenoid operated directional valve series.

■ Features

● Energy Saving

The valves have a power consumption of 6 W, about one fifth that of the DSG-01 series (29 W), and significantly reduce running costs.

● High Pressure and High Flow

With a maximum operating pressure of 35 MPa and a maximum flow of 100 L/min, which are identical to those of the DSG-01 series, the valves provide high pressure and high flow.



■ Specifications

Model Numbers	Max. Flow (L/min)	Max. Operating Pressure (MPa)	Max. T-Line Back Pressure (MPa)	Max. Changeover Frequency (min ⁻¹)	Mass (kg)
HE-DSG-01-3C*-D24-70	100*	35	21	60	2.1
HE-DSG-01-2D2-D24-70					
HE-DSG-01-2B*-D24-70					1.5

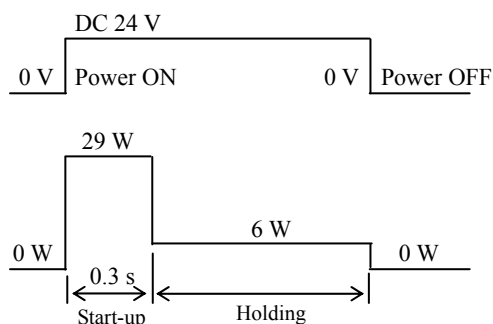
★ The maximum flow differs according to the spool type and operating conditions. For details, please refer to the List of Standard Models on page 3.

■ Solenoid Ratings

Electric Source	Coil Type	Voltage (V)		Current & Power at Rated Voltage				Start-up Time (s)
		Source Rating	Serviceable	Start-up Current (A)	Holding Current (A)	Start-up Power (W)	Holding Power (W)	
DC	D24	24	21.6 - 26.4	1.25	0.25	29	6	0.3

● Power consumption change

For the valves, the power consumption changes to 6 W in about 0.3 second after solenoid energization. For the power consumption change, see the following diagram.



■ Model Number Designation

HE-	DSG	-01	-2	B	2	A	-D24	-70	-L
Type	Series Number	Valve Size	Number of Valve Positions	Spool-Spring Arrangement	Spool Type	Special Two Position Valve (Omit if not required)	Coil Type	Design Number ^{★4}	Models with Reverse Mtg. of Solenoid
HE: Energy-Saving Type ^{★1}	DSG: Solenoid Operated Directional Valve (Sub-plate Mounting)	01	3	C: Spring Centred	2, 3 4, 40 60, 9 <u>10, 11</u> <u>12</u> ^{★2}	-	(DC) D24	70	-
			2	D: No-Spring Detented	2	A: Neutral and SOL a Energized Positions			L: Omit if not required
				B: Spring Offset	2, 3, 8	A: Neutral and SOL a Energized Positions ^{★3} B: Neutral and SOL b Energized Positions			

★1. Phosphate ester type fluids are also supported. When phosphate ester type fluids are used, prefix "F-" to the model number because the special seals (fluororubber) are required to be used.

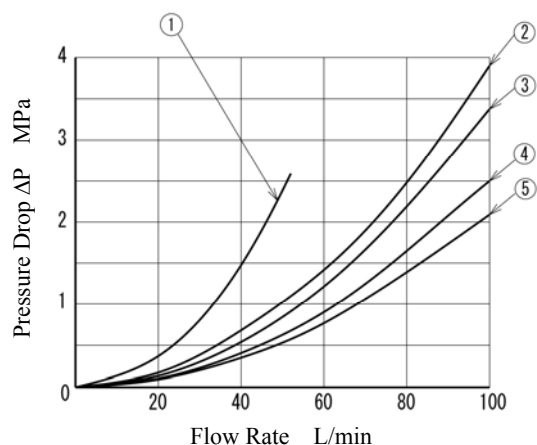
★2. In the table above, the enclosed numbers represent optional extras; the valves with such optional extras are handled as options.

★3. For details of the special two position valve, please refer to the installation drawing (1790S-VA330668-5).

★4. The design number is subject to change without notice as improvements are made to the product. However, a change only in the last digit of the design number means that the installation dimensions and performance specifications remain unchanged.

