2022

ISIMET S-Series Installation Instructions

S-Series Enclosure

Installation Manual

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ISIMET, LLC 103 W CJ Wise Pkwy Naples, TX 75568
903-781-6994

ISIMET S-Series Enclosure, Rack Assembly, Valve Assembly, Solenoid
Installation Manual

Printed in the United States of America.

Important Warnings

Indoor Storage and Installation:

Installers shall be responsible for protecting the product from rain, paint, liquids, construction and drywall debris and materials, dust, and extreme heat or cold (above 90°F and below 32 F°). Such exposure may result in equipment malfunction/failure.

Preventing Transient Voltage:

High-Voltage (120V or greater) wiring MUST be housed in separate conduit from control wire (24V AC/DC or 12VDC).

Codes and Experience:

Only qualified, licensed plumbers and electricians within the governing jurisdiction should perform this installation and/or service this equipment.

All ADA, local plumbing and national electrical codes must be followed.

Pressure Testing

Pressure testing for fuel gas system solenoids should not exceed 15 psi at the body of this valve due to potential damage caused by excessive pressure applied to the diaphragm.

Solenoid Warnings

Solenoid coils should not be energized unless secured to the valve core. Coils will heat up during normal operation. Temperatures greater than 150° F are not uncommon.

Cautions and Notices!

- Verify the output voltage of the controller matches the solenoid coil voltage.
- Use 18AWG for control wiring and low-voltage solenoid power wiring (24VAC, 24VDC, 12VDC).
- Use 14 or 12 AWG for 120V solenoids (a licensed electrician must perform this task).
- 120V solenoids and their respective enclosures must be grounded properly according to the NEC NFPA 70.
- Coil voltage of the solenoids must match the output voltage of the controller, unless a relay is used.
- Remove the solenoid and pressure transmitter (if used) prior to flushing the piping system.
- Follow all local and national electrical and plumbing codes and standards.

DO NOT

- DO NOT work on live voltages. Disable power before servicing or rewiring the solenoids.
- DO NOT use the same conduit for control wiring as power wire. i.e. control wiring should be separated from the wiring used to power the solenoids.
- DO NOT exceed 15 psi unless the solenoid diaphragm is completely removed (Testing Purposes Only).

S-Series Enclosure Fittings

Inlet & Outlet Fittings: Two (2) sets of fittings (shown below) for each station are provided with the enclosure dependent upon the style of enclosure specified.

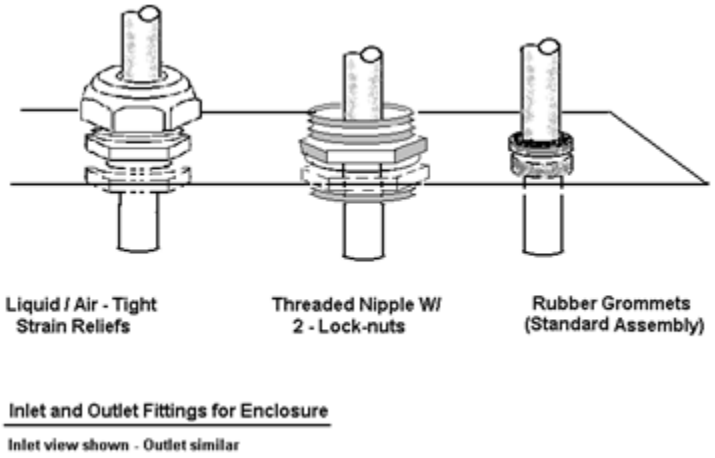


Figure 1: Types of S-Series Enclosure Fittings

- Sealant/Adhesive should be applied around the attachment threads before insertion into the enclosure holes for all Liquid Tight and Liquid Tight with Vent Enclosures.

- Connections to secondary containment piping should be connected to outlet end of vent fittings with interior ends left open.

NOTE: *Unless otherwise noted, the S-Series Enclosure has a NEMA 1 Rating. It is not intended for use in wet areas. The installation location of the S-Series Enclosure should provide sufficient distance from Emergency Showers, Eye Wash Stations, and/or any other obstructions.*

Mounting the S-Series Enclosure

The S-Series must be mounted in a location that is easily and readily accessible. There are two options for mounting the S-Series: Surface Mount (page 4) or the recommended Flush Mount (page 5). Skip to the required section for installation instructions.

Notes of Consideration:

- The S-Series Enclosure should be located away from obstructions that could prevent the door from fully opening and closing.
- Each valve assembly has arrows indicating the direction of flow for gas, water, etc…
- Read all cautions and notices located in the S-Series Enclosure prior to installation.

Surface Mount Installation (Skip ahead for Flush Mount Installation)

Prior to installation, verify the following:

- Wall finishes are complete.
- Wall cavity has sufficient backing or support to ensure a firm mounting of the enclosure to the wall surface.

1. Mark and drill four holes for mounting the S-Series Enclosure. These locations should be free of any obstructions and align with studs or other proper support.

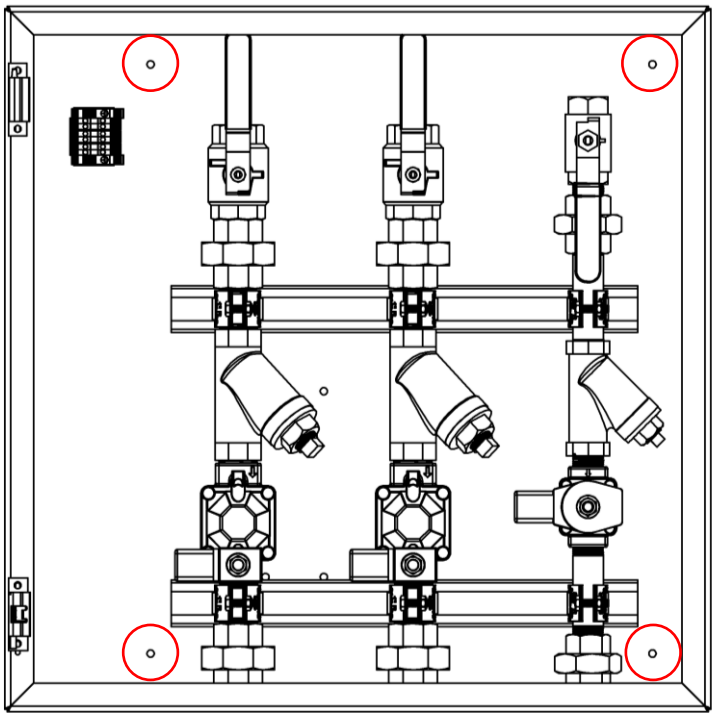


Figure 2: Surface Mount Drill Locations

2. Level and secure the S-Series Enclosure to the surface using appropriate screws.

Flush Mount Installation (Recommended)

