SOLENOID OPERATED DIRECTIONAL VALVE
SWH-G04 SERIES

FEATURES

• Armature operates in system oil. Impact is decreased and cushioning added, making less noise & prolonged solenoid life.
• Wet armature solenoid eliminates push pin seal, reducing seal wear and leakage for longer valve life.
• Molded coil gives maximum insulating properties. They are protected by a special resin and impervious to moisture and dirt for ease of maintenance.
• Plug-in solenoid, easy to change coil.
• Change of pilot and drain can be easily accomplished by plugging or unplugging.
• Spool is designed to avoid creating jet flow or turbulence under high pressure and flow.
• Indicating light and bolt kits are standard.

Model Code

SW – G 04 – C2 – E T – A120 – 10 – ABK– PO
1 2 3 4 5 6 7 8 9 10

1 Series
SW: High Pressure, High Flow Solenoid Directional Control Valve

2 Mounting Style
G: Subplate Mounted

3 Mounting Size
04: Interface 04 NFPA D07 Size / ISO 4401-07 / CETOP 7 / NG 16

4 Spool Type
(See Spool Chart)

5 Pilot Type
No Code: Standard Internal Pilot
E: External Pilot

6 Drain Type
No Code: Standard Internal Drain
T: External Drain

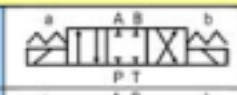
7 Coil Voltage
A24: AC24V, 60Hz
A110: AC110V, 60HZ; AC100V, 50Hz
A120: AC120V, 60HZ; AC110V, 50Hz
A220: AC220V, 60HZ; AC200V, 50Hz
A240: AC240V, 60HZ; AC220V, 50Hz
R110: AC110V, 50/60Hz
R120: AC120V, 50/60Hz
R220: AC220V, 50/60Hz
R240: AC240V, 50/60Hz
D12: DC12V
D24: DC24V

8 Wiring Type
10: Junction Box with Indicator Light
20: DIN 43650 Connector with Indicator Light
31: Lead Wire (DC Only)
41: Dual Spade (DC Only) SAE J858A

9 Option
No Code: Standard
ABK: With Stroke Adj. Both "A" and "B" Ports
AK: With Stroke Adj. "A" Port End Only
BK: With Stroke Adj. "B" Port End Only

10 Option
No Code: Standard
PO: Pilot Choke, Meter-Out
PI: Pilot Choke, Meter-In

SOLENOID OPERATED DIRECTIONAL VALVE
SWH-G04 SERIES

4-WAY, 3-POSITION SPRING CENTERED	
C2	
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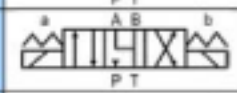
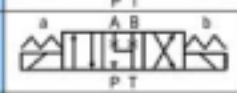
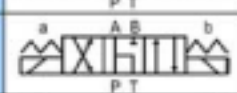
C4	
C40	
C5	
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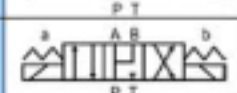
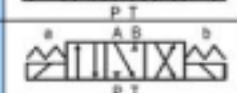
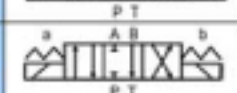
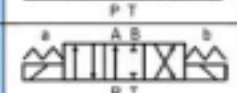
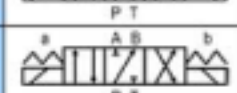
C6	
C7	
C8	
C8S	
C9	
C9S	

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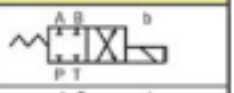
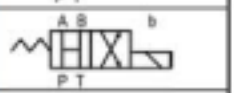
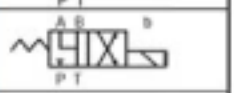
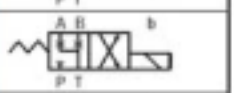
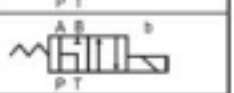
C2B	
C3B	
C4B	
C40B	
C5B	
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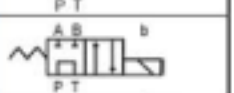
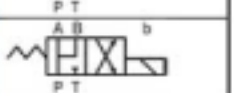
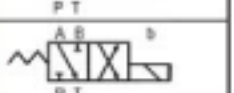
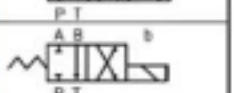
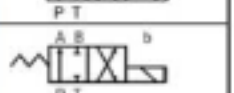
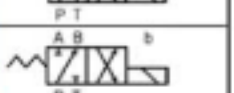
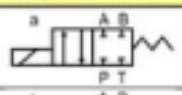
C6B	
C7B	
C8B	
C8SB	
C9B	
C9SB	

