



■ Model Number Designation

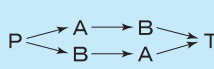
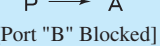

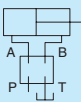





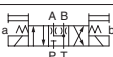



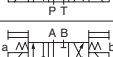


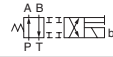

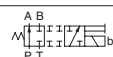
F-	S-	DSG	-01	-2	B	2	A	-D24	-C	-N	-70	*	-L
Special Seals	Shockless Type	Series Number	Valve Size	Number of Valve Positions	Spool-Spring Arrangement	Spool Type	Special Two Position Valve (Omit if not required)	Coil Type	Manual Override	Electrical Conduit Connection	Design Number	Design Standard	Models with Reverse Mtg. of Solenoid (Omit if not required)
<b>F:</b> For Phosphate Ester Type Fluids (Omit if not required)	<b>None:</b> Standard Type	<b>DSG:</b> Solenoid Operated Directional Valve	<b>01</b>	<b>3:</b> Three Positions	<b>C:</b> Spring Centred	2, 3 4, 40 60, 9 10, 11 12	—	AC: A100 A120 A200 A240	<b>None:</b> Manual Override Pin	<b>None:</b> Terminal Box Type	<b>70</b>	<b>None:</b> Japanese Std. "JIS"  <b>90:</b> N.American Design Std.	—
						2							
	<b>2:</b> Two Positions			<b>D:</b> No-Spring Detented	2	—	R: (AC→DC) R100 R200	<b>C:</b> Push Button and Lock Nut (Option)		<b>N:</b> Plug-in Connector Type  <b>N1:</b> <sup>*2</sup> Plug-in Connector Type with Indicator Light (Option)		<b>None:</b> Japanese Std. "JIS" and European Design Std.	L
					2 3 8								
<b>S:</b> Shockless Type				<b>3:</b> Three Positions	<b>C:</b> Spring Centred	2 4	—	DC: D12 D24 D48				<b>90:</b> N. American Design Std.	—
						2							
<b>2:</b> Two Positions	<b>B:</b> Spring Offset			2	—	R: (AC→DC) R100 R200						L	
				2									

★1. In case of the special two position valve, please refer to page 352 for details.  
 ★2. N1 is not available for R type solenoids.

In the table above, the symbols or numbers highlighted with shade represent the optional extras. The valves with model number having such optional extras are handles as options, therefore, please confirm the time of delivery with us before ordering.

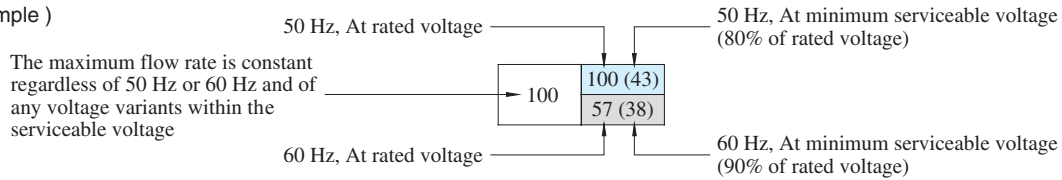
■ List of Standard Models and The Maximum Flow

● Models with AC Solenoids: DSG-01-\*\*\*-A\*

No. of Valve Positions	Spool-Spring Arrangement	Model Numbers	Graphic Symbols	Max. Flow L/min																				
									 [Port "B" Blocked]					 [Port "A" Blocked]										
																								