1. Use the included screws to install the Flush Mount Flanges on all four corners of the S-Series Enclosure.

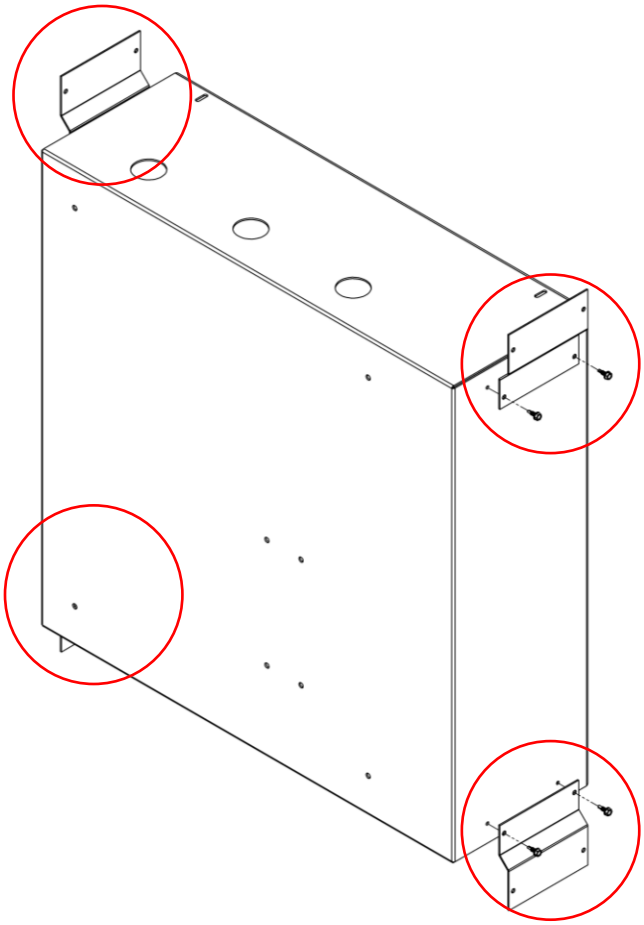


Figure 3: S-Series Enclosure Flush Mount Flange Installation

2. Test fit the S-Series Enclosure and verify the following:
    - Proper clearance from obstructions
    - Measure enclosure dimensions and check for adequate spacing
    - S-Series Enclosure fits between two standard wall studs
        - Add additional studs, as necessary, to ensure enclosure is properly secured
    - Flow direction (gas, water, etc…)
    - Sticker labels, cautions, and/or warnings
    - Type and thickness of wall finishing, such as drywall, to determine flush fitment
    - Confirm or add studs to both sides of the enclosure to properly secure the enclosure
    - Aligns flush with the finished wall surface

