



BLUE STANDARD SOLENOID VALVES “S-SV” ASSEMBLY, INSTALLATION & OPERATING INSTRUCTIONS

A. BEFORE INSTALLING

1. Use within the recommended ranges of pressure, temperature, and chemical compatibility. The ultimate determination of material compatibility is previous successful use in the same application.
2. Minimum temperature 40°F (5°C)

The following chart is to provide overall guidelines on various thermoplastics relative to their pressure and temperature relationships. The information should be used to determine limitations of the various materials rather than selection of a specific valve since each individual valve model has its own pressure ratings. Refer to specifications table in the product catalog.

MATERIALS TEMPERATURE vs. PRESSURE								
MAT'L	MAX. TEMP	MAXIMUM INLET PRESSURES AND TEMPERATURES						
		75°F (24°C)	110°F (43°C)	140°F (60°C)	180°F (82°C)	220°F (105°C)	240°F (116°C)	284°F (140°C)
		PSI Bars	PSI Bars	PSI Bars	PSI Bars	PSI Bars	PSI Bars	PSI Bars
PVC	140°F (60°C)	140 9,6	100 6,8	40 2,7	N.R.	N.R.	N.R.	N.R.
CPVC	180°F (82°C)	140 9,6	100 6,8	80 5,4	40 2,7	N.R.	N.R.	N.R.
GPP**	220°F (105°C)	140 9,6	120 8,2	100 6,8	80 5,4	40 2,7	N.R.	N.R.
PVDF	284°F (140°C)	140 9,6	130 8,8	120 8,2	100 6,8	60 4,1	30 2,0	10 0,7

N.R. = Not Recommended GPP** = Glass-Filled Polypropylene

B. INSTALLATION

1. The valve must be installed in the proper flow direction as indicated by the flow arrows. Maximum backpressure rating is 80 PSI.
2. It is not intended for air or gas service. Plastic materials can degrade in ultraviolet (UV) light or sunlight.
3. Visual Identification of Material

BODY MATERIAL	COLOR
“PV” (Geon) (PVC)	DARK GRAY
“CP” (Corzan) (CPVC)	LIGHT GRAY
“PP” (Polypropylene)	TRANSLUCENT WHITE
“PF” (Kynar) (PVDF)	TRANSLUCENT WHITE/YELLOW

Caution: Polypropylene and PVDF (Kynar) often look similar and may be difficult to distinguish by color. Do not install in you system if you are not sure.

4. Threaded Connections – A suitable thread sealant (ex. Teflon tape) should be applied to male tapered threads to assure a “leak-tight” seal. The assembly need only be made “hand-tight” followed by a quarter (1/4) turn with a strap wrench. Do not over tighten or use pipe wrenches on plastic pipe components.
Caution: Teflon tape will “string” as pipe threads are joined. Loose “strings” could lay across the seating surface and prevent the valve from completely closing. To avoid this problem, clean out old tape, and do not apply tape to the first thread. Connections should be made only to plastic fittings; metal pipe should only be installed with an intervening plastic nipple. Metal pipe and straight threaded pipe tend to cut, stretch, and distort the plastic bodies, which could result in cracking or leaking over time.
5. Non-Threaded Connections – for solvent cementing or heat fusion, contact your distributor.

C. OPERATION

All Blue Standard solenoid valves (S-SV) are direct acting, 2-way normally closed (NC) valves. Applying the appropriate voltage opens the valve, and discontinuing the voltage closes the valve. Because a spring closes the valve, they are considered “Fail-safe”. These valves may be energized continuously. The coil will warm up when left energized.



INSTALLATION

Please check the nameplate for correct part number, pressure ratings, and voltage. Also check the flow label located on the side of the valve body to insure proper flow direction. If flow label is missing, the inlet can be distinguished from the outlet port. The outlet is always deeper than the inlet.

Blue Standard solenoid valves operated by 17 watt coils can be mounted horizontally or vertically; however, vertical mounting (coil up) is preferred since it results in longer cycle life.

Valves should NEVER be mounted with the coils on the bottom. When installing these valves in a piping system they should only be connected to plastic pipe or plastic fittings. All male threads should be wrapped with PTFE tape or other acceptable pipe sealant. To prevent stringing of the PTFE tape into the inner workings of the valves, be sure to keep the tape at least one full thread from the end of the pipe.

