



*McLean*<sup>®</sup>

# SPECIFIER'S GUIDE

EQUIPMENT PROTECTION SOLUTIONS

COOLING

DESIGN WITH CONFIDENCE™

## At Pentair Equipment Protection Solutions, our brands are synonymous with the best in our business.

With the Hoffman®, Mclean® and Schroff® brands, we've not only invented the categories where we compete, we continue to define where they go next. Around the world, customers ask for us by name—to protect the electrical and electronic systems that support everyday life.

Our 6,000+ global employees deliver a deep portfolio of products that have been proven true by the test of time, even as we develop the solutions that will establish the standards of tomorrow. With over \$1 billion in sales, we work at the core of critical global industries.

But most importantly, we commit ourselves to the success of every customer to help ensure that you're able to deliver the best to your markets.



The Hoffman brand of enclosures free you from worry about your sensitive equipment with a range of protective enclosures including standard, modified designs and more customized engineered solutions. Attuned to your equipment and working environment, we protect controls, components and electronics in industrial, energy, infrastructure, contractor, communications, data and security applications. From clean-rooms and control rooms to factory floors and oil & gas installations, we provide essential protection from dust, dirt, oil, water, corrosion and other contaminants.



McLean's cooling technology helps create optimal conditions for the smooth operation of electronic and electrical components. Addressing manufacturing controls, telecom equipment, data networks and more, we apply 30 years of experience to meet your specific demands. From standard fan assemblies to air conditioners, heat exchangers to integrated and cooling enclosures for a variety of applications, we help improve productivity and uptime to enable engineers to stay focused on their goals. The result is confidence from having reliable products and services.



Schroff offers leading edge standards-based solutions for housing and protecting electronics systems. With a wide range of products including basic components such as front panels, handles, sub-racks, cases, back planes and cabinets, all the way to networking infrastructure and pre-assembled shelves for industrial computer systems, these platform components not only enclose, shield and cool; they offer capabilities to suit a variety of needs. We engage deeply with our customers to ensure that what you require next is what we work to deliver now.

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## QUICK REFERENCE

Use this handy table to match your electronic cooling requirements with the most effective McLean protective cooling solution.

|                                         | Air Conditioners        |                                   |                                    |                     |                       |              | Heat Exchangers                   |                                    | TEC            |
|-----------------------------------------|-------------------------|-----------------------------------|------------------------------------|---------------------|-----------------------|--------------|-----------------------------------|------------------------------------|----------------|
|                                         | SPECTRACOO <sup>™</sup> | SPECTRACOO <sup>™</sup><br>Narrow | SPECTRACOO <sup>™</sup><br>Compact | PROAIR <sup>™</sup> | T-SERIES <sup>™</sup> | Water-Cooled | CLIMAGUARD <sup>™</sup><br>Indoor | CLIMAGUARD <sup>™</sup><br>Outdoor | Thermoelectric |
| PAGE NUMBER                             | 28                      | 52                                | 70                                 | 122                 | 80                    | 132          | 144                               | 160                                | 184            |
| <b>SYSTEM APPLICATION</b>               |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| For indoor industrial                   |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| For harsh / corrosive environments      |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| For washdown applications               |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| For outdoor enclosures                  |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| For telecommunications shelters         |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| <b>TEMPERATURE OF THE ELECTRONICS</b>   |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| Cooler than outside the enclosure       |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| Warmer than outside the enclosure       |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| <b>AIR CONDITIONER COOLING CAPACITY</b> |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| 1000-2000 BTU/Hr (300-700 Watts)        |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| 4000-6000 BTU/Hr (1200-1800 Watts)      |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| 8000-12000 BTU/Hr (2300-3500 Watts)     |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| 20000 BTU/Hr (5900 Watts)               |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| 2-ton 23500 BTU/Hr (6900 Watts)         |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| 3-ton 42000 BTU/Hr (12300 Watts)        |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| 5-ton 59000 BTU/Hr (17300 Watts)        |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| <b>HEAT EXCHANGER COOLING CAPACITY</b>  |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| Less than 20 Watts/°F (30 Watts/°C)     |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| 20-60 Watts/°F (30-100 Watts/°C)        |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| More than 60 Watts/°F (100 Watts/°C)    |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| <b>THERMOELECTRIC COOLING CAPACITY</b>  |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| 60 Watts (178 BTU/Hr.)                  |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| 100 Watts (321 BTU/Hr.)                 |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| 200 Watts (567 BTU/Hr.)                 |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| <b>POWER INPUT</b>                      |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| 115 & 230 AVC 50/60 Hz                  |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| 400 / 460 AVC 50/60 Hz 1-phase          |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| 400 / 460 AVC 50/60 Hz 3-phase          |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| 24 & 48 VAC                             |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| <b>MOUNTING</b>                         |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| Side                                    |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| Top                                     |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| Rack                                    |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| <b>CABINET PROTECTION</b>               |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| Type 12                                 |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| Type 3R                                 |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| Type 4                                  |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| Type 4X                                 |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| <b>CABINET DIMENSION</b>                |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| Fits 8" / 203 mm                        |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| Fits 12" / 305 mm                       |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| Fits 16" / 406 mm                       |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |
| Fits 20" / 508 mm or larger             |                         |                                   |                                    |                     |                       |              |                                   |                                    |                |



## QUICK REFERENCE

Use this handy table to match your electronics cooling requirements with the most effective McLean Filter Fan.

| PAGE NUMBER                                    | Side Mount                                  |      |      |      |      |      |                 |                 |                 | Roof Mount      |                 |  |
|------------------------------------------------|---------------------------------------------|------|------|------|------|------|-----------------|-----------------|-----------------|-----------------|-----------------|--|
|                                                | SF04                                        | SF05 | SF09 | ST10 | SF10 | ST13 | SF13 376<br>CFM | SF13 473<br>CFM | SF13 571<br>CFM | SR16 280<br>CFM | SR16 459<br>CFM |  |
| <b>18 F/10 C ΔT COOLING CAPACITY</b>           | <b>TYPE 12/IP54 60 Hz 2 Exhaust Grilles</b> |      |      |      |      |      |                 |                 |                 |                 |                 |  |
| 133 BTU's (39 Watts) .05" Static Pressure      | 207                                         |      |      |      |      |      |                 |                 |                 |                 |                 |  |
| 304 BTU's (89 Watts) .10" Static Pressure      |                                             | 210  |      |      |      |      |                 |                 |                 |                 |                 |  |
| 646 BTU's (198 Watts) .10" Static Pressure     |                                             |      | 212  |      |      |      |                 |                 |                 |                 |                 |  |
| 776 BTU's (315 Watts) .10" Static Pressure     |                                             |      |      | 225  |      |      |                 |                 |                 |                 |                 |  |
| 1,437 BTU's (421 Watts) .15" Static Pressure   |                                             |      |      |      | 214  |      |                 |                 |                 |                 |                 |  |
| 2,305 BTU's (676 Watts) .20" Static Pressure   |                                             |      |      |      |      | 227  |                 |                 |                 |                 |                 |  |
| 2,422 BTU's (710 Watts) .20" Static Pressure   |                                             |      |      |      |      |      | 216             |                 |                 |                 |                 |  |
| 3,931 BTU's (1,152 Watts) .35" Static Pressure |                                             |      |      |      |      |      |                 | 218             |                 |                 |                 |  |
| 3,945 BTU's (1,156 Watts) .45" Static Pressure |                                             |      |      |      |      |      |                 |                 | 221             |                 |                 |  |
| 1,929 BTU's (565 Watts) .55" Static Pressure   |                                             |      |      |      |      |      |                 |                 |                 | 230             |                 |  |
| 4,151 BTU's (1,216 Watts) .85" Static Pressure |                                             |      |      |      |      |      |                 |                 |                 |                 | 232             |  |
| <b>36 F/20 C ΔT COOLING CAPACITY</b>           | <b>TYPE 12/IP54 60 Hz 2 Exhaust Grilles</b> |      |      |      |      |      |                 |                 |                 |                 |                 |  |
| 267 BTU's (78 Watts) .05" Static Pressure      | 207                                         |      |      |      |      |      |                 |                 |                 |                 |                 |  |
| 609 BTU's (178 Watts) .10" Static Pressure     |                                             | 210  |      |      |      |      |                 |                 |                 |                 |                 |  |
| 1,292 BTU's (379 Watts) .10" Static Pressure   |                                             |      | 212  |      |      |      |                 |                 |                 |                 |                 |  |
| 1,552 BTU's (632 Watts) .10" Static Pressure   |                                             |      |      | 225  |      |      |                 |                 |                 |                 |                 |  |
| 2,874 BTU's (842 Watts) .15" Static Pressure   |                                             |      |      |      | 214  |      |                 |                 |                 |                 |                 |  |
| 4,606 BTU's (1,350 Watts) .20" Static Pressure |                                             |      |      |      |      | 227  |                 |                 |                 |                 |                 |  |
| 4,845 BTU's (1,420 Watts) .20" Static Pressure |                                             |      |      |      |      |      | 216             |                 |                 |                 |                 |  |
| 7,862 BTU's (2,304 Watts) .35" Static Pressure |                                             |      |      |      |      |      |                 | 218             |                 |                 |                 |  |
| 7,886 BTU's (2,311 Watts) .45" Static Pressure |                                             |      |      |      |      |      |                 |                 | 221             |                 |                 |  |
| 3,859 BTU's (1,131 Watts) .55" Static Pressure |                                             |      |      |      |      |      |                 |                 |                 | 230             |                 |  |
| 8,302 BTU's (2,432 Watts) .85" Static Pressure |                                             |      |      |      |      |      |                 |                 |                 |                 | 232             |  |
| <b>18 F/10 C ΔT COOLING CAPACITY</b>           | <b>TYPE 12/IP55 60 Hz 2 Exhaust Grilles</b> |      |      |      |      |      |                 |                 |                 |                 |                 |  |
| 283 BTU's (83 Watts) .10" Static Pressure      |                                             | 210  |      |      |      |      |                 |                 |                 |                 |                 |  |
| 545 BTU's (220 Watts) .10" Static Pressure     |                                             |      | 212  |      |      |      |                 |                 |                 |                 |                 |  |
| 646 BTU's (290 Watts) .10" Static Pressure     |                                             |      |      | 225  |      |      |                 |                 |                 |                 |                 |  |
| 1,195 BTU's (350 Watts) .15" Static Pressure   |                                             |      |      |      | 214  |      |                 |                 |                 |                 |                 |  |
| 2,064 BTU's (605 Watts) .20" Static Pressure   |                                             |      |      |      |      | 227  |                 |                 |                 |                 |                 |  |
| 2,414 BTU's (707 Watts) .20" Static Pressure   |                                             |      |      |      |      |      | 216             |                 |                 |                 |                 |  |
| 3,300 BTU's (967 Watts) .35" Static Pressure   |                                             |      |      |      |      |      |                 | 218             |                 |                 |                 |  |
| 3,273 BTU's (959 Watts) .45" Static Pressure   |                                             |      |      |      |      |      |                 |                 | 221             |                 |                 |  |
| <b>36 F/20 C ΔT COOLING CAPACITY</b>           | <b>TYPE 12/IP55 60 Hz 2 Exhaust Grilles</b> |      |      |      |      |      |                 |                 |                 |                 |                 |  |
| 565 BTU's (165 Watts) .10" Static Pressure     |                                             | 210  |      |      |      |      |                 |                 |                 |                 |                 |  |
| 1,090 BTU's (442 Watts) .10" Static Pressure   |                                             |      | 212  |      |      |      |                 |                 |                 |                 |                 |  |
| 1,292 BTU's (580 Watts) .10" Static Pressure   |                                             |      |      | 225  |      |      |                 |                 |                 |                 |                 |  |
| 2,390 BTU's (940 Watts) .15" Static Pressure   |                                             |      |      |      | 214  |      |                 |                 |                 |                 |                 |  |
| 4,128 BTU's (1,209 Watts) .20" Static Pressure |                                             |      |      |      |      | 227  |                 |                 |                 |                 |                 |  |
| 4,828 BTU's (1,415 Watts) .20" Static Pressure |                                             |      |      |      |      |      | 216             |                 |                 |                 |                 |  |
| 6,600 BTU's (1,934 Watts) .35" Static Pressure |                                             |      |      |      |      |      |                 | 218             |                 |                 |                 |  |
| 6,547 BTU's (1,918 Watts) .45" Static Pressure |                                             |      |      |      |      |      |                 |                 | 221             |                 |                 |  |
| <b>POWER INPUT</b>                             |                                             |      |      |      |      |      |                 |                 |                 |                 |                 |  |
| 115 & 230 AC Volt                              |                                             |      |      |      |      |      |                 |                 |                 |                 |                 |  |
| 400 / 460 AC Volt 3-Phase                      |                                             |      |      |      |      |      |                 |                 |                 |                 |                 |  |
| 24 & 48 DC Volt                                |                                             |      |      |      |      |      |                 |                 |                 |                 |                 |  |

\* NOTE: Roof mount filter fan capacities assume two air intake grille kits.

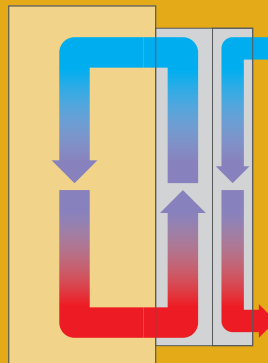
# *McLean*<sup>®</sup>

## CHAPTER 1

# SELECTING A COOLING SOLUTION

### OVERVIEW

Keeping your electronics cool is essential to extending their life and keeping your business running. Heat can have a significant impact on electronics, causing damage and voiding manufacturers' warranties. Cooling sensitive electronics increases service life and reduces capital expenses.



### SEALED ENCLOSURE COOLING

Sealed enclosure cooling, also known as a "closed-loop system", allows no outside elements inside the enclosure. It is generally required for applications operating in high temperatures—typically over 35°C/95°F—or when the enclosure is deployed in harsh environments, such as an outdoor telecom base, wastewater treatment plant, metal working, oil rig, paper mill, foundry and/or generates high heat from its own components.



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- Trend Toward More Damaging Heat ..... 4
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- Sealed vs. Fresh Air Enclosure Cooling ..... 6

**SEALED ENCLOSURE COOLING**

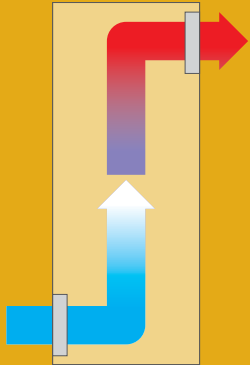
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### FRESH AIR ENCLOSURE COOLING

Fresh air cooling, referred to as an “open-loop system”, ventilates fresh air through the cabinet, exhausting heat away from hot electronics. Fresh air cooling is optimal when the electronics system is deployed in a relatively clean and cool environment, such as an office building, data networking center or light-duty factory.



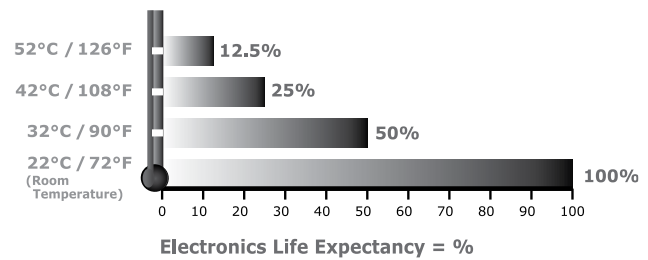
## WHY COOL ELECTRONICS IN THE FIRST PLACE?

Keeping your electronics cool is essential to extending their life and keeping your business running.

### HEAT RUINS ELECTRONICS

The life expectancy of electronics is cut in half every 10 C / 18 F they operate above room temperature. Operating electronics above certain temperatures can void manufacturers' warranties, making proper cooling essential. Cooling vital electronics increases service life and reduces capital expenses over the long-term.

**Electronics Life Expectancy with Every 10° C Rise over Room Temperature**



### SOURCES OF HEAT

Damaging heat can come from a variety of sources. Inside the cabinet, heat can come from:

- AC power supplies
- Controllers, drives and servos
- Transformers and rectifiers
- Processors and server racks
- Radio equipment
- And other electronic components

Heat also comes from sources outside the enclosure such as:

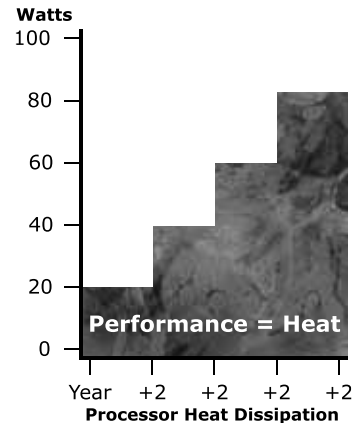
- Solar heat gain
- Welding processes
- Paint oven
- Blast furnace
- Foundry equipment

### TREND TOWARD MORE DAMAGING HEAT

For the foreseeable future, the trend is toward increasing levels of heat in electronics, not less, because the market's thirst for more information processing capacity and speed continues to grow. This trend is known as "Moore's Law."

More powerful data-processing electronics generate extra heat with virtually every new system that is designed. There is no guarantee that an application which did not require much, if any, cooling in the past will not need cooling in the future. The new system likely has more functionality and will probably require some form of cooling as a result.

**Moore's Law**  
Named after the founder of Intel



### THE CONSEQUENCES OF DAMAGING HEAT

Heat build-up can adversely affect industrial controls and sensitive electronic systems as follows:

- De-rated drive performance
- I/C-based devices experience intermittent fluctuations
- MTBF decreases exponentially
- Catastrophic failure

The costs when a factory line or electronic system fails can include:

- Productivity losses
- Component replacement costs
- Late shipments
- Customer dissatisfaction
- Lost revenue
- Cell phone tower outage
- Breach in homeland security

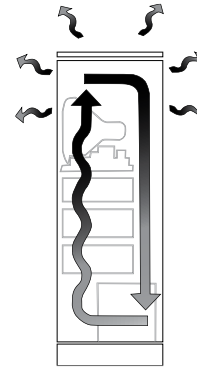
Direct costs to a business can be as much as \$50,000 per hour of system downtime.

### CONDUCTIVE ENCLOSURE COOLING

This is a passive way to cool electronics. It simply allows the heat to radiate through the cabinet walls.

Conductive enclosure cooling works well with electronics systems that have small heat loads (<50 W) and cool air around the enclosure (<78 F/25 C).

If heat is an issue, one option within this type of cooling is to increase cabinet size to create more surface area to speed the transfer of heat. However, growing cabinet size is often not a practical solution because of space limitations and the greater heat loads associated with today's high-power electronics.

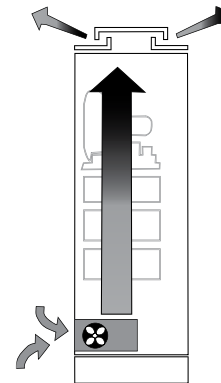


### FRESH AIR ENCLOSURE COOLING

This is an active way to manage heat in electronics applications. This type of cooling ventilates fresh air through the cabinet, exhausting heat away from the hot components.

Fresh air enclosure cooling may be used when the electronics system is deployed in a relatively clean and cool environment such as an office building, data networking center or light-duty factory. Options for cooling electronic enclosures with fresh air include filter fans, fan trays, motorized impellers and packaged blowers.

Fresh air enclosure cooling is known as an “open-loop system” because no significant seal is maintained to protect electronic components from harmful elements such as dirt, water, metal filings and corrosive fumes.



### SEALED ENCLOSURE COOLING

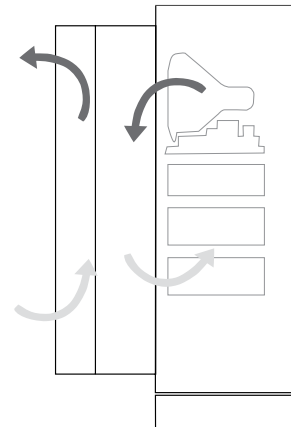
This is another active way to cool electrical components. This type of cooling maintains the seal of the enclosure—using an air conditioner or heat exchanger as examples—to remove heat from inside the electronics cabinet.

Protective cooling is generally required when the electronics application:

- (1) operates in high temperatures, typically over 95 F/35 C,
- (2) is deployed in a harsh environment such as an outdoor telecom base station, wastewater treatment plant, metal working operation, oil rig platform, paper mill, foundry and/or
- (3) generates a high heat load from its own components, usually more than 500 W.

Options for sealed enclosure cooling include air conditioners, air-to-air heat exchangers, air-to-water heat exchangers, thermoelectric coolers and vortex coolers.

Sealed enclosure cooling is known as a “closed-loop system” because the seal of the electrical cabinet is maintained, allowing no elements which can damage the electronics inside the enclosure.





## SEALED VS. FRESH AIR ENCLOSURE COOLING

Since heat dissipation is often not a solution, we will limit our choices to sealed vs. fresh air enclosure cooling.

Use the environmental and electronic system criteria in the table below to determine whether sealed or fresh air enclosure cooling is most appropriate for your application.

### Choosing Sealed vs. Fresh Air Enclosure Cooling

Specifying protective cooling that keeps your electronics components sealed from the outside environment versus using fresh air cooling to remove damaging heat depends on the following profile of your system application (check one side or the other for each of the six criteria):

|                                               | FRESH AIR                | CRITERIA                                     | SEALED                   |                                                          |
|-----------------------------------------------|--------------------------|----------------------------------------------|--------------------------|----------------------------------------------------------|
| Clean Air / Some Dust / Dripping Water        | <input type="checkbox"/> | <b>SYSTEM OPERATING ENVIRONMENT</b>          | <input type="checkbox"/> | Dirty / Wet / Metal Filings / Outdoors / Corrosive Fumes |
| Moderate to Low (typically under 35 C / 95 F) | <input type="checkbox"/> | <b>TEMPERATURE OUTSIDE OF THE ENCLOSURE</b>  | <input type="checkbox"/> | Hot (typically over 35 C / 95 F)                         |
| Somewhat to Well-Above Ambient Temperature    | <input type="checkbox"/> | <b>TEMPERATURE RATING OF THE ELECTRONICS</b> | <input type="checkbox"/> | Below to Somewhat Above Ambient Temperature              |
| Moderate to Low                               | <input type="checkbox"/> | <b>HUMIDITY OUTSIDE OF THE ENCLOSURE</b>     | <input type="checkbox"/> | High Relative Humidity                                   |
| Wide                                          | <input type="checkbox"/> | <b>TEMPERATURE RANGE FOR THE ELECTRONICS</b> | <input type="checkbox"/> | Narrow / Precise                                         |
| Moderate to Low (typically under 3000 Watts)  | <input type="checkbox"/> | <b>SYSTEM POWER DRAW / HEAT LOAD</b>         | <input type="checkbox"/> | Moderate to High (typically over 3000 Watts)             |

If most of your assessments fell on the fresh air side, then a filter fan, fan tray, motorized impeller or blower is probably the correct cooling solution for your application. However, if most of your assessments were on the protective side, then an air conditioner or heat exchanger is likely the right cooling solution for your electronics system.

## INTRODUCTION

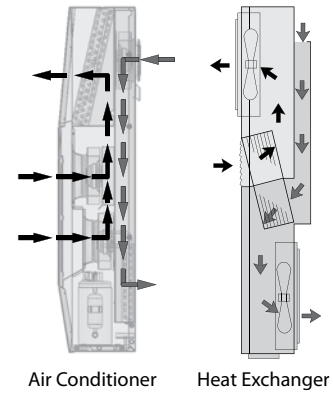
Assuming that sealed enclosure cooling is needed for the application, there are two basic choices—air conditioners or heat exchangers.

An air conditioner should be specified when:

- The temperature inside the enclosure must be maintained at or below the ambient temperature
- Humidity must be removed
- A moderate to high heat load is being produced by the electronic system

A heat exchanger can be used to transfer heat from inside the enclosure to the outside atmosphere when:

- The electronic components can operate at a temperature above the ambient air temperature
- Humidity is not a factor
- A low to moderate heat load is being produced by the electronic system



## AIR CONDITIONER COOLING CAPACITY OVERVIEW

The cooling capacity of an air conditioner needs to match or exceed the amount of total heat load generated by the electronic system.

Total heat load comes from two sources:

- (a) the electronic components themselves which is called “internal heat load” and
- (b) the ambient heat outside the enclosure which is known as the “heat transfer load.”

Most engineers and cooling suppliers determine internal heat load. However, the impact from the heat transfer load is easily overlooked. Heat transfer load can significantly add to the total heat load of the system, especially if the outside air temperature is high and/or the enclosure is located in the sun.

Thus, the **total heat load** to be removed from the electrical enclosure by the air conditioner is the sum of the **internal heat load** and the **heat transfer load**.

$$\text{TOTAL HEAT LOAD} = \text{INTERNAL HEAT LOAD} + \text{HEAT TRANSFER LOAD}$$

## PART A: DETERMINE INTERNAL HEAT LOAD

The internal heat load comes from the amount of waste heat generated inside the enclosure by the electronic components and is expressed in Watts (W).

There are several methods to determine internal heat load, depending on data availability.

### Method 1. Heat Load Data from Each Electronics Component Manufacturer

One way to estimate internal load is to gather heat load data from the manufacturers of the electronics components inside the cabinet. They may know the amount of heat their equipment is generating. If more than one control or other electronics components are inside the enclosure, it will be necessary to add together all the estimates of heat load to determine total internal heat load.

### Method 2. Component Power – Component Efficiency

A second method is to establish the Watts of power used by each electronic component. Derive Watts of power by multiplying the amp draw of each device by its voltage. Then subtract the efficiency of each component from its estimated power use. Add up the outcomes to get the total internal heat load.

$$\text{INTERNAL HEAT LOAD} = \text{COMPONENT POWER (W)} - \text{COMPONENT EFFICIENCY}$$

(for each electrical device)

Example—

An electronic system uses two components that draw 115 VAC at 15 amps. Each has a rated efficiency of 90%. Put another way, 10% of each device is inefficient. Unused power becomes generated heat. Thus the estimated internal heat load is:

$$\begin{aligned} \text{Device Power} &= 115 \times 15 = 1725 \text{ W} \\ \text{Total Power} &= 2 \times 1725 = 3450 \\ \text{Less Efficiency} &= 3450 \times (1 - .90) \\ \text{Total Heat Load} &= 345 \text{ W} \end{aligned}$$

### Method 3. Incoming – Outgoing Power

A third approach is to estimate the power going into the enclosure and the power coming out of it. The difference becomes the estimated amount of internal heat load. The amps and volts of each electrical line going in are multiplied to determine Watts, then they’re added together. The same is done for the electrical line(s) coming out of the application. The outgoing Watts are then subtracted from the incoming Watts.

$$\text{INTERNAL HEAT LOAD} = \text{INCOMING POWER (W)} - \text{OUTGOING POWER (W)}$$

Example—

An enclosure has three input lines of 230 VAC at 11, 6 and 4 A. It has one output control line of 115 VAC at 9 A.

$$\begin{aligned} \text{Incoming Power} &= (230 \times 11) + (230 \times 6) + (230 \times 4) = 4830 \text{ W} \\ \text{Outgoing Power} &= 115 \times 9 = 1035 \text{ W} \\ \text{Total Heat Load} &= 4830 - 1035 = 3795 \text{ W} \end{aligned}$$

### Method 4. Automated Equipment Horsepower

This fourth method applies only to industrial automation equipment that operates with horsepower (hp) such as variable frequency drives (VFDs). 1 hp = 745.6 W. Thus, the internal heat load from a 3-hp VFD is 2237 W, less its efficiency which is typically 93-95%.

Example—

A cabinet has three 5-hp VFDs with 95% efficiency.

$$\begin{aligned} \text{VFD Watts} &= 5 \text{ hp} \times 745.6 \times 3 = 11184 \\ \text{Adjusted Watts} &= 11184 \times (1 - .95) = 559 \\ \text{Total Heat Load} &= 559 \times 1.25 = 699 \text{ W} \end{aligned}$$

*1.25 is an assumed “safety” margin for other minor heat-producing components.*

**PART B: DETERMINING HEAT TRANSFER LOAD OVERVIEW**

Heat transfer load is the ambient heat outside the enclosure conducting itself through the cabinet walls toward the electronics (heat energy travels from the hottest to coldest location).

When an air conditioner cools the enclosure temperature lower than the ambient air outside, additional heat load is drawn into the cabinet which the air conditioner needs to remove. The higher the ambient temperature and/or the presence of solar heat gain (the “greenhouse effect”) on the enclosure, the more cooling capacity is required.

Determining heat transfer load requires that you know the **total surface area** of the cabinet, less any non-conductive surface area such as the enclosure side mounted to a wall. It also requires that you determine **ΔT**, which is the difference between maximum ambient temperature and the maximum temperature rating of the electronics components.

There are two methods for determining heat transfer load—the simple chart method and the equation method.

**SIMPLE CHART METHOD**

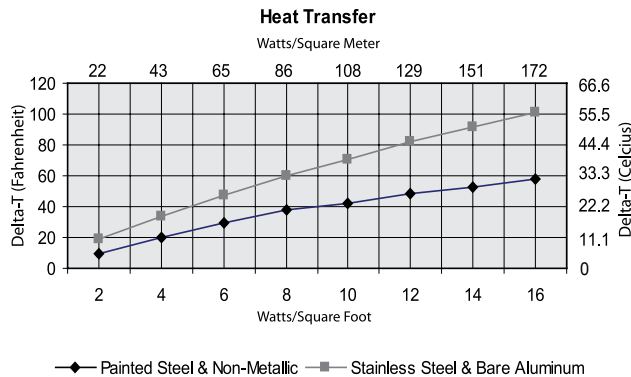
This method is reasonably accurate for most indoor industrial systems where there is no unusual air movement and insulation is not typically used inside the enclosure. The process also provides a ballpark result for outside plant and telecommunications applications, taking into account solar heat gain. However, it does not incorporate the impact of wind or cabinet insulation. If either is present, then the equation method is more precise.

- Step A. Determine ΔT in °F or °C.
- Step B. Find the heat transfer per ft.<sup>2</sup> or m<sup>2</sup> on the chart below, using ΔT and the proper cabinet material curve.
- Step C. Multiply the heat transfer per ft.<sup>2</sup> or m<sup>2</sup> by the total surface area of the enclosure that will conduct heat. (Remember to exclude surfaces such as a side mounted to a wall.)

$SURFACE\ AREA\ (ft.^2) = [2AB\ (in.) + 2BC\ (in.) + 2AC\ (in.)] \div 144$

$SURFACE\ AREA\ (m^2) = [2AB\ (mm) + 2BC\ (mm) + 2AC\ (mm)] \div 1000000$

Total Heat Transfer Load = Heat Transfer per ft.<sup>2</sup> or m<sup>2</sup> x Cabinet Surface Area

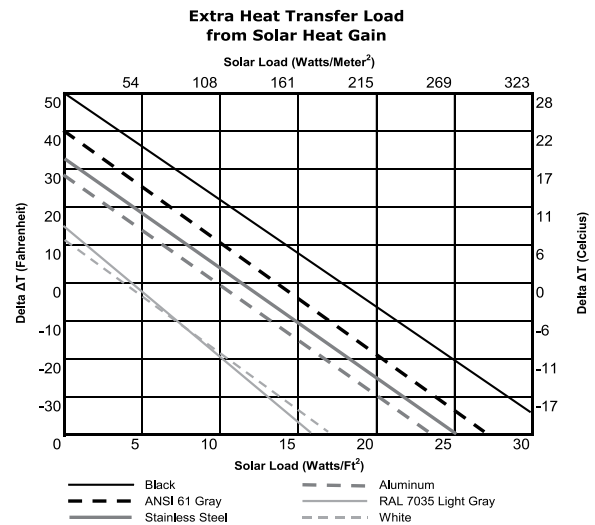


Example — A painted steel cabinet has 80 ft.<sup>2</sup> of surface area and will be located in a maximum ambient temperature of 95 F. The rated temperature of the electronics is 75 F.

$\Delta T = 95 - 75 = 20\ F$   
Heat Transfer = 4 W/ft.<sup>2</sup> (from chart)

Total Heat Transfer Load = 80 x 4 = 320 W

The estimate for heat transfer load ends here, unless the electronic system will be deployed outdoors. Then solar heat gain needs to be added to the total heat transfer load calculated above. Solar heat gain is determined much the same way as heat transfer per ft.<sup>2</sup> or m<sup>2</sup>, using a similar chart.



Example — The painted cabinet above is in ANSI 61 gray. Thus, 7 W/ft.<sup>2</sup> need to be added to the heat transfer load which is 560 W (7 x 80 ft.<sup>2</sup>). Total Heat Transfer Load consequently becomes 720 W.

*The result does not include insulation which can significantly reduce heat transfer load.*

## EQUATION METHOD

Heat transfer load may also be determined by equation. This method should be used when at least one of the following criteria are found in the electronic system:

- Moderate to high airflow within the cabinet
- Outdoor applications that involve breezes or gusty winds
- Insulation used within the cabinet to offset the impact of solar heat gain

The governing equations for heat transfer load are:

English System (°F, inches and feet):

$$q = (T_o - T_i) \div [(1/h_o) + (1/h_i) + R]$$

Metric System (°C, millimeters and meters):

$$q = (T_o - T_i) \div [(1/h_o) + (1/h_i) + R] \times 5.67$$

Definition of Variables—

q = Heat transfer load per unit of surface area

T<sub>o</sub> = Maximum ambient temperature outside the enclosure

T<sub>i</sub> = Maximum rated temperature of the electronics components

h<sub>o</sub> = Convective heat transfer coefficient outside the cabinet

Still air: h = 1.6

Relatively calm day: h = 2.5

Windy day (approx. 15 mph): h = 6.0

h<sub>i</sub> = Convective heat transfer coefficient inside the cabinet

Still air: h = 1.6

Moderate air movement: h = 2.0

Blower (approx. 8 ft.<sup>3</sup>/sec.): h = 3.0

R = Value of insulation lining the interior of the enclosure walls

No insulation: R = 0.0

1/2 in. or 12 mm: R = 2.0

1 in. or 25 mm: R = 4.0

1-1/2 in. or 38 mm: R = 6.0

2 in. or 51 mm: R = 8.0

$$q = (125 - 75) \div [(1/6) + (1/2) + 4]$$

$$q = (50) \div (.16 + .5 + 4)$$

$$q = 50 \div 4.66$$

$$q = 10.7 \text{ BTU/hr./ft.}^2$$

### Total Heat Transfer Load

$$10.7 \times 72 = 770 \text{ BTU/hr. or } 770 \div 3.413 = 226 \text{ W}$$

Since the cabinet is outdoors, and assuming it is painted ANSI 61 gray and located in the sun, extra solar load needs to be added to the outcome above which is 504 Watts (7 W per ft.<sup>2</sup> x 72 ft.<sup>2</sup>).

### Total Heat Transfer Load with Extra from Solar Heat Gain

$$226 + 504 = 730 \text{ W}$$

## DETERMINE TOTAL HEAT LOAD

**Total heat load** to be removed from the electrical enclosure by the air conditioner is the sum of **internal heat load** plus **heat transfer load**.

$$\text{TOTAL HEAT LOAD (C)} = \text{INTERNAL HEAT LOAD (A)} + \text{HEAT TRANSFER LOAD (B)}$$

Thus, one adds together the result from Part A to the outcome from Part B.

Example—

The internal heat load from one of the examples above was 3795 Watts. The heat transfer load from the other example above was 730 W. Therefore, total heat load is 3795 + 730 = 4525 W.

To convert Watts into BTU/hr. to determine air conditioner capacity in the English system, multiply by 3.413. 4525 W is then 15444 BTU/hr.

Power input, protection level and dimensions of the air conditioner also need to fit system requirements.

**Caution!** Do not simply match the nominal cooling capacity of the air conditioner model with the total heat load result above. Be sure to know the maximum ambient temperature outside the enclosure as well as the rated temperature of the electronic components. Apply these temperatures to the performance curves provided by the cooling manufacturer to select an appropriately sized air conditioner. Failure to do so may under-size your air conditioner as much as 20% - 25%, thereby under-cooling the electronics and making the application vulnerable to potential over-heating issues.



## HEAT EXCHANGER COOLING CAPACITY OVERVIEW

Cooling with an air-to-air heat exchanger assumes the electronic components in your system are able to operate **above** the ambient temperature outside the enclosure. If this is not the case, then an air conditioner must be used.

Selecting a heat exchanger is similar to specifying an air conditioner in that the cooling capacity of the unit must remove the **internal heat load** from the electrical enclosure.

However, since the conductive cooling nature of the cabinet itself removes some of the heat from the system, **heat transfer** should be subtracted from internal heat load (versus added in the case of air conditioners).

Because the cooling capacity of heat exchangers is expressed in terms of Watts/°F or Watts/°C, an extra step is necessary to convert net heat load into a result used to select the appropriate heat exchanger. Divide the net heat load by the **ΔT** which is the difference between the maximum ambient temperature outside the enclosure and the maximum temperature rating of the electronic components.

$$\text{HEAT EXCHANGER CAPACITY (C)} = [\text{INTERNAL HEAT LOAD (A)} - \text{HEAT TRANSFER (B)}] / \Delta T$$

## DETERMINE INTERNAL HEAT LOAD

Internal heat load stems from the amount of waste heat generated inside the enclosure by the electronic components and is expressed in Watts.

To determine internal heat load, follow one of the four options outlined in the air conditioner “Determine Internal Heat Load” section on page 8.

## DETERMINE HEAT TRANSFER

In air-to-air heat exchangers, heat transfer is actually cabinet heat loss because the heat inside the enclosure is conducting itself through the cabinet walls toward the cooler temperature outside the enclosure. That is why heat transfer is subtracted from internal heat load to arrive at total net heat load.

To determine heat transfer you need to know the **total surface area** of the cabinet, less any non-conductive surface area such as the enclosure side mounted to a wall. You must also determine **ΔT** which is the difference between maximum ambient temperature and the maximum temperature rating of the electronic components.

There are two methods to determine heat transfer—the **simple chart method** and the **equation method**. The simple chart method may be used for nearly all indoor heat exchanger applications. The equation method needs to be applied when air movement outside or inside the electrical enclosure is high, or for outdoor applications.

Here are the steps for the simple chart method:

Step A. Determine ΔT in °F or °C.

Step B. Find the heat transfer per ft.<sup>2</sup> or m<sup>2</sup> from the Heat Transfer graph on page 9, using ΔT and the proper cabinet material curve.

Step C. Multiply the heat transfer per ft.<sup>2</sup> or m<sup>2</sup> by the total surface area of the enclosure that will conduct heat. (Remember to exclude surfaces such as a side mounted to a wall.)

$$\text{SURFACE AREA (ft.}^2\text{)} = [2AB \text{ (in.)} + 2BC \text{ (in.)} + 2AC \text{ (in.)}] \div 144$$

$$\text{SURFACE AREA (m}^2\text{)} = [2AB \text{ (mm)} + 2BC \text{ (mm)} + 2AC \text{ (mm)}] \div 1,000,000$$

$$\text{Heat Transfer (Cabinet Heat Loss)} = \text{Heat Transfer per ft.}^2 \text{ or m}^2 \times \text{Enclosure Surface Area}$$

The estimate for heat transfer ends here, unless the electronic system will be deployed outdoors, or airflow inside or outside the enclosure is high. Then the equation method needs to be used to determine heat transfer (cabinet heat loss).

For the equation method, follow the steps on page 9 in the air conditioner selection section. The result will be a negative number; the negative sign should be ignored when deducting heat transfer from internal heat load.

**Caution!** If the result of the equation method is a positive number, then this means that you want the electronics temperature inside the cabinet to be lower than the temperature outside the enclosure. In this case, an air conditioner should be specified for the electronics system.

## DETERMINE HEAT EXCHANGER CAPACITY

Air-to-air heat exchanger capacities are not provided in terms of Watts or BTUs/hr. of cooling like air conditioners. Instead, they are expressed in terms of Watts/°F or Watts/°C. Thus, the final step in determining heat exchanger capacity is to divide the total net heat load by  $\Delta T$ . Then select the heat exchanger with the same or higher Watts/°F or Watts/°C as the outcome of this process.

—Indoor Industrial Example—

An electronic system uses two components that draw 230 VAC at 7.5 A. Each has a rated efficiency of 90%. They are protected in a painted steel cabinet that is 60 in. (1524 mm) tall, 36 in. (914 mm) wide and 18 in. (457 mm) deep. The system will be located in a maximum ambient temperature of 80 F (27 C). The rated temperature of the electronics is 95 F (35 C).

$$\text{HEAT EXCHANGER CAPACITY (C)} = \frac{[\text{INTERNAL HEAT LOAD (A)} - \text{HEAT TRANSFER (B)}] \div \Delta T}$$

**Internal heat load (A)** may be determined using the “Component Power – Component Efficiency” method on page 8, given the available information. In this example, the estimated heat load is:

$$\begin{aligned} \text{Device Power} &= 230 \times 7.5 = 1725 \text{ W} \\ \text{Total Power} &= 2 \times 1725 = 3450 \\ \text{Less Efficiency} &= 3450 \times (1 - .90) \\ \text{Internal Heat Load} &= 345 \text{ W} \end{aligned}$$

**Heat transfer (B)** is derived using the simple chart method, since this is an indoor industrial application. Both cabinet surface area and  $\Delta T$  are needed to determine heat transfer. Cabinet surface area is 54 ft.<sup>2</sup> or 5.02 m<sup>2</sup> (from surface area formula on page 9).  $\Delta T$  is 15 F (8 C)—the difference between ambient temperature and the rated temperature of the electronics.

$$\begin{aligned} \text{Heat Transfer (Cabinet Heat Loss)} &= \\ \text{Heat Transfer per ft.}^2 \text{ or m}^2 \times \text{Enclosure Surface Area} \end{aligned}$$

Using the painted steel curve on the Heat Transfer chart on page 9, heat transfer per ft.<sup>2</sup> or m<sup>2</sup> is 3 W/ft.<sup>2</sup> or 32.5 W/m<sup>2</sup>.  
Heat Transfer = 3 W/ft.<sup>2</sup> x 54 ft.<sup>2</sup> = 162 W

Now that we know internal heat load, heat transfer and  $\Delta T$ , we can determine heat exchanger capacity as follows:

$$\text{HEAT EXCHANGER CAPACITY (C)} = \frac{[345 \text{ WATTS (A)} - 162 \text{ WATTS (B)}] \div 15 \text{ F (or 8 C)}}$$

$$\text{HEAT EXCHANGER CAPACITY (C)} = 12 \text{ W/}^\circ\text{F or } 22 \text{ W/}^\circ\text{C}$$

The result is **minimum** heat exchanger capacity. If no heat exchanger model is similar to the result, choose the next largest size to ensure adequate electronics cooling.

Power input, protection level and dimensions of the heat exchanger also need to fit the system.

—Outdoor Example—

A telecom system draws a total of 5,000 W; its efficiency is 85%. It is protected in a steel cabinet that is 72 ft.<sup>2</sup> (6.69 m<sup>2</sup>) and painted with RAL 7035 light-gray paint. The enclosure walls are lined inside with 1 in. (25 mm) of insulation. The application will be deployed in a maximum ambient outdoor temperature of 104 F (40 C) with occasional winds reaching 15+ mph. The rated temperature of the electronics is 114 F (46 C). Air circulation inside the cabinet is moderate.

$$\text{HEAT EXCHANGER CAPACITY (C)} = \frac{[\text{INTERNAL HEAT LOAD (A)} - \text{HEAT TRANSFER (B)}] \div \text{DELTA } \Delta T}$$

**Internal heat load (A)** is determined using the “Component Power – Component Efficiency” method on page 8. In this example, the estimated heat load is as follows:

$$\begin{aligned} \text{Total System Power} &= 5000 \text{ W} \\ \text{Less Efficiency} &= 5000 \times (1 - .85) \\ \text{Internal Heat Load} &= 750 \text{ W} \end{aligned}$$

**Heat transfer (B)** is derived using the equation method, since this is an outdoor application. For brevity, we will assume the English system (°F, inches and feet).

$$q = (T_o - T_i) \div [(1/h_o) + (1/h_i) + R]$$

“q” is heat transfer per surface area. For an explanation of the other variables, see “Equation Method” on page 10.

$$q = (104 - 114) \div [(1/6) + (1/2) + 4]$$

$$q = -2.14 \text{ W/ft.}^2$$

$$\begin{aligned} \text{Total Heat Transfer} &= 2.14 \times 72 \text{ ft.}^2 = 154 \text{ W} \\ \text{(negative sign is ignored)} \end{aligned}$$

$\Delta T$  is 10 F — the difference between ambient temperature and the rated temperature of the electronics.

$$\text{HEAT EXCHANGER CAPACITY (C)} = \frac{[750 \text{ W (A)} - 154 \text{ W (B)}] \div 10 \text{ F}}$$

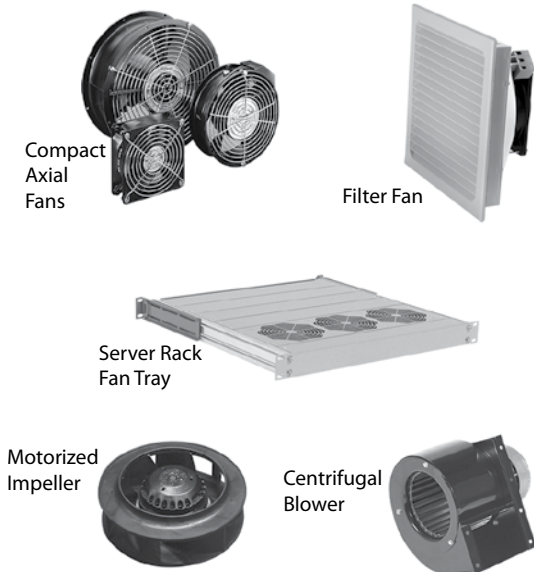
$$\text{HEAT EXCHANGER CAPACITY (C)} = 60 \text{ W/}^\circ\text{F}$$

As in the indoor industrial example, the above result is **minimum** heat exchanger capacity. If no heat exchanger model is similar to the result, choose the next largest size to ensure adequate electronics cooling.

Power input, protection level and dimensions of the heat exchanger also need to fit the system.

**INTRODUCTION**

There are many standard air movers for electronics cooling on the market today. Common options include:



As one may conclude by looking at the products, each fresh air cooling solution can vary in terms of:

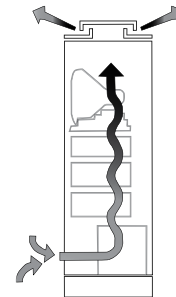
- General vs. concentrated airflow
- Amount of air volume (CFM or M<sup>3</sup>/Hr.)
- Ability to overcome airflow restriction caused by electronics components (static pressure—Inches of H<sub>2</sub>O or Pascals)
- Component price
- Power input (AC or DC volt)
- Ability to protect the electronics from dust and water

However, before we begin to briefly review the advantages and disadvantages of each air mover, we first need to understand two important concepts, airflow and static pressure, because each fresh air cooling solution can be quite different with these factors.



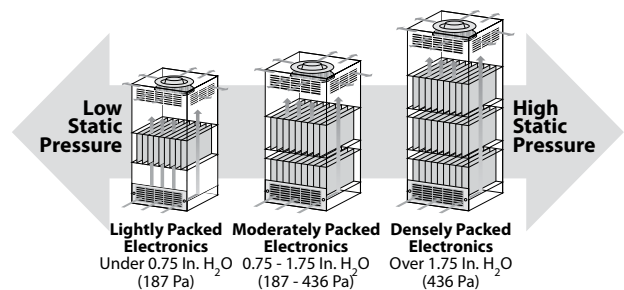
**WHAT IS AIRFLOW?**

Airflow is the volume of air that a fan, impeller or blower can move. In the English system, airflow is measured in cubic feet per minute or CFM. In the Metric system, airflow is defined as cubic meters per hour or M<sup>3</sup>/Hr. Electronic systems with low heat loads (100 to 1000 Watts) require less airflow to cool the components. Cabinets with moderate to high heat loads (more than 1000 Watts) need more airflow.



**WHAT IS STATIC PRESSURE?**

Static pressure is air restriction created by the components inside the enclosure. In the English system, static pressure is expressed in Inches of Water or In. H<sub>2</sub>O. In the Metric system, static pressure is Pascals or Pa. Systems with loosely packed components have low static pressure (0.24 to 0.50 In. H<sub>2</sub>O) and use a smaller, less powerful air mover such as a tube axial fan or filter fan for cooling. However, cabinets that are moderately to densely packed with electronics (0.75 In. H<sub>2</sub>O or more) require a larger, more powerful air mover or multiple air movers.

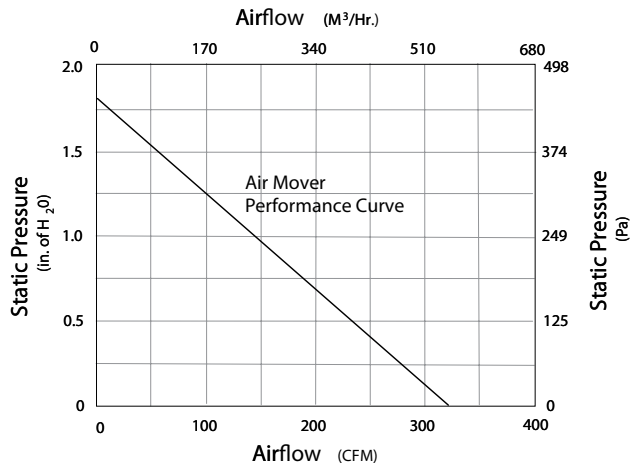


## HOW IS PERFORMANCE CHARACTERIZED?

Each air mover is commonly rated based on its airflow and static pressure capability known as a "performance curve."

In a 0 static pressure electronics system, the air mover provides 325 CFM of airflow. Conversely, at 1.6 In. of H<sub>2</sub>O static pressure (a moderately packed cabinet), the air mover provides 0 airflow.

Air mover manufacturers determine the performance curve for each of their products by placing the unit in a test chamber to determine its precise airflow and static pressure.



## WHAT ARE THE CAPABILITIES OF EACH AIR MOVER?

Each air mover such as a tube axial fan, filter fan, fan tray, motorized impeller and centrifugal blower performs in a different way. A summary of the characteristics and applications for each of these popular fresh air cooling products is outlined in the table below.

**Axial fans, filter fans and fan trays** generally provide low to moderate airflow in electronic systems with low static pressure. Most are used with VAC applications. Filter fans provide an extra level of enclosure protection against dust infiltration (Type 12 or IP54) and water infiltration (Type 3R or IP55). With the exception of fan trays, tube axial fans and filter fans are relatively inexpensive.

**Motorized impellers** offer moderate to high airflow and work well in electronics cabinets with moderate to high static pressure. They often provide general cooling throughout an enclosure. Motorized impellers are available in VAC and VDC inputs and are reasonably priced.

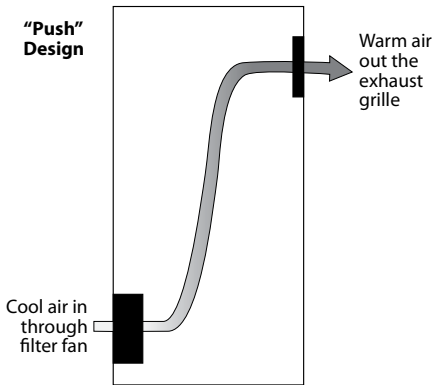
**Centrifugal blowers** deliver moderate to high airflow and overcome the system impedance that builds up in electronic cabinets with moderate to high static pressure. They're primarily available for VAC power input and are relatively higher priced.

### Characteristics of Popular Air Movers

| Characteristics     | Axial Fans               | Filter Fans                           | Fan Trays                            | Motorized Impellers                                          | Centrifugal Blowers                                             |
|---------------------|--------------------------|---------------------------------------|--------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------|
| Airflow             | Low                      | Low - Moderate                        | Low - Moderate                       | Moderate - High                                              | Moderate - High                                                 |
| Static Pressure     | Low                      | Low                                   | Low                                  | Moderate - High                                              | Moderate - High                                                 |
| Voltage Input       | AC (some DC)             | AC and DC                             | AC (some DC)                         | AC and DC                                                    | AC                                                              |
| Protection          | None                     | Type 12 & 3R                          | None                                 | None                                                         | None                                                            |
| Per Piece Price     | Low                      | Moderate                              | High                                 | Moderate                                                     | High                                                            |
| Typical Application | Spot electronics cooling | Industrial electrical cabinet cooling | Datacom card and server rack cooling | General cooling of moderate to high static pressure cabinets | Concentrated or general cooling of high static pressure systems |

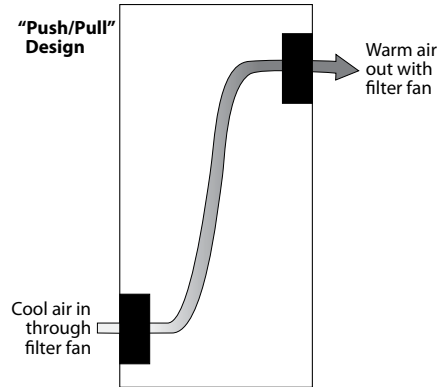
**AIRFLOW DESIGN OPTIONS**

A typical air mover system design “pushes” cool air into the bottom of the electronics cabinet and exhausts the warm air out the top

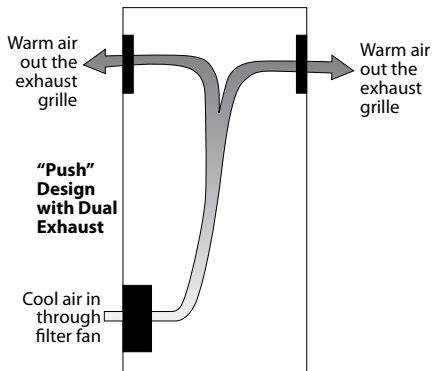


The “pull” approach is less desirable because it de-pressurizes the enclosure. If poor seals are in the cabinet at a door or modular panel, for example, damaging dust could be sucked inside and onto the electrical components. However, space constraints at the bottom of the enclosure may force the engineer to design a “pull” system.

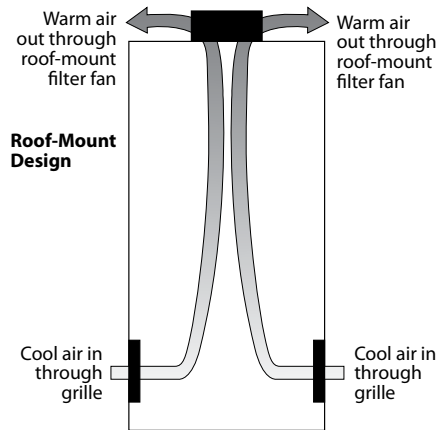
For electrical systems with higher static pressure, filter fans are sometimes used in a “push/pull” approach. The reason is that two filter fans designed in “series” overcome twice the static pressure compared to one filter fan working alone with an exhaust grille.



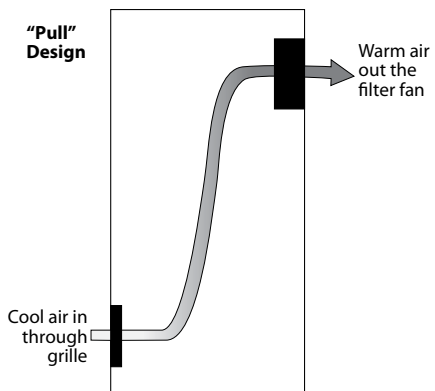
To reduce exhaust grille static pressure and improve cool airflow, some engineers use two exhaust grilles in their airflow design.



Roof-mount air movers are also available. Engineers occasionally employ them due to space constraints lower in the enclosure or for other reasons. Two exhaust grilles are recommended to ensure adequate airflow through the enclosure.



Another option is to use a reverse airflow fan and mount it high in the enclosure to “pull” cool air through the enclosure.



Roof-mount air mover designs also pose the risk of pulling dust into the enclosure through poor seals.





## CHOOSING AN AIR MOVER

Three overall considerations are applied when selecting a filter fan: voltage input, enclosure protection and airflow requirement.

### POWER INPUT

Narrowing the choice of filter fans based on voltage input is quite simple. If the voltage available in the electronics system to power the filter fan is AC, then a VAC filter fan is chosen. If the voltage for the application is DC, then a VDC filter fan is specified.

The voltage level of the filter fan's power input also needs to be taken into consideration. For example, if the voltage input is 115

VAC, then a 115 VAC filter fan should be specified. If the voltage input is 24 VDC, then a 24 VDC impeller is required. Filter fans are commonly available in 115, 230 and 460 3-phase 50/60 Hz VAC as well as 24 VDC. Some manufacturers such as Pentair Technical Products offer 48 VDC due to the trend toward using this power input in some electronic systems.

### ENCLOSURE PROTECTION

Another important consideration is selecting an air mover that maintains the protection level of the electrical enclosure.

U.S. standards of protection generally include:

**Type 1** – For indoor use to protect against contact with the enclosed equipment

**Type 12** – For indoor use to protect against dust, falling dirt and dripping non-corrosive liquid such as water

**Type 3R** – For outdoor use to protect against rain and sleet

**Type 4** – For outdoor or indoor use to protect against windblown dust and rain, splashing water and hose-directed water

**Type 4X** – For outdoor or indoor use to protect against corrosion, windblown dust and rain, splashing water and hose-directed water

European standards of protection include:

**IP54** – Dust must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment; complete protection against contact; water splashing against the enclosure from any direction shall have no harmful effect.

**IP55** – Dust must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment; complete protection against contact; and water projected by a nozzle against enclosure from any direction shall have no harmful effects.

**IP65** – No ingress of dust; complete protection against contact; and water projected by a nozzle against enclosure from any direction shall have no harmful effects.

### AIRFLOW

Choosing a filter fan with the right airflow or cooling capacity is as important as voltage input and enclosure protection. However, the process is a little more involved.

Generally, smaller heat loads in the electronics system will require a filter fan with a lower airflow rate (CFM or M<sup>3</sup>/Hr.). Moderate to high heat loads will need a larger, more powerful filter fan or multiple filter fans to move enough air to cool the electronics components.

The following 5-step process results in a filter fan specification that should generally work in your electronics system.

1. Determine Delta-T
2. Determine Internal Heat Load
3. Determine Free Airflow
4. Estimate System Impedance
5. Select Your Filter Fan

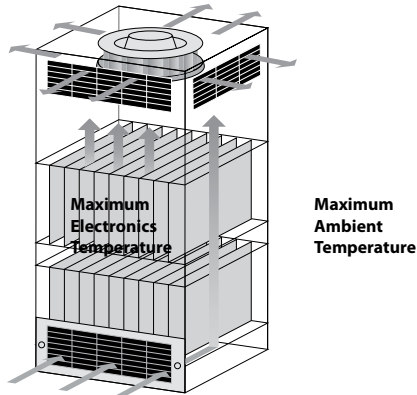
These five steps yield a ballpark result. A filter fan sample should always be tested in the actual electrical system itself to confirm that its performance provides adequate airflow.

The next section outlines the 5-step filter fan selection process in more detail.



### STEP 1. DETERMINE DELTA-T (ΔT)

Delta-T is the difference between **maximum desired temperature for the electronics** and **maximum temperature outside the enclosure**. It is important to determine ΔT because cooler air will usually require less filter fan airflow whereas warmer air will typically require more airflow.



Maximum desired temperature for the electronics is identified by reviewing the component manufacturer’s specifications. They will often indicate that the equipment should not operate above a certain temperature such as 35 C (95 F).

Maximum temperature **outside the enclosure** is determined by forecasting the highest potential temperature of the air around the electronics cabinet. If the application is in an indoor environment such as an air conditioned factory, the maximum temperature outside the enclosure is the temperature of the facility, such as 25 C (77 F). If the electronics system is outdoors, the maximum temperature around the cabinet is the hottest weather that the application experiences, which may be 45 C (116 F) if it’s deployed on a roof top for example.

$$\Delta T = \text{maximum temperature desired for the electronics} - \text{maximum expected ambient temperature}$$

For example:

$$\begin{aligned} \Delta T &= 35 \text{ C (95 F) [maximum electronics temperature]} - \\ &25 \text{ C [maximum ambient temperature]} \\ \Delta T &= 10 \text{ C (18 F)} \end{aligned}$$

### STEP 2. DETERMINE INTERNAL HEAT LOAD

Heat load stems from the amount of waste heat generated inside the enclosure by the electronic components and is expressed in Watts. There are several methods to determine internal heat load, depending on data availability.

#### A. Heat Load Data from Each Electronics Component Manufacturer

One way to estimate internal load is to gather heat load data from the manufacturers of the electronics components inside the cabinet. If more than one control or other components are inside the enclosure, it will be necessary to add together the multiple estimates of heat load to determine total internal heat load.

#### B. Component Power – Component Efficiency

A second method is to establish the Watts of power used by each electronic component. Derive Watts by multiplying the amp draw of each device with its voltage. Then subtract the efficiency of each component from its estimated power use, adding up the outcomes for total internal heat load.

$$\text{INTERNAL HEAT LOAD} = \text{COMPONENT POWER (Watts)} - \text{COMPONENT EFFICIENCY}$$

(for each electrical device)

For example:

An electronic system uses two components that draw 115 VAC at 9.5 amps. Each has a rated efficiency of 90 percent (10 percent of each device is inefficient). Unused amounts of power become generated heat. Thus, the estimated internal heat load is:

$$\begin{aligned} \text{Device Power} &= 115 \times 9.5 = 1100 \text{ Watts} \\ \text{Total Power} &= 2 \times 1100 = 2200 \\ \text{Less Efficiency} &= 2200 \times (1 - .90) \\ \text{Total Heat Load} &= 220 \text{ Watts} \end{aligned}$$

#### C. Incoming – Outgoing Power

A third approach is to estimate the power going into the enclosure and the power coming out of it. The difference is the estimated amount of internal heat load. Multiply the amps and volts of each electrical line going in to determine Watts and then add them together. Do the same for the electrical line(s) coming out of the application. The outgoing watts are subsequently subtracted from the incoming watts.

$$\text{INTERNAL HEAT LOAD} = \text{INCOMING POWER (Watts)} - \text{OUTGOING POWER (Watts)}$$

For example:

$$\begin{aligned} \text{An enclosure has three input lines of 230 VAC at 11, 6 and 4 amps. It has one output control line of 115 VAC at 9 amps.} \\ \text{Incoming Power} &= (230 \times 11) + (230 \times 6) + (230 \times 4) = 4830 \text{ Watts} \\ \text{Outgoing Power} &= (115 \times 9) = 1035 \text{ Watts} \\ \text{Total Heat Load} &= 4830 - 1035 = 3795 \text{ Watts} \end{aligned}$$

#### D. Automated Equipment Horsepower

The fourth method applies only to industrial automation equipment that operates with horsepower such as variable frequency drives (VFDs). 1 horsepower = 745.6 Watts. Thus, the internal heat load from a 3 horsepower VFD is 2237 Watts, less its efficiency which is typically 93 – 95 percent.

For example:

$$\begin{aligned} \text{A cabinet has three 5 Hp VFDs with 95% efficiency.} \\ \text{VFD Watts} &= 5 \text{ Hp} \times 745.6 \times 3 = 11184 \\ \text{Adjusted Watts} &= 11184 \times (1 - .95) = 559 \\ \text{Total Heat Load} &= 559 \times 1.25 = 699 \text{ Watts} \end{aligned}$$

Note: 1.25 is an assumed “safety” margin for other minor heat-producing components.

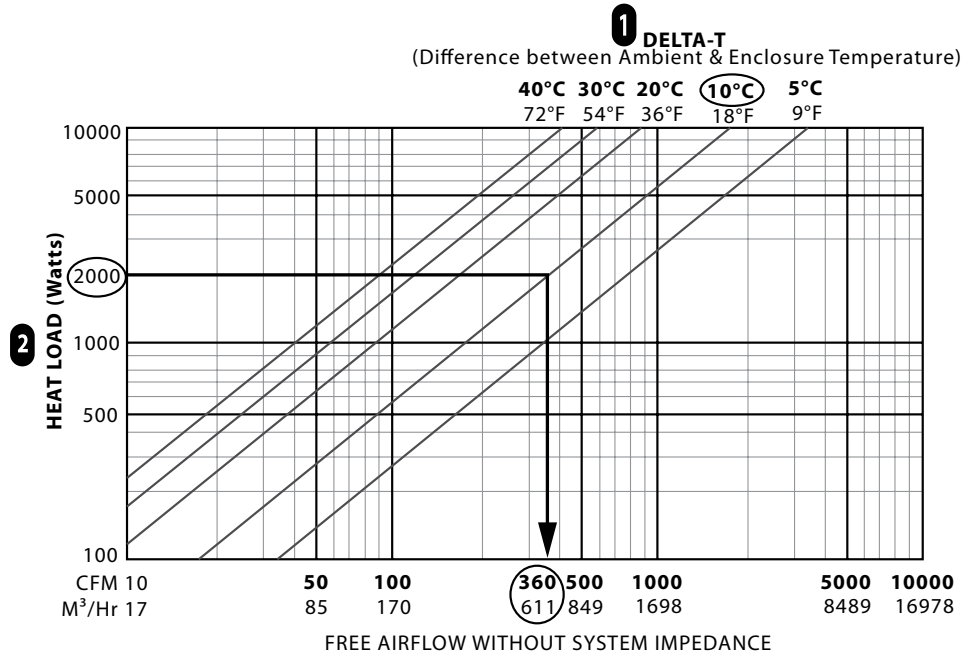
### STEP 3. DETERMINE FREE AIRFLOW

Determining free airflow applies the results from steps 1 and 2 to the chart below. Recall that free airflow is the unimpeded airflow through the enclosure without any interference from electronics components or filter fan exhaust grilles.

Select the diagonal  $\Delta T$  line that closely matches the  $\Delta T$  of your electronics system. Using the example from step 1,  $\Delta T$  is 10 C (18 F).

Then find your cabinet's heat load along the Y-axis of the chart. In the example from step 2, heat load is 2000 Watts.

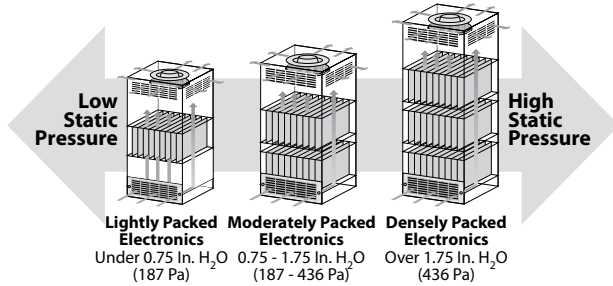
Find where heat load intersects with  $\Delta T$  to determine free airflow on the X-axis. Continuing the example, free airflow in this case is 360 CFM or 611 M<sup>3</sup>/Hr.



Now we need to account for system impedance, i.e., the amount of airflow interference created by the electronic components inside the cabinet. A filter fan with **more than** 360 CFM or 611 M<sup>3</sup>/Hr. of free airflow will actually be needed for this system's design.

### STEP 4. ESTIMATE SYSTEM IMPEDANCE

Static pressure or system impedance can impact the cooling performance of an air mover. Filter fans work well in electrical cabinets with low static pressure such as a large enclosure with a bare drive and few other components. They do not have enough force to push air through a cabinet with a moderate or high system impedance.



If your system design appears like the middle or right hand example, then a motorized impeller or blower is probably a better solution for the application than a filter fan.

Assuming a filter fan can cool your application, the exhaust grille and electrical components inside the enclosure will reduce airflow through the system. Filter fan manufacturers will show the effect of the exhaust grille on the performance curve. However, they do not indicate the impedance curve of the electronics system because filter fan makers do not know this information. Only the specifying electronics engineer or system designer can determine this. If it is not possible to measure the exact static pressure inside an electronics cabinet, you must make an estimate and draw an approximation.

### STEP 5. SELECT YOUR AIR MOVER

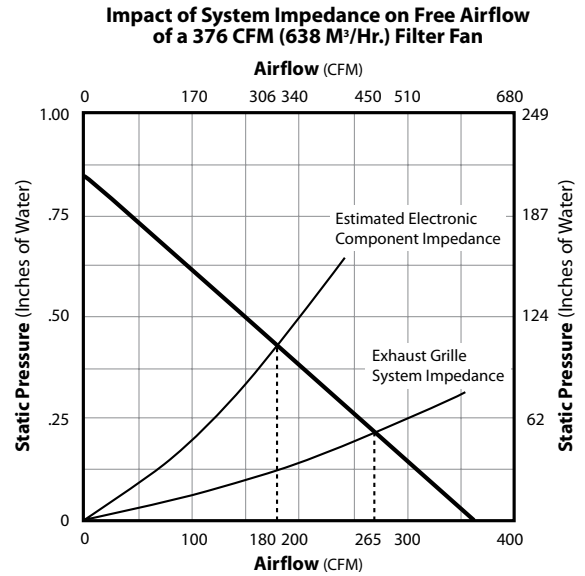
In this final step, we bring together the results of free airflow (step 3) and system impedance (step 4), using the air mover performance charts. Applying the example, we need to select a motorized impeller that delivers a minimum of 360 CFM (611 M<sup>3</sup>/Hr.).

Identify alternative air mover models with free airflow ratings that are greater than the step 3 outcome of 360 CFM (611 M<sup>3</sup>/Hr.) to compensate for airflow losses created by static pressure in the system. A judgmental system impedance curve is overlaid onto the performance charts of each of the optional models, and then the model with the CFM or M<sup>3</sup>/Hr. closest to the target airflow is selected.

In the performance curve shown here, 571 CFM is commonly the largest filter fan in the electronics cooling industry. Based on the estimated electronic component impedance overlaid by our imaginary engineer, it should deliver the cooling performance required by the system.

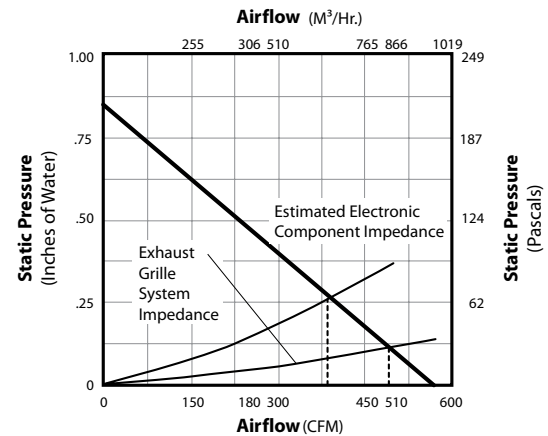
### FRIENDLY REMINDER

This 5-step process for selecting an air mover yields a ballpark result. Be sure to test a sample of the air mover in the electrical system prototype at maximum ambient and heat load conditions to verify adequate cool airflow.



In the example shown, the free airflow of a 376 CFM (638 M<sup>3</sup>/Hr.) air mover decreases to 265 CFM with the exhaust grille kit and down to 180 CFM when used in an actual application. Thus, a model with a performance curve similar to the one in the next graph would be too small to keep our electrical system cool because our actual target airflow is 360 CFM.

**Performance Curve of a 571 CFM (969 M<sup>3</sup>/Hr.) Filter Fan with Exhaust Grille and System Impedance**



**McLean<sup>®</sup>**

# CHAPTER 2 TECHNICAL INFORMATION

## STANDARDS SUMMARY

To standardize enclosure performance, organizations like NEMA, UL, CSA, IEC and VDE use rating systems to identify an enclosure's ability to resist external environmental influences.



### CE

For industrial control equipment, the CE Mark is not intended to be applied to empty enclosures because they are inactive components of a final assembly. With the CE marking, the manufacturer declares that the product conforms with the essential requirements of the applicable EU directives.



### GOST

The GOST Standard, approved by ISO as a local standard in Russian Federation and CIS countries, covers general and technical specifications as well as safety requirements.





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#### UL

The UL Listing Mark means that the product has met UL's safety requirements and is suitable for factory and field installation.

## STANDARDS ORGANIZATION SUMMARY AND DIRECTORY OVERVIEW

### What's in a Rating?

As a way of standardizing enclosure performance, organizations like NEMA, UL, CSA, IEC and VDE use rating systems to identify an enclosure's ability to resist external environmental influences. Resistance to everything from dripping liquid to hose-down to total submersion is defined by the ratings systems. While these ratings are all intended to provide information to help you make a safer, more-informed product choice, there are differences among them.

### North American Standards Organizations

In North America, NEMA, UL and CSA are the commonly recognized standards organizations. Their ratings are based on similar application descriptions and expected performance. UL and CSA both require enclosure testing by qualified evaluators in their certified labs. They also send site inspectors to make sure a manufacturer adheres to prescribed manufacturing methods and material specifications. NEMA, on the other hand, does not require independent testing and leaves compliance completely up to the manufacturer.

North American enclosure rating systems also include a rating that indicates corrosion resistance. This rating is based on the enclosure's ability to withstand prolonged exposure to salt water spray.

While the corrosion resistance rating is a good indicator that an enclosure can resist corrosion, it does not provide information on how a specific corrosive agent will affect a given enclosure material. It is best to conduct a full analysis of the specific application and environment to determine the best enclosure choice.

### CE

For industrial control equipment, the CE Mark is not intended to be applied to empty enclosures because such enclosures are inactive components of a final assembly. The responsibility of ensuring compliance with all applicable EU directives and harmonized standards belongs with the final equipment manufacturer.

### GOST

GOST Standard has been approved by ISO as a local standard in Russian Federation and CIS countries and is quite similar to the EN/CE standards. The GOST collection of standards covers general and technical specifications as well as safety requirements.

At the time of this printing, the following countries use GOST Standard with some individual additions: Russia, Belarus, Ukraine, Moldova, Kazakhstan, Azerbaijan, Armenia, Kyrgyzstan, Uzbekistan, Tajikistan, Georgia, Turkmenistan

GOST-R certification is required in order to gain customs clearance for products at the Russian borders. The GOST-R certificate indicates compliance with the Russian standards. GOST-R is valid only for Russian Federation and may not be accepted in CIS countries. There are similar, but independent regulations in each CIS country.

### International Standards Organizations

Like NEMA, IEC does not require independent testing and leaves compliance completely up to the manufacturer. Nevertheless, there are differences in how enclosure performance is interpreted. For example, UL and CSA test requirements specify that an enclosure fails the water-tight test if even a single drop of water enters the enclosure. In the IEC standards for each level of ingress protection (IP), a certain amount of water is allowed to enter the enclosure.

