

#60-1267-016 Dual Air Valve Package for SyriXus[®] 1000x Installation Instructions

Overview

The SyriXus 1000x dual air valve option is designed to automatically allow the SyriXus 1000x pumps to operate continuously under software control. As one pump is delivering working fluid, the other refills and balances pressure, then waits its turn to take over delivery. As the delivering pump reaches near empty, the software switches delivery to the other (full) pump. Once the switch is completed, the first pump then refills and balances pressure, then waits its turn to take over delivery again.

This operation allows the pumps to deliver working fluid continuously with nearly no deviation in the delivered pressure (or flow) while the pumps refill. This action will continue as long as working fluid is available to the refill the pumps or until the user stops or changes the flow.

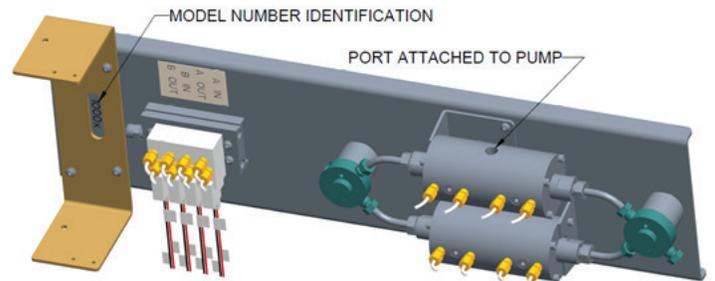
The dual air valve option mounts between two SyriXus 1000x pumps and fastens the two pumps together. The two pumps must both be 1000x models to allow proper operation.

Parts of the Valve Assembly

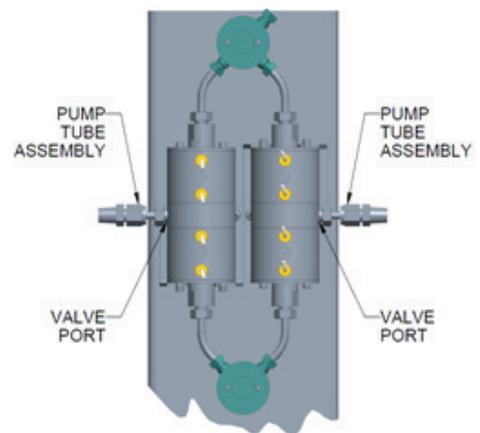
Most of the valve assembly will be assembled at the factory, but the pump tubing will be separate and included with the valve package. Additionally, the reagent supply tubing and air supply tubing are shipped unattached to prevent damage to the plastic tubing during shipping. Screws and washers are supplied with the assembly in a separate package.

Prepare the Valve Assembly for Installation

Remove the valve assembly from the packaging and identify the ports on the valves that will be attached to the tubing to the pump. There will be one port on each valve, and the ports will be oriented toward the outside of the valve assembly. Notice there is lettering on the opposite end of the assembly relative to the valve identifying the model number.



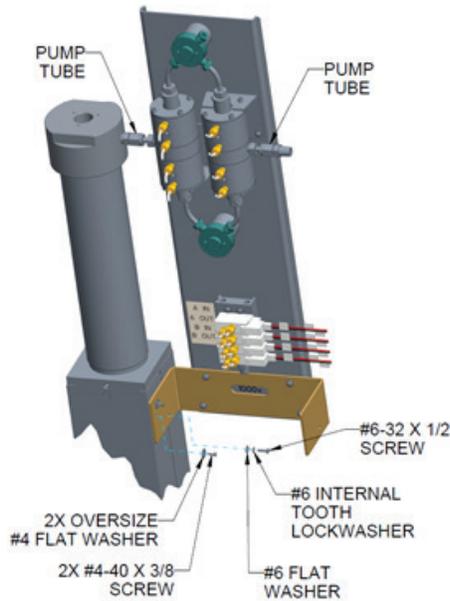
Orient the valve assembly with the valves facing up, and the model identifier lettering closer to you. The end of the valve assembly with the Model Identifier Lettering represents the “bottom” of the valve assembly.



Locate the tubing assemblies that will be attached between the valve assembly and the pumps. These tubing assemblies have different fittings pre-attached to each end. Only one of the fittings will fit into the valve body. The other end has a 1/4” NPT coupler to attach to the pump.

Wrap two turns of PTFE tape (suggested 1/2" wide tape) around the NPT threads to help promote sealing. Do not put PTFE tape on other fittings. Thread the other fitting into the valve body finger tight. Do not fully tighten this fitting yet to allow the tubing assembly to rotate while attaching to the cylinder cap. Repeat this to insert the other tubing assembly into the other valve body.

Insert two #6-32 x 1/2 screws into #6 internal tooth lock washers, then insert the #6-32 x 1/2 screws with lock washer into a #6 flat washer. Next, insert four #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 one of the pumps with the pump tube aligned with the port in the cap. While holding the valve in place, thread the NPT fitting into the pump cylinder cap and tighten 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 bracket near the front of the pump as shown. Tighten these screws finger tight.

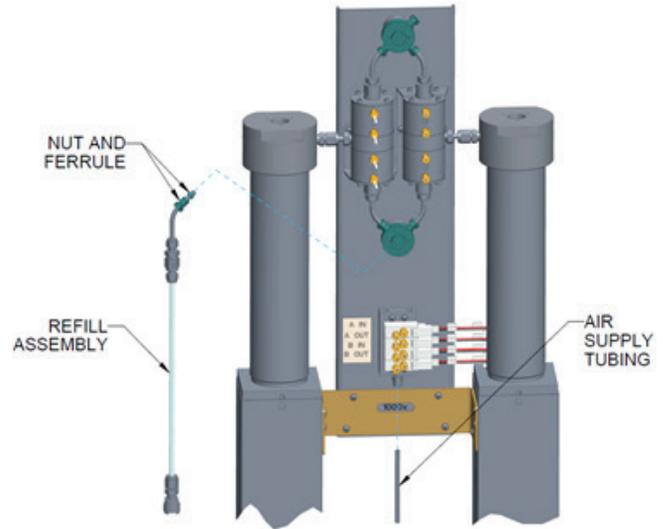
Move the second pump into position so that the free pump tubing aligns with the port in the second pump's cap. Thread the NPT fitting into the second pump cylinder cap. Tighten the NPT fitting into the pump cap finger tight.

Install the remaining #6-32 screw with washers and #4-40 screws with washers into the mounting bracket and into the second pump in the same manner as above.

Adjust the position of the valve assembly and then tighten the six screws just installed.

Tighten the NPT connectors on the tubing in both cylinder caps about 1 1/2 revolutions beyond finger tight. Do not over tighten. Tighten the pump tubing fittings into the valve bodies no tighter than 14 foot pounds [19 N·m].

Locate the refill tubing assembly. The gland nut and ferrule to attach the refill assembly to the valve should already be swaged onto the refill assembly. Thread the nut and ferrule into the bottom of the tee between the valves and tighten no tighter than 14 foot pounds [19 N·m]. While tightening, use a wrench on the flats of the tee to prevent damaging the assembly while tightening the gland nut.



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 pumps need to be moved.

The pumps and valve can now be electrically connected to the controller as described in the user's manual.¹¹

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