3. Place the S-Series Enclosure next to the stud accounting for finished wall clearance [See Figure 3.

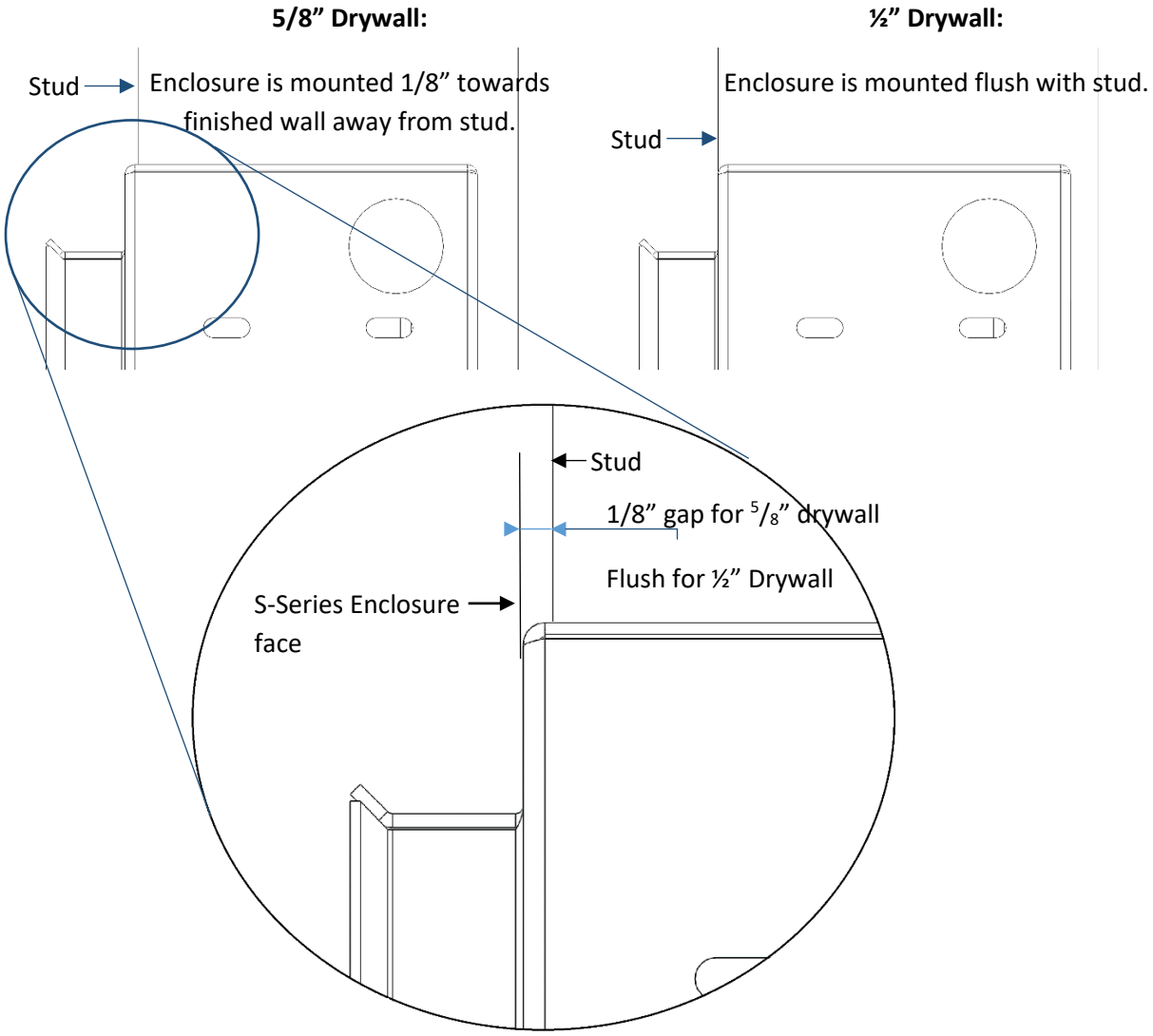


Figure 4: Flush Mount Installation Accounting for Finished Wall Thickness

4. Secure the S-Series Enclosure to the studs using appropriate screws installed through the four Flush Mount Flanges from Step 1.

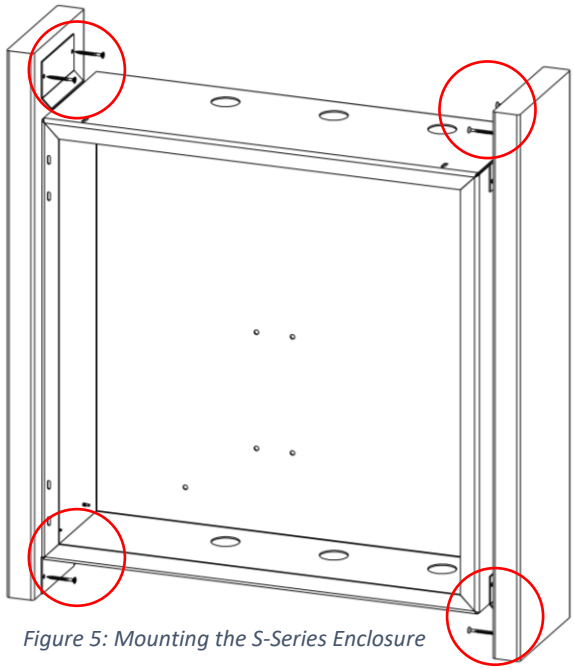


Figure 5: Mounting the S-Series Enclosure

Additional Mounting Installations and Considerations (Special Applications)

Where specified by the project design engineer, enclosures may be suspended from structural members or elevated above a floor surface. The use of industry standard support assemblies including threaded rod, strut channel and structural angle is recommended when supporting the enclosure by means other than described previously in this manual.

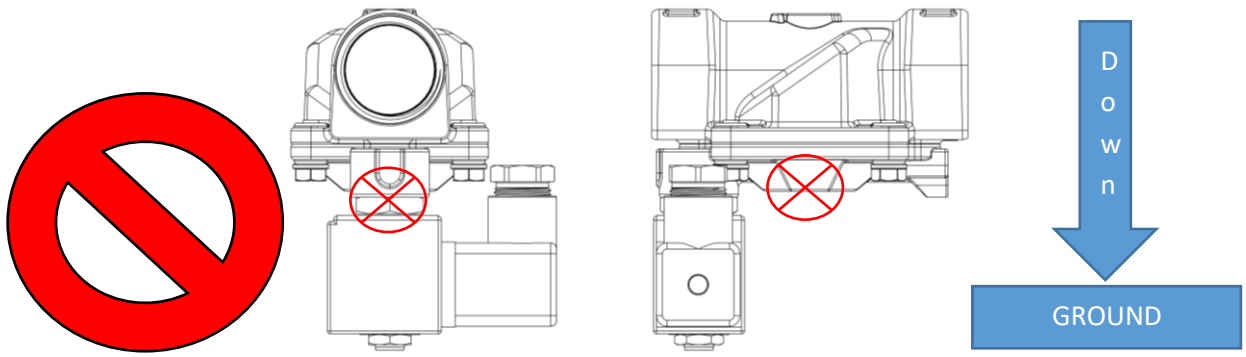
ISIMET recommends that good industry practices be followed and that the support of the enclosure and integral piping assemblies be separate from the support of the field installed piping systems. Do not support the enclosure directly from the connected piping.

Installation should not restrict access to the valve assemblies for the purposes of routine maintenance. The S-Series Enclosure should be installed where it is readily and easily accessible. A clear area at least 36" directly in front of the enclosure's opening must be provided. Do not mount this unit above piping or other equipment or by methods that would restrict reasonable access for servicing.

Solenoid Orientation

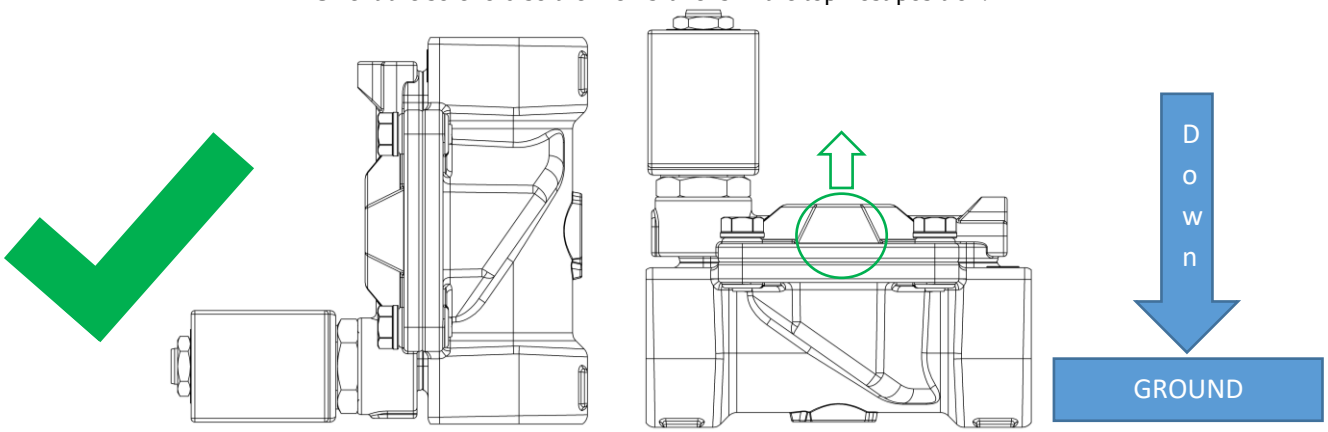
Solenoids should be rotated to prevent the membrane from facing the ground. This prevents sediment and other debris from accumulating, potentially restricting the flow or closure of the solenoid.