IEC 60529 IP ratings do not specify construction requirements or degrees of protection against corrosive atmospheres, risk of explosion or conditions such as moisture or corrosive vapors. NEMA Type ratings, on the other hand, do specify construction and performance requirements for most environmental conditions. For this reason, and because the tests and evaluations for other characteristics are not identical, the IEC enclosure classification designations cannot be exactly equated with NEMA enclosure Type numbers.

**PROTECTION LEVELS**

**NEMA, UL and CSA Ratings Enclosure Type Descriptions for Non-Hazardous Locations**

|         | Type     | NEMA                                                                                                                                                                                                                                   | UL                                                                                                                                                                                                   | CSA                                                                                                                                                                                                               |
|---------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Indoor  | Type 1   | Enclosures are intended for indoor use primarily to provide a degree of protection against contact with the enclosed equipment or locations where unusual service conditions do not exist.                                             | Indoor use primarily to provide protection against contact with the enclosed equipment and against a limited amount of falling dirt.                                                                 | General purpose enclosure. Protects against accidental contact with live parts.                                                                                                                                   |
| Indoor  | Type 12  | Enclosures are intended for indoor use primarily to provide a degree of protection against dust, falling dirt and dripping noncorrosive liquids.                                                                                       | Indoor use to provide a degree of protection against dust, dirt, fiber flyings, dripping water and external condensation of noncorrosive liquids.                                                    | Indoor use; provides a degree of protection against circulating dust, lint, fibers and flyings; dripping and light splashing of non-corrosive liquids; not provided with knockouts.                               |
| Indoor  | Type 12K | Enclosures with knockouts are intended for indoor use primarily to provide a degree of protection against dust, falling dirt and dripping noncorrosive liquids.                                                                        | Indoor use to provide a degree of protection against dust, dirt, fiber flyings, dripping water and external condensation of noncorrosive liquids.                                                    | Indoor use; provides a degree of protection against circulating dust, lint, fibers and flyings; dripping and light splashing of noncorrosive liquids; not provided with knockouts.                                |
| Indoor  | Type 13  | Enclosures are intended for indoor use primarily to provide a degree of protection against dust, spraying of water, oil and noncorrosive coolant.                                                                                      | Indoor use to provide a degree of protection against lint, dust seepage, external condensation and spraying of water, oil and noncorrosive liquids.                                                  | Indoor use; provides a degree of protection against circulating dust, lint, fibers and flyings; seepage and spraying of non-corrosive liquids, including oils and coolants.                                       |
| Outdoor | Type 3   | Enclosures are intended for outdoor use primarily to provide a degree of protection against windblown dust, rain and sleet; undamaged by the formation of ice on the enclosure.                                                        | Outdoor use to provide a degree of protection against windblown dust and windblown rain; undamaged by the formation of ice on the enclosure.                                                         | Indoor or outdoor use; provides a degree of protection against rain, snow and windblown dust; undamaged by the external formation of ice on the enclosure.                                                        |
| Outdoor | Type 3R  | Enclosures are intended for outdoor use primarily to provide a degree of protection against falling rain and sleet; undamaged by the formation of ice on the enclosure.                                                                | Outdoor use to provide a degree of protection against falling rain; undamaged by the formation of ice on the enclosure.                                                                              | Indoor or outdoor use; provides a degree of protection against rain and snow; undamaged by the external formation of ice on the enclosure.                                                                        |
| Outdoor | Type 3RX | Enclosures are intended for outdoor use primarily to provide a degree of protection against corrosion, falling rain and sleet; undamaged by the formation of ice on the enclosure.                                                     | Not specifically defined.                                                                                                                                                                            | Not specifically defined.                                                                                                                                                                                         |
| Outdoor | Type 4   | Enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against windblown dust and rain, splashing water and hose directed water; undamaged by the formation of ice on the enclosure.            | Either indoor or outdoor use to provide a degree of protection against falling rain, splashing water and hose-directed water; undamaged by the formation of ice on the enclosure.                    | Indoor or outdoor use; provides a degree of protection against rain, snow, windblown dust, splashing and hose-directed water; undamaged by the external formation of ice on the enclosure.                        |
| Outdoor | Type 4X  | Enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water and hose-directed water; undamaged by the formation of ice on the enclosure. | Either indoor or outdoor use to provide a degree of protection against falling rain, splashing water and hose-directed water; undamaged by the formation of ice on the enclosure; resists corrosion. | Indoor or outdoor use; provides a degree of protection against rain, snow, windblown dust, splashing and hose-directed water; undamaged by the external formation of ice on the enclosure; resists corrosion.     |
| Outdoor | Type 6   | Enclosures are intended for use indoors or outdoors where occasional submersion is encountered; limited depth; undamaged by the formation of ice on the enclosure.                                                                     | Indoor or outdoor use to provide a degree of protection against entry of water during temporary submersion at a limited depth; undamaged by the external formation of ice on the enclosure.          | Indoor or outdoor use; provides a degree of protection against the entry of water during temporary submersion at a limited depth. Undamaged by the external formation of ice on the enclosure; resists corrosion. |

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- Underwriters Laboratories Inc. (UL) shall not be responsible for the use of or reliance upon a UL Standard by anyone. UL shall not incur any obligation or liability for damages, including consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon a UL Standard.
- Some enclosures may have multiple ratings. For instance: 4, 12—Outdoor use; able to be used indoors with modifications; 4X, 3RX—Outdoor use; able to be used indoors with modifications; 4, 9—Can be used in both hazardous and non-hazardous locations



IP Rating Descriptions **Example Rating**

| If 1st IP number is...                  | and the 2nd IP number is...       | Then the IP rating is                                                                                                                                           |
|-----------------------------------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2<br>(protection against solid objects) | 3<br>(protection against liquids) | IP23<br>An enclosure with this designation provides protection against touch with a finger, penetration of solid objects greater than 12 mm and spraying water. |

**First Numeral (Solid Objects and Dust)**

| IP | Protection of Persons                                                 | Protection of Equipment                                      |
|----|-----------------------------------------------------------------------|--------------------------------------------------------------|
| 0  | No Protection                                                         | No Protection                                                |
| 1  | Protected against contact with large areas of the body (back of hand) | Protected against objects over 50 mm in diameter             |
| 2  | Protected against contact with fingers                                | Protected against solid objects over 12 mm in diameter       |
| 3  | Protected against tools and wires over 2.5 mm in diameter             | Protected against solid objects over 2.5 mm in diameter      |
| 4  | Protected against tools and wires over 1 mm in diameter               | Protected against solid objects over 1 mm in diameter        |
| 5  | Protected against tools and wires over 1 mm in diameter               | Protected against dust (limited ingress, no harmful deposit) |
| 6  | Protected against tools and wires over 1 mm in diameter               | Totally protected against dust                               |

**Second Numeral (Liquid)**

| IP | Protection of Equipment                                                                      |
|----|----------------------------------------------------------------------------------------------|
| 0  | No Protection                                                                                |
| 1  | Protected against vertically falling drops of water, e.g. condensation                       |
| 2  | Protected against direct sprays of water up to 15 degrees from vertical                      |
| 3  | Protected against sprays up to 60 degrees from vertical                                      |
| 4  | Protected against water sprayed from all directions (limited ingress permitted)              |
| 5  | Protected against low-pressure jets of water from all directions (limited ingress permitted) |
| 6  | Protected against strong jets of water                                                       |
| 7  | Protected against the effects of immersion between 15 cm and 1 m                             |
| 8  | Protected against long periods of immersion under pressure                                   |

**SCCR REQUIREMENTS PER UL (CONDENSED VERSION)**

Article 409 of the 2008 National Electric Code (NFPA 70) requires industrial control panels to be marked with a short circuit current rating. As specified in the National Electric Code, UL508A-2001 Supplement SB, the Standard of Safety for Industrial Control Equipment, provides an accepted method for determining the short-circuit current rating of the control panel.

The SCCR rating for our air conditioners and heat exchangers has a default value of 5 kA.

You may use a 5 or 10 kVA isolation transformer between the customer's panel and our air conditioner and not have an effect on the customer's 65 kA rating.

You may use a fuse or circuit breaker with a 5 kA short circuit rating on the line side of the ACU and its branch circuit protective device and not have an effect on the customer's 65 kA rating.

The current limiting fuse or circuit breaker used on the line side of the branch circuit protection for the ACU must have a SCCR equal to or greater than that of the panel rating. Additionally, for a current limiting fuse, the customer would need to verify that the let-through current ( $I_p * 10^3$ ) of the fuse is less than or equal to 5KA by referencing table SB4.2 of UL 508A. If a circuit breaker is used as feeder protection, it **must** be marked Current Limiting type from the manufacturer, and the panel builder would need to verify based on the manufacturers published curves that the let-through current is less than or equal to 5kA. Examples of these curves are included in UL 508A supplement SB.

You can run separate circuits for the panel and the air conditioner as long as each is labeled with their individual SCCR ratings. (5 kA and 65 kA)

If the customer does not implement one of the options above, then the resulting SCCR rating would be the 5 kA rating of the ACU, if that is the lowest rated component in the panel.

Testing represents another option; however, if the customer does not implement these options, then the resulting short circuit rating of the panel is based on the lowest short circuit current rating of all power circuit components installed in the panel.

**Notes**





**McLean®**

# CHAPTER 3 SEALED ENCLOSURE COOLING

## FEATURED PRODUCTS

### SPECTRACOOL™ AIR CONDITIONERS

Designed to deliver vital cooling to sensitive electronics within enclosures, SPECTRACOOL™ air conditioners provide energy-efficient, reliable cooling in rugged indoor and outdoor environments. With a variety of cooling capacities and sizes, air conditioners are ideal for applications ranging from low-profile cabinet cooling to large cabinet cooling.



### CLIMAGUARD™ HEAT EXCHANGERS

CLIMAGUARD™ heat exchangers are an efficient, maintenance-free and low-noise solution for cooling enclosures in industrial applications. With a unique, double-seal design and small to large cooling capacities, heat exchangers protect vital electronics by effectively transferring heat and preventing damaging dirt and dust.







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## SEALED ENCLOSURE COOLING

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### EASY SWAP ADAPTOR PLENUMS

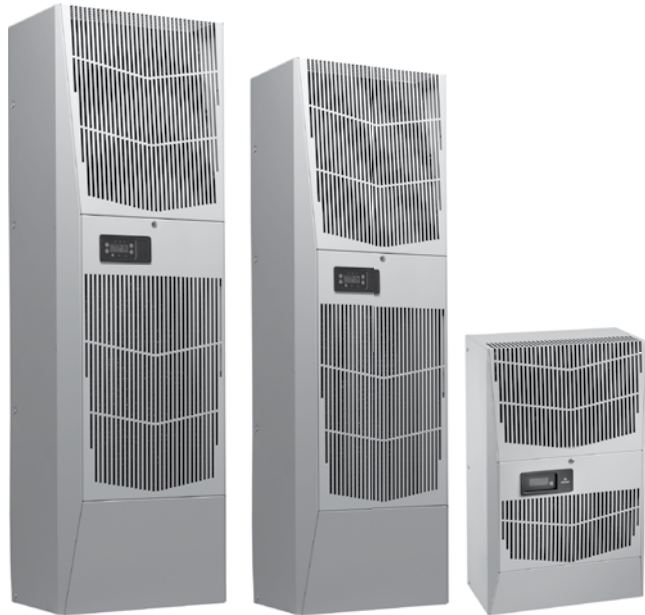
When existing air conditioners are damaged or have reached end-of-life, Easy Swap Adaptor Plenums provide a quick and easy means for attaching new SPECTRACOOL air conditioners to the enclosure with no modifications required.



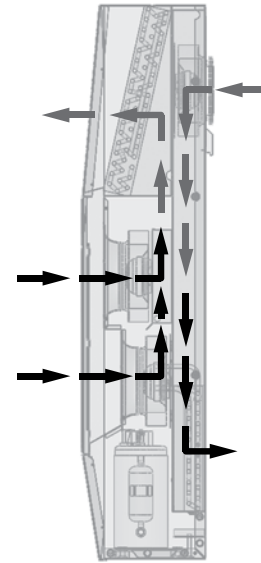
### THERMOELECTRIC COOLERS

A compact design, with no refrigerant, compressors or filters required, Thermoelectric Coolers provide reliable cooling for small indoor and outdoor enclosures. With Peltier effect cooling capacities, Thermoelectric Coolers efficiently remove heat around critical electronics within an enclosure.



**SPECTRACOOL™ INDOOR/OUTDOOR**


|                                          |                                                    |                                                   |
|------------------------------------------|----------------------------------------------------|---------------------------------------------------|
| <b>G57</b><br>20000 BTU/Hr.<br>5861 Watt | <b>G52</b><br>8000/12000 BTU/Hr.<br>2300/3500 Watt | <b>G28</b><br>4000/6000 BTU/Hr.<br>1172/1758 Watt |
|------------------------------------------|----------------------------------------------------|---------------------------------------------------|



3

**INDUSTRY STANDARDS**

|                                                             |
|-------------------------------------------------------------|
| UL/cUL Listed; Type 12, 3R, 4; 4X optional; File No. SA6453 |
|-------------------------------------------------------------|

CE  
GOST  
IP 56 Internal Loop  
IP 34 on External Loop  
Telcordia GR-487 capable (Outdoor)

**APPLICATION**

- Industrial automation
- Telecommunications equipment
- Waste water treatment systems
- Package handling equipment
- Security and defense systems
- And more

**FEATURES**

- Energy-efficient rotary compressor on most models
- R407c and R134a earth-friendly refrigerants
- 115, 230 and 400/460 VAC 3-phase power input on most models
- UL Listed to save customers time and money with agency approvals
- Outdoor model operating temperature range from -40 F/-40 C to 131 F/55 C
- Exterior and partially recessed mounting options
- Attractive industrial design with minimal use of visible fasteners
- Reliable mechanical thermostat on enclosure side of the unit; indoor air conditioner models include digital display on ambient side
- Dual condenser-side air movers for performance redundancy on G52 and G57 models
- Galvanized sheet-metal cover for rugged factory and outdoor environments
- Easy-mount flanges for simple installation
- Cut-out adapter options for enclosures with McLean GENESIS™ and T-Series air conditioners, enable users to easily transition to the new unit

- Dust-resistant condenser coil allows the unit to be run filterless in most applications
- Cleanable, reusable aluminum mesh filter protects coils for maximum cooling performance
- Mounting hardware, gaskets and user manual furnished with the unit
- Every unit functionally tested before shipping
- Standard Indoor Air Conditioner models also include:
  - Active condensate management with heater strip
  - Power-off relay for door switch and other system requirements
  - Malfunction switch
- Standard Outdoor Air Conditioner models also include:
  - Telcordia GR-487 capable
  - Corrosion-resistant components
  - Malfunction switch
  - Compressor heater
  - Head pressure control
  - Up to 2000 Watt (G28, G52) and 3000 Watt (G57) enclosure heater

**SPECIFICATIONS**

- Nominal cooling capacity:
  - G28 4000 & 6000 BTU/Hr. (1172 and 1758 W)
  - G52 8000 & 12000 BTU/Hr. (2344 and 3516 W)
  - G57 20000 BTU/Hr. (5861 W)
- Outdoor model operating temperature range from -40 F/-40 C to 131 F/55 C

**FINISH**

- RAL 7035 light-gray, semi-textured powder-coat paint
- Other colors and textures available

**NOTES**

Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.

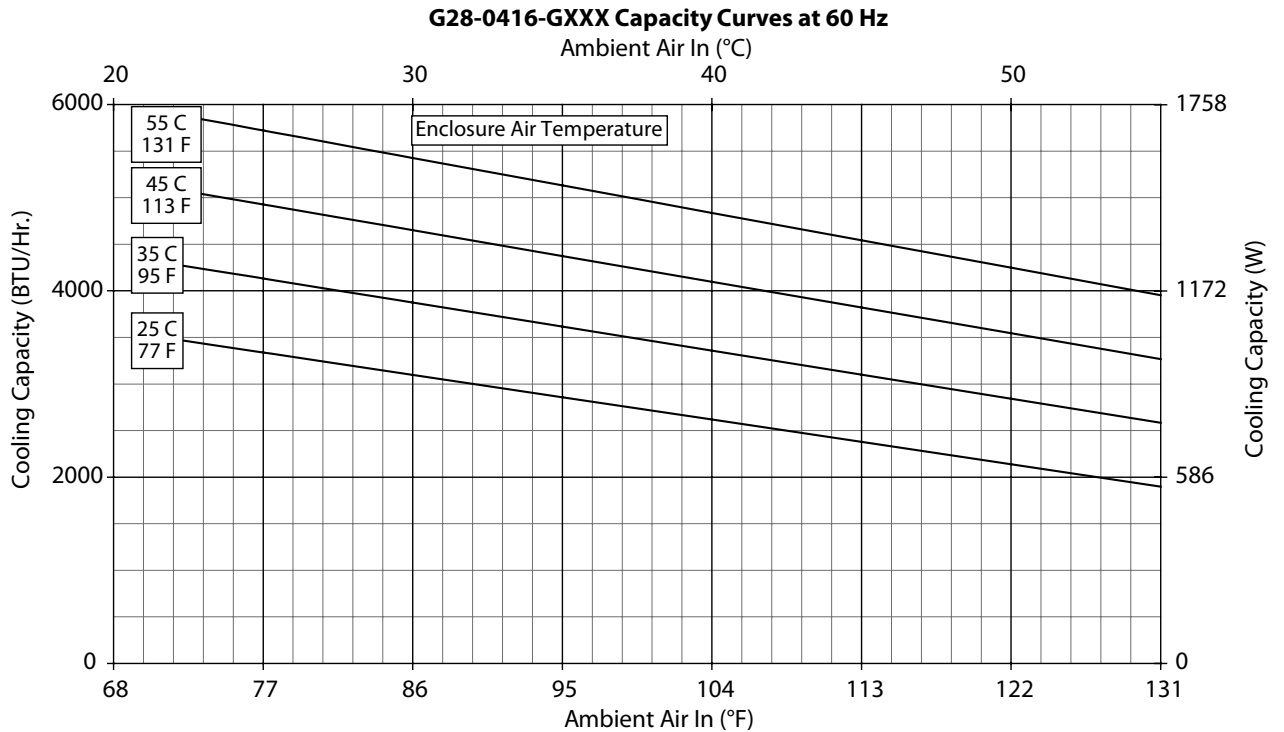
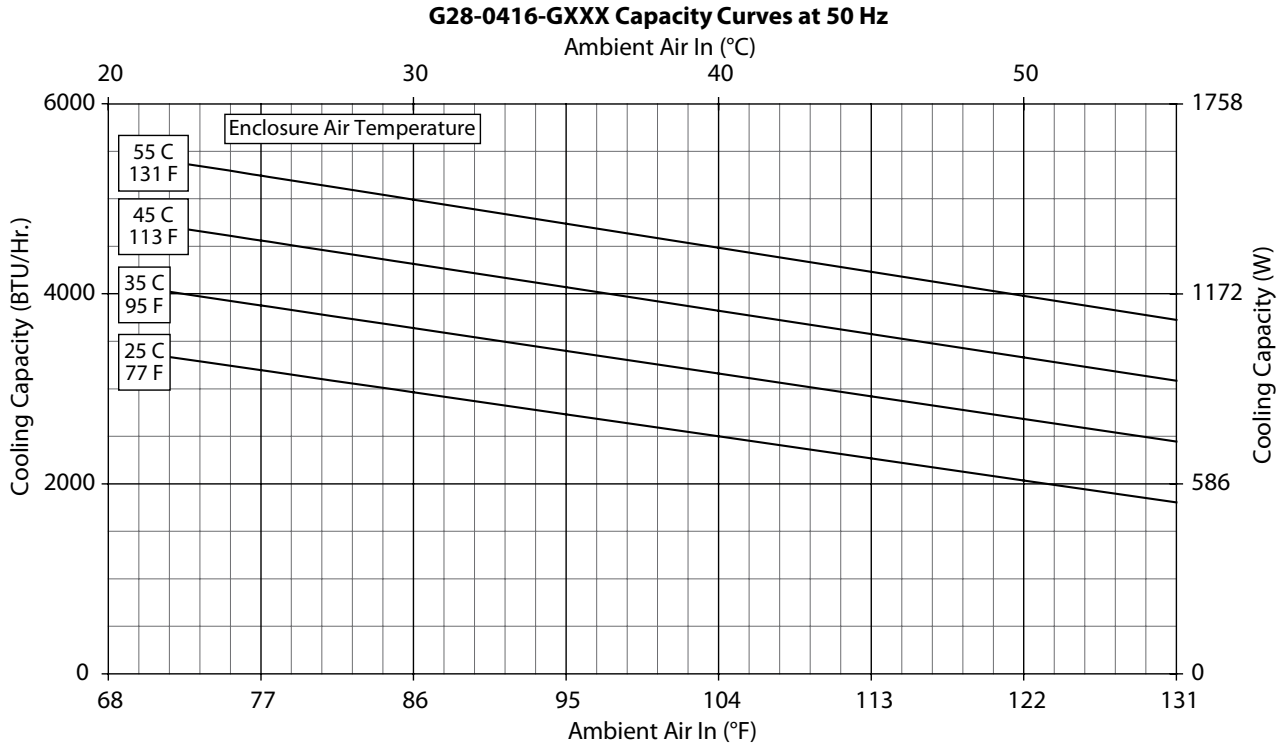
Performance Data **G28 Models 4000/6000 BTU/Hr. (1172/1758 Watt)**

| CATALOG NUMBER                                          |                                                                                                      |                  |                   |                  |                  |                   |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------|-------------------|------------------|------------------|-------------------|
| Indoor Model                                            | G280416G050                                                                                          | G280426G050      | G280446G050       | G280616G050      | G280626G050      | G280646G050       |
| Outdoor Model Stainless Steel Type 4X                   | G280416G051                                                                                          | G280426G051      | G280446G051       | G280616G051      | G280626G051      | G280646G051       |
| Indoor Model with Remote Access Control*                | G280416G060                                                                                          | G280426G060      | G280446G060       | G280616G060      | G280626G060      | G280646G060       |
| Outdoor Model without Heat Pkg.                         | G280416G100                                                                                          | G280426G100      | G280446G100       | G280616G100      | G280626G100      | G280646G100       |
| Outdoor Model Partial Recessed Mount                    | G280416G101                                                                                          | G280426G101      | G280446G101       | G280616G101      | G280626G101      | G280646G101       |
| Outdoor Model without Heat Pkg. Stainless Steel Type 4X | G280416G102                                                                                          | G280426G102      | G280446G102       | G280616G102      | G280626G102      | G280646G102       |
| Outdoor Model with Heat Pkg.                            | G280416G150                                                                                          | G280426G150      | —                 | G280616G150      | G280626G150      | —                 |
| Outdoor Model with Heat Pkg. Stainless Steel Type 4X    | G280416G151                                                                                          | G280426G151      | —                 | G280616G151      | G280626G151      | —                 |
| COOLING PERFORMANCE                                     |                                                                                                      |                  |                   |                  |                  |                   |
| <b>Nominal:</b>                                         |                                                                                                      |                  |                   |                  |                  |                   |
| <b>BTU/Hr.</b>                                          | <b>4600/4900</b>                                                                                     | <b>4600/4900</b> | <b>4600/4900</b>  | <b>6000/6400</b> | <b>6000/6400</b> | <b>5400/6000</b>  |
| <b>Watts</b>                                            | <b>1347/1435</b>                                                                                     | <b>1347/1435</b> | <b>1347/1435</b>  | <b>1757/1874</b> | <b>1757/1874</b> | <b>1581/1757</b>  |
| At 131 F/131 F [55 C/55 C]:                             |                                                                                                      |                  |                   |                  |                  |                   |
| BTU/Hr. (50/60 Hz)                                      | 4600/4900                                                                                            | 4600/4900        | 4600/4900         | 6000/6400        | 6000/6400        | 5400/6000         |
| W (50/60 Hz)                                            | 1347/1435                                                                                            | 1347/1435        | 1347/1435         | 1757/1874        | 1757/1874        | 1581/1757         |
| At 95 F/95 F [35 C/35 C]:                               |                                                                                                      |                  |                   |                  |                  |                   |
| BTU/Hr. (50/60 Hz)                                      | 4300/4600                                                                                            | 4300/4600        | 4324/4655         | 5600/6000        | 5600/6000        | 5054/5685         |
| W (50/60 Hz)                                            | 1260/1364                                                                                            | 1260/1364        | 1267/1364         | 1641/1758        | 1641/1758        | 1481/1666         |
| Refrigerant                                             | R407C                                                                                                | R407C            | R134A             | R407C            | R407C            | R134A             |
| Refrigerant Charge (ounces/grams)                       | 20/567                                                                                               | 20/567           | 16/454            | 20/567           | 20/567           | 16/454            |
| Operating Temperature Range:                            |                                                                                                      |                  |                   |                  |                  |                   |
| Maximum [°F/°C]                                         | 131 F/55 C                                                                                           | 131 F/55 C       | 131 F/55 C        | 131 F/55 C       | 131 F/55 C       | 131 F/55 C        |
| Minimum [°F/°C]                                         | -40 F/-40 C                                                                                          | -40 F/-40 C      | -40 F/-40 C       | -40 F/-40 C      | -40 F/-40 C      | -40 F/-40 C       |
| Air Flow at 0 Static Pressure:                          |                                                                                                      |                  |                   |                  |                  |                   |
| Internal loop 50 Hz (CFM / m <sup>3</sup> /hr.)         | 189/321                                                                                              | 189/321          | 189/321           | 189/321          | 189/321          | 189/321           |
| External loop 50 Hz (CFM / m <sup>3</sup> /hr.)         | 291/494                                                                                              | 291/494          | 291/494           | 291/494          | 291/494          | 291/494           |
| Internal loop 60 Hz (CFM / m <sup>3</sup> /hr.)         | 221/375                                                                                              | 221/375          | 221/375           | 221/375          | 221/375          | 221/375           |
| External loop 60 Hz (CFM / m <sup>3</sup> /hr.)         | 300/509                                                                                              | 300/509          | 300/509           | 300/509          | 300/509          | 300/509           |
| Max. Heater W (Outdoor Models)                          | 2000                                                                                                 | 2000             |                   | 2000             | 2000             |                   |
| ELECTRICAL DATA                                         |                                                                                                      |                  |                   |                  |                  |                   |
| <b>Rated Voltage</b>                                    | <b>115</b>                                                                                           | <b>230</b>       | <b>400/460 3~</b> | <b>115</b>       | <b>230</b>       | <b>400/460 3~</b> |
| Frequency (Hz)                                          | 50/60                                                                                                | 50/60            | 50/60             | 50/60            | 50/60            | 50/60             |
| Operating Range                                         | +/- 10%                                                                                              | +/- 10%          | +/- 10%           | +/- 10%          | +/- 10%          | +/- 10%           |
| Max. Power Consumption (W at 50/60 Hz)                  | 1138.5/1311                                                                                          | 1058/1334        | 680/874           | 1138.5/1311      | 1058/1334        | 680/874           |
| Max. Nominal Current (A at 50/60 Hz)                    | 9.9/11.4                                                                                             | 4.6/5.8          | 1.7/1.9           | 9.9/11.4         | 4.6/5.8          | 1.7/1.9           |
| Starting Current (A)                                    | 36.2                                                                                                 | 17.7             | 7.7               | 36.2             | 17.7             | 7.7               |
| Agency Approvals                                        | cUL Listed<br>CE<br>GOST<br>Terminal Block                                                           |                  |                   |                  |                  |                   |
| Power Input Description                                 | Terminal Block                                                                                       |                  |                   |                  |                  |                   |
| ENCLOSURE PROTECTION                                    |                                                                                                      |                  |                   |                  |                  |                   |
| UL Type                                                 | Type 12, 3R, 4 Standard<br>Type 4X Stainless Steel Optional                                          |                  |                   |                  |                  |                   |
| CONTROLLER                                              |                                                                                                      |                  |                   |                  |                  |                   |
| Description                                             | Basic Mechanical Thermostat                                                                          |                  |                   |                  |                  |                   |
| Thermostat Location                                     | Enclosure Side on All Base Models                                                                    |                  |                   |                  |                  |                   |
| Factory Thermostat Setting [°F/°C]                      | 80/27                                                                                                | 80/27            | 80/27             | 80/27            | 80/27            | 80/27             |
| SOUND LEVEL                                             |                                                                                                      |                  |                   |                  |                  |                   |
| At 1.5 Meters                                           | 68dB(A)                                                                                              |                  |                   |                  |                  |                   |
| UNIT CONSTRUCTION                                       |                                                                                                      |                  |                   |                  |                  |                   |
| Material                                                | Galvanized Sheet Metal Standard (Optional: Stainless Steel)                                          |                  |                   |                  |                  |                   |
| Finish                                                  | Powder Coat RAL 7035 Light Gray Standard                                                             |                  |                   |                  |                  |                   |
| ACCESSORIES                                             |                                                                                                      |                  |                   |                  |                  |                   |
| EASYSWAP Adaptor Plenum (GENESIS™ M28)                  | Enables SPECTRACOOOL to be mounted to GENESIS M28 air conditioner cutout<br>Catalog Number PLM28G28  |                  |                   |                  |                  |                   |
| EASYSWAP Adaptor Plenum (T-Series T29)                  | Enables SPECTRACOOOL to be mounted to T-Series T29 air conditioner cutout<br>Catalog Number PLT29G28 |                  |                   |                  |                  |                   |
| UNIT DIMENSIONS                                         |                                                                                                      |                  |                   |                  |                  |                   |
| Height (in./mm)                                         | 28.55/725.1                                                                                          |                  |                   |                  |                  |                   |
| Width (in./mm)                                          | 16.97/431.1                                                                                          |                  |                   |                  |                  |                   |
| Depth (in./mm)                                          | 10.10/256.6                                                                                          |                  |                   |                  |                  |                   |
| Weight (lb./kg)                                         | 84/38                                                                                                | 84/38            | 84/38             | 84/38            | 84/38            | 84/38             |

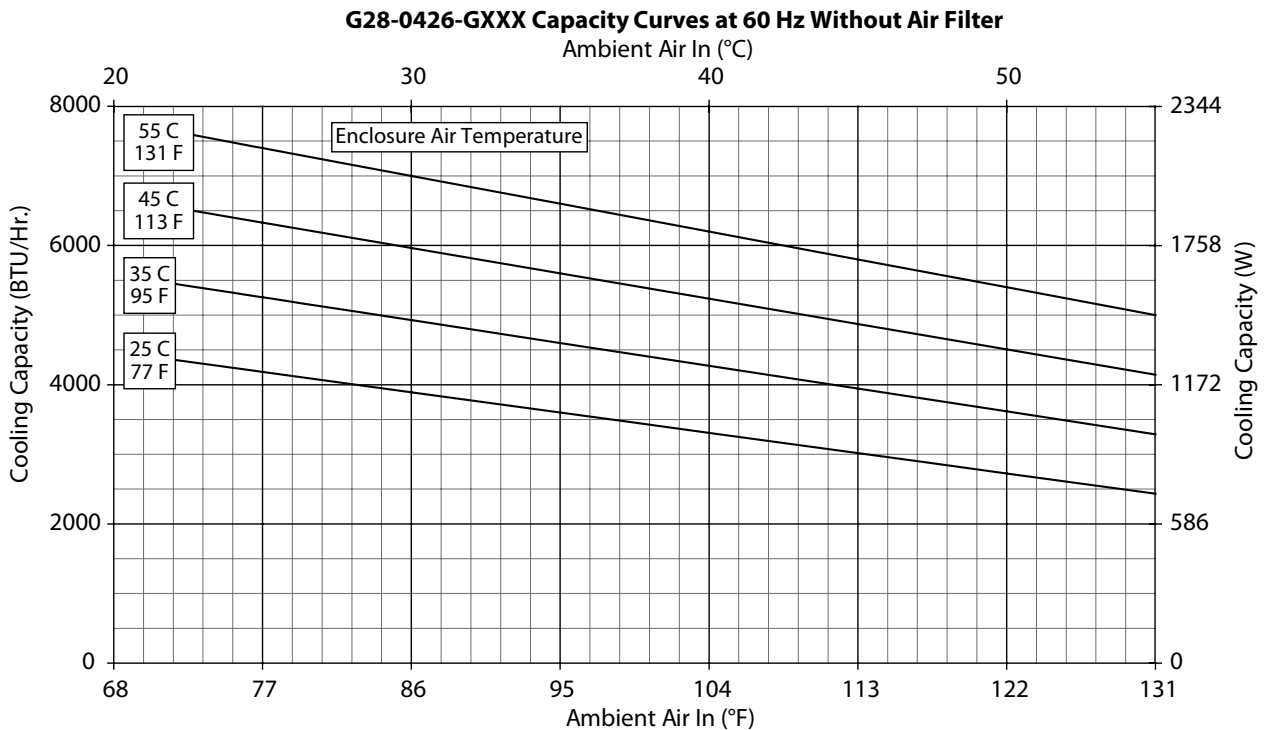
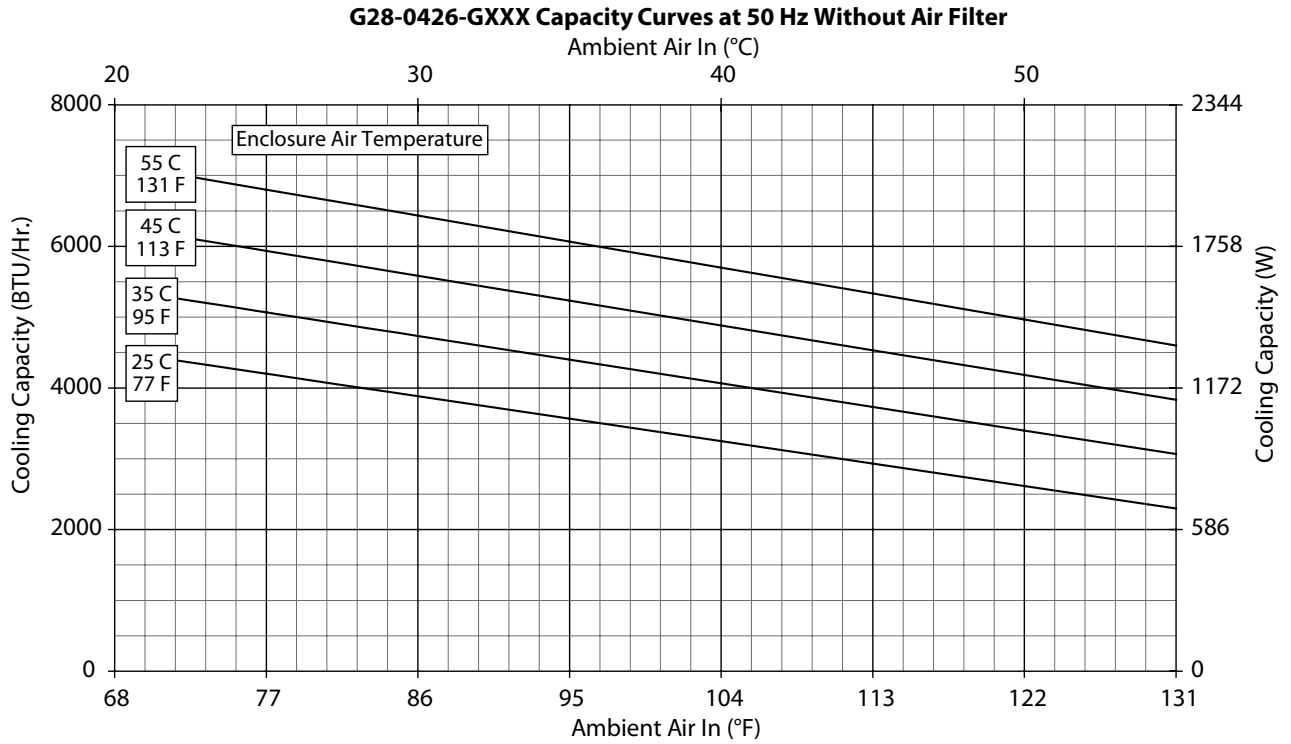
\*Units with Remote Access Control utilize a digital controller and communicate via SNMP over ethernet or modbus RTU over USB.



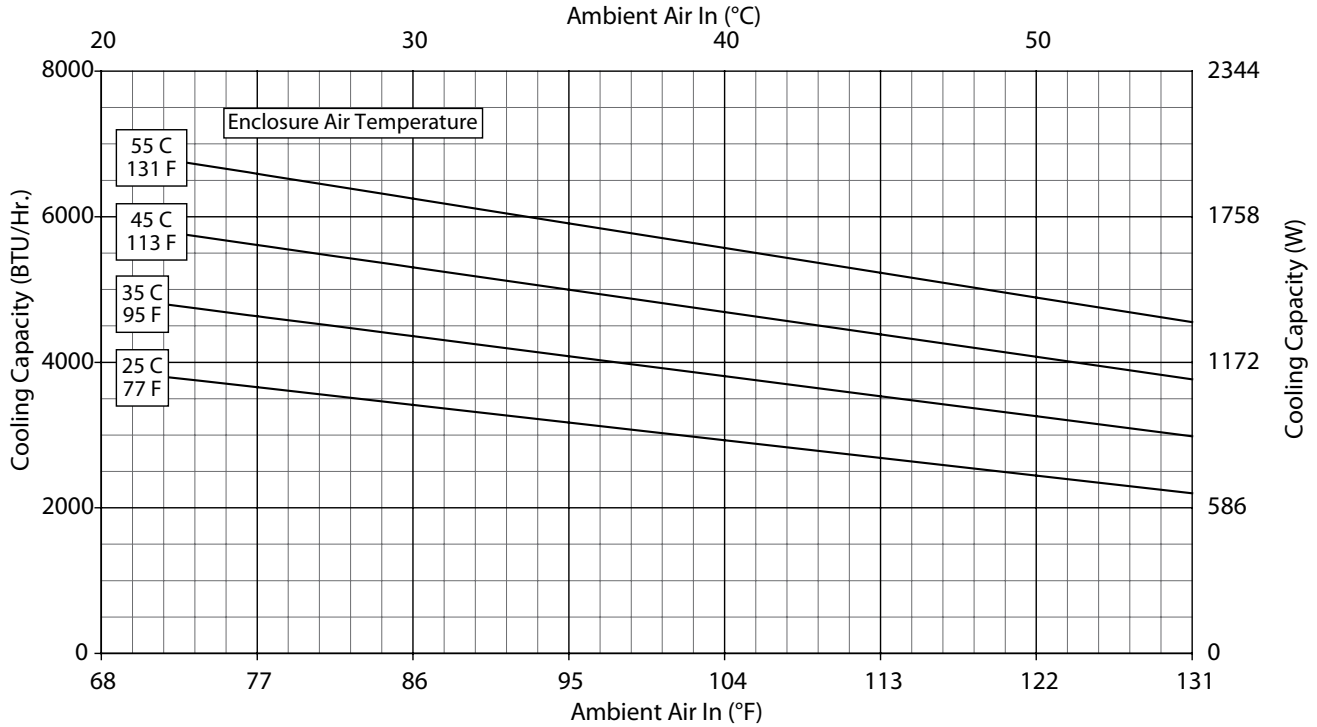
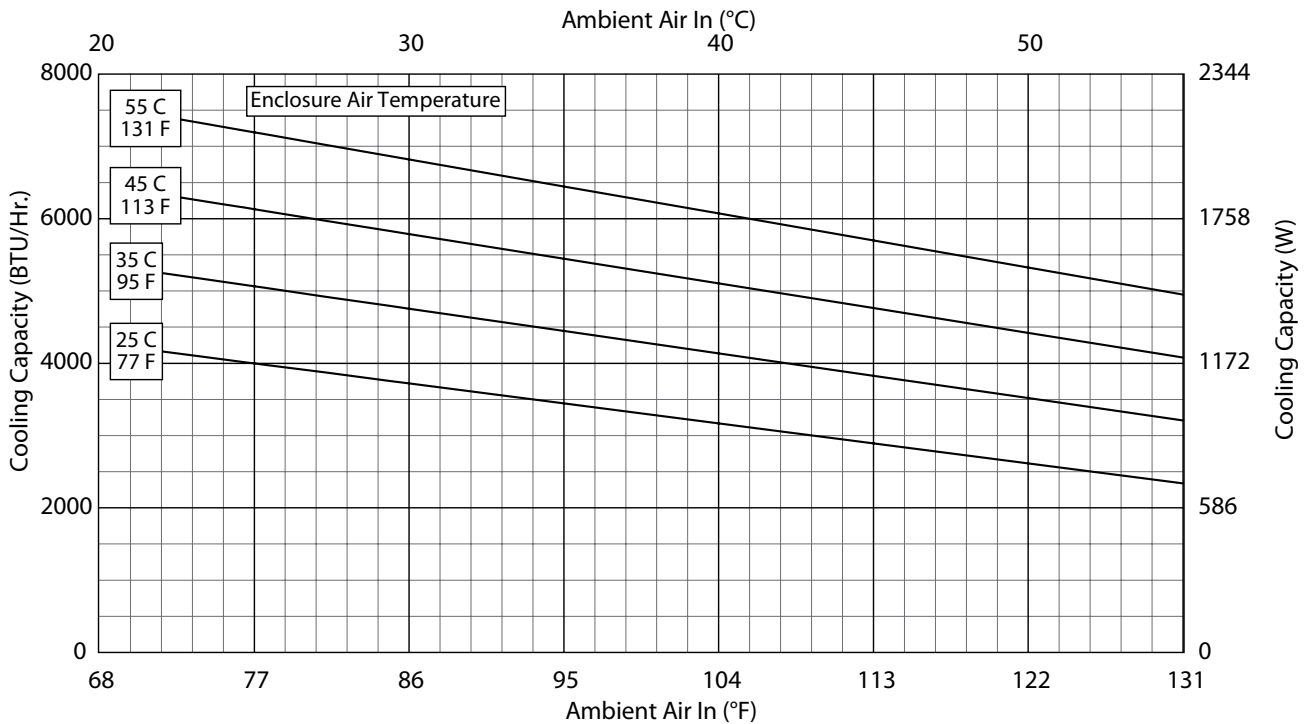
## Performance Curves for G28 Models 4000 BTU/Hr. (1347/1435 Watt)



Performance Curves for G28 Models 4000 BTU/Hr. (1347/1435 Watt)



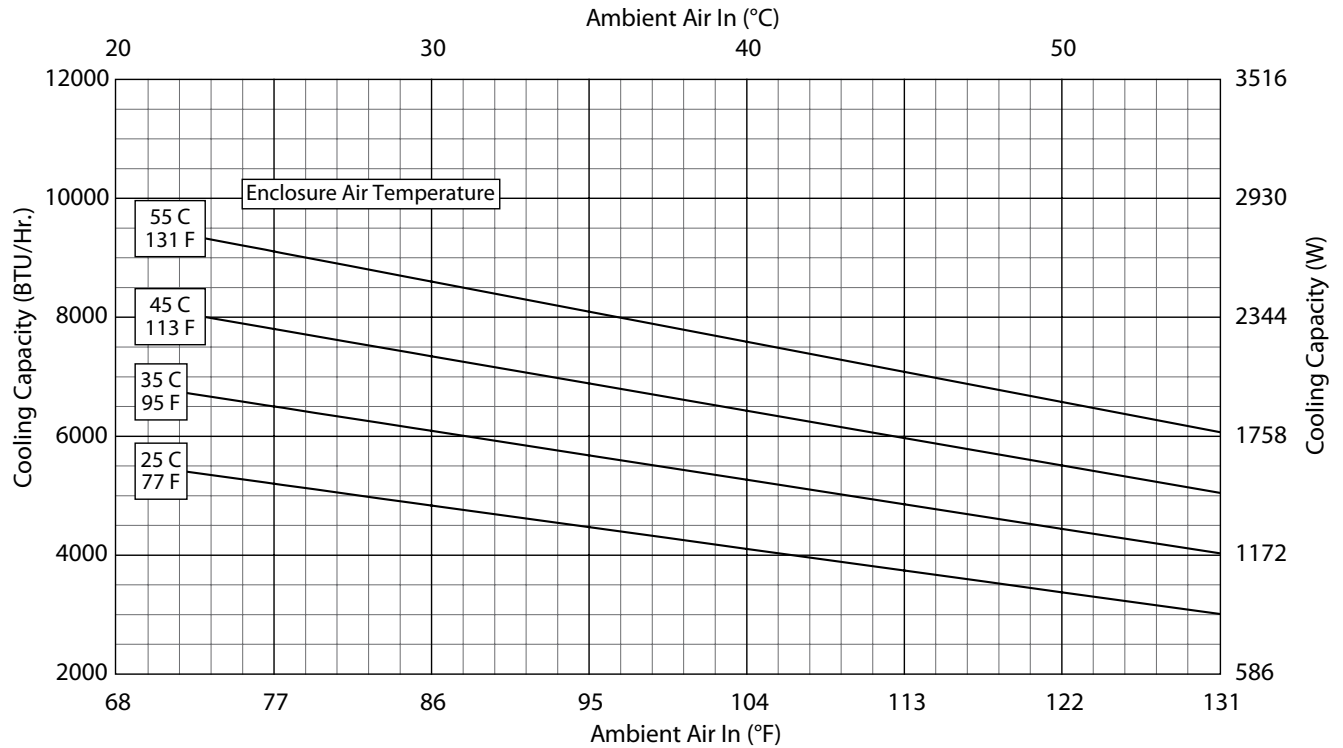
## Performance Curves for G28 Models 4000 BTU/Hr. (1347/1435 Watt)

**G28-0446-GXXX- Capacity Curves at 50 Hz; Without Filter**

**G28-0446-GXXX- Capacity Curves at 60 Hz; Without Filter**


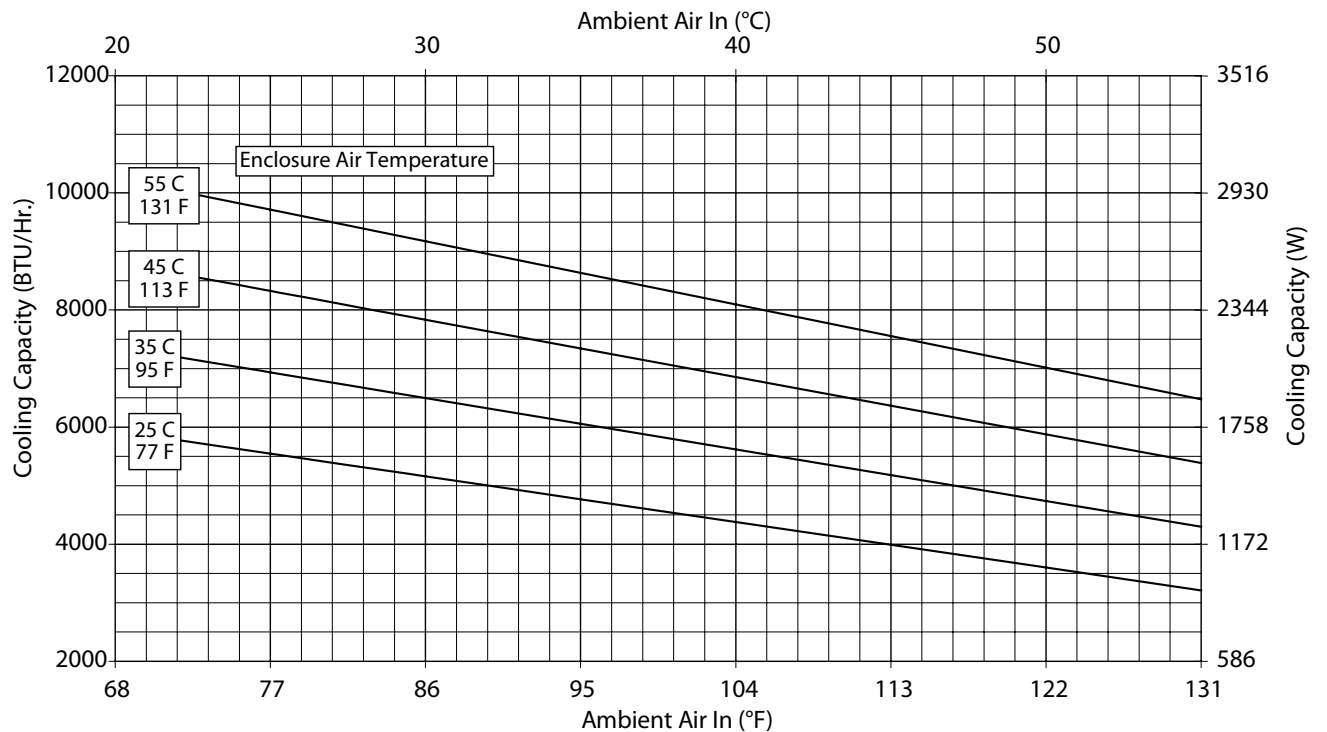


Performance Curves for G28 Models 4000/6000 BTU/Hr. (1172/1758 Watt)

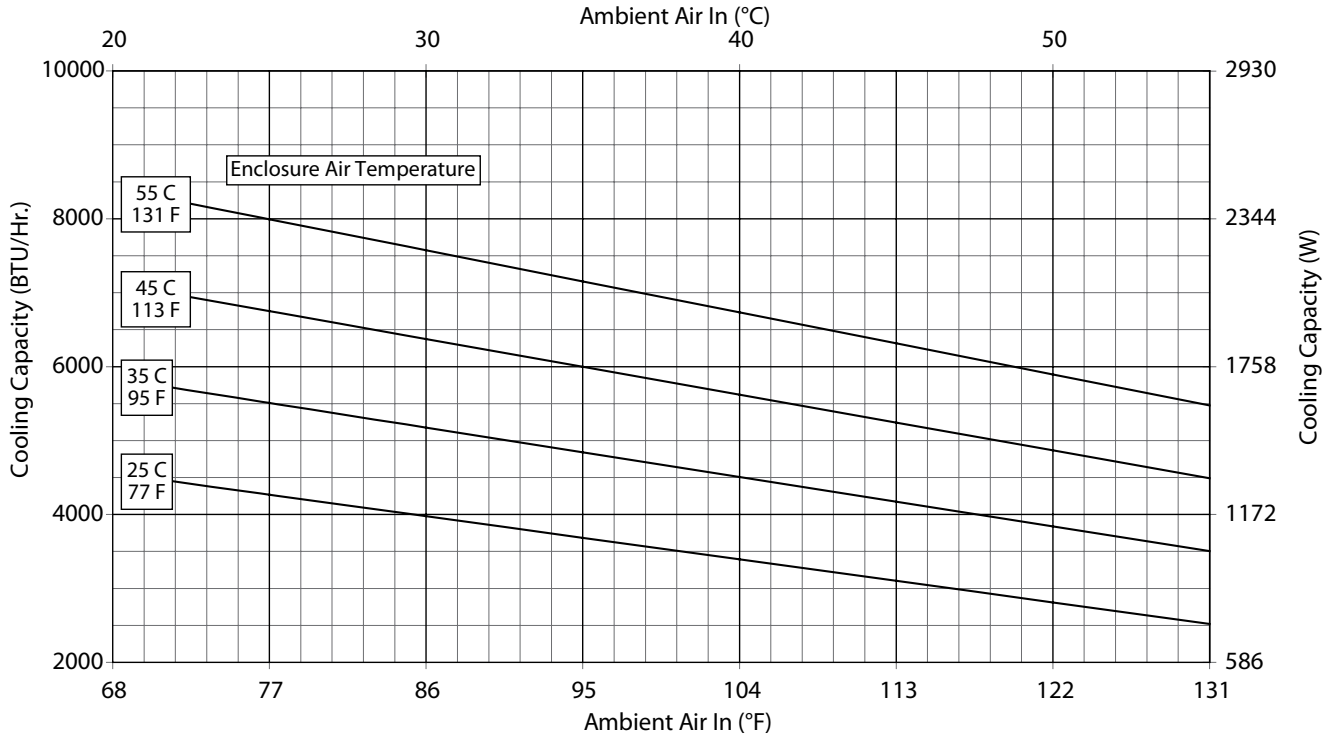
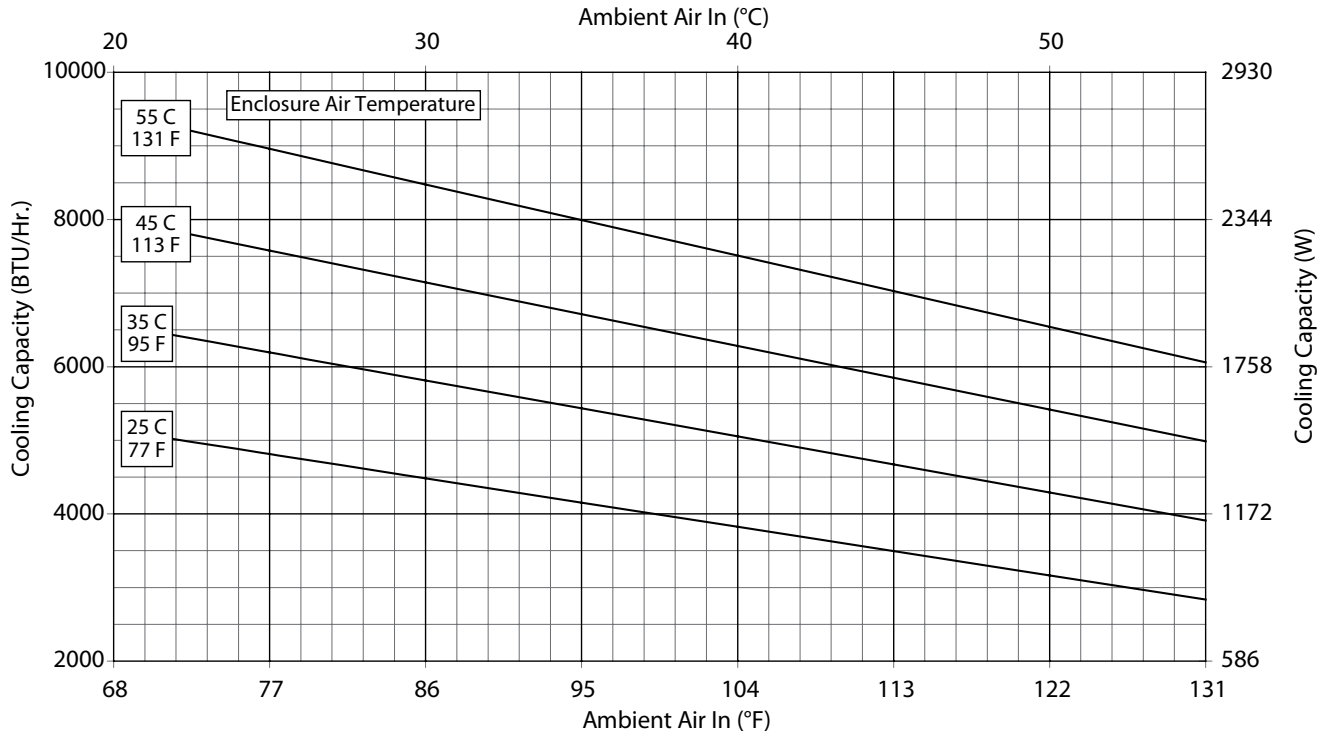
**G28-06(1/2)6-GXXX Capacity Curves at 50 Hz Without Filter**



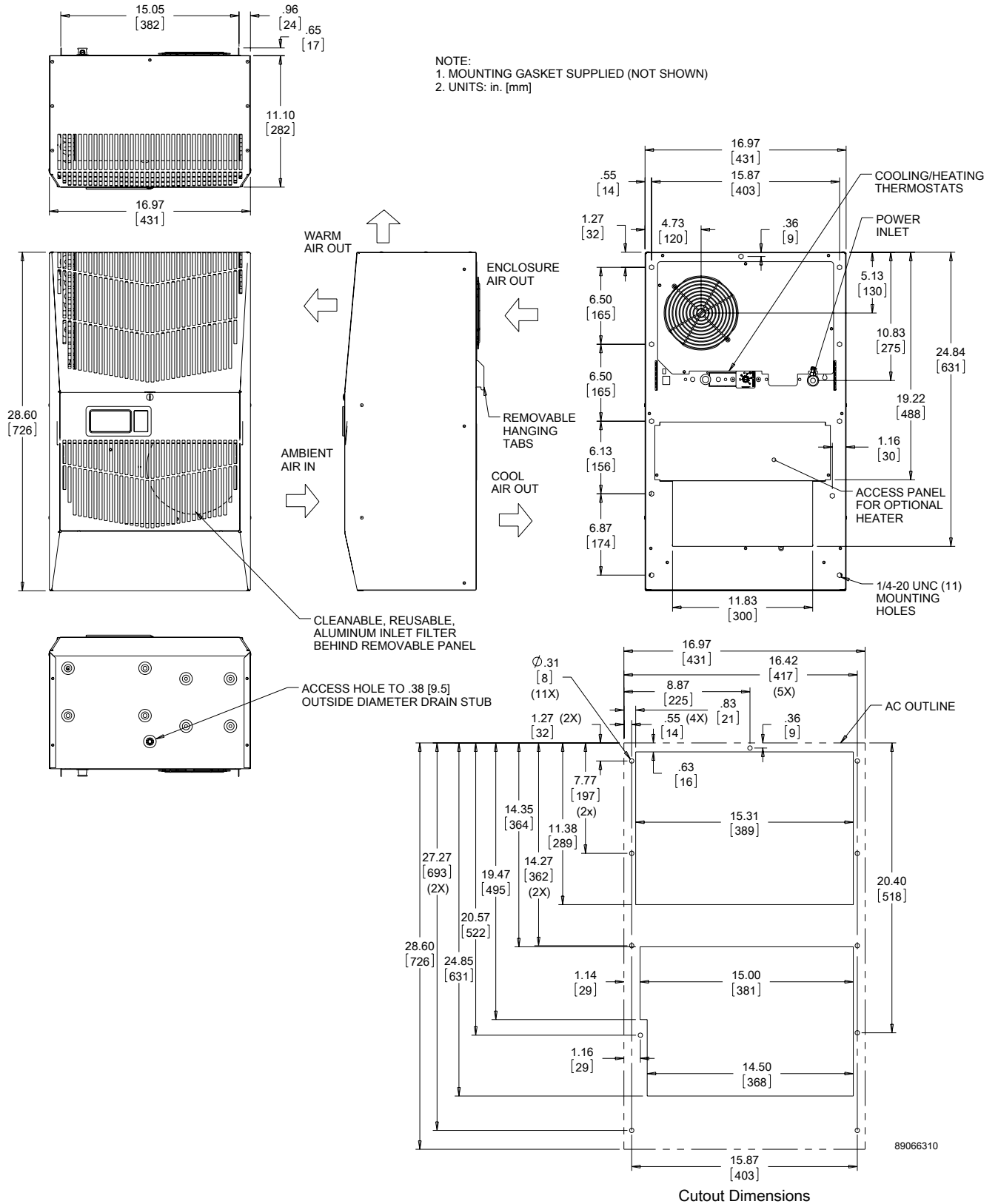
**G28-06(1/2)6-G002-P#2 Capacity Curves at 60 Hz Without Filter**



## Performance Curves for G28 Models 6000 BTU/Hr. (1758 Watt)

**G28-0646-GXXX Performance Curve 400VAC/50Hz Without Air Filter**

**G28-0646-GXXX Performance Curve 460VAC/60Hz Without Air Filter**


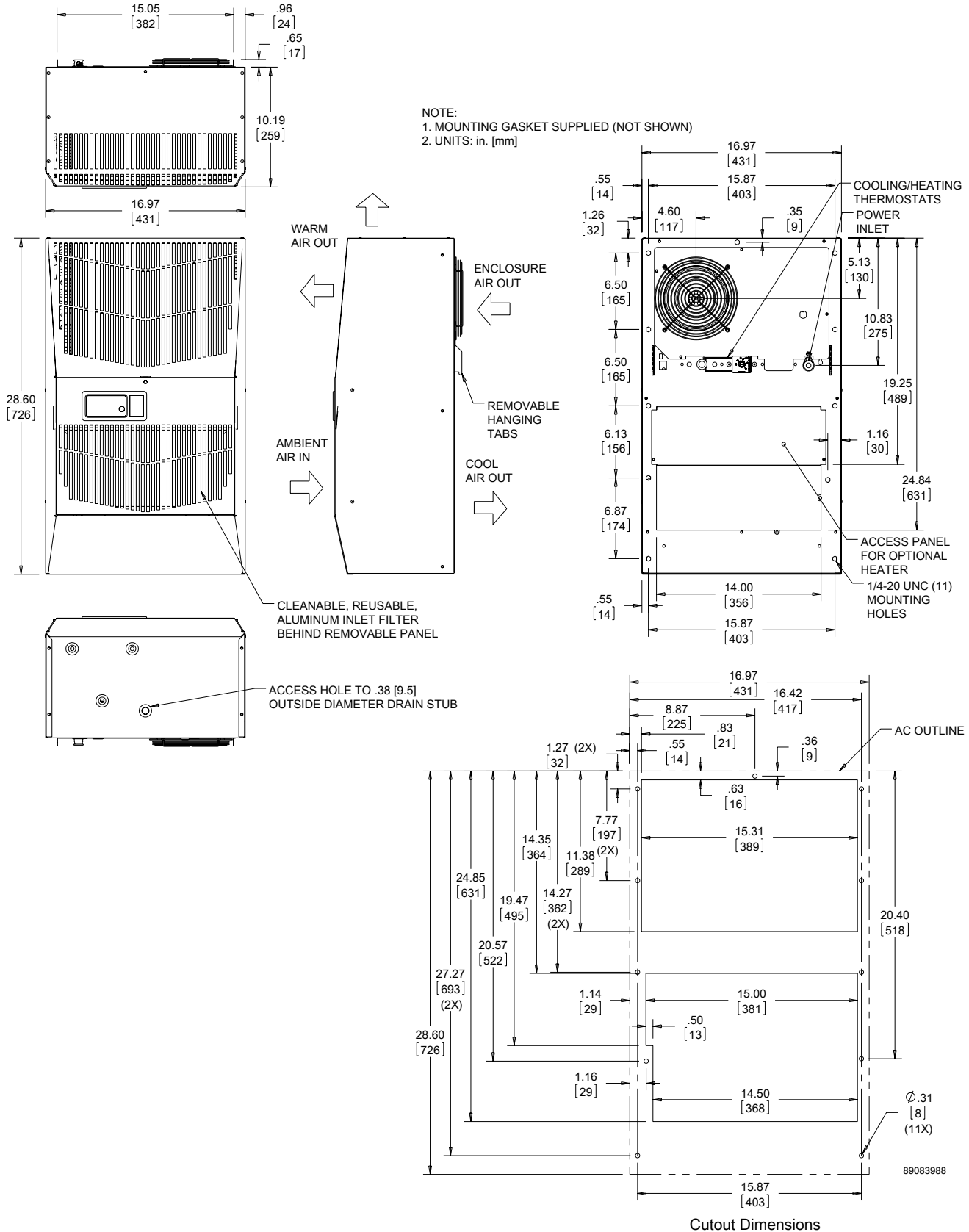
G28 Models 4000 BTU/Hr. 115 V (1172 Watt)



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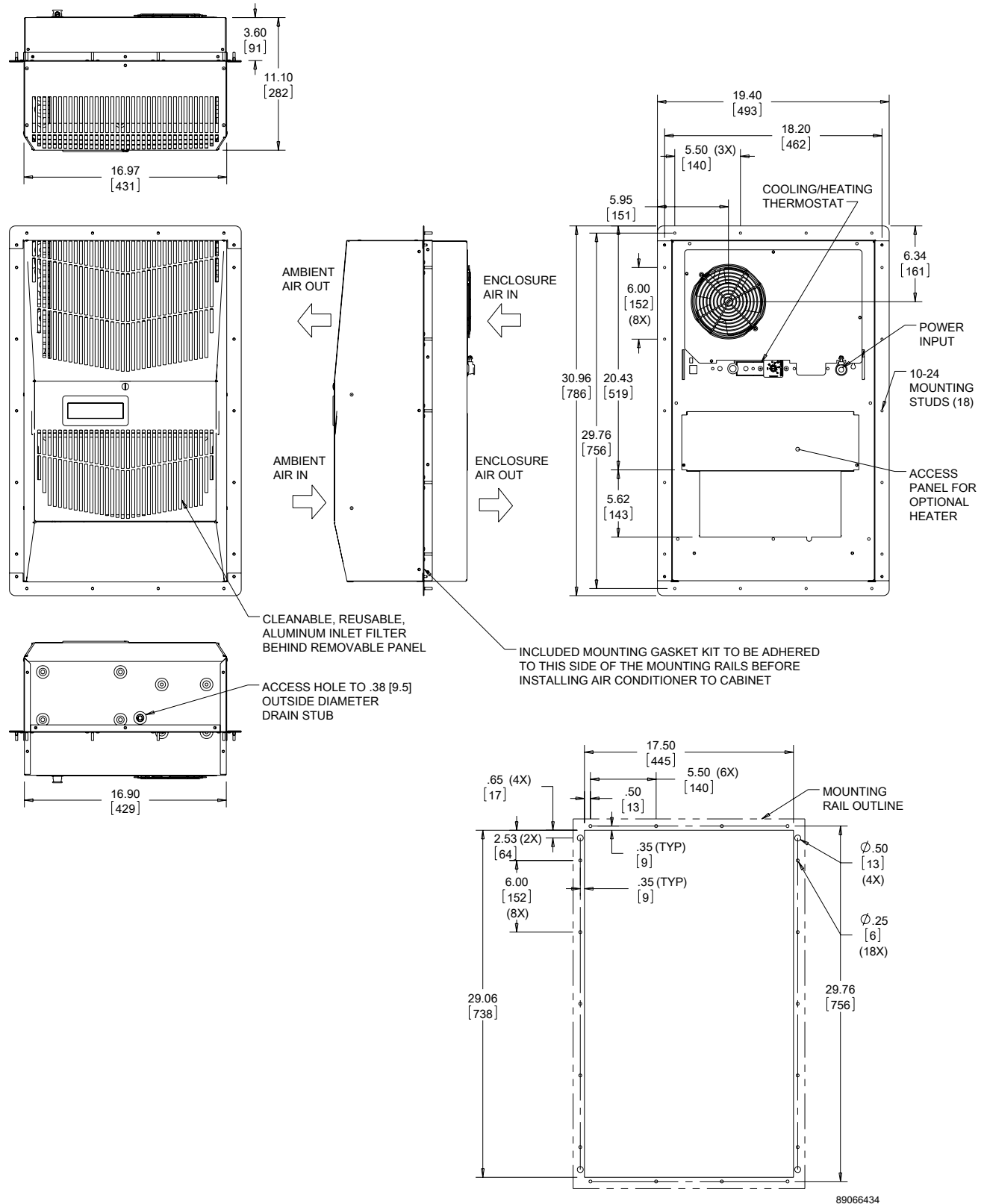


G28 Models 4000 BTU/Hr. 230/460 V, 6000 BTU/Hr. 115/230/460 V (1172/1757 Watt)



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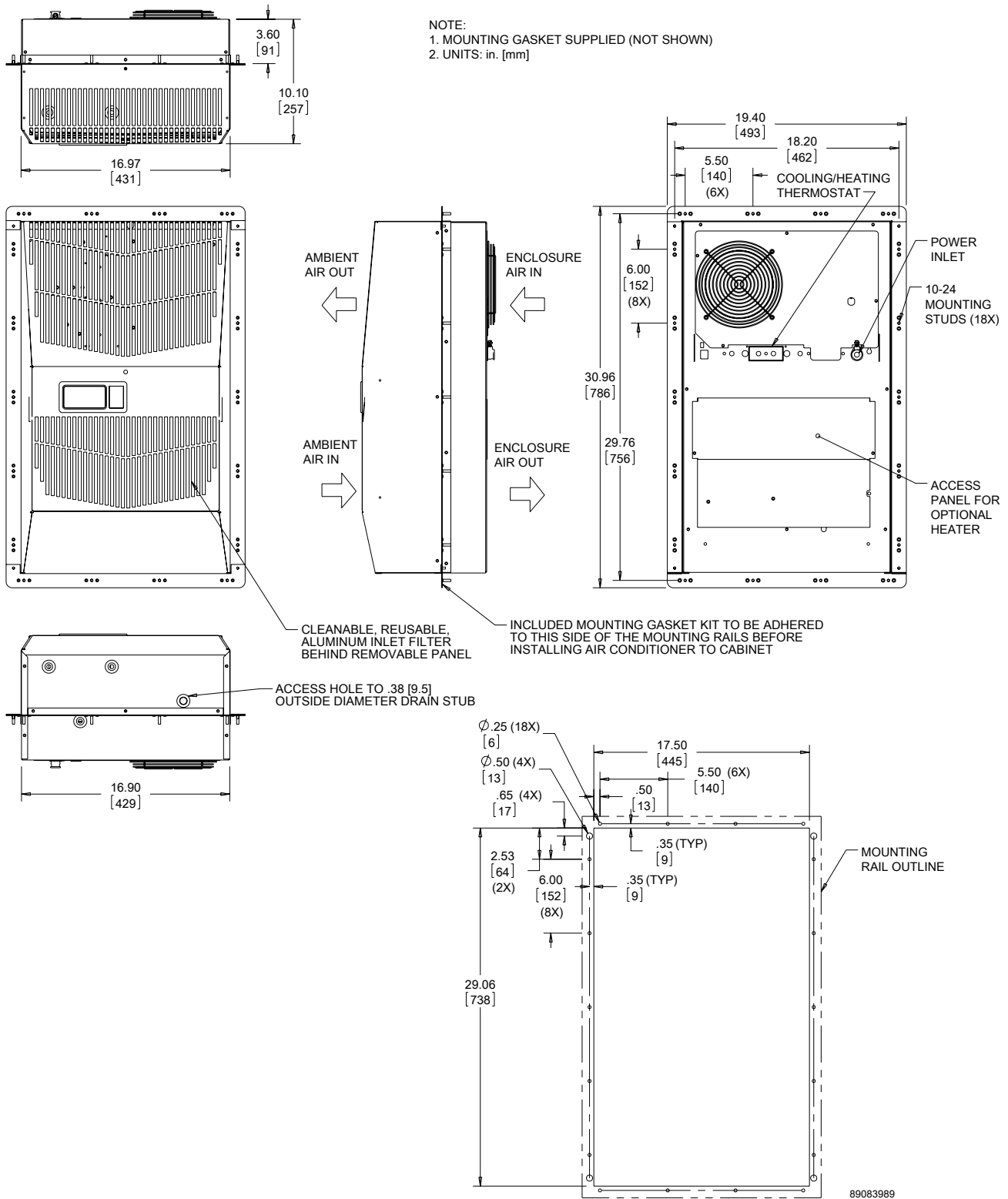
G28 Models 4000 BTU/Hr. 115 V (1172 Watt) Partial Recess



Cutout Dimensions

Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.

G28 Model 4000 BTU/Hr. 230/460 V, 6000 BTU/Hr. 115/230/460 V (1172/1758 Watt) Partial Recess



Cutout Dimensions

Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.



