

#60-1267-019 Dual Air Valve Package for SyriXus® 65x Installation Instructions



Instruction Sheet #60-1262-279
Revision -, June 2022

NOTE: The air actuator tubing is shown partly cut away for clarity of features.

Overview

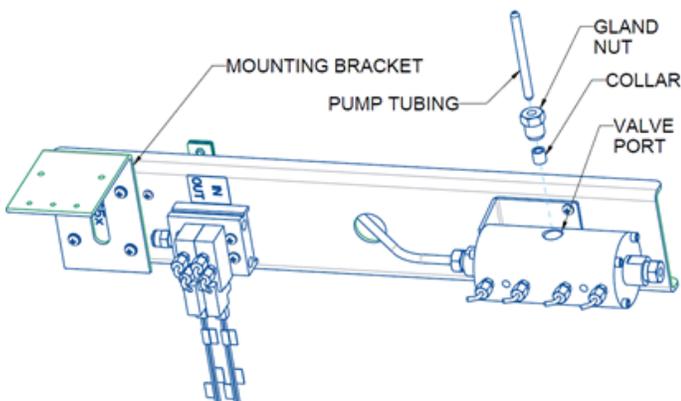
The SyriXus 65x single air valve option is designed to automatically allow the SyriXus 65x pumps to operate continuously under software control. The SyriXus pump will switch between refill and delivery, allowing the pump to cyclically operate without user input. The controller can also be manually instructed to refill or deliver, and the appropriate valve will be activated for proper delivery.

The single air valve option mounts to the side of the pump and can be optionally mounted on either side of the pump. As shipped from the factory, the valve is configured to mount to the right side. This guide includes instructions for mounting the valve on the left side.

Parts of the Valve Assembly

The valve assembly will be fully assembled at the factory, but the reagent supply tubing and air supply tubing are shipped unattached to prevent damage to the plastic tubing during shipping. Loose fittings, screws and washers are supplied in a separate plastic bag.

Prepare the Valve Assembly for Installation



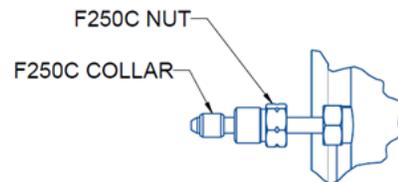
Remove the valve assembly from the packaging and identify the valve port to which the tubing connected to the pump will be installed. Notice there is lettering on the opposite end of the assembly relative to the valve identifying the SyriXus 65x model number.



CAUTION

If the F250C collar is not properly positioned, it may not be possible to create an acceptable seal between the pump and pump tubing.

ATTENTION: Do not use PTFE tape with these fittings. Although they may look like NPT fittings, they are not.



Place the F250C nut onto the pump tubing, oriented as shown in the figure above. Apply a small amount of metal-based thread lubricant on the gland nut threads. Avoid applying lubricant to the threads of the collar or the tubing. Push the nut well onto the tubing to reveal the coned and threaded end of the pump tubing. Thread the collar onto the pump tubing.

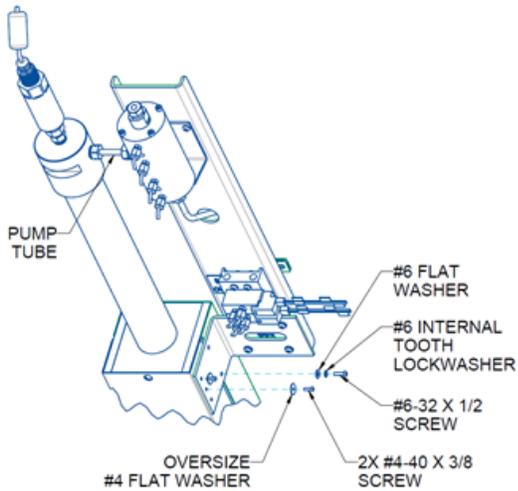
NOTE: Left Hand Threads!