DO NOT:



DO:

✓ Orient the solenoid so the membrane is in the topmost position.



Piping and Plumbing Installation

A licensed pipe fitter and/or plumbing contractor should perform these steps following all relevant codes, regulations, and procedures.

Notes of Consideration:

- All factory piping connections have been pressure tested prior to shipping.
- When making service piping connections, provide back-up restraints, as needed, at the assembly to prevent the turning of the valve assemblies.
- Disrupting the factory piping connections may cause leaking.
- The assemblies are mounted on aluminum strut using nylon pipe clamps in order to prevent harmonic hum from resonating through the corresponding piping systems and building structure.
- All liquid tight enclosures should have sealant/adhesive applied at all penetrations and any connecting fittings should be liquid tight.
- The piping joints within the enclosure should be tested to assure tight connections.
- Do not exceed 15 psi test on any fuel gas system solenoid. It may result in damage to the coil and/or membrane.

- Typical piping orientation is top-down; however, the piping orientation is dependent on the S-Series configuration ordered. Look for the arrow on the solenoid for correct flow direction.

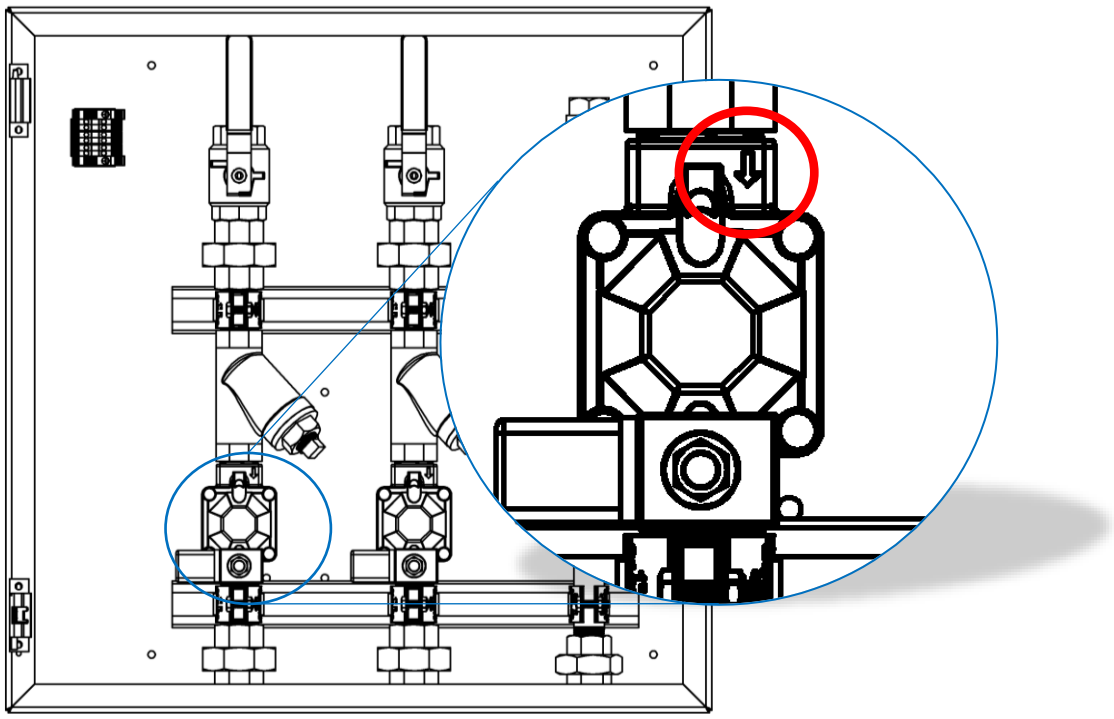


Figure 6: Flow Direction Arrow on Solenoid

- Install the appropriate piping using the included inlet and outlet fittings.

