Enclosure Cooling

You need to cool down

Heat inside an enclosure can decrease the life expectancy of controlling units such as your PLC, HMI, AC drives and other items. Excessive heat can cause nuisance faults from your electrical and electronic components: for example, overloads tripping unexpectedly. Heat will also change the expected performance of circuit breakers and fuses, which can cause whole systems to shut down unexpectedly. So, if you have any electronic equipment or other heat sensitive devices, you may need cooling.

What causes all that heat?

There are basically two sources that can cause the enclosure's internal temperature to rise above the ratings of the control equipment.

Internal Sources

The same items that can be damaged by heat may also be the source of the heat. These include items such as:

- Power supplies Servos
- AC Drives/inverters Soft starters
- Transformers PLC systems
- Communication products HMI systems
- Battery back-up systems

External Sources

Other sources of heat that can cause the internal temperature of your enclosure to rise above a desired level involve the external environment. These include items such as:

- Industrial ovens
- Solar heat gain
- Foundry equipment
- Blast furnaces

Get the heat out

How do you get the heat out of your enclosure and away from those critical components? There are several basic cooling methods available, depending on the cooling requirements and the enclosure environment.

Radiation and Natural Convection Cooling

If the ambient temperature outside the enclosure is cooler than the inside of the enclosure, some heat will be radiated into the atmosphere from the surface of the enclosure. In environments where dust and water intrusion is not a concern, louvers can be added to allow outside air to flow through the enclosure via natural convection - the movement of air due to it's expansion (reduced density) when it's heated and contraction (increased density) when it cools.

On a large scale, natural convection can be a powerful force - it's one of the primary drivers of our weather. But on the scale of an electrical enclosure, its cooling capacity is very limited. For larger heat loads, a more powerful cooling system may be needed.

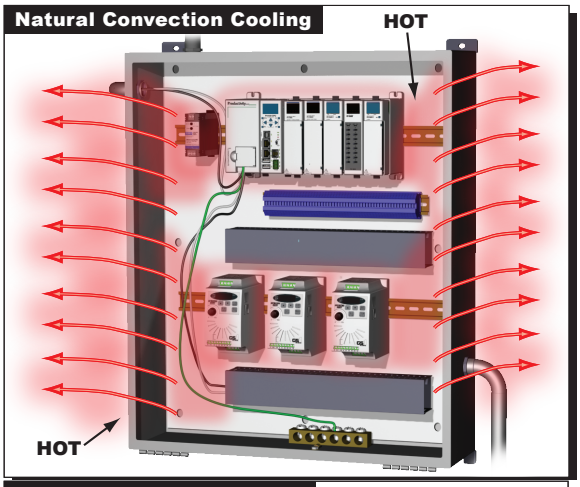
Since they create openings in the enclosure, louvers are typically limited to NEMA 1 and/or NEMA 3R applications. However, some louvers have optional filters that can be added to maintain NEMA 12 protection.

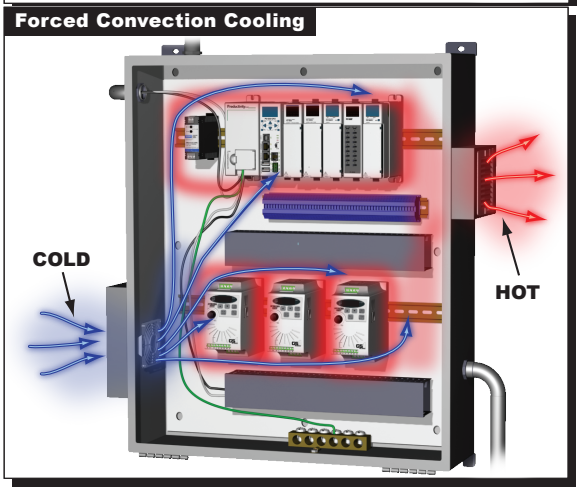
Forced Convection Cooling

The next step up from natural convection is forced convection cooling. The basic cooling mechanism is the same: cooler air from outside the enclosure passes through the enclosure to remove the heat. The difference is that the air is mechanically forced through the enclosure by a filter fan. The fan produces higher air flow rates than natural convection, which in turn increases the amount of heat removed.

As with natural convection cooling, the ambient air temperature must be lower than the desired enclosure temperature for forced convection to be effective.

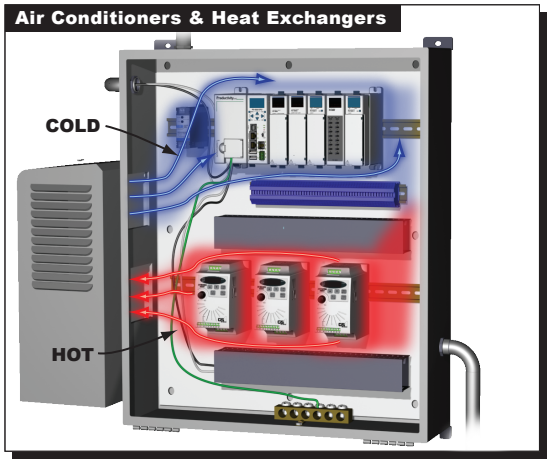
A typical forced convection system consists of a fan and a grille, with a filter on the intake device and either a filter or louvers on the exhaust device. The filters and louvers allow the enclosure to maintain NEMA 12 protection. In NEMA 4 or NEMA 4X environments, hoods can be added to both the fan and the grille to prevent the ingress of water.





Enclosure Cooling

Closed Loop Cooling



If the environment is harsh, with heavy dust and debris or the presence of airborne chemicals, or there are wash-down requirements, the cooling system must be able to keep the ambient air separate from the air inside the enclosure.

Closed loop systems, which include heat exchangers and air conditioners, circulate the internal air and ambient air through separate chambers connected by a refrigeration system that transfers heat from the internal air stream to the external air stream. Heat exchangers and air conditioners are both closed loop cooling systems. The primary difference in the two is the refrigeration system.

The refrigeration system in an air-to-air heat exchanger is a set of sealed tubes of alcohol. Heat absorbed from the internal enclosure air boils the liquid alcohol at the bottom of the tube, causing it to rise to the top. The heat is then rejected to the cooler ambient air stream, causing the alcohol to condense back to a liquid and fall to the bottom.

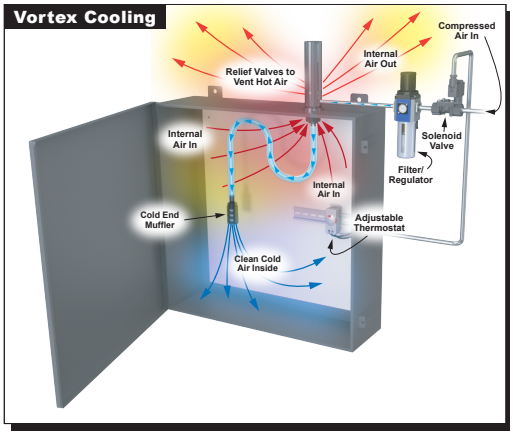
Heat exchangers are very efficient because the refrigeration system has no moving parts - the only moving parts are the fans. But for the heat to transfer through the system, the ambient air must be colder than the air inside the enclosure, just as it must be for filter fans.

If the ambient air temperature is too high, and a source of chilled water is available, then an air-to-water heat exchanger may be the ideal solution. Air-to-water heat exchangers use fans to blow across tubes with chilled water running through them. This creates a very effective closed loop cooling effect, but requires an external source of chilled water.

Enclosure air conditioners function in the same manner as a residential or automotive air conditioner, with refrigeration loop powered by a compressor. The refrigerant absorbs heat from the internal air at the evaporator coil and rejects it to the ambient air at the condenser coil. Unlike heat exchangers, they can provide cooling even if the ambient temperature is higher than the enclosure temperature. They can also be scaled to handle larger heat loads than any other cooling system.

Enclosure air conditioners are available for NEMA 12, NEMA 4 and NEMA 4X applications.

Vortex Coolers

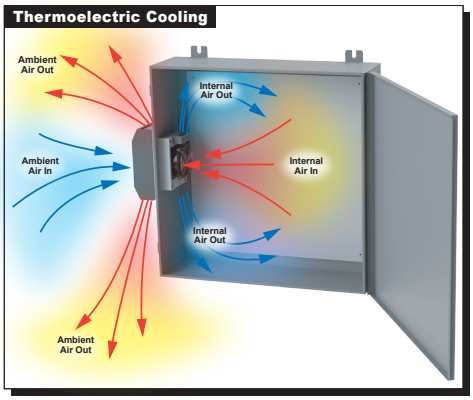


Vortex coolers create a stream of extremely cold air from a supply of filtered compressed air. The cold air is injected into the enclosure, displacing warm air which is exhausted back through the vortex cooler. While not a closed-loop system, they can be used in the same harsh environments since the cold air injected into the enclosure is filtered air from a compressed air system, not ambient air. Vortex coolers can also be used where the ambient temperature is higher than the enclosure temperature.

Since vortex coolers prevent the ingress of ambient air or sprayed water and are made from corrosion-resistant materials, they can be used on NEMA 4X enclosures in harsh, wash-down, and/or corrosive environments.

Vortex coolers are commonly used in lieu of a small or medium enclosure air conditioner in applications where there isn't adequate space to mount an air conditioner, provided there is an adequate supply of compressed air.

Thermoelectric Coolers



Another alternative to a conventional air conditioner is a thermoelectric cooler, which is sometimes referred to as a Peltier cooler. They function in a manner similar to an air conditioner or heat exchanger, with fans inside and outside the enclosure, but with a thermoelectric unit replacing the fluid-based refrigeration system.

The thermoelectric units consist of an array of semiconductors sandwiched between two ceramic plates. When a DC current is applied to the semiconductor array, heat is driven from one plate to the other, creating a cold side and a warm side. This is known as the Peltier Effect. Fans circulate air across each of the plates, allowing the cold plate to absorb heat from the enclosure and the warm plate to reject it to the ambient air.

Like vortex coolers, thermoelectric coolers can be used with NEMA 4X enclosures in harsh, wash-down, and corrosive environments, and where the ambient temperature exceeds the enclosure temperature.

Thermoelectric coolers are an alternative to air conditioners in small cooling capacity applications where there isn't adequate space for an air conditioner.

Selecting an Enclosure Cooling Device

Cooling Basics

To select the proper cooling device for your enclosure, you need to determine how much heat the device must remove from the enclosure to maintain the desired internal temperature, which is the sum of two component heat loads: **Internal Heat Load** and **Heat Transfer Load**.

Internal Heat Load (Q_i)

The sum of all heat generated by the components within the enclosure. This can be calculated by adding the maximum heat output for each device installed in the enclosure (the worst-case conditions for the enclosure). The maximum heat output is typically specified in watts in the manufacturer's documentation. If it is not, contact the manufacturer to request the heat output or for guidance on how to measure or calculate it.

Heat Transfer Load (Q_x)

The heat gained (positive heat transfer) or lost (negative heat transfer) through the enclosure exterior surface with the surrounding ambient air. This can be calculated with the following formula:

Q_x = kAΔT (BTU/h), where:

k = heat transfer coefficient (BTU/(h·ft²·°F))

The heat transfer coefficient is a measure of how easily an enclosure conducts heat from the internal air to the external air, which varies with the enclosure material. Suggested values for various enclosure materials are provided below:

Enclosure Material	*k, BTU/(h·ft²·°F)*
Painted carbon steel	0.97
Stainless steel	0.83
Aluminum	2.1
Polycarbonate, fiberglass, PVC, ABS	0.62

A = exposed enclosure surface area (ft²)

The total surface area of a rectangular enclosure is:

A = 2HW + 2HD + 2WD, where:

H = height

W = width

D = depth

But it's important to properly account for any surfaces that are against walls or floors, as those surfaces will absorb/reject heat from adjacent surfaces at a different rate (that is, have a different k value) than the exposed surfaces. Quantifying that difference is far beyond the scope of this document, but the q value for those surfaces will usually be less than the value for exposed surfaces. Therefore, the conservative design approach should be to ***exclude those surfaces when ΔT < 0 and use the total surface area when ΔT > 0.***

The equations for excluding those surfaces in several common situations are listed below.

Wall-mount (excludes back of the enclosure)	***A = HW + 2HD + 2WD***
Freestanding enclosure (excludes the bottom of the enclosure)	***A = 2HW + 2HD + WD***
Freestanding enclosure against a wall (excludes both the bottom and back)	***A = HW + 2HD + WD***
Freestanding enclosure in a corner (excludes the bottom, back, and one side)	***A = HW + HD + WD***

Using these formulas as written will produce answers in either in^2 or mm^2, depending on the enclosure. To convert to ft^2 use the appropriate conversion:

1 ft² = 144 in²

1 ft² = 92,900 mm²

Selecting an Enclosure Cooling Device

$\Delta T = T_A - T_E$, where T_A is maximum ambient air temperature (°F) and T_E is maximum allowable enclosure air temperature (°F)

Note that ΔT may be negative if the ambient temperature is less than the enclosure temperature. When this is the case, the heat transfer load will also be negative, meaning that the ambient air is providing some degree of cooling. Whereas a positive ΔT indicates that the ambient air is warming the enclosure.

A positive ΔT also indicates that neither a fan nor a heat exchanger is a viable cooling device for this application. Both devices exchange heat between the interior and exterior of the enclosure. Since heat will always move from the higher temperature material to the lower temperature, these devices will add heat to the enclosure which will raise the internal air temperature, not lower it.

The maximum allowable enclosure air temperature will typically be dictated by the maximum operating temperature of the components inside the enclosure. Be sure to choose the component value with the lowest maximum operating temperature.

Required Cooling Capacity (Q_r)

The required cooling capacity (Q_r) for an enclosure is simply the sum of the Internal Heat Load and the Heat Transfer Load. However, as presented these values cannot be simply added since one is typically given in watts and the other in BTU/h. Additionally, fan and heat exchanger sizing formulas require the total heat load in watts, while the cooling capacities of vortex coolers are generally expressed in BTU/h. However, the cooling capacities of air conditioners and thermoelectric coolers may be expressed in either unit, or sometimes both. Apply one of the following conversions to the heat loads to add them:

1 W = 3.41 BTU/h $\quad Q_r\ (BTU/h) = Q_i \times 3.41\ (BTU/h)/W + Q_x$

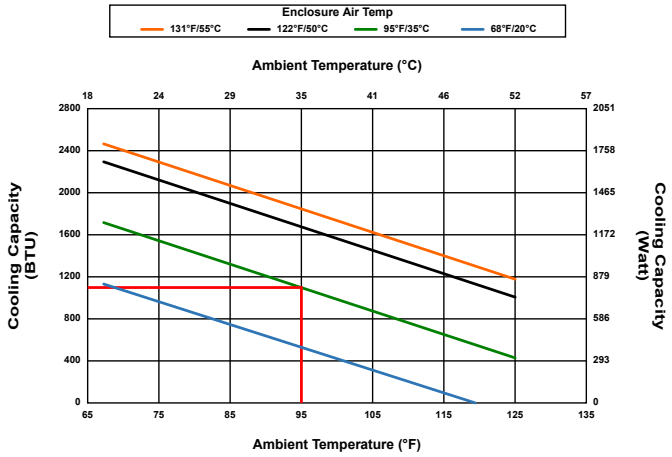
1 BTU/h = 0.293 W $\quad Q_r\ (W) = Q_i + Q_x \times 0.293\ W/(BTU/h)$

Vortex Cooler Selection

Once the required cooling capacity has been calculated, selection of a vortex cooler is simple – just select a cooler with a nominal cooling capacity greater than the calculated requirement.

Air Conditioner, Air-to-Water Heat Exchanger, and Thermoelectric Cooler Selection

Selecting an air conditioner, air-to-water heat exchanger, or thermoelectric cooler is more complex because their performance depends on both the ambient temperature and the enclosure temperature or the chilled water temperature. Generally, more strenuous operating parameters (higher ambient temperature, lower enclosure air temperature) will reduce the unit's performance. For this reason, manufacturers publish curves that graphically describe the unit's cooling capacity over a range of conditions. Here's an example:



As indicated by the red lines, this air conditioner would be able to remove 1000 BTU/H when the ambient temperature is 95°F and enclosure air temperature is 95°F. If the ambient temperature was only 75°F, the cooling capacity of the unit would increase to approximately 1105 BTU/H as the lower ambient temperature increases the unit's condenser's ability to reject heat to the surrounding atmosphere. Conversely, at a 95°F ambient temperature and a 68°F enclosure air temperature, the unit's capacity would be reduced to approximately 945 BTU/H, as the lower enclosure air temperature would reduce the heat transfer rate between the internal enclosure air and the unit's evaporator coils.

An air-to-water heat exchanger performance curve is similar only the x-axis is the temperature of the chilled water provided to the heat exchanger instead of the ambient air temperature.

To determine if an air conditioner, air-to-water heat exchanger, or thermoelectric cooler meets application requirements, simply plot the two maximum temperatures used in the ΔT calculations and read the corresponding cooling capacity on the y-axis of the chart. If that value exceeds the required cooling capacity, the air conditioner will be adequate for the application. If not, select a larger capacity unit.

Selecting an Enclosure Cooling Device

The 95°F/95°F point is typically used as the nominal cooling capacity of the unit. But always keep in mind that any nominal capacity only represents one set of operating parameters. If those parameters to not match the actual application conditions, the actual performance of the air conditioner/thermoelectric cooler will be different.

Never rely solely on a nominal cooling capacity when selecting an air conditioner or a thermoelectric cooler! The nominal capacity is solely intended to provide an approximation to get the user "in the ballpark" of the selection process.

In addition to the required cooling capacity, an air conditioner, air-to-water heat exchanger, or thermoelectric cooler should also maintain the NEMA rating of the enclosure. Ideally, it should also operate on a voltage already available within the enclosure to avoid necessitating a transformer or power supply.

Air Conditioner Selection Example

A NEMA 12 Wiegmann N12302412 wall-mount enclosure (30 in high x 24 in wide x 12 in deep) contains a GS4-4060 AC drive (60 HP 460V) that has a maximum allowable operating temperature of 104°F and is inside a plant with a maximum ambient air temperature of 115°F. The GS4-4060 specifications table indicates its maximum Watt Loss to be 1147 W.

Internal heat load:

$$Q_i = 1147\ W \times 3.413\ (BTU/h)/W = 3914\ BTU/h$$

Heat load transfer:

$$k = 0.97\ BTU/(h \cdot ft^2 \cdot °F)$$

$$\Delta T = 115°F - 104°F = 11°F$$ (Reminder: ΔT >0 means that fans or heat exchangers will not cool the enclosure!)

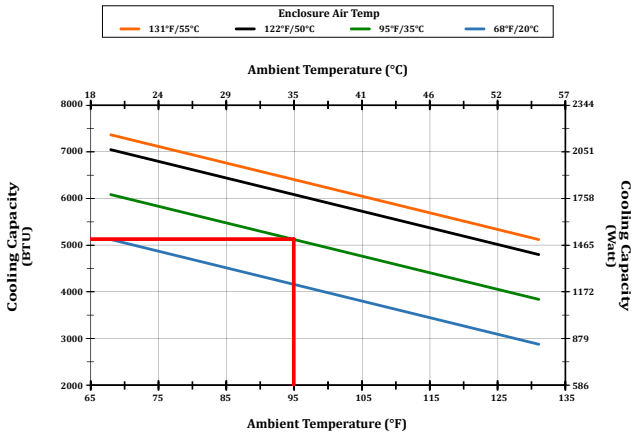
$$A = [2(30\ in \times 24\ in) + 2(30\ in \times 12\ in) + 2(24\ in \times 12\ in)]/144\ in^2/ft^2 = 19\ ft^2$$

$$Q_x = kA\Delta T = (0.97\ BTU/(h \cdot ft^2 \cdot °F))(19\ ft^2)(11°F) = 202\ BTU/h$$

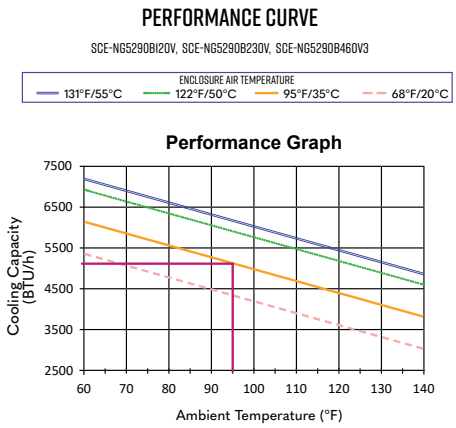
Required cooling capacity:

$$Q_r = Q_i + Q_x = 3914\ BTU/h + 202\ BTU/h = 4116\ BTU/h$$

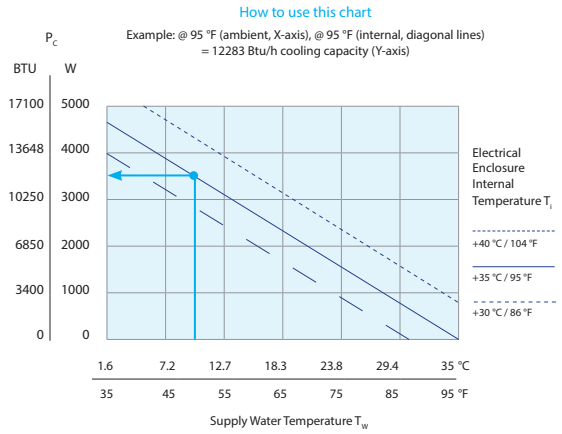
AutomationDirect offers several NEMA 12 460VAC models that meet or exceed 4605 BTU/h at 104°F. The curves for the appropriate sizes of some of these series are shown below.



The NEMA 12 460VAC selection from this series is SCE-AC5100B460V.



The NEMA 12 460VAC selection from this series is SCE-NG5290B460V3.



The NEMA 12 115VAC air-to-water heat exchanger 12358410045 will work as long as chilled water at least 65°F is readily available

Selecting an Enclosure Cooling Device

Air-to-Air Heat Exchanger Selection

Air-to-Air Heat exchanger capacities also depend on the internal enclosure air temperature and the ambient temperature, but the dependency is a simple linear relationship between the capacity and ΔT. So rather than graphing the cooling capacity of the heat exchanger, it is simply expressed in terms of W/°C and compared to the value of $-Q_i/\Delta T$.

To convert ΔT from °F to °C, use the conversion 1°C = 1.8°F.

Note that this simplified conversion only works for temperature differences. It does not work for measured temperatures since 0°F ≠ 0°C. DO NOT apply this conversion directly to the ambient and enclosure air temperatures. Only apply it to ΔT.

Air-to-Air Heat Exchanger Selection Example

A NEMA 12 Wiegmann N12302412 wall-mount enclosure (30 in high x 24 in wide x 12 in deep) contains a GS4-4010 AC drive (10 HP 460 volt) that has a maximum allowable operating temperature of 104°F and is in a plant that has a maximum ambient air temperature of 90°F.

The GS4-4010 specifications table indicates its maximum Watt Loss to be 292 watts.

Internal heat load:

$$Q_i = 292\ W$$

Heat load transfer:

$$k = 0.97\ BTU/(h \cdot ft2 \cdot °F)$$

$$\Delta T = 90°F - 104°F = -14°F$$ (Since ΔT <0, a heat exchanger is a potentially valid cooling device)

$$\Delta T = -14°F/(1.8°F/°C) = -7.8°C$$

$$A = [(30\ in \times 24\ in) + 2(30\ in \times 12\ in) + 2(24\ in \times 12\ in)]/144\ in^2/ft^2 = 14\ ft^2$$

$$Q_x = kA\Delta T = (0.97\ BTU/(h \cdot ft^2 \cdot °F))(14\ ft^2)(-14°F) = -190\ BTU/h \times 0.293\ W/(BTU/h) = -56\ W$$

Required cooling capacity:

$$Q_r = Q_i + Q_x = 292\ W - 56\ W = 236\ W$$

$$-Q_r/\Delta T = -236\ W/-7.8°C = 30\ W/°C$$

A Stratus heat exchanger with a capacity of at least 30 W/°C is needed, such as a TE30-030-17-04.

Selecting an Enclosure Cooling Device

Fan Selection

A fan cools the enclosure simply by displacing the hot air within the enclosure with cooler air from the outside. Combining the specific heat of air, the density of air, and various conversion factors into a single coefficient gives a simple equation for correlating a fan's required airflow rate to the enclosure's required cooling capacity:

$$F_r = -(3.17\ CFM{\cdot}°F/W)Q_r / \Delta T$$

Once the fan airflow requirement is determined, fan selection is simply a matter of finding a fan with an airflow greater than the required airflow. Most applications will require an accompanying grille and one or more filters which will restrict airflow to some degree. (Exceptions would be a NEMA 1 enclosure or a similar circumstance where an open vent can be used for exhaust/makeup air.) Therefore, the fan selection should almost always be made based on the "Airflow with Grille and Filters (CFM)" column of the specifications, not the fan's Free Airflow.

Fan Selection Example

A NEMA 12 Wiegmann N12302412 wall-mount enclosure (30 in high x 24 in wide x 12 in deep) contains a GS4-2025 AC drive (25 HP 230 volt) that has a maximum allowable operating temperature of 104°F and is in a plant that has a maximum ambient air temperature of 92°F.

The GS4-2025 specifications table indicates its maximum Watt Loss to be 733 watts.

Internal heat load:

$$Q_i = 733\ W$$

Heat load transfer:

$$k = 0.97\ BTU/(h{\cdot}ft^2{\cdot}°F)$$

$$\Delta T = 92°F - 104°F = -12°F\ (Since\ \Delta T < 0,\ a\ fan\ is\ a\ potentially\ valid\ cooling\ device)$$

$$A = [(30\ in \times 24\ in) + 2(30\ in \times 12\ in) + 2(24\ in \times 12\ in)]/144\ in^2/ft^2 = 14\ ft^2$$

$$Q_x = kA\Delta T = (0.97\ BTU/(h{\cdot}ft^2{\cdot}°F))(12\ ft^2)(-12°F) = -163\ BTU/h \times 0.293\ W/(BTU/h) = -48\ W$$

Required cooling capacity:

$$Q_r = Q_i + Q_x = 733\ W - 48\ W = 685\ W$$

Required air flow:

$$F_r = -(3.17\ CFM{\cdot}°F/W)(685\ W)/-12°F = 181\ CFM$$

Possible 230VAC fan & grille combinations include:

- Stego 018840-40 exhaust fan with 118840-30 grille (187 CFM)
- Fandis FF20A230UE1 intake fan with FF20U grille (209 CFM)
- Stego 018740-30 intake fan with 118740-00 grille (220 CFM)
- Stego 018840-00 exhaust fan with 118840-30 grille (243 CFM)
- Fandis TP19U230B1 roof-mount exhaust fan with FF20U grille (297 CFM)

Filter Fan Options for Cooling your Enclosure

STEGO INC.
SIMPLY INNOVATIVE. BETTER FOR SURE.

- Both intake (FPI) and exhaust (FPO) fans are available.
- Exhaust fans and grilles available with air flaps or filters.
- Using air flaps on the exhaust reduces the number of filters to maintain.

Filter Fan Series

- Easy filter change
- Outer door lock for outdoor models
- Impact resistant
- Weather/UV-resistant -f1
- Flammability Rating: UL94V-0
- Adhesive mounting for non-screw installation (except outdoor models)
- Low noise
- 120VAC and 24VDC models available

Filter Fan Plus Series

- Easy filter change
- Hinged cover
- Impact resistant
- Weather/UV-resistant-UL-f1
- Flammability Rating: UL94V-0
- Unique ratchet mechanism for no-screw installation
- Low noise
- 120, 230VAC and 12, 24, 48VDC models available

Virdis Series

- Cover slides open for easy filter change without tools
- Available in NEMA 12 indoor models and NEMA 3R outdoor models
- Flammability Rating: at least UL 94V-0
- Quick, tool-free mounting
- Low noise
- 120VAC , 230VAC and 24VDC models available
- Includes self-adhesive gasket pre-installed on frame
- G3 (coarse) and G4 (coarse) replacement filter mats available

Fandis

Filter Fan Hoods

Hose-Proof Filter Fan Hoods

- Stainless steel hood with food-grade silicone seal
- Fits all Stego Filter Fan and Filter Fan Plus fans and exhaust grilles (except outdoor Filter Fans)
- Maintains an enclosure's NEMA/UL Type 4 or 4X rating in washdown environments

Virdis Series Filter Fans

Applications

Virdis Series Filter fans are a practical solution for removing heat from the cabinet. They channel filtered ambient air into the enclosure, expelling warm internal air through an exhaust filter or roof unit to reduce temperatures and protect electronic components from overheating.

Features

- Cover slides open for easy filter change without tools
- No-screw installation
- Low noise
- 120VAC, 230VAC, and 24VDC models available
- Permanent Polyurethane sealing gasket
- G3 (coarse) and G4 (coarse) replacement filter mats available

Easy Filter Access

Tool Free Mounting System

Virdis Series NEMA 12 Filter Fans

Fandis

Applications

NEMA 12 filter fans are for indoor use only. They are typically mounted on the side or the door of an enclosure, but can be mounted on the bottom surface of a wall-mounted enclosure. They should not be mounted on the roof of an enclosure. Fan airflow direction is from outside to inside the enclosure. A grille or roof vent with an equal or larger cutout is required to exhaust the warm air from the inside of the enclosure.

Features

- Available in ANSI 61 gray and RAL 7035 light gray
- Average arrestance: 85% with included G3 (coarse) filter
- Connection Type- 8.8-9.4 CFM is 22AWG flying leads, all others are 20-14AWG screwless cage clamps
- G3 (coarse) and G4 (coarse) replacement filter mats available
- Flammability Rating: UL 94V-5VB for ANSI 61 units, RAL 7035 units are rated UL94V-V0

Agency Approvals

- All models: IP54 and UL Type 12 when using supplied filter
- UL Recognized File E237844
- UL Listed File E500932
- CSA Certified File 260922

Virdis Series NEMA 12 Filter Fans

Part Number	Price	Color	Cutout Dimensions	Operating Voltage[1]	Power Consumption[1] (W)	Current Draw[1]	FreeAirflow[1,2] (CFM)	Air Flow with Grille and Filters[1,3] (CFM)	Max. Static Pressure (Pa)	Min/Max Operating Temp.	L10 Life Expectancy	Drawing Link
FF08A115UN	$;-5fl3:	RAL 7035	3.62 x 3.62 [92 x 92]	115 VAC	9	92 mA	8.8	6.5	33	14/131°F [-10/55°C]	50,000 h at 68°F	PDF
FF08A115ZN	$;-5fl4:	ANSI 61				92 mA						PDF
FF08A230UN	$;-5fl6:	RAL 7035		230 VAC	10	50 mA						PDF
FF08D24UN	$;-5fl7:	RAL 7035		24 VDC	2	85 mA	9.4	6.8	28		100,000 h at 77°F	PDF
FF08D24ZN	$;-5fl8:	ANSI 61				85 mA						PDF
FF12A115UF	$;-5fla:	RAL 7035	4.88 x 4.88 [124 x 124]4.88 x 4.88 [124 x 124]	115 VAC	16	180 mA	29	20	62		57,000 at 77°F	PDF
FF12A115ZF	$;-5flb:	ANSI 61				180 mA						PDF
FF12A230UF	$;-5fld:	RAL 7035		230 VAC	17	100 mA						PDF
FF12D24UN	$;-5fle:	RAL 7035		24 VDC	7	310 mA	27	19	58		100,000 h at 77°F	PDF
FF12D24ZN	$;;-5flf:	ANSI 61			7	310 mA						PDF
FF13PA115UF	$;-05flh:	RAL 7035	6.97 x 6.97 [177 x 177]	115 VAC	19	202 mA	65	44	60		57,000 at 77°F	PDF
FF13PA115ZF	$;--05fli:	ANSI 61				202 mA						PDF
FF13PA230UF	$;--05flj:	RAL 7035		230 VAC	18	100 mA						PDF
FF13PD24UN	$;-05flk:	RAL 7035		24 VDC	8	342 mA	59	45	62		100,000 h at 77°F	PDF
FF13PD24ZN	$;--05fll:	ANSI 61				342 mA						PDF
FF15A115UN2	$-05jb8:	RAL 7035	8.78 x 8.78 [223 x 223]	115 VAC	41	361 mA	155	120	184		40,000 h at 104°F	PDF
FF15A115ZN2	$-05jb9:	ANSI 61				361 mA						PDF
FF15A230UN2	$-05jba:	RAL 7035		230 VAC		194 mA	159		195			PDF
FF15D24UF	$;-05fls:	RAL 7035		24 VDC	31	1.30A	175	118	156		70,000 h at 104°F	PDF
FF15D24ZF	$;;-05flt:	ANSI 61		24 VDC		1.30A						PDF

Notes: 1.Performance data (current draw, power consumption, free airflow, airflow with grille and filters, sound level) for all 120VAC fans is based on 60Hz.
2.Free airflow and maximum static pressure are measured with fan only.
3.Airflow with grille and filters include entire system: complete fan assembly with filter and exhaust grille with filter.
4.Dimensions in inches [millimeters].

Virdis Series NEMA 12 Filter Fans

Fandis

Virdis Series NEMA 12 Filter Fans

Part Number	Price	Color	Cutout Dimensions	Operating Voltage[1] (VAC)	Power Consumption[1] (W)	Current Draw[1]	FreeAirflow[1,2] (CFM)	Air Flow with Grille and Filters[1,3] (CFM)	Max. Static Pressure (Pa)[1,2]	Min/Max Operating Temp.	L10 Life Expectancy	Drawing Link
FF20A115UE1	$;-05flv:	RAL 7035	11.46 x 11.46 [291 x 291]	115	83	730 mA	297	209209 CFM	145	14/131°F [-10/55°C]14/131°F [-10/55°C]	63,000 h at 77°F	PDF
FF20A115ZE1	$;-05flx:	ANSI 61										PDF
FF20A230UE1	$;-05flz:	RAL 7035		230	116	350 mA						PDF
FF20GA115UE1	$;;-05fl]:	RAL 7035		115	156	1.37A	436	253	170		53,000 h at 77°F	PDF
FF20GA115ZE1	$;;-05fl[:	ANSI 61										PDF
FF20GA230UE1	$;-05fl#:	RAL 7035		230	158	690 mA	450	277	210			PDF

Notes: 1.Performance data (current draw, power consumption, free airflow, airflow with grille and filters, sound level) for all 120VAC fans is based on 60Hz.
2.Free airflow and maximum static pressure are measured with fan only.
3.Airflow with grille and filters include entire system: complete fan assembly with filter and exhaust grille with filter.
4.Dimensions in inches [millimeters].

Virdis Series NEMA 3R Filter Fans

Fandis

Applications

NEMA 3R filter fans are specifically designed to preserve the integrity of components housed within an electrical enclosure located outdoors, providing a degree of protection from falling dirt, dust, rain, sleet and from damage caused by the formation of ice.

NEMA 3R filter fans are constructed to ensure greater resistance to degradation due to environmental factors, including a durable plastic construction that allows direct sunlight or water exposure without the risk of premature aging.

Fan airflow direction is from outside to inside. A grille or roof vent with an equal or larger cutout is required to exhaust the warm air from the inside of the enclosure.

Features

- Available in RAL9005 Black
- Average arrestance: 85% with included G3 (coarse) filter
- Connection Type- 8.8-9.4 CFM units are 22AWG flying leads, all others are 20-14AWG screwless cage clamps
- G3 (coarse) and G4 (coarse) replacement filter mats available

Agency Approvals

- All models: IP54 and UL Type 12 when using supplied filter
- UL Recognized File E237844
- UL Listed File E500932
- CSA Certified File 260922

Virdis Series NEMA 3R Filter Fans											
Part Number	*Price*	*Cutout Dimensions*	*Operating Voltage[1]*	*Power Consumption[1] (W)*	*Current Draw[1]*	*FreeAirflow[1,2] (CFM)*	*Air Flow with Grille and Filters[1,3] (CFM)*	*Max. Static Pressure (Pa)*	*Min/Max Operating Temp.*	*L10 Life Expectancy*	*Drawing Link*
FF08A115NN3	$;-05fl5:	3.62 x 3.62 [92 x 92]	115 VAC	9	92 mA	8.8	6.5	33	14/131°F [-10/55°C]	50,000 h at 68°F	PDF
FF08D24NN3	$;-05fl9:		24 VDC	2	85 mA	9.4	6.8	28		100,000 h at 77°F	PDF
FF12A115NF53	$;-05flc:	4.92 x 4.92 [125 x 125]	115 VAC	16	180 mA	23	15	51		57,000 h at 77°F	PDF
FF12D24NN53	$;-05flg:		24 VDC	7	310 mA	21	14	51		100,000 h at 77°F	PDF
FF15A115NF53	$;-05flp:	8.78 x 8.78 [223 x 223]	115 VAC	31	260 mA	112	81	131		40,000 h at 104°F	PDF
FF15D24NF53	$;-05flu:		24 VDC		1.30A	135	91	150		70,000 h at 104°F	PDF
FF20A115NE531	$;-05fly:	11.46 x 11.46 [291 x 291]	115 VAC	83	730 mA	235	162	125		53,000 h at 77°F	PDF
FF20GA115NE31	$;-05fl_:			156	1.37A	436	253	170		63,000 h at 77°F	PDF

Notes: 1.Performance data (current draw, power consumption, free airflow, airflow with grille and filters, sound level) for all 120VAC fans is based on 60Hz.
2.Free airflow and maximum static pressure are measured with fan only.
3.Airflow with grille and filters include entire system: complete fan assembly with filter and exhaust grille with filter.
4.Dimensions in inches [millimeters].

Virdis Series NEMA 12 or 3R Exhaust Grilles

Applications

Grilles may be used for: warm-air exhaust when paired with a filter fan, make-up air intake when paired with a reverse-flow (exhaust) filter fan or a roof-mount fan, and free flow ventilation when used as a standalone item.

Grilles are typically mounted on the side or the door of an enclosure, but can be mounted on the bottom surface of a wall-mounted enclosure. They should never be mounted on the roof of an enclosure Grilles may be used in NEMA 4 and/or NEMA 4X applications with the addition of a fan hood.

Features

- Cover slides open for easy filter change without tools
- Quick, tool-free mounting
- Availibe in RAL 7035 Light Gray, ANSI 61 Gray and RAL 9005 Black

Standards

- IP54 and UL 12 and 3R when using supplied filter (outdoor models IP55)
- UL E234324
- UL Listed File E500932
- CSA Certified File 260922

Virdis Series NEMA 12 or 3R Exhaust Grills					
Part Number	***Price***	***Color***	***Cutout Dimensions***	***NEMA Rating***	***Drawing Link***
FF08U	$;-5fl?:	RAL 7035	3.62 x 3.62 [92 x 92]	12	PDF
FF08Z	$;;-5fl,:	ANSI 61		12	PDF
FF08N3	$;5fn0:	RAL 9005		3R	PDF
FF12U	$;5fn3:	RAL 7035	4.88 x 4.88 [124 x 124]	12	PDF
FF12Z	$;5fn4:	ANSI 61		12	PDF
FF12N53	$;5fn5:	RAL 9005	4.92 x 4.92 [125 x 125]	3R	PDF
FF13U	$;5fn6:	RAL 7035	6.97 x 6.97 [177 x 177]	12	PDF
FF13Z	$;5fn7:	ANSI 61		12	PDF
FF15U	$;5fn8:	RAL 7035	8.78 x 8.78 [223 x 223]	12	PDF
FF15Z	$;5fn9:	ANSI 61		12	PDF
FF15N53	$;5fna:	RAL 9005		3R	PDF
FF20U	$;5fnb:	RAL 7035	11.46 x 11.46 [291 x 291]	12	PDF
FF20Z	$;5fnc:	ANSI 61		12	PDF
FF20N53	$;05fnd:	RAL 9005		3R	PDF
Note: Dimensions in inches (millimeters).					

Virdis Series NEMA 12 Roof Fans and Vents

Fandis

Applications

Roof exhaust units are commonly used in restricted spaces to dissipate hot air that is extracted from the top of enclosures.

These units can be provided with an exhaust filter for either convection cooling or forced air-cooling in combination with a fan.

Roof Fans

Roof fans provide an alternative where a conventional side-mounted filter fan is impractical due to tight spaces in or around the sides of the enclosure. Fan airflow direction is from inside to outside. A grille with an equal or larger cutout is required to provide make-up air to replace the warm air exhausted by the fan.

Roof Vents

Roof vents are used for exhaust of hot air from inside the enclosure where tight spaces in or around the sides of an enclosure preclude the use of a grille. Roof vents may provide natural convection ventilation when used alone, or facilitate forced air cooling when paired with a filter fan.

Features

- Mate with any plate thickness via eight mounting screws.
- Colored RAL 7035 Gray
- Permanent Polyurethane sealing gasket

Standards

- UL recognized — file: E234324
- UL Listed File E500932
- CSA Certified File 260922

Virdis Series NEMA 12 Roof Fans

Part Number	Price	IP Rating	Cutout Dimensions	Operating Voltage1 (VAC)	Power Consumption1 (W)	Current Draw1 (MA)	FreeAirflow1,2 (CFM)	Air Flow with Grille and Filters1,3 (CFM)	Max. Static Pressure (PA)	Min/Max Operating Temp.	L10 Life Expectancy	Drawing Link
TP19U115B541	$;;-05fl!:	IP54	6.89 x 6.89 [175 x 175]	115	97	850	288	259	480	14/131°F [-10/55°C]	48,000 h at 77 °F	PDF
TP19U115B1	$;05fn1:	IP24		115	97	850	338	297	565		70,000 H AT 77 °F	PDF
TP19U230B1		IP24		230	81	360	338	297	465		62,500 H AT 77 °F	PDF

Notes: 1.Performance data (current draw, power consumption, free airflow, airflow with grille and filters, sound level) for all 120VAC fans is based on 60Hz.
2.Free airflow and maximum static pressure are measured with fan only.
3.Airflow with grille and filters include entire system: complete fan assembly with filter and exhaust grille with filter.
4.Dimensions in inches [millimeters].

Virdis Series NEMA 12 Roof Vents

Part Number	Price	IP Rating	Cutout Dimensions	Drawing Link
TP19U551	$;05fne:	IP55	6.89 x 6.89 [175 x 175]	PDF

Note: Dimensions in inches (millimeters).

Virdis Series Replacement Filters

Filters

- The filter media are made of high performance nonwovens produced from elastic, break-resistant polyolefin fibers with thermal bonding.
- Rating: G3 (coarse), and G4 (coarse)
- The filter media can be cleaned, up to 10 times, by careful washing, blowing dry and lightly beating

Applications

- Replacement filter mats for Fandis Virdis series filter fans and grilles

Virdis Series Replacement Filters

Part Number	Price	Use With Filter Fan Part Number	Use With Grille Part Number	Filter Rating	Average Arrestance (Filtering Level)	Filter Density g/m2	Pieces per Package
M08FPFK	$;;5fnf:	FF8A115UN, FF8A115ZN FF8A115NN3, FF8A230UN FF8D24UN, FF8D24ZN, FF8D24NN3	FF08U, FF08Z, FF08N3	G3 (coarse)	85%	600 g/m2	6
M12FPF5K	$;5fng:	FF12A115UF, FF12A115ZF FF12A115NF53, FF12A230UF, FF12D24UN, FF12D24ZN FF12D24NN53	FF12U, FF12Z, FF12N3	G4 (coarse)	94%		6
M12FPFK	$;5fnh:	FF12A115UF, FF12A115ZF, FF12A115NF53, FF12A230UF, FF12D24UN, FF12D24ZN FF12D24NN53	FF12U, FF12Z, FF12N3	G3 (coarse)	85%		6
M13FPFK	$;-5fnj:	FF13PA115UF, FF13PA115ZF FF13PA230UF, FF13PD24UN FF13PD24ZN	FF13U, FF13Z	G3 (coarse)	85%		6
M15FPF5K	$;5fnk:	FF15A115UN2, FF15A115ZN2, FF15A115NF53, FF15A230UN2 FF15D24UF, FF15D24ZF FF15D24NF53	FF15U, FF15Z, FF15N3	G4 (coarse)	94%		6
M15FPFK	$;-5fnl:	FF15A115UN2, FF15A115ZN2, FF15A115NF53, FF15A230UN2 FF15D24UF, FF15D24ZF FF15D24NF53	FF15U, FF15Z, FF15N3	G3 (coarse)	85%		6
M20FPF5K	$;5fnn:	FF20A115UE1, FF20A115ZE1 FF20A115NE531, FF20A230UE1	FF20U, FF20Z, FF20N3	G4 (coarse)	94%		6
M20FPFK	$;5fno:	FF20A115UE1, FF20A115ZE1 FF20A115NE531, FF20A230UE1	FF20U, FF20Z, FF20N3	G3 (coarse)	85%		6
M20FPF-EU3RMK	$-5hj5:	FF20GA115UE1, FF20GA115ZE1 FF20GA115NE531, FF20GA230UE1	FF20U, FF20Z, FF20N3	G3 (coarse)	85%		2

Industrial strength cooling options for your enclosure from AutomationDirect

Heat Exchangers

- For NEMA 4 and 4X enclosures
- Closed loop cooling
- Energy efficient: uses approximately the same power as a filtered fan system
- 120VAC and 24VDC models available
- UL
- Made in the USA

Made in the USA

Air Conditioning Units

- For NEMA 12, 4, 4X type enclosures
- Digital temperature controller
- Active condensate evaporation system
- High unit efficiency
- Tough industrial construction
- Compressor protection system

Made in the USA

Enclosure Vortex Coolers

- For NEMA 12, 4, 4X type enclosures
- Operates on compressed air
- Stainless steel construction
- No moving parts, no maintenance required
- Vortex coolers can be "resized" for changing applications by simply replacing the generator inside the cooler. No need to purchase a new unit
- Replacing the vortex generator takes minutes

Made in the USA

Seifert Thermoelectric Cooling Units

- For NEMA 4, 4X, and 12 enclosures
- Stainless steel housing
- 170, 340, 510, 680 BTU/H cooling capacity
- Recessed mounting
- No maintenance required
- 24VDC and 120VAC power options

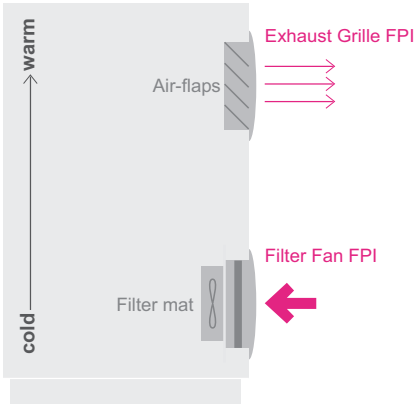
Filter Fan Plus

Air Flap Design
The Stego Filter Fan Plus series employs a new air flap design for the air outlet. The air flaps have less resistance to airflow than an exhaust filter, which allows the Filter Fan Plus system to achieve higher airflow while still preventing the ingress of contaminants. Curved air flaps react to small airflow volumes for maximum opening of flaps. Filter Fan Plus series fans are for indoor use only.

Ratchet Mounting
A ratchet mechanism is used for mounting, providing a high stability and tightness. No mounting screws needed. Prevents enclosure wall deformity when mounting. Solid locking ensures uniform seal.

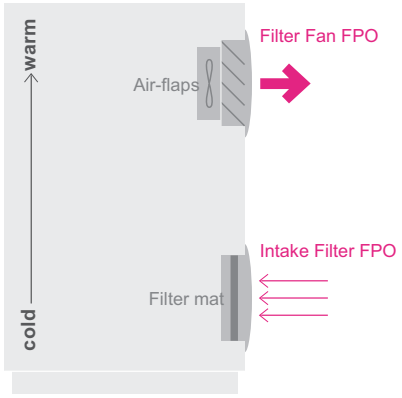
Poured-in-place polyurethane gasket

Filter Fan Plus Models: FPI or FPO
FPI systems (airflow direction 'in') use a filter fan in the lower part of the enclosure, ensuring fresh air is fed into the enclosure. The air rises to the top of the enclosure, cooling the internal space and pushing the warm interior air through the exhaust grille near the top. This grille exhausts hot air more effectively, thanks to new air flap outlet technology.



A common 3 to 3.5 mm screwdriver is used to release the ratchet mechanism.

In FPO systems (airflow direction 'out'), the filter fan is located in the upper area of the enclosure to avoid heat buildups. The heat can be diverted quicker from the critical area. An intake grille with a filter in the lower part of the enclosure allows the colder air from the outside to enter.



Filter Fan Plus

fan - 018700-30

filter - 118700-00

Features

- FPI (airflow in) or FPO (airflow out) models
- Air flap outlet technology
- IP54 dust and splash waterproof
- Easy filter change with access provided via the hinged cover
- Impact resistant
- UV light resistant according to UL 746C (f1)
- Flame retardant: UL94 V-0
- Low noise
- 115 and 230VAC models available
- 12, 24, and 48VDC models available
- (4) 6-position ratchet lever mount mechanism will accommodate wall thickness 0.039 - 0.157in (1 - 4mm)

Construction

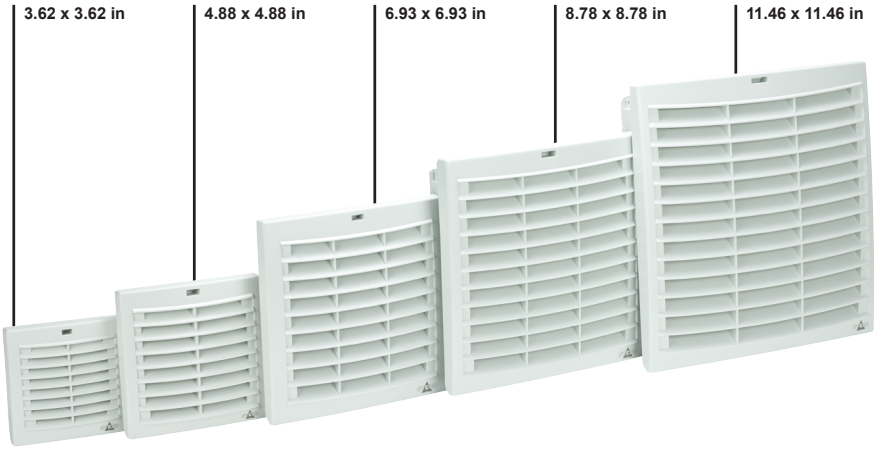
- Fan body is light gray plastic polycarbonate
- FPI model has an intake filter fan and an exit grille with air flaps
- FPO model has an exit fan with air flaps and an intake grille with filter
- Poured-in-place polyurethane gasket for better seal
- Mounts using built-in ratchet mechanism; no screws needed. (Hardware provided for optional screw mounting. Hole markings for screw mounting are indicated on mounting frame.)

Standards

- All models: IP54, VDE, EAC, CE, UL 12 when using supplied filter
- UL Recognized - file: E234324

Applications

Filter fans provide an optimum climate in enclosures with electrical/electronic components. The interior temperature of enclosures is reduced by channeling cooler filtered outside air into the enclosure, thus expelling heated internal air. The resulting air flow prevents formation of localized heat pockets and protects electronic components from overheating.



Filter Fan Plus

018700-30

118700-00

3.62 x 3.62 in [91.95 mm] Cutout Size

- Storage temperature: -40 to 158˚F (-40 to 70˚C)
- Operating temperature: -4 to 158˚F (-20 to 70˚C)
- Connection type: 2 stranded wires, 11.8" (300mm) long, AWG 22
- Service life: AC - 52,500 hrs @ 104˚F (40˚C) DC - 70,000 hrs @ 104˚F (40˚C)
- Average arrestance: 84% with provided G3 (coarse) filter
- Replacement filter mats G3 (coarse): 086330-00 G4 (medium): 086270-00 M5 (fine): 086300-00

Filter Fan Plus - FPI System

Part Number	Price	Description	Filter/ Air Flaps	Operating Voltage	Power Consumption (W)	Current Draw (mA)	FreeAirflow (CFM)	Airflow with Grille and Filters (CFM)	Max Static Pressure (Pa)	Sound Level (dB)	Drawing Link
018700-30	$;-1lt1:	Enclosure fan	G3 filter	230 VAC	12W	52 mA	11 CFM	7.7 CFM	42Pa	39 dBA	PDF
018701-30	$-1luo:	Enclosure fan	G3 filter	48 VDC	3W	63 mA	14 CFM	10 CFM	45Pa	51 dBA	PDF
018702-30	$-1lup:	Enclosure fan	G3 filter	24 VDC	2.7W	113 mA	13 CFM	9.4 CFM	42Pa	49 dBA	PDF
018703-30	$-1luq:	Enclosure fan	G3 filter	12 VDC	2.6W	216 mA	13 CFM	10 CFM	48Pa	36 dBA	PDF
018709-30	$;-1lt2:	Enclosure fan	G3 filter	115 VAC	11W	96 mA	14 CFM	9.4 CFM	60Pa	43 dBA	PDF
118700-00	$;;-1ltt:	Exhaust grille	Air flaps	FPI exhaust grille designed to be used with the FPI fans listed above only.							PDF

Note: Performance data (current draw, power consumption, free airflow with a grille and filters, sound level) for all AC fans is based on 60Hz.

018800-00

118800-30

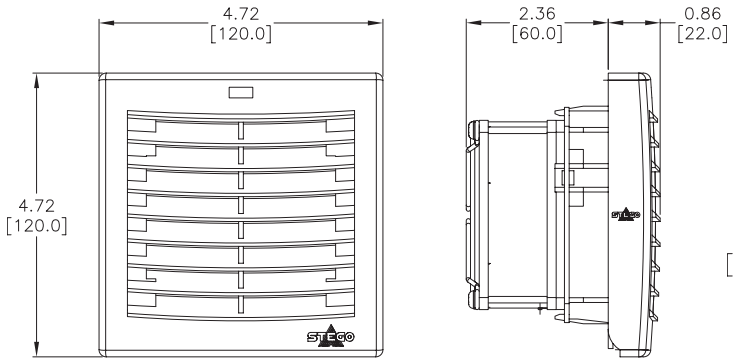
Filter Fan Plus - FPO System

Part Number	Price	Description	Filter/Air Flaps	Operating Voltage	Power Consumption (W)	Current Draw (mA)	FreeAirflow (CFM)	Airflow with Grille and Filters (CFM)	Max Static Pressure (Pa)	Sound Level (dB)	Drawing Link
018800-00	$;-1lt3:	Enclosure fan	Air flaps	230 VAC	12W	52 mA	14 CFM	8.8 CFM	42Pa	38 dBA	PDF
018800-40	$-1luz:	Enclosure fan	G3 filter	230 VAC	12W	52 mA	11 CFM	7.4 CFM	42Pa	36 dBA	PDF
018801-00	$;-01lu]:	Enclosure fan	Air flaps	48 VDC	3W	63 mA	19 CFM	11 CFM	41Pa	49 dBA	PDF
018802-00	$;-1lu[:	Enclosure fan	Air flaps	24 VDC	2.7W	113 mA	18 CFM	10 CFM	37Pa	48 dBA	PDF
018803-00	$-01lu_:	Enclosure fan	Air flaps	12 VDC	2.6W	216 mA	19 CFM	10 CFM	42Pa	36 dBA	PDF
018809-00	$;-1lt4:	Enclosure fan	Air flaps	115 VAC	11W	96 mA	19 CFM	11 CFM	56Pa	41 dBA	PDF
018809-40	$-1lu#:	Enclosure fan	G3 filter	115 VAC	11W	96 mA	14 CFM	9.4 CFM	56Pa	36 dBA	PDF
118800-30	$;-1ltu:	Intake grille	G3 filter	FPO intake grille designed to be used with the FPO fans listed above only.							PDF

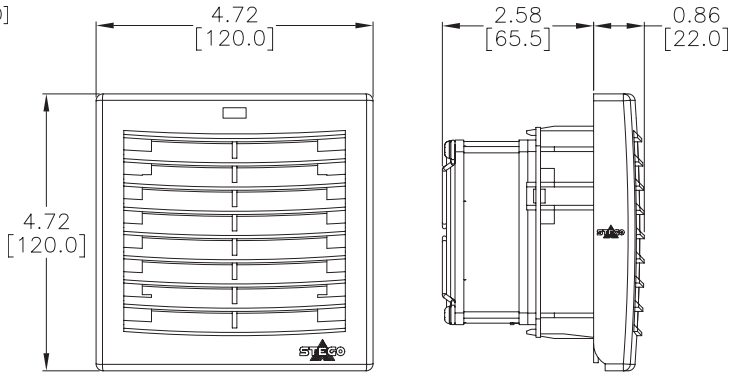
Note: Performance data (current draw, power consumption, free airflow with a grille and filters, sound level) for all AC fans is based on 60Hz.

Filter Fan Plus – Dimensions

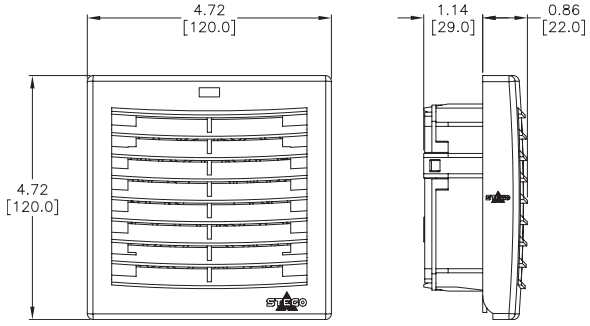
Dimensions



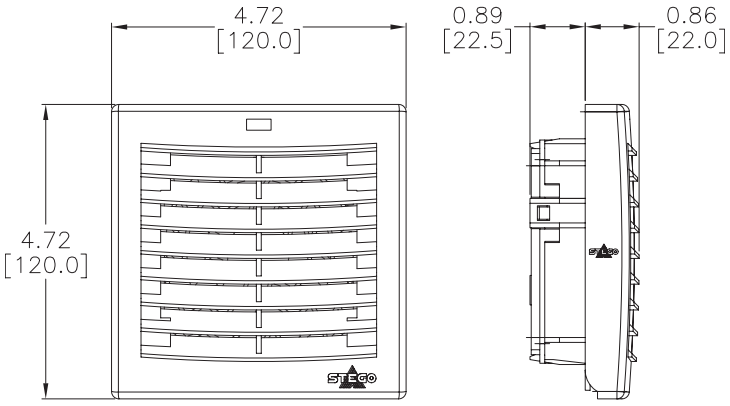
FPI Fan 3.62 x 3.62 in Cutout Size



FPO Fan3.62 x 3.62 in Cutout Size



Exhaust grille for 3.62 x 3.62 in FPI Fan



Intake grille for 3.62 x 3.62 in FP0 Fan

Filter Fan Plus

018710-30

118710-00

4.88 x 4.88 in [124 x 124mm]Cutout Size

- Storage temperature: -40 to 158˚F (-40 to 70˚C)
- Operating temperature: -4 to 158˚F (-20 to 70˚C)
- Connection type: 2 stranded wires, 11.8" (300mm) long, AWG 22
- Service life: AC - 37,500 hrs @ 104˚F (40˚C) DC - 65,000 hrs @ 104˚F (40˚C)
- Average arrestance: 84% with provided G3 (coarse) filter
- Replacement filter mats G3 (coarse): 086330-00 G4 (medium): 086270-00 M5 (fine): 086300-00

Filter Fan Plus - FPI System

Part Number	Price	Description	Filter/ Air Flaps	Operating Voltage	Power Consumption (W)	Current Draw (mA)	FreeAirflow (CFM)	Airflow with Grille and Filters (CFM)	Max Static Pressure (Pa)	Sound Level (dB)	Drawing Link
018710-30	$;-1lt5:	Enclosure fan	G3 filter	230 VAC	19W	83 mA	31 CFM	25 CFM	64Pa	49 dBA	PDF
018711-30	$-01lus:	Enclosure fan	G3 filter	48 VDC	4.2W	88 mA	39 CFM	33 CFM	92Pa	58 dBA	PDF
018712-30	$;-01lut:	Enclosure fan	G3 filter	24 VDC	4.1W	171 mA	39 CFM	33 CFM	87Pa	58 dBA	PDF
018713-30	$-01luu:	Enclosure fan	G3 filter	12 VDC	3.8W	316 mA	45 CFM	33 CFM	89Pa	42 dBA	PDF
018719-30	$;-1lt6:	Enclosure fan	G3 filter	115 VAC	18W	157 mA	37 CFM	30 CFM	70Pa	53 dBA	PDF
118710-00	$;-1ltv:	Exhaust grille	Air flaps	FPI exhaust grille designed to be used with the FPI fans listed above only.							PDF

Note: Performance data (current draw, power consumption, free airflow with a grille and filters, sound level) for all AC fans is based on 60Hz.

