SoliTherm® Thermoelectric Coolers

SEIFERT thermal innovations

Applications

Thermoelectric elements utilize the Peltier Effect to create a temperature difference between the internal and ambient heat sinks, making internal air cooler while dissipating heat into the external environment. Fans assist the convective heat transfer from the heat sinks, which are optimized for maximum flow.

The Seifert SoliTherm® Peltier thermoelectric coolers can be mounted in nearly every position (except roof mounting) because they don't have a compressor or any moving parts aside from the fans. Depending on the application, condensation management may need to be considered. Seifert SoliTherm thermoelectric coolers are available as recessed with the internal heat sink and fan inside the enclosure and the ambient components on the outside. But, frames are available for external mounting. These thermoelectric coolers are resistant to extreme ambient conditions and can operate effectively even in environments that are dusty and oily. They comply with European standards IEC/TC 62610-1 and IEC/TC 62610-3, and can be used for both indoor and outdoor applications.

Construction

- Recessed mounting (flush-mounting kit sold separately)
- Cooling capacities from 100 to 680 BTU/H [30W to 200W]
- Operating Temperature Range: -4°F to 149°F [20°C to 65°C]
- AISI 304 stainless steel housing
- Condensate tray and drain sold separately
- Mounting nut torque: 3.3 lb·ft [4.5 Nm]
- Connection: Terminal block
- 24 VDC units require thermostat for set-point control

Agency Approvals

- CE, RoHS
- UL Recognized File number: SA32278
- NEMA 4X
- IP 66

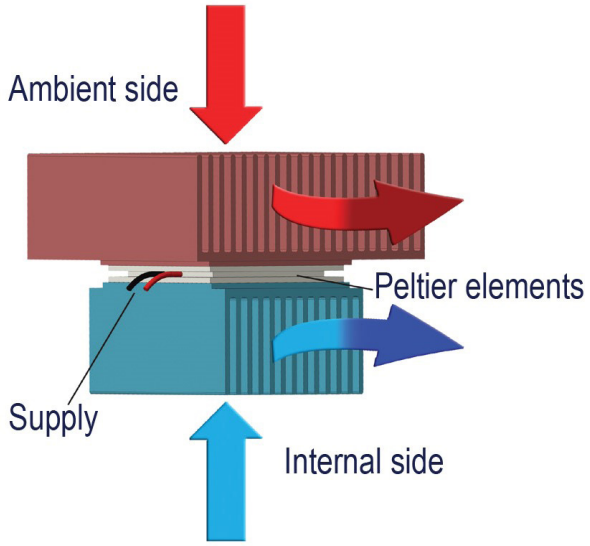
c UL us CE

SoliTherm® Thermoelectric Cooler General Specifications

Part Number	Nominal Power / Max (W)	Cooling Capacity	Operating Voltage	Inrush Current (A)	Max Current (A)	Recommended Fuse Size (A)	Integral Thermostat
3035303	44 - 52	100 BTU/H [30W]	24 VDC	4.0	2.2	5	No
3050303	58 - 60	170 BTU/H [50W]		3.7	2.5	4	
3102303	115 - 118	340 BTU/H [100W]		7.4	4.9	8	
3152303	170 - 180	510 BTU/H [150W]		11	7.5	10	
3200303	260 - 280	680 BTU/H [200W]		17	11.6	16	
6105313	125 - 139	340 BTU/H [100W]	120 VAC	1.6	1.2	2	Yes
6105323			230 VAC	0.8	0.6	1	

Notes: Power and Cooling Capacity values are for 95°F [35°C] internal and ambient temperatures. Refer to Performance Graphs for values corresponding to other conditions.
Fuses are Class T Time Delay.

