

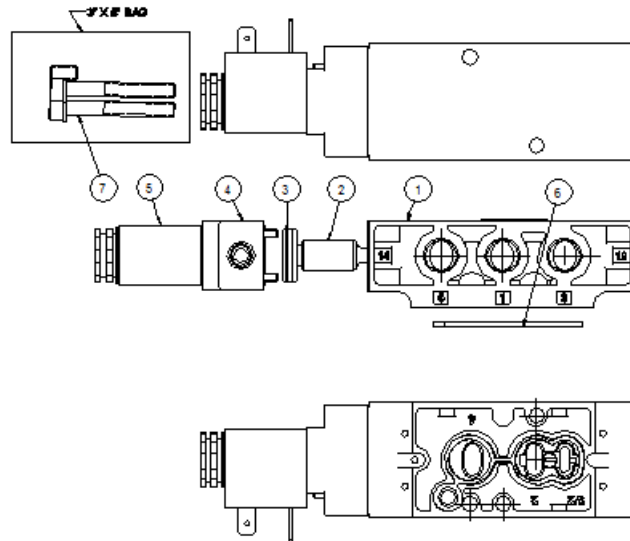


# Installation, Operation, and Maintenance Manual Solenoid Valve

MODEL: S2003ACWR, X2003AAWR



BILL OF MATERIALS		
ITEM	DESCRIPTION	QTY
1	BODY NAMUR LEFT	1
2	SPOOL A	1
3	PISTON	1
4	CAP W TYPE 3-4.8 WATT	1
5	COIL	1
6	GASKET	1
7	KIT NAMUR (2- M5 X 40MM W/ WASHERS)	1





### STORAGE

The Sharpe Solenoid Valve has been packaged to provide protection during shipment and storage. It is however, possible that the Solenoid can be damaged during transport. Inspect the solenoid for shipping damage prior to storage. The valve and solenoid should be left in the original packing until it is required for the use. It should be stored in the enclosed area in a clean dry environment with the temperature limit 4 to 40°C until ready for use. Keep plastic plugs in the air ports to prevent liquids or other materials from entering the housing during storage.

**Operating Pressure:** 35 to 150 psig (2.4 to 10.3 BAR)

**Operating Temperature:** 0°F to 125°F.

### OPERATING PRINCIPLE

A solenoid valve is an electromechanically operated valve. The valve is controlled by an electric current through a solenoid coil: When the coil is energized, it pushes the plunger which allows, divert or stop the flow of air depending on the configuration of the valve. For spring return solenoid, when the coil is de-energized, the piston/plunger is pushed back to the original position by the spring. For double solenoid, coil is installed on both ends. Only one coil is energized at one time. When coil is energized, valve will remain in the last position until other coil is energized.

Valve body can be converted between 5/2 (double acting) and 3/2 (spring return).

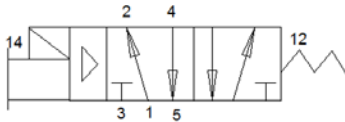


Diagram 1

**Sharpe Model: S2003ACWR-** Single coil left, for SPNII. Air to come in on the left port of SPNII in spring return mode.

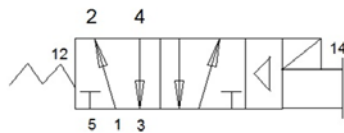


Diagram 2

**Sharpe Model: X2003AAWR-** Single coil right, for 4x4 actuators. Air to come in on the right port of 4x4 actuator in spring return mode.

### WARNING AND SAFETY INSTRUCTIONS:

1. Read this Installation, Operation & Maintenance manual before using the solenoid valve.



2. Sharpe Valves cannot anticipate all of the situations a user may encounter while installing and using the Sharpe Solenoid Valve. The user must know and follow all applicable industry specifications on the safe installation and use of the valve. Only qualified personnel or technicians who are trained for maintenance work and have read the instructions are to assemble and disassemble the solenoid valve. Misapplication of the product may result in injuries or property damage.
3. Before operating the solenoid valve which is connected to an actuator in the pipeline, make sure you know the valve function. Prior to installation make sure that air line has been purged.
4. Make sure the solenoid valve is not connected to the air supply or electrical system before attempting to do any maintenance.
5. Use only the Sharpe solenoid components and spare parts.
6. The user must follow and observe any national or local safety law imposed for their system.