018810-00

118810-30

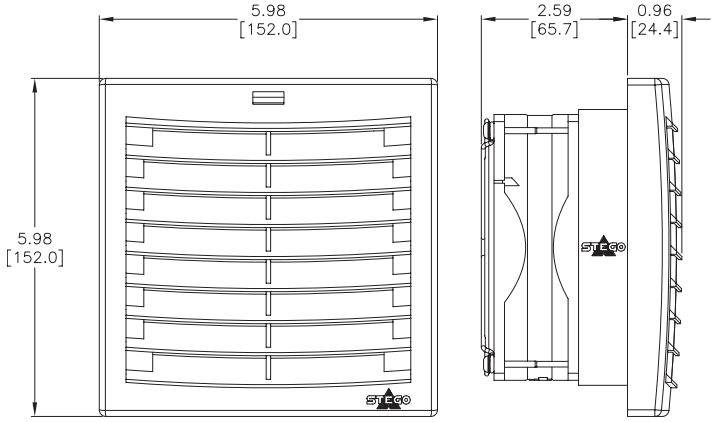
Filter Fan Plus - FPO System

Part Number	Price	Description	Filter/ Air Flaps	Operating Voltage	Power Consumption (W)	Current Draw (mA)	FreeAirflow (CFM)	Airflow with Grille and Filters (CFM)	Max Static Pressure (Pa)	Sound Level (dB)	Drawing Link
018810-00	$;-01lt7:	Enclosure fan	Air flaps	230 VAC	19W	83 mA	57 CFM	28 CFM	75Pa	49 dBA	PDF
018810-40	$;-1lu!:	Enclosure fan	G3 filter	230 VAC	19W	83 mA	32 CFM	22 CFM	64Pa	42 dBA	PDF
018811-00	$-01lu?:	Enclosure fan	Air flaps	48 VDC	4.2W	88 mA	74 CFM	37 CFM	92Pa	50 dBA	PDF
018812-00	$;-01lu,:	Enclosure fan	Air flaps	24 VDC	4.5W	188 mA	70 CFM	37 CFM	88Pa	56 dBA	PDF
018813-00	$-01lv0:	Enclosure fan	Air flaps	12 VDC	4.5W	375 mA	70 CFM	36 CFM	88Pa	42 dBA	PDF
018819-00	$;-01lt8:	Enclosure fan	Air flaps	115 VAC	18W	157 mA	69 CFM	34 CFM	82Pa	52 dBA	PDF
018819-40	$-1lv1:	Enclosure fan	G3 filter	115 VAC	18W	157 mA	39 CFM	28 CFM	70Pa	42 dBA	PDF
118810-30	$;-1ltx:	Intake grille	G3 filter	FPO intake grille designed to be used with the FPO fans listed above only.							PDF

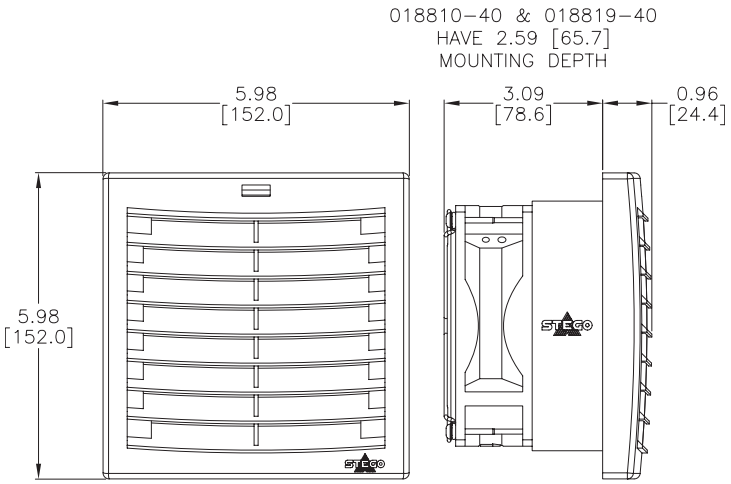
Note: Performance data (current draw, power consumption, free airflow with a grille and filters, sound level) for all AC fans is based on 60Hz.

Filter Fan Plus – Dimensions

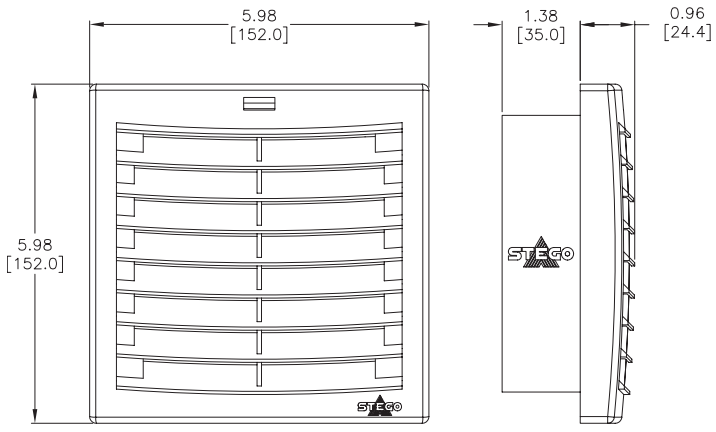
Dimensions



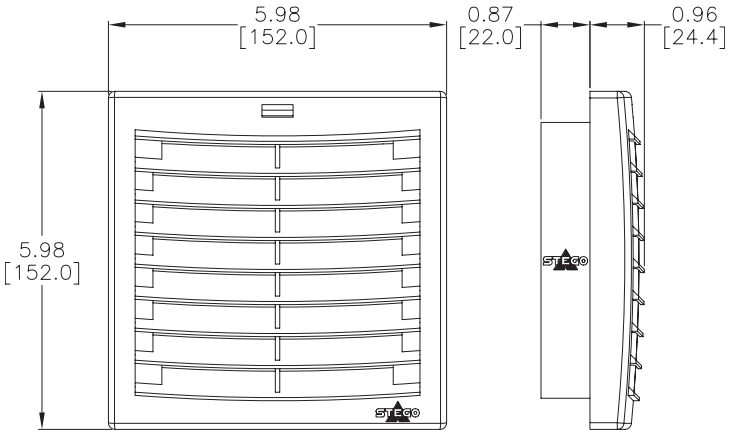
FPI Fan 4.88 x 4.88 in [124 x 124 mm] Cutout Size



FP0 Fan 4.88 x 4.88 in [124 x 124 mm] Cutout Size



Exhaust grille for 4.88 x 4.88 in [124 x 124 mm] FPI Fan



Intake grille for 4.88 x 4.88 in [124 x 124 mm] FP0 Fan

Filter Fan Plus

018720-30

118720-00

6.93 x 6.93 in [176 x 176mm] Cutout Size

- Storage temperature: -40 to 158˚F (-40 to 70˚C)
- Operating temperature: -13 to 158˚F (-25 to 70˚C)
- Connection type: 3-pole clamp for AWG 14 (2.5 mm2), screw clamp torque 7.1 lb·in (0.8 N·m) max
- Service life: AC - 65,000 hrs @ 104˚F (40˚C)
  DC - 80,000 hrs @ 104˚F (40˚C)
- Average arrestance: 84% with provided G3 (coarse) filter
- Replacement filter mats G3 (coarse): 086330-00 G4 (medium): 086270-00 M5 (fine): 086300-00

Filter Fan Plus - FPI System

Part Number	Price	Description	Filter/ Air Flaps	Operating Voltage	Power Consumption (W)	Current Draw (mA)	FreeAirflow (CFM)	Airflow with Grille and Filters (CFM)	Max Static Pressure (Pa)	Sound Level (dB)	Drawing Link
018720-30	$;-01lt9:	Enclosure fan	G3 filter	230 VAC	45W	196 mA	100 CFM	82 CFM	121Pa	55 dBA	PDF
018721-30	$-01luv:	Enclosure fan	G3 filter	48 VDC	12W	250 mA	100 CFM	87 CFM	122Pa	63 dBA	PDF
018722-30	$-01lux:	Enclosure fan	G3 filter	24 VDC	12W	500 mA	105 CFM	92 CFM	125Pa	63 dBA	PDF
018723-30	$-01luy:	Enclosure fan	G3 filter	12 VDC	12W	1000 mA	106 CFM	88 CFM	127Pa	53 dBA	PDF
018729-30	$;-01lta:	Enclosure fan	G3 filter	115 VAC	38W	330 mA	120 CFM	110 CFM	121Pa	58 dBA	PDF
118720-00	$;-1lty:	Exhaust grille	Air flaps	FPI exhaust grille designed to be used with the FPI fans listed above only.							PDF

Note: Performance data (current draw, power consumption, free airflow with a grille and filters, sound level) for all AC fans is based on 60Hz.

018820-00

118820-30

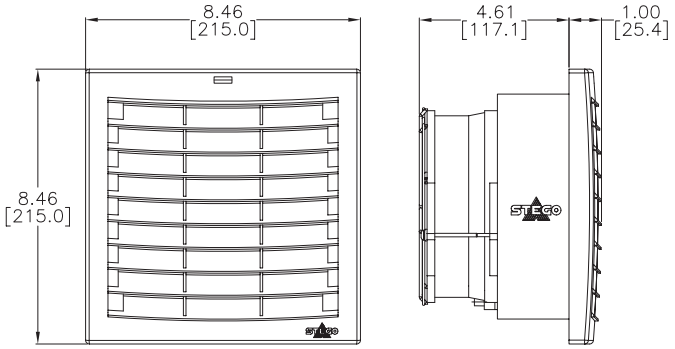
Filter Fan Plus - FPO System

Part Number	Price	Description	Filter/Air Flaps	Operating Voltage	Power Consumption (W)	Current Draw (mA)	FreeAirflow (CFM)	Airflow with Grille and Filters (CFM)	Max Static Pressure (Pa)	Sound Level (dB)	Drawing Link
018820-00	$;-01ltb:	Enclosure fan	Air flaps	230 VAC	45W	196 mA	155 CFM	81 CFM	143Pa	56 dBA	PDF
018820-40	$-01lv2:	Enclosure fan	G3 filter	230 VAC	45W	196 mA	106 CFM	71 CFM	121Pa	53 dBA	PDF
018821-00	$-01lv3:	Enclosure fan	Air flaps	48 VDC	12W	250 mA	163 CFM	86 CFM	146Pa	63 dBA	PDF
018822-00	$-01lv4:	Enclosure fan	Air flaps	24 VDC	12W	500 mA	158 CFM	83 CFM	138Pa	63 dBA	PDF
018823-00	Retired	Enclosure fan	Air flaps	12 VDC	12W	1000 mA	164 CFM	82 CFM	150Pa	53 dBA	PDF
018829-00	$;-01ltc:	Enclosure fan	Air flaps	115 VAC	38W	330 mA	184 CFM	98 CFM	162Pa	60 dBA	PDF
018829-40	$-01lv6:	Enclosure fan	G3 filter	115 VAC	38W	330 mA	126 CFM	86 CFM	139Pa	53 dBA	PDF
118820-30	$;-1ltz:	Intake grille	G3 filter	FPO intake grille designed to be used with the FPO fans listed above only.							PDF

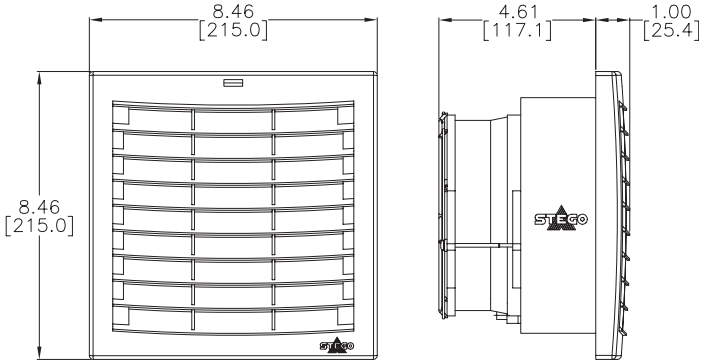
Note: Performance data (current draw, power consumption, free airflow with a grille and filters, sound level) for all AC fans is based on 60Hz.

Filter Fan Plus - Dimensions

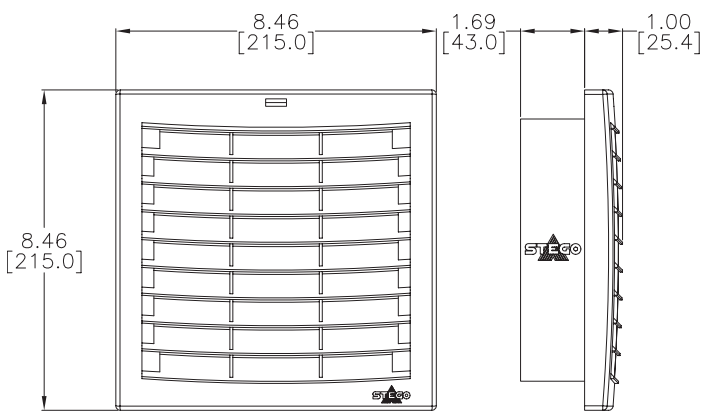
Dimensions



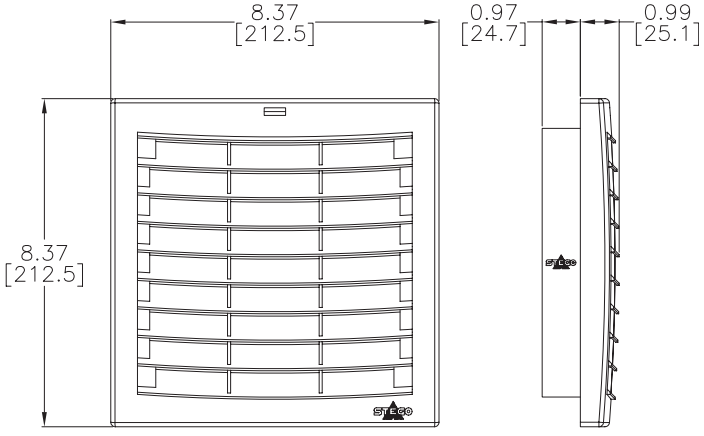
6.93 x 6.93 in [176 x 176 mm] Cutout Size FPI Fan



6.93 x 6.93 in [176 x 176 mm] Cutout Size FPO Fan



Exhaust grille for 6.93 x 6.93 in [176 x 176 mm] FPI Fan



Intake grille for 6.93 x 6.93 in [176 x 176 mm] FPO Fan

Filter Fan Plus

018730-30

118730-00

8.78 x 8.78 in [223 x 223mm] Cutout Size

- Storage temperature: -40 to 158˚F (-40 to 70˚C)
- Operating temperature: -13 to 149˚F (-25 to 65˚C)
- Connection type: 3-pole clamp for AWG 14 (2.5 mm2), clamping torque 7.1 lb·in (0.8 N·m) max
- Service life: 56,000 hrs @ 104˚F (40˚C)
- Average arrestance: 84% with provided G3 (coarse) filter
- Replacement filter mats G3 (coarse): 086300-00 G4 (medium): 086270-00 M5 (fine): 086300-00

Filter Fan Plus - FPI System

Part Number	Price	Description	Filter/Air Flaps	Operating Voltage	Power Consumption (W)	Current Draw (mA)	FreeAirflow (CFM)	Airflow with Grille and Filters (CFM)	Max Static Pressure (Pa)	Sound Level (dB)	Drawing Link
018730-30	$;-01ltd:	Enclosure fan	G3 filter	230 VAC	64W	278 mA	180 CFM	160 CFM	154Pa	64 dBA	PDF
018739-30	$;-01lte:	Enclosure fan	G3 filter	115 VAC	81W	704 mA	195 CFM	173 CFM	92Pa	67 dBA	PDF
118730-00	$;;-1lt]:	Exhaust grille	Air flaps	FPI exhaust grille designed to be used with the FPI fans listed above only.							PDF

Note: Performance data (current draw, power consumption, free airflow with a grille and filters, sound level) for all AC fans is based on 60Hz.

018830-00

118830-30

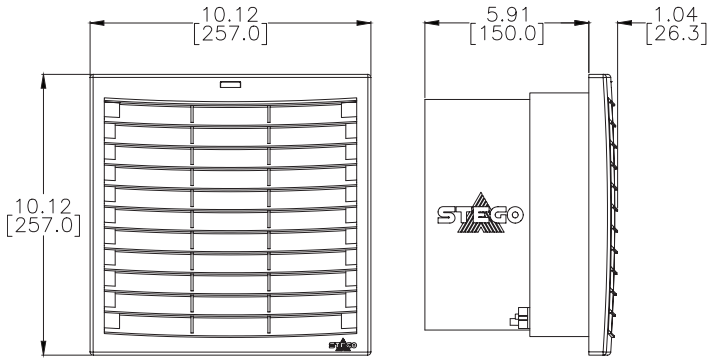
Filter Fan Plus - FPO System

Part Number	Price	Description	Filter/Air Flaps	Operating Voltage	Power Consumption (W)	Current Draw (mA)	FreeAirflow (CFM)	Airflow with Grille and Filters (CFM)	Max Static Pressure (Pa)	Sound Level (dB)	Drawing Link
018830-00	$;;-01ltf:	Enclosure fan	Air flaps	230 VAC	64W	278 mA	316 CFM	165 CFM	172Pa	65 dbA	PDF
018830-40	$-01lv7:	Enclosure fan	G3 filter	230 VAC	64W	278 mA	177 CFM	134 CFM	154Pa	65 dbA	PDF
018839-00	$;-01ltg:	Enclosure fan	Air flaps	115 VAC	81W	704 mA	342 CFM	182 CFM	103Pa	68 dBA	PDF
018839-40	$-01lv8:	Enclosure fan	G3 filter	115 VAC	81W	704 mA	191 CFM	148 CFM	92Pa	68 dBA	PDF
118830-30	$;;-1lt[:	Intake grille	G3 filter	FPO intake grille designed to be used with the FPO fans listed above only.							PDF

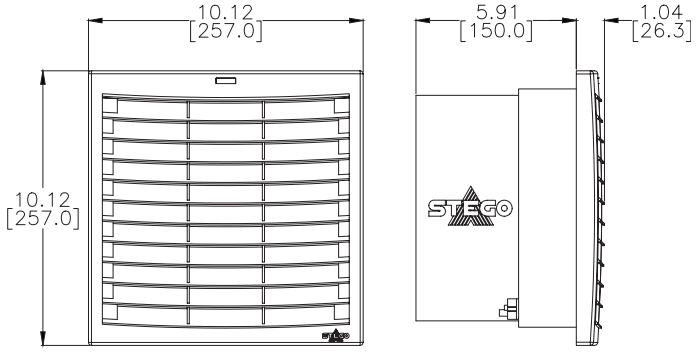
Note: Performance data (current draw, power consumption, free airflow with a grille and filters, sound level) for all AC fans is based on 60Hz.

Filter Fan Plus - Dimensions

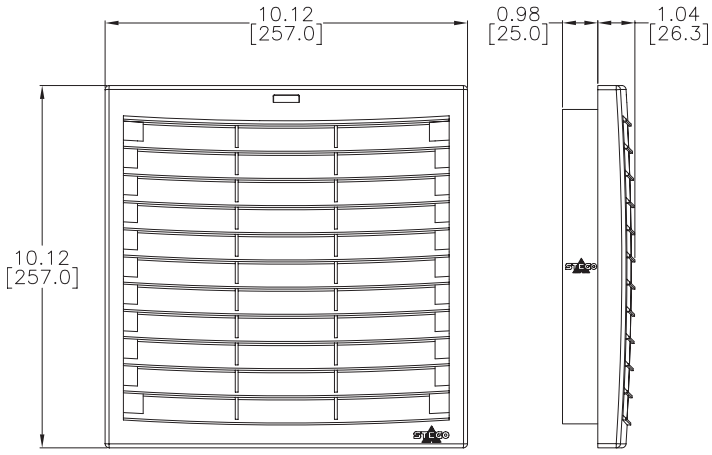
Dimensions



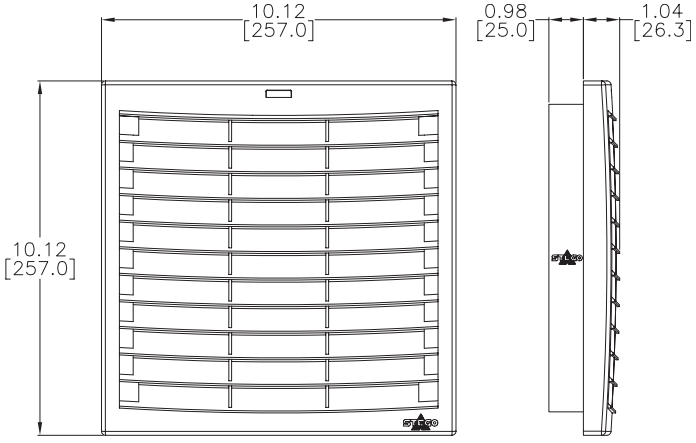
8.78 x 8.78 in [223 x 223mm] Cutout Size FPI Fan



8.78 x 8.78 in [223 x 223mm] Cutout Size FPO Fan



Exhaust grille for 8.78 x 8.78 in [223 x 223mm] FPI Fan



Intake grille for 8.78 x 8.78 in [223 x 223mm] FPO Fan

Filter Fan Plus

018740-30

118740-00

11.46 x 11.46 in [291 x 291mm] Cutout Size

- Storage temperature: -40 to 158˚F (-40 to 70˚C)
- Operating temperature: -13 to 95˚F (-25 to 35˚C)
- Connection type: 3-pole clamp for AWG 14 (2.5 mm2), clamping torque 7.1 lb·in (0.8 N·m) max
- Service life: 76,000 hrs @ 104˚F (40˚C)
- Average arrestance: 84% with provided G3 (coarse) filter
- Replacement filter mats G3 (coarse): 086330-00 G4 (medium): 086270-00 M5 (fine): 086300-00

Filter Fan Plus - FPI System

Part Number	Price	Description	Filter/Air Flaps	Operating Voltage	Power Consumption (W)	Current Draw (mA)	FreeAirflow (CFM)	Airflow with Grille and Filters (CFM)	Max Static Pressure (Pa)	Sound Level (dB)	Drawing Link
018740-30	$;-01lth:	Enclosure fan	G3 filter	230 VAC	95W	413 mA	255 CFM	220 CFM	99Pa	62 dBA	PDF
018740-31	$-04nuj:	Enclosure fan	G3 filter	230 VAC	140W	700 mA	367 CFM	330 CFM	112Pa	70 dBA	PDF
018749-30	$;--01lti:	Enclosure fan	G3 filter	115 VAC	90W	783 mA	232 CFM	200 CFM	73Pa	61 dBA	PDF
018749-31	$04nuk:	Enclosure fan	G3 filter	115 VAC	165W	1450 mA	391 CFM	349 CFM	135Pa	72 dBA	PDF
118740-00	$;-1lt_:	Exhaust grille	Air flaps	FPI exhaust grille designed to be used with the FPI fans listed above only.							PDF

Note: Performance data (current draw, power consumption, free airflow with a grille and filters, sound level) for all AC fans is based on 60Hz.

018840-00

118840-30

Filter Fan Plus - FPO System

Part Number	Price	Description	Filter/Air Flaps	Operating Voltage	Power Consumption (W)	Current Draw (mA)	FreeAirflow (CFM)	Airflow with Grille and Filters (CFM)	Max Static Pressure (Pa)	Sound Level (dB)	Drawing Link
018840-00	$;--01ltj:	Enclosure fan	Air flaps	230 VAC	95W	413 mA	428 CFM	243 CFM	107Pa	63 dBA	PDF
018840-01	$-04nul:	Enclosure fan	Air flaps	230 VAC	140W	700 mA	595 CFM	353 CFM	70Pa	70 dBA	PDF
018840-40	$-01lv9:	Enclosure fan	G3 filter	230 VAC	95W	413 mA	265 CFM	187 CFM	99Pa	63 dBA	PDF
018849-00	$;-01ltk:	Enclosure fan	Air flaps	115 VAC	90W	783 mA	414 CFM	230 CFM	80Pa	62 dBA	PDF
018849-01	$04nun:	Enclosure fan	Air flaps	115 VAC	165W	1450 mA	607 CFM	359 CFM	90Pa	71 dBA	PDF
018849-40	$-01lva:	Enclosure fan	G3 filter	115 VAC	90W	783 mA	256 CFM	177 CFM	73Pa	62 dBA	PDF
118840-30	$;-1lt#:	Intake grille	G3 filter	FPO intake grille designed to be used with the FPO fans listed above only.							PDF

Note: Performance data (current draw, power consumption, free airflow with a grille and filters, sound level) for all AC fans is based on 60Hz.

Filter Fan

STEGO INC. SIMPLY INNOVATIVE. BETTER FOR SURE.

Applications

Filter fans provide an optimum climate in enclosures. The interior temperature of enclosures is reduced by channeling cooler filtered outside air into the enclosure, thus expelling heated internal air. The resulting air flow prevents formation of localized heat pockets and protects electronic components from overheating.

Outdoor filter fans are used in outdoor enclosures where warm air must be dissipated. To clean and exchange the filter mat, you open the lockable door of the outdoor hood, eliminating the need to allow interior access to the enclosure. IP55 protection type is achieved due to the special design of the hood and the use of fine filter mats.

Features

- Easy filter change
- Outer door lock for outdoor models
- Impact resistant
- Weather/UV-resistant UL-f1
- Flammability Rating: UL 94V-0
- No-screw installation — except outdoor models
- Low noise
- 120VAC and 24VDC models available
- Service life — 50,000 hrs@77°F (25°C) + 65%RH
- Connection type - 12 to 69 CFM - 2 wires w/case clamps, AWG 14, length 4.0in [103mm]/136 to 373 CFM - 3 pole terminal, AWG 14, clamping torque 0.8 N·m
- Airflow direction easily switched by reversing the axial fan (except on models 018040-01and 018050-01
- Includes self-adhesive gasket pre-installed on frame
- Optional mounting screws for additional support
- G3 (coarse), G4 (medium) and M5 (fine) replacement filter mats available

Standards

- All models: IP54, VDE, EAC, UL 12 when using supplied filter (outdoor models IP55)
- UL recognized — file: E234324

Note: Using fine filter mat M5 reduces the airflow. (No test data available for G3 filter mats. See Stego Air Volume and Pressure Data, later in this section.)

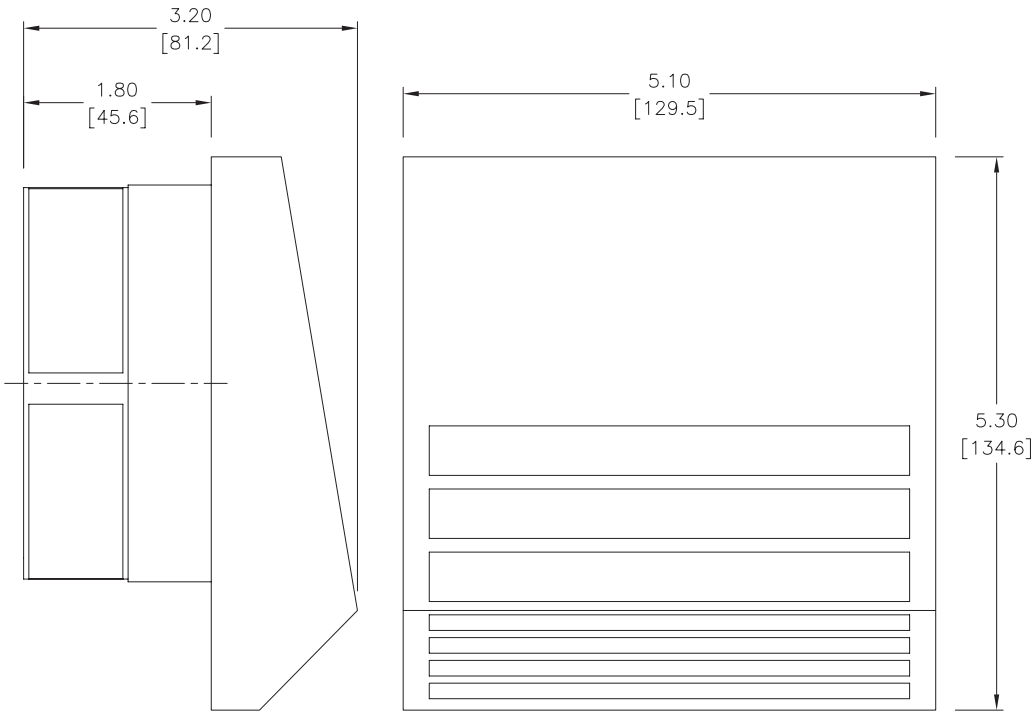
Part Number	Price	Drawing Link	Cutout Dimensions	Operating Voltage	Power Consumption	Current Draw	FreeAirflow	Air Flow with Grille and Filters	Max. Static Pressure	Sound Level	Min/Max Operating Temp.	Included Filter Rating	Average Arrestance
Filter Fans													
018000-01	$0a82:	PDF	3.82 x 3.82 [97 x 97]	115 VAC	13W	160 mA	14 CFM	11 CFM	18Pa	31 dBA	14/158°F [-10/70°C]	G4 (medium)	94%
018000-02	$00a83:	PDF		24 VDC	2.2W	60 mA	12 CFM	9.4 CFM	19Pa				
018010-01	$00a84:	PDF	4.92 x 4.92 [125 x 125]	115 VAC	15W	180 mA	37 CFM	28 CFM	30Pa	40 dBA			
018010-02	$00a85:	PDF		24 VDC	5W	210 mA	32 CFM	25 CFM	32Pa				
018020-01	$00a86:	PDF	6.93 x 6.93 [176 x 176]	115 VAC	15W	180 mA	69 CFM	46 CFM	27Pa	39 dBA			
018020-02	$00ab_:	PDF		24 VDC	5W	210 mA	60 CFM	40 CFM	23Pa				
018030-01	$00ab#:	PDF	9.84 X 9.84 [250 X 250]	115 VAC	68W	800 mA	202 CFM	156 CFM		56 dBA			
018030-03	$;00ab!:	PDF		24 VDC	20W	840 mA	176 CFM	135 CFM	27Pa	53 dBA			
018040-01	$00ab?:	PDF	6.93 X 6.93 [176 X 176]	115 VAC	39W	470 mA	136 CFM	84 CFM	60Pa	52 dBA	-13/140°F [-25/60°C]		
018050-01	$;00ab,:	PDF	9.84 X 9.84 [250 X 250]		85W	780 mA	372 CFM	203 CFM	85Pa	65 dbA			
Outdoor Filter Fans (Rain Hoods)													
018210-02	$00ac0:	PDF	4.92 x 4.92 [125 x 125]	115 VAC	15W	180 mA	14 CFM	7.1 CFM	54Pa	40 dBA	14/158°F [-10/70°C]	G5 (fine)	98%
018210-04	$00ac1:	PDF		24 VDC	5W	210 mA	12 CFM	5.9 CFM	48Pa				

Notes: Performance data (current draw, power consumption, free airflow, airflow with grille and filters, sound level) for all 120VAC fans is based on 60Hz.
Free airflow and maximum static pressure are measured with fan and louvered housing only.
Airflow with grille and filters include entire system: complete fan assembly with filter and exhaust grille with filter.
Dimensions in inches [millimeters].

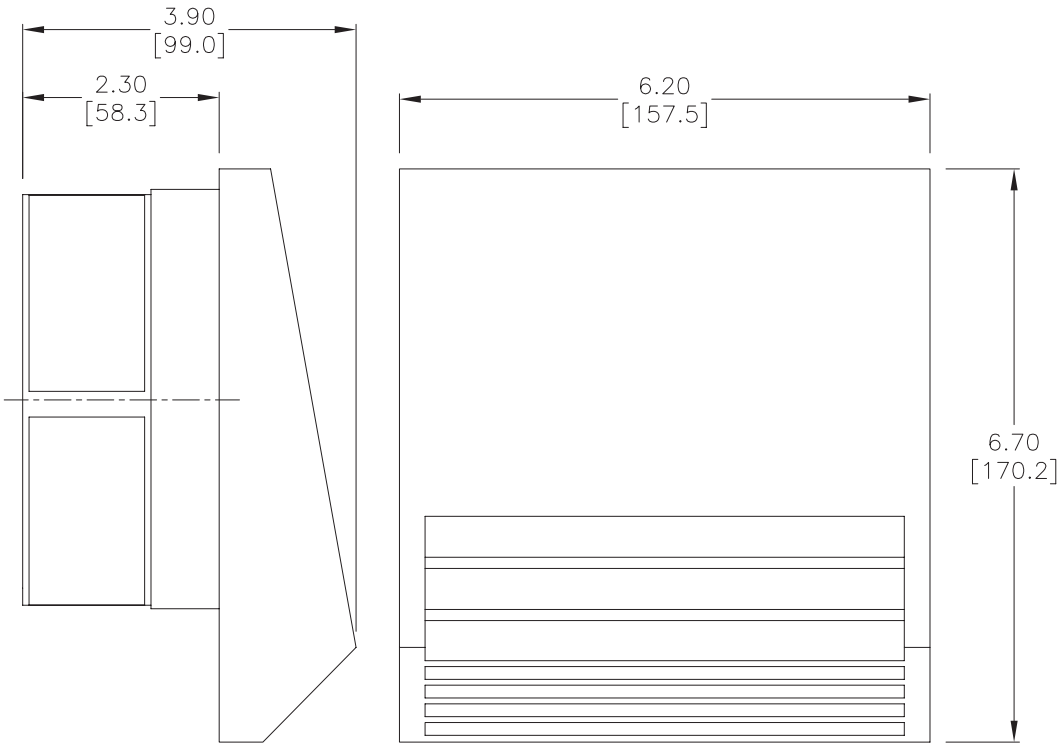
Filter Fan – Dimensions

Dimensions

018000-01
018000-02



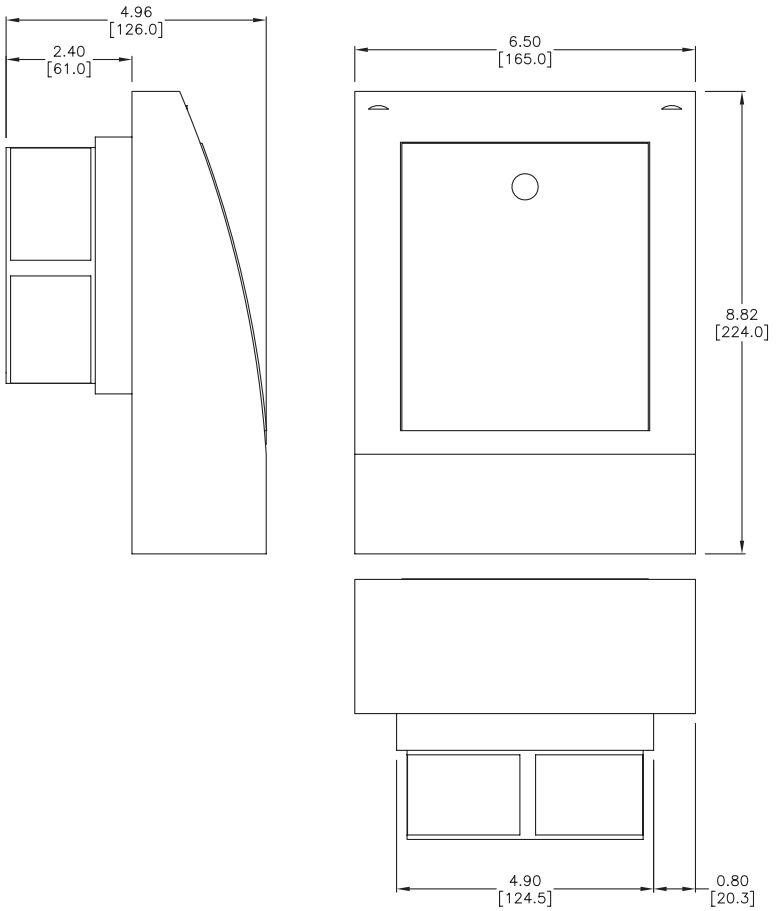
018010-01
018010-02



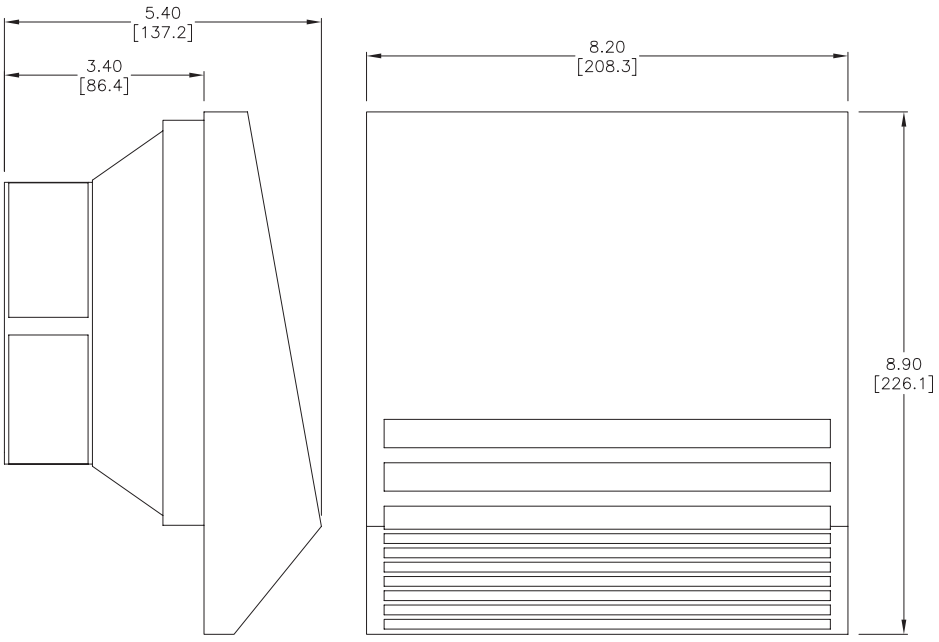
Filter Fan – Dimensions

Dimensions

018210-04
018210-02



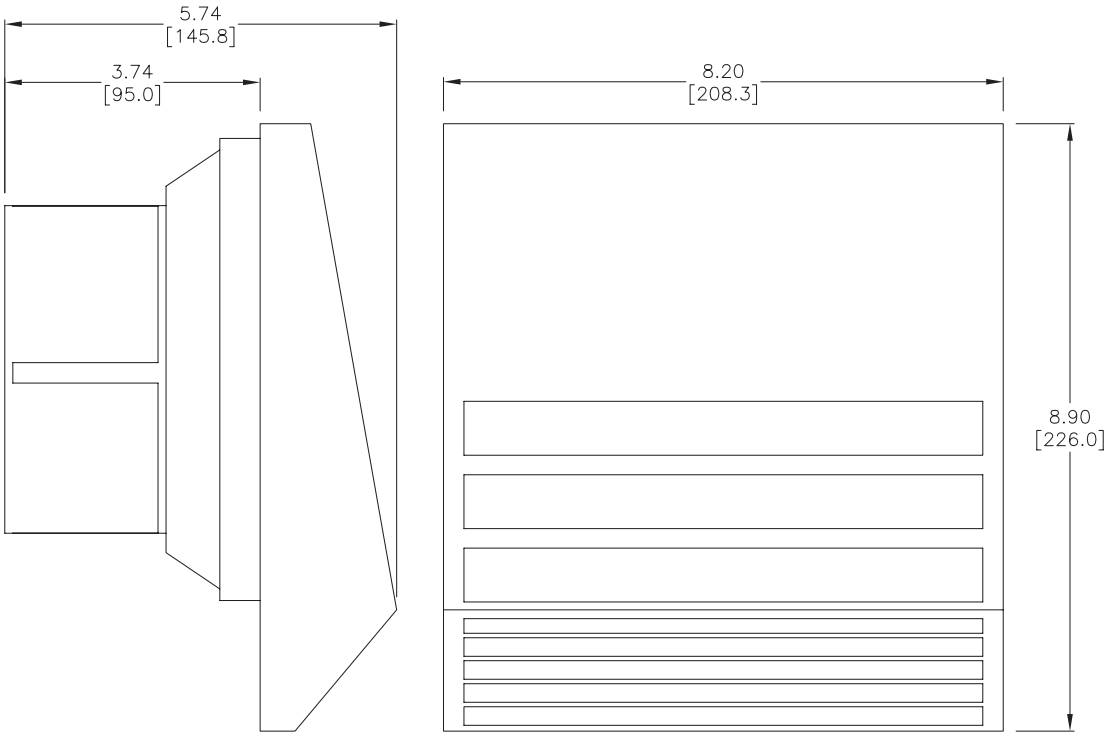
018020-01
018020-02



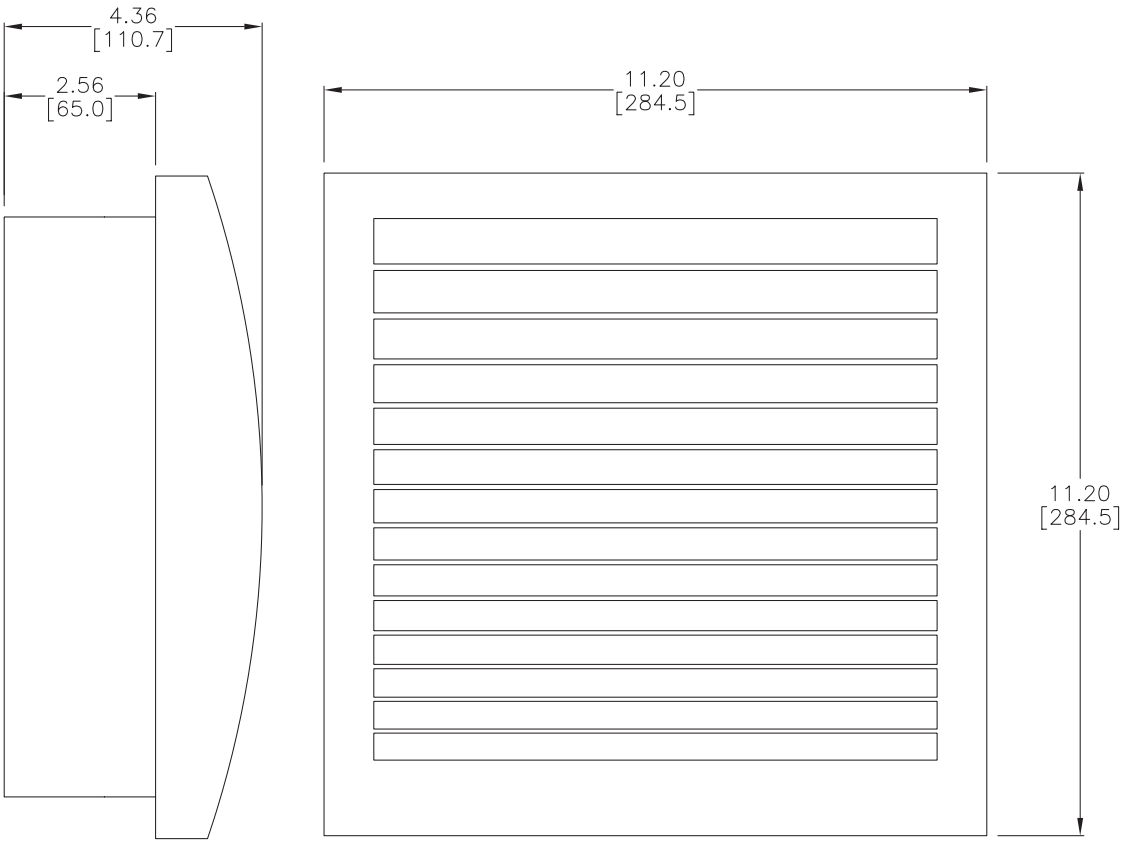
Filter Fan – Dimensions

Dimensions

018040-01



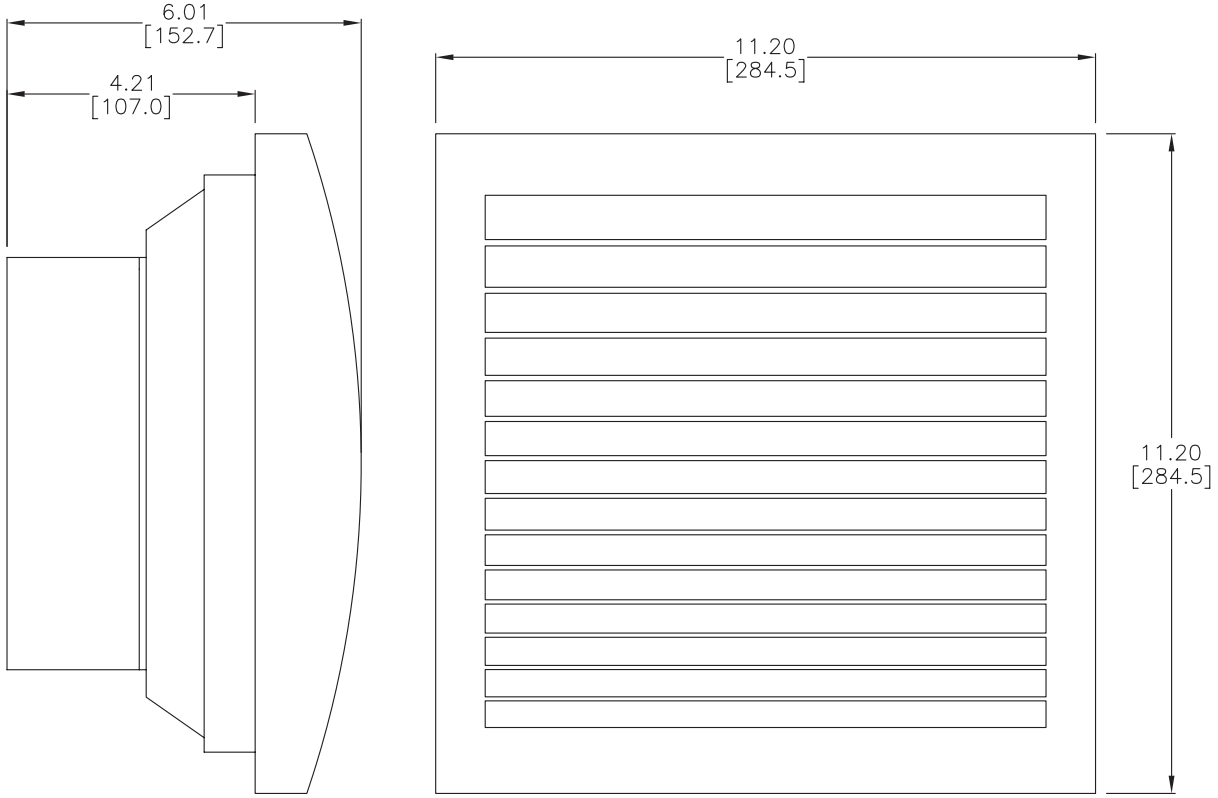
018030-01
018030-03



Filter Fan – Dimensions

Dimensions

018050-01



Exhaust Grilles With Filters

118000-00

Features

- No-screw installation
- G3 (coarse), G4 (medium) and M5 (fine) replacement filter mats available

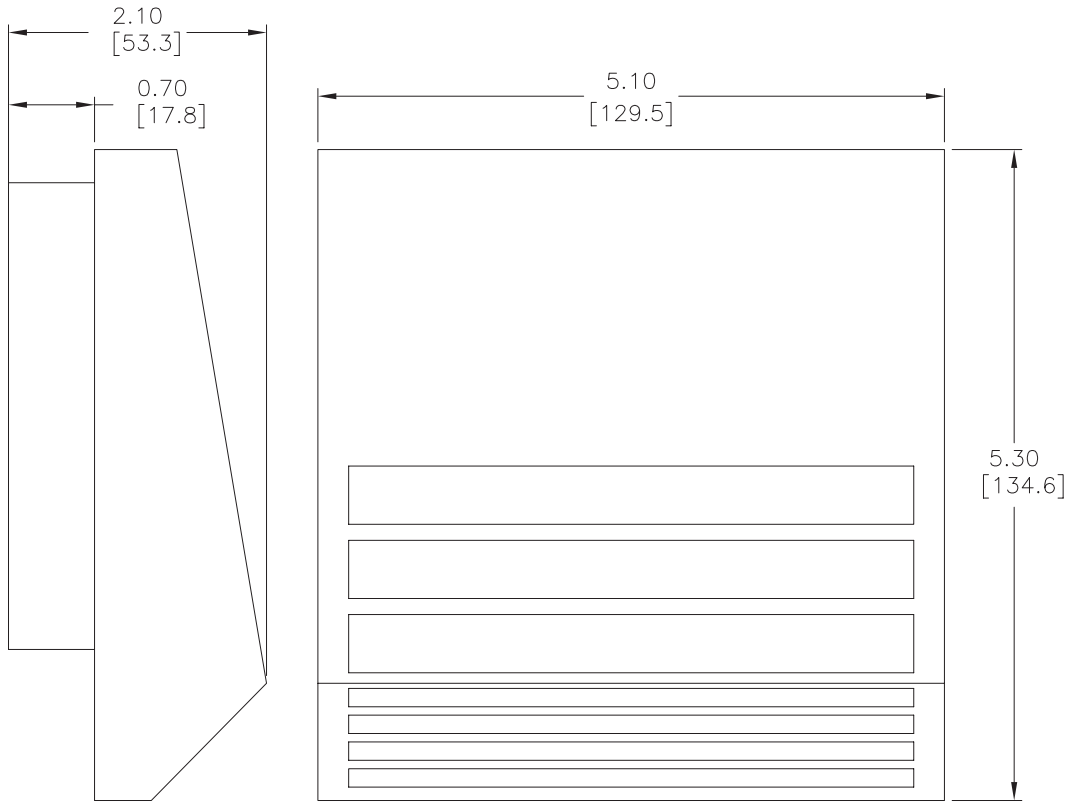
Accessories

- Come with gaskets attached (adhesive-sided to stick on panel)

Part Number	Price	Drawing Link	Cutout Dimensions	Included Filter Rating	Average Arrestance
Exhaust Grilles					
118000-00	$0ac2:	PDF	3.82 x 3.82 [97 x 97]	G4 (medium)	94%
118010-00	$0ac3:	PDF	4.92 x 4.92 [125 x 125]		
118020-00	$0ac4:	PDF	6.93 x 6.93 [176 x 176]		
118030-00	$0ac5:	PDF	9.84 x 9.84 [250 x 250]		
Outdoor Exhaust Grilles					
118210-00	$00ac6:	PDF	4.92 x 4.92 [125 x 125]	G5 (fine)	98%
Note: Dimensions in inches (millimeters).					

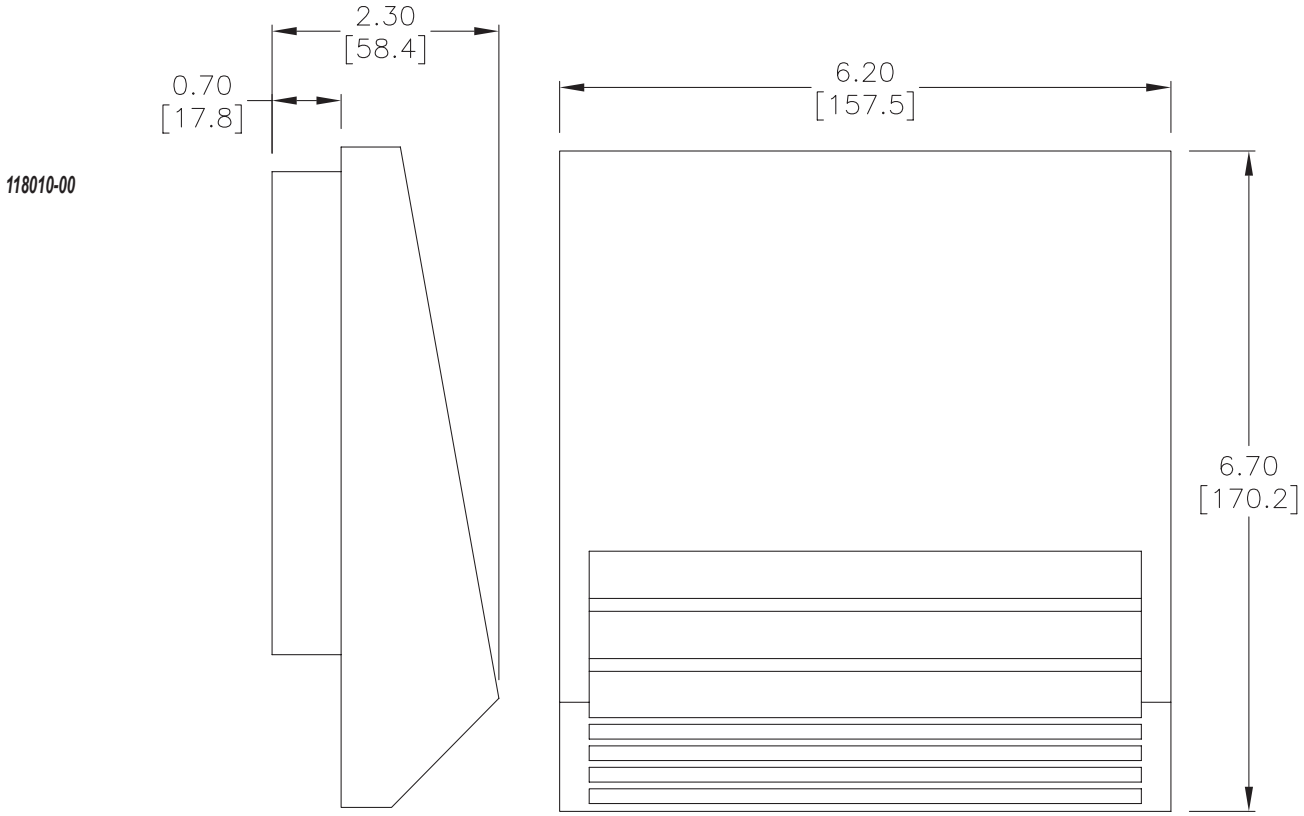
Dimensions

118000-00

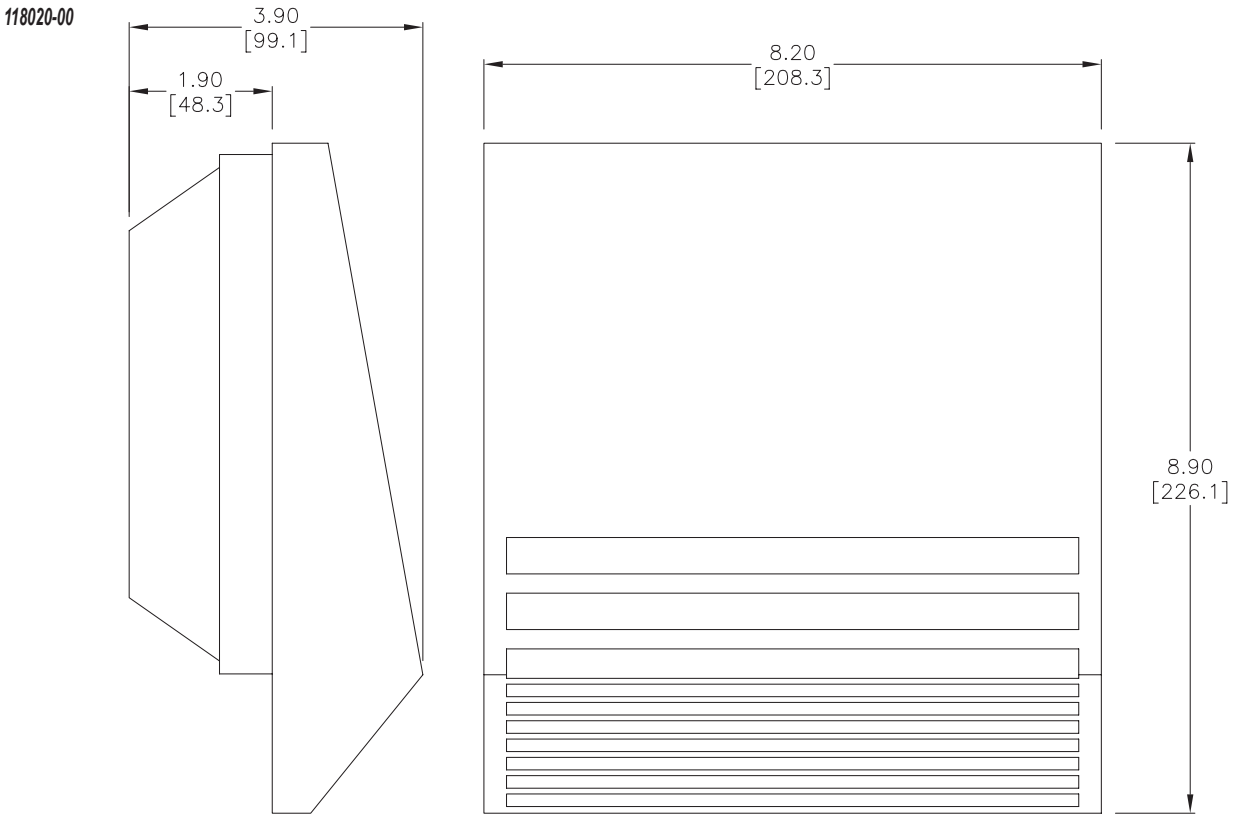


Filter Fan Exhaust Grille Dimensions

Dimensions



118010-00

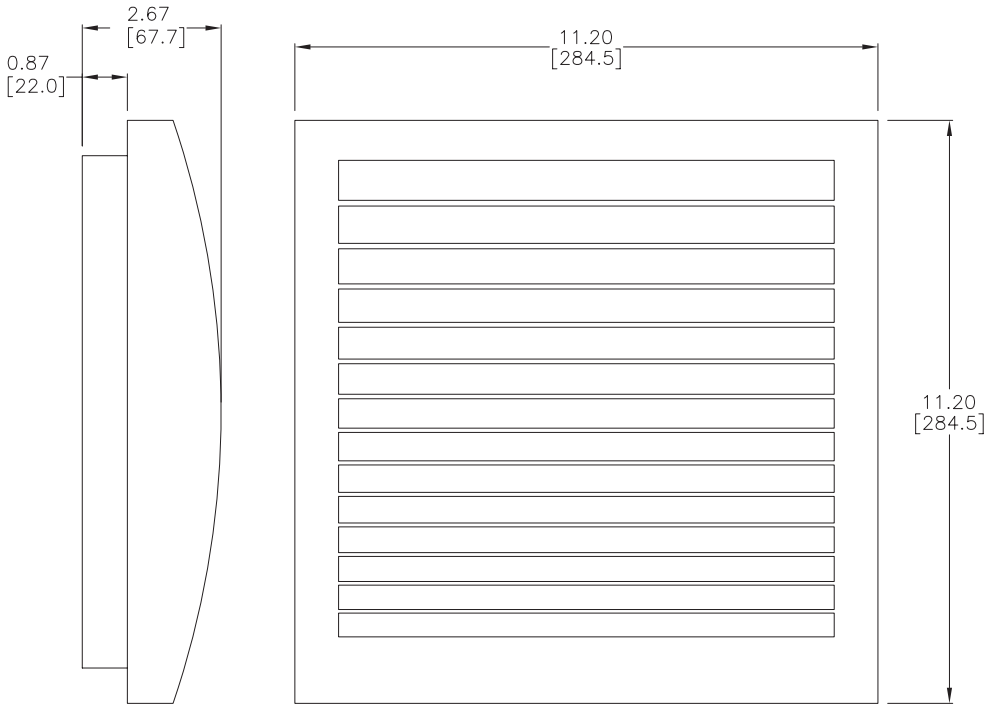


118020-00

Filter Fan Exhaust Grille Dimensions

Dimensions

118030-00



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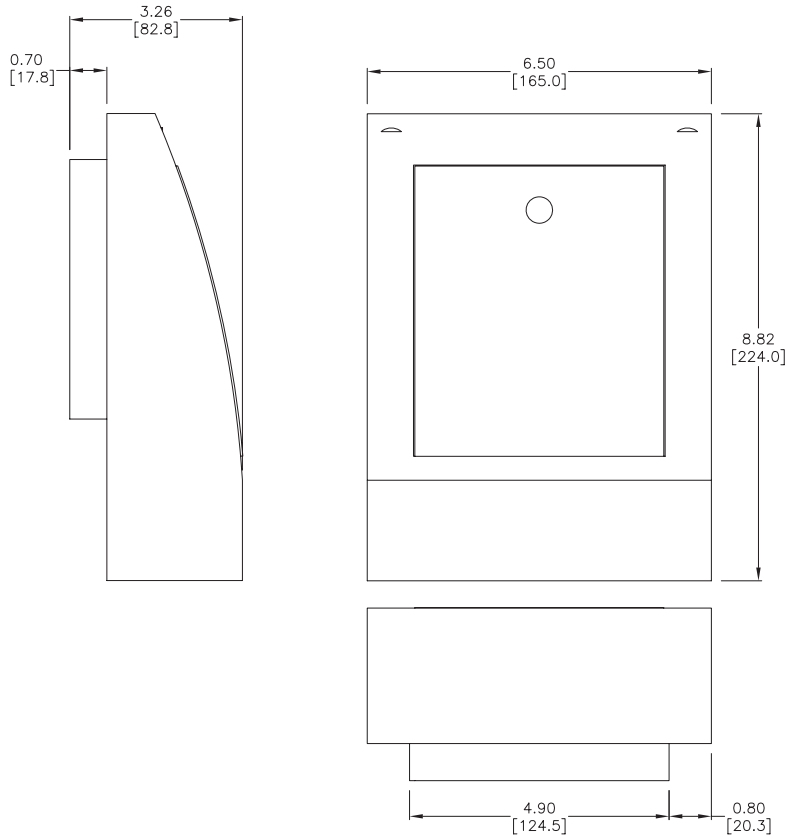


Filter Fan Replacement Filter Mats

086000-00

Filter Mats

- Synthetic fiber with progressive construction
- Temperature resistant to 212°F (100°C)
- Rating: G3 (coarse), G4 (coarse), and M5 (medium)
- Self-extinguishing class F1
- Moisture resistant to 100% RH
- Reusable; can be cleaned with mild soap or vacuum

Applications

- Replacement filter mats for Stego fans, grilles, and vents.