Airflow Example



THERMOELECTRIC COOLING PRINCIPLE

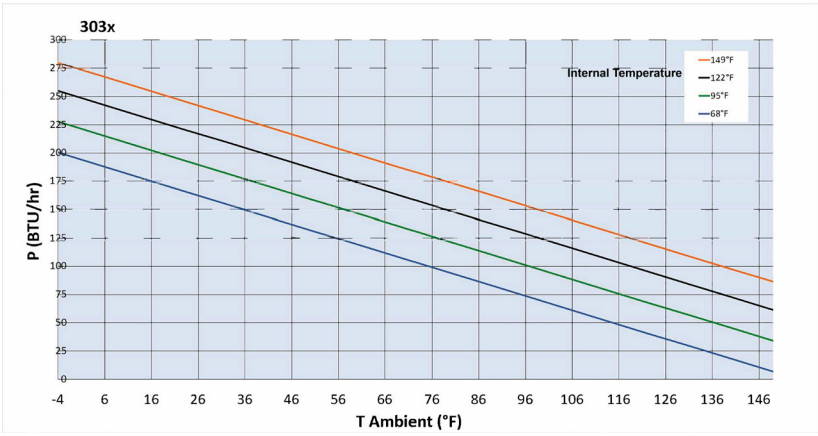
SoliTherm® Thermoelectric Coolers

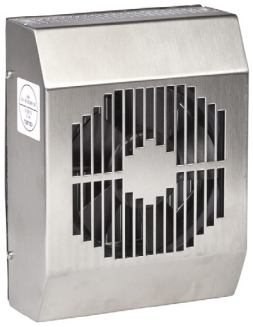
SEIFERT thermal innovations

SoliTherm Thermoelectric Coolers					
Part Number	*Price*	*Dimensions HxWxD*	*Cutout Dimensions*	*Weight (lb)*	*Drawing Link*
3035303	$;-05i3t:	6.04 x 4.33 x 5.07 [110 x 154 x 129]	4.80 x 3.23 [122 x 82]	4	PDF
3050303	$-04jn1:	8.11 x 6.06 x 5.31 [206 x 154 x 135]	6.69 x 4.72 [170 x 120]	7	PDF
3102303	$;-004jn2:	7.87 x 11.97 x 5.43 [200 x 304 x 138]	10.24 x 6.30 [260 x 160]	13	PDF
3152303	$;-004jn3:	15.75 x 7.09 x 6.73 [400 x 180 x 171]	14.61 x 6.10 [371 x 155]	20	PDF
3200303	$;-004jn4:	15.75 x 7.09 x 6.73 [400 x 180 x 171]	14.61 x 6.10 [371 x 155]	22	PDF
6105313	$;-0062#j:	11.02 x 13.78 x 6.5 [280 x 350 x 164]	12.68 x 9.92 [322 x 252]	21	PDF
6105323	$;0062#k:				PDF
Note: Dimensions in inches [millimeters].					

