

SOLENOID OPERATED DIRECTIONAL VALVE

SWH-G02 SERIES SHOCKLESS TYPE



FEATURES

- Armature operates in oil system. Impact is cushioned, noise is reduced, solenoid life is increased.
- Wet armature solenoid eliminates pushpin seal, therefore no seal wear, drop or leakage for longer valve life.
- Molded coils for maximum insulating properties, which is impervious to moisture and dirt.
- Plug-in solenoid, for ease of maintenance.
- All spools and bodies are interchangeable, simplifying maintenance.
- Indicating signal lights and bolt kits are standard.
- High pressure, high flow rating, provides low-pressure drop, with maximum performance.
- Specially designed, balanced spool allows proper shifting force, for maximum reliability and long life.
- A specially machined spool minimizes hydraulic shock caused by abrupt change in the flow condition at flow cut off.
- Hydraulic shock caused by abrupt change in the flow condition at flow cut off, is minimized by a specially machined

Model Code -

SWH – G 02 – C2 – R120 – 10 – M

1 Series

SWH: High Pressure, High Flow Solenoid Directional Control Valve

2 Mounting Style

G: Subplate Mounted

3 Mounting Size

02: Interface 02
NFA D03 Size / ISO 4401-03 / CETOP 3 / NG 06

4 Spool Type

(See Spool Chart)

5 Coil Voltage

R110: AC110V, 50/60Hz
R120: AC120V, 50/60Hz
R220: AC220V, 50/60Hz
R240: AC240V, 50/60Hz
D12: DC12V
D24: DC24V

6 Wiring Type

10: Junction Box with Indicator Light

20: DIN 43650 Connector with Indicator Light

7 Option

M: Hydraulic Shockless Type

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4-WAY, 3-POSITION SPRING CENTERED		4-WAY, 2-POSITION SPRING OFFSET END-TO-CENTER, RIGHT HAND		4-WAY, 2-POSITION SPRING OFFSET END-TO-CENTER, LEFT HAND	
C2		C2B		C2BS	
C3		C3B		C3BS	
C4		C4B		C4BS	
C40		C40B		C40BS	
C6		C6B		C6BS	
4-WAY, 2-POSITION SPRING OFFSET END-TO-END, RIGHT HAND		4-WAY, 2-POSITION SPRING OFFSET END-TO-END, RIGHT HAND			
B2		B2S			
B3		B3S			

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SPECIFICATIONS:

Maximum operating pressure	207 BAR (3000 PSI)
Rated flow capacity	40 LPM (10.5 GPM) MAX - Varies by spool type
Maximum tank line back pressure	138 BAR (2000 PSI)
Maximum frequencies of operation	120 CPM
Recommended filtration	25 MICRON
Hydraulic fluids	Mineral Oil, Viscosity 10 - 400 cST
Temperature range	0° C to +55° C (32° F to +131° F)

SOLENOID RATINGS:

COIL TYPE	VOLTAGE(V)			CURRENT & POWER AT RATED VOLTAGE		
	SOURCE RATED	Hz	RANGE (±10%)	IN-RUSH CURRENT (A)	HOLDING CURRENT (A)	WATTAGE
R110	AC110V	50	99-121	0.30	0.30	26
	AC110V	60				
R220	AC220V	50	198-242	0.15	0.15	
	AC220V	60				
D12	DC 12V		10.8-13.2	2.20	2.20	
D24	DC 24V		21.6-26.4	1.10	1.10	

TECHNICAL DATA:

- Solenoid can be used within -10% to +10% of the rated voltage of the coil.
- Withstand voltage 1500 v/sec.
- Insulation resistance over 100mQ
- Conforms to rating IP65
- A momentary signal of approx 0.1 second is required for shifting action.

ACCESSORIES:

- Mounting bolt kits are supplied with valve socket head cap screws (#10-24UNCx1-3/4"L 4 pcs)
for tightening torque 50-70 kgf-cm (43.3-60.6 lb-in).
- O-Ring AS568-012 4 pcs.