Features

- Filter media for enclosure fans
- Coarse or medium density

Replacement Filter Mats

Part Number	Price	Dimensions HxW in (mm)	Use With Fan Part Number	Use With Grille or Vent Part Number	Filter Rating	Average Arrestance (Filtering Level)	Filter Density g/m2	Pieces per Package
086130-01	$-5i1e:	11.10 X 11.10 [282 X 282]	018600-02 018600-04 018610-00 018610-02	118600-00 018600-02 018600-04 018610-00 018610-02	G3 (coarse)	85%	350 g/m2	3
086330-00	$-1lu7:	3.31 x 3.31 [84 x 84]	018700-30 018701-30 018702-30 018703-30 018709-30 018800-40 018809-40	118800-30		84%	200 g/m2	5
086340-00	$-1lu8:	4.64 x 4.64 [118 x 118]	018010-01 018010-02 018210-02 018210-04 018710-30 018711-30 018712-30 018713-30 018719-30 018810-40 018819-40	118010-00 118210-00 118810-30				
086350-00	$-1lu9:	6.61 x 6.61 [168 x 168]	018020-01 018020-02 018040-01 018720-30 018721-30 018722-30 018723-30 018729-30 018820-40 018829-40	118020-00 118820-30				
086360-00	$-1lua:	8.46 x 8.46 [215 x 215]	018730-30 018830-40 018839-40	118830-30				
086370-00	$-1lub:	11.14 x 11.14 [283 x 283]	018740-30 018749-30 018840-40 018849-40	118840-30				

Note: Dimensions in inches [millimeters].

Table continued on next page

Filter Fan Replacement Filter Mats

STEGO INC. SIMPLY INNOVATIVE. BETTER FOR SURE.

Replacement Filter Mats

Part Number	Price	Dimensions HxW in (mm)	Use With Fan Part Number	Use With Grille or Vent Part Number	Filter Rating	Average Arrestance (Filtering Level)	Filter Density g/m2	Pieces per Package
086000-00	$-0elq:	3.50 x 3.50 [89 x 89]	018700-30 018701-30 018702-30 018703-30 018709-30 018800-40 018809-40	118800-30	G4 (coarse)	94%	350 g/m2	3
086010-00	$-0els:	4.65 x 4.65 [118 x 118]	018000-01 018000-02	118000-00				
086020-00	$;-0elt:	6.61 x 6.61 [168 x 168]	018010-01 018010-02 018210-02 018210-04 018710-30 018711-30 018712-30 018713-30 018719-30 018810-40 018819-40	118010-00 118210-00 118810-30				
086030-00	$-0elu:	3.50 x 3.50 [89 x 89]	018020-01 018020-02 018040-01 018720-30 018721-30 018722-30 018723-30 018729-30 018829-40 018829-40	118020-00 118820-30				
086040-00	$-0elv:	4.65 x 4.65 [118 x 118]	018730-30 018739-30 018830-40 018839-40	118830-30				
086050-00	$-0elx:	6.61 x 6.61 [168 x 168]	018030-01 018030-03 018050-01	118030-00				
086080-00	$-0ely:	9.72 x 9.72 [247 x 247]	018740-30 018749-30 018840-40 018849-40	118840-30				
086090-00	$-0elz:	9.72 x 9.72 [247 x 247]	018700-30 018701-30 018702-30 018703-30 018709-30 018800-40 018809-40	118800-30	M5 (medium))	98%	350 g/m2	3
086270-00	$-1lvb:	3.31 x 3.31 [84 x 84]	018000-01 018000-02	118000-00	M5 (medium))	98%		

Note: Dimensions in inches [millimeters].

Filter Fan Replacement Filter Mats

Replacement Filter Mats								
Part Number	*Price*	*Dimensions HxW in (mm)*	*Use With Fan Part Number*	*Use With Grille or Vent Part Number*	*Filter Rating*	*Average Arrestance (Filtering Level)*	*Filter Density g/m2*	*Pieces per Package*
086280-00	$-1lvc:	8.46 x 8.46 [215 x 215]	018010-01 018010-02 018210-02 018210-04 018710-30 018711-30 018712-30 018713-30 018719-30 018810-40 018819-40	118010-00 118210-00 118810-30	M5 (medium))	98%	350 g/m2	3
086290-00	$-1lvd:	11.14 x 11.14 [283 x 283]	018020-01 018020-02 018040-01 018720-30 018721-30 018722-30 018723-30 018729-30 018820-40 018829-40	118020-00 118820-30				
086300-00	$-1lve:	3.31 x 3.31 [84 x 84]	018740-30018730-30 018739-30 018830-40 018839-40	118840-30	M5 (medium))	98%	360 g/m2	3
086310-00	$;-1lvf:	8.46 x 8.46 [215 x 215]	018030-01 018030-03 018050-01	118030-00				
086320-00	$-1lvg:	11.14 x 11.14 [283 x 283]	018740-30 018749-30 018840-40 018849-40	118840-30				
Note: Dimensions in inches [millimeters].								

Air Volume and Pressure Data for Upgraded Filter Mats

STEGO INC. SIMPLY INNOVATIVE. BETTER FOR SURE.

Airflow and Pressure Data

Fan Part Number	Filter Mat Airflow (cfm)				Filter Mat Static Pressure (Pa)	
	G4 fan filter*	G4 fan filter and exhaust filter**	M5 fan filter free flow*	M5 fan filter with exhaust filter**	G4 fan filter free flow*	M5 fan filter*
018000-02	—	9	4	3	—	37
018000-01	—	11	5	4	—	35
018010-02	—	25	16	13	—	53
018010-01	—	28	19	15	—	50
018020-02	—	40	31	21	—	30
018020-01	—	46	36	24	—	35
018040-01	—	84	58	36	—	100
018030-03	—	135	47	36	—	46
018030-01	—	156	54	42	—	54
018050-01	—	203	145	83	—	140
018700-30	9.4	7.1	4.1	3.5	48	48
018800-00	14	7.7	14	4.1	48	48
018800-40	11	7.7	11	4.7	48	48
018710-30	28	25	14	12	76	76
018810-00	57	26	57	12	76	76
018810-40	33	24	33	12	76	76
018809-40	83	74	48	41	140	140
018720-30	155	74	155	40	140	140
018820-00	106	66	106	38	140	140
018820-40	147	130	70	62	132	132
018730-30	316	140	316	74	136	136
018830-00	183	121	183	68	132	132
018830-40	250	212	118	94	107	107
018740-30	428	218	428	109	117	117
018840-00	300	153	300	100	107	107

Notes: *Fan with filter and louver
****Fan with filter, louver, exhaust filter, and grille.**
Part numbers not listed in this table have no test data available.

Hose-Proof Hood for Stego Fans

Features

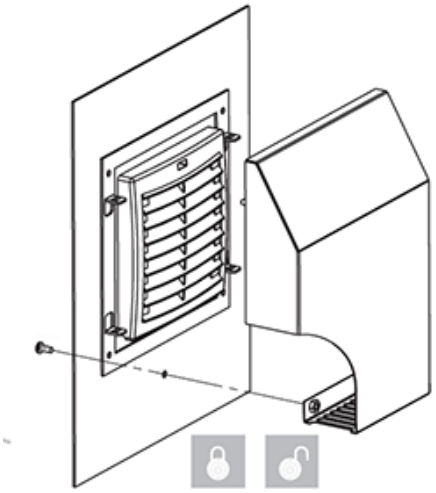
- Stainless steel hood
- Food-safe silicone seal
- Increase of protection class to UL Type 4X
- Easy to clean
- Filter mat change from outside
- Impact-resistant
- Optional security feature to restrict unauthorized access (M6x1 security screw included)
- Weather resistant
- Versatile
- Protective grid
- Mounting screws provided

Standards

- UL 4/4X when used with STEGO Filter Fan Plus and Filter Fans
- UL Recognized File No. E234324
- RoHS 2 compliant
- IP56

Applications

- Designed to increase the protection class and serve as a protective cover to filter fans, intake and exit filters
- Used for protection against water projected by a hose and extreme climatic influences if located oudoors in industrial applications with harsh environmental conditions
- Hood removes easily for cleaning and filter change without opening the enclosure



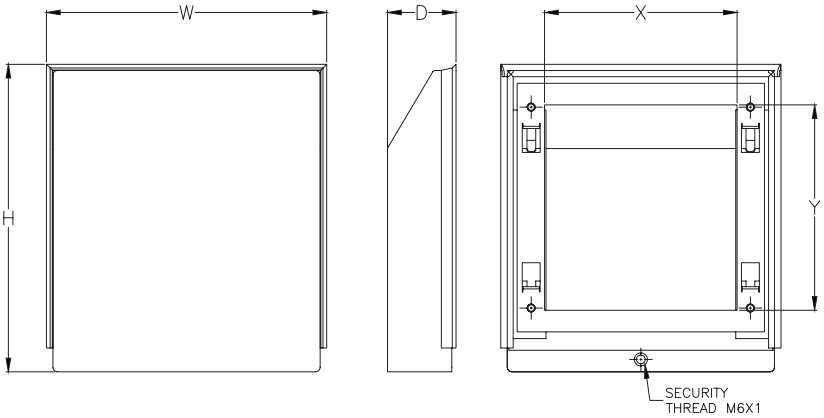
Hose-Proof Hood Locking Mechanism

Hose-Proof Hood for Stego Fans

Part Number	Price	Stego Filter Fan Plus FPI/FPO Cutout Size	Stego Filter Fan Cutout Size	Dimensions (H x W x D)	Max. Covered Area (X x Y)	Weight (lb)
086700-00	$01oq#:	3.62 x 3.62 [92 x 92]	3.82 x 3.82 [97 x 97]	8.42 x 7.67 x 1.88 [214 x 195 x 48]	5.27 x 5.63 [134 x 143]	1.76
086710-00	$;01oq!:	4.88 x 4.88 [124 x 124]	4.92 x 4.92 [125 x 125]	11.00 x 8.92 x 2.39 [280 x 226 x 61]	6.39 x 6.75 [162 x 171]	2.64
086720-00	$01oq?:	6.93 x 6.93 [176 x 176]	6.93 x 6.93 [176 x 176]	14.01 x 11.44 x 2.68 [356 x 291 x 68]	9.19 x 9.19 [233 x 233]	4.40
086730-00	$;01oq,:	8.78 x 8.78 [223 x 223]	9.84 x 9.84 [250 x 250]	16.19 x 14.5 x 3.07 [411 x 388 x 78]	11.69 x 11.31 [297 x 287]	6.17
086740-00	$01os0:	11.46 x 11.46 in [2391 x 231 mm]	—	18.94 x 15.96 x 4.05 [481 x 405 x 103]	13.25 x 13.31 [337 x 338]	8.15

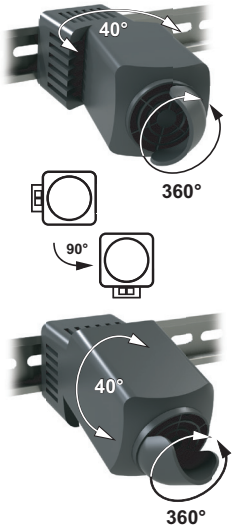
Notes: Dimensions in inches [millimeters].
None of the above models fit 018210-04 and 018210-02 outdoor filter fans.

Dimensions



STEGOJET Compact Fans

019250-00



Range of Rotation

Applications

The STEGOJET is a compact, powerful built-in fan. It is designed for precise cooling of heat sources and for maximum rotation range with an air output in almost any direction. The dual clip system (two clips at a 90° angle) allows four different positions on a DIN rail, while the hinge in the housing can be moved at a 40° angle. Additionally, the airflow at the air outlet can be directed at a 45° angle and the air duct can be turned 360°.

Features

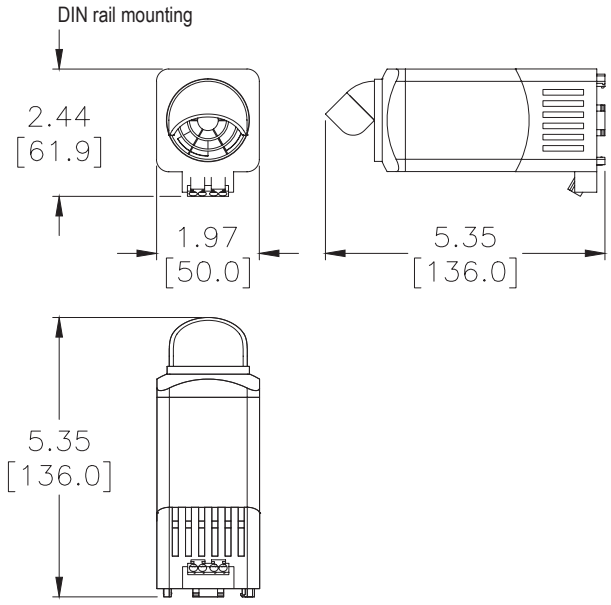
- Prevents heat pockets
- Wide voltage range
- Compact design
- Quick connection
- Panel or DIN rail mounting

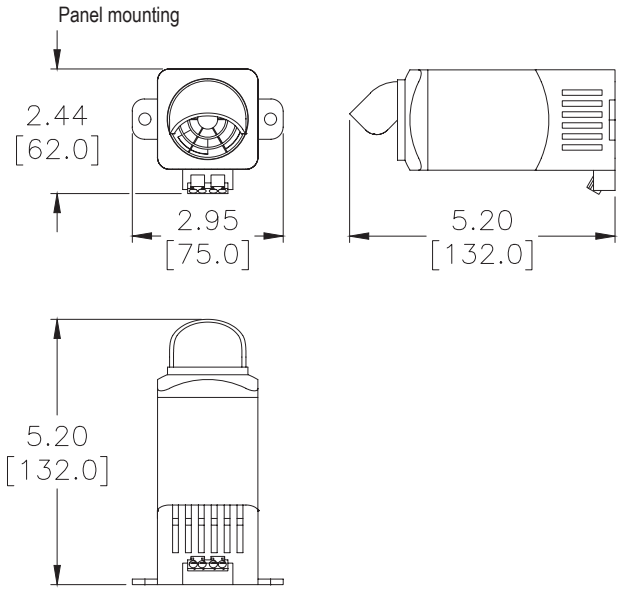
StegoJet Fan Specifications	
Axial Fan, Ball Bearing	Service life 40,000h at 140°F (60°C) and 90% RH
Power Consumption	4W
Connection	2-pole dual cage clamp for solid wire – 14AWG (2.5 mm²) stranded wire (with wire end ferrule) – 16AWG (1.5 mm²)
Housing	Plastic, UL 94V-0, black
Mounting	Clip for 35mm DIN rail, EN 60715 or M5 screws and washers (not included) – torque 2 N·m max.
Mounting Position	Variable
Operating/Storage Temperature	+14° to +140°F (-10° to +60°C) / -22° to +158°F (-30° to 70°C)
Operating/Storage Humidity	Max. 90% RH (non-condensing)
Protection Class	II (double insulated)
Protection Type	IP20
Approvals	CE, UL Recognized File No. E234324, RoHS compliant

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.automationdirect.com

Part Number	*Price*	*Description*	*Operating Voltage*	*Air Flow,Free Blowing*	*Weight (approx.)*
019250-00	$;-00,zj:	DIN rail mounting	100-240V AC, 50/60 Hz (min. 90VAC, max. 265VAC)	16.2 cfm (27.6 m³/h)	7oz (198g)
019250-01	$;00,zk:	Panel mounting			

Dimensions





Seifert Fan Hoods

SEIFERT thermal innovations

Features

- Protects fan and exhaust vents from environmental hazards.
- Screw-less mounting and removal of the hood.
- Easy to clean.
- Mounting screws torque: 40 lb·in / 4.5 Nm.
- cULus Recognized File E498756.
- IP56

Stainless Steel Hood

- 304 stainless steel
- Blue Food Safe Gasket
- UL Type 1,2,3,3X,3R,3RX,3S,3SX,5,12,12K and 13

Seifert Stainless Steel Fan Hood				
Part Number	*Price*	*Max Cutout Size*	*Max Covered Area*	*Drawing Link*
4000000020	$-05i3z:	3.62 x 3.62 [91.95 x 91.95]	4.19 x 4.19 [106.43 x 106.43]	PDF
4000100020	$;-05i3]:	4.92 x 4.92 [124.97 x 124.97]	5.91 x 5.91 [150.11 x 150.11]	PDF
4000200020	$;-05i3[:	6.97 x 6.97 [177.04 x 177.04]	8.03 x 8.03 [203.96 x 203.96]	PDF
4000300020	$-05i3_:	8.78 x 8.78 [223.01 x 223.01]	9.84 x 9.84 [249.94 x 249.94]	PDF
4000400020	$-05i3#:	11.46 x 11.46 [291.08 x 291.08]	12.80 x 12.80 [325.12 x 325.12]	PDF

NOTE: Dimensions listed as inches [millimeters]

Carbon Steel Hood

- Carbon steel, powder coated RAL 7035 light gray
- UL Type 1,2,5,12,12K and 13

Seifert Carbon Steel Fan Hood				
Part Number	*Price*	*Max Cutout Size*	*Max Covered Area*	*Drawing Link*
4000000200	$;-5i3!:	3.62 x 3.62 [91.95 x 91.95]	4.19 x 4.19 [106.43 x 106.43]	PDF
4000100200	$-05i3?:	4.92 x 4.92 [124.97 x 124.97]	5.91 x 5.91 [150.11 x 150.11]	PDF
4000200200	$;-05i3,:	6.97 x 6.97 [177.04 x 177.04]	8.03 x 8.03 [203.96 x 203.96]	PDF
4000300200	$-05i40:	8.78 x 8.78 [223.01 x 223.01]	9.84 x 9.84 [249.94 x 249.94]	PDF
4000400200	$-05i41:	11.46 x 11.46 [291.08 x 291.08]	12.80 x 12.80 [325.12 x 325.12]	PDF

NOTE: Dimensions listed as inches [millimeters]

Enclosure Air Conditioners

Applications

Designed to maintain the temperature inside an electrical enclosure at or below a safe level for the enclosed equipment, while maintaining a closed loop environment inside the enclosure to keep out contaminates that can be in the ambient air. Can be used in environments such as steel, food processing, petro-chemical, cement, paper/pulp and plastics industries, provided there are no corrosive gases or liquids that could damage internal components.

Construction

- Free-standing rigid chassis for easy installation and maintenance
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models
- All Type 4 and 4X models come with condenser coils coated with an electrically applied corrosion-resistant coating

Features

- Programmable temperature controller with visible alarm features in a 0.57 x 0.29in [14.5 x 7.3 mm] panel
- 70˚F to 95˚F (20˚C to 35˚C) temperature control range
- 50˚F to 125˚F (10˚C to 52˚C) ambient temperature range
- Pre-wired for external alarm monitoring connections (22 AWG three-conductor cable, 7 ft (2.3 m) long)
- Active condensate evaporation system with safety overflow
- Protective coated condenser coils on NEMA 4 and 4X for corrosion resistance
- Thermal expansion valve for maximum efficiency over wide range of temperatures and loads
- Anti short-cycle compressor protection
- High and low refrigerant cut-outs with fault indication
- Highly energy-efficient compressors
- UL/cUL listed

TA10-060-26-12 shown

Stratus Air Conditioners General Specifications

Part Number	Nominal Cooling Capacity	Operating Voltage	Inrush Current (A)	Running Current (A)	Recommended Fuse Size/Time Delay (A)	SCCR (A)	Connection	Refrigerant	Refrigerant Amount (oz)
TA10-010-16-xx	1480 BTU/H	115VAC/60Hz	14.50	3.44	12	*	Spring terminal block 24-8 AWG	R134a	4.00
TA10-010-26-xx		230VAC/60Hz	14.00	2.67	7	*			
TA20-010-48D-xx	1500 BTU/H	48VDC	-	3.50	8 (fast acting)	*			6.00
TA20-010-16-xx	1690 BTU/H	115VAC/60Hz	10.10	2.70	5	*			
TA10-015-16-xx	1725 BTU/H	115VAC/60Hz	14.60	3.44	12	*			7.75
TA10-015-26-xx		230VAC/60Hz	13.30	2.67	7	*			
TA10-027-16-xx	2680 BTU/H	115VAC/60Hz	10.00	3.20	8	*			13.25
TA10-027-46-xx		460VAC/60Hz	2.64	0.80	2	*			
TA20-020-16-xx	2705 BTU/H	115VAC/60Hz	10.63	4.10	5	*			
TA20-020-26-xx		230VAC/60Hz	8.84	2.00	4	*			9.75
TA10-033-16-xx	3300 BTU/H	115VAC/60Hz	16.00	4.80	12	*			14.25
TA10-033-46-xx		460VAC/60Hz	16.00	1.30	3	*			
TA10-020-26-xx	3585 BTU/H	230VAC/60Hz	13.65	3.07	7	*		R422d	9.75
TA10-040-26-xx	4000 BTU/H	230VAC/60Hz	13.41	3.07	6	*			13.25
TA10-050-16-xx	4390 BTU/H	115VAC/60Hz	23.42	7.26	12	*	Spring terminal block 16-6 AWG		12.50
TA10-050-26-xx		230VAC/60Hz	19.15	3.76	10	*			
TA10-050-46-xx		460VAC/60Hz	9.18	1.86	5	160kA			
TA10-045-16-xx	4535 BTU/H	115VAC/60Hz	32.30	6.82	12	*	Spring terminal block 24-8 AWG	R134a	14.00
TA10-045-46-xx		460VAC/60Hz	7.74	1.70	3	*			
TA10-059-16-xx	5910 BTU/H	115VAC/60Hz	32.30	6.14	12	*	Spring terminal block 16-6 AWG		15.00
TA10-060-16-xx	7580 BTU/H	115VAC/60Hz	42.41	7.83	25	*		R422d	18.00
TA10-060-26-xx		230VAC/60Hz	21.15	4.80	12	*			
TA10-060-46-xx		460VAC/60Hz	10.13	1.80	5	160kA			

Note: * Voltage variation no greater than ± 10% from nameplate rating and Frequency variation no greater than ± 3Hz from nameplate rating.

TA10 Series Enclosure Air Conditioners, Frame Size TA10-1

NEMA 12 Construction

- Fabricated from 16-gauge cold-rolled steel
- ANSI 61 gray polyester powder coating inside and out
- Pre-cut mounting gasket included, to be field installed
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

NEMA 4 Construction

- Fabricated from 16-gauge cold-rolled steel
- ANSI 61 gray polyester powder coating inside and out
- Pre-cut mounting gasket installed for NEMA/UL type rating on all units
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

NEMA 4X Construction

- Fabricated from 16-gauge 304 stainless steel
- Pre-cut mounting gasket installed for NEMA/UL type rating on all units
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

Features

- Fits 12in deep enclosures that have smooth/flat sides. Check enclosure dimensions/specifications before ordering
- Protective coated condenser coils on NEMA 4 and 4X for corrosion resistance

Listings

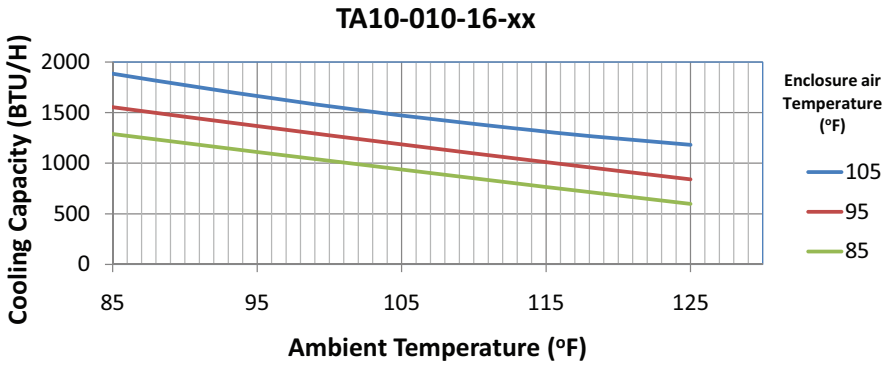
- UL File: SA33404
- UL 50, 12, 4, and 4X
- Made in USA

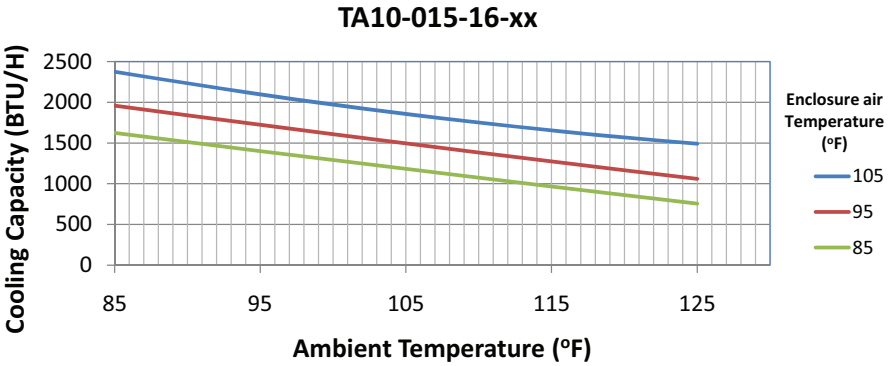
TA10-010-16-12

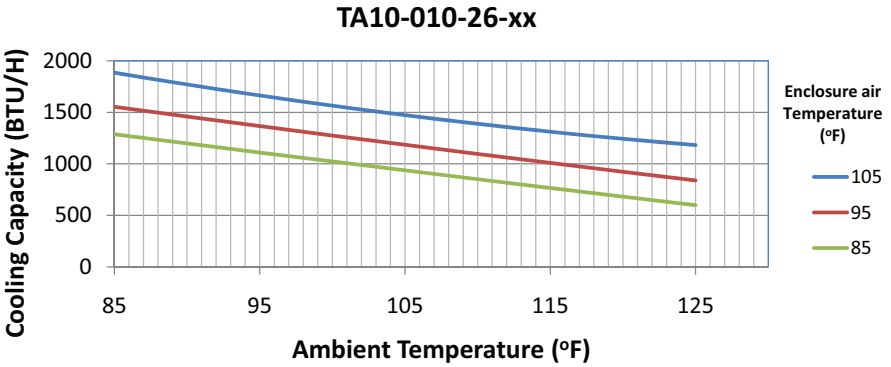
TA10 Enclosure Air Conditioners, Frame Size TA10-1											
NEMA 12	***Price***	***Drawing Link***	***NEMA 4***	***Price***	***Drawing Link***	***NEMA 4X***	***Price***	***Drawing Link***	***Nominal Cooling Capacity (BTU/H)***	***Operating Voltage***	***Weight (lb)***
TA10-010-16-12	$;:000adf:	PDF	***TA10-010-16-04***	$;000ade:	PDF	***TA10-010-16-4X***	$;000adg:	PDF	1480	115VAC/60Hz	51
TA10-010-26-12	$;-000adi:	PDF	***TA10-010-26-04***	$;000adh:	PDF	***TA10-010-26-4X***	$;-000adj:	PDF		230VAC/60Hz	53
TA10-015-16-12	$;-000adl:	PDF	***TA10-015-16-04***	$;000adk:	PDF	***TA10-015-16-4X***	$;000adn:	PDF	1725	115VAC/60Hz	51
TA10-015-26-12	$;000adp:	PDF	***TA10-015-26-04***	$;000ado:	PDF	***TA10-015-26-4X***	$;000adq:	PDF		230VAC/60Hz	53
Note: * Voltage variation no greater than ± 10% from nameplate rating and Frequency variation no greater than ± 3Hz from nameplate rating.											

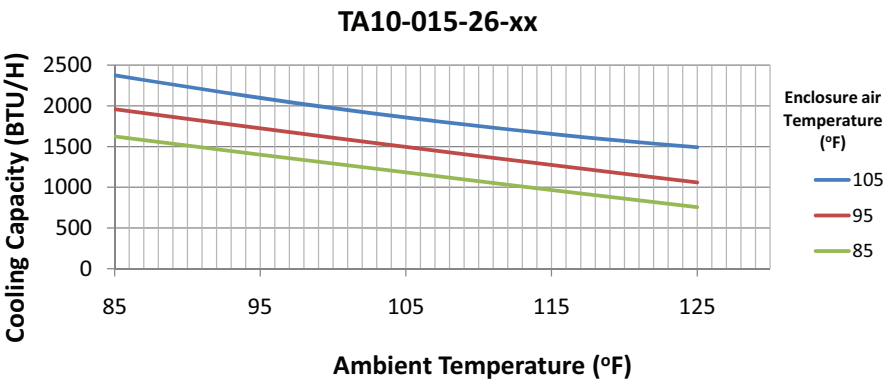
TA10 Series Enclosure Air Conditioners, Frame Size TA10-1

Air Conditioner Performance Curves









TA10 Series Enclosure Air Conditioners, Frame Size TA10-2

NEMA 12 Construction

- Fabricated from 16-gauge cold-rolled steel
- ANSI 61 gray polyester powder coating inside and out
- Pre-cut mounting gasket included, to be field installed
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

NEMA 4 Construction

- Fabricated from 16-gauge cold-rolled steel
- ANSI 61 gray polyester powder coating inside and out
- Pre-cut mounting gasket installed for NEMA/UL type rating on all units
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

NEMA 4X Construction

- Fabricated from 16-gauge 304 stainless steel
- Pre-cut mounting gasket installed for NEMA/UL type rating on all units
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

Features

- Fits 12in deep enclosures that have smooth/flat sides. Check enclosure dimensions/specifications before ordering
- Protective coated condenser coils on NEMA 4 and 4X for corrosion resistance

Listings

- UL File: SA33404
- UL 50, 12, 4, and
- Made in USA

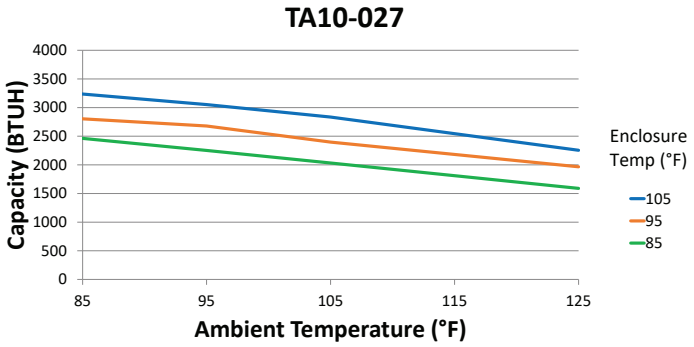
TA10-020-26-4X

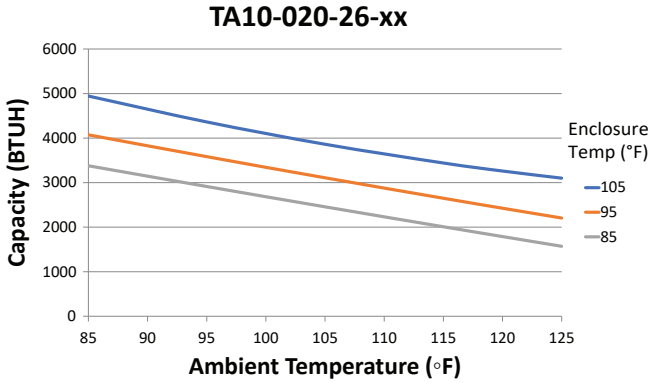
TA10 Enclosure Air Conditioners, Frame Size TA10-2											
NEMA 12	Price	Drawing Link	NEMA 4	Price	Drawing Link	NEMA 4X	Price	Drawing Link	Nominal Cooling Capacity (BTU/H)	Operating Voltage	Weight (lb)
TA10-027-16-12	$;;005p!5:	PDF	TA10-027-16-04	$;;005p!6:	PDF	TA10-027-16-4X	$;;005p!7:	PDF	2680	115VAC/60Hz	65
TA10-027-46-12	$;;005p!8:	PDF	TA10-027-46-04	$;;005p!9:	PDF	TA10-027-46-4X	$;;005p!a:	PDF		460VAC/60Hz	99
TA10-033-16-12	$;;005p!g:	PDF	TA10-033-16-04	$;;005p!n:	PDF	TA10-033-16-4X	$;;;005p!t:	PDF	3300	115VAC/60Hz	65
TA10-033-46-12	$;;005p!u:	PDF	TA10-033-46-04	$;;005p!b:	PDF	TA10-033-46-4X	$;;005p!c:	PDF		460VAC/60Hz	99
TA10-020-26-12	$;000adx:	PDF	TA10-020-26-04	$;000adv:	PDF	TA10-020-26-4X	$;000ady:	PDF	3585	230VAC/60Hz	72
TA10-040-26-12	$;000ags:	PDF	TA10-040-26-04	$;000agq:	PDF	TA10-040-26-4X	$;;000agt:	PDF	4000		
TA10-045-16-12	$;;005p!d:	PDF	TA10-045-16-04	$;;005p!e:	PDF	TA10-045-16-4X	$;;;005p!f:	PDF	4535	115VAC/60Hz	65
TA10-045-46-12	$;;005p!h:	PDF	TA10-045-46-04	$;;-005p!i:	PDF	TA10-045-46-4X	$;;-005p!j:	PDF		460VAC/60Hz	99

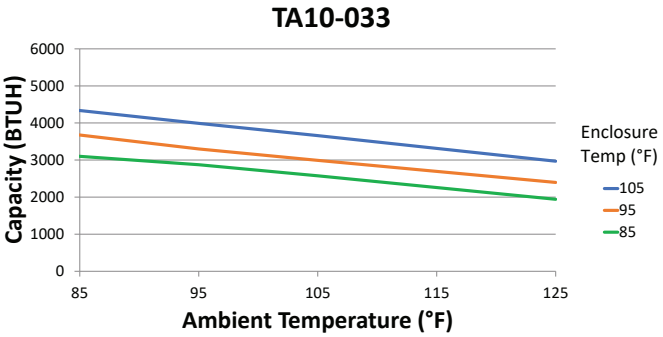
Note: * Voltage variation no greater than ± 10% from nameplate rating and Frequency variation no greater than ± 3Hz from nameplate rating.

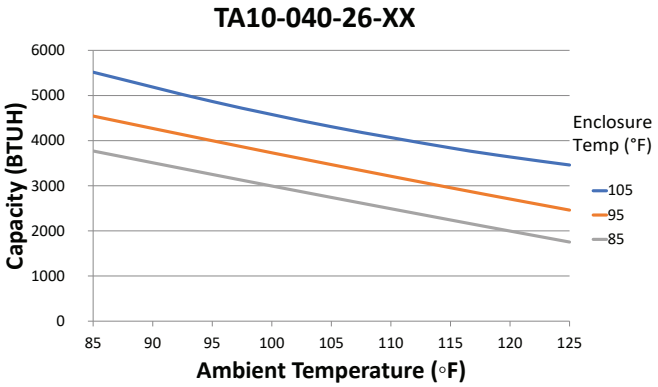
TA10 Series Enclosure Air Conditioners, Frame Size TA10-2

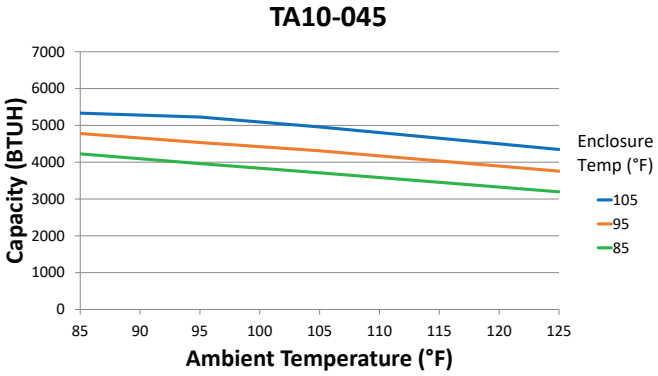
Air Conditioner Performance Curves











TA10 Series Enclosure Air Conditioners, Frame Size TA10-3

NEMA 12 Construction

- Fabricated from 16-gauge cold-rolled steel
- ANSI-61 gray polyester powder coating inside and out
- Pre-cut mounting gasket included, to be field installed
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

NEMA 4 Construction

- Fabricated from 16-gauge cold-rolled steel
- ANSI-61 gray polyester powder coating inside and out
- Pre-cut mounting gasket installed for NEMA/UL type rating on all units
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

NEMA 4X Construction

- Fabricated from 16-gauge 304 stainless steel
- Pre-cut mounting gasket installed for NEMA/UL type rating on all units
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

Features

- Fits 12in deep enclosures that have smooth/flat sides. Check enclosure dimensions/specifications before ordering
- Protective coated condenser coils on NEMA 4 and 4X for corrosion resistance

Listings

- UL File: SA33404
- UL 50, 12, 4, and 4X
- Made in USA

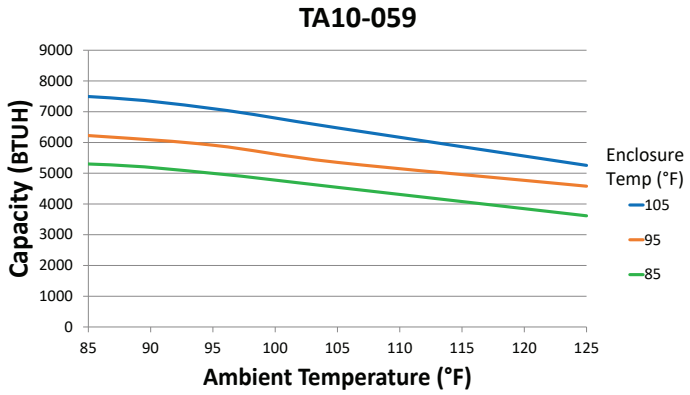
TA10-059-16-4X

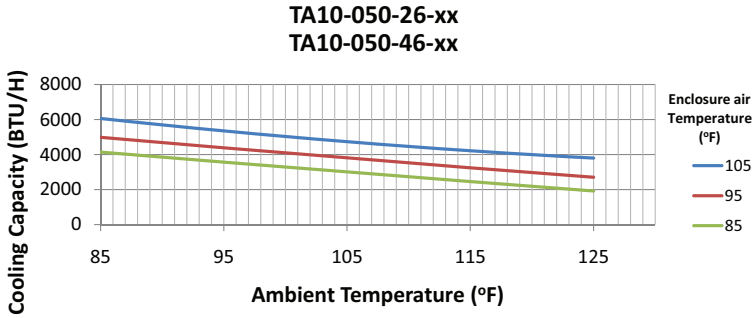
TA10 Enclosure Air Conditioners, Frame Size TA10-3											
NEMA 12	***Price***	***Drawing Link***	***NEMA 4***	***Price***	***Drawing Link***	***NEMA 4X***	***Price***	***Drawing Link***	***Nominal Cooling Capacity (BTU/H)***	***Operating Voltage***	***Weight (lb)***
TA10-050-16-12	Retired	PDF	***TA10-050-16-04***	Retired	PDF	***TA10-050-16-4X***	Retired	PDF	4390	115VAC/60Hz	97
TA10-050-26-12	$;000ag_:	PDF	***TA10-050-26-04***	$;;000ag[:	PDF	***TA10-050-26-4X***	$;000ag#:	PDF		230VAC/60Hz	92
TA10-050-46-12	$;000ag?:	PDF	***TA10-050-46-04***	$;;000ag!:	PDF	***TA10-050-46-4X***	$;;000ag,:	PDF		460VAC/60Hz	136
TA10-059-16-12	$;;005p!k:	PDF	***TA10-059-16-04***	$;;-005p!l:	PDF	***TA10-059-16-4X***	$;;005p!o:	PDF	5910	115VAC/60Hz	97
TA10-060-16-12	$;000ah1:	PDF	***TA10-060-16-04***	$;000ah0:	PDF	***TA10-060-16-4X***	$;000ah2:	PDF	7580	115VAC/60Hz	
TA10-060-26-12	$;000ah4:	PDF	***TA10-060-26-04***	$;000ah3:	PDF	***TA10-060-26-4X***	$;000ah5:	PDF		230VAC/60Hz	98
TA10-060-46-12	$;000ah7:	PDF	***TA10-060-46-04***	$;000ah6:	PDF	***TA10-060-46-4X***	$;000ah8:	PDF		460VAC/60Hz	142

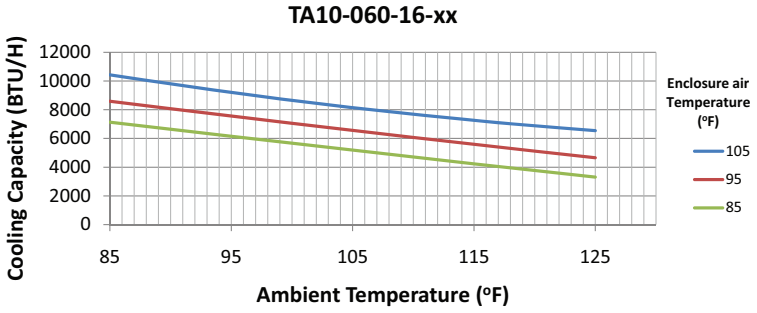
Note: * Voltage variation no greater than ± 10% from nameplate rating and Frequency variation no greater than ± 3Hz from nameplate rating.

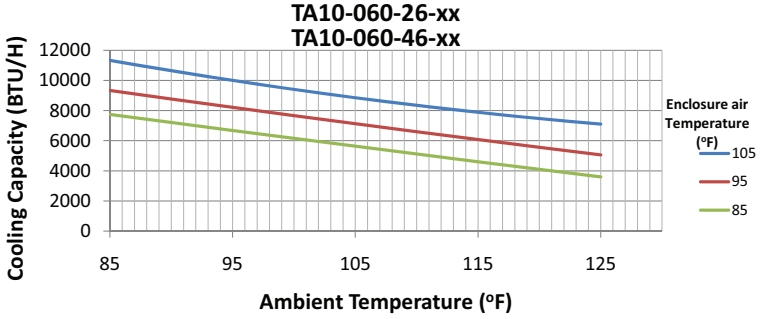
TA10 Series Enclosure Air Conditioners, Frame Size TA10-3

Air Conditioner Performance Curves









TA20 Series Enclosure Compact Air Conditioners, Frame Size TA20-0

NEMA 12 Construction

- Fabricated from 16-gauge cold-rolled steel
- ANSI-61 gray polyester powder coating inside and out
- Pre-cut mounting gasket included, to be field installed
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

NEMA 4 Construction

- Fabricated from 16-gauge cold-rolled steel
- ANSI-61 gray polyester powder coating inside and out
- Pre-cut mounting gasket installed for NEMA/UL type rating on all units
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

NEMA 4X Construction

- Fabricated from 16-gauge 304 stainless steel
- Pre-cut mounting gasket installed for NEMA/UL type rating on all units
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

Features

- Fits 7 or 8in deep enclosures that have smooth/flat sides. Check enclosure dimensions/specifications before ordering
- Protective coated condenser coils on NEMA 4 and 4X for corrosion resistance
- Dual condenser coils; does not require filters

Listings

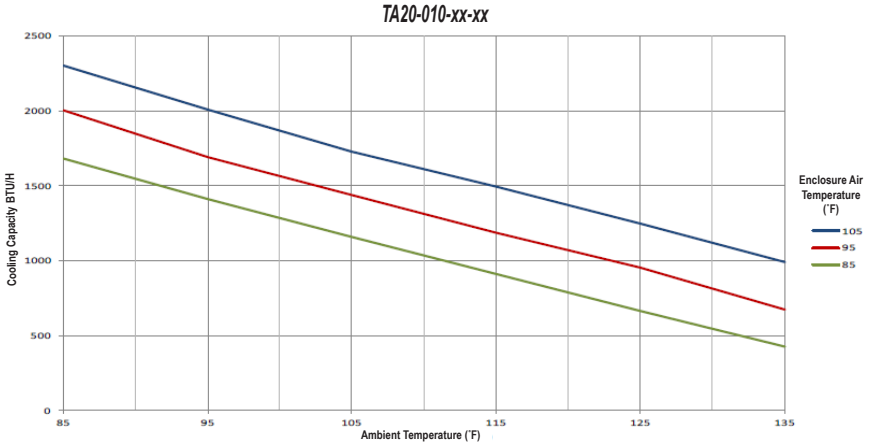
- UL File: SA33404
- UL 50, 12, 4, and 4X
- Made in USA

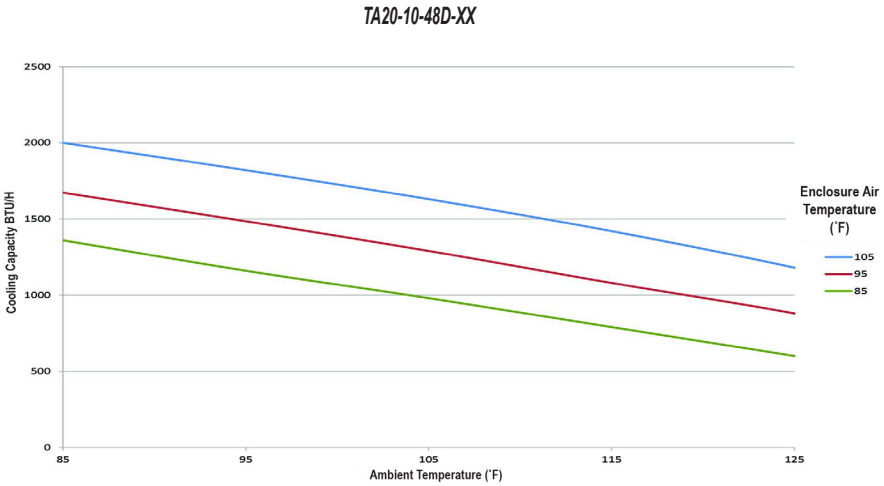
TA20-10-48D-12

TA20 Enclosure Compact Air Conditioners, Frame Size TA20-0								
NEMA 12	***Price***	***NEMA 4***	***Price***	***NEMA 4X***	***Price***	***Nominal Cooling Capacity (BTU/H)***	***Operating Voltage***	***Weight (lb)***
TA20-010-16-12	$;0012o6:	***TA20-010-16-04***	$;0012oa:	***TA20-010-16-4X***	$;0012oe:	1000	115VAC/60Hz	31
TA20-010-48D-12	$;0012o7:	***TA20-010-48D-04***	$;0012ob:	***TA20-010-48D-4X***	$;;0012of:		48VDC	30
Note: * Voltage variation no greater than ± 10% from nameplate rating and Frequency variation no greater than ± 3Hz from nameplate rating.								

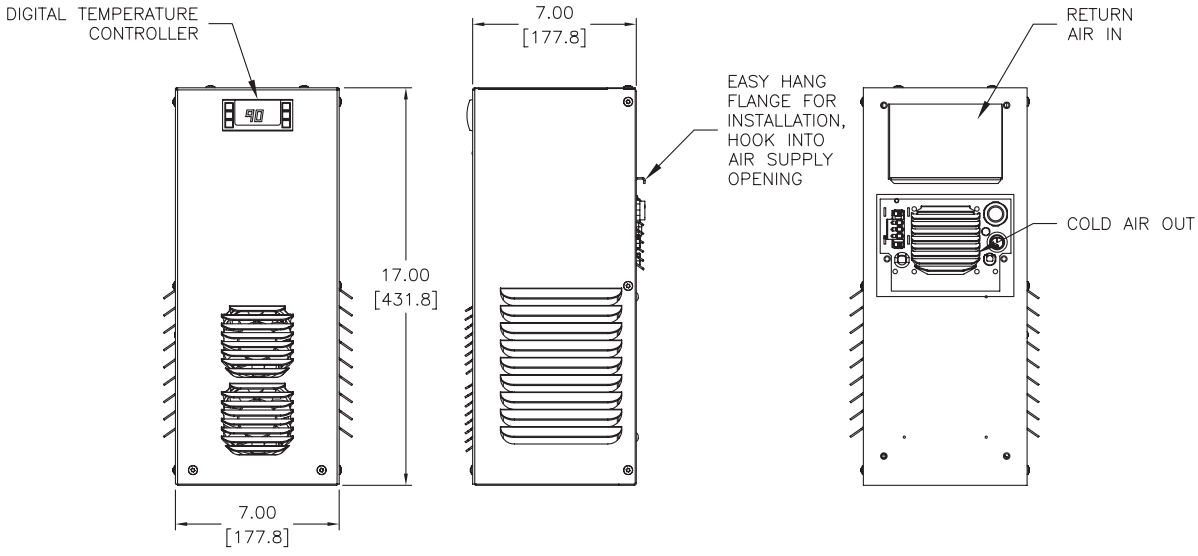
TA20 Series Enclosure Compact Air Conditioners, Frame Size TA20-0

Air Conditioner Performance Curves





Dimensions



TA20 Series Enclosure Compact Air Conditioners, Frame Size TA20-1

NEMA 12 Construction

- Fabricated from 16-gauge cold-rolled steel
- ANSI-61 gray polyester powder coating inside and out
- Pre-cut mounting gasket included, to be field installed
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

NEMA 4 Construction

- Fabricated from 16-gauge cold-rolled steel
- ANSI-61 gray polyester powder coating inside and out
- Pre-cut mounting gasket installed for NEMA/UL type rating on all units
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

NEMA 4X Construction

- Fabricated from 16-gauge 304 stainless steel
- Pre-cut mounting gasket installed for NEMA/UL type rating on all units
- All mounting hardware, full-size template and instruction manual included
- Power input terminal block on all models

Features

- Fits 10in deep enclosures that have smooth/flat sides. Check enclosure dimensions/specifications before ordering
- Protective coated condenser coils for NEMA 4 and 4X corrosion resistance

Listings

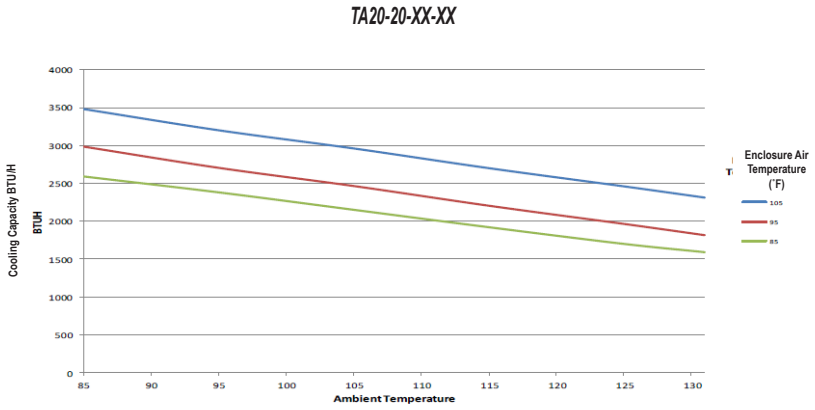
- UL File: SA33404
- UL 50, 12, 4, and 4X
- Made in USA

TA20-20-16-12

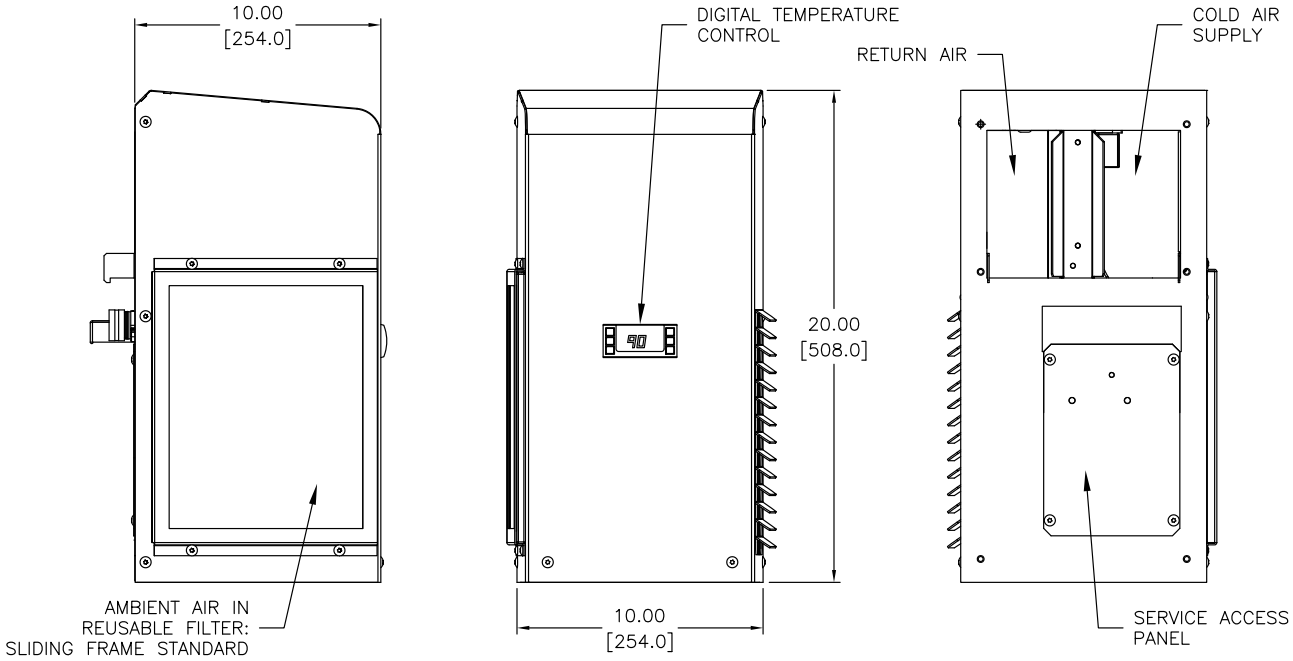
TA20 Enclosure Compact Air Conditioners, Frame Size TA20-1								
NEMA 12	Price	NEMA 4	Price	NEMA 4X	Price	Nominal Cooling Capacity (BTU/H	Operating Voltage	Weight (lb)
TA20-020-16-12	$;0012o8:	TA20-020-16-04	$;0012oc:	TA20-020-16-4X	$;0012og:	2000	120VAC/60Hz	44
TA20-020-26-12	$;0012o9:	TA20-020-26-04	$;0012od:	TA20-020-26-4X	$;0012oh:		230VAC/60Hz	49
Note: * Voltage variation no greater than ± 10% from nameplate rating and Frequency variation no greater than ± 3Hz from nameplate rating.								

TA20 Series Enclosure Compact Air Conditioners, Frame Size TA20-1

Air Conditioner Performance Curves

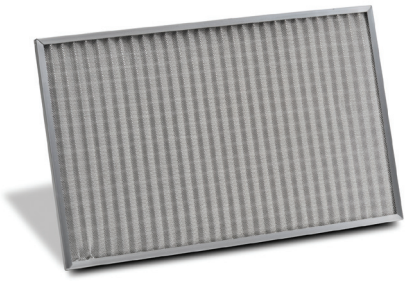


Air Conditioner Dimensions



Air Conditioners Filters

Replacement Filters



TA10-FILTER-3

TA20-FILTER-1

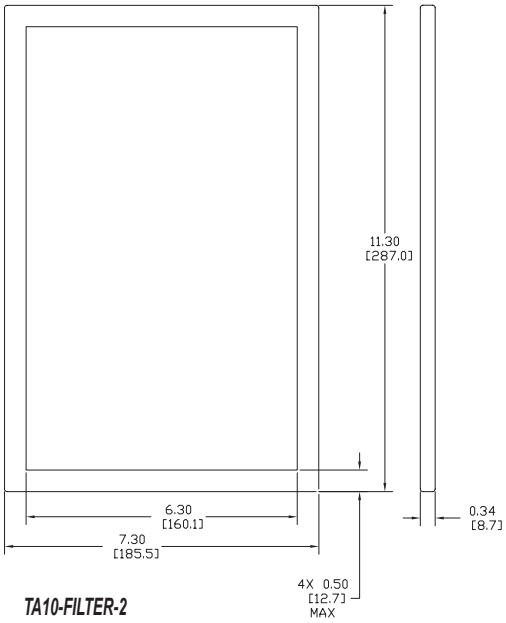
Replacement filters are identical to the original filters supplied with the air conditioners. Clean/replace the filter regularly to keep the air conditioner working at its highest efficiency.

Features

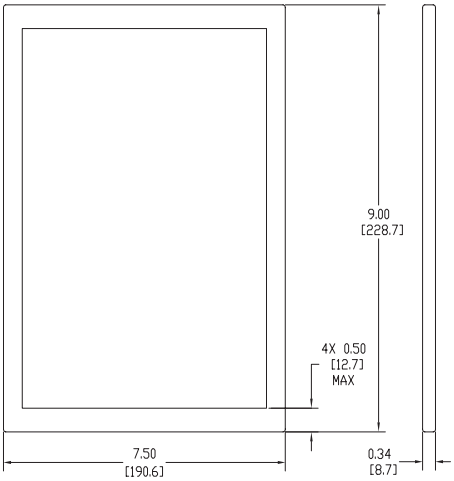
- 250 micron expanded aluminum filter element
- 60% filter efficiency
- Washable and reusable

Air Conditioner Filters			
Part Number	**Price**	**Description**	**Frame Size**
TA10-FILTER-1	$0ah9:	Replacement filter for TA10 series air conditioning units, 1000 to 1500 BTU/H	TA10-1
TA10-FILTER-2	$0aha:	Replacement filter for TA10 series air conditioning units, 2000 to 4000 BTU/H	TA10-2
TA10-FILTER-3	$0ahb:	Replacement filter for TA10 series air conditioning units, 5000 to 6000 BTU/H	TA10-3
TA20-FILTER-1	$-12oj:	Replacement filter for TA20 series air conditioning units, 2000 BTU/H	TA20-1

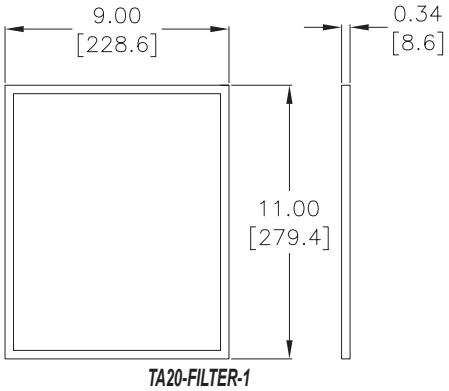
Dimensions



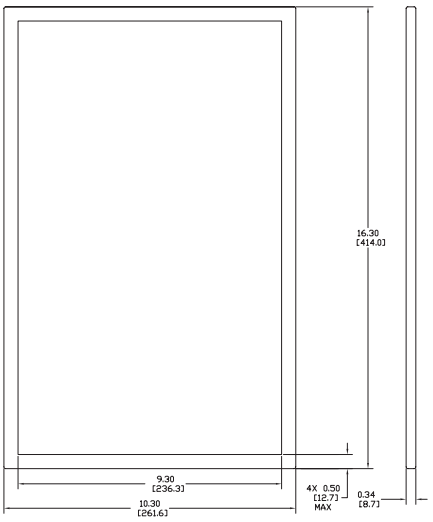
TA10-FILTER-2



TA10-FILTER-1



TA20-FILTER-1



TA10-FILTER-3

2.0 in [51mm] Louvered Frame and Filter Kits

TA20-LVFL-1-4X

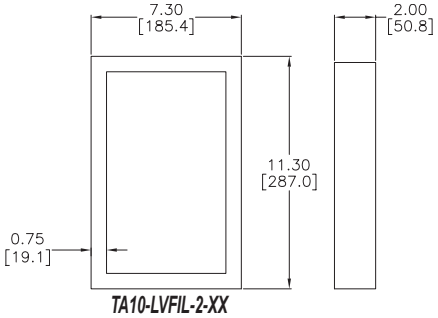
2.0 in [51mm] louvered frame and filter kits are ideal in food processing or dirty environments where filter maintenance is crucial. Stratus offers extended surface, 2.0 in [51 mm] deep filter and sliding filter frame assemblies. In wash-down applications, stainless steel filters are preferred over aluminum filters.