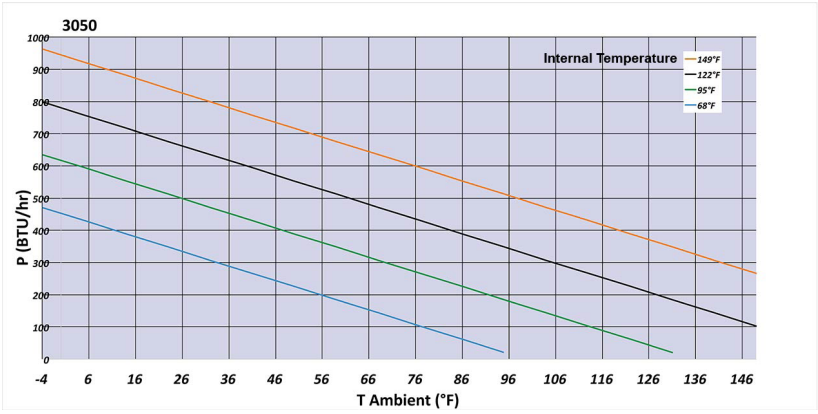


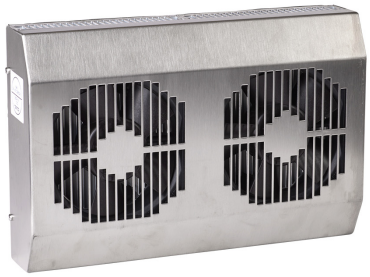
3035303
24VDC



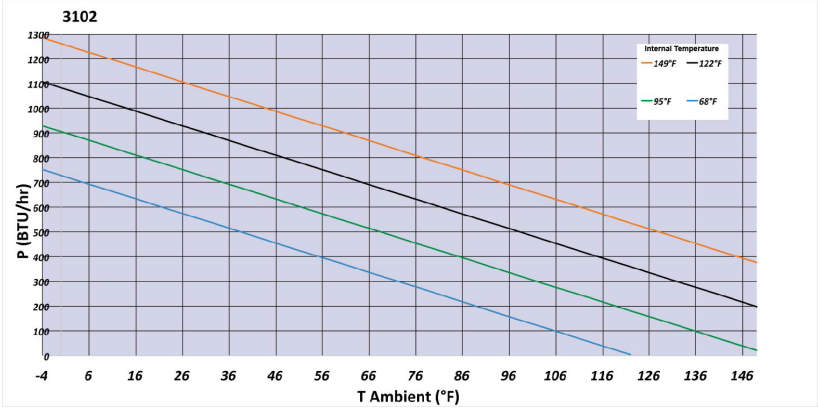


3050303
24VDC





3102303
24VDC



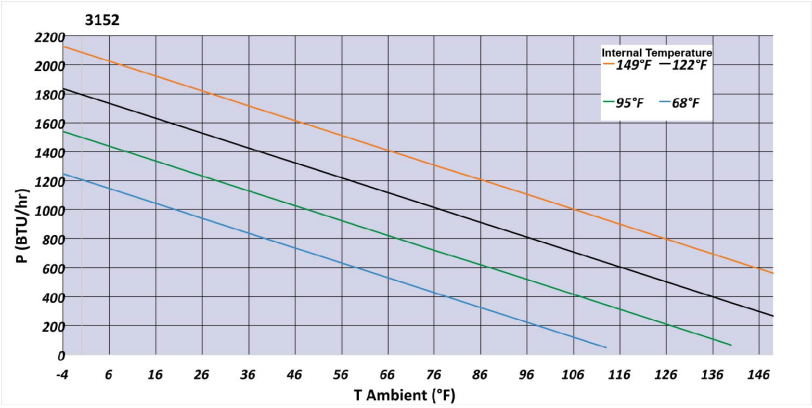
SoliTherm® Thermoelectric Coolers

SEIFERT thermal innovations

Performance Graphs

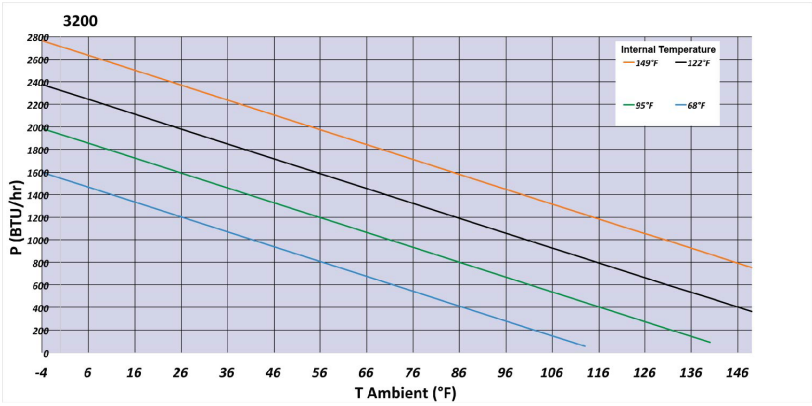


3152303
24VDC



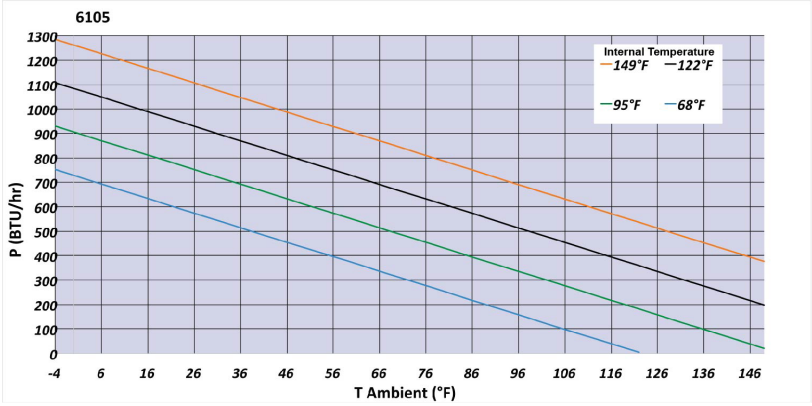


3200303
24VDC





6105313 and 6105323
120 VAC 230 VAC



SoliTherm® Thermoelectric Coolers

SEIFERT thermal innovations

External Mounting Kit

This kit is for external mounting of SoliTherm Thermoelectric Coolers. Add these kits when there isn't space in the enclosure for the internal heat sink and fan.



1012305

Features

- AISI 304 stainless steel
- Hardware included

SoliTherm Thermoelectric Cooler External Mounting Kit		
Part Number	*Price*	*For Use With*
1011305	$-05i3o:	3035303
1012305	$-04jn6:	3050303
1013305	$-04jn7:	3102303
1014305	$-04jn8:	3152303 3200303
1015305	$-04jn9:	6105313 - 6105323

Condensate Drain Kit

As with a conventional air conditioner, cooling air with a thermoelectric cooler may produce condensation. Consider adding condensation management in humid environments.

