

Oilgear

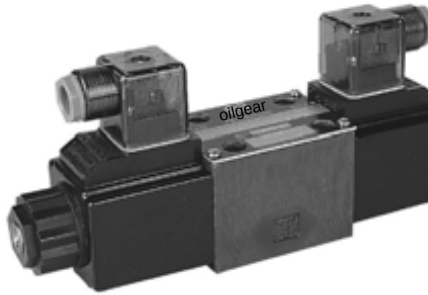
HYDRAULIC SOLENOID VALVE



NORTHMAN FLUID POWER SPOOL CONFIGURATIONS

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	
C5		C5B		C5BS	
C5S		C5SB		C6BS	
C6		C6B		C60BS	
C60		C60B		C7BS	
C7		C7B		C8BS	
C8		C8B		C9BS	
C8S		C8SB			
C9		C9B		4-WAY, 2-POSITION DETENT, END-TO-END	
C9S		C9SB			
4-WAY, 2-POSITION SPRING OFFSET END-TO-END, RIGHT HAND		4-WAY, 2-POSITION SPRING OFFSET END-TO-END, LEFT HAND		4-WAY, 2-POSITION NO SPRING, NO DETENT	
B2		B2S		N2	
B3		B3S		N3	
B20		B20S			

Oilgear Solenoid Operated Directional Valve SWH-G02 Series



FEATURES

- Armature operates in oil system. Impact is cushioned, noise is reduced and solenoid life is increased.
- Wet armature solenoid eliminates pushpin seal, therefore no seal wear 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, and low-pressure drop.
- Specially designed, balanced spool allows proper shifting force, for maximum reliability and long life.
- Viton seal kits are available for fire-resistance fluids.

HOW TO ORDER

SWH - G 02 - C2 - A220 -10 - LS

ELECTRICAL SURGE CONTROL OPTION : STANDARD
LS : LOW SURGE VOLTAGE (PLEASE SEE PAGE 8)

WIRING :

10 : JOINT BOX WITH INDICATING LIGHT (PREFERABLY)
20 : HIRSCHMANN TYPE WITH INDICATING LIGHT (DIN TYPE)
31 : LEAD WIRE (DC ONLY)
41 : DUAL SPADE (DC ONLY,SAE J858A)

COIL VOLTAGE :

A110 : AC110V, 60Hz; AC100V, 50Hz
A120 : AC120V, 60Hz; AC110V, 50Hz
A220 : AC220V, 60Hz; AC200V, 50Hz
A240 : AC240V, 60Hz; AC220V, 50Hz
R110 : AC110V 60,50Hz
R120 : AC120V 60,50Hz
R220 : AC220V 60,50Hz
R240 : AC240V 60,50Hz
D12 : DC12V
D24 : DC24V
(CONTACT NORTHMAN FOR ADDITIONAL COIL VOLTAGE)

SPOOL TYPE : (PLEASE SEE PAGE 2)

INTERFACE 02 : NFPA D03 / ISO 4401-03 / CETOP 3/NG 06

SUBPLATE MOUNTED

HIGH PRESSURE HIGH FLOW SOLENOID DIRECTIONAL VALVE

SPECIFICATIONS

Maximum operating pressure	310 BAR (4500 PSI)
Rated flow capacity	63 LPM (16.8 GPM)
Maximum tank line back pressure	138 BAR (2000 PSI)
Maximum frequencies of operation	300 CPM
Recommended filtration	25 MICRON
Hydraulic fluids recommended oil temperature	50 ±5°C (122 ± 9°F)

SOLENOID RATINGS

ELECTRIC SOURCE	COIL TYPE	VOLTAGE (V)			CURRENT & POWER		
		Hz	SOURCE RATED	RANGE (±10%)	IN-RUSH CURRENT (A)	HOLDING CURRENT (A)	WATTAGE
AC	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	0.19	
		60	AC240V	216-264	0.59	0.13	
	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	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 100mΩ
- 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 M5x45L 4 pcs (#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.

PRESSURE DROP AND PERFORMANCE CURVES

TEST SYSTEMS

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

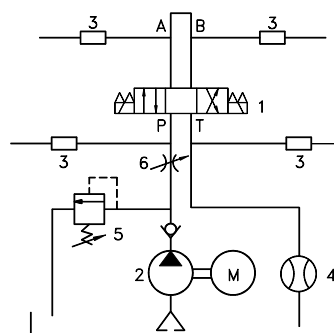
TEST CONDITIONS

Pressure: 69 BAR (1000 PSI)

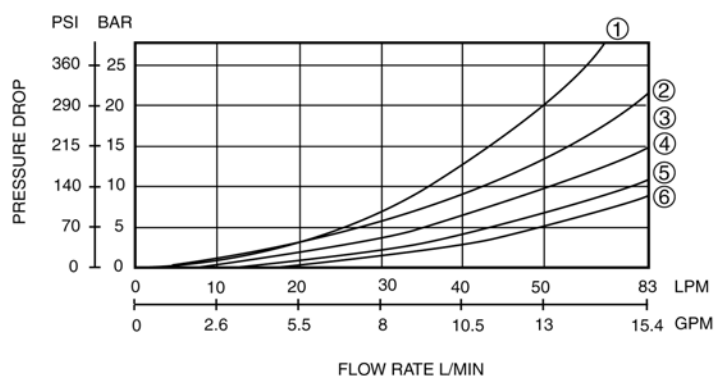
Flow Rate: 63 LPM (16.8 GPM)

Viscosity: 35 cSt (175 SSU)

TEST CIRCUIT



PERFORMANCE CURVES



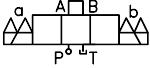
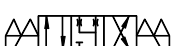
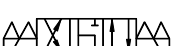
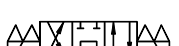
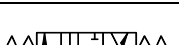
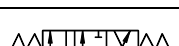
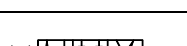
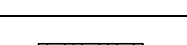
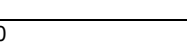
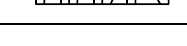
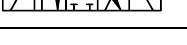
MODEL NO.	PRESSURE DROP CURVE NUMBER				
	P→A	B→T	P→B	A→T	P→T
C2	5	5	5	5	—
C3	6	6	6	6	4
C4	5	6	5	6	—
C40	5	5	5	5	—
C5	2	2	2	2	4
C6	1	1	1	1	4
C60	1	1	1	1	3
C7	6	5	6	5	—
C8	5	5	5	6	—
C9	6	5	5	5	—
D2	5	5	5	5	—
D3	5	3	5	3	—
B2	4	5	4	5	—
B3	3	3	5	5	—
B20	2	—	5	—	—
B2S	4	5	4	5	—
B3S	5	5	3	3	—
B20S	5	—	2	—	—

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

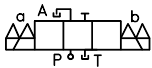
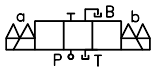
The pressure drop ($\Delta P'$) can be obtained from the formula $\Delta P' = \Delta P (G'/0.85)$ for other specific gravity (G').

LIST OF SPOOL FUNCTIONS

THE MAXIMUM FLOW RATE LPM(GPM) UNDER DIFFERENT PRESSURE BAR (PSI)								
SPOOL TYPE NORMAL POSITION	P→A, B→T P→B, A→T 						P→A	
	50 BAR (735 PSI)	100 BAR (1470 PSI)	150 BAR (2200 PSI)	207 BAR (3000 PSI)	250 BAR (3675 PSI)	310 BAR (4500 PSI)	50 BAR (735 PSI)	100 BAR (1470 PSI)
C2 	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	40 (10.7) 32 (8.5)	40 (10.7) 25 (6.7)
C3 	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)
C4 	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	40 (10.7) 32 (8.5)	40 (10.7) 25 (6.7)
C40 	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	40 (10.7) 32 (8.5)	40 (10.7) 25 (6.7)
C5 	50 (13.3)	50 (13.3)	50 (13.3)	50 (13.3)	50 (13.3)	—	50 (13.3)	50 (13.3)
C6 	40 (10.7)	40 (10.7)	40 (10.7)	40 (10.7)	40 (10.7)	—	40 (10.7)	40 (10.7)
C7 	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	40 (10.7) 32 (8.5)	40 (10.7) 25 (6.7)
C8 	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	40 (10.7) 32 (8.5)	40 (10.7) 25 (6.7)
C9 	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	40 (10.7) 32 (8.5)	40 (10.7) 25 (6.7)
B2 	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	20 (5.3)
B3 	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)
B20 	—	—	—	—	—	—	35 (9.3)	32 (8.5)
D2 	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	40 (10.7)	30 (8.0)
D3 	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	40 (10.7)	30 (8.0)

- NOTE:**

40 (10.7)
32 (8.5)
1. The figures in the square shows the parameter among voltage & flow under saturated temperature and 90 % applied voltage.
 2. The upper number in table describes the maximum flow under DC and RF. The lower number in table describes the maximum flow under AC.

				P→B 					
150 BAR (2200 PSI)	207 BAR (3000 PSI)	250 BAR (3675 PSI)	310 BAR (4500 PSI)	50 BAR (735 PSI)	100 BAR (1470 PSI)	150 BAR (2200 PSI)	207 BAR (3000 PSI)	250 BAR (3675 PSI)	310 BAR (4500 PSI)
18 (4.8)	14 (3.7)	10 (2.7)	10 (2.7)	40 (10.7)	40 (10.7)	18 (4.8)	14 (3.7)	10 (2.7)	10 (2.7)
12 (3.2)	9 (2.4)	7 (1.9)	7 (1.9)	32 (8.5)	25 (6.7)	12 (3.2)	9 (2.4)	7 (1.9)	7 (1.9)
63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)
18 (4.8)	14 (3.7)	10 (2.7)	10 (2.7)	40 (10.7)	40 (10.7)	18 (4.8)	14 (3.7)	10 (2.7)	10 (2.7)
12 (3.2)	9 (2.4)	7 (1.9)	7 (1.9)	32 (8.5)	25 (6.7)	12 (3.2)	9 (2.4)	7 (1.9)	7 (1.9)
18 (4.8)	14 (3.7)	10 (2.7)	10 (2.7)	40 (10.7)	40 (10.7)	18 (4.8)	14 (3.7)	10 (2.7)	10 (2.7)
12 (3.2)	9 (2.4)	7 (1.9)	7 (1.9)	32 (8.5)	25 (6.7)	12 (3.2)	9 (2.4)	7 (1.9)	7 (1.9)
50 (13.3)	50 (13.3)	50 (13.3)	—	50 (13.3)	50 (13.3)	50 (13.3)	50 (13.3)	50 (13.3)	—
40 (10.7)	40 (10.7)	40 (10.7)	—	40 (10.7)	40 (10.7)	40 (10.7)	40 (10.7)	40 (10.7)	—
18 (4.8)	14 (3.7)	10 (2.7)	10 (2.7)	40 (10.7)	40 (10.7)	18 (4.8)	14 (3.7)	10 (2.7)	10 (2.7)
12 (3.2)	9 (2.4)	7 (1.9)	7 (1.9)	32 (8.5)	25 (6.7)	12 (3.2)	9 (2.4)	7 (1.9)	7 (1.9)
18 (4.8)	14 (3.7)	10 (2.7)	10 (2.7)	40 (10.7)	40 (10.7)	18 (4.8)	14 (3.7)	10 (2.7)	10 (2.7)
12 (3.2)	9 (2.4)	7 (1.9)	7 (1.9)	32 (8.5)	25 (6.7)	12 (3.2)	9 (2.4)	7 (1.9)	7 (1.9)
18 (4.8)	14 (3.7)	10 (2.7)	10 (2.7)	40 (10.7)	40 (10.7)	18 (4.8)	14 (3.7)	10 (2.7)	10 (2.7)
12 (3.2)	9 (2.4)	7 (1.9)	7 (1.9)	32 (8.5)	25 (6.7)	12 (3.2)	9 (2.4)	7 (1.9)	7 (1.9)
20 (5.3)	20 (5.3)	20 (5.3)	20 (5.3)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)
63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	63 (16.8)	37 (9.9)	30 (8.0)	28 (7.5)
				45 (12.0)	45 (12.0)	45 (12.0)	45 (12.0)	45 (12.0)	45 (12.0)
25 (6.7)	20 (5.3)	18 (4.8)	15 (4)	63 (16.8)	50 (13.3)	45 (12.0)	40 (10.7)	32 (8.5)	25 (6.7)
				45 (12.0)	30 (8.0)	28 (7.5)	25 (6.7)	22 (5.9)	18 (4.8)
25 (6.7)	21 (5.6)	16 (4.3)	13 (3.5)	40 (10.7)	30 (8.0)	25 (6.7)	21 (5.6)	16 (4.3)	13 (3.5)
25 (6.7)	21 (5.6)	16 (4.3)	13 (3.5)	40 (10.7)	30 (8.0)	25 (6.7)	21 (5.6)	16 (4.3)	13 (3.5)

RESULT OF MEASUREMENTS

TEST SYSTEMS

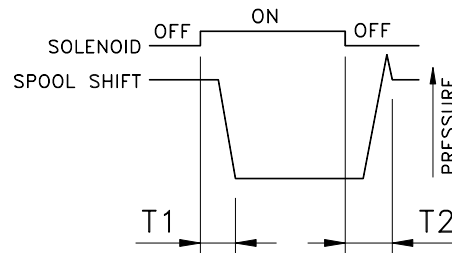
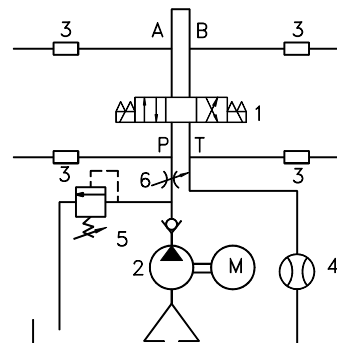
1. Testing Valve
2. Pump
3. Pressure Sensor
4. Flow Sensor
5. Relief Valve
6. Throttle Valve

TEST CONDITIONS

Pressure: 138 BAR (2000 PSI)
Flow Rate: 30 LPM (8 GPM)
Viscosity: 35 cSt (175 SSU)

MODEL	CHANGE OVER TIME (SEC)	
	T1	T2
SWH-G02-AC SERIES	0.01-0.04	0.02-0.04
SWH-G02-DC SERIES	0.02-0.06	0.02-0.04

TEST CIRCUIT



OPTION LS

ELECTRICAL SURGE CONTROL MODEL

SWH - G02 - *** - D ** - ** - LS

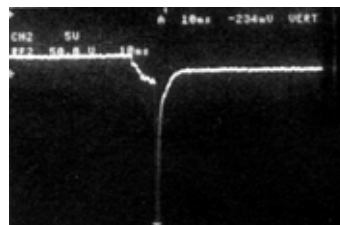
FEATURES

- Suppresses the surge voltage.
- Eliminates sparks between relay contacts.
- Extends the life of the relay contact.