Performance Data **G52 Models 8000/12000 BTU/Hr. (2300/3500 Watt)**

| CATALOG NUMBER                                          |             |             |             |             |             |             |
|---------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Indoor Model                                            | G520816G050 | G520826G050 | G520846G050 | G521216G050 | G521226G050 | G521246G050 |
| Indoor Model Stainless Steel Type 4X                    | G520816G051 | G520826G051 | G520846G051 | G521216G051 | G521226G051 | G521246G051 |
| Indoor Model with Remote Access Control*                | G520816G060 | G520826G060 | G520846G060 | G521216G060 | G521226G060 | G521246G060 |
| Outdoor Model without Heat Pkg.                         | G520816G100 | G520826G100 | G520846G100 | G521216G100 | G521226G100 | G521246G100 |
| Outdoor Model Partial Recessed Mount                    | G520816G101 | G520826G101 | G520846G101 | G521216G101 | G521226G101 | G521246G101 |
| Outdoor Model without Heat Pkg. Stainless Steel Type 4X | G520816G102 | G520826G102 | G520846G102 | G521216G102 | G521226G102 | G521246G102 |
| Outdoor Model with Heat Pkg.                            | G520816G150 | G520826G150 | G520846G150 | G521216G150 | G521226G150 | G521246G150 |
| Outdoor Model with Heat Pkg. Stainless Steel Type 4X    | G520816G151 | G520826G151 | G520846G151 | G521216G151 | G521226G151 | G521246G151 |

| COOLING PERFORMANCE                |           |           |           |             |             |             |
|------------------------------------|-----------|-----------|-----------|-------------|-------------|-------------|
| Nominal:                           |           |           |           |             |             |             |
| BTU/Hr.                            | 8000      | 8000      | 8000      | 12000       | 12000       | 12000       |
| Watts                              | 2300      | 2300      | 2300      | 3500        | 3500        | 3500        |
| At 131 F/131 F (55 C/55 C):        |           |           |           |             |             |             |
| BTU/Hr.                            | 7300/8200 | 7300/8200 | 8800/9800 | 12000/12500 | 12000/12500 | 11100/12000 |
| Watts                              | 2139/2403 | 2139/2403 | 2578/2871 | 3516/3662   | 3516/3662   | 3252/3516   |
| At 95 F/95 F (35 C/35 C):          |           |           |           |             |             |             |
| BTU/Hr.                            | 6000/6800 | 6000/6800 | 7400/8200 | 9900/10700  | 9900/10700  | 9900/10700  |
| Watts                              | 1758/1992 | 1758/1992 | 2168/2402 | 2900/3135   | 2900/3135   | 2900/3135   |
| Refrigerant                        | R134a     | R134a     | R134a     | R134a       | R134a       | R134a       |
| Refrigerant Charge (ounces/grams)  | 24/680    | 24/680    | 24/680    | 38/1077     | 38/1077     | 38/1077     |
| Operating Temperature Range:       |           |           |           |             |             |             |
| Maximum (°F/°C)                    | 131/55    | 131/55    | 131/55    | 131/55      | 131/55      | 131/55      |
| Indoor Minimum (°F/°C)             | 50/10     | 50/10     | 50/10     | 50/10       | 50/10       | 50/10       |
| Outdoor Minimum (°F/°C)            | -40/-40   | -40/-40   | -40/-40   | -40/-40     | -40/-40     | -40/-40     |
| Airflow at 0 Static Pressure:      |           |           |           |             |             |             |
| Internal loop 50 Hz (CFM / m³/hr.) | 285/484   | 285/484   | 285/484   | 287/487     | 287/487     | 287/487     |
| External loop 50 Hz (CFM / m³/hr.) | 650/1104  | 650/1104  | 650/1104  | 635/1078    | 635/1078    | 635/1078    |
| Internal loop 60 Hz (CFM / m³/hr.) | 310/527   | 310/527   | 310/527   | 305/518     | 305/518     | 305/518     |
| External loop 60 Hz (CFM / m³/hr.) | 700/1189  | 700/1189  | 700/1189  | 650/1104    | 650/1104    | 650/1104    |
| Max. Heater W (Outdoor Models):    | 2000      | 2000      | NA        | 2000        | 2000        | NA          |

| ELECTRICAL DATA            |                                                                             |             |            |           |              |            |
|----------------------------|-----------------------------------------------------------------------------|-------------|------------|-----------|--------------|------------|
| Rated Voltage              | 115                                                                         | 230/208-230 | 400/460 3~ | 115       | 230/208-230  | 400/460 3~ |
| Frequency (Hz)             | 50/60                                                                       | 50/60       | 50/60      | 50/60     | 50/60        | 50/60      |
| Operating Range            | +/- 10%                                                                     | +/- 10%     | +/- 10%    | +/- 10%   | +/- 10%      | +/- 10%    |
| Max. Power Consumption (W) | 1250/1415                                                                   | 1250/1415   | 806/957**  | 2100/2427 | 1830/2130    | 910/1106** |
| Max. Nominal Current (A)   | 11.2/12.3                                                                   | 5.6/7.0-6.2 | 3.1/3.2    | 16.1/21.0 | 9.1/10.6-9.5 | 3.6/3.5    |
| Starting Current (A)       | 48                                                                          | 27          | 16         | 57        | 38           | 16         |
| Agency Approvals           | cUL Listed<br>CE<br>GOST<br>Others available upon request<br>Terminal Block |             |            |           |              |            |

|                             |                                                             |
|-----------------------------|-------------------------------------------------------------|
| Power Input Description     | Terminal Block                                              |
| <b>ENCLOSURE PROTECTION</b> |                                                             |
| UL Type                     | Type 12, 3R, 4 standard<br>Type 4X Stainless steel optional |
| International Rating        | IP56 internal loop<br>IP34 external loop                    |

| CONTROLLER                       |                                                  |
|----------------------------------|--------------------------------------------------|
| Description                      | Basic mechanical thermostat with digital display |
| Thermostat Location              | Enclosure side on all base models                |
| Digital Display Location:        |                                                  |
| Indoor Models                    | Ambient side                                     |
| Outdoor Models                   | Enclosure side                                   |
| Factory Thermostat Setting (F/C) | 80/27                                            |

| SOUND LEVEL   |          |
|---------------|----------|
| At 1.5 Meters | 68 dB(A) |

| UNIT CONSTRUCTION |                                                                                         |
|-------------------|-----------------------------------------------------------------------------------------|
| Material          | Galvanized sheet metal standard<br>Stainless steel optional                             |
| Finish            | RAL 7035 light-gray, semi-textured powder-coat paint standard<br>Other colors available |

| ACCESSORIES                            |                                                                                                      |
|----------------------------------------|------------------------------------------------------------------------------------------------------|
| Cleanable Re-usable Filter             | Aluminum mesh Part #101000103                                                                        |
| EASYSWAP Adaptor Plenum (GENESIS™ M52) | Enables SPECTRACOOL to be mounted to a GENESIS M52 air conditioner cutout<br>Catalog Number PLM52G52 |

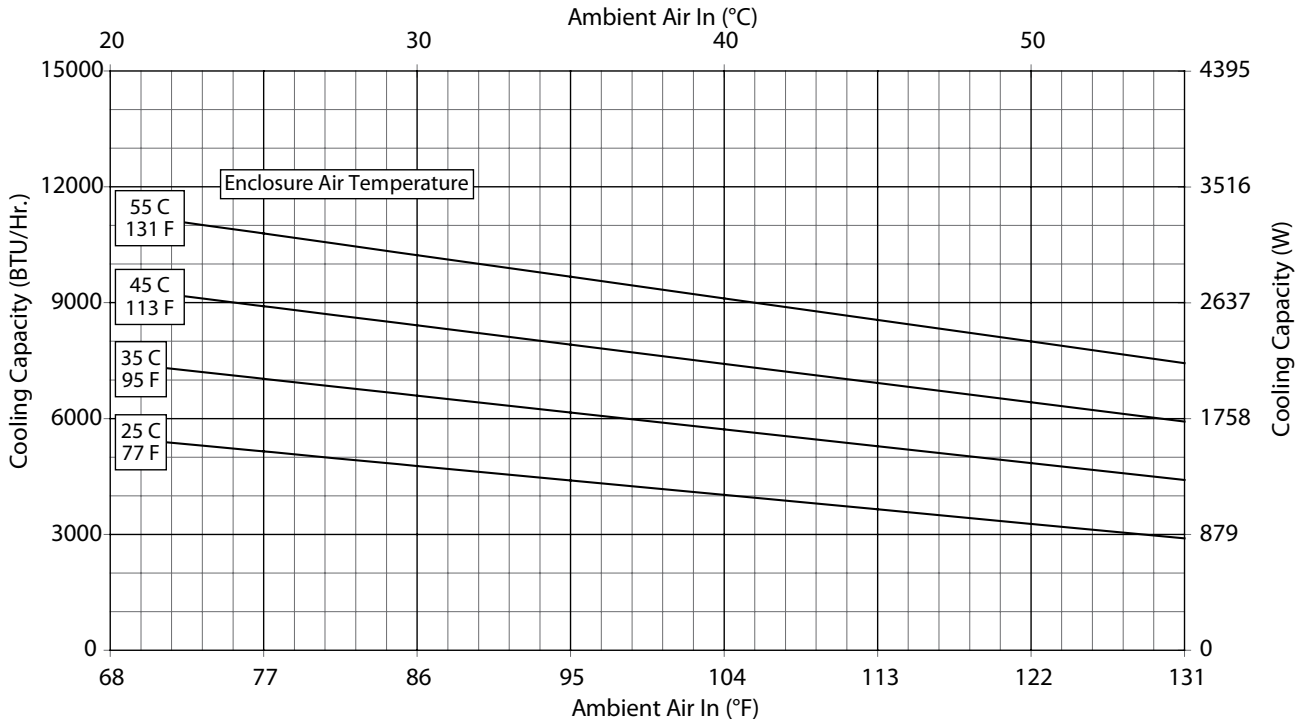
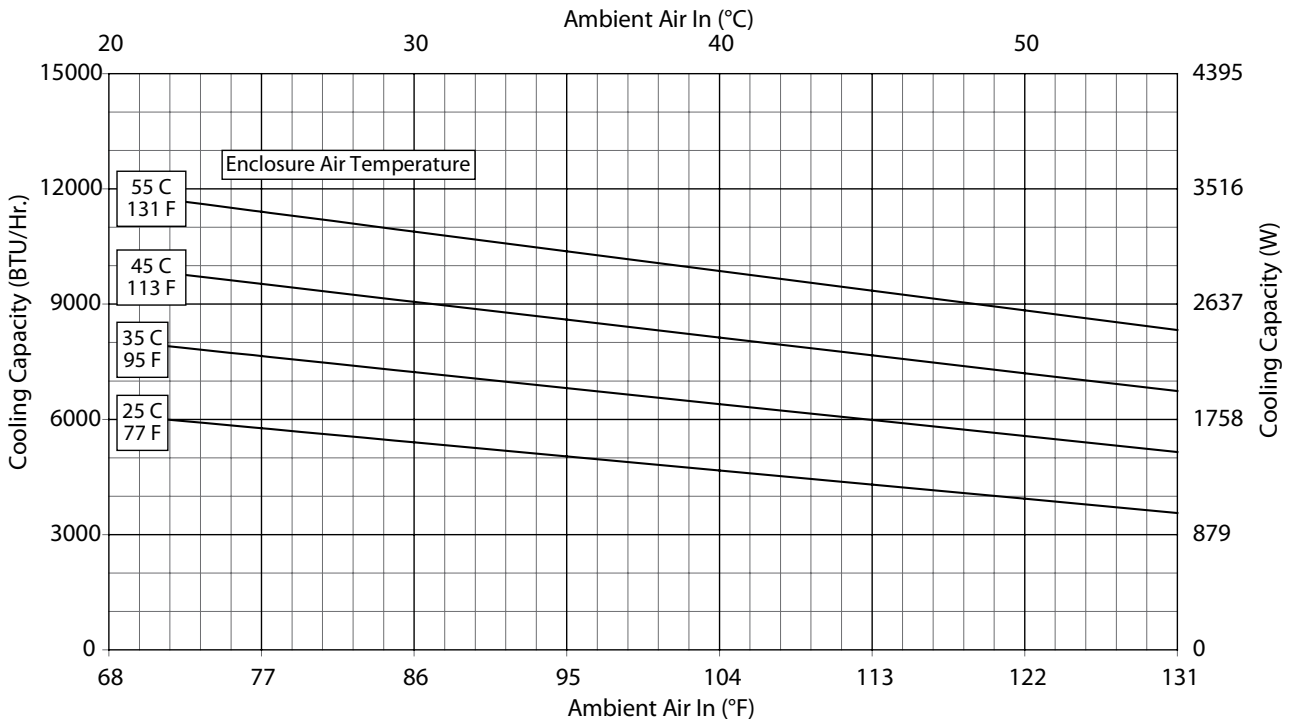
| UNIT DIMENSIONS |          |          |          |            |          |          |
|-----------------|----------|----------|----------|------------|----------|----------|
| Height (in./mm) |          |          |          | 52.69/1338 |          |          |
| Width (in./mm)  |          |          |          | 17.12/435  |          |          |
| Depth (in./mm)  |          |          |          | 11.66/296  |          |          |
| Weight (lb./kg) | 128/58.1 | 128/58.1 | 138/62.6 | 131/59.4   | 131/59.4 | 141/64.0 |

\*Units with Remote Access Control utilize a digital controller and communicate via SNMP over ethernet or modbus RTU over USB.

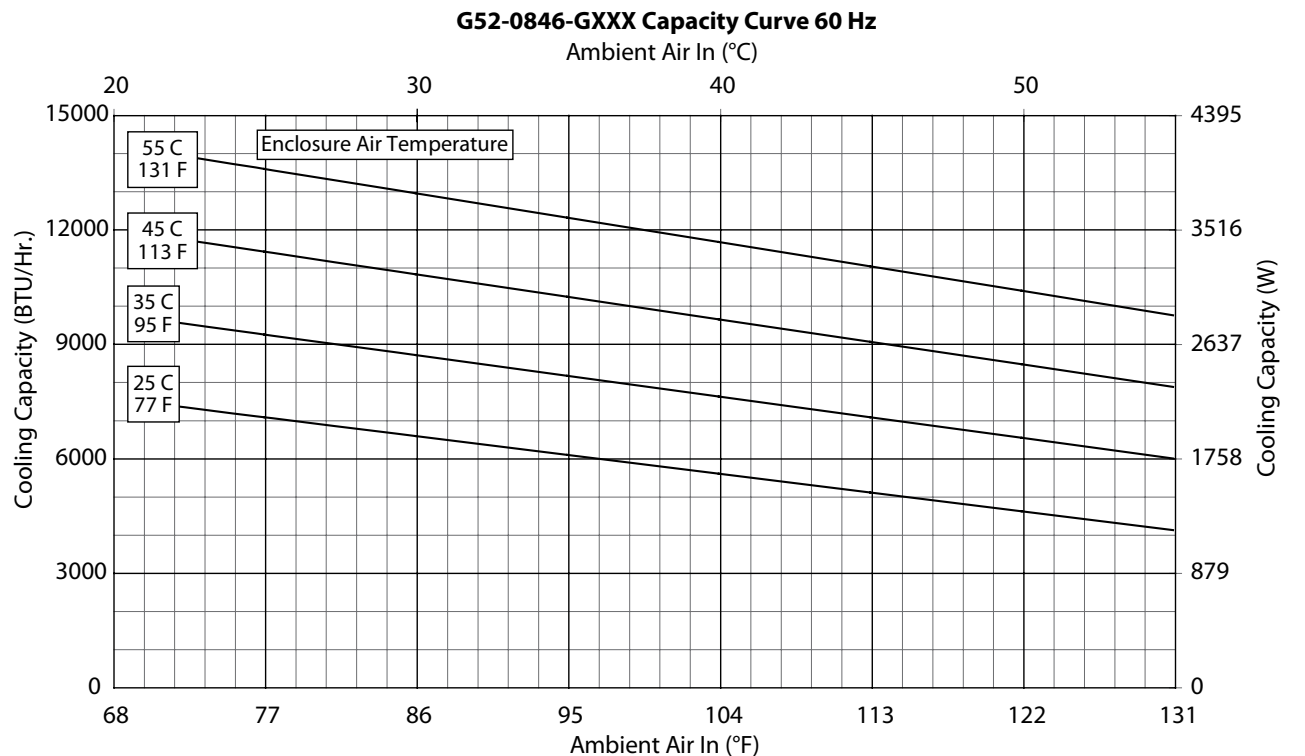
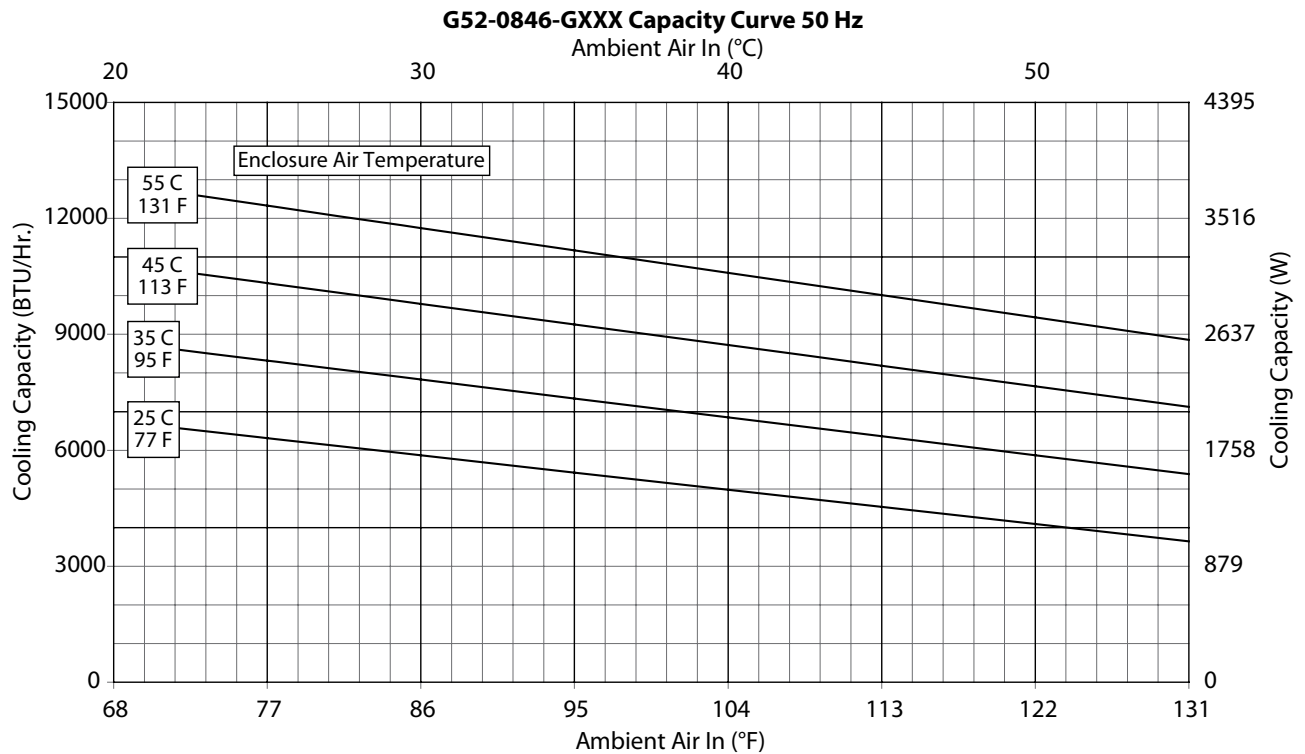
\*\*Watts based on .65 power factor.



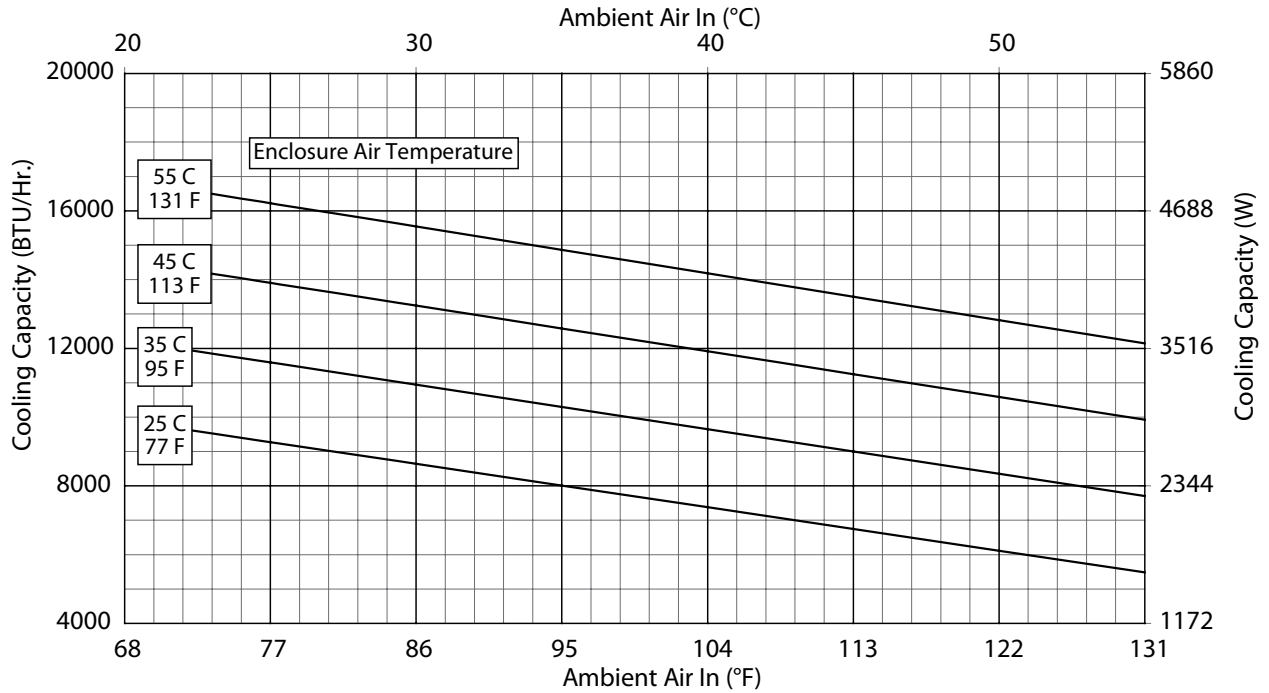
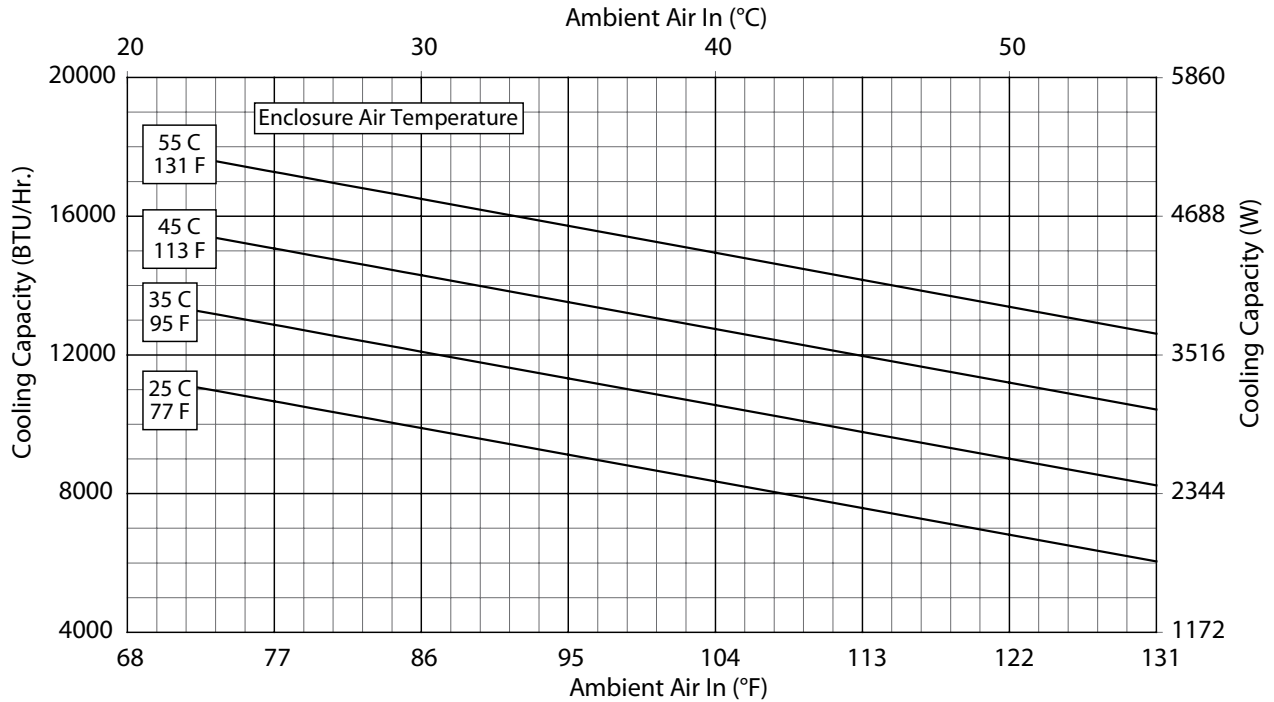
## Performance Curves for G52 Models 8000 BTU/Hr. (23 Watt)

**G52-08(1/2)6-GXXX Capacity Curve 50 Hz**

**G52-08(1/2)6-GXXX Capacity Curve 60 Hz**


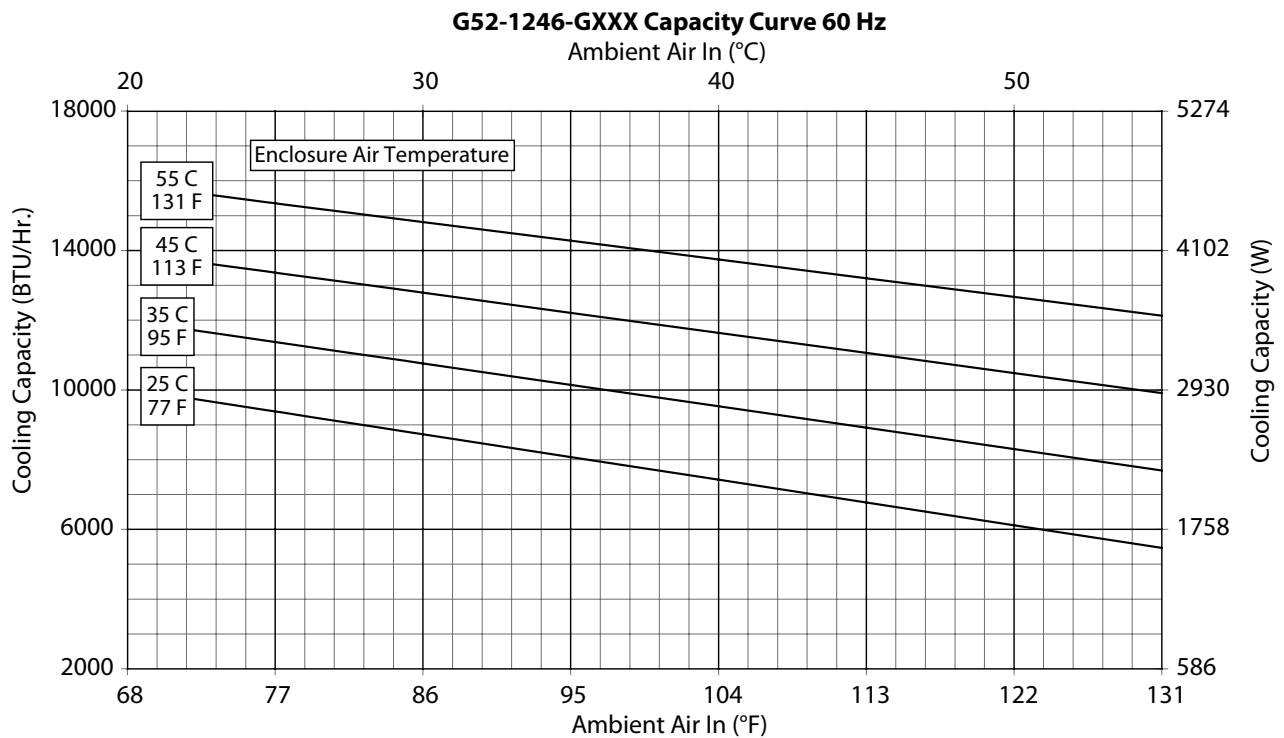
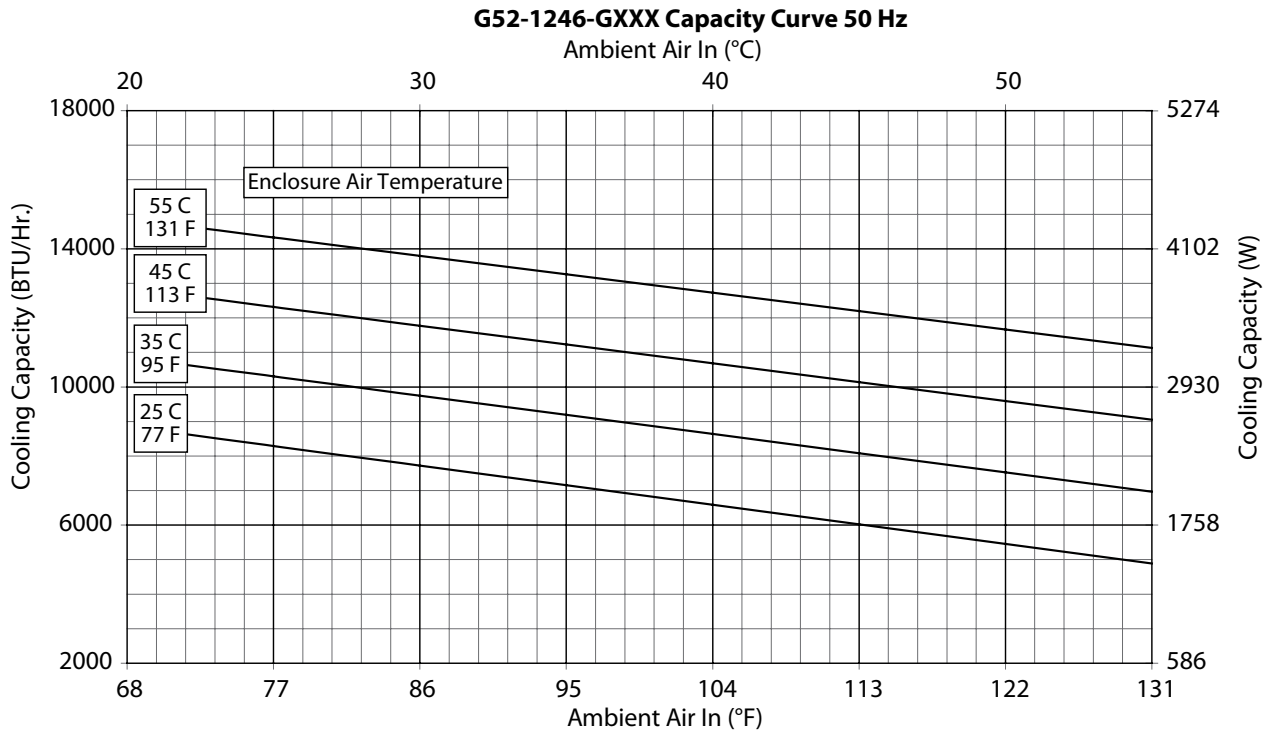
Performance Curves for G52 Models 8000 BTU/Hr. (2300 Watt)



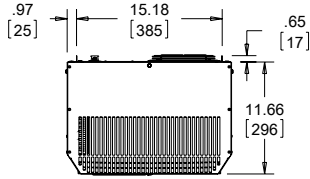
## Performance Curves for G52 Models 12000 BTU/Hr. (3500 Watt)

**G52-12(1/2)6-GXXX Capacity Curve 50 Hz**

**G52-12(1/2)6-GXXX Capacity Curve 60 Hz**


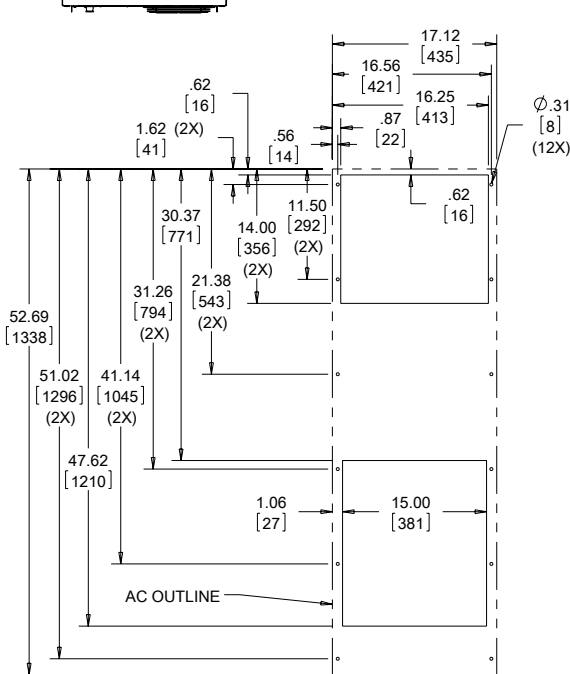
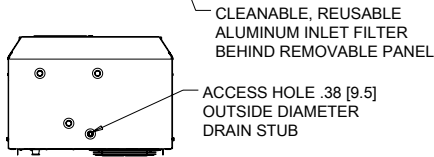
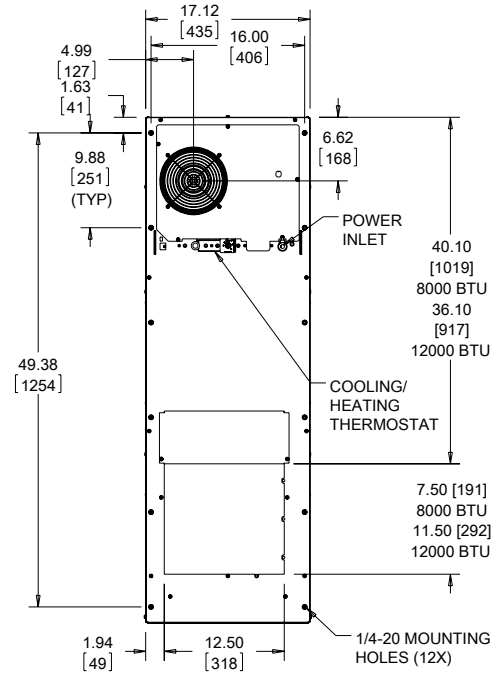
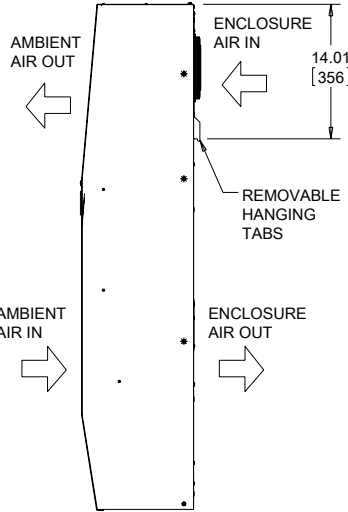
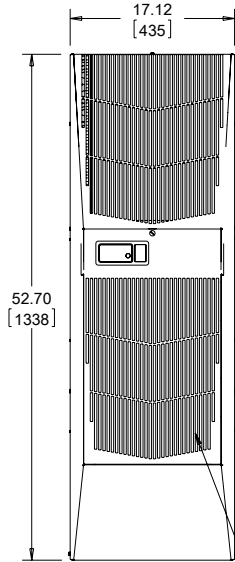
Performance Curves for G52 Models 12000 BTU/Hr. (3516 Watt)



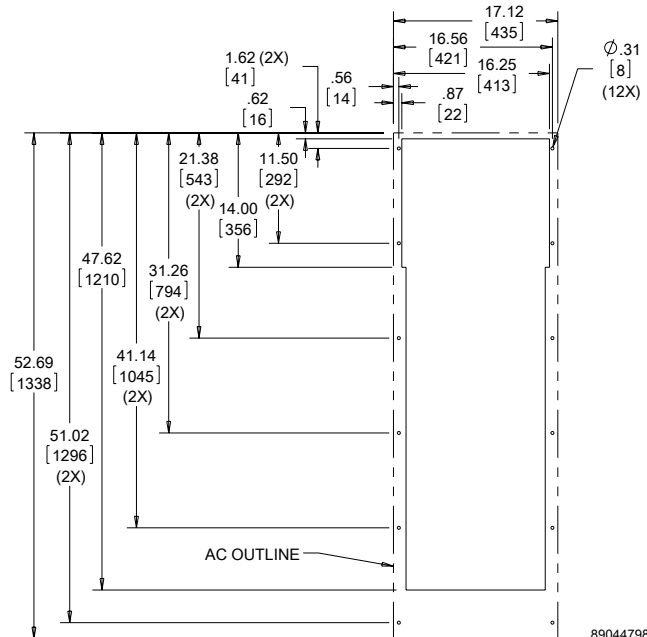
G52 Models 8000/12000 BTU/Hr. (2300/3500 Watt)



NOTE:  
 1. MOUNTING GASKET SUPPLIED (NOT SHOWN)  
 2. UNITS: in. [mm]



Cutout Dimensions (Standard)

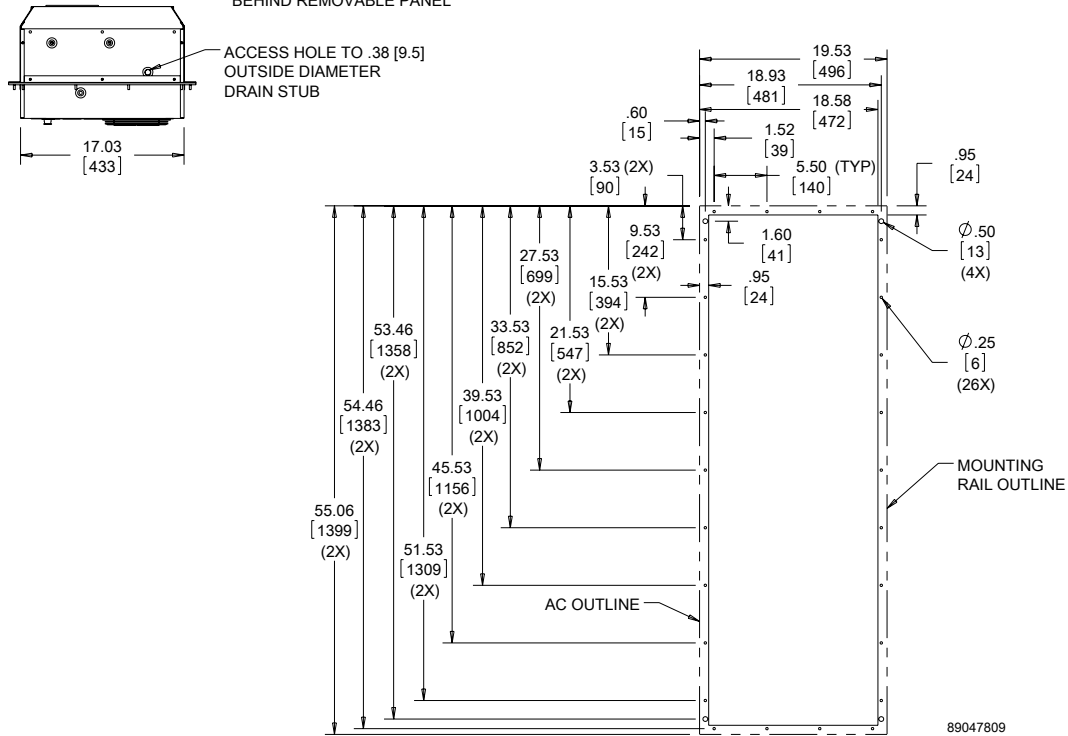
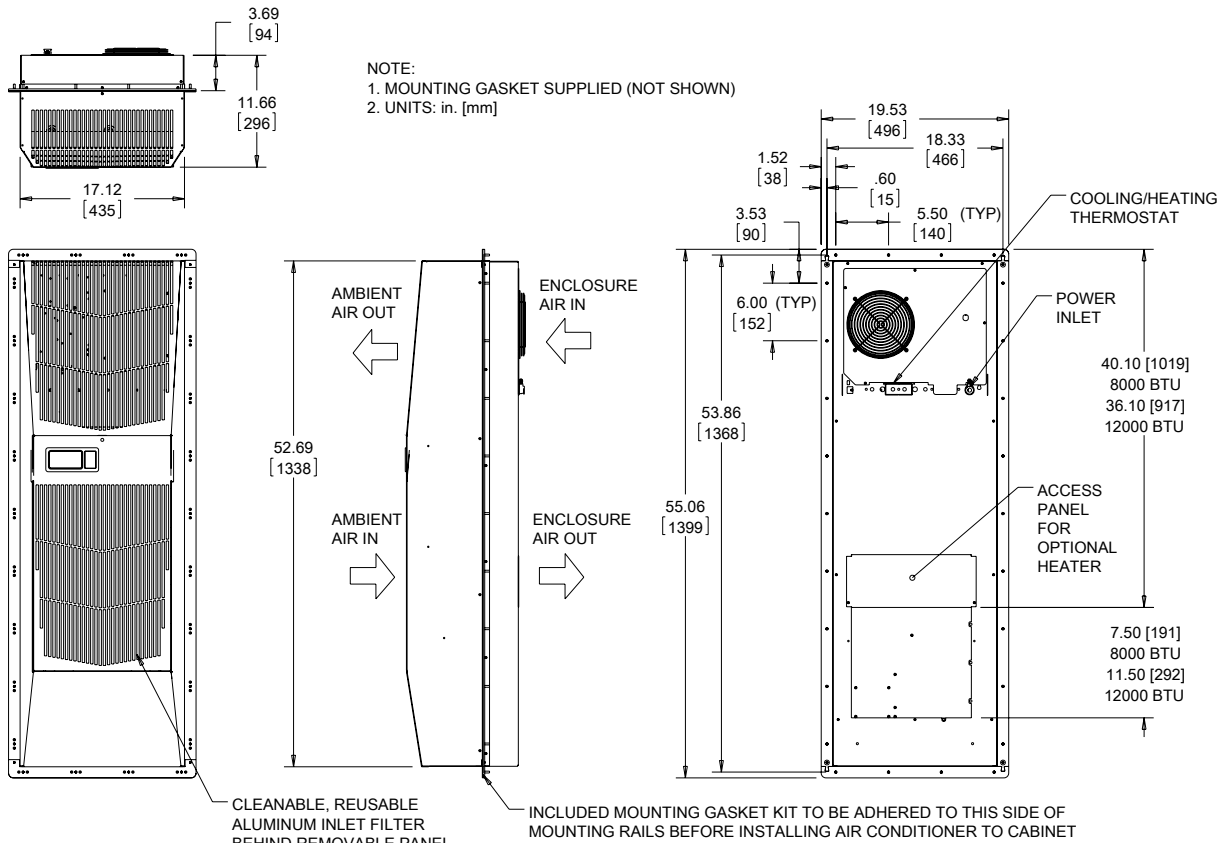


Cutout Dimensions (G520846G150, G520846G151, G521246G150, G521246G151 only)

Visit [www.MCleanCoolingTech.com](http://www.MCleanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.



G52 Models 8000/12000 BTU/Hr. (2344/3516 Watt) with Partial Recess



Cutout Dimensions

Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.

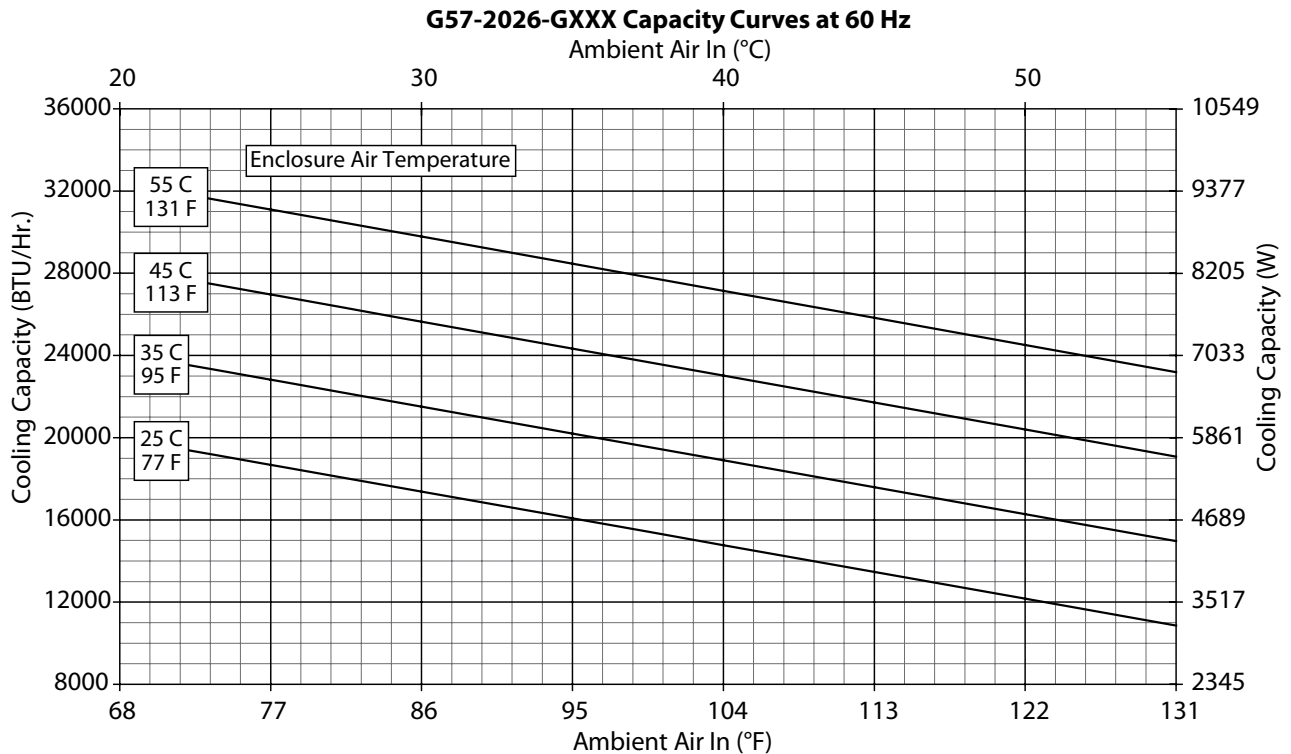
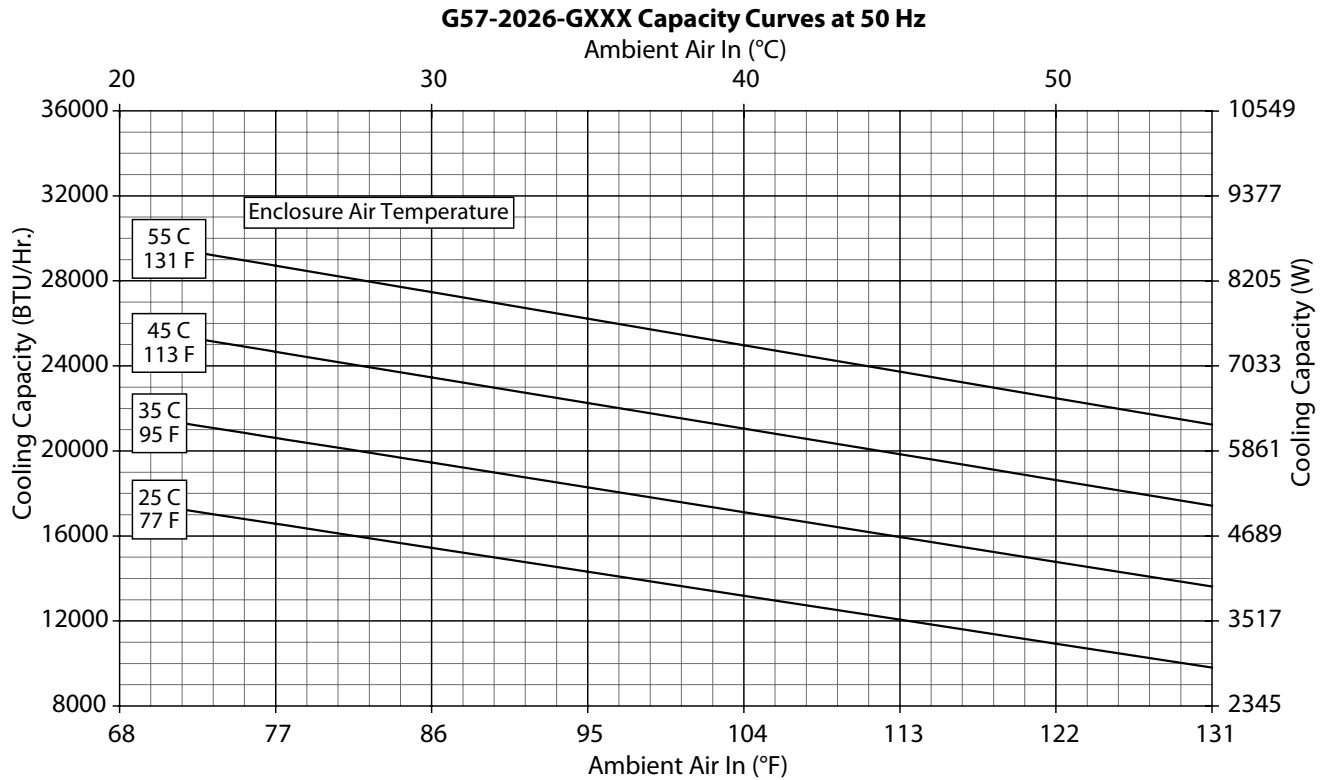


**Performance Data G57 Models 20000 BTU/Hr. (5861 Watt)**

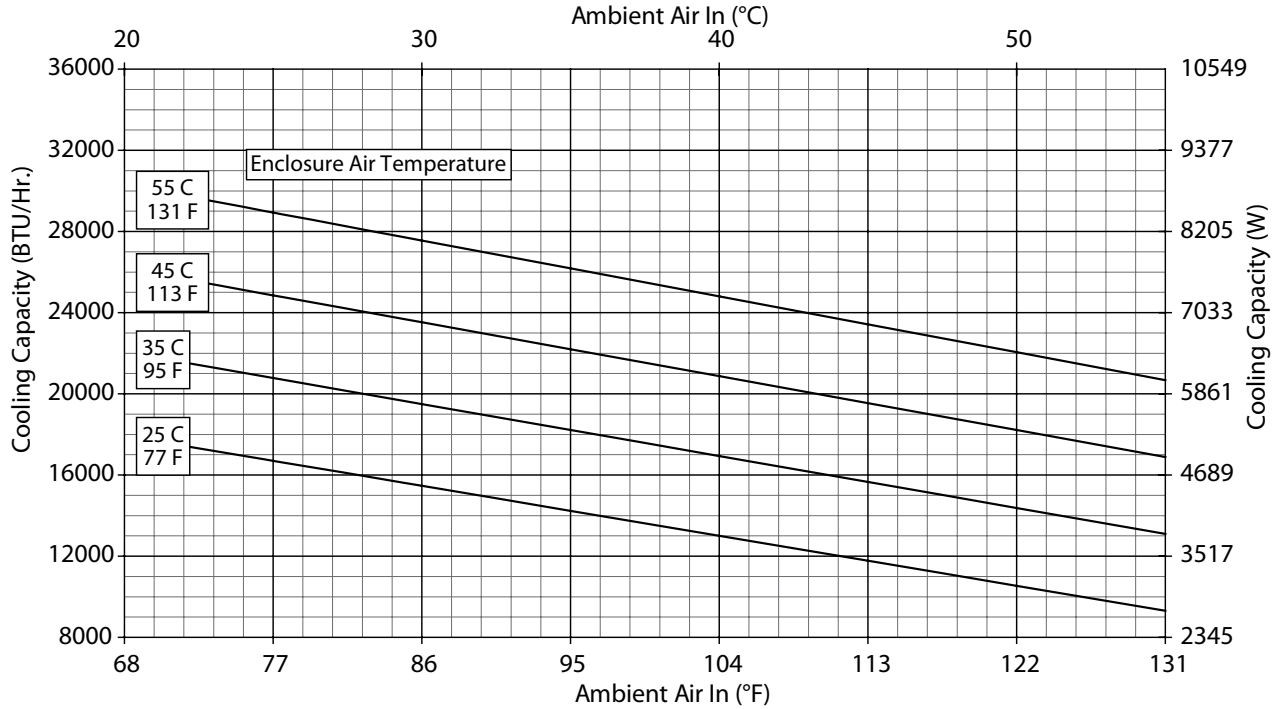
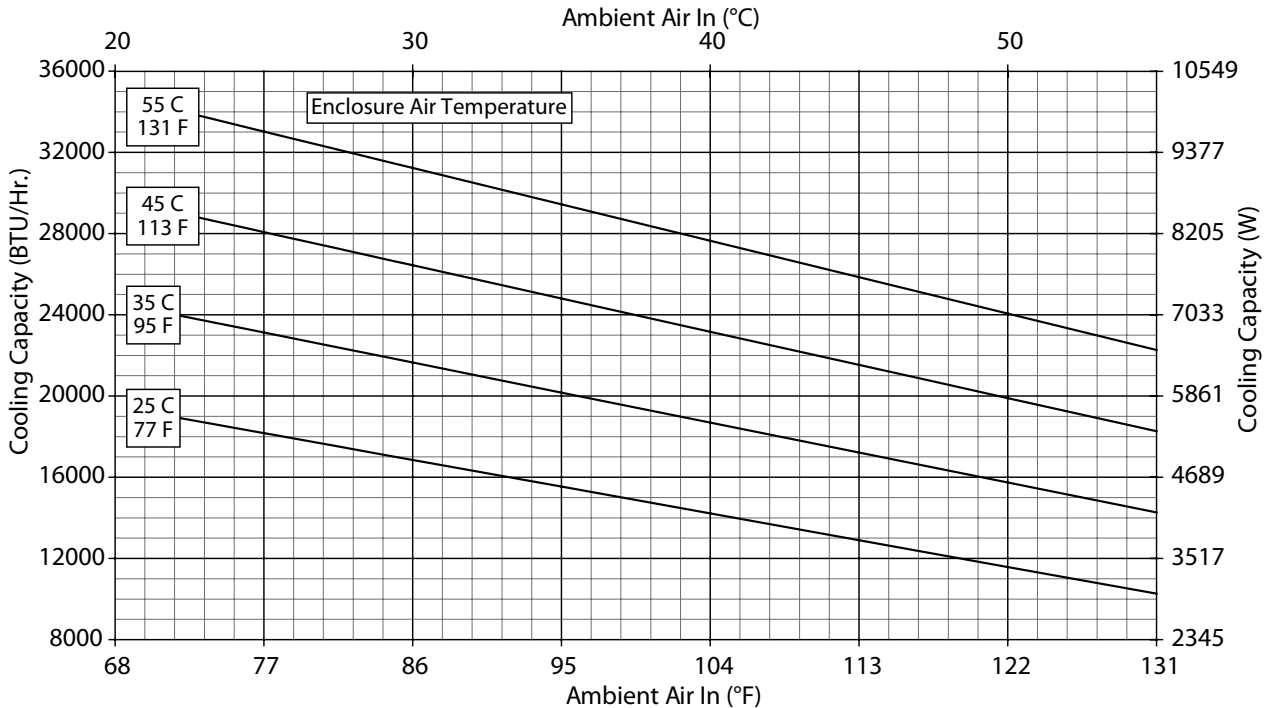
| <b>CATALOG NUMBER</b>                                   |                                                                                                |                   |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------|-------------------|
| Indoor Model                                            | G572026G050                                                                                    | G572046G050       |
| Indoor Model Stainless Steel Type 4X                    | G572026G051                                                                                    | G572046G051       |
| Indoor Model with Remote Access Control*                | G572026G060                                                                                    | G572046G060       |
| Outdoor Model without Heat Pkg.                         | G572026G100                                                                                    | G572046G100       |
| Outdoor Model Partial Recessed Mount                    | G572026G101                                                                                    | G572046G101       |
| Outdoor Model without Heat Pkg. Stainless Steel Type 4X | G572026G102                                                                                    | G572046G102       |
| Outdoor Model with Heat Pkg.                            | G572026G150                                                                                    | G572046G150       |
| Outdoor Model with Heat Pkg. Stainless Steel Type 4X    | G572026G151                                                                                    | G572046G151       |
| <b>COOLING PERFORMANCE</b>                              |                                                                                                |                   |
| Nominal:                                                |                                                                                                |                   |
| <b>BTU/Hr.</b>                                          | <b>20000</b>                                                                                   | <b>20000</b>      |
| <b>Watts</b>                                            | <b>5861</b>                                                                                    | <b>5861</b>       |
| At 131 F/131 F (55 C/55 C):                             |                                                                                                |                   |
| BTU/Hr. (50/60 Hz)                                      | 17500/19600                                                                                    | 21400/23400       |
| W (50/60 Hz)                                            | 5129/5744                                                                                      | 6272/6857         |
| At 95 F/95 F (35 C/35 C):                               |                                                                                                |                   |
| BTU/Hr. (50/60 Hz)                                      | 16000/18000                                                                                    | 19300/21400       |
| W (50/60 Hz)                                            | 4689/5275                                                                                      | 5656/6272         |
| Refrigerant                                             | R407c                                                                                          | R407c             |
| Refrigerant Charge (ounces/grams)                       | 50/1417                                                                                        | 48/1361           |
| Operating Temperature Range:                            |                                                                                                |                   |
| Maximum (°F/°C)                                         | 131/55                                                                                         | 131/55            |
| Indoor Minimum (°F/°C)                                  | 50/10                                                                                          | 50/10             |
| Outdoor Minimum (°F/°C)                                 | -40/-40                                                                                        | -40/-40           |
| Airflow at 0 Static Pressure:                           |                                                                                                |                   |
| Internal loop 50 Hz (CFM / m <sup>3</sup> /hr.)         | 513/872                                                                                        | 513/872           |
| External loop 50 Hz (CFM / m <sup>3</sup> /hr.)         | 919/1562                                                                                       | 919/1562          |
| Internal loop 60 Hz (CFM / m <sup>3</sup> /hr.)         | 587/998                                                                                        | 587/998           |
| External loop 60 Hz (CFM / m <sup>3</sup> /hr.)         | 1055/1794                                                                                      | 1055/1794         |
| Max. Heater W (Outdoor Models)                          | 3000                                                                                           | 3000              |
| <b>ELECTRICAL DATA</b>                                  |                                                                                                |                   |
| <b>Rated Voltage</b>                                    | <b>230/230</b>                                                                                 | <b>400/460 3~</b> |
| Frequency (Hz)                                          | 50/60                                                                                          | 50/60             |
| Operating Range                                         | +/- 10%                                                                                        | +/- 10%           |
| Max. Power Consumption (W at 50/60 Hz)                  | 4508/5106                                                                                      | 2400/3128         |
| Max. Nominal Current (A at 50/60 Hz)                    | 19.6/22.2                                                                                      | 6.0/6.8           |
| Starting Current (A)                                    | 63                                                                                             | 27                |
| Agency Approvals                                        | cUL Listed<br>CE<br>GOST<br>Others available upon request                                      |                   |
| Power Input Description                                 | Terminal Block                                                                                 |                   |
| <b>ENCLOSURE PROTECTION</b>                             |                                                                                                |                   |
| UL Type                                                 | Type 12, 3R, 4 standard<br>Type 4X stainless steel optional                                    |                   |
| International Rating                                    | IP56 internal loop<br>IP34 external loop                                                       |                   |
| <b>CONTROLLER</b>                                       |                                                                                                |                   |
| Description                                             | Basic mechanical thermostat with digital display                                               |                   |
| Thermostat Location                                     | Enclosure side on all base models                                                              |                   |
| Digital Display Location:                               |                                                                                                |                   |
| Indoor Models                                           | Ambient side                                                                                   |                   |
| Outdoor Models                                          | Enclosure side                                                                                 |                   |
| Factory Thermostat Setting (°F/°C)                      | 80/27                                                                                          |                   |
| <b>SOUND LEVEL</b>                                      |                                                                                                |                   |
| At 1.5 Meters                                           | 74.1 dB(A)                                                                                     |                   |
| <b>UNIT CONSTRUCTION</b>                                |                                                                                                |                   |
| Material                                                | Galvanized sheet metal standard<br>Stainless steel optional                                    |                   |
| Finish                                                  | RAL 7035 light-gray, semi-textured powder-coat paint standard                                  |                   |
| <b>ACCESSORIES</b>                                      |                                                                                                |                   |
| Cleanable Re-usable Filter                              | Aluminum mesh part #101000103 BA                                                               |                   |
| EASYSWAP Adaptor Plenum (T-Series T53)                  | Enables SPECTRAC00L to be mounted to a T-Series<br>T53 air conditioner cutout part #57721601SP |                   |
| <b>UNIT DIMENSIONS</b>                                  |                                                                                                |                   |
| Height (in./mm)                                         | 57.69/1465.4                                                                                   |                   |
| Width (in./mm)                                          | 20.87/530.1                                                                                    |                   |
| Depth (in./mm)                                          | 15.28/388.1                                                                                    |                   |
| Weight (lb./kg)                                         | 197/89                                                                                         |                   |

\*Units with Remote Access Control utilize a digital controller and communicate via SNMP over ethernet or modbus RTU over USB.

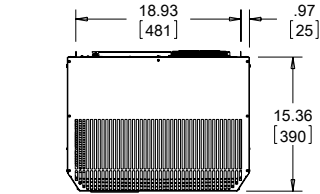
Performance Curves for G57 Models 20000 BTU/Hr.



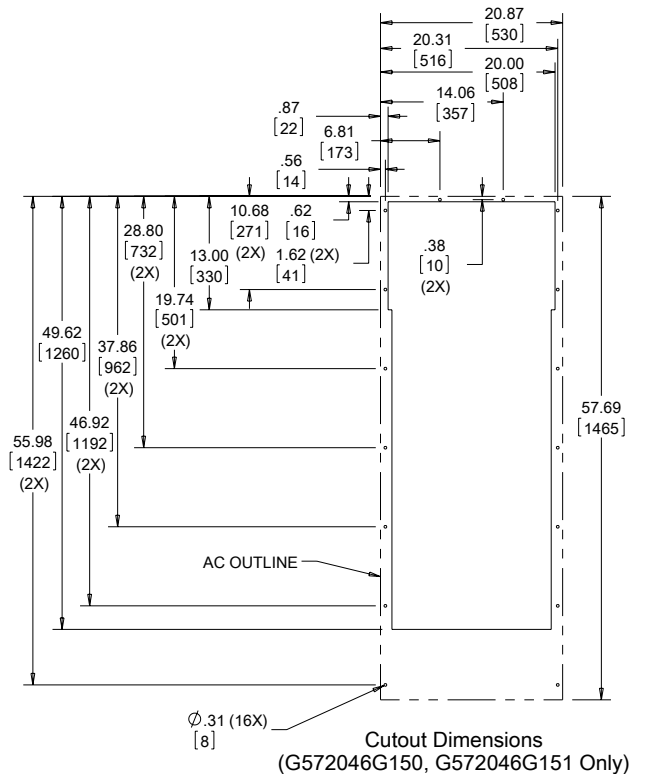
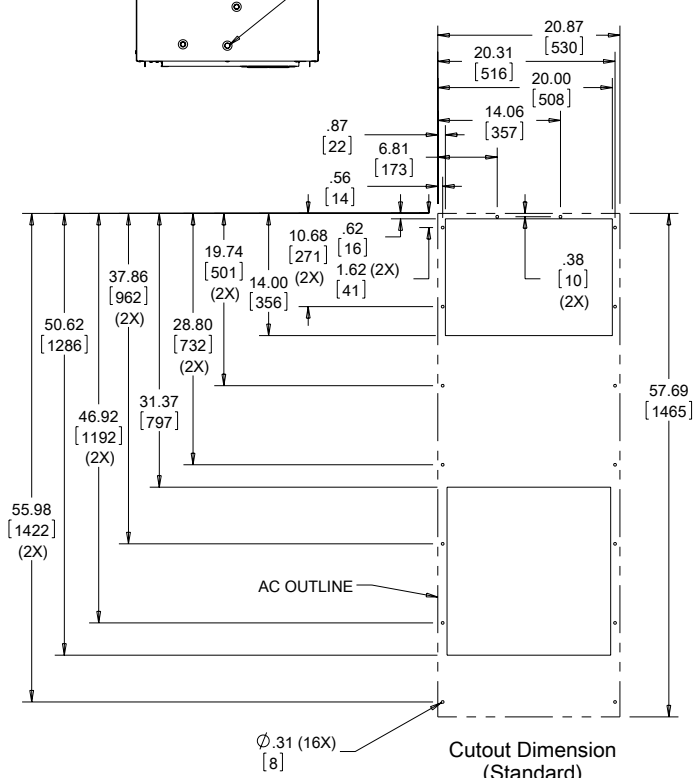
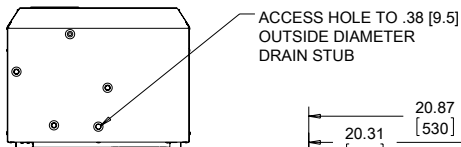
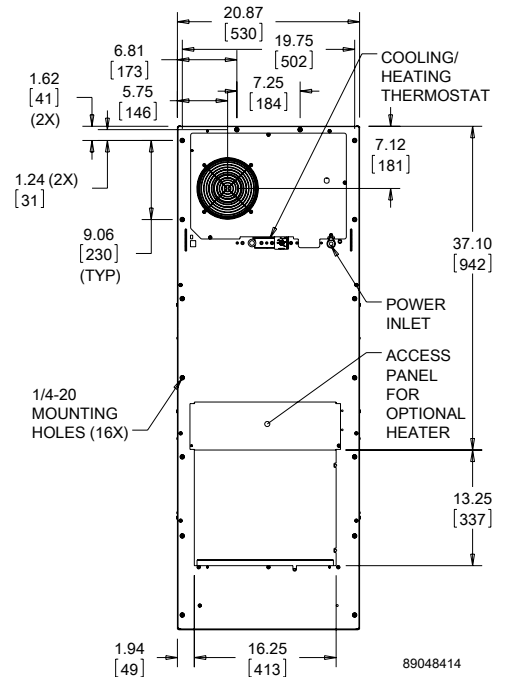
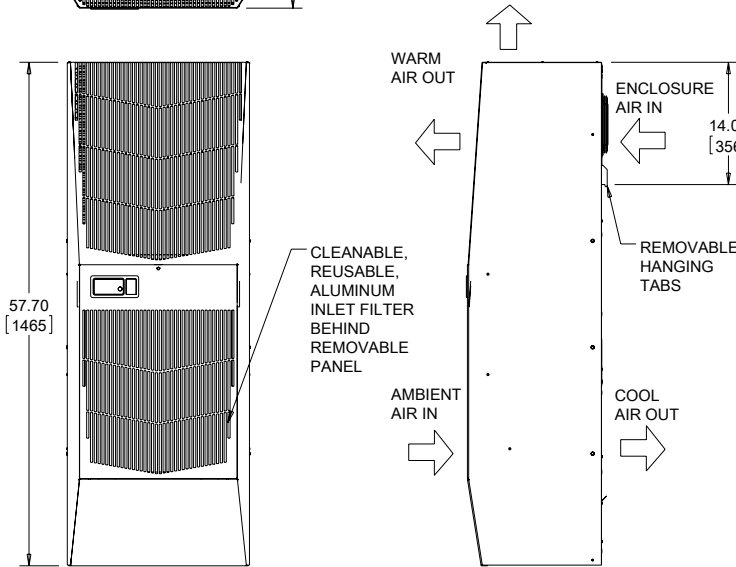
## Performance Curves for G57 Models 20000 BTU/Hr.

**G57-2046-GXXX Capacity Curves at 50 Hz**

**G57-2046-GXXX Capacity Curves at 60 Hz**


G57 Models 20000 BTU/Hr. (5861 Watt)

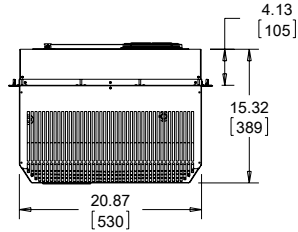


NOTE:  
1. MOUNTING GASKET SUPPLIED (NOT SHOWN)  
2. UNITS: in. [mm]

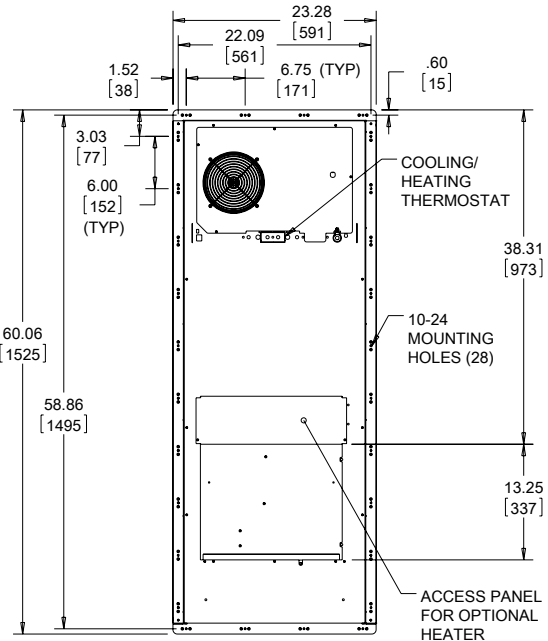
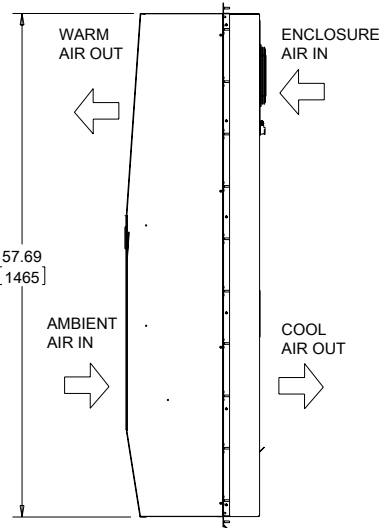
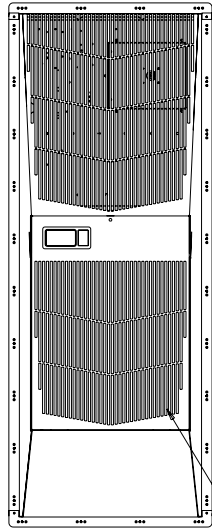


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G57 Models 20000 BTU/Hr. (5861 Watt) With Partial Recess

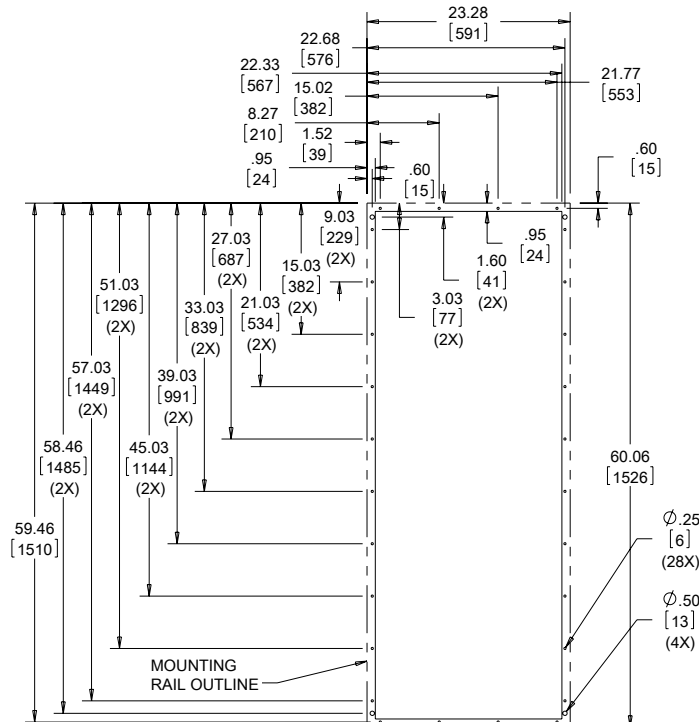
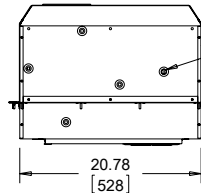


NOTE:  
1. MOUNTING GASKET SUPPLIED (NOT SHOWN)  
2. UNITS: in. [mm]



CLEANABLE, REUSABLE, ALUMINUM INLET FILTER BEHIND REMOVABLE PANEL

INCLUDED MOUNTING GASKET KIT TO BE ADHERED TO THIS SIDE OF MOUNTING RAILS BEFORE INSTALLING AIR CONDITIONER TO CABINET



Cutout Dimensions

89048415

Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.

**Notes**





**SPECTRACOOL™ NARROW INDOOR/OUTDOOR**


**N43**  
11000 BTU/Hr.  
3223 Watt

**N36**  
6000/8000 BTU/Hr.  
1758/2344 Watt

**N28**  
4000 BTU/Hr.  
1172 Watt

3

**INDUSTRY STANDARDS**

UL/cUL Listed; Type 12, 3R, 4; 4X optional; File No. SA6453

CE  
IP 56 Internal Loop  
IP 34 on External Loop  
Telcordia GR-487 capable (Outdoor)

**APPLICATION**

- Industrial automation
- Waste water treatment systems
- Package handling equipment
- Security and defense systems

**FEATURES**

- Narrow design accommodates 12-in. (300-mm) deep cabinets
- Energy efficient rotary compressor
- R407c and R134a earth-friendly refrigerants
- Models for 115, 230 and 400/460 3-phase VAC power input
- UL Listed to save customers time and money with agency approvals
- Outdoor model operating temperature range from -40 F/-40 C to 131 F/55 C (125 F/52 C on N28 Series)
- Attractive industrial design with minimal use of visible fasteners
- Reliable mechanical thermostat on enclosure side of the unit; indoor Air Conditioner models include digital display on ambient side
- Galvanized sheet-metal cover for rugged factory and outdoor environments
- Easy-mount flanges for simple installation
- Cut-out adapter options for enclosures with McLean GENESIS® air conditioners enable users to easily transition to the new unit
- Dust-resistant condenser coil allows the unit to be run filterless in most applications
- Cleanable, reusable aluminum mesh filter protects coils for maximum cooling performance
- Mounting hardware, gaskets and user manual furnished with the unit
- Every unit functionally tested before shipping
- Standard Indoor Air Conditioner models also include:
  - Active condensate management with heater strip
  - Power-off relay for door switch and other system requirements
  - Malfunction switch
- Standard Outdoor Air Conditioner models also include:
  - Telcordia GR-487 capable
  - Corrosion-resistant components
  - Malfunction switch
  - Compressor heater
  - Head pressure control
  - 1300 W enclosure heater

**SPECIFICATIONS**

- Nominal cooling capacity:
  - N28 4000 BTU/Hr. (1172 W)
  - N36 6000 & 8000 BTU/Hr. (1758 and 2344 W)
  - N43 11000 BTU/Hr. (3223 W)
- Outdoor model operating temperature range from -40 F/-40 C to 131 F/55 C (125 F/52 C on N28 Series)

**FINISH**

- RAL 7035 light-gray, semi-textured powder-coat paint
- Other colors and textures available

**NOTES**

Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.

