



300 Series

Electric Valve

Maintenance & Repair Manual

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Valve Control Function:

The ELECTRIC ON-OFF model of the 300 Series Control Valve is a hydraulically operated sleeve type valve with an electric solenoid control. The flow through the valve is controlled by a rubber sleeve which is actuated by hydraulic pressure. The valve is either in the fully opened or the closed (*shut off*) position when operated electrically. When the selector is pointed to the "AUTO" position then the electric solenoid is used to automatically open or close the valve.

The 3-way electric solenoid must be energized to open the valve and de-energized to close the valve. Pointing the manual selector handle to "OPEN" or "CLOSE" will override the "AUTO" control. The manual selector can be used to hold the valve partly open by opening the valve part way and then pointing the selector handle midway between "OPEN" and "CLOSE".

The information on this sheet is for the ELECTRIC ON-OFF control function with both internal and external filter options (*items D1, E20 through E72, H2 & H3 on the VALVE SELECTION GUIDE apply to this sheet*).

Manual operation:

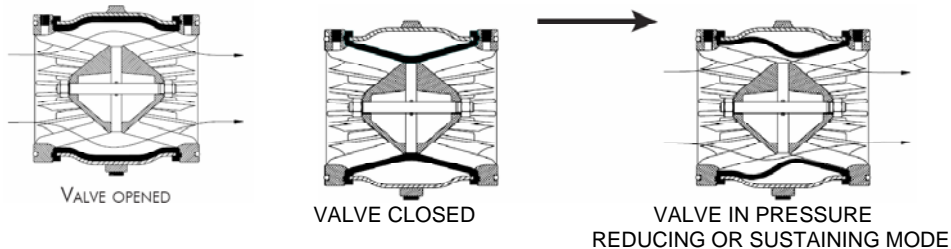
Each 300 Series Valve is equipped with a manually operated selector valve to control the on-off (*OPEN-CLOSE*) function.

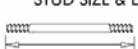




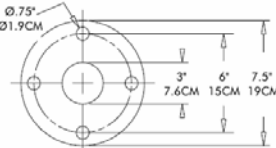
A cross section drawing of the valve operation is shown below. Pointing the selector to the "OPEN" position causes the valve to open. Pointing the selector to the "CLOSE" position pressurizes the sleeve chamber, closing the valve. The "AUTO" position has no effect on a valve that is equipped with only the manual control function. See the separate CONTROL FUNCTION AND MAINTENANCE sheet for details on the specific control function equipped on your valve.

EXAMPLE: If the selector valve handle is pointed to "OPEN", the valve sleeve opens to flow as shown.

VALVE CROSS SECTION

FLOW DIRECTION

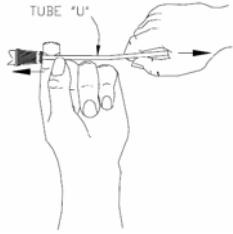


BOLT LENGTHS		FLANGE TEMPLATES		VALVE LENGTHS		
STUD SIZE & LENGTH  USE WASHERS ON PLASTIC FLANGES		FLANGE TEMPLATE FOR USE WITH WAFER STYLE VALVES 		WAFER STYLE VALVE LENGTH 	VICTAULIC STYLE VALVE LENGTH 	THREAD STYLE VALVE LENGTH 
3 INCH VALVE	4 STUDS 5/8" DIA. X 11" (1.5 CM X 28 CM) 8 NUTS REQUIRED FOR ANSI GUN ADAPTER USE 4 STUDS 1/2" DIA. X 9.75" 4 WASHERS & 4 NUTS REQUIRED			7.3 INCHES 18.5 CM	10 INCHES 25.4 CM	9.8 INCHES 24.9 CM

INSTALLATION TIP:

When installing the Wafer style valve, do not over-tighten the bolt nuts. Over-tightening can damage the sleeve. Flush all dirt and debris from the line before operating the valve control. It is suggested the MANUAL ON-OFF selector valve be in the OPEN position for this flushing operation. Failure to flush the line may cause the filter or tubing to clog so that the control function does not work. See reverse side for valve manual operation and parts.