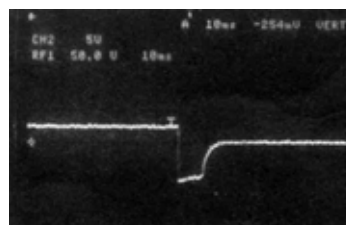
EFFECTS

- Improves the reliability of the control relay.
- Extends the life of conventional relays.
- Can be operated with a miniature relay.
- The RAC rectifier built-in DC model eliminates sparks at the control relay contact. It can be directly operated with a PLC (programmable logic controller).

Electrical surge waveform standard DC solenoid



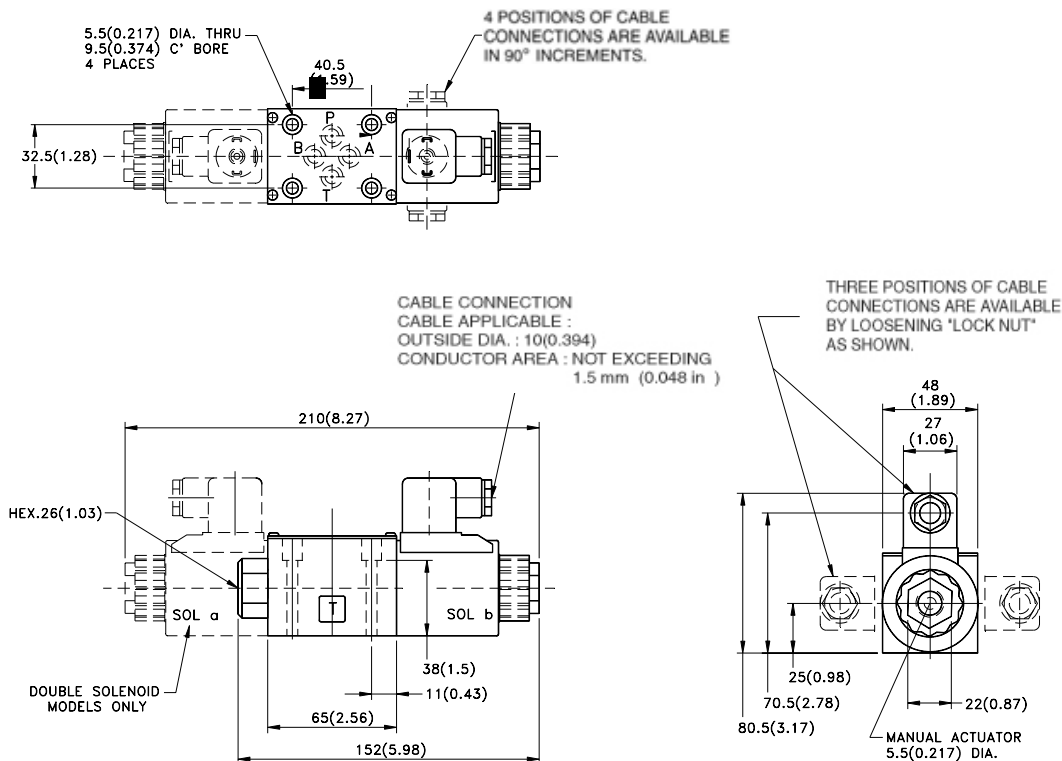
Electrical surge control DC solenoid



INSTALLATION DIMENSIONS

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

SWH - G02 - * - **** - 20 - ****
with AC/DC/RF solenoids



MODEL AND WEIGHT

MODEL	WEIGHT KGS (LBS)	MODEL	WEIGHT KGS (LBS)
SWH-G02-C**-A***-10-**	1.9 (4.18)	SWH-G02-C**-A***-20-**	1.9 (4.18)
SWH-G02-B**- A***-10-**	1.6 (3.52)	SWH-G02-B**- A***-20-**	1.5 (3.30)
SWH-G02-C**-D**-10-**	2.0 (4.40)	SWH-G02-C**-D**-20-**	2.0 (4.40)
SWH-G02-C**-R***-10-**	2.0 (4.40)	SWH-G02-C**-R***-20-**	2.0 (4.40)
SWH-G02-B**-D**-10-**	1.6 (3.52)	SWH-G02-B**-D**-20-**	1.6 (3.52)
SWH-G02-B**-R***-10-**	1.6 (3.52)	SWH-G02-B**-R***-20-**	1.6 (3.52)
SWH-G02-D**-A***-10-**	1.9 (4.18)	SWH-G02-D**-A***-20-**	1.9 (4.18)
SWH-G02-D**-D**-10-**	1.9 (4.18)	SWH-G02-D**-D**-20-**	1.9 (4.18)
SWH-G02-D**-R***-10-**	1.9 (4.18)	SWH-G02-D**-R***-20-**	1.9 (4.18)

HOW TO ORDER

M02 - 02 - S - 1

THREAD :

- 1: PT
- 2: NPT
- 3: SAE

PORT POSITION :

- S: SIDE PORTS
- B: BOTTOM PORTS
- SB: SIDE AND BOTTOM PORTS

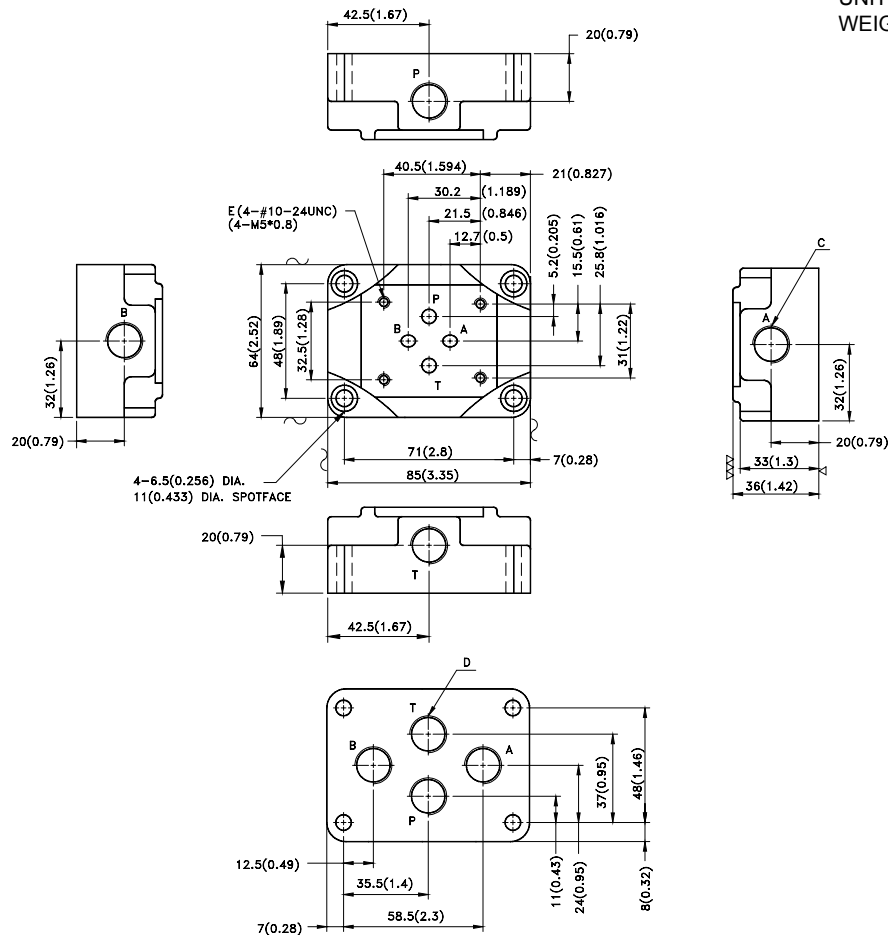
PORT SIZE :

- 02 : 1/4"
- 03 : 3/8"

SUBPLATE 02

INSTALLATION DIMENSIONS

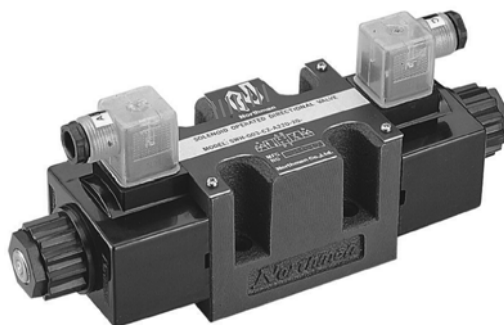
UNIT: mm (inch)
WEIGHT: 1.07 kgs (2.35 lbs)



MODEL				PORT SIZE			MODEL				PORT SIZE		
				C	D	E					C	D	E
M02-02	- S	-1	4-1/4" PT	-	-	4-M5x0.8P	M02-03	- S	-1	4-3/8" PT	-	-	4-M5x0.8P
		-2	4-1/4" NPT	-	-	4-#10-24UNC			-2	4-3/8" NPT	-	-	4-#10-24UNC
		-3	4-1/4" SAE-2B	-	-	4-#10-24UNC			-3	4-3/8" SAE-2B	-	-	4-#10-24UNC
	- B	-1	-	4-1/4" PT	-	4-M5x0.8P		- B	-1	-	4-3/8" PT	-	4-M5x0.8P
		-2	-	4-1/4" NPT	-	4-#10-24UNC			-2	-	4-3/8" NPT	-	4-#10-24UNC
		-3	-	4-1/4" SAE-2B	-	4-#10-24UNC			-3	-	4-3/8" SAE-2B	-	4-#10-24UNC
	- SB	-1	4-1/4" PT	4-1/4" PT	-	4-M5x0.8P		- SB	-1	4-3/8" PT	4-3/8" PT	-	4-M5x0.8P
		-2	4-1/4" NPT	4-1/4" NPT	-	4-#10-24UNC			-2	4-3/8" NPT	4-3/8" NPT	-	4-#10-24UNC
		-3	4-1/4" SAE-2B	4-1/4" SAE-2B	-	4-#10-24UNC			-3	4-3/8" SAE-2B	4-3/8" SAE-2B	-	4-#10-24UNC

REMARK: Various port sizes/pipe threads are available upon request.

Oilgear Solenoid Operated Directional Valve SWH-G03 Series



FEATURES

- Indicating lights and bolt kits are standard.
- Coil screws are especially designed to prevent shocks.
- Electrical connections are joint box type or hirschmann DIN type plug-in connector.
- Joint box is waterproof and dust-resistance.
- Space for electrical connections is large enough for connection layout.
- Electrical connection points are aligned with the axial direction to be compatible with modular system.
- The valve mounting screws are on the outside of the body for ease of installation and repair.
- High pressure up to 310 BAR (4500 PSI), allows for large flow rates up to 120 LPM (32 GPM).
- Ideal design of flow passages to minimize pressure drop.
- High back pressure up to 160 BAR (2350 PSI)
- Manufactured with specifications that allows for parts and accessories interchangeability.

HOW TO ORDER

SWH - G 03 - C2 - A220 -10 - LS

ELECTRICAL SURGE CONTROL OPTION : STANDARD
NO CODE : STANDARD

LS : LOW SURGE VOLTAGE (PLEASE SEE PAGE 8)

10 : JOINT BOX WITH INDICATING LIGHT (PREFERABLY)
20 : HIRSCHMANN TYPE WITH INDICATING LIGHT (DIN TYPE)

COIL VOLTAGE :

A110: AC110V, 60Hz; AC100V, 50Hz

A120: AC120V, 60Hz; AC110V, 50Hz

A220: AC220V, 60Hz; AC200V, 50Hz

A240: AC240V, 60Hz; AC220V, 50Hz

R110: AC110V 60,50Hz

R120: AC120V 60,50Hz

R220: AC220V 60,50Hz

R240: AC240V 60,50Hz

D12: DC12V

D24: DC24V

(CONTACT NORTHMAN FOR ADDITIONAL COIL VOLTAGE.)

SPOOL TYPE: (PLEASE SEE PAGE 2)

INTERFACE 03:NFPA D05 / ISO 4401-05 / CETOP 5/NG 10

SUBPLATE MOUNTED

HIGH PRESSURE HIGH FLOW SOLENOID DIRECTIONAL VALVE

SPECIFICATIONS

Maximum operating pressure	310 BAR (4500 PSI)
Maximum flow capacity	120 LPM (32 GPM)
Maximum tank line back pressure	160 BAR (2350 PSI)
Maximum frequencies of operation	240 CPM
Recommended filtration	25 MICRON
Hydraulic fluids	Mineral oil, recommended temp 50 ±5°C (122 ±9°F) Max.temperature-25°C~+90°C(-13°F~194°F)Viscosity10~400cSt

SOLENOID RATINGS

ELECTRIC SOURCE	COIL TYPE	VOLTAGE (V)			CURRENT & POWER AT RATED VOLTAGE		
		Hz	SOURCE RATED	RANGE (±10%)	IN-RUSH CURRENT (A)	HOLDING CURRENT (A)	WATTAGE
AC	A110	50	AC100V	90-110	4.79	0.86	
		60	AC100V	90-110	3.71	0.62	
			AC110V	99-121	4.20	0.74	
	A120	50	AC110V	99-121	4.29	0.78	
		60	AC120V	108-132	3.99	0.70	
	A220	50	AC200V	180-220	2.31	0.42	
		60	AC200V	180-220	1.87	0.31	
			AC220V	198-252	2.05	0.36	
	A240	50	AC220V	198-242	2.04	0.37	
		60	AC240V	216-264	1.88	0.33	
	R110	50	AC100V	90-110	0.47	0.47	42
		60	AC110V	99-121	0.47	0.47	
	R220	50	AC200V	180-220	0.24	0.24	
		60	AC220V	198-252	0.24	0.24	
DC	D12	DC 12V		10.8-13.2	2.58	2.58	32
	D24	DC 24V		21.6-26.4	1.33	1.33	

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 100MΩ.

ACCESSORIES:

- Mounting bolt kits are supplied with valve socket head cap screws M6x35L 4 pcs (1/4"-20UNCx1-3/8" 4 pcs) for tightening torque 120-150 kgf-cm (104-130 lbs-in).
- O-Ring AS568-014 5 pcs.

