SIZING THE SPARK ARRESTOR VENT TO THE HAZLOC VORTEX A/C

Contact the purge system manufacturer or Vortec if assistance is needed in selecting the correct spark arrestor vent to allow proper purging and pressurization.

OPERATION

It is recommended to operate the HazLoc Vortex A/C at 90 to 100 psig (6-7 bar) compressed air pressure. If compressed air pressure exceeds 100 psig (7 bar), it is essential to regulate the pressure down to 100 psig (7 bar) with Vortec’s model 208R or 208RX pressure regulator. Operation at pressures less than 90 psig (6 bar) and above 100 psig (7 bar) can affect the temperature points at which the unit cycles. When operated at the recommended pressure, the HazLoc Vortex A/C will cycle on and off to maintain temperatures between approximately 80 to 90°F (27 to 32°C). When the HazLoc Vortex A/C is not cooling, the Check Valve closes shutting off the air passage from the enclosure interior to the exterior and allowing the purge/pressurization system to maintain slight pressure in the enclosure. Do not apply excessive heat or a flame to the mechanical thermostat to “test” it for operation. Damage to the product may result that is not covered under the warranty.

ELEVATED SURFACE TEMPERATURES

Because the HazLoc Vortex A/C operates using the vortex principle, hot exhaust air is generated and released at low pressure from the opening in the stainless steel shroud on the back of the unit. This exhaust can reach temperatures up to 225°F (107°C) under normal conditions. (Normal conditions are compressed air inlet pressure of 90 to 100 psig (6-7 bar) and compressed air inlet temperature of 90°F (32°C)). The HazLoc Vortex A/C models can be operated at compressed air temperatures that do not exceed 120°F (49°C). The HazLoc Vortex A/C models have a Temperature Class of T4.

TROUBLESHOOTING

Insufficient cooling may be caused by the following:

1. Undersized compressed air line size.
2. Compressed air pressure at the product is too low.
3. Partial or complete blockage of internal compressed air path, due to dirt.
4. Water vapor in the compressed air supply.
5. Loose cold air outlet fitting. This may occur if not tightened properly after being disassembled for cleaning.

If trouble persists, please contact Vortec at 1-800-441-7475.
GENERAL SAFETY CONSIDERATIONS

WARNING: COMPRESSED AIR CAN CAUSE DEATH, BLINDNESS OR INJURY.
1. Do not operate a HazLoc Vortex A/C at compressed air pressures above 100 psig (7 bar).
2. Do not operate at compressed air temperatures above 120°F (49°C).
3. Avoid direct contact with compressed air.
4. Do not direct compressed air at any person.
5. Avoid using compressed air, wear safety glasses with side shields.

WARNING! Explosion Hazard: Substitution of components may impair suitability for Class I Division 2.

INTRODUCTION

The Hazardous Location Vortex A/C ("HazLoc Vortex A/C") is designed to cool industrial control cabinets located in hazardous locations, using compressed air. The HazLoc Vortex A/C shall only be used in conjunction with a properly sized enclosure and purge system that must be able to prevent air from entering the hazardous area through the HazLoc Vortex A/C. (The purge and pressurization system must be selected and supplied by the end user.)

The cooling air produced by the HazLoc Vortex A/C in the enclosure is vented into the hazardous area (outside of the enclosure) through the purge system's spark arrestor vent. The spark arrestor vent must be properly sized to accept the additional air flow generated by the HazLoc Vortex A/C.

It is the end user's responsibility to ensure that the correct spark arrestor vent is used and that the purge system functions properly when integrated with the HazLoc Vortex A/C.

DO NOT operate the HazLoc Vortex A/C on a sealed and unventilated enclosure as pressure in the enclosure will increase and damage or injury could result. The HazLoc Vortex A/C has a built in mechanical thermostat that requires no electricity. The thermostat cycles on and off to maintain an 80 to 90°F (27 to 32°C) enclosure temperature range.

COMPRESSED AIR SUPPLY

The compressed air system's intake must originate in a non-hazardous area and be properly sized for the application and must exceed 30 feet (9m). If pipe length is less than 30 feet (9m), use ½" pipe or contact your local authorized distributor or Vortec for assistance.

MAINTENANCE

The only maintenance involved with the HazLoc Vortex A/C is normal elements cleaning and the replacement of the air filter. The filter element should be changed when there is a decrease in performance or when pressure drop across the filter exceeds 5 psig (0.3 bar).

The compressed air supply to the unit must be shut off before changing the filter. The compressed air filter should be located in a non-hazardous area so that normal filter element maintenance can be carried out without risk of hazardous substances entering the enclosures. If non-hazardous area, electric power to the enclosure must be shut off while performing filter maintenance and then routine purge system startup procedures should be followed when filter maintenance is complete and before power is applied to the enclosure.

The HazLoc Vortex A/C has only two moving parts (the mechanical thermostat/valve and the check valve) which are not serviceable in the enclosure. Visible dirt in the orifices of the thermostat. Evidence of tampering with the thermostat may void the warranty.

