

INSTALLATION & MAINTENANCE

VORTEX TUBES

Models: 2001, 2002, 2003, 2004, 2005

IMPORTANT

READ ALL INSTRUCTIONS BEFORE ATTEMPTING TO OPERATE THIS PRODUCT

General Safety Considerations

WARNING

Compressed air Could Cause Death, Blindness or Injury

1. Do not operate a Vortex Tube at air pressures above 150 Psig (10.3Bar).
2. Do not operate a Vortex Tube at line temperatures above 43 °C (110°F)
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.

Installation Guidelines

1. Maintain line pressure at 80 to 100Psig (5.5 - 6.9bar).
2. Keep compressed air lines sized adequately to minimize pressure drop. For lengths to 10 feet use 3/8" pipe or 1/2" hose. For lengths to 20 feet, use 1/2" pipe or 3/4" hose. For lengths to 50 feet, use 1/2" pipe or 1" hose. Do not use restrictive fittings or undersized lines that can "starve" the Vortex Tube by causing excessive line pressure drop such as quick disconnects.
3. With proper filtration and separation of moisture, oil and dirt from the compressed air supply, the Vortex Tube will operate for years with no maintenance required. For water removal, a minimum 5 micron filter complete with an automatic (float type) drain is recommended. It should be sized to handle the total air flow of the Vortex Tube at the pressure they will be used. If oil could be a concern, an oil removal filter should be added downstream from the water removal filter and should also have an automatic (float type) drain. Again, they should be sized to handle the total flow of the Vortex Tube, Filters should be mounted near any Vortex Tube, typically within 10 to 15 feet.

Use of the Vortex Tubes System

1. Mount the unit where appropriate to be able to direct the cold air onto the part or spot to be cooled using the flexible hose provided in the kit.
2. A hose are supplied. Make sure the hose is as close to the area to be cooled as possible and try to be within 1/2" on the part.
3. Adjust the cold temperature by using the knob at the hot end of the unit. As the temperature is set lower, the flow will also decrease at the cold end.

4. To increase or decrease the flow change the generator inside the unit. These generators are rated for 10, 15, 25, 30 and 40 scfm at 80 Psig. A 10 scfm generator is supplied installed. Cooling (and air flow) will increase with larger capacity generators, and will decrease with smaller capacity generators.
5. To change the generator and thus the volume of air, simply remove the cold cap (1) using a crescent wrench. Pull out the O ring (2) and generator (3) and replace it with the desired generator. Then reassemble the O ring and cold cap tightly.

PARTS

1. Cold End Cap
2. O Ring
3. Generator
4. Spin Chamber
5. Valve Assembly

Troubleshooting and Maintenance of the Unit

1. **Inlet temperature is high** - if the compressed air supply lines are warm or hot due to compressed air being heated by running in hot areas like furnaces, in direct sunlight or across ceilings, then the unit will not refrigerate as well. Seek out alternative air supply.
2. **Inlet Pressure Low** — Restrictions in the air supply line from restrictive fittings, small air lines, etc. will create excessive pressure drop and lower performance. Remove restrictions and increase air line size to correct.
3. **Inlet Temperature Normal and Line Pressure normal But Output Poor** - Excessive back pressure at the cold outlet will reduce performance. Always use either the hose kit supplied and keep a minimum of 3/8" ID in any hose used to minimize back pressure. Sometimes the cold outlet will freeze if water is in the system. That can be corrected by turning the temperature adjusting knob fully clockwise to increase the outlet temperature to thaw or, turn of the unit to thaw. To prevent freezing again, add a dryer to the compressed air supply line.

Maintenance is normally not required if the unit is properly filtered but if cleaning is necessary it can be easily dismantled, cleaned and re-assembled.