PRESSURE DROP AND PERFORMANCE CURVES

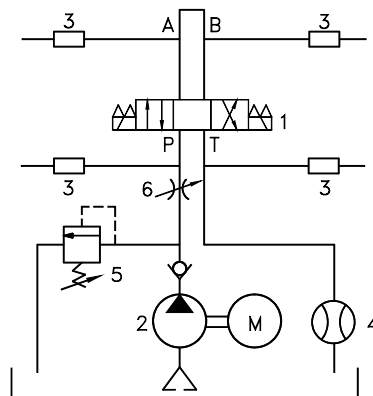
TEST SYSTEM

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

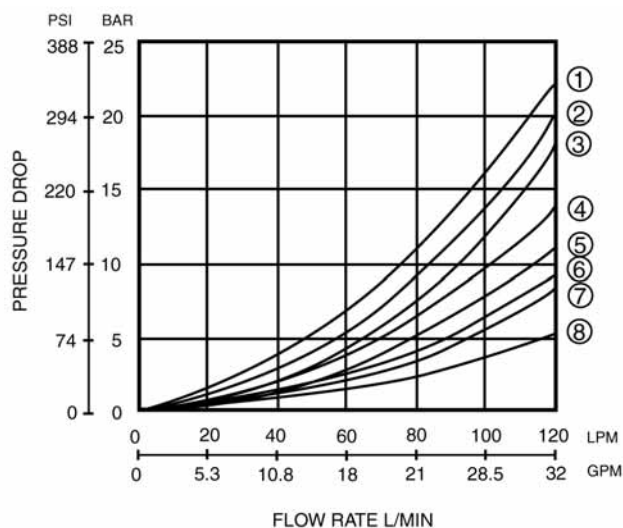
TEST CONDITIONS

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

TEST CIRCUIT



PERFORMANCE CURVES

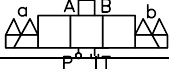
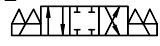
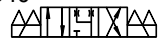
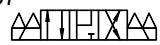
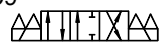
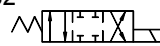
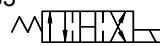
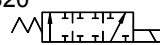
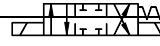
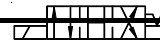


MODEL NO.	PRESSURE DROP CURVE NUMBER				
	P→A	B→T	P→B	A→T	P→T
C2	6	6	6	6	—
C3	7	7	7	7	5
C4	6	7	6	7	—
C40	6	7	6	7	—
C5	5	2	2	5	8
C6	2	2	2	2	5
C60	1	1	1	1	4
C7	7	6	7	6	—
C8	6	6	6	7	—
C9	7	6	6	6	—
B2	2	2	6	6	—
B3	3	3	6	6	—
B20	5	—	5	—	—
B2S	6	6	2	2	—
B3S	6	6	3	3	—
B20S	5	—	5	—	—

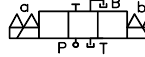
CONTRAST CHART BETWEEN FACTORS AND VISCOSITIES

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 ($\Delta P'$) can be obtained from the formula
 $\Delta P' = \Delta P (G' / 0.85)$ for other specific gravity (G').

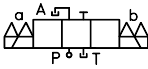
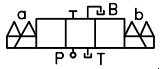
THE MAXIMUM FLOW RATE LPM(GPM) UNDER DIFFERENT PRESSURE BAR (PSI) SWH G03 AC TYPE								
SPOOL TYPE NORMAL POSITION	P→A,B→T P→B,A→T 						P→B	
	50 BAR (735 PSI)	100 BAR (1470 PSI)	150 BAR (2200 PSI)	207 BAR (3000 PSI)	250 BAR (3675 PSI)	310 BAR (4500 PSI)	50 BAR (735 PSI)	100 BAR (1470 PSI)
C2 	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	54(14.3) 38(10.0)
C3 	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)
C4 	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	54(14.3) 42(11.1)
C40 	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4) 75(19.8)
C5 	88(23.2)	88(23.2)	88(23.2)	88(23.2)	88(23.2)	—	100(26.4)	100(26.4)
	82(21.7)	82(21.7)	82(21.7)	82(21.7)	82(21.7)			
C6 	84(22.2)	84(22.2)	84(22.2)	84(22.2)	84(22.2)	—	100(26.4)	100(26.4)
	75(19.8)	75(19.8)	75(19.8)	75(19.8)	75(19.8)			
C7 	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	63(16.6)	63(16.6)
C8 	100(26.4)	100(26.4)	100(26.4)	44(11.6)	30(7.9)	19(5.0)	100(26.4)	100(26.4)
			76(20.1)	28(7.4)	21(5.5)	14(3.7)		53(14)
C9 	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	57(15.1)	57(15.1)
B2 	90(23.8)	90(23.8)	90(23.8)	90(23.8)	90(23.8)	90(23.8)	63(16.6)	63(16.6)
	72(19.0)	72(19.0)	72(19.0)	72(19.0)	72(19.0)	72(19.0)		
B3 	89(23.5)	89(23.5)	89(23.5)	89(23.5)	89(23.5)	89(23.5)	100(26.4)	100(26.4)
	81(21.4)	81(21.4)	81(21.4)	81(21.4)	81(21.4)	81(21.4)		
B20 	—	—	—	—	—	—	81(21.4)	29(7.7)
D2 	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	60(15.9)	40(10.6)
D3 	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	70(18.5)	60(15.9)

- NOTE:** 1.The figures in the square shows the parameter among voltage & flow under saturated temperature and 90% applied voltage.
 2.The upper number in table describes the maximum flow under 100%.
 3.The lower number in table describes the maximum flow under saturated temperature and 90% applied voltage.

				P → B 					
150 BAR (2200 PSI)	207 BAR (3000 PSI)	250 BAR (3675 PSI)	310 BAR (4500 PSI)	50 BAR (735 PSI)	100 BAR (1470 PSI)	150 BAR (2200 PSI)	207 BAR (3000 PSI)	250 BAR (3675 PSI)	310 BAR (4500 PSI)
40(10.6)	28(7.4)	25(6.6)	20(5.3)	100(26.4)	54(14.3)	40(10.6)	28(7.4)	25(6.6)	20(5.3)
27(7.1)	17(4.5)	13(3.4)	10(2.6)		38(10.0)	27(7.1)	17(4.5)	13(3.4)	10(2.6)
100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)
30(7.9)	23(6.1)	18(4.8)	14(3.7)	100(26.4)	54(14.3)	30(7.9)	23(6.1)	18(4.8)	14(3.7)
27(7.1)	16(4.2)	11(2.9)	8(2.1)		42(11.1)	27(7.1)	16(4.2)	11(2.9)	8(2.1)
33(8.7)	28(7.4)	22(5.8)	18(4.8)	100(26.4)	100(26.4)	33(8.7)	28(7.4)	22(5.8)	18(4.8)
23(6.1)	21(5.5)	15(4)	12(3.2)		75(19.8)	23(6.1)	21(5.5)	15(4)	12(3.2)
100(26.4)	100(26.4)	100(26.4)	–	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)
100(26.4)	100(26.4)	100(26.4)	–	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	–
95(25.1)	95(25.1)	95(25.1)		95(25.1)	95(25.1)	95(25.1)	95(25.1)	95(25.1)	
63(16.6)	63(16.6)	63(16.6)	63(16.6)	63(16.6)	63(16.6)	63(16.6)	63(16.6)	63(16.6)	63(16.6)
37(9.8)	34(9.0)	28(7.4)	20(5.3)	100(26.4)	61(16.1)	33(8.7)	27(7.1)	20(5.3)	16(4.2)
32(8.5)	28(7.4)	21(5.5)	15(4)		48(12.7)	27(7.1)	21(5.5)	15(4)	9(2.4)
57(15.1)	57(15.1)	57(15.1)	57(15.1)	100(26.4)	53(14)	47(12.4)	45(11.9)	40(10.6)	34(9.0)
					40(10.6)	37(9.8)	34(9.0)	29(7.7)	25(6.6)
63(16.6)	63(16.6)	63(16.6)	63(16.6)	100(26.4)	78(20.6)	45(11.9)	43(11.4)	38(10.0)	32(8.5)
					74(19.6)	38(10.0)	36(9.5)	31(8.2)	27(7.1)
100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	95(25.1)	82(21.7)	75(19.8)	65(17.2)
					89(23.5)	84(22.2)	77(20.3)	70(18.5)	62(16.4)
19(5.0)	12(3.2)	9(2.4)	7(1.8)	100(26.4)	80(21.1)	32(8.5)	25(6.6)	20(5.3)	14(3.7)
					42(11.1)	28(7.4)	22(5.8)	17(4.5)	12(3.2)
40(10.6)	40(10.6)	30(7.9)	28(7.4)	60(15.9)	40(10.6)	40(10.6)	40(10.6)	30(7.9)	28(7.4)
60(15.9)	60(15.9)	42(11.1)	36(9.5)	70(18.5)	60(15.9)	60(15.9)	60(15.9)	42(11.1)	36(9.5)

LIST OF SPOOL FUNCTION

THE MAXIMUM FLOW RATE LPM(GPM) UNDER DIFFERENT PRESSURE BAR (PSI) SWH G03 DC TYPE								
SPOOL TYPE NORMAL POSITION	P→A, B→T P→B, A→T						P→A	
	50 BAR (735 PSI)	100 BAR (1470 PSI)	150 BAR (2200 PSI)	207 BAR (3000 PSI)	250 BAR (3675 PSI)	310 BAR (4500 PSI)	50 BAR (735 PSI)	100 BAR (1470 PSI)
C2 	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7) 100(26.4)
C3 	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)
C4 	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7) 100(26.4)
C40 	120(31.7)	120(31.7)	120(31.7) 100(26.4)	97(25.6) 75(19.8)	78(20.6) 54(14.3)	60(15.9) 41(10.8)	120(31.7)	120(31.7) 115(30.4)
C5 	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)
C6 	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)
C7 	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)	65(17.2)	65(17.2)
C8 	120(31.7)	120(31.7)	120(31.7) 100(26.4)	97(25.6) 85(22.5)	78(20.6) 54(14.3)	66(17.4) 41(10.8)	120(31.7)	120(31.7)
C9 	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)	65(17.2)	65(17.2)
B2 	95(25.1)	95(25.1)	95(25.1)	95(25.1)	95(25.1)	95(25.10)	69(18.2)	69(18.2)
B3 	89(23.5)	89(23.5)	89(23.5)	89(23.5)	89(23.5)	89(23.5)	120(31.7)	120(31.7)
B20 	—	—	—	—	—	—	85(22.5)	35(9.2)
D2 	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)	60(15.9)	40(10.6)
D3 	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)	70(18.5)	60(15.9)

				P-B 					
150 BAR (2200 PSI)	207 BAR (3000 PSI)	250 BAR (3675 PSI)	310 BAR (4500 PSI)	50 BAR (735 PSI)	100 BAR (1470 PSI)	150 BAR (2200 PSI)	207 BAR (3000 PSI)	250 BAR (3675 PSI)	310 BAR (4500 PSI)
73(19.3)	63(16.6)	54(14.3)	37(9.8)	120(31.7)	120(31.7)	73(19.3)	63(16.6)	54(14.3)	37(9.8)
55(14.5)	48(12.7)	38(10.0)	29(7.7)		100(26.4)	55(14.5)	48(12.7)	38(10.0)	29(7.7)
120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)	120(31.7)
90(23.8)	73(19.3)	60(15.9)	47(12.4)	120(31.7)	120(31.7)	90(23.8)	73(19.3)	60(15.9)	47(12.4)
78(20.6)	64(16.9)	51(13.5)	39(10.3)		100(26.4)	78(20.6)	64(16.9)	51(13.5)	39(10.3)
75(19.8)	54(14.3)	42(11.1)	37(9.8)	120(31.7)	120(31.7)	75(19.8)	54(14.3)	42(11.1)	37(9.8)
50(13.2)	39(10.3)	30(7.9)	21(5.5)		115(30.4)	50(13.2)	39(10.3)	30(7.9)	21(5.5)
100(26.4)	100(26.4)	100(26.4)	–	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	–
100(26.4)	100(26.4)	100(26.4)	–	100(26.4)	100(26.4)	100(26.4)	100(26.4)	100(26.4)	–
65(17.2)	65(17.2)	65(17.2)	65(17.2)	65(17.2)	65(17.2)	65(17.2)	65(17.2)	65(17.2)	65(17.2)
68(18.0)	51(13.5)	37(9.8)	27(7.1)	120(31.7)	85(22.5)	50(13.2)	36(9.5)	25(6.6)	19(5.0)
52(13.7)	39(10.3)	28(7.4)	18(4.8)		65(17.2)	40(10.6)	28(7.4)	15(4)	12(3.2)
65(17.2)	65(17.2)	65(17.2)	65(17.2)	120(31.7)	100(26.4)	94(24.8)	85(22.5)	76(20.1)	70(18.5)
					85(22.5)	80(21.1)	74(19.6)	54(14.3)	49(12.9)
69(18.2)	69(18.2)	69(18.2)	69(18.2)	120(31.7)	120(31.7)	77(20.3)	63(16.6)	57(15.1)	45(11.9)
						66(17.4)	55(14.5)	44(11.6)	38(10.0)
120(31.7)	120(31.7)	120(31.7)	120(31.7)	100(26.4)	100(26.4)	95(25.1)	82(21.7)	75(19.8)	65(17.2)
					89(23.5)	84(22.2)	77(20.3)	70(18.5)	62(16.4)
28(7.4)	19(5.0)	15(4)	10(2.6)	120(31.7)	120(31.7)	95(25.1)	74(19.6)	61(16.1)	43(11.4)
					95(25.1)	84(22.2)	63(16.6)	50(13.2)	34(9.0)
40(10.6)	40(10.6)	30(7.9)	28(7.4)	60(15.9)	40(10.6)	40(10.6)	40(10.6)	30(7.9)	28(7.4)
60(15.9)	60(15.9)	42(11.1)	36(9.5)	70(18.5)	60(15.9)	60(15.9)	60(15.9)	42(11.1)	36(9.5)

RESULT OF MEASUREMENTS

TEST SYSTEMS

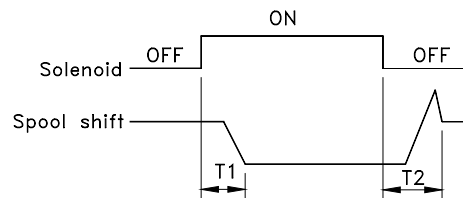
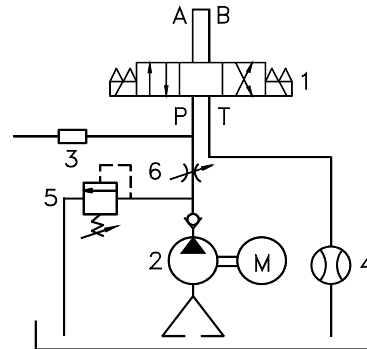
1. Testing valve
2. Pump
3. Pressure sensor
4. Flow meter
5. Relief valve
6. Throttle valve

TEST CONDITIONS

Pressure: 160 BAR (2350 PSI)
Flow Rate: 140 LPM (37 GPM)
Viscosity: 35 cSt (175 SSU)

MODEL	SHIFT OVER TIME (SEC)	
	T 1	T 2
SWH-G03-AC SERIES	0.02	0.02
SWH-G03-DC SERIES	0.07	0.07

TEST CIRCUIT



OPTION LS

Electrical Surge Control Model SWH - G03 - *** - D** - ** - LS

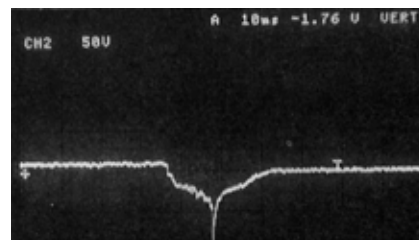
FEATURES

- Suppresses the surge voltage.
- Eliminates sparks between relay contacts.
- Extends the life of the relay contact.

