

Stratus Vortex Cooler Installation & Maintenance

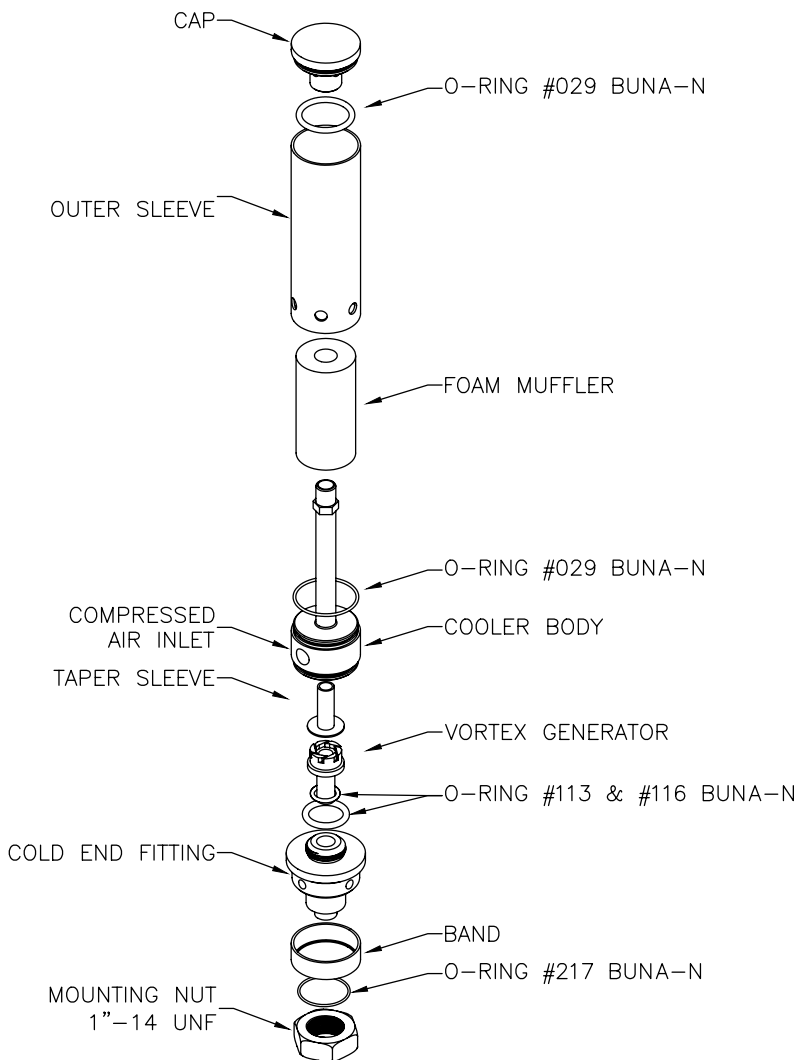
Compressed Air Supply Lines

To obtain maximum performance from the Stratus Vortex Cooler, measurements of pressure (psig) and volume (scfm) of air must be obtained. Pressure drops in the compressed air lines should be held at a minimum. Quick connects can “starve” the Stratus Vortex Cooler by causing excessive line pressure drops. Do not use plastic tubing. The chart below suggests line sizes for pipes and hoses.

Line Sizes for Runs Up To:	10 Ft (3m)		10 - 50 Ft (3 - 15m)		50 - 100 Ft (15 - 31m)	
	Pipe	Hose	Pipe	Hose	Pipe	Hose
All models	1/4"	3/8"	3/8"	1/2"	1/2"	5/8"

Compressed Air Supply

Air lines are plagued with condensed water vapor, oil or oil vapor in the air lines. This condensation leads to rust and debris in the air lines. Small orifices in the Stratus Vortex Cooler may become clogged with rust, dirt, and water droplets from these unfiltered air supplies. A 5-micron filter is required to separate harmful foreign matter from the air supply, allowing virtually maintenance free operation. The use of an oil filter with an effective filtration of 0.01 ppm will remove the oil droplets for an even cleaner air supply. Keep in mind that the current line or air hose might contain dirt or oil and should be blown out before installation. Also, pipe thread sealant or tape must be carefully applied to avoid clogging product orifices.