Features

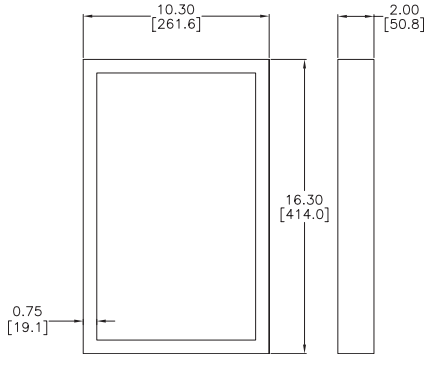
- 2in louvered frame and filter kit
- 250 micron stainless steel mesh filter
- 97% efficiency extends filter capacity 400%
- Washable and reusable
- Deep filter frames easily retrofitted on existing units with standard filters using the same mounting hole and screws on your unit

Air Conditioner Filters			
Part Number	***Price***	***Description***	***Frame Size***
TA10-LVFIL-2-04	$-012ol:	Stratus louvered filter frame assembly, carbon steel, ANSI 61 gray finish, with filter, washable, 2in filter depth, 250 micron stainless steel mesh, 97% filter efficiency. For use with 2000-4000 BTU/H TA10 series enclosure air conditioners on NEMA 4 or NEMA 12 enclosures.	TA10-2
TA10-LVFIL-3-04	$012on:	Stratus louvered filter frame assembly, carbon steel, ANSI 61 gray finish, with filter, washable, 2in filter depth, 250 micron stainless steel mesh, 97% filter efficiency. For use with 5000-6000 BTU/H TA10 series enclosure air conditioners on NEMA 4 or NEMA 12 enclosures.	TA10-3
TA10-LVFIL-2-4X	$012op:	Stratus louvered filter frame assembly, 304 stainless steel, with filter, washable, 2in filter depth, 250 micron stainless steel mesh, 97% filter efficiency. For use with 2000-4000 BTU/H TA10 series enclosure air conditioners on NEMA 4X enclosures.	TA10-2
TA10-LVFIL-3-4X	$012oq:	Stratus louvered filter frame assembly, 304 stainless steel, with filter, washable, 2in filter depth, 250 micron stainless steel mesh, 97% filter efficiency. For use with 5000-6000 BTU/H TA10 series enclosure air conditioners on NEMA 4X enclosures.	TA10-3
TA20-LVFIL-1-04	$012ok:	Stratus louvered filter frame assembly, carbon steel, ANSI 61 gray finish, with filter, washable, 2in filter depth, 250 micron stainless steel mesh, 97% filter efficiency. For use with 2000 BTU/H TA20 series enclosure air conditioners on NEMA 4 or NEMA 12 enclosures.	TA20-1
TA20-LVFIL-1-4X	$012oo:	Stratus louvered filter frame assembly, 304 stainless steel, with filter, washable, 2in filter depth, 250 micron stainless steel mesh, 97% filter efficiency. For use with 2000 BTU/H TA20 series enclosure air conditioners on NEMA 4X enclosures.	TA20-1

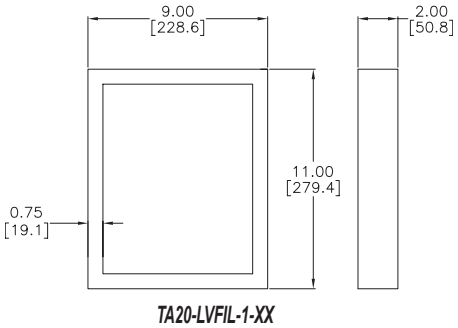
Dimensions



TA10-LVFIL-2-XX



TA10-LVFIL-3-XX



TA20-LVFIL-1-XX

DTS 3000 Series Air Conditioners

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

Applications

Pfannenberg air conditioners utilize closed-loop cooling in tough industrial or outdoor applications with service-friendly designed cooling units. Whether in washdown locations or control rooms, the DTS Series' key internal electronics are positioned away from potentially moist and/or caustic air in tough industrial applications.

Construction

- Carbon Steel units:
  - Galvanized sheet steel
  - For use with NEMA 3R, 4, or 12 enclosures
  - Units are electrostatically powder coated RAL7035 light gray
- Stainless Steel units:
  - #3 polish, 304 stainless steel
  - For use with NEMA 4, 4X, and 12 enclosures
  - Epoxy coating on all exposed copper tubing to complement the electrostatically-coated condensers
- Threaded holes for lifting lug ports on larger units
- Electrical controls are easily accessible with the flip down access panel
- High airflow backward curve impeller fan provides high airflow in a long lasting, single bearing design
- Utilizes HFC-free R-134a refrigerant

Features

- Large condenser fin spacing allows for longer maintenance periods.
- Can operate in ambient temperatures of 32°F to 131°F (0°C to 55°C) (DTS 3021/32/31SS have a max temp of 114°F / 45°C).
- Compressor and fan motors are outfitted with integral temperature switches to shut down the unit as thermal overload protection.
- Three-phase 400/460 VAC powered units are protected from phase mis-wiring.
- Active condensate management via the PTC heated condensate collection pan that boils off condensation thereby eliminating the need for drain tubes and buckets. To conserve power, the heater only activates when necessary.
- High pressure cutout switch ensures safety by shutting off the compressor in the event of excessive pressure appearing in the refrigeration circuit.

Listings

- cULus Listed File: SA10300.
- cULus Recognized Type 3R, 4, 4X & 12 [File SA10300]

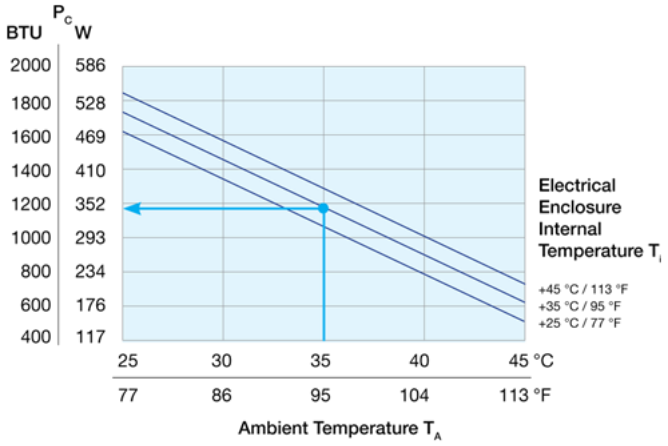
DTS 3000 Series Air Conditioners

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

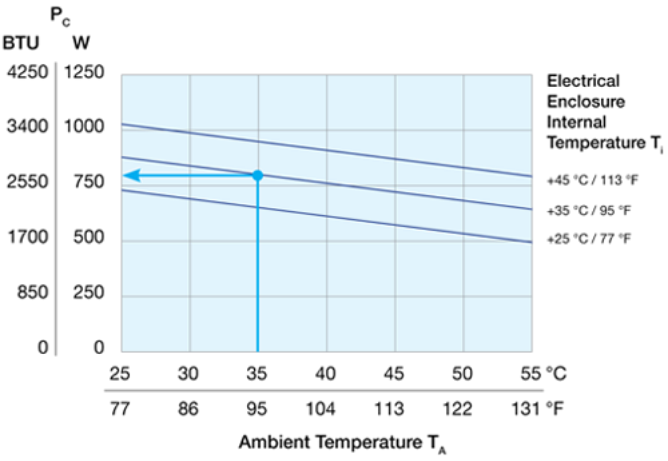
DTS 3000 Series Air Conditioners									
Part Number	Price	Series	Nominal Cooling Capacity	Operating Voltage	Running Current	Housing Material	IP Rating	Unit Weight	Drawing Link
13383144355	$;006hv4:	DTS 3031	1200 BTU/H	115 VAC	3.3A	Carbon Steel	IP56	30.0 lbs	PDF
13383144255	$;006hv3:	DTS 3021					IP54		PDF
13383144158	$;006hv5:	DTS 3031 SS				304 Stainless Steel	IP56		PDF
13382336355	$;006hv9:	DTS 3061	2700 BTU/H	460 VAC	0.76A	Carbon Steel	IP56	61.7 lbs	PDF
13382344355	$;006hv8:	DTS 3061		115 VAC	3.12A			50.6 lbs	PDF
13382336255	$;006hv7:	DTS 3041		460 VAC	0.76A		IP54	61.7 lbs	PDF
13382344255	$;006hv6:	DTS 3041		115 VAC	3.12A			50.6 lbs	PDF
13382336158	$;006hvb:	DTS 3081		460 VAC	0.76A	304 Stainless Steel	IP56	66.2 lbs	PDF
13382344300	$;006hva:	DTS 3081		115 VAC	3.12A			55.0 lbs	PDF

Performance Graphs

DTS 3021, DTS 3031, DTS 3031 SS



DTS 3041, DTS 3061, DTS 3081



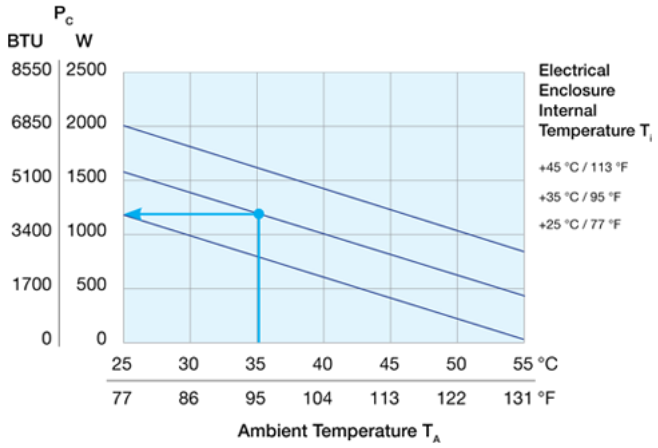
DTS 3000 Series Air Conditioners

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

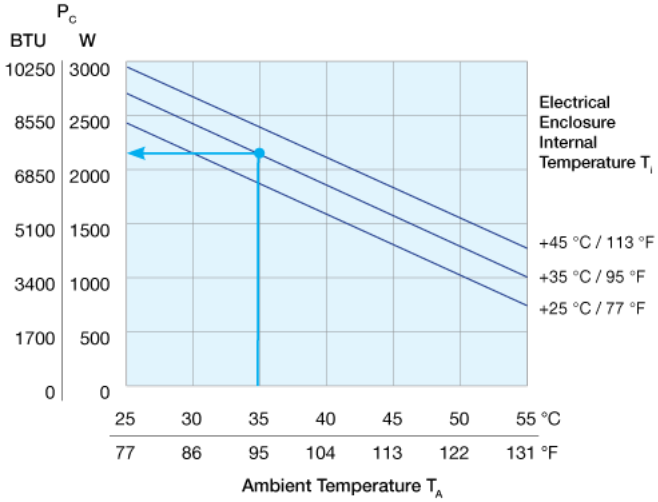
DTS 3000 Series Air Conditioners									
Part Number	Price	Series	Nominal Cooling Capacity	Operating Voltage	Running Current	Housing Material	IP Rating	Unit Weight	Drawing Link
13385436355	$;;006hvf:	DTS 3161	4100 BTU/H	460 VAC	2.25A	Carbon Steel	IP56	92.4 lbs	PDF
13385444355	$;006hve:	DTS 3161		115 VAC	7.51A			88.0 lbs	PDF
13385436255	$;006hvd:	DTS 3141		460 VAC	2.25A		IP54	88.0 lbs	PDF
13385444255	$;006hvc:	DTS 3141		115 VAC	7.51A				PDF
13385436158	$;006hvh:	DTS 3181		460 VAC	2.25A	304 Stainless Steel	IP56	96.8 lbs	PDF
13385444158	$;006hvg:	DTS 3181		115 VAC	7.51A			92.4 lbs	PDF
13383636355	$;-006hvl:	DTS 3165	7000 BTU/H	460 VAC	1.88A	Carbon Steel	IP56	107.8 lbs	PDF
13383644355	$;006hvk:	DTS 3165		115 VAC	10.64A				PDF
13383636255	$;-006hvj:	DTS 3145		460 VAC	1.88A		IP54		PDF
13383644255	$;-006hvi:	DTS 3145		115 VAC	10.64A				PDF
13383636158	$;006hvo:	DTS 3185		460 VAC	1.88A	304 Stainless Steel	IP56		PDF
13383644158	$;006hvn:	DTS 3185		115 VAC	10.64A				PDF

Performance Graphs

DTS 3141, DTS 3161, DTS 3181



DTS 3145, DTS 3165, DTS 3185



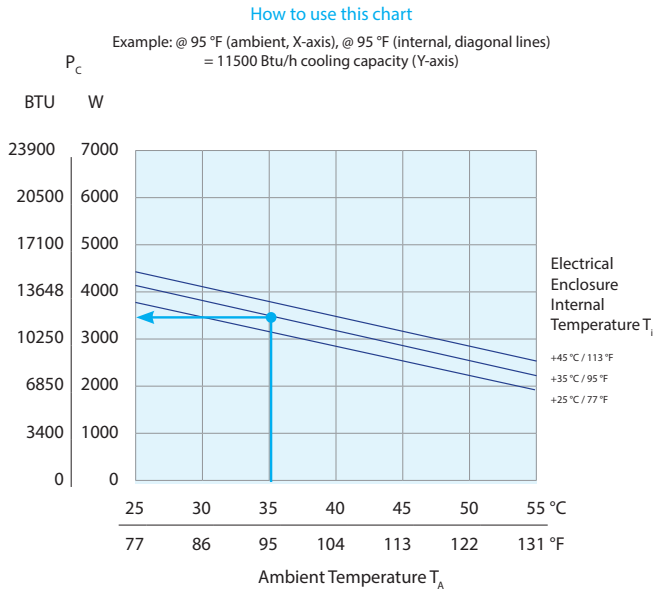
DTS 3000 Series Air Conditioners

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

DTS 3000 Series Air Conditioners									
Part Number	Price	Series	Nominal Cooling Capacity	Operating Voltage	Running Current	Housing Material	IP Rating	Unit Weight	Drawing Link
13383836355	$;;006hvt:	DTS 3265	11500 BTU/H	460 VAC	3.14A	Carbon Steel	IP56	149.6 lbs	PDF
13383844355	$;006hvs:	DTS 3265		115 VAC	13.6A				PDF
13383836255	$;006hvq:	DTS 3245		460 VAC	3.14A		IP54		PDF
13383844255	$;006hvp:	DTS 3245		115 VAC	13.6A				PDF
13383836158	$;006hvv:	DTS 3285		460 VAC	3.14A	304 Stainless Steel	IP56		PDF
13383844158	$;006hvu:	DTS 3285		115 VAC	13.6A				PDF
13384136355	$;006hvy:	DTS 3461C	20000 BTU/H	460 VAC	4.06A	Carbon Steel	IP56	210.1 lbs	PDF
13384136255	$;006hvx:	DTS 3441C					IP54	201.5 lbs	PDF
13384136158	$;006hvz:	DTS 3481C				304 Stainless Steel	IP56	210.1 lbs	PDF
13384036355	$;;006hv[:	DTS 3661C	25000 BTU/H	460 VAC	5.18A	Carbon Steel	IP56	234.8 lbs	PDF
13384036255	$;;006hv]:	DTS 3641C					IP54	226.2 lbs	PDF
13384036158	$;0006hv_:	DTS 3681C				304 Stainless Steel	IP56	234.8 lbs	PDF

Performance Graphs

DTS 3245, DTS 3265, DTS 3285

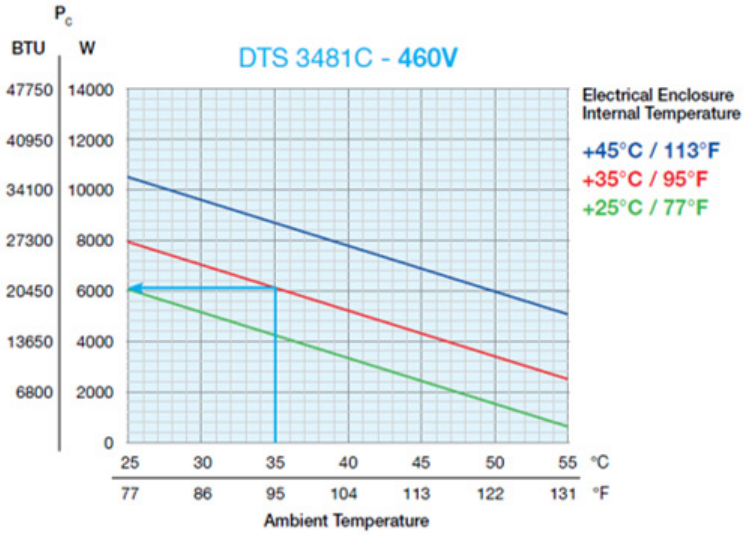


DTS 3000 Series Air Conditioners

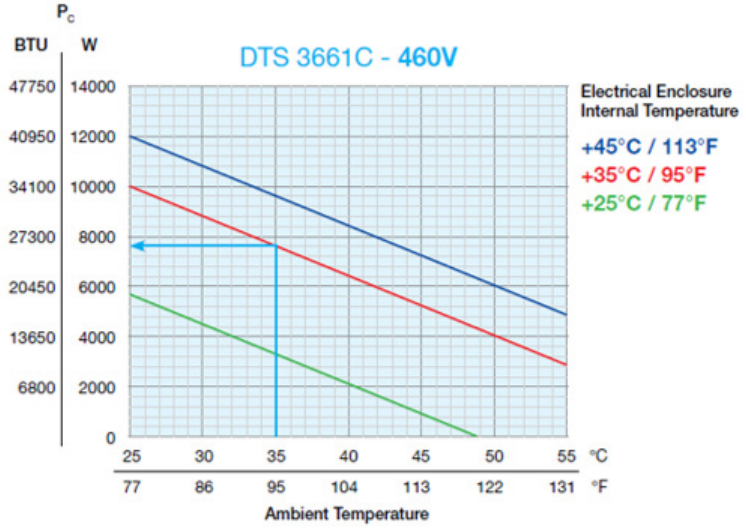
Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

Performance Graphs

DTS 3441C, DTS 3461C, DTS 3481C



DTS 3641C, DTS 3661C, DTS 3681C



DTT 6000 Series Top Mount Air Conditioners

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

Applications

Pfannenberg's DTT Series top-mounted cooling units are 100% condensate safe. These units are ideal for space-saving installation on the top of the control enclosure.

One of the main features of the DTT's innovative condensate management design is the repositioning of the cooling circuits. Moving the cold area up prevents condensation from forming in the cabinet where the cooling unit meets the enclosure. A widened airflow in the evaporator stops the formation of condensate buildup.

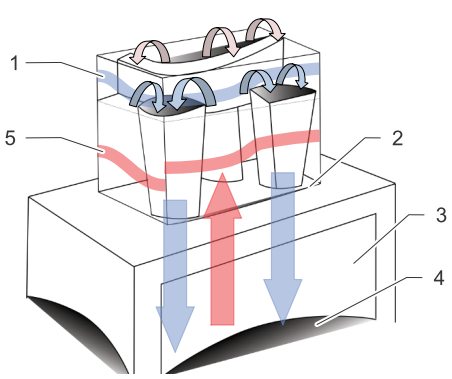
Return air channels are engineered to increase the speed of the air leaving the cooling unit, ensuring cool air is effectively distributed moisture-free within the enclosure.

Construction

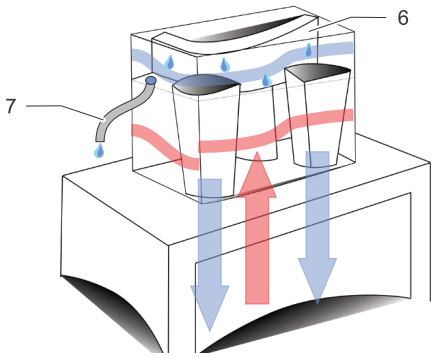
- Galvanized sheet steel.
- For use with NEMA 12 enclosures.
- Units are electrostatically powder coated RAL 7035 light gray.
- Electrical controls are easily accessible with the flip down access panel.
- HFC-free R-134a refrigerant.
- Active condensate management utilizes a PTC heater.
- Can operate in ambient temperatures of 59°F to 131°F (15°C to 55°C).

Listings

- cULus Listed File: SA10300.
- cULus Recognized Type 12 [File SA10300]



Arrangement of refrigeration circuits



Condensate separation

The main feature of the DTT-cooling units is the repositioning of the refrigeration circuits.

The cold circuit (1) is on top and the warm circuit (5) on the bottom. No cold bridge (2) to the switch cabinet (3) can occur and therefore no condensate forms in the enclosure interior (4).

The evaporator unit (6) is located in the upper section of the DTT-cooling unit so that vertical separation of condensate is possible. The condensate has no contact with the enclosure.

For safety reasons, the condensate evaporator has a drain nozzle with drain hose (7) through which the excess condensate is discharged from the unit.

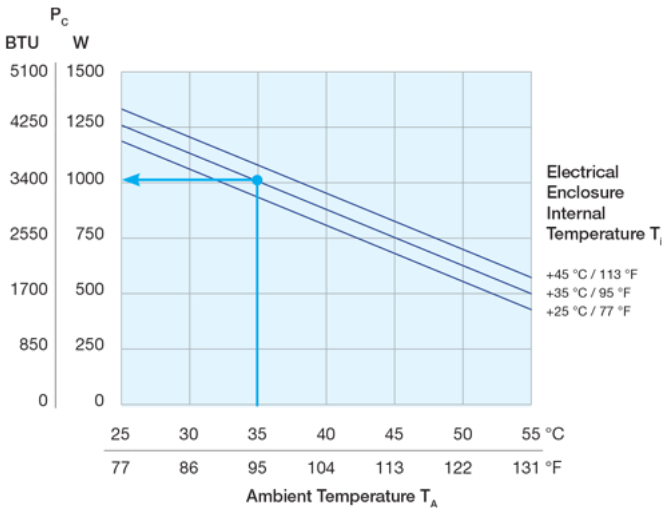
DTT 6000 Series Top Mount Air Conditioners

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

DTT 6000 Series Top Mount Air Conditioners								
Part Number	*Price*	*Model*	*Nominal Cooling Capacity*	*Operating Voltage*	*Inrush Current*	*Running Current*	*Unit Weight*	*Drawing Link*
13256279055	$;;006hv,:	DTT 6201	3570 BTU/H	460 VAC	6.2 A	1.7A	90.2 lbs	PDF
13256462055	$;006hv?:	DTT 6401	7100 BTU/H	460 VAC	12A	3.3A	112.2 lbs	PDF
13256662055	$;;006hv!:	DTT 6601	10000 BTU/H	460 VAC	9.9 A	4.5A	165.0 lbs	PDF
13256862055	$;006hv#:	DTT 6801	14000 BTU/H	460 VAC	19.5 A	4.5A	169.4 lbs	PDF

Performance Graphs

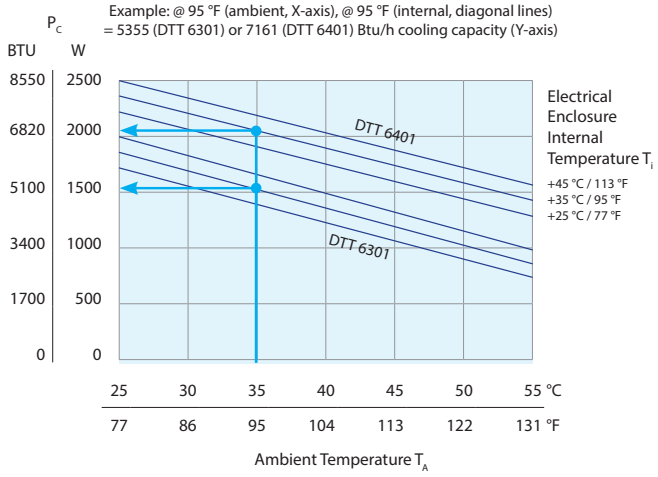
DTT 6201



DTT 6401

How to use this chart

Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines) = 5355 (DTT 6301) or 7161 (DTT 6401) Btu/h cooling capacity (Y-axis)



Note: Cooling capacity may vary between voltage and configurations.

DTT 6000 Series Top Mount Air Conditioners

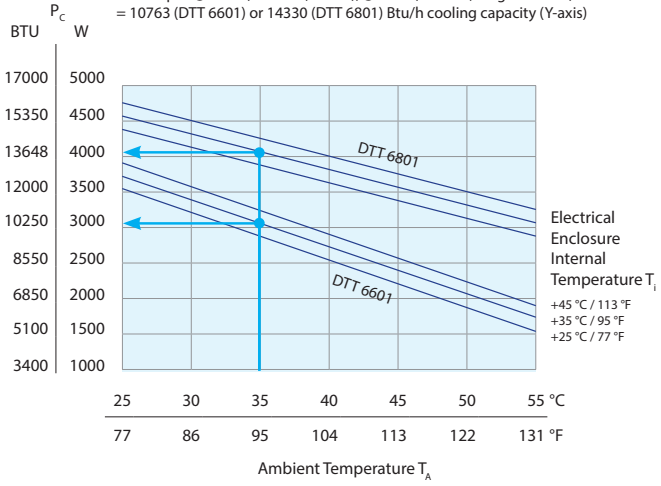
Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

Performance Graphs

DTT 6601

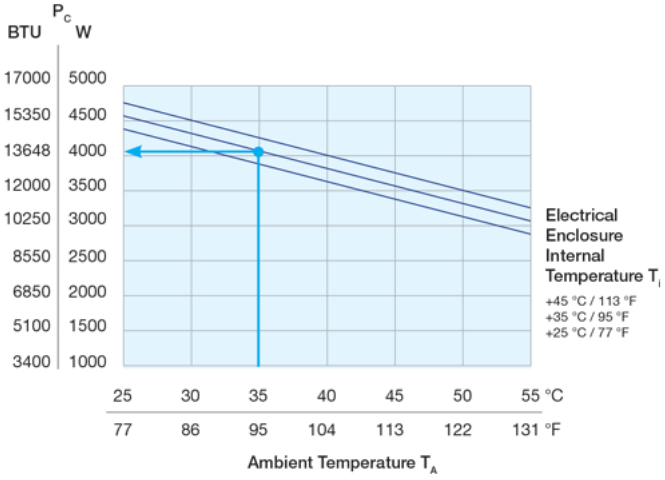
How to use this chart

Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines)
= 10763 (DTT 6601) or 14330 (DTT 6801) Btu/h cooling capacity (Y-axis)



Note: Cooling capacity may vary between voltage and configurations.

DTT 6801



PQF Air Conditioner Filter Rolls

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

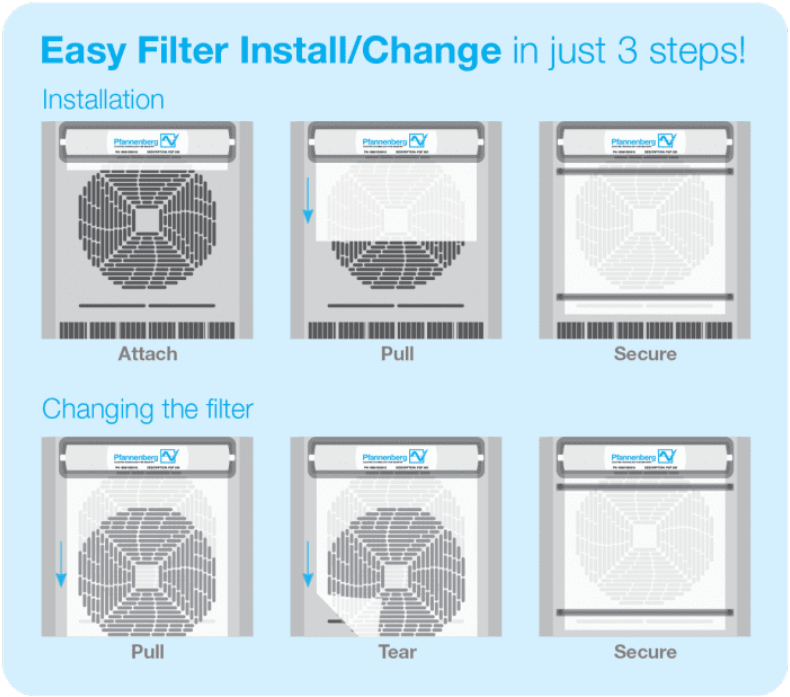
Overview

The PQF is a new way to filter out particulates and oily mist from an air inlet on your critical equipment. The magnetic strips allow easy, toolless installation with no interruption to your production time. It is installed on the outside of your equipment making it easy to see when the filter is clogged. Changing the filter takes less than 5 seconds and requires no training or shutdown procedure. Each PQF roll has 60 tearable square sheets.

For use with all air conditioners with a flat mounting surface.

18881500018

PQF Air Conditioner Filter Rolls		
Part Number	*Price*	*Filter Sheet Size*
18881500018	$06hx7:	8 x 8in
18881500019	$06hx8:	12 x 12in
18881500020	$06hx9:	16 x 16in



PWS Series Air-to-Water Heat Exchanger

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

Application

Pfannenberg PWS Series air-to-water heat exchangers are particularly suitable where ambient temperatures are high or the atmosphere proves to be particularly oily or aggressive like areas with high amounts of particulate. Ideal areas of use for air-to-water heat exchangers are wherever machines or production processes are cooled by tempered water and water is thus already provided.

These air-to-water heat exchangers are closed loop and require a source of chilled liquid to cool. With a cold source of fluid, these units have high cooling capacity and low energy usage in a small footprint. They can be very effective even if the ambient air temperature is high.

The sealed cabinet provides contaminant-free cooling without adding heat to the local environment.

12351010005

Features

- Hydronic push-to-connect fittings for coolant that supports quick connection to 1/2 inch O.D. hose or 1/2in I.D. hose with included adapter
- Physical barriers for condensation management allow for condensation to be collected and drained from the system with zero intrusion into the cabinet
- Adjustable thermostat permits precise control of the electrical enclosure temperature by regulating the coolant flow by activating a solenoid valve
- Adjustable thermostat range of 46°F to 122°F (8°C to 55°C) with a factory setting of 95°F (35°C)
- Rated operating voltage of 115 VAC (60Hz)
- Terminal block electrical connection
- High-temp alarm preset 131°F
- High-performance ball bearing fans
- Door-activated switch wiring provided for easy installation
- Cage clamp terminal connector
- Integrated temperature monitoring with alarm contact

Finish

RAL 7035 powder coat over galvanized sheet steel.

Listings

- NEMA Type 3R, 4, & 12
- cULus Recognized Type 3R, 4, & 12 [File SA10300]
- cULus Listed File SA10300

PWS Series Air-to-Water Heat Exchanger General Specifications			
Part Number	***12351010005***	***12358410045***	***12358510045***
Price	$;006hx0:	$;006hx1:	$;006hx2:
Series	PWS 7102	PWS 3302	PWS 3502
Drawing Links	PDF	PDF	PDF
Cooling Capacity	3241 BTU/H	12283 BTU/H	21496 BTU/H
Weight	16.5 lbs	66 lbs	73 lbs
Running Current	0.69A	0.70A	1.89A
Starting Current	1.4A	0.8A	3.1A
Connection (Water)	1/2in OD Hose Barb	1/2in push-in fitting	

PWS Series air-to-water Heat Exchanger

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

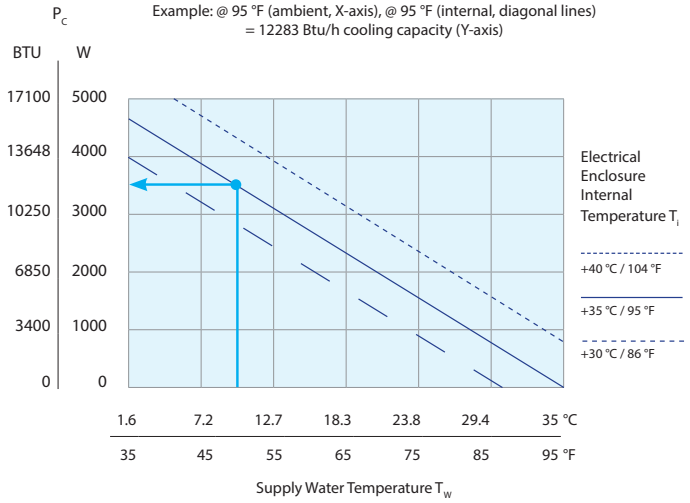
Performance Graphs

**PWS 7102 Performance Curve not available*

PWS 3302

How to use this chart

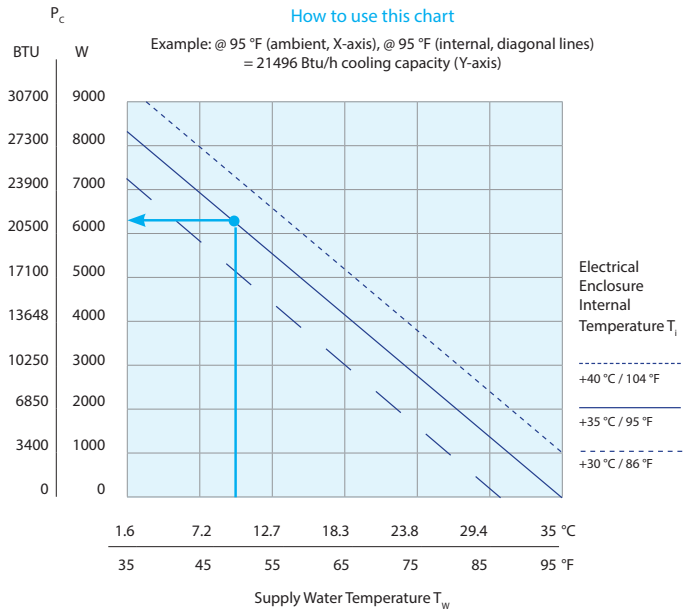
Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines)
= 12283 Btu/h cooling capacity (Y-axis)



PWS 3502

How to use this chart

Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines)
= 21496 Btu/h cooling capacity (Y-axis)



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

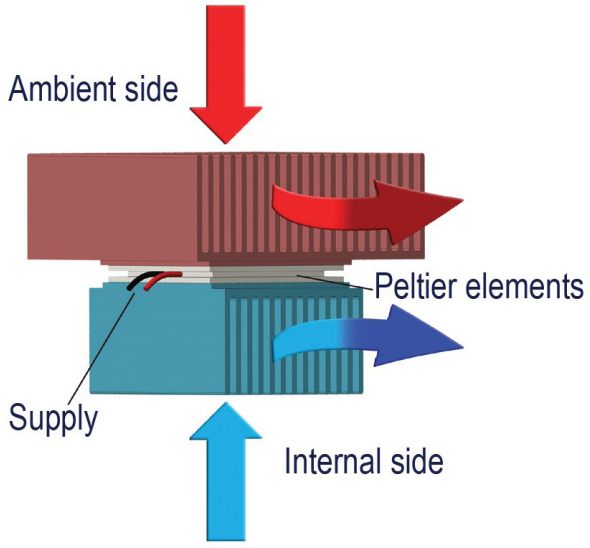
c UL us CE

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



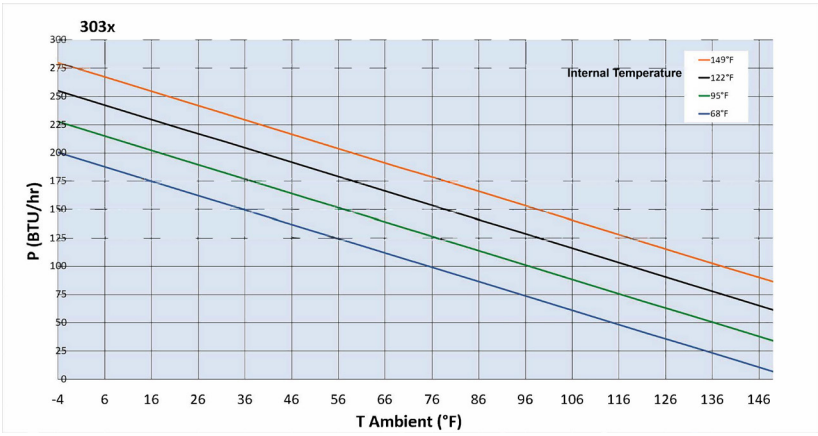
THERMOELECTRIC COOLING PRINCIPLE

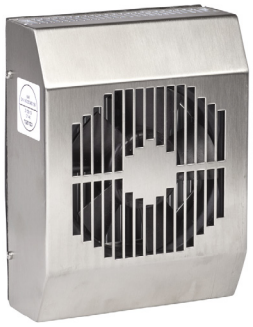
SoliTherm® Thermoelectric Coolers

SEIFERT thermal innovations

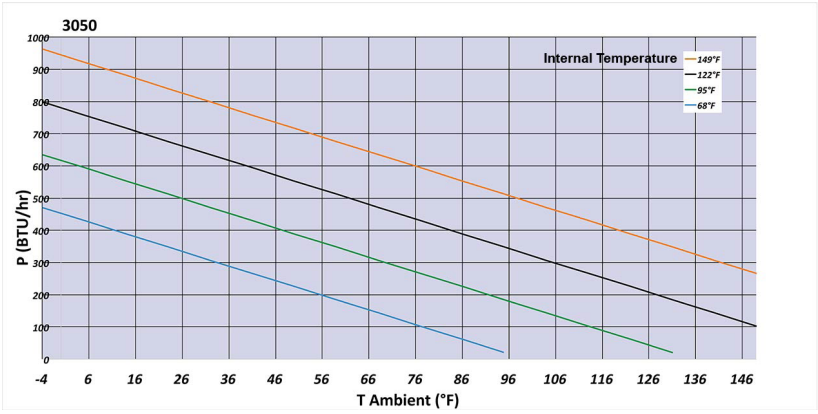
SoliTherm Thermoelectric Coolers					
Part Number	*Price*	*Dimensions HxWxD*	*Cutout Dimensions*	*Weight (lb)*	*Drawing Link*
3035303	$;-05i3t:	6.04 x 4.33 x 5.07 [110 x 154 x 129]	4.80 x 3.23 [122 x 82]	4	PDF
3050303	$-04jn1:	8.11 x 6.06 x 5.31 [206 x 154 x 135]	6.69 x 4.72 [170 x 120]	7	PDF
3102303	$;-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].					

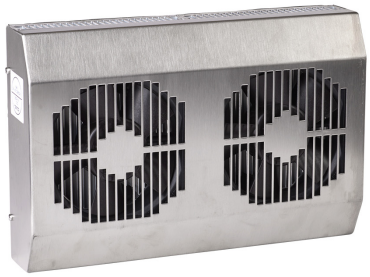
3035303
24VDC



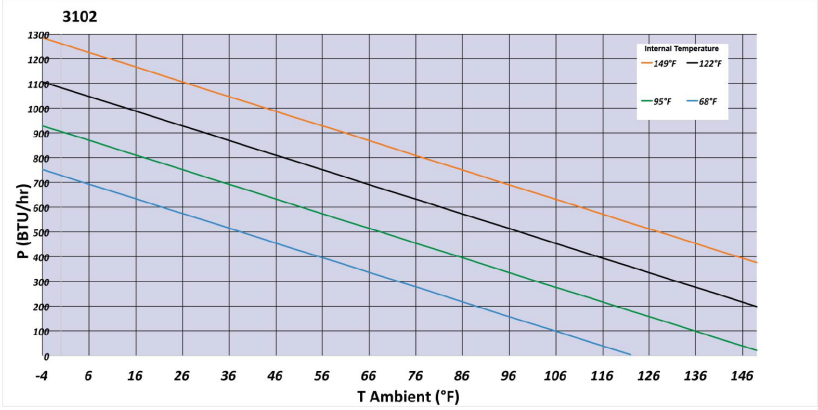


3050303
24VDC





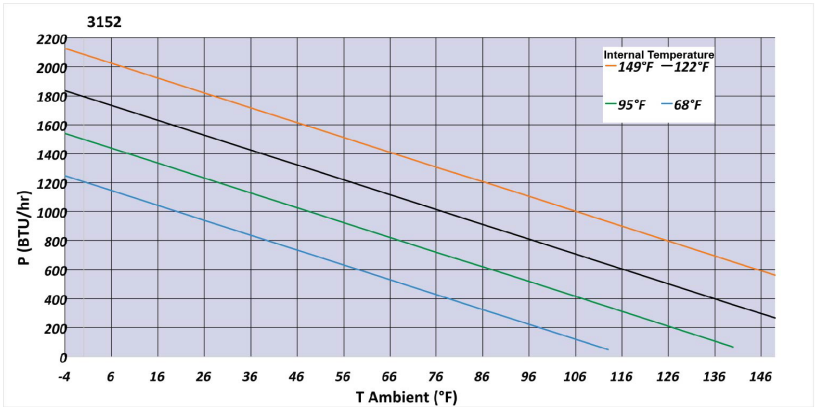
3102303
24VDC



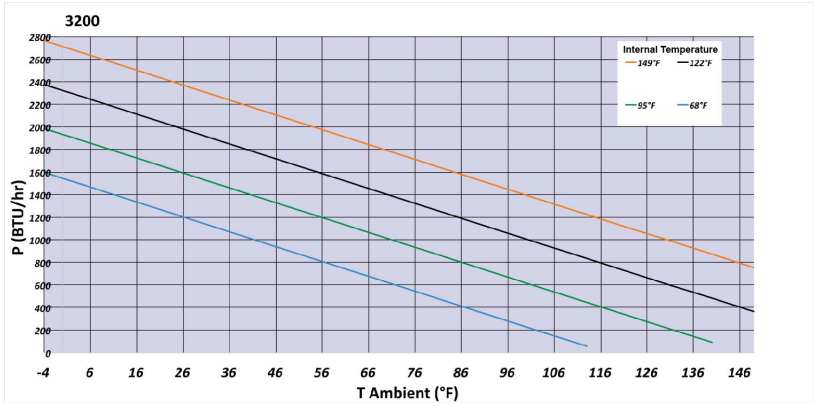
SoliTherm® Thermoelectric Coolers

Performance Graphs

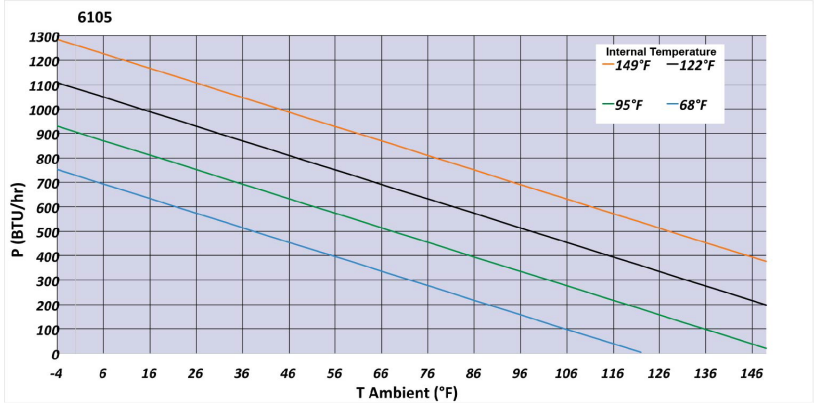
3152303
24VDC



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	$-4jn7:	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 0.25in [6 mm] 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

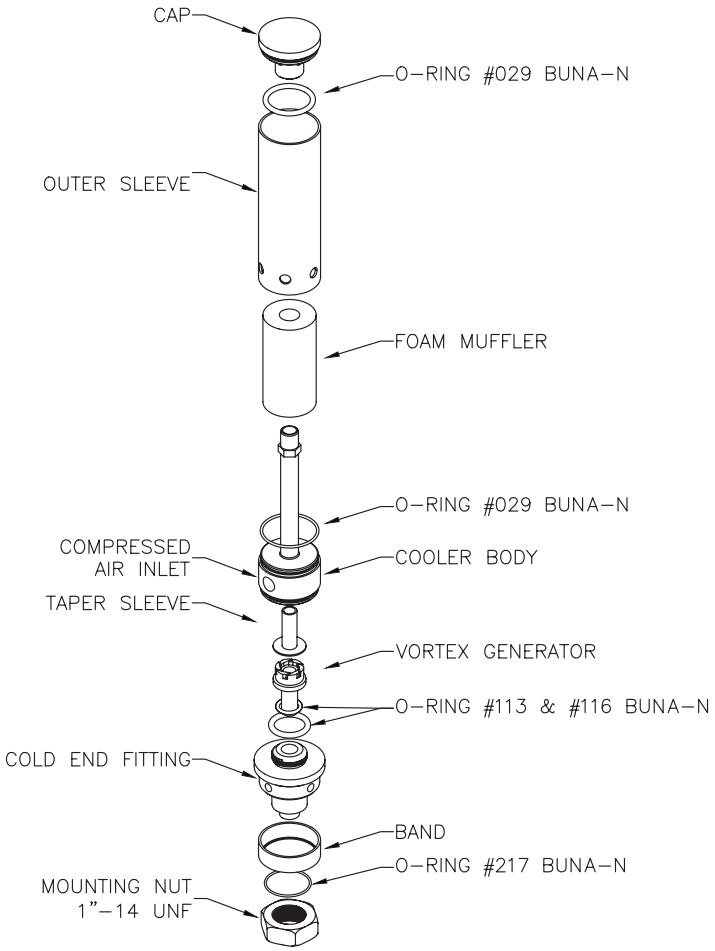
Compressed air is injected into the vortex tube at extremely high speeds and that creates a cyclone, or vortex, spinning a million revolutions per minute. Part of the air is forced to spin inward to the center and travels up a long tube where a valve turns the spinning column of air inside itself. The 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]

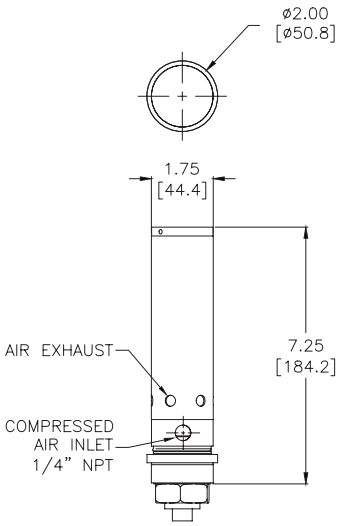
Vortex Coolers

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 0.25 in [6 mm] 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.

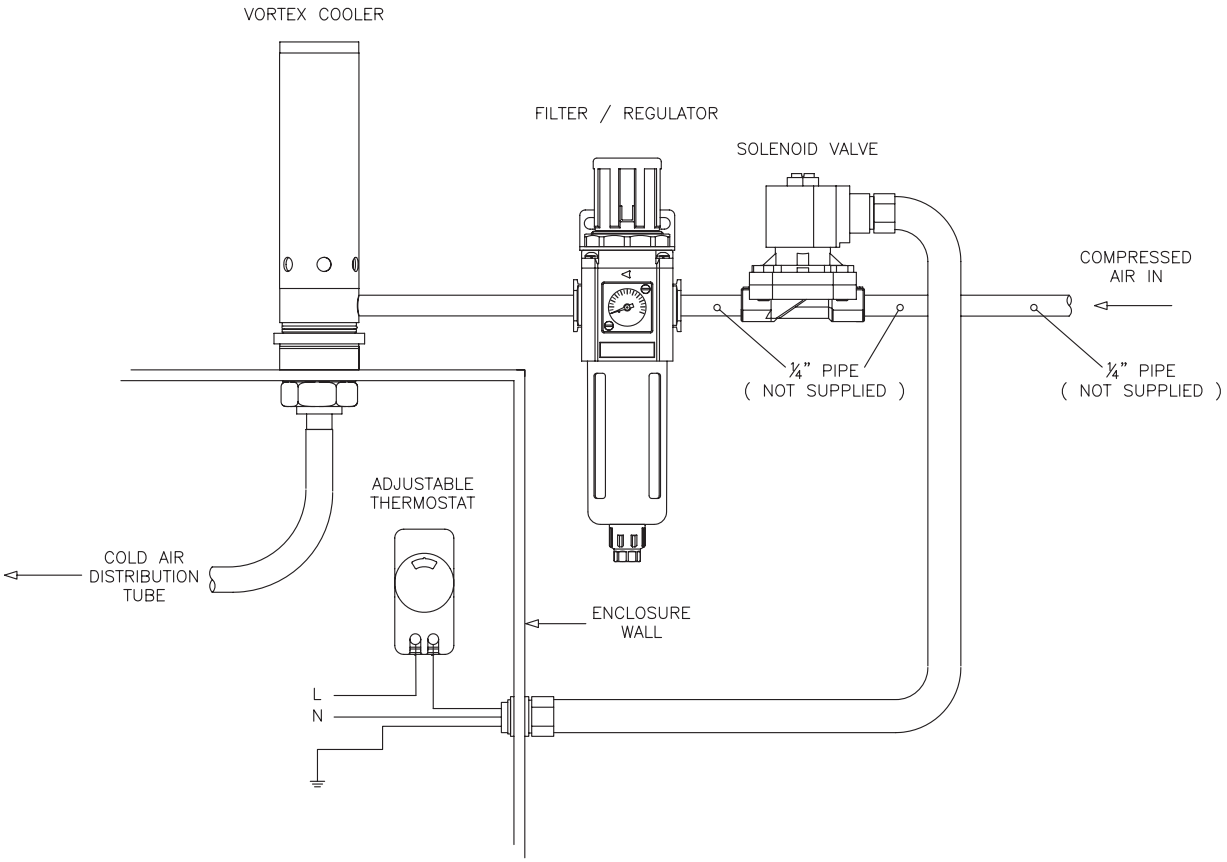
Size your supply airline to the solenoid valve correctly. Up to 10 ft [3 m] long runs will require a pipe size of at least 0.25 in [6 mm] (3/8 in [10 mm] for hoses). 10 ft [3 m] to 50 ft [15.24m] long runs will require a pipe size of 3/8 in [10 mm] (0.5in [13 mm] for hoses). 50 ft [15.24m] to 100 ft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

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

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 Stratus Vortex Coolers

Thermostats, Filters, and Valves for Stratus 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 to 140 deg F, 7 deg F switching differential, 35mm DIN rail mount, for electrical climate control.
	011160-00	Stego thermostat, adjustable, N.O. (close on rise) 0 to 60 deg 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, metal 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, metal 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.
	AFE2-21**	NITRA particulate filter element, replacement, 5 micron particles, high-density polyethylene (HDPE). For use with AF-2 series filters or AFR-2 series filter regulators.
	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, metal 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, metal 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, metal 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, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), Cv=1.55, 24 VDC operating voltage, 18mm DIN style wiring plug.
	DVD-2AC2A-120A	NITRA solenoid valve, 2-way, 2-position, N.C., brass body, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), Cv=1.55, 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, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), Cv=1.55, 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, 1/4in female NPT inlet(s), 1/4in female NPT outlet(s), Cv=1.55, 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 [6 mm] knockout hole for cooling tube and (1) 11/16in [152 mm] hole for thermostat
- NEMA 4 and 4X: (1) 1-15/16in [152 mm] (49mm) or 1-0.5in [13 mm] 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

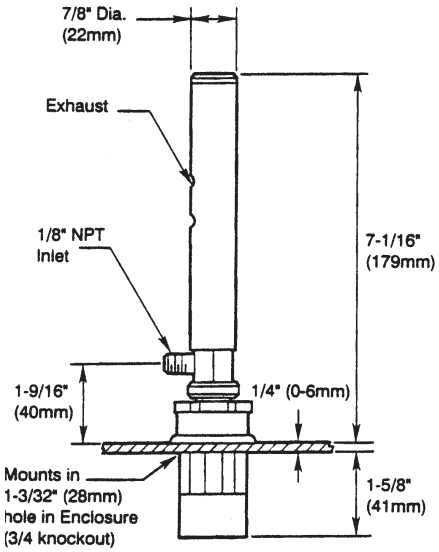
Same day	1 - 5 days	1 - 7 days	1 - 15 days	1 - 20 days

Color indicates shipping lead time in business days.

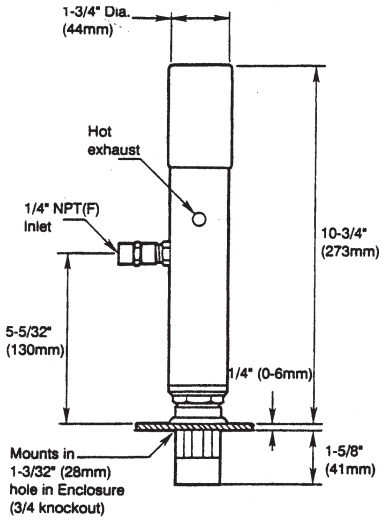
Part Number	Price	Description	CapacityBTU/H [KCAL/H]	Air Consumption SCFM [SLPM]
W750400	$;000ac#:	Wiegmann vortex cooler kit, 400 BTUH (117W) / 8 SCFM (227 SLPM), aluminum body. For NEMA 12 enclosures. Thermostat, solenoid valve, distribution tube and filter included.	400 BTUH (117W)	8 SCFM (227 SLPM)
W740900	Retired	Wiegmann vortex cooler kit, 900 BTUH (264W) / 15 SCFM (425 SLPM), aluminum body. For NEMA 12 enclosures. Thermostat, solenoid valve, distribution tube and filter included.	900 BTUH (264W)	15 SCFM (425 SLPM)
W7901500	Retired	Wiegmann vortex cooler kit,1500 BTUH (440W) / 25 SCFM (708 SLPM), aluminum body. For NEMA 12 enclosures. Thermostat, solenoid valve, distribution tube and filter included.	1500 BTUH (440W)	25 SCFM (708 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

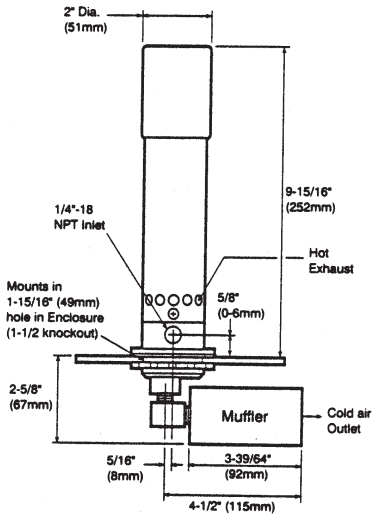
Dimensions



W750400



W740900, W7901500



W7971700, W797SS1700

Enclosure Cooling – Selecting an Air-to-Air Heat Exchanger

Air-to-Air Heat Exchanger Selection

To select the proper size heat exchanger, the worst-case conditions should be considered. For a heat exchanger to work, the ambient air temperature must be lower than the desired internal enclosure air temperature.

There are three main factors in choosing a heat exchanger for an uninsulated metal NEMA rated enclosure located indoors:

- Internal heat load
- Delta T
- Heat load transfer

Internal Heat Load

Internal heat load is the heat generated by the components inside the enclosure. This can be determined by a few different methods. The preferred method is to add the maximum heat output specifications that the manufacturers list for all the equipment installed in the cabinet. This is typically given in Watts.

Delta T (ΔT)

Delta T = maximum allowable internal enclosure temperature °F – maximum outside ambient temperature °F.

Heat Load Transfer

Heat load transfer is the heat lost (negative heat load transfer) or gained (positive heat load transfer) through the enclosure walls with the surrounding ambient air. This can be calculated by the following formulas:

Surface Area (sq. ft.) = 2 [(H x W) + (H x D) + (W x D)] / (144 sq. inches/sq. ft.)

Note: Only include exposed surfaces of enclosue in calculations. Exclude surfaces such as a surface mounted to a wall.

Heat Load Transfer (W/°F) = 0.22 W/°F sq. ft. x surface area

Note: Use 0.22 Watts/°F sq. ft. for painted steel and non-metallic enclosures. Use.10 Watts/°F sq. ft. for stainless steel and bare aluminum enclosures.

Cooling Capacity

Once you have determined your Internal Heat Load, the Heat Load Transfer and the Delta T, you can choose the proper size unit by calculating the needed cooling capacity.

Cooling Capacity (W/°F) = Internal Heat Load / ΔT - Heat Load Transfer

Air-to-Air Heat Exchanger Selection Example

A NEMA 12 Wiegmann N12302412 enclosure (30 in [762 mm] high x 24 in [610 mm] wide x 12 in [305 mm] deep) contains a GS3-4010 AC drive 10 HP 460 volt) that has a maximum allowable operating temperature of 104°F and is located in a warehouse that has a maximum outside ambient air temperature of 90°F.

Power to be dissipated is stated in the specifications of the GS3-4010 and is found to be 345 watts.

Internal heat load:

Internal Heat Load = 345 Watts

Delta T:

ΔT (°F) 104°F – 90°F = 14°F

Heat load transfer:

Surface Area (ft.2) = 2 [(30 x 24) + (30 x 12) + (24 x 12)] / 144 sq. inches = 19 ft.2
Heat Load Transfer = 0.22 x 19 ft2 = 4.2 Watts/°F

Cooling capacity:

Cooling Capacity = 345 Watts/14°F - 4.2 Watts/°F = 20.4 Watts/°F

In this example, you are able to determine that a heat exchanger, with a capacity of at least 20.4 Watts/°F is needed, such as a Stratus TE30-030-17-04 or a Saginaw Enviro-Therm SCE-HE24W120V.

*This selection procedure applies to metal and non-metal, uninsulated, sealed enclosures in indoor locations. This selection procedure gives the minimum required size; be careful not to undersize when purchasing.

Air To Air Heat Exchangers

Consider a Better Solution: Air to Air Heat Exchanger

- Always closed loop
- Low cost
- Easier to mount on only one side of your enclosure
- Energy efficient; uses no more power than a filtered fan system
- Filter-free; no diminished cooling capacity

Applications

A closed loop cooling system which employs the heat pipe principle to exchange heat from an electrical enclosure to the outside.