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PRESSURE DROP AND PERFORMANCE CURVES

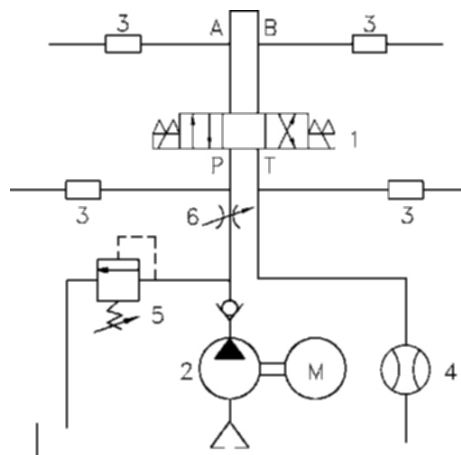
TEST SYSTEMS

1. Testing Valve
2. Pump
3. Pressure Sensor
4. Flow Sensor
5. Relief Valve
6. Throttle Valve

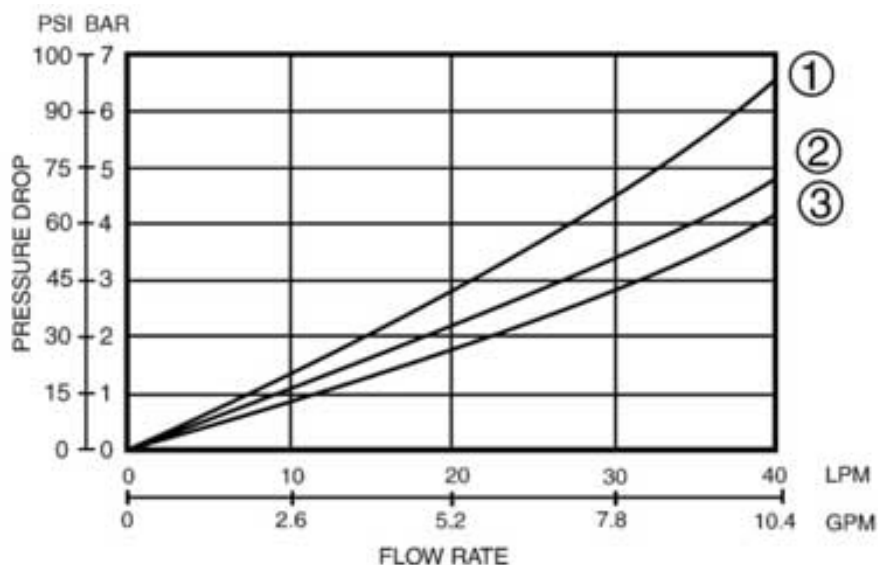
TEST CONDITIONS

Pressure: 69 BAR (1000PSI)
 Flow Rate: 40 LPM(10.5GPM)
 Viscosity: 35 cSt (175SSU)

TEST CIRCUIT



PERFORMANCE CURVES



The pressure drop (AP') can be obtained from the formula
 $AP' = AP (G'/0.85)$ for other specific gravity (G').

SPOOL TYPE	PRESSURE DROP CURVE			
	P — A	B — T	P — B	A — T
C2	2	2	2	2
C4	2	3	2	3
B3	1	1	2	2

CONTRAST CHART BETWEEN FACTORS AND VISCOSITIES

VISCOSITY	CST	15	20	30	40	50	60	70	80	90	100
	SSU	77	98	141	186	232	278	324	371	417	464
FACTOR (G')		0.81	0.87	0.96	1.03	1.09	1.14	1.19	1.23	1.27	1.30

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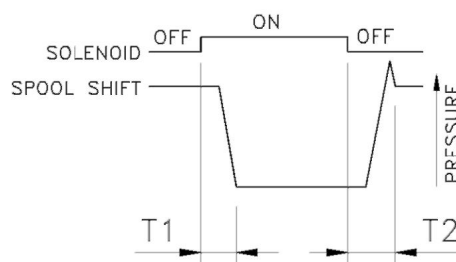
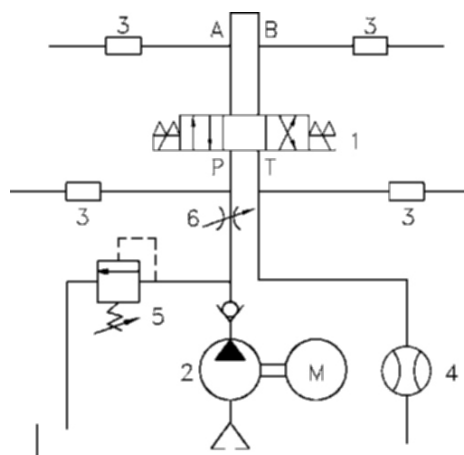
TEST CONDITIONS

Pressure: 138 BAR (2000PSI)

Flow Rate: 30 LPM(8 GPM)

Viscosity: 35 cSt(175 SSU)

