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

As stated in the introduction, the ATEX Vortex A/C must be used in conjunction with an enclosure purge and pressurization system. The purge system must have a spark arrestor vent that allows the cold air flow (produced by the ATEX Vortex A/C) and the pressurization air to safely escape the protected enclosure, without creating too little or too much pressure in the enclosure. Add the pressurization air to the cold air flow as found in the table below to determine the total air flow through the spark arrestor vent.

FILTER AND REPLACEMENT PART ITEM NUMBERS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>DESCRIPTION</th>
<th>PART NUMBER</th>
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<tr>
<td>Vortec Model</td>
<td>Oil Removal Filter</td>
<td>7370, 7470</td>
</tr>
<tr>
<td></td>
<td>Replacement Generator Kits (5 pc)</td>
<td>7015-54</td>
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<td>206GK-35H</td>
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**TABLE 1: FILTER RECOMMENDATIONS**

**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)</th>
<th>Schedule</th>
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<th>3/8</th>
<th>1/2</th>
<th>3/4</th>
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<td>21</td>
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**MAXIMUM AIRFLOW (SLPM) THROUGH PIPE AT 0.3 BAR PRESSURE DROP (6.9 BAR AND 21°C)**

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<th>1/2</th>
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</tr>
</tbody>
</table>

**STAGE TWO COOLING**

Under normal operation, the first stage cooler (the cold air outlet that is nearest to the compressed air inlet) will activate first. This will either reduce the rate of temperature rise in the enclosure, or it will begin to reduce the enclosure temperature, depending on the total heat load in the enclosure. If the total heat load is significant and the temperature continues to rise, the second stage cooler will activate, doubling the amount of cooling air. In locating the two Cold Air Return Kits, sufficient clearance should be given to the two stage cooler in the Cold Air Return Kits for increased flexibility in directing refrigerated air into the enclosure. For example, the first stage cooler’s output could be directed at a primary source of heat within the enclosure (PLC’s, VFD’s, transformers, etc.) and the second stage ducting could be punched or drilled (as described earlier) and routed for overall cold air distribution throughout the enclosure.

**LIMITED WARRANTY**

ATEX Vortex A/C compressed air enclosure cooling products manufactured by ITW Air Management will be replaced or repaired if found to be defective due to manufacture within ten years from the date of issue. Refer to our website www.vortec.com for full warranty details and limitations. ITW Air Management makes no specific warranty of merchantability or warranty of fitness for a particular purpose.
The compressed air system's intake must originate in a non-hazardous COMPRESSED AIR SUPPLY with the ATEX Vortex A/C. It is the end user’s responsibility to ensure that the correct spark arrestor sized to accept the additional cold air flow generated by the ATEX Vortex into the hazardous area (outside of the enclosure) through the purge.

It is highly recommended to dry the compressed air (to remove water vapor) using a refrigerated air dryer. Failure to dry the air adequately may result in water condensation internally and resulting in decreased cooling air flow and cooling capacity, and will void the warranty.

When supplied compressed air to the ATEX Vortex A/C with 3/8” schedule 40 pipe when the pipe length is less than 10 feet (3m). If pipe length exceeds 10 feet (3m) but is less than 30 feet (9m), use 1/2” pipe. If pipe length exceeds 30 feet (9m) but is less than 100 feet (30m), use 3/4” pipe. If pipe length exceeds 100 feet (30m) use 1” pipe. The supplied 1/2” npt air inlet fitting to the ATEX Vortex A/C is 1/2”-13 npt. When using different npt pipe sizes, use an adapter. The 1/2” npt air inlet fitting to the ATEX Vortex A/C is 1/2”-13 npt. When using different npt pipe sizes, use an adapter. The 1/2” npt air inlet fitting to the ATEX Vortex A/C is 1/2”-13 npt. When using different npt pipe sizes, use an adapter.

The ATEX Vortex A/C is designed to cool industrial control cabinets suitability for Zone 2 and Zone 22.

**WARNING!**

1. Each equipment item must be installed with the supplied or equivalent size of equipment used to purge all hazardous area(s).  
2. The equipment must be piped to maintain the pressure and flow capacity of the purged and pressurized system at all times, so that the enclosure remains pressurized and the purged and pressurized enclosure remains sealed. The equipment must be piped to maintain the pressure and flow capacity of the purged and pressurized system at all times, so that the enclosure remains pressurized and the purged and pressurized enclosure remains sealed.

**MAINTENANCE**

The only maintenance involved with the ATEX Vortex A/C is normal element cleaning, filter element change out, and filter element cleaning when dirt and debris requires replacement.

**INTRODUCTION**

The ATEX Vortex A/C is designed to cool industrial control cabinets which are located in Zone 2 and Zone 22 hazardous locations, using only filtered and dried compressed air to generate the cooling.

The ATEX Vortex A/C shall be mounted in a position that allows it to be easily accessed for maintenance and inspection.

Before using the ATEX Vortex A/C, it is recommended to check the air piping and electrical connections to ensure that they are sound.

**COMPRESSED AIR SUPPLY**

The compressed air system’s intake must originate in a non-hazardous COMPRESSED AIR SUPPLY with the ATEX Vortex A/C. It is the end user’s responsibility to ensure that the correct spark arrestor sized to accept the additional cold air flow generated by the ATEX Vortex into the hazardous area (outside of the enclosure) through the purge.

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 nonhazardous area so that normal filter element maintenance can be carried out without risk to personnel or property.

If an oil removal filter is necessary, install it downstream of the 5 micron filter.

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