Construction

- Heat pipe technology
- Closed loop design

Listings

- UL File: SA34086
- Made in USA

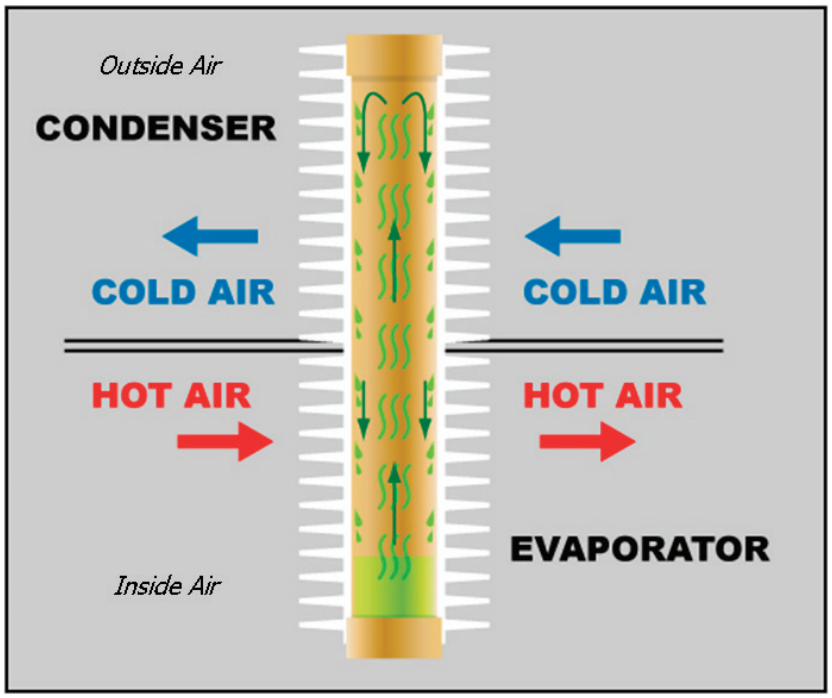
Features

- All units are available in NEMA 4 and 4X
- Available in 120 VAC and 24 VDC
- Motors have a sealed overload protector
- Finned evaporator and condenser sections provide a closed loop
- Coil systems use aluminum end plates and baffles which improve conduction and reduce corrosion for longer life
- UL/cUL listed

Tall, compact, and deep body styles shown

Air to Air Heat Exchange

The Air to Air Heat Exchanger is a closed loop cooling system which employs the heat pipe principle to exchange heat from an electrical enclosure to the outside. Where ambient temperatures are suitable for heat pipes, they are the most efficient method of cooling as the waste heat is the engine which drives the system. The only power requirement is to operate two circulating fans or blowers.



Heat pipes have a liquid refrigerant under a partial vacuum inside sealed tubes. They operate with a phase change process which is much like that of mechanical air conditioning, but without the compressor. Each heat pipe has an evaporator section and a condenser section which are separated by a permanent baffle so as to provide a closed loop. The bottom of each heat pipe is in contact with heated air from the electrical enclosure. When the enclosure air reaches approximately 75° F, the refrigerant changes to vapor phase (boils) and the vapor (steam) rises to the top of the tube which is in contact with cooler outside (ambient) air.

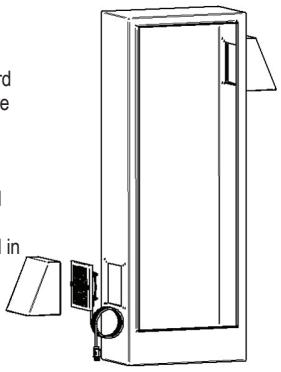
When the outside air temperature is lower than the enclosure temperature, the refrigerant vapor gives up heat to the outside air and returns to the liquid phase. It then falls to the bottom and repeats the cycle endlessly so long as there is a negative temperature differential between the enclosure and outside. Heat pipes will not operate in reverse cycle so heat cannot be transferred from the ambient to the interior of the enclosure. Although the operation is self limiting, thermostatic control can be used to shut off the fans when not needed.

The Stratus design has a top-to-bottom enclosure air flow pattern with maximum separation of the inlet and outlet. This design pulls the hottest air from the top of the enclosure and returns the cooled air from the bottom of the heat pipe to the enclosure. The air flow on the ambient side is bottom in, top out, so that the hotter discharge air moves up and away rather than being recirculated.

The units use aluminum end plates and baffles which improve conduction and reduce corrosion for longer life. The center aluminum baffle, which is swaged into the heat pipe coil, provides an air tight seal between the two air systems.

Air To Air Heat Exchanger Specifications

In this image, a standard installation shows where the dirt and particulate will enter the enclosure and be pulled in by the fans on your drives and devices. Filters or not, contamination is invited in by this open loop approach.



In this image, a standard installation demonstrates the closed loop condition maintained by the Air to Air Heat Exchanger. Cool air inlet and outlet vents are completely covered by the heat exchanger. This provides NEMA type 4 or 4X.

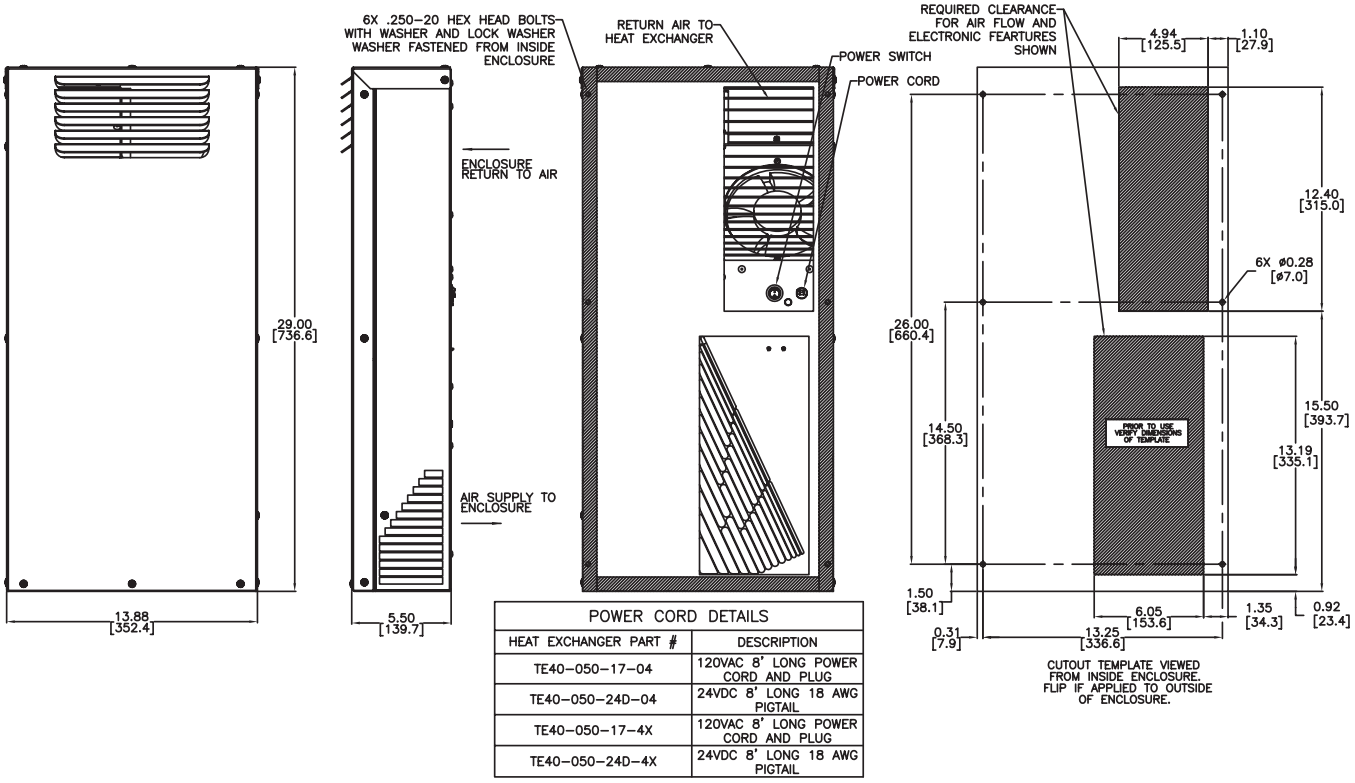
Stratus Air to Air Heat Exchangers General Specifications

Part Number	TE20-015-17-04	TE20-015-17-4X	TE20-015-24D-04	TE20-015-24D-4X	TE30-030-17-04	TE30-030-17-4X	TE30-030-24D-04	TE30-030-24D-4X	TE40-050-17-04	TE40-050-17-4X	TE40-050-24D-04	TE40-050-24D-4X
Price	$;000ad?:	$;;000ad,:	$;000ae0:	$;000ae1:	$;000ae2:	$;000ae3:	$;000ae4:	$;000ae5:	$;000ae6:	$;000ae7:	$;000ae8:	$;000ae9:
Operating Voltage Range (V)	± 10%											
Inrush Current (Start Up Current) (A)	1.92		3.90		1.92		3.90		2.59		9.70	
Loading Current (Running Current) (A)	0.37		0.80		0.37		0.80		0.47		1.94	
SCCR (Short Circuit Current Rating) (A)	Refer to Footnote 1											
Recommended Circuit Protection Device Rating (A)	1.5		2.5		1.5		2.5		2		6	
VA Rating (W)	42		20		42		20		56		47	
Refrigerant Type (oz)	Methanol (0.41)		Methanol (0.41)		Methanol (0.81)				Methanol (1.22)			
Watts/°C (F°)	22 (12)				44 (24)				71.6 (40)			
Free Air Flow (CFM)	131		127		131		127		211		235	
Weight Without Packaging (lbs)	16				19				32			
Body Style	compact				deep				tall			
Material Type	2CRS with ANSI 61 gray powder coat	3Stainless Steel	2CRS with ANSI 61 gray powder coat	3Stainless Steel	2CRS with ANSI 61 gray powder coat	3Stainless Steel	2CRS with ANSI 61 gray powder coat	3Stainless Steel	2CRS with ANSI 61 gray powder coat	3Stainless Steel	2CRS with ANSI 61 gray powder coat	3Stainless Steel
Voltage/Hz	120 VAC 50/60		24 VDC		120 VAC 50/60		24 VDC		120 VAC 50/60		24 VDC	
Maximum Ambient Temperature	160°F (71.1°C)											
Agency Approval	UL File: SA34086											

Notes: [1] **SCCR rating is based on the SCCR rating for the circuit protection device installed in the panel / enclosure per UL50 and UL508a to protect the AC unit Typically 10KA for Fast Acting Fuses.**
[2] **Cold-rolled steel with ANSI-61 gray polyester powder coating inside and out.**
[3] **Fabricated from 16-gauge 304 stainless steel.**

Air To Air Heat Exchanger Dimensions

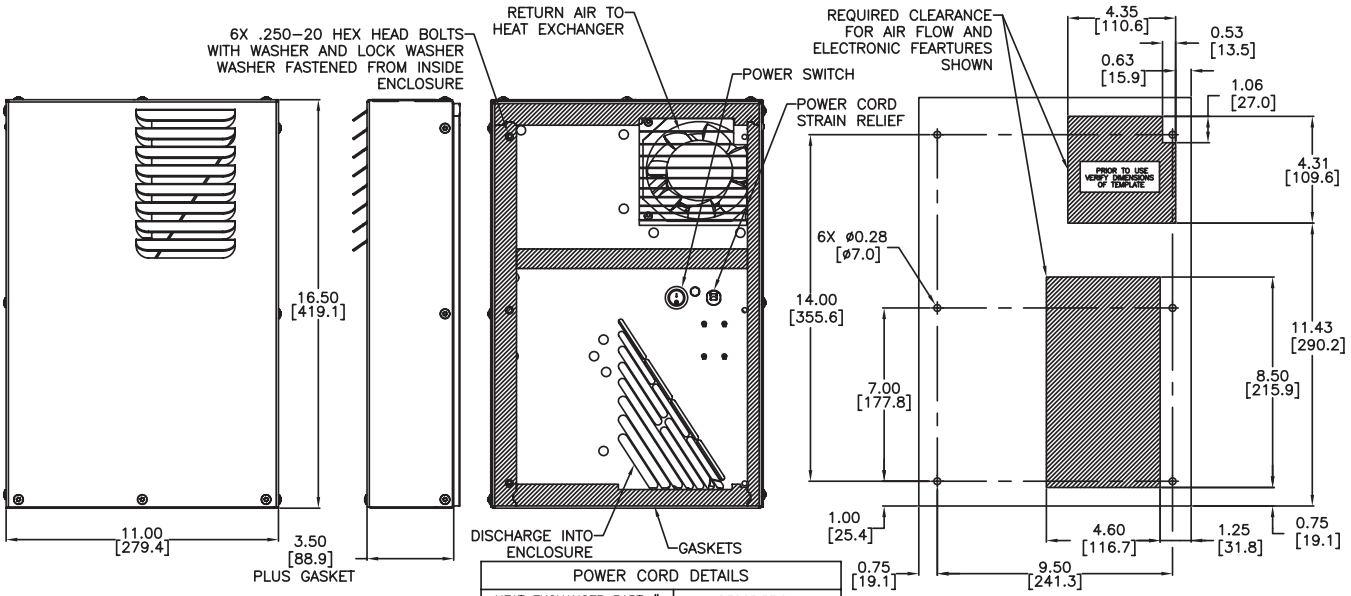
Dimensions - Tall



POWER CORD DETAILS	
HEAT EXCHANGER PART #	DESCRIPTION
TE40-050-17-04	120VAC 8' LONG POWER CORD AND PLUG
TE40-050-24D-04	24VDC 8' LONG 18 AWG PIGTAIL
TE40-050-17-4X	120VAC 8' LONG POWER CORD AND PLUG
TE40-050-24D-4X	24VDC 8' LONG 18 AWG PIGTAIL

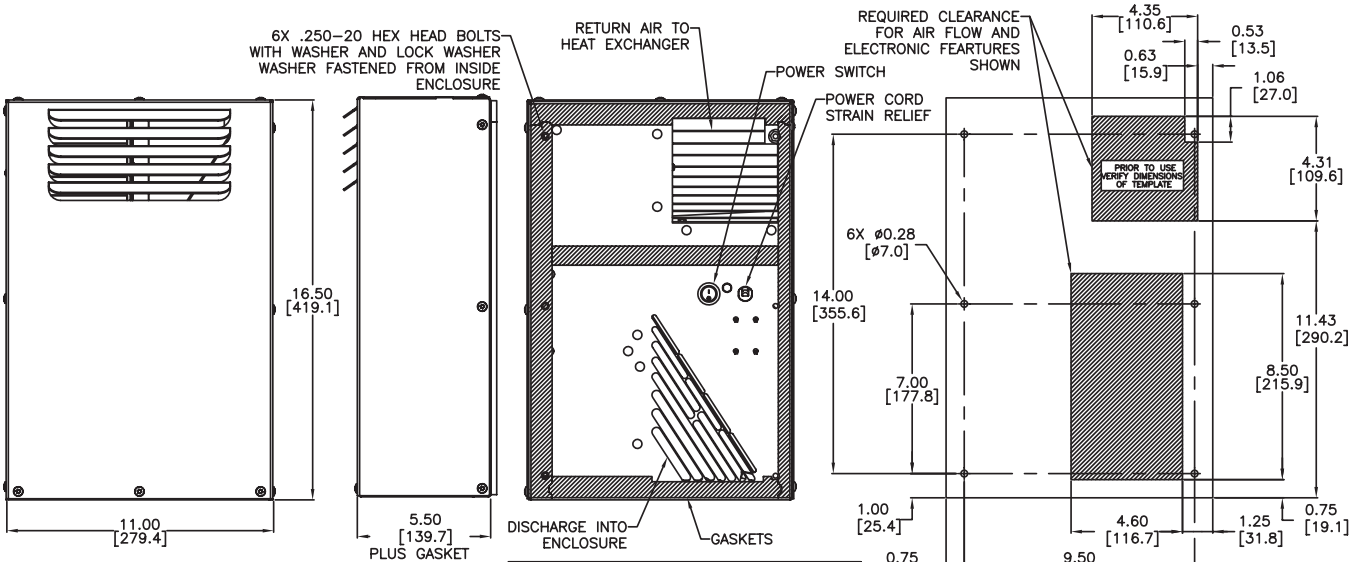
Air To Air Heat Exchanger Dimensions

Dimensions - Compact



POWER CORD DETAILS	
HEAT EXCHANGER PART #	DESCRIPTION
TE20–015–17–04	120VAC 8' LONG POWER CORD AND PLUG
TE20–015–24D–04	24VDC 8' LONG 18 AWG PIGTAIL
TE20–015–17–4X	120VAC 8' LONG POWER CORD AND PLUG
TE20–015–24D–4X	24VDC 8' LONG 18 AWG PIGTAIL

Dimensions - Deep



POWER CORD DETAILS	
HEAT EXCHANGER PART #	DESCRIPTION
TE30–030–17–04	120VAC 8' LONG POWER CORD AND PLUG
TE30–030–24D–04	24VDC 8' LONG 18 AWG PIGTAIL
TE30–030–17–4X	120VAC 8' LONG POWER CORD AND PLUG
TE30–030–24D–4X	24VDC 8' LONG 18 AWG PIGTAIL

Enviro-Therm® Series Air To Air Heat Exchangers

SAGINAW CONTROL & ENGINEERING
Your Enclosure Source ®

Application

Enviro-Therm® Heat Exchangers are designed for high-efficiency and high-performance air-to-air heat transfer. Designed with an internal closed loop system to provide protection from dust, oil and water. For indoor and outdoor application. Rugged, energy efficient, and reliable cooling system.

SCE-HE04W120V

Construction

- Internal components are corrosion resistant
- HE08, HE18 and HE24 counter-flow core
- HE04 modified heat pipe core
- Filterless design, low maintenance counter-flow heat exchangers are finless, reducing the chances of clogging, and easy to clean
- Threaded mounting studs provided for simple installation
- Digital touchpad programmable controller
- Controller Preset 95°F to cool - Adjustable 68°F to 122°F.
- Temperature differential hysteresis 5.4°F
- High temp alarm preset 131°F
- High performance ball bearing fans
- Door activated switch wiring provisions provided for easy installation
- Cage clamp terminal connector

Finish

RAL 7035 river texture powder coat over aluzinc coated steel

Listings

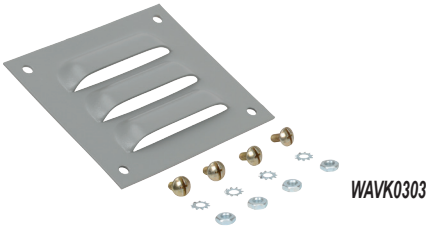
- NEMA Type 3R & 12
- cULus Recognized Type 3R & 12 [File E498756]
- IEC 60529
- IP 54

Enviro-Therm® Series Air To Air Heat Exchanger General Specifications				
Part Number	***SCE-HE04W120V***	***SCE-HE08W120V***	***SCE-HE18W120V***	***SCE-HE24W120V***
Price	$;0067#b:	$;0067#c:	$;0067#d:	$;0067#e:
Drawing Links	PDF	PDF	PDF	PDF
Cooling Capacity	4 Watts/°F	8 Watts/°F	18 Watts/°F	24 Watts/°F
Operating Temperature Range	23°F - 131°F			
Dimensions (H x W x D)	20.00 x 7.50 x 5.95	29.50 x 10.00 x 5.95	29.66 x 10.24 x 5.95	47.16 x 10.24 x 5.95
Weight	16.5 lbs	25.0 lbs	26.5 lbs	36.8 lbs
Rated Operating Voltage / Frequency	120 V - 50/60 Hz			
Running Current	1.10 A		1.40 A	1.80 A
Starting Current	1.30 A		1.60 A	2.20 A
Power Consumption	65 W	120 W	150 W	195 W
Fuse Rating	1.6A (T) - Time Delayed [Slow Acting]		3A (T) - Time Delayed [Slow Acting]	
Circuit Breaker - MCB Type D or K	1.6A Slow Acting		3A Slow Acting	
Connection	Cage Clamp Terminal Connector			
Max Current at Door Switch	5 A DC			

Dimensions given in Inches

Louvers and Filters for Metal Enclosures

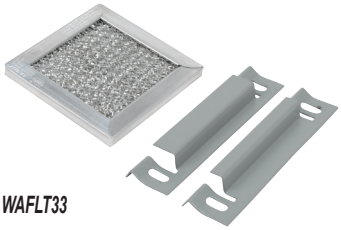
Louver Vent Kits



WAVK0303

Louver vents provide ventilation or cooling in metal enclosures where excessive moisture or excessive internal heat is a problem. These kits are fabricated from 14-gauge steel and include all hardware for mounting. Kits are easily field installed by making a cutout of the proper size and attaching the louver vent in place. Finish is ANSI 61 gray polyester powder finish over phosphatized surfaces or 316 stainless steel. Filter kit must be ordered separately.

Filter Kits for Louver Vent Kits



WAFLT33

Aluminum filters are good for stopping dust and dirt from penetrating the enclosures. These filters are designed to mount behind WAVK series louver vent kits. Mounting holes on filter brackets align with mounting holes on louver kits. Kit consists of aluminum filter, brackets and all necessary hardware for installation. Louver kit must be ordered separately.

Shipping Schedule

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

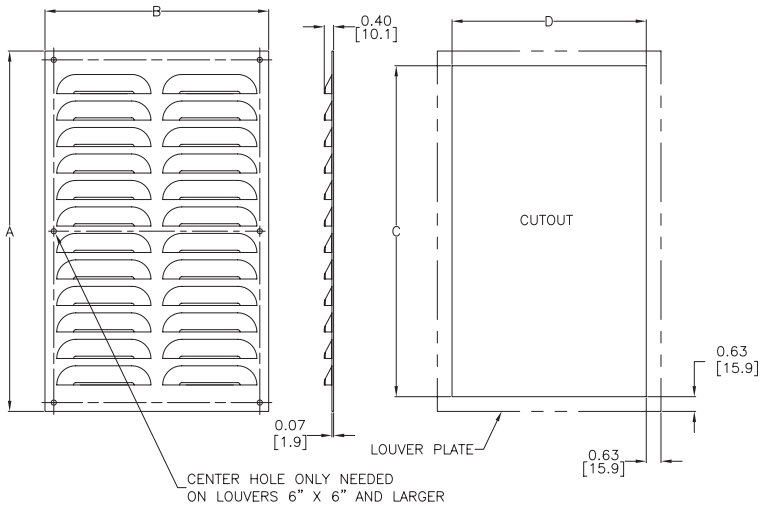
Color indicates shipping lead time in business days.

Louver Vent and Filter Kits

Louver Kit 14-gauge Steel	Price	Louver Kit 316 SS	Price	Filter Kit	Price	No. of Louvers	No. of LouverRows	Louver Length in [mm]	A in [mm]	B in [mm]	C in [mm]	D in [mm]
WAVK0808	Retired	WAVK0203SSA	Retired	—	—	3	1	2.00 [51]	3.25 [83]	3.25 [83]	2.00 [51]	2.00 [51]
WAVK0303	$-0ejc:	WAVK0303SSA	$-00ejd:	WAFLT33	$;-0el]:	3	1	3.00 [76]	3.87 [98]	4.50 [114]	2.62 [67]	3.25 [83]
WAVK0304	$-0eje:	WAVK0304SSA	$;-00ejf:	WAFLT34	$;-0el[:	4	1	3.00 [76]	4.75 [121]	4.50 [114]	3.50 [89]	3.25 [83]
WAVK0404	$-0ejg:	WAVK0404SSA	$-00ejh:	WAFLT44	$-0el_:	4	1	4.00 [102]	5.62 [143]	5.50 [140]	4.37 [111]	4.25 [108]
WAVK0604	Retired	WAVK0604SSA	Retired	WAFLT64	Retired	8	1	3.00 [76]	5.62 [143]	7.50 [191]	4.37 [111]	6.25 [159]
WAVK0606	$-0ejk:	WAVK0606SSA	$--00ejl:	WAFLT66	$;-0el!:	12	1	3.00 [76]	7.87 [200]	7.50 [191]	6.62 [168]	6.25 [159]
WAVK0806	Retired	WAVK0806SSA	Retired	WAFLT86	Retired	12	2	4.00 [102]	8.18 [208]	9.50 [241]	6.93 [176]	8.25 [210]
WAVK0808	Retired	WAVK0808SSA	Retired	WAFLT88	Retired	16	2	4.00 [102]	10.56 [268]	9.50 [241]	9.31 [236]	8.25 [210]
WAVK0812	Retired	WAVK0812SSA	Retired	WAFLT812	Retired	24	2	4.00 [102]	15.31 [389]	9.50 [241]	14.06 [357]	8.25 [210]

Note: Dimensions in inches [millimeters].

Dimensions



Enclosure Heating and Heater Selection

Why Heat an Enclosure?

Today's miniaturization of enclosure components results in high packing densities, which in turn results in higher temperatures within the enclosure. These high temperatures are harmful to electronic components. In response, cooling systems have become standard in many applications. However, just as critical and widely underestimated, are failures caused by the formation of moisture.

Under certain climatic conditions, moisture can build up not only in outdoor or poorly insulated enclosures, but also in highly protected and well-sealed enclosures.

Moisture and Failure

Moisture, especially when combined with aggressive gases and dust, causes atmospheric corrosion and can result in the failure of components such as circuit breakers, busbars, relays, integrated circuit boards and transformers. The greatest danger lies in conditions where electronic equipment is exposed to relatively high air humidity or extreme variations in temperature, such as day-and-night operation or outdoor installation. Failure of components in such cases is usually caused by changing contact resistances, flashovers, creepage currents or reduced insulation properties.

Eliminate Moisture

Moisture and corrosion will remain low if relative air humidity stays below 60%. However, relative humidity above 65% will significantly increase moisture and corrosion problems. This can be prevented by keeping the environment inside an enclosure at a temperature as little as 9°F (5°C) higher than that of the ambient air. Constant temperatures are a necessity to guarantee optimal operating conditions. Continuous temperature changes not only create condensation but they reduce the life expectancy of electronic components significantly. Electronic components can be protected by cooling during the day and heating at night.

Thermal Management

Modern enclosure heaters are designed to protect against condensation. They heat the air inside enclosures, preventing water vapor from condensing on components while providing the greatest possible air circulation and low energy consumption.

Other heating element technology improvements include:

- Longer operating life
- Greater energy efficiencies
- Quick wiring options
- Easier mounting
- Fan heaters should be considered for larger enclosures to ensure that the entire enclosure is heated uniformly

Heater Location

Ideally, most heaters will perform optimally when mounted near the bottom of an enclosure and used in conjunction with a control device, thermostat, and/or hygrostat. The control device may be a separate device, or it may be integral to the heater. With the controller located in an area of the cabinet that is representative of the average temperature or humidity requirement, the heater should then be placed in a position near the bottom of the enclosure. If a separate control device is used, the heater should not be located directly beneath the controller to ensure that the controller is not influenced by direct heat from the heater.

Heater Calculation

Follow Steps 1-5 to determine the heating requirement of an enclosure (US units - left column, metric - right)

STEP 1: Determine the Surface Area (A) of your enclosure which is exposed to open air.

Enclosure Dimensions:

height =_____feet _____meters

width =_____feet _____meters

depth =_____feet _____meters

Choose Mounting Option from next page, and calculate the surface area as indicated

A = _____ ft2 or _____ m2

STEP 2: Choose the Heat Transmission Coefficient (k) for your enclosure's material of construction.

painted steel = 0.511 W/(ft2K) 5.5 W/(m2K)

stainless steel = 0.344 W/(ft2K) 3.7 W/(m2K)

aluminum = 1.115 W/(ft2K) 12 W/(m2K)

plastic or insulatedstainless = 0.325 W/(ft2K) 3.5 W/(m2K)

k = _____W/(ft2K) or _____ W/(m2K)

STEP 3: Determine the Temperature Differential (ΔT).

A. Desired enclosure interior temp. = ___oF ___oC

B. Lowest ambient (outside) temp. = ___oF ___oC

Subtract B from A = Temp. diff. (ΔT) = ___oF ___oC

For these calculations, ΔT must be in° Kelvin (K). Therefore, divide ΔT (oF) by 1.8. ΔT = _____ K

STEP 4: Determine Heating Power (PV), if any (generated from existing components, i.e. transformer).

PV = _____ W or _____ W

STEP 5: Calculate the Required Heating Power (PH) for your enclosure based on the above values.

If enclosure is located inside:

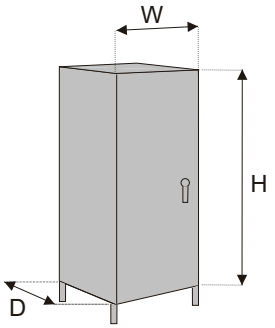
PH = (A x k x ΔT) - PV = _____ W

If enclosure is located outside:

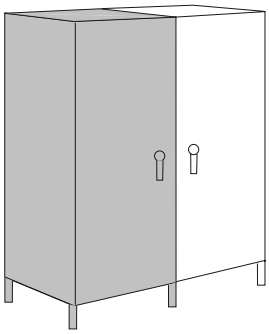
PH = 2 x (A x k x ΔT) - PV = _____ W

Enclosure Mounting Types and Surface Area Calculations

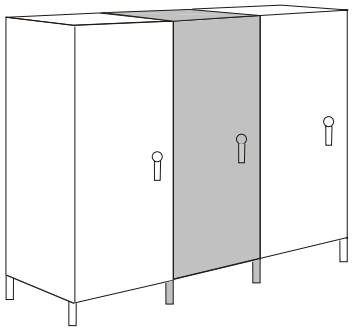
1. Free-Standing



Area (A) =1.8ft³ [0.05m³] (H x W) + 1.8 (H x D) +1.8ft³ [0.05m³] (W x D)

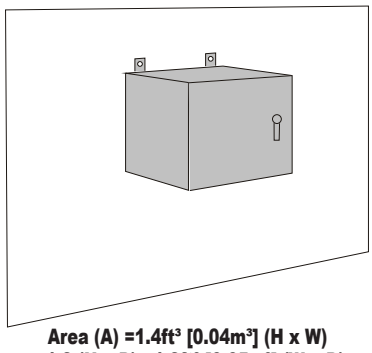


Area (A) =1.8ft³ [0.05m³] (H x W) + 1.4 (H x D) +1.8ft³ [0.05m³] (W x D)

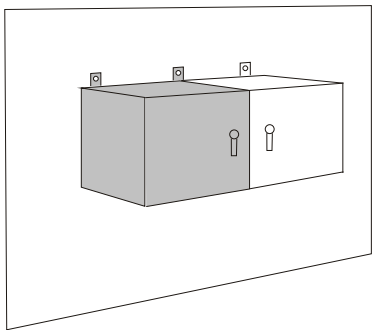


Area (A) =1.8ft³ [0.05m³] (H x W) + (H x D) +1.8ft³ [0.05m³] (W x D)

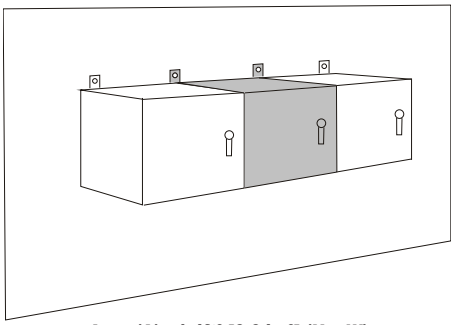
2. Wall-Mounted



Area (A) =1.4ft³ [0.04m³] (H x W) + 1.8 (H x D) +1.8ft³ [0.05m³] (W x D)

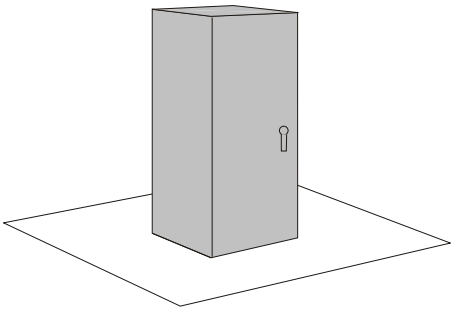


Area (A) =1.4ft³ [0.04m³] (H x W) + 1.4 (H x D) +1.8ft³ [0.05m³] (W x D)

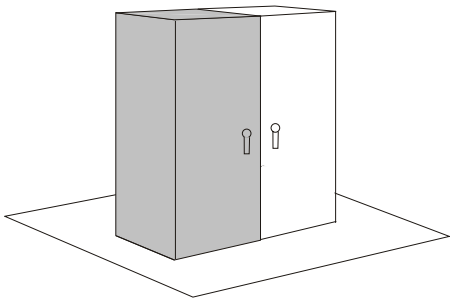


Area (A) =1.4ft³ [0.04m³] (H x W) + (H x D) +1.8ft³ [0.05m³] (W x D)

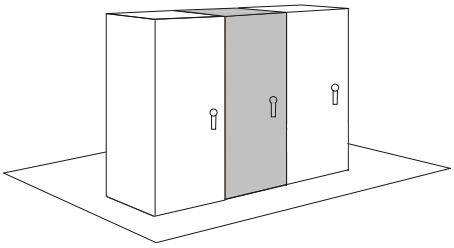
3. Ground



Area (A) =1.8ft³ [0.05m³] (H x W) + 1.8 (H x D) +1.4ft³ [0.04m³] (W x D)

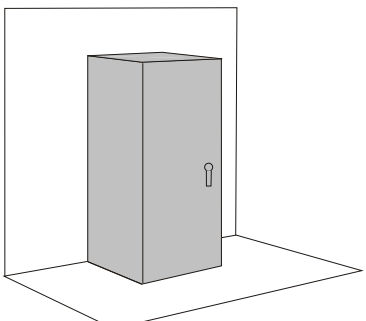


Area (A) =1.8ft³ [0.05m³] (H x W) + 1.4 (H x D) +1.4ft³ [0.04m³] (W x D)

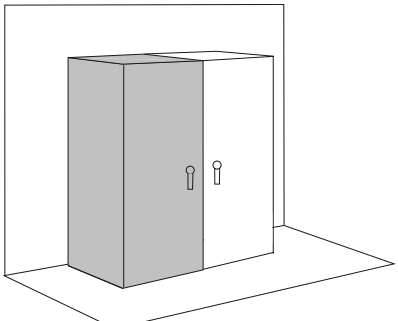


Area (A) =1.8ft³ [0.05m³] (H x W) + (H x D) +1.4ft³ [0.04m³] (W x D)

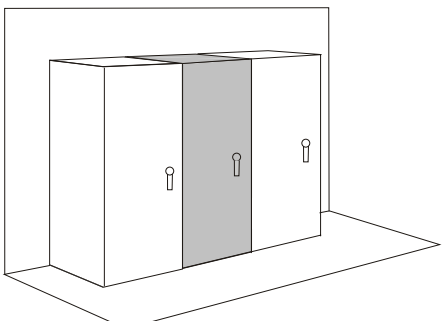
4. Ground and Wall



Area (A) =1.4ft³ [0.04m³] (H x W) + 1.8 (H x D) +1.4ft³ [0.04m³] (W x D)



Area (A) =1.4ft³ [0.04m³] (H x W) + 1.4 (H x D) +1.4ft³ [0.04m³] (W x D)



Area (A) =1.4ft³ [0.04m³] (H x W) + (H x D) +1.4ft³ [0.04m³] (W x D)

Adjustable Thermostats

111000-00, 111000-01, 111000-02, 111009-00, and 111009-01

111010-00, 111010-01, 111010-02, 111019-00, and 111019-01

Applications

Normally Closed (N.C.)
Normally Closed adjustable thermostats have a red adjustment dial and contacts that open when the air temperature rises above the setpoint. Uses may include regulating heaters or switching signal devices when temperature falls below the setpoint value.

Normally Open (N.O.)
Normally Open adjustable thermostats have a blue adjustment dial and contacts that close when the air temperature rises above the setpoint. Uses may include regulating cooling devices (heat exchangers, filter fans vortex coolers, etc), or switching signal devices when temperature rises above the setpoint value.

Features

- Compact design
- Wide adjustment range
- Color coded temperature dials
- DIN rail mounting
- Push-in terminals for tool-free installation
- For use up to 16,400 ft. [5000 m] altitude

General Specifications	
Switching Difference	12.6°F [7K]
Switching Tolerance	±7°F [±4K]
Sensor Element	Thermostatic bimetal
Contact Type	Snap-action contact
Service Life	>100,000 cycles
Max. Inrush Current	AC 16A for 10 sec.
Max. Operating Voltage	250 VAC
Connection	2-pole terminal, push-in terminal 14 AWG [2.5mm] max. solid/stranded wire
Housing	Plastic, UL 94V-0, light gray
Mounting	Clip for 35mm DIN rail, EN 60715
Mounting Position	Variable
Operating / Storage Temperature	-49 to 176°F [-45 to 80°C]
Weight	0.09 lb [40 g]
Protection Type	IP20
Approvals	CE, CSA, VDE, EAC, UL Recognized File No. E164102; RoHS 2 compliant
Note: When using stranded wire, wire-end ferrules (square or trapezoid crimp) must be used.	

Adjustable Thermostats					
Part Number	***Price***	***Contact***	***Setting Range***	***Max. Switching Capacity***	***Drawing Link***
111000-00	$-5i0h:	N.C.	0 to 60°C	15A resistive / 2A inductive at 120 VAC, 10A resistive / 2A inductive at 250 VAC, 30W DC	PDF
111000-01	$--5i0i:		-10 to 50°C		PDF
111000-02	$--5i0j:		20 to 80°C	3A resistive / 2A inductive at 120 VAC, 3A resistive / 2A inductive at 250 VAC, 30W DC	PDF
111009-00	$-5i0k:		32 to 140°F	15A resistive / 2A inductive at 120 VAC, 10A resistive / 2A inductive at 250 VAC, 30W DC	PDF
111009-01	$--5i0l:		14 to 122°F		PDF
111010-00	$-5i0n:	N.O.	0 to 60°C		PDF
111010-01	$-5i0o:		-10 to 50°C		PDF
111010-02	$-5i0p:		20 to 80°C	3A resistive / 2A inductive at 120 VAC, 3A resistive / 2A inductive at 250 VAC, 30W DC	PDF
111019-00	$-5i0q:		32 to 140°F	15A resistive / 2A inductive at 120 VAC, 10A resistive / 2A inductive at 250 VAC, 30W DC	PDF
111019-01	$-5i0s:		14 to 122°F		PDF

Tamperproof Thermostats

011600-00

011610-02

011630-00

Applications

Normally Closed (N.C.)
Normally Closed tamperproof (pre-set) thermostats have a red module and contacts that open when the air temperature rises above the setpoint. Uses may include regulating heaters or switching signal devices when temperature has fallen below the setpoint value.

Normally Open (N.O.)
Normally Open tamperproof (pre-set) thermostats have a blue module and contacts that close when the air temperature rises above the setpoint. Uses may include regulating cooling devices (heat exchangers, filter fans, vortex coolers, etc) or switching signal devices when temperature exceeds the setpoint value.

Features

- Compact design
- Fixed set points
- Color coded modules
- DIN rail mounting

Tamperproof Thermostats Specifications	
Sensor Element	Thermostatic bimetal
Contact Type	Snap-action Contact
Contact Resistance	<20 mΩ
Service Life	>100,000 cycles
Max. Switching Capacity	10A resistive / 2A inductive @ 120VAC 5A resistive / 1.6 A inductive @ 240VAC DC 30W (24-72 VDC)
Max. Inrush Current	AC 16A for 10 sec.
Minimum Load	20 mA (all voltages)
Housing	Plastic, UL 94V-0, light gray
Mounting	Clip for 35mm DIN rail, EN 60715
Mounting Position	Vertical
Operating Temperature	-40 to 176°F [-40 to 80°C]
Storage Temperature	-49 to 176°F [-45 to 80°C]
Protection Type	IP20
Approvals	CE, VDE, EAC, UL Recognized File No. E164102, RoHS 2 compliant
Note: Tolerance is plus or minus (±) the specified number.	

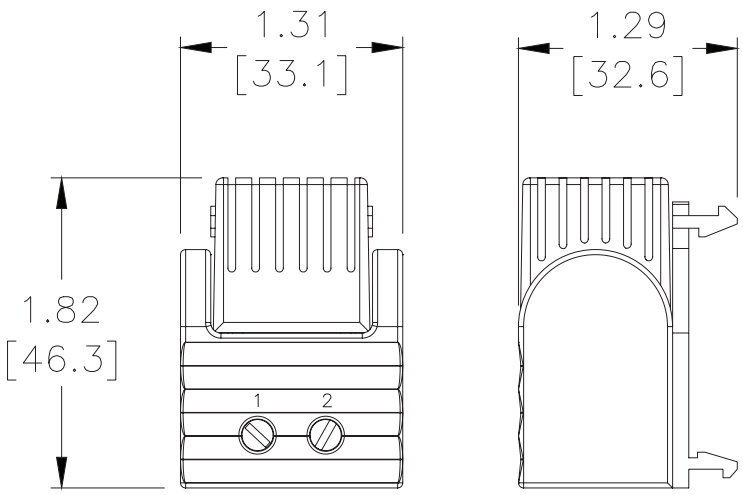
Tamperproof Thermostats

Tamperproof Thermostats							
Type	***Part Number***	***Price***	***Contact***	***Switch-off***	***Switch-on***	***Connection***	***Weight***
Single Thermostats	***011600-00***	$0ad4:	N.C.	59 ± 9°F [15 ± 5°C]	41±9°F [5±5°C]	2-pole terminal for 14 AWG max solid or stranded wire	0.05 lb [23 g]
	011600-01	$0ad5:	N.C.	77 ± 9°F [25 ± 5°C]	59±9°F [15±5°C]		
	011610-00	$1opv:	N.O.	104 ± 12.6°F [40 ± 7°C]	122±11°F [50±6°C]		
	011610-02	$0ad6:	N.O.	77 ± 12.6°F [25 ± 7°C]	95±11°F [35±6°C]		
Dual Thermostats	***011630-00***	$0ad7:	N.C.	59 ± 9°F [15 ± 5°C]	41±9°F [5±5°C]	4-pole terminal for 14 AWG max solid or 16 AWG max stranded wire	0.08 lb [40 g]
			N.O.	104 ± 12.6°F [40 ± 7°C]	122±11°F [50±6°C]		
	011640-00	$0ad8:	N.O.	104 ± 12.6°F [40 ± 7°C]	122±11°F [50±6°C]		
			N.O.	122 ± 12.6°F [50 ± 7°C]	140±11°F [60±6°C]		
	011630-02	$1opx:	N.C.	59 ± 9°F [15 ± 5°C]	41±9°F [5±5°C]		
			N.O.	77 ± 12.6°F [25 ± 7°C]	95±11°F [35±6°C]		
Note: Tolerance is plus or minus (±) the specified number.							

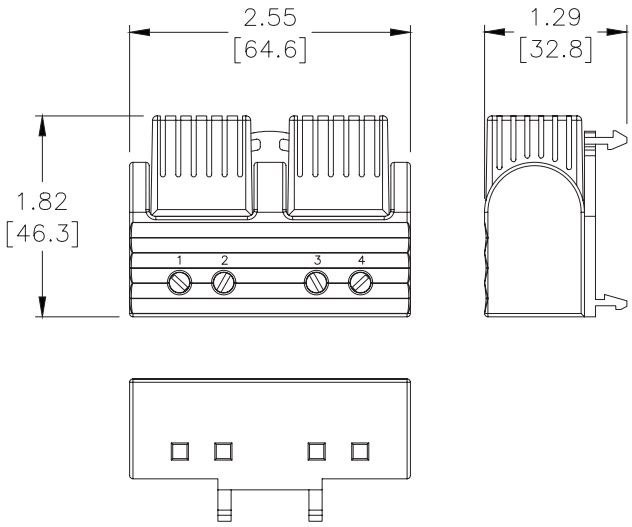
Tamperproof Thermostats

Dimensions

Single Thermostats

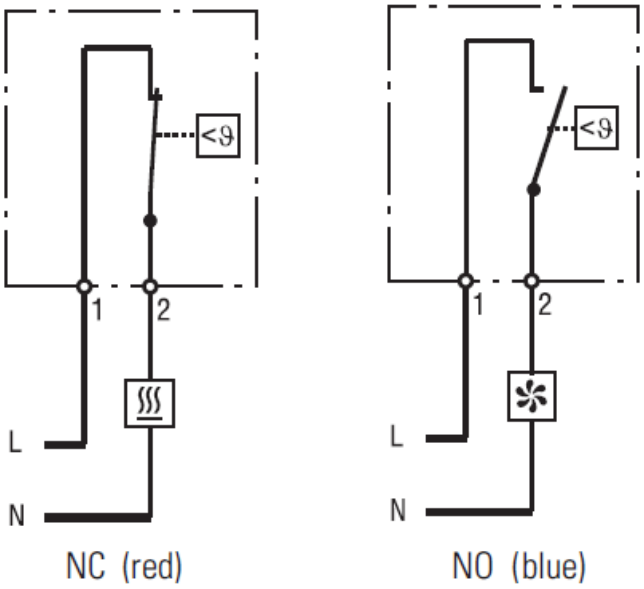


Dual Thermostats

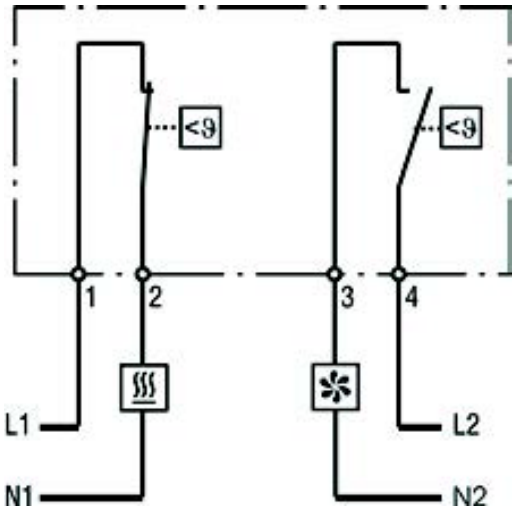


Wiring Diagrams

Single Thermostats - All Models



Dual Thermostats - NC/NO Models



Compact Thumbwheel Thermostats

011159-00 and 011150-00

011169-00 and 011160-00

Applications

Normally Closed (N.C.)
Normally Closed thermostats have a red adjustment thumbwheel and contacts that open when the air temperature rises above the setpoint. Uses may include regulating heaters or switching signal devices when temperature falls below the setpoint value.

Normally Open (N.O.)
Normally Open thermostats have a blue adjustment thumbwheel and contacts that close when the air temperature rises above the setpoint. Uses may include regulating cooling devices (heat exchangers, filter fans, or vortex coolers, etc) or for include switching signal devices when temperature rises above the maximum setpoint.

Features

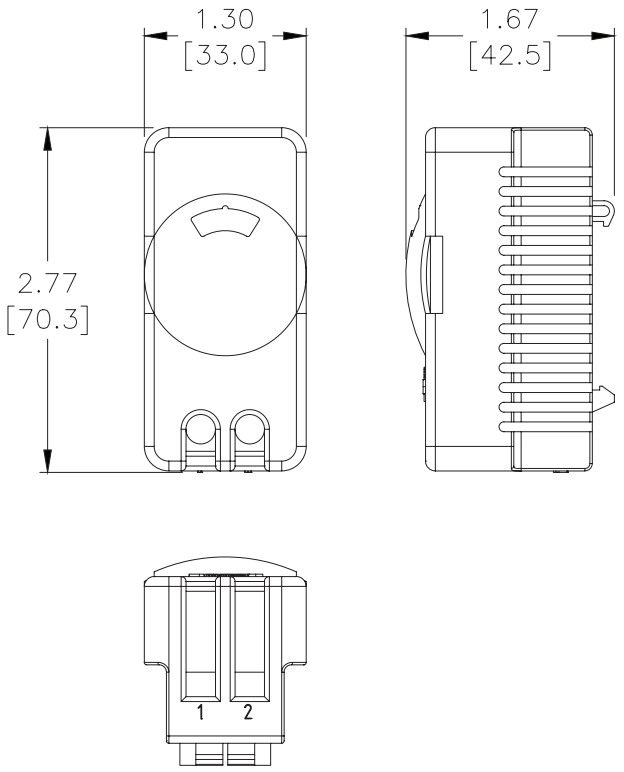
- Compact design
- Adjustable thumbwheel setting
- DIN rail mounting
- SPST regulator with small hysteresis
- Housing design ensures optimized circulation around sensor element

Compact Thumbwheel Thermostats Specifications	
Switching Difference	7°F [4K]
Switching Tolerance	±5.4°F [±3K]
Sensor Element	Thermostatic bimetal
Contact Type	Snap-action contact
Contact Resistance	<10 mΩ
Service Life	>100,000 cycles
Max. Switching Capacity	15A resistive / 2A inductive @ 120 VAC 10A resistive / 2A inductive @ 250 VAC DC 30W (24-72 VDC)
Max. Inrush Current	AC 16A for 10 sec.
Minimum Load	20mA (all voltages)
Connection	2-pole terminal,1 Nm max. clamping torque 14 AWG [2.5mm] max. solid wire or stranded wire with wire end ferrule
Housing	Plastic, UL 94V-0, light gray
Mounting	Clip for 35mm DIN rail, EN 60715
Mounting Position	Vertical
Operating / StorageTemperature	-49 to 176°F [-45 to 80°C]
Weight	1.8 oz [50 g]
Protection Type	IP20
Approvals	Recognized File No. E164102, CE, VDE, EAC, RoHS 2 compliant

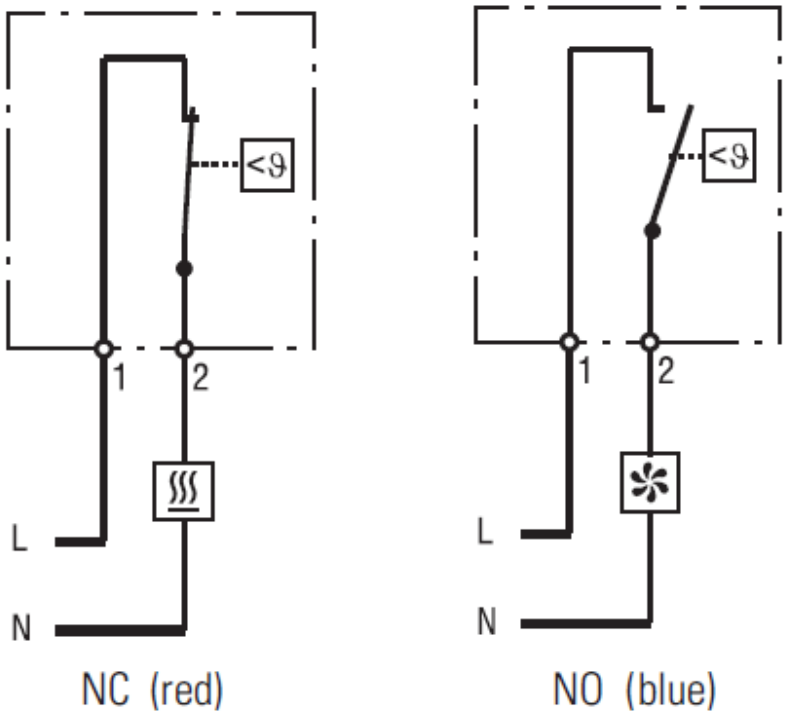
Compact Thumbwheel Thermostats			
Part Number	***Price***	***Contact***	***Setting Range***
011159-00	$;1op]:	N.C.	32 to 140˚F
011150-00	$1opz:		0 to 60˚C
011169-00	$1op_:	N.O.	32 to 140˚F
011160-00	$;1op[:		0 to 60˚C

Compact Thumbwheel Thermostats

Dimensions



Wiring Diagram



Dual Adjustable Thermostats

011720-01

011760-00

Applications

This unit houses two separate thermostats, allowing independent control of heating, cooling or other equipment.

Normally Closed (N.C.)
Normally Closed (N.C.) thermostats have a red adjustment dial and contacts that open when the air temperature rises above the setpoint. N.C. thermostats are used for regulating heaters or for switching signal devices when the temperature falls below the s etpoint temperature.

Normally Open (N.O.)
Normally Open (N.O.) thermostats have a blue adjustment dial and contacts that close when the air temperature rises above the setpoint. N.O. thermostats are used for regulating cooling devices (heat exchangers, filter fans, vortex coolers, etc) or for switching signal devices when the temperature rises above the setpoint temperature.

Features

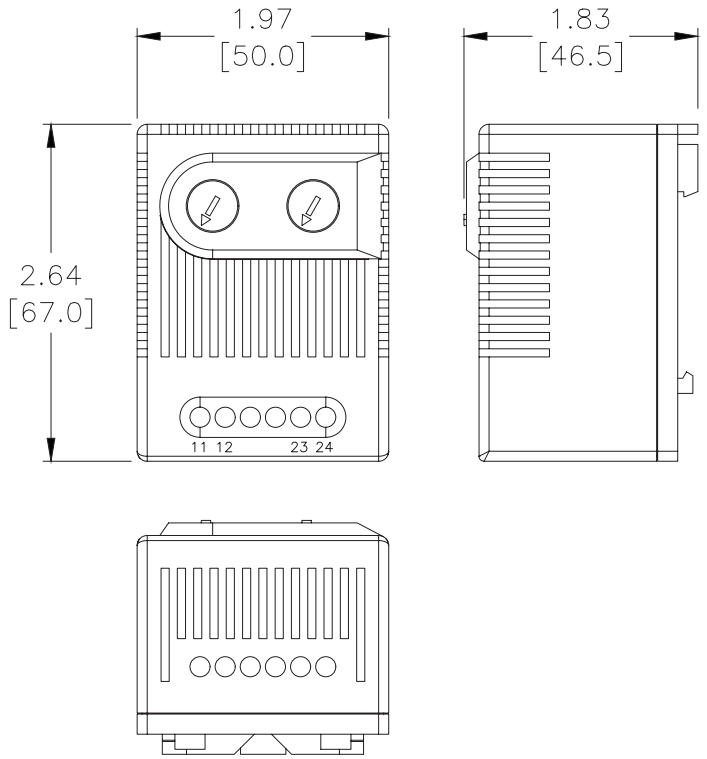
- N.C. and N.O. in one unit
- Compact design
- Separate adjustable temperatures
- Color coded temperature dials
- DIN rail mounting

Dual Adjustable Thermostats Specifications	
Switching Difference	12.6°F [7K]
Switching Tolerance	±7°F [± 4K]
Sensor Element	Thermostatic bimetal
Contact Type	Snap-action contact
Contact Resistance	<10 mΩ
Service Life	>100,000 cycles
Max. Switching Capacity	NC: 10A resistive / 2A inductive @ 250VAC NO: 5A resistive / 2A inductive @ 250VAC 15 resistive / 2A inductive @ 120VAC DC 30W (24-72 VDC)
Max. Inrush Current	AC 16A for 10 sec.
Minimum Load	20mA (all voltages)
Connection	4-pole terminal, 0.5 Nm max. clamping torque; 14 AWG [2.5mm] max. solid wire 16 AWG [1.5 mm2] max. stranded wire with wire end ferrule
Housing	Plastic, UL 94V-0, light gray
Mounting	Clip for 35mm DIN rail, EN 60715
Mounting Position	Vertical
Operating / StorageTemperature	-49 to 176°F [-45 to 80°C]
Weight	0.2 lb [90 g]
Protection Type	IP20
Approvals	CE, CSA, VDE, EAC, UL Recognized File No. E164102, RoHS 2 compliant

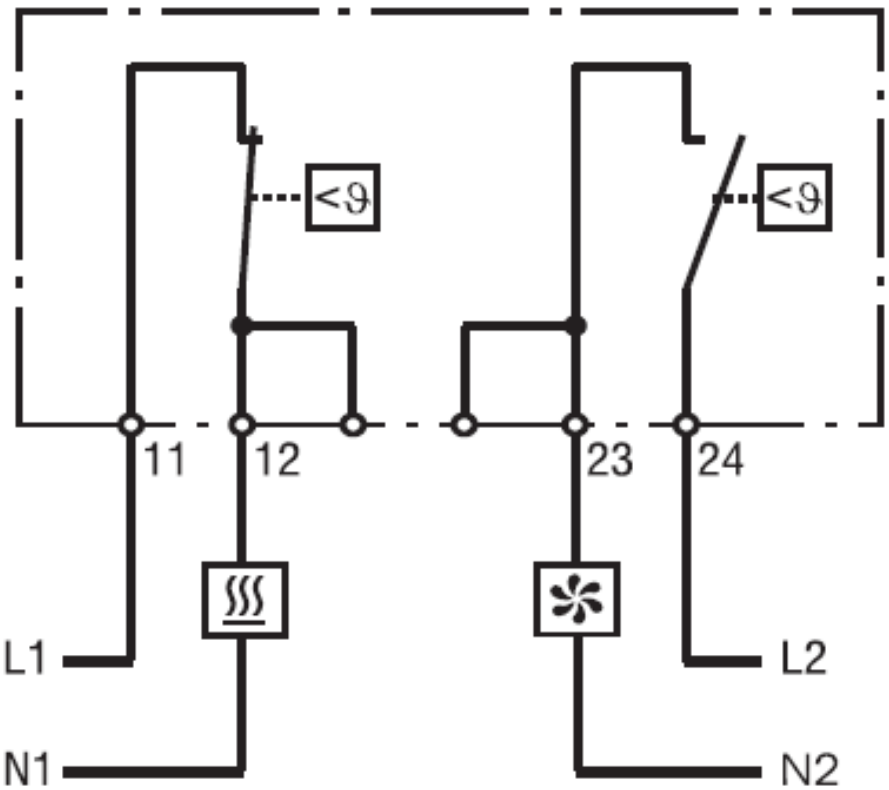
Dual Adjustable Thermostats					
Part Number	***Price***	***Left Contact***	***Setting Range***	***Right Contact***	***Setting Range***
011720-00	$0ad9:	N.C.	0 to 60°C	N.O.	0 to 60°C
011720-01	$0ada:		32 to 140°F		32 to 140°F
011750-00	$1oq0:		-10 to 50°C		20 to 80°C
011750-01	$1oq1:		14 to 122°F		68 to 176°F
011760-00	$1oq2:	N.O.	0 to 60°C		0 to 60°C
011760-01	$1oq3:		32 to 140°F		32 to 140°F

Dual Adjustable Thermostats

Dimensions



Wiring Diagram



Smart Sensor For Temperature and Humidity

014202-00

Applications

The compact Smart Sensor electronically measures temperature and humidity and converts measured data into a standardized analog 4 to 20 mA signal or an IO-Link protocol signal. The converted value signals can be used and processed by a control monitoring unit, e.g., a PLC control (***IO-Link devices require an IO-Link Master to communicate with a PLC***). The Smart Sensor is suitable for use in a wide variety of applications and can be used even in harsh environmental conditions, such as wind power.

Features

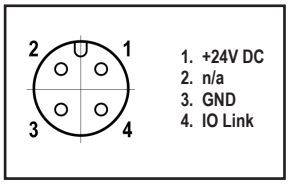
- Analog/I/O-Link digital interface
- Compact size
- DIN rail and/or screw mount
- High accuracy
- Quick connection (M12 plug-in connector)
- Wide temperature and humidity range
- Various application areas (IEC 61010-1/DIN EN 61010-1)

Listings

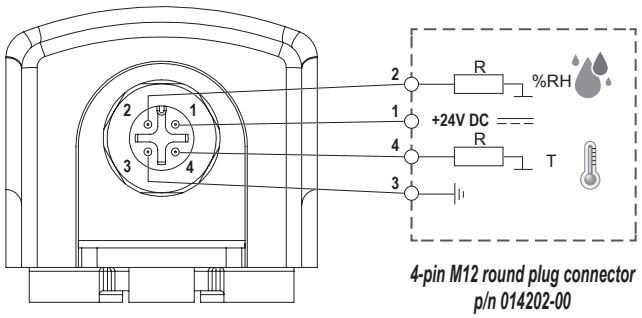
- UL Recognized File E500143

Smart Sensors			
Part Number	***Price***	***Output***	***Drawing Link***
014202-00	$-04I7x:	4-20 mA, 2 channel	PDF
014112-00	$-05i16:	I/O-Link	PDF

General Specifications	
Operating Voltage	24 VDC
Temperature Measuring Range	-40 to 140°F [-40 to 60°C] ±1 K tolerance
Humidity Measuring Range	0 to 100 % RH ±4 % RH tolerance
Max. Reaction Time	3 minutes.
Load Resistance (External)	≤ 500 Ω
Max. Power Consumption	1.8 W (typically 0.4 W)
Connection	M12 round plug connector, IEC 61076-2-101, 4-pin, A-coded, shielded
Electrical Protection	Reverse-polarity, short circuit, overvoltage protection
Mounting	Clip for 35mm DIN rail, EN 60715 and screw mount (M5, not included)
Housing	Plastic, UL94 V-0, light gray
Dimensions	5.5 x 1.6 x 1.5 in [140 x 40 x 38 mm]
Weight	Approx. 1.8 oz. [50g]
Mounting Position	Vertical (connection on top)
Operating Temperature	-40 to 158°F [-40 to 70°C]
Storage Temperature	-40 to 185°F [-40 to 85°C]
Operating / Storage Humidity	Max. 90% RH (non-condensing)
Protection Class	III (SELV)
Protection Type	IP20
Approvals	EAC, CE, VDE, UL File Recognized File E500143), (acc. to IEC 61010-1 / DIN EN 61010-1)



4-pin M12 round plug connector p/n 014112-00



4-pin M12 round plug connector p/n 014202-00

Mechanical Thermostats

Applications

The STEGO mechanical thermostat is used for controlling heating and cooling equipment, filter fans or signal devices where a higher° of sensing accuracy is required. An integrated resistor (RF) can be connected to improve the switch temperature difference (see Option note). The thermostat registers the surrounding air and can switch both inductive and resistive loads via snap-action contact.

