



FreeZone® Freeze Dry Systems

Quick Guide to Installation

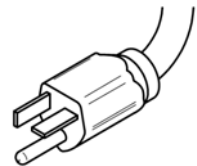
Note: This Quick Guide to Installation may not provide all the information for your installation. Refer to the User's Manual for details and precautions.

Preparations

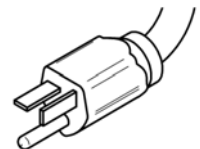
Step 1. Proper Electrical Supply

- 115V models
 - 20-Amp dedicated single phase circuit. Additional appliances on the same circuit may cause the current to exceed the rating of the circuit breaker or fuse.
 - Receptacle is to accept a NEMA 5-20P plug.
 - Frequency must agree with the serial tag rating. Improper frequency will damage the compressor.

- 230V models
 - 15-Amp dedicated single phase circuit. Additional appliances on the same circuit may cause the current to exceed the rating of the circuit breaker or fuse.
 - Receptacle is to accept a NEMA 6-20P plug. Installations outside the U.S. may require a new plug to fit the available receptacle.
 - Frequency must agree with the serial tag rating. Improper frequency will damage the compressor.



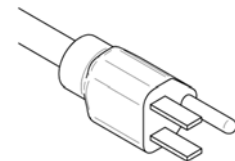
NEMA 5-20P plug



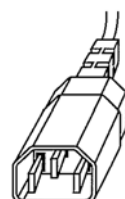
NEMA 6-20P plug

Step 2. Rotary Vane Vacuum Pump Requirements

- 1 Liter, 2.5 Liter, 4.5 Liter models
 - 88 liters per minute minimum displacement
 - .002 mBar ultimate vacuum
- 6 Liter, 12 Liter, 18 Liter models
 - 144 liters per minute minimum displacement
 - .002 mBar ultimate vacuum
- Plug Requirements on vacuum pump power cord
 - 115V models- NEMA 5-15P plug
 - 230V models- reverse IEC plug



NEMA 5-15P plug



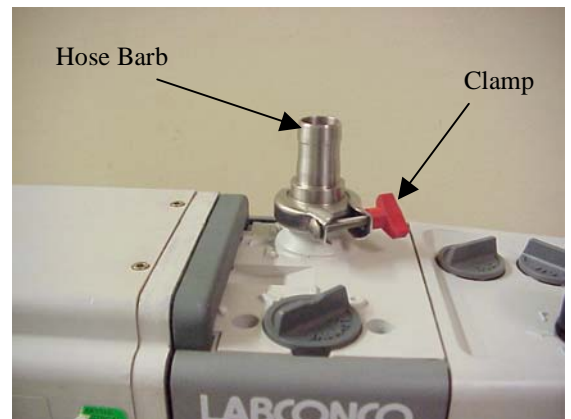
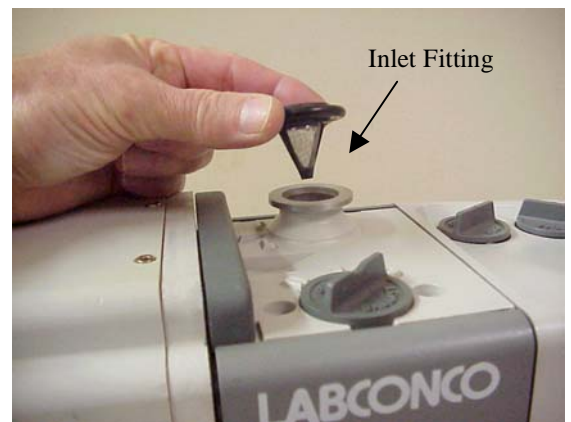
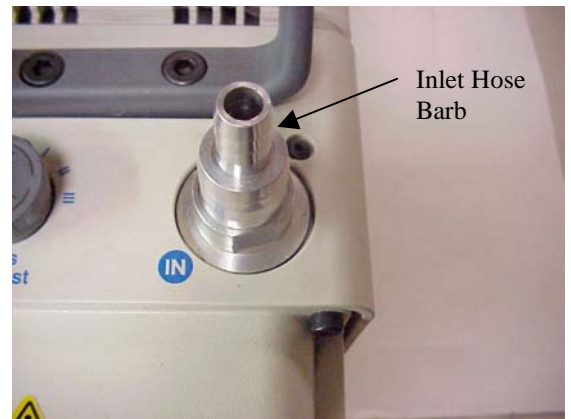
Reverse IEC plug

- Hose barb connection to fit .75-inch inside diameter hose

Installation

Step 3. Vacuum Pump Set Up

- Remove protective caps from inlet and outlet ports.
- Some vacuum pumps have inlet fittings that screw into the inlet port. Make sure the O-ring is on the sealing surface. Insert fitting into the pump housing and tighten securely
- Some vacuum pumps have inlet fittings that clamp to the pump. Place the centering ring with filter screen on the inlet fitting.
- Place the hose barb fitting on top of the centering ring.
- Secure the fitting with the clamp.
- Attach the exhaust filter to the exhaust port. Some pumps have filters that screw in. Others require that a centering ring is placed on the fitting and then a clamp secures it similar to the inlet fitting.
- NOTE: Rotary vane vacuum pumps must have an exhaust filter to prevent oil mist from exiting the pump and depleting the oil supply.



- Fill the pump with oil so the level is between the lines on the sight gauge on the end of the pump housing.
- Verify that the vacuum pump voltage setting agrees with the Freeze Dryer voltage shown on the serial number label. Reconfigure if necessary. See pump instructions.
- Turn the vacuum pump power switch ON.