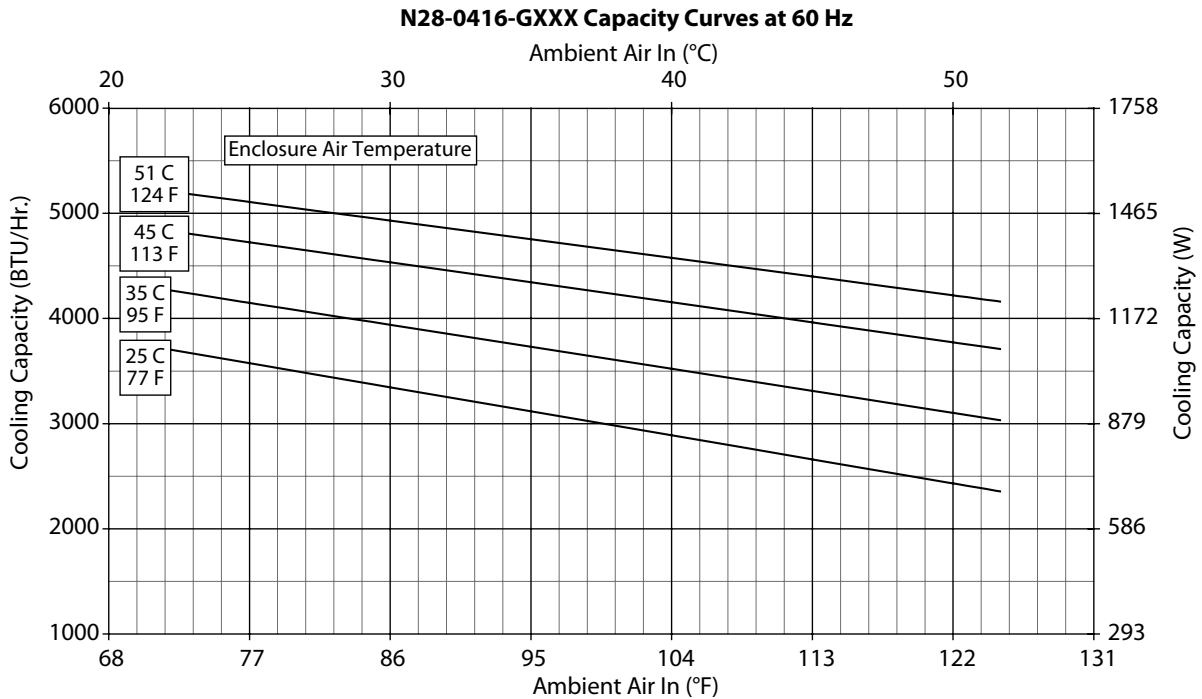
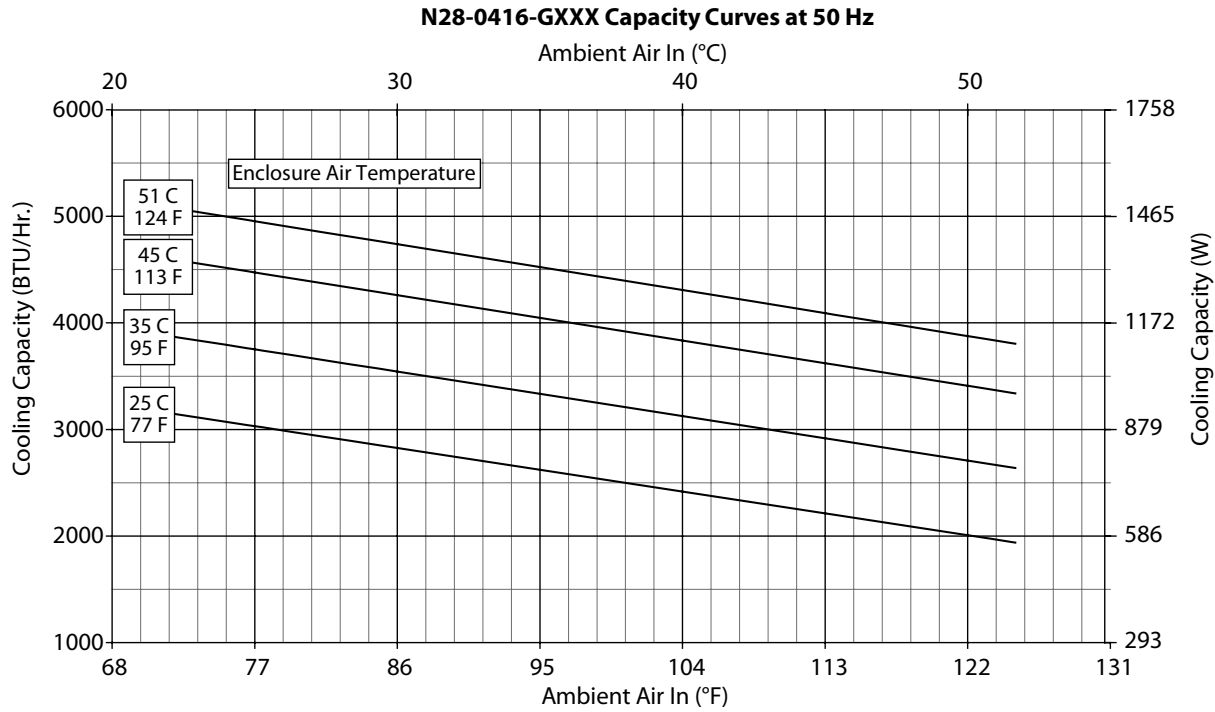
Performance Data **N28 4000 BTU/Hr. (1172 Watt)**

| <b>CATALOG NUMBER</b>                                   |                    |                                                                                                      |             |
|---------------------------------------------------------|--------------------|------------------------------------------------------------------------------------------------------|-------------|
| Indoor Model                                            | N280416G050        | N280426G050                                                                                          | N280425G050 |
| Indoor Model Stainless Steel Type 4X                    | N280416G051        | N280426G051                                                                                          | N280425G051 |
| Indoor Model with Remote Access Control*                | N280416G060        | N280426G060                                                                                          | N280425G060 |
| Outdoor Model without Heat Pkg.                         | N280416G100        | N280426G100                                                                                          | N280425G100 |
| Outdoor Model without Heat Pkg. Stainless Steel Type 4X | N280416G102        | N280426G102                                                                                          | N280425G102 |
| Outdoor Model with Heat Pkg.                            | N280416G150        | N280426G150                                                                                          | N280425G150 |
| Outdoor Model with Heat Pkg. Stainless Steel Type 4X    | N280416G151        | N280426G151                                                                                          | N280425G151 |
| <b>COOLING PERFORMANCE</b>                              |                    |                                                                                                      |             |
| <b>Nominal:</b>                                         |                    |                                                                                                      |             |
| <b>BTUs/Hr.</b>                                         | <b>3800 / 4000</b> | <b>4000</b>                                                                                          | <b>3800</b> |
| <b>Watts</b>                                            | <b>1114 / 1172</b> | <b>1172</b>                                                                                          | <b>1114</b> |
| At 125 F / 125 F (50 C / 50 C):                         |                    |                                                                                                      |             |
| BTU/Hr. (50 / 60 Hz)                                    | 3805 / 4162        | 4394                                                                                                 | 3818        |
| Watts (50 / 60 Hz)                                      | 1115 / 1220        | 1288                                                                                                 | 1119        |
| At 95 F / 95 F (35 C / 35 C):                           |                    |                                                                                                      |             |
| BTU/Hr. (50 / 60 Hz)                                    | 3589 / 3974        | 3690                                                                                                 | 3298        |
| Watts (50 / 60 Hz)                                      | 1052 / 1165        | 1081                                                                                                 | 967         |
| Refrigerant                                             | R134a              | R134a                                                                                                | R134a       |
| Refrigerant Charge (ounces/grams)                       | 11 / 312           | 11 / 312                                                                                             | 11 / 312    |
| Operating Temperature Range:                            |                    |                                                                                                      |             |
| Maximum (°F / °C)                                       | 125/52             | 125/52                                                                                               | 125/52      |
| Minimum (°F / °C)                                       | -40/-40            | -40/-40                                                                                              | -40/-40     |
| Air Flow at 0 Static Pressure:                          |                    |                                                                                                      |             |
| Internal loop 50 Hz (CFM / M³/Hr)                       | 138 / 234          | N/A                                                                                                  | 138 / 234   |
| External loop 50 Hz (CFM / M³/Hr)                       | 268 / 455          | N/A                                                                                                  | 268 / 455   |
| Internal loop 60 Hz (CFM / M³/Hr)                       | 143 / 362          | 143 / 243                                                                                            | N/A         |
| External loop 60 Hz (CFM / M³/Hr)                       | 288 / 728          | 288 / 489                                                                                            | N/A         |
| Max. Heater W (Outdoor Models)                          | 1300               | 1300                                                                                                 | 1300        |
| <b>ELECTRICAL DATA</b>                                  |                    |                                                                                                      |             |
| <b>Rated Voltage</b>                                    | <b>110 / 115</b>   | <b>230</b>                                                                                           | <b>230</b>  |
| Frequency (Hz)                                          | 50 / 60            | 60                                                                                                   | 50          |
| Operating Range                                         | +/-10%             | +/-10%                                                                                               | +/-10%      |
| Max. Power Consumption (Watts at 50 / 60 Hz)            | 1039 / 1191        | 1250                                                                                                 | 1111        |
| Max. Nominal Current (Amps at 50 / 60 Hz)               | 11.6-11.2          | 6.5                                                                                                  | 5.8         |
| Starting Current (Amps)                                 | 40                 | 24.5                                                                                                 | 24.5        |
| Agency Approvals                                        |                    | cUL Listed<br>CE                                                                                     |             |
|                                                         |                    | Others available upon request                                                                        |             |
| Power Input Description                                 |                    | Terminal Block                                                                                       |             |
| <b>ENCLOSURE PROTECTION</b>                             |                    |                                                                                                      |             |
| UL Type                                                 |                    | Type 12, 3R, 4 Standard<br>Type 4X Stainless Steel Optional                                          |             |
| <b>CONTROLLER</b>                                       |                    |                                                                                                      |             |
| Description                                             |                    | Basic Mechanical Thermostat                                                                          |             |
| Thermostat Location                                     |                    | Enclosure Side                                                                                       |             |
| Factory Thermostat Setting (°F / °C)                    |                    | 80 / 27                                                                                              |             |
| <b>SOUND LEVEL</b>                                      |                    |                                                                                                      |             |
| At 1.5 Meters                                           | 66.1 dBA           | 65.5 dBA                                                                                             | 65.5 dBA    |
| <b>UNIT CONSTRUCTION</b>                                |                    |                                                                                                      |             |
| Material                                                |                    | Galvanized sheet metal standard<br>Stainless steel optional                                          |             |
| Finish                                                  |                    | RAL 7035 light-gray, semi-textured powder-coat paint standard<br>Other colors available              |             |
| <b>ACCESSORIES</b>                                      |                    |                                                                                                      |             |
| EASYSWAP Adaptor Plenum (GENESIS™ M33)                  |                    | Enables SPECTRACOOL to be mounted to a GENESIS M33<br>air conditioner cutout Catalog Number PLM33N28 |             |
| <b>UNIT DIMENSIONS</b>                                  |                    |                                                                                                      |             |
| Height (in / mm)                                        |                    | 28 / 711.2                                                                                           |             |
| Width (in / mm)                                         |                    | 11.50 / 292.1                                                                                        |             |
| Depth (in / mm)                                         |                    | 14.00 / 355.6                                                                                        |             |
| Weight (lb / kg)                                        | 84/38              | 84/38                                                                                                | 92/41.7     |

\*Units with Remote Access Control utilize a digital controller and communicate via SNMP over ethernet or modbus RTU over USB.

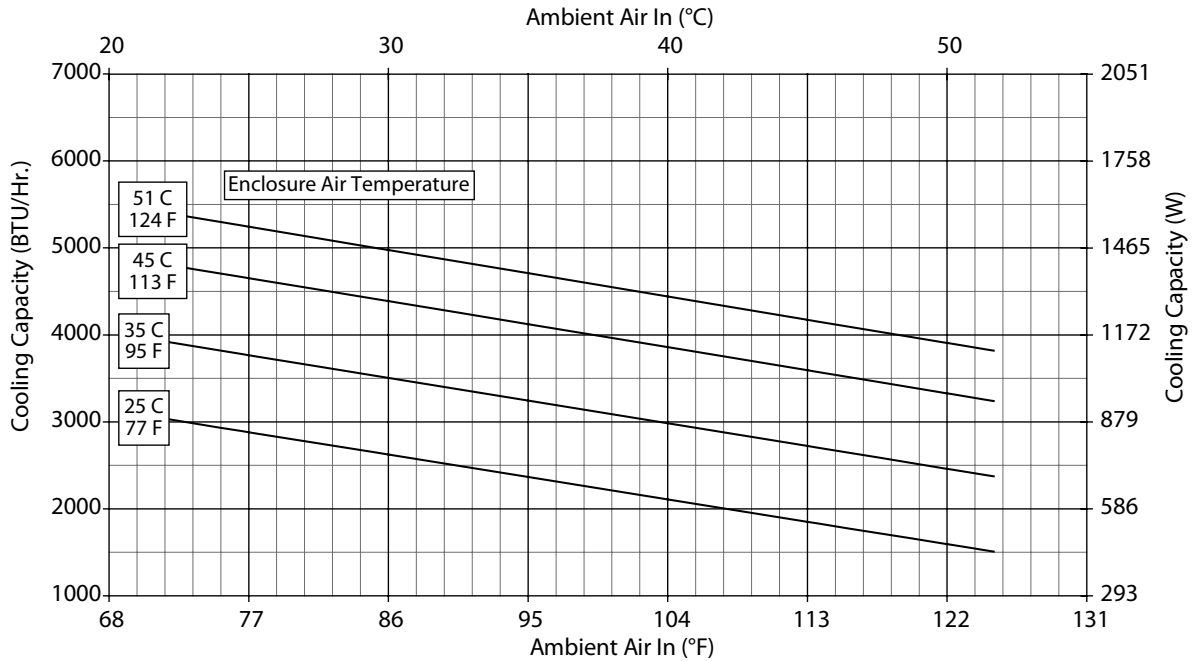


## Performance Curves for N28 Models 4000 BTU/Hr. (1172 Watt)

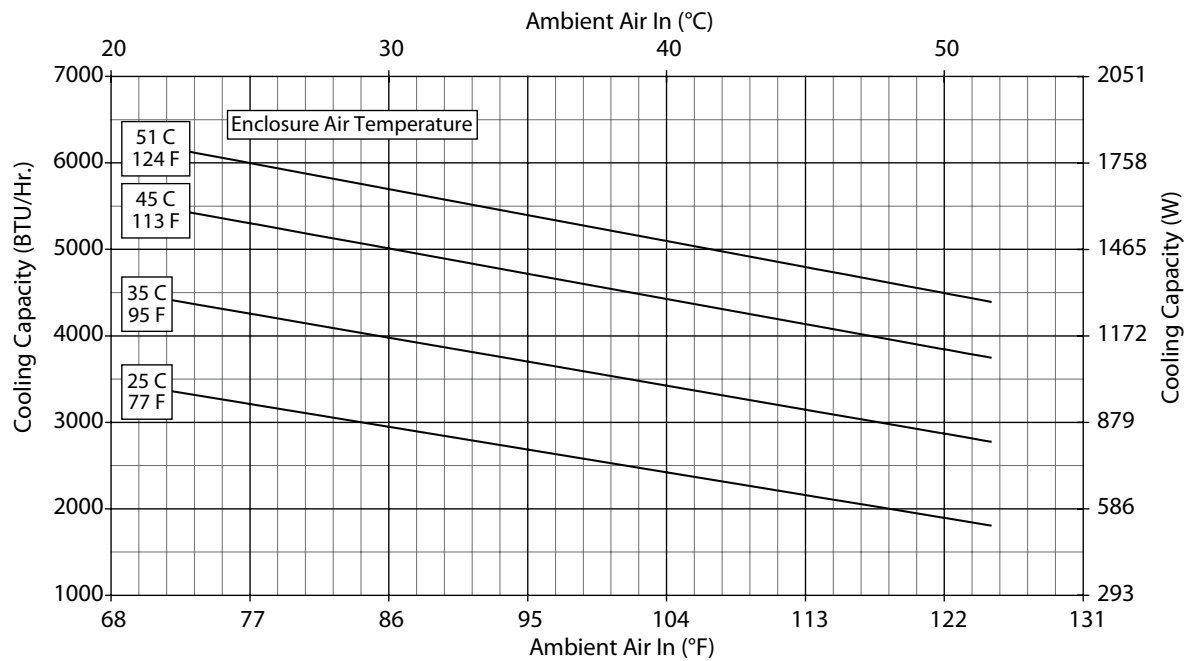


Performance Curves for N28 Models 4000 BTU/Hr. (1172 Watt)

**N28-0426-GXXX Capacity Curves at 50 Hz**

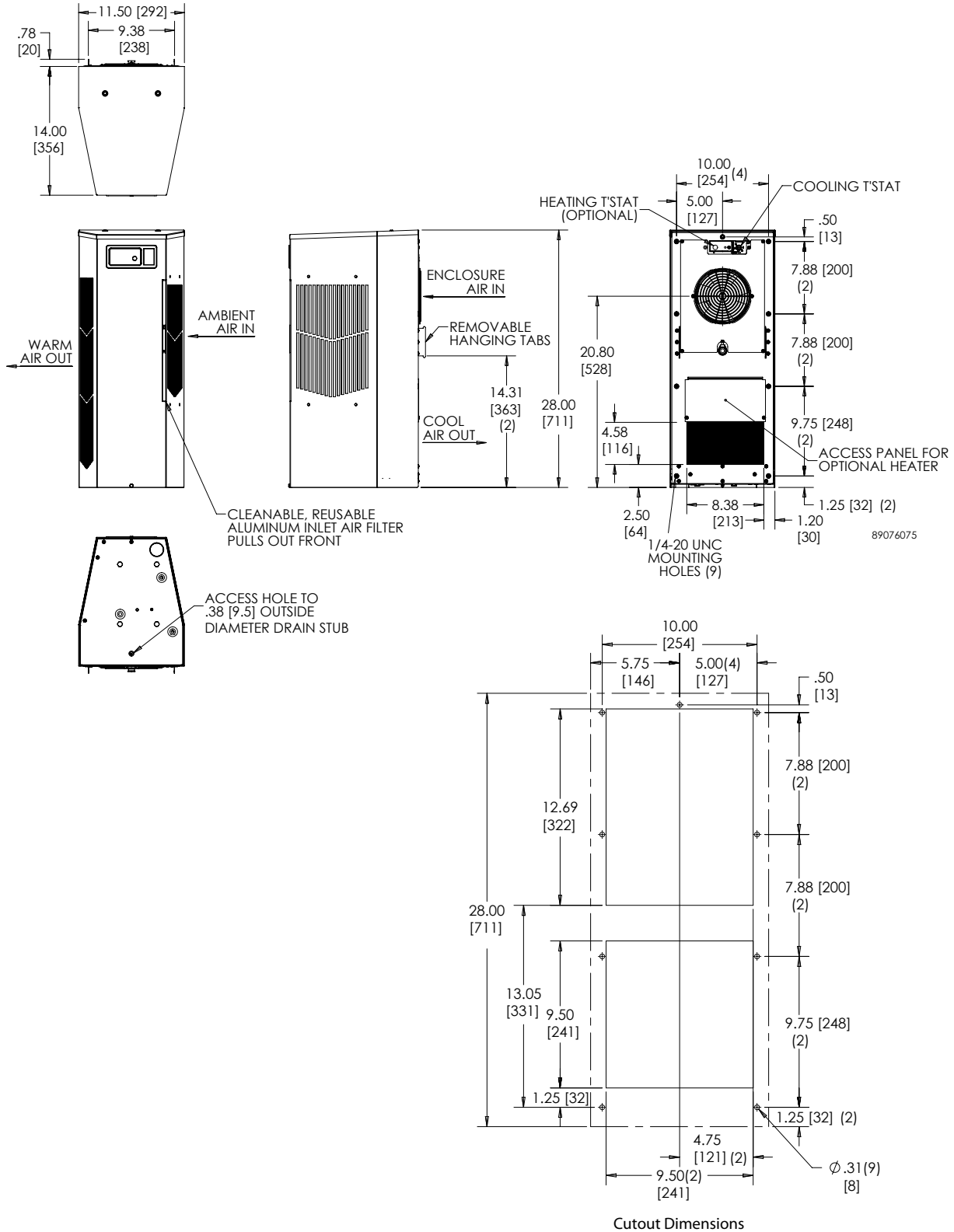


**N28-0426-GXXX Capacity Curves at 60 Hz**



3

N28 Models 4000 BTU/Hr. (1172 Watt)



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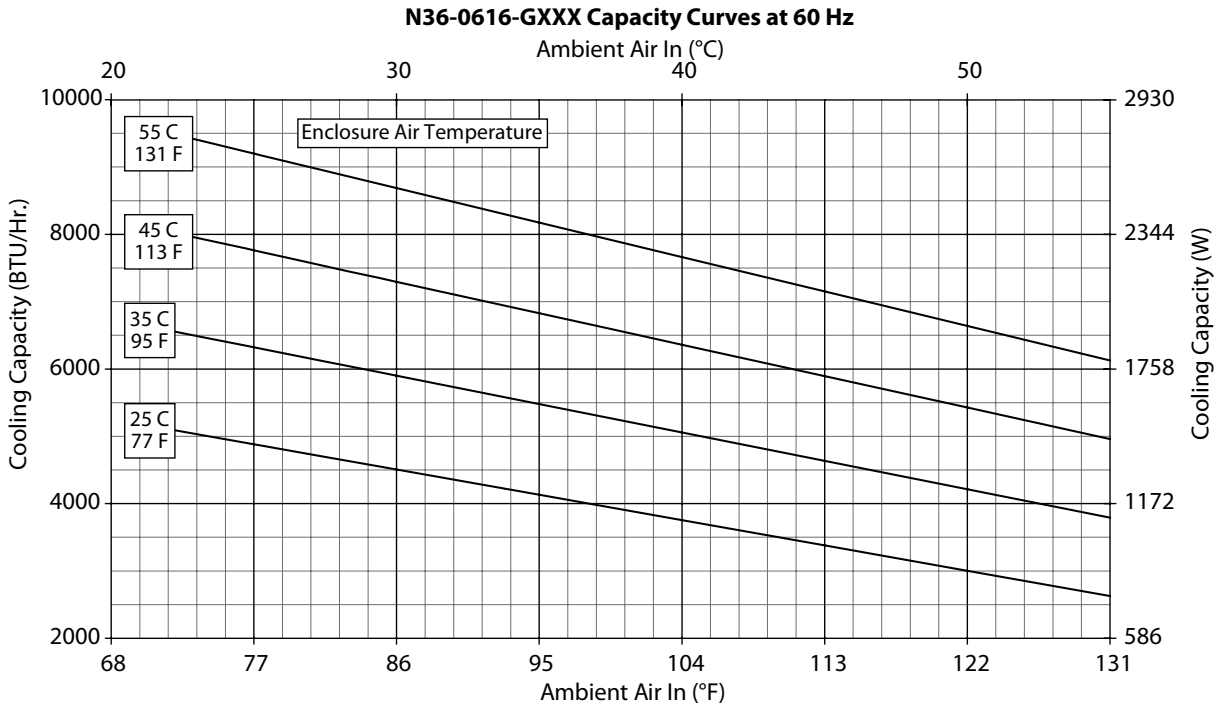
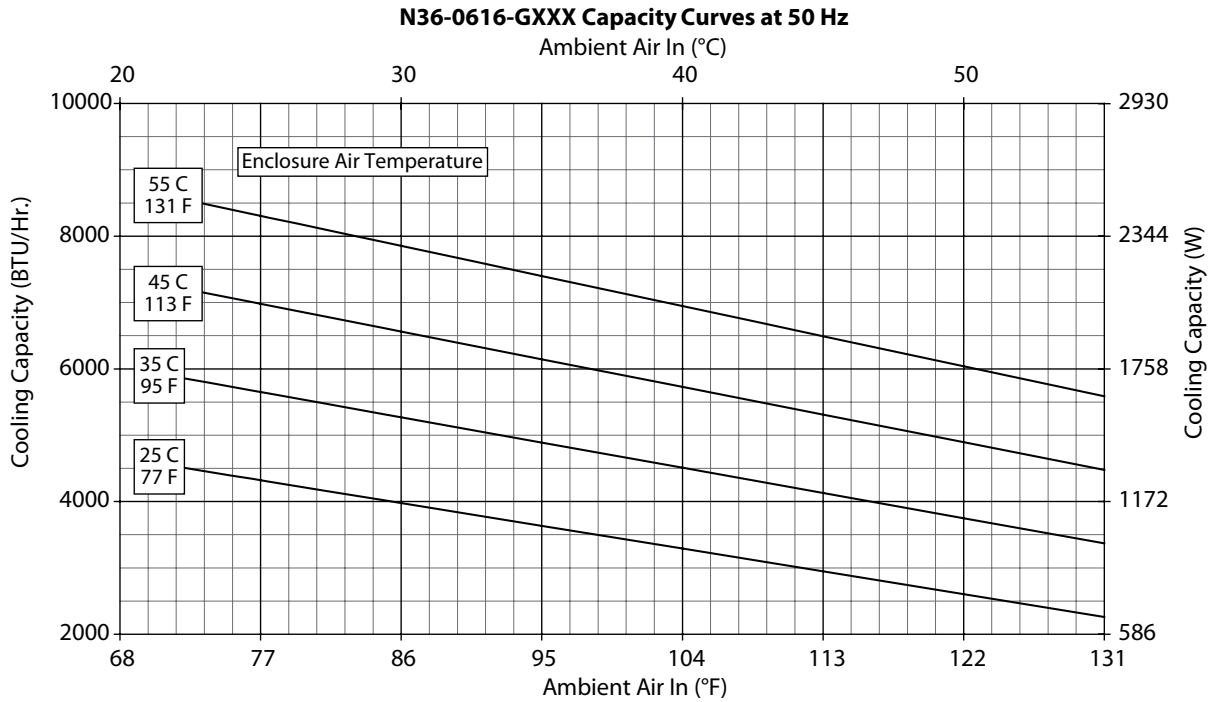
Performance Data **N36 6000/8000 BTU/Hr. (1758/2344 Watt)**

| <b>CATALOG NUMBER</b>                                   |                                                                                                      |                    |                     |                    |                    |                     |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------|--------------------|---------------------|--------------------|--------------------|---------------------|
| Indoor Model                                            | N360616G050                                                                                          | N360626G050        | N360646G050         | N360816G050        | N360826G050        | N360846G050         |
| Indoor Model Stainless Steel Type 4X                    | N360616G051                                                                                          | N360626G051        | N360646G051         | N360816G051        | N360826G051        | N360846G051         |
| Indoor Model with Remote Access Control*                | N360616G060                                                                                          | N360626G060        | N360646G060         | N360816G060        | N360826G060        | N360846G060         |
| Outdoor Model without Heat Pkg.                         | N360616G100                                                                                          | N360626G100        | N360646G100         | N360816G100        | N360826G100        | N360846G100         |
| Outdoor Model without Heat Pkg. Stainless Steel Type 4X | N360616G102                                                                                          | N360626G102        | N360646G102         | N360816G102        | N360826G102        | N360846G102         |
| Outdoor Model with Heat Pkg.                            | N360616G150                                                                                          | N360626G150        | N360646G150         | N360816G150        | N360826G150        | N360846G150         |
| Outdoor Model with Heat Pkg. Stainless Steel Type 4X    | N360616G151                                                                                          | N360626G151        | N360646G151         | N360816G151        | N360826G151        | N360846G151         |
| <b>COOLING PERFORMANCE</b>                              |                                                                                                      |                    |                     |                    |                    |                     |
| <b>Nominal:</b>                                         |                                                                                                      |                    |                     |                    |                    |                     |
| <b>BTU/Hr.</b>                                          | <b>5400 / 6000</b>                                                                                   | <b>5400 / 6000</b> | <b>5400 / 6000</b>  | <b>8250 / 8500</b> | <b>8250 / 8500</b> | <b>8250 / 8500</b>  |
| <b>Watts</b>                                            | <b>1581 / 1757</b>                                                                                   | <b>1581 / 1757</b> | <b>1581 / 1757</b>  | <b>2416 / 2489</b> | <b>2313 / 2635</b> | <b>2284 / 2401</b>  |
| At 131 F / 131 F (55 C / 55 C):                         |                                                                                                      |                    |                     |                    |                    |                     |
| BTU/Hr. (50 / 60 Hz)                                    | 5585 / 6180                                                                                          | 5469 / 5965        | 5300 / 6089         | 8213 / 8453        | 7874 / 8063        | 7777 / 8166         |
| Watts (50 / 60 Hz)                                      | 1637 / 1811                                                                                          | 1603 / 1748        | 1553 / 1785         | 2405 / 2475        | 2306 / 2361        | 2277 / 2391         |
| At 95 F / 95 F (35 C / 35 C):                           |                                                                                                      |                    |                     |                    |                    |                     |
| BTU/Hr. (50 / 60 Hz)                                    | 4909 / 5485                                                                                          | 5159 / 5621        | 5572 / 6026         | 7028 / 7626        | 6660 / 7411        | 6877 / 7525         |
| Watts (50 / 60 Hz)                                      | 1439 / 1607                                                                                          | 1512 / 1647        | 1633 / 1766         | 2058 / 2233        | 1950 / 2170        | 2014 / 2203         |
| Refrigerant                                             | R134a                                                                                                | R134a              | R134a               | R134a              | R134a              | R134a               |
| Refrigerant Charge (ounces/grams)                       | 20 / 567                                                                                             | 22 / 624           | 16 / 454            | 36 / 1021          | 36 / 1021          | 36 / 1021           |
| Operating Temperature Range:                            |                                                                                                      |                    |                     |                    |                    |                     |
| Maximum (°F / °C)                                       | 131 / 55                                                                                             | 131 / 55           | 131 / 55            | 131 / 55           | 131 / 55           | 131 / 55            |
| Minimum (°F / °C)                                       | -40 / -40                                                                                            | -40 / -40          | -40 / -40           | -40 / -40          | -40 / -40          | -40 / -40           |
| Air Flow at 0 Static Pressure:                          |                                                                                                      |                    |                     |                    |                    |                     |
| Internal loop 50 Hz (CFM / M <sup>3</sup> /Hr.)         | 251 / 426                                                                                            | 250 / 425          | 250 / 425           | 250 / 425          | 245 / 416          | 243 / 413           |
| External loop 50 Hz (CFM / M <sup>3</sup> /Hr.)         | 284 / 483                                                                                            | 338 / 574          | 338 / 574           | 313 / 532          | 347 / 589          | 365 / 620           |
| Internal loop 60 Hz (CFM / M <sup>3</sup> /Hr.)         | 261 / 443                                                                                            | 261 / 443          | 261 / 443           | 263 / 447          | 258 / 439          | 254 / 432           |
| External loop 60 Hz (CFM / M <sup>3</sup> /Hr.)         | 311 / 528                                                                                            | 356 / 605          | 356 / 605           | 338 / 574          | 382 / 648          | 394 / 669           |
| Max. Heater W (Outdoor Models)                          | 1300                                                                                                 | 1300               | 1300                | 1300               | 1300               | 1300                |
| <b>ELECTRICAL DATA</b>                                  |                                                                                                      |                    |                     |                    |                    |                     |
| <b>Rated Voltage</b>                                    | <b>115</b>                                                                                           | <b>230</b>         | <b>400 / 460 3~</b> | <b>115</b>         | <b>230</b>         | <b>400 / 460 3~</b> |
| Frequency (Hz)                                          | 50 / 60                                                                                              | 50 / 60            | 50 / 60             | 50 / 60            | 50 / 60            | 50 / 60             |
| Operating Range                                         | +/-10%                                                                                               | +/-10%             | +/-10%              | +/-10%             | +/-10%             | +/-10%              |
| Max. Power Consumption (Watts at 50 / 60 Hz)            | 911 / 1108                                                                                           | 908 / 1073         | 697 / 895           | 1334 / 1530        | 1265 / 1403        | 572 / 628           |
| Max. Nominal Current (Amps at 50 / 60 Hz)               | 9.1 / 10.1                                                                                           | 4.5 / 4.7          | 1.59 / 1.69         | 11.6 / 13.3        | 5.5/6.1            | 2.9/3.0             |
| Starting Current (Amps)                                 | 39.2                                                                                                 | 23                 | 8.1                 | 48.3               | 27                 | 16                  |
| Agency Approvals                                        | cUL Listed<br>CE<br>Others available upon request<br>Terminal Block                                  |                    |                     |                    |                    |                     |
| Power Input Description                                 | Type 12, 3R, 4 Standard<br>Type 4X Stainless Steel Optional                                          |                    |                     |                    |                    |                     |
| <b>ENCLOSURE PROTECTION</b>                             |                                                                                                      |                    |                     |                    |                    |                     |
| UL Type                                                 | Type 12, 3R, 4 Standard<br>Type 4X Stainless Steel Optional                                          |                    |                     |                    |                    |                     |
| <b>CONTROLLER</b>                                       |                                                                                                      |                    |                     |                    |                    |                     |
| Description                                             | Basic Mechanical Thermostat                                                                          |                    |                     |                    |                    |                     |
| Thermostat Location                                     | Enclosure Side                                                                                       |                    |                     |                    |                    |                     |
| Factory Thermostat Setting (°F / °C)                    | 80 / 27                                                                                              |                    |                     |                    |                    |                     |
| <b>SOUND LEVEL</b>                                      |                                                                                                      |                    |                     |                    |                    |                     |
| At 1.5 Meters                                           | 66.9 dBA                                                                                             | 66.7 dBA           | 68.2 dBA            | 66.0 dBA           | 66.0 dBA           | 66.0 dBA            |
| <b>UNIT CONSTRUCTION</b>                                |                                                                                                      |                    |                     |                    |                    |                     |
| Material                                                | Galvanized sheet metal standard<br>Stainless steel optional                                          |                    |                     |                    |                    |                     |
| Finish                                                  | RAL 7035 light-gray, semi-textured powder-coat paint standard<br>Other colors available              |                    |                     |                    |                    |                     |
| <b>ACCESSORIES</b>                                      |                                                                                                      |                    |                     |                    |                    |                     |
| EASYSWAP Adaptor Plenum (GENESIS™ M36)                  | Enables SPECTRACOOL to be mounted to a GENESIS M36 air conditioner cutout<br>Catalog Number PLM36N36 |                    |                     |                    |                    |                     |
| <b>UNIT DIMENSIONS</b>                                  |                                                                                                      |                    |                     |                    |                    |                     |
| Height (in. / mm)                                       | 36.00 / 914.4                                                                                        |                    |                     |                    |                    |                     |
| Width (in. / mm)                                        | 11.50 / 292.1                                                                                        |                    |                     |                    |                    |                     |
| Depth (in. / mm)                                        | 14.00 / 355.6                                                                                        |                    |                     |                    |                    |                     |
| Weight (lb. / kg)                                       | 100 / 45                                                                                             | 100 / 45           | 104 / 47            | 106 / 48           | 106 / 48           | 114 / 52            |

\*Units with Remote Access Control utilize a digital controller and communicate via SNMP over ethernet or modbus RTU over USB.

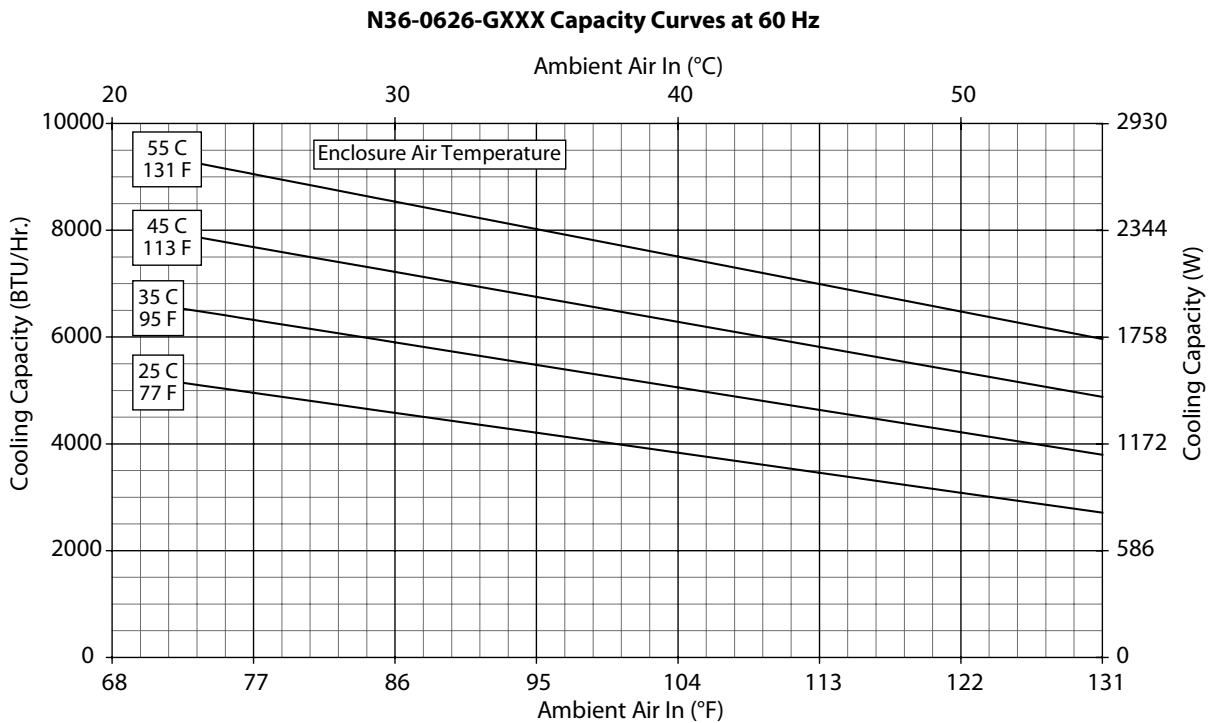
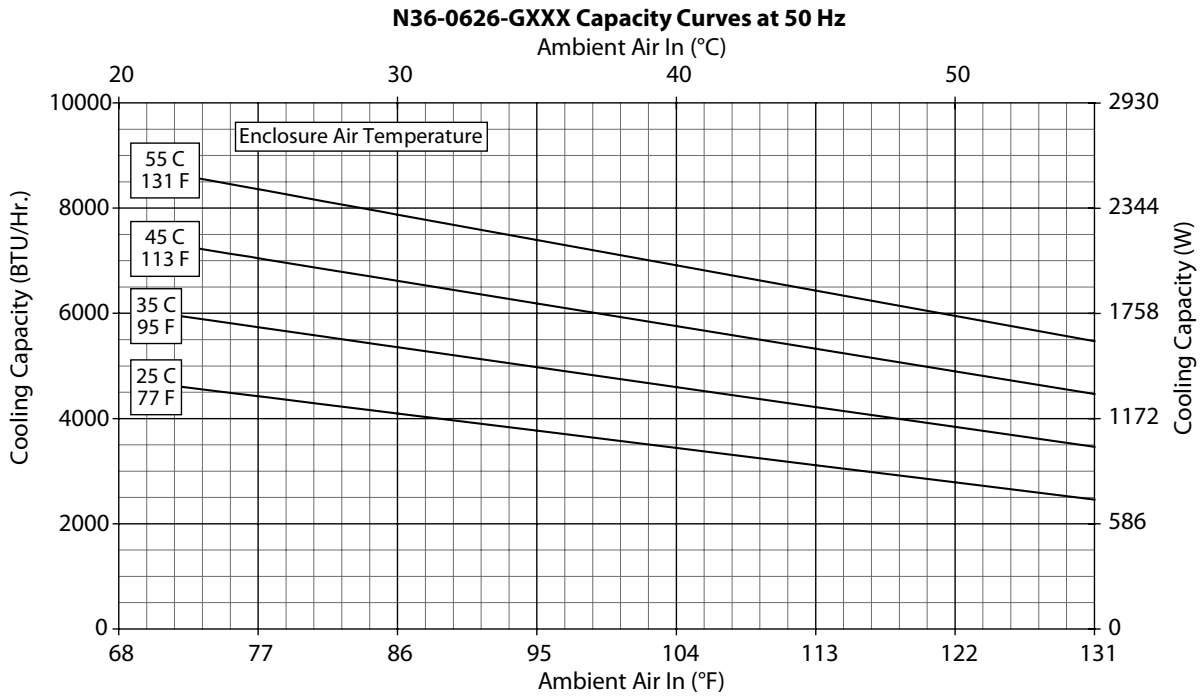


## Performance Curves for N36 Models 6000 BTU/Hr. (1758 Watt)



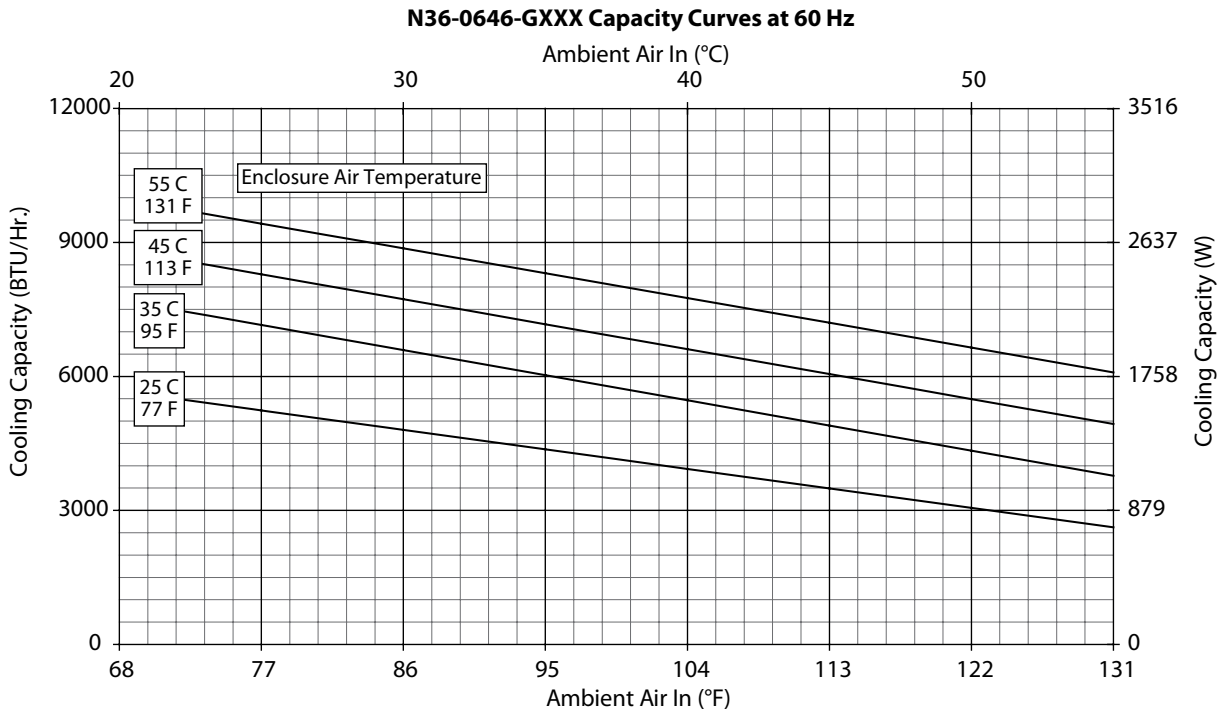
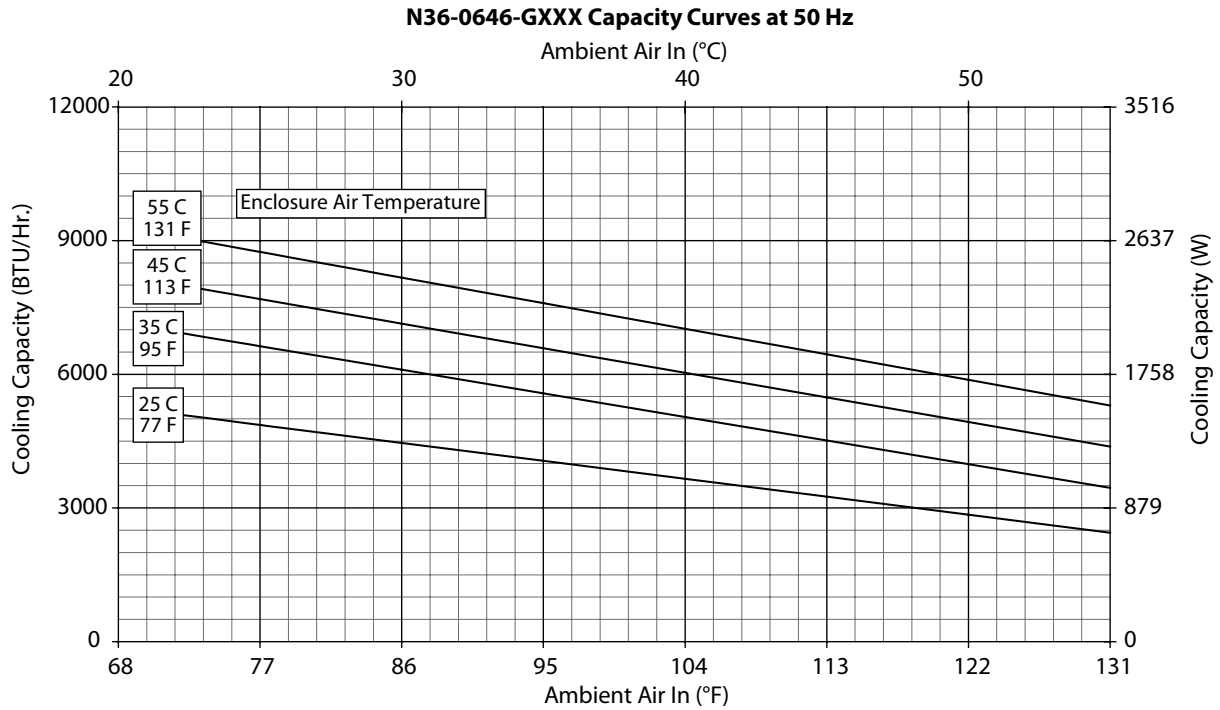


Performance Curves for N36 Models 6000 BTU/Hr. (1758 Watt)



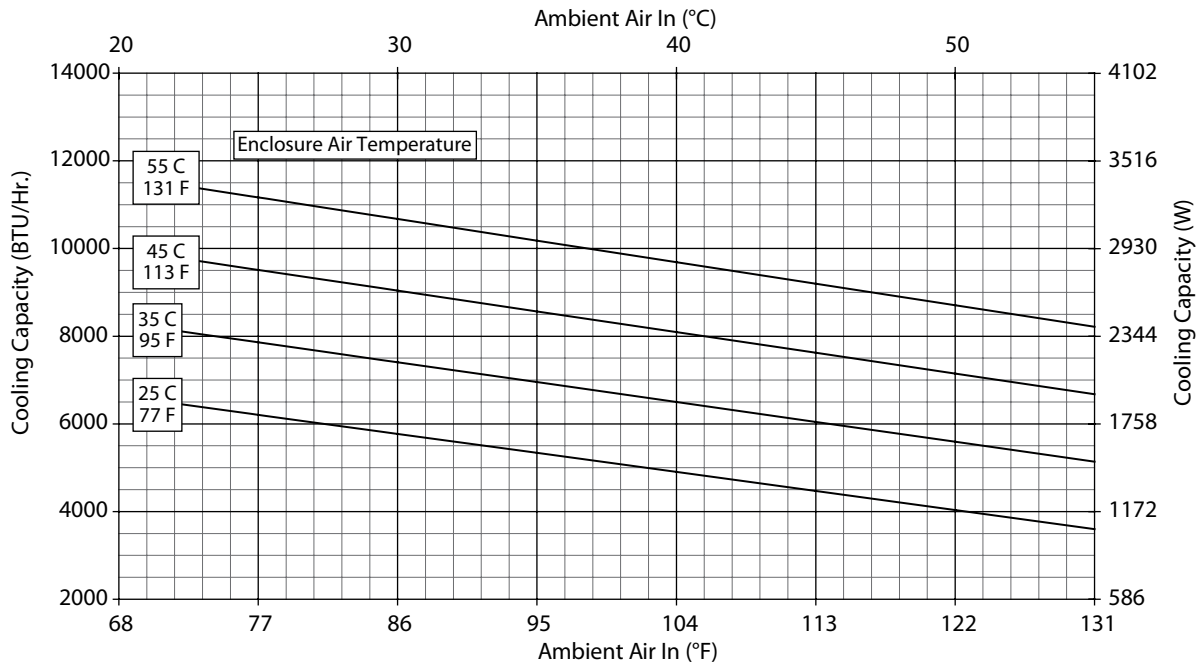
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## Performance Curves for N36 Models 6000 BTU/Hr. (1758 Watt)

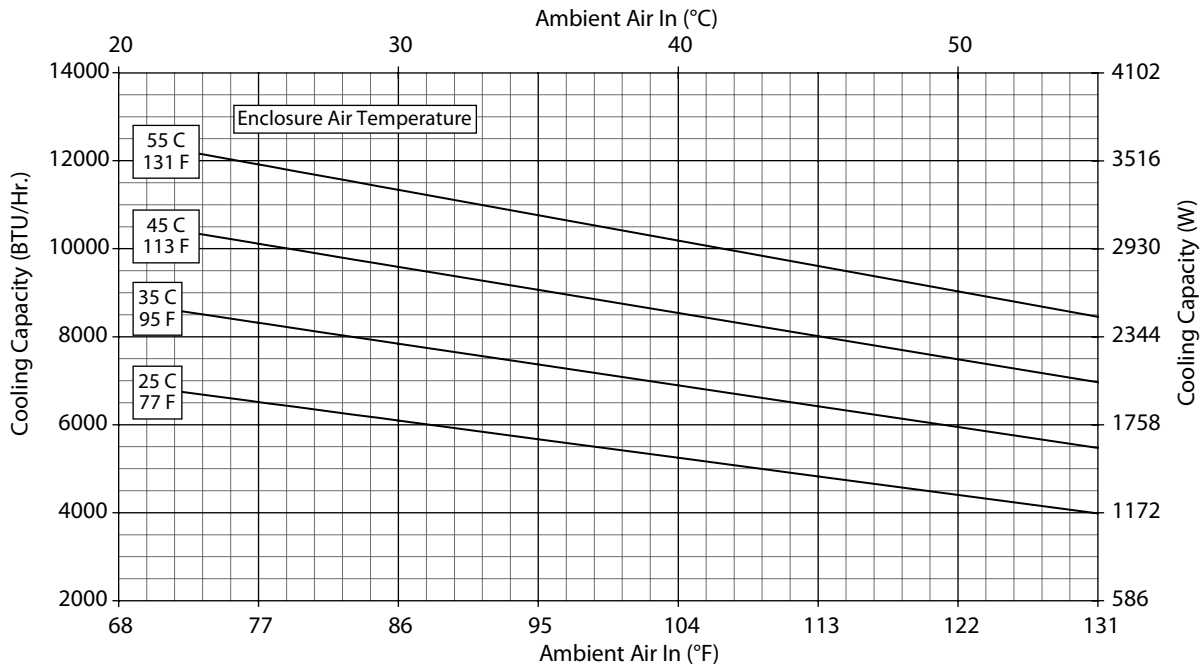


Performance Curves for N36 Models 8000 BTU/Hr. (2344 Watt)

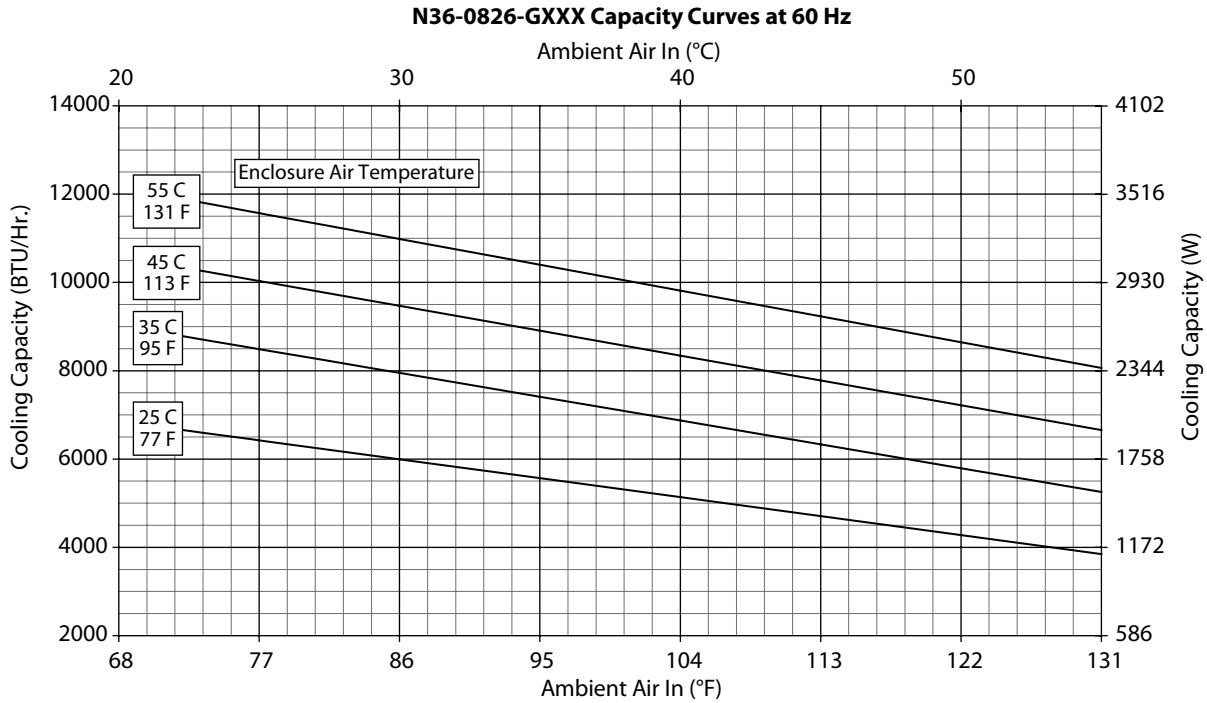
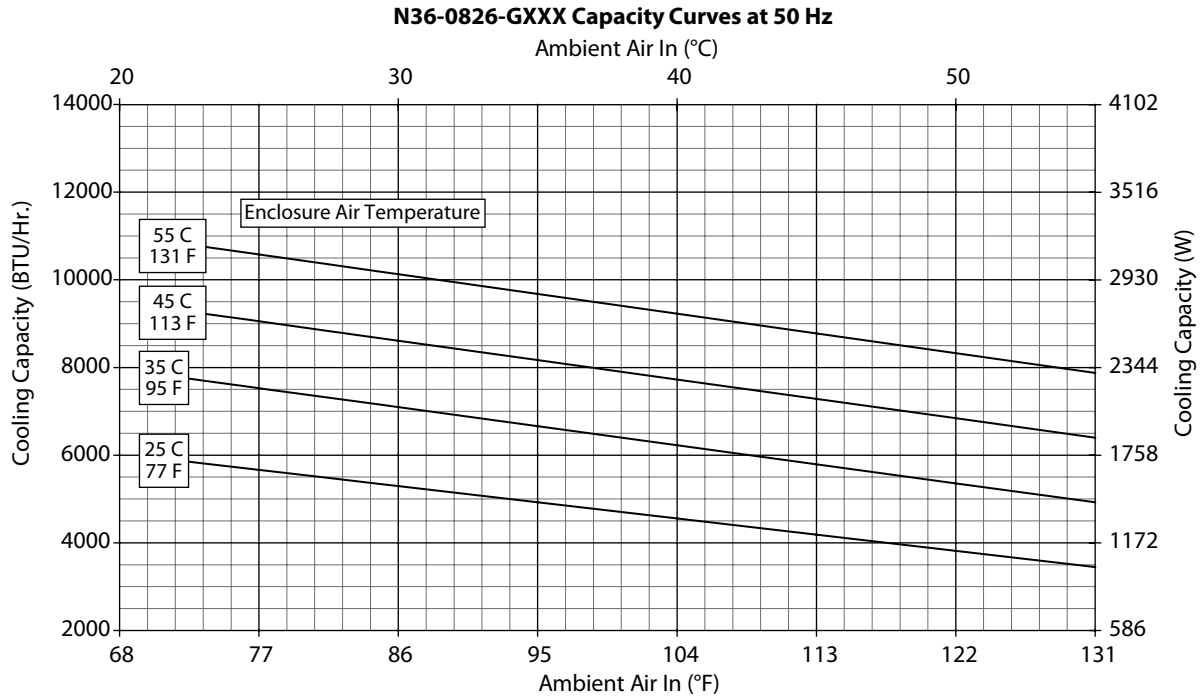
**N36-0816-GXXX Capacity Curves at 50 Hz**



**N36-0816-GXXX Capacity Curves at 60 Hz**

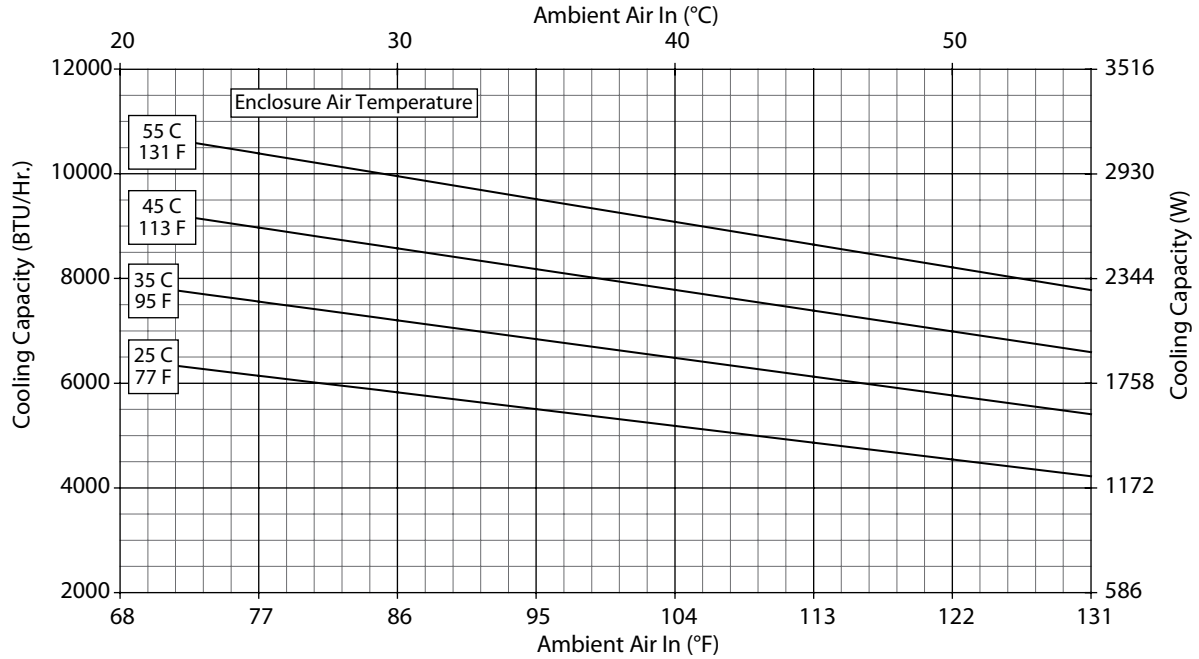


## Performance Curves for N36 Models 8000 BTU/Hr. (2344 Watt)

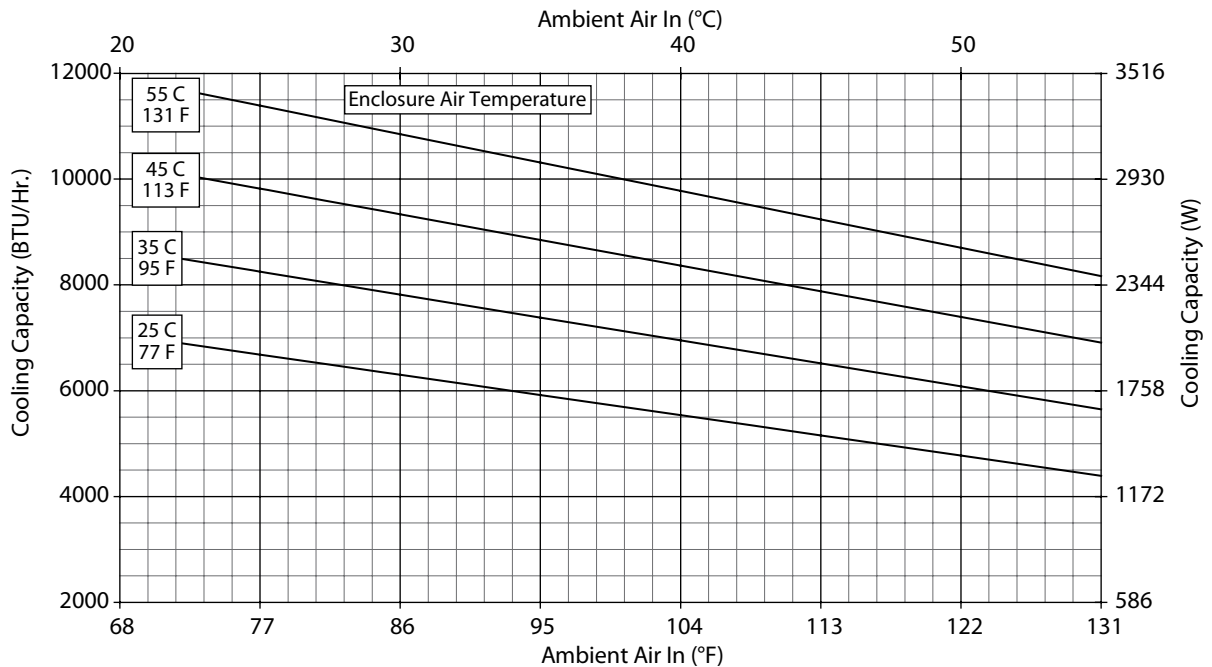


Performance Curves for N36 Models 8000 BTU/Hr. (2344 Watt)

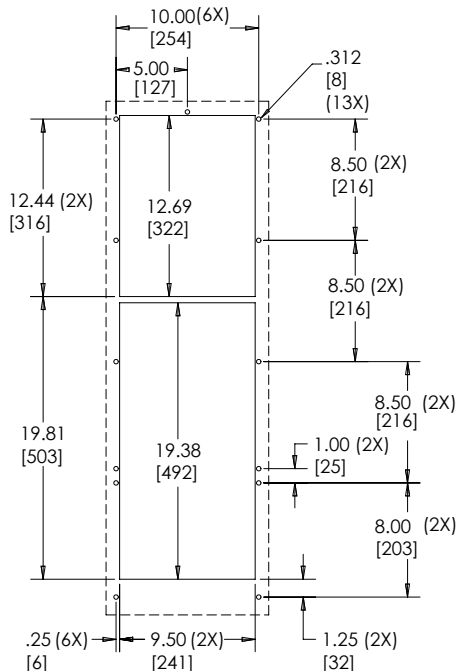
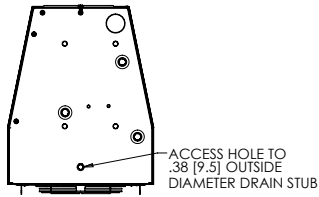
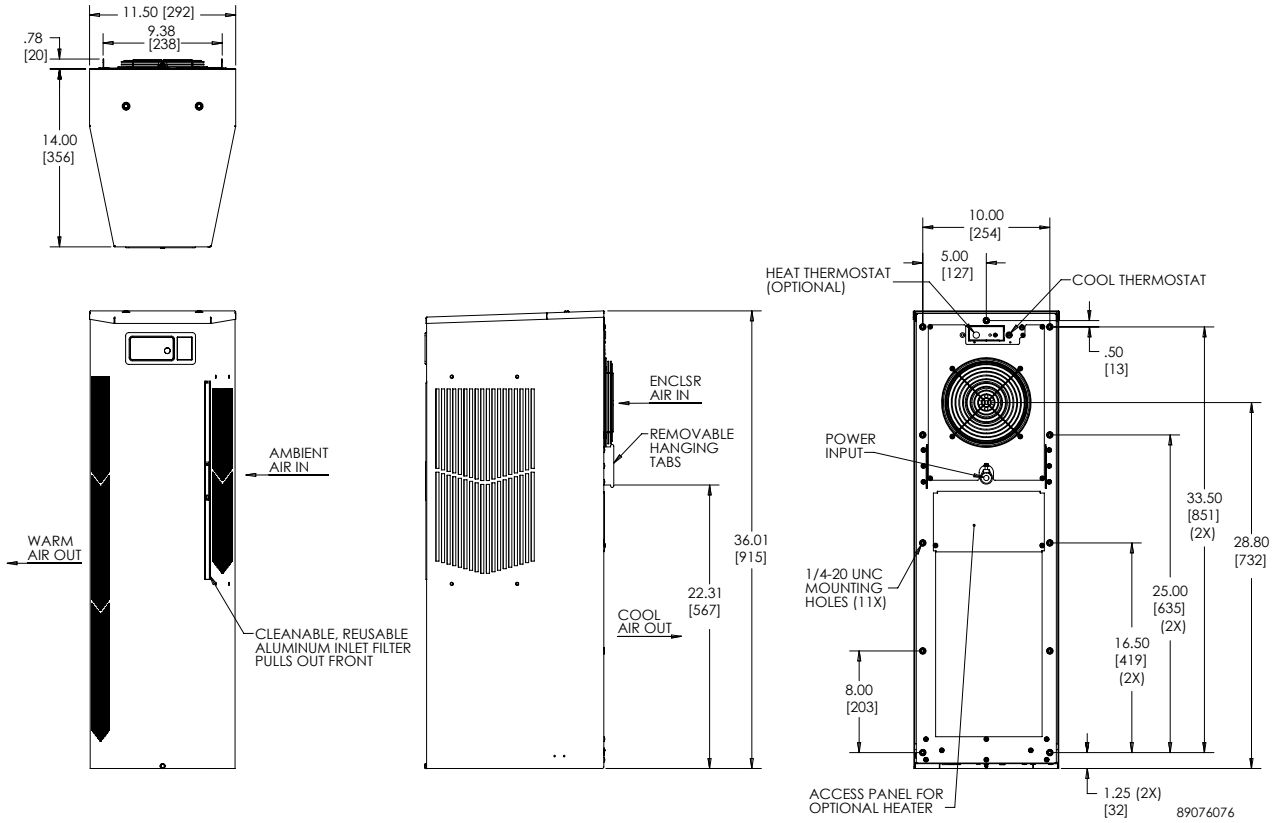
**N36-0846-GXXX Capacity Curves at 50 Hz**



**N36-0846-GXXX Capacity Curves at 60 Hz**



N36 6000/8000 BTU/Hr. (1758/2344 Watt)



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Performance Data **N43 11000 BTU/Hr. (3223 Watt)**

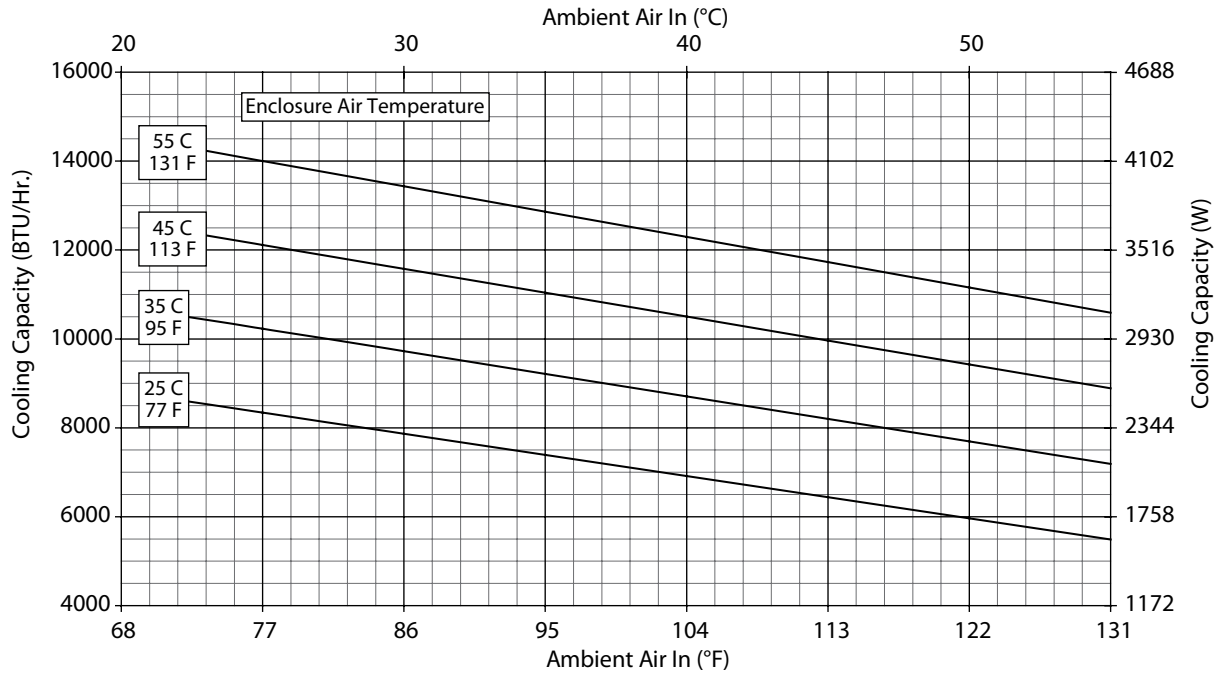
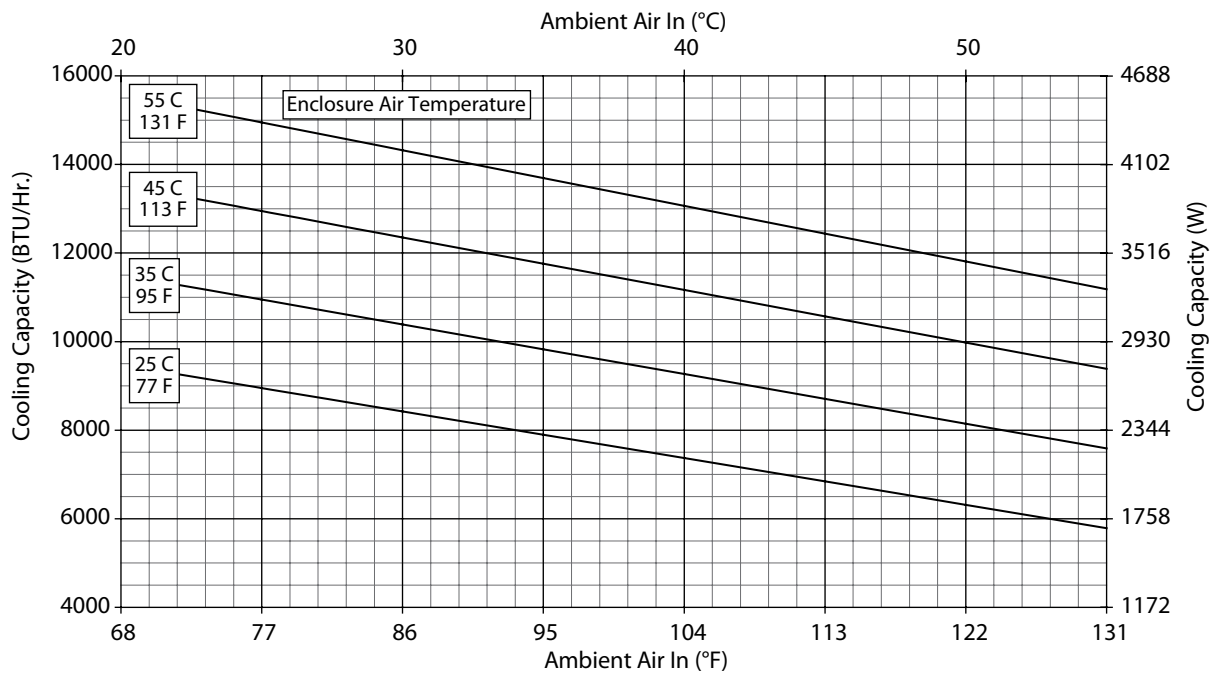
| <b>CATALOG NUMBER</b>                                   |                      |                                                                                         |                      |
|---------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------|----------------------|
| Indoor Model                                            | N431216G050          | N431226G050                                                                             | N431246G050          |
| Indoor Model Stainless Steel Type 4X                    | N431216G051          | N431226G051                                                                             | N431246G051          |
| Indoor Model with Remote Access Control*                | N431216G060          | N431226G060                                                                             | N431246G060          |
| Outdoor Model without Heat Pkg.                         | N431216G100          | N431226G100                                                                             | N431246G100          |
| Outdoor Model without Heat Pkg. Stainless Steel Type 4X | N431216G102          | N431226G102                                                                             | N431246G102          |
| Outdoor Model with Heat Pkg.                            | N431216G150          | N431226G150                                                                             | N431246G150          |
| Outdoor Model with Heat Pkg. Stainless Steel Type 4X    | N431216G151          | N431226G151                                                                             | N431246G151          |
| <b>COOLING PERFORMANCE</b>                              |                      |                                                                                         |                      |
| <b>Nominal:</b>                                         |                      |                                                                                         |                      |
| <b>BTU/Hr.</b>                                          | <b>10400 / 11000</b> | <b>10400 / 11000</b>                                                                    | <b>10400 / 11000</b> |
| <b>Watts</b>                                            | <b>3047 / 3223</b>   | <b>2900 / 3223</b>                                                                      | <b>2900 / 3223</b>   |
| At 131 F / 131 F (55 C / 55 C):                         |                      |                                                                                         |                      |
| BTU/Hr. (50 / 60 Hz)                                    | 10588 / 11180        | 9946 / 11052                                                                            | 10048 / 10797        |
| Watts (50 / 60 Hz)                                      | 3103 / 3277          | 2915 / 3239                                                                             | 2945 / 3164          |
| At 95 F / 95 F (35 C / 35 C):                           |                      |                                                                                         |                      |
| BTU/Hr. (50 / 60 Hz)                                    | 9475 / 10023         | 8967 / 9644                                                                             | 8587 / 9559          |
| Watts (50 / 60 Hz)                                      | 2777 / 2937          | 2628 / 2826                                                                             | 2517 / 2801          |
| Refrigerant                                             | R134a                | R134a                                                                                   | R134a                |
| Refrigerant Charge (ounces/grams)                       | 36 / 1021            | 38 / 1077                                                                               | 41 / 1162            |
| Operating Temperature Range:                            |                      |                                                                                         |                      |
| Maximum (°F / °C)                                       | 131 / 55             | 131 / 55                                                                                | 131 / 55             |
| Minimum (°F / °C)                                       | -40 / -40            | -40 / -40                                                                               | -40 / -40            |
| Air Flow at 0 Static Pressure:                          |                      |                                                                                         |                      |
| Internal loop 50 Hz (CFM / M³/Hr)                       | 239 / 406            | 259 / 440                                                                               | 254 / 432            |
| External loop 50 Hz (CFM / M³/Hr)                       | 494 / 839            | 489 / 831                                                                               | 341 / 579            |
| Internal loop 60 Hz (CFM / M³/Hr)                       | 250 / 425            | 267 / 454                                                                               | 260 / 442            |
| External loop 60 Hz (CFM / M³/Hr)                       | 528 / 897            | 525 / 892                                                                               | 564 / 958            |
| Max. Heater W (Outdoor Models)                          | 1300                 | 1300                                                                                    | 1300                 |
| <b>ELECTRICAL DATA</b>                                  |                      |                                                                                         |                      |
| <b>Rated Voltage</b>                                    | <b>115</b>           | <b>230</b>                                                                              | <b>400 / 460 3~</b>  |
| Frequency (Hz)                                          | 50 / 60              | 50 / 60                                                                                 | 50 / 60              |
| Operating Range                                         | +/-10%               | +/-10%                                                                                  | +/-10%               |
| Max. Power Consumption (Watts at 50 / 60 Hz)            | 1802 / 2446          | 1802 / 2446                                                                             | 1283 / 1644          |
| Max. Nominal Current (Amps at 50 / 60 Hz)               | 16.6 / 22.0          | 8.7 / 9.1                                                                               | 3.1 / 3.3            |
| Starting Current (Amps)                                 | 57                   | 38                                                                                      | 16                   |
| Agency Approvals                                        |                      | cUL Listed<br>CE                                                                        |                      |
|                                                         |                      | Others available upon request                                                           |                      |
| Power Input Description                                 |                      | Terminal Block                                                                          |                      |
| <b>ENCLOSURE PROTECTION</b>                             |                      |                                                                                         |                      |
| UL Type                                                 |                      | Type 12, 3R, 4 Standard<br>Type 4X Stainless Steel Optional                             |                      |
| <b>CONTROLLER</b>                                       |                      |                                                                                         |                      |
| Description                                             |                      | Basic Mechanical Thermostat                                                             |                      |
| Thermostat Location                                     |                      | Enclosure Side                                                                          |                      |
| Factory Thermostat Setting (°F / °C)                    |                      | 80 / 27                                                                                 |                      |
| <b>SOUND LEVEL</b>                                      |                      |                                                                                         |                      |
| At 1.5 Meters                                           | 68.4 dBA             | 68.4 dBA                                                                                | 69.6 dBA             |
| <b>UNIT CONSTRUCTION</b>                                |                      |                                                                                         |                      |
| Material                                                |                      | Galvanized sheet metal standard<br>Stainless steel optional                             |                      |
| Finish                                                  |                      | RAL 7035 light-gray, semi-textured powder-coat paint standard<br>Other colors available |                      |
| <b>UNIT DIMENSIONS</b>                                  |                      |                                                                                         |                      |
| Height (in / mm)                                        |                      | 43.00 / 1092.2                                                                          |                      |
| Width (in / mm)                                         |                      | 11.50 / 292.1                                                                           |                      |
| Depth (in / mm)                                         |                      | 14.00 / 355.6                                                                           |                      |
| Weight (lb / kg)                                        | 127/57.6             | 127/57.6                                                                                | 138/62.6             |

\*Units with Remote Access Control utilize a digital controller and communicate via SNMP over ethernet or modbus RTU over USB.