TROUBLESHOOTING



SYMPTOM: Valve will not close when the manual selector valve is in the "CLOSE" position.

CHECK ITEMS: ✓ Check for leaks on all tube lines and fittings. If it is necessary to remove any control tube lines from the fittings then use opposing force as shown here. Pull the tube while pressing in the opposite direction on the fitting ring.

✓ Check that water can flow through the tube "U" which connects the upstream (*high pressure*) side of the main valve to the "CLOSE" port of the manual selector valve. Refer to the control function diagram. If little or no flow, find the

reason for the blockage and clear it.



CAUTION! BE CAREFUL TO SHUT DOWN PRESSURE ON THE SYSTEM BEFORE SERVICING THIS VALVE! IF THE VALVE IS CLOSED AND UNDER PRESSURE, THEN DISCONNECTING THE CONTROL TUBE "U" (8970-005) WILL CAUSE RAPID OPENING OF THE VALVE! SYSTEM DAMAGE COULD OCCUR!

NOTE: WATER VOLUME REQUIRED TO FULLY OPEN OR CLOSE 3" VALVE - 1 cup.

✓ Check the filter to assure it can pass adequate water flow. This can be deceptive because when you unhook the line from the filter some water can still flow. If the valve is equipped with an external filter open the valve on the filter to check flow and flush the filter. A partially blocked filter will reduce the valve closing response time. If little or no flow is present then clean the filter.

✓ Check the sleeve for damage (*8961-001 or 8961-002 depending upon the valve pressure rating*). To do this, point the manual selector valve to the "OPEN" position. See chart above to determine how much water should flow from the sleeve chamber through the "OPEN" port. If more than the specified volume of water continues to flow, then the sleeve has been punctured and must be replaced.

SYMPTOM: Valve will not open or has excessive pressure drop when the manual selector valve is in the "OPEN" position.

CHECK ITEMS: ✓ Check all tube lines and fittings for blockages and kinks. If there are no obstructions then check that upstream pressure is adequate. The 200 psi rated valve starts to open at 8 psi and is fully open at 30 psi. The 80 psi rated valve starts to open at 10 psi and is fully open at 18 psi. The 50 psi rated valve starts to open at 8 psi and is fully open at 10 psi.

✓ Check the total volume of water in the sleeve chamber to verify that the valve is between full open and full closed. This water volume can be measured as it flows from the "OPEN" port. (*See table above for volume of each valve size.*) If there is still a large pressure drop across the valve then debris could be caught blocking the flow on the upstream side of the cage. This type of obstruction will require removing the valve from the line and cleaning out the debris.

SYMPTOM: Electric solenoid will not open or close the valve when in "AUTO" control mode.

CHECK ITEMS: ✓ Check that the valve can be opened or closed manually and verify that there is adequate inrush power to the solenoid. The solenoid must have power to open the valve.

✓ Disassemble the solenoid to make sure the plunger is not stuck and check the coil for continuity. If the solenoid coil is burned out then replace the coil.

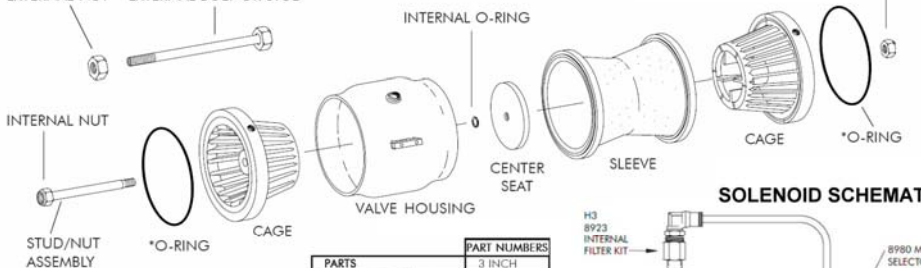
NOTE: BE SURE TO DRAIN THE SYSTEM TO REDUCE THE POTENTIAL OF WINTER FREEZE DAMAGE.