- Set the gas ballast to closed or minimum position.

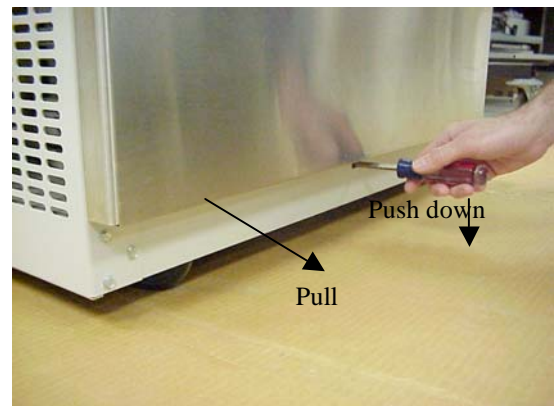


Step 4. Vacuum Pump Connections

- Benchtop models
 - Position the vacuum pump within 2 feet of the .75-inch diameter port on the back of the cabinet.
 - Attach one end of the vacuum hose to the port on the Freeze Dryer and the other end to the inlet port of the vacuum pump. Clamp both ends securely.
 - Connect the vacuum pump power cord into the receptacle on the back of the Freeze Dryer.



- Console models
 - CAUTION - Make sure that power to the Freeze Dryer is disconnected.
 - Remove the front lower panel from the Freeze Dryer by inserting a screwdriver into the slot below the center of the front panel. Pivot the screwdriver handle downward while pulling the bottom of the panel outward.



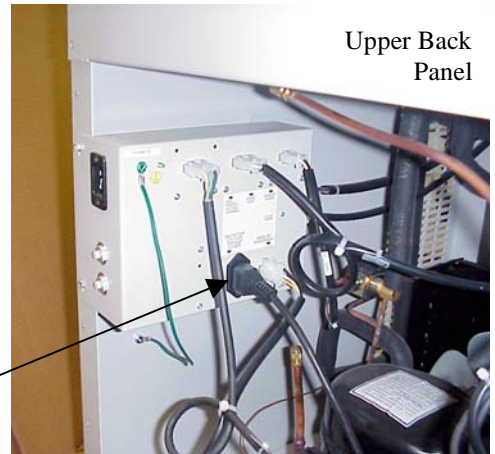
- Place the vacuum pump inside the cabinet.
- Connect the vacuum hose to the inlet fitting of the vacuum pump. Clamp securely.



- Reinstall the front panel by positioning the top edge under the control panel and pushing the bottom inward.



- CAUTION - Make sure that power to the Freeze Dryer is disconnected before removing the lower back panel. Do NOT remove the upper back panel.
- Plug the vacuum pump power cord into the receptacle in the junction box marked Vacuum Pump.
- Replace the rear panel.



Vacuum Pump Receptacle

Upper Back Panel

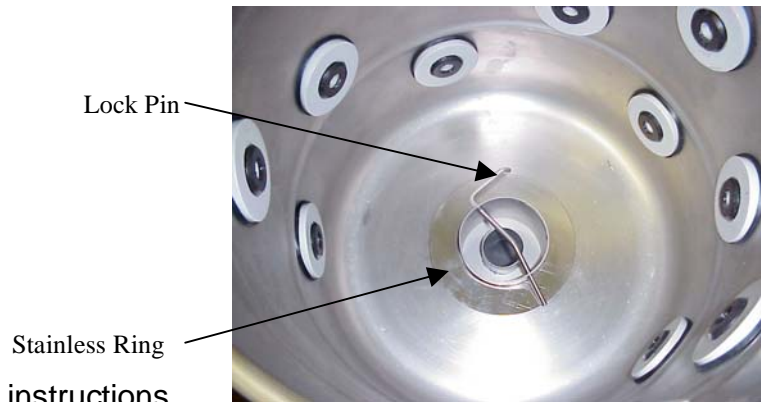
Step 5. Installing a Chamber or Manifold (except 4.5L models which have chamber already attached)

- 1L and 2.5L Models
 - Place the collector chamber lid on top of the chamber.
 - Center the flat rubber gasket on the hole in the center of the chamber lid.
 - Place the chamber or manifold over the gasket.



Chamber Lid

- 6L, 12L and 18L Model Chambers
 - Place the flat rubber gasket over the inlet port.
 - Place the chamber over the gasket.
 - Reaching into the chamber, set the stainless steel ring over the port opening. Slide the lock pin through the holes in the port and rotate over center (stainless steel chamber only).



- 6L, 12L and 18L Manifolds- see instructions supplied with Manifolds.

Testing or Start Up

Step 6. Testing the System

- Connect the power cord into the receptacle on the back of the Freeze Dryer and insert the other end into a suitable wall receptacle.
- Turn the power switch ON.
- Vacuum check
 - Make sure the lid is on the collector and either a manifold or chamber is in place.
 - Close all manifold valves.
 - Set the vacuum level for .002 mBar (except 1L models without vacuum control).
 - Press the Vacuum button.
 - Vacuum should reach .133 mBar or less within 15 minutes.
- Refrigeration (leave the vacuum pump running)
 - Press the Refrigeration button.
 - Collector temperature should reach operating temperature (-50°C or -84°C depending on the model) within 40 minutes.
- If the Freeze Dryer fails to perform as expected, consult the User's Manual for troubleshooting information or call Labconco.

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