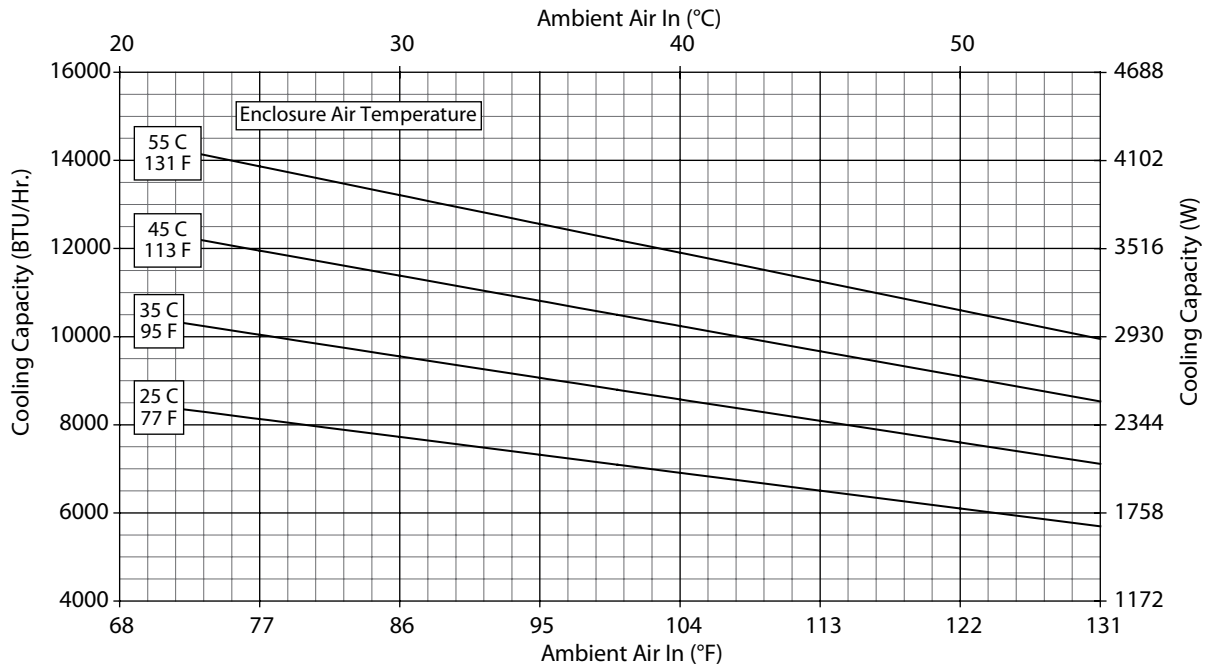


## Performance Curves for N43 Models 11000 BTU/Hr. (3223 Watt)

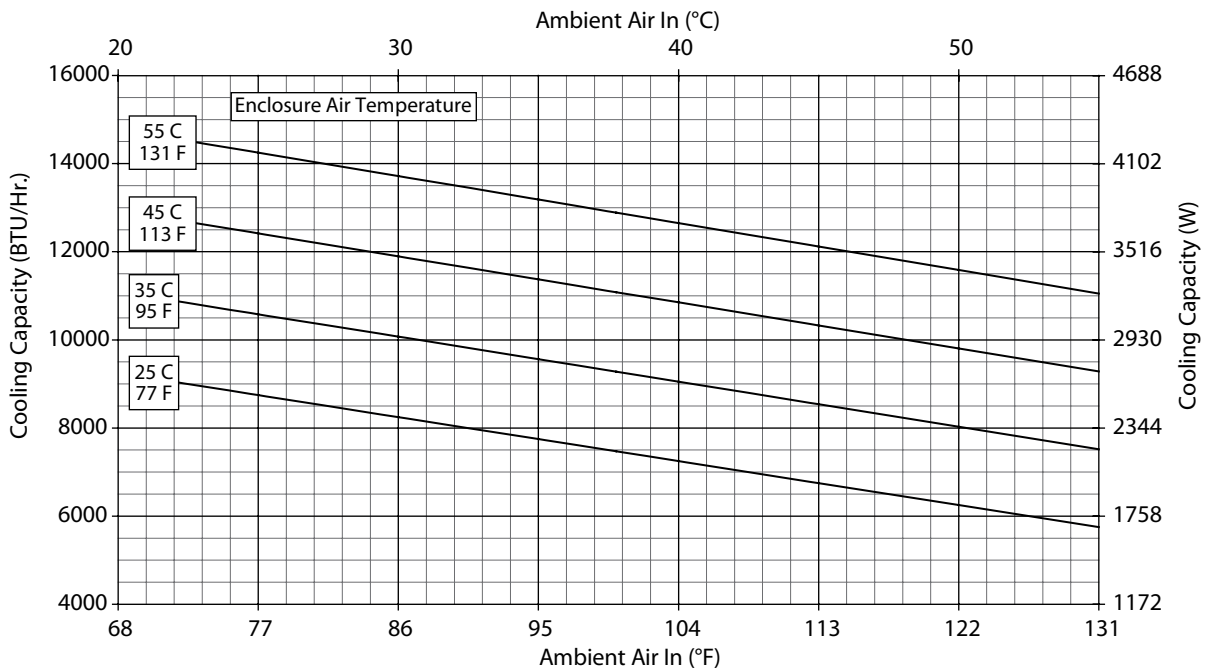
**N43-1216-GXXX Capacity Curves at 50 Hz**

**N43-1216-GXXX Capacity Curves at 60 Hz**


Performance Curves for N43 Models 11000 BTU/Hr. (3223 Watt)

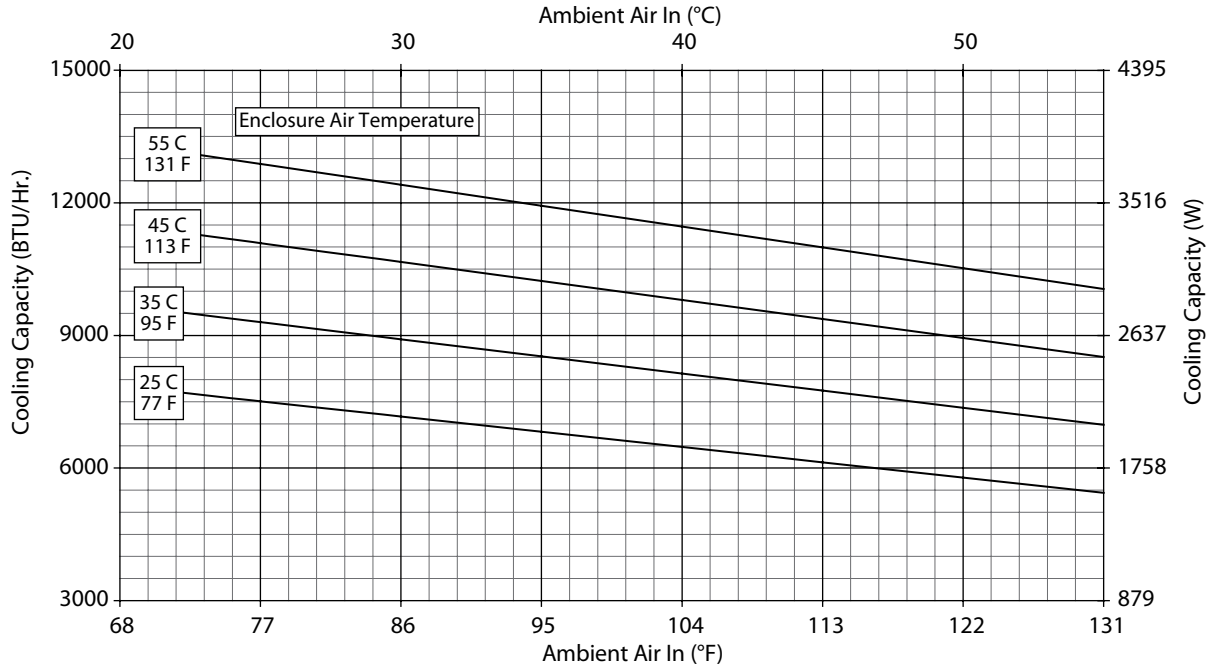
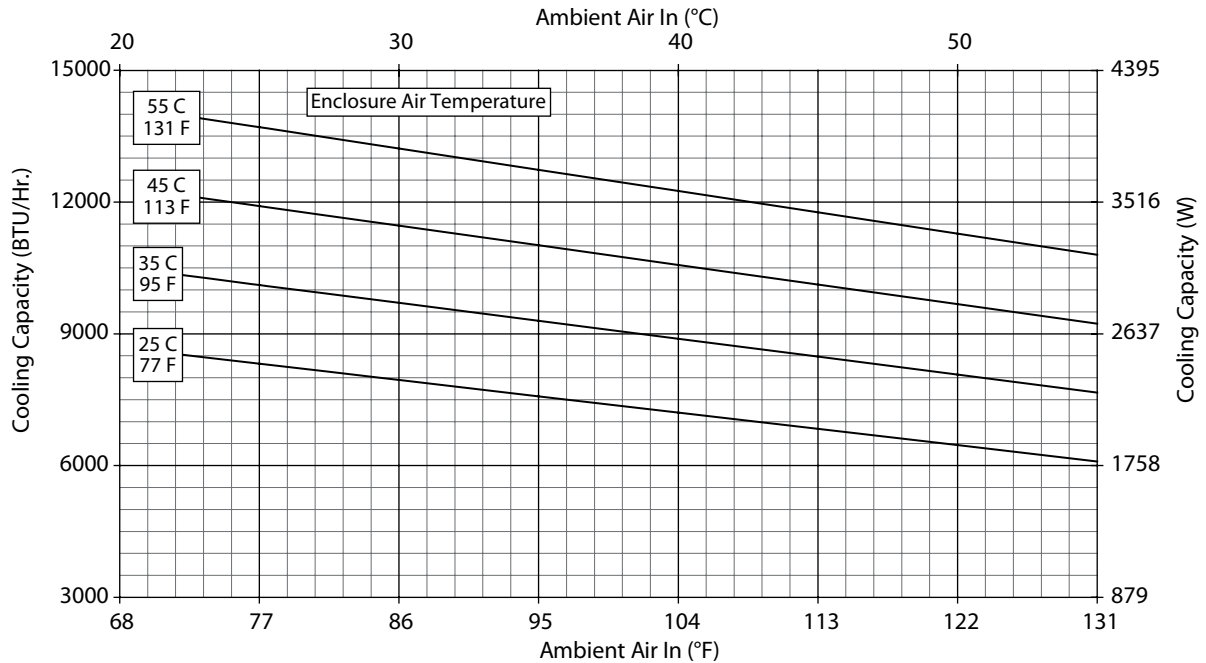
**N43-1226-GXXX Capacity Curves at 50 Hz**



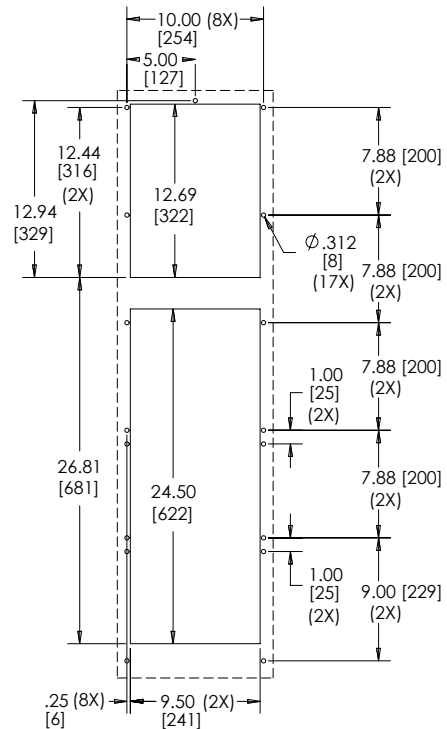
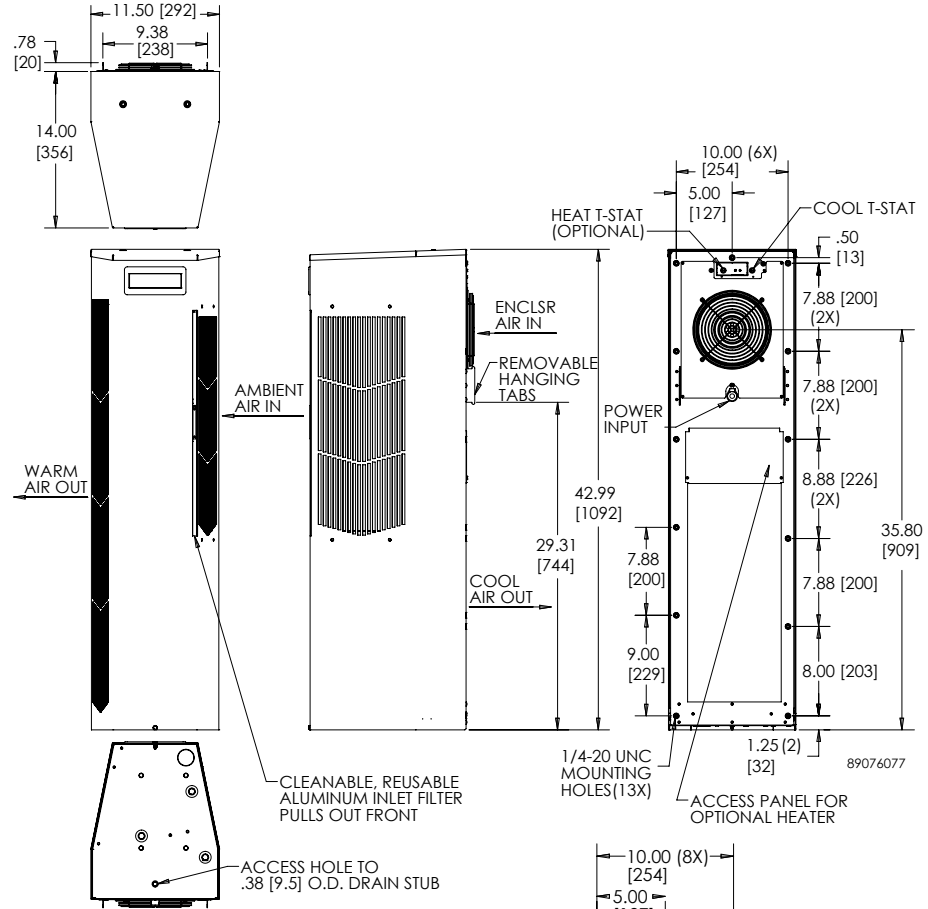
**N43-1226-GXXX Capacity Curves at 60 Hz**



Performance Curves for N43 Models 11000 BTU/Hr. (3223 Watt)

**N43-1246-GXXX Capacity Curves at 50 Hz**

**N43-1246-GXXX Capacity Curves at 60 Hz**


N43 12000 BTU/Hr. (3516 Watt)



CUTOUT INSTRUCTIONS

Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.



**SPECTRACOOL™ COMPACT INDOOR**


N17 115/230 Volt  
1000 BTU/Hr.  
293 Watt

N17 460 Volt  
1800 BTU/Hr.  
527 Watt

3

**INDUSTRY STANDARDS**

UL/cUL Listed; Type 12; File No. SA6453

CE  
IP 54 Internal Loop  
IP 34 on External Loop

**APPLICATION**

- Industrial automation
- Package handling equipment
- Security and defense systems

**FEATURES**

- Narrow design accommodates 12-in. deep cabinets
- R134a earth-friendly refrigerants
- Models for 115, 230 and 400/460 VAC power input
- UL Listed to save customers time and money with agency approvals
- Attractive industrial design with minimal use of visible fasteners
- Reliable mechanical thermostat is located behind the cover of the unit; Air Conditioner models include digital display on ambient side
- Galvanized sheet-metal cover for rugged factory environments
- Easy-mount flanges for simple installation
- Cut-out adapter options for enclosures with McLean GENESIS® air conditioners enable users to easily transition to the new unit

- Dust-resistant condenser coil allows the unit to be run filterless in most applications
- Cleanable, reusable aluminum mesh filter protects coils for maximum cooling performance
- Mounting hardware, gaskets and user manual furnished with the unit
- Every unit functionally tested before shipping
- Standard Indoor Air Conditioner models also include:
  - Active condensate management with heater strip
  - Power-off relay for door switch and other system requirements
  - Malfunction switch

**SPECIFICATIONS**

- Nominal cooling capacity:
  - N17 1000 BTU/Hr. (293 W)
  - N17 1800 BTU/Hr. (527 W)
- Operating temperature range from 50 F/10 C to 125 F/52 C

**FINISH**

- RAL 7035 light-gray, semi-textured powder-coat paint
- Other colors and textures available

**NOTES**

Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.

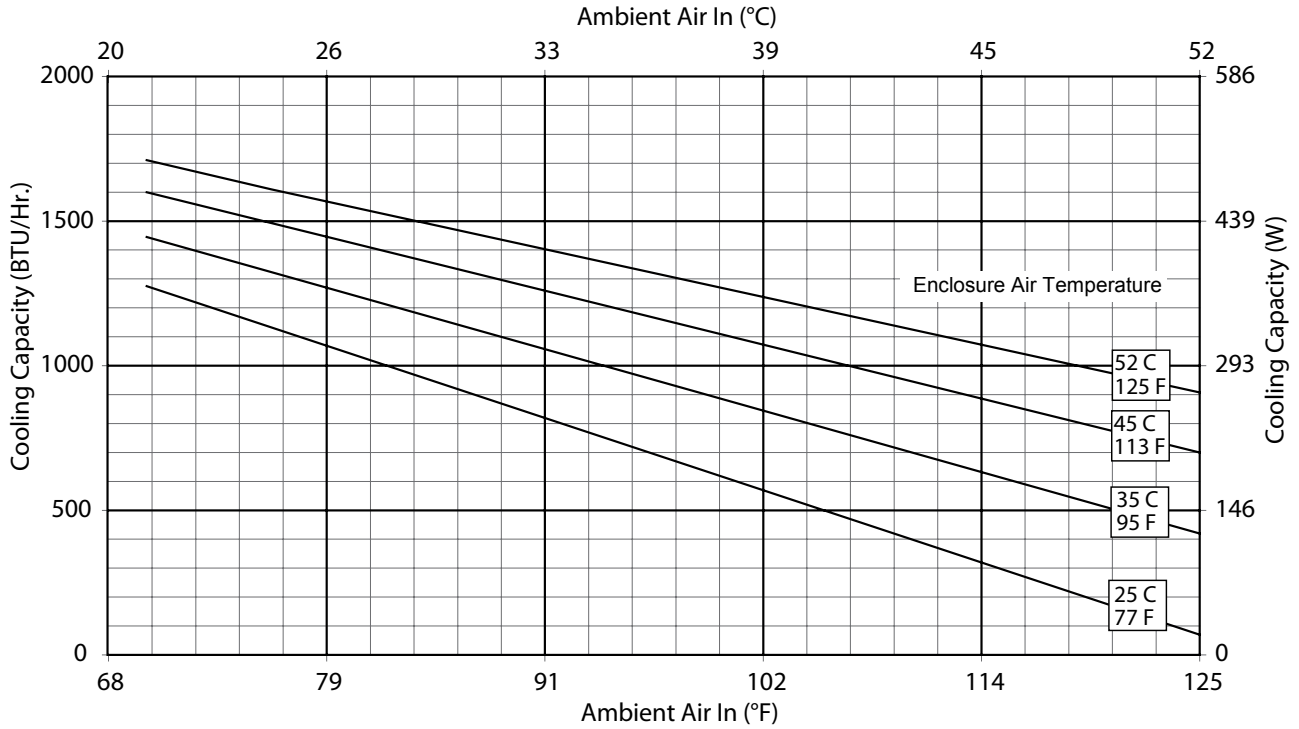
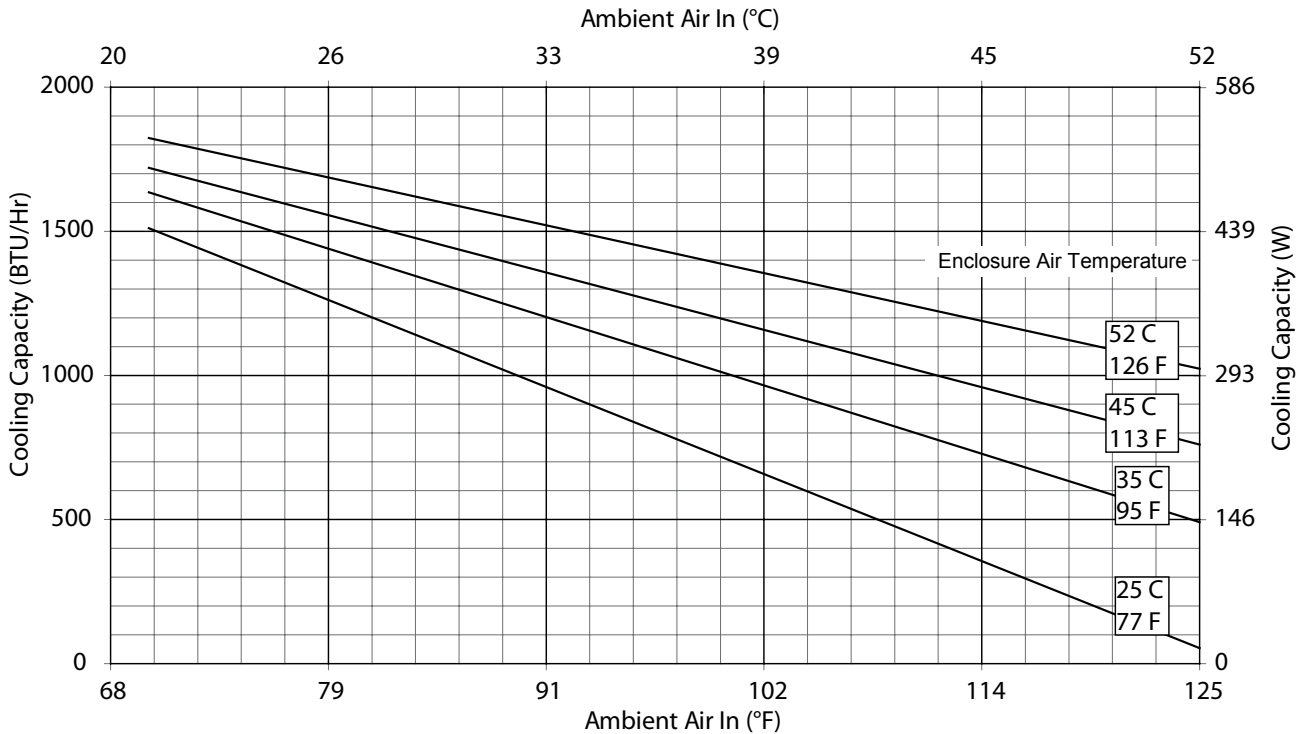
Performance Data **N17 Models 1000/1800 BTU/Hr. (300/527 Watt)**

| CATALOG NUMBER                                                                    |                                                                                                      |                    |                 |                  |                    |                  |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------------|--------------------|------------------|
| Indoor Model                                                                      | N170116G010                                                                                          | N170126G010        | N170146G010     | N170216G010      | N170226G010        | N170246G010      |
| Indoor Model with Remote Access Control*                                          | N170116G020                                                                                          | N170126G020        | N170146G020     | N170216G020      | N170226G020        | N170246G020      |
| COOLING PERFORMANCE                                                               |                                                                                                      |                    |                 |                  |                    |                  |
| <b>Nominal:</b>                                                                   |                                                                                                      |                    |                 |                  |                    |                  |
| <b>BTU/Hr.</b>                                                                    | <b>908/1025</b>                                                                                      | <b>908/1025</b>    | <b>908/1025</b> | <b>1500/1800</b> | <b>1500/1800</b>   | <b>1500/1800</b> |
| <b>Watts</b>                                                                      | <b>266/300</b>                                                                                       | <b>266/300</b>     | <b>266/300</b>  | <b>440/527</b>   | <b>440/527</b>     | <b>440/527</b>   |
| Refrigerant                                                                       | R-134a                                                                                               | R-134a             | R-134a          | R-134a           | R-134a             | R-134a           |
| Refrigerant Charge (ounces/grams)                                                 | 5/142                                                                                                | 5/142              | 5/142           | 5.5/156          | 5.5/156            | 5.5/156          |
| Operating Temperature Range:                                                      |                                                                                                      |                    |                 |                  |                    |                  |
| Maximum [°F/°C]                                                                   | 125/52                                                                                               | 125/52             | 125/52          | 125/52           | 125/52             | 125/52           |
| Minimum [°F/°C]                                                                   | 50/10                                                                                                | 50/10              | 50/10           | 50/10            | 50/10              | 50/10            |
| Airflow at 0 Static Pressure:                                                     |                                                                                                      |                    |                 |                  |                    |                  |
| Internal loop 50 Hz (CFM / m³/hr.)                                                | 57/97                                                                                                | 57/97              | 57/97           | 61/104           | 61/104             | 61/104           |
| External loop 50 Hz (CFM / m³/hr.)                                                | 96/163                                                                                               | 96/163             | 96/163          | 98/167           | 98/167             | 98/167           |
| Internal loop 60 Hz (CFM / m³/hr.)                                                | 67/114                                                                                               | 67/114             | 67/114          | 72/122           | 72/122             | 72/122           |
| External loop 60 Hz (CFM / m³/hr.)                                                | 114/194                                                                                              | 114/194            | 114/194         | 118/200          | 118/200            | 118/200          |
| ELECTRICAL DATA                                                                   |                                                                                                      |                    |                 |                  |                    |                  |
| <b>Rated Voltage</b>                                                              | <b>110/115</b>                                                                                       | <b>220/208-230</b> | <b>400/460</b>  | <b>110/115</b>   | <b>220/208-230</b> | <b>400/460</b>   |
| Frequency (Hz)                                                                    | 50/60                                                                                                | 50/60              | 50/60           | 50/60            | 50/60              | 50/60            |
| Operating Range                                                                   | +/- 10%                                                                                              | +/- 10%            | +/- 10%         | +/- 10%          | +/- 10%            | +/- 10%          |
| Max. Power Consumption (W at 50/60 Hz)                                            | 337/356                                                                                              | 375/407            | 345/376         | 642/728          | 639/667            | 543/603          |
| Max. Nominal Current (A at 50/60 Hz)                                              | 4.4/3.9                                                                                              | 2.3/2.1            | 1.2/1.2         | 7.0/7.1          | 4.0/3.5            | 2.0/2.0          |
| Starting Current (A)                                                              | 18                                                                                                   | 8.5                | 4.25            | 28               | 14.4               | 7.2              |
| Agency Approvals                                                                  | UL/cUL Listed<br>CE<br>Terminal Block                                                                |                    |                 |                  |                    |                  |
| Power Input Description                                                           | Terminal Block                                                                                       |                    |                 |                  |                    |                  |
| ENCLOSURE PROTECTION                                                              |                                                                                                      |                    |                 |                  |                    |                  |
| UL Type                                                                           | Type 12                                                                                              |                    |                 |                  |                    |                  |
| IP                                                                                | IP 54                                                                                                |                    |                 |                  |                    |                  |
| CONTROLLER (...G010 Models)                                                       |                                                                                                      |                    |                 |                  |                    |                  |
| Thermostat Location                                                               | Behind Cover, Right Side                                                                             |                    |                 |                  |                    |                  |
| Factory Thermostat Setting [°F/°C]                                                | 80/27                                                                                                |                    |                 |                  |                    |                  |
| CONTROLLER (...G020 Models)                                                       |                                                                                                      |                    |                 |                  |                    |                  |
| Thermostat Location                                                               | Ambient Side                                                                                         |                    |                 |                  |                    |                  |
| Factory Thermostat Setting [°F/°C]                                                | 80/27                                                                                                |                    |                 |                  |                    |                  |
| SOUND LEVEL                                                                       |                                                                                                      |                    |                 |                  |                    |                  |
| At 1.5 Meters                                                                     | 6.5 dBA                                                                                              |                    |                 |                  |                    |                  |
| UNIT CONSTRUCTION                                                                 |                                                                                                      |                    |                 |                  |                    |                  |
| Material                                                                          | Galvanized sheet metal standard                                                                      |                    |                 |                  |                    |                  |
| Finish                                                                            | RAL 7035 light-gray, semi-textured powder-coat paint standard<br>Other colors available              |                    |                 |                  |                    |                  |
| ACCESSORIES                                                                       |                                                                                                      |                    |                 |                  |                    |                  |
| EASYSWAP Adaptor Plenum (GENESIS™ M13)                                            | Enables SPECTRACOOL to be mounted to a GENESIS M13 air conditioner cutout<br>Catalog Number PLM13N17 |                    |                 |                  |                    |                  |
| NOTE: EASYSWAP adaptor plenum not required for M17. It is the same cutout as N17. |                                                                                                      |                    |                 |                  |                    |                  |
| UNIT DIMENSIONS                                                                   |                                                                                                      |                    |                 |                  |                    |                  |
| Height (in./mm)                                                                   | 17.64/448.1                                                                                          | 17.64/448.1        | 22.14/562.4     | 17.64/448.1      | 17.64/448.1        | 22.14/562.4      |
| Width (in./mm)                                                                    | 12.0/304.8                                                                                           | 12.0/304.8         | 12.0/304.8      | 12.0/304.8       | 12.0/304.8         | 12.0/304.8       |
| Depth (in./mm)                                                                    | 8.4/213.4                                                                                            | 8.4/213.4          | 8.4/213.4       | 8.4/213.4        | 8.4/213.4          | 8.4/213.4        |
| Weight (lb./kg)                                                                   | 50/23                                                                                                | 50/23              | 66/30           | 54/25            | 54/25              | 73/33            |

\*Units with Remote Access Control utilize a digital controller and communicate via SNMP over ethernet or modbus RTU over USB.



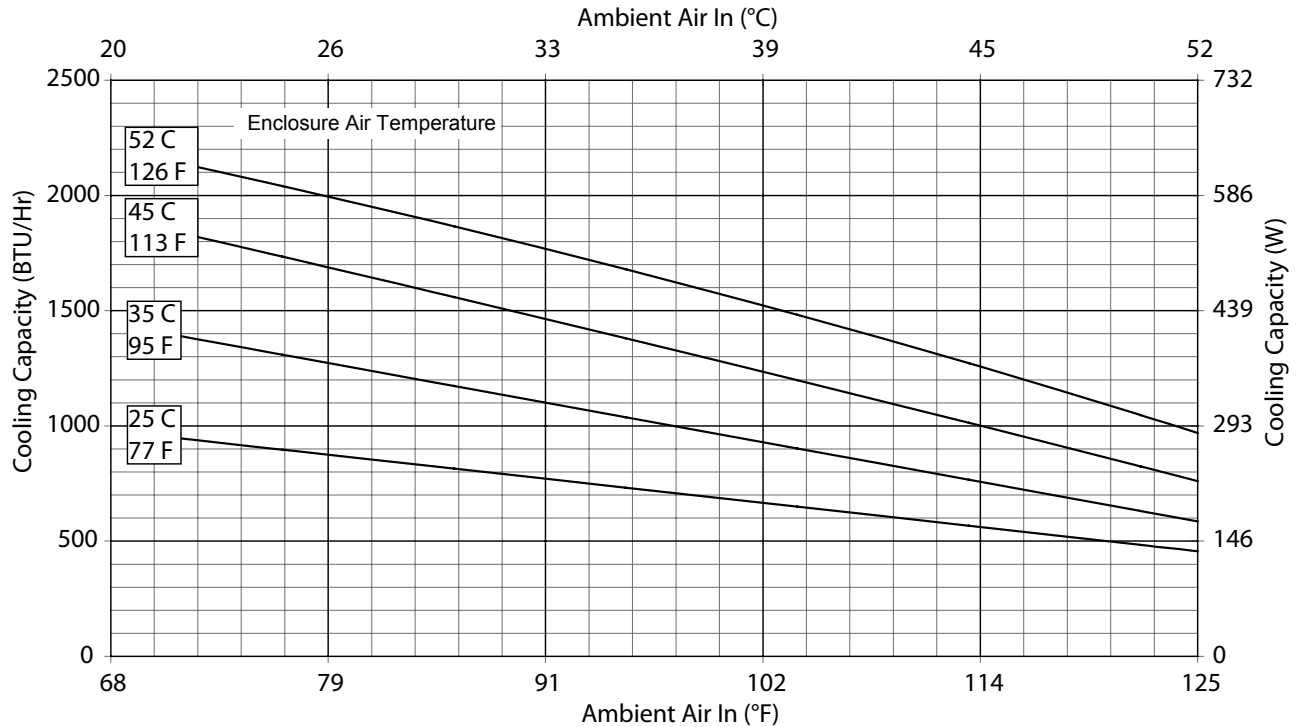
## Performance Curves for N17 Models 1000 BTU/Hr. (293 Watt)

**N17-0116-GXXX Capacity Curves at 50 Hz**

**N17-0116-GXXX Capacity Curves at 60 Hz**


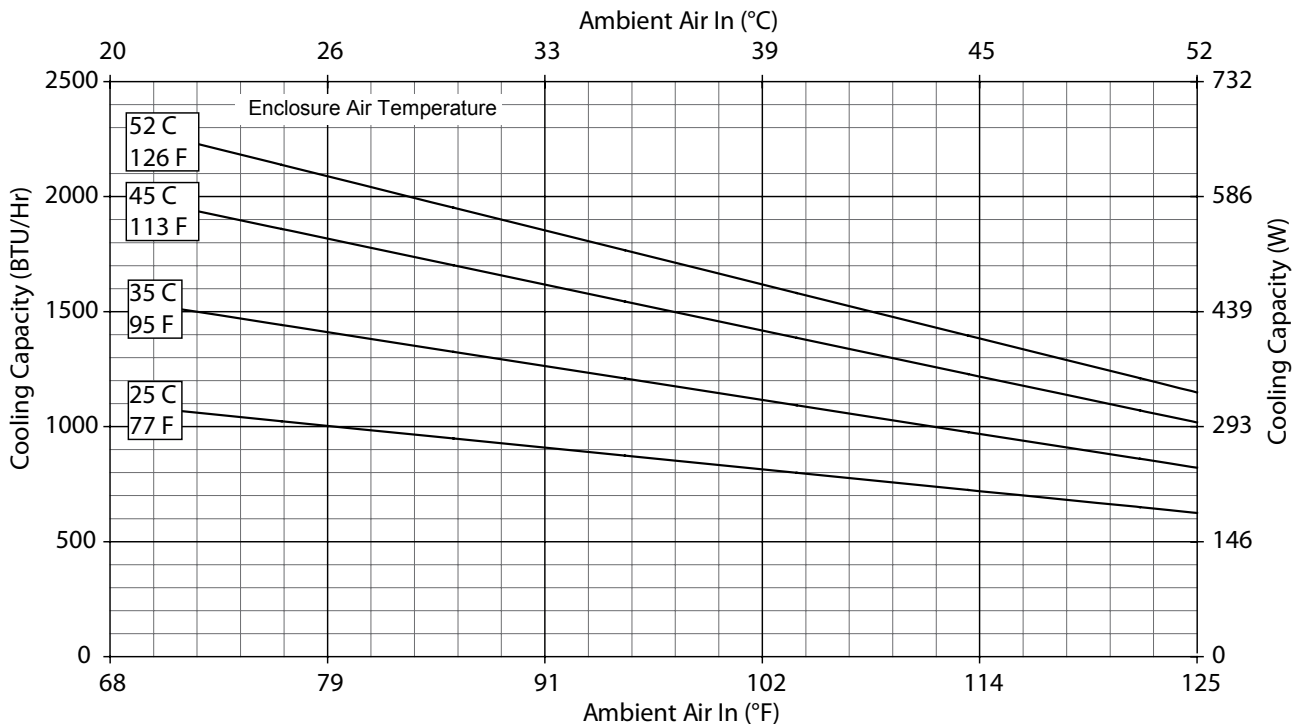


Performance Curves for N17 Models 1000/2000 BTU/Hr. (293/585 Watt)

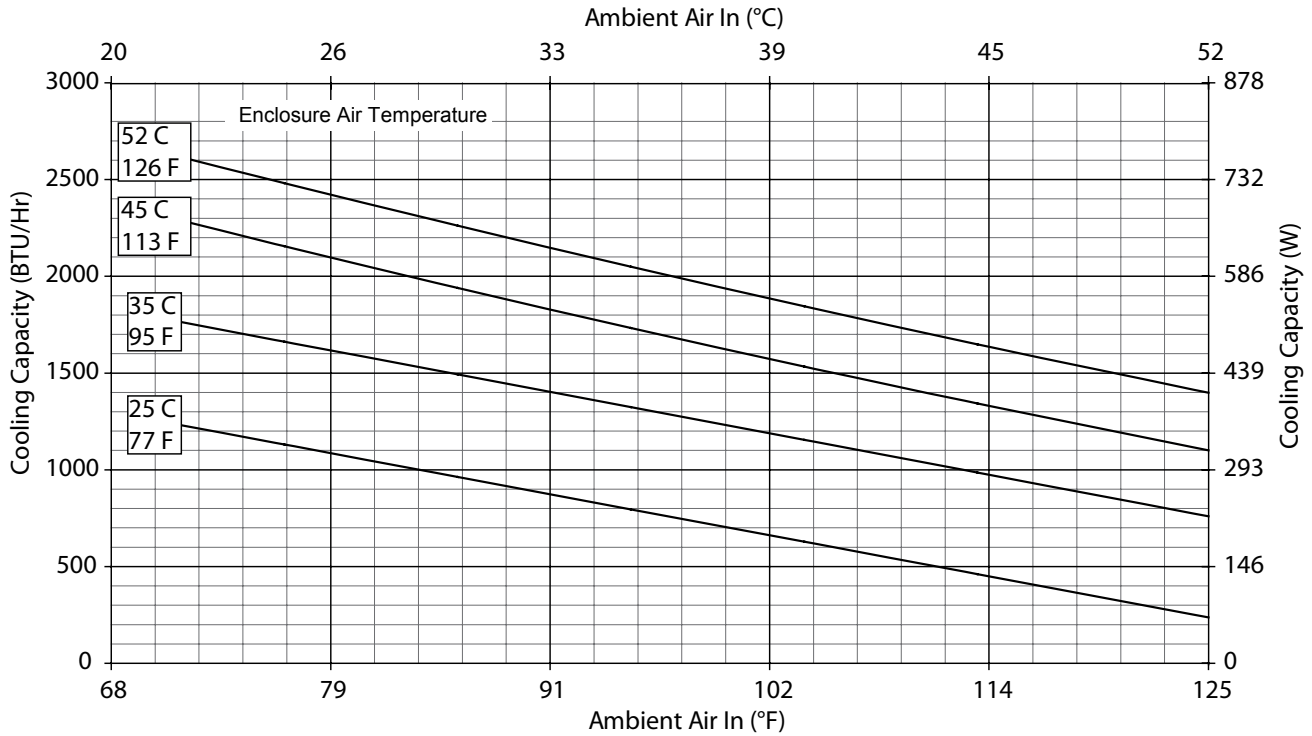
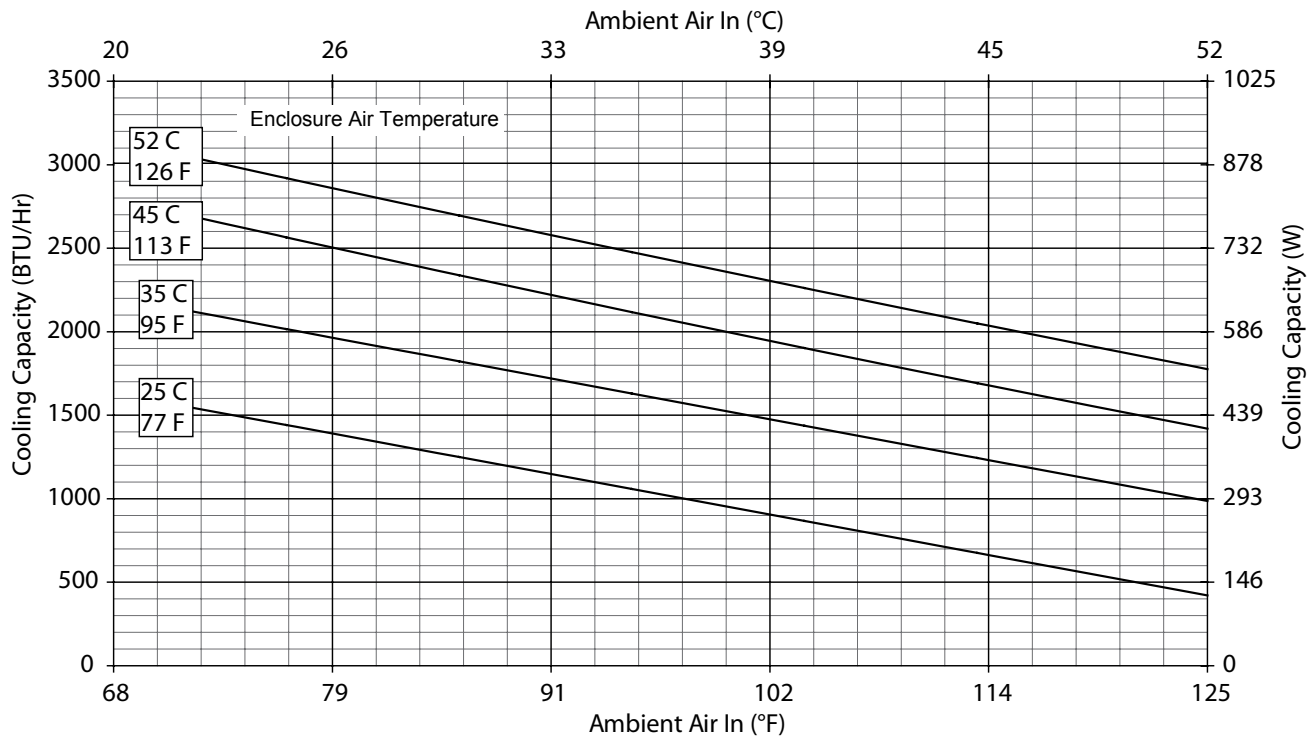
**N17-01(2/4)6-GXXX Capacity Curves at 50 Hz**



**N17-01(2/4)6-GXXX Capacity Curves at 60 Hz**

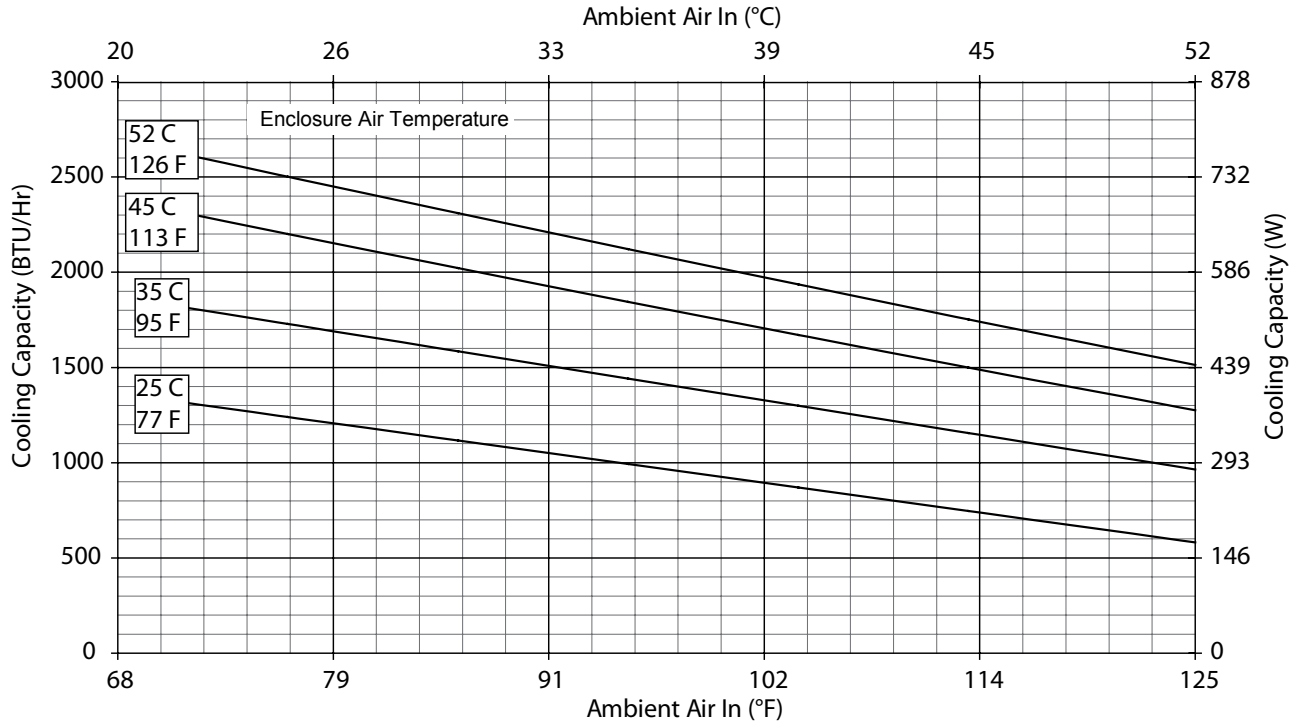


## Performance Curves for N17 Models 1000 BTU/Hr. (293 Watt)

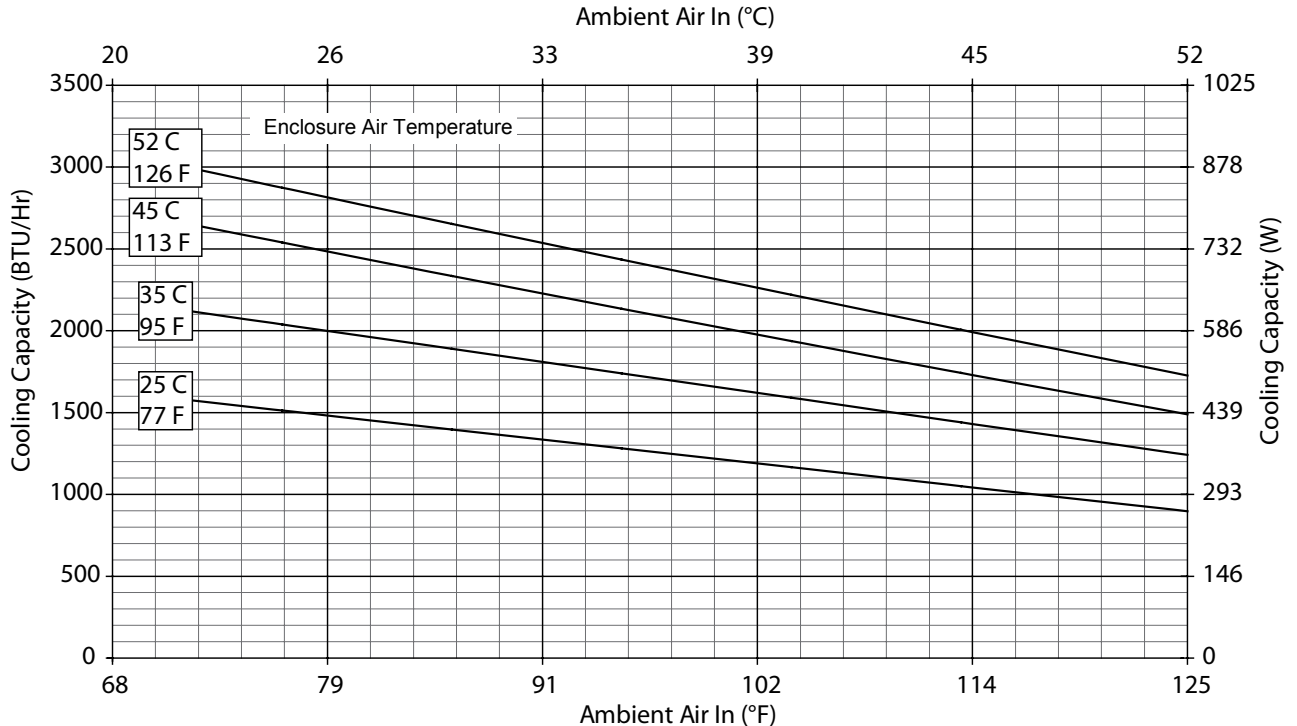
**N17-0216-GXXX Capacity Curves at 50 Hz**

**N17-0216-GXXX Capacity Curves at 60 Hz**


Performance Curves for N17 Models 1000/2000 BTU/Hr. (293/585 Watt)

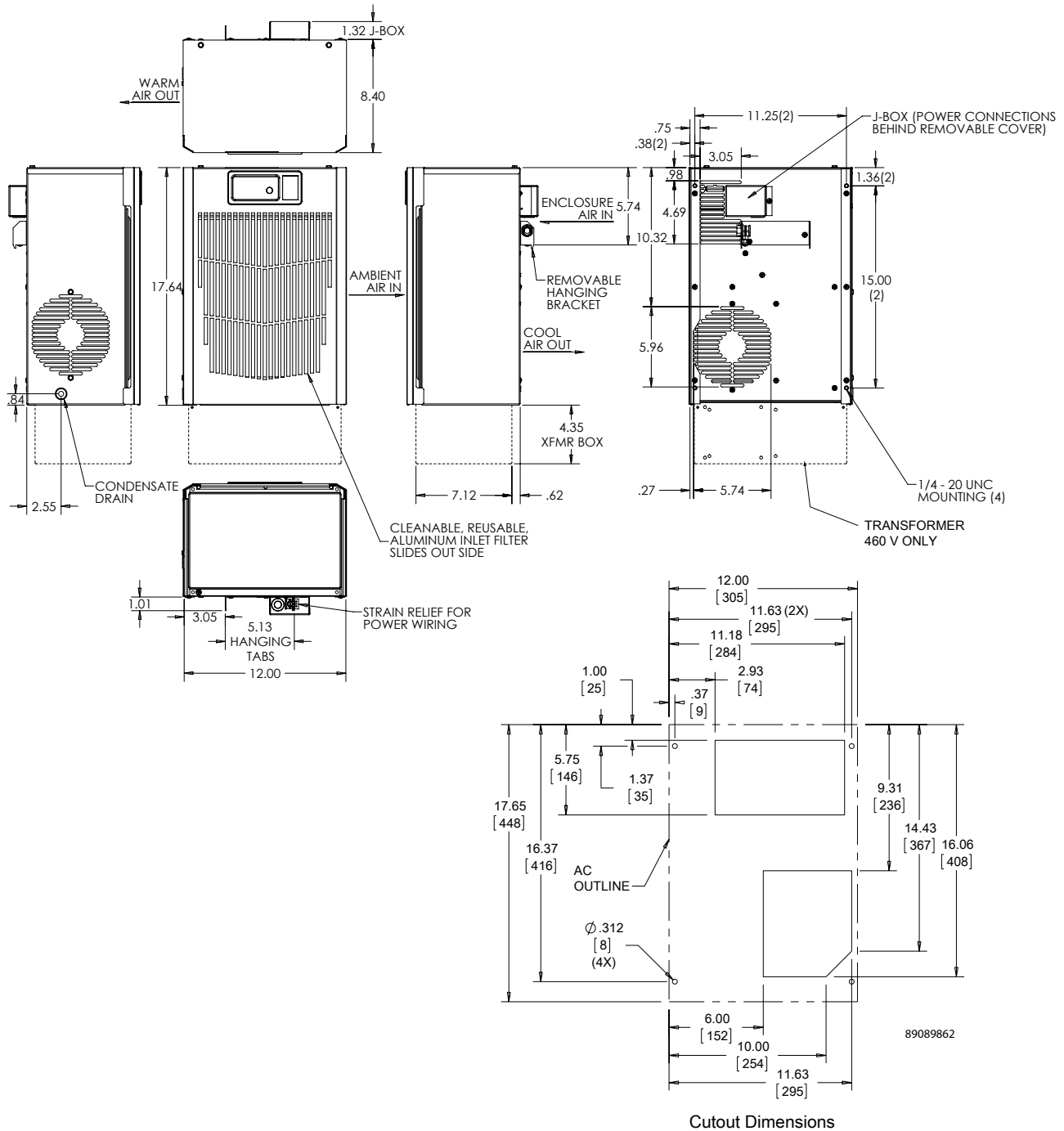
**N17-02(2/4)6-GXXX Capacity Curves at 50 Hz**



**N17-02(2/4)6-GXXX Capacity Curves at 60 Hz**



## N17 Models 1000/1800 BTU/Hr. (300/527 Watt)



Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.

**Notes**



## EASY SWAP ADAPTOR PLENUMS FOR AIR CONDITIONERS



3

### INDUSTRY STANDARDS

Maintains NEMA Type 12 rating when properly installed on a Type 12 enclosure.

NEMA Type 12  
IP 54

### APPLICATION

When existing air conditioners are damaged or have reached end-of-life, EASY SWAP Adaptor Plenums provide a quick and easy means for attaching newer McLean air conditioners to the cut-out left on the enclosure.

### FEATURES

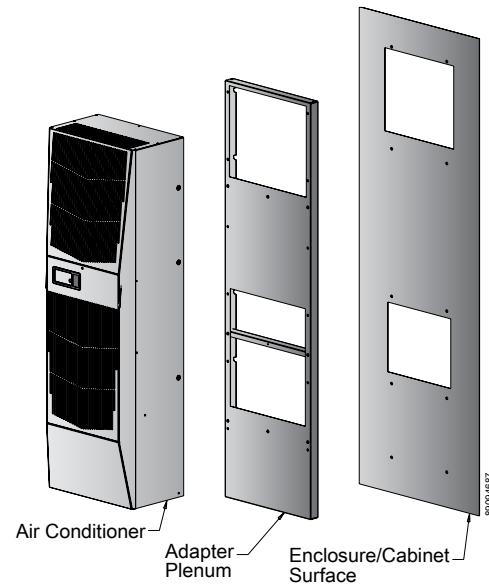
- No modification of the enclosure required - designed to match the enclosure cut-out and mounting holes of the air conditioner being replaced
- Plenum design allows for optimum air flow (vs. a flat plate that can block the air intake and air outtake left by the older air conditioner)
- Gasket included

### SPECIFICATIONS

- 18 gauge steel

### FINISH

- Painted to match the standard air conditioner color (light gray)
- Other colors available upon request



EASY SWAP Adaptor Plenum Cross Reference

| Air Conditioner Manufacturer To Replace | Air Conditioner Series To Replace | Air Conditioner Part Number To Replace | Use This McLean Air Conditioner Catalog Number | With This Adaptor Plenum Catalog Number | Adaptor Plenum Dimensions AxBxC' (in./mm) |
|-----------------------------------------|-----------------------------------|----------------------------------------|------------------------------------------------|-----------------------------------------|-------------------------------------------|
| McLean                                  | Genesis                           | M130116G014                            | <b>N170116G010</b>                             | <b>PLM13N17</b>                         | 17.65x14.25x1.50<br>448x362x38            |
| McLean                                  | Genesis                           | M130126G1008                           | <b>N170126G010</b>                             | <b>PLM13N17</b>                         | 17.65x14.25x1.50<br>448x362x38            |
| McLean                                  | Genesis                           | M130146G1400                           | <b>N170146G010</b>                             | <b>PLM13N17</b>                         | 17.65x14.25x1.50<br>448x362x38            |
| McLean                                  | Genesis                           | M170216G009                            | <b>N170216G010</b>                             | Not Required                            | ---                                       |
| McLean                                  | Genesis                           | M170226G004                            | <b>N170226G010</b>                             | Not Required                            | ---                                       |
| McLean                                  | Genesis                           | M170246G400                            | <b>N170246G010</b>                             | Not Required                            | ---                                       |
| McLean                                  | Genesis                           | M280216G013                            | <b>N170216G010</b>                             | <b>PLM28N17</b>                         | 28.50x17.00x1.50<br>724x432x38            |
| McLean                                  | Genesis                           | M280226G004                            | <b>N170226G010</b>                             | <b>PLM28N17</b>                         | 28.50x17.00x1.50<br>724x432x38            |
| McLean                                  | Genesis                           | M280246G400                            | <b>N170246G010</b>                             | <b>PLM28N17</b>                         | 28.50x17.00x1.50<br>724x432x38            |
| McLean                                  | Genesis                           | M280416G007                            | <b>G280416G050</b>                             | <b>PLM28G28</b>                         | 28.50x17.00x1.50<br>724x432x38            |
| McLean                                  | Genesis                           | M280426G032                            | <b>G280426G050</b>                             | <b>PLM28G28</b>                         | 28.50x17.00x1.50<br>724x432x38            |
| McLean                                  | Genesis                           | M280446G400                            | <b>G280446G050</b>                             | <b>PLM28G28</b>                         | 28.50x17.00x1.50<br>724x432x38            |
| McLean                                  | Genesis                           | M280616G005                            | <b>G280616G050</b>                             | <b>PLM28G28</b>                         | 28.50x17.00x1.50<br>724x432x38            |
| McLean                                  | Genesis                           | M280626G005                            | <b>G280626G050</b>                             | <b>PLM28G28</b>                         | 28.50x17.00x1.50<br>724x432x38            |
| McLean                                  | Genesis                           | M280646G400                            | <b>G280646G050</b>                             | <b>PLM28G28</b>                         | 28.50x17.00x1.50<br>724x432x38            |
| McLean                                  | Genesis                           | M330416G010                            | <b>N280416G050</b>                             | <b>PLM33N28</b>                         | 34.31x12.00x1.50<br>871x305x38            |
| McLean                                  | Genesis                           | M330426G009                            | <b>N280426G050</b>                             | <b>PLM33N28</b>                         | 34.31x12.00x1.50<br>871x305x38            |
| McLean                                  | Genesis                           | M330446G400                            | <b>N280446G050</b>                             | <b>PLM33N28</b>                         | 34.31x12.00x1.50<br>871x305x38            |
| McLean                                  | Genesis                           | M360616G307                            | <b>N360616G050</b>                             | <b>PLM36N36</b>                         | 38.75x15.00x1.50<br>984x381x38            |
| McLean                                  | Genesis                           | M360626G306                            | <b>N360626G050</b>                             | <b>PLM36N36</b>                         | 38.75x15.00x1.50<br>984x381x38            |
| McLean                                  | Genesis                           | M360646G400                            | <b>N360646G050</b>                             | <b>PLM36N36</b>                         | 38.75x15.00x1.50<br>984x381x38            |
| McLean                                  | Genesis                           | M520816032                             | <b>G520816G050</b>                             | <b>PLM52G52</b>                         | 52.56x17.03x1.50<br>1335x433x38           |
| McLean                                  | Genesis                           | M520826015                             | <b>G520826G050</b>                             | <b>PLM52G52</b>                         | 52.56x17.03x1.50<br>1335x433x38           |
| McLean                                  | Genesis                           | M520846G002                            | <b>G520846G050</b>                             | <b>PLM52G52</b>                         | 52.56x17.03x1.50<br>1335x433x38           |
| McLean                                  | Genesis                           | M521046G002                            | <b>G521246G050</b>                             | <b>PLM52G52</b>                         | 52.56x17.03x1.50<br>1335x433x38           |
| McLean                                  | Genesis                           | M521216017                             | <b>G521216G050</b>                             | <b>PLM52G52</b>                         | 52.56x17.03x1.50<br>1335x433x38           |
| McLean                                  | Genesis                           | M521226034                             | <b>G521226G050</b>                             | <b>PLM52G52</b>                         | 52.56x17.03x1.50<br>1335x433x38           |
| McLean                                  | T-Series                          | T290416G100                            | <b>G280416G050</b>                             | <b>PLT29G28</b>                         | 28.50x17.00x1.50<br>724x432x38            |
| McLean                                  | T-Series                          | T290416G150                            | <b>G280416G150</b>                             | <b>PLT29G28</b>                         | 28.50x17.00x1.50<br>724x432x38            |
| McLean                                  | T-Series                          | T290426G100                            | <b>G280426G050</b>                             | <b>PLT29G28</b>                         | 28.50x17.00x1.50<br>724x432x38            |
| McLean                                  | T-Series                          | T290426G150                            | <b>G280426G150</b>                             | <b>PLT29G28</b>                         | 28.50x17.00x1.50<br>724x432x38            |
| McLean                                  | T-Series                          | T290446G400                            | <b>G280446G050</b>                             | <b>PLT29G28</b>                         | 28.50x17.00x1.50<br>724x432x38            |
| McLean                                  | HC52                              | HC52 SERIES                            | <b>G57XXXXXXXX</b>                             | <b>PLHC52G57</b>                        | 57.60x22.97x1.50<br>1463x583x38           |
| McLean                                  | HC52                              | HC52 SERIES                            | <b>T53XXXXXXXX</b>                             | <b>PLHC52T53</b>                        | 52.85x23.00x1.50<br>1342x584x38           |

\*Prior to ordering, ensure Adaptor Plenum dimensions do not exceed available space on the enclosure mounting surface. Please contact Customer Service for support in finding an appropriate cross for older McLean models not shown above.

**For a list of EASY SWAP Adaptor Plenums to fit other manufacturers' air conditioners, please visit [www.mcleancoolingtech.com](http://www.mcleancoolingtech.com)**



**T-SERIES COMPACT OUTDOOR**


**T15**  
800 BTU/Hr.  
234 Watts



**T20**  
2000 BTU/Hr.  
586 Watts

**INDUSTRY STANDARDS**

UL/cUL Listed; Type 12, 3R, 4; 4X optional; File No. SA6453  
UR/cUR Recognized

UR/cUR Recognized on select models, reference performance data tables.

CE  
GOST  
Telcordia GR-487 capable

**APPLICATION**

- Industrial automation
- Telecommunications equipment
- Package handling equipment
- Security and defense systems
- And more

**FEATURES**

- Stock models equipped with head pressure control for low-ambient operation, compressor heater, coated condenser coil, malfunction switch, thermostat and heater package
- R134A earth-friendly refrigerant
- Models for 115, 230 and 460 VAC power input
- UL Listed to save customers time and money with agency approvals (some models UL recognized)
- Outdoor model operating temperature range from -40 F/-40 C to 131 F/55 C
- Exterior and fully recessed mounting options on many models
- Compact footprint to minimize real estate and maximize capacity
- Reliable mechanical thermostat on enclosure side of the unit
- Dual condenser-side air movers for performance redundancy
- Painted galvanized sheet-metal cover for rugged factory and outdoor environments
- Easy-mount flanges for simple installation

- Cleanable, reusable aluminum mesh filter protects coils for maximum cooling performance
- Mounting hardware, gaskets and user manual furnished with the unit
- Every unit functionally tested before shipping
- Standard Outdoor Air Conditioner models also include:
  - Telcordia GR-487 capable
  - Thermostat
  - Corrosion-resistant components
  - Malfunction switch
  - Compressor heater
  - Head pressure control
  - Enclosure heater

**FINISH**

- RAL 7035 light-gray, semi-textured powder-coat paint
- Other colors and textures available

**OPTIONS**

- Thermostat Malfunction Package
- Special Voltage Package
- Outdoor Package
- Harsh Environment Package\*
- Stainless Steel Package\*
- Heater Package
  - \* PROAIR A/C may be more appropriate. Refer to PROAIR A/C Chapter. Consult the Factory for availability and catalog number.

**NOTES**

Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.