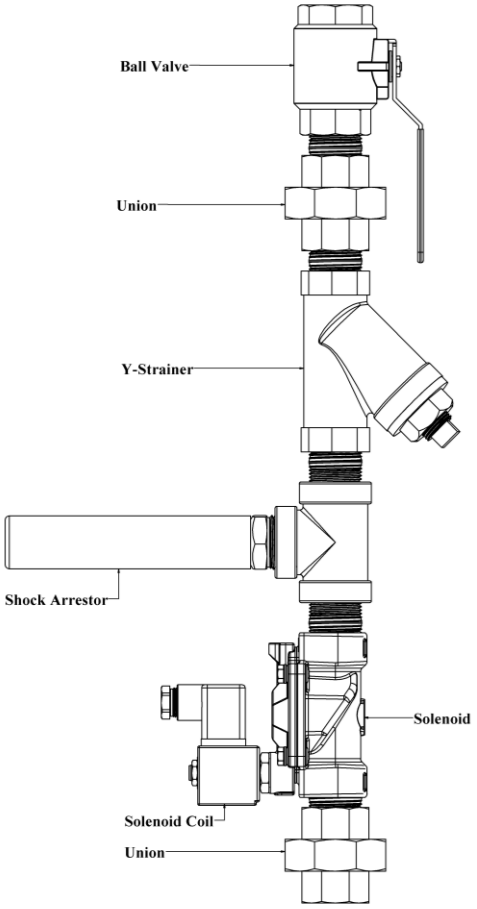


Figure 7: Typical Water Valve Assembly

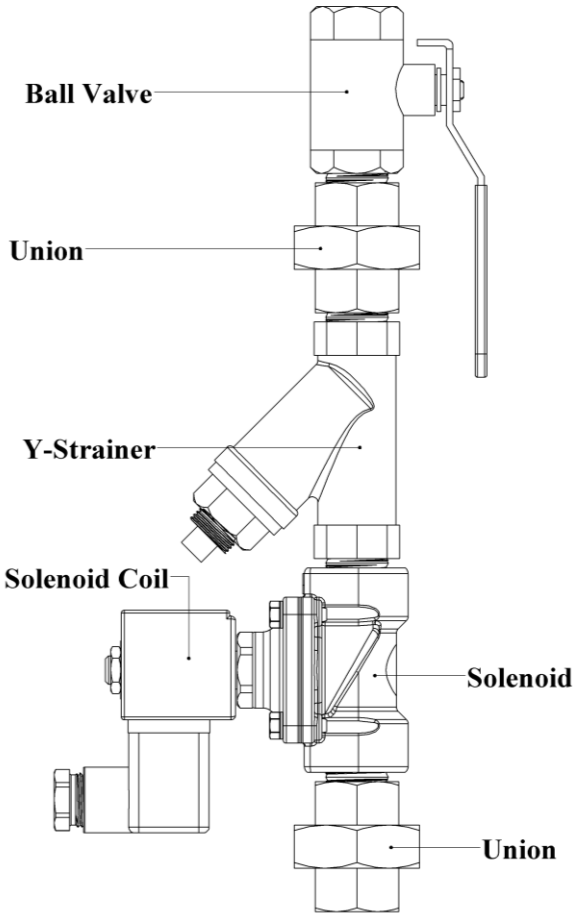


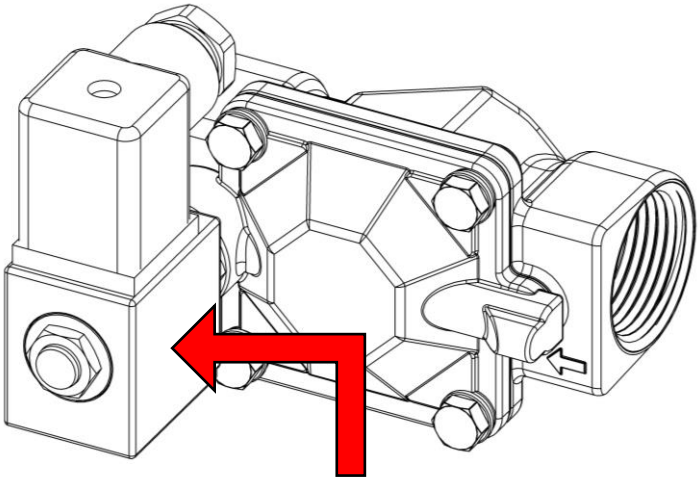
Figure 8: Typical Gas Valve Assembly

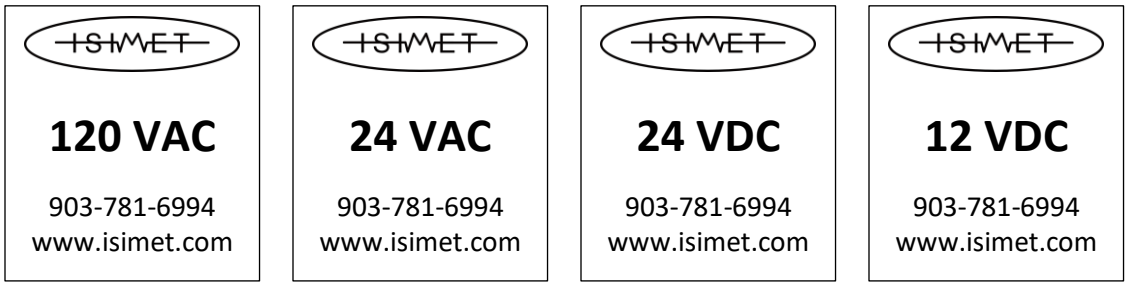
- Before pressure testing, the solenoid must be protected to prevent damage when exceeding 15 psi.
  - ✓ Either remove the valve assembly and install a temporary pipe between the unions or remove the internals of the solenoid prior to pressure testing the system.
  - ✓ Remember to reinstall everything as it was after pressure testing and flushing of the system is completed.
- Thoroughly flush the piping system prior to operation.
  - ✓ It is recommended to remove the solenoid membrane prior to flushing the system to prevent any damage.

Wiring Installation

The S-Series Enclosure is offered in both high and low voltage versions. Wiring installation instructions will vary based on the type of voltage utilized. High voltage wiring should only be performed by a licensed electrical contractor following all electrical codes and regulations.