This kit contains a condensate tray and drain for use with SoliTherm Thermoelectric Coolers.

Mounts to cooler using existing mounting bolts for enclosure.



1001303

Features

- Stainless steel AISI 304
- Hardware included

SoliTherm Thermoelectric Cooler Condensate Drain Kit		
Part Number	*Price*	*For Use With*
1001303	$-04jna:	3035303 3050303
1003303	$-04jnb:	3102303
1002303	$-04jnc:	3152303 3200303
1004303	$-04jnd:	6105313 - 6105323

Vortex Coolers



Applications

Compressed air cooling is used where conventional enclosure cooling byair conditioners or heat exchangers is not possible. (Examples: Small to medium size enclosures, nonmetallic enclosures, and areas where the size of cooling devices is restricted)

Mounting holes

- Mounts in a 3/4" electrical conduit knockout

Agency Approvals

- UL Recognized component [File E329932]UL/ NEMA 4, 4X

Features

- Relief valves and seals built into the vortex coolers which enable the units to maintain the sealed nature of NEMA enclosures
- No freon
- Small physical size
- Creates cool air without refrigerants (no CFCs, HCFCs)
- Exceptionally reliable - no moving parts and virtually no maintenance
- No fans
- Stainless steel construction
- All replacement generators fit any of the vortex coolers. No need to purchase a new cooler if you need to change your cooling capacity
- 5-year warranty

Requirements

- Uses clean, dry, oil-free compressed air (80 to 100 PSIG / 70° F or below) required to achieve published BTU/H ratings. Lower pressures and/or higher temperatures will reduce BTU/H rating
- A 5-micron water and particulate removal filter must be installed prior to any vortex cooler operation
- An oil removal filter can be installed between the 5-micron filter and the Vortex Cooler if oil is present in the compressed air line
- Thermostats, filters, regulators, and valves that work with Stratus Vortex Coolers are sold separately. Kits that include these items are listed later in this section
- Operation above 100 PSIG is not recommended. The use of a pressure regulator will be necessary for higher pressures
- How vortex coolers create cold air

Compressed air is injected into the vortex tube at extremely high speeds and that creates a cyclone, or vortex, spinning a million revolutions per minute. Part of the air is forced to spin inward to the center and travels up a long tube where a valve turns the spinning column of air inside itself. The inside column of air gives up its heat to the outside column. The cold air is directed out the cold end of the Vortex Tube and the hot air is directed out the other end of the Vortex Tube. And since there are no moving parts there is little need for maintenance.