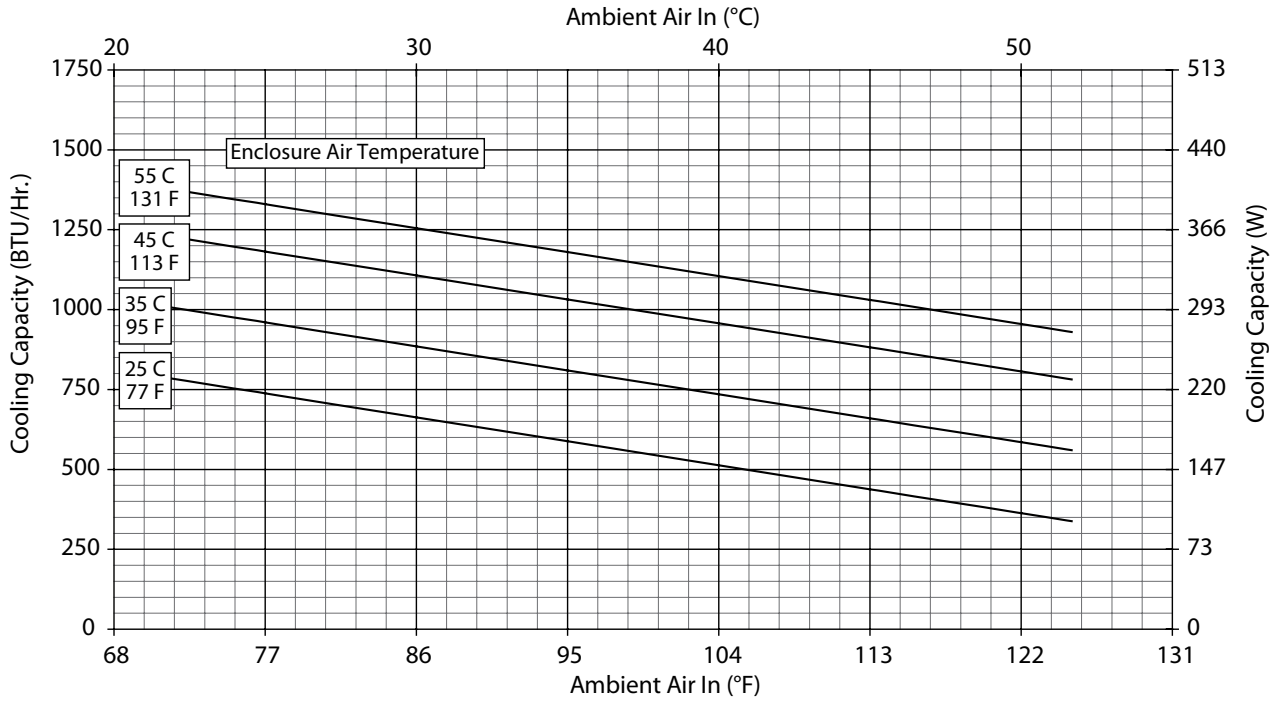
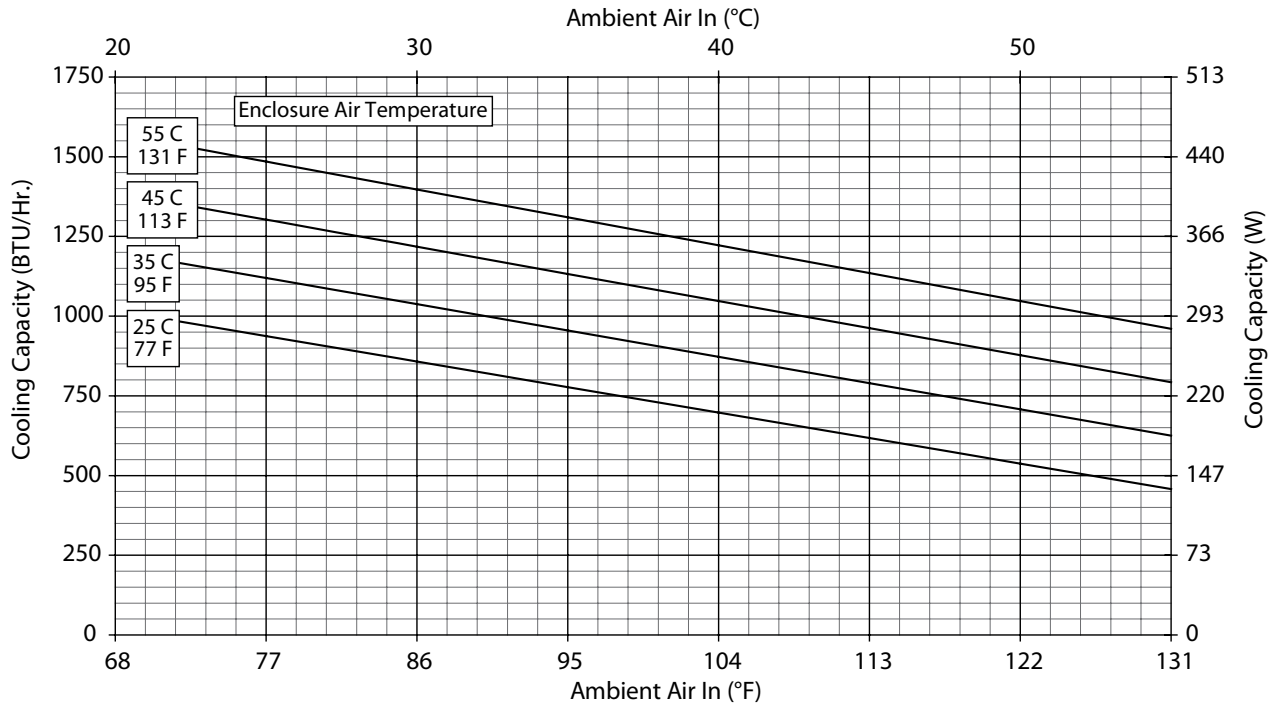


Performance Data **T15 800 BTU/Hr. (234 Watt) Models**

| <b>CATALOG NUMBER</b>                  |                                                               |                                |
|----------------------------------------|---------------------------------------------------------------|--------------------------------|
| Indoor Model                           | T150116G120                                                   | T150126G120                    |
| Outdoor Model without Heat Pkg.        | T150116G100                                                   | T150126G100                    |
| Outdoor Model with Heat Pkg.           | T150116G150                                                   | T150126G150                    |
| Outdoor Model/SST/Corrosion/4X         | T150116G152                                                   | T150126G104                    |
| Outdoor Model/SST/Corrosion/4X/Heater  | T150116G151                                                   | —                              |
| <b>COOLING PERFORMANCE</b>             |                                                               |                                |
| <b>Nominal:</b>                        |                                                               |                                |
| <b>BTU/Hr.</b>                         | <b>800/800</b>                                                | <b>800/900</b>                 |
| <b>Watts</b>                           | <b>235/235</b>                                                | <b>235/264</b>                 |
| At 131 F/131 F [55 C/55 C]:            |                                                               |                                |
| BTU/Hr. (50/60 Hz)                     | 819                                                           | 920/960                        |
| W (50/60 Hz)                           | 240                                                           | 270/281                        |
| At 95 F/95 F [35 C/35 C]:              |                                                               |                                |
| BTU/Hr. (50 /60 Hz)                    | 948                                                           | 810/955                        |
| W (50/60 Hz)                           | 278                                                           | 237/280                        |
| Refrigerant                            | R-134A                                                        | R-134A                         |
| Refrigerant Charge (ounces/grams)      | 4/113                                                         | 3.8/107                        |
| Operating Temperature Range:           |                                                               |                                |
| Maximum (°F/°C)                        | 131/55                                                        | 125/131/52/55                  |
| Minimum (°F/°C)                        | -40/-40                                                       | -40/-40                        |
| Airflow at 0 Static Pressure:          |                                                               |                                |
| Internal loop 50 Hz (CFM / m³/hr.)     | 25/42                                                         | 25/42                          |
| External loop 50 Hz (CFM / m³/hr.)     | 48/82                                                         | 48/82                          |
| Internal loop 60 Hz (CFM / m³/hr.)     | 30/51                                                         | 30/51                          |
| External loop 60 Hz (CFM / m³/hr.)     | 53/90                                                         | 53/90                          |
| Max. Heater W (Outdoor Models)         | 150                                                           | 150                            |
| <b>ELECTRICAL DATA</b>                 |                                                               |                                |
| <b>Rated Voltage</b>                   | <b>100/115</b>                                                | <b>220/230</b>                 |
| Frequency (Hz)                         | 50/60                                                         | 50/60                          |
| Operating Range                        | +/- 10%                                                       | +/- 10%                        |
| Max. Power Consumption (W at 50/60 Hz) | 360/403                                                       | 330/345                        |
| Max. Nominal Current (A at 50/60 Hz)   | 3.6/3.5                                                       | 1.5/1.5                        |
| Starting Current (A)                   | 8.0/9.2                                                       | 3.3/3.1                        |
| Agency Approvals                       | cUL Listed<br>CE<br>GOST<br>Others available upon request     |                                |
| Power Input Description                | 6-ft. cord with NEMA 5-15 plug                                | 6-ft. cord with NEMA 6-15 plug |
| <b>ENCLOSURE PROTECTION</b>            |                                                               |                                |
| UL Type                                | Type 12, 3R, 4 standard<br>Type 4X Stainless steel optional   |                                |
| <b>CONTROLLER</b>                      |                                                               |                                |
| Description                            | Basic mechanical thermostat                                   |                                |
| Thermostat Location                    | Enclosure behind front panel                                  |                                |
| Factory Thermostat Setting (°F/°C)     | 80/27                                                         |                                |
| <b>SOUND LEVEL</b>                     |                                                               |                                |
| At 1.5 Meters                          | 63 dB(A)                                                      |                                |
| <b>UNIT CONSTRUCTION</b>               |                                                               |                                |
| Material                               | Galvanized sheet metal standard<br>Stainless steel optional   |                                |
| Finish                                 | RAL 7035 light-gray, semi-textured powder-coat paint standard |                                |
| <b>UNIT DIMENSIONS</b>                 |                                                               |                                |
| Height (in./mm)                        | 15.75/400                                                     |                                |
| Width (in./mm)                         | 7.5/191                                                       |                                |
| Depth (in./mm)                         | 6.3/160                                                       |                                |
| Weight (lb./kg)                        | 27/12                                                         |                                |

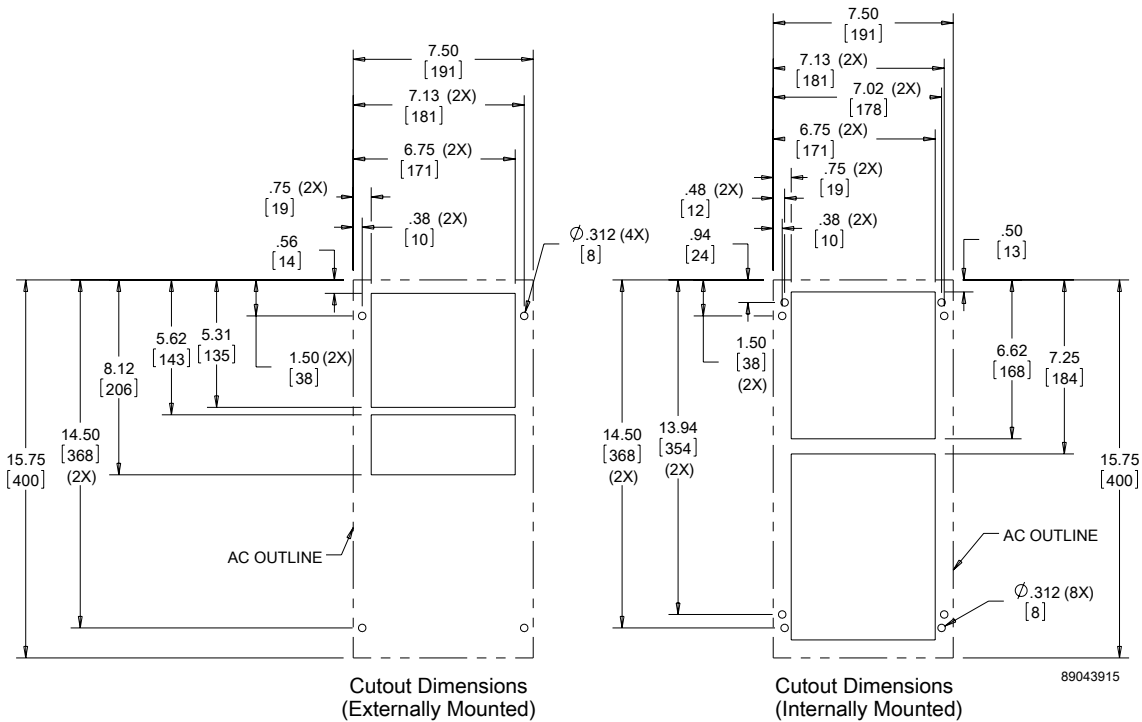
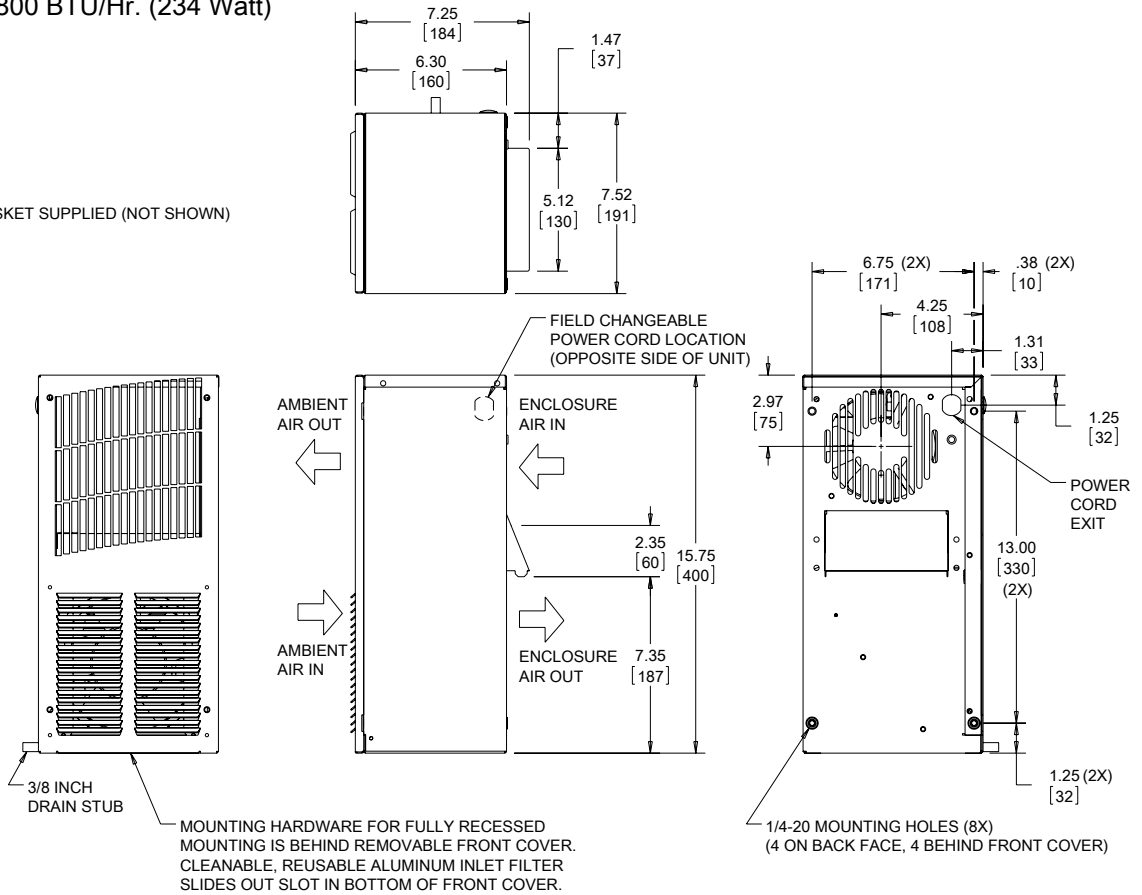


## Performance Curves for T15 Models 800 BTU/Hr. (234 Watt)

**T15-01x6-Gxxx Capacity Curves 50 Hz**

**T15-01x6-Gxxx Capacity Curves 60 Hz**


T15 Models 800 BTU/Hr. (234 Watt)

NOTE:  
 1. MOUNTING GASKET SUPPLIED (NOT SHOWN)  
 2. UNITS: in. [mm]



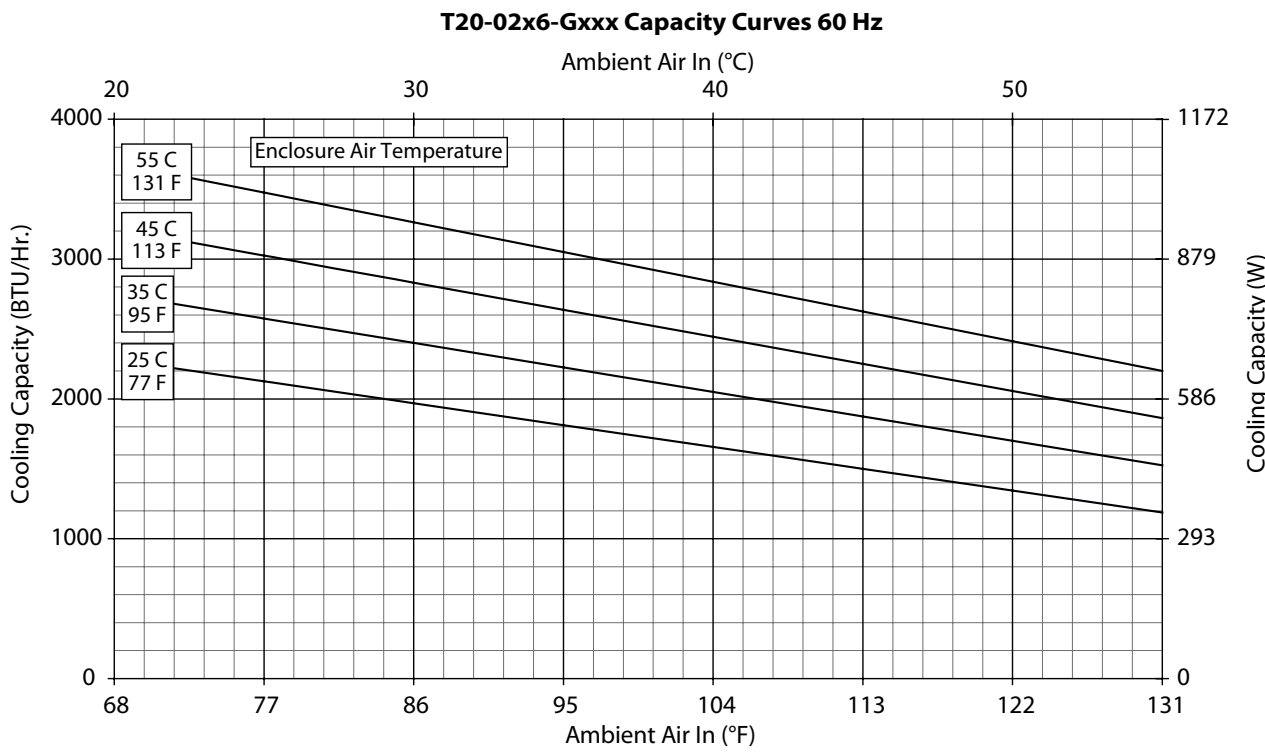
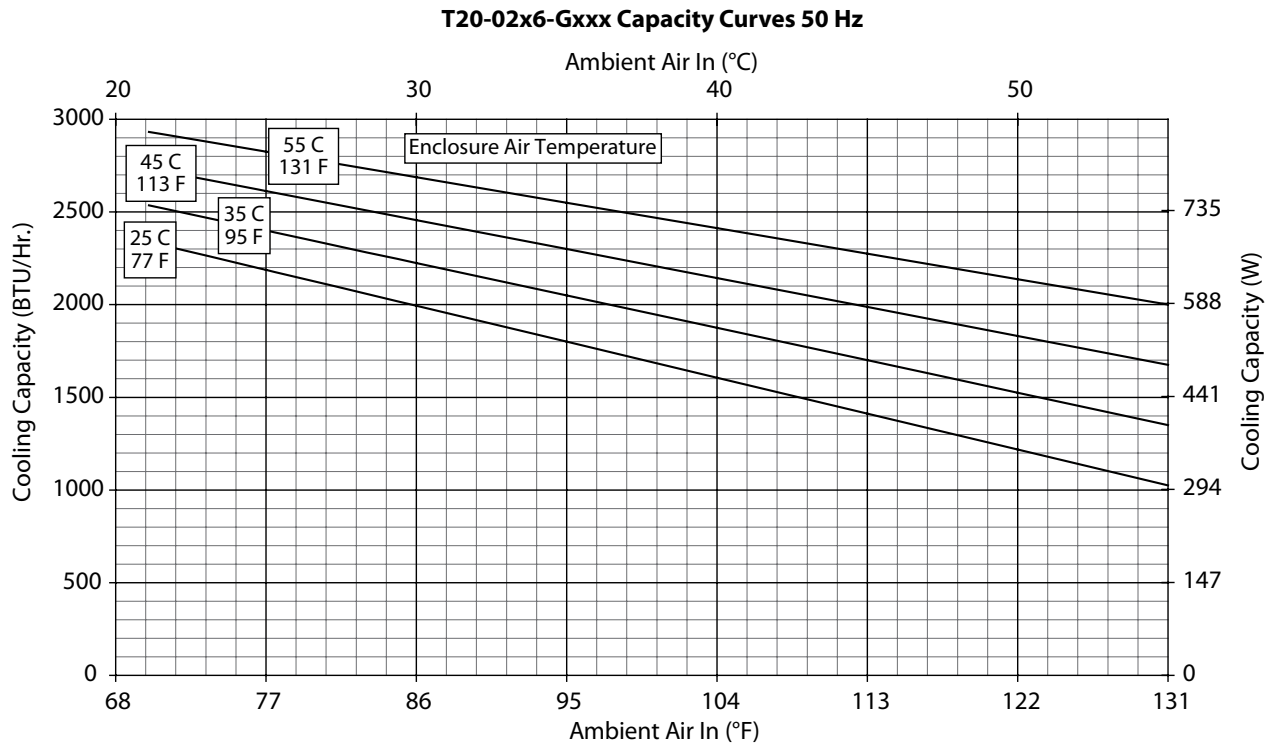
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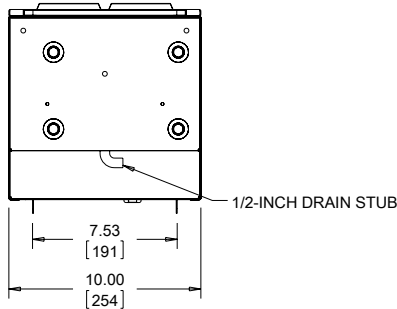
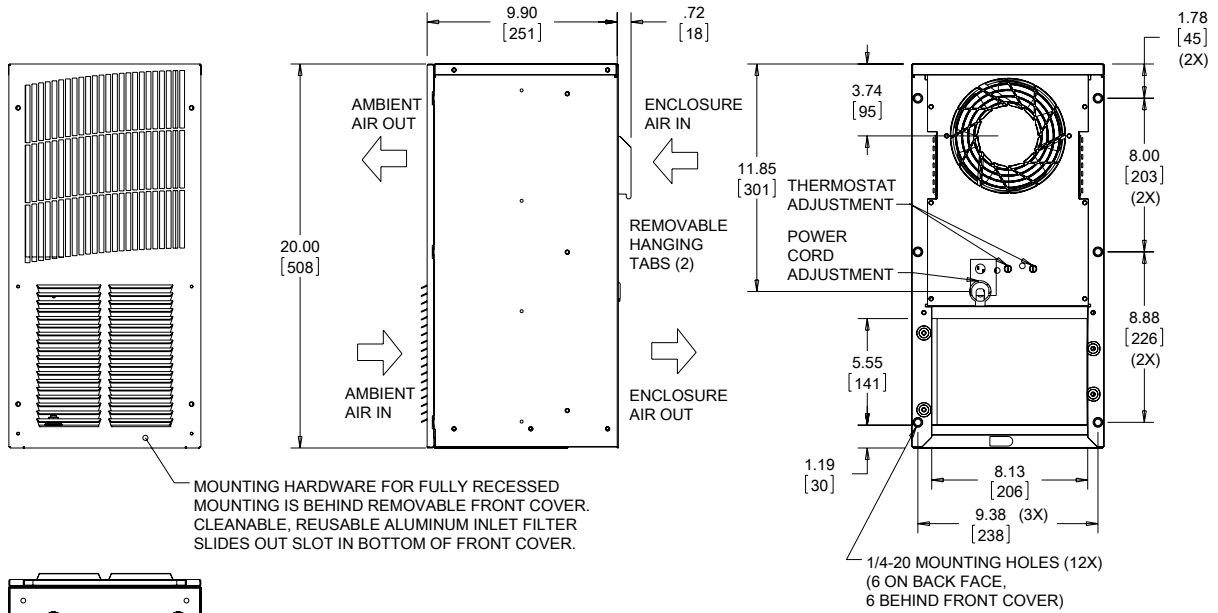
**Performance Data T20 2000 BTU/Hr. (586 Watt) Models**

| <b>CATALOG NUMBER</b>                           |                                                               |                                |                              |
|-------------------------------------------------|---------------------------------------------------------------|--------------------------------|------------------------------|
| Outdoor Model without Heat Pkg.                 | T200216G100                                                   | T200226G100                    | T200246G400                  |
| Outdoor Model with Heat Pkg.                    | T200216G150                                                   | T200226G150                    | —                            |
| Outdoor Model/SST/Corrosion/4X                  | T200216G155                                                   | T200226G103                    | T200246G401                  |
| Outdoor Model/SST/Corrosion/4X/Heater           | T200216G157                                                   | T200226G158                    | —                            |
| <b>COOLING PERFORMANCE</b>                      |                                                               |                                |                              |
| <b>Nominal:</b>                                 |                                                               |                                |                              |
| <b>BTU/Hr.</b>                                  | <b>1800/2000</b>                                              | <b>1800/2000</b>               | <b>1800/2000</b>             |
| <b>Watts</b>                                    | <b>528/586</b>                                                | <b>528/586</b>                 | <b>528/586</b>               |
| At 131 F/131 F (55 C/55 C):                     |                                                               |                                |                              |
| BTU/Hr. (50/60 Hz)                              | 2000/2175                                                     | 2000/2175                      | 2000/2175                    |
| W (50/60 Hz)                                    | 586/637                                                       | 586/637                        | 586/637                      |
| At 95 F/95 F (35 C/35 C):                       |                                                               |                                |                              |
| BTU/Hr. (50/60 Hz)                              | 1950/2200                                                     | 1950/2200                      | 1950/2200                    |
| W (50/60 Hz)                                    | 571/645                                                       | 571/645                        | 571/645                      |
| Refrigerant                                     | R-134A                                                        | R-134A                         | R-134A                       |
| Refrigerant Charge (ounces/grams)               | 6.7/190                                                       | 6.7/190                        | 6.7/190                      |
| Operating Temperature Range:                    |                                                               |                                |                              |
| Maximum (°F/°C)                                 | 131/55                                                        | 131/55                         | 131/55                       |
| Minimum (°F/°C)                                 | -40/-40                                                       | -40/-40                        | -40/-40                      |
| Airflow at 0 Static Pressure:                   |                                                               |                                |                              |
| Internal loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 77/131                                                        | 77/131                         | 77/131                       |
| External loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 150/255                                                       | 150/255                        | 150/255                      |
| Internal loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 91/155                                                        | 91/155                         | 91/155                       |
| External loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 165/280                                                       | 165/280                        | 165/280                      |
| Max. Heater W (Outdoor Models)                  | 500                                                           | 500                            | 500                          |
| <b>ELECTRICAL DATA</b>                          |                                                               |                                |                              |
| <b>Rated Voltage</b>                            | <b>115</b>                                                    | <b>230</b>                     | <b>460V 1PH</b>              |
| Frequency (Hz)                                  | 50/60                                                         | 50/60                          | 50/60                        |
| Operating Range                                 | +/- 10%                                                       | +/- 10%                        | +/- 10%                      |
| Max. Power Consumption (W at 50/60 Hz)          | 700/805                                                       | 805                            | 874                          |
| Max. Nominal Current (A at 50/60 Hz)            | 7.0/7.0                                                       | 3.5/3.5                        | 1.9                          |
| Starting Current (A)                            | 28                                                            | 14.4                           | 7.2                          |
| Agency Approvals                                | cUL Listed<br>CE<br>GOST                                      |                                | cUR Recognized<br>CE<br>GOST |
| Others available upon request                   |                                                               |                                |                              |
| Power Input Description                         | 6-ft. cord with NEMA 5-15 plug                                | 6-ft. cord with NEMA 6-15 plug | 6-ft. cord with wire leads   |
| <b>ENCLOSURE PROTECTION</b>                     |                                                               |                                |                              |
| UL Type                                         | Type 12, 3R, 4 standard<br>Type 4X Stainless steel optional   |                                |                              |
| <b>CONTROLLER</b>                               |                                                               |                                |                              |
| Description                                     | Basic mechanical thermostat                                   |                                |                              |
| Thermostat Location                             | Enclosure side on all base models                             |                                |                              |
| Factory Thermostat Setting (°F/°C)              | 80/27                                                         |                                |                              |
| <b>SOUND LEVEL</b>                              |                                                               |                                |                              |
| At 1.5 Meters                                   | 66 dB(A)                                                      |                                |                              |
| <b>UNIT CONSTRUCTION</b>                        |                                                               |                                |                              |
| Material                                        | Galvanized sheet metal standard<br>Stainless steel optional   |                                |                              |
| Finish                                          | RAL 7035 light-gray, semi-textured powder-coat paint standard |                                |                              |
| <b>UNIT DIMENSIONS</b>                          |                                                               |                                |                              |
| Height (in./mm)                                 | 20/508                                                        | 20/508                         | 24.25/615.95                 |
| Width (in./mm)                                  | 10/254                                                        | 10/254                         | 10/254                       |
| Depth (in./mm)                                  | 9.9/251                                                       | 9.9/251                        | 9.9/251                      |
| Weight (lb./kg)                                 | 56/25                                                         | 56/25                          | 66/30                        |

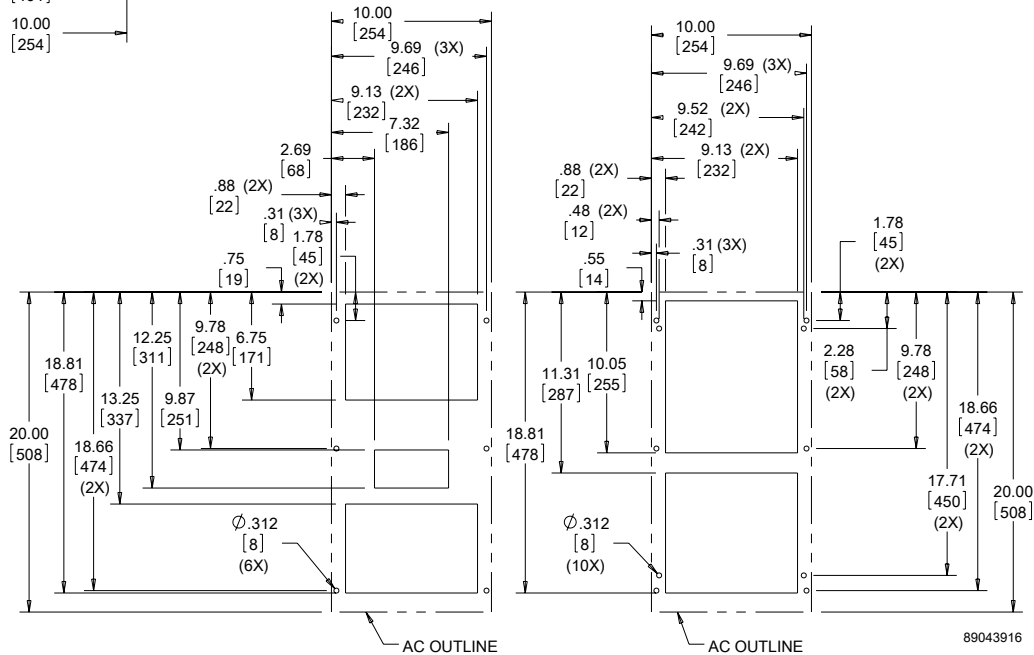
Performance Curves for T20 Models 2000 BTU/Hr. (586 Watt)



## T20 Models 2000 BTU/Hr. (586 Watt)



NOTE:  
 1. MOUNTING GASKET SUPPLIED (NOT SHOWN)  
 2. UNITS: in. [mm]



Cutout Dimensions (Externally Mounted)

Cutout Dimensions (Internally Mounted)

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**Notes**



**T-SERIES MID-SIZE OUTDOOR**


**T29**  
4000 BTU/Hr.  
1173 Watts



**T43**  
6000, 8000, 10000 BTU/Hr.  
1758, 2344, 2930 Watts



**T50**  
12000 BTU/Hr.  
3516 Watts



**T53**  
19000 BTU/Hr.  
5567 Watts

**INDUSTRY STANDARDS**

UL/cUL Listed; Type 12, 3R, 4; 4X optional; File No. SA6453  
UR/cUR Recognized

UR/cUR Recognized on select models, reference performance data tables.

CE  
GOST  
Telcordia GR-487 capable

**APPLICATION**

- Industrial automation
- Telecommunications equipment
- Package handling equipment
- Security and defense systems
- And more

**FEATURES**

- Stock models equipped with head pressure control for low-ambient operation, compressor heater, coated condenser coil, malfunction switch, thermostat and heater package
- R134A or R-407C earth-friendly refrigerant
- Models for 115, 230 and 460 VAC power input
- UL Listed to save customers time and money with agency approvals (some models UL recognized)
- Outdoor model operating temperature range from -40 F/-40 C to 131 F/55 C
- Exterior and fully recessed mounting options on many models
- Compact footprint to minimize real estate and maximize capacity
- Reliable mechanical thermostat on enclosure side of the unit
- Dual condenser-side air movers for performance redundancy
- Painted galvanized sheet-metal cover for rugged factory and outdoor environments
- Easy-mount flanges for simple installation

- Cleanable, reusable aluminum mesh filter protects coils for maximum cooling performance
- Mounting hardware, gaskets and user manual furnished with the unit
- Every unit functionally tested before shipping
- Standard Outdoor Air Conditioner models also include:
  - Telcordia GR-487 capable
  - Thermostat
  - Corrosion-resistant components
  - Malfunction switch
  - Compressor heater
  - Head pressure control
  - Enclosure heater

**FINISH**

- RAL 7035 light-gray, semi-textured powder-coat paint
- Other colors and textures available

**ACCESSORIES**

Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.

**OPTIONS**

- Thermostat Malfunction Package
- Special Voltage Package
- Outdoor Package
- Harsh Environment Package\*
- Stainless Steel Package\*
- Heater Package
  - \* PROAIR Harsh Environment air conditioner may be more appropriate. Refer to PROAIR Harsh Environment air conditioner catalog section. Consult the Factory for availability and catalog number.

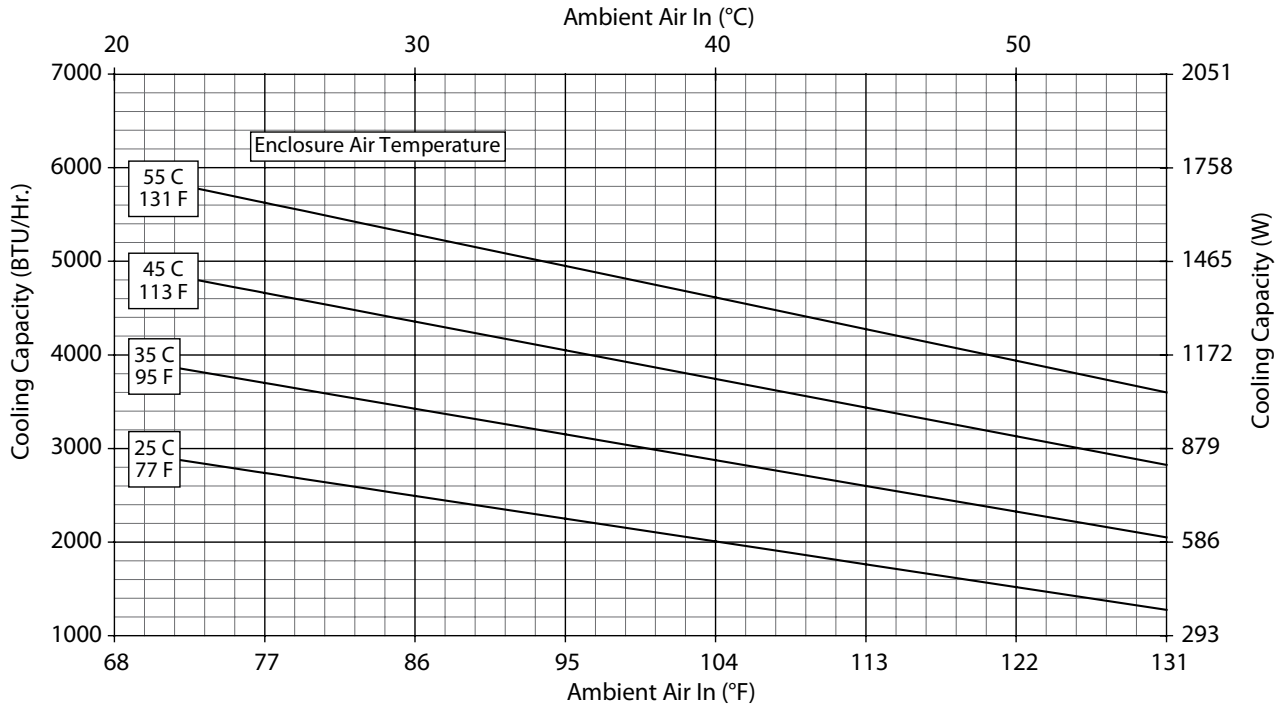
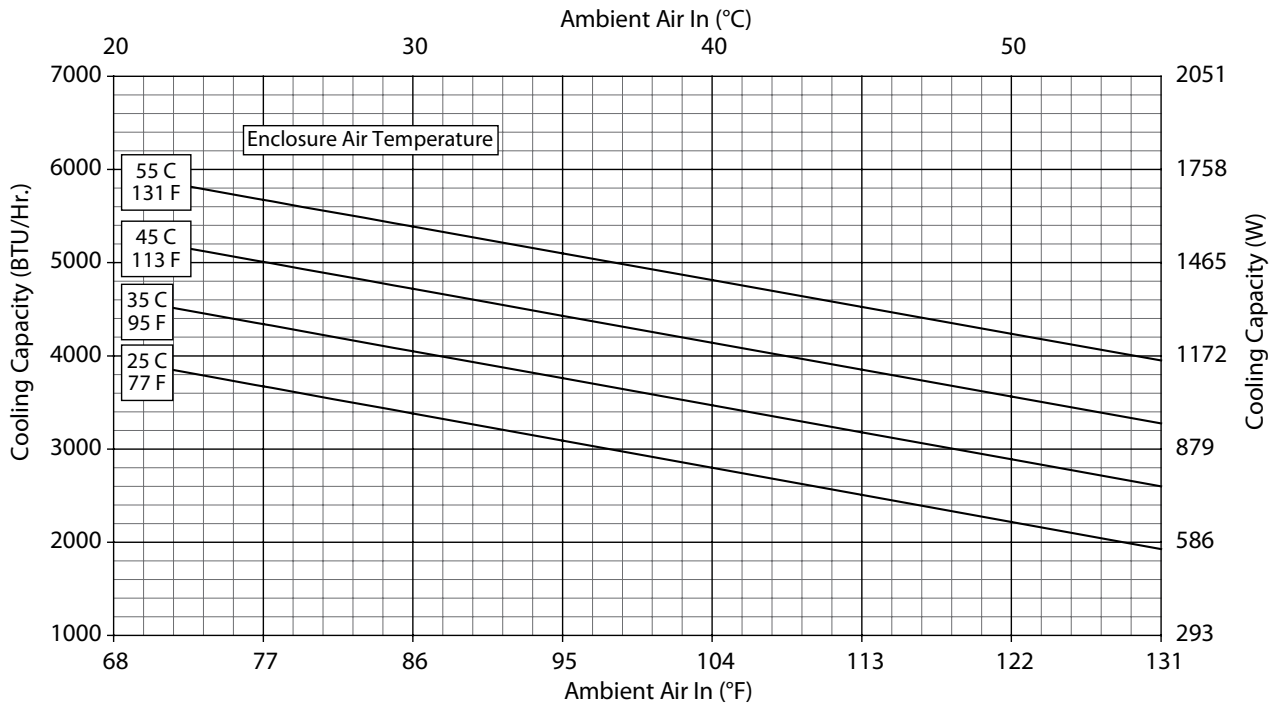


Performance Data **T29 4000 BTU/Hr. (1173 Watt) Models**

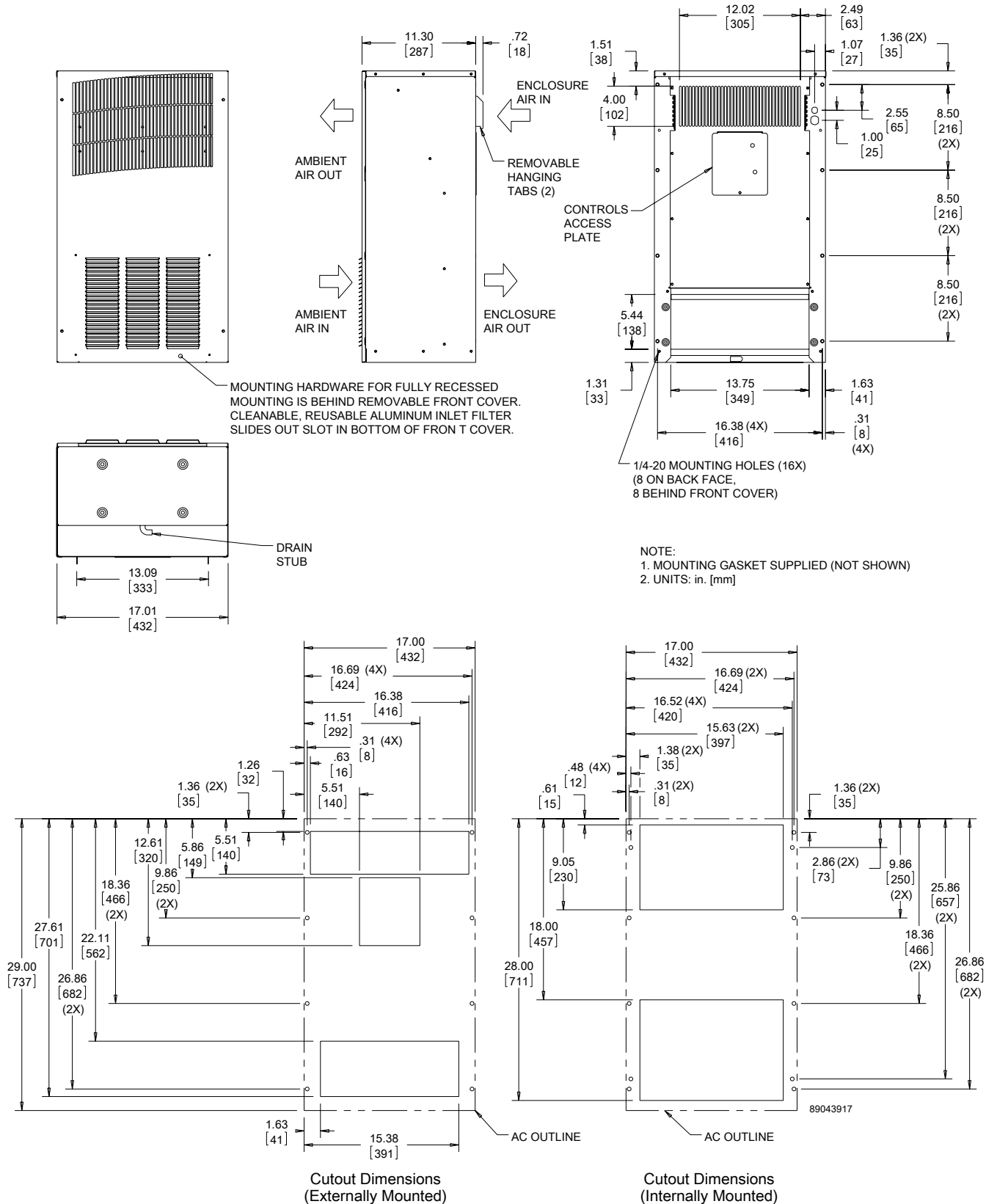
| <b>CATALOG NUMBER</b>                  |                                                               |                                |                              |
|----------------------------------------|---------------------------------------------------------------|--------------------------------|------------------------------|
| Outdoor Model without Heat Pkg.        | T290416G100                                                   | T290426G100                    | T290446G400                  |
| Outdoor Model with Heat Pkg.           | T290416G150                                                   | T290426G150                    | —                            |
| Outdoor Model/SST/Corrosion/4X         | T290416G159                                                   | T290426G161                    | —                            |
| Outdoor Model/SST/Corrosion/4X/Heater  | T290416G156                                                   | T290426G160                    | T290446G403                  |
| <b>COOLING PERFORMANCE</b>             |                                                               |                                |                              |
| <b>Nominal:</b>                        |                                                               |                                |                              |
| <b>BTU/Hr.</b>                         | <b>3600/4000</b>                                              | <b>3600/4000</b>               | <b>3600/4000</b>             |
| <b>Watts</b>                           | <b>1055/1172</b>                                              | <b>1055/1172</b>               | <b>1055/1172</b>             |
| At 131 F/131 F (55 C/55 C):            |                                                               |                                |                              |
| BTU/Hr. (50/60 Hz)                     | 3950/4250                                                     | 3950/4250                      | 3950/4250                    |
| W (50/60 Hz)                           | 1157/1245                                                     | 1157/1245                      | 1157/1245                    |
| At 95 F/95 F (35 C/35 C):              |                                                               |                                |                              |
| BTU/Hr. (50/60 Hz)                     | 3500/3900                                                     | 3500/3900                      | 3500/3900                    |
| W (50/60 Hz)                           | 1025/1143                                                     | 1025/1143                      | 1025/1143                    |
| Refrigerant                            | R-134A                                                        | R-134A                         | R-134A                       |
| Refrigerant Charge (ounces/grams)      | 14.3/404                                                      | 14.3/404                       | 14.3/404                     |
| Operating Temperature Range:           |                                                               |                                |                              |
| Maximum (°F/°C)                        | 131/55                                                        | 131/55                         | 131/55                       |
| Minimum (°F/°C)                        | -40/-40                                                       | -40/-40                        | -40/-40                      |
| Airflow at 0 Static Pressure:          |                                                               |                                |                              |
| Internal loop 50 Hz (CFM / m³/hr.)     | 172/292                                                       | 172/292                        | 172/292                      |
| External loop 50 Hz (CFM / m³/hr.)     | 195/331                                                       | 195/331                        | 195/331                      |
| Internal loop 60 Hz (CFM / m³/hr.)     | 205/348                                                       | 205/348                        | 205/348                      |
| External loop 60 Hz (CFM / m³/hr.)     | 235/399                                                       | 235/399                        | 235/399                      |
| Max. Heater W (Outdoor Models)         | 1000                                                          | 1000                           |                              |
| <b>ELECTRICAL DATA</b>                 |                                                               |                                |                              |
| <b>Rated Voltage</b>                   | <b>115</b>                                                    | <b>230</b>                     | <b>460V 1PH</b>              |
| Frequency (Hz)                         | 50/60                                                         | 50/60                          | 50/60                        |
| Operating Range                        | +/- 10%                                                       | +/- 10%                        | +/- 10%                      |
| Max. Power Consumption (W at 50/60 Hz) | 1587/1564                                                     | 1587/1564                      | 1748                         |
| Max. Nominal Current (A at 50/60 Hz)   | 13.8/13.6                                                     | 6.9/6.8                        | 3.8                          |
| Starting Current (I)                   | 48                                                            | 23                             | 12                           |
| Agency Approvals                       |                                                               | cUL Listed<br>CE<br>GOST       | cUR Recognized<br>CE<br>GOST |
| Others available upon request          |                                                               |                                |                              |
| Power Input Description                | 6-ft. cord with NEMA 5-20 plug                                | 6-ft. cord with NEMA 6-15 plug | 6-ft. cord with wire leads   |
| <b>ENCLOSURE PROTECTION</b>            |                                                               |                                |                              |
| UL Type                                | Type 12, 3R, 4 standard<br>Type 4X Stainless steel optional   |                                |                              |
| <b>CONTROLLER</b>                      |                                                               |                                |                              |
| Description                            | Basic mechanical thermostat                                   |                                |                              |
| Thermostat Location                    | Enclosure side on all base models                             |                                |                              |
| Factory Thermostat Setting (°F/°C)     | 80/27                                                         |                                |                              |
| <b>SOUND LEVEL</b>                     |                                                               |                                |                              |
| At 1.5 Meters                          | 67 dB(A)                                                      |                                |                              |
| <b>UNIT CONSTRUCTION</b>               |                                                               |                                |                              |
| Material                               | Galvanized sheet metal standard<br>Stainless steel optional   |                                |                              |
| Finish                                 | RAL 7035 light-gray, semi-textured powder-coat paint standard |                                |                              |
| <b>UNIT DIMENSIONS</b>                 |                                                               |                                |                              |
| Height (in./mm)                        | 29/737                                                        |                                | 29/737                       |
| Width (in./mm)                         | 17/432                                                        |                                | 17/432                       |
| Depth (in./mm)                         | 11.3/287                                                      |                                | 11.3/287                     |
| Weight (lb./kg)                        | 107/48.6                                                      |                                | 127/58                       |



## Performance Curves for T29 Models 4000 BTU/Hr. (1173 Watt)

**T29-04x6-Gxxx Capacity Curves 50 Hz**

**T29-04x6-Gxx Capacity Curves 60 Hz**


T29 Models 4000 BTU/Hr. (1173 Watt)

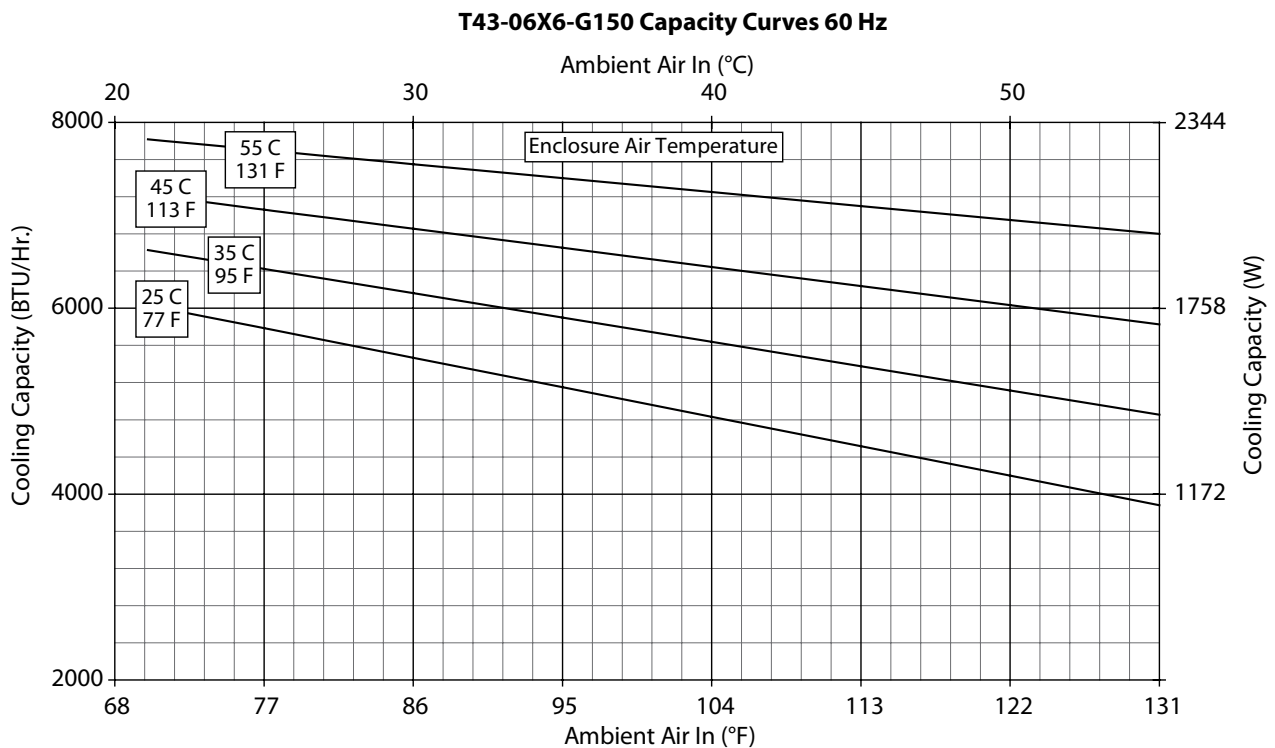
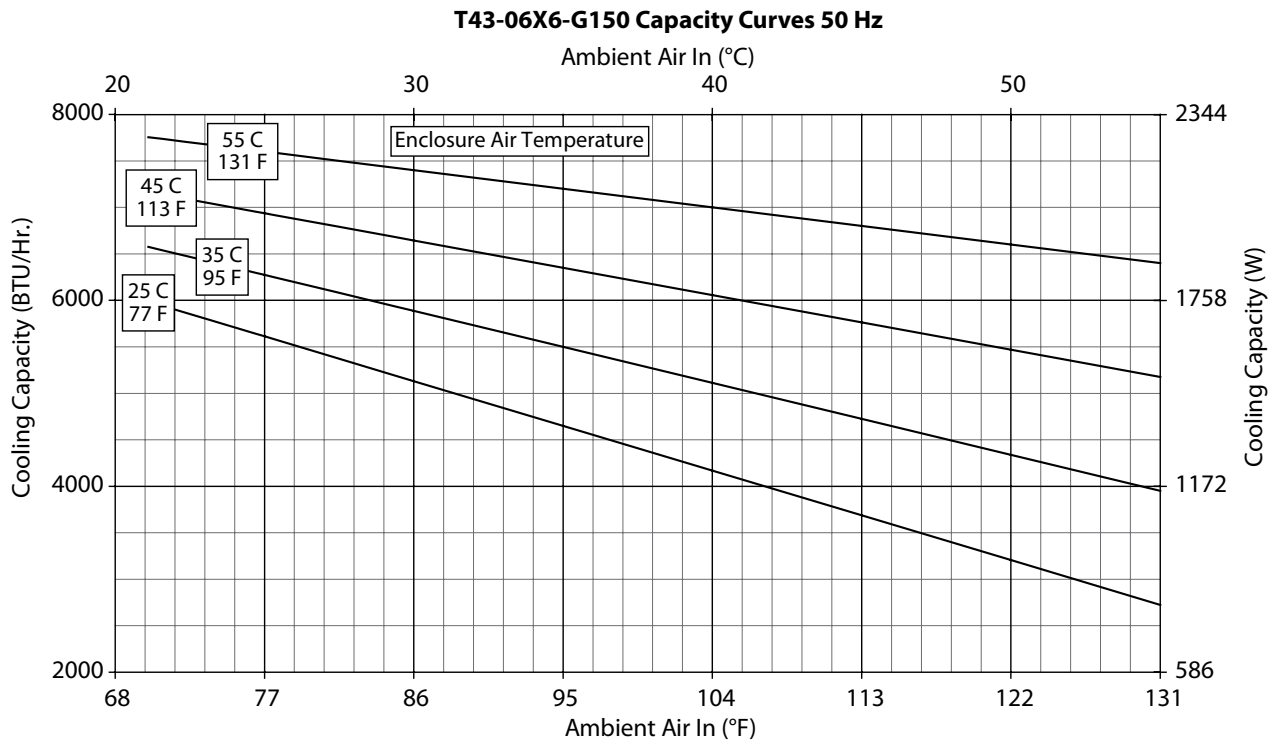


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Performance Data **T43 6000 BTU/Hr. (1758 Watt) Models**

| <b>CATALOG NUMBER</b>                           |                                                               |                                |                              |
|-------------------------------------------------|---------------------------------------------------------------|--------------------------------|------------------------------|
| Outdoor Model without Heat Pkg.                 | T430616G100                                                   | T430626G100                    | T430646G400                  |
| Outdoor Model with Heat Pkg.                    | T430616G150                                                   | T430626G150                    | T430646G153                  |
| Outdoor Model/SST/Corrosion/4X                  | T430616G102                                                   | T430626G159                    | —                            |
| Outdoor Model/SST/Corrosion/4X/Heater           | —                                                             | —                              | —                            |
| <b>COOLING PERFORMANCE</b>                      |                                                               |                                |                              |
| <b>Nominal:</b>                                 |                                                               |                                |                              |
| <b>BTU/Hr.</b>                                  | <b>6310/6680</b>                                              | <b>6520/6770</b>               | <b>6520/6770</b>             |
| <b>Watts</b>                                    | <b>1848/1958</b>                                              | <b>1910/1985</b>               | <b>1910/1985</b>             |
| At 131 F/131 F (55 C/55 C):                     |                                                               |                                |                              |
| BTU/Hr. (50/60 Hz)                              | 6400/6680                                                     | 6520/6774                      | 6520/6774                    |
| W (50/60 Hz)                                    | 1875/1957                                                     | 1910/1985                      | 1910/1985                    |
| At 95 F/95 F (35 C/35 C):                       |                                                               |                                |                              |
| BTU/Hr. (50/60 Hz)                              | 5500/5900                                                     | 5461/5846                      | 5461/5846                    |
| W (50/60 Hz)                                    | 1611/1729                                                     | 1600/1713                      | 1600/1713                    |
| Refrigerant                                     | R-134A                                                        | R-134A                         | R-134A                       |
| Refrigerant Charge (ounces/grams)               | 30/850                                                        | 30/850                         | 30/850                       |
| Operating Temperature Range:                    |                                                               |                                |                              |
| Maximum (°F/°C)                                 | 131/55                                                        | 131/55                         | 131/55                       |
| Minimum (°F/°C)                                 | -40/-40                                                       | -40/-40                        | -40/-40                      |
| Airflow at 0 Static Pressure:                   |                                                               |                                |                              |
| Internal loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 310/527                                                       | 310/527                        | 310/527                      |
| External loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 345/586                                                       | 345/586                        | 345/586                      |
| Internal loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 320/544                                                       | 320/544                        | 320/544                      |
| External loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 355/603                                                       | 355/603                        | 355/603                      |
| Max. Heater W (Outdoor Models)                  | 1000                                                          | 1000                           | N/A                          |
| <b>ELECTRICAL DATA</b>                          |                                                               |                                |                              |
| <b>Rated Voltage</b>                            | <b>115</b>                                                    | <b>230</b>                     | <b>460V 1PH</b>              |
| Frequency (Hz)                                  | 50/60                                                         | 50/60                          | 50/60                        |
| Operating Range                                 | +/- 10%                                                       | +/- 10%                        | +/- 10%                      |
| Max. Power Consumption (W at 50/60 Hz)          | 1058/989                                                      | 1012/874                       | 1104/966                     |
| Max. Nominal Current (A at 50/60 Hz)            | 9.2/8.6                                                       | 4.4/3.8                        | 2.4/2.1                      |
| Starting Current (A)                            | 57.2                                                          | 27                             | 14                           |
| Agency Approvals                                | cUL Listed<br>CE<br>GOST                                      |                                | cUR Recognized<br>CE<br>GOST |
| Others available upon request                   |                                                               |                                |                              |
| Power Input Description                         | 6-ft. cord with NEMA 5-20 plug                                | 6-ft. cord with NEMA 6-15 plug | 6-ft. cord with wire leads   |
| <b>ENCLOSURE PROTECTION</b>                     |                                                               |                                |                              |
| UL Type                                         | Type 12, 3R, 4 standard<br>Type 4X Stainless steel optional   |                                |                              |
| International Rating                            | IP56 on the internal loop; IP34 on the external loop          |                                |                              |
| <b>CONTROLLER</b>                               |                                                               |                                |                              |
| Description                                     | Basic mechanical thermostat                                   |                                |                              |
| Thermostat Location                             | Enclosure side on all base models                             |                                |                              |
| Factory Thermostat Setting (°F/°C)              | 80/27                                                         |                                |                              |
| <b>SOUND LEVEL</b>                              |                                                               |                                |                              |
| At 1.5 Meters                                   | 65.7 dB(A)                                                    |                                |                              |
| <b>UNIT CONSTRUCTION</b>                        |                                                               |                                |                              |
| Material                                        | Galvanized sheet metal standard<br>Stainless steel optional   |                                |                              |
| Finish                                          | RAL 7035 light-gray, semi-textured powder-coat paint standard |                                |                              |
| <b>UNIT DIMENSIONS</b>                          |                                                               |                                |                              |
| Height (in./mm)                                 | 43/1092                                                       |                                |                              |
| Width (in./mm)                                  | 15.75/400                                                     |                                |                              |
| Depth (in./mm)                                  | 10.9/279                                                      |                                |                              |
| Weight (lb./kg)                                 | 125/57                                                        |                                |                              |

Performance Curves for T43 Models 6000 BTU/Hr. (1758 Watt)



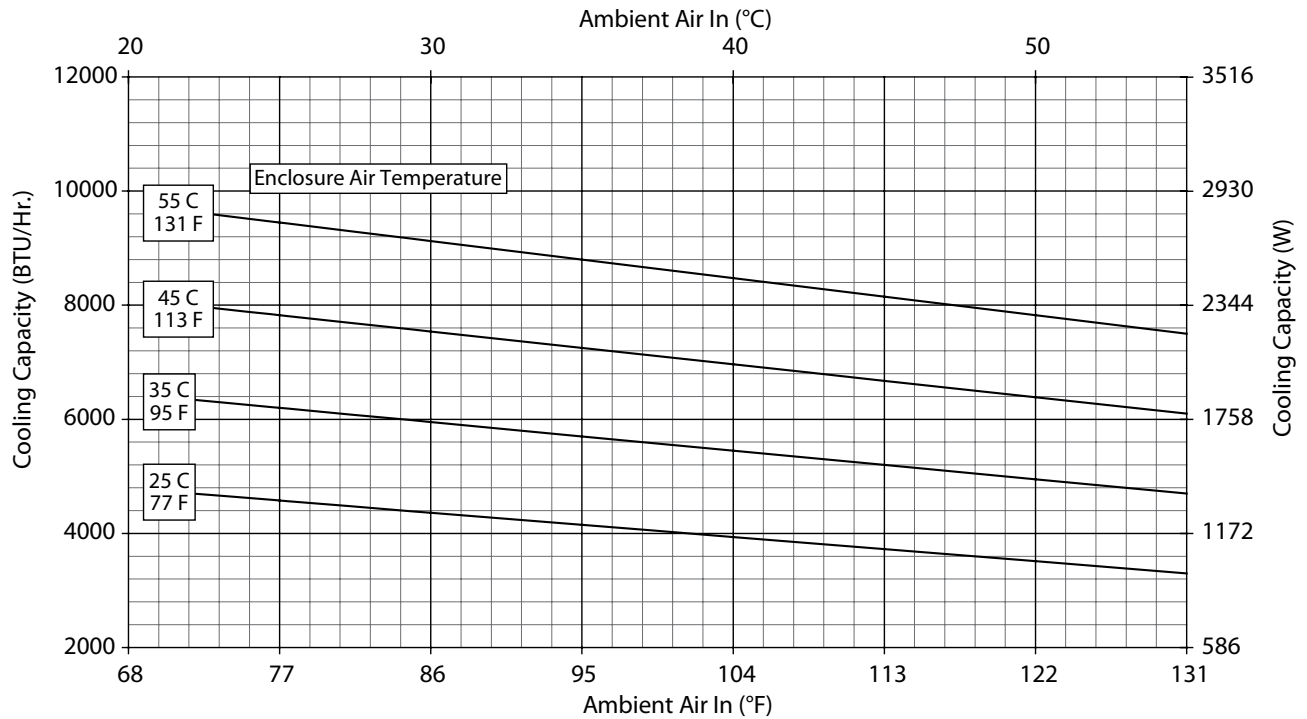
3

Performance Data **T43 8000 BTU/Hr. (2344 Watt) Models**

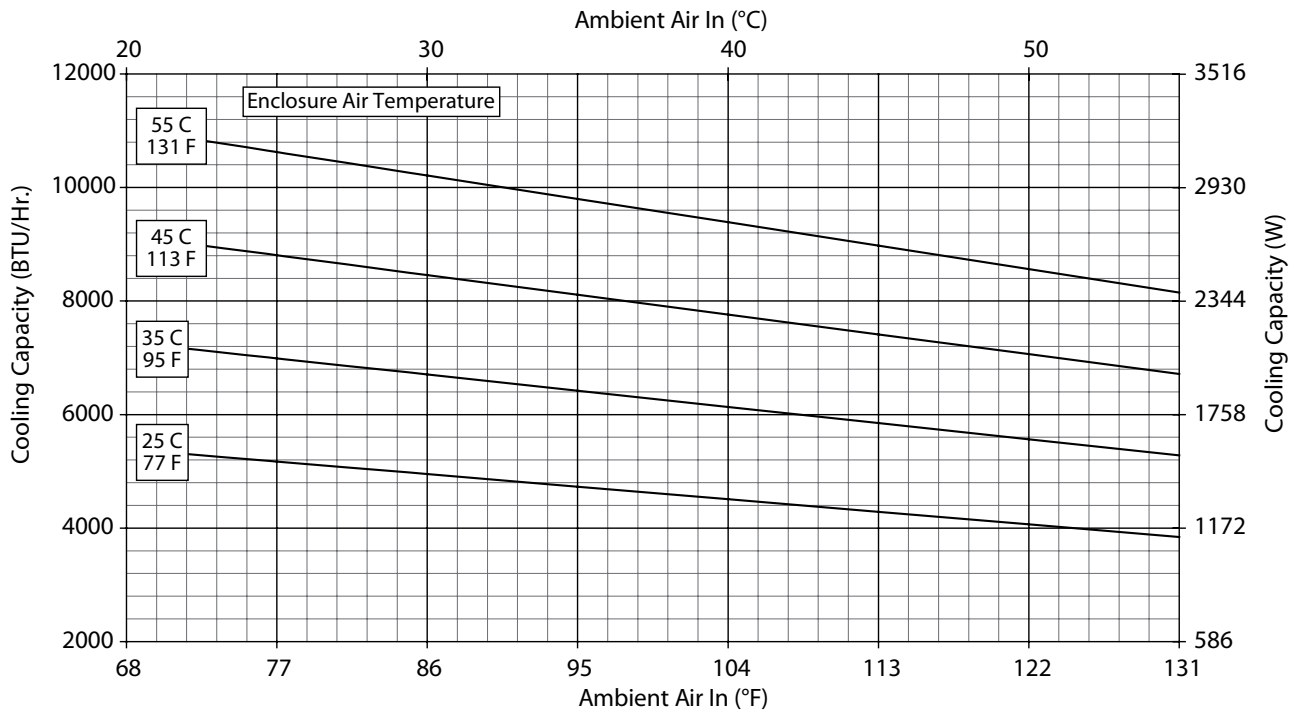
| <b>CATALOG NUMBER</b>                           |                                                               |                                |                              |
|-------------------------------------------------|---------------------------------------------------------------|--------------------------------|------------------------------|
| Outdoor Model without Heat Pkg.                 | T430816G100                                                   | T430826G100                    | T430846G400                  |
| Outdoor Model with Heat Pkg.                    | T430816G150                                                   | T430826G150                    | T430846G403                  |
| Outdoor Model/SST/Corrosion/4X                  | T430816G153                                                   | T430826G108                    | T430846G402                  |
| Outdoor Model/SST/Corrosion/4X/Heater           | —                                                             | —                              | —                            |
| <b>COOLING PERFORMANCE</b>                      |                                                               |                                |                              |
| <b>Nominal:</b>                                 |                                                               |                                |                              |
| <b>BTU/Hr.</b>                                  | <b>7900/8600</b>                                              | <b>7400/8200</b>               | <b>7400/8200</b>             |
| <b>Watts</b>                                    | <b>2310/2500</b>                                              | <b>2160/2400</b>               | <b>2160/2400</b>             |
| At 131 F/131 F (55 C/55 C):                     |                                                               |                                |                              |
| BTU/Hr. (50/60 Hz)                              | 7937/8629                                                     | 7484/8215                      | 7484/8215                    |
| W (50/60 Hz)                                    | 2326/2528                                                     | 2193/2407                      | 2193/2407                    |
| At 95 F/95 F (35 C/35 C):                       |                                                               |                                |                              |
| BTU/Hr. (50/60 Hz)                              | 6401/7100                                                     | 5940/6705                      | 5940/6705                    |
| W (50/60 Hz)                                    | 1875/2080                                                     | 1740/1965                      | 1740/1965                    |
| Refrigerant                                     | R-134A                                                        | R-134A                         | R-134A                       |
| Refrigerant Charge (ounces/grams)               | 36/1022                                                       | 36/1022                        | 36/1022                      |
| Operating Temperature Range:                    |                                                               |                                |                              |
| Maximum (°F/°C)                                 | 131/55                                                        | 131/55                         | 131/55                       |
| Minimum (°F/°C)                                 | -40/-40                                                       | -40/-40                        | -40/-40                      |
| Airflow at 0 Static Pressure:                   |                                                               |                                |                              |
| Internal loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 273/464                                                       | 273/464                        | 273/464                      |
| External loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 310/527                                                       | 310/527                        | 310/527                      |
| Internal loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 290/493                                                       | 290/493                        | 290/493                      |
| External loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 315/535                                                       | 315/535                        | 315/535                      |
| Max. Heater W (Outdoor Models)                  | 1000                                                          | 1000                           | N/A                          |
| <b>ELECTRICAL DATA</b>                          |                                                               |                                |                              |
| <b>Rated Voltage</b>                            | <b>115</b>                                                    | <b>230</b>                     | <b>460V 1PH</b>              |
| Frequency (Hz)                                  | 50/60                                                         | 50/60                          | 50/60                        |
| Operating Range                                 | +/- 10%                                                       | +/- 10%                        | +/- 10%                      |
| Max. Power Consumption (W at 50/60 Hz)          | 1196/1288                                                     | 1196/1242                      | 1334/1380                    |
| Max. Nominal Current (A at 50/60 Hz)            | 10.4/11.2                                                     | 5.2/5.4                        | 2.9/3.0                      |
| Starting Current (A)                            | 48.3                                                          | 27                             | 14                           |
| Agency Approvals                                | cUL Listed<br>CE<br>GOST                                      |                                | cUR Recognized<br>CE<br>GOST |
| Others available upon request                   |                                                               |                                |                              |
| Power Input Description                         | 6-ft. cord with NEMA 5-20 plug                                | 6-ft. cord with NEMA 6-15 plug | 6-ft. cord with wire leads   |
| <b>ENCLOSURE PROTECTION</b>                     |                                                               |                                |                              |
| UL Type                                         | Type 12, 3R, 4 standard<br>Type 4X Stainless steel optional   |                                |                              |
| International Rating                            | IP56 on the internal loop; IP34 on the external loop          |                                |                              |
| <b>CONTROLLER</b>                               |                                                               |                                |                              |
| Description                                     | Basic mechanical thermostat                                   |                                |                              |
| Thermostat Location                             | Enclosure side on all base models                             |                                |                              |
| Factory Thermostat Setting (°F/°C)              | 80/27                                                         |                                |                              |
| <b>SOUND LEVEL</b>                              |                                                               |                                |                              |
| At 1.5 Meters                                   | 65.7 dB(A)                                                    |                                |                              |
| <b>UNIT CONSTRUCTION</b>                        |                                                               |                                |                              |
| Material                                        | Galvanized sheet metal standard<br>Stainless steel optional   |                                |                              |
| Finish                                          | RAL 7035 light-gray, semi-textured powder-coat paint standard |                                |                              |
| <b>UNIT DIMENSIONS</b>                          |                                                               |                                |                              |
| Height (in./mm)                                 | 43/1092                                                       |                                |                              |
| Width (in./mm)                                  | 15.75/400                                                     |                                |                              |
| Depth (in./mm)                                  | 10.9/279                                                      |                                |                              |
| Weight (lb./kg)                                 | 125/57                                                        |                                |                              |

Performance Curves for T43 Models 8000 BTU/Hr. (2344 Watt)

**T43-08X6-G150 Capacity Curves 50 Hz**



**T43-08X6-G150 Capacity Curves 60 Hz**



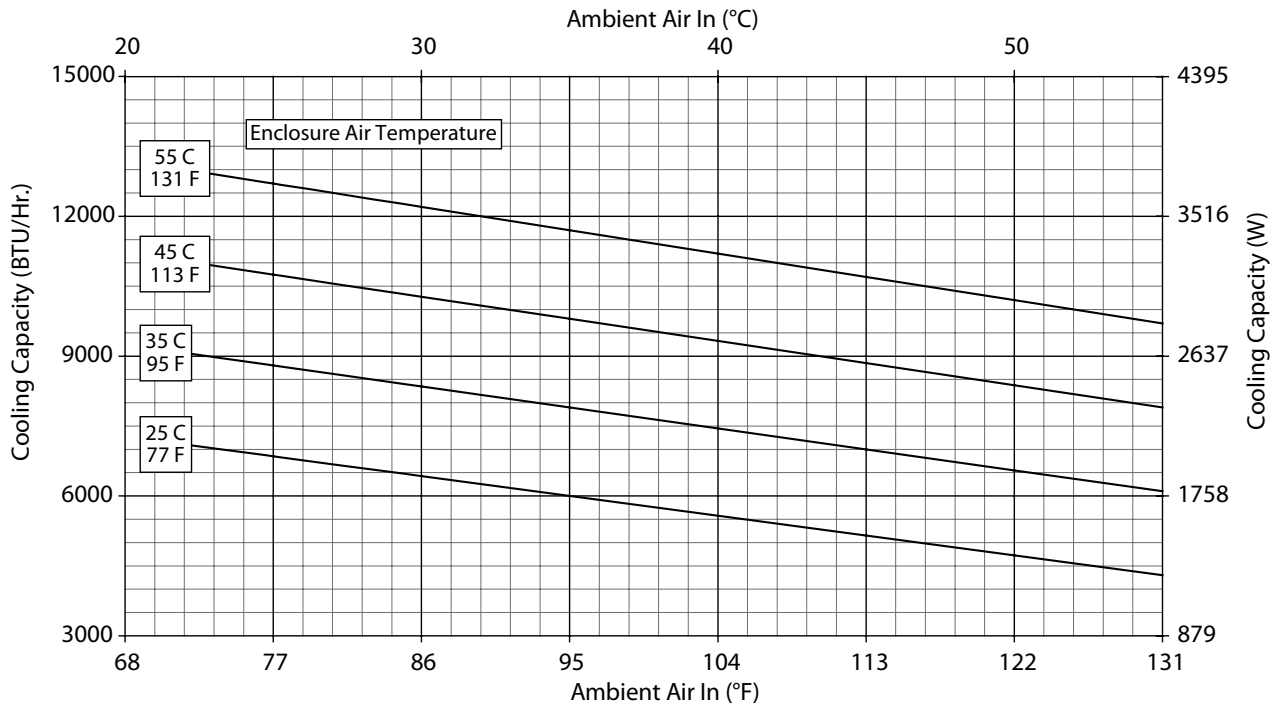
Performance Data **T43 10000 BTU/Hr. (2930 Watt) Models**

| <b>CATALOG NUMBER</b>                           |                                                               |                                |                              |
|-------------------------------------------------|---------------------------------------------------------------|--------------------------------|------------------------------|
| Outdoor Model without Heat Pkg.                 | T431016G100                                                   | T431026G100                    | T431046G400                  |
| Outdoor Model with Heat Pkg.                    | T431016G150                                                   | T431026G150                    | —                            |
| Outdoor Model/SST/Corrosion/4X                  | T431016G102                                                   | T431026G104                    | T431046G406                  |
| Outdoor Model/SST/Corrosion/4X/Heater           | T431016G153                                                   | T431026G152                    | —                            |
| <b>COOLING PERFORMANCE</b>                      |                                                               |                                |                              |
| <b>Nominal:</b>                                 |                                                               |                                |                              |
| <b>BTU/Hr.</b>                                  | <b>9670/10300</b>                                             | <b>10100/10500</b>             | <b>10100/10500</b>           |
| <b>Watts</b>                                    | <b>2831/3016</b>                                              | <b>2957/3075</b>               | <b>2957/3075</b>             |
| At 131 F/131 F (55 C/55 C):                     |                                                               |                                |                              |
| BTU/Hr. (50/60 Hz)                              | 9667/10290                                                    | 10039/10669                    | 10039/10669                  |
| W (50/60 Hz)                                    | 2832/3015                                                     | 2941/3126                      | 2941/3126                    |
| At 95 F/95 F (35 C/35 C):                       |                                                               |                                |                              |
| BTU/Hr. (50/60 Hz)                              | 7663/8397                                                     | 8458/8837                      | 8458/8837                    |
| W (50/60 Hz)                                    | 2245/2460                                                     | 2478/2589                      | 2478/2589                    |
| Refrigerant                                     | R-134A                                                        | R-134A                         | R-134A                       |
| Refrigerant Charge (ounces/grams)               | 32/907                                                        | 32/907                         | 32/907                       |
| Operating Temperature Range:                    |                                                               |                                |                              |
| Maximum (°F/°C)                                 | 131/55                                                        | 131/55                         | 131/55                       |
| Minimum (°F/°C)                                 | -40/-40                                                       | -40/-40                        | -40/-40                      |
| Airflow at 0 Static Pressure:                   |                                                               |                                |                              |
| Internal loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 272/462                                                       | 320/544                        | 320/544                      |
| External loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 510/866                                                       | 568/965                        | 568/965                      |
| Internal loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 290/493                                                       | 330/561                        | 330/561                      |
| External loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 565/960                                                       | 636/1081                       | 636/1081                     |
| Max. Heater W (Outdoor Models)                  | 1000                                                          | 1000                           | N/A                          |
| <b>ELECTRICAL DATA</b>                          |                                                               |                                |                              |
| <b>Rated Voltage</b>                            | <b>115</b>                                                    | <b>230</b>                     | <b>460V 1PH</b>              |
| Frequency (Hz)                                  | 50/60                                                         | 50/60                          | 50/60                        |
| Operating Range                                 | +/- 10%                                                       | +/- 10%                        | +/- 10%                      |
| Max. Power Consumption (W at 50/60 Hz)          | 1828.5/2288.5                                                 | 2070                           | 1334/1380                    |
| Max. Nominal Current (A at 50/60 Hz)            | 15.9/19.9                                                     | 9                              | 5                            |
| Starting Current (A)                            | 57                                                            | 38                             | 20                           |
| Agency Approvals                                | cUL Listed<br>CE<br>GOST                                      |                                | cUR Recognized<br>CE<br>GOST |
| Others available upon request                   |                                                               |                                |                              |
| Power Input Description                         | 6-ft. cord with NEMA 5-30 plug                                | 6-ft. cord with NEMA 6-15 plug | 6-ft. cord with wire leads   |
| <b>ENCLOSURE PROTECTION</b>                     |                                                               |                                |                              |
| UL Type                                         | Type 12, 3R, 4 standard<br>Type 4X Stainless steel optional   |                                |                              |
| International Rating                            | IP56 on the internal loop; IP34 on the external loop          |                                |                              |
| <b>CONTROLLER</b>                               |                                                               |                                |                              |
| Description                                     | Basic mechanical thermostat                                   |                                |                              |
| Thermostat Location                             | Enclosure side on all base models                             |                                |                              |
| Factory Thermostat Setting (°F/°C)              | 80/27                                                         |                                |                              |
| <b>SOUND LEVEL</b>                              |                                                               |                                |                              |
| At 1.5 Meters                                   | 73.3 dB(A)                                                    |                                |                              |
| <b>UNIT CONSTRUCTION</b>                        |                                                               |                                |                              |
| Material                                        | Galvanized sheet metal standard<br>Stainless steel optional   |                                |                              |
| Finish                                          | RAL 7035 light-gray, semi-textured powder-coat paint standard |                                |                              |
| <b>UNIT DIMENSIONS</b>                          |                                                               |                                |                              |
| Height (in./mm)                                 | 43/1092                                                       |                                |                              |
| Width (in./mm)                                  | 15.75/400                                                     |                                |                              |
| Depth (in./mm)                                  | 10.9/279                                                      |                                |                              |
| Weight (lb./kg)                                 | 125/57                                                        |                                |                              |

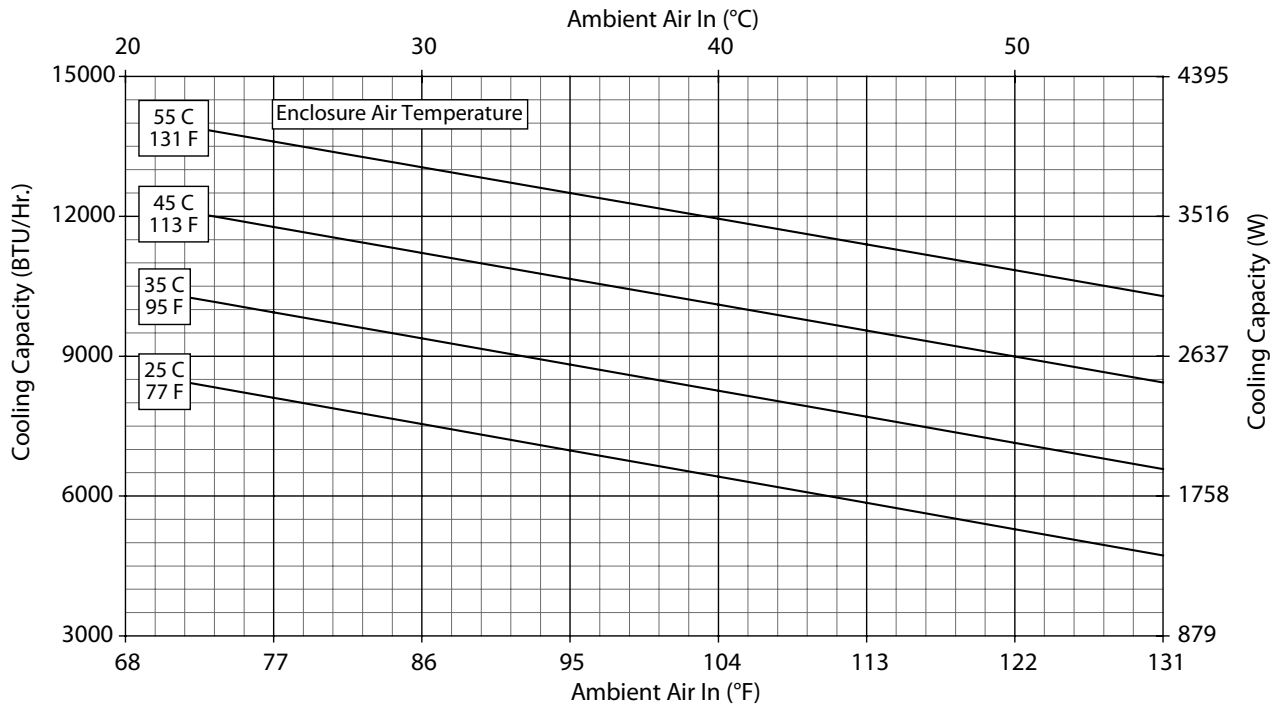


Performance Curves for T43 Models 10000 BTU/Hr. (2930 Watt)