### INSTALLATION:

Installing Sharpe Solenoid valve to SPNII or 4x4 actuators, we recommend actuator is off the valve and off line so the actuator and solenoid valve can be tested freely.

1. Place the actuator with valve mounting bracket. Make it stands in a clean flat working table.
2. S2003ACWR coil left for SPNII actuators. S2003ACWR for coil right for 4x4 actuators. Except for X90 actuators uses S2003ACWR.  
Air to come in on the left port of the actuator in spring return mode. For SPNII actuators.  
Air to come in on the right in spring return mode. For 4X4 actuators (Except for X90).
3. Check if the white plastic plug is in the outer cavity. See picture below.

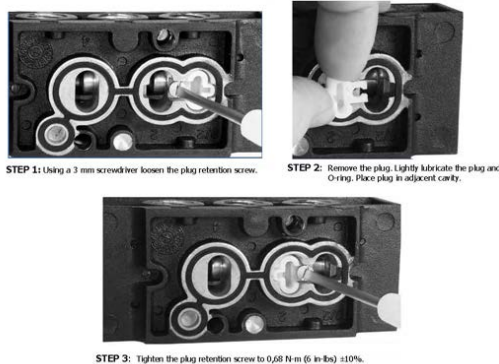
For converting the 4-way into 3-way.

- a) Using a 3mm screw driver loosen the plug retention screw.
- b) Remove the plug. Lightly lubricate the plug and o-ring. Place the plug in adjacent cavity.
- c) Tighten the plug retention screw to .68 N-m (6in-lbs)+/-10%.



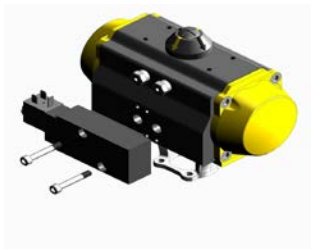
#### Conversion Steps

##### 4 Way to 3 Way Conversion

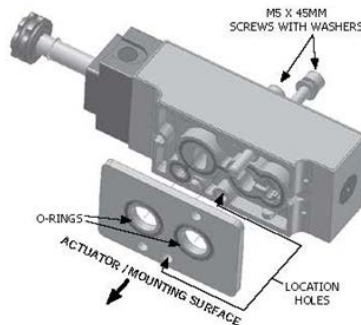




- Place the gasket seal (#5 in the drawing) provided into the gasket bore on the face of the solenoid valve. Gasket seal should be completely seated.
- The actuator ports facing the gasket side of the solenoid valve, the solenoid NPT ports 3, 1 & 5 facing downward. Align the mounting holes and install the two screws provided.



NOTE: For 4x4 Actuators, transition plate is needed to be installed before mounting the solenoid valve.



Use screws supplied with transition plate. Screws came with the solenoid will not work with plate.



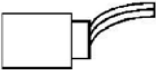
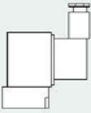
- Connect the air supply to NPT port #1(1/4" NPT). Refer to Diagram 1 and 2. We recommend a sintered metal filter to be installed in port #3 and #5 to reduce exhaust noise level. Prevent foreign objects from getting into the ports.  
Sintered metal filters may be ordered from Sharpe Valves.  
Make sure the air supply does not exceed the pressure rating of the solenoid valve.
- Make sure power supply is off before connecting electrical cable to the solenoid.
- Make sure your power supply matches with the coil rating.
- After connecting check the solenoid to make sure it is functioning properly.