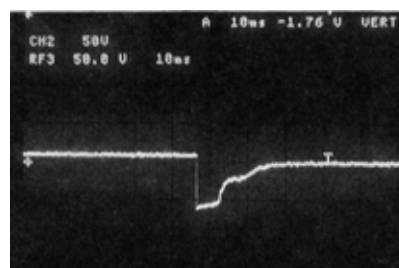
Effects

- Improves the reliability of the control relay.
- Extends the life of conventional relays.
- Can be operated with a miniature relay.
- The RAC rectifier built-in DC model eliminate sparks at the control relay contact. It can be directly operated with a PLC (programmable logic controller).

Electrical surge waveform standard DC solenoid



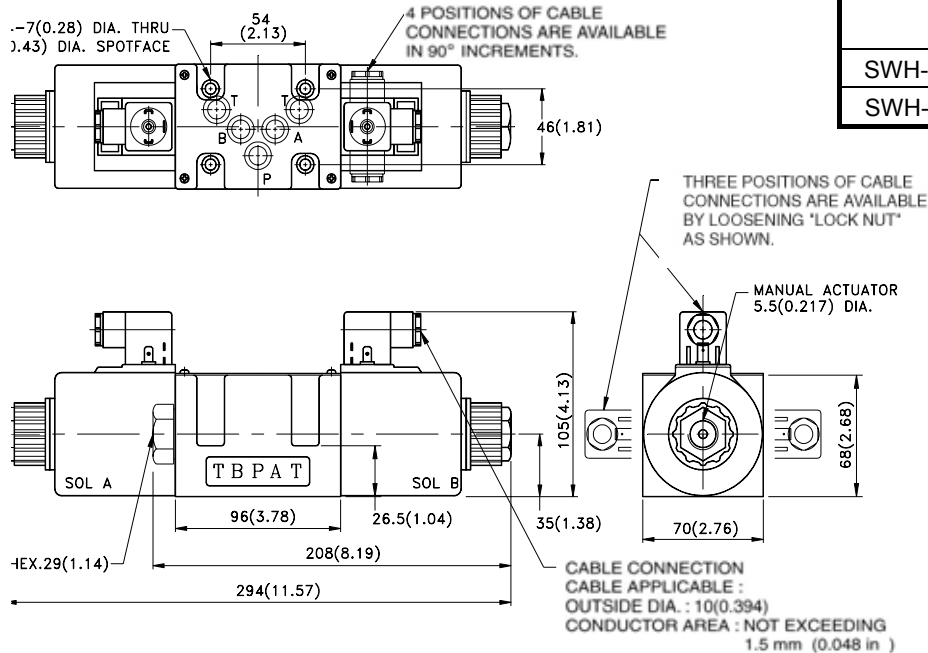
Electrical surge controlled DC solenoid.



INSTALLATION DIMENSIONS

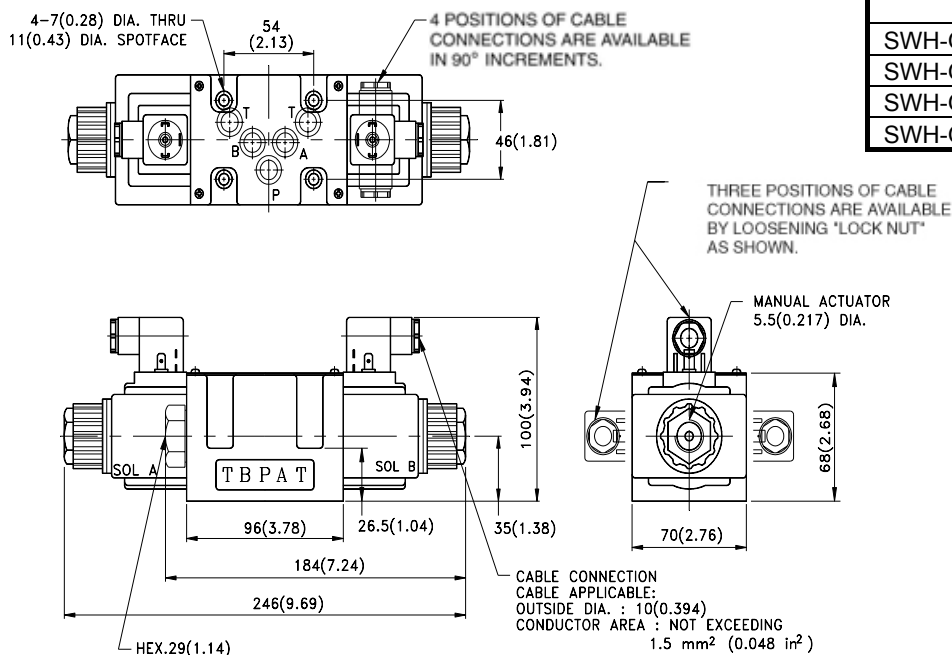
SWH - G03 - *** - A*** - 20 - ** with AC solenoids

Mounting Surface: ISO 4401-AC-05-4-A
UNIT: mm (inch)



MODEL	WEIGHT KGS (LBS)
SWH-G03 -C***-A***	4.1(9.02)
SWH-G03 -B***-A***	3.4(7.48)

SWH - G03 - *** - **** - 20 - ** with DC, RF solenoids



MODEL	WEIGHT KGS (LBS)
SWH-G03-C***-D **	5.5(12.1)
SWH-G03-C***-R ***	
SWH-G03-B***-D **	4(9.68)
SWH-G03-B***-R ***	

HOW TO ORDER

M03 - 03 - S - 1

THREAD :

1: PT
2: NPT
3: SAE

PORT POSITION :

S: SIDE PORTS
B: BOTTOM PORTS
SB: SIDE AND BOTTOM PORTS

PORT SIZE :

03 : 3/8"
04 : 1/2"
06 : 3/4"

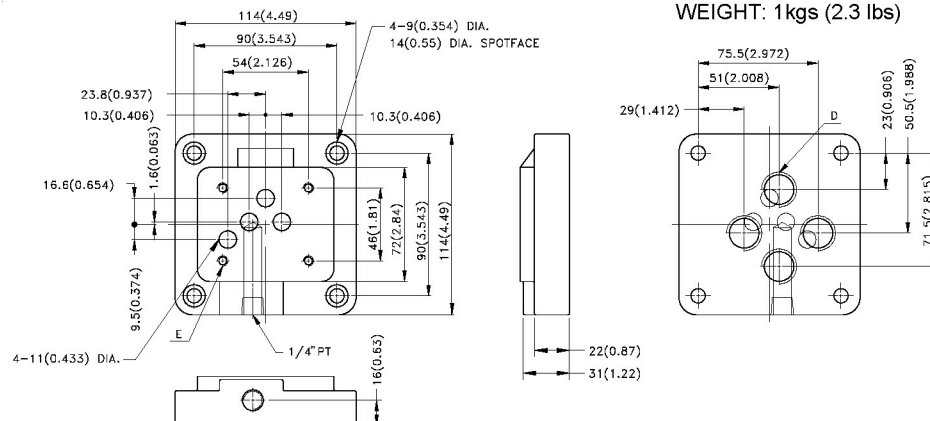
SUBPLATE 03

INSTALLATION DIMENSIONS

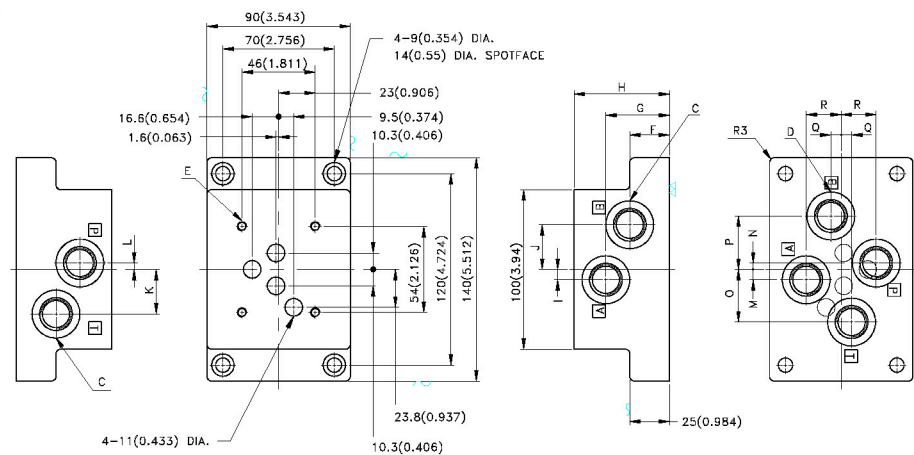
M03 - ** - B - *

UNIT: mm(inch)

WEIGHT: 1kgs (2.3 lbs)



M03 - ** - S/SB - *



MODEL			PORT SIZE & INSTALLATION DIMENSIONS								
			C	D	E	F	G	H	I	J	
M03-03	- S	-1	4-3/8"PT	-	4-M6 x1P	25(0.98)	40(1.58)	60(2.36)	6.5(0.26)	28(1.10)	
		-2	4-3/8"NPT	-	4-1/4"-20UNC	25(0.98)	40(1.58)	60(2.36)	6.5(0.26)	28(1.10)	
		-3	4-3/8"SAE-2B	-	4-1/4"-20UNC	25(0.98)	40(1.58)	60(2.36)	6.5(0.26)	28(1.10)	
	- B	-1	-	4-3/8"PT	4-M6 x1P	-	-	-	-	-	
		-2	-	4-3/8"NPT	4-1/4"-20UNC	-	-	-	-	-	
		-3	-	4-3/8"SAE-2B	4-1/4"-20UNC	-	-	-	-	-	
	- SB	-1	4-3/8"PT	4-3/8"PT	4-M6 x1P	25(0.98)	40(1.58)	60(2.36)	6.5(0.26)	28(1.10)	
		-2	4-3/8"NPT	4-3/8"NPT	4-1/4"-20UNC	25(0.98)	40(1.58)	60(2.36)	6.5(0.26)	28(1.10)	
		-3	4-3/8"SAE-2B	4-3/8"SAE-2B	4-1/4"-20UNC	25(0.98)	40(1.58)	60(2.36)	6.5(0.26)	28(1.10)	
MODEL			INSTALLATION DIMENSIONS								
			K	L	M	N	O	P	Q	R	
M03-03	- S	-1	28(1.10)	4(0.16)	-	-	-	-	-	-	-
		-2	28(1.10)	4(0.16)	-	-	-	-	-	-	-
		-3	28(1.10)	4(0.16)	-	-	-	-	-	-	-
	- B	-1	-	-	-	-	-	-	-	-	-
		-2	-	-	-	-	-	-	-	-	-
		-3	-	-	-	-	-	-	-	-	-
	- SB	-1	28(1.10)	4(0.16)	6.5(0.26)	4(0.16)	33(1.30)	33.5(1.32)	6.5(0.26)	22(0.87)	
		-2	28(1.10)	4(0.16)	6.5(0.26)	4(0.16)	33(1.30)	33.5(1.32)	6.5(0.26)	22(0.87)	
		-3	28(1.10)	4(0.16)	6.5(0.26)	4(0.16)	33(1.30)	33.5(1.32)	6.5(0.26)	22(0.87)	
MODEL			PORT SIZE & INSTALLATION DIMENSIONS								
			C	D	E	F	G	H	I	J	
M03-04	- S	-1	4-1/2"PT	-	4-M6 x1P	25(0.98)	40(1.58)	60(2.36)	6.5(0.26)	28(1.10)	
		-2	4-1/8"NPT	-	4-1/4"-20UNC	25(0.98)	40(1.58)	60(2.36)	6.5(0.26)	28(1.10)	
		-3	4-1/2"SAE-2B	-	4-1/4"-20UNC	25(0.98)	40(1.58)	60(2.36)	6.5(0.26)	28(1.10)	
	- B	-1	-	4-1/2"PT	4-M6 x1P	-	-	-	-	-	
		-2	-	4-1/2"NPT	4-1/4"-20UNC	-	-	-	-	-	
		-3	-	4-1/2"SAE-2B	4-1/4"-20UNC	-	-	-	-	-	
	- SB	-1	4-1/2"PT	4-1/2"PT	4-M6 x1P	25(0.98)	40(1.58)	60(2.36)	6.5(0.26)	28(1.10)	
		-2	4-1/2"NPT	4-1/2"NPT	4-1/4"-20UNC	25(0.98)	40(1.58)	60(2.36)	6.5(0.26)	28(1.10)	
		-3	4-1/2"SAE-2B	4-1/2"SAE-2B	4-1/4"-20UNC	25(0.98)	40(1.58)	60(2.36)	6.5(0.26)	28(1.10)	
MODEL			INSTALLATION DIMENSIONS								
			K	L	M	N	O	P	Q	R	
M03-04	- S	-1	28(1.10)	4(0.16)	-	-	-	-	-	-	-
		-2	28(1.10)	4(0.16)	-	-	-	-	-	-	-
		-3	28(1.10)	4(0.16)	-	-	-	-	-	-	-
	- B	-1	-	-	-	-	-	-	-	-	-
		-2	-	-	-	-	-	-	-	-	-
		-3	-	-	-	-	-	-	-	-	-
	- SB	-1	28(1.10)	4(0.16)	6.5(0.26)	4(0.16)	33(1.30)	33.5(1.32)	6.5(0.26)	22(0.87)	
		-2	28(1.10)	4(0.16)	6.5(0.26)	4(0.16)	33(1.30)	33.5(1.32)	6.5(0.26)	22(0.87)	
		-3	28(1.10)	4(0.16)	6.5(0.26)	4(0.16)	33(1.30)	33.5(1.32)	6.5(0.26)	22(0.87)	
MODEL			PORT SIZE & INSTALLATION DIMENSIONS								
			C	D	E	F	G	H	I	J	
M03-06	- S	-1	4-3/4"PT	-	4-M6 x 1P	25(0.98)	40(1.58)	60(2.36)	6.5(0.26)	28(1.10)	
		-2	4-3/4"NPT	-	4-1/4-20UNC	25(0.98)	40(1.58)	60(2.36)	6.5(0.26)	28(1.10)	
	- B	-1	-	4-3/4"PT	4-M6 x 1P	-	-	-	-	-	
		-2	-	4-3/4"NPT	4-1/4-20UNC	-	-	-	-	-	
	- SB	-1	4-3/4"PT	4-3/4"PT	4-M6 x 1P	25(0.98)	40(1.58)	60(2.36)	6.5(0.26)	28(1.10)	
		-2	4-3/4"NPT	4-3/4"NPT	4-1/4-20UNC	25(0.98)	40(1.58)	60(2.36)	6.5(0.26)	28(1.10)	
MODEL			INSTALLATION DIMENSIONS								
			K	L	M	N	O	P	Q	R	
M03-06	- S	-1	28(1.10)	4(1.6)	-	-	-	-	-	-	-
		-2	28(1.10)	4(1.6)	-	-	-	-	-	-	-
	- B	-1	-	-	6.5(0.26)	4(0.16)	33(1.30)	33.5(1.32)	6.5(0.26)	22(0.87)	
		-2	-	-	6.5(0.26)	4(0.16)	33(1.30)	33.5(1.32)	6.5(0.26)	22(0.87)	
	- SB	-1	28(1.10)	4(1.6)	6.5(0.26)	4(0.16)	33(1.30)	33.5(1.32)	6.5(0.26)	22(0.87)	
		-2	28(1.10)	4(1.6)	6.5(0.26)	4(0.16)	33(1.30)	33.5(1.32)	6.5(0.26)	22(0.87)	

REMARK : Various thickness/port sizes/specification are available on request.