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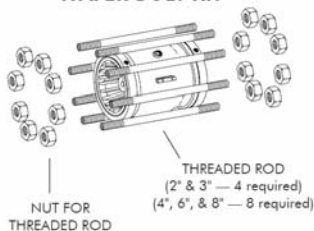
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BASIC VALVE PARTS

FOR 2" & 3" THREADED & VICTAULIC ONLY:
EXTERNAL NUT EXTERNAL BOLT OR STUD

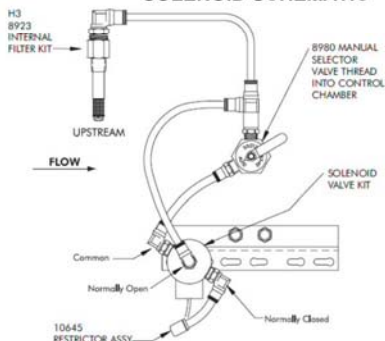


WAFER BOLT KIT

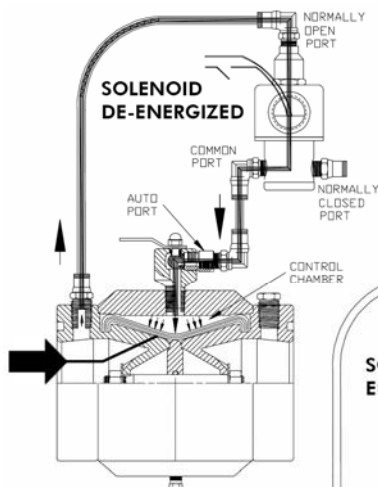


PARTS	PART NUMBERS
EXTERNAL NUT (3)	9585
EXTERNAL BOLT (3)	9584
INTERNAL NUT (2)	***9402
STUD/NUT ASSEMBLY	9755
CAGE — THREADED	9382-001
— VICTAULIC	9334
— WAFER	9380
VALVE HOUSING (1)	9381
INTERNAL O-RING (1)	9483
O-RINGS (2)	9484
CENTER SEAT (1)	9385
SLEEVE (1)	9383-002
18-80 PSI	9383-003
30-200 PSI	9383-001
NUT FOR THREADED ROD	9181
THREADED ROD	9180
WASHER	9183

SOLENOID SCHEMATIC

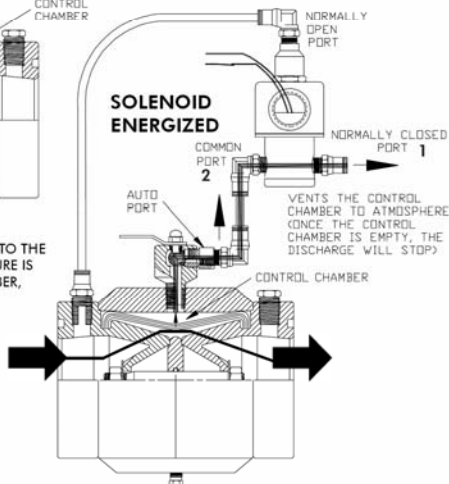


THREE-WAY SOLENOID CONTROL OPERATING LOGIC



NOTE: WITH NO POWER APPLIED TO THE SOLENOID, THE UPSTREAM PRESSURE IS APPLIED TO THE CONTROL CHAMBER, KEEPING THE VALVE CLOSED.

VOLUME OF CONTROL CHAMBER	
3" VALVE	1/4 QUART 1/4 LITER



NOTE: WITH POWER APPLIED TO THE SOLENOID, THE CONTROL CHAMBER IS VENTED TO ATMOSPHERE, DISCHARGING ITS CONTENTS UNTIL THE VALVE IS FULLY OPEN.