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.

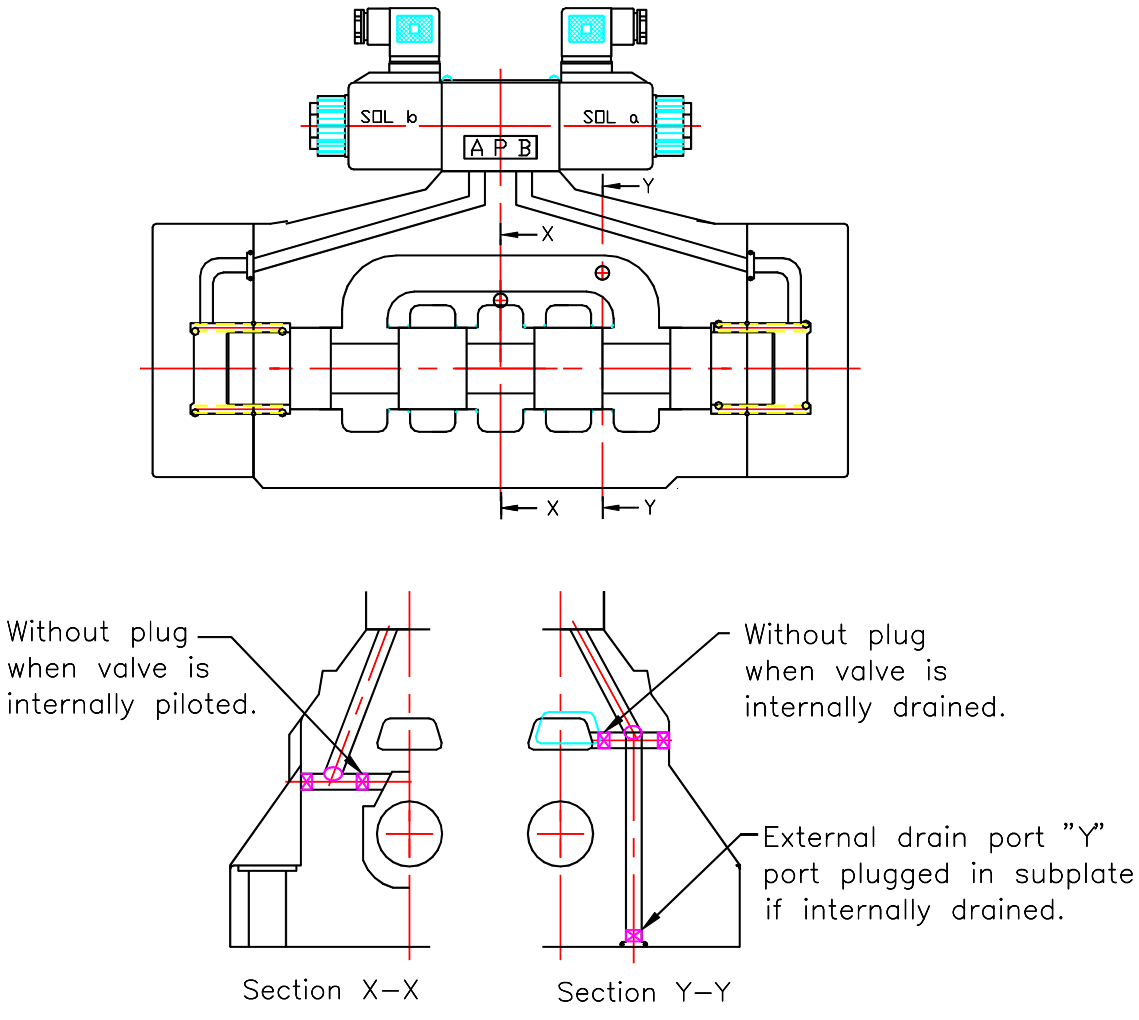
SW – G10 - C2 - ET - A220 - 10

- WIRING:
  - 10: WITH JOINTION BOX WITH INDICATING LIGHT
  - 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 4/7)
  - NO CODE: STANDARD INTERNAL DRAIN TYPE
- E: EXTERNAL PILOT (See page 4/7)
  - NO CODE: FOR STANDARD INTERNAL PILOT TYPE
- SPOOL TYPE (See Application Common Data)
- NOMINAL SIZE:1-1/4” (D10)
- SUBPLATE MOUNTED
- HIGH PRESSURE HIGH FLOW SONENOLD DIRECTIONAL VALVE

SPECIFICATIONS

Maximum operating pressure	210 kgf/cm^2 (3000 PSI)
Maxomum tank line back pressure	140 kgf/cm^2 (2000 PSI) externally drained
	70 kgf/cm^2 (1000 PSI) internally drained
Pilot pressure	Min.10 kgf/cm^2 (140 PSI)
	Max. 210 kgf/cm^2 (3000 PSI)
Maximum flow	1100 LPM (292 GPM)
Weight	SW-G10-C,D SERIES 50 kgs(110 lbs)
	SW-G10-B SERIES 49.7 kgs(109 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 10 kgf/cm^2 (140 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.