Position the collar so that it is further onto the tube than any portion of the coned end, but no more than two threads beyond the coned end. Apply a process tolerable lubricant such as silicone grease to the coned end of the tubing to assist in the sealing process.

ATTENTION: Do NOT use PTFE pipe tape (or similar) with this fitting. It is not an NPT fitting.

Insert a #6-32 x 1/2 screw into a #6 internal tooth lock washer, then insert the #6-32 x 1/2 screw with lock washer into a #6 flat washer. Next, insert two #4-40 x 3/8 screws each into an oversize #4 flat washer. Place these screws and washers within convenient reach near the pump.

Position the valve assembly on the side of the pump with the pump tube aligned with the port in the cap. While holding the valve assembly in place, thread the port fitting into the pump cylinder cap. Tighten the gland nut on the tubing finger tight.

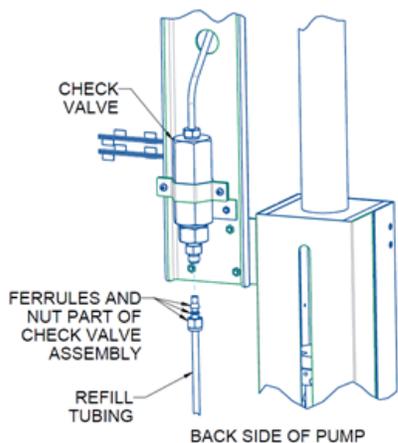


Continuing to hold the valve assembly in place, insert the #6 screw with washers into the valve mounting bracket in the bottom hole closest to the valve as shown in the figure. Tighten this screw only finger tight. Install the two #4-40 screws in the top two holes in the mounting plate near the front of the pump as shown, also tightening only finger tight.

Tighten the gland nut on the tubing in the cylinder cap. Gently wiggle the valve assembly to determine that the pump tubing is properly seated.

Adjust the position of the valve assembly and then tighten the three screws just installed with a Phillips screwdriver. With the valve assembly securely fastened to the pump, torque both gland nuts on the pump tubing to 10 ft-lb [13.5 N·m].

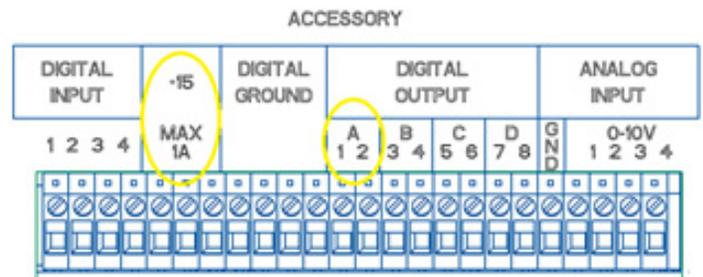
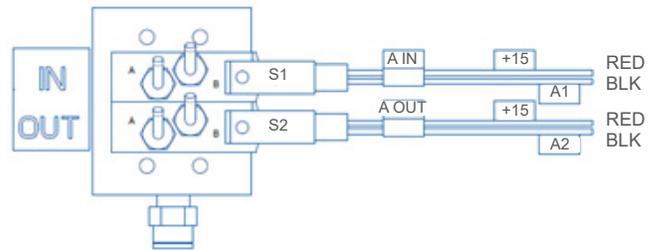
Locate the Refill Tubing Assembly (see the figure below). The gland nut and ferrule to attach the refill assembly to the valve should not yet be swaged onto the refill assembly to allow the refill tubing to be trimmed to the desired length. Thread the nut and ferrules into the bottom of the valve arranged as shown and tighten to no more than 4 ft-lb [5.5 N·m]. While tightening, use a wrench on the flats of the check valve to prevent damaging the valve while tightening the gland nut. Use care not to overtighten, since the tubing is plastic.