FEATURES

- Armature operates in system oil. Impact is decreased and cushioning added, making noise lowered & solenoid life Prolonged.
- Wet armature solenoid eliminates push pin seal, reducing seal wear or 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.

HOW TO ORDER

SW-G04-C2-ET-A220-10-AB-K

K: WITH KNOB

NO CODE: WITHOUT KNOB

NO CODE: STANDARD TYPE

AB: WITH STROKE ADJUSTMENT BOTH ENDS

A: WITH STROKE ADJUSTMENT PORT "A" END

B: WITH STROKE ADJUSTMENT PORT "B" END

WIRING:

10: WITH JOINTION BOX WITH INDICATING LIGHT (PREFERABLY)

20: HIRSCHMANN TYPE WITH INDICATING LIGHT

COIL VOLTAGE:

A240: AC240V, 60Hz; AC220V, 50Hz

A220: AC220V, 60Hz; AC200V, 50Hz R220: AC220V 50/60Hz

A120: AC120V, 60Hz; AC110V, 50Hz

A110: AC110V, 60Hz; AC110V, 50Hz R110: AC110V 50/60Hz

D24: DC24V

D12: DC12V

T: EXTERNAL DRAIN (See page 2/8)

NO CODE: FOR STANDARD INTERNAL DRAIN TYPE

E: EXTERNAL PILOT (See page 2/8)

NO CODE: FOR STANDARD INTERNAL PILOT TYPE

SPOOL TYPE (See Application Common Data)

NOMINAL SIZE: 1/2" (D07)

SUBPLATE MOUNTED

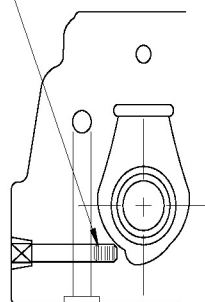
HIGH PRESSURE HIGH FLOW SOLENOID DIRECTIONAL VALVE

SPECIFICATIONS

Maximum operating pressure	315 kgf/cm ² (4500 PSI)
Maximum tank line back pressure	210 kgf/cm ² (3000 PSI) externally drained
	140 kgf/cm ² (2000 PSI) internally drained
Pilot pressure	Min. 8 kgf/cm ² (113 PSI)
	Max. 250 kgf/cm ² (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)

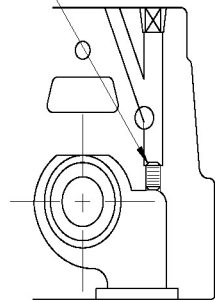
OPTION ET

WITHOUT PLUG
WHEN VALVE IS
INTERNALLY DRAINED.

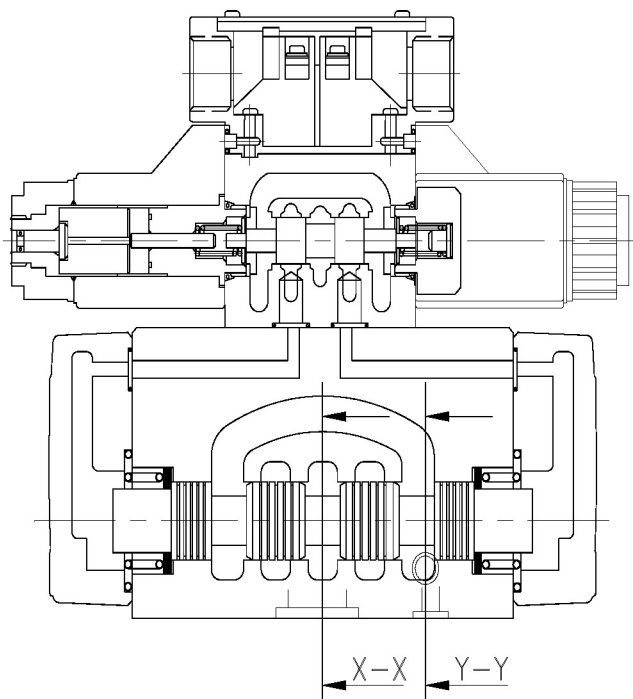


SECTION X-X

WITHOUT PLUG
WHEN VALVE IS
INTERNALLY PILOTED.



SECTION Y-Y



SOLENOID RATINGS

ELECTRIC SOURCE	COIL TYPE	VOLTAGE (V)			CURRENT & POWER AT RATED VOLTAGE		
		SOURCE RATED	H _z	RANGE	IN-RUSH CURRENT (A)	HOLDING CURRENT (A)	WATTAGE
A.C.	A110	AC100V	50	90-110	1.6	0.46	
		AC100V	60	90-110	1.4	0.36	
		AC110V		99-121	1.5	0.39	
	A120	AC110V	50	99-121	1.3	0.38	
		AC120V	60	108-132	1.2	0.27	
	A220	AC200V	50	180-220	0.80	0.23	
		AC220V	60	198-242	0.75	0.19	
	A240	AC220V	50	198-242	0.67	0.19	
		AC240V	60	216-264	0.59	0.13	
D.C.	D12	DC12V		10.8-13.2	2.2	2.2	26
	D24	DC24V		21.6-26.4	1.1	1.1	

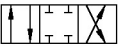
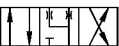
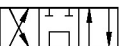
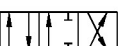
TECHNICAL DATA:

- Solenoid can be used within – 10% to + 10% of the rated voltage of the coil.
- Withstand voltage 1500 v/sec.
- Insulation resistance over 100MΩ.
- 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 kgf/cm² (113 PSI)
Valve must be externally drained if there is a possibility of tank line persuader surges overcoming this differential.
- Open center spools C3, C5, C6, C60 must be externally piloted.

ACCESSORIES:

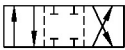
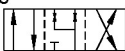
- Mounting bolt kits are supplied with valve socket head cap screws
M6 x 45 L 2 pieces (1/4" – 20 UNC – 2B x 1 3/4"L) for tightening torque 120-150 kgf-cm.(104-130 lbs-in).
M10 x 50 L 4 pieces (3/8" – 16 UNC-2B x 2"L) for tightening torque 580-720 kgf-cm.(502-624 lbs-in).
- O-ring P22A 90° 4 pieces, P9 90° 2 pieces.

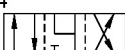
LIST OF SPOOL FUNCTION

THE MAXIMUM FLOW RATE LPM (GPM) UNDER DIFFERENT PRESSURE kgf/cm ² (PSI)						
SPOOL TYPE NORMAL POSITION	SPRING CENTERED					
						
	50kgf/cm ² (735 PSI)	100 kgf/cm ² (1470 PSI)	150 kgf/cm ² (2200 PSI)	210 kgf/cm ² (3000 PSI)	250 kgf/cm ² (3675 PSI)	315 kgf/cm ² (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-side number in table describes the maximum flow for standard type.
The lower-side number in table describes the maximum flow for shock-less type.

LIST OF SPOOL FUNCTION

THE MAXIMUM FLOW RATE LPM (GPM) UNDER DIFFERENT PRESSURE kgf/cm ² (PSI)						
SPOOL TYPE NORMAL POSITION	NO SPRING					
						
	50kgf/cm ² (735 PSI)	100 kgf/cm ² (1470 PSI)	150 kgf/cm ² (2200 PSI)	210 kgf/cm ² (3000 PSI)	250 kgf/cm ² (3675 PSI)	315 kgf/cm ² (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 kgf/cm ² (PSI)						
SPOOL TYPE NORMAL POSITION	SPRING OFFSET					
						
	50kgf/cm ² (735 PSI)	100 kgf/cm ² (1470 PSI)	150 kgf/cm ² (2200 PSI)	210 kgf/cm ² (3000 PSI)	250 kgf/cm ² (3675 PSI)	315 kgf/cm ² (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)

PRESSURE DROP AND PERFORMANCE CURVES

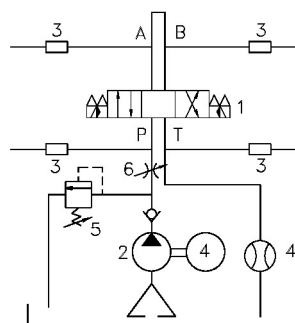
TEST SYSTEMS

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

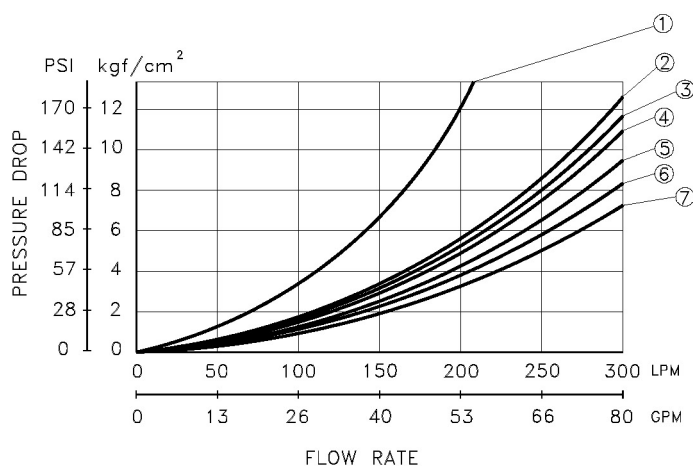
TEST CONDITIONS

Pressure: 70 kgf/cm² (1000 PSI)
 Flow Rate: 300 LPM(80 GPM)
 Viscosity: 35 cSt

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

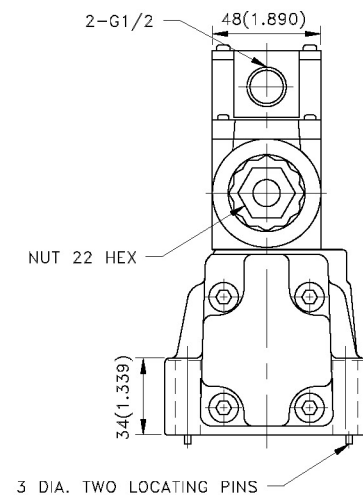
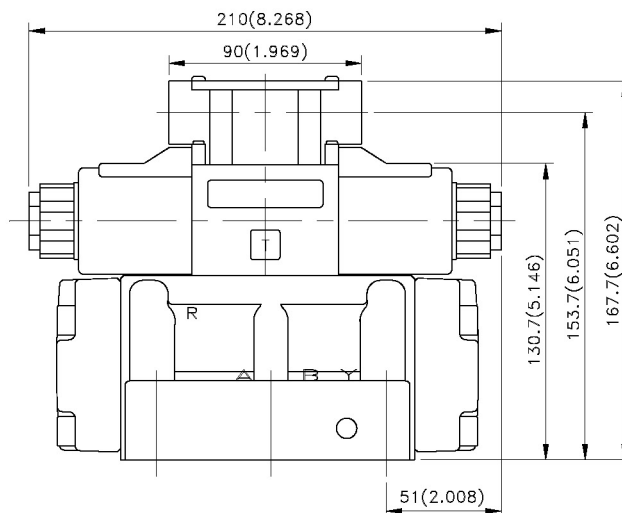
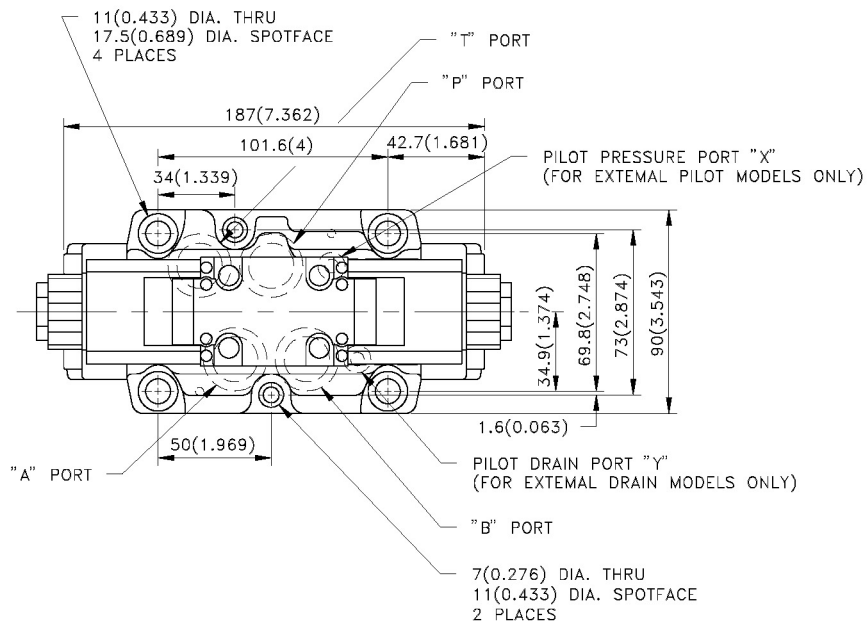
The pressure drop ($\Delta P'$) can be obtained from the formula
 $\Delta P' = \Delta P(G^\circ/0.85)$ for other specific gravity (G°).