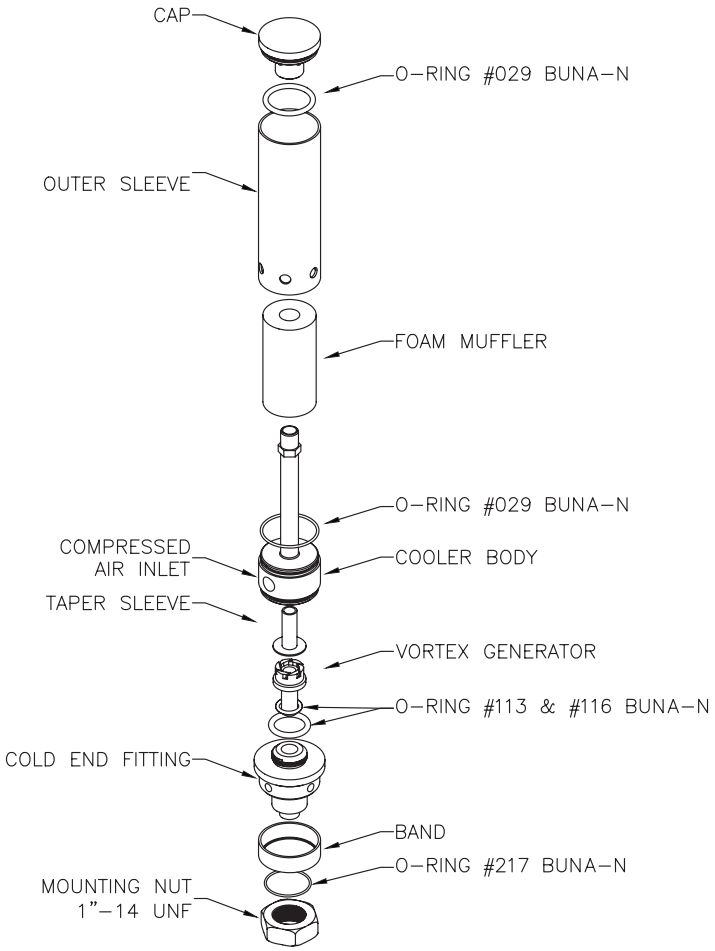
Part Type	Part Number	Price	Description	Capacity BTUH [W]	Air Consumption SCFM [SLPM]
Vortex Coolers	TV08-005-4X	$0108o:	Stratus vortex cooler, stainless steel body. For NEMA 4/4X/12 enclosures. Distribution tube and muffler included.	500 [147]	8 [227]
	TV10-006-4X	$0108p:	Stratus vortex cooler, stainless steel body. For NEMA 4/4X/12 enclosures. Distribution tube and muffler included.	600 [176]	10 [283]
	TV15-010-4X	$0108q:	Stratus vortex cooler, stainless steel body. For NEMA 4/4X/12 enclosures. Distribution tube and muffler included.	1000 [293]	15 [425]
	TV25-018-4X	$0108s:	Stratus vortex cooler, stainless steel body. For NEMA 4/4X/12 enclosures. Distribution tube and muffler included.	1800 [528]	25 [708]
	TV35-025-4X	$0108n:	Stratus vortex cooler, stainless steel body. For NEMA 4/4X/12 enclosures. Distribution tube and muffler included.	2500 [732]	35 [991]
Replacement Generators	TV08-G	$108v:	Stratus vortex generator, replacement, polypropylene, white. Fits all Stratus TV series vortex cooler bodies.	500 [147]	8 [227]
	TV10-G	$108x:	Stratus vortex generator, replacement, polypropylene, orange. Fits all Stratus TV series vortex cooler bodies.	600 [176]	10 [283]
	TV15-G	$108y:	Stratus vortex generator, replacement, polypropylene, red. Fits all Stratus TV series vortex cooler bodies.	1000 [293]	15 [425]
	TV25-G	$108z:	Stratus vortex generator, replacement, polypropylene, blue. Fits all Stratus TV series vortex cooler bodies.	1800 [528]	25 [708]
	TV35-G	$108u:	Stratus vortex generator, replacement, polypropylene, yellow. Fits all Stratus TV series vortex cooler bodies.	2500 [732]	35 [991]

Vortex Coolers

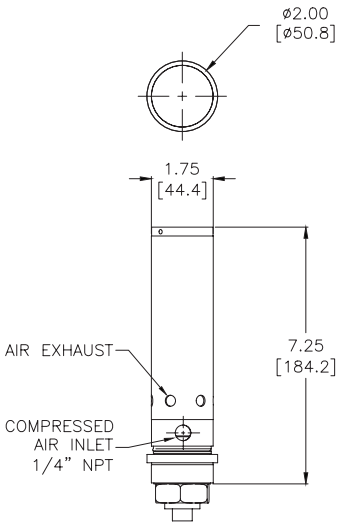


Part Type	Part Number	Price	Description
Replacement Parts	TVACC-TS	$10a#:	Stratus taper sleeve, replacement, brass. For use with all Stratus vortex coolers.
	TVACC-TUBE	$;10a!:	Stratus distribution tube, replacement, flexible PVC. For use with all Stratus vortex coolers.
	TVACC-MUFFLER	$10a?:	Stratus muffler, replacement, polypropylene. For use with all Stratus vortex coolers.

Assembly



Dimensions



Vortex Cooler Kits



Features

- A complete kit for your vortex cooling applications
- Includes the vortex cooler, filter/regulator, 5-micron replacement filter element, solenoid valve and adjustable thermostat
- Adjustable thermostat has N.O. contacts, 32 to 140° F temperature range with a 7° F switching differential
- Kits are available in 500, 600, 1000, 1800, and 2500 BTUH capacities
- 120VAC and 24VDC kits available
- Important Installation Instructions
- 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 0.25in [6mm] 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.