Air supply tubing is provided with the valve assembly. Connect the air supply tubing to the actuator by pushing the retaining ring on the actuator port inward and then pushing the tubing into the actuator. Release the retaining ring. When properly installed, the tubing should not be able to be easily pulled out. Reversing this procedure allows the air supply tubing to be detached should the pump need to be moved.

NOTE: The refill tubing can be shortened by removing the fitting and ferrule at the filter end and cutting the tubing shorter.

The pump and valve assembly can now be moved to the location where it is to be used. The valve can then be electrically connected to the controller using the procedure described as follows:



The actuator has four wires, two red and two black. The red wires have labels showing '+15', and the black wires have labels 'A1', and 'A2'.

On the back of the pump controller is a terminal strip connector labeled 'ACCESSORY'. Locate the connections identified as circled in the figure above.

Connect the red wires to the connectors labeled '+15'. More than one red wire can be connected to a single +15 terminal connector.

The black wires are connected to the DIGITAL OUTPUT connectors, matching the label on the wire with the connector having the same name. Only the 'A' connectors are used with the single air valves.

ATTENTION: Although the '+15' connectors may have more than one red wire in some ports, 'DIGITAL OUTPUT' connectors must have only one black wire per port.

Before connecting the controller to the pump, inspect that the connections are inserted correctly and secured.

Refer to the Users Manual for information about connecting two pumps with single air valves to a single controller.

Converting the Valve for Left-Hand Mounting

Overview

In order to mount the valve package on the left-hand side of the pump, the valve port needs to be repositioned. The instructions below describe the procedure starting with the valve assembly as supplied from the factory. If the valve has been previously mounted on the right-hand side, the valve assembly will need to be first detached from your installation.

It is necessary to remove the pump inlet tubing to gain access to the screws behind it. Unscrew the gland nut and set the pump tubing with collar and gland nut aside for later reuse.

Using a suitable wrench, disconnect the reagent inlet assembly from the valve by unscrewing the gland nut at the bottom of the valve. Do not disassemble the reagent inlet line. Position the gland nut near the bend in the refill tubing.

Remove the gland nut and collar (if present) at the top of the valve and set aside for later reuse.

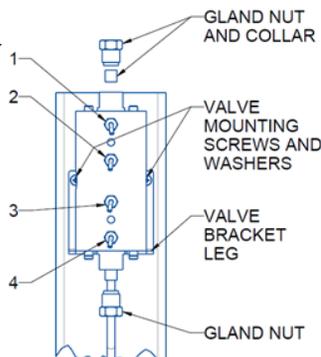
Prepare the Valve for Modification

Place the valve assembly on a suitable surface with the valve upward. Orient the valve assembly with the valve end positioned as shown.

Using pieces of tape and a marker, label each of the air lines attached to the valve assembly with a number as shown. The tape must be applied to the air line, not to the valve. The top one must be labeled 1, and increasing with each port resulting with the bottom air line labeled as 4.

NOTE: It will be necessary to detach the air lines to complete the next step. Without the tubes being properly labeled as described, reattaching these air lines correctly will be more difficult later. Failure to label the tubing will require tracing the air lines from the actuator for proper connection.

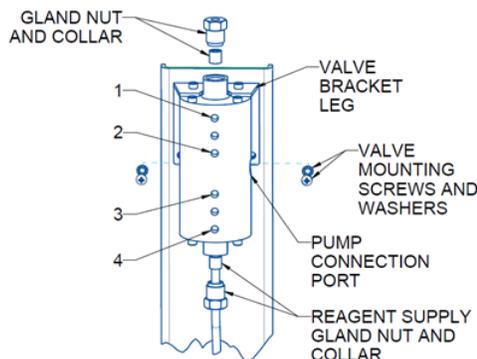
With the air tubing properly labeled, disconnect all four air tubing connectors from the valve.



Refer to the figure to the left and observe the location of the Valve Bracket Leg that the valve is attached to. From the factory, this leg is oriented toward the bottom, resulting in the pump connection port being on the LEFT side of the valve assembly.