4-WAY, 2-POSITION SPRING OFFSET END-TO-CENTER, LEFT HAND	
C2BS	
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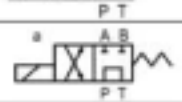
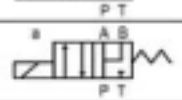
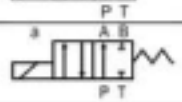
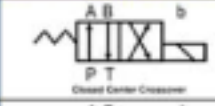
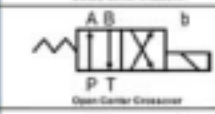
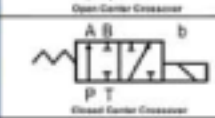
C4BS	
C40BS	
C5BS	
C5SBS	
C6BS	
C7BS	
C8BS	
C8SBS	
C9BS	
C9SBS	

4-WAY, 2-POSITION SPRING OFFSET END-TO-END, RIGHT HAND	
B2	
B3	
B20	

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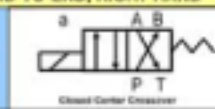
B2S	
B3S	
B20S	

4-WAY, 2-POSITION DETENT, END-TO-END	
D2	
D3	

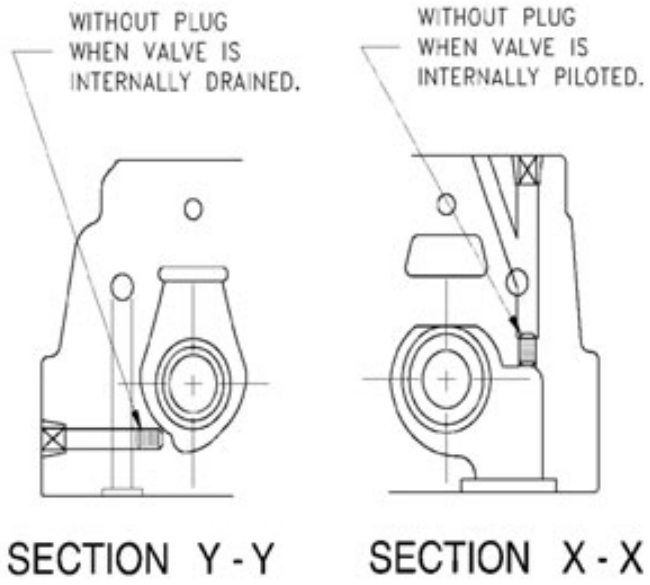
4-WAY, 2-POSITION NO SPRING, NO DETENT	
N2	
N3	

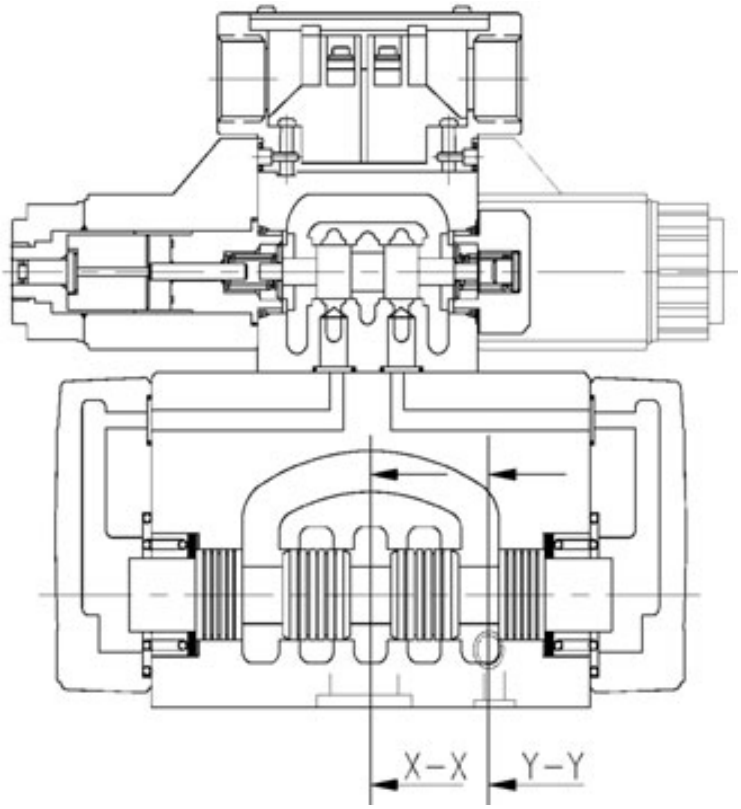
SOLENOID OPERATED DIRECTIONAL VALVE
SWH-G04 SERIES