				Working Pressure MPa					Working Pressure MPa					Working Pressure MPa										
10					16					25					31.5					35				
Three Positions	Spring Centred	DSG-01-3C2		100	100	100	100	100	100(43)	100(41)	80(21)	60(17)	38(15)	100(43)	100(41)	80(21)	60(17)	38(15)						
		DSG-01-3C3		100(80)	100(80)	100(80)	100(77)	100(77)	70(46)	70(46)	70(46)	70(46)	70(46)	70(46)	70(46)	70(46)	70(46)	70(46)						
		DSG-01-3C4		90	90	90	90(22)	35(18)	100(38)	76(28)	67(15)	57(10)	35(7)	100(38)	76(28)	67(15)	57(10)	35(7)						
		DSG-01-3C40		85	85	85	80(40)	80(22)	85(40)	85(35)	85(24)	60(16)	55(12)	85(40)	85(35)	85(24)	60(16)	55(12)						
		DSG-01-3C60		43(23)	43(23)	42(23)	42(23)	42(23)	54(32)	54(32)	52(32)	52(32)	52(32)	54(32)	54(32)	52(32)	52(32)	52(32)						
		DSG-01-3C9		100	100	100	100	100	20	15	10	10	8	20	15	10	10	8						
		DSG-01-3C10		100	100	100(63)	100(33)	100(27)	100(50)	100(37)	100(20)	78(16)	62(13)	100(50)	100(37)	100(20)	78(16)	62(13)						
		DSG-01-3C11		100	100	100	100	100	23	20	13	10	5	100(65)	85(52)	72(45)	65(34)	60(27)						
		DSG-01-3C12		100	100	100(63)	100(33)	100(27)	100(50)	100(37)	100(20)	78(16)	62(13)	100(50)	100(37)	100(20)	78(16)	62(13)						
Two Positions	No-Spring Detented	DSG-01-2D2		80	80	80	80	80	45	45	45(21)	45(16)	38(13)	50	50(45)	50(42)	45(40)	45(40)						
		DSG-01-2B2		85	85	85	85	85	20	16	16	15	13	85(63)	80(50)	63(40)	44(32)	44(32)						
	Spring Offset	DSG-01-2B3		70	70	70	70	70	50	50	50	50	50	80(70)	80(70)	80(70)	80(70)	80(70)						
		DSG-01-2B8		—	—	—	—	—	26	17	13	11	10	80(50)	70(40)	60(20)	45(10)	30(10)						

Notes: 1. The relation between the maximum flow in the table above and the frequency/voltage (within the serviceable voltage) is as shown below.

( Example )




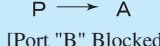

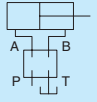
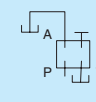
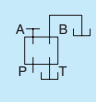
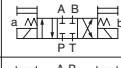





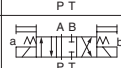
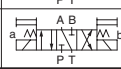

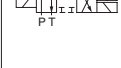
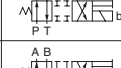
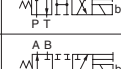
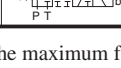

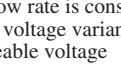
2. For the maximum flow rate in P → T of the valves with a ★ mark, please see page 351.

The valve models with a ◆ mark are handled as Options. If you choose such valves, check the time of delivery beforehand.

DSG-01 Series Solenoid Operated Directional Valves

■ List of Standard Models and The Maximum Flow

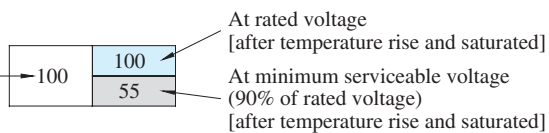
● Models with DC or R Type Solenoids: DSG-01-\*\*\*-D\*/R\*

No. of Valve Positions	Spool-Spring Arrangement	Model Numbers	Graphic Symbols	Max. Flow L/mi														
																		