1. Examine the labels on each of the solenoids to verify the solenoid coil voltage.



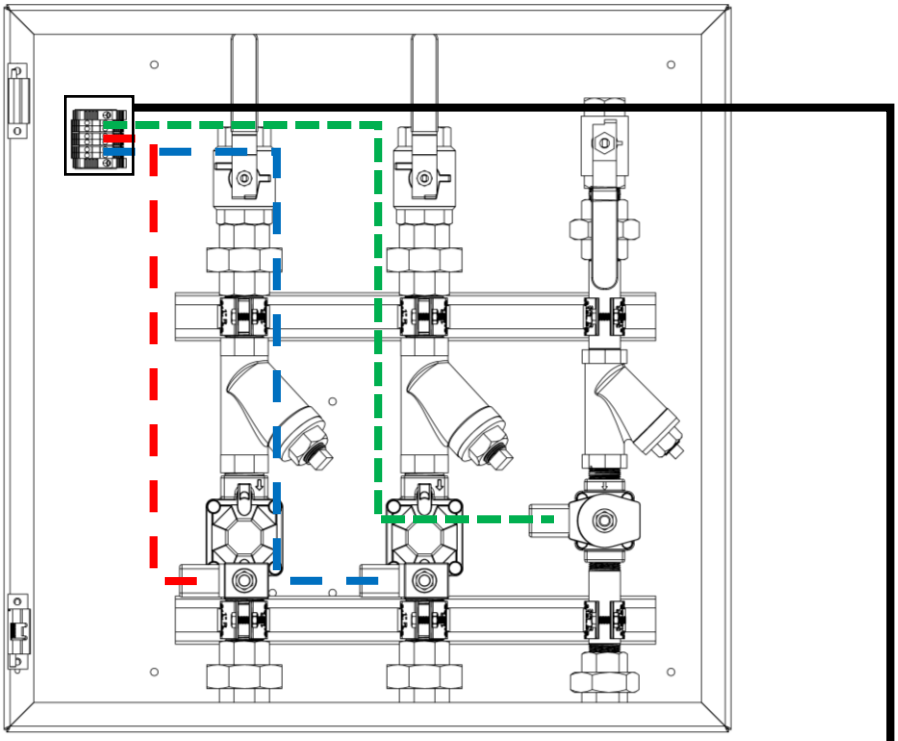


2. **STOP** if the solenoid is labeled **120 VAC** (high voltage). This type of voltage should *only* be wired or worked on by a licensed electrical contractor.
3. For the remaining low voltages (24 VAC, 24 VDC, and 12 VDC), it is recommended to use 18/4 AWG wiring.
4. Verify that the output power of the utility controller being used matches the solenoid coil voltage.

Utility Controller(s)	Output Voltage
LAv2-**HV** & DLA-**HV**	120 VAC
LAv2-**LV**	24 VDC
Default **UtC** – Utility Controller	24 VAC
DLA-**LVL**, UtC/LAv2 with ***Pulse Board***	12 VDC

***Note**: In some instances, a low-voltage controller is used to control high-voltage solenoids. These enclosures will be labeled and utilize high-voltage relays to control the solenoids.*

5. Follow the wiring instructions from the specific utility controller used.



Note: *Dashed lines indicate connections are pre-made.*

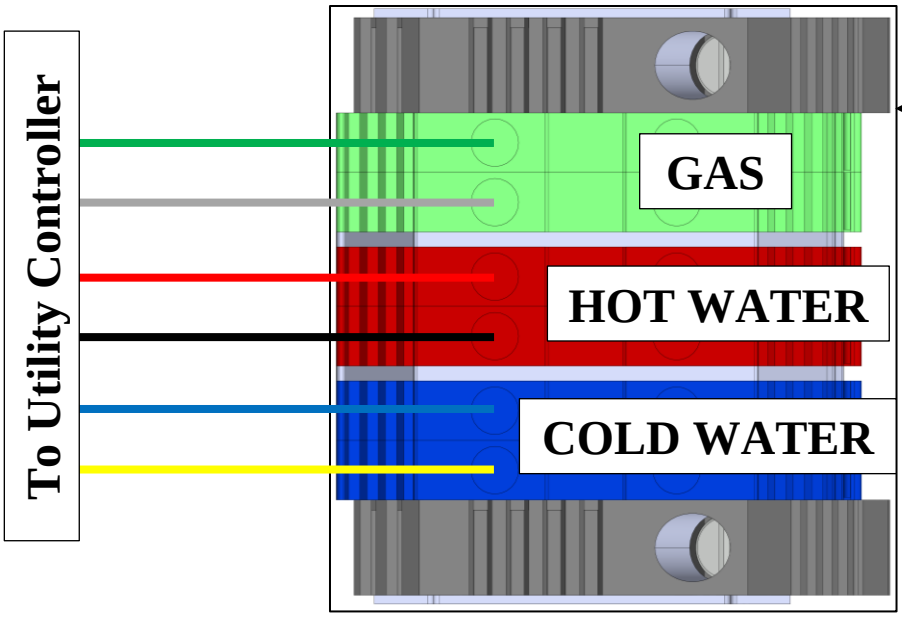


Figure 9: Example Wiring for S-Series Terminal Block

- ✓ Wiring instructions will vary based on the controller used. Review the appropriate utility controller instructions.
- ✓ Wiring polarity does *not* matter unless using *12 VDC* Latching Solenoids (i.e. DLA-LVL or Pulse Board).

WARNING! Do *NOT* remove the solenoid coil from the solenoid when energized! This will cause permanent damage to the solenoid coil.

Flush Mount Installation (Continued)

Wait until the walls have been finished before continuing.

1. Install the flush trim plate after the walls have been finished.
2. Attach the trim to the S-Series Enclosure using the supplied screws.