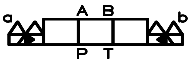
PORT INTERCONNECTION:

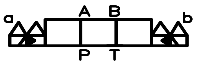
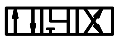
- With solenoid "b" energized P→A B→T.
- With solenoid "a" energized P→B A→T.
- (But port intrconnedtions are reversed for C3 C5,C6,C60 type)

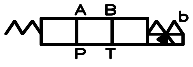
ACCESSORIES:

- Mounting bolt kits are supplied with valve socket head cap screws
  M20x75L 6 pieces (3/4"-10UNC-2Bx2 3" L) for tightening torque 4730 - 5850 kgf-cm. (4100 - 5060 lbs-in).
- O-ring P41 90° 4 pieces, P20 90 ° 2 pieces.

LIST OF SPOOL FUNCTIONS

THE MAXIMUM FLOW RATE LPM(GPM) UNDER DIFFERENT PRESSURES KGF/CM² (PSI)				
SPOOL TYPE	Spring Centered 			
NORMAL POSITION	50 kgf/cm² (735 PSI)	100 kgf/cm² (1470 PSI)	150 kgf/cm² (2200 PSI)	210 kgf/cm² (3000 PSI)
C2 	1100 (292)	1100 (292)	1100 (292)	1030 (274)
C3 	1100 (292)	1100 (292)	1100 (292)	1090 (290)
C4 	1100 (292)	1100 (292)	1100 (292)	1030 (274)
C5 	1100 (292)	1100 (292)	1100 (292)	1040 (276)
C6 	1100 (292)	1050 (278)	880 (234)	800 (212)
C7 	1100 (292)	1100 (292)	1100 (292)	1060 (282)
C8 	1100 (292)	1100 (292)	1100 (292)	1060 (282)
C9 	1100 (292)	1100 (292)	1100 (292)	1060 (282)

THE MAXIMUM FLOW RATE LPM(GPM) UNDER DIFFERENT PRESSURES KGF/CM² (PSI)				
SPOOL TYPE	NO SPRING 			
NORMAL POSITION	50 kgf/cm² (735 PSI)	100 kgf/cm² (1470 PSI)	150 kgf/cm² (2200 PSI)	210 kgf/cm² (3000 PSI)
N2 	1100 (292)	1100 (292)	1100 (292)	1100 (292)
N3 	1100 (292)	1100 (292)	1100 (292)	1100 (292)
N4 	1100 (292)	1100 (292)	1100 (292)	1100 (292)

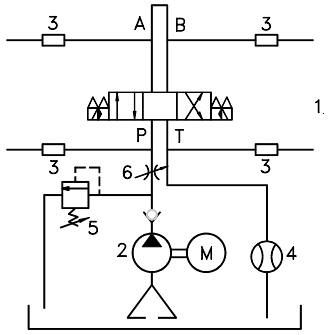
THE MAXIMUM FLOW RATE LPM(GPM) UNDER DIFFERENT PRESSURES KGF/CM² (PSI)				
SPOOL TYPE	SPRING OFFSET 			
NORMAL POSITION	50 kgf/cm² (735 PSI)	100 kgf/cm² (1470 PSI)	150 kgf/cm² (2200 PSI)	210 kgf/cm² (3000 PSI)
B2 	1100 (292)	1100 (292)	1100 (292)	1100 (292)
B3 	1100 (292)	1100 (292)	1100 (292)	1100 (292)
B4 	1100 (292)	1100 (292)	1100 (292)	1100 (292)

PRESSURE DROP AND PERFORMANCE CURVES

TEST SYSTEMS

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

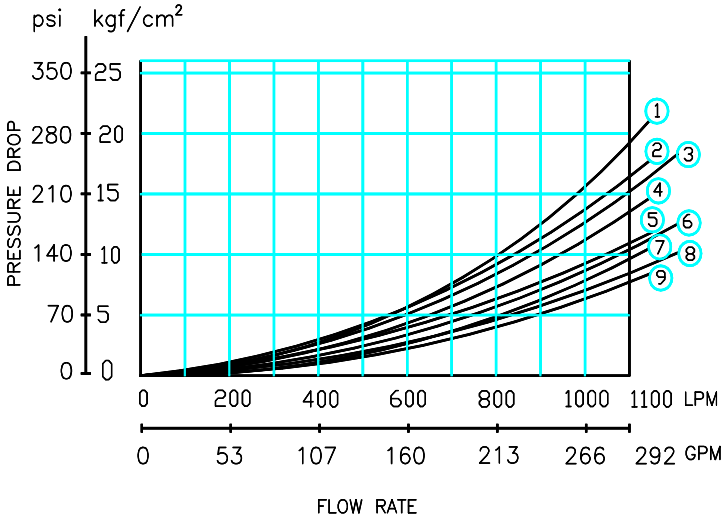
TEST CIRCUIT



TEST CONDITIONS

Pressure: 70 kgf/cm^2 (1000 PSI)
Flow Rate: 1100 L/mim(192 GPM)
Viscosity: 35 cSt