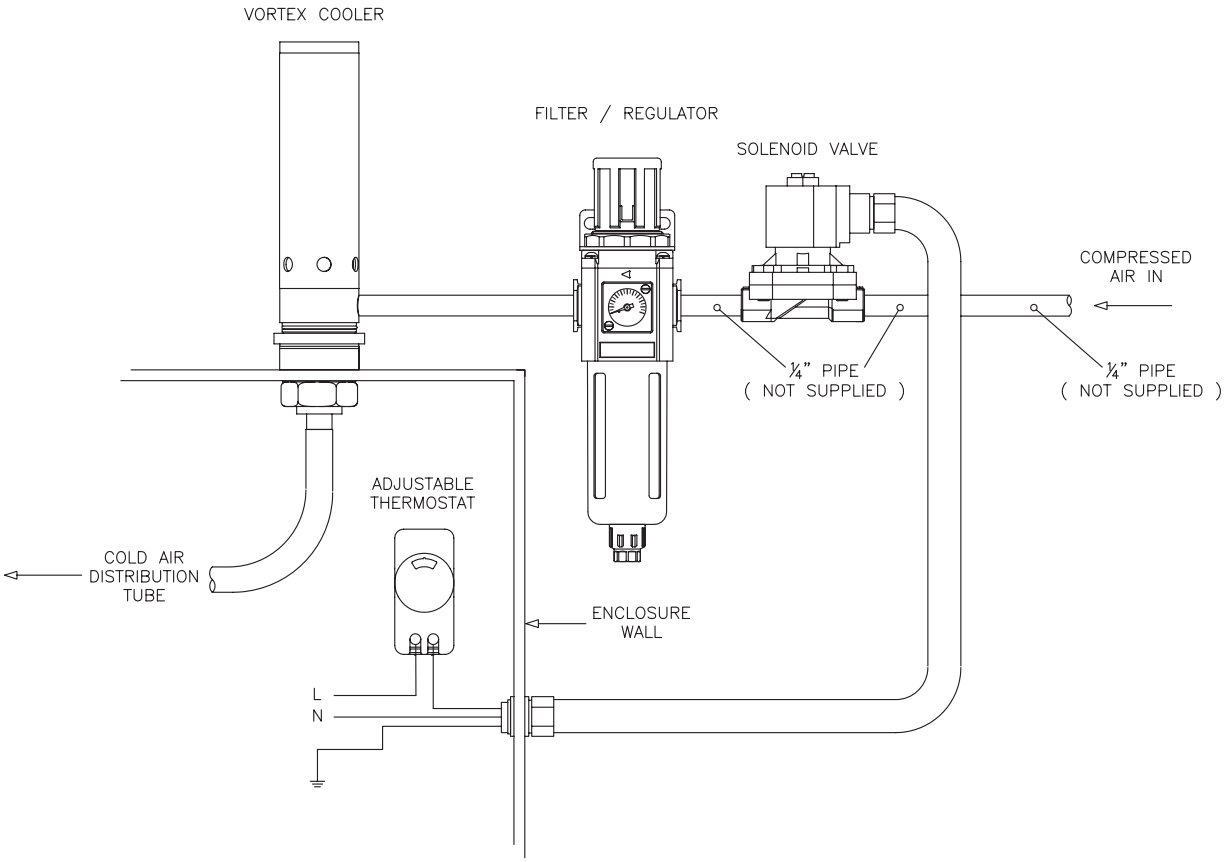
Size your supply airline to the solenoid valve correctly. Up to 10 ft [3 m] long runs will require a pipe size of at least 0.25in [6mm] (3/8in [10mm] for hoses). 10ft [3m] to 50ft [15.24m] long runs will require a pipe size of 3/8in [10mm] (0.5in [13mm] for hoses). 50ft [15.24m] to 100ft [30.5m] long runs will require a pipe size of 0.5in [13mm] (5/8in [16mm] for hoses).

- Maximum supply air pressure on this combination of components is 145 psi

Vortex Cooler Kits									
Kit Number	*Price*	*Voltage*	*Capacity BTUH [W]*	*Air Consumption SCFM [SLPM]*	*Vortex Cooler Number*	*Solenoid Valve*	*Thermostat*	*Filter/ Regulator*	*5-micron Filter*
TVK08-005-4X-120A	$02d1s:	120 VAC	500 [147]	8 [227]	*TV08-005-4X*	*DVD-2BC2A-120A*	*011169-00*	*AFR2-3233*	*AFE2-31*
TVK10-006-4X-120A	$;02d1t:	120 VAC	600 [176]	10 [283]					
TVK15-010-4X-120A	$02d1u:	120 VAC	1000 [293]	15 [425]					
TVK25-018-4X-120A	$02d1v:	120 VAC	1800 [528]	25 [708]					
TVK35-025-4X-120A	$02d1x:	120 VAC	2500 [732]	35 [991]					
TVK08-005-4X-24D	$02d1y:	24 VDC	500 [147]	8 [227]					
TVK10-006-4X-24D	$02d1z:	24 VDC	600 [176]	10 [283]					
TVK15-010-4X-24D	$;02d1]:	24 VDC	1000 [293]	15 [425]					
TVK25-018-4X-24D	$;02d1[:	24 VDC	1800 [528]	25 [708]					
TVK35-025-4X-24D	$02d1_:	24 VDC	2500 [732]	35 [991]					
Component Warranties					**5-Year**	**1-Year**	**1-Year**	**2-Year**	**2-Year**

