TABLE 1: FILTER RECOMMENDATIONS

<table>
<thead>
<tr>
<th>Vortec Model</th>
<th>Oil Removal Filter</th>
<th>Replacement Generator Kits (5 pc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7570, 7270</td>
<td>7015-54</td>
<td>208GK-35H</td>
</tr>
</tbody>
</table>

TABLE 2: DETERMINING COMPRESSED AIR LINE SIZE
1. Calculate total product compressed air consumption (SCFM, SLPM).
2. Determine length of compressed air line required for connection to main supply.
3. Locate pipe length in left column and read to the right to find the compressed air requirements.
4. Locate pipe size at top of column.

MAXIMUM AIRFLOW (SCFM) THROUGH PIPE AT 5 PSI PRESSURE DROP (100 PSIG AND 70°F)

<table>
<thead>
<tr>
<th>Pipe Length (Feet)</th>
<th>Pipe Size (Nominal) - Schedule 40</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>3/8</td>
</tr>
<tr>
<td>1/2</td>
<td>3/4</td>
</tr>
<tr>
<td>3/4</td>
<td>1</td>
</tr>
<tr>
<td>1/14</td>
<td>1/2</td>
</tr>
<tr>
<td>1/2</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>2-1/2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pipe Length (Meters)</th>
<th>Pipe Size (Nominal) - Schedule 40</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>3/8</td>
</tr>
<tr>
<td>1/2</td>
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<tr>
<td>1/2</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>2-1/2</td>
</tr>
</tbody>
</table>

MAXIMUM AIRFLOW (SLPM) THROUGH PIPE AT 0.3 BAR PRESSURE DROP (6.9 BAR AND 21°C)

<table>
<thead>
<tr>
<th>Pipe Length (Meters)</th>
<th>Pipe Size (Nominal) - Schedule 40</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>3/8</td>
</tr>
<tr>
<td>1/2</td>
<td>3/4</td>
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<tr>
<td>1/14</td>
<td>1/2</td>
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<tr>
<td>1/2</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>2-1/2</td>
</tr>
</tbody>
</table>

HAZLOC VORTEX A/C Cold Air Flow (at 90 to 100 psig (6-7 bar) operating pressure)

<table>
<thead>
<tr>
<th>Models</th>
<th>Cold Air Flow (both cooling stages operating)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7570, 7270, 7570BSP, 7270BSP</td>
<td>47 CFM/minute (1330 liters/minute)</td>
</tr>
</tbody>
</table>

Contact the purge system manufacturer or Vortec if assistance is needed in selecting the correct spark arrester 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 recommended to regulate the pressure with ITW Vortec's 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°F to 90°F (27°C to 32°C). When the HazLoc Vortex A/C is not cooling, the Check Valves close 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 thermostats to "test" them for operation. Damage to the product may result 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 air 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 70°F (21°C)). The HazLoc Vortex A/C has a Temperature Class of T4. 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 paths, due to dirt.
4. Water vapor in the compressed air supply.
5. Loose cold air outlet fitting(s). This may occur if not tightened properly after being disassembled for cleaning.

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

IMPORTANT
Please read all instructions BEFORE attempting to use this product.

This equipment is suitable for use in Class I, Division 2, Groups A, B, C and D; Class II, Division 2, Groups F and G; and Class III OR non-hazardous locations only.
WARNING: COMPRESSED AIR COULD CAUSE DEATH, BIRTHNESS OR INJURY.

1. Operate a HazLoc Vortex A/C at compressed air pressures above 100 psi (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. When using compressed air, wear safety glasses with side shields.

WARNING! Explosion Hazard: Substitution of components may cause injury for Class I Division 2.

INTRODUCTION

The Hazardous Location Vortex A/C (“HazLoc Vortex A/C”) is designed for cool industrial control cabinets located in hazardous locations, using only filtered and dried compressed air to generate the cooling. The system consists of an air handling unit in conjunction with a properly sized enclosure purge and pressurization system that must be located in a non-hazardous zone to facilitate easy filter element replacement.

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 cold air flow generated by the HazLoc Vortex A/C to prevent fire hazards.