SPECIFICATIONS

Maximum operating pressure	310 BAR (4500 PSI)
Maximum tank line back pressure	207 BAR (3000 PSI) externally drained
	138 BAR (2000 PSI) internally drained
Pilot pressure	Min. 8 BAR (113 PSI)
	Max. 245 BAR (3550 PSI)
Maximum flow	300 LPM (80 GPM)
Weight	SW-G04-C,D SERIES 8.2 kgs (18 lbs)
	SW-G04-B SERIES 7.9 kgs (17.5 lbs)

OPTION ET





SOLENOID OPERATED DIRECTIONAL VALVE
SWH-G04 SERIES

SOLENOID RATINGS

ELECTRIC SOURCE	COIL TYPE	VOLTAGE			CURRENT & POWER		
		Hz	SOURCE RATED	RANGE (±10%)	IN-RUSH CURRENT (A)	HOLDING CURRENT (A)	WATTAGE
AC (-10 and -20 Options)	A24	60	AC24V	21.6-26.4	6.8	1.7	
	A110	50	AC100V	90-110	1.60	0.46	
		60	AC100V	90-110	1.40	0.32	
			AC110V	99-121	1.50	0.39	
	A120	50	AC110V	99-121	1.30	0.38	
		60	AC120V	108-132	1.20	0.27	
	A220	50	AC200V	180-220	0.80	0.23	
		60	AC200V	180-220	0.70	0.16	
			AC220V	198-242	0.75	0.19	
	A240	50	AC220V	198-242	0.67	0.1 9	
		60	AC240V	216-264	0.59	0.13	
R (-10 and -20 Options)	R110	50	AC100V	90-110	0.30	0.30	26
		60	AC110V	99-121	0.30	0.30	
	R220	50	AC200V	180-220	0.15	0.15	
		60	AC220V	198-242	0.15	0.15	
	R240	50	AC220V	180-220	0.14	0.14	
		60	AC240V	216-264	0.14	0.14	
DC (-10 and -20 Options)	D12	DC 12V		10.8-13.2	2.20	2.20	
	D24	DC 24V		21.6-26.4	1.10	1.10	
DC (-31 and -41 Options)	D12	DC 12V		10.8-13.2	2.60	2.60	28.8
	D24	DC 24V		21.6-26.4	1.30	1.30	

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.
- A momentary signal of approx 0.1 second is required for shifting action.
- Pilot pressure of internally drained valves must always exceed tank port pressure by a minimum of 8.0 BAR(113 PSI) Valve must be externally drained if there is a possibility of tank line pressure surges overcoming this differential.
- If the hydraulic circuit does not provide sufficient pilot pressure to shift valves with open center spool configurations C3, C5, C6, C60, do either: (1) Use the external pilot option (“-E-“). Provide 113 PSI (8 Bar) minimum pilot pressure to the “X” port on the manifold or subplate from another source in your system to shift the valve. (2) If the valve must be internally piloted in your system, then install back pressure of 113 PSI (8 Bar) minimum at the tank line of the main valve. The valve must be externally drained (“-T-“) with this method.
- Conforms to IP65

ACCESSORIES

- Mounting bolt kits are supplied with valve socket head cap screws
2 pieces 1/4"- 20 UNC - 2B x 1- 3/4"L for tightening torque 120-150 kgf-cm (104-130 lbs-in).
4 pieces 3/8" - 16 UNC-2B x 2"L for tightening torque 580-720 kgf-cm (502-624 lbs-in).
- O-ring P22A 4 pieces, P9 2 pieces.