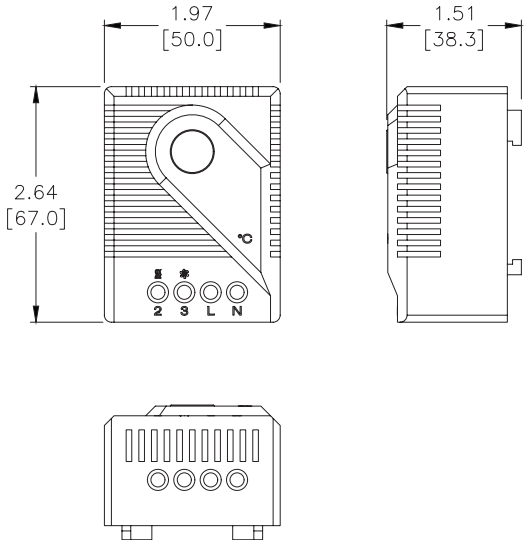
Features

- Compact design
- Adjustable setting dial
- DIN rail mounting
- High switching capacity

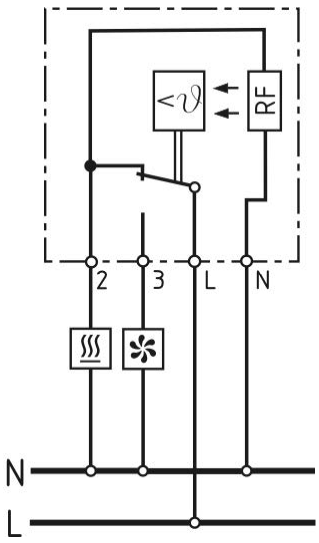
Mechanical Thermostats			
Part Number	***Price***	***Operating* Voltage***	***Setting Range***
011700-00	$1opy:	230VAC	5 to 60°C
011700-01	$;1op!:		40 to 140°F
011709-00	$1op?:	120VAC	40 to 140°F
011709-01	$;1op,:		5 to 60°C
Note: *Voltage only needs to be specified if the optional use of the RF register is desired.			

Mechanical Thermostats Specifications	
Switching Difference	9°F [5K]
Switching Tolerance	-5.4/+3.6°F [-3/+2°K]
Sensor Element	Thermostatic bimetal
Contact Type	SPDT / change-over contact
Contact Resistance	<10 mΩ
Service Life	>100,000 cycles
Max. Switching Capacity, NC	10A resistive / 4A inductive @ 120VAC 10A resistive / 4A inductive @ 250VAC DC 30W (24-72 VDC)
Max. Switching Capacity, NO	5A resistive / 2A inductive @ 120VAC; 5A resistive / 2A inductive @ 250VAC; DC 30W (24-72 VDC)
Connection	4-pole terminal, 0.5 Nm max. wire or clamping torque 14 AWG [2.5 mm²] max. solid wire or stranded wire with wire end ferrule
Housing	Plastic, UL 94V-0, light gray
Mounting	Clip for 35mm DIN rail, EN 60715
Mounting Position	Vertical
Operating / StorageTemperature	-49 to 149°F [-45 to 65°C]
Weight	1.8 oz [50 g]
Protection Type	IP20
Approvals	Recognized File No. E164102, CE, EAC, RoHS 2 compliant
Note: If the Normally Closed contact is used, the switch temperature difference could be reduced by connecting terminal "N" (RF heating resistor). It causes the thermal feedback, which is subject to surrounding conditions and thus has to be determined for each application.	

Dimensions



Wiring Diagram



Electronic Thermostats

011900-00

Applications

- Used for regulating high-performance DC 24V equipment
- Heating or cooling equipment, and signal devices can be switched via the SPDT (change-over) contact

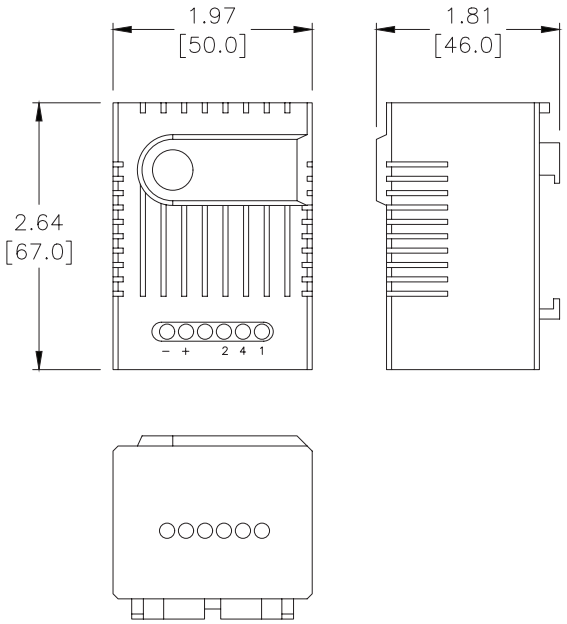
Features

- Compact design
- Adjustable setting dial
- DIN rail mounting
- Low hysteresis
- Wide adjustment range

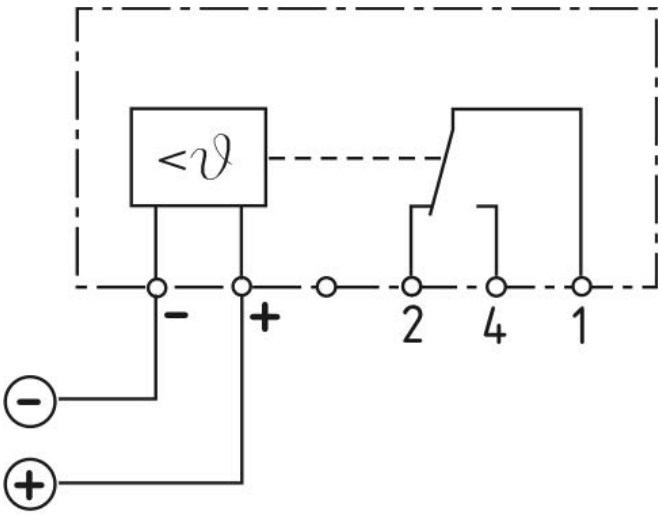
Electronic Thermostat			
Part Number	***Price***	***Operating Voltage***	***Setting Range***
011900-00	$1oq6:	DC 24V (DC 20-28V)	0 to 60°C
011900-01	$1oq7:		32 to 140°F

Electronic Thermostats Specifications	
Switching Difference	5.4°F [3K]
Switching Tolerance	±1.8°F [±1K]
Sensor Element	PTC
Contact Type	SPDT / change-over contact
Service Life	>100,000 cycles
Max. Switching Capacity	16A @ DC 28V
Max. Inrush Current	DC 16A
Connection	5-pole terminal, 0.5 Nm max. clamping torque 14 AWG [2.5 mm²] max. solid wire 16 AWG [1.5 mm²] max. stranded wire with wire end ferrule
Housing	Plastic, UL 94V-0, light gray
Mounting	Clip for 35mm DIN rail, EN 60715
Mounting Position	Vertical
Operating / StorageTemperature	14 to 140°F [-10 to 60°C] / -49 to 176°F [-45 to 80°C]
Operating / Storage Humidity	Max 95% RH (non-condensing)
Weight	2.4 oz [70 g]
Protection Type	IP20
Approvals	CE, EAC, RoHS 2 compliant

Dimensions



Wiring Diagram



Mechanical Hygrostats

Applications

- Designed to control relative humidity inside enclosures
- When connected to an enclosure heater (dehumidifier), it will energize the heater at the humidity set point in order to raise the dew point
- Helps prevent damage and malfunction of electronic components caused by condensation and corrosion
- Can be used to control heaters, cooling fans, warning lights, or other devices

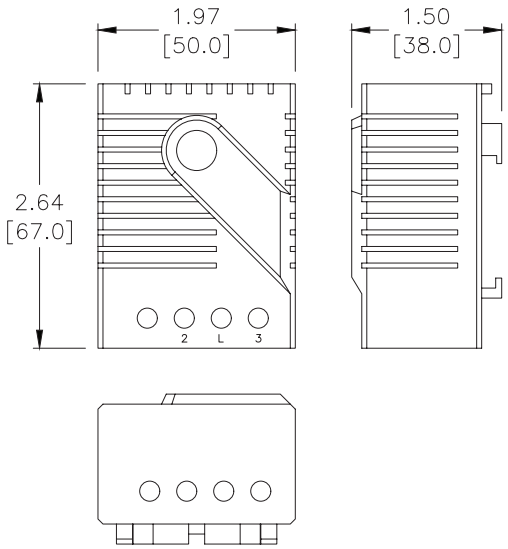
Features

- Efficient condensation control
- Adjustable thumbwheel setting
- High switching capacity
- DIN rail mountable

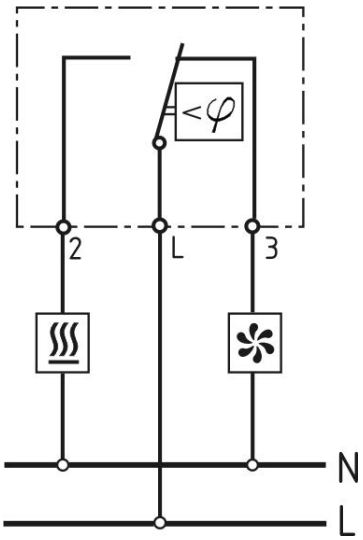
Mechanical Hygrostat		
Part Number	***Price***	***Setting Range***
012200-00	$01oq8:	35 to 95% RH

Mechanical Hygrostats Specifications	
Switching Difference	4% RH at 50% RH
Switching Tolerance	±3% RH
Permissible air velocity	50 ft/sec [15 m/s]
Contact Type	SPDT / change-over contact
Service Life	>50,000 cycles
Min. Switching Capacity	100mA @ AC/DC 20V
Max. Switching Capacity	5A resistive @ AC 250V DC 20W
Connection	3-pole terminal, 0.5 Nm max. clamping torque 14 AWG [2.5 mm²] max. solid wire 16 AWG [1.5 mm²] max. stranded wire with wire end ferrule
Housing	Plastic, UL 94V-0, light gray
Mounting	Clip for 35mm DIN rail, EN 60715
Mounting Position	Vertical
Operating / StorageTemperature	32 to 140°F [0 to 60°C] / -40 to 140°F [-40 to 60°C]
Operating / Storage Humidity	Max. 95% RH (non-condensing)
Weight	2.0 oz [60 g]
Protection Type	IP20
Approvals	Recognized File No. E164102, CE, EAC, RoHS 2 compliant

Dimensions



Wiring Diagram



Electronic Hygrostats

012450-00 and 012459-00

Applications

The electronic hygrostats (humidistats) sense the relative humidity in an enclosure and turn on a heater at the set point. This helps prevent the formation of condensation in the enclosure. The integrated LED is lit when the connected device is in operation.

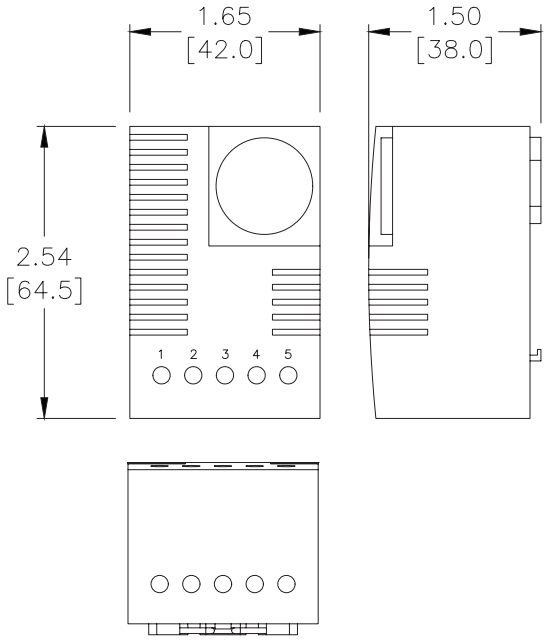
Features

- Adjustable relative humidity setpoints
- Compact design
- High switching capacity
- Visual function display
- DIN rail mounting

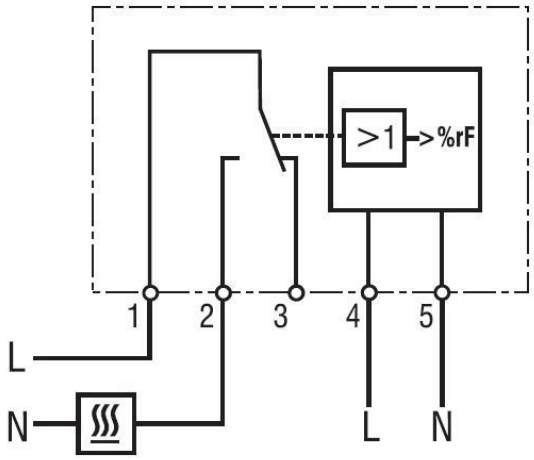
Electronic Hygrostats			
PartNumber	***Price***	***OperatingVoltage***	***SettingRange***
012450-00	$0adc:	230VAC	40% to 90% RH
012459-00	$0add:	120VAC	40% to 90% RH
012460-00	$1oqa:	230VAC	65% RH preset
012469-00	$1oqb:	120VAC	65% RH preset

Electronic Hygrostats Specifications	
Switching Difference	5% RH at 77°F [25°C] and 50% RH
Switching Tolerance	±1% RH
Reaction Time	Approximately 5 seconds
Contact Type	SPDT / change-over contact (relay)
Service Life	50,000 cycles
Max. Switching Capacity(relay output)	8A resistive / 1.6 A inductive @ AC 120V 8A resistive / 1.6 A inductive @ AC240V 100W @ DC 24V
Max. Inrush Current	AC 16A for 10 sec.
Connection	5-pole terminal, 0.5 N m max. clamping torque 14 AWG [2.5mm] max. solid wire 16 AWG [1.5 mm2] max. stranded wire with wire end ferrule
Housing	Plastic, UL 94V-0, light gray
Mounting	Clip for 35mm DIN rail, EN 60715
Mounting Position	Vertical
Operating Temperature	32 to 140°F [0 to 60°C]
Storage Temperature	-4 to 176°F [-20 to 80°C]
Max. Storage Humidity	90% RH (non-condensing)
Weight	0.14 lb [65 g]
Protection Type	IP20
Approvals	UL Recognized File No. E164102, CE, VDE, EAC, RoHS 2 compliant

Dimensions



Wiring Diagram



Electronic Hygrotherms

STEGO INC. SIMPLY INNOVATIVE. BETTER FOR SURE.

012309-00

Applications

The electronic hygrotherms sense the ambient temperature and relative air humidity (RH). Depending on the selected contact combination, the hygrotherm will turn a connected device on or off if either the temperature is below or the humidity is above the set points. The integrated LED in each adjustment knob is lit to indicate the active function.

Features

- Efficient temperature and humidity control
- Compact design
- High switching capacity
- Optical function display
- DIN rail mounting
- Current draw of fewer than 10 mA

cULus CE DVE

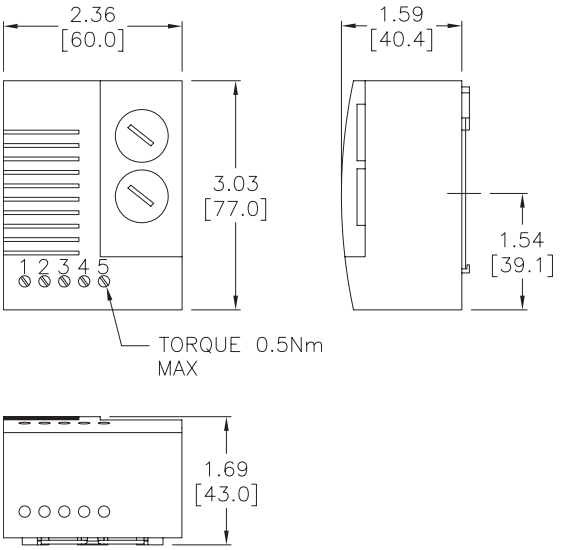
Electronic Hygrotherms DIN Rail Mounted

PartNumber	Price	Settings Ranges	
		Temp	Humidity
012309-00	$00adb:	32 to 140°F	50% to 90% RH
012300-00	$01oq9:	0 to 60°C	50% to 90% RH

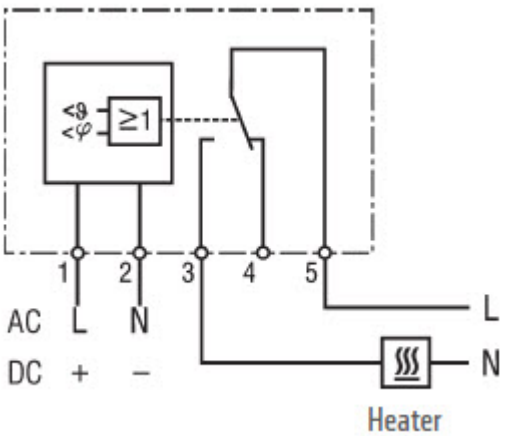
Electronic Hygrotherms Specifications

	Temperature	Humidity
Switching Difference	3.6°F [2K] at 77°F [25°C] and 50% RH	4% RH at 77°F [25°C] and 50% RH
Switching Tolerance	+/- 1K	+/- 1% RH
Operating Voltage	100-240 VAC, 50/60 Hz	
Response Time - Humidity	Approximately 5 seconds	
Contact Type	Change-over contact (relay)	
Contact Resistance	<10 mΩ	
Service Life	UL; 30,000 cycles VDE; 15,000 cycles	
Max. Switching Capacity	10A resistive / 1.6 A inductive @ 240VAC 0.6A @ 60VDC*	
Max. Inrush Current	AC 30A for 10 sec.	
Connection	5-pole terminal, 0.5 Nm max. clamping torque 14 AWG [2.5mm] max. solid wire 16 AWG [1.5 mm2] max. stranded wire with wire end ferrule	
Housing	Plastic, UL 94V-0, light gray	
Mounting	Clip for 35mm DIN rail, EN 60715	
Mounting Position	Vertical	
Operating / Storage Temperature	-40 to 140°F [-40 to 60°C]	
Storage Humidity	max. 95% RH (non-condensing)	
Weight	0.22 lb [100 g]	
Protection Type	IP20	
Approvals	CE, UL Recognized File No. E164102, VDE, RoHS 2 compliant	
Note: *Not UL confirmed.		

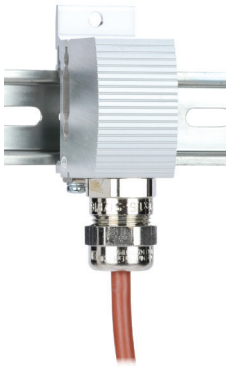
Dimensions



Wiring Diagram



Hazardous Area Thermostats



011850-00

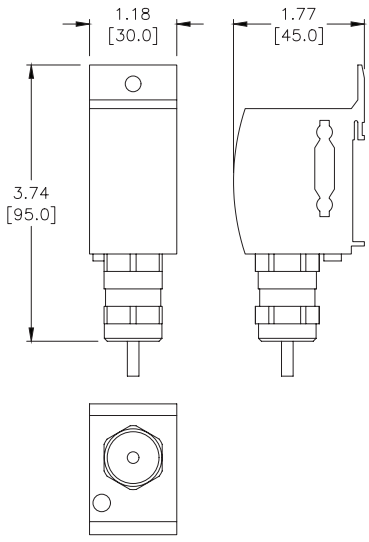
Applications

Compact, small mechanical thermostat offering a high response accuracy, small switching difference, and a very long service life (switching cycles). This thermostat of temperature class T6 (185°F/85°C max.) is utilized for the regulation of heaters deployed in hazardous areas. High current performance allows direct control of a heater.

Features

- For use in hazardous areas
- High switching capacity
- Compact design
- "Pre-set" temperatures
- Ready to use with strain relief
- Temperature class T6
- DIN rail mounting

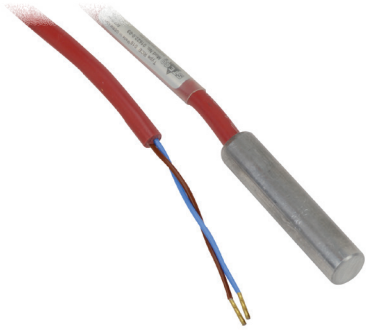
Dimensions



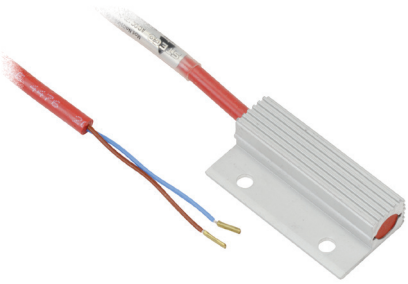
Hazardous Area Thermostat Specifications	
Temperature Class	T6
Ex Protection Type Ex 11 2 GD Gases	Ex db IIC T6 Gb
Dusts	Ex tb IIIC T85 °C Db IP66
Ambient Temperature	-76 to 185°F [-60 to 85°C]
Sensor Element	Thermostatic bimetal
Service Life	> 100 000 cycles
Max. Switching Capacity	AC 250V 10A* DC 24V 1A
Min. Switching Capacity	DC 1.5V 5mA
Max. Inrush Current	AC 16A for 12 sec.
Connection	Silicone cable (halogen-free) 3 x 18 AWG (0.82 mm²), length 3ft [1m]
Housing	aluminum, silver anodized
Mounting	Clip for 35mm DIN rail, EN 60715 M5 screw mounting, optional sideways mounting
Mounting Position	Variable
Operating / Storage Humidity	max. 90 % RH (non-condensing)
Storage Temperature	-76 to 185°F [-60 to 85°C]
Weight	0.66 lb [300 g]
Protection Type / Protection Class	IP66 / I (grounded)
Approvals	EPS 16 ATEX 1 118 X IECEx EPS 16.0054X EAC, CE 0081 Ex 11 2 GD
Note: *Currents above 4 A affect the switching difference.	

Hazardous Area Thermostat				
PartNumber	***Price***	***Contact Type***	***Switch Temperature***	***Switching Difference (Hysteresis)***
011850-00	$01oq4:	Normally Closed	59°F ±5°F [15°C ± 3K]	9°F ± 5°F / tolerance [5°C ± 3K]
011851-00	$01oq5:	Normally Closed	77°F ±5°F [25°C ±3K]	9°F ± 5°F / tolerance [5 °C ± 3K]

5W to 13W PTC Heaters



5W, 9W



8W, 10W, 13W

Applications

STEGO small positive temperature coefficient heaters are designed to prevent failure of electronic components caused by condensation, corrosion and low temperatures in small enclosures.

Features

- Compact size
- Wide voltage range
- Energy saving
- Heating power adjusts to ambient temperature

5W to 13W PTC Heaters		
Heating Element		PTC Resistor - Temperature limiting
Heater Body		Aluminum, anodized
Insulation		PTFE / Kapton
Mounting	5W, 9W	2 pressure clips included (mounting screws not included)
	8W, 10W, 13W	Panel mount (mounting screws not included)
Mounting Position		Variable
Operating / Storage Temperature		-49 to 158°F [-45 to 70°C]
Operating / Storage humidity		Max 90% RH (non-condensing)
Protection Class		II (double insulated)
Protection Type		IP54
Approvals		CE, VDE, UL Recognized File No. E234324 and E150057,

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.automationdirect.com

5W to 13W PTC Heaters Specifications

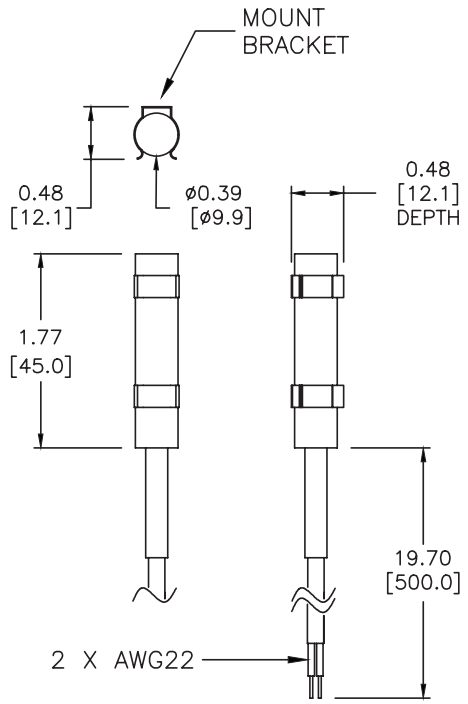
Part Number	*Price*	*Heating Capacity[1]*	*Operating Voltage[2]*	*Max. current (inrush)*	*SurfaceTemperature[1]*	*Weight (approx.)*
016240-03	$;0,xs:	5W	12-24 VAC/VDC	5.8 A	284°F [140°C]	0.7 oz [20g]
016220-03	$;;0,xt:	5W	120-240 VAC/VDC	2.0 A	329°F [165°C]	
016020-03	$;0,xu:	8W	12-24 VAC/VDC	3.7 A	273°F [134°C]	
016020-00	$;0,xv:	8W	120-240 VAC/VDC	2.0 A	302°F [182°C]	
016230-01	$;0,xy:	9W	120-240 VAC/VDC	2.5 A	347°F [150°C]	
016250-02	$;0,xx:	9W	12-24 VAC/VDC	2.4 A	360°F [175°C]	
016090-01	$;0,xz:	10W	12-24 VAC/VDC	5.7 A	270°F [132°C]	1.0 oz [28g]
016090-00	$;;0,x]:	10W	120-240 VAC/VDC	2.5 A	311°F [155°C]	
016100-01	$;;0,x[:	13W	12-24 VAC/VDC	10.0 A	298°F [148°C]	1.2 oz [34g]
016100-00	$;0,x_:	13W	120-240 VAC/VDC	3.0 A	338°F [170°C]	

Notes: [1] At 68°F [20°C] ambient temperature
[2] Operating high voltage heaters below 140V AC/DC reduces heating performance by approximately 10% (min. 110V, max. 265V)

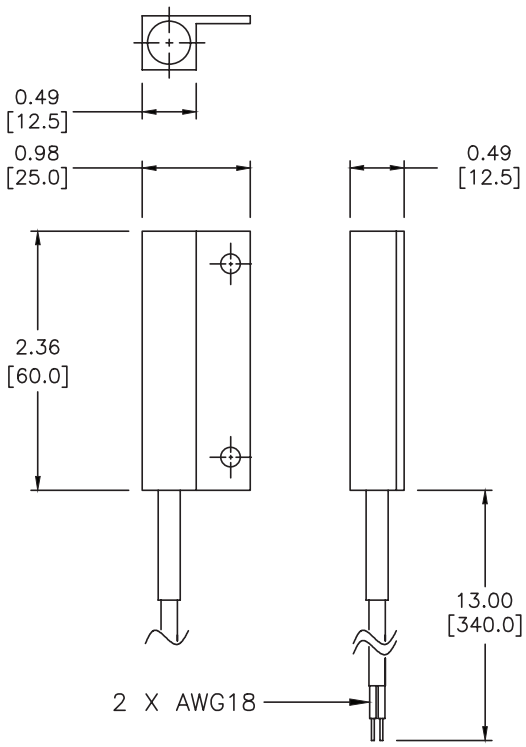
5W to 13W PTC Heaters

Dimensions

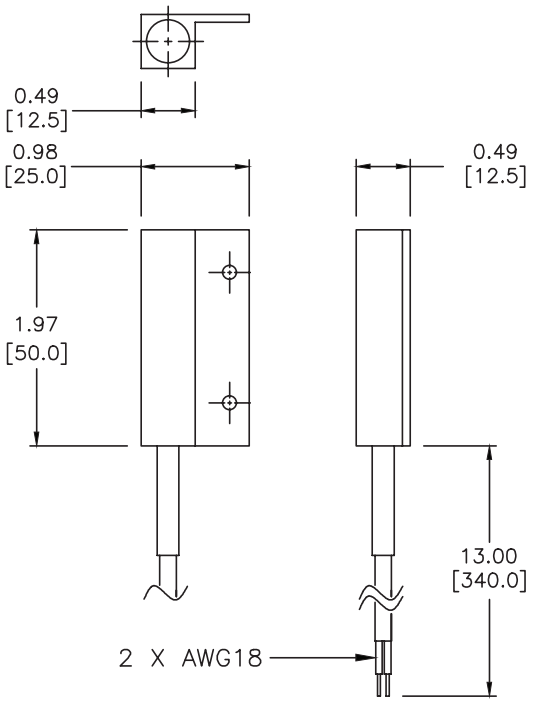
016220-03, 016230-01, 016240-03, 016250-02



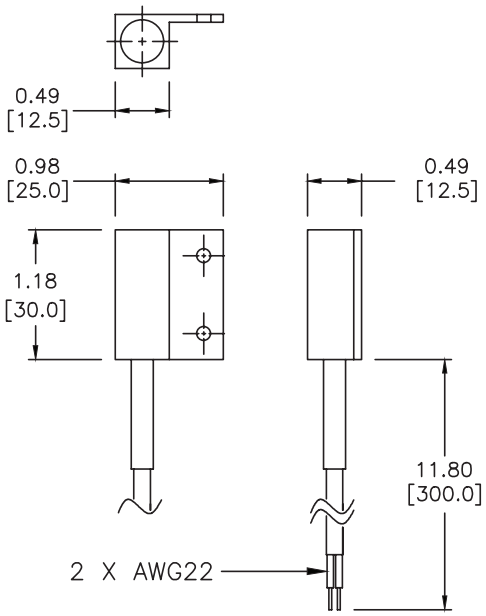
016100-00, 016100-01



016090-00, 016090-01



016020-00, 016020-03



50W to 200W Hazardous Location Heaters

020310-00

Applications

Compact convection heater of temperature class T3 (392°F/200°C max.) for use in hazardous areas to prevent formation of condensation, temperature fluctuations, and for protection against frost in control and switch cabinets, as well as in measuring equipment.

Features

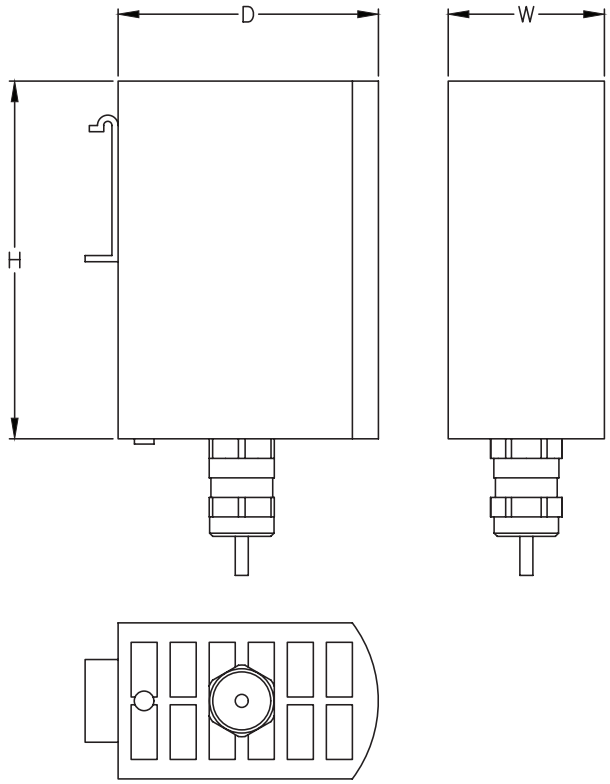
- For use in hazardous areas
- Large convection surface
- DIN rail and screw mounting
- Ready to use with strain relief
- Maintenance free
- Temperature class T3

50W to 200W Hazardous Location Heaters Specifications	
Temperature Class	T3
Ex Protection Type 11 2 GD Gases	Ex db IIC T3 Gb
Dusts	Ex tb IIIC T200 °C Db IP66
Ambient Temperature	-76 to 185°F [-60 to 85°C]
Surface Temperature	Max. 392°F [200°C]
Heating Element	High performance cartridge
Heating Body	Aluminum profile, silver anodized
Connection	Silicone cable (halogen-free) 3 x 18 AWG [0.82 mm²], length 3ft [1m]
Connection PE	18 to 14 AWG [0.75 to 2.55 mm2]
Housing	Aluminum, silver anodized
Mounting	Clip for 35mm DIN rail, EN 60715 for heating body sizes 3.2 x 1.9" and 4.7 x 2.4.0in [103mm]
Mounting Position	Vertical airflow (connection at bottom)
Storage Temperature	-76 to +185°F [-60 to 85°C]
Operating / Storage Humidity	Max. 90% RH (non-condensing)
Protection Type / Protection Class	IP66 / I (grounded)
Approvals	EPS 16 ATEX 1109X IECEx EPS 16.0048X EAC, CE 0081 Ex 11 2 GD

50W to 200W Hazardous Location Heaters						
Part Number	***Price***	***Operating Voltage***	***Heating Capacity***	***Rec. Pre-fuse T (time-delay)***	***Dimensions***	***Weight (lb)***
020310-00	$01oqe:	AC 230V	50W	0.5 A	4.33 x 1.89 x 3.15[110 x 48 x 80]	1.5
020319-00	$;01oqf:	AC 120V	50W	1.0 A	4.33 x 1.89 x 3.15 [110 x 48 x 80]	1.5
020320-00	$01oqg:	AC 230V	100W	1.0 A	7.09 x 1.89 x 3.15 [180 x 48 x 80]	2.2
020329-00	$01oqh:	AC 120V	100W	2.0 A	7.09 x 1.89 x 3.15[180 x 48 x 80]	2.2
020340-00	$01oqc:	AC 230V	200W	2.0 A	9.45 x 2.36 x 4.72 [240 x 60 x 120]	3.7
020349-00	$01oqd:	AC 120V	200W	4.0 A	9.45 x 2.36 x 4.72 [240 x 60 x 120]	3.7
Note: Dimensions in inches [millimeters].						

50W to 200W Hazardous Location Heaters

Dimensions



GENERAL INFORMATION			
PART NUMBER	HEIGHT	DEPTH	WIDTH
020310–00	4.33 [109.9]	1.89 [48.0]	3.15 [80.0]
020319–00	4.33 [109.9]	1.89 [48.0]	3.15 [80.0]
020320–00	7.09 [180.0]	1.89 [48.0]	3.15 [80.0]
020329–00	7.09 [180.0]	1.89 [48.0]	3.15 [80.0]
020340–00	9.45 [240.0]	2.36 [59.9]	4.72 [119.8]
020349–00	9.45 [240.0]	2.36 [59.9]	4.72 [119.8]

Flat Heaters for Enclosures

50W Flat Heater
061000-00

100W Flat Heater
061010-00

Applications

The flat heater is used to provide evenly distributed temperature within enclosures with electric or electronic components. Its ultra-thin design makes it particularly suitable for high-density applications in which standard enclosure heaters are often too big. Depending on the application, the flat heater can be used as a convection heater or as a contact heater. When used as a contact heater, it offers thermoconductive contact to a component or cabinet wall. Additionally, a specially designed mounting system compensates for thermal expansion of the heater body. Operated as a convection heater, the slim heater warms up the ambient air within a cabinet and is designed for continuous operation.

Features

- Contact/convection heater
- Ultra flat design - only 0.32in [8 mm]} thick
- Compact
- Easy, firm installation
- Screw fixing
- Linear expansion compensation
- Integrated temperature cut-out
- Ready-to-use with strain relief

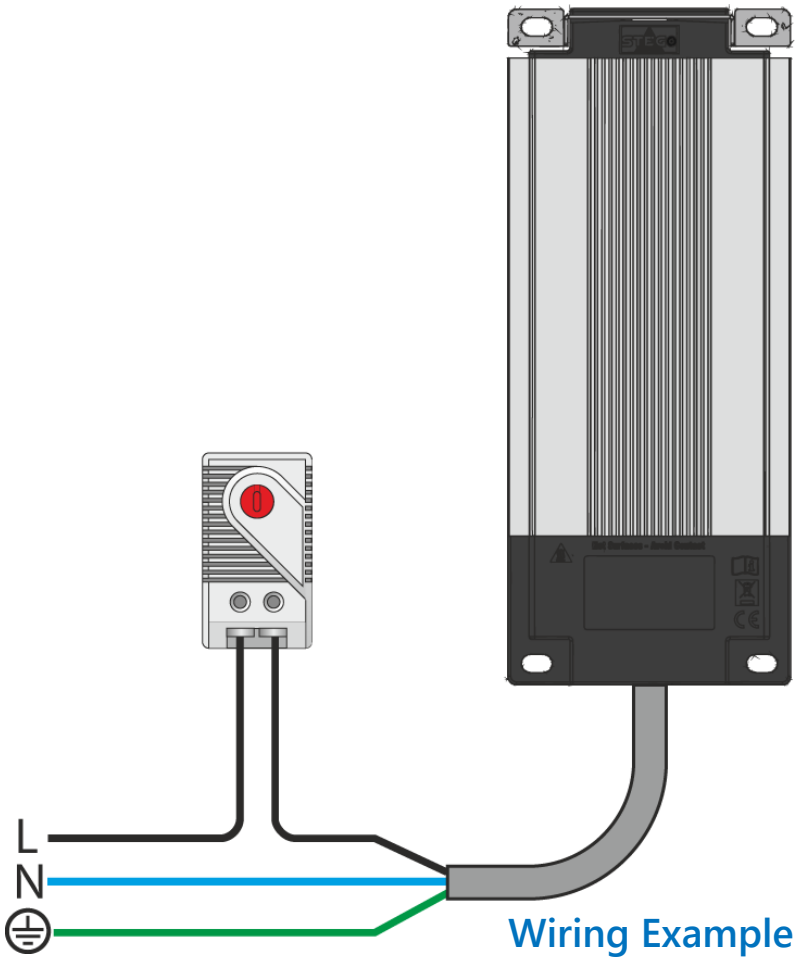
Listings

- UL File E234324

Flat Heaters Specifications	
Heating Element	Resistance heater
Overheat Protection	With automatic reset
Heater Body	aluminum profile
Surface Temperature	Max. 302 °F [150 °C] at 77 °F [25 °C]
Connection	Silicone cable (halogen-free) 3 x AWG 18 [0.75 mm²], length 3.3ft [1m]
Housing	Plastic, UL 94V-0, black
Mounting Hardware	M6 screws
Mounting Position	Horizontal, variable connection or vertical, connection on bottom
Operating Temperature	-40 to 140 °F [-40 to 60°C]
Storage Temperature	-40 to 185°F [-40 to 85°C]
Operating / Storage Humidity	Max. 90% RH (non-condensing)
Protection Class	I (earthed)
Protection Type	IP30
Approvals	UL File E234324, VDE, EAC, CE

Flat Heaters for Enclosures					
Part Number	***Price***	***Operating Voltage***	***Heating Capacity***	***Weight (approx.)***	***Drawing Link***
061000-00	$-04I7y:	AC 230V 50/60Hz	50W	0.88 lb [0.4 kg]	PDF
061010-00	$-04I7z:	AC 230V50/60 Hz	100W	1.54 lb [0.7 kg]	PDF
061009-00	$-04I81:	AC 120V 50/60 Hz	50W	0.88 lb [0.4 kg]	PDF
061019-00	$-04I82:	AC 120V 50/60 Hz	100W	1.54 lb [0.7 kg]	PDF

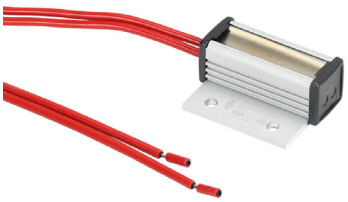
Flat Heaters for Enclosures



Wiring Example

Size Reference

8W to 10W PTC Heaters



01651.0-00

Applications

This small and flat enclosure heater offers optimum condensation protection in small enclosures, housings, and installation spaces. The PTC heating element has a dynamic response behavior and transfers its heat to an anodized aluminum profile. The compact contact heater is designed for continuous operation as either a convection heater or a contact heater.

Features

- Compact heater
- Wide voltage range
- Double insulated protection

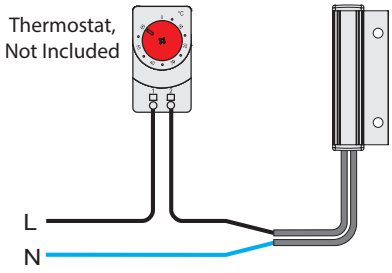
8W to 10W PTC Heaters							
Part Number	*Price*	*Heating Capacity[1]*	*Operating Voltage[2]*	*Max. current (inrush)*	*Recommended Fuse T*	*Weight (approx.)*	*Drawing Links*
01651.0-00	$662y:	8W	120-240 VAC/VDC	2.0 A	2.0 A	0.7 oz [20g]	PDF
01662.0-00	$662z:	10W		4.0 A	4.0 A	1.0 oz [30g]	PDF

1. At 68°F [20°C] ambient temperature
2. Operating with voltages below 140V AC/DC reduces heating performance by approx. 10% (min. 110V)

8W to 10W PTC Heaters Specifications	
Heating Element	PTC Resistor - Temperature limiting
Connection	(2) 0.5 mm^2 x stranded wire, 300 mm (±8) stranded wire
Housing	Anodized Aluminum
Mounting	Panel Mount
Mounting Position	Variable
Surface Temperature	<356°F [<180°C]
Operating/Storage Temperature	-49 – 158°F [-45 – 70°C]
Operating/Storage Humidity	Max. 90% RH (non-condensing)
Protection Class	II (double insulated)
Protection Type	IP40
*Approvals**	CE, UL Recognized File No. E234324

*To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.automationdirect.com

Wiring Diagram



20W to 150W Touch-Safe PTC Heaters

06401.0-00

Applications

Compact heater for the protection of electrical and electronic components in enclosures. Its design ensures great convection resulting in excellent heat dissipation. A touch-safe plastic cover provides for low surface temperatures on the side of the device. The practical push-in clamping terminal enables quick and easy electrical connection. The heaters are designed for continuous operation.

Features

- DIN rail clips and pressure clamps for quick mounting
- Low surface temperature
- Wide voltage range
- Insulated plastic casing
- Loop-design heater body for optimal temperature distribution
- Shock- and vibration-proof

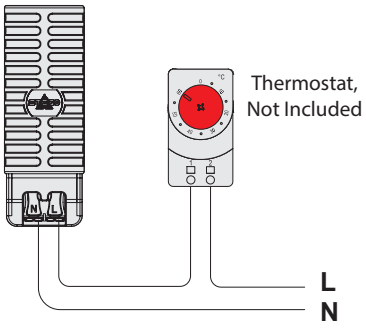
20W to 150W Touch-Safe PTC Heaters							
Part Number	*Price*	*Heating Capacity[1]*	*Operating Voltage*	*Max. current (inrush)*	*Recommended Fuse T*	*Weight (approx.)*	*Drawing Links*
06401.0-00	$;662[:	20W	120-240 VAC/VDC	2.0 A	4.0 A	7 oz [0.2 kg]	PDF
06402.0-00	$662_:	30W					PDF
06403.0-00	$662s:	40W		4.0 A	6.0 A		PDF
06500.0-00	$;662t:	50W				14.1 oz [0.4kg]	PDF
06503.0-00	$662u:	100W		6.0 A	8.0 A	26.5 oz [0.75kg]	PDF
06504.0-00	$0662v:	150W		8.0 A	10.0 A		PDF

1. At 68°F [20°C] ambient temperature

20W to 150W Touch-Safe PTC Heaters Specifications	
Heating Element	PTC Resistor - Temperature limiting
Connection	(2) pressure clamps for stranded wire 0.5 - 1.5 mm² [20-16 AWG] (with wire end ferrule) and rigid wire 0.5 – 2.5 mm² [20-14 AWG]
Housing	Plastic according to UL94 V-0, black and white
Mounting	Clip for 35 mm DIN rail, EN 60715
Mounting Position	Vertical airflow (air outlet up, connection on bottom)
Surface Temperature	<+176 °F [<+80 °C], except upper protective grille
Operating/Storage Temperature	-49 – 158°F [-45 – 70°C]
Operating/Storage Humidity	Max. 90% RH (non-condensing)
Protection Class	II (double insulated)
Protection Type	IP20
*Approvals**	VDE, UL File No. E234324, EAC, DIN EN 60068-2-27:2010-02, DIN EN 60068-2:64:2009-04, in connection with DIN EN IEC 61373:2011-04, Cat. 1 B

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.automationdirect.com

Wiring Diagram



50W to 150W Touch-Safe PTC Heaters with Fixed Thermostat

06510.0-00

Applications

Compact heater with PTC heating elements for heating enclosures. The heater prevents low temperature and thus condensation. Its aluminium profile is designed to achieve an optimized chimney effect, which ensures great convection resulting in excellent heat dissipation in the enclosure. The practical push-in clamping terminal enables quick and easy electrical connection. The heaters are designed for continuous operation.

Features

- DIN rail clips and pressure clamps for quick mounting
- Low surface temperature
- Wide voltage range
- Insulated plastic casing
- Integrated Thermostat
- Loop-design heater body for optimal temperature distribution
- Shock- and vibration-proof

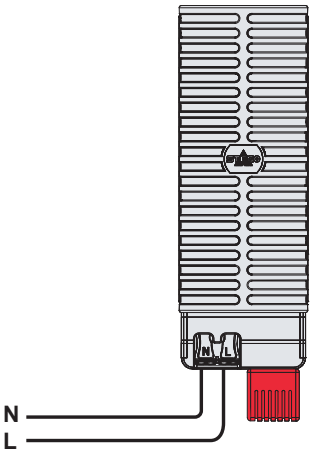
50W to 150W Touch-Safe PTC Heaters with Fixed Thermostat									
Part Number	*Price*	*Heating Capacity[1]*	*Operating Voltage*	*Max. current (inrush)*	*Recommended Fuse T*	*Switch-Off Temperature[2]*	*Switch-On Temperature[2]*	*Weight (approx.)*	*Drawing Links*
06510.0-00	$662x:	50W	120-240 VAC/VDC	4.0 A	6.0 A	59°F [15°C]	41°F [5°C]	14.1 oz [0.4kg]	PDF
06513.0-00	$0662#:	100W		6.0 A	8.0 A	59°F [15°C]	41°F [5°C]	26.5 oz [0.75kg]	PDF
06514.0-00	$;0662!:	150W		8.0 A	10.0 A	59°F [15°C]	41°F [5°C]		PDF
06520.0-00	$662?:	50W		4.0 A	6.0 A	77°F [25°C]	59°F [15°C]	14.1 oz [0.4kg]	PDF
06524.0-00	$06630:	150W		8.0 A	10.0 A	77°F [25°C]	59°F [15°C]	26.5 oz [0.75kg]	PDF

1. At 68°F [20°C] ambient temperature
2. Tolerance of ±9°F [±5K]

50W to 150W Touch-Safe PTC Heaters with Fixed Thermostat Specifications	
Heating Element	PTC Resistor - Temperature limiting
Connection	(2) pressure clamps for stranded wire 0.5 - 1.5 mm² [20-16 AWG] (with wire end ferrule) and rigid wire 0.5 – 2.5 mm² [20-14 AWG]
Housing	Plastic according to UL94 V-0, black and white
Mounting	Clip for 35mm DIN rail, EN 60715
Mounting Position	Vertical airflow (air outlet up, connection on bottom)
Surface Temperature	<+176 °F [<+80 °C], except upper protective grille
Operating/Storage Temperature	-49 – 158°F [-45 – 70°C]
Operating/Storage Humidity	Max. 90% RH (non-condensing)
Protection Class	II (double insulated)
Protection Type	IP20
*Approvals**	VDE, UL File No. E234324, EAC, DIN EN 60068-2-27:2010-02, DIN EN 60068-2:64:2009-04, in connection with DIN EN IEC 61373:2011-04, Cat. 1 B

**To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.automationdirect.com*

Wiring Diagram



10W to 50W PTC Heaters

16400.9-00

Applications

Compact heater with PTC heating elements for heating enclosures with electrical or electronic components. The heater prevents too-low temperatures and thus condensation harming the components. The design of the aluminium profile creates a chimney effect, which ensures even temperature distribution within the enclosure. The heaters are designed for continuous operation.

Features

- DIN rail clips for quick mounting
- Wide voltage range
- Loop-design heater body for optimal temperature distribution
- Shock- and vibration-proof

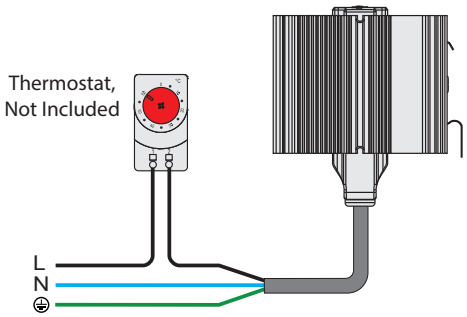
10W to 50W PTC Heaters							
Part Number	*Price*	*Heating Capacity[1]*	*Operating Voltage*	*Max. current (inrush)*	*Recommended Fuse T*	*Weight (approx.)*	*Drawing Links*
16400.9-00	$6631:	10W	120-240 VAC/VDC	2.0 A	4.0 A	7 oz [0.2 kg]	PDF
16401.9-00	$6632:	20W					PDF
16402.9-00	$6633:	30W					PDF
16403.9-00	$6634:	40W		4.0 A	6.0 A		PDF
16404.9-00	$6635:	50W					PDF

1. At 68°F [20°C] ambient temperature

10W to 50W PTC Heaters Specifications	
Heating Element	PTC Resistor - Temperature limiting
Connection	(3) 0.5 mm^2 x 300 mm stranded wire
Housing	Anodized Aluminum
Mounting	Clip for 35 mm DIN rail, EN 60715
Mounting Position	Vertical airflow (air outlet up, connection on bottom)
Operating/Storage Temperature	-49 – 158°F [-45 – 70°C]
Operating/Storage Humidity	Max. 90% RH (non-condensing)
Max Surface Temperature	320°F [170°C]
Protection Class	I (insulated)
Protection Type	IP20
*Approvals**	CE, UL Recognized File No. E234324

*To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.automationdirect.com

Wiring Diagram



60W to 150W PTC Heaters

16501.0-00

Applications

Compact heater with PTC heating elements for heating enclosures with electrical or electronic components. The heater prevents too-low temperatures and thus condensation harming the components. The design of the aluminium profile creates a chimney effect, which ensures great convection resulting in excellent heat dissipation within the enclosure. The practical push-in clamping terminal ensures quick and easy electrical connection. The heaters are designed for continuous operation.

Features

- DIN rail clips and pressure clamps for quick mounting
- Wide voltage range
- Loop-design heater body for optimal temperature distribution

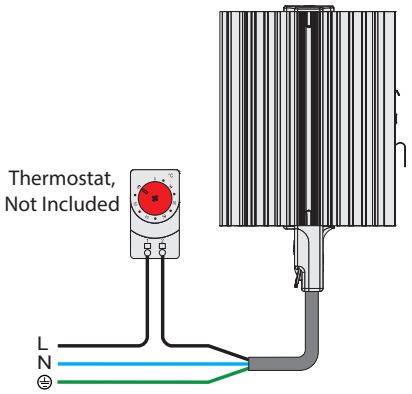
60W to 150W PTC Heaters							
Part Number	Price	Heating Capacity[1]	Operating Voltage	Max. current (inrush)	Recommended Fuse T	Weight (approx.)	Drawing Links
16501.0-00	$6636:	60W	120-240 VAC/VDC	4.0 A	6.0 A	10.6 oz [0.3kg]	PDF
16502.0-00	$6637:	75W					PDF
16503.0-00	$6638:	100W		6.0 A	8.0 A	17.6 oz [0.5kg]	PDF
16504.0-00	$06639:	150W		8.0 A	10.0 A		PDF

1. At 68°F [20°C] ambient temperature

60W to 150W PTC Heaters Specifications	
Heating Element	PTC Resistor - Temperature limiting
Connection	(3) pressure clamps for stranded wire 0.5 - 1.5 mm² [20-16 AWG] (with wire end ferrule) and rigid wire 0.5 – 2.5 mm² [20-14 AWG]
Housing	Body: Anodized Aluminum Connection Casing: plastic according to UL94 V-0, black
Mounting	Clip for 35 mm DIN rail, EN 60715
Mounting Position	Vertical airflow (air outlet up, connection on bottom)
Operating/Storage Temperature	-49 – 158°F [-45 – 70°C]
Operating/Storage Humidity	Max. 90% RH (non-condensing)
Max Surface Temperature	320°F [170°C]
Protection Class	I (insulated)
Protection Type	IP20
Approvals*	VDE, UL File No. 234324, EAC

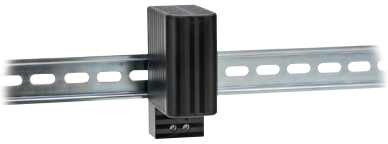
*To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.automationdirect.com

Wiring Diagram



10W to 150W Touch-Safe PTC Heaters

060000-00, 060100-00 and 060200-00



060300-00, 060400-00 and 060401-00

060010-00, 060110-00, and 060210-00

Applications

These touch-safe positive temperature coefficient heaters are for use in enclosures. The design of the heater utilizes natural convection, which results in a circulating current of warm air. The heater's design minimizes surface temperatures on the accessible side surfaces of the housing. Models 060010-00, 060110-00, and 060210-00 include a plug-in thermostat and require no additional wiring.

Features

- Compact heater
- Low surface temperature
- Wide voltage range
- Double insulated protection
- DIN rail mounting

10W to 150W Touch-Safe PTC Heaters Specifications		
Heating Element		PTC Resistor - Temperature limiting
Connection	060300-00 060400-00 060401-00	2-pole terminal, 14 AWG [2.5mm] max. solid wire or stranded wire with wire end ferrules, 0.8 N·m max. clamping torque
	060000-00 060010-00 060100-00 060110-00 060200-00 060210-00	4-pole terminal, 14 AWG [2.5 mm²], 0.8 N·m max. clamping torque
Housing		Plastic, UL 94V-0, black
Mounting		Clip for 35mm DIN rail, EN 60715
Mounting Position		Vertical only (exhaust up)
Recommended Mounting Distance		Sides: 0.79in [20 mm] Bottom/above:1.97in [50 mm]
Operating/Storage Temperature	060000-00 060000-00 060200-00 060300-00 060400-00 060401-00	-49 to 158°F [-45 to 70°C]
	060010-00 060110-00	-40 to 158°F [-40 to 70°C]
	060210-00	-49 to 158°F [-45 to 70°C]
Operating / Storage Humidity		Max. 90% RH (non-condensing)
Protection Class		II (double insulated)
Protection Type		IP20
Approvals		CE, UL Recognized File No. E150057 (except 060401-00),RoHS 2 compliant

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.automationdirect.com

10W to 150W Touch-Safe PTC Heaters

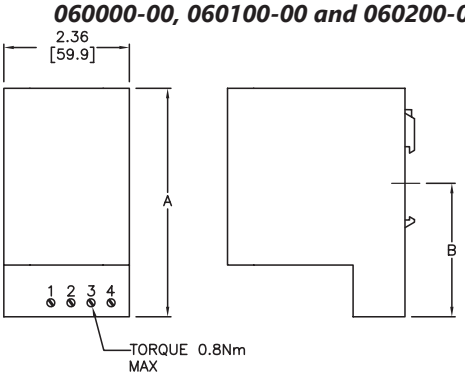
Part Number	*Price*	*Heating Capacity[1]*	*Operating Voltage[2]*	*Max. current (inrush)*	*Air Outlet Temp[3]*	*Switch-offTemp4*	*Switch-onTemp4*	*Weight (approx.)*
060401-00	$0acz:	10W	12-30V AC/DC	8.0 A	187°F [86°C]	—	—	5.0 oz [140g]
060400-00	$0acy:		120-240V AC/DC	1.0 A				
060300-00	$0acx:	20W	120-240V AC/DC	2.5 A	187°F [86°C]	—	—	6.1 oz [170g]
060000-00	$;0act:	50W	120-240V AC/DC (min. 110V, max. 265V)	2.5 A	187°F [86°C]	—	—	10.4 oz [295g]
060010-00	$;0,x#:		120-240V AC (min. 110V, max. 265V)	2.5 A		59°F [15°C]	41°F [5°C]	10.8 oz [305g]
060100-00	$0acu:	100W	120-240V AC/DC (min. 110V, max. 265V)	4.5 A	248°F [120°C]	—	—	10.6 oz [300g]
060110-00	$;;00,x,:		120-240V AC (min. 110V, max. 265V)	4.5 A		59°F [15°C]	41°F [5°C]	11.2 oz [320g]
060200-00	$00acv:	150W	120-240V AC/DC (min. 110V, max. 265V)	8.0 A	293°F [145°C]	—	—	15.5 oz [440g]
060210-00	$;00,y2:		120-240V AC (min. 110V, max. 265V)	8.0 A		59°F [15°C]	41°F [5°C]	15.9 oz [450g]

Notes: 50, 100, 150W rating at 32°F [0°C] ambient temperature10, 20W rating at 68°F [20°C] ambient temperature
Operating with voltages below 140V AC/DC reduces heating performance by approx. 10% (min. 110V)
Measured 2" [50mm] above protective grill
Tolerance of ±9°F [±5K]

10W to 150W Touch-Safe PTC Heaters

Dimensions

060000-00, 060100-00 and 060200-00



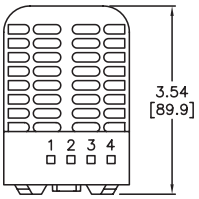
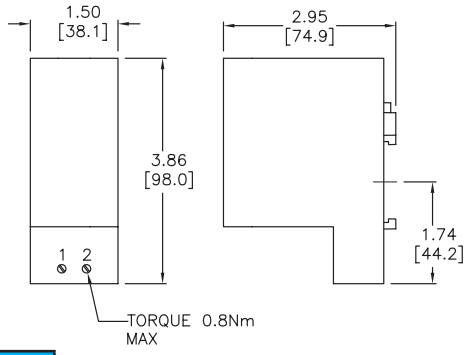


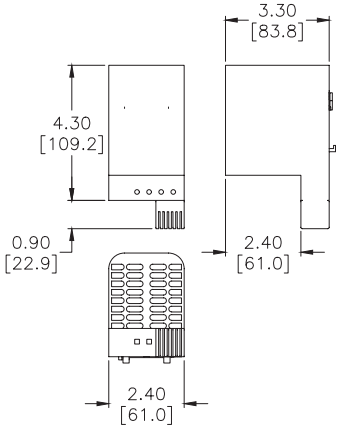
TABLE 1		
PART NUMBER	DIM A	DIM B
060000-00	4.30[109.2]	2.51[63.8]
060100-00	4.30[109.2]	2.51[63.8]
060200-00	5.90[149.9]	4.07[103.4]

Dimensions – Inches [mm]		
Part Numbers	*DIM A*	*DIM B*
060000-00	4.30 [109.2]	2.51 [63.8]
060100-00	4.30 [109.2]	2.51 [63.8]
060200-00	5.90 [149.9]	4.07 [103.4]

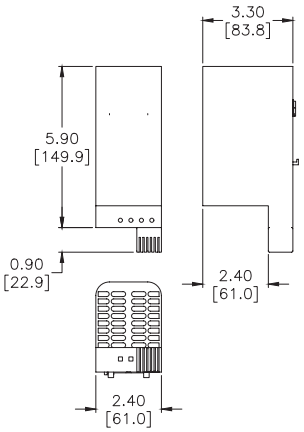
060300-00, 060400-00 and 060401-00



060010-00 and 060110-00

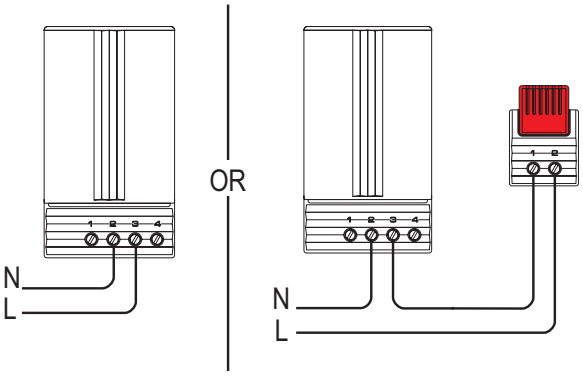


060210-00

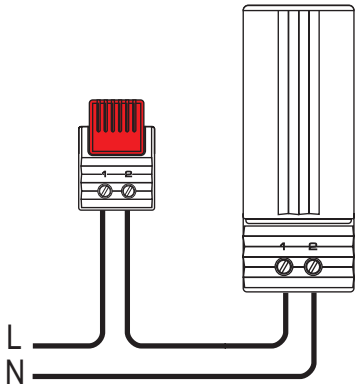


Wiring Diagrams

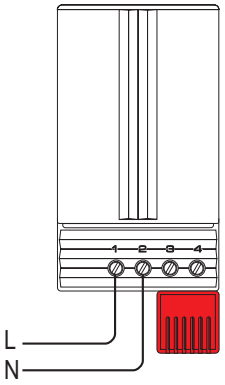
060000-00, 060100-00and 060200-00



060300-00, 060400-00 and 060401-00



060010-00, 060110-00 and 060210-00



Note: When wiring 230 volt units for North American installations “L” (line) and “N” (neutral) will be used as”L1” (line1) “L2” (line2) respectively with no neutral connection.

