

SAHARA AIR PRODUCTS

ROBO DRAIN With Test Button

P/N	Robo Drain with Bronze Ball Valve	Robo Drain with SS Ball Valve	SS Fittings & Tubing	Liquid Level Switch
120-600-100	√	NA	NA	NA
120-600-103	NA	√	NA	NA
120-600-102	NA	√	√	NA
120-600-1025	NA	√	√	√

Reference page 2 of this cut sheet for Robo Drain parts list.



FEATURES

- See-Through Vessel
- Fully Pneumatic
- No Wasted Air
- Low Profile
- Test Button
- Made in U.S.A.
- Ball Valve Stem Support System
- Ideal for Oil/Water Separators
- Non-Clogging Ball Valve
- No Strainers to Clean
- Operates On Demand

MATERIALS

Reservoir: Aluminum and Composite
Trigger Float: Stainless Steel
Trigger Seat: Stainless Steel
Trigger Seal: Viton

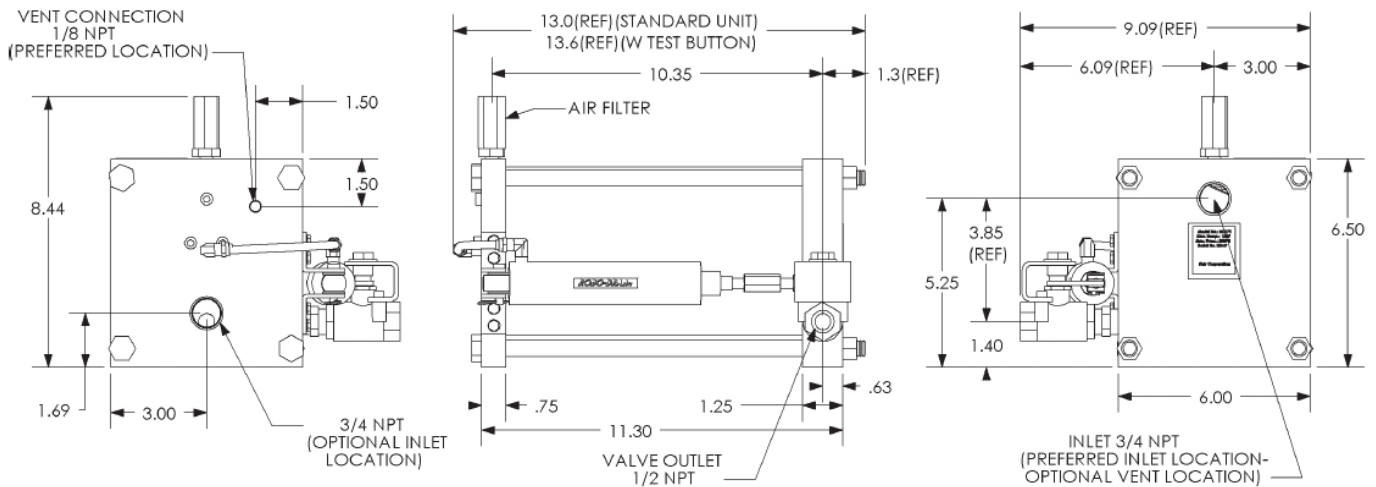
SPECIFICATIONS

Inlets: Two (2) 3/4" NPT
Outlet: 1/2" NPT
Power: Clean, Dry Compressed Air 80 to 130 PSI
Operating Pressure: 0 to 250 PSI
Operating Temperature: 32° to 180°F
Weight: 17 lbs.
Discharge: 24 ounces per cycle

All design specifications are subject to change without notice.

DESIGN

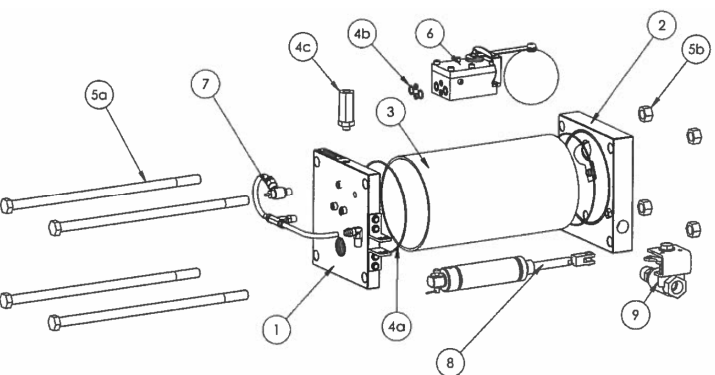
The Robo Drain is the ultimate demand operated drain. The unit is fully automatic, no electricity is required. Its low profile gives you the advantage of installing it in areas where the vessel to be drained is only a few inches from the ground. The Robo Drain's design also eliminates the need for the installation of a vent line for most applications. A unique air valve design uses a magnetic force to ensure both a positive opening and closing that will prevent any air loss. The magnetic force is cleverly positioned away from the condensation level to prevent any attraction of metal particulate. An innovative ball valve support and positioning system prevents the side-loading problem which otherwise would cause premature sealing failure around the valve stem. Rifle drilled discharge porting ensures that scale and rust will exit through a full ported 1/2" ball valve. The Robo Drain will not clog -- no strainer required.