LIST OF SPOOL FUNCTIONS

SPOOL TYPE NORMAL POSITION	SPRING CENTERED					
	50 BAR (735 PSI)	100 BAR (1470 PSI)	150 BAR (2200 PSI)	207 BAR (3000 PSI)	250 BAR (3675 PSI)	310 BAR (4500 PSI)
C2	300(80.0)	300(80.0)	300(80.0)	260(69.3)	200(53.3)	140(37.3)
	300(80.0)	300(80.0)	260(69.3)	155(41.3)	120(32.0)	110(29.3)
C3	300(80.0)	300(80.0)	300(80.0)	300(80.0)	300(80.0)	300(80.0)
C4	300(80.0)	300(80.0)	300(80.0)	260(69.3)	245(65.3)	160(42.7)
	300(80.0)	300(80.0)	260(69.3)	185(49.3)	140(37.3)	110(29.3)
C40	300(80.0)	300(80.0)	300(80.0)	260(69.3)	200(53.3)	145(38.7)
	300(80.0)	300(80.0)	260(69.3)	155(41.3)	120(32.0)	110(29.3)
C5	260(69.3)	255(68.0)	250(66.6)	245(65.3)	240(64.0)	240(64.0)
C6	300(80.0)	300(80.0)	265(80.0)	255(68.0)	245(65.3)	235(62.7)
C60	300(80.0)	300(80.0)	300(80.0)	300(80.0)	300(80.0)	300(80.0)
	300(80.0)	300(80.0)	300(80.0)	300(80.0)	300(80.0)	300(80.0)
C7	300(80.0)	300(80.0)	300(80.0)	290(80.0)	280(74.7)	255(68.0)
C8	300(80.0)	300(80.0)	285(76.0)	230(61.3)	170(45.3)	135(36.0)
	300(80.0)	300(80.0)	255(68.0)	165(44.0)	120(32.0)	110(29.3)
C9	300(80.0)	300(80.0)	270(72.0)	200(53.3)	160(42.7)	140(37.3)

NOTE: The upper number in table describes the maximum flow for standard type.The lower number in table describes the maximum flow for shock-less type.

THE MAXIMUM FLOW RATE LPM (GPM) UNDER DIFFERENT PRESSURE BAR (PSI)						
SPOOL TYPE NORMAL POSITION	NO SPRING					
	50 BAR (735 PSI)	100 BAR (1470 PSI)	150 BAR (2200 PSI)	207 BAR (3000 PSI)	250 BAR (3675 PSI)	310 BAR (4500 PSI)
N2	300(80.0)	300(80.0)	300(80.0)	300(80.0)	300(80.0)	300(80.0)
N3	300(80.0)	300(80.0)	300(80.0)	300(80.0)	300(80.0)	300(80.0)
N4	300(80.0)	300(80.0)	300(80.0)	300(80.0)	300(80.0)	300(80.0)
N40	300(80.0)	300(80.0)	300(80.0)	300(80.0)	300(80.0)	300(80.0)

THE MAXIMUM FLOW RATE LPM (GPM) UNDER DIFFERENT PRESSURE BAR (PSI)						
SPOOL TYPE NORMAL POSITION	SPRING OFFSET					
	50 BAR (735 PSI)	100 BAR (1470 PSI)	150 BAR (2200 PSI)	207 BAR (3000 PSI)	250 BAR (3675 PSI)	310 BAR (4500 PSI)
B2	300(80.0)	300(80.0)	300(80.0)	300(80.0)	300(80.0)	300(80.0)
B3	300(80.0)	300(80.0)	300(80.0)	300(80.0)	300(80.0)	300(80.0)
B4	300(80.0)	300(80.0)	300(80.0)	300(80.0)	300(80.0)	300(80.0)
B40	300(80.0)	300(80.0)	300(80.0)	300(80.0)	300(80.0)	300(80.0)