PERFORMANCE CURVES



SPOOL TYPE	Pressure Drop Curve Number				
	P→A	B→T	P →B	A →T	P →T
C2	9	6	9	8	–
C3	7	6	7	7	5
C4	9	6	9	6	–
C40	9	6	9	8	–
C5	9	6	8	6	1
C6	5	3	5	4	2
C60	8	5	8	5	3
C7	7	6	7	7	–
C8	7	6	7	7	–
C9	7	6	7	8	–

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

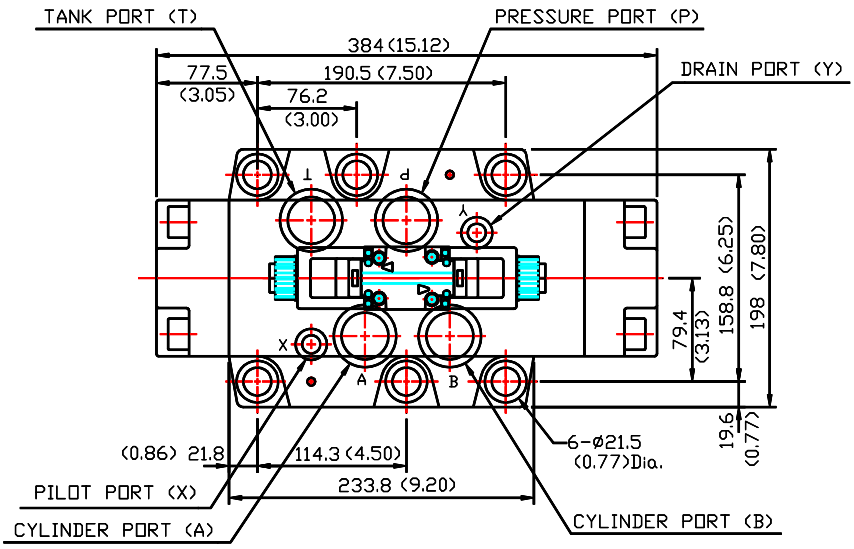
The pressure drop (ΔP') can be obtained from the formula
ΔP'= ΔP(G/0.85) for other specific gravity (G').

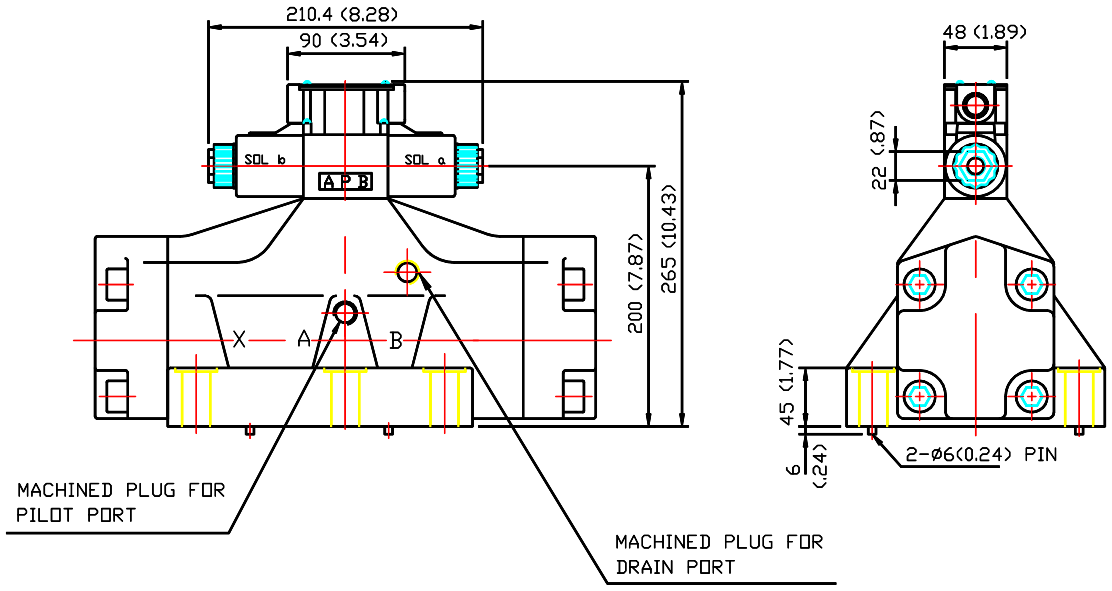
INSTALLATION DIMENSIONS

Mounting Surface: ISO 4401-AE-10-4-A

UNIT: mm (inch)

SW-G10-***-**-****-10





INSTALLATION DIMENSIONS

SW-G10-***-**-****-20

Mounting Surface: ISO 4401-AE-10-4-A

UNIT:mm (inch)