TEST CIRCUIT



LIST OF SPOOL FUNCTIONS

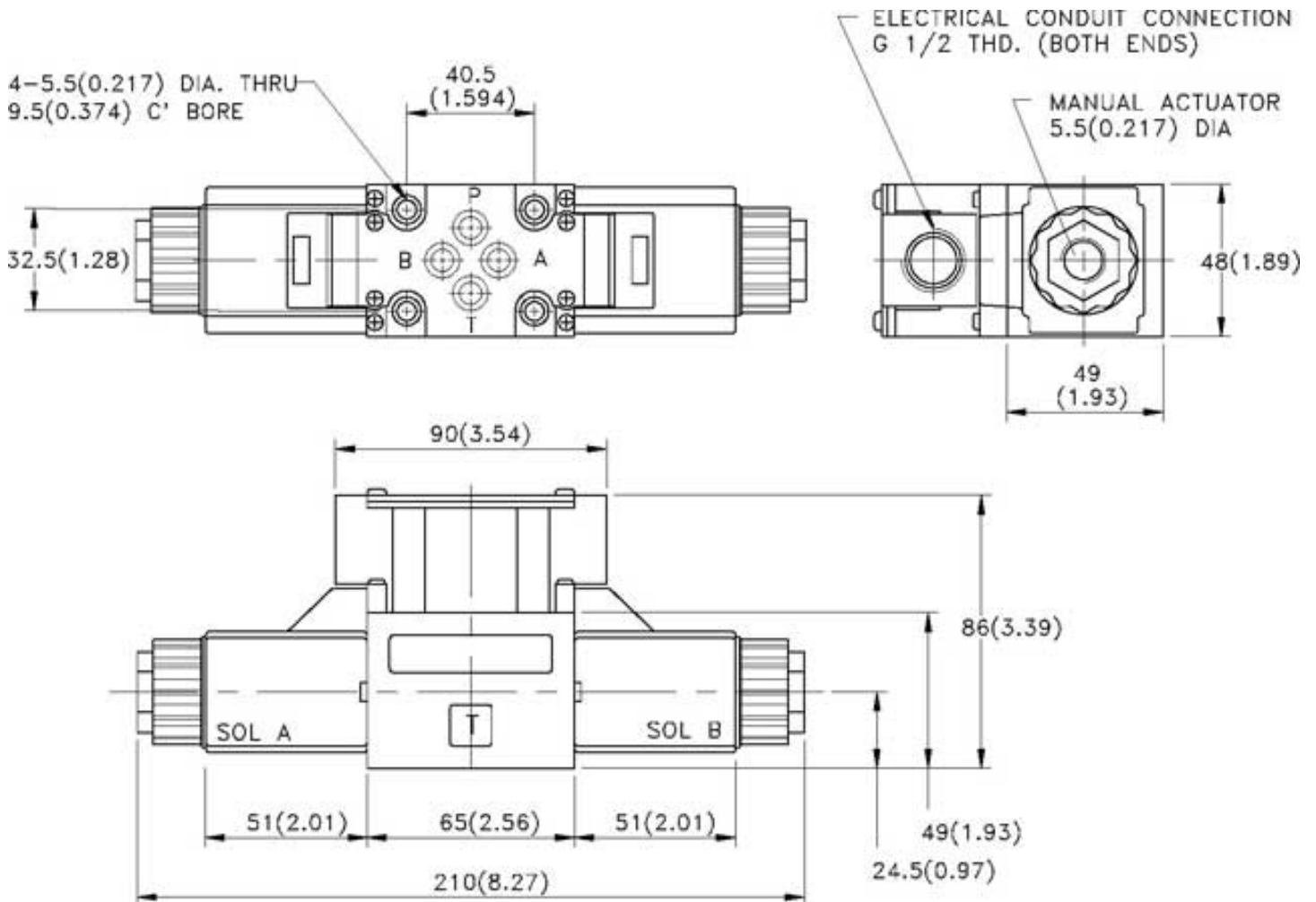
THE MAXIMUM FLOW RATE LPM(GPM) UNDER DIFFERENT PRESSURE BAR (PSI)												
SPOOL TYPE NORMAL POSITION	50 BAR (735 PSI)	100 BAR (1470 PSI)	140 BAR (2000 PSI)	210 BAR (3000 PSI)	50 BAR (735 PSI)	100 BAR (1470 PSI)	140 BAR (2000 PSI)	210 BAR (3000 PSI)	50 BAR (735 PSI)	100 BAR (1470 PSI)	140 BAR (2000 PSI)	210 BAR (3000 PSI)
C2	40 (10.7)	40 (10.7)	40 (10.7)	40 (10.7)	30 (8.0)	22 (5.9)	16 (4.3)	10 (2.7)	30 (8)	22 (5.9)	16 (4.3)	10 (2.7)
C4	40 (10.7)	40 (10.7)	40 (10.7)	40 (10.7)	30 (8.0)	22 (5.9)	16 (4.3)	10 (2.7)	30 (8)	22 (5.9)	16 (4.3)	10 (2.7)
B3	40 (10.7)	40 (10.7)	40 (10.7)	40 (10.7)	40 (10.7)	40 (10.7)	40 (10.7)	40 (10.7)	40 (10.7)	40 (10.7)	40 (10.7)	40 (10.7)