																		
				Working Pressure MPa					Working Pressure MPa					Working Pressure MPa				
				10	16	25	31.5	35	10	16	25	31.5	35	10	16	25	31.5	35
Three Positions	Spring Centred	DSG-01-3C2		100	100	100	100	100	100	45	28	25	22	100	45	28	25	22
		DSG-01-3C3		100	100	100	100	100	78	78	78	78	75	78	78	78	78	75
		DSG-01-3C4		90	90	90	50	38	100	58	38	31	29	100	58	38	31	29
		DSG-01-3C40		85	85	65	40	33	85	52	30	26	24	85	52	30	26	24
		DSG-01-3C60		50	50	50	50	50	66	66	66	66	66	66	66	66	66	66
		DSG-01-3C9		100	100	100	100	100	20	15	10	10	8	20	15	10	10	8
		DSG-01-3C10		85	85	85	80	40	100	56	36	28	24	100	56	36	28	24
		DSG-01-3C11		100	100	100	100	100	23	20	13	10	5	100	60	40	36	32
		DSG-01-3C12		85	85	85	80	40	100	56	36	28	24	100	56	36	28	24
		Two Positions	No-Spring Detented	DSG-01-2D2		75	75	75	75	75	45	45	40	30	27	50	50	45
DSG-01-2B2				80	80	80	80	80	20	16	16	15	13	46	31	24	22	22
Spring Offset	DSG-01-2B3			70	70	70	70	70	50	50	50	50	50	75	75	75	75	75
	DSG-01-2B8			—	—	—	—	—	26	17	13	11	10	53	35	23	19	17
	DSG-01-2B2			80	80	80	80	80	20	16	16	15	13	32	23	19	18	18
	DSG-01-2B3			70	70	70	70	70	50	50	50	50	50	65	65	65	65	65

Notes: 1. The relation between the maximum flow in the table above and the voltage (within the serviceable voltage) is as shown below.

( Example )

The maximum flow rate is constant regardless of any voltage variants within the serviceable voltage

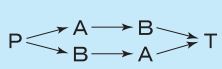
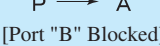
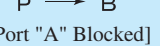







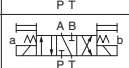

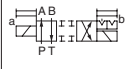

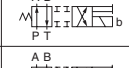

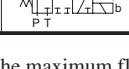
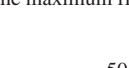


2. For the maximum flow rate in P → T of the valves with a ★ mark, please see page 351.

The valve models with a ◆ mark are handled as Options. If you choose suce valves, check the time of delivery beforehand.

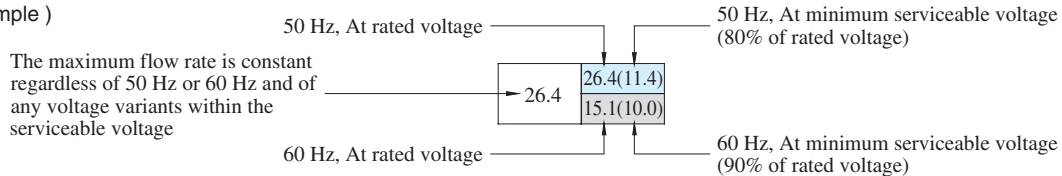
■ List of Standard Models and The Maximum Flow

● Models with AC Solenoids: DSG-01-\*\*\*-A\*

No. of Valve Positions	Spool-Spring Arrangement	Model Numbers	Graphic Symbols	Max. Flow U.S.GPM														
																		