ROBO DRAIN PARTS LIST

Item	Qty.	Description	P/N
1	1	Control head assembly	120-600-140
2	1	Inlet head assembly	120-600-145
3	1	Translucent vessel	120-600-135
4a,b,c	2,2,1	Seal kit: Cylinder o-rings, trigger block rings, Robo Drain filter	120-600-120
4c	1	Robo Drain filter	120-600-002
5a,b	4,4	Bolt kit: Tie rods, nuts	120-600-170
6	1	Float and trigger block assembly	120-600-150
7	1	Control tubing assembly	120-600-155
7 (SS)	1	Control tubing assembly, stainless steel	120-600-157
8	1	Air cylinder assembly	120-600-160
9	1	Ball valve assembly (bronze)	120-600-111
	1	Ball valve only, bronze	120-600-110
	1	Ball valve only, stainless steel	120-600-112
	1	Liquid level switch	120-600-125
*	1	Upgrade kit for units built prior to 6/2003	120-600-180

* Upgrade kit includes longer vessel, bolts, and actuation cylinder.



OPERATION

Condensation enters through one of two ports. The see-through vessel allows visual inspection of the condensation as it rises. A stainless steel float rises with the level of condensation and positions a magnetic force over the valve housing. When the liquid level reaches the desired level, the magnet in the valve housing snaps upward and allows air to pass through a stainless steel seat. The air then moves to a non-lubricated air cylinder causing it to extend and open the ball valve. Condensation, scale and rust particles rapidly exit the unit. Before any air is lost, the float removes the magnetic force from the valve and the seat is covered with a Viton seal. A powerful spring returns the air cylinder to its normal position and rotates the positive closing ball valve back to its normally closed position. The pilot air used to actuate the air cylinder is isolated from the air in the drain's reservoir.

INSTALLATION INSTRUCTIONS

WARNING: COMPRESSED AIR CAN BE DANGEROUS

The Robo Drain is designed for trouble-free and maintenance-free draining of unwanted accumulations of condensation and other foreign matter from any collection point in a compressed air system without the need for electricity.

Before attempting to install the drain, be certain that the pressure vessel on which the drain will be installed is completely depressurized.

The drain should not be installed in areas that are exposed to freezing temperatures (heater option is available). Be certain the air system pressure does not exceed the 250 PSI working pressure of the drain and the pressure to the control system does not exceed 120 psi. The inlet temperature should not exceed 180 degrees F.

Connecting the drain to the air system should be done by using one of the recommended installation diagrams shown herein. The installation of a strainer is not required or recommended.

Install the drain as close to the source to be drained as possible. Since the Robo Drain uses gravity to fill the reservoir, the entire drain must be installed below the vessel to be drained when using the top inlet. If flexible tubing is used on the discharge, be certain it is properly fastened to prevent it from whipping when the drain discharges the condensation.

The Robo Drain will accept condensation from either the top or the bottom of the reservoir. We recommend the use of the top entry port. If the bottom inlet is used, then a vent line must be used. The vent line should be installed down stream from the vessel that is being drained. This will insure that the air in the reservoir will properly exit as the condensation fills the tank and replaces the air. Install the vent line in the 1/8" port located on the side of drain. The other end of the vent line should be run back to the air system to a point just down stream from the source that is being drained. Use nongalling pipe sealant on all joints. The use of shut-off valves, unions and bypass valves is recommended. A backup wrench should be used on the discharge ball valve to prevent it from turning and causing the linkage to bind.

The inlet port that is not used must be plugged by using a standard 3/4" NPT plug. When using the top inlet, any reduction in the 3/4" pipe size is not recommended and the Robo Drain reservoir

cannot be higher than the bottom of the vessel that is being drained. It is best to run the drain in a downward pitch from the bottom of the vessel being drained to the Robo Drain inlet. The power to operate the Robo Drain comes from compressed air. **ONLY CLEAN DRY AIR SHOULD BE USED.** The supply pressure should be between 80 and 120 psig.

The Robo Drain is supplied with an inlet pilot air filter, which should be installed in the Robo Drain head (reference Dwg. 2 on the following page). The use of unfiltered air can cause the drain to fail.