Using an appropriate screwdriver, remove the two Valve Mounting Screws and Washers as shown in the figure to the left. Keep these screws and washers handy for subsequent re-use. Slide the valve and its bracket up and off the reagent supply tubing. The valve and its bracket should now be free from the valve assembly.

Rotate the valve 180° with respect to the valve assembly. Note that the pump connection port is now on the right side, and that the Valve Bracket Leg is now oriented toward the top. Slide the reagent supply tubing into the valve port furthest from the valve bracket leg and hand tighten the gland nut.



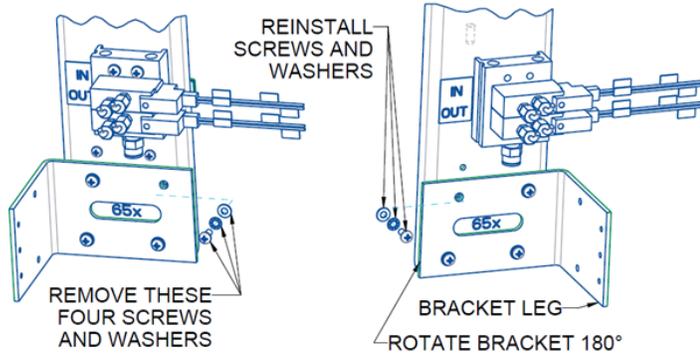
Align the holes in the valve bracket with the corresponding threaded holes in the valve assembly and reinsert the Valve Mounting Screws and Washers to secure the valve in this position.

Reattach the air tubing to the valve, connecting the tubing label with the port identified in the figure above. Note that the air tube labeled as 1 is still at the top, then increasing in number for each lower port, ending with the tube identified as 4 at the bottom of the valve. The tubes are NOT in the same physical port as they were because the port that was the inlet to the valve is now the outlet, and vice versa.

NOTE: Do not tighten the air valve fittings tighter than 70 in-lb [8 N·m].

With the valve mounting screws and washers installed and secured, inspect that the reagent supply tubing is properly aligned and that the gland nut is loosely tightened into the valve body. Once satisfactorily aligned, tighten the reagent supply gland nut to 10 ft-lbs [13.5 N·m].

The valve assembly mounting tab must be reversed as well. With the assembly laying on a suitable work area, remove the four screws and washers that hold the mounting bracket to the valve assembly. Place these aside, keeping them handy for later reuse.



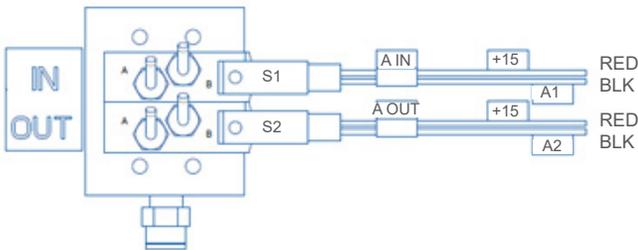
Rotate the mounting bracket and resecure with the screws and washers. The bracket leg must be on the same side of the valve assembly as the pump port.

Once this is completed, follow the “Prepare the Valve Assembly for Installation” instructions above; substituting the referenced orientations with the modified orientations resulting from this step.

To revert to the valve assembly mounting on the right side, reverse the above steps.

Reattaching Air Tubing if Not Labeled

Should the air tubing have not been labeled as described above, refer to the following steps to reconnect the air tubing.



Activation	Valve
S1-A	V-4
S1-B	V-3
S2-A	V-1
S2-B	V-2

Orient the valve assembly so that the air actuator is arranged as shown above. Identify which switch is S1 and which is S2. Using the table above, trace the tubing from the actuator position to the valve port identified in the above figure.

Teledyne ISCO

4700 Superior Street, Lincoln, NE 68504 USA
 Toll-free: (800) 228-4373 • Phone: (402) 464-0231 • Fax: (402) 465-3091

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