SOLENOID OPERATED DIRECTIONAL VALVE
SWH-G04 SERIES

PRESSURE DROP AND PERFORMANCE CURVES

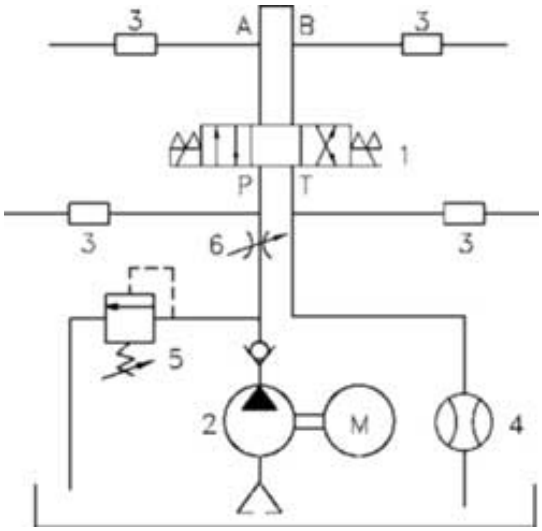
TEST SYSTEMS

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

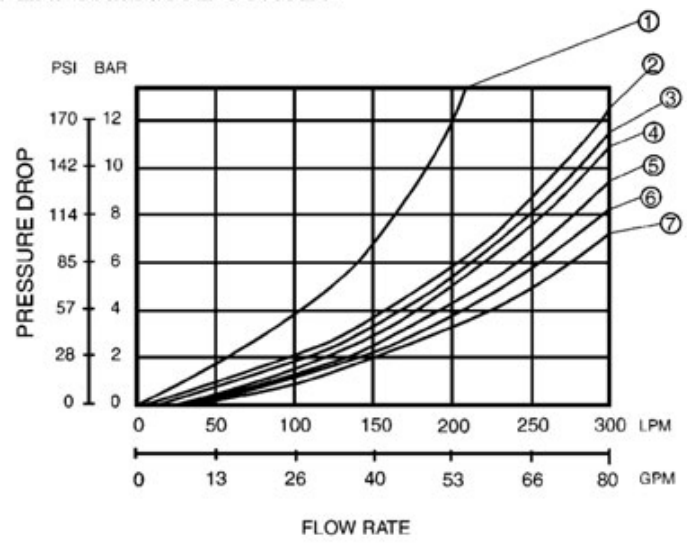
TEST CONDITIONS

Pressure: 69 BAR (1000PSI)
Flow Rate: 140 LPM(37 GPM)
Viscosity: 35 cSt (175SSU)

TEST CIRCUIT



PERFORMANCE CURVES



SPOOL TYPE	PRESSURE DROP CURVE NUMBER				
	P-A	B-T	P-B	A-T	P-T
C2	5	4	5	6	-
C3	5	3	5	5	7
C4	5	3	5	5	-
C40	5	4	5	6	-
C5	7	4	5	5	5
C6	5	3	5	6	1
C60	7	5	7	7	2
C7	5	4	5	6	-
C8	5	4	5	5	-
C9	6	4	5	6	-

CONTRAST CHART BETWEEN FACTORS AND VISCOSITIES

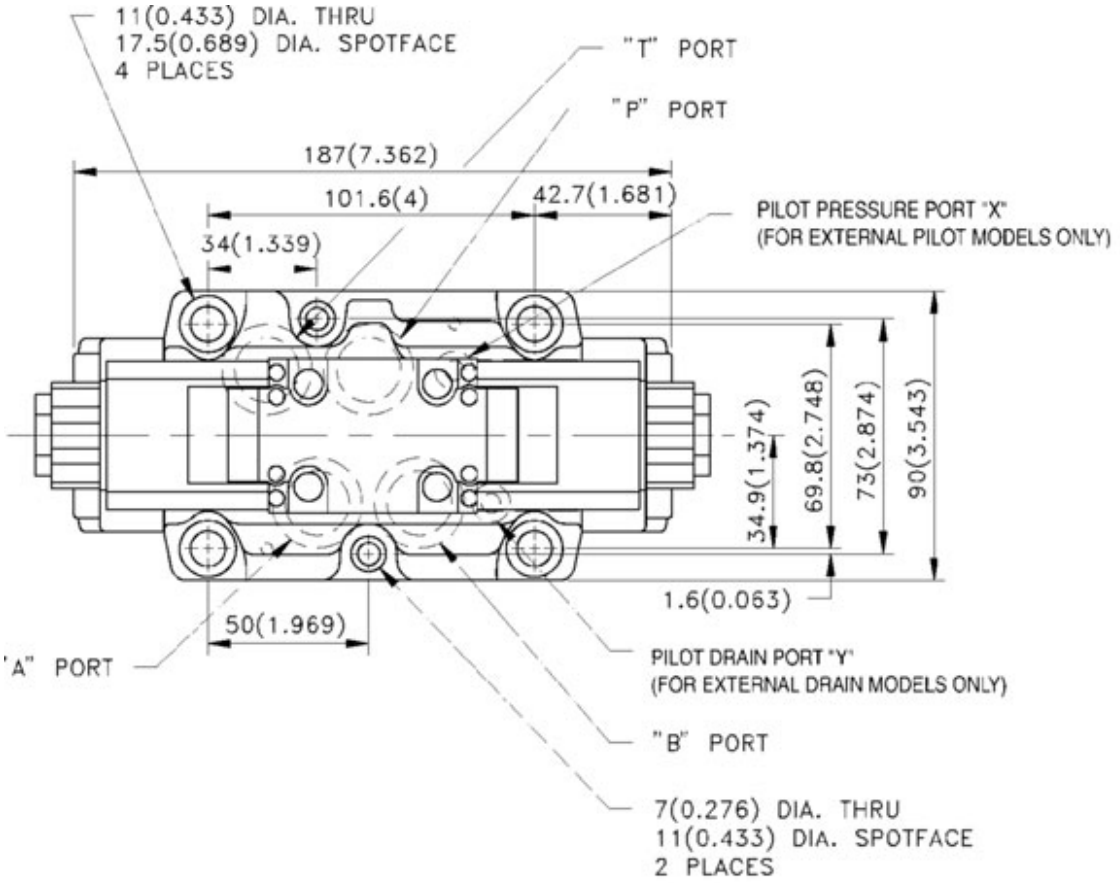
VISCOSITY	cSt	15	20	30	40	50	60	70	80	90	100
	SSU	77	98	141	186	232	278	324	371	417	464
FACTOR(G')		0.81	0.87	0.96	1.03	1.09	1.14	1.19	1.23	1.27	1.30