				Working Pressure PSI					Working Pressure PSI					Working Pressure PSI				
				1450	2320	3630	4570	5080	1450	2320	3630	4570	5080	1450	2320	3630	4570	5080
Three Positions	Spring Centred	DSG-01-3C2		26.4	26.4	26.4	26.4	26.4	26.4(11.4)	26.4(10.8)	21.1(5.6)	15.9(4.5)	10.0(4.0)	26.4(11.4)	26.4(10.8)	21.1(5.6)	15.9(4.5)	10.0(4.0)
		DSG-01-3C3		26.4(21.1)	26.4(21.1)	26.4(21.1)	26.4(21.1)	26.4(21.1)	18.5(12.2)	18.5(12.2)	18.5(12.2)	18.5(12.2)	18.5(12.2)	18.5(12.2)	18.5(12.2)	18.5(12.2)	18.5(12.2)	18.5(12.2)
		DSG-01-3C4		23.8	23.8	23.8	23.8	23.8	26.4(10.0)	20.1(7.4)	17.7(4.0)	15.1(2.6)	9.2(1.8)	26.4(10.0)	20.1(7.4)	17.7(4.0)	15.1(2.6)	9.2(1.8)
		DSG-01-3C40		22.5	22.5	22.5	22.5	22.5	22.5(10.6)	22.5(9.3)	22.5(6.3)	15.9(4.2)	14.5(3.2)	22.5(10.6)	22.5(9.3)	22.5(6.3)	15.9(4.2)	14.5(3.2)
		DSG-01-3C60		11.4(6.1)	11.4(6.1)	11.1(6.1)	11.1(6.1)	11.1(6.1)	14.2(8.4)	14.2(8.4)	13.7(8.4)	13.7(8.4)	13.7(8.4)	14.2(8.4)	14.2(8.4)	13.7(8.4)	13.7(8.4)	13.7(8.4)
		DSG-01-3C9		26.4	26.4	26.4	26.4	26.4	5.3	4.0	2.6	2.6	2.1	5.3	4.0	2.6	2.6	2.1
		DSG-01-3C10		26.4	26.4	26.4	26.4	26.4	26.4(13.2)	26.4(9.8)	26.4(5.3)	20.6(4.2)	16.4(3.4)	26.4(13.2)	26.4(9.8)	26.4(5.3)	20.6(4.2)	16.4(3.4)
		DSG-01-3C11		26.4	26.4	26.4	26.4	26.4	6.1	5.3	3.4	2.6	1.3	26.4(17.2)	22.5(13.7)	19.0(13.7)	17.2(9.0)	15.9(7.1)
		DSG-01-3C12		26.4	26.4	26.4	26.4	26.4	26.4(13.2)	26.4(9.8)	26.4(5.3)	20.6(4.2)	16.4(3.4)	26.4(13.2)	26.4(9.8)	26.4(5.3)	20.6(4.2)	16.4(3.4)
Two Positions	No-Spring Detented	DSG-01-2D2		21.1	21.1	21.1	21.1	21.1	11.9	11.9	11.9(5.6)	11.9(4.2)	10.0(3.4)	13.2	13.2(11.9)	13.2(11.1)	11.9(10.6)	11.9(10.6)
		DSG-01-2B2		22.5	22.5	22.5	22.5	22.5	5.3	4.2	4.2	4.0	3.4	22.5(16.6)	21.1(13.2)	16.6(10.6)	11.6(8.5)	11.6(8.5)
		DSG-01-2B3		18.5	18.5	18.5	18.5	18.5	13.2	13.2	13.2	13.2	13.2	21.1(18.5)	21.1(18.5)	21.1(18.5)	21.1(18.5)	21.1(18.5)
	Spring Offset	DSG-01-2B8		—	—	—	—	—	6.9	4.5	3.4	2.9	2.6	21.1(13.2)	18.5(10.6)	15.9(5.3)	11.9(2.6)	7.9(2.6)
		DSG-01-2B2		22.5	22.5	22.5	22.5	22.5	5.3	4.2	4.2	4.0	3.4	22.5(16.6)	21.1(13.2)	16.6(10.6)	11.6(8.5)	11.6(8.5)
		DSG-01-2B3		18.5	18.5	18.5	18.5	18.5	13.2	13.2	13.2	13.2	13.2	21.1(18.5)	21.1(18.5)	21.1(18.5)	21.1(18.5)	21.1(18.5)

Notes: 1. The relation between the maximum flow in the table above and the frequency/voltage (within the serviceable voltage) is as shown below.

( Example )




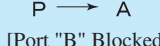

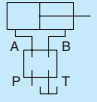
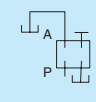
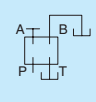






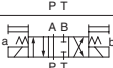





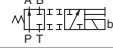
2. For the maximum flow rate in P → T of the valves with a ★ mark, please see [page 351](#).

The valve models with a ◆ mark are handled as Options. If you choose such valves, check the time of delivery beforehand.