INSTALLATION DIMENSIONS

Mounting Surface: ISO 4401-AD -07 - 4 -A

UNIT: mm(inch)

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

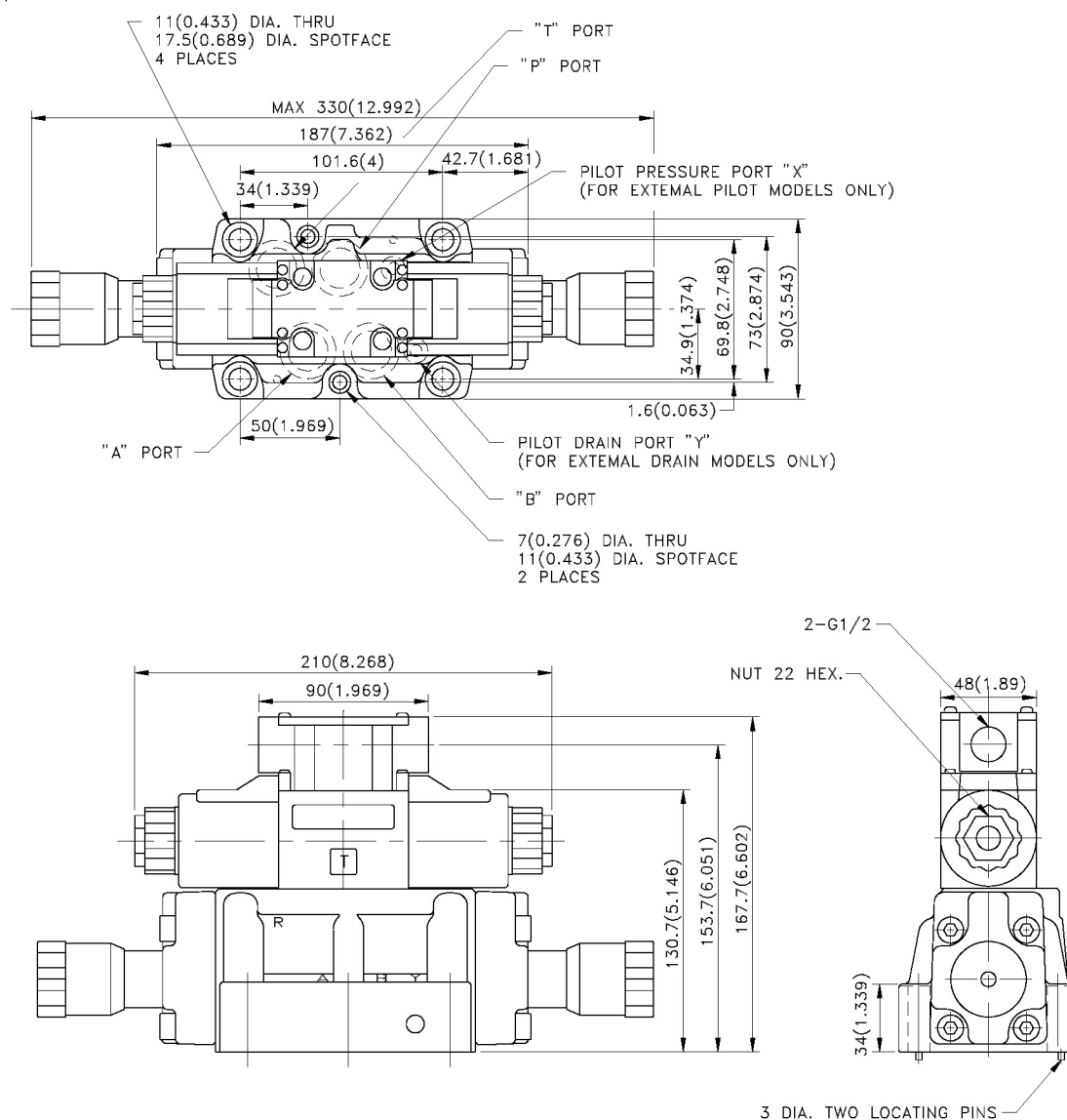


INSTALLATION DIMENSIONS

Mounting Surface: ISO 4401-AD -07 - 4 -A

UNIT: mm(inch)

SW-G04 - *** - ** - **** - 10 - AB - K



HOW TO ORDER

M04-04-S-1

Thread
1: PT
2: NPT
3: SAE

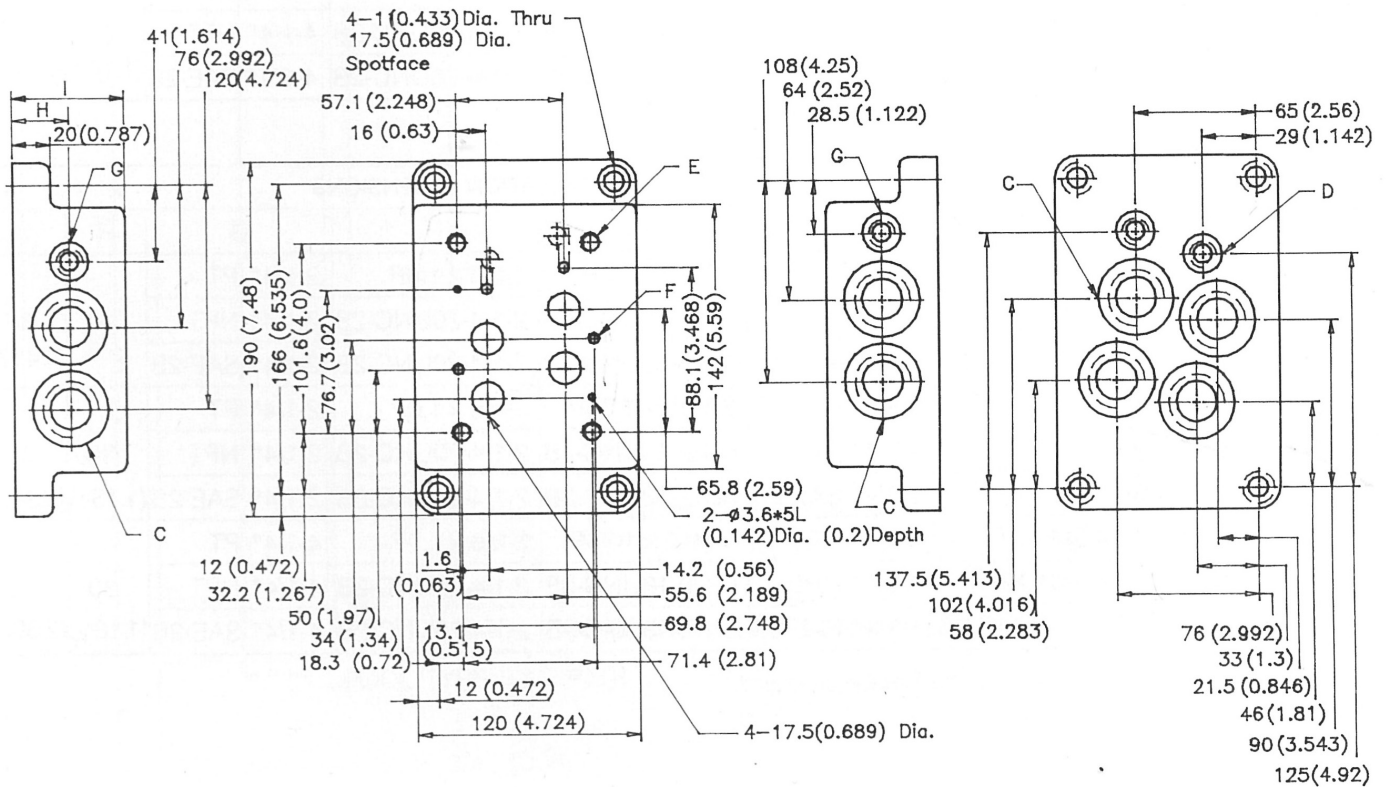
S: Side ports
B: Back ports
SB: Side and back ports

Port size
04: 1/2"
06: 3/4"

Subplate
04

INSTALLATION DIMENSIONS

UNIT: mm (inch)
WEIGHT: 8.4 kgs (18.5 lbs)



UNIT: mm (inch)

MODEL			PORT SIZE & INSTALLATION DIMENSIONS						
			C	D	E	F	G	H	I
M04-04	-S	-1	4-1/2" PT	—	4-M10×1.5P	2-M6×1.0P	2-1/4" PT	—	36 (1.417)
		-2	4-1/2" NPT	—	4-3/8-16UNC-2B	2-1/4-20UNC-2B	2-1/4" NPT		
		-3	4-1/2" SAE-2B	—	4-3/8-16UNC-2B	2-1/4-20UNC-2B	2-1/4" SAE-2B		
	-B	-1	—	4-1/2" PT	6-M12×1.75P	2-M6×1.0P	2-1/4" PT	30 (1.181)	60 (2.362)
		-2	—	4-1/2" NPT	6-1/2-13UNC-2B	2-1/4-20UNC-2B	2-1/4" NPT		
		-3	—	4-1/2" SAE-2B	6-1/2-13UNC-2B	2-1/4-20UNC-2B	2-1/4" SAE-2B		
	-SB	-1	4-1/2" PT	4-1/2" PT	6-M12×1.75P	2-M6×1.0P	4-1/4" PT	30 (1.181)	60 (2.362)
		-2	4-1/2" NPT	4-1/2" NPT	6-1/2-13UNC-2B	2-1/4-20UNC-2B	4-1/4" NPT		
		-3	4-1/2" SAE-2B	4-1/2" SAE-2B	6-1/2-13UNC-2B	2-1/4-20UNC-2B	4-1/4" SAE-2B		

MODEL			PORT SIZE & INSTALLATION DIMENSIONS						
			C	D	E	F	G	H	I
M04-06	-S	-1	4-3/4" PT	—	4-M10×1.5P	2-M6×1.0P	2-1/4" PT	—	36 (1.417)
		-2	4-3/4" NPT	—	4-3/8-16UNC-2B	2-1/4-20UNC-2B	2-1/4" NPT		
		-3	4-3/4" SAE-2B	—	4-3/8-16UNC-2B	2-1/4-20UNC-2B	2-1/4" SAE-2B		
	-B	-1	—	4-3/4" PT	6-M12×1.75P	2-M6×1.0P	2-1/4" PT	30 (1.181)	60 (2.362)
		-2	—	4-3/4" NPT	6-1/2-13UNC-2B	2-1/4-20UNC-2B	2-1/4" NPT		
		-3	—	4-3/4" SAE-2B	6-1/2-13UNC-2B	2-1/4-20UNC-2B	2-1/4" SAE-2B		
	-SB	-1	4-3/4" PT	4-3/4" PT	6-M12×1.75P	2-M6×1.0P	4-1/4" PT	30 (1.181)	60 (2.362)
		-2	4-3/4" NPT	4-3/4" NPT	6-1/2-13UNC-2B	2-1/4-20UNC-2B	4-1/4" NPT		
		-3	4-3/4" SAE-2B	4-3/4" SAE-2B	6-1/2-13UNC-2B	2-1/4-20UNC-2B	4-1/4" SAE-2B		

REMARK: Various thickness/port sizes/spec. are available on request.



FEATURES

- Armature operates in system oil. Impact is decreased and cushioning added, making noise lowered & solenoid life Prolonged.
- Wet armature solenoid eliminates push pin seal, reducing seal wear or 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.

SW - G06 - C2 - ET - A220 - 10 - AB - K

K: WITH KNOB

NO CODE: WITHOUT KNOB

NO CODE: STANDARD TYPE

AB: WITH STROKE ADJUSTMENT BOTH ENDS

A: WITH STROKE ADJUSTMENT PORT "A" END

B: WITH STROKE ADJUSTMENT PORT "B" END

WIRING:

10: WITH JOINTION BOX WITH INDICATING LIGHT (PREFERABLY)

20: HIRSCHMANN TYPE WITH INDICATING LIGHT

COIL VOLTAGE:

A240: AC 240V, 60Hz; AC220V, 50Hz

A220: AC 220V, 60Hz; AC200V, 50Hz R 220: AC220V 50/60Hz

A120: AC 120V, 60Hz; AC110V, 50Hz

A110: AC 110V, 60Hz; AC100V, 50Hz R 110: AC110V 50/60Hz

D12: DC12V

D24: DC24V

T: EXTERNAL DRAIN (See page 2/8)

NO CODE: STANDARD INTERNAL DRAIN TYPE

E: EXTERNAL PILOT (See page 2/8)

NO CODE: FOR STANDARD INTERNAL PILOT TYPE

SPOOL TYPE (See Application Common Data)

NOMINAL SIZE: 3/4" (D08)

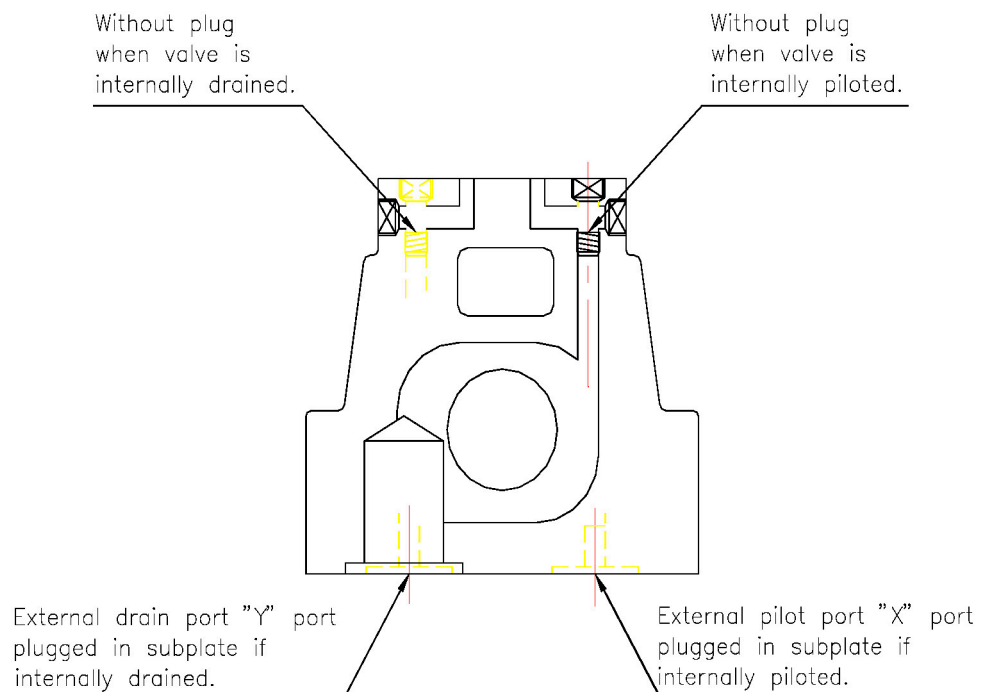
SUBPLATE MOUNTED

HIGH PRESSURE HIGH FLOW SONENOLD DIRECTIONAL VALVE

SPECIFICATIONS

Maximum operating pressure	315 kgf/cm ² (4500 PSI)
Maximum tank line back pressure	210 kgf/cm ² (3000 PSI) externally drained
	140 kgf/cm ² (2000 PSI) internally drained
Pilot pressure	Min. 3.5 kgf/cm ² (50 PSI)
	Max. 250 kgf/cm ² (3550 PSI)
Maximum flow	500 LPM (133 GPM)
Weight	SW-G06-C,D SERIES 12.8 kgs (28 lbs)
	SW-G06-B SERIES 12.5 kgs(27.5 lbs)

OPTION ET



SOLENOID RATINGS

ELECTRIC SOURCE	COIL TYPE	VOLTAGE (V)			CURRENT & POWER AT RATED VOLTAGE		
		SOURCE RATED	Hz	RANGE	IN-RUSH CURRENT (A)	HOLDING CURRENT (A)	WATTAGE
A.C.	A110	AC100V	50	90-110	1.6	0.46	
		AC110V	60	99-121	1.5	0.39	
	A120	AC110V	50	99-121	1.3	0.38	
		AC120V	60	108-132	1.2	0.27	
	A220	AC200V	50	180-220	0.80	0.23	
		AC220V	60	198-242	0.75	0.19	
	A240	AC220V	50	198-242	0.67	0.19	
		AC240V	60	216-264	0.59	0.13	
D.C.	D12	DC12V		10.8-13.2	2.2	2.2	26
	D24	DC24V		21.6-26.4	1.1	1.1	

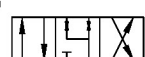
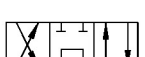
TECHNICAL DATA:

- Solenoid can be used within – 10% to + 10% of the rated voltage of the coil.
- Withstand voltage 1500 v/sec.
- Insulation resistance over 100MΩ.
- 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 3.5 kgf/cm² (50 PSI)
Valve must be externally drained if there is a possibility of tank line pressure surges overcoming this differential.
- Open center spools C3, C5, C6, C60 must be externally piloted.