Vortex Cooler Kits

Vortex Cooler Kit Installation Example



Thermostats, Filters and Valves for Vortex Coolers

Thermostats, Filters and Valves for Vortex Coolers		
Thermostats (See Small Thermostats for Enclosure Heaters, DIN Rail Mounted later in this section)	***Part Number***	***Description***
	011169-00	Stego thermostat, adjustable, N.O. (close on rise) 32–140 °F, 7 °F switching differential, 35mm DIN rail mount, for electrical climate control.
	011160-00	Stego thermostat, adjustable, N.O. (close on rise) 0–60 °C, 4K switching differential, 35mm DIN rail mount, for electrical climate control.
Filters ** (See Pneumatics)	***Part Number***	***Description***
	AF2-223-N	NITRA pneumatic filter, particulate and moisture separation, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), manual/semi-automatic drain, nylon bowl, bowl guard. For use with Ax-22 series air prep components.
	AF2-223	NITRA pneumatic filter, particulate and moisture separation, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), manual/semi-automatic drain, polycarbonate bowl, bowl guard. For use with Ax-22 series air prep components.
	AF2-223-D	NITRA pneumatic filter, particulate and moisture separation, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), manual/semi-automatic drain, die-cast aluminum bowl, sight gauge. For use with Ax-22 series air prep components.
	AF2-323-N	NITRA pneumatic filter, particulate and moisture separation, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), manual/semi-automatic drain, nylon bowl, bowl guard. For use with Ax-32 series air prep components.
	AF2-323	NITRA pneumatic filter, particulate and moisture separation, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), manual/semi-automatic drain, polycarbonate bowl, bowl guard. For use with Ax-32 series air prep components.
	AF2-323-A	NITRA pneumatic filter, particulate and moisture separation, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), automatic drain, polycarbonate bowl, bowl guard. For use with Ax-32 series air prep components.
	AF2-323-D	NITRA pneumatic filter, particulate and moisture separation, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), manual/semi-automatic drain, die-cast aluminum bowl, sight gauge. For use with Ax-32 series air prep components.
	AF2-323-AD	NITRA pneumatic filter, particulate and moisture separation, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), automatic drain, die-cast aluminum bowl, sight gauge. For use with Ax-32 series air prep components.
	AFE2-31**	NITRA particulate filter element, replacement, 5 micron particles, high-density polyethylene (HDPE). For use with AF-3 series filters or AFR-3 series filter-regulators.
Valves (See Pneumatics)	***Part Number***	***Description***
	DVD-2AC2A-24D	NITRA solenoid valve, 2-way, 2-position, N.C., brass body, Viton seal(s), 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), Cv=1.55, 1 psi minimum operating pressure, 24 VDC operating voltage, 18mm DIN style wiring plug.
	DVD-2AC2A-120A	NITRA solenoid valve, 2-way, 2-position, N.C., brass body, Viton seal(s), 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), Cv=1.55, 0 psi minimum operating pressure, 120 VAC operating voltage, 18mm DIN style wiring plug.
	DVD-2BC2A-24A	NITRA solenoid valve, 2-way, 2-position, N.C., glass-filled nylon body, Viton seal(s), 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), Cv=1.55, 7 psi minimum operating pressure, 24 VAC operating voltage, 11mm DIN style wiring plug.
	DVD-2BC2A-120A	NITRA solenoid valve, 2-way, 2-position, N.C., glass-filled nylon body, Viton seal(s), 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), Cv=1.55, 7 psi minimum operating pressure, 120 VAC operating voltage, 11mm DIN style wiring plug.
Note: ** When purchasing filters for your Stratus Vortex Cooler, a 5-micron replacement filter element will need to be purchased in addition to the AF2-2xx or AF2-3xx filter.		

Vortex Cooler Kits

WIEGMANN®



NEMA 4/4X



NEMA 12

Applications

Compressed air cooling is used where conventional enclosure cooling byair conditioners or heat exchangers is not possible. (Examples: Small to medium size enclosures, nonmetallic enclosures, and areas where the size of cooling devices is restricted).