DSG-01 Series Solenoid Operated Directional Valves

■ List of Standard Models and The Maximum Flow

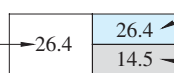
● Models with DC or R Type Solenoids: DSG-01-\*\*\*-D\*/R\*

No. of Valve Positions	Spool-Spring Arrangement	Model Numbers	Graphic Symbols	Max. Flow U.S.GPM														
																		
																		
				Working Pressure PSI					Working Pressure PSI					Working Pressure PSI				
				1450	2320	3630	4570	5080	1450	2320	3630	4570	5080	1450	2320	3630	4570	5080
Three Positions	Spring Centred	DSG-01-3C2		26.4	26.4	26.4	26.4	26.4	26.4	11.9	7.4	6.6	5.8	26.4	11.9	7.4	6.6	5.8
		DSG-01-3C3		26.4	26.4	26.4	26.4	26.4	20.6	20.6	20.6	20.6	19.8	20.6	20.6	20.6	20.6	19.8
		DSG-01-3C4		23.8	23.8	23.8	13.2	10.0	26.4	15.3	10.0	8.2	7.7	26.4	15.3	10.0	8.2	7.7
		DSG-01-3C40		22.5	22.5	17.2	10.6	8.7	22.5	13.7	7.9	6.9	6.3	22.5	13.7	7.9	6.9	6.3
		DSG-01-3C60		13.3	13.3	13.3	13.3	13.3	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4
		DSG-01-3C9		26.4	26.4	26.4	26.4	26.4	5.3	4.0	2.6	2.6	2.1	5.3	4.0	2.6	2.6	2.1
		DSG-01-3C10		22.5	22.5	22.5	21.1	10.6	26.4	14.8	9.5	7.4	6.3	26.4	14.8	9.5	7.4	6.3
		DSG-01-3C11		26.4	26.4	26.4	26.4	26.4	6.1	5.3	3.4	2.6	1.3	26.4	15.9	10.6	9.5	8.5
		DSG-01-3C12		22.5	22.5	22.5	21.1	10.6	26.4	14.8	9.5	7.4	6.3	26.4	14.8	9.5	7.4	6.3
		Two Positions	No-Spring Detented	DSG-01-2D2		19.8	19.8	19.8	19.8	19.8	11.9	11.9	10.6	7.9	7.1	13.2	13.2	11.9
18.5	18.5			18.5	18.5	18.5	7.9	6.6	5.8	13.2	11.1	10.6	10.6					
Spring Offset	DSG-01-2B2			21.1	21.1	21.1	21.1	21.1	5.3	4.2	4.2	4.0	3.4	12.2	8.2	6.3	5.8	5.8
	DSG-01-2B3			18.5	18.5	18.5	18.5	18.5	13.2	13.2	13.2	13.2	13.2	19.8	19.8	19.8	19.8	19.8
	DSG-01-2B8			—	—	—	—	—	6.9	4.5	3.4	2.9	2.6	14.0	9.2	6.1	5.0	4.5
	9.3		7.9	4.5	3.4	3.2												

Notes: 1. The relation between the maximum flow in the table above and the voltage (within the serviceable voltage) is as shown below.

( Example )

The maximum flow rate is constant regardless of any voltage variants within the serviceable voltage



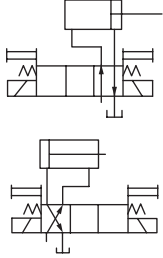
At rated voltage [after temperature rise and saturated]  
 At minimum serviceable voltage (90% of rated voltage) [after temperature rise and saturated]

2. For the maximum flow rate in P → T of the valves with a ★ mark, please see page 351.

The valve models with a ◆ mark are handled as Options. If you choose suce valves, check the time of delivery beforehand.

## Maximum Flow of Centre By-Pass

In valve type 3C60, in case where the actuator is put on in between the cylinder ports A and B as illustrated below and where the actuator moves and suspended at its stroke end and where the valve is then shifted to the neutral position in the suspended state of the actuator, the maximum flow rates available are those as shown as the table below regardless of any voltage in the range of serviceable voltage.