Using the Stratus Vortex Cooler

The Stratus vortex generator determines the volume of air through the Stratus Vortex Cooler. The vortex generator is an internal plastic part already installed in the Stratus Vortex Cooler. Stratus Vortex Coolers have replaceable generators available in 8, 10, 15, 25 & 35 CFM. This allows you to make changes to the output of your vortex cooler without having to purchase another cooler. See the figure on the left for assembly details.

Installation

For use on a flat surface of a UL Type 4, 4X enclosure. The Stratus vortex cooler mounts in a standard 3/4" electrical knockout and is secured with the supplied machine nut. Supply air connection is 1/4 NPT.

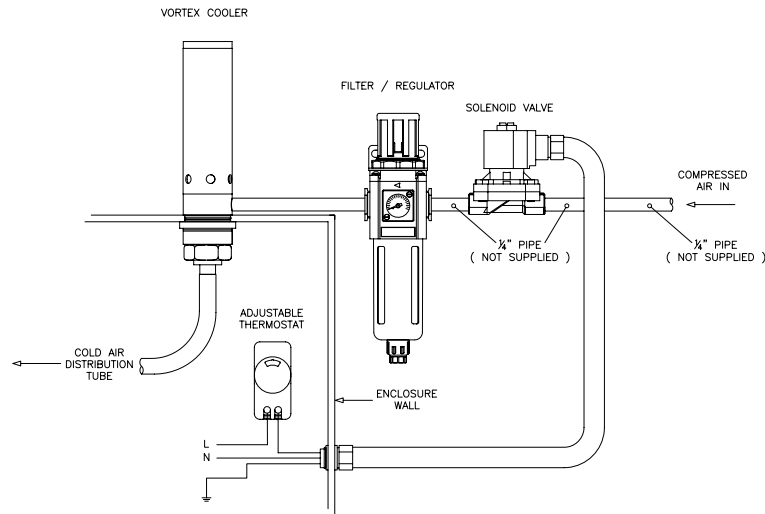
Ducting

The 8' of plastic hose connects to the cold end of the Stratus Vortex Cooler once it is mounted to the enclosure. This allows more efficient use of the cold air by routing the cold air to hot spots in the enclosure. Punch holes in the tube at each of the hot spots. The open end of the tube should be placed at or near the bottom of the enclosure, so that cold air enters at the bottom, forcing the warm air at the top of the enclosure out through the warm air baffle in the cold end fitting.

Maintenance

The Stratus Vortex Cooler has no moving parts. Clean compressed air moving through the unit will not cause any wear. Dirt or moisture will cause problems and will affect the efficiency of the unit. If this happens simply disassemble the unit, clean the parts and reassemble making sure to properly seat the o-ring and generator. See the figure on the left for assembly details.

Vortex Cooler Kit Installation Example



Troubleshooting

Stratus Vortex Cooler Performance Issues	Action
Inadequate Air Flow	Measure the inlet air pressure immediately upstream of the Stratus Vortex Cooler. If the pressure is less than 80 psig, then there is inadequate pressure to produce the flow rate for which the Stratus Vortex Cooler is rated. There are many potential causes for inadequate supply pressure, including but not limited to pressure drops from undersized pipe, valves or hose, excessive upstream compressed air demand to other end users, blockages in the system, and inadequate compressor sizing. If the inlet pressure is adequate, performance may be hindered by accumulation of dirt, water and/or oil from the compressed air supply. If this happens, simply disassemble the Stratus Vortex Cooler, clean the parts, and reassemble the Stratus Vortex Cooler as shown in the figure.
High Output Air Temperature	The Stratus Vortex Cooler reduces the temperature of the compressed air supply. The compressed air supply may be warmer than ambient if the supply piping is exposed to heat sources, such as direct sunlight, ovens, furnaces, etc. Reroute or insulate compressed air source to reduce upstream heating.
Ice Formation	When the temperature of the air inside the Stratus Vortex Cooler reaches 32° F. (0° C.), the water vapor in the air will start to freeze. If this causes ice to clog the orifices of the generator inside the tube, an air dryer must be used to lower the dew point to keep out the water vapor. A dryer rated at -35° F will produce a dew point low enough to eliminate the water vapor freezing in the orifices of the generator.