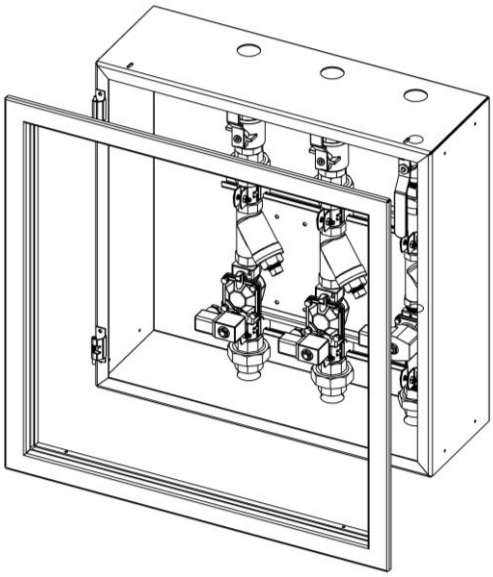


Figure 10: Flush Trim Plate Installation

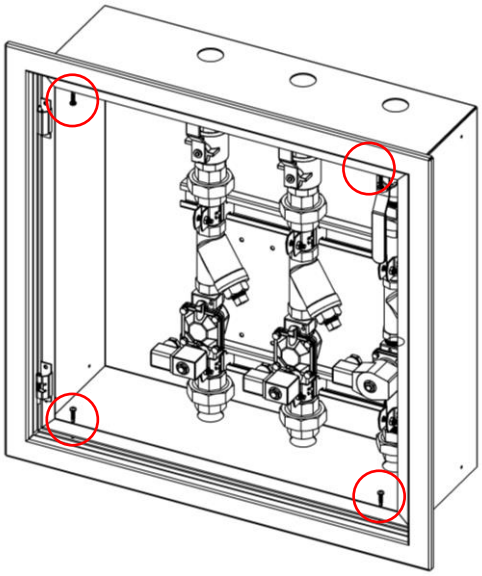
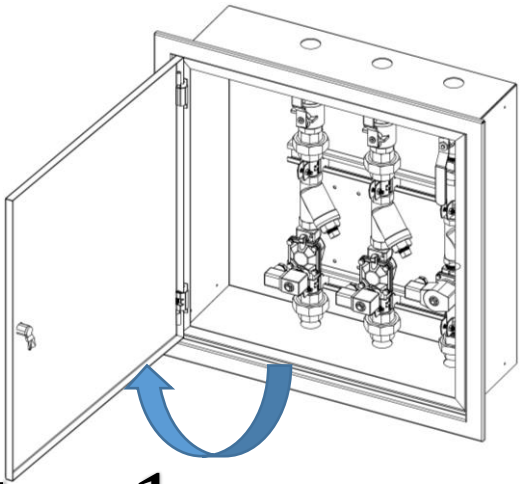


Figure 11: Install Screws into Flush Trim Plate

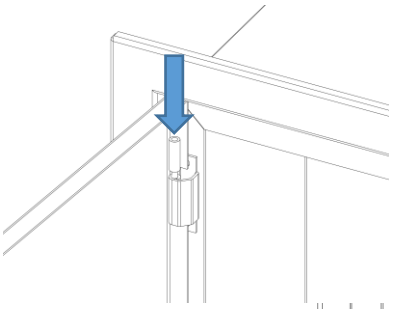
Hinged Door Installation

Install the hinged door.



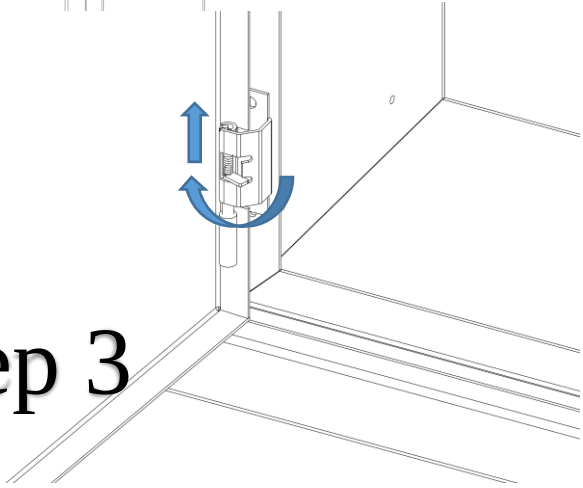
Step 1

Position the door at 90° – 100° of enclosure.



Step 2

Slide the top hinge pin onto the fixed hinge post at the top of door.



Step 3

Rotate the spring hinge and press up to insert the door hinge. Release spring to lock hinge in place.

Routine Maintenance

At a minimum, annual examination and testing of the piping system should be performed. Solenoids should be routinely cleaned out and tested to ensure they are functioning properly. Periodically, verify that the solenoid valve orifice is free of foreign debris and all systems work as intended.

Note:

The solenoids included are designed to be rested within a 24-hour period as they can reach very high temperatures (140º F). Resting the solenoids prolongs their lifespan and reduces maintenance. ISIMET believes that utilities should default to an OFF-state as this is the safest and most efficient way to prevent accidents and/or vandalism.

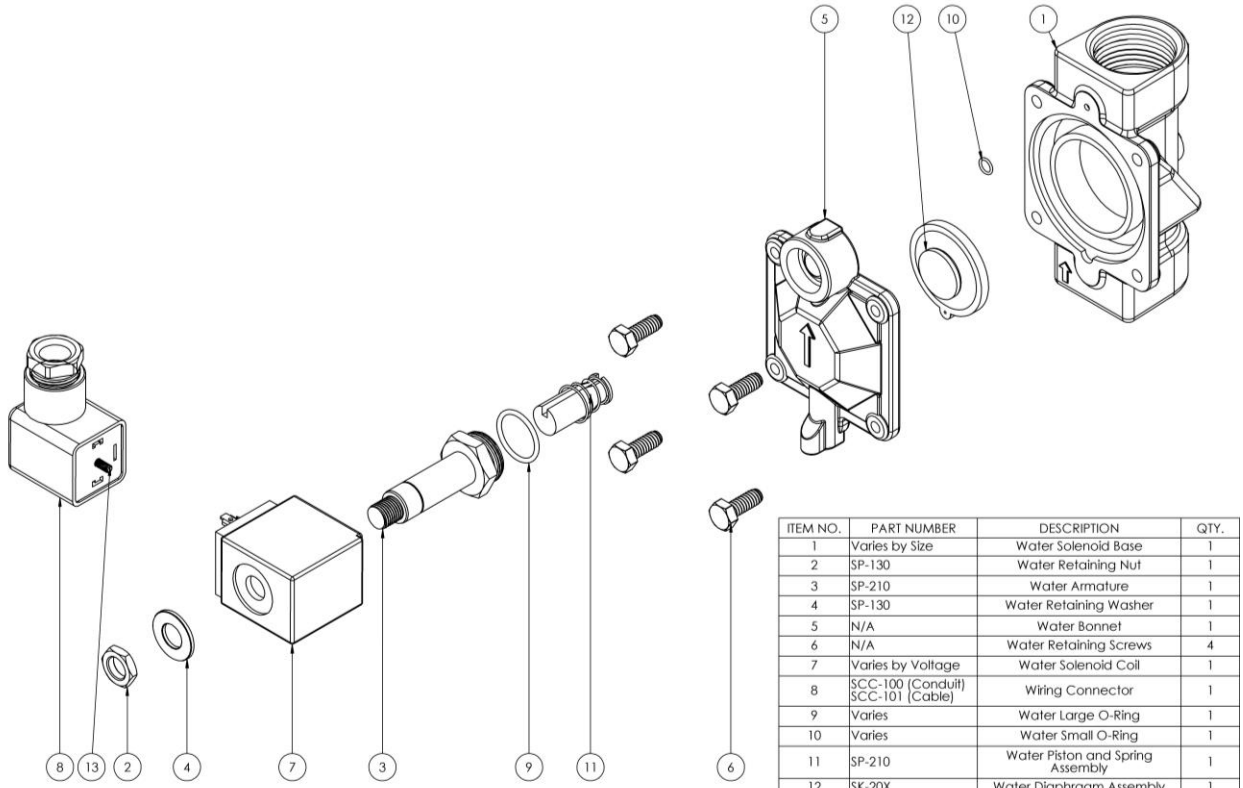
Solenoid Electrical Specifications

Gas

Solenoid Series	Coil Voltage	Resistance	Power Consumption	Inrush	Holding
300	24 VAC	~ 4 Ω	13 W	45 VA	27 VA
	120 VAC	~ 90 Ω	13 W	45 VA	27 VA
	24 VDC	~ 28 Ω	19 W	N/A	N/A