Mode Numbers	Graphic Symbol	Max. Flow L/min (U.S.GPM)				
		10 MPa (1450 PSI)	16 MPa (2320 PSI)	25 MPa (3630 PSI)	31.5 MPa (4570 PSI)	35 MPa (5080 PSI)
DSG-01-3C60-A*/D*/R*		55 (14.5)	44 (11.6)	30 (7.9)	26 (6.9)	22 (5.8)

## List of Shockless Models and The Maximum Flow

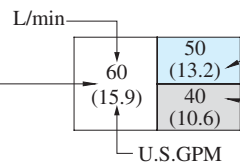
- Models with DC or R Type Solenoids: S-DSG-01-\*\*\*-D\*/R\*

No. of Valve Positions	Spool-Spring Arrangement	Model Numbers	Graphic Symbol	Max. Flow L/min (U.S.GPM)								
				Working Pressure MPa (PSI)			Working Pressure MPa (PSI)			Working Pressure MPa (PSI)		
				10 (1450)	16 (2320)	25 (3630)	10 (1450)	16 (2320)	25 (3630)	10 (1450)	16 (2320)	25 (3630)
Three Positions	Spring Centred	S-DSG-01-3C2		63 (16.6)	63 (16.6)	40 (10.6)	40 (10.6)	32 (8.5)	25 (6.6)	40 (10.6)	32 (8.5)	25 (6.6)
		S-DSG-01-3C4		60 (15.9)	50 (13.2)	40 (10.6)	40 (10.6)	32 (8.5)	16 (4.2)	40 (10.6)	32 (8.5)	16 (4.2)
Two Positions	Spring Offset	S-DSG-01-3B2		50 (13.2)	45 (11.9)	45 (11.9)	30 (7.9)	30 (7.9)	30 (7.9)	60 (15.9)	40 (10.6)	40 (10.6)
				45 (11.9)	40 (10.6)	40 (10.6)						

Notes: 1. The relation between the maximum flow in the table above and the voltage (within the serviceable voltage) is as shown below.

( Example )

The maximum flow rate is constant regardless of any voltage variants within the serviceable voltage



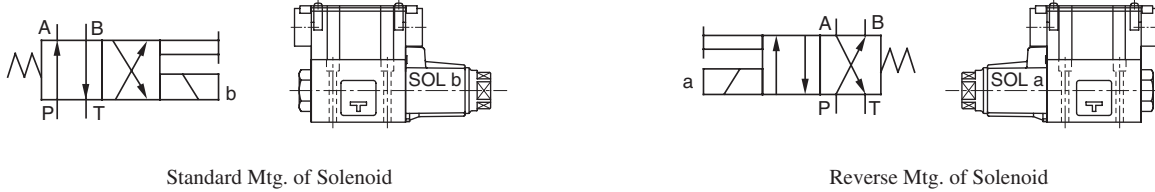
At rated voltage [after temperature rise and saturated]  
 At minimum serviceable voltage (90% of rated voltage) [after temperature rise and saturated]

**DSG-01 Series Solenoid Operated Directional Valves**

**Reverse Mounting of Solenoid.**

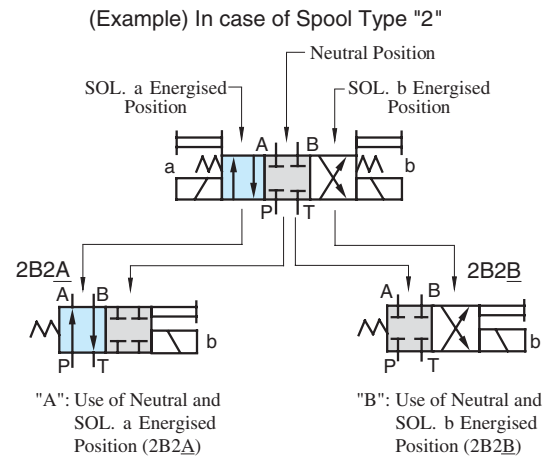
In spring offset type, it is a standard configuration that the solenoid is mounted onto the valve in the SOL b position (side). However, in this particular spool-spring arrangement, the mounting of the solenoid onto the valve in the reverse position -SOL a side- is also available. The graphic symbol for this reverse mounting is as shown below.