If it is suspected that the compressed air filter has not been maintained after an extended period of operation, there may be pipe scale or foreign material in the orifices of the generator in the unit.

1. To check, shut off all electric power to the protected enclosure as HazLoc Vortex A/C may cause shutdown procedures. Shut off the compressed air supply to the HazLoc Vortex A/C. Before opening the enclosure door, allow sufficient time for any internal components to cool down completely.

2. Detach the 5/8" (16mm) ID vinyl tubing from the check valve assembly and remove the check valve assembly from the cold air outlet fitting of the HazLoc Vortex A/C.

3. Remove the brass cold air outlet fitting from the bottom of the unit (a 1 ½" (38mm) orifice).

4. Remove the O-Ring, then remove the red (model 7515S), or the blue (model 7525S) or brown (model 7535S) generator.

5. Inspect the six slots in the generator for foreign material and clean if necessary.

6. Clean the cavity in the HazLoc Vortex A/C that the generator was located in if necessary.

7. Reassemble the generator, O-Ring and cold air outlet fitting in reverse order. Tighten the cold outlet fitting to at least 100 inch pounds (11 Newton meters) torque.

8. Attach the check valve assembly to the cold outlet fitting making sure the check valve is in the proper direction. Tighten all pipe connections securely. Reattach the 5/8" (16mm) vinyl tubing to the check valve outlet. Open the compressed air supply to the HazLoc Vortex A/C. Follow purge system startup procedures before applying electric power to the enclosure.

INSTALLATION

1. The HazLoc Vortex A/C must be installed on the top of the enclosure on a flat horizontal surface of the enclosure. Alternately, the HazLoc Vortex A/C can be mounted on the side of the enclosure. When the unit is side mounted (on a vertical surface of the enclosure), the compressed air inlet must be pointing up, or the stainless steel shroud must face down toward the floor. If side mounted, it is best if the unit is located near the top of the enclosure.

2. Find a location for the HazLoc Vortex A/C on your enclosure so that there is a sufficient clearance between the mechanical thermostat and air outlet and check valve assembly, and, so that the entire mounting "footprint" of the HazLoc Vortex A/C is supported by the enclosure. (A 1 ¼" wide x 3 ½" (12mm x 89mm) area.) Position the unit so that the stainless steel shroud on the back of the unit is away from personnel, if possible. Also, position so that the intake of the unit is not adjacent to the purge system’s spark arrestor vent. This will allow the cooling air from the Vortex A/C to cool down the enclosure.

3. Cut a 1-15/16" (49mm) diameter hole (1-1/2" knockout size) in the orifice of the enclosure. De-burr any sharp edges around this hole.

4. Remove the 1 ½" external locknut from the HazLoc Vortex A/C. Insert the threaded portion of the HazLoc Vortex A/C into the 1 15/16" (49mm) hole in the enclosure. (Be careful not to damage the mechanical thermostat during installation.)

5. From inside the enclosure, screw the 1 ½” external locknut onto the threads of the HazLoc Vortex A/C. Tighten the locknut securely to compress the 1 ½" (38mm) thick sealing gasket that is located between the enclosure surface and the HazLoc Vortex A/C.

6. Attach the Check Valve assembly to the cold air outlet of the HazLoc Vortex A/C (a 3/8"-18 npt thread) inside the enclosure. The Check Valve can be attached to the HazLoc Vortex A/C using the supplied 3/8" npt straight pipe nipple OR with the supplied 3/8" npt pipe elbow. The orientation of the Check Valve assembly is not critical as function in any position. Tighten to 40 to 50 inch pounds (45 to 56 Newton meters) torque.

7. Install the Cold Air Ducting Kit to the opposite hose barb connection on the HazLoc Vortex A/C, to prevent air from leaking out from the purged and pressurized enclosure must be verified during installation.

8. Mount the Cold Air Muffler inside the enclosure cooler near the HazLoc Vortex A/C. (You will need a surface area at least 2" x 9" (50mm x 230mm) to mount the Muffler.) (The Muffler can be mounted in any orientation: horizontal or vertical.) Using the supplied 3/8" npt pipe nipple, attach this Clamp at the desired location. (Clean the mounting surfaces so that the double sided tape bonds securely.)

9. If desired, this Clamp can be permanently mounted to the enclosure using the provided 1½" x 1½" screws. (SHOWN TOP MOUNTED ON CUSTOMER'S ENCLOSURE)

10. Cut a 1-15/16" (49mm) hole in the enclosure to install unit.

Cut a 1-15/16" (49mm) hole in top of enclosure to accommodate this Clamp. Mounting Mechanism (SHOWN TOP MOUNTED ON CUSTOMER’S ENCLOSURE)

5/32" (4mm) diameter x 3-1/2" (21mm) long muffler and mounting clamp

HAZARDOUS LOCATION VORTEX A/C

(Shown top mounted on customer’s enclosure)

12. Connect the compressed air supply to the inlet of the air filter. See "Compressed Air Supply."