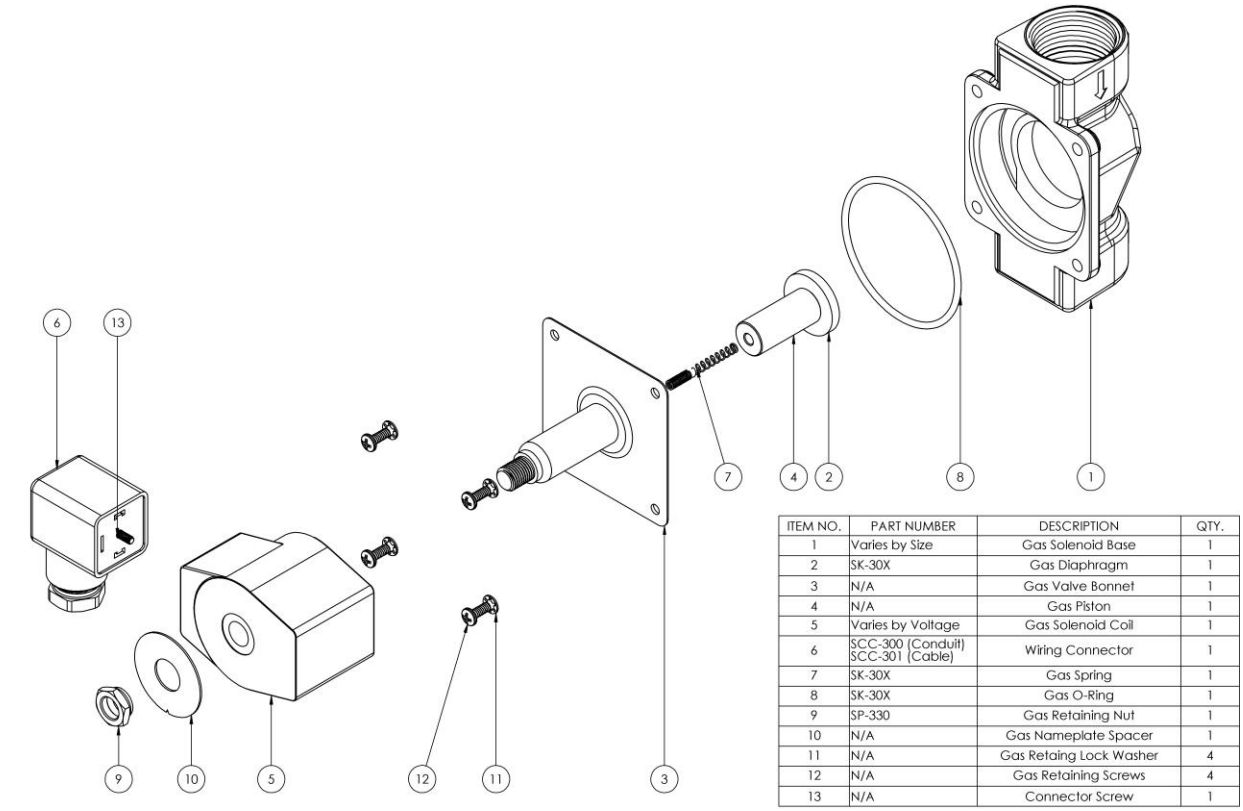
Water and Other

Solenoid Series	Coil Voltage	Resistance	Power Consumption	Inrush	Holding
200	24 VAC	~ 8 Ω	8 W	25 VA	14.5 VA
	120 VAC	~ 180 Ω	8 W	25 VA	14.5 VA
	24 VDC	~ 50 Ω	11 W	N/A	N/A
	12 VDC	~ 58 Ω	2.5 W	N/A	N/A



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	Varies by Size	Water Solenoid Base	1
2	SP-130	Water Retaining Nut	1
3	SP-210	Water Armature	1
4	SP-130	Water Retaining Washer	1
5	N/A	Water Bonnet	1
6	N/A	Water Retaining Screws	4
7	Varies by Voltage	Water Solenoid Coil	1
8	SCC-100 (Conduit) SCC-101 (Cable)	Wiring Connector	1
9	Varies	Water Large O-Ring	1
10	Varies	Water Small O-Ring	1
11	SP-210	Water Piston and Spring Assembly	1
12	SK-20X	Water Diaphragm Assembly	1
13	N/A	Connector Screw	

Figure 12: Typical ½" - ¾" Water Solenoid (Larger Sizes will be slightly different)



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	Varies by Size	Gas Solenoid Base	1
2	SK-30X	Gas Diaphragm	1
3	N/A	Gas Valve Bonnet	1
4	N/A	Gas Piston	1
5	Varies by Voltage	Gas Solenoid Coil	1
6	SCC-300 (Conduit) SCC-301 (Cable)	Wiring Connector	1
7	SK-30X	Gas Spring	1
8	SK-30X	Gas O-Ring	1
9	SP-330	Gas Retaining Nut	1
10	N/A	Gas Nameplate Spacer	1
11	N/A	Gas Retaing Lock Washer	4
12	N/A	Gas Retaining Screws	4
13	N/A	Connector Screw	1

Figure 13: Typical ½" - ¾" Gas Solenoid (Larger Sizes will be slightly different)