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Dimensions

MOUNTING SURFACE: ISO 4401-AB-03-4-A
UNIT: mm(inch) WEIGHT: 2.0 kgs (4.4 lbs)

SWH - G02 - C ** - **** - 10 - ** - M
with AC/DC/RF solenoids



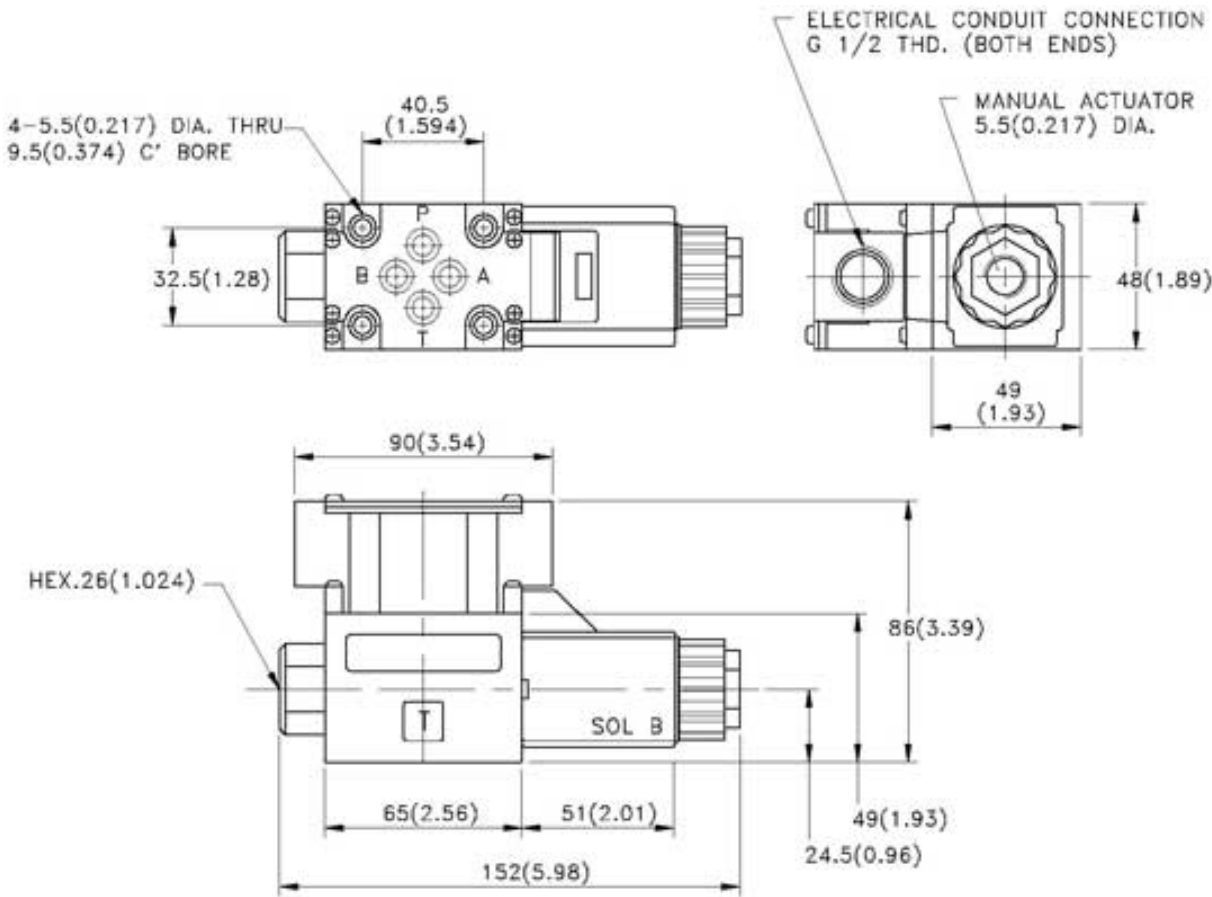
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Model	Weight KGS(LBS)
SWH-G02-B- A***-20-** - M	1.5(3.3)
SWH-G02-C - D/R ***20-** - M	2.0(4.4)
SWH-G02-B - D/R ***-20- ** - M	1.6(3.52)
SWH-G02-D- A ***-20- ** - M	1.9(4.18)
SWH-G02-D - D/R *** -20-** - M	1.9(4.18)