Features

- Suitable for harsh environments
- Small physical size
- Creates cool air without refrigerants (no CFCs, HCFCs)
- Exceptionally reliable - no moving parts and virtually no maintenance

Requirements

- Uses clean, dry, oil-free compressed air (100 PSIG / 70° F or below) required to achieve published BTU/H ratings. Lower pressures and higher temperatures will reduce BTU/H ratings
- A 5-micron water and particulate removal filter must be installed prior to any vortex cooler operation
- An oil removal filter can be installed between the 5 micron filter and the Vortex Cooler if oil is present in the compressed air line
- Mounting holes
- NEMA 12: (1) 1-3/32" (28mm) or 0.25in [6mm] knockout hole for cooling tube and (1) 11/16in [152mm] hole for thermostat
- NEMA 4 and 4X: (1) 1-15/16in [152mm] (49mm) or 1-0.5in [13mm] knockout hole for cooling tube and (2) #8 holes for thermostat

Includes the following:

- Vortex cooler
- Vortex distribution tube
- Solenoid valve 120V / 60Hz - 110V / 50Hz
- Filter: 5-micron water and particulate removal
- Ducting kit
- Thermostat

Standards

- UL Listed
- NEMA 12, NEMA 4 or NEMA 4X

How vortex coolers create cold air

Compressed air is injected into the vortex tube at extremely high speeds and that creates a cyclone, or vortex, spinning a million revolutions per minute. Part of the air is forced to spin inward to the center and travels up a long tube where a valve turns the spinning column of air inside itself. The inside column of air gives up its heat to the outside column. The cold air is directed out the cold end of the Vortex Tube and the hot air is directed out the other end of the Vortex Tube. And since there are no moving parts there is little need for maintenance.



Shipping Schedule

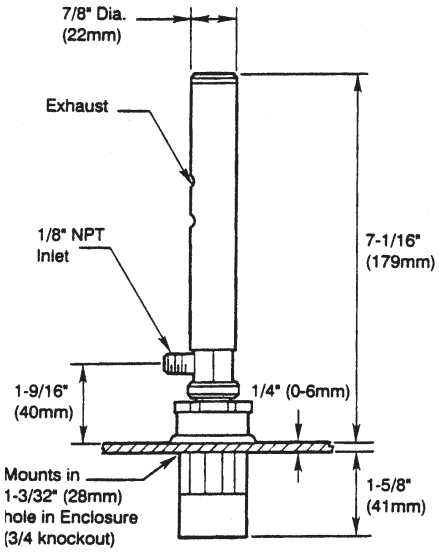
Same day	1 - 5 days	1 - 7 days	1 - 15 days	1 - 20 days

Color indicates shipping lead time in business days.

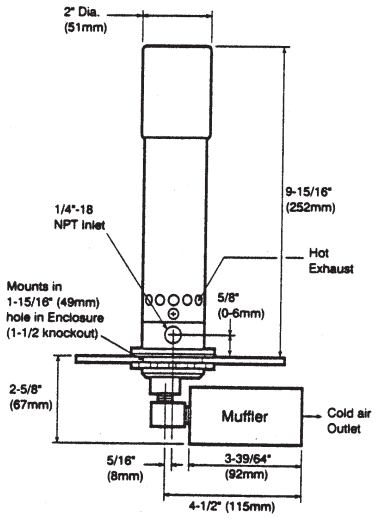
Part Number	Price	Description	CapacityBTU/H [KCAL/H]	Air Consumption SCFM [SLPM]
W750400	$;000ac#:	Wiegmann vortex cooler kit, 400 BTUH (117W) / 8 SCFM (227 SLPM), aluminum body. For NEMA 12 enclosures. Thermostat, solenoid valve, distribution tube and filter included.	400 BTUH (117W)	8 SCFM (227 SLPM)
W7971700	$;000ac?:	Wiegmann vortex cooler kit,1700 BTUH (498W) / 25 SCFM (708 SLPM), aluminum body. For NEMA 4 enclosures. Thermostat, solenoid valve, distribution tube and filter included.	1700 BTUH (498W)	25 SCFM (708 SLPM)
W797SS1700	$;;000ac,:	Wiegmann vortex cooler kit,1700 BTUH (498W) / 25 SCFM (708 SLPM), stainless steel body. For NEMA 4/4X enclosures. Thermostat, solenoid valve, distribution tube and filter included.	1700 BTUH (498W)	25 SCFM (708 SLPM)

Vortex Cooler Kits

Dimensions



W750400



W7971700, W797SS1700