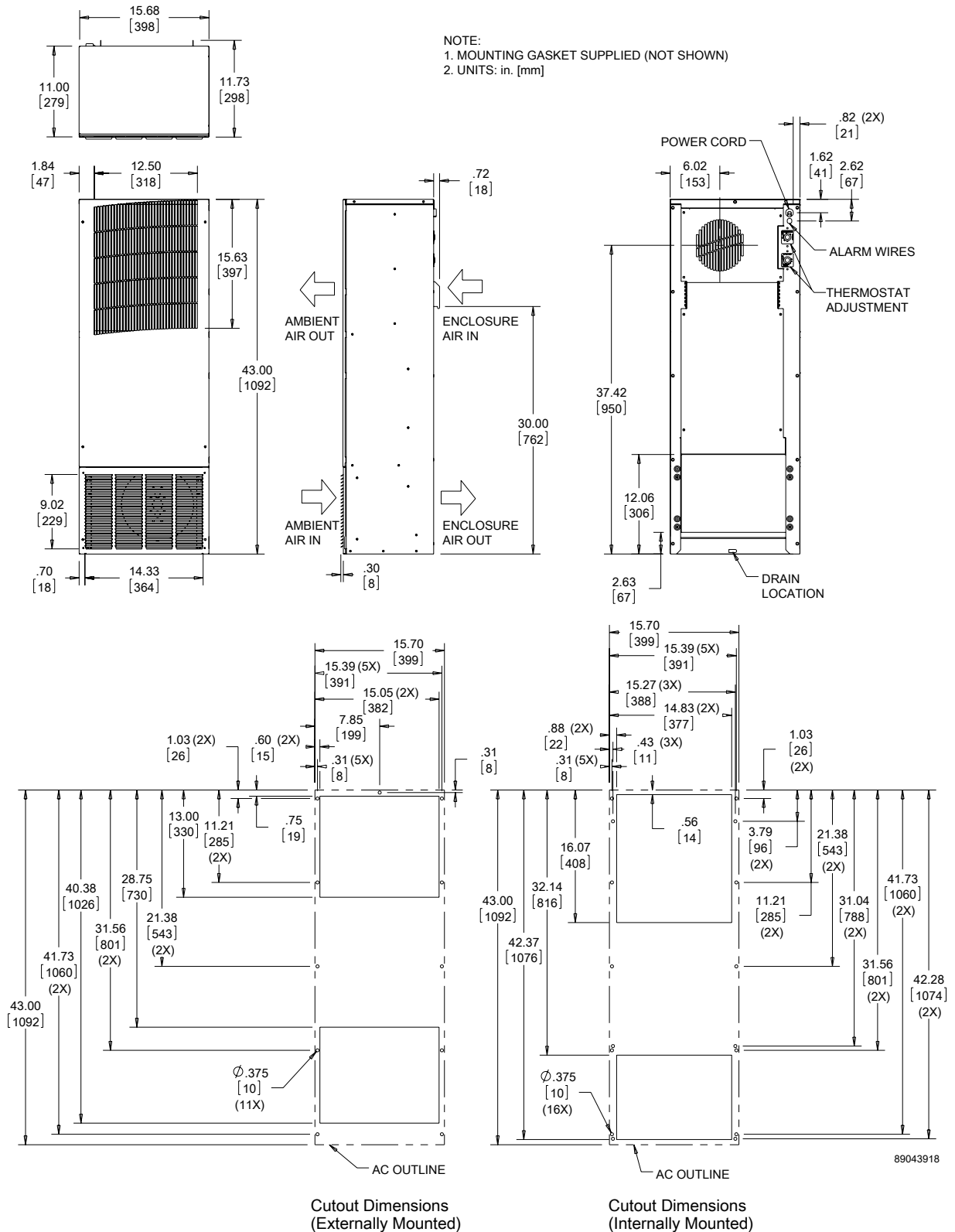
**T43-10X6-G150 Capacity Curves 50 Hz**



**T43-10X6-G150 Capacity Curves 60 Hz**



## T43 6000-10000 Models BTU/HR. (1758 - 2930 Watt)



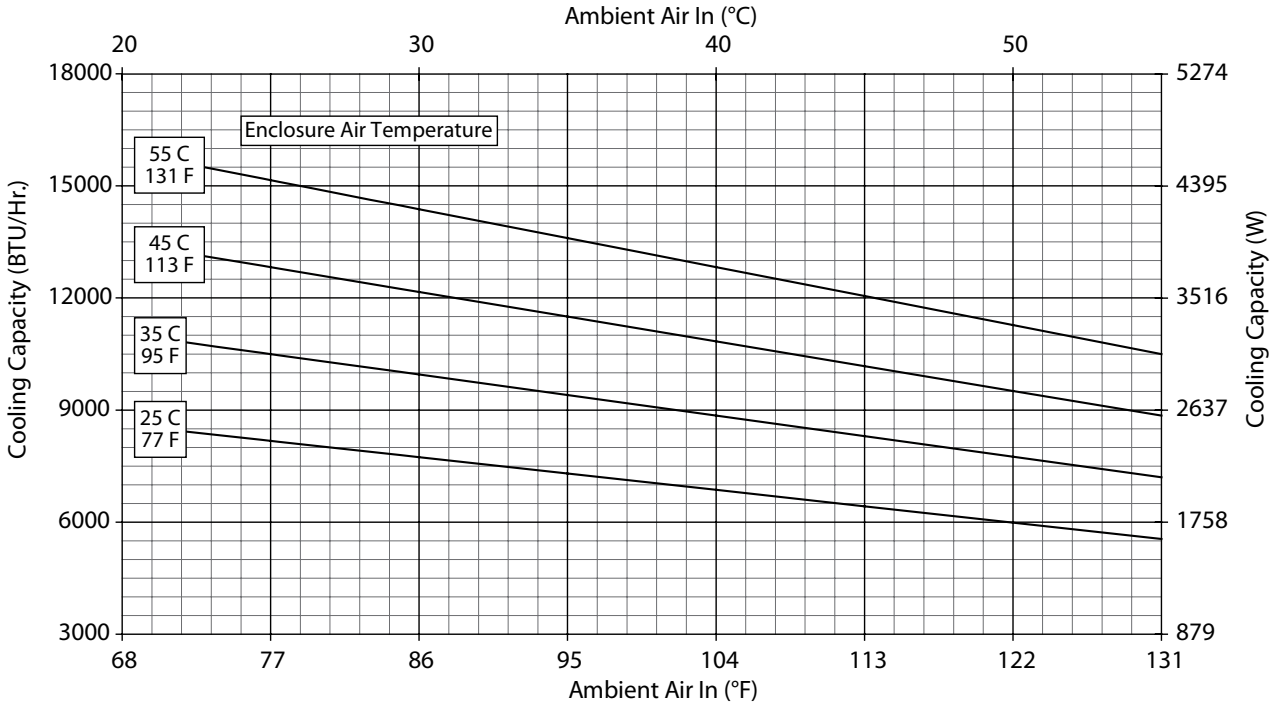
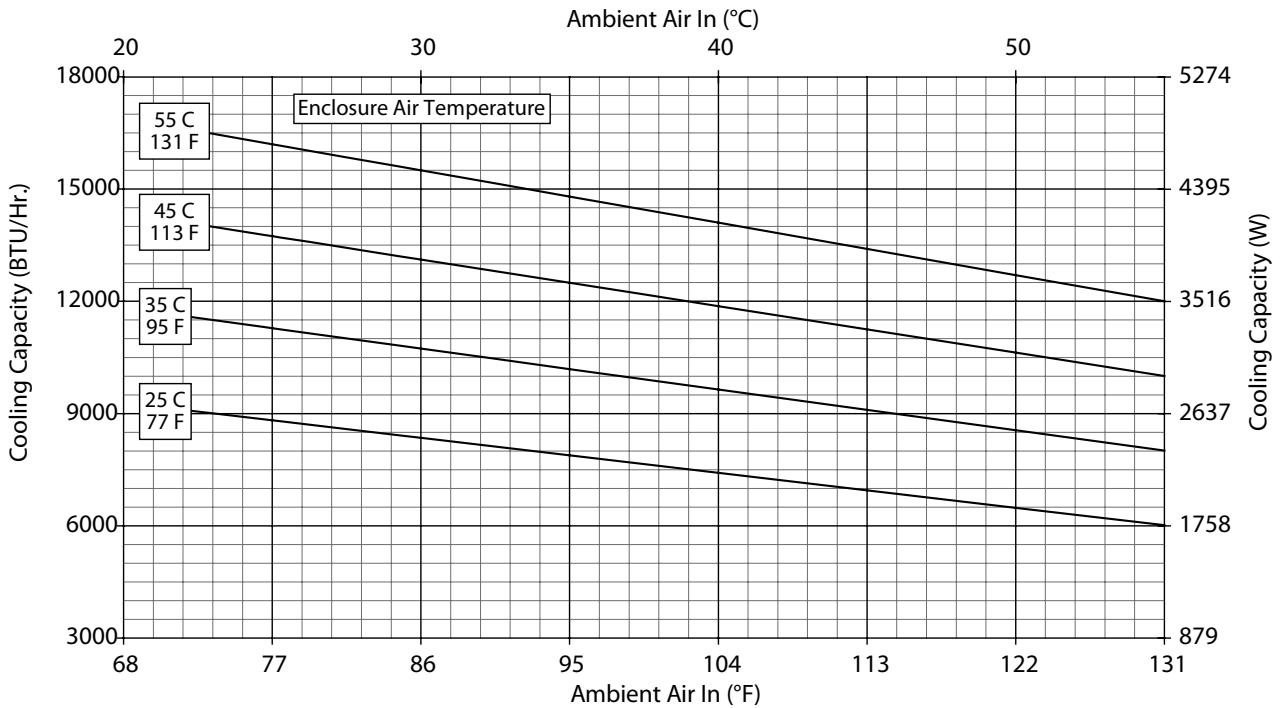
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Performance Data **T50 12000 BTU/Hr. (3516 Watt) Models**

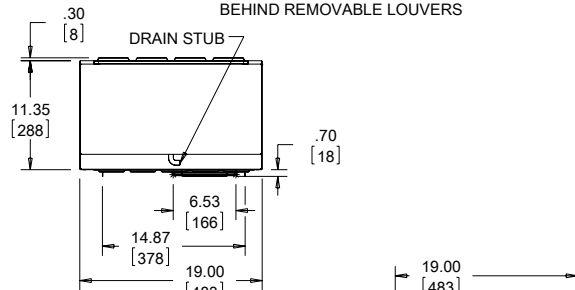
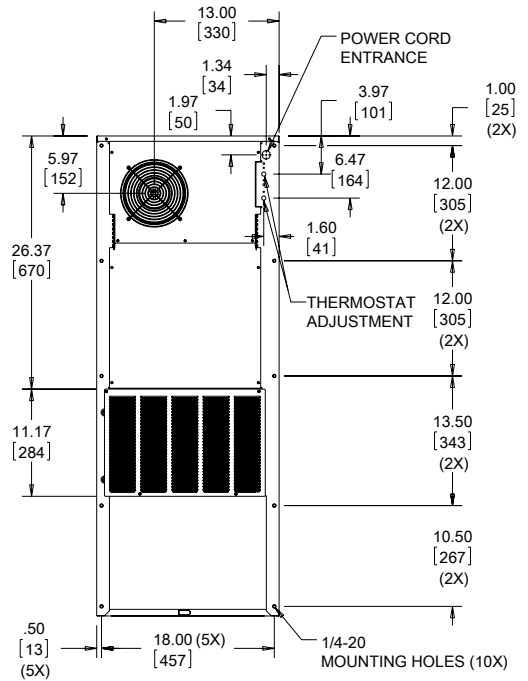
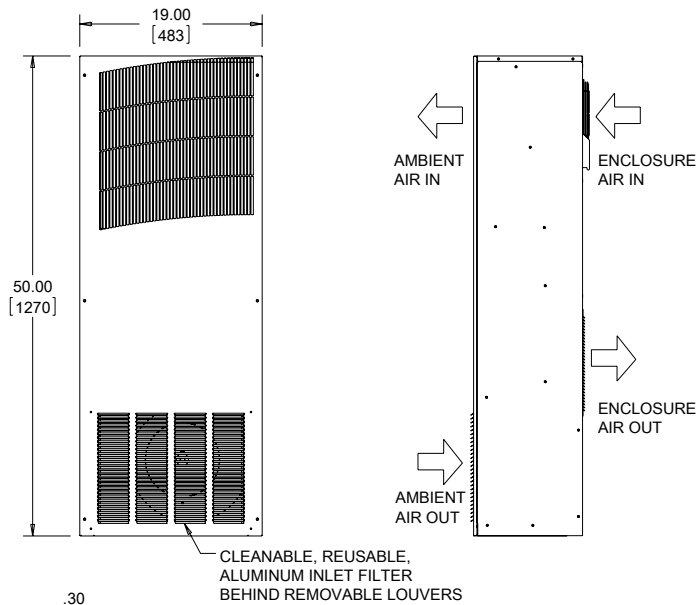
| <b>CATALOG NUMBER</b>                  |                                                               |                              |
|----------------------------------------|---------------------------------------------------------------|------------------------------|
| Outdoor Model without Heat Pkg.        | T501226G100                                                   | T501246G400                  |
| Outdoor Model with Heat Pkg.           | T501226G150                                                   | —                            |
| Outdoor Model/SST/Corrosion/4X         | T501226G125                                                   | T501246G401                  |
| Outdoor Model/SST/Corrosion/4X/Heater  | T501226G156                                                   | —                            |
| <b>COOLING PERFORMANCE</b>             |                                                               |                              |
| <b>Nominal:</b>                        |                                                               |                              |
| <b>BTU/Hr.</b>                         | <b>11000/12000</b>                                            | <b>11000/12000</b>           |
| <b>Watts</b>                           | <b>3223/3516</b>                                              | <b>3223/3516</b>             |
| At 131 F/131 F (55 C/55 C):            |                                                               |                              |
| BTU/Hr. (50/60 Hz)                     | 10030/12000                                                   | 10030/12000                  |
| W (50/60 Hz)                           | 2939/3516                                                     | 2939/3516                    |
| At 95 F/95 F (35 C/35 C):              |                                                               |                              |
| BTU/Hr. (50/60 Hz)                     | 9300/10050                                                    | 9300/10050                   |
| W (50/60 Hz)                           | 2725/2945                                                     | 2725/2945                    |
| Refrigerant                            | R-134A                                                        | R-134A                       |
| Refrigerant Charge (ounces/grams)      | 46/1300                                                       | 46/1300                      |
| Operating Temperature Range:           |                                                               |                              |
| Maximum (°F/°C)                        | 131/55                                                        | 131/55                       |
| Minimum (°F/°C)                        | -40/-40                                                       | -40/-40                      |
| Airflow at 0 Static Pressure:          |                                                               |                              |
| Internal loop 50 Hz (CFM / m³/hr.)     | 300/510                                                       | 300/510                      |
| External loop 50 Hz (CFM / m³/hr.)     | 520/883                                                       | 520/883                      |
| Internal loop 60 Hz (CFM / m³/hr.)     | 368/626                                                       | 368/626                      |
| External loop 60 Hz (CFM / m³/hr.)     | 625/1062                                                      | 625/1062                     |
| Max. Heater W (Outdoor Models)         | 1500                                                          | 1500                         |
| <b>ELECTRICAL DATA</b>                 |                                                               |                              |
| <b>Rated Voltage</b>                   | <b>220/230</b>                                                | <b>460V 1PH</b>              |
| Frequency (Hz)                         | 50/60                                                         | 50/60                        |
| Operating Range                        | +/- 10%                                                       | +/- 10%                      |
| Max. Power Consumption (W at 50/60 Hz) | 1804/2139                                                     | 2070/2346                    |
| Max. Nominal Current (A at 50/60 Hz)   | 8.2/9.3                                                       | 4.5/5.1                      |
| Starting Current (A)                   | 38                                                            | 20                           |
| Agency Approvals                       | cUL Listed<br>CE<br>GOST                                      | cUR Recognized<br>CE<br>GOST |
| Power Input Description                | 6-ft. cord with NEMA 6-15 plug                                | 6-ft. cord with wire leads   |
| <b>ENCLOSURE PROTECTION</b>            |                                                               |                              |
| UL Type                                | Type 12, 3R, 4 standard<br>Type 4X Stainless steel optional   |                              |
| <b>CONTROLLER</b>                      |                                                               |                              |
| Description                            | Basic mechanical thermostat                                   |                              |
| Thermostat Location                    | Enclosure side on all base models                             |                              |
| Factory Thermostat Setting (°F/°C)     | 80/27                                                         |                              |
| <b>SOUND LEVEL</b>                     |                                                               |                              |
| At 1.5 Meters                          | 68 dB(A)                                                      |                              |
| <b>UNIT CONSTRUCTION</b>               |                                                               |                              |
| Material                               | Galvanized sheet metal standard<br>Stainless steel optional   |                              |
| Finish                                 | RAL 7035 light-gray, semi-textured powder-coat paint standard |                              |
| <b>UNIT DIMENSIONS</b>                 |                                                               |                              |
| Height (in./mm)                        | 50/1270                                                       |                              |
| Width (in./mm)                         | 19/483                                                        |                              |
| Depth (in./mm)                         | 11.05/281                                                     |                              |
| Weight (lb./kg)                        | 164/75                                                        |                              |



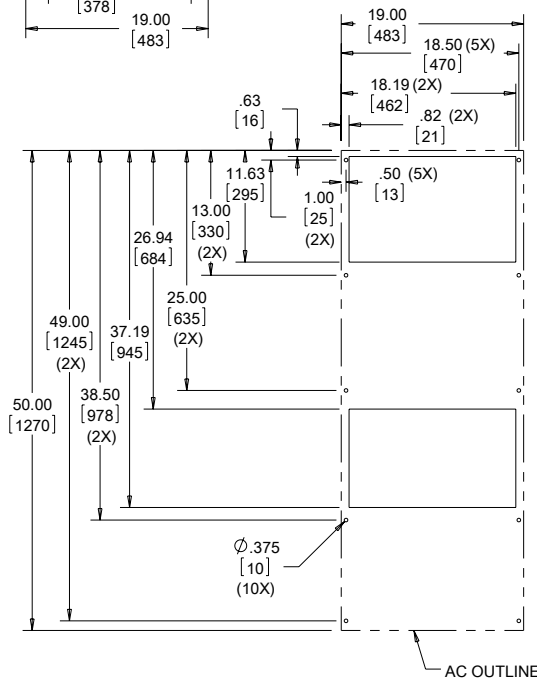
## Performance Curves for T50 Models 12000 BTU/Hr. (3516 Watt)

**T50-12x6-GXXX Capacity Curves 50 Hz**

**T50-12x6-GXXX Capacity Curves 60 Hz**


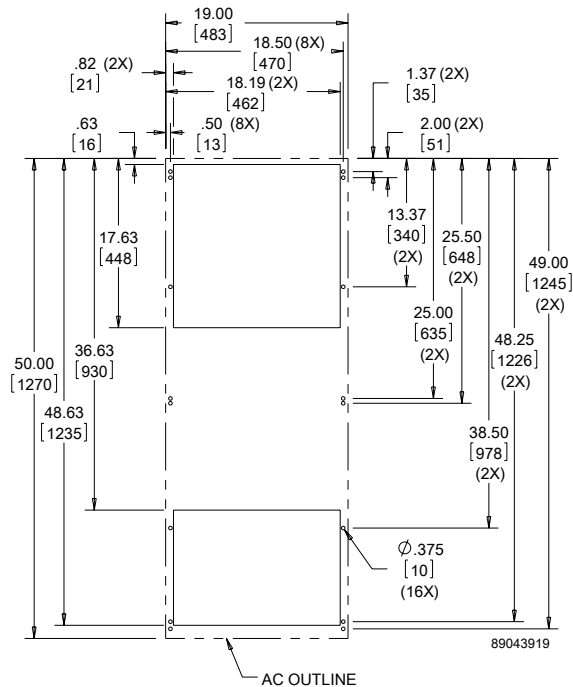
T50 Models 12000 BTU/Hr. (3516 Watt)



NOTE:  
 1. MOUNTING GASKET SUPPLIED (NOT SHOWN)  
 2. UNITS: in. [mm]



Cutout Dimensions (Externally Mounted)



Cutout Dimensions (Internally Mounted)

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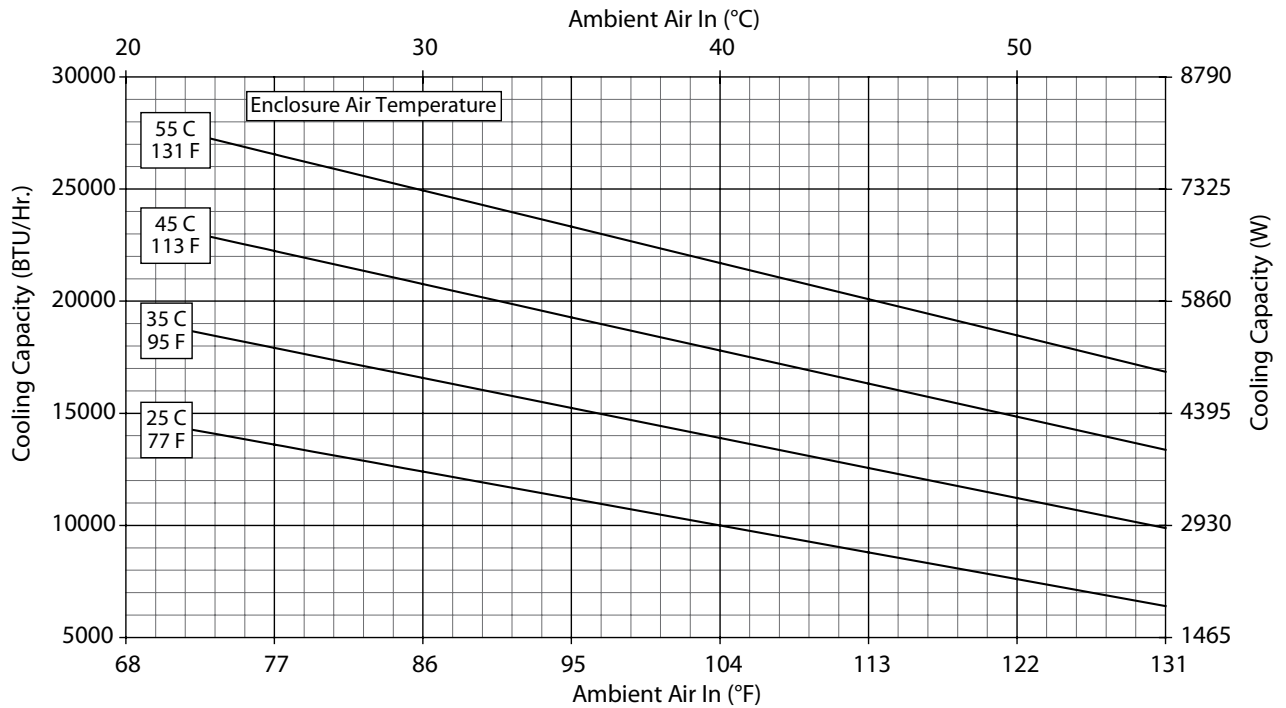


Performance Data **T53 19000 BTU/Hr. (5567 Watt) Models**

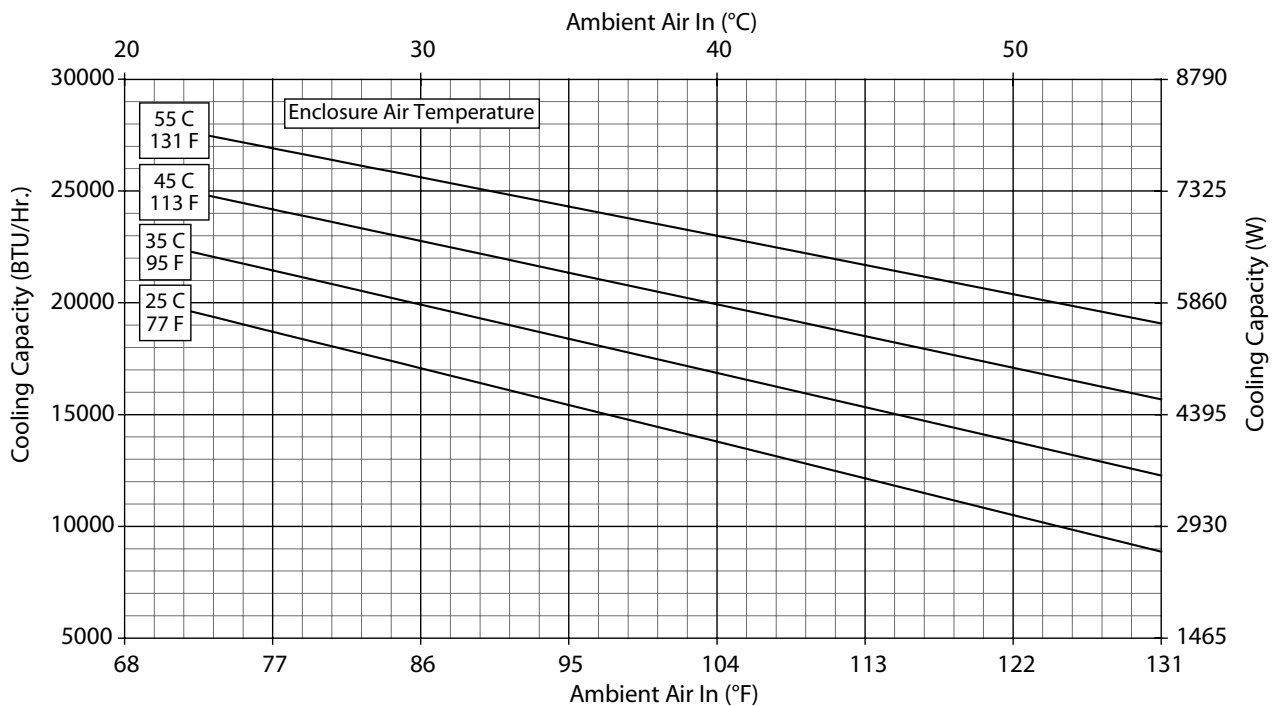
| <b>CATALOG NUMBER</b>                           |                                                               |                              |
|-------------------------------------------------|---------------------------------------------------------------|------------------------------|
| Outdoor Model without Heat Pkg.                 | T531926G100                                                   | T531946G400                  |
| Outdoor Model with Heat Pkg.                    | T531926G150                                                   | —                            |
| Outdoor Model/SST/Corrosion/4X                  | T531926G109                                                   | —                            |
| Outdoor Model/SST/Corrosion/4X/Heater           | —                                                             | —                            |
| <b>COOLING PERFORMANCE</b>                      |                                                               |                              |
| <b>Nominal:</b>                                 |                                                               |                              |
| <b>BTU/Hr.</b>                                  | <b>16800/19000</b>                                            | <b>16800/19000</b>           |
| <b>Watts</b>                                    | <b>4922/5567</b>                                              | <b>4922/5567</b>             |
| At 131 F/131 F (55 C/55 C):                     |                                                               |                              |
| BTU/Hr. (50/60 Hz)                              | 16854/19081                                                   | 16854/19081                  |
| W (50/60 Hz)                                    | 4939/5592                                                     | 4939/5592                    |
| At 95 F/95 F (35 C/35 C):                       |                                                               |                              |
| BTU/Hr. (50/60 Hz)                              | 15240/19815                                                   | 15240/19815                  |
| W (50/60 Hz)                                    | 4466/5807                                                     | 4466/5807                    |
| Refrigerant                                     | 410A                                                          | 410A                         |
| Refrigerant Charge (ounces/grams)               | 40/1132                                                       | 40/1132                      |
| Operating Temperature Range:                    |                                                               |                              |
| Maximum (°F/°C)                                 | 131/55                                                        | 131/55                       |
| Minimum (°F/°C)                                 | -40/-40                                                       | -40/-40                      |
| Airflow at 0 Static Pressure:                   |                                                               |                              |
| Internal loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 449/763                                                       | 449/763                      |
| External loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 1204/2046                                                     | 1204/2046                    |
| Internal loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 519/882                                                       | 519/882                      |
| External loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 1300/2209                                                     | 1300/2209                    |
| Max. Heater W (Outdoor Models)                  | 3000                                                          |                              |
| <b>ELECTRICAL DATA</b>                          |                                                               |                              |
| <b>Rated Voltage</b>                            | <b>230</b>                                                    | <b>460V 1PH</b>              |
| Frequency (Hz)                                  | 50/60                                                         | 50/60                        |
| Operating Range                                 | +/- 10%                                                       | +/- 10%                      |
| Max. Power Consumption (W at 50/60 Hz)          | 3979/4669                                                     | 4370/5152                    |
| Max. Nominal Current (A at 50/60 Hz)            | 17.3/20.3                                                     | 9.5/11.2                     |
| Starting Current (A)                            | 54                                                            | 28                           |
| Agency Approvals                                | cUL Listed<br>CE<br>GOST                                      | cUR Recognized<br>CE<br>GOST |
| Power Input Description                         | Terminal block                                                |                              |
| <b>ENCLOSURE PROTECTION</b>                     |                                                               |                              |
| UL Type                                         | Type 12, 3R, 4 standard<br>Type 4X Stainless steel optional   |                              |
| <b>CONTROLLER</b>                               |                                                               |                              |
| Description                                     | Basic mechanical thermostat                                   |                              |
| Thermostat Location                             | Enclosure side on all base models                             |                              |
| Factory Thermostat Setting (°F/°C)              | 80/27                                                         |                              |
| <b>SOUND LEVEL</b>                              |                                                               |                              |
| At 1.5 Meters                                   | 76 dB(A)                                                      |                              |
| <b>UNIT CONSTRUCTION</b>                        |                                                               |                              |
| Material                                        | Galvanized sheet metal standard<br>Stainless steel optional   |                              |
| Finish                                          | RAL 7035 light-gray, semi-textured powder-coat paint standard |                              |
| <b>UNIT DIMENSIONS</b>                          |                                                               |                              |
| Height (in./mm)                                 | 53.0/1346.2                                                   |                              |
| Width (in./mm)                                  | 21.0/533.4                                                    |                              |
| Depth (in./mm)                                  | 13.0/330.2                                                    |                              |
| Weight (lb./kg)                                 | 197/90                                                        | 237/108                      |

Performance Curves for T53 Models 19000 BTU/Hr. (5567 Watt)

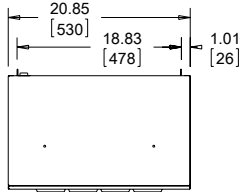
**T53-19x6-GXXX Capacity Curve 50 Hz**



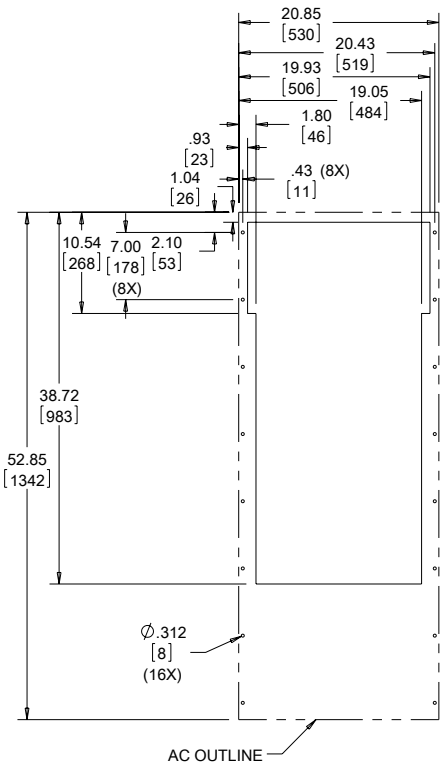
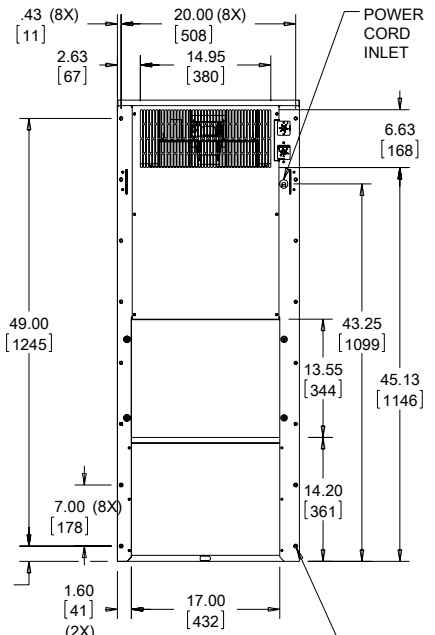
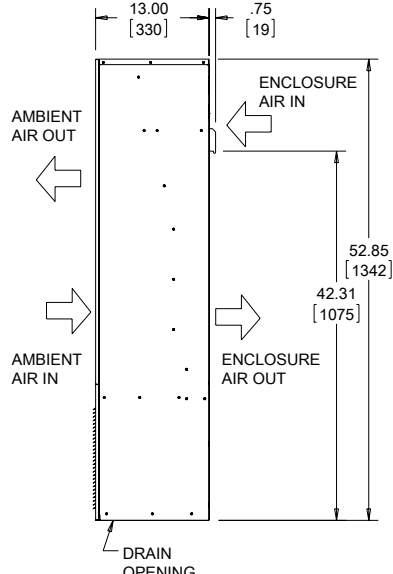
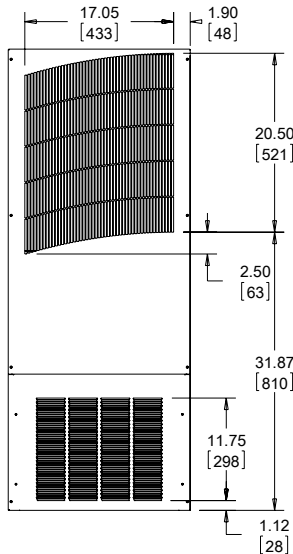
**T53-19x6-GXXX Capacity Curve 60 Hz**



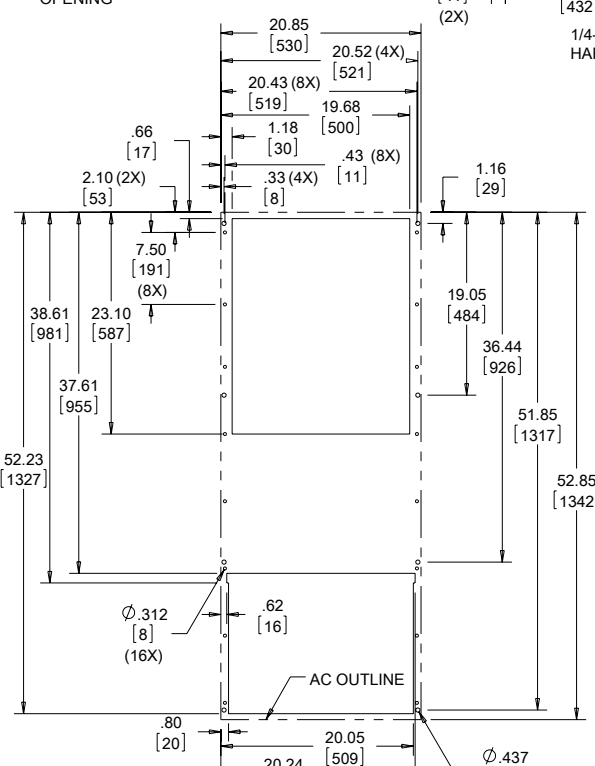
## T53 Models 19000 BTU/Hr. (5567 Watt)



NOTE:  
 1. MOUNTING GASKET SUPPLIED (NOT SHOWN)  
 2. UNITS: in. [mm]



Cutout Dimensions (Externally Mounted)



Cutout Dimensions (Internally Mounted)

89043920

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**Notes**



## T-SERIES LARGE CAPACITY OUTDOOR



**T62**  
20000 BTU/Hr.  
5860 Watts

**T70-36**  
36000 BTU/Hr.  
10548 Watts

**T70-60**  
59000 BTU/Hr.  
17287 Watts

### INDUSTRY STANDARDS

UL/cUL Listed; Type 12, 3R, 4; 4X optional; File No. SA6453  
UR/cUR Recognized

UR/cUR Recognized on select models, reference performance data tables.

CE  
GOST  
Telcordia GR-487 capable

### APPLICATION

- Industrial automation
- Telecommunications equipment
- Package handling equipment
- Security and defense systems
- And more

### FEATURES

- Stock models equipped with head pressure control for low-ambient operation, compressor heater, coated condenser coil, malfunction switch, thermostat and heater package
- R-407C earth-friendly refrigerant
- Models for 230 and 460 VAC power input
- UL Listed to save customers time and money with agency approvals (some models UL recognized)
- Outdoor model operating temperature range from -40 F/-40 C to 131 F/55 C
- Exterior and fully recessed mounting options on many models
- Compact footprint to minimize real estate and maximize capacity
- Reliable mechanical thermostat on enclosure side of the unit
- Dual condenser-side air movers for performance redundancy
- Painted galvanized sheet-metal cover for rugged factory and outdoor environments
- Easy-mount flanges for simple installation

- Cleanable, reusable aluminum mesh filter protects coils for maximum cooling performance
- Mounting hardware, gaskets and user manual furnished with the unit
- Every unit functionally tested before shipping
- Standard Outdoor Air Conditioner models also include:
  - Telcordia GR-487 capable
  - Thermostat
  - Corrosion-resistant components
  - Malfunction switch
  - Compressor heater
  - Head pressure control
  - Enclosure heater

### FINISH

- RAL 7035 light-gray, semi-textured powder-coat paint
- Other colors and textures available

### OPTIONS

- Thermostat Malfunction Package
- Special Voltage Package
- Outdoor Package
- Harsh Environment Package\*
- Stainless Steel Package\*
- Heater Package
  - \* PROAIR A/C may be more appropriate. Refer to PROAIR A/C Chapter. Consult the Factory for availability and catalog number.

### NOTES

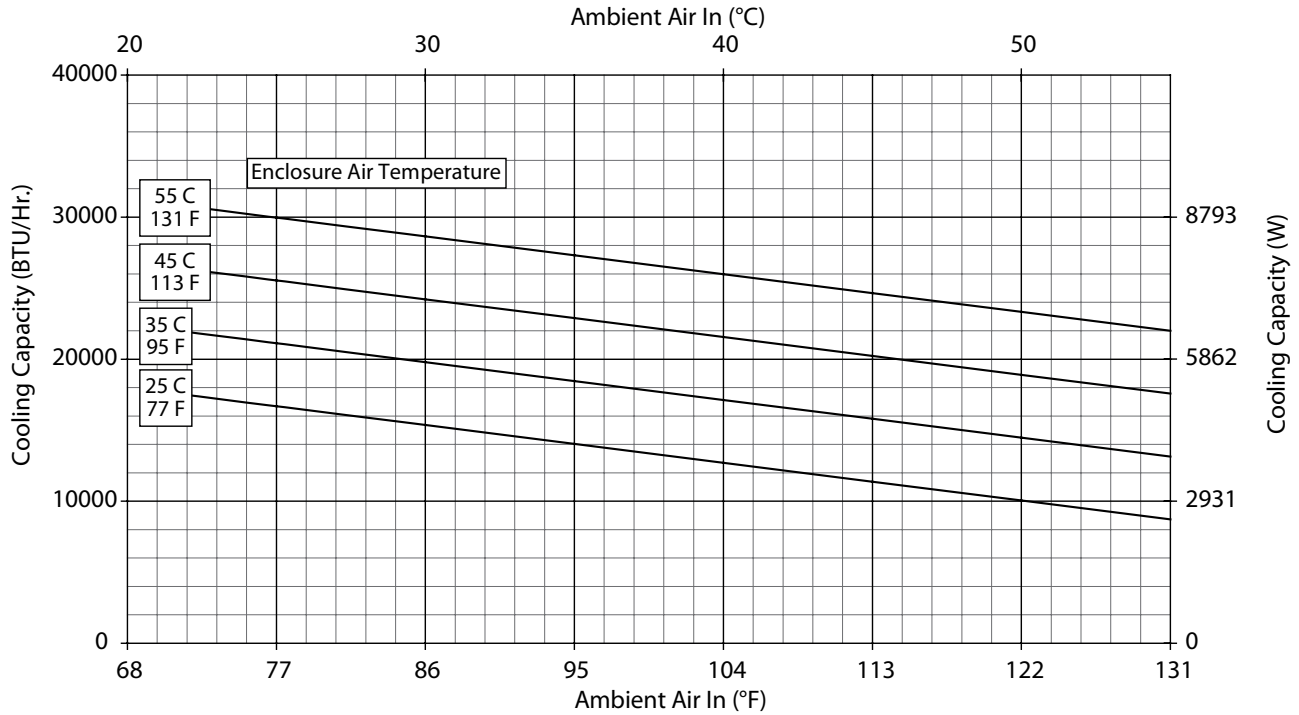
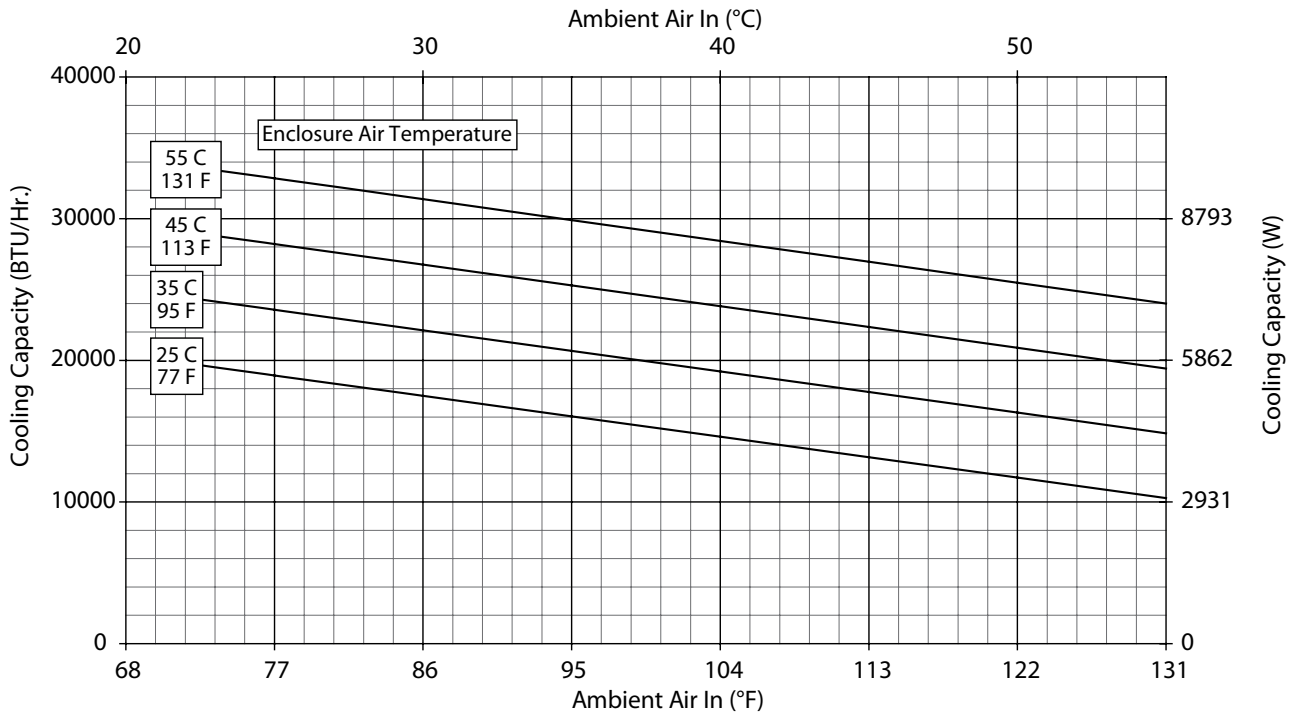
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Performance Data **T62 20000 BTU/Hr. (5860 Watt) Models**

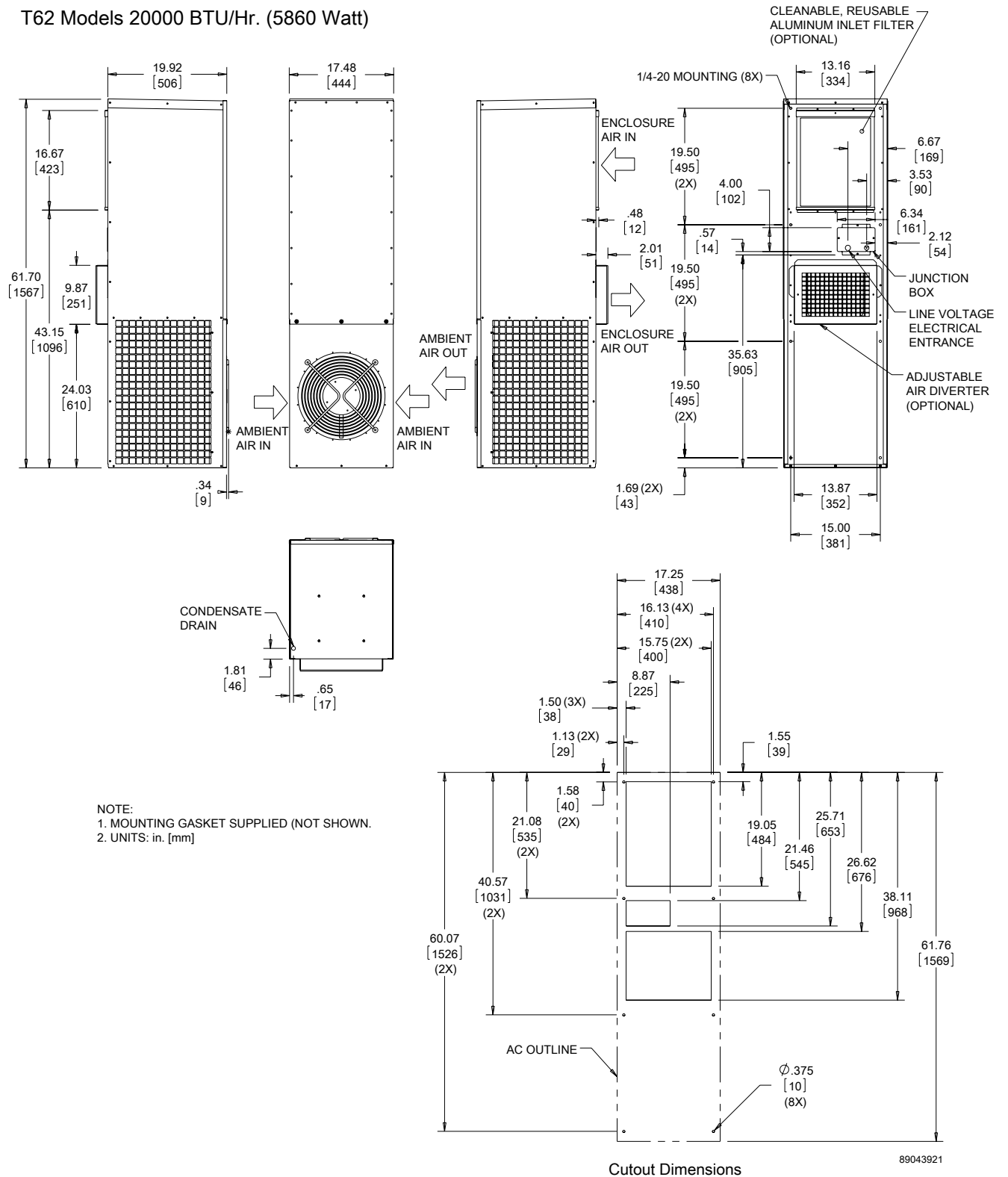
| CATALOG NUMBER                         |                                                               |                              |
|----------------------------------------|---------------------------------------------------------------|------------------------------|
|                                        | T622226G150                                                   | T622246G400                  |
| <b>COOLING PERFORMANCE</b>             |                                                               |                              |
| <b>Nominal:</b>                        |                                                               |                              |
| <b>BTU/Hr.</b>                         | <b>20500/23500</b>                                            | <b>20500/23500</b>           |
| <b>Watts</b>                           | <b>6007/6886</b>                                              | <b>6007/6886</b>             |
| At 131 F/131 F (55 C/55 C):            |                                                               |                              |
| BTU/Hr. (50/60 Hz)                     | 20860/23927                                                   | 20860/23927                  |
| W (50/60 Hz)                           | 6113/7012                                                     | 6113/7012                    |
| At 95 F/95 F (35 C/35 C):              |                                                               |                              |
| BTU/Hr. (50 /60 Hz)                    | 18258/20256                                                   | 18258/20256                  |
| W (50/60 Hz)                           | 5351/5936                                                     | 5351/5936                    |
| Refrigerant                            | R-407C                                                        |                              |
| Refrigerant Charge (ounces/grams)      | 42/1300                                                       | 42/1300                      |
| Operating Temperature Range:           |                                                               |                              |
| Maximum (°F/°C)                        | 131/55                                                        | 131/55                       |
| Minimum (°F/°C)                        | -40/-40                                                       | -40/-40                      |
| Airflow at 0 Static Pressure:          |                                                               |                              |
| Internal loop 50 Hz (CFM / m³/hr.)     | 570/968                                                       | 570/968                      |
| External loop 50 Hz (CFM / m³/hr.)     | 1443/2452                                                     | 1443/2452                    |
| Internal loop 60 Hz (CFM / m³/hr.)     | 673/1143                                                      | 673/1143                     |
| External loop 60 Hz (CFM / m³/hr.)     | 1797/3053                                                     | 1797/3053                    |
| Max. Heater W (Outdoor Models)         | 2000                                                          | Up to 3000 (Optional)        |
| <b>ELECTRICAL DATA</b>                 |                                                               |                              |
| <b>Rated Voltage</b>                   | <b>230</b>                                                    | <b>460V 1PH</b>              |
| Frequency (Hz)                         | 50/60                                                         | 50/60                        |
| Operating Range                        | +/- 10%                                                       | +/- 10%                      |
| Max. Power Consumption (W at 50/60 Hz) | 4370/5060                                                     | 7000/9200                    |
| Max. Nominal Current (A at 50/60 Hz)   | 19/22                                                         | 10.5/12                      |
| Starting Current (A)                   | 60                                                            | 30                           |
| Agency Approvals                       | cUL Listed<br>CE<br>GOST                                      | cUR Recognized<br>CE<br>GOST |
| Power Input Description                | Terminal block                                                | Terminal block               |
| <b>ENCLOSURE PROTECTION</b>            |                                                               |                              |
| UL Type                                | Type 12, 3R, 4 standard<br>Type 4X Stainless steel optional   |                              |
| <b>CONTROLLER</b>                      |                                                               |                              |
| Description                            | Basic mechanical thermostat                                   |                              |
| Thermostat Location                    | Enclosure side on all base models                             |                              |
| Factory Thermostat Setting (°F/°C)     | 80/27                                                         |                              |
| <b>SOUND LEVEL</b>                     |                                                               |                              |
| At 1.5 Meters                          | 71 dB(A)                                                      |                              |
| <b>UNIT CONSTRUCTION</b>               |                                                               |                              |
| Material                               | Galvanized sheet metal standard<br>Stainless steel optional   |                              |
| Finish                                 | RAL 7035 light-gray, semi-textured powder-coat paint standard |                              |
| <b>UNIT DIMENSIONS</b>                 |                                                               |                              |
| Height (in./mm)                        | 61.77/1568.96                                                 | 61.77/1568.96                |
| Width (in./mm)                         | 19.91/505.71                                                  | 19.91/505.71                 |
| Depth (in./mm)                         | 17.36/440.94                                                  | 17.36/440.94                 |
| Weight (lb./kg)                        | 218/99.1                                                      | 258/117                      |



Performance Curves for T62 Models 20000 BTU/Hr. (5860 Watt)

**T62-22x6-GXXX R-407c Capacity Curves 50 Hz**

**T62-22x6-GXXX R-407c Capacity Curves 60 Hz**


T62 Models 20000 BTU/Hr. (5860 Watt)



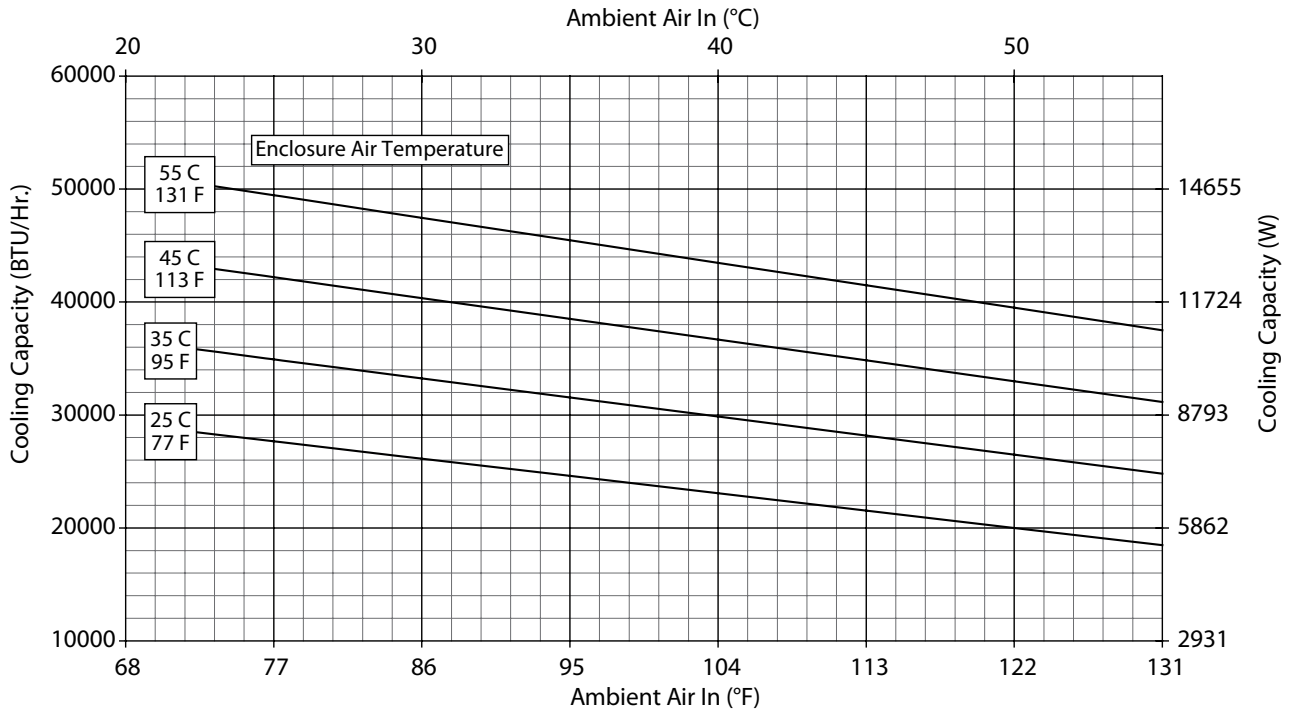
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Performance Data **T70-36 36000 BTU/Hr. (10548 Watt) Models**

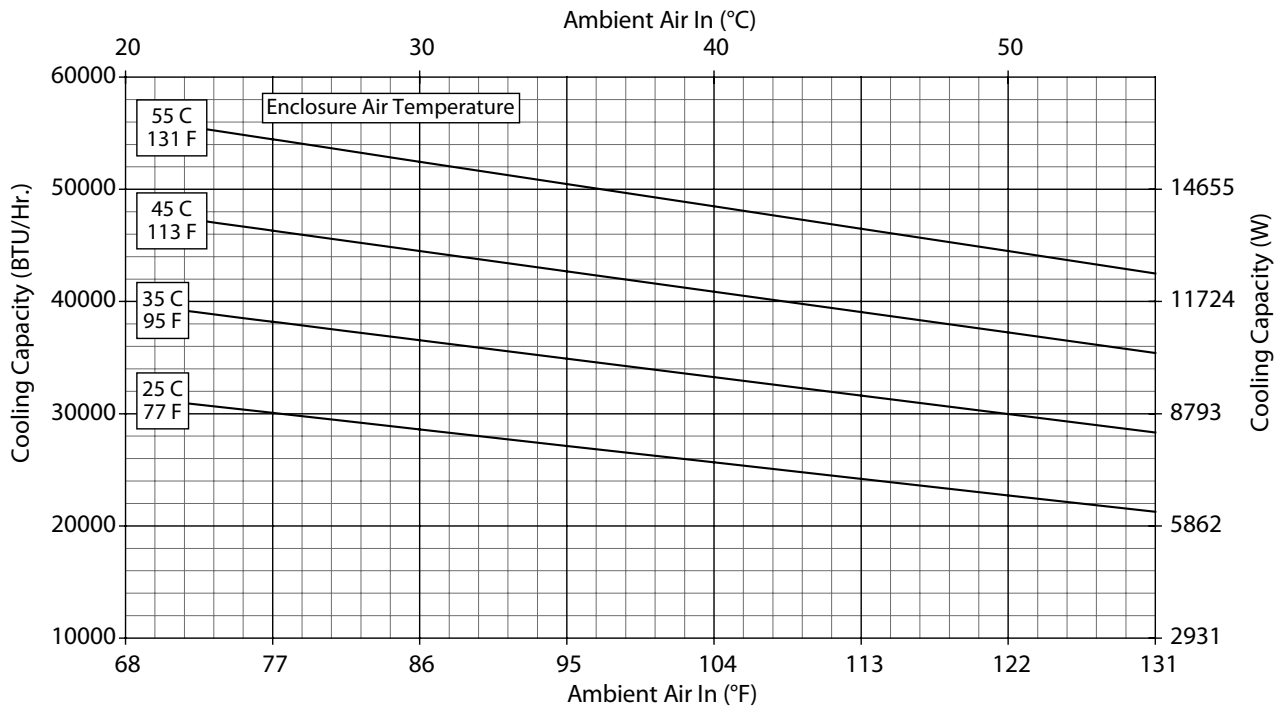
| CATALOG NUMBER                                  |                                                                              |             |
|-------------------------------------------------|------------------------------------------------------------------------------|-------------|
|                                                 | T703626G150                                                                  | T703646G400 |
| <b>COOLING PERFORMANCE</b>                      |                                                                              |             |
| <b>Nominal:</b>                                 |                                                                              |             |
| <b>BTU/Hr.</b>                                  | <b>39000/43000</b>                                                           |             |
| <b>Watts</b>                                    | <b>11430/12602</b>                                                           |             |
| At 131 F/131 F (55 C/55 C):                     |                                                                              |             |
| BTU/Hr. (50/60 Hz)                              | 38613/42930                                                                  |             |
| W (50/60 Hz)                                    | 11316/12570                                                                  |             |
| At 95 F/95 F (35 C/35 C):                       |                                                                              |             |
| BTU/Hr. (50 /60 Hz)                             | 31364/36130                                                                  |             |
| W (50/60 Hz)                                    | 9192/10579                                                                   |             |
| Refrigerant                                     | R-407C                                                                       |             |
| Refrigerant Charge (ounces/grams)               | 110/3118                                                                     |             |
| Operating Temperature Range:                    |                                                                              |             |
| Maximum (°F/°C)                                 | 131/55                                                                       |             |
| Minimum (°F/°C)                                 | -40/-40                                                                      |             |
| Airflow at 0 Static Pressure:                   |                                                                              |             |
| Internal loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 1085/1843                                                                    |             |
| External loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 2176/3697                                                                    |             |
| Internal loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 1171/1989                                                                    |             |
| External loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 2347/3987                                                                    |             |
| Max. Heater W (Outdoor Models)                  | 2000 Standard (5000 Optional)                                                |             |
| <b>ELECTRICAL DATA</b>                          |                                                                              |             |
| <b>Rated Voltage</b>                            | <b>230</b>                                                                   | <b>460</b>  |
| Frequency (Hz)                                  | 50/60                                                                        | 60          |
| Operating Range                                 | +/- 10%                                                                      | +/- 10%     |
| Max. Power Consumption (W at 50/60 Hz)          | 8280                                                                         | 8280        |
| Max. Nominal Current (A at 50/60 Hz)            | 36                                                                           | 18          |
| Starting Current (A)                            | 104                                                                          | 52          |
| Agency Approvals                                | cUL Listed<br>CE<br>GOST<br>Others available upon request                    |             |
| Power Input Description                         | Terminal block                                                               |             |
| <b>ENCLOSURE PROTECTION</b>                     |                                                                              |             |
| UL Type                                         | Type 12, 3R, 4 standard<br>Type 4X Stainless steel optional<br>UL/cUL Listed |             |
| International Rating                            | UL/cUL Listed                                                                |             |
| <b>CONTROLLER</b>                               |                                                                              |             |
| Description                                     | Basic mechanical thermostat                                                  |             |
| Thermostat Location                             | Enclosure side on all base models                                            |             |
| Factory Thermostat Setting (°F/°C)              | 80/27                                                                        |             |
| <b>SOUND LEVEL</b>                              |                                                                              |             |
| At 1.5 Meters                                   | 66 dB(A)                                                                     |             |
| <b>UNIT CONSTRUCTION</b>                        |                                                                              |             |
| Material                                        | Galvanized sheet metal standard<br>Stainless steel optional                  |             |
| Finish                                          | RAL 7035 light-gray, semi-textured powder-coat paint standard                |             |
| <b>UNIT DIMENSIONS</b>                          |                                                                              |             |
| Height (in./mm)                                 | 69.8/1772                                                                    |             |
| Width (in./mm)                                  | 22.8/578                                                                     |             |
| Depth (in./mm)                                  | 20.94/532                                                                    |             |
| Weight (lb./kg)                                 | 260/118                                                                      |             |

Performance Curves for T70 Models 36000 BTU/Hr. (10548 Watt)

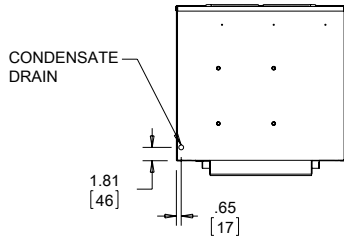
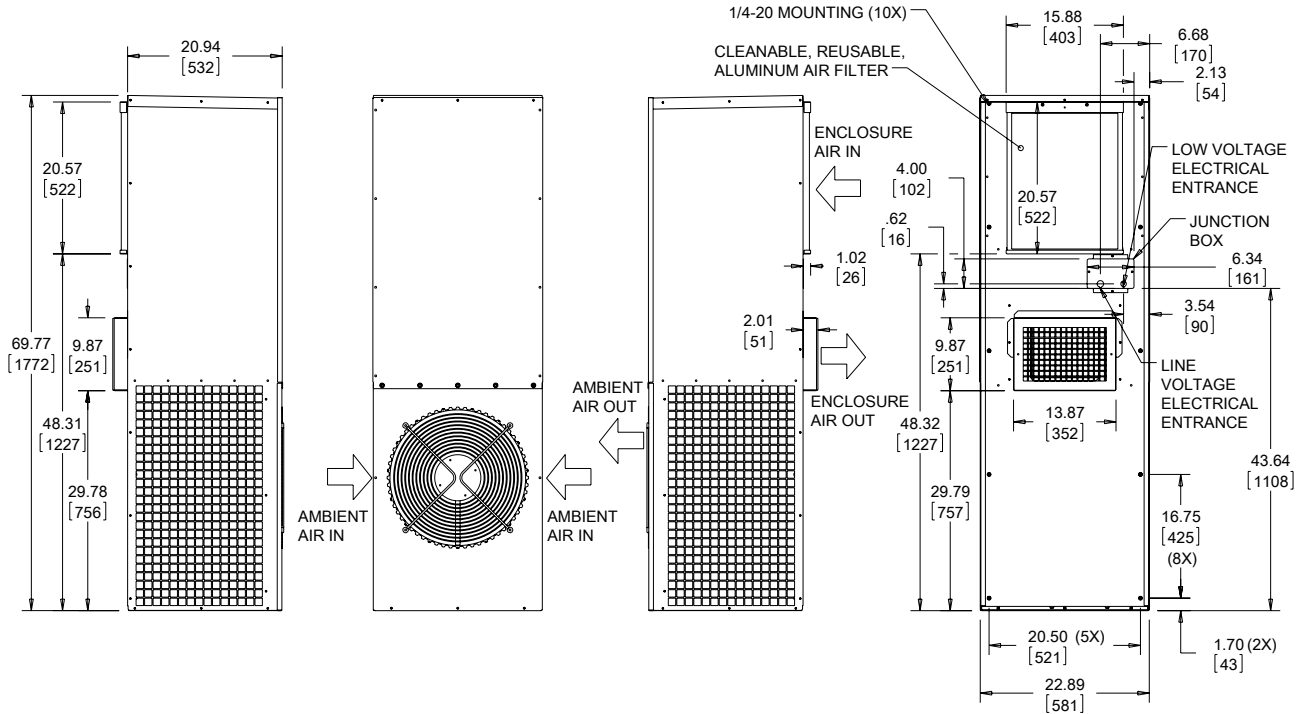
**T70-36X6-GXXX R-407c Capacity Curves 50 Hz**



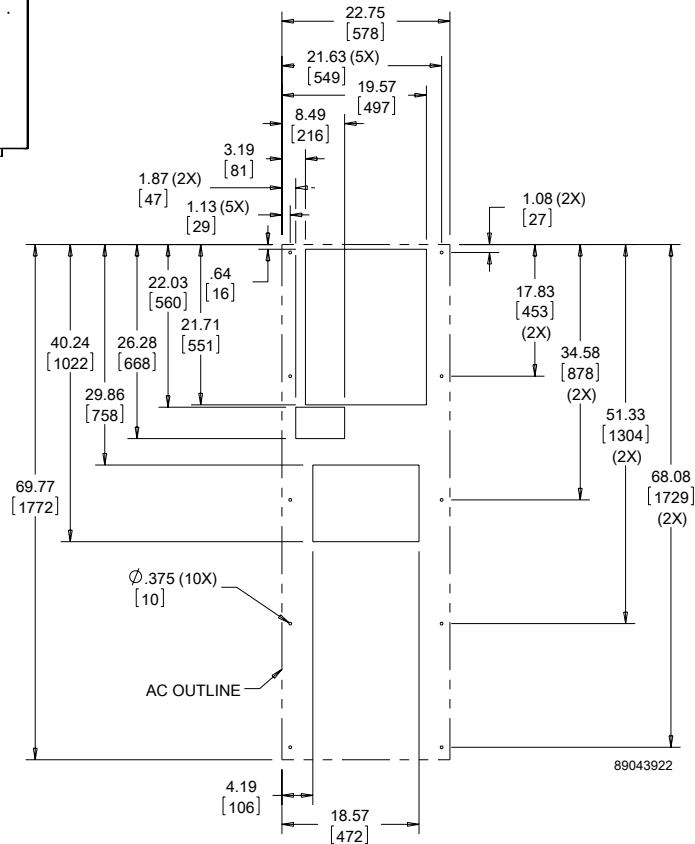
**T70-36X6-GXXX R-407c Capacity Curves 60 Hz**



T70 Models 36000 BTU/Hr. (10548 Watt)



NOTE:  
 1. MOUNTING GASKET SUPPLIED (NOT SHOWN).  
 2. UNITS: in. [mm]



Cutout Dimensions

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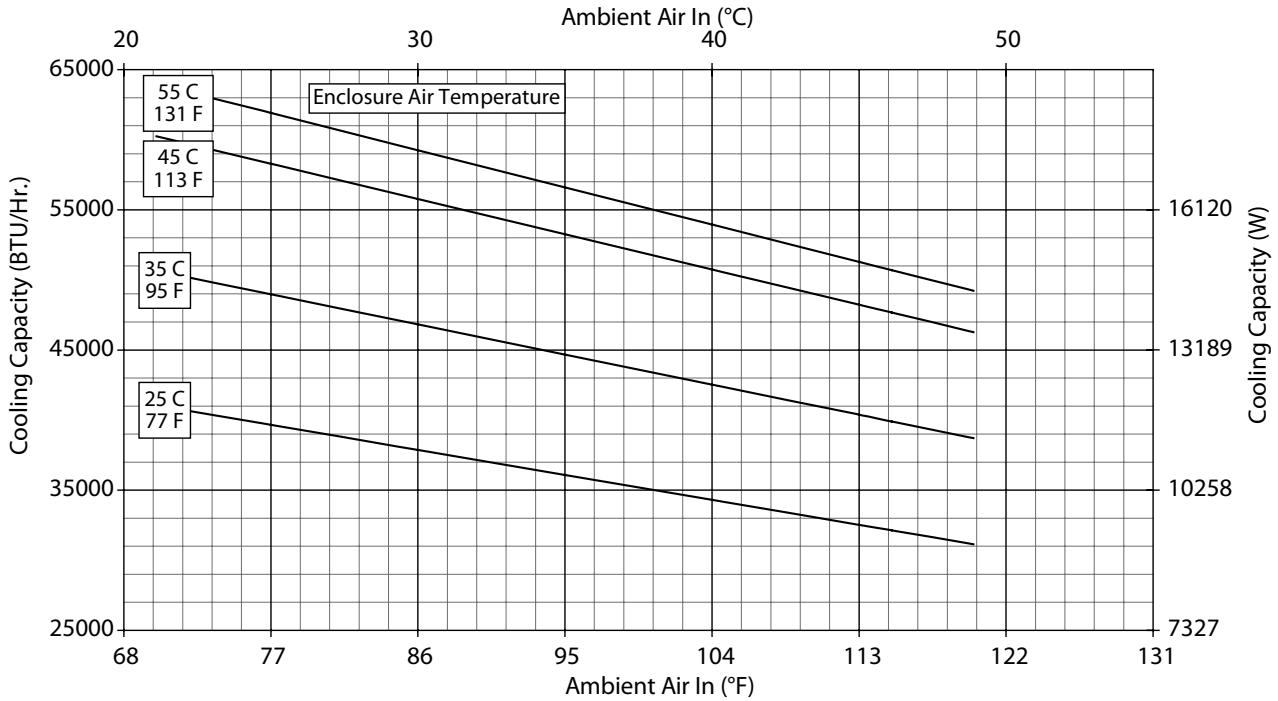
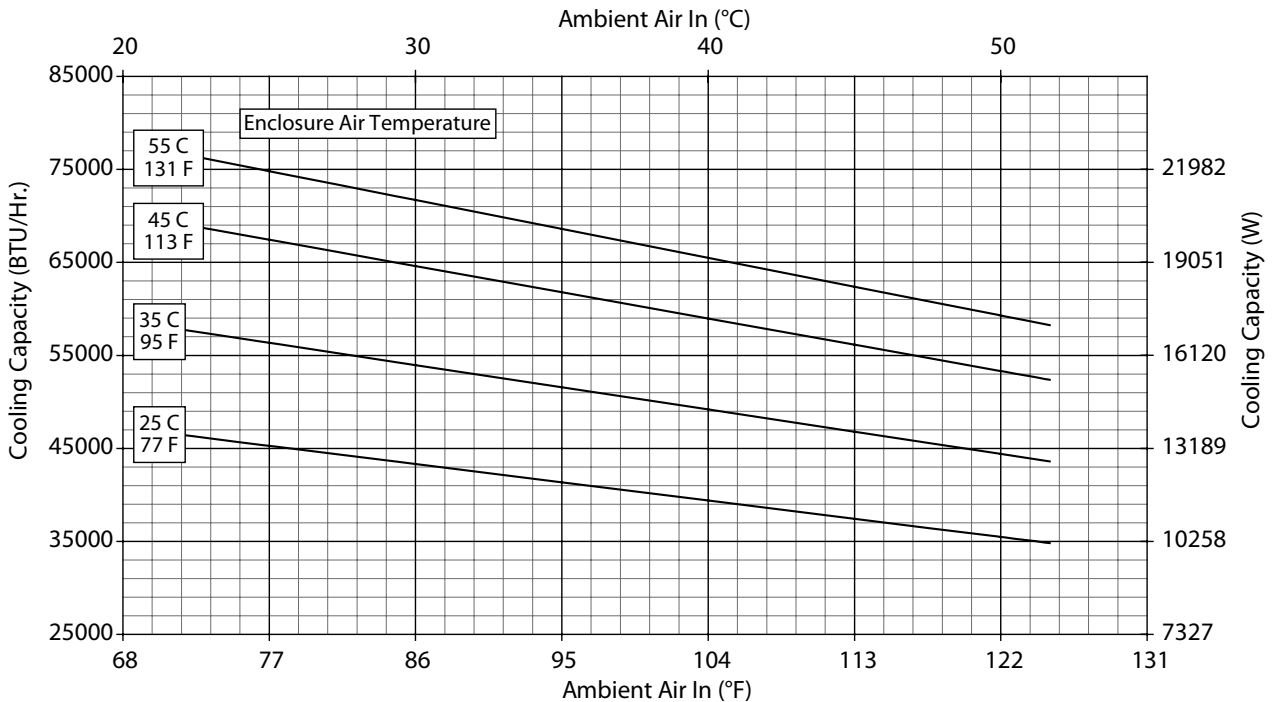


Performance Data **T70-60 59000 BTU/Hr. (17287 Watt) Models**

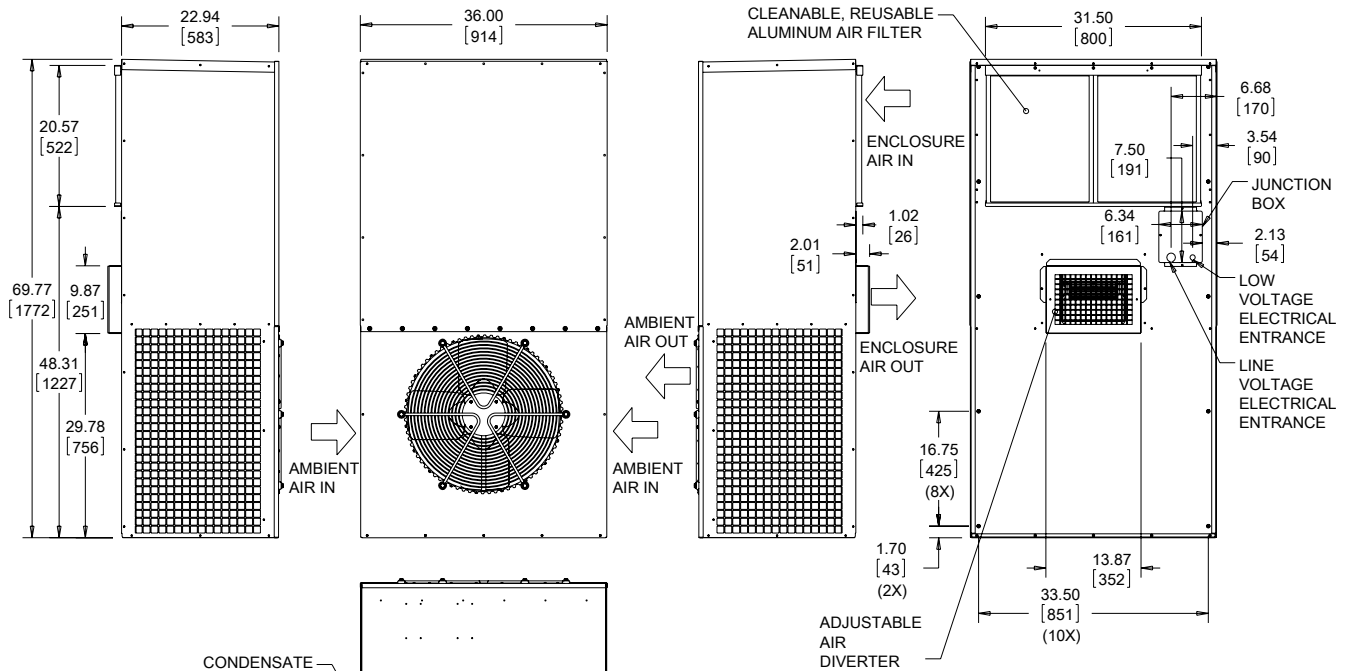
| CATALOG NUMBER                         |                                                               |                |
|----------------------------------------|---------------------------------------------------------------|----------------|
|                                        | T706026G150                                                   | T706046G400    |
| <b>COOLING PERFORMANCE</b>             |                                                               |                |
| <b>Nominal:</b>                        |                                                               |                |
| <b>BTU/Hr.</b>                         | <b>51900/60000</b>                                            |                |
| <b>Watts</b>                           | <b>15210/17584</b>                                            |                |
| At 122 F/122 F (50 C/50 C):            |                                                               |                |
| BTU/Hr. (50/60 Hz)                     | 51900/60000                                                   |                |
| W (50/60 Hz)                           | 15210/17584                                                   |                |
| At 95 F/95 F (35 C/35 C):              |                                                               |                |
| BTU/Hr. (50 /60 Hz)                    | 47122/54500                                                   |                |
| W (50/60 Hz)                           | 13810/15972                                                   |                |
| Refrigerant                            | R-407C                                                        |                |
| Refrigerant Charge (ounces/grams)      | 150/4252                                                      |                |
| Operating Temperature Range:           |                                                               |                |
| Maximum (°F/°C)                        | 122/50                                                        |                |
| Minimum (°F/°C)                        | -40/-40                                                       |                |
| Airflow at 0 Static Pressure:          |                                                               |                |
| Internal loop 50 Hz (CFM / m³/hr.)     | 1510/2565                                                     |                |
| External loop 50 Hz (CFM / m³/hr.)     | 2716/4614                                                     |                |
| Internal loop 60 Hz (CFM / m³/hr.)     | 1629/2767                                                     |                |
| External loop 60 Hz (CFM / m³/hr.)     | 2931/4979                                                     |                |
| Max. Heater W (Outdoor Models)         |                                                               |                |
| <b>ELECTRICAL DATA</b>                 |                                                               |                |
| <b>Rated Voltage</b>                   | <b>200/230</b>                                                | <b>420/460</b> |
| Frequency (Hz)                         | 50/60                                                         | 50/60          |
| Operating Range                        | +/- 10%                                                       | +/- 10%        |
| Max. Power Consumption (W at 50/60 Hz) | 7000/9200                                                     | 6426/7038      |
| Max. Nominal Current (A at 50/60 Hz)   | 35/40                                                         | 15.3           |
| Starting Current (A)                   | 144                                                           | 144            |
| Agency Approvals                       | cUL Listed<br>CE<br>GOST<br>Others available upon request     |                |
| Power Input Description                | Terminal block                                                |                |
| <b>ENCLOSURE PROTECTION</b>            |                                                               |                |
| UL Type                                | Type 12, 3R, 4 standard<br>Type 4X Stainless steel optional   |                |
| International Rating                   | IP56 on the internal loop; IP34 on the external loop          |                |
| Description                            | Basic mechanical thermostat                                   |                |
| <b>CONTROLLER</b>                      |                                                               |                |
| Thermostat Location                    | Enclosure side on all base models                             |                |
| Factory Thermostat Setting (°F/°C)     | 80/27                                                         |                |
| <b>SOUND LEVEL</b>                     |                                                               |                |
| At 1.5 Meters                          | 66 dB(A)                                                      |                |
| <b>UNIT CONSTRUCTION</b>               |                                                               |                |
| Material                               | Galvanized sheet metal standard<br>Stainless steel optional   |                |
| Finish                                 | RAL 7035 light-gray, semi-textured powder-coat paint standard |                |
| <b>UNIT DIMENSIONS</b>                 |                                                               |                |
| Height (in./mm)                        | 69.77/1772                                                    |                |
| Width (in./mm)                         | 35.86/911                                                     |                |
| Depth (in./mm)                         | 22.94/583                                                     |                |
| Weight (lb./kg)                        | 419/190.5                                                     |                |



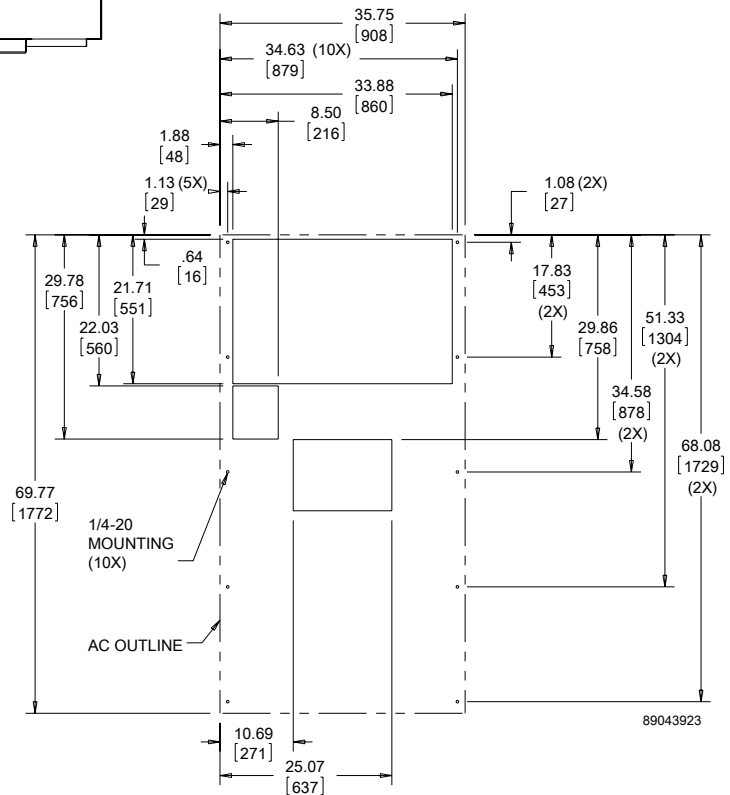
## Performance Curves for T70 Models 59000 BTU/Hr. (17287 Watt)

**T70-60X6-GXXX R-407c Capacity Curves 50 Hz**

**T70-60X6-GXXX R-407c Capacity Curves 60 Hz**


T70 Models 59000 BTU/Hr. (17287 Watt)



NOTE:  
 1. MOUNTING GASKET SUPPLIED (NOT SHOWN)  
 2. UNITS: in. [mm]



Cutout Dimensions

Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.