**DISASSEMBLY:**



- 1) Turn off electrical connection to the solenoid valve and purge downstream air.
- 2) Disconnect air supply to the solenoid valve.
- 3) Loosen the two mounting bolts.
- 4) Place the solenoid valve in a clean dry place.
- 5) Inspect seals and components for damaged.
- 6) Use only the Sharpe solenoid components and spare parts as replacements.

**SOLENOID ELECTRICAL INFORMATION:**

Coil Part Numbers					
Coil Part Number **=Voltage	Description		Operator Type	Instructions	Lb
SC4**	<b>Weather-Proof</b> DIN 43650 Industrial Form B Connection NEMA 4X		W	Order coil separately (specify voltage code from below)	0.12
SC4**C SC4**CT (high temp 82°C max)	<b>Weather-Proof</b> 1/2" Conduit with 30" Leads NEMA 4X		W	Order coil separately (specify voltage code from below)	0.12
SC7**	<b>Explosion-Proof</b> 1/2" Conduit with 24" Leads CSA & FM Approved CL I; Zone1 Exm III 4; AExm II CL I; Div 1; GR. A, B, C, D CL II; GR. E, F, G CL III T4 Ia=20°C to +60°C NEMA 4, 4X, 7, 7D, 9		W	Order coil separately (specify voltage code from below)	0.44
SCI2D	<b>Intrinsically-Safe</b> Strain Relief Ex ia CL I; GR. A, B, C, D CL II; GR. E, F, G CL III; Div 1; 15		V	Coil and Connector included with valve (24VDC only)  <b>SCI2D Must be Used with an Intrinsically-Safe Barrier</b>	0.46

		Voltage Codes <small>Lower Wattage available, upon request</small>																		
** Code	Operator Type Voltage +/-10%	Current (Amps)								Resistance (OHMS @ 25°C)				Power (AC=VA, DC=Watts)						
		Inrush				Holding				W		V		Z		W	V	Z		
		NEMA		ATEX		NEMA		ATEX		NEMA		ATEX		NEMA		ATEX		NEMA	ATEX	
		4, 4x	7, 9	Ex ia	Ex m	4, 4x	7, 9	Ex ia	Ex m	4, 4x	7, 9	Ex ia	Ex m	4, 4x	7, 9	Ex ia	Ex m	4, 4x	7, 9	Ex ia
2A	22/50 24/60	.36	-	-	-	.24	-	-	-	32	-	-	-	6.9	-	-	-	-	-	-
12	120/50 120/60	.08	.10	-	.04	.05	.05	-	.03	840	530	-	1164	6.9	6.5	-	3.4	-	-	-
22	230/50 230/60	.04	.05	-	.02	.03	.03	-	.01	3310	2345	-	6730	6.4	6.8	-	3.3	-	-	-
1D	12 VDC	.38	.38	-	.27	.38	.38	-	.27	32	32	-	45	4.8	4.5	-	3.5	-	-	-
2D	24 VDC	.20	.19	.05	.14	.20	.19	.05	.14	121	128	275	177	4.8	4.5	1.6	3.5	-	-	-

**ORDERING INFORMATION:**



Fig: X2003AAWR-I-2D

Description: Coil Right - Intrinsically Safe - 24 VCD

Solenoids Part Number Chart						
Body		NEMA CLASS			Voltage	
S2003ACWR	COIL LEFT FOR SPNII AND OTHER ACTUATORS THAT REQUIRE AIR TO COME IN ON THE LEFT IN SPRING RETURN MODE	4	4 = NEMA 4X		12	12 = 120 VAC
		7	7 = NEMA 7/9		22	22 = 240 VAC
		1	1 = INTRINSICALLY SAFE - 24VDC ONLY		2A	2A = 24 VAC
X2003AAWR	COIL RIGHT FOR X AND OTHER ACTUATORS THAT REQUIRE AIR TO COME IN ON THE RIGHT IN SPRING RETURN MODE				1D	1D = 12 VDC
					2D	2D = 24 VDC