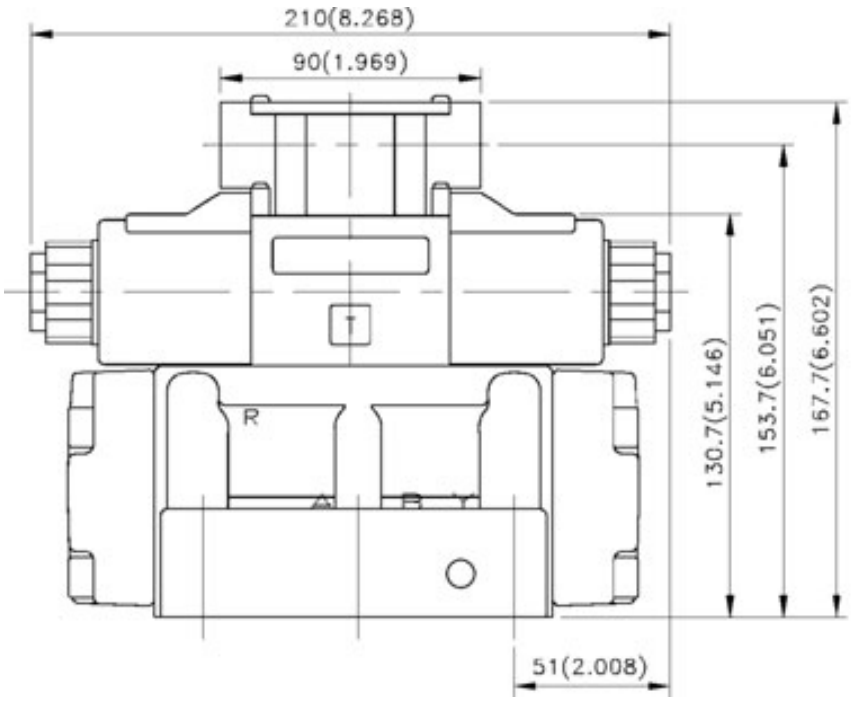
The pressure drop (AP') can be obtained from the formula AP'=AP (G'/0.85) for other specific gravity (G').

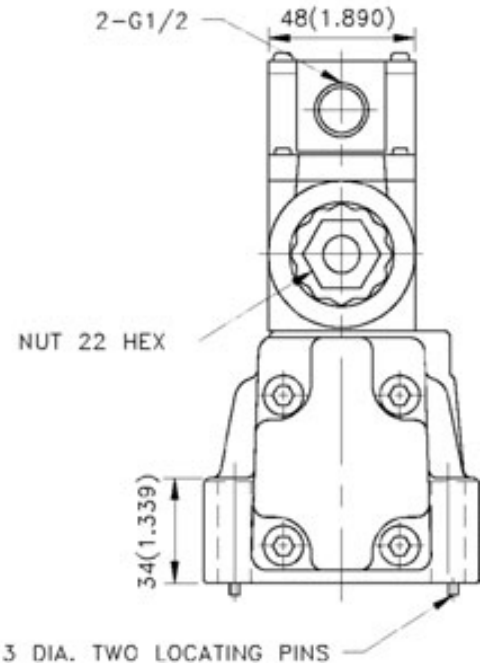
Dimensions

MOUNTING SURFACE: ISO 4401-AB-03-4-A
UNIT: mm(inch)

SW - G04 - ** - **** - 10







Dimensions

MOUNTING SURFACE: ISO 4401-AB-03-4-A
UNIT: mm(inch)

SW - G04 - *** - **** - 10 - AB-K
with DC/RF solenoids