ACCESSORIES:

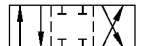
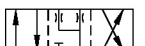
- Mounting bolt kits are supplied with valve socket head cap screws
M12x60L 6 pieces (1/2"-13UNC-2Bx2 3/8" L) for tightening torque 1000 - 1230 kgf-cm. (886 - 1066 lbs-in).
- O-ring P28 90° 4 pieces, P21 90° 2 pieces.

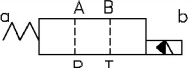
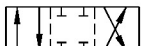
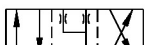
LIST OF SPOOL FUNCTION

THE MAXIMUM FLOW RATE LPM (GPM) UNDER DIFFERENT PRESSURE kgf/cm ² (PSI)						
SPOOL TYPE NORMAL POSITION	SPRING CENTERED 					
	50kgf/cm ² (735 PSI)	100 kgf/cm ² (1470 PSI)	150 kgf/cm ² (2200 PSI)	210 kgf/cm ² (3000 PSI)	250 kgf/cm ² (3675 PSI)	315 kgf/cm ² (4500 PSI)
C2 	500(133.0)	500(133.0)	500(133.0)	450(120.0)	410(109.3)	310(82.6)
	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)
C3 	500(133.0)	500(133.0)	500(133.0)	480(128.0)	460(122.6)	360(96.0)
C4 	500(133.0)	500(133.0)	500(133.0)	450(120.0)	410(109.3)	310(82.6)
	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)
C40 	500(133.0)	500(133.0)	500(133.0)	450(120.0)	410(109.3)	310(82.6)
	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)
C5 	500(133.0)	500(133.0)	500(133.0)	450(120.0)	420(112.0)	350(93.3)
C6 	500(133.0)	470(125.3)	400(106.6)	350(93.3)	300(80.0)	230(61.3)
C60 	500(133.0)	470(125.3)	425(113.3)	385(102.6)	340(90.6)	280(74.6)
	500(133.0)	470(125.3)	425(113.3)	385(102.6)	340(90.6)	280(74.6)
C7 	500(133.0)	500(133.0)	500(133.0)	480(128.0)	450(120.0)	360(96.0)
C8 	500(133.0)	500(133.0)	500(133.0)	450(120.0)	410(109.3)	310(82.6)
	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)
C9 	500(133.0)	500(133.0)	500(133.0)	450(120.0)	410(109.3)	310(82.6)
	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)

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

LIST OF SPOOL FUNCTION

THE MAXIMUM FLOW RATE LPM (GPM) UNDER DIFFERENT PRESSURE kgf/cm ² (PSI)						
SPOOL TYPE NORMAL POSITION	NO SPRING 					
	50kgf/cm ² (735 PSI)	100 kgf/cm ² (1470 PSI)	150 kgf/cm ² (2200 PSI)	210 kgf/cm ² (3000 PSI)	250 kgf/cm ² (3675 PSI)	315 kgf/cm ² (4500 PSI)
N2 	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)
N3 	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)
N4 	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)
N40 	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)

SPOOL TYPE NORMAL POSITION	SPRING OFFSET 					
	50kgf/cm ² (735 PSI)	100 kgf/cm ² (1470 PSI)	150 kgf/cm ² (2200 PSI)	210 kgf/cm ² (3000 PSI)	250 kgf/cm ² (3675 PSI)	315 kgf/cm ² (4500 PSI)
B2 	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)
B3 	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)
B4 	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)
B40 	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)	500(133.0)

PRESSURE DROP AND PERFORMANCE CURVES

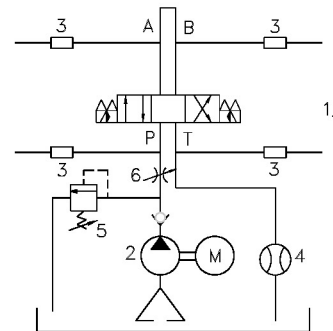
TEST SYSTEMS

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

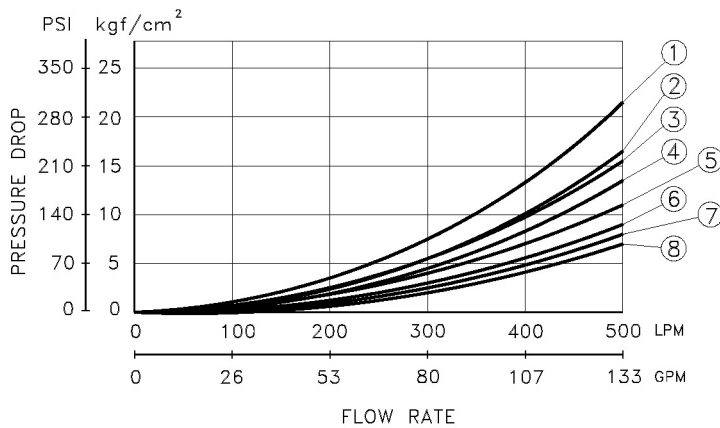
TEST CONDITIONS

Pressure: 70 kgf/cm² (1000 PSI)
 Flow Rate: 600 L/min (189 GPM)
 Viscosity: 35 cSt

TEST CIRCUIT



PERFORMANCE CURVES



SPOOL TYPE	Pressure Drop Curve Number				
	P→A	B→T	P→B	A→T	P→T
C2	8	5	8	7	—
C3	6	4	6	7	6
C4	8	5	8	7	—
C40	8	5	8	7	—
C5	8	4	5	7	2
C6	5	1	5	4	3
C60	6	5	6	7	3
C7	6	5	6	7	—
C8	8	5	8	7	—
C9	8	4	5	7	—
D2	8	5	8	7	—
D3	6	4	6	7	—
B2	8	5	8	7	—
B3	6	4	6	7	—
B20	5	—	8	—	—
B2S	8	5	8	7	—
B3S	6	4	6	7	—
B20S	8	—	5	—	—

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

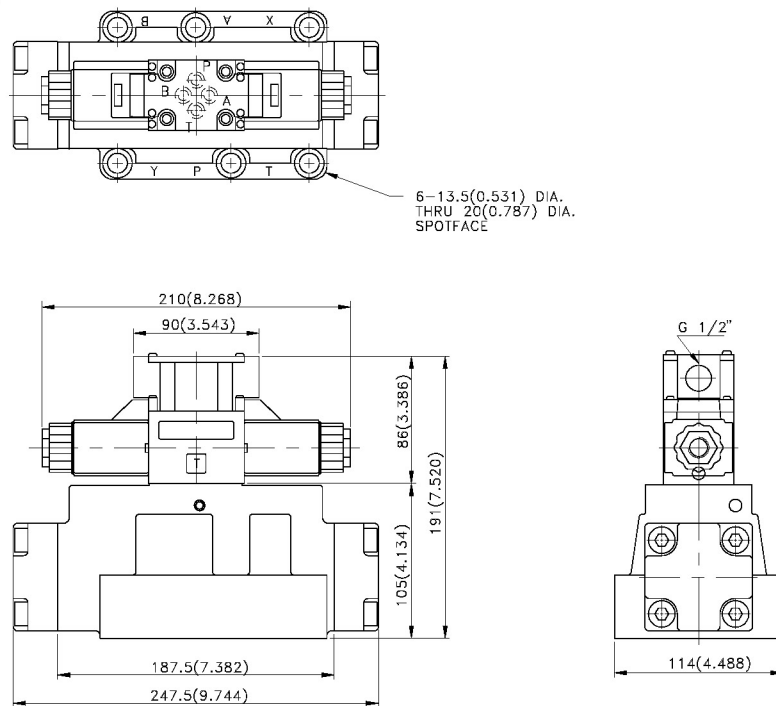
The pressure drop ($\Delta P'$) can be obtained from the formula
 $\Delta P' = \Delta P (G/0.85)$ for other specific gravity (G').

INSTALLATION DIMENSIONS

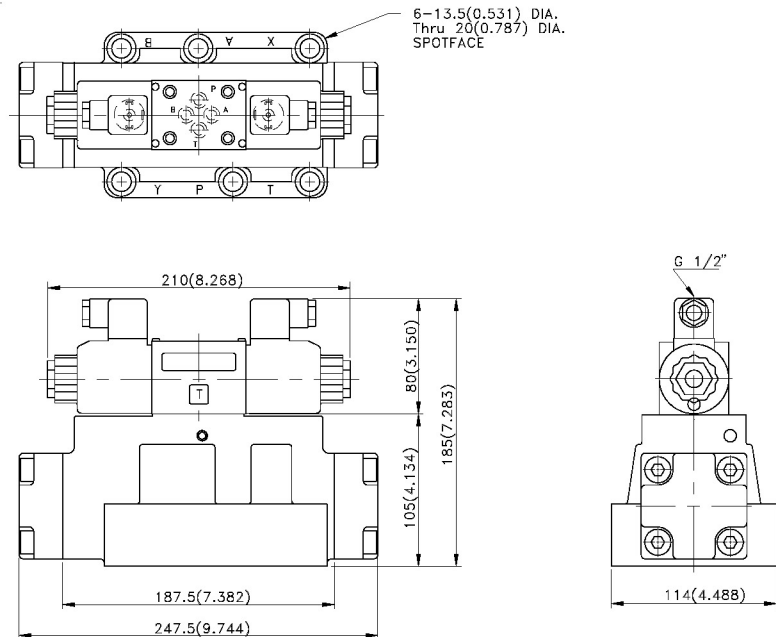
Mounting Surface: ISO 4401-AE-08-4-A

UNIT: mm (inch)

SW-G06-****-****-10



SW-G06-****-****-20

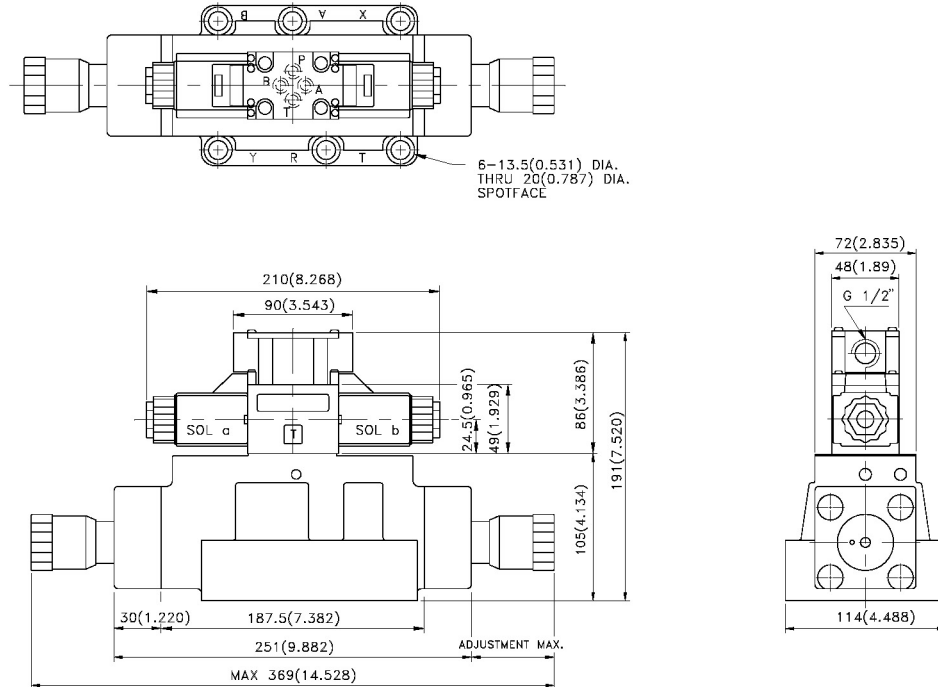


INSTALLATION DIMENSIONS

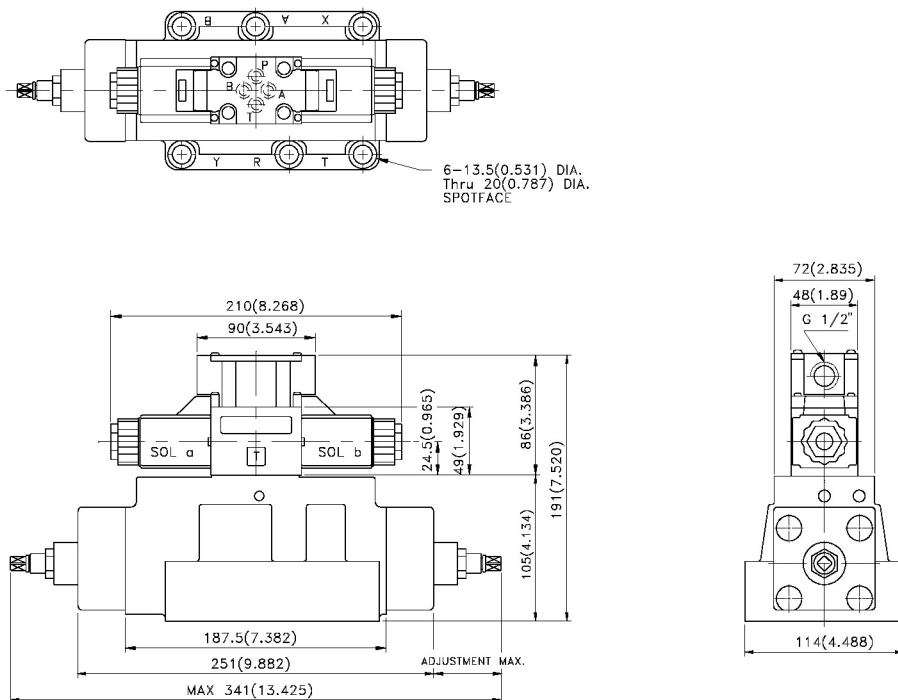
Mounting Surface: ISO 4401-AE-08-4-A

UNIT:mm (inch)