■ Pressure Drop

Pressure drop curves based on a viscosity of 35 mm²/s and a specific gravity of 0.850



Model Numbers	Pressure Drop Curve Number				
	P→A	B→T	P→B	A→T	P→T
HE-DSG-01-3C2	④	④	④	④	-
HE-DSG-01-3C3	⑤	⑤	⑤	⑤	②
HE-DSG-01-3C4	④	④	④	④	-
HE-DSG-01-3C40	④	④	④	④	-
HE-DSG-01-3C60	①	①	①	①	②
HE-DSG-01-3C9	⑤	③	⑤	③	-
HE-DSG-01-3C10	④	⑤	④	④	-
HE-DSG-01-3C11	④	④	④	④	-
HE-DSG-01-3C12	④	④	④	⑤	-
HE-DSG-01-2D2	⑤	④	⑤	④	-
HE-DSG-01-2B2	⑤	④	⑤	④	-
HE-DSG-01-2B3	⑤	⑤	⑤	⑤	-
HE-DSG-01-2B8	⑤	-	④	-	-

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

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

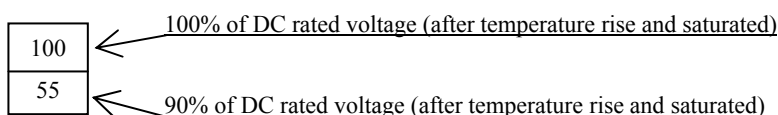
For any other specific gravity (G'), the pressure drop (ΔP') may be obtained from the formula below.

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

■ List of Standard Models

No. of Valve Positions	Spool-Spring Arrangement	Model Numbers/ Graphic Symbols	Max. Flow L/min																		
			P→A(B)→B(A)→T					P→A					P→B								
			Working Pressure MPa					Working Pressure MPa					Working Pressure MPa								
10			16		25		31.5		35		10			16		25		31.5		35	
Three Positions	Spring Centred	HE-DSG-01-3C2	100	100	100	100	100	100	45	28	25	22	100	45	28	25	22				
								55	35	23	19	17	55	35	23	19	17				
		HE-DSG-01-3C3	80	80	80	80	80	63	63	63	63	63	63	63	63	63	63				
			63	63	63	63	63	56	56	56	56	56	56	56	56	56	56				
		HE-DSG-01-3C4	90	90	30	20	18	55	35	20	18	16	55	35	20	18	16				
			40	20	15	14	40	25	15	13	12	40	25	15	13	12					
		HE-DSG-01-3C40	85	85	55	50	25	75	40	25	20	18	75	40	25	20	18				
					32	30	19	45	30	18	15	14	45	30	18	15	14				
		HE-DSG-01-3C60	40	40	40	40	40	52	52	52	52	52	52	52	52	52	52				
			32	32	32	32	32	46	46	46	46	46	46	46	46	46	46				
HE-DSG-01-3C9	100	100	100	100	100	20	15	10	10	8	20	15	10	10	8						
HE-DSG-01-3C10	85	85	30	20	18	55	35	20	18	16	55	35	20	18	16						
	40	20	15	14	40	25	15	13	12	40	25	15	13	12							
HE-DSG-01-3C11	100	100	100	100	100	23	20	13	10	5	55	35	20	18	16						
											40	25	15	13	12						
HE-DSG-01-3C12	85	85	30	20	18	55	35	20	18	16	55	35	20	18	16						
	40	20	15	14	40	25	15	13	12	40	25	15	13	12							
Two Positions	No-Spring Detented	HE-DSG-01-2D2	68	68	68	68	68	45	45	40	30	27	50	50	50	45	45				
			63	63	63	63	63			30	25	22	45	45	45	40	40				
	Spring Offset	HE-DSG-01-2B2	80	80	80	80	80	20	16	16	15	13	45	28	18	15	12				
													30	20	10	9	8				
		HE-DSG-01-2B3	70	70	70	70	70	50	50	50	50	50	75	75	75	75	75				
													65	65	65	65	65				
HE-DSG-01-2B8	-	-	-	-	-	26	17	13	11	10	45	28	18	15	12						
											30	20	10	9	8						

(1) Each cell with two rows in the table above indicates that the maximum flow varies depending on the voltage. The upper row shows the value at the rated voltage, while the lower row shows the value at the minimum serviceable voltage.



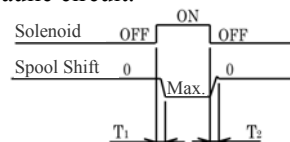
(2) In the valve type 3C60, if the actuator is placed between the cylinder ports A and B as illustrated below, the actuator moves and suspends at its stroke end, and the valve is then shifted to the neutral position with the actuator suspended, the maximum flow rates available are those shown below regardless of the voltage in the serviceable voltage range.