The 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 unvented enclosure as pressure in the enclosure will increase and damage or injury could result. The HazLoc Vortex A/C has built-in mechanical thermostats. The HazLoc Vortex A/C should be located so that the entire mounting “footprint” of the HazLoc Vortex A/C is away from personnel, if possible. Also, position so that the stainless steel shroud on the back of the enclosure faces down toward the floor. If side mounted, it is best if the unit is located near the top of the enclosure to hold the air fitting on the side of the HazLoc Vortex A/C, in a location where the temperature does not exceed 125°F (52°C). Allow the filter to hang at the side of the enclosure as shown in the installation drawing. Use an 11/16” (18 mm) wrench to hold the air fitting on the side of the HazLoc Vortex A/C stationary while tightening the pipe connections. Note the air flow direction arrow on top of the filter. See Maintenance section for recommendations on location of the compressed air filters.

COMPRESSED AIR SUPPLY

The compressed air system’s intake must originate in a non-hazardous area. Compressed air piping must be fabricated from noncombustible materials suitable for the conditions present. The pressurized air delivered to the HazLoc Vortex A/C must be of the quality of air used to purge and pressurize the enclosure it is installed on. The model 7570 will require up to 70 scfm (1980 lpm) of compressed air to cool and dry the ventilation air to 90°F (32°C) enclosure temperature range.

The compressed air supply to the HazLoc Vortex A/C must have a minimum compressed air supply valve(s) to the HazLoc Vortex A/C. Follow purge system startup procedures before operating the HazLoc Vortex A/C (3/8”-18 npt threads) inside the enclosure. The purging point must be located between the enclosure surface and the HazLoc Vortex A/C.

The compressed air to the HazLoc Vortex A/C must be shut off before changing the filters in the HazLoc Vortex A/C. The 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.

Supply compressed air to the HazLoc Vortex A/C with 3/8” schedule 40 pipe at a pressure of 90 to 100 psig (6 to 7 bar). Use 3/8” schedule 40 pipe that is at least 10 feet (3m) long for each run (5 feet (1.5m) from the HazLoc Vortex A/C), and 10 feet (3m) at least 10 feet (3m) long for each run (5 feet (1.5m) from the HazLoc Vortex A/C). Do not use a pipe length exceeding 10 feet (3m) but is less than 30 feet (9m). Use 1/4” pipe. The length should be less than 20 feet (6m). Use 1/8” pipe. Use of appropriate pipe adapter fittings when terminating the supply pipe at the HazLoc Vortex A/C. (The model 701S-40A compressed air filter that is supplied with the model 7570 has 3/4”-14 npt ports. The model 701S-40A compressed air filter that is supplied with the 7570BSP has 3/4”-14 BSP ports.)

MAINTENANCE

The only maintenance involved with the HazLoc Vortex A/C is normal element changes to the compressed air filter. The filter element should be replaced whenever there is a decrease in performance or when pressure drop across the filter exceeds 5 psi (3 bar).

The compressed air supply to the unit must be shut off before changing the filter element. 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 enclosure. If the compressed air filter must be located in the hazardous area, the compressed air filter shall 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 field. Do not disturb the setting 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 HazLoc Vortex A/C to prevent operation. There is no backflush valve on the HazLoc Vortex A/C to prevent air from leaking out from the purged enclosure. The spark arrestor vent must be properly sized to accept the additional cold air flow generated by the HazLoc Vortex A/C to prevent fire hazards.

To check the HazLoc Vortex A/C for the protected power to the enclosure and follow any purge system shutdown procedures. Shut off the compressed air supply to the HazLoc Vortex A/C. Before opening thermostat/valve and check valve, allow sufficient time for any internal components to cool down completely.