SW-G06-***-***-10-AB-K



SW-G06-***-***-10-AB



HOW TO ORDER

M06 - 06 - S - 1

THREAD :

1: PT

2: NPT

3: SAE

PORT POSITION :

S: SIDE PORTS

B: BOTTOM PORTS

SB: SIDE AND BOTTOM PORTS

PORT SIZE :

06 : 3/4"

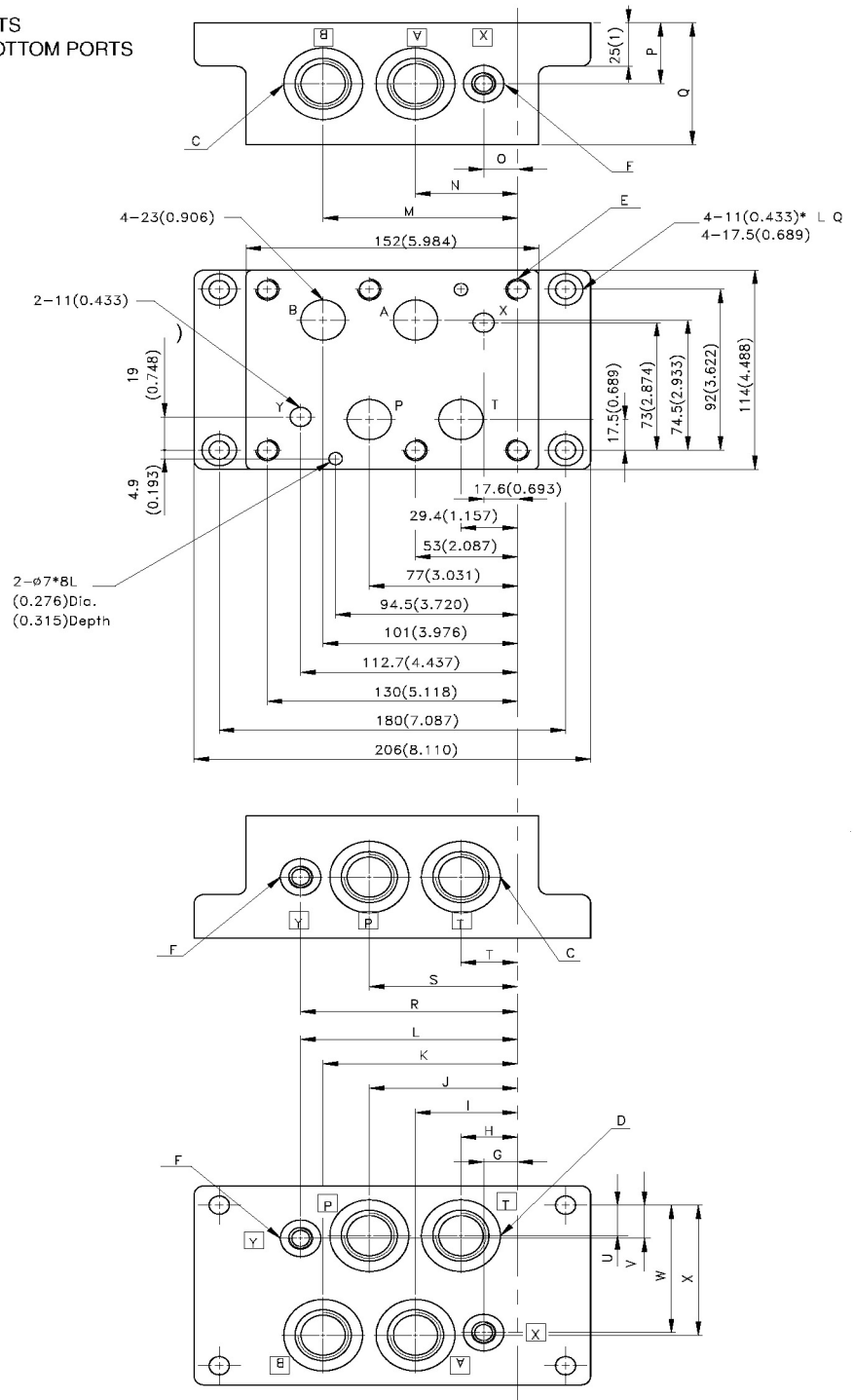
08 : 1"

10 : 1-1/4"

SUBPLATE 06

UNIT: mm(inch)

WEIGHT : 10KGS (22LBS)



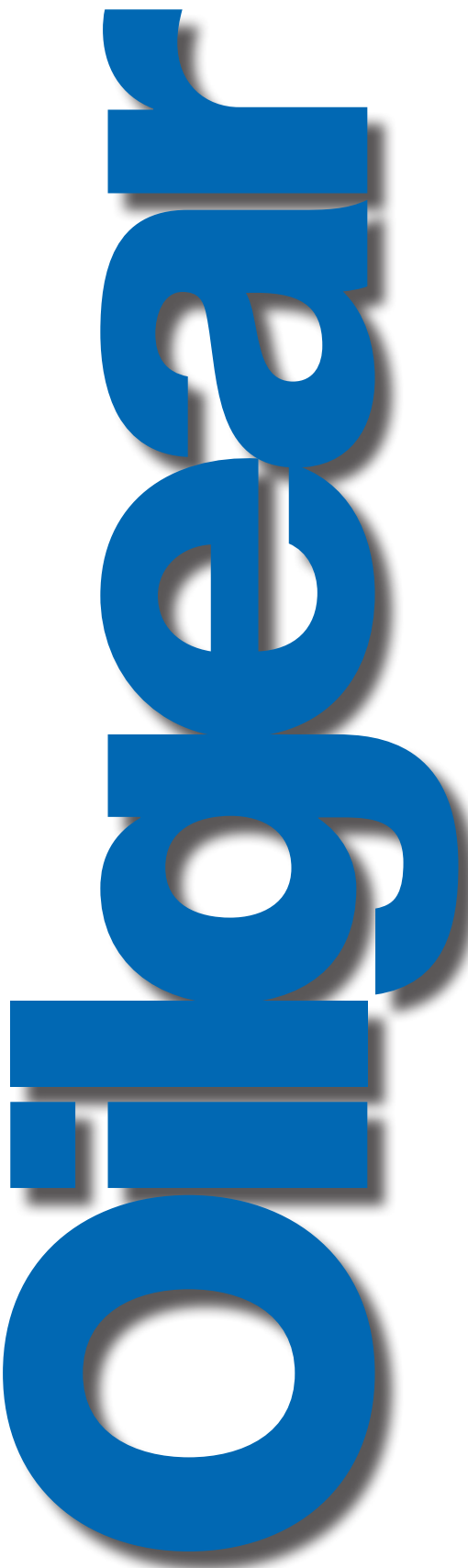
UNIT: mm (inch)

MODEL			PORT SIZE & INSTALLATION DIMENSIONS																	
			C				D				E				F					
M06-06	- S	-1	4 - 3/4"PT				-				6 - M12x1.75P				2 - 1/4" PT					
		-2	4 - 3/4"NPT				-				6 - 1/2"-13UNC-2B				2 - 1/4" NPT					
		-3	4 - 3/4"SAE-2B				-				6 - 1/2"-13UNC-2B				2 - 1/4"SAE-2B					
	- B	-1	-				4 - 3/4"PT				6 - M12x1.75P				2 - 1/4" PT					
		-2	-				4 - 3/4"NPT				6 - 1/2"-13UNC-2B				2 - 1/4"NPT					
		-3	-				4 - 3/4"SAE-2B				6 - 1/2"-13UNC-2B				2 - 1/4"SAE-2B					
	- SB	-1	4 - 3/4"PT				4 - 3/4"PT				6 - M12x1.75P				4 - 1/4" PT					
		-2	4 - 3/4"NPT				4 - 3/4"NPT				6 - 1/2"-13UNC-2B				4 - 1/4" NPT					
		-3	4 - 3/4"SAE-2B				4 - 3/4"SAE-2B				6 - 1/2"-13UNC-2B				4 - 1/4"SAE-2B					
MODEL		INSTALLATION DIMENSIONS																		
		G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	
M06-06	- S	-	-	-	-	-	-	101 (3.98)	53 (2.09)	17.6 (0.69)	35 (1.38)	70 (2.76)	112.7 (4.44)	77 (3.03)	29.4 (1.16)	-	-	-	-	
	- B	17.6 (0.69)	29.4 (1.16)	53 (2.09)	77 (3.03)	101 (3.98)	112.7 (4.44)	-	-	-	-	-	-	-	-	17.5 (0.69)	19 (0.75)	73 (2.87)	74.5 (2.93)	
	- SB	17.6 (0.69)	29.4 (1.16)	53 (2.09)	77 (3.03)	101 (3.98)	112.7 (4.44)	101 (3.98)	53 (2.09)	17.6 (0.69)	35 (1.38)	70 (2.76)	112.7 (4.44)	77 (3.03)	29.4 (1.16)	17.5 (0.69)	19 (0.75)	73 (2.87)	74.5 (2.93)	

MODEL			PORT SIZE & INSTALLATION DIMENSIONS																	
			C				D				E				F					
M06-08	- S	-1	4 - 1" PT				-				6 - M12x1.75P				2 - 1/4" PT					
		-2	4 - 1" NPT				-				6 - 1/2"-13UNC-2B				2 - 1/4" NPT					
		-3	4 - 1"SAE-2B				-				6 - 1/2"-13UNC-2B				2 - 1/4"SAE-2B					
	- B	-1	-				4 - 1" PT				6 - M12x1.75P				2 - 1/4" PT					
		-2	-				4 - 1" NPT				6 - 1/2"-13UNC-2B				2 - 1/4" NPT					
		-3	-				4 - 1"SAE-2B				6 - 1/2"-13UNC-2B				2 - 1/4"SAE-2B					
	- SB	-1	4 - 1" PT				4 - 1" PT				6 - M12x1.75P				4 - 1/4" PT					
		-2	4 - 1" NPT				4 - 1" NPT				6 - 1/2"-13UNC-2B				4 - 1/4" NPT					
		-3	4 - 1"SAE-2B				4 - 1"SAE-2B				6 - 1/2"-13UNC-2B				4 - 1/4"SAE-2B					
MODEL		INSTALLATION DIMENSIONS																		
		G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	
M06-08	- S	-	-	-	-	-	-	106 (4.17)	53 (2.09)	17.6 (0.69)	35 (1.38)	70 (2.76)	112.7 (4.44)	77 (3.03)	24.4 (0.96)	-	-	-	-	
	- B	17.6 (0.69)	24.4 (0.691)	53 (2.09)	77 (3.03)	101 (3.98)	112.7 (4.44)	-	-	-	-	-	-	-	-	17.5 (0.69)	19 (0.75)	73 (2.87)	74.5 (2.93)	
	- SB	17.6 (0.69)	24.4 (0.96)	53 (2.09)	77 (3.03)	101 (3.98)	112.7 (4.44)	106 (4.17)	53 (2.09)	6 (0.69)	35 (1.38)	70 (2.76)	7 (4.44)	77 (3.03)	4 (0.96)	17.5 (0.69)	19 (0.75)	73 (2.87)	74.5 (2.93)	

MODEL			PORT SIZE & INSTALLATION DIMENSIONS																	
			C				D				E				F					
M06-10	- S	-1	4 -1-1/4" PT				-				6 - M12x1.75P				2 - 1/4" PT					
		-2	4 -1-1/4" NPT				-				6 - 1/2"-13UNC-2B				2 - 1/4" NPT					
		-3	4 -1-1/4" SAE-2B				-				6 - 1/2"-13UNC-2B				2 - 1/4"SAE-2B					
	- B	-1	-				4 -1-1/4" PT				6 - M12x1.75P				2 - 1/4" PT					
		-2	-				4 -1-1/4" NPT				6 - 1/2"-13UNC-2B				2 - 1/4" NPT					
		-3	-				4 -1-1/4" SAE-2B				6 - 1/2"-13UNC-2B				2 - 1/4"SAE-2B					
	- SB	-1	4 -1-1/4" PT				4 -1-1/4" PT				6 - M12x1.75P				4 - 1/4" PT					
		-2	4 -1-1/4" NPT				4 -1-1/4" NPT				6 - 1/2"-13UNC-2B				4 - 1/4" NPT					
		-3	4 -1-1/4" SAE-2B				4 -1-1/4" SAE-2B				6 - 1/2"-13UNC-2B				4 - 1/4"SAE-2B					
MODEL		INSTALLATION DIMENSIONS																		
		G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	
M06-10	- S	-	-	-	-	-	-	106 (4.17)	48 (1.89)	85 (0.34)	45 (1.77)	90 (3.54)	121.5 (4.78)	82 (3.23)	24.4 (0.96)	-	-	-	-	
	- B	85 (0.34)	24.4 (0.96)	48 (1.89)	82 (3.23)	106 (4.17)	121.5 (4.78)	-	-	-	-	-	-	-	-	17.5 (0.69)	19 (0.75)	73 (2.87)	74.5 (2.93)	
	- SB	85 (0.34)	24.4 (0.96)	48 (1.89)	82 (3.23)	106 (4.17)	121.5 (4.78)	106 (4.17)	48 (1.89)	85 (0.34)	45 (1.77)	90 (3.54)	121.5 (4.78)	82 (3.23)	24.4 (0.96)	17.5 (0.69)	19 (0.75)	73 (2.87)	74.5 (2.93)	

REMARK: various port sizes/pipe threads are available upon request.



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Para obter informações adicionais sobre seu aplicativo ou sobre os produtos referenciados neste manual, entre em contato com a Oilgear mais próxima. Acesse o website da Oilgear para obter uma relação completa de nossos endereços.