	Model Number	Graphic Symbol	Max. Flow L/min				
			10 MPa	16 MPa	25 MPa	31.5 MPa	35 MPa
	HE-DSG-01-3C60-D24		55	44	30	26	22

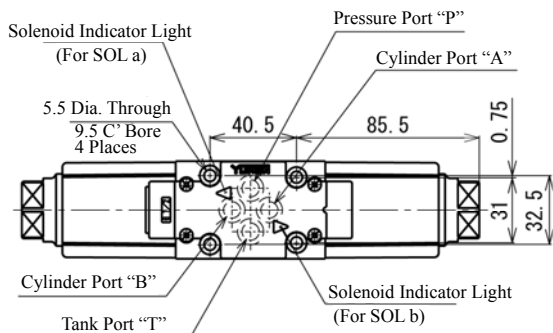
■ Changeover Time

Changeover time varies according to the oil viscosity, spool type, and hydraulic circuit.

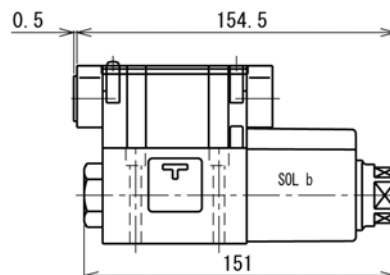
Model Number	T ₁ ms	T ₂ ms
HE-DSG-01-***-D24	30 - 45	20 - 30



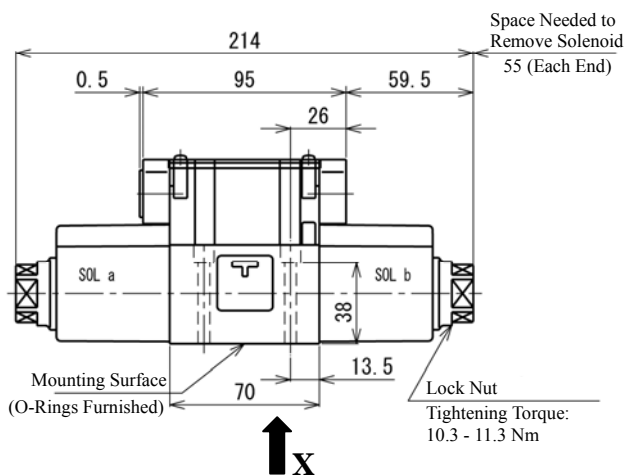
- Spring Centred: HE-DSG-01-3C*
- No-Spring Detented: HE-DSG-01-2D**



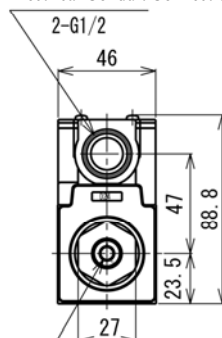
- Spring Offset: HE-DSG-01-2B*



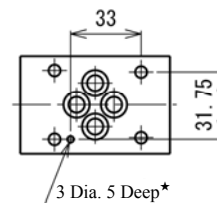
- For other dimensions, refer to the left figure.
- A model with the solenoid mounted on the SOL a side (reverse mounting) is also available.



Electrical Conduit Connection

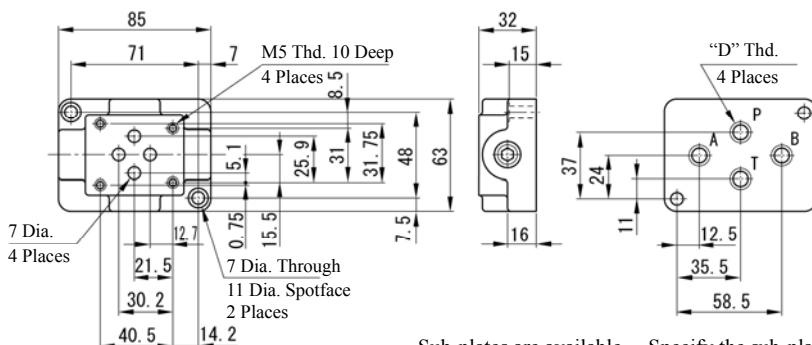


★ A locating pin can be fitted to this hole to conform with ISO 4401-03-02-0-94. However, no locating pin is provided to a standard design valve. When ordering a valve with a locating pin, consult Yuken.



VIEW ARROW X

- Sub-plate
DSGM-01, 01X, 01Y Mounting surface: ISO4401-AB-03-4-A



Sub-plates are available. Specify the sub-plate model number from the left table. When sub-plates are not used, the mounting surface should have a good machined finish (e.g. surface roughness of 6-5).

Sub-plate Model Numbers	D
DSGM-01-31	1/8
DSGM-01X-31	1/4
DSGM-01Y-31	3/8

Product Release

We will start accepting orders for the products in May 2013.

Application

Machine tools and general industrial machinery

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