As for the valve type 2B\*A and 2B\*B, please refer to the explanation under the heading of "Valves Using Neutral Position and Side Position" given below.



**Valves Using Neutral Position and Side Position. (Special Two position Valve)**

Besides the use of the standard 2-position valves aforementioned in the "List of Standard Models and Maximum Flow", the 3-position valves also can be used as the 2-position valves using the two of their three positions. In this case, there are two kinds of the valve available. One is the valve using the neutral position and SOL a position (2B\*A) and another is the valve using the neutral position and SOL b position (2B\*B).



Model Numbers	Graphic SymbolsG	
	Standard Mtg. Type	Reverse Mtg. Type
DSG-01-2B*A		
DSG-01-2B2A		—

Model Numbers	Graphic Symbols	
	Standard Mtg. Type	Reverse Mtg. Type
DSG-01-2B*B		
DSG-01-2B2B		—
DSG-01-2B3B		—
DSG-01-2B4B		
DSG-01-2B60B		—
DSG-01-2B10B		—

In the above table, the graphic symbols in mounting type highlighted with shade are optional extra, therefore, please confirm the time of delivery with us before ordering.

## Typical Changeover Time

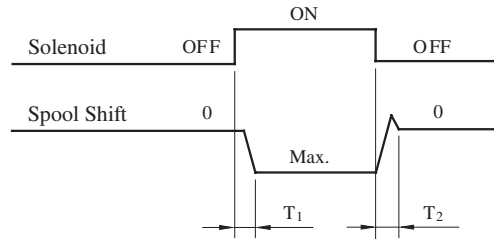
Changeover time varies according to oil viscosity, spool type and hydraulic circuit.

### Standard Type (Without Shockless Function)

#### [Test Conditions]

Pressure: 16 MPa (2320 PSI)  
 Flow Rate: 31.5 L/min (8.3 U.S.GPM)  
 Viscosity: 35 mm<sup>2</sup>/s (164 SSU)  
 Voltage: 100 %V  
 (After coil temperature rises and saturated)

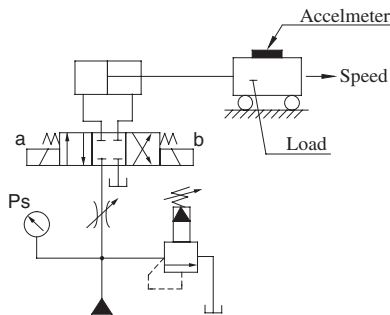
#### [Result of Measurement]



Type	Model Numbers	Time ms	
		T <sub>1</sub>	T <sub>2</sub>
Standard Type	DSG-01-3C2-A*	15	23
	DSG-01-3C2-D*	48	19
	DSG-01-3C2-R*	50	100

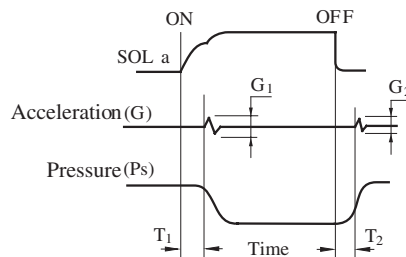
### Shockless Type

#### [Test Circuit and Conditions]



Setting Pressure (Ps): 7 MPa (1020 PSI)  
 Load (W): 1000 kg (2205 lbs.)  
 Speed: 8 m/min (26.2 ft./min)  
 Viscosity: 35 mm<sup>2</sup>/s (164 SSU)

#### [Results of Measurement]



Type	Model Numbers	Time ms		Acceleration m/s <sup>2</sup> (G)	
		T <sub>1</sub>	T <sub>2</sub>	G <sub>1</sub>	G <sub>2</sub>
Shockless Type	S-DSG-01-3C2-D*	70	30	12 (1.2)	7 (0.7)
Standard Type	DSG-01-3C2-D*	35	25	18 (1.8)	15 (1.5)