Whenever PTFE tape or other pipe sealants are used there is a tendency to over-torque because of the reduced friction. Therefore, connections should only be made hand-tight followed by one quarter turn more. Greater forces tend to stretch or distort the plastic bodies which could lead to future ruptures. Strap wrenches may be used for assembly. Metal pipe wrenches should NEVER be used as they can deeply scratch the plastic surfaces causing additional stresses.

Wiring should comply with all applicable electrical codes, local or otherwise. Care should be taken to insure that the solenoid coil leads cannot be pulled from the coil. If flexible conduit is not used to connect to the solenoid housing the supply conduit must be properly aligned and supported to prevent stressing the solenoid assembly. See Wiring Diagram.

BACKPRESSURE

The maximum back pressure rating for all valves is 80 psig.

Back pressure can result in two (2) ways. First, from a separate pressure source in the downstream piping. And second, from the flow of liquid through the downstream piping. If the back pressure rating is exceeded in the first situation the valve will open and a reverse flow will take place if there is a lesser inlet pressure. In the second situation the valve will not close and flow will continue. When back pressures are caused by the liquid flow it naturally follows that any restriction in the downstream piping will cause even higher back pressures. This is especially true with spray nozzles.

D. THE BLUE STANDARD SOLENOID AND COIL

These coils are rated 17 watts when energized at room temperature. When left energized for long periods of time the coils will warm up and the wattage will drop. This is normal, and should be of no concern. It is imperative that the user apply the correct voltage to the coil. This is printed on the coil. The coils are UL rated and are suitable for outdoor use (IP65 rated).

IMPORTANT: These solenoids MUST be used with the connector that was supplied by the factory, or the same connector part number if replaced for any reason. If it is used with a standard DIN connector, the valve will not function properly and could be damaged.

The connector supplied with these valves serves a special function. Every time the connector is energized, it allows full voltage to be applied to the coil for approximately 800 milliseconds (8/10th of a second). After that time period, the voltage is reduced because the solenoid does not require full voltage to remain open; it only requires full voltage to move the valve from closed to open position. This reduction in voltage saves energy, and reduces the amount of heating the coil would normally experience with full voltage. The connector also rectifies the input voltage from AC to DC. Rectified voltage has advantages over AC voltage.

1. DC coils are quiet, whereas AC coils are subject to AC hum, and occasionally buzz.
2. The coil can be on/off cycled without increasing the heating like AC coils do.
3. In case the coil is energized without being mounted on the valve, no harm is done. An AC solenoid will overheat and fail.

Only one connector part number is required regardless of the coil voltage. The one connector will function at all voltages from 15 to 240 AC or DC. The connector part number is 9885.

COIL SPECIFICATIONS

Insulation class	F
Watts (maximum)	17 for 800 mSec, approximately 4 watts after initially energized.
Duty cycle	100% (may be energized continuously)
Max. ambient temp	35°C (95°F)
Current	See table below
Enclosed rating	IP65

COIL PART NUMBER	MAXIMUM CURRENT (800 mSec)	HOLDING CURRENT
9897-024	3	0.75
9897-120	0.5	0.11
9897-240	0.34	0.1



INSTALLATION CAUTION: Electrical wiring must be performed by qualified persons in accordance with all national and local codes. Three wire (single phase, grounded) is required. The green wire is the ground wire. The other 2 wires (black and white) are connected to the voltage supply, and are NOT polarity sensitive.

E. MAINTENANCE

The major causes of solenoid valve failure are usually either chemical incompatibility, damage from water hammer or foreign matter in the valve. Water hammer may be minimized by adhering to a safe piping velocity of 5 feet per second. Commonly encountered foreign matter includes pipe sealants, mineral and salt deposits, and other solids.

Before disassembling a valve for examination or cleaning make sure all electrical power and fluid line pressure are turned off. It should be noted that even after a pump is shut down to eliminate fluid line pressure there may still be pressure trapped in the piping system. One example of this would be head pressure located in a vertical run of pipe. If this situation is possible, extreme caution should be exercised when removing the top housing from the valve body. It would be advisable to place a clear plastic shield over the valve during disassembly to avoid injuring a worker.

CAUTION: Avoid breathing dangerous vapors and avoid skin contact with chemicals.

When removing foreign matter or deposits on the valve seat or other internal parts, care should be taken not to scratch or nick the parts being cleaned.

After reassembly, operation should be checked by energizing the solenoid coil. If the valve is operating properly, a sharp metallic click will usually be heard when the valve's coil is energized.