550W to 650W PTC Fan Heaters

Applications

These semiconductor positive temperature coefficient fan heaters prevent the formation of condensation and ensure an even temperature in enclosures. The integrated thermostat is used to set the desired temperature while the high performance axial fan provides forced air circulation.

Features

- Compact fan heater
- Heating power adjusts to ambient temperature
- Integrated adjustable thermostat
- Built-in overheat protection
- DIN rail mountable

550W to 650W PTC Fan Heaters Specifications	
Heating Element	PTC Resistor - Temperature limiting
Overheat Protection	Built-in temperature limiter
Axial Fan, Ball Bearing	Service life 50,000h at 77°F [25°C]
Connection	2-pole terminal 14 AWG [2.5 mm²], max. solid wire or stranded wire with wire end ferrules, 0.8 N·m max.clamping torque
Housing	Plastic, UL 94V-0, light gray
Function Control Light	LED
Mounting	Clip for 35mm DIN rail, EN 60715
Mounting Position	Vertical (exhaust up)
Recommended Mounting Distance	Sides: 0.79in [20 mm] Bottom/above: 3.94in [100 mm]
Operating / Storage Temperature	-49 to 158°F [-45 to 70°C]
Protection Class	II (double insulated)
Protection Type	IP20
Approvals	CE, UL Recognized File No. E204590, RoHS 2 compliant

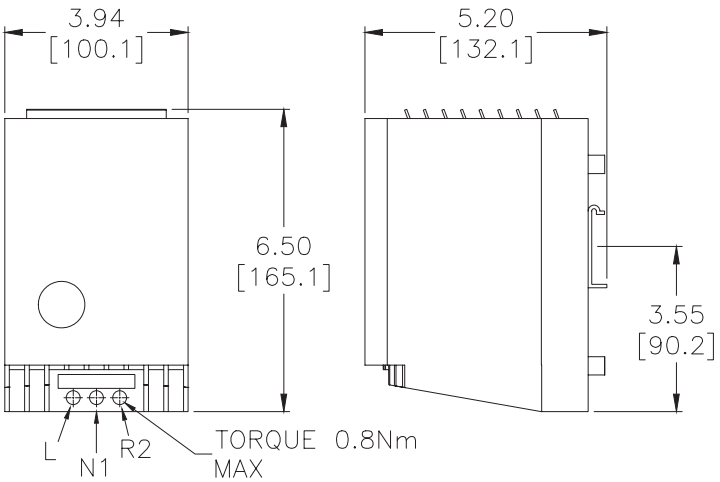
Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.automationdirect.com

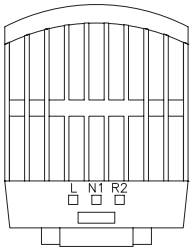
550W to 650W PTC Fan Heaters							
Part Number	***Price***	***Heating capacity[1] (@ 60 Hz)***	***Operating Voltage (Min/Max)***	***Max. current (inrush)***	***Air flow,free blowing***	***ThermostatRange[2]***	***Weight (approx.)***
027009-00	$-00acj:	550W	100-120V AC, 50/60 Hz	14.0 A	20 cfm [35 m3/h]	32 to 140°F	2.0 lb [907g]
027009-01	$;00,yo:					0 to 60°C	
027000-00	$;00,yp:		220-240V AC, 50/60 Hz	11.0 A		0 to 60°C	
027019-01	$;00,yv:	650W	100-120V AC, 50/60 Hz	15.0 A	26 cfm [45 m3/h]	0 to 60°C	2.4 lb [1089g]
027010-00	$;00,yx:		220-240V AC, 50/60 Hz	13.0 A		0 to 60°C	
027019-00	$00ack:		100-120V AC, 50/60 Hz	15.0 A		32 to 140°F	

Notes: [1] At 68°F [20°C] ambient temperature
[2] Switch difference 12.6 °F ±7°F [7K ±4K]

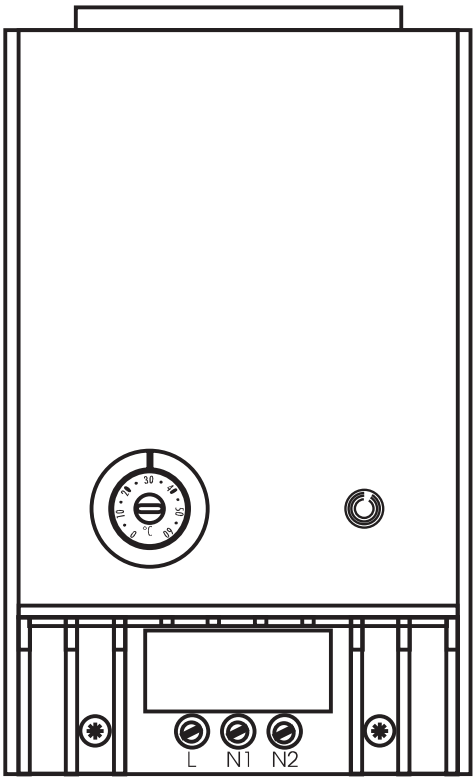
550W to 650W PTC Fan Heaters

Dimensions





Wiring Diagram



Notes: Only connect the L and N1 terminals – N2 is not used and Grounding is not required.
When wiring 230 volt units for North American installations “L” (line) and “N” (neutral) will be used as”L1” (line1) “L2” (line2) respectively with no neutral connection.

150W to 450W Touch-Safe PTC Fan Heaters

Panel Mount Fan Heaters

DIN Mount Fan Heaters

Applications

These fan heaters are designed to prevent the formation of condensation and ensure an evenly distributed interior air temperature in enclosures. The heater is connected using the internal terminal connectors. The desired temperature can be set and maintained by an external thermostat (available separately) and the high-performance axial fan provides forced air circulation. The heater design minimizes side surface temperatures of the housing. The small size of these heaters makes them ideal for use in enclosures where space is at a premium.

Features

- Compact fan heater
- Quiet operation
- Heating power adjusts to ambient temperature
- Models available that are both DIN rail mountable as well as panel mounted

150W to 450W Touch-Safe PTC Fan Heaters Specifications		
Heating Element	***DIN Mount***	***Panel Mount***
	PTC Resistor - Temperature limiting	
Axial Fan,Ball Bearing	Service life 40,000h at 104°F [40°C]	
Connection	2-pole terminal 14 AWG [2.5mm], max. solid wire or stranded wire with wire end ferrule, 0.8 N·m max. clamping torque	
Housing	Plastic, UL 94V-0, black	
Mounting	Clip for 35mm DIN rail, EN 60715	Screw mount
Mounting Position	Vertical (exhaust up)	
Recommended Mounting Distance	Sides: 0.79in [20 mm] Bottom/above: 3.94in [100 mm]	
Operating / Storage Temperature	-49 to 158°F [-45 to 70°C]	
Operating / Storage Humidity	Max. 90% RH (non-condensing)	
Protection Class	II (double insulated)	
Protection Type	IP20	
Approvals	CE, UL Recognized File No. E234324, RoHS 2 compliant	

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.automationdirect.com

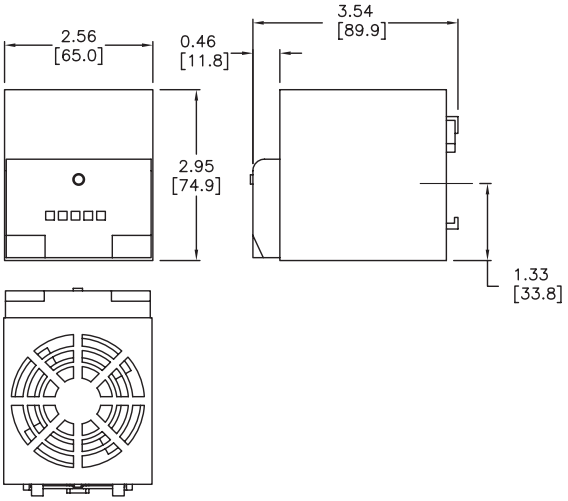
150W to 450W Touch-Safe PTC Fan Heaters								
Part Number DIN Mount	***Price***	***Part Number Panel Mount***	***Price***	***Heating Capacity[1]***	***Operating Voltage***	***Max. current (inrush)***	***Air flow,free blowing***	***Weight (approx.)***
028009-00	$-00acl:	***028009-01***	$00acn:	150W	120V AC, 50/60 Hz	6.0 A	8 cfm [13.8 m³/h]	10.6 oz [301g]
028000-00	$;00,y3:	***028000-01***	$;00,y4:		230V AC, 50/60 Hz	12.0 A		
028119-00	$;00,y5:	***028119-01***	$;00,y6:	250W	120V AC, 50/60 Hz	6.0 A	32 cfm [54 m³/h]	17.6 oz [499g]
028110-00	$;00,y9:	***028110-01***	$;00,ya:		230V AC, 50/60 Hz	9.0 A	26 cfm [45 m³/h]	
028109-00	$00aco:	***028109-01***	$00acp:	400W	120V AC, 50/60 Hz	9.0 A	32 cfm [54 m³/h]	
028100-00	$;;00,yf:	***028100-01***	$;00,yg:		230V AC, 50/60 Hz	15.0 A	26 cfm [45 m³/h]	

Note: [1]At 68°F [20°C] ambient temperature @ 60Hz

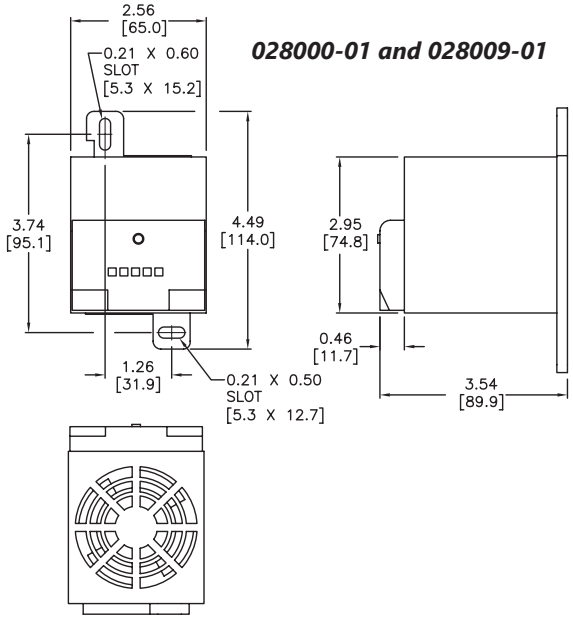
150W to 450W Touch-Safe PTC Fan Heaters

Dimensions

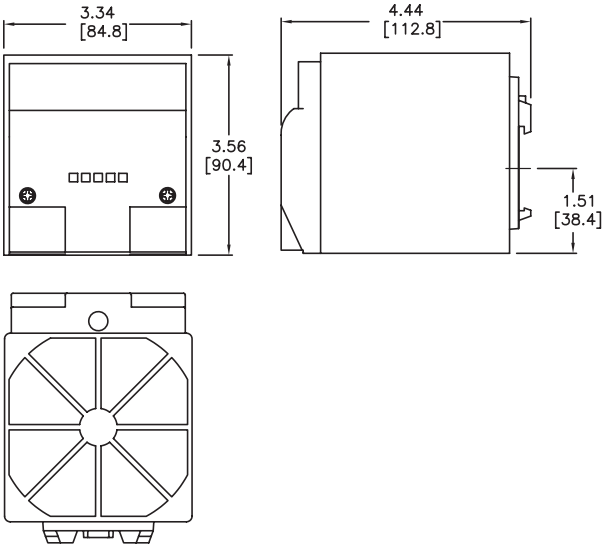
028000-00 and 028009-00



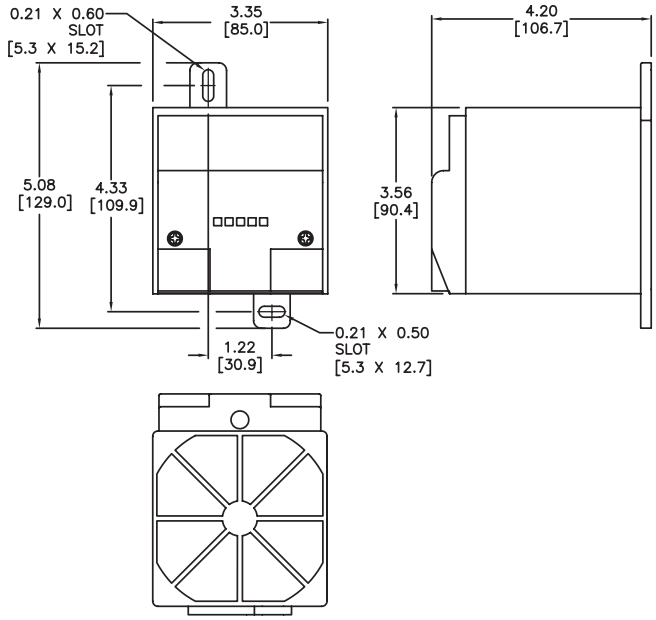
028000-01 and 028009-01



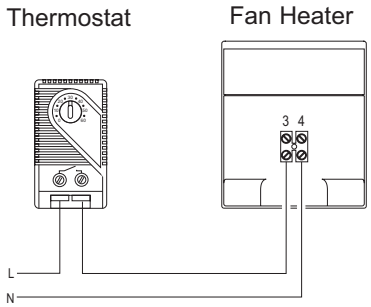
028100-00, 028109-00, 028110-00, 028119-00



028100-01, 028109-01, 028110-01, 028119-01



Wiring Diagram



Note: When wiring 230 volt units for North American installations “L” (line) and “N” (neutral) will be used as”L1” (line1) “L2” (line2) respectively with no neutral connection.

250W to 400W Touch-Safe PTC Fan Heaters with Integral Thermostat

Panel Mount Fan Heater

DIN Mount Fan Heater

Applications

These touch-safe positive temperature coefficient fan heaters prevent the formation of condensation and provide evenly distributed interior air temperature in enclosures. The touch-safe plastic housing and the small size make these heaters ideal for use in enclosures with a high packing density. Each heater is equipped with a fixed set point thermostat and is easily wired via external pressure clamps. DIN rail or screw tab mounting options are available. The robust panel mounting is particularly suitable for applications with high vibration.

Features

- Compact fan heater
- Integrated pre-set thermostat
- Quiet operation
- Heating power adjusts to ambient temperature
- DIN rail or panel mount available

250W to 400W Touch-Safe PTC Fan Heaters with Integral Thermostat Specifications		
Heating Element	***DIN Mount***	***Panel Mount***
	PTC Resistor - Temperature limiting	
Surface Temperature	250W: max. 122°F [50°C] 400W: max 149°F [65°C]Each except upper protective grill at 68°F [20°C] ambient temperature	
Overheat Protection	Built-in temperature limiter	
Axial Fan, Ball Bearing	Service life 40,000h at 104°F [40°C]	
Axial Fan, Free Blowing	32 cfm [54 m³/h] @ 120V AC; 26 cfm [45 m³/h] @ 230V AC	
Connection	2-pole dual pressure clamp 14 AWG [2.5 mm²], max. solid wire 16 AWG [1.5 mm²] max. stranded wire with wire end ferrule	
Housing	Plastic, UL 94V-0, black	
Mounting	Clip for 35mm DIN rail, EN 60715	Screw mount - M5 screws and washer (not included)
Mounting Position	Vertical airflow (air outlet up), horizontal airflow	
Operating / Storage Temperature	-40 to 158°F [-40 to 70°C]/-49 to 158°F [-45 to 70°C]	
Recommended Mounting Distance	Sides: 0.79in [20 mm] Bottom/above: 3.94in [100 mm]	
Operating / Storage Humidity	Max. 90% RH (non-condensing)	
Protection Class	II (double insulated)	
Protection Type	IP20	
Approvals	CE, UL Recognized File No. E150057, RoHS 2 compliant	

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.automationdirect.com

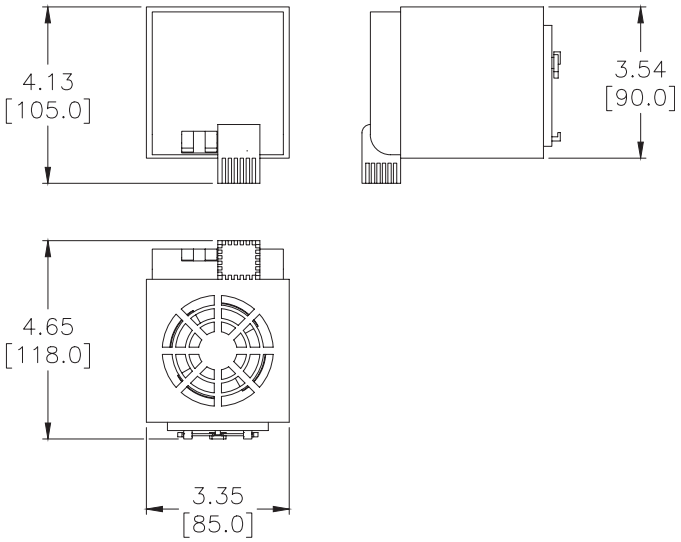
250W to 400W Touch-Safe PTC Fan Heaters with Integral Thermostat									
Part Number DIN Mount	***Price***	***Part Number Panel Mount***	***Price***	***Heating Capacity[1]***	***Operating Voltage***	***Max. current (inrush)***	***Switch-offTemp[2]***	***Switch-onTemp[2]***	***Weight (approx.)***
028219-06	$;00,y7:	***028219-08***	$;00,y8:	250W	120V AC, 50/60 Hz	6.0 A	59°F [15°C]	41°F [5°C]	17.6 oz[499g]
028210-06	$;00,yb:	***028210-08***	$;00,yc:		230V AC, 50/60 Hz	9.0 A			
028209-06	$;00,yd:	***028209-08***	$;00,ye:	400W	120V AC, 50/60 Hz	9.0 A	59°F [15°C]	41°F [5°C]	
028200-06	$;00,yh:	***028200-08***	$;-00,yi:		230V AC, 50/60 Hz	15.0 A			

Notes: [1] At 68°F [20°C] ambient temperature @ 60Hz
[2] Tolerance of ±9°F [±5 K]

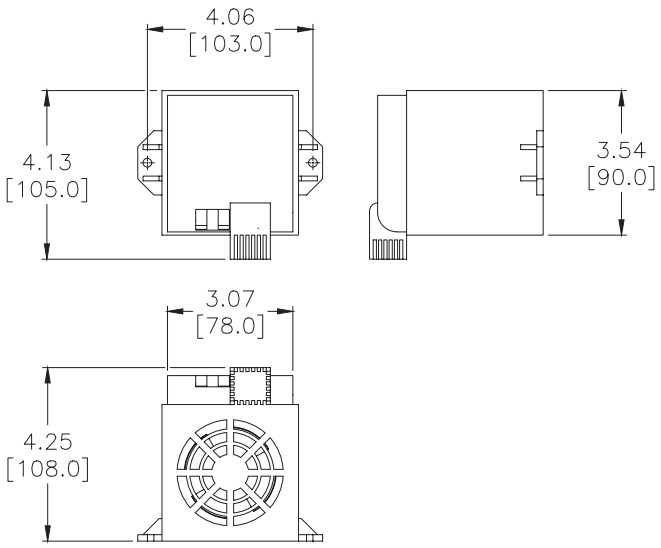
250W to 400W Touch-Safe PTC Fan Heaters with Integral Thermostat

Dimensions

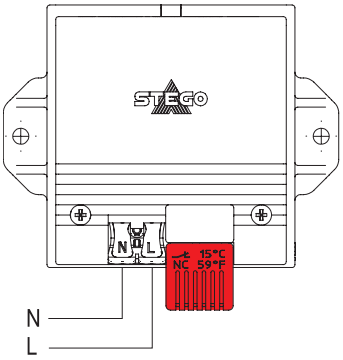
DIN Rail Mount



Panel Mount



Wiring Diagram



Note: When wiring 230 volt units for North American installations “L” (line) and “N” (neutral) will be used as”L1” (line1) “L2” (line2) respectively with no neutral connection.

500W to 700W Space-Saving Fan Heaters

35mm DIN Rail Mounting

Panel Mounting

Applications

These compact high-performance fan heaters help to prevent the formation of condensation and provide an evenly distributed interior air temperature in enclosures with electric/electronic components. These fan heaters are available with two different mounting systems – panel mounting or 35mm DIN rail mounting.

Features

- Compact size
- Flat design
- Built-in overheat protection
- DIN rail or panel mountable

500W to 700W Space-Saving Fan Heaters Specifications		
Heating Element	**35mm DIN Rail Mount**	**Panel Mount**
	High performance cartridge	
Temperature Safety Cut-Out	With automatic reset and second-tier one shot fuse	
Axial Fan, Ball Bearing	Service life 50,000h at 77°F [25°C]	
Connection	2-pole dual pressure clamp 14 AWG [2.5 mm²], max. solid wire 16 AWG [1.5 mm²] max. stranded wire with wire end ferrule	
Housing	Plastic, UL 94V-0, black	
Mounting	Twist clip for 35mm DIN rail,EN 60715	M6 screws and washers (not included), torque 2 N·m max.
Mounting Position	Vertical airflow (air outlet up)	
Operating/Storage Temperature	-49 to 158°F [-45 to 70°C]	
Recommended Mounting Distance	Sides: 0.79in [20 mm] Bottom: 3.94in [100 mm]Above: 5.91.0 in [25 mm] [150mm]	
Operating / Storage Humidity	Max. 90% RH (non-condensing)	
Protection Class	Heater: II (double insulated), fan: I (grounded)	
Protection Type	IP20	
Approvals	CE, UL Recognized File No. E234324, RoHS 2 compliant	

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.automationdirect.com

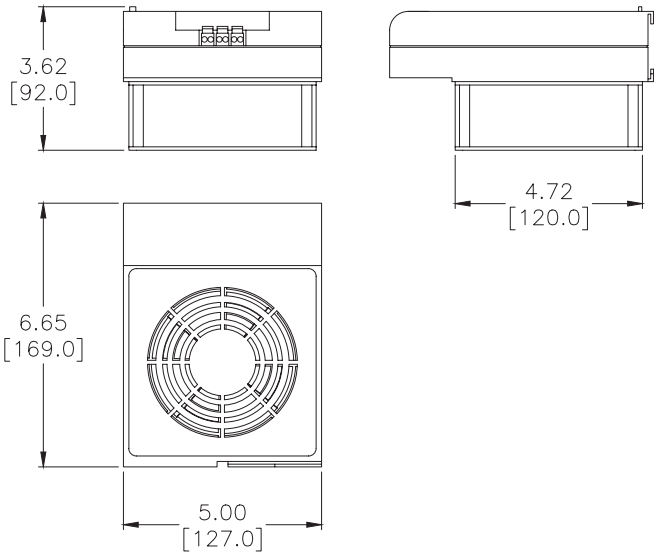
500W to 700W Space-Saving Fan Heaters								
Part Number DIN Rail Mount	**Price**	**Part Number Panel Mount**	**Price**	**Heating Capacity[1]**	**Operating Voltage**	**Max. current (inrush)**	**Air flow,free blowing**	**Weight (approx.)**
030849-00	$;-00,yj:	**030849-01**	Retired	500W	120V AC, 50/60 Hz	6.3 A	88 cfm[150 m³/h]	49.6 oz[1406g]
030840-00	Retired	**030840-01**	Retired		230V AC, 50/60 Hz	3.15 A		
030839-00	$;00,yq:	**030839-01**	Retired	600W	120V AC, 50/60 Hz	6.3 A		
030830-00	Retired	**030830-01**	Retired					
030829-00	$;00,yy:	**030829-01**	$;00,yz:	700W	120V AC, 50/60 Hz	8.0 A		
030820-00	$;;00,y]:	**030820-01**	$;;00,y[:		230V AC, 50/60 Hz	4.0 A		

Notes: At 68°F [20°C] ambient temperature @ 60Hz.
Please consider 030829-00or 030829-01 for a comparable replacement.

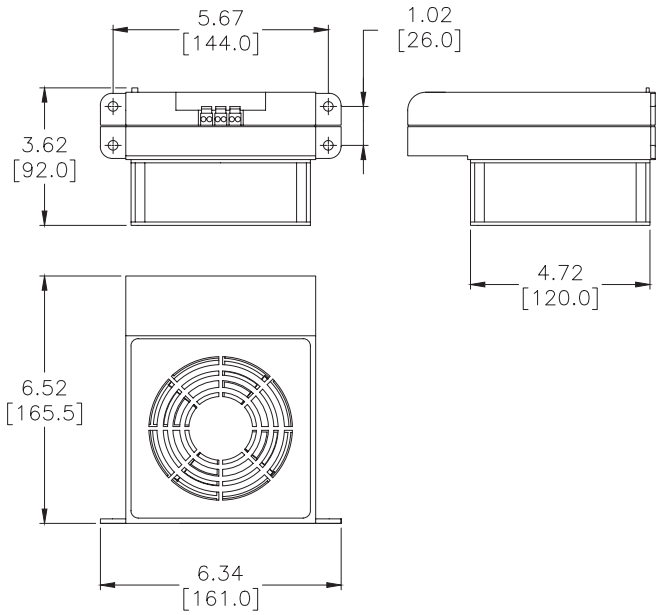
500W to 700W Space-Saving Fan Heaters

Dimensions

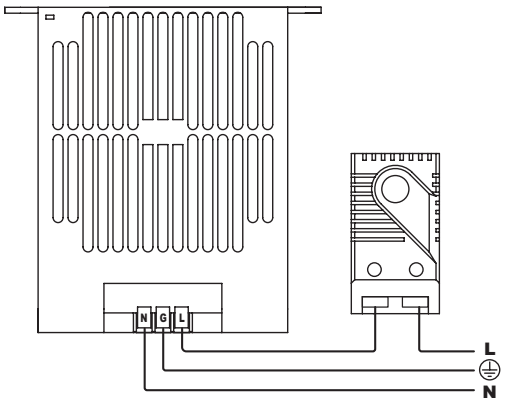
Twist Clip Mounting Models



Screw Mounting Models



Wiring Diagram



Note: When wiring 230 volt units for North American installations, “L” (line) and “N” (neutral) will be used as”L1” (line1) “L2” (line2) respectively with no neutral connection.

Enclosure Fan Heaters

Enclosure Heater p/n 130921-16

Applications

The compact high performance fan heater prevents formation of condensation and frost and provides evenly distributed interior air temperatures in enclosures with electronic components. The fan heater includes an integrated electronic thermostat with either an internal or external sensor. External sensors are sold separately in three cable length options. The external sensor can be positioned freely anywhere in the enclosure for precise measurements of temperature and humidity.

Features

- High DC heating performance
- Integrated adjustable thermostat
- Small hysteresis
- Integrated switch module
- Screw or DIN rail mount
- Optical indicator (LED)
- Hot air exhausts upward

Enclosure Heater p/n 130921-17

General Specifications	
Heating element	High performance cartridge
Overheat protection	Automatic reset and second-tier one shot fuse to protect against overheating in case of fan failure
Heater body	Extruded aluminum profile
Connection	2-pole Push-In connection clamp stranded wire[1] AWG 16 [1.5 mm²] with strain relief; max. AWG 12 [2.5 mm²]
Axial fan, ball bearing	Service life 50,000 hr at +77°F(+25°C)
Air flow, free flowing	94 cfm (160m³/hr)
Housing	Plastic, UL 94V-0, black
Mounting	M5 screws and washers (not included), torque 2 N·m max.
Dimensions	3.9 x 5.7 x 6.5 in [100 x 145 x 166 mm]
Weight	Approx. 2.86 lbs. [1.3 kg]
Operating temperature	-4 to 167°F [-20 to 75°C]
Thermostat setting range	14 to 122°F
Thermostat switching difference	5.4°F at 77°F
Thermostat switching tolerance	1.8°F
Protection type	IP20
Approvals	CE, EAC, UL Recognized File No. E234324
Note: When connecting with stranded wires, wire end ferrules must be used.	

Enclosure Fan Heaters

Part Number	*Price*	*Operating Voltage*	*Heating Capacity*	*Temperature Sensor*	*Mounting Style*	*Drawing Link*
030921-16	$;-05i0t:	24 VDC	200W	internal	Foot	PDF
030921-17				external		PDF
030973-16	$-05i0v:	56 VDC	800W	internal		PDF
130921-16	$-05i0y:	24 VDC	200W	internal	DIN rail/panel	PDF
130921-17				external		PDF

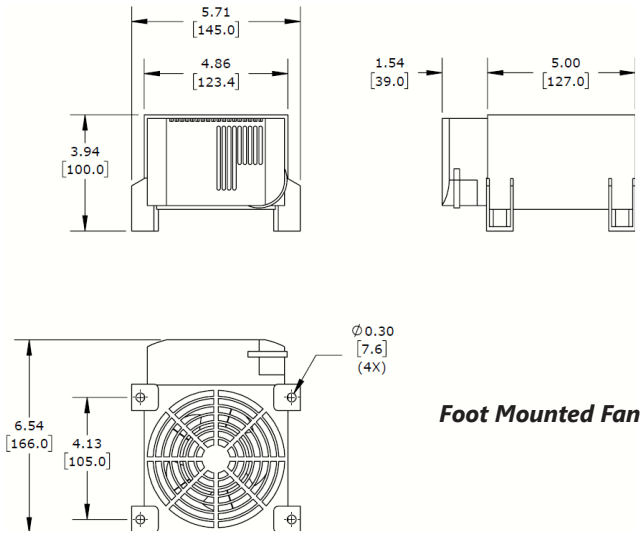
External Temperature Sensors

Part Number	*Price*	*Cable Length*
267071	$-5i0_:	1m
267072	$-5i0#:	2m
267126	$;-5i0!:	3m

Sensor p/n 267071

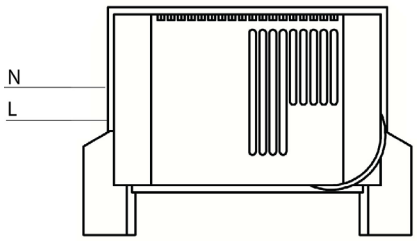
Encloser Fan Heaters

Dimensions



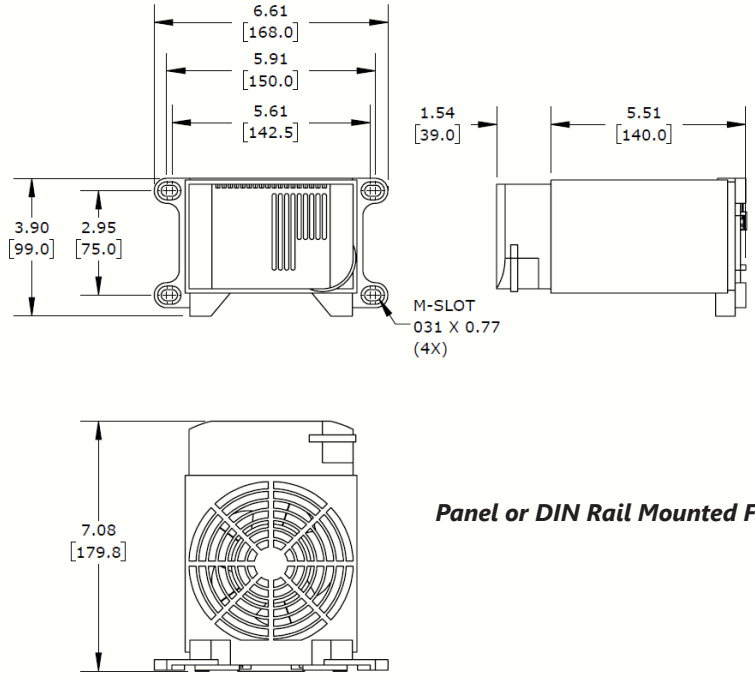
Foot Mounted Fan Heaters

Wiring Diagram



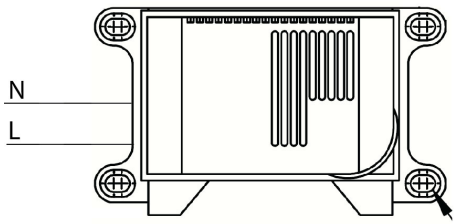
Note: When wiring 230 volt units for North American installations “L” (line) and “N” (neutral) will be used as”L1” (line1) “L2” (line2) respectively with no neutral connection.

Dimensions



Panel or DIN Rail Mounted Fan Heaters

Wiring Diagram



Note: When wiring 230 volt units for North American installations “L” (line) and “N” (neutral) will be used as”L1” (line1) “L2” (line2) respectively with no neutral connection.

950W Fan Heaters

Foot Mounted Fan Heaters

Panel or DIN Rail Mounted

Applications

These fan heaters are designed to prevent the formation of condensation and ensure an evenly distributed interior air temperature in enclosures. These fan heaters are available with an integrated thermostat for temperature control, pre-set hygrostat for humidity control, or without integral controls.

Features

- Compact design
- Available with integrated adjustable thermostat, fixed hygrostat or withoutintegral controls
- Double insulated plastic housing
- Built-in overheat protection

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.automationdirect.com

950W Fan Heaters Specifications	
Heating Element	High-performance cartridge
Overheat Protection	With automatic reset and second-tier one shot fuse
Heater Body	Extruded aluminum
Axial Fan, Ball Bearing	Service life 50,000h at 77°F [25°C]
Connection	2-pole terminal with strain relief 16 AWG [1.5 mm²] max. solid wire or stranded wire with wire end ferrules,0.8 N·m max.clamping torque
Housing	Plastic, UL 94V-0, black
Mounting - Footed	M5 screws (not included)
Mounting - Panel or DIN Rail	Clip for 35mm DIN rail, EN 60715 or M6 screws (not included)
Mounting Position	Horizontal only
Recommended Mounting Distance	Sides: 0.79in [20 mm] Bottom: 0.91in [23.1mm] Above: 3.94in [100 mm]
Operating / Storage Temperature[1]	-49 to 158°F [-45 to 70°C]
Operating / Storage Humidity	Max. 90% RH (non-condensing)
Protection Class	II (double insulated)
Protection Type	IP20
Approvals	CE, UL Recognized File No. E234324, RoHS 2 compliant
Note: [1] Operating temperature of heater with integrated hygrostat: +32° to +140°F [0° to +60°C]	

950W Foot Mounted Fan Heater

Part Number	*Price*	*Heating Capacity*	*Operating Voltage*	*Max Inrush*	*Setting Range[1]*	*Air flow,free blowing*	*Weight (approx.)*
030599-00	$00acq:	950W	120V AC, 50/60 Hz	8.0 A continuous	32 to 140°F	94 cfm[160 m³/h]	49.6 oz[1406g]
030510-00	$;00,z0:		230V AC, 50/60 Hz	4.0 A continuous	0 to 60°C		

Note: [1] Switching difference 12.6 °F ± 7°F tolerance [7K ± 4K]

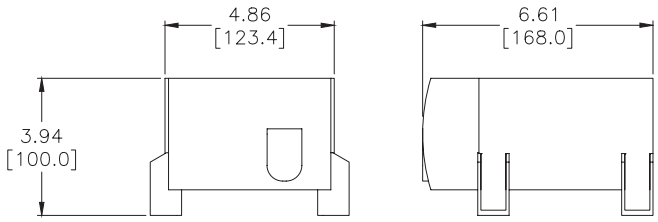
950W Panel or DIN Rail Mounted Fan Heaters

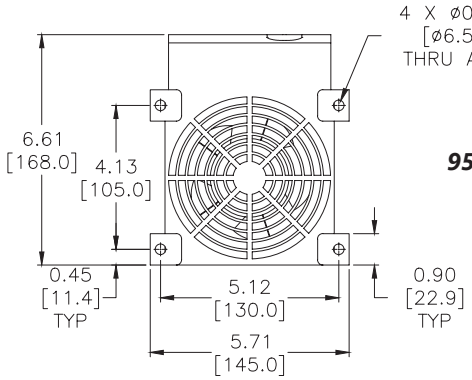
Part Number	*Price*	*Heating Capacity*	*Operating Voltage*	*Max Inrush*	*Setting Range[1]*	*Air flow,free blowing*	*Weight (approx.)*
130599-00	$;00ac]:	950W	120V AC, 50/60 Hz	8.0 A continuous	32 to 140°F	94 cfm[160 m³/h]	49.6 oz[1406g]
130599-02	$;00,y#:				none (no integrated controls)		
130510-00	$;;00,y,:		230V AC, 50/60 Hz	4.0 A continuous	0 to 60°C		
130510-03	Retired	Please consider 130510-00 for a comparable replacement.					

Note 1: Switching difference 12.6 °F ± 7°F tolerance [7K ± 4K]

950W Fan Heaters

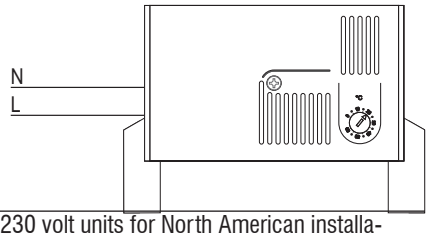
Dimensions





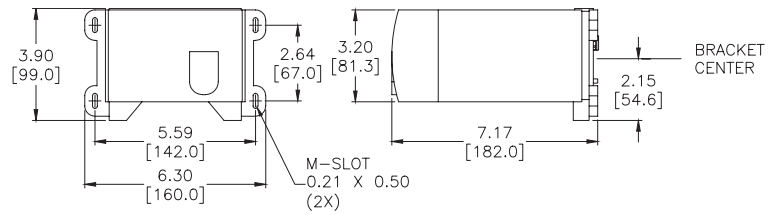
950W Foot Mounted Fan Heaters

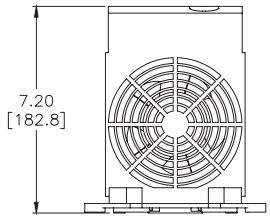
Wiring Diagram



Note: When wiring 230 volt units for North American installations “L” (line) and “N” (neutral) will be used as”L1” (line1) “L2” (line2) respectively with no neutral connection.

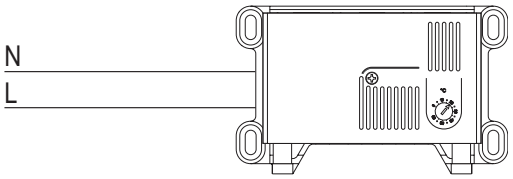
Dimensions





950W Panel or DIN Rail Mounted Fan Heaters

Wiring Diagram



Note: When wiring 230 volt units for North American installations “L” (line) and “N” (neutral) will be used as”L1” (line1) “L2” (line2) respectively with no neutral connection.

1000W Compact PTC Fan Heaters

STEGO INC. SIMPLY INNOVATIVE. BETTER FOR SURE.

Compact Fan Heater

Compact Fan Heaterw/Integrated Thermostat

Applications

These compact fan heaters are designed to prevent condensation and ensure an evenly distributed air temperature in enclosures. The plastic double insulated housing provides protection against contact with current-carrying components. This series is available with an optional, integrated fixed-point thermostat. These heaters were designed to accommodate DIN rail or panel mounting.

Features

- Compact design
- High heating performance
- Double insulated plastic housing
- Panel or DIN Rail Mount
- Optional integrated fixed thermostat

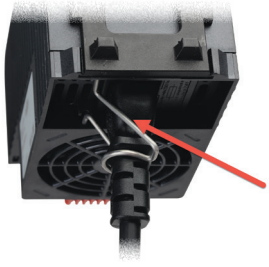
1000W Compact PTC Fan Heaters Specifications	
Heating Element	PTC resistor - temperature limiting
Overheat Protection	Built-in temperature limiter
Surface Temperature	Max. 176°F [80°C], except upper protective grillat 68°F [20°C] ambient temperature
Air Outlet Temperature	Max 257°F [125°C], 2in [50mm] above grill
Axial Fan, Ball Bearing	Service life 70,000h at 77°F [25°C]
Air Flow, Free Blowing	37 cfm [63 m³/h]
Connection	Male power insert connector according to IEC 320 C18
Housing	Plastic, UL 94V-0, black
Mounting	Clip for 35mm DIN rail, EN 60715 or M5 screws (not included) – tightening torque 2 N·m max.
Mounting Position	Air flow directed up
Recommended Mounting Distance	Sides: 0.79in [20 mm] Bottom/above: 3.94in [100 mm]
Operating / Storage Temperature	-40 to 140°F [-40 to 60°C] / -40 to 158°F [-40 to 70°C]
Protection Class	II (double insulated)
Protection Type	IP20
Approvals	CE, UL Recognized File No. E234324, RoHS 2 compliant
Notes: Connectors and cables for electrical connection are not included with the heater. Connection cables are available as accessories.	

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.automationdirect.com

1000W Compact PTC Fan Heaters

Part Number DINMount	*Price*	*Part Number PanelMount*	*Price*	*Heating Capacity[1]*	*Operating Voltage*	*Max. current (inrush)*	*Integrated Thermostat*	*Switch-OffTemp[2]*	*Switch-OnTemp[2]*	*Weight (approx.)*
032099-00	Retired	***032099-01***	Retired	1000W	100-120V AC 50/60 Hz	18.0 A	NO	—	—	16.5 oz [468g]
032029-00	$;00,z5:	***032029-01***	$;00,z6:		100-120V AC 50/60 Hz	18.0 A	YES	59°F [15°C]	41°F [5°C]	
032020-00	$;00,z9:	***032020-01***	$;00,za:		220-240V AC 50/60 Hz	12.0 A		59°F [15°C]	41°F [5°C]	

Notes: [1] At 77°F [25°C] ambient temperature
[2] Tolerance of ±9°F [±5K]



Retaining Clip

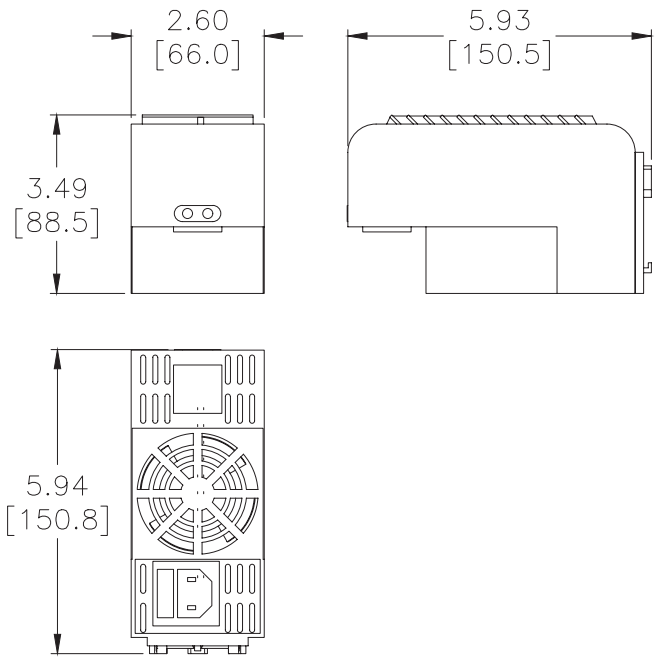
Accessories

Part Number	*Description*	*Price*
244380	2m [6.5 ft] cable for 1000W PTC heater	$;0,zb:
237009	Retaining clip for 244380	$;,zc:

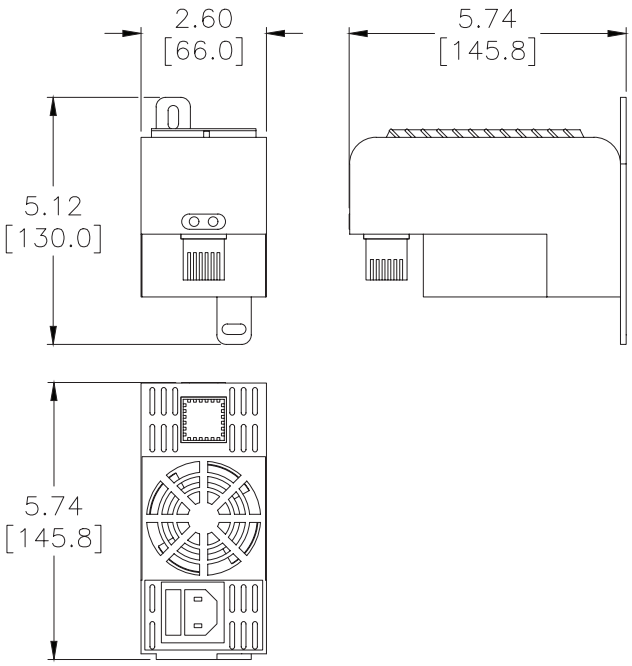
1000W Compact PTC Fan Heaters

Dimensions

Compact PTC Fan Heaters



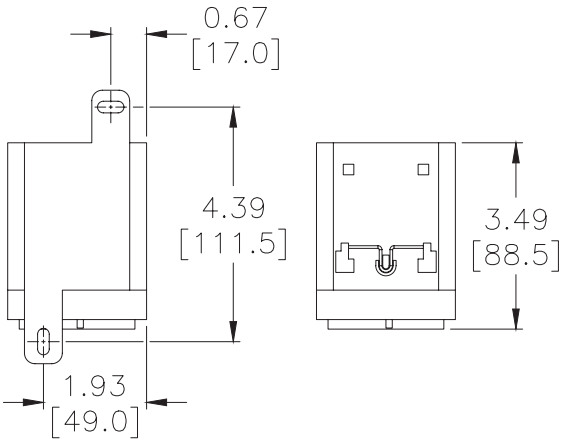
Fan Heaters with Integrated Thermostat



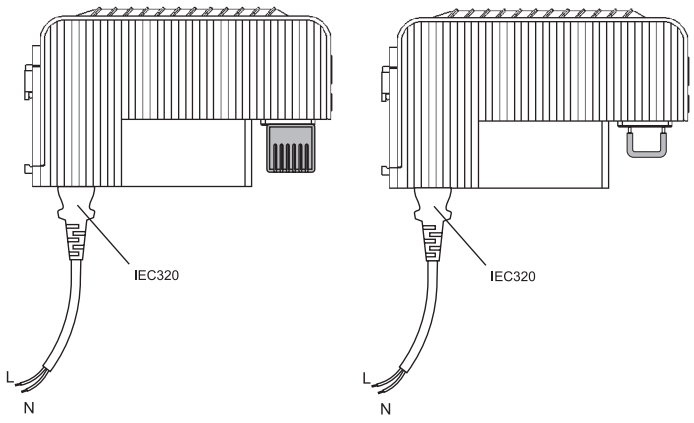
View: back side

Panel Mount

DIN Rail Mount



Wiring Diagram



Note: When wiring 230 volt units for North American installations “L” (line) and “N” (neutral) will be used as”L1” (line1) “L2” (line2) respectively with no neutral connection.

1200W PTC Fan Heaters

Foot Mounted PTC Fan Heaters

Panel or DIN Rail Mounted PTC Fan Heaters

Applications

These compact high-performance PTC fan heaters are designed to prevent formation of condensation and provide an evenly distributed interior air temperature in enclosures. These fan heaters were designed as stationary units for installation on the bottom of enclosures.

Features

- Compact design
- Built-in overheat protection
- Double insulated plastic housing
- Integrated adjustable thermostat

1200W PTC Fan Heaters Specifications	
Heating Element	PTC resistor – temperature limiting
Overheat Protection	Built-in temperature limiter
Axial Fan, Ball Bearing	Service life 50,000h at 77°F [25°C]
Connection	2-pole terminal with strain relief 16 AWG [1.5 mm²] max. solid wire or stranded wire with wire end ferrules,0.8 N·m max.clamping torque
Housing	Plastic, UL 94V-0, black
Mounting - Footed	M5 screws (not included)
Mounting - Panel or DIN Rail	Clip for 35mm DIN rail, EN 60715 or M6 screws (not included)
Mounting Position	Horizontal
Recommended Mounting Distance	Sides:1.97in [50 mm] Bottom: 0.91in [23.1mm] Above: 3.94in [100 mm]
Operating / Storage Temperature	-49 to 158°F [-45 to 70°C]
Operating / Storage Humidity	Max. 90% RH (non-condensing)
Protection Class	II (double insulated)
Protection Type	IP20
Approvals	CE, UL Recognized File No. E234324 and E150057, RoHS 2 compliant

Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.automationdirect.com

1200W Foot Mounted PTC Fan Heaters

Part Number	*Price*	*Heating Capacity[1]*	*Operating Voltage*	*Max. current (inrush)*	*Setting Range[2]*	*Air flow,free blowing*	*Weight (approx.)*
030609-00	$00acs:	1200W	120V AC, 50/60 Hz	16.0 A	32 to 140°F	94 cfm [160 m³/h]	41.6 oz [1179g]
030600-00	$;00,zh:		230V AC, 50/60 Hz	13.0 A	0 to 60°C		

Notes: [1] At 68°F [20°C] ambient temperature
[2] Switching difference 12.6 °F ± 7°F tolerance [7K ± 4K]

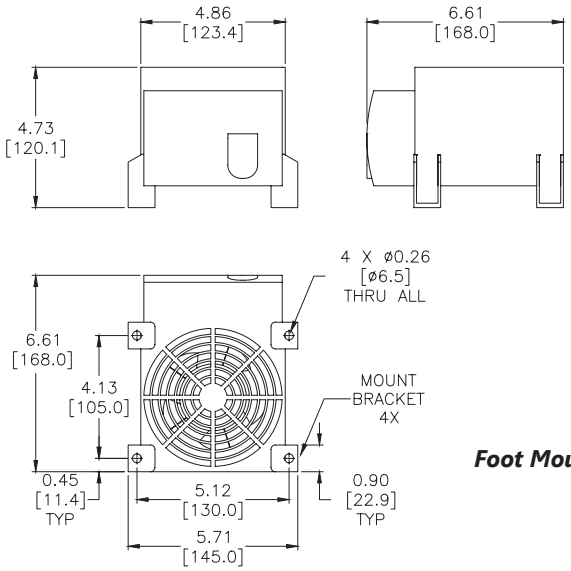
1200W Panel or DIN Rail Mounted PTC Fan Heaters

Part Number	*Price*	*Heating Capacity[1]*	*Max. Current (Inrush)*	*Operating Voltage*	*Setting Range[2]*	*Air flow,free blowing*	*Weight (approx.)*
130609-00	$;00ac[:	1200W	16.0 A	120V AC, 50/60 Hz	32 to 140°F	94 cfm[160 m³/h]	41.6 oz [1179g]
130600-00	$;-00,zi:		13.0 A	230V AC, 50/60 Hz	0 to 60°C		

Notes: [1] At 68°F [20°C] ambient temperature
[2] Switching difference 12.6 °F ± 7°F tolerance [7K ± 4K]

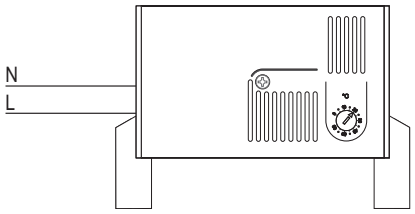
1200W PTC Fan Heaters

Dimensions



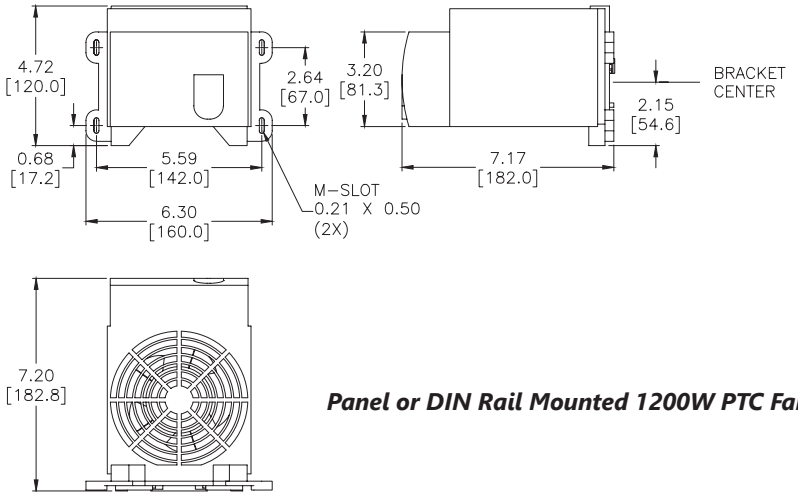
Foot Mounted 1200W PTC Fan Heaters

Wiring Diagram



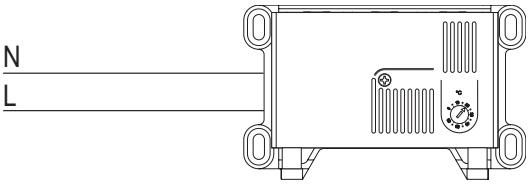
Note: When wiring 230 volt units for North American installations “L” (line) and “N” (neutral) will be used as”L1” (line1) “L2” (line2) respectively with no neutral connection.

Dimensions



Panel or DIN Rail Mounted 1200W PTC Fan Heaters

Wiring Diagram



Note: When wiring 230 volt units for North American installations “L” (line) and “N” (neutral) will be used as”L1” (line1) “L2” (line2) respectively with no neutral connection.

Rack Mount Fan Trays

Fan Tray p/n019310-00

Applications

Compact high performance fan tray for forced circulation of air in switch and server enclosures and for concerted cooling of 19in. rack mounted component groups. Natural convection is improved and the formation of localized hot pockets is avoided.

Features

- High air output
- Long service life
- Ball bearing fans
- Ready for connection. Plug included, cable required.
- Optical function indicator
- 115VAC Operating Voltage
- UL Recognized File: E234324

General Specifications	
Axial fans, ball bearing	Service life 50,000 hr at 25°C (77°F), 65 % RH
Material	Front panel: aluminum, bright anodized; casing: steel sheet, electro-galvanized
Optical indicator	Integrated in front panel
Connection	Appliance power inlet on rear of casing, plug included
Fitting position	Vertical airflow (air outlet up)
Operating/Storage temperature	-10 to 60°C (14 to 140°F) / -40 to 70°C (-40 to 158°F)
Operating/Storage humidity	Max. 90 % RH (non-condensing)
Protection type	IP20

Rack Mount Fan Trays			
Part Number	***Price***	***Airflow (CFM)***	***Drawing Links***
019310-00	$;-05i1f:	339	PDF
019510-00	$-05i1h:	1016	PDF

Plug p/n 284200-00

Plug p/n 284040-00

Applications

Pressure differentials in enclosures with a high degree of protection are a result of internal and external temperature changes. In the case of negative pressure or partial vacuum, dust and humidity can enter the enclosure through the door seal. When the air inside the enclosure cools down, condensation may occur because the humidity cannot escape the enclosure.

These plugs allow for controlled pressure compensation due to temperature variations. Even with a slight overpressure, a waterproof membrane inside the plug allows the humidity to escape whilst blocking water and dirt from entering the enclosure.

Features

- Nickel plated aluminum or plastic
- Easy installation
- High reliability
- Allows for controlled pressure compensation

Pressure Compensation Plugs

Part Number	Price	Size	Material	Thread Size	IP Rating	Drawing Links
284040-00	$-5i1d:	17mm	Nickel plated aluminum	M12 x 1.5	IP67	PDF
284200-00	$-5i1c:	70mm	Plastic	M40 x 1.5	IP66 IPX9K	PDF

bimed

Pressure Relief Vent Plugs

Basics About Pressure Balance Elements (PBEs)

When we refer to "Vent Plugs" we should keep in mind that we are talking about "Pressure Balance Elements (PBEs)" because the main function of a PBE is to balance the pressure between the inside and outside of an enclosure. In other words, a PBE is used to maintain a differential pressure of ΔP = 0 between inner and outer atmosphere of an enclosure.

It is important to notice that a PBE does not provide the following effects:

- Permanent air circulation into the enclosure
- Cooling the enclosure
- Dehydration of enclosed air

The pressure inside an enclosure is directly proportional to the temperature. The maximum temperature of an enclosure depends on the following conditions:

- Environmental conditions
- Power dissipation of the (electronic) components inside
- Design of the enclosure
- Design of the heat exchanger

Consequently, the potential for a PBE to reduce the time to reach a ΔP = 0 will depend on the application conditions above. Reducing the maximum temperature of the system can only be done by improving the heat exchangers or by forced cooling (active cooling systems like air conditioners or Peltier elements).

Why use a PBE

First, a PBE or vent plug balances the pressure difference between the inside and outside of an enclosure and eases the strain on enclosure seals and gaskets, thus extending the lifetime of the complete system. Second, despite being permeable to gases, vent plugs are available in IP ratings from IP66-IP69K to align with the specifications of the enclosure. Finally, due to gas permeability, a PBE prevents corrosion and water condensation inside the enclosure.

How to use a PBE?

There are two parameters which define the performance of a PBE:

- Air Flow Rate (AFR)
- Water Intrusion Pressure (WIP)

Both parameters depend on each other and are determined by the PBE or vent plug membrane and design. A PBE should show a high AFR and the highest possible WIP. Generally, the AFR is determined at a differential pressure of ΔP=70 mbar (hPa). This is equal to ΔP=70 mbar=1 PSI (pounds per square inch; 1 Pa= 1 N/m2). Because most data is based on a differential pressure of ΔP=70 mbar, it is possible to compare different PBEs.

An increase of the AFR results in a decrease in the WIP when using the same PBE type. In other words, the Water Intrusion Pressure is lower for membranes showing higher Air Flow Rates. As a result, the WIP limits the IP rating of an enclosure when a PBE is used.

The following principle should be followed when selecting a vent plug(s) for a specific system and application conditions: The maximum differential pressure ΔP of the enclosure or system should not exceed the WIP value of the PBE – at least not during a negative pressure differential inside the enclosure (for example: cooling process after switching off the system) – as water could be sucked into the enclosure together with the ambient outside air.