Stratus Vortex Cooler Accessories

Part Number	Description
TV08-G	Stratus vortex generator, replacement, 500 BTUH (147W) / 8 SCFM (227 SLPM), polypropylene, white. For all Stratus TV series vortex coolers.
TV10-G	Stratus vortex generator, replacement, 600 BTUH (176W) / 10 SCFM (283 SLPM), polypropylene, orange. For all Stratus TV series vortex coolers.
TV15-G	Stratus vortex generator, replacement, 1000 BTUH (293W) / 15 SCFM (425 SLPM), polypropylene, red. For all Stratus TV series vortex coolers.
TV25-G	Stratus vortex generator, replacement, 1800 BTUH (528W) / 25 SCFM (708 SLPM), polypropylene, blue. For all Stratus TV series vortex coolers.
TV35-G	Stratus vortex generator, replacement, 2500 BTUH (732W) / 35 SCFM (991 SLPM), polypropylene, yellow. For all Stratus TV series vortex coolers.
TVACC-TS	Stratus taper sleeve, replacement, brass. For all Stratus TV series vortex coolers.
TVACC-TUBE	Stratus distribution tube, replacement, flexible PVC. For all Stratus TV series vortex coolers.
TVACC-MUFFLER	Stratus muffler, replacement, polypropylene. For all Stratus TV series vortex coolers.

Stratus Vortex Cooler Kits

If you purchased your Stratus Vortex Cooler as part of a kit, please follow the instructions below.

- Be sure to replace the 40-micron filter element in the filter/regulator with the 5-micron replacement filter. The 5-micron filter is required to separate harmful foreign matter from the air supply. This is required to maintain a clean supply of air to the cooler, allowing virtually maintenance-free operation.
- When installing components, it is important to locate the solenoid valve upstream of the filter/regulator. This assures there are no unnecessary flow restrictions to the cooler and allows the semi-automatic drain feature of the filter/regulator to work properly.
- All pneumatic components and the vortex cooler have 1/4" FNPT air inlets/outlets. To be sure there is ample flow to the vortex cooler, all fittings and piping supplied to the components must be of the same size or larger. Smaller fittings, excessive turns (elbows, tees, etc), or use of plastic tubing fittings will reduce flow and affect the performance of the vortex cooler.
- Plastic tubing is not recommended as the fittings associated with tubing and tubing inside diameter can reduce airflow. Do not use "quick couplings" anywhere in the system as they create flow restrictions and your cooler will not perform correctly.
- Size your supply airline to the solenoid valve correctly. Up to 10' long runs will require a pipe size of at least 1/4" (3/8" for hoses). 10' to 50' long runs will require a pipe size of 3/8" (1/2" for hoses). 50' to 100' long runs will require a pipe size of 1/2" (5/8" for hoses).
- Maximum supply air pressure on this combination of components is 145psi.

Vortex Cooler Kits								
Kit Number	Voltage	Capacity BTUH [W]	Air Consumption SCFM [SLPM]	Vortex Cooler Number	Solenoid Valve	Thermostat	Filter/Reg- ulator	5-micron Filter
TVK08-005-4X-120A	120VAC	500 [147]	8 [227]	TV08-005-4X	DVD-2BC2A-120A	011169-00	AFR-3233	AFE-31
TVK10-006-4X-120A	120VAC	600 [176]	10 [283]	TV10-006-4X	DVD-2BC2A-120A	011169-00	AFR-3233	AFE-31
TVK15-010-4X-120A	120VAC	1000 [293]	15 [425]	TV15-010-4X	DVD-2BC2A-120A	011169-00	AFR-3233	AFE-31
TVK25-018-4X-120A	120VAC	1800 [528]	25 [708]	TV25-018-4X	DVD-2BC2A-120A	011169-00	AFR-3233	AFE-31
TVK35-025-4X-120A	120VAC	2500 [732]	35 [991]	TV35-025-4X	DVD-2BC2A-120A	011169-00	AFR-3233	AFE-31
TVK08-005-4X-24D	24VDC	500 [147]	8 [227]	TV08-005-4X	DVD-2BC2A-24D	011169-00	AFR-3233	AFE-31
TVK10-006-4X-24D	24VDC	600 [176]	10 [283]	TV10-006-4X	DVD-2BC2A-24D	011169-00	AFR-3233	AFE-31
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Component Warranties				5-Year	1-Year	1-Year	2-Year	2-Year