1. Check that the HazLoc Vortex A/C is shut off, allow sufficient time for any internal components to cool down completely.
2. Detach the 5/8” (16mm) ID vinyl tubing from the check valve assemblies and remove the check valve assemblies from the cold air outlet of the HazLoc Vortex A/C.
3. Remove the two brass cold air outlet fittings from the bottom of the unit (with a T25mm open end wrench).
4. Remove the O-Rings. Then remove the brown generators.
5. Inspect the six slots in each generator for foreign material and clean air at 90 psi.
6. Clean the cavities in the HazLoc Vortex A/C that the generators were located in if necessary.
7. Reassemble the generators, O-Rings and cold air outlet fittings in reverse order. Make sure that the cold air outlet fittings are tightened to at least 100 inches pounds (11 newton meters) torque.
8. Attach the check valve assemblies to the cold outlet fittings making sure the air flow through the check valves is in the proper direction. Tighten all the pipe connections securely. Reattach the 5/8” (16mm) vinyl tubing to the check valve outlets. Open the compressed air supply valve(s) 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 near the stage 1 outlet. See the diagram for location. Alternatively, the HazLoc Vortex A/C can be mounted on the side of the enclosure. When the unit is side mounted (on a flat vertical surface), the Purge System (if supplied) can be pointed down, 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 sufficient clearance for the internal mechanical thermostats, cold air outlets and check valve assemblies, and so that the entire mounting “footprint” of the HazLoc Vortex A/C is supported by the enclosure. (A ½” x 1 ½” (241 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 no internal enclosure components obstruct air flow around the mechanical thermostats. The HazLoc Vortex A/C should be located adjacent to the purge system’s spark arrestor vent. This will allow the mechanical thermostats to sense temperature of the airflow external to the enclosure and respond faster to the temperature changes in the enclosure.
3. Cut two 1 15/16” (49mm) diameter holes (1 1/8” knuckleout size) on 4” (102mm) centers in the selected location of the flat (horizontal) or vertical surface of the enclosure. De-burr any sharp edges around these holes.
4. Remove the 1 1/8” electrical locknuts from the HazLoc Vortex A/C.
5. Attach the Check Valve assemblies to the cold air outlets of the HazLoc Vortex A/C to prevent air from leaking out from the purged enclosure.
6. Snap the Cold Air Mufflers into the Mounting Clamps.
7. From inside the enclosure, screw the two 1 1/8” electrical locknuts onto the threads of the HazLoc Vortex A/C. Tighten the locknuts securely to compress the 1/8” (3mm) thick sealing gaskets that are located between the enclosure surface and the HazLoc Vortex A/C.
8. Attach the Check Valve assembly to the cold air outlets of the HazLoc Vortex A/C (3/8”-18 npt threads) inside the enclosure. The Check Valves can be attached to the HazLoc Vortex A/C with the supplied 3/8” straight pipe adapter or with the supplied 3/8” npt pipe elbows. The orientation of the Check Valve assemblies is not important, they will function in any position, however, the airflow direction through the Check Valves is important. Air must flow toward the Check Valves so that the arrow on the Valves point away from the HazLoc Vortex A/C. Suitability of the Check Valves, provided with the HazLoc Vortex A/C for the application. After the air leak check and pressurized enclosure must be verified during installation.
9. Mount the Cold Air Mufflers inside the enclosure near the HazLoc Vortex A/C. (You will need a surface area of approximately 2” x 9” (50 x 140mm) for this purpose. Mounting surfaces must be flat and parallel.) The Location where the temperature does not exceed 125°F (52°C). Allow the filter to hang at the side of the enclosure as shown in the installation drawing. Use an 11/16” (18 mm) wrench to hold the air fitting on the side of the HazLoc Vortex A/C stationary while tightening the pipe connections. Note the airflow direction arrow on top of the filter. See Maintenance section for recommendations on location of the compressed air filters.
10. Attach all (or a portion of) the remaining supplied vinyl tubing of the Cold Air Ducting Kits to connect the outlets of the Check Valves to the Cold Air Mufflers. Attach the lengths of vinyl tubing securely onto the hose barbs of the Check Valves and the Mufflers. Ensure that the vinyl tubing has no sharp bends or kinks. Direction of cold air flowing through the Mufflers is not important.
11. Connect the compressed air filter (supplied with models 7570 and 7570BSP) to the compressed air inlet on the HazLoc Vortex A/C with a length of 3/8” pipe (not supplied). Install the compressed air filter as close as possible to the HazLoc Vortex A/C, in a location where the temperature does not exceed 125°F (52°C). Allow the filter to hang at the side of the enclosure as shown in the installation drawing. Use an 11/16” (18 mm) wrench to hold the air fitting on the side of the HazLoc Vortex A/C stationary while tightening the pipe connections. Note the airflow direction arrow on top of the filter. See Maintenance section for recommendations on location of the compressed air filters.
12. Connect the compressed air supply to the inlet of the air filter. See “Compressed Air Supply.”

HAZARDOUS LOCATION VORTEX A/C

(MODEL 7570 SHOWN TOP MOUNTED ON CUSTOMERS ENCLOSURE) (PURGE SYSTEM SHOWN FOR REFERENCE ONLY)