Use these general guidelines for the selection of a PBE or vent plug(s) that meets your application conditions and system specifications.

bimed

Pressure Relief Vent Plugs

Polyamide Pressure Relief Vent Plugs Features

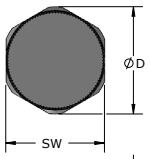
- Lock nut and washer included
- Operating temperature -20 to 100°C [-4 to 212°F]
- PA 6 (Polyamide 6) material
- UL94 V2
- O-ring and gasket NBR (nitrile butadiene rubber) material

MBVPG-11-L

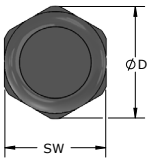
MBVPG-23-WNL

Polyamide Pressure Relief Vent Plugs

Thread (Metric EN 60423)	Thread Length (TL) (mm)	Part Number	Price	Qty	Color	Air Flow 70 mbar/1psi (mL/min)	Water Intrusion Pressure (bar)	Design Type	SW (mm)	D (mm)	H (mm)
M6 x 0.75 mm	10	MBVPG-11-L	$-645i:	2	Light Gray	133	0.5	D	10	11	6.15
		MBVPG-21-L	$-645j:		Black						
M12 x 1.5 mm	10	MBVPG-13-WNL	$645k:		Light Gray	417	0.5	D	17	18.8	6.15
		MBVPG-23-WNL	$-645l:		Black						
M12 x 1.5 mm	10	HBVPB-11L-WNL	$645n:		Light Gray	2,000	0.2	A	17	18.5	7.6
		HBVPB-21L-WNL	$645o:		Black						
M12 x 1.5 mm	10	UHBVPB-11L-WNL	$645p:		Light Gray	5,000	0.1	A	17	18.5	7.6
		UHBVPB-21L-WNL	$645q:		Black						
M20 x 1.5 mm	10	MBVPE-11-WNL	$645s:		Light Gray	2,000	0.5	E	24	26	11.7
		MBVPE-21-WNL	$;645t:		Black						
M40 x 1.5 mm	18	MBVPX-18-S	$645u:		Light Gray	6,250	0.5	F	—	55.5	15.5
		MBVPX-28-S	$645v:		Black						



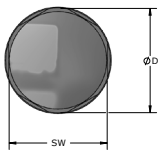
Type A



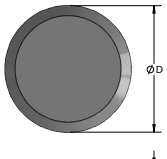
Type D

Polyamide Pressure Relief Vent Plugs Additional Info

Part Number	Recommended Tightening Torque	Recommended Wrench Size	Ingress		Agency Approval And Standards	Drawing Link
			IP Rating	UL50E/ C22.2 No.14-2010		
MBVPG-11-L	0.2 N•m ± 0.1 2 ± 1 ft•lb	10mm	IP67 IP68 IP69K	—	CE	PDF
MBVPG-21-L						PDF
MBVPG-13-WNL	0.5 N•m ± 0.1 4 ± 1 ft•lb	17mm				PDF
MBVPG-23-WNL						PDF
HBVPB-11L-WNL			IP67 / IP68	Type 4X / 12 / 13	CE UR File E350312 UL508A UL50E CAN/CSA C22.2 No.14-2010	PDF
HBVPB-21L-WNL						PDF
UHBVPB-11L-WNL						PDF
UHBVPB-21L-WNL						PDF
MBVPE-11-WNL	1.0 N•m ± 0.5 9 ± 4 ft•lb	24mm		—	CE	PDF
MBVPE-21-WNL						PDF
MBVPX-18-S	5.0 N•m ± 0.5 44 ± 4 ft•lb	51mm		Type 4X / 12 / 13	CE UR File E350312 UL508A UL50E CAN/CSA C22.2 No.14-2010	PDF
MBVPX-28-S						PDF



Type E



Type F

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Pressure Relief Vent Plugs

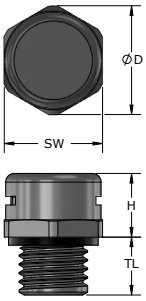
Stainless Steel Pressure Relief Vent Plugs Features

- Lock nut, O-ring, and gasket included
- Operating temperature -20 to 100°C [-4 to 212°F]
- Stainless steel
- O-ring NBR (nitrile butadiene rubber) material

MBBVP-01L-WNL

Stainless Steel Pressure Relief Vent Plugs

Thread (Metric EN 60423)	Thread Length (TL) (mm)	Part Number	Price	Qty	Air Flow 70 mbar/1psi (mL/min)	Water Intrusion Pressure (bar)	Design Type	SW (mm)	D (mm)	H (mm)
M12 x 1.5 mm	10	MBBVP-01L-WNL	$645x:	1	417	0.5	C	17	18.8	11
M12 x 1.5 mm	10	HBBVP-01L-WNL	$645y:		2,000	0.2		17	18.8	11
M20 x 1.5 mm	10	HBBVP-03-WNL	$645z:		2,000	0.2		22	24.5	13



Type C

Stainless Steel Pressure Relief Vent Plugs Additional Info

Part Number	Recommended Tightening Torque	Recommended Wrench Size	Ingress		Agency Approval And Standards	Drawing Link
			IP Rating	UL50E/ C22.2 No.14-2010		
MBBVP-01L-WNL	0.5 N•m ± 0.1 4 ± 1 ft•lb	17mm	IP67 / IP68	Type 4X / 12 / 13	CE UR File E350312 UL514B CSA22.2 No 18.3-12 CSA22.2 No 94.2-1S	PDF
HBBVP-01L-WNL						PDF
HBBVP-03-WNL	1.5 N•m ± 0.5 12 ± 4 ft•lb	22mm		—	CE	PDF

Enclosure Door Switch

013500-00

Applications

The door switch can be used for switching a light when opening a door (NC), or to activate a fan when closing a door (NO). The version with single-pole double-throw contact (SPDT) can be used as a normally closed and/or normally open contact. The wide mechanical adjustment range of the door switch offers versatile mounting; the housing is adjustable within a 1-3/8in [35mm] range, while the screw flange with a slotted hole offers an additional 13/16in [21mm]. The travel of the switch is itself another 5/16in [8mm].

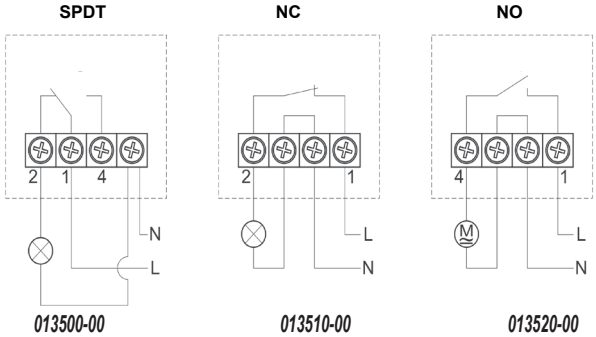
Features

- Tool-free adjustable switch positioning
- Strain relief, suitable for a range of cable diameters
- High switching capacity
- Suitable for light LED 025 and other devices

Door Switch				
Part Number	***Price***	***Contact***	***Suitable Wire***	***Drawing Link***
013500-00	$;-4l7]:	Single-pole double throw (SPDT)	Solid wire or stranded wire with wire end ferrule AWG 18 to 17 [0.75 mm² to 1mm²]	PDF
013510-00	$-4l7u:	Normally-closed (NC)	Solid wire or stranded wire with wire end ferrule AWG 18 to 16 [0.75 mm² to 1.5 mm²]	PDF
013520-00	$-4l7v:	Normally-open (NO)	Solid wire or stranded wire with wire end ferrule AWG 18 to 16 [0.75 mm² to 1.5 mm²]	PDF

Door Switch Specifications	
Max. Switching Capacity	10A resistive / 1.5 A inductive @ AC 250V
Service Life	VDE: > 10,000 cycles; UL: > 6,000 cycles
Connection	4-pole clamp with strain relief, clamping torque 0.5 lb·in max.
Housing	Plastic according to UL 94V-0, gray/black
Mounting	M5 screws (not included)
Mounting Position	Variable
Weight	Approx. 1.8 oz [50g]
Operating Temperature	-4 to 185°F [-20 to 85°C]
Storage Temperature	-4 to 185°F [-20 to 85°C]
Operating / Storage Humidity	Max. 90% RH (non-condensing)
Protection Type	IP20
Approvals	EAC, VDE, CE

Wiring Diagram



013500-00 013510-00 013520-00

Top-Mount Fans and Vents

Part Number 018600-02

Applications

Top-mount filter fans and vents are used in enclosures from which warm air must be diverted due to increased heat development. The ready-to-connect and low-noise roof filter fan is used to expel warm air from within the enclosure. Alternatively, the roof exhaust filter provides passive ventilation. Fans come in two versions: one utilizes four small axial fans, improving reliability and maintaining continuous operations even if one of the fans should fail; the second uses a single high capacity fan.

Note: For pressure compensation the roof filter fan must always be operated in combination with a similarly sized intake filter or intake filter fan.

Features

- Very low noise
- Minimal mounting depth
- High air volume
- High reliability
- Cover is hinged for easy filter replacement

General Specifications	
Axial fan, ball bearing	Service life min. 50,000 hr at 77°F [25°C] and 65% RH, aluminum fan body, plastic rotor
Connection	3-pole clamp(AC units), 2-pole clamp (DC units), AWG 14 [2.5 mm²], clamping torque 0.8 N·m max.
Housing	Plastic, UL 94V-0, light gray; UV light resistant according to UL 746C (f1)
Filter mat	ISO coarse 55% acc. to ISO 16890 (G3), init. grav. arrestance 57%
Filter material	Synthetic fiber with progressive construction, temperature resistant to 212°F, self-extinguishing class F1; moisture resistant to 100% RH, reusable – can be cleaned by washing or vacuuming
Operating / Storage humidity	Max. 90% RH (non-condensing)
Protection type	NEMA 3R, IP32
Approvals	EAC (all), VDE (AC 230 V only)

Top-mount Exhaust Fans							
Part Number	***Price***	***Operating Voltage***	***Free Airflow***	***Fans per Unit***	***Cutout size in[mm]***	***Operating Temperature***	***Drawing Link***
018600-02	$-05i17:	115 VAC	203 CFM	4	9.69 x 9.69 [246 x 246]	-13°F to 158°F	PDF
018600-04	$-05i18:	24 VDC	203 CFM			14°F to 158°F	PDF
018610-00	$-05i19:	230 VAC	338 CFM	1		14°F to 158°F	PDF
018610-02	$-05i1a:	115 VAC	338 CFM			-13°F to 158°F	PDF

Notes: 1.Performance data for 115VAC fans is based on 60Hz.
2.Free airflow is measured with fan only.
3.Dimensions in inches [millimeters].

Top Mount Exhaust Vent			
Part Number	***Price***	***Enclosure Cutout in[mm]***	***Drawing Link***
118600-00	$-05i1b:	9.69 x 9.69 [246 x 246]	PDF

Enviro-Therm® Series Air Conditioners

SAGINAW CONTROL & ENGINEERING
Your Enclosure Source®

Applications

Enviro-therm® air conditioners are designed with an internal closed loop system to provide protection from dust, oil and water. For indoor and outdoor application. Rugged, energy efficient, and reliable cooling system.

Construction

- Heavy gauge steel/stainless steel.
- Internal components are corrosion resistant.
- Captive screw fastened filter cover.
- Easy mounting flange hangers for installation included.
- High performance ball bearing fans.
- Cage clamp terminal connector.
- Oil and water-resistant gaskets installed.
- Carbon Steel units are painted RAL7035 Light Gray
- All 460 VAC units have an SCCR of 5kA
- Most units are available in 115, 230, or 460 VAC (+/- 10%) operating voltages

Features

- Coils are designed as filterless units, fin spacing and hydrophobic nanocoating to help reduce chance of clogging.
- Washable, reusable 8 layer aluminum mesh filters included.
- Compressor heater.
- Enclosure heater for low ambient temperatures.
- High temp alarm.
- Door-activated switch wiring provisions.
- Environmentally friendly R-513a or R-134a refrigerant.

Listings

- UL File: E498756.

Enviro-Therm® Series Air Conditioners

SAGINAW CONTROL & ENGINEERING
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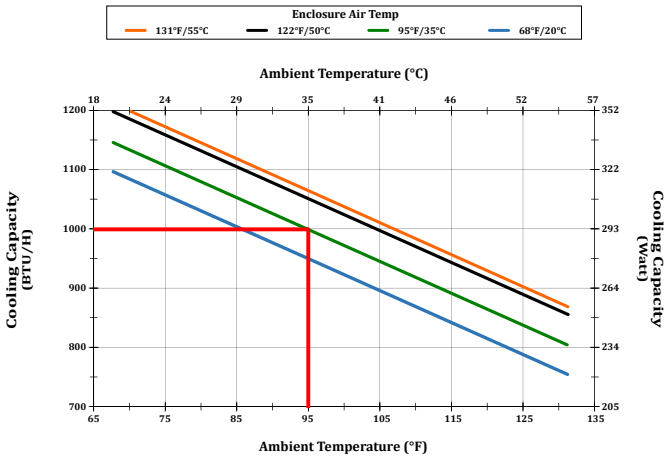
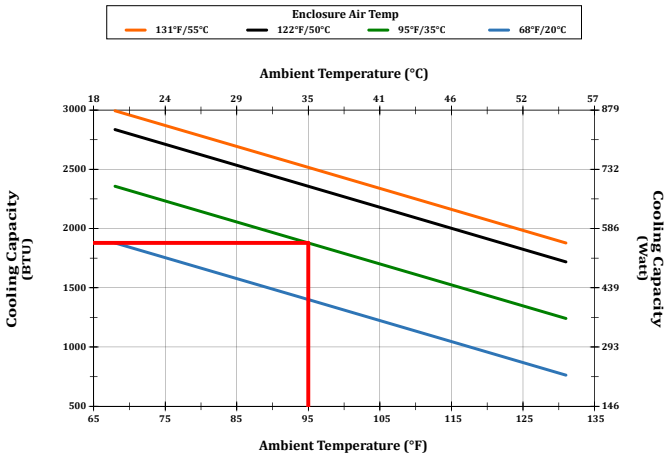
Enviro-Therm® Series Air Conditioners Specifications									
Part Number	*Price*	*Nominal Cooling Capacity*	*Operating Voltage*	*Inrush Current*	*Running Current*	*For Enclosure NEMA Ratings*	*Housing Material*	*Unit Weight*	*Drawing Links*
SCE-AC1000B120V	$;--005il3:	1000 BTU/H	115 VAC	8A	2.9A	3R, 4 & 12	Carbon Steel	35.0 lbs	PDF
SCE-AC1000B120VSS	$;--005ilo:					3R, 4, 4X & 12	304 Stainless Steel		PDF
SCE-AC1000B120VSS6	$;-005in8:						316 Stainless Steel		PDF
SCE-AC1000B230V	$;--005il4:		230 VAC	5A	1.5A	3R, 4 & 12	Carbon Steel		PDF
SCE-AC1000B230VSS	$;--005ilp:					3R, 4, 4X & 12	304 Stainless Steel		PDF
SCE-AC1000B230VSS6	$;-005in9:						316 Stainless Steel		PDF
SCE-AC1870B120V	$;--005il5:	1870 BTU/H	115 VAC	20A	5.6A	3R, 4 & 12	Carbon Steel	71.5 lbs	PDF
SCE-AC1870B120VSS	$;--005ilq:					3R, 4, 4X & 12	304 Stainless Steel		PDF
SCE-AC1870B120VSS6	$;-005ina:						316 Stainless Steel		PDF
SCE-AC1870B230V	$;--005il6:		230 VAC	10A	2.8A	3R, 4 & 12	Carbon Steel	68.2 lbs	PDF
SCE-AC1870B230VSS	$;--005ils:					3R, 4, 4X & 12	304 Stainless Steel		PDF
SCE-AC1870B230VSS6	$;-005inb:						316 Stainless Steel		PDF
SCE-AC1870B460V	$;--005il7:		460 VAC	5A	1.6A	3R, 4 & 12	Carbon Steel	71.5 lbs	PDF
SCE-AC1870B460VSS	$;;--005ilt:					3R, 4, 4X & 12	304 Stainless Steel		PDF
SCE-AC1870B460VSS6	$;-005inc:						316 Stainless Steel		PDF

Performance Graphs

SCE-AC1000 Units



SCE-AC1870 Units



Enviro-Therm® Series Air Conditioners

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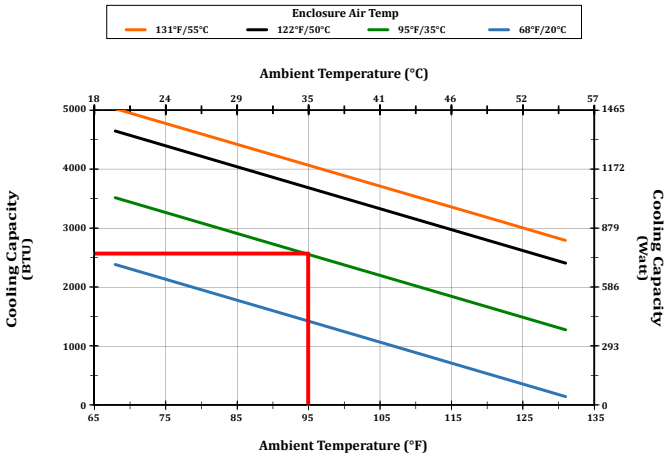
Enviro-Therm® Series Air Conditioners Specifications

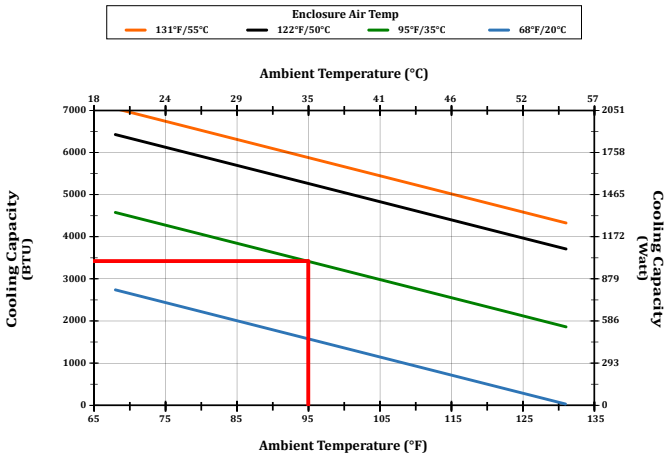
Part Number	Price	Nominal Cooling Capacity	Operating Voltage	Inrush Current	Running Current	For Enclosure NEMA Ratings	Housing Material	Unit Weight	Drawing Links
SCE-AC2550B120V	$;-005ik?:	2550 BTU/H	115 VAC	22A	7.4A	3R, 4 & 12	Carbon Steel	71.5 lbs	PDF
SCE-AC2550B120VSS	$;--005ilu:					3R, 4, 4X & 12	304 Stainless Steel		PDF
SCE-AC2550B120VSS6	$;-005ind:						316 Stainless Steel		PDF
SCE-AC2550B230V	$;;-005ik,:		230 VAC	11A	3.7A	3R, 4 & 12	Carbon Steel	68.2 lbs	PDF
SCE-AC2550B230VSS	$;--005ilv:					3R, 4, 4X & 12	304 Stainless Steel		PDF
SCE-AC2550B230VSS6	$;-005ine:						316 Stainless Steel		PDF
SCE-AC2550B460V	$;--005il0:		460 VAC	6A	2.1A	3R, 4 & 12	Carbon Steel	71.5 lbs	PDF
SCE-AC2550B460VSS	$;--005ilx:					3R, 4, 4X & 12	304 Stainless Steel		PDF
SCE-AC2550B460VSS6	$;;-005inf:						316 Stainless Steel		PDF
SCE-AC3400B120V	$;--005il1:	3400 BTU/H	115 VAC	32A	10.8A	3R, 4 & 12	Carbon Steel	91.3 lbs	PDF
SCE-AC3400B120VSS	$;--005ily:					3R, 4, 4X & 12	304 Stainless Steel		PDF
SCE-AC3400B120VSS6	$;-005ing:						316 Stainless Steel		PDF
SCE-AC3400B230V	$;--005il2:		230 VAC	16A	5.4A	3R, 4 & 12	Carbon Steel	85.8 lbs	PDF
SCE-AC3400B230VSS	$;--005ilz:					3R, 4, 4X & 12	304 Stainless Steel		PDF
SCE-AC3400B230VSS6	$;-005inh:						316 Stainless Steel		PDF
SCE-AC3400B460V	$;--005il8:		460 VAC	9.2 A	2.9A	3R, 4 & 12	Carbon Steel	91.3 lbs	PDF
SCE-AC3400B460VSS	$;;--005il]:					3R, 4, 4X & 12	304 Stainless Steel		PDF
SCE-AC3400B460VSS6	$;--005ini:						316 Stainless Steel		PDF

Performance Graphs

SCE-AC2550 Units



SCE-AC3400 Units



Enviro-Therm® Series Air Conditioners

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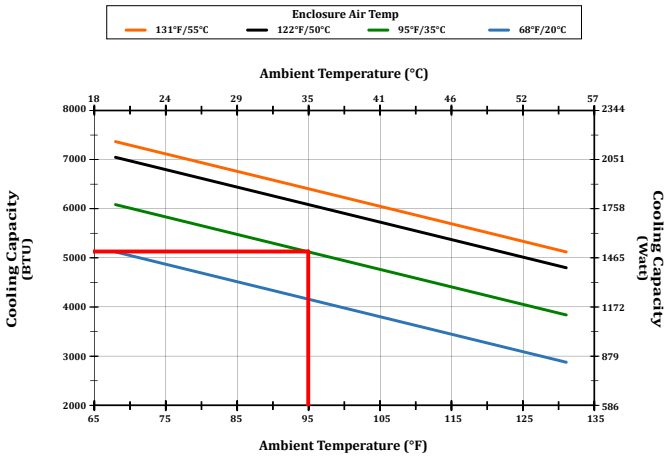
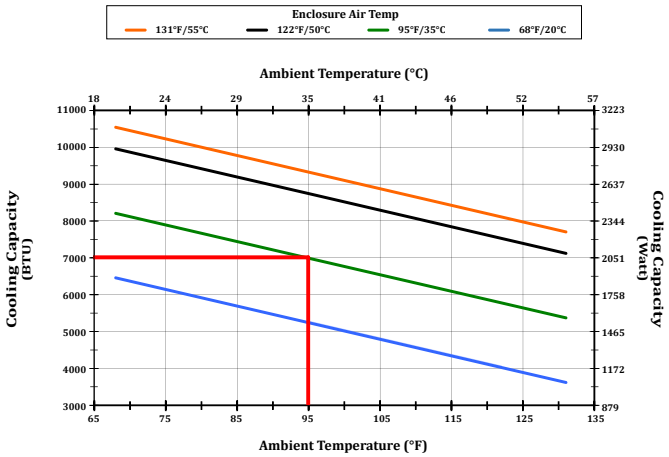
Enviro-Therm® Series Air Conditioners Specifications									
Part Number	*Price*	*Nominal Cooling Capacity*	*Operating Voltage*	*Inrush Current*	*Running Current*	*For Enclosure NEMA Ratings*	*Housing Material*	*Unit Weight*	*Drawing Links*
SCE-AC5100B120V	$;--005il9:	5100 BTU/H	115 VAC	32A	14.2A	3R, 4 & 12	Carbon Steel	113.3 lbs	PDF
SCE-AC5100B120VSS	$;;--005il[:					3R, 4, 4X & 12	304 Stainless Steel		PDF
SCE-AC5100B120VSS6	$;--005inj:						316 Stainless Steel		PDF
SCE-AC5100B230V	$;--005ila:		230 VAC	16A	7.1A	3R, 4 & 12	Carbon Steel	108.9 lbs	PDF
SCE-AC5100B230VSS	$;--005il_:					3R, 4, 4X & 12	304 Stainless Steel		PDF
SCE-AC5100B230VSS6	$;-005ink:						316 Stainless Steel		PDF
SCE-AC5100B460V	$;--005ilb:		460 VAC	8A	3.6A	3R, 4 & 12	Carbon Steel	113.3 lbs	PDF
SCE-AC5100B460VSS	$;--005il#:					3R, 4, 4X & 12	304 Stainless Steel		PDF
SCE-AC5100B460VSS6	$;--005inl:						316 Stainless Steel		PDF
SCE-AC6800B120V	$;--005ilc:	6800 BTU/H	115 VAC	32A	17.2A	3R, 4 & 12	Carbon Steel		PDF
SCE-AC6800B120VSS	$;;--005il!:					3R, 4, 4X & 12	304 Stainless Steel		PDF
SCE-AC6800B120VSS6	$;-005inn:						316 Stainless Steel		PDF
SCE-AC6800B230V	$;--005ild:		230 VAC	16A	8.6A	3R, 4 & 12	Carbon Steel	108.9 lbs	PDF
SCE-AC6800B230VSS	$;--005il?:					3R, 4, 4X & 12	304 Stainless Steel		PDF
SCE-AC6800B230VSS6	$;-005ino:						316 Stainless Steel		PDF
SCE-AC6800B460V3	$;--005ile:		460 VAC	8.5 A	3.2A	3R, 4 & 12	Carbon Steel	113.3 lbs	PDF
SCE-AC6800B460V3SS	$;;--005il,:					3R, 4, 4X & 12	304 Stainless Steel	133.3 lbs	PDF
SCE-AC6800B460V3SS6	$;-005inp:						316 Stainless Steel		PDF

Performance Graphs

SCE-AC5100 Units



SCE-AC6800 Units



Enviro-Therm® Series Air Conditioners

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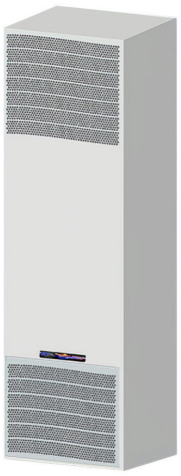
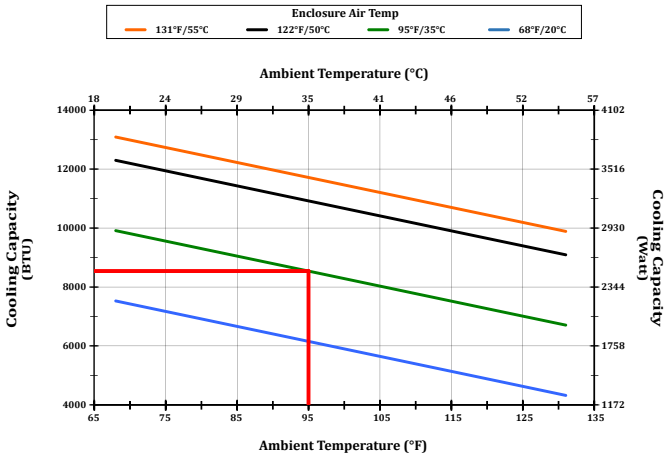
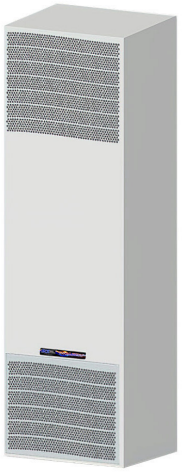
Enviro-Therm® Series Air Conditioners Specifications									
Part Number	*Price*	*Nominal Cooling Capacity*	*Operating Voltage*	*Inrush Current*	*Running Current*	*For Enclosure NEMA Ratings*	*Housing Material*	*Unit Weight*	*Drawing Links*
SCE-AC8500B120V	$;;--005ilf:	8500 BTU/H	115 VAC	45A	16.8A	3R, 4 & 12	Carbon Steel	169.4 lbs	PDF
SCE-AC8500B120VSS	$;-005in0:					3R, 4, 4X & 12	304 Stainless Steel	113.3 lbs	PDF
SCE-AC8500B120VSS6	$;-005inq:						316 Stainless Steel		PDF
SCE-AC8500B230V	$;--005ilg:		230 VAC	22.5 A	8.4A	3R, 4 & 12	Carbon Steel	165.0 lbs	PDF
SCE-AC8500B230VSS	$;-005in1:					3R, 4, 4X & 12	304 Stainless Steel		PDF
SCE-AC8500B230VSS6	$;-005ins:						316 Stainless Steel		PDF
SCE-AC8500B460V	$;--005ilh:		460 VAC	6.8 A	3.6A	3R, 4 & 12	Carbon Steel	171.6 lbs	PDF
SCE-AC8500B460VSS	$;-005in2:					3R, 4, 4X & 12	304 Stainless Steel		PDF
SCE-AC8500B460VSS6	$;;-005int:						316 Stainless Steel		PDF
SCE-AC10200B230V	$;---005ili:	10200 BTU/H	230 VAC	30A	9.9A	3R, 4 & 12	Carbon Steel	169.4 lbs	PDF
SCE-AC10200B230VSS	$;-005in3:					3R, 4, 4X & 12	304 Stainless Steel		PDF
SCE-AC10200B230VSS6	$;-0005inu:						316 Stainless Steel		PDF
SCE-AC10200B460V3	$;---005ilj:		460 VAC	8.1 A	3.5A	3R, 4 & 12	Carbon Steel	176.0 lbs	PDF
SCE-AC10200B460V3SS	$;-005in4:					3R, 4, 4X & 12	304 Stainless Steel	169.4 lbs	PDF
SCE-AC10200B460V3SS6	$;-0005inv:						316 Stainless Steel		PDF

Performance Graphs

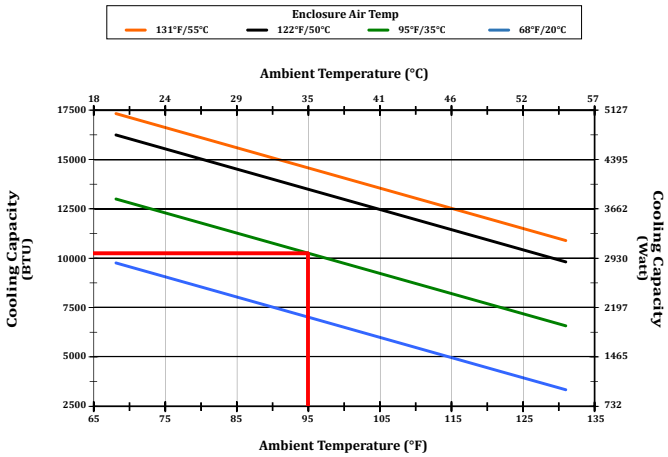


SCE-AC8500 Units





SCE-AC10200 Units



Enviro-Therm® Series Air Conditioners

SAGINAW CONTROL & ENGINEERING
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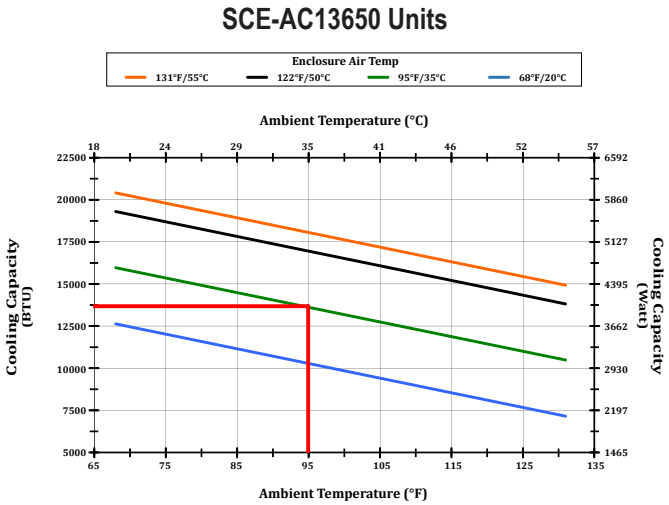
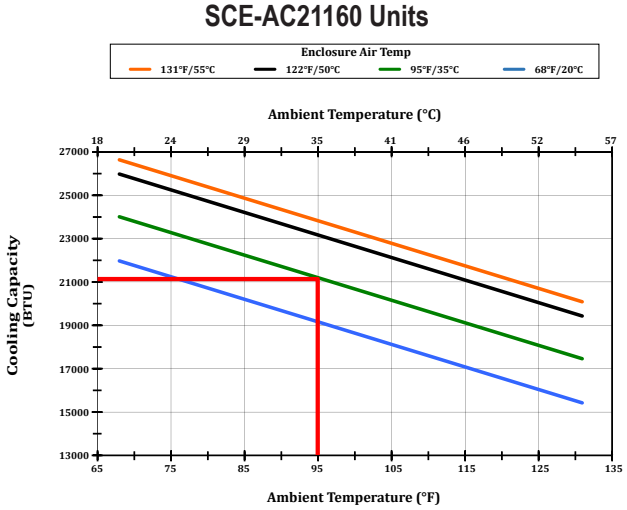
Enviro-Therm® Series Air Conditioners Specifications									
Part Number	*Price*	*Nominal Cooling Capacity*	*Operating Voltage*	*Inrush Current*	*Running Current*	*For Enclosure NEMA Ratings*	*Housing Material*	*Unit Weight*	*Drawing Links*
SCE-AC13650B230V	$;--005ilk:	13650 BTU/H	230 VAC	50A	13.7A	3R, 4 & 12	Carbon Steel	169.4 lbs	PDF
SCE-AC13650B230VSS	$;-005in5:					3R, 4, 4X & 12	304 Stainless Steel		PDF
SCE-AC13650B230VSS6	$;-0005inx:						316 Stainless Steel		PDF
SCE-AC13650B460V3	$;---005ill:		460 VAC	8.5 A	5.0A	3R, 4 & 12	Carbon Steel	176.0 lbs	PDF
SCE-AC13650B460V3SS	$;-005in6:					3R, 4, 4X & 12	304 Stainless Steel		PDF
SCE-AC13650B460V3SS6	$;-0005iny:						316 Stainless Steel		PDF
SCE-AC21160B460V3	$;--005iln:	21160 BTU/H		69A	9.8A	3R, 4 & 12	Carbon Steel	188.0 lbs	PDF
SCE-AC21160B460V3SS	$;-0005in7:					3R, 4, 4X & 12	304 Stainless Steel		PDF

Performance Graphs





NextGen Enviro-Therm® Series Air Conditioners

SAGINAW CONTROL & ENGINEERING
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Applications

NextGen Enviro-Therm® air conditioners are designed with an internal closed loop system to provide protection from dust, oil and water. For use in most industrial area or application where low ambient is not a concern indoor and outdoor. Rugged, more energy efficient and reliable cooling system.

Construction

- Carbon Steel Housing.
- Closed loop cooling system.
- Hermetically sealed rotary compressor.
- Internal components are corrosion resistant.
- Built in modbus communication via RS485 serial for unit control and monitoring.
- Active condensate system.
- Screw fastened filter cover.
- Easy handling removable lifting strap.
- Mounting flange hangers for easy installation, included.
- Digital touchpad programmable controller, viewable from outside the enclosure.
- Controller preset 95°F to cool adjustable 68°F to 122°F.
- Temperature differential hysteresis 5.4°F.
- High performance ball bearing fans.
- All 460 VAC units have an SCCR of 5kA.

Features

- Coils are designed as filterless units, fin spacing and hydrophobic nanocoating to help reduce chance of clogging.
- Washable, reusable aluminum mesh filters included.
- High temp alarm preset to 131°F.
- Door activated switch wiring provisions provided for easy installation.
- Environmentally friendly R-513a or R-134a refrigerant.

Listings

- Can be used in NEMA 3R, 4, and 12 rated enclosures.
- cULus: Listed in UL File E498756 under Model Number and not Part Number.

NextGen Enviro-Therm® Series Air Conditioners

SAGINAW CONTROL & ENGINEERING
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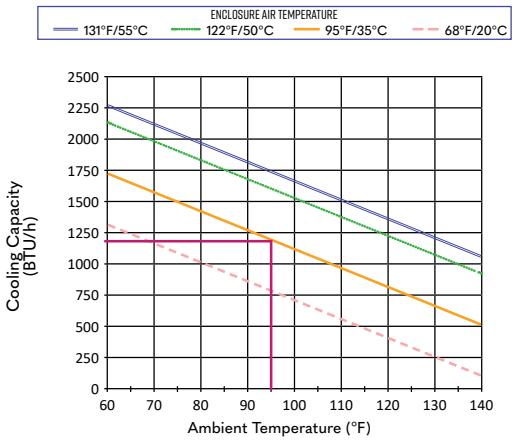
NextGen Enviro-Therm® Series Air Conditioners Specifications								
Part Number	*Price*	*Nominal Cooling Capacity*	*Operating Voltage*	*Inrush Current*	*Running Current*	*Unit Weight*	*Model Number*	*Drawing Links*
SCE-NG1195B120V	$;-005inz:	1195 BTU/H	115 VAC	7.5 A	2.6A	30.0 lbs	KG8503	PDF
SCE-NG1195B230V	$;;-005in]:		230 VAC	4A	1.6A	31.0 lbs		PDF
SCE-NG1870B120V	$;;-005in[:	1870 BTU/H	115 VAC	13A	4.8A	35.3 lbs	KG8505	PDF
SCE-NG1870B230V	$;-005in_:		230 VAC	6A	2.5A			PDF

Performance Graphs

SCE-NG1195 Units

PERFORMANCE CURVE

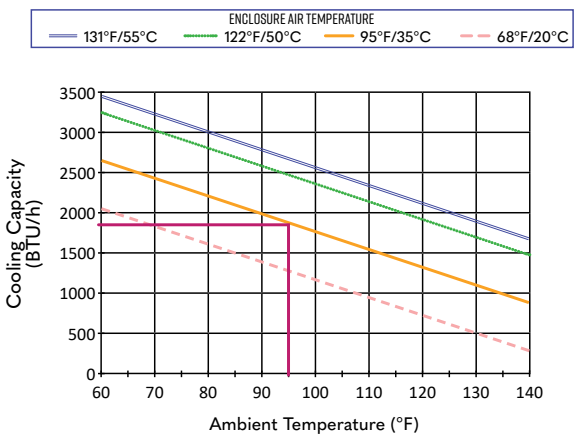
SCE-NG1195B120V, SCE-NG1195B230V



SCE-NG1870 Units

PERFORMANCE CURVE

SCE-NG1870B120V, SCE-NG1870B230V



NextGen Enviro-Therm® Series Air Conditioners

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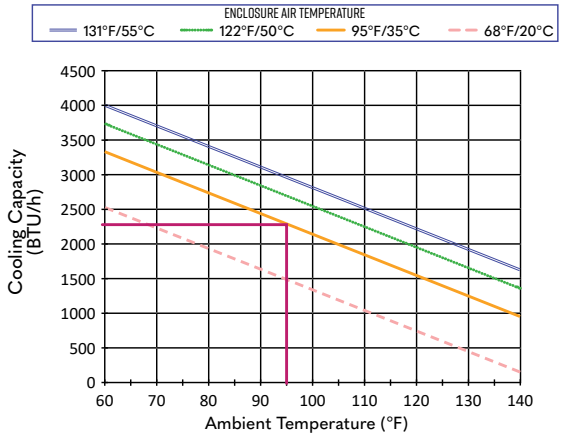
NextGen Enviro-Therm® Series Air Conditioners Specifications								
Part Number	*Price*	*Nominal Cooling Capacity*	*Operating Voltage*	*Inrush Current*	*Running Current*	*Unit Weight*	*Model Number*	*Drawing Links*
SCE-NG2320B120V	$;-005in#:	2320 BTU/H	115 VAC	13A	6.0A	46.0 lbs	KG 8506	PDF
SCE-NG2320B230V	$;;-005in!:		230 VAC	6A	2.7A	31.0 lbs		PDF
SCE-NG2320B460V	$;-005in?:		460 VAC	3A	1.5A	40.0 lbs		PDF
SCE-NG2970B120V	$;;-005in,:	2970 BTU/H	115 VAC	28A	6.8A	66.0 lbs	KG8508	PDF
SCE-NG2970B230V	$;-005io0:		230 VAC	6A	3.0A	56.0 lbs		PDF
SCE-NG2970B460V	$;-005io1:		460 VAC	4A	1.4A	66.0 lbs		PDF

Performance Graphs

SCE-NG2320 Units

PERFORMANCE CURVE

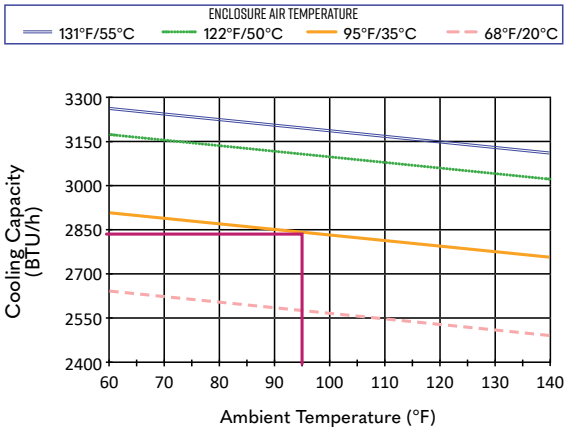
SCE-NG2320BI20V, SCE-NG2320B230V, SCE-NG2320B460V



SCE-NG2970 Units

PERFORMANCE CURVE

SCE-NG2970BI20V, SCE-NG2970B230V, SCE-NG2970B460V



NextGen Enviro-Therm® Series Air Conditioners

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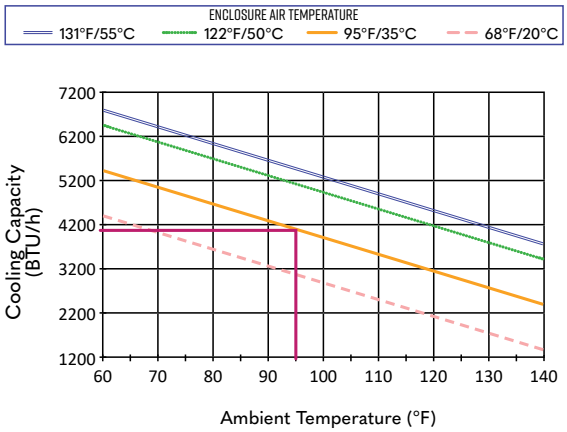
NextGen Enviro-Therm® Series Air Conditioners Specifications								
Part Number	*Price*	*Nominal Cooling Capacity*	*Operating Voltage*	*Inrush Current*	*Running Current*	*Unit Weight*	*Model Number*	*Drawing Links*
SCE-NG2970B460V	$;-005io2:	4095 BTU/H	115 VAC	30A	9.5A	77.0 lbs	KG8512	PDF
SCE-NG4095B230V	$;-005io3:		230 VAC	15A	5.0A	66.0 lbs		PDF
SCE-NG4095B460V3	$;-005io4:		460 VAC	8.2 A	2.0A	77.0 lbs		PDF
SCE-NG5290B120V	$;-005io5:	5290 BTU/H	115 VAC	32A	9.4A	96.0 lbs	KG 8412	PDF
SCE-NG5290B230V	$;-005io6:		230 VAC	16A	4.7A	85.0 lbs		PDF
SCE-NG5290B460V3	$;-005io7:		460 VAC	8.2 A	2.0A	88.0 lbs		PDF

Performance Graphs

SCE-NG4095 Units

PERFORMANCE CURVE

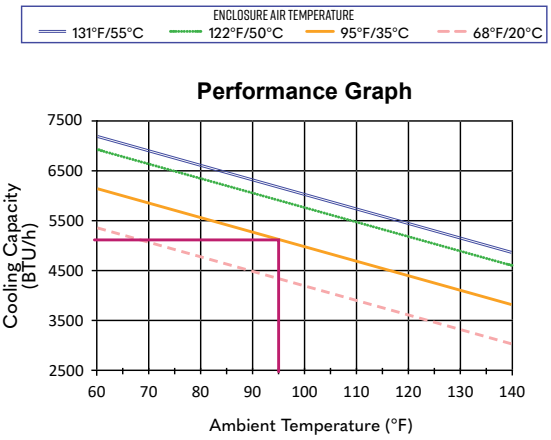
SCE-NG4095BI20V, SCE-NG4095B230V, SCE-NG4095B460V3



SCE-NG5290 Units

PERFORMANCE CURVE

SCE-NG5290BI20V, SCE-NG5290B230V, SCE-NG5290B460V3



NextGen Enviro-Therm® Series Air Conditioners

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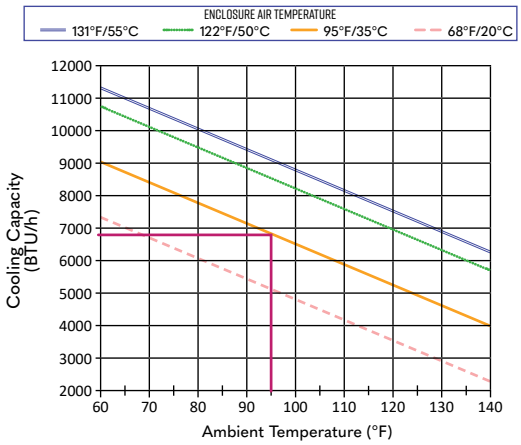
NextGen Enviro-Therm® Series Air Conditioners Specifications								
Part Number	*Price*	*Nominal Cooling Capacity*	*Operating Voltage*	*Inrush Current*	*Running Current*	*Unit Weight*	*Model Number*	*Drawing Links*
SCE-NG5290B460V3	$;-005io8:	6800 BTU/H	115 VAC	32A	14.8A	106.0 lbs	KG 8520	PDF
SCE-NG6800B230V	$;-005io9:		230 VAC	16A	7.4A	102.0 lbs		PDF
SCE-NG6800B460V3	$;-005ioa:		460 VAC	8A	2.9A	107.0 lbs		PDF
SCE-NG8500B120V	$;-005iob:	8500 BTU/H	115 VAC	22.5 A	19.3A	99.0 lbs	KG 8525	PDF
SCE-NG8500B230V	$;-005ioc:		230 VAC	11A	7.9A	104.0 lbs		PDF
SCE-NG8500B460V3	$;-005iod:		460 VAC	20A	3.1A	99.0 lbs		PDF

Performance Graphs

SCE-NG6800 Units

PERFORMANCE CURVE

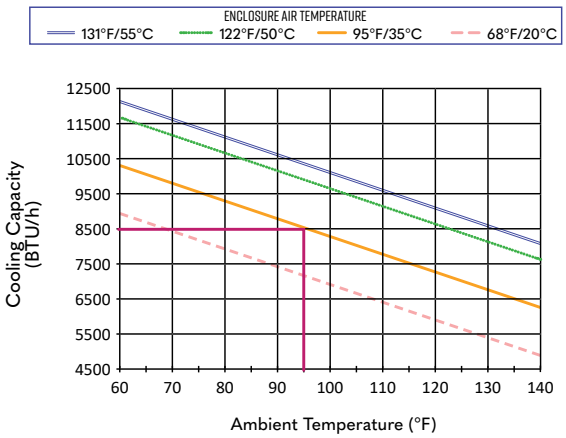
SCE-NG6800BI20V, SCE-NG6800B230V, SCE-NG6800B460V3



SCE-NG8500 Units

PERFORMANCE CURVE

SCE-NG8500BI20V, SCE-NG8500B230V, SCE-NG8500B460V3



NextGen Enviro-Therm® Series Air Conditioners

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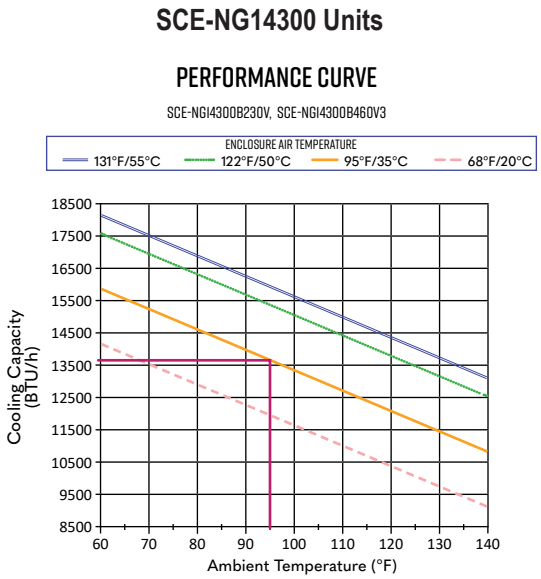
NextGen Enviro-Therm® Series Air Conditioners Specifications								
Part Number	*Price*	*Nominal Cooling Capacity*	*Operating Voltage*	*Inrush Current*	*Running Current*	*Unit Weight*	*Model Number*	*Drawing Links*
SCE-NG14300B230V	$;-005ioe:	14300 BTU/H	230 VAC	50A	14.8A	136.0 lbs	KG 8440	PDF
SCE-NG14300B460V3	$;;-005iof:		460 VAC	15A	4.5A	141.0 lbs		PDF

Performance Graphs



SlimLine Series Air Conditioners

Applications

SlimLine air conditioners are designed with an internal closed loop system to provide protection from dust, oil and water. Rugged, energy efficient, and reliable cooling system.

Construction

- Heavy gauge carbon steel.
- For use with NEMA 12 enclosures.
- Internal components are corrosion resistant.
- Captive screw fastened filter cover.
- Easy mounting flange hangers for installation included.
- High performance ball bearing fans.
- Cage clamp terminal connector.
- Oil and water-resistant gaskets installed.
- Units are painted RAL7035 Light Gray
- All 460 VAC units have an SCCR of 5kA

Features

- Coils are designed as filterless units, fin spacing and hydrophobic nanocoating to help reduce chance of clogging.
- Washable, reusable 8-layer aluminum mesh filters included.
- Compressor heater.
- Enclosure heater for low ambient temperatures.
- High temp alarm.
- Door-activated switch wiring provisions.
- Environmentally friendly and chlorine-free R-134a refrigerant.

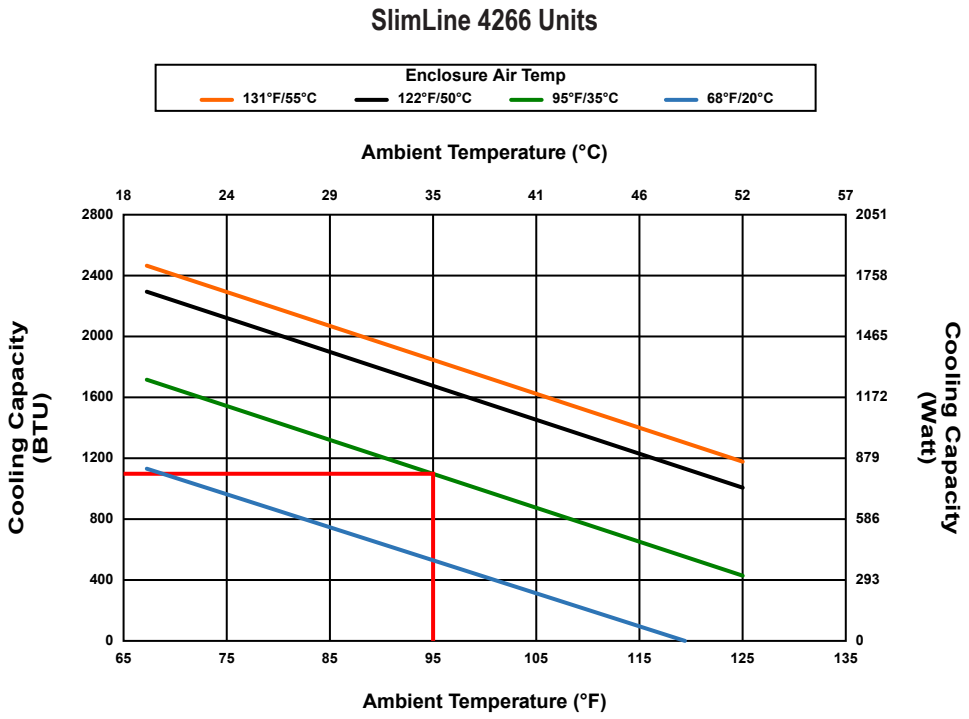
Listings

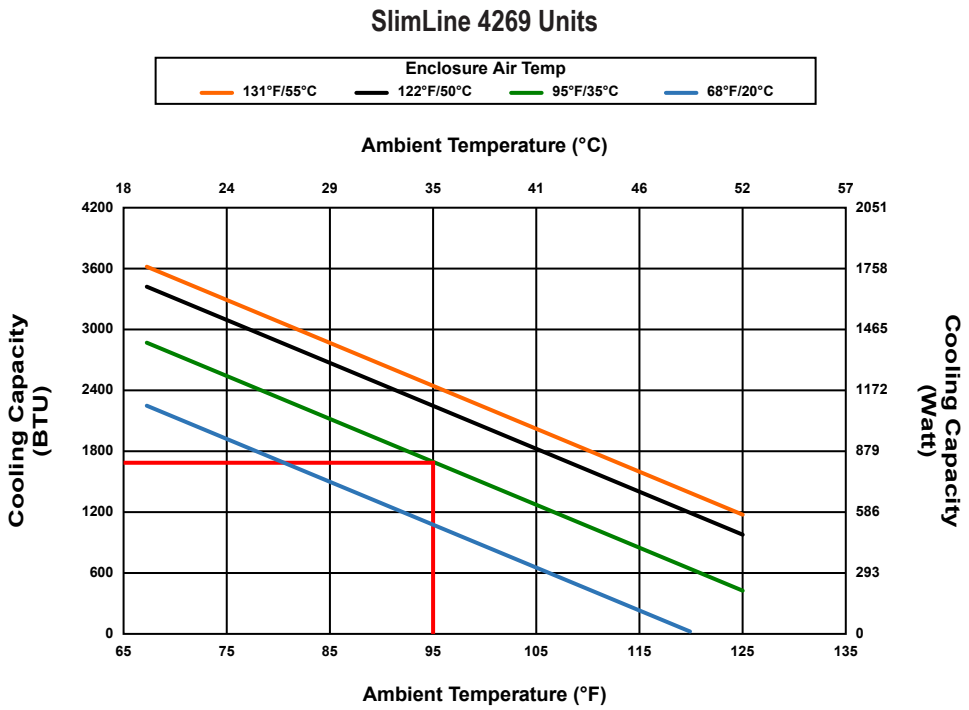
- cULus Listed Type 12 File: E498756.
- cURus Recognized File SA32278
- IP54

SlimLine Series Air Conditioners							
Part Number	*Price*	*Nominal Cooling Capacity*	*Operating Voltage*	*Inrush Current*	*Running Current*	*Unit Weight*	*Drawing Link*
42661001	$;-005i3p:	1130 BTU/H	115 VAC	7.1 A	3.6A	29.0 lbs	PDF
42691001	$;-005i3q:	1770 BTU/H		14.6 A	4.4A	35.0 lbs	PDF
42711001	$;-005i3s:	3020 BTU/H		37A	7.2A	73.0 lbs	PDF
42712001	$;-005i3u:		460 VAC	8.2 A	1.4A	84.0 lbs	PDF
42721001	$;-005i3v:	4100 BTU/H	115 VAC	37A	8.0A	88.0 lbs	PDF
42722001	$;-005i3x:	4090 BTU/H	460 VAC	8.2 A	1.5A	90.0 lbs	PDF

SlimLine Series Air Conditioners

Performance Graphs

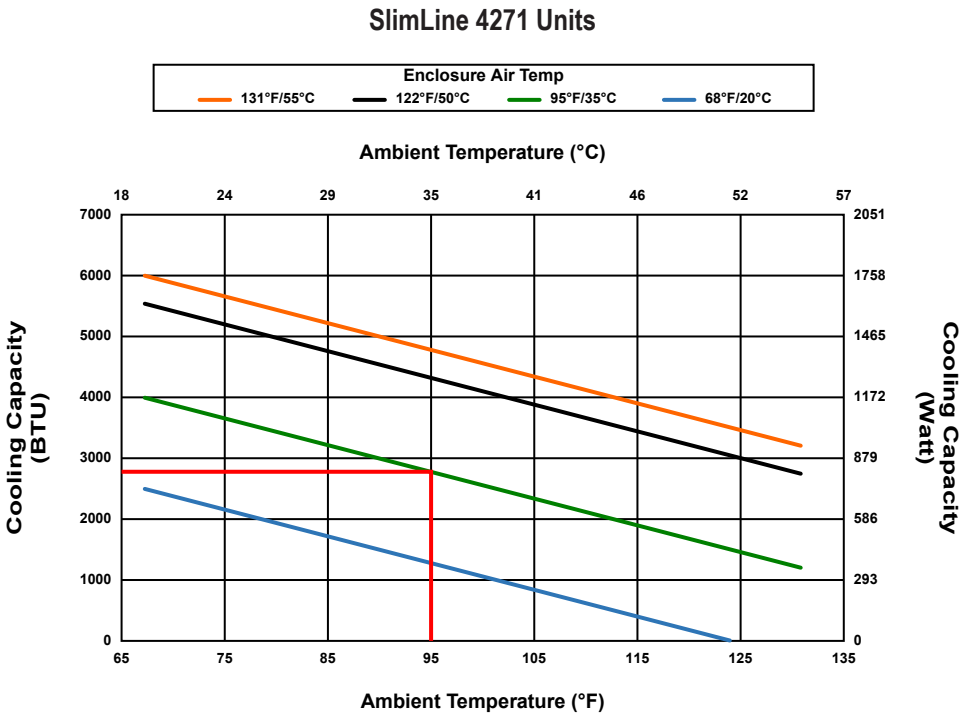


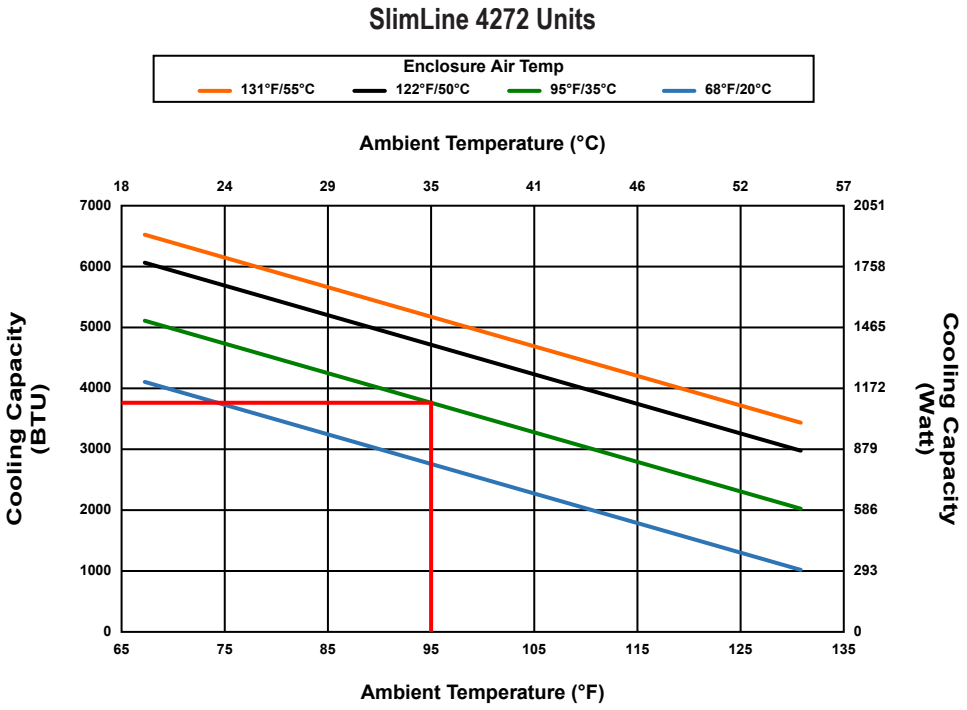


SlimLine Series Air Conditioners

SEIFERT thermal innovations

Performance Graphs





SlimLine Vario Series Air Conditioner

SEIFERT thermal innovations

Applications

The SlimLine Vario compressor can be adjusted to the required cooling capacity with variable speed via a controller, only consuming the amount of electricity that is actually required to cool the current power losses.

By continuously adapting the cooling capacity, a constant enclosure temperature can be achieved. Meaning the electronic components and the cooler are significantly less stressed. In addition, the formation of condensate inside the enclosure is minimized.

All of this leads to higher operational reliability, longer service life and energy savings.

Construction

- Carbon steel housing.
- Closed loop cooling system.
- Hermetically sealed rotary compressor.
- Internal components are corrosion resistant.
- Built in Modbus communication via RS485 serial for unit monitoring and variable speed control.
- Active condensate system.
- Easy handling removable lifting strap.
- Mounting flange hangers for easy installation, included.
- Digital touchpad programmable controller, viewable from outside the enclosure.
- High performance ball bearing fans.
- SCCR of 5kA

Features

- Coils are designed as filterless units, with fin spacing and hydrophobic nanocoating to help reduce chance of clogging.
- Washable, reusable aluminum mesh filters included.
- Compressor heater.
- Enclosure heater for low ambient temperatures.
- High temp alarm.
- Door-activated switch wiring provisions.
- Environmentally friendly and chlorine-free R-134a refrigerant.

Listings

- cULus Listed Type 3, 3R, and 12 File: E498756.
- cURus Recognized File SA32278
- IP54

SlimLine Vario Air Conditioner							
Part Number	*Price*	*Nominal Cooling Capacity*	*Operating Voltage*	*Inrush Current*	*Running Current*	*Unit Weight*	*Drawing Link*
862504001	$;-005i3y:	8700 BTU/H	115/230 VAC	8A	12.6A/6.3A	99.0 lbs	PDF

SlimLine Vario Series Air Conditioners

Performance Graphs