Once the drain is installed, close the By-Pass drain valve and open the Shut-Off valve. The pressure vessel can now be repressurized.

CHECKING THE DRAIN'S OPERATION

After installation is complete and the drain is on line, a check should be made that the condensation is properly entering the reservoir. This can easily be done by looking through the translucent reservoir.

If condensation is not entering the reservoir, check for the following:

1. Make sure the auxiliary shut-off valve is open.
2. Do not use the bottom inlet on the Robo Drain without installing a vent line.
3. If a vent line is installed, make sure it is down stream from the vessel that is being drained.
4. Be certain that the Robo Drain reservoir is not higher than the vessel that is being drained. This is very important when using the top inlet on the Robo Drain reservoir.
5. Check to make sure the vessel being drained has condensation in it.

If the top inlet is being used and no condensation is entering the Robo Drain reservoir, and all the above items have been checked, we recommend that the bottom inlet be used with a vent line out of the top.

If condensate fills the reservoir and the drain does not operate, check to see if control line air is supplied to control line port. If the drain is supplied with an optional test button, the supply of control line air can be checked by pushing the test button. If the unit does not operate, then no air is being supplied or the inlet filter is plugged.

INSTALLATION DIAGRAMS

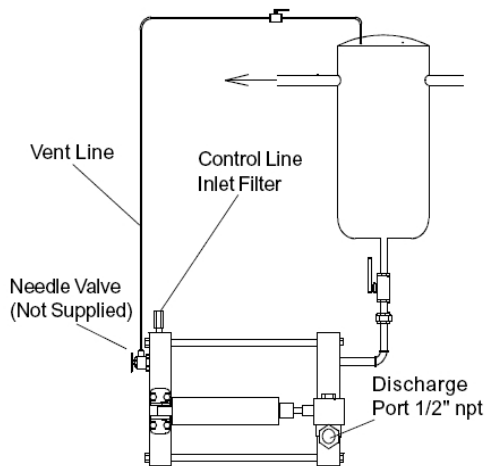
IN GENERAL

In order for the condensate to properly enter the Robo Drain reservoir, the condensate line to the Robo Drain must always be installed below the bottom of the vessel to be drained. It is equally important to provide a means for the air that is contained in the reservoir to escape (vent) as the condensate enters the reservoir. If the air can not escape, the condensate will not enter the reservoir. Below are suggestions on how to best install the Robo Drain on typical types of vessels that have to be drained of condensate. However, it is possible to install the Robo Drain without a balance line (Dwg. not shown), providing the condensate enters the top inlet and the flow rates are less than 9 GPH (750 cfm for an aftercooler or 1500 cfm drier) for a 1/2" drain line and 19 GPH (1500 cfm for an aftercooler or 3000 cfm drier) for a 3/4" line. The use of unions and shut-off valves are recommended for both the condensate line and the balance line.

FILTER and AFTERCOOLER MOISTURE SEPARATOR

If a cyclone separator or filter has pipe plugs located in the top of the head, the plug closest to the discharge pipe should be removed and the balance line should be installed (Dwg. 2). If there is no provision on the cyclone separator or filter for a balance line, install it in the discharge side of the pipe line and as close to the cyclone separator as possible.

Dwg. 2



BALANCE LINE

As mentioned above, both the use and the placement of a balance line is very important. Most drain failures are the result of an improper balance line installation. The balance line should be 1/4" tubing or larger, and installed on top of a pipe or vessel, not the bottom. A needle valve is recommended for controlling the air flow. Avoid having any loops or low areas in the balance line that might allow moisture to collect in the line and prevent the passage of air from the drains reservoir.

MAINTENANCE

The Robo-Drain has been designed and continuously improved to provide many years of trouble-free service. Most Robo-Drains outlast the life of the compressor that it is serving.

Still, the Robo-Drain is a mechanical device and routine inspection and maintenance are important and recommended.

Weekly/Monthly

1. Use the test button to ensure the drain valve opens and closes.
2. Inspect interconnecting piping and tubing to ensure there are no leaks or damage.

Annually

1. Use the test button to ensure the drain valve opens and closes.
2. Inspect interconnecting piping and tubing to ensure there are no leaks or damage.
3. Replace Control Air Inlet Filter.
4. Check the four body bolts to ensure tight.
5. On the standard Robo-Drain with the translucent vessel, if the condensate level isn't visible due to vessel coated with contamination, it is recommended to remove the drain from service and follow the simple disassembly instructions to permit the vessel to be thoroughly cleaned.
6. With the drain disassembled, exercise the float assembly to ensure it moves freely.
7. Again, with the drain disassembled, ensure the float is securely attached to the float bracket.