**GENESIS™ TOP-MOUNT INDOOR**


**HB16**  
8000 BTU/Hr.  
2051 Watt



**MHB11**  
2200-4000 BTU/Hr.  
645-1172 Watt

**INDUSTRY STANDARDS**

UL/cUL Listed; Type 12; File No. SA6453  
UR/cUR Recognized

Maintains U/cUL Type 12 rating when properly installed on a UL/cUL Type 12 enclosure.  
UR/cUR Recognized on select models, reference performance data tables.  
CE  
GOST

**APPLICATION**

- Industrial automation
- Package handling equipment
- Security and defense systems
- Ideal for use where there is little or no clearance around the enclosure

**FEATURES**

- Robust reciprocating compressor
- R134a and R407c earth-friendly refrigerant
- Models for 115, 230 and 460 single-phase VAC power input
- UL Listed or Recognized to save customers time and money with agency approvals
- Operating temperature range from 50 F/10 C to 125 F/52 C
- Attractive industrial design with minimal use of visible fasteners
- Reliable mechanical thermostat located behind the filter of the unit

- Low-carbon mild-steel sheet-metal cover for rugged factory environments
- Cleanable, reusable aluminum mesh filter protects coils for maximum cooling performance
- Mounting hardware, gaskets and user manual furnished with the unit
- Every unit functionally tested before shipping
- Standard Indoor Air Conditioner models also include:
  - Electro-Mechanical Thermostat
  - Surge Suppressor
  - Condensate Management System On MHB11 models

**FINISH**

- RAL 7042 gray, semi-gloss powder-coat paint standard
- Other colors and textures available

**OPTIONS**

- Thermostat Malfunction Package
- Special Voltage Package
  - \* Consult the factory for availability and catalog number

**NOTES**

Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.

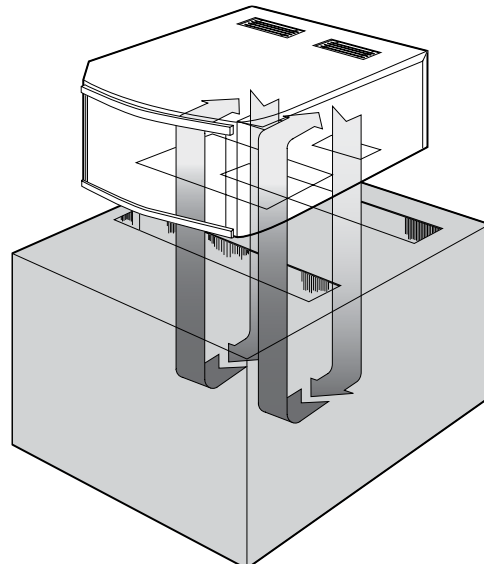
Performance Data **MHB11 Models 2200 BTU/Hr. (645 Watt)**

| <b>CATALOG NUMBER</b>                  |                                                             |                                |                              |
|----------------------------------------|-------------------------------------------------------------|--------------------------------|------------------------------|
| <b>COOLING PERFORMANCE</b>             |                                                             |                                |                              |
| <b>Nominal:</b>                        |                                                             |                                |                              |
| <b>BTU/Hr.</b>                         | <b>2200/2200</b>                                            | <b>2200/2200</b>               | <b>2200/2200</b>             |
| <b>Watts</b>                           | <b>645/645</b>                                              | <b>645/645</b>                 | <b>645/645</b>               |
| Refrigerant                            | R-134A                                                      | R-134A                         | R-134A                       |
| Refrigerant Charge (ounces/grams)      | 11/312                                                      | 11/312                         | 11/312                       |
| Operating Temperature Range:           |                                                             |                                |                              |
| Maximum (°F/°C)                        | 125/52                                                      | 125/52                         | 125/52                       |
| Minimum (°F/°C)                        | 50/10                                                       | 50/10                          | 50/10                        |
| Airflow at 0 Static Pressure:          |                                                             |                                |                              |
| Internal loop 50 Hz (CFM / m³/hr.)     | 158/268                                                     | 170/289                        | 170/289                      |
| External loop 50 Hz (CFM / m³/hr.)     | 222/377                                                     | 218/370                        | 218/370                      |
| Internal loop 60 Hz (CFM / m³/hr.)     | 177/301                                                     | 192/326                        | 192/326                      |
| External loop 60 Hz (CFM / m³/hr.)     | 252/428                                                     | 245/416                        | 245/416                      |
| <b>ELECTRICAL DATA</b>                 |                                                             |                                |                              |
| <b>Rated Voltage</b>                   | <b>115</b>                                                  | <b>220/230</b>                 | <b>440/460V 1PH</b>          |
| Frequency (Hz)                         | 50/60                                                       | 50/60                          | 50/60                        |
| Operating Range                        | +/- 10%                                                     | +/- 10%                        | +/- 10%                      |
| Max. Power Consumption (W at 50/60 Hz) | 1127/1035                                                   | 1210/1058                      | 1320/1150                    |
| Max. Nominal Current (A at 50/60 Hz)   | 9.8/9.0                                                     | 5.5/4.6                        | 3.0/2.5                      |
| Starting Current (A)                   | 28                                                          | 14.4                           | 7.4                          |
| Agency Approvals                       | cUL Listed<br>CE<br>GOST<br>Others available upon request   |                                | cUR Recognized<br>CE<br>GOST |
| Power Input Description                | 6-ft. cord with NEMA 5-15 plug                              | 6-ft. cord with NEMA 6-15 plug | 6-ft. cord with wire leads   |
| <b>ENCLOSURE PROTECTION</b>            |                                                             |                                |                              |
| UL Type                                | Type 12 standard                                            |                                |                              |
| <b>CONTROLLER</b>                      |                                                             |                                |                              |
| Description                            | Basic mechanical thermostat                                 |                                |                              |
| Thermostat Location                    | Behind filter                                               |                                |                              |
| Factory Thermostat Setting (°F/°C)     | 80/27                                                       |                                |                              |
| <b>SOUND LEVEL</b>                     |                                                             |                                |                              |
| At 1.5 Meters                          | 62 dB(A)                                                    |                                |                              |
| <b>UNIT CONSTRUCTION</b>               |                                                             |                                |                              |
| Material                               | Mild steel sheet metal standard<br>Stainless steel optional |                                |                              |
| Finish                                 | RAL 7042 gray, semi-gloss powder-coat paint standard        |                                |                              |
| <b>UNIT DIMENSIONS</b>                 |                                                             |                                |                              |
| Height (in./mm)                        | 10.25/260                                                   | 10.25/260                      | 10.25/260                    |
| Width (in./mm)                         | 17/432                                                      | 17/432                         | 17/432                       |
| Depth (in./mm)                         | 21.08/535                                                   | 21.08/535                      | 21.08/535                    |
| Weight (lb./kg)                        | 90/41                                                       | 90/41                          | 110/50                       |



Performance Data **MHB11 Models 4000 BTU/Hr. (1172 Watt)**

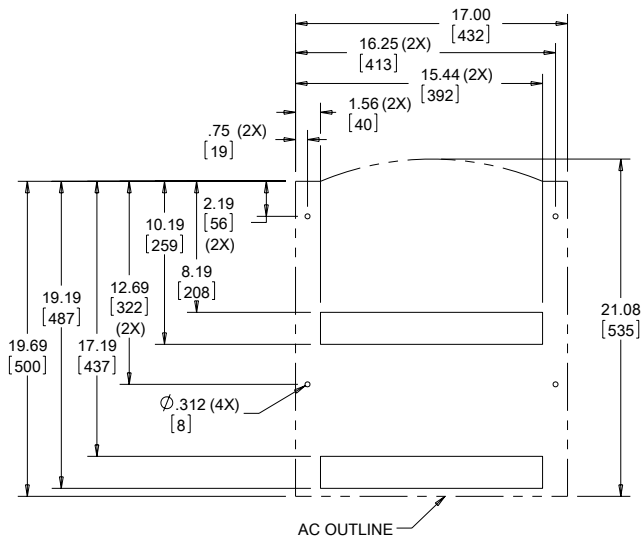
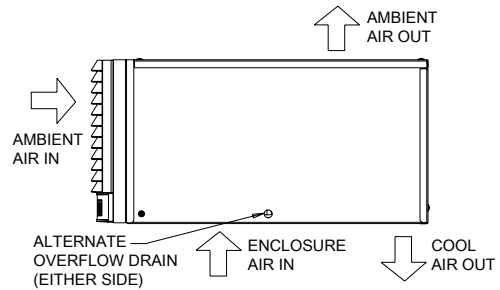
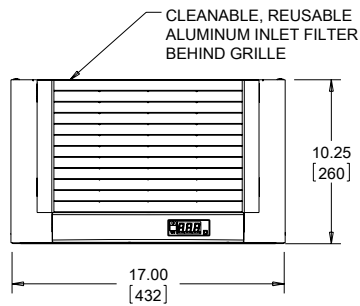
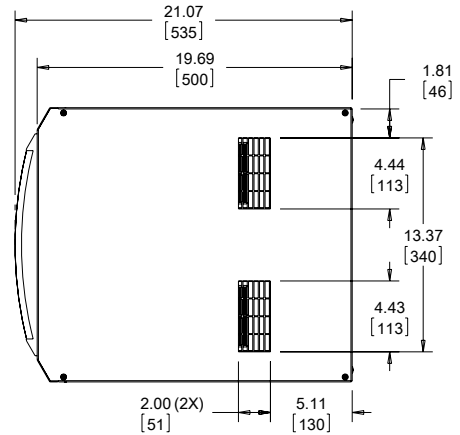
| CATALOG NUMBER                                  | MHB110416G307                                               | MHB110426G306                  | MHB110446G400                |
|-------------------------------------------------|-------------------------------------------------------------|--------------------------------|------------------------------|
| <b>COOLING PERFORMANCE</b>                      |                                                             |                                |                              |
| <b>Nominal:</b>                                 |                                                             |                                |                              |
| BTU/Hr.                                         | <b>3300/4000</b>                                            | <b>3300/4000</b>               | <b>3300/4000</b>             |
| Watts                                           | <b>967/1172</b>                                             | <b>967/1172</b>                | <b>967/1172</b>              |
| Refrigerant                                     | R-134A                                                      | R-134A                         | R-134A                       |
| Refrigerant Charge (ounces/grams)               | 13/369                                                      | 13/369                         | 13/369                       |
| Operating Temperature Range:                    |                                                             |                                |                              |
| Maximum (°F/°C)                                 | 125/52                                                      | 125/52                         | 125/52                       |
| Minimum (°F/°C)                                 | 50/10                                                       | 50/10                          | 50/10                        |
| Airflow at 0 Static Pressure:                   |                                                             |                                |                              |
| Internal loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 158/268                                                     | 170/289                        | 170/289                      |
| External loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 222/377                                                     | 218/370                        | 218/370                      |
| Internal loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 177/301                                                     | 192/326                        | 192/326                      |
| External loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 252/428                                                     | 245/416                        | 245/416                      |
| <b>ELECTRICAL DATA</b>                          |                                                             |                                |                              |
| Rated Voltage                                   | <b>110/115</b>                                              | <b>220/230</b>                 | <b>440/460V 1PH</b>          |
| Frequency (Hz)                                  | 50/60                                                       | 50/60                          | 50/60                        |
| Operating Range                                 | +/- 10%                                                     | +/- 10%                        | +/- 10%                      |
| Max. Power Consumption (W at 50/60 Hz)          | 1617/1564                                                   | 1760/1725                      | 1936/1886                    |
| Max. Nominal Current (A at 50/60 Hz)            | 14.7/13.6                                                   | 8.0/7.5                        | 4.4/4.1                      |
| Starting Current (A)                            | 48                                                          | 23                             | 12                           |
| Agency Approvals                                | cUL Listed<br>CE<br>GOST                                    |                                | cUR Recognized<br>CE<br>GOST |
| Others available upon request                   |                                                             |                                |                              |
| Power Input Description                         | 6-ft. cord with NEMA 5-20 plug                              | 6-ft. cord with NEMA 6-15 plug | 6-ft. cord with wire leads   |
| <b>ENCLOSURE PROTECTION</b>                     |                                                             |                                |                              |
| UL Type                                         | Type 12 standard                                            |                                |                              |
| <b>CONTROLLER</b>                               |                                                             |                                |                              |
| Description                                     | Basic mechanical thermostat                                 |                                |                              |
| Thermostat Location                             | Behind filter                                               |                                |                              |
| Factory Thermostat Setting (°F/°C)              | 80/27                                                       |                                |                              |
| <b>SOUND LEVEL</b>                              |                                                             |                                |                              |
| At 1.5 Meters                                   | 62 dB(A)                                                    |                                |                              |
| <b>UNIT CONSTRUCTION</b>                        |                                                             |                                |                              |
| Material                                        | Mild steel sheet metal standard<br>Stainless steel optional |                                |                              |
| Finish                                          | RAL 7042 gray, semi-gloss powder-coat paint standard        |                                |                              |
| <b>UNIT DIMENSIONS</b>                          |                                                             |                                |                              |
| Height (in./mm)                                 | 10.25/260                                                   | 10.25/260                      | 10.25/260                    |
| Width (in./mm)                                  | 17/432                                                      | 17/432                         | 17/432                       |
| Depth (in./mm)                                  | 21.08/535                                                   | 21.08/535                      | 21.08/535                    |
| Weight (lb./kg)                                 | 108/49                                                      | 108/49                         | 128/58                       |



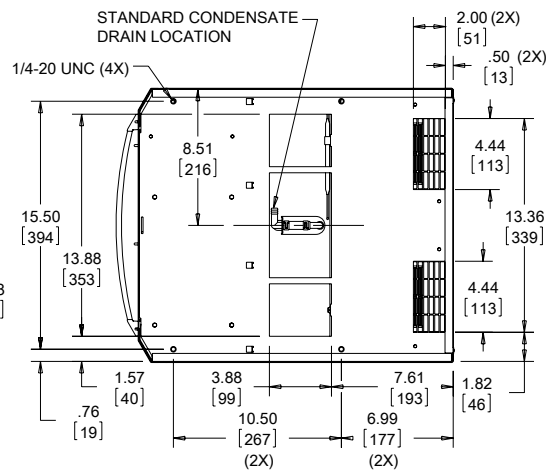
**Top-Mount to Enclosure**

MHB11 Models 2200-4000 BTU/Hr. (645-1172 Watt)

- NOTE:  
 1. MOUNTING GASKET SUPPLIED (NOT SHOWN)  
 2. UNITS: in. [mm]  
 3. CUTOUT DIMENSIONS FOR STANDARD UNITS ONLY



Cutout Dimensions



89045044

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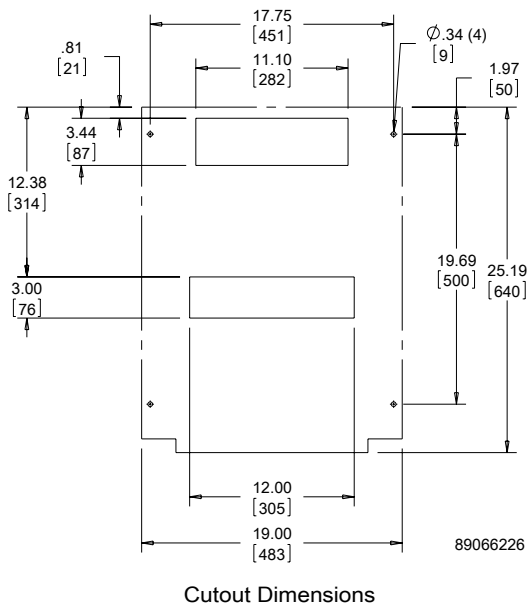
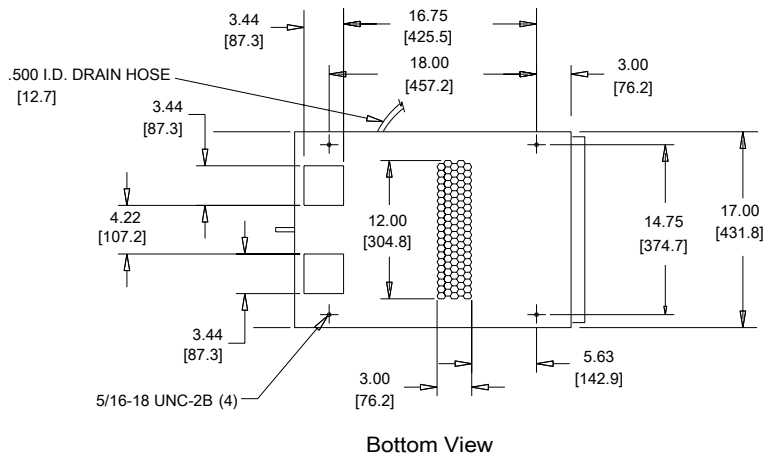
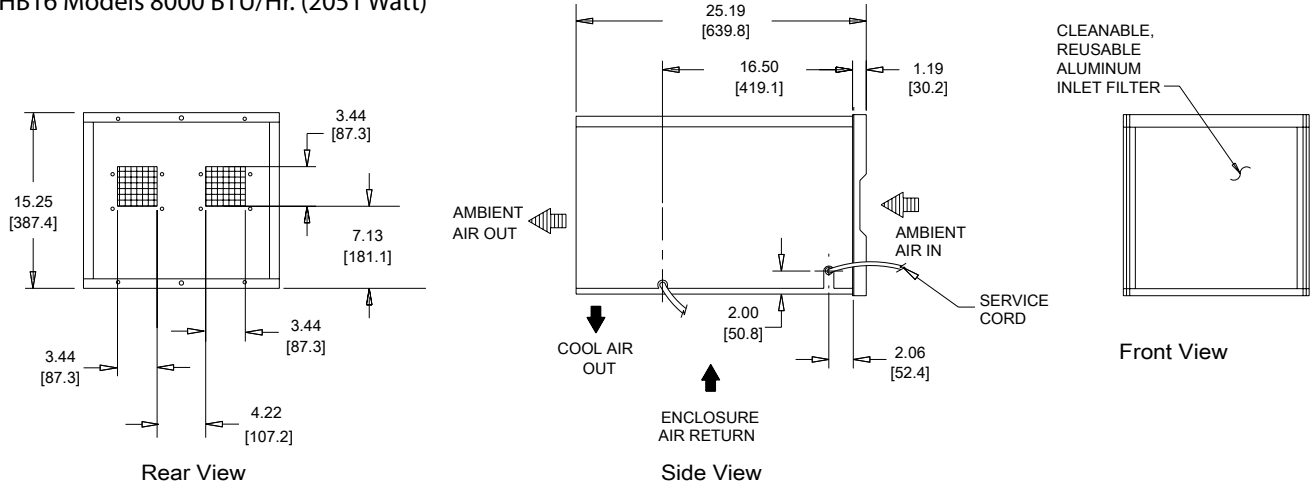


**Performance Data HB16 Models 8000 BTU/Hr. (2051 Watt)**

| <b>MODEL NUMBER</b>                    |                                                                                             |                                |                                 |
|----------------------------------------|---------------------------------------------------------------------------------------------|--------------------------------|---------------------------------|
| Indoor Model                           | HB160816G040                                                                                | HB160826G040                   | HB160846G040                    |
| <b>COOLING PERFORMANCE</b>             |                                                                                             |                                |                                 |
| Nominal:                               |                                                                                             |                                |                                 |
| <b>BTU/Hr.</b>                         | <b>7000/8000</b>                                                                            | <b>7000/8000</b>               | <b>7000/8000</b>                |
| <b>Watts</b>                           | <b>2051/2344</b>                                                                            | <b>2051/2344</b>               | <b>2051/2344</b>                |
| At 125 F/125 F (52 C/52 C):            |                                                                                             |                                |                                 |
| BTU/Hr. (50/60 Hz)                     | 6975/8137                                                                                   | 7075/8133                      | 7075/8133                       |
| Watts (50/60 Hz)                       | 2044/2385                                                                                   | 2073/2384                      | 2073/2384                       |
| At 95 F/95 F (35 C/35 C):              |                                                                                             |                                |                                 |
| BTU/Hr. (50/60 Hz)                     | 6959/8236                                                                                   | 6958/7774                      | 6958/7774                       |
| W (50/60 Hz)                           | 2039/2414                                                                                   | 2039/2278                      | 2039/2278                       |
| Refrigerant                            | R-407C                                                                                      | R-407C                         | R-407C                          |
| Refrigerant Charge (ounces/grams)      | 24/680                                                                                      | 24/680                         | 24/680                          |
| Operating Temperature Range:           |                                                                                             |                                |                                 |
| Maximum (°F/°C)                        | 125/52                                                                                      | 125/52                         | 125/52                          |
| Minimum (°F/°C)                        | 50/10                                                                                       | 50/10                          | 50/10                           |
| <b>ELECTRICAL DATA</b>                 |                                                                                             |                                |                                 |
| <b>Rated Voltage</b>                   | <b>115</b>                                                                                  | <b>230</b>                     | <b>460</b>                      |
| Frequency (Hz)                         | 50/60                                                                                       | 50/60                          | 50/60                           |
| Operating Range                        | +/- 10%                                                                                     | +/- 10%                        | +/- 10%                         |
| Max. Power Consumption (W at 50/60 Hz) | 1822/2223                                                                                   | 1785/2105                      | 2162                            |
| Max. Nominal Current (A at 50/60 Hz)   | 18.7/20.4                                                                                   | 8.5/9.3                        | 4.3/4.7                         |
| Starting Current (A)                   | 67                                                                                          | 29                             | 15                              |
| Agency Approvals                       |                                                                                             | cUL Listed<br>CE<br>GOST       |                                 |
| Power Input Description                | 6-ft. cord with NEMA 5-20 plug                                                              | 6-ft. cord with NEMA 5-20 plug | 6-ft. cord with NEMA L8-20 plug |
| <b>ENCLOSURE PROTECTION</b>            |                                                                                             |                                |                                 |
| UL Type                                | Type 12 Standard                                                                            |                                |                                 |
| <b>CONTROLLER</b>                      |                                                                                             |                                |                                 |
| Description                            | Basic Mechanical Thermostat                                                                 |                                |                                 |
| Thermostat Location                    | Enclosure Side on All Base Models                                                           |                                |                                 |
| Factory Thermostat Setting (°F/°C)     | 80/27                                                                                       | 80/27                          | 80/27                           |
| <b>UNIT CONSTRUCTION</b>               |                                                                                             |                                |                                 |
| Material                               | Galvanized Sheet Metal Standard (Optional: Stainless Steel)                                 |                                |                                 |
| Finish                                 | RAL 7042 gray, semi-gloss powder-coat paint standard<br>Other colors and textures available |                                |                                 |
| <b>UNIT DIMENSIONS</b>                 |                                                                                             |                                |                                 |
| Height (in./mm)                        | 15.25/387.35                                                                                | 15.25/387.35                   | 15.25/387.35                    |
| Width (in./mm)                         | 17.00/431.80                                                                                | 17.00/431.80                   | 17.00/431.80                    |
| Depth (in./mm)                         | 25.19/639.76                                                                                | 25.19/639.76                   | 25.19/639.76                    |
| Weight (lb./kg)                        | 145.00/69.78                                                                                | 145.00/69.78                   | 170.00/77.00                    |



HB16 Models 8000 BTU/Hr. (2051 Watt)



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**PROAIR HARSH ENVIRONMENT**


**CR23**  
1600 BTU/Hr.  
469 Watts



**CR29**  
2200 and 4000 BTU/Hr.  
645 and 1172 Watts



**CR43**  
6000 & 8000 BTU/Hr.  
1758 and 2344 Watts

3

**INDUSTRY STANDARDS**

UL/cUL Listed; Type 12, 3R, 4; 4X optional; File No. SA6453  
UR/cUR Recognized

UR/cUR Recognized on select models, reference performance data tables.

CE  
GOST

**APPLICATION**

- Industrial automation
- Package handling equipment
- Food and beverage
- Wastewater treatment
- Security and defense systems
- And more

**FEATURES**

- Robust reciprocating compressor
- Easy maintenance: hinged front cover allows quick access to all components; condenser coil can be cleaned while unit is still mounted to the cabinet
- R134a or R407c earth-friendly refrigerant
- Models for 115, 230 and 460 single phase VAC power input
- UL Listed or Recognized to save customers time and money with agency approvals
- Operating temperature range from -40 F/-40 C to 131 F/55 C (with optional low-ambient package)
- Attractive industrial design with minimal use of visible fasteners
- Reliable mechanical thermostat located behind the filter of the unit
- Low-carbon mild-steel sheet-metal cover for rugged factory and outdoor environments
- Easy-mount flanges for simple installation

- Cleanable reusable aluminum mesh filter protects coils for maximum cooling performance
- Mounting hardware, gaskets and user manual furnished with the unit
- Every unit functionally tested before shipping
- High-performance fans and blowers designed for densely packed enclosures
- Standard Indoor Air Conditioner models also include:
  - Electro-Mechanical Thermostat
  - Surge Suppressor

**FINISH**

- RAL 7035 light-gray, semi-textured powder-coat paint standard
- Stainless steel Type 304 or 316 finishes available on Type 4X models
- Other colors and textures available

**OPTIONS**

- Thermostat Malfunction Package
- Special Voltage Package
- Outdoor Package\*
- Harsh Environment Package\*
- Stainless Steel Package\*
- Heater Package\*

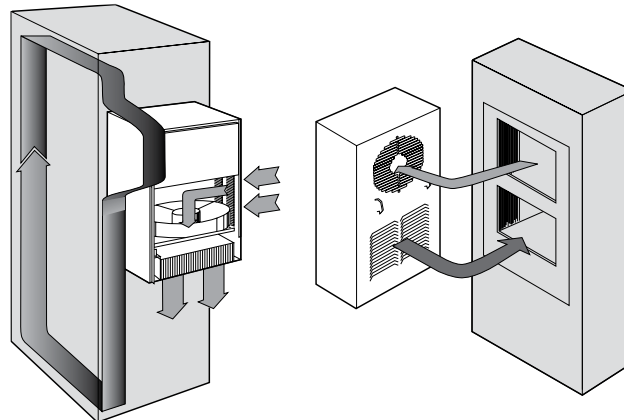
\* T-Series may be more appropriate. Refer to T-Series A/C section. Consult the factory for availability and catalog number.

**NOTES**

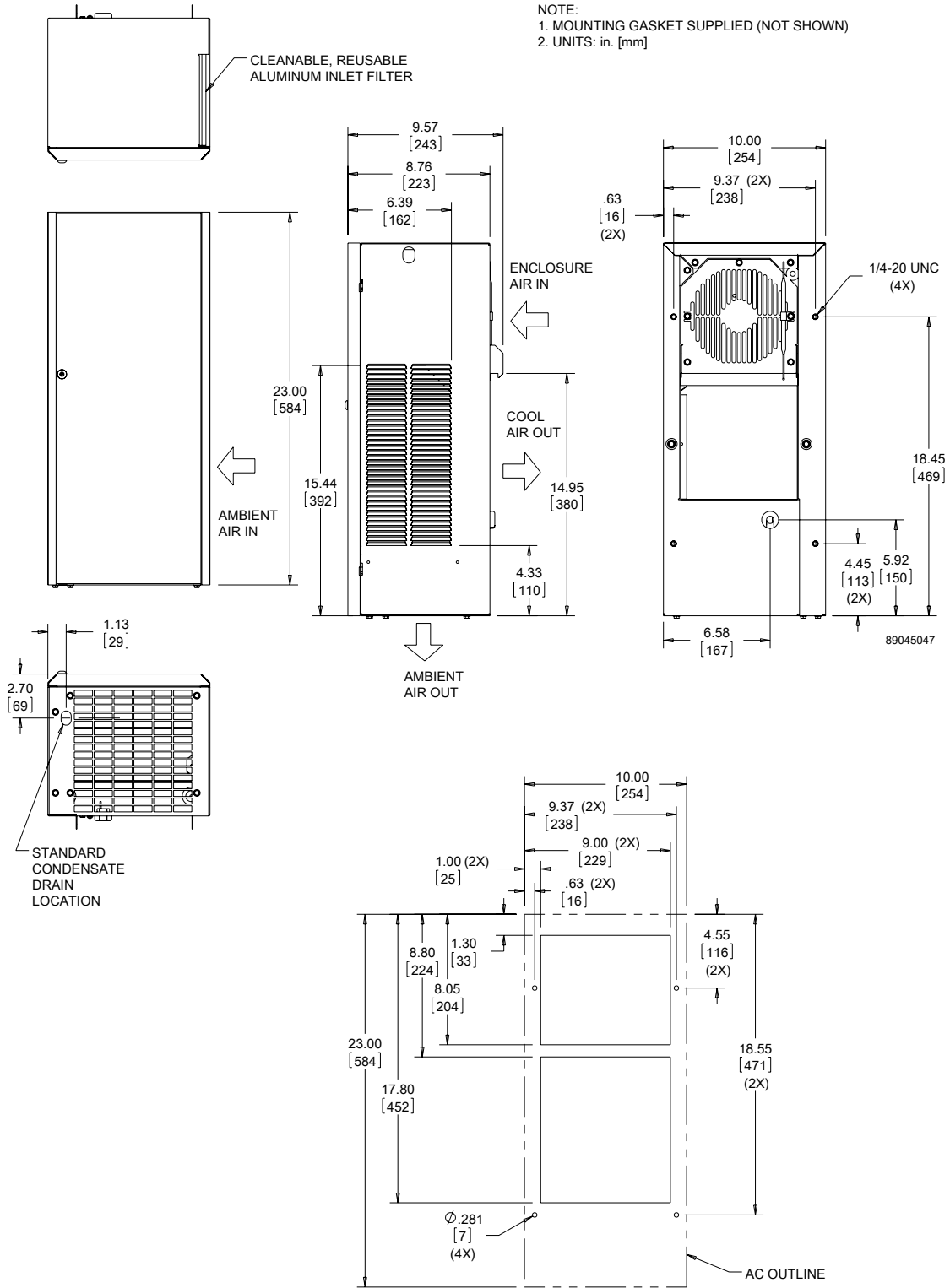
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Performance Data **CR23 Models 1600 BTU/Hr. (469 Watt)**

| <b>CATALOG NUMBER</b>                  |                                                               |                                |                              |
|----------------------------------------|---------------------------------------------------------------|--------------------------------|------------------------------|
| Indoor Model                           | CR230216G002                                                  | CR230226G002                   | CR230246G400                 |
| Indoor Level 2 Controller              | CR230216G016                                                  | —                              | —                            |
| Outdoor Type 3R                        | CR230216G013                                                  | CR230226G030                   | —                            |
| Outdoor/SST/Corrosion Type 3R          | CR230216G007                                                  | CR230226G009                   | —                            |
| Outdoor/SST/Level 2 Type 3R            | CR230216G017                                                  | CR230226G016                   | —                            |
| Indoor/Outdoor/SST/Corrosion Type 4X   | CR230216G015                                                  | CR230226G014                   | CR230226G037                 |
| <b>COOLING PERFORMANCE</b>             |                                                               |                                |                              |
| <b>Nominal:</b>                        |                                                               |                                |                              |
| <b>BTU/Hr.</b>                         | <b>1400/1600</b>                                              | <b>1400/1600</b>               | <b>1400/1600</b>             |
| <b>Watts</b>                           | <b>410/469</b>                                                | <b>410/469</b>                 | <b>410/469</b>               |
| Refrigerant                            | R-134A                                                        | R-134A                         | R-134A                       |
| Refrigerant Charge (ounces/grams)      | 10/284                                                        | 10/284                         | 10/284                       |
| Operating Temperature Range:           |                                                               |                                |                              |
| Maximum (°F/°C)                        | 131/55                                                        | 131/55                         | 131/55                       |
| Minimum (°F/°C) (Low Ambient Pkg)      | -40/-40                                                       | -40/-40                        | -40/-40                      |
| Airflow at 0 Static Pressure:          |                                                               |                                |                              |
| Internal loop 50 Hz (CFM / m³/hr.)     | 117/199                                                       | 117/199                        | 117/199                      |
| External loop 50 Hz (CFM / m³/hr.)     | 86/146                                                        | 86/146                         | 86/146                       |
| Internal loop 60 Hz (CFM / m³/hr.)     | 130/221                                                       | 130/221                        | 130/221                      |
| External loop 60 Hz (CFM / m³/hr.)     | 95/161                                                        | 95/161                         | 95/161                       |
| <b>ELECTRICAL DATA</b>                 |                                                               |                                |                              |
| <b>Rated Voltage</b>                   | <b>115</b>                                                    | <b>230</b>                     | <b>460V 1PH</b>              |
| Frequency (Hz)                         | 50/60                                                         | 50/60                          | 50/60                        |
| Operating Range                        | +/- 10%                                                       | +/- 10%                        | +/- 10%                      |
| Max. Power Consumption (W at 50/60 Hz) | 471.5/517.5                                                   | 506                            | 552                          |
| Max. Nominal Current (A at 50/60 Hz)   | 4.1/4.5                                                       | 2.2                            | 1.2                          |
| Starting Current (A)                   | 18                                                            | 8.5                            | 5                            |
| Agency Approvals                       |                                                               | cUL Listed<br>CE<br>GOST       | cUR Recognized<br>CE<br>GOST |
| Power Input Description                | 6-ft. cord with NEMA 5-15 plug                                | 6-ft. cord with NEMA 6-15 plug | 6-ft. cord with wire leads   |
| <b>ENCLOSURE PROTECTION</b>            |                                                               |                                |                              |
| UL Type                                | Type 12, 3R standard<br>Type 4, 4X Stainless steel optional   |                                |                              |
| <b>CONTROLLER</b>                      |                                                               |                                |                              |
| Description                            | Basic mechanical thermostat                                   |                                |                              |
| Thermostat Location                    | Behind cover                                                  |                                |                              |
| Factory Thermostat Setting (°F/°C)     | 80/27                                                         |                                |                              |
| <b>SOUND LEVEL</b>                     |                                                               |                                |                              |
| At 1.5 Meters                          | 62 dB(A)                                                      |                                |                              |
| <b>UNIT CONSTRUCTION</b>               |                                                               |                                |                              |
| Material                               | Mild steel sheet metal standard<br>Stainless steel optional   |                                |                              |
| Finish                                 | RAL 7035 light-gray, semi-textured powder-coat paint standard |                                |                              |
| <b>UNIT DIMENSIONS</b>                 |                                                               |                                |                              |
| Height (in./mm)                        | 23/584                                                        |                                | 23/584                       |
| Width (in./mm)                         | 10/254                                                        |                                | 10/254                       |
| Depth (in./mm)                         | 8.75/222                                                      |                                | 8.75/222                     |
| Weight (lb./kg)                        | 57/26                                                         |                                | 67/30                        |



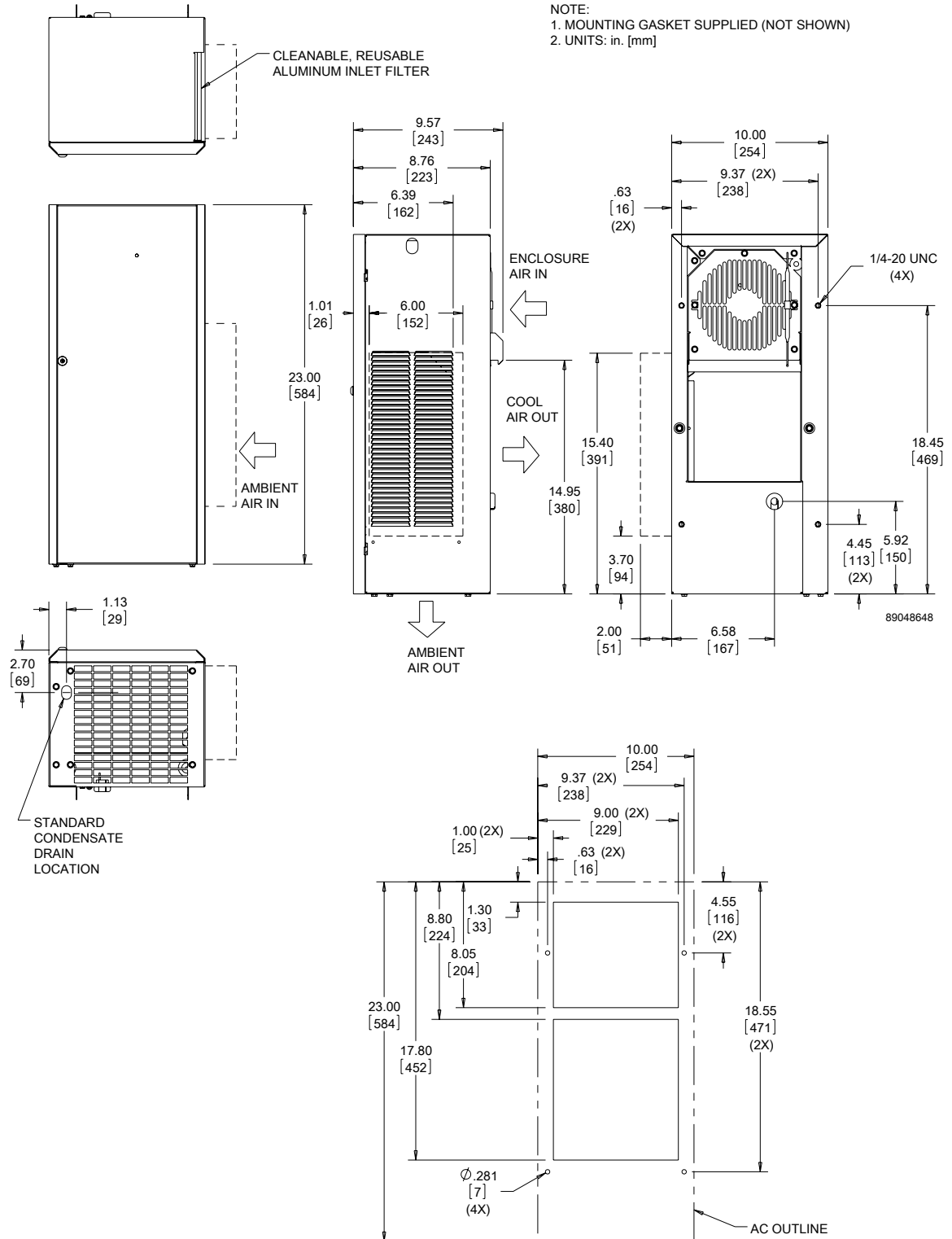
CR23 Models 1600 BTU/Hr. (469 Watt)



Cutout Dimensions

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CR23 Models 1600 BTU/Hr. (469 Watt) With 4X Hood



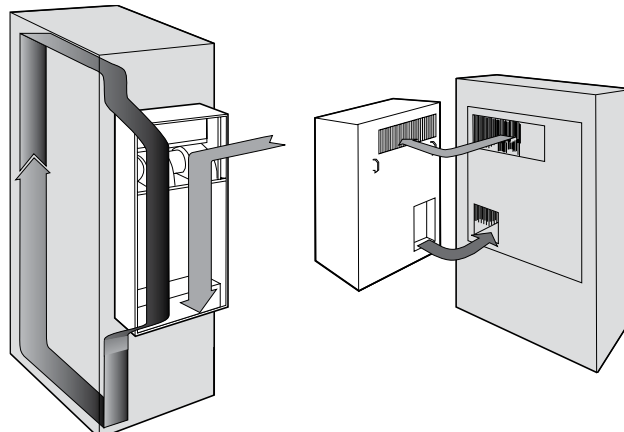
Cutout Dimensions

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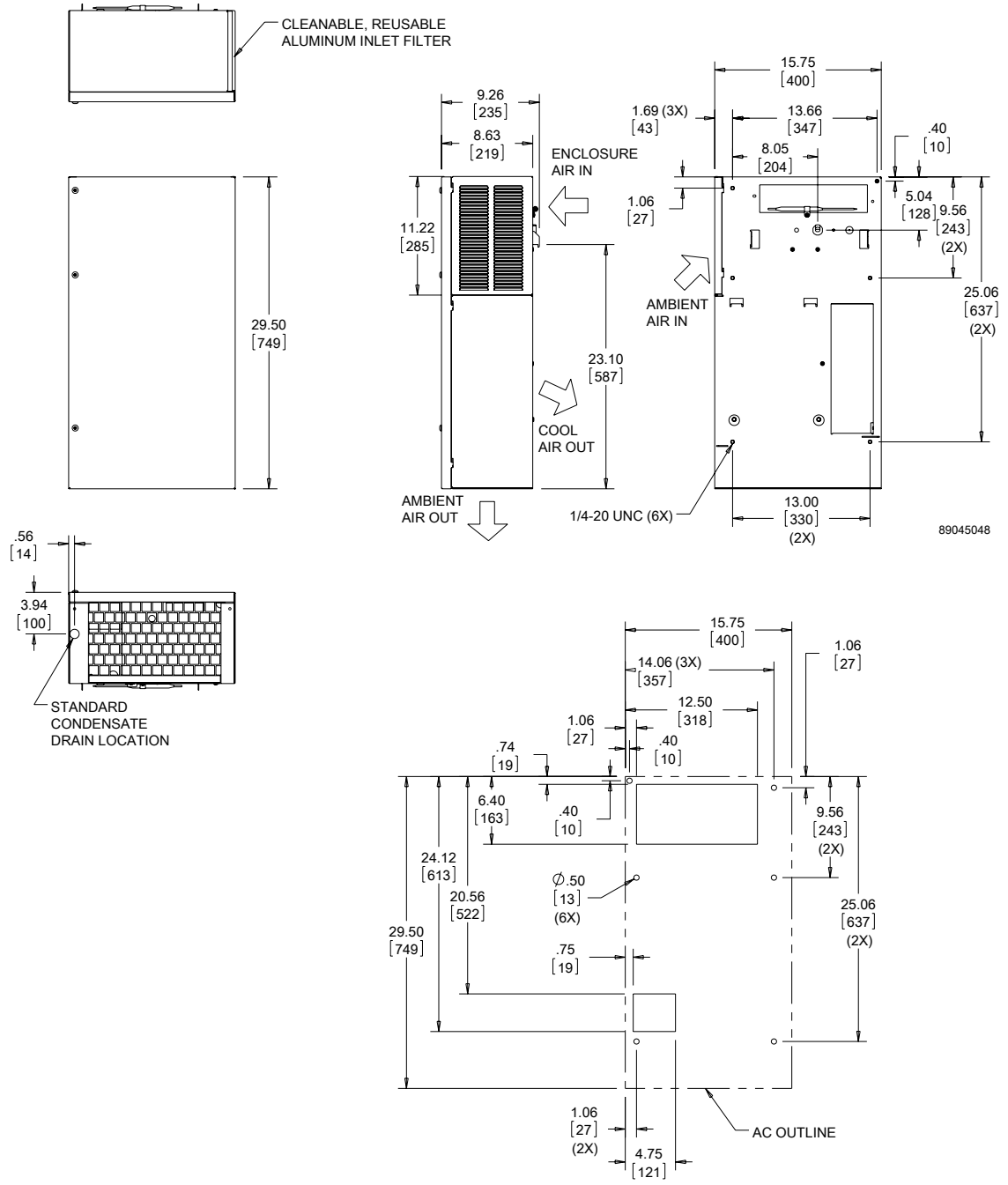
**Performance Data CR29 Models 2200/4000 BTU/Hr. (645/1172 Watt)**

| <b>CATALOG NUMBER</b>                           |                                                               |                                |                              |                                                               |                                |                              |
|-------------------------------------------------|---------------------------------------------------------------|--------------------------------|------------------------------|---------------------------------------------------------------|--------------------------------|------------------------------|
| Indoor Model                                    | CR290216G002                                                  | CR290226G002                   | CR290246G400                 | CR290416G002                                                  | CR290426G002                   | CR290446G400                 |
| Indoor Level 2 Controller                       | CR290216G030                                                  | CR290226G030                   | CR290226G041                 | CR290416G047                                                  | CR290426G027                   | —                            |
| Outdoor Type 3R                                 | CR290216G035                                                  | CR290226G020                   | CR290226G046                 | CR290416G045                                                  | CR290426G022                   | CR290426G067                 |
| Outdoor/SST/Corrosion Type 3R                   | CR290216G013                                                  | CR290226G010                   | CR290246G401                 | CR290416G030                                                  | CR290426G017                   | —                            |
| Outdoor/SST/Level 2 Type 3R                     | —                                                             | CR290226G031                   | CR290226G058                 | CR290416G052                                                  | —                              | CR290426G101                 |
| Indoor/Outdoor/SST/Corrosion Type 4X            | CR290216G036                                                  | CR290226G037                   | CR290226G045                 | CR290416G068                                                  | CR290426G054                   | CR290426G061                 |
| <b>COOLING PERFORMANCE</b>                      |                                                               |                                |                              |                                                               |                                |                              |
| <b>Nominal:</b>                                 |                                                               |                                |                              |                                                               |                                |                              |
| BTU/Hr.                                         | <b>2000/2200</b>                                              | <b>2500/2700</b>               | <b>2500/2700</b>             | <b>3500/4000</b>                                              | <b>3500/4000</b>               | <b>3500/4000</b>             |
| Watts                                           | <b>586/645</b>                                                | <b>732/791</b>                 | <b>732/791</b>               | <b>1025/1172</b>                                              | <b>1025/1172</b>               | <b>1026/1172</b>             |
| Refrigerant                                     | R-134A                                                        | R-134A                         | R-134A                       | R-134A                                                        | R-134A                         | R-134A                       |
| Refrigerant Charge (ounces/grams)               | 11/312                                                        | 11/312                         | 11/312                       | 12/341                                                        | 12/341                         | 12/341                       |
| Operating Temperature Range:                    |                                                               |                                |                              |                                                               |                                |                              |
| Maximum (°F/°C)                                 | 131/55                                                        | 131/55                         | 131/55                       | 131/55                                                        | 131/55                         | 131/55                       |
| Minimum (°F/°C) (Low Ambient Pkg)               | -40/-40                                                       | -40/-40                        | -40/-40                      | -40/-40                                                       | -40/-40                        | -40/-40                      |
| Airflow at 0 Static Pressure:                   |                                                               |                                |                              |                                                               |                                |                              |
| Internal loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 141/239                                                       | 141/239                        | 141/239                      | 141/239                                                       | 141/239                        | 141/239                      |
| External loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 235/399                                                       | 235/399                        | 235/399                      | 235/399                                                       | 235/399                        | 235/399                      |
| Internal loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 157/266                                                       | 157/266                        | 157/266                      | 157/266                                                       | 157/266                        | 157/266                      |
| External loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 261/443                                                       | 261/443                        | 261/443                      | 261/443                                                       | 261/443                        | 261/443                      |
| <b>ELECTRICAL DATA</b>                          |                                                               |                                |                              |                                                               |                                |                              |
| Rated Voltage                                   | <b>115</b>                                                    | <b>230</b>                     | <b>460V 1PH</b>              | <b>115</b>                                                    | <b>230</b>                     | <b>460V 1PH</b>              |
| Frequency (Hz)                                  | 50/60                                                         | 50/60                          | 50/60                        | 50/60                                                         | 50/60                          | 50/60                        |
| Operating Range                                 | +/- 10%                                                       | +/- 10%                        | +/- 10%                      | +/- 10%                                                       | +/- 10%                        | +/- 10%                      |
| Max. Power Consumption (W at 50/60 Hz)          | 851/517.5                                                     | 1058/877                       | 1150/996                     | 1552.5                                                        | 1541/1518                      | 1702/1656                    |
| Max. Nominal Current (A at 50/60 Hz)            | 7.4                                                           | 4.6/3.9                        | 2.5/2.1                      | 13.5/13.5                                                     | 6.7/6.6                        | 3.7/3.6                      |
| Starting Current (A)                            | 28                                                            | 14.4                           | 7.4                          | 48                                                            | 23                             | 12                           |
| Agency Approvals                                |                                                               | cUL Listed<br>CE<br>GOST       | cUR Recognized<br>CE<br>GOST |                                                               | cUL Listed<br>CE<br>GOST       | cUR Recognized<br>CE<br>GOST |
| Power Input Description                         | 6-ft. cord with NEMA 5-15 plug                                | 6-ft. cord with NEMA 6-15 plug | 6-ft. cord with wire leads   | 6-ft. cord with NEMA 5-20 plug                                | 6-ft. cord with NEMA 6-15 plug | 6-ft. cord with wire leads   |
| <b>ENCLOSURE PROTECTION</b>                     |                                                               |                                |                              |                                                               |                                |                              |
| UL Type                                         | Type 12, 3R standard<br>Type 4, 4X Stainless steel optional   |                                |                              | Type 12, 3R standard<br>4, 4X Stainless steel optional        |                                |                              |
| <b>CONTROLLER</b>                               |                                                               |                                |                              |                                                               |                                |                              |
| Description                                     | Basic mechanical thermostat                                   |                                |                              | Basic mechanical thermostat                                   |                                |                              |
| Thermostat Location                             | Behind cover                                                  |                                |                              | Behind cover                                                  |                                |                              |
| Factory Thermostat Setting (°F/°C)              | 80/27                                                         |                                |                              | 80/27                                                         |                                |                              |
| <b>SOUND LEVEL</b>                              |                                                               |                                |                              |                                                               |                                |                              |
| At 1.5 Meters                                   | 68 dB(A)                                                      |                                |                              | 68 dB(A)                                                      |                                |                              |
| <b>UNIT CONSTRUCTION</b>                        |                                                               |                                |                              |                                                               |                                |                              |
| Material                                        | Mild steel sheet metal standard<br>Stainless steel optional   |                                |                              | Mild steel sheet metal standard<br>Stainless steel optional   |                                |                              |
| Finish                                          | RAL 7035 light-gray, semi-textured powder-coat paint standard |                                |                              | RAL 7035 light-gray, semi-textured powder-coat paint standard |                                |                              |
| <b>UNIT DIMENSIONS</b>                          |                                                               |                                |                              |                                                               |                                |                              |
| Height (in./mm)                                 | 29.5/749                                                      |                                |                              | 29.5/749                                                      |                                |                              |
| Width (in./mm)                                  | 15.75/400                                                     |                                |                              | 15.75/400                                                     |                                |                              |
| Depth (in./mm)                                  | 8.63/219                                                      |                                |                              | 8.63/219                                                      |                                |                              |
| Weight (lb./kg)                                 | 98/44                                                         | 98/44                          | 108/49                       | 118/54                                                        | 118/54                         | 128/58                       |



CR29 Models 2200/4000 BTU/Hr. (645/1172 Watt)

- NOTE:  
 1. MOUNTING GASKET SUPPLIED (NOT SHOWN)  
 2. UNITS: in. [mm]

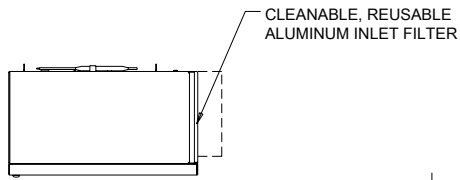


Cutout Dimensions

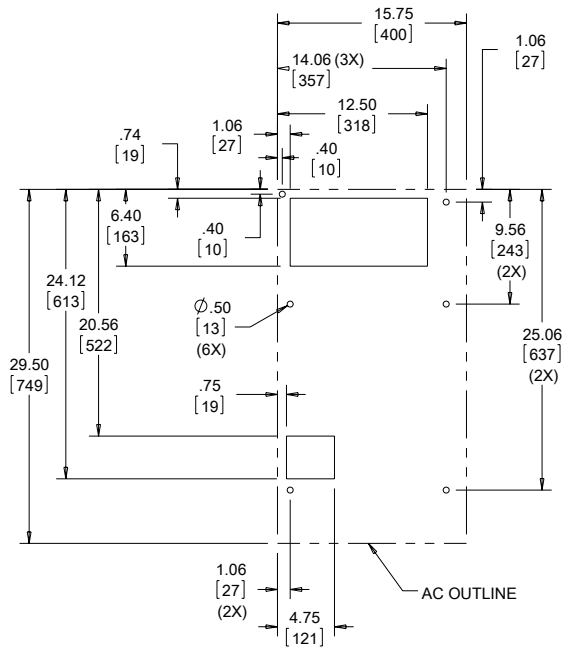
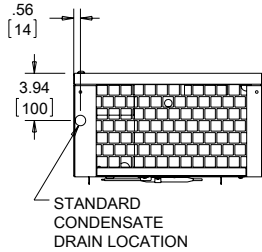
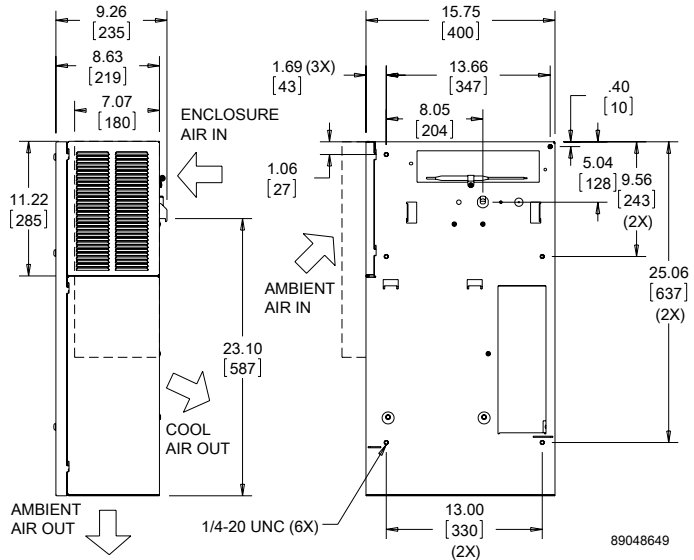
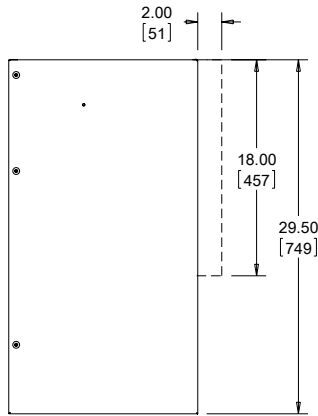
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CR29 Models 2200/4000 BTU/Hr. (645/1172 Watt) With Type 4X Hood



NOTE:  
 1. MOUNTING GASKET SUPPLIED (NOT SHOWN)  
 2. UNITS: in. [mm]



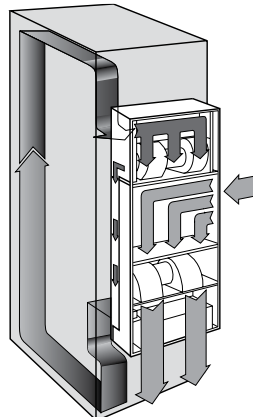
Cutout Dimensions

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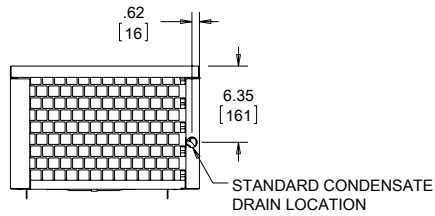
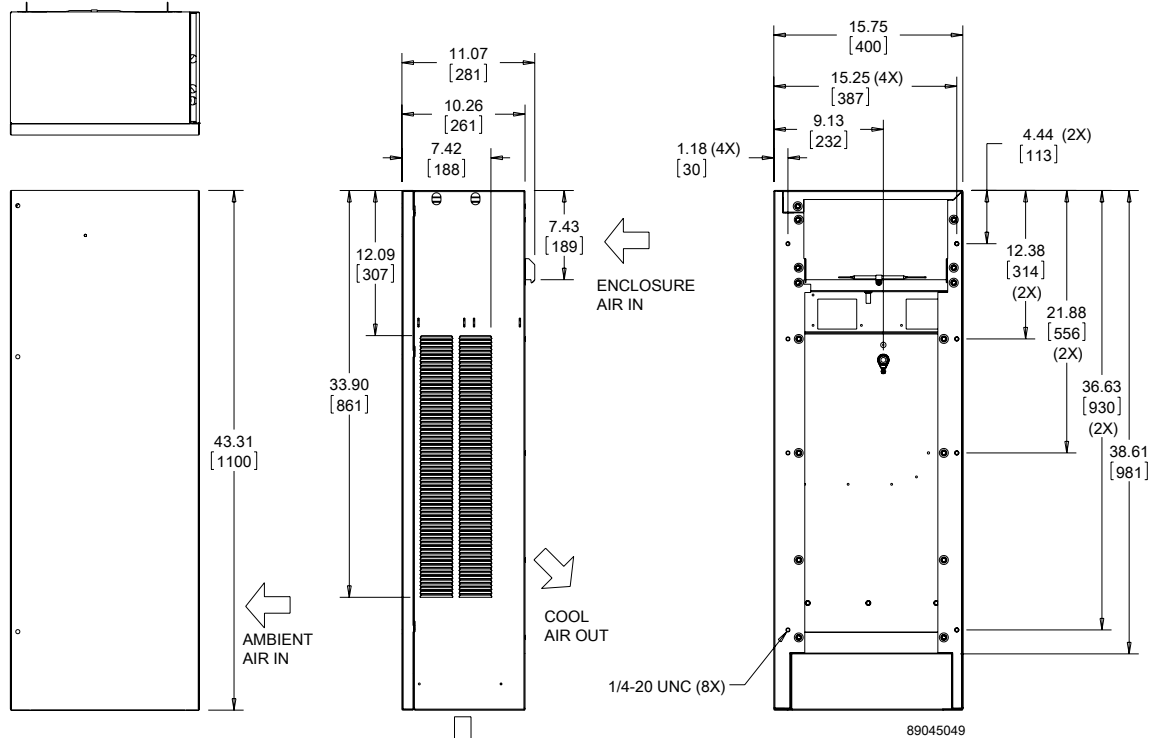


Performance Data **CR43 Models 6000/8000 BTU/Hr. (1758/2344 Watt)**

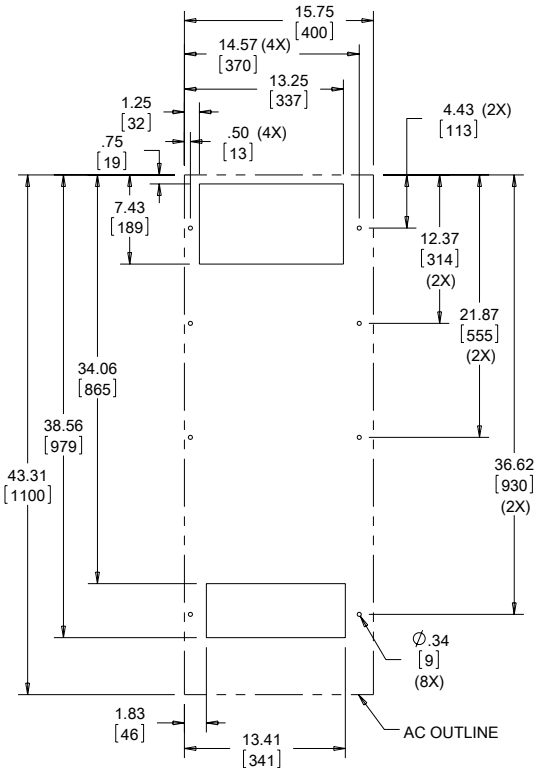
| CATALOG NUMBER                         |                                                               |                                |                              |                                                               |                                |                              |
|----------------------------------------|---------------------------------------------------------------|--------------------------------|------------------------------|---------------------------------------------------------------|--------------------------------|------------------------------|
| Indoor Model                           | CR430616G002                                                  | CR430626G002                   | CR430646G004                 | CR430816G002                                                  | CR430826G002                   | CR430826G089                 |
| Indoor Level 2 Controller              | CR430616G016                                                  | CR430626G018                   | CR430626G030                 | CR430816G021                                                  | CR430826G026                   | —                            |
| Outdoor Type 3R                        | CR430616G013                                                  | CR430626G014                   | —                            | CR430816G038                                                  | CR430826G007                   | —                            |
| Outdoor/SST/Corrosion Type 3R          | CR430616G004                                                  | —                              | —                            | CR430816G010                                                  | CR430826G037                   | —                            |
| Outdoor/SST/Level 2 Type 3R            | —                                                             | CR430626G020                   | —                            | CR430816G023                                                  | CR430826G024                   | —                            |
| Indoor/Outdoor/SST/Corrosion Type 4X   | CR430616G031                                                  | CR430626G034                   | CR430626G074                 | CR430816G036                                                  | CR430826G038                   | CR430846G401                 |
| COOLING PERFORMANCE                    |                                                               |                                |                              |                                                               |                                |                              |
| <b>Nominal:</b>                        |                                                               |                                |                              |                                                               |                                |                              |
| BTU/Hr.                                | <b>5500/6000</b>                                              | <b>5500/6000</b>               | <b>5500/6000</b>             | <b>7100/8000</b>                                              | <b>7100/8000</b>               | <b>7100/8000</b>             |
| Watts                                  | 1611/1758                                                     | <b>1611/1758</b>               | <b>1611/1758</b>             | <b>2080/2344</b>                                              | <b>2080/2344</b>               | <b>2080/2344</b>             |
| Refrigerant                            | R-134A                                                        | R-134A                         | R-134A                       | R-134A                                                        | R-134A                         | R-134A                       |
| Refrigerant Charge (ounces/grams)      | 19/538                                                        | 19/538                         | 19/538                       | 19/538                                                        | 19/538                         | 19/538                       |
| Operating Temperature Range:           |                                                               |                                |                              |                                                               |                                |                              |
| Maximum [°F/°C]                        | 131/55                                                        | 131/55                         | 131/55                       | 131/55                                                        | 131/55                         | 131/55                       |
| Minimum [°F/°C] (Low Ambient Pkg.)     | -40/-40                                                       | -40/-40                        | -40/-40                      | -40/-40                                                       | -40/-40                        | -40/-40                      |
| Airflow at 0 Static Pressure:          |                                                               |                                |                              |                                                               |                                |                              |
| Internal loop 50 Hz (CFM / m³/hr.)     | 320/543                                                       | 226/384                        | 226/384                      | 320/543                                                       | 226/384                        | 226/384                      |
| External loop 50 Hz (CFM / m³/hr.)     | 480/815                                                       | 470/798                        | 470/798                      | 480/815                                                       | 470/798                        | 470/798                      |
| Internal loop 60 Hz (CFM / m³/hr.)     | 368/625                                                       | 255/433                        | 255/433                      | 368/625                                                       | 255/433                        | 255/433                      |
| External loop 60 Hz (CFM / m³/hr.)     | 544/924                                                       | 540/917                        | 540/917                      | 544/924                                                       | 540/917                        | 540/917                      |
| ELECTRICAL DATA                        |                                                               |                                |                              |                                                               |                                |                              |
| Rated Voltage                          | <b>115</b>                                                    | <b>230</b>                     | <b>460V 1PH</b>              | <b>115</b>                                                    | <b>230</b>                     | <b>460V 1PH</b>              |
| Frequency (Hz)                         | 50/60                                                         | 50/60                          | 50/60                        | 50/60                                                         | 50/60                          | 50/60                        |
| Operating Range                        | +/- 10%                                                       | +/- 10%                        | +/- 10%                      | +/- 10%                                                       | +/- 10%                        | +/- 10%                      |
| Max. Power Consumption (W at 50/60 Hz) | 1460                                                          | 1403/1518                      | 1564/1656                    | 1460                                                          | 1403/1518                      | 1564/1656                    |
| Max. Nominal Current (A at 50/60 Hz)   | 12.7                                                          | 6.1/6.6                        | 3.4/3.6                      | 12.7                                                          | 6.1/6.6                        | 3.4/3.6                      |
| Starting Current (A)                   | 48.3                                                          | 27                             | 14                           | 48.3                                                          | 27                             | 14                           |
| Agency Approvals                       | cUL Listed<br>CE<br>GOST                                      |                                | cUR Recognized<br>CE<br>GOST | cUL Listed<br>CE<br>GOST                                      |                                | cUR Recognized<br>CE<br>GOST |
|                                        | Others available upon request                                 |                                |                              | Others available upon request                                 |                                |                              |
| Power Input Description                | 6-ft. cord with NEMA 5-20 plug                                | 6-ft. cord with NEMA 6-15 plug | 6-ft. cord with wire leads   | 6-ft. cord with NEMA 5-20 plug                                | 6-ft. cord with NEMA 6-15 plug | 6-ft. cord with wire leads   |
| ENCLOSURE PROTECTION                   |                                                               |                                |                              |                                                               |                                |                              |
| UL Type                                | Type 12, 3R standard<br>Type 4, 4X Stainless steel optional   |                                |                              | Type 12, 3R standard<br>4, 4X Stainless steel optional        |                                |                              |
| CONTROLLER                             |                                                               |                                |                              |                                                               |                                |                              |
| Description                            | Basic mechanical thermostat                                   |                                |                              | Basic mechanical thermostat                                   |                                |                              |
| Thermostat Location                    | Enclosure side on all base models                             |                                |                              | Enclosure side on all base models                             |                                |                              |
| Factory Thermostat Setting [°F/°C]     | 80/27                                                         |                                |                              | 80/27                                                         |                                |                              |
| SOUND LEVEL                            |                                                               |                                |                              |                                                               |                                |                              |
| At 1.5 Meters                          | 71 dB(A)                                                      |                                |                              | 71 dB(A)                                                      |                                |                              |
| UNIT CONSTRUCTION                      |                                                               |                                |                              |                                                               |                                |                              |
| Material                               | Galvanized sheet metal standard<br>Stainless steel optional   |                                |                              | Galvanized sheet metal standard<br>Stainless steel optional   |                                |                              |
| Finish                                 | RAL 7035 light-gray, semi-textured powder-coat paint standard |                                |                              | RAL 7035 light-gray, semi-textured powder-coat paint standard |                                |                              |
| UNIT DIMENSIONS                        |                                                               |                                |                              |                                                               |                                |                              |
| Height (in./mm)                        | 43.31/1100                                                    |                                |                              | 43.31/1100                                                    |                                |                              |
| Width (in./mm)                         | 15.75/400                                                     |                                |                              | 15.75/400                                                     |                                |                              |
| Depth (in./mm)                         | 10.25/260                                                     |                                |                              | 10.25/260                                                     |                                |                              |
| Weight (lb./kg)                        | 125/57                                                        | 125/57                         | 155/70                       | 125/57                                                        | 125/57                         | 155/70                       |



## CR43 Models 6000/8000 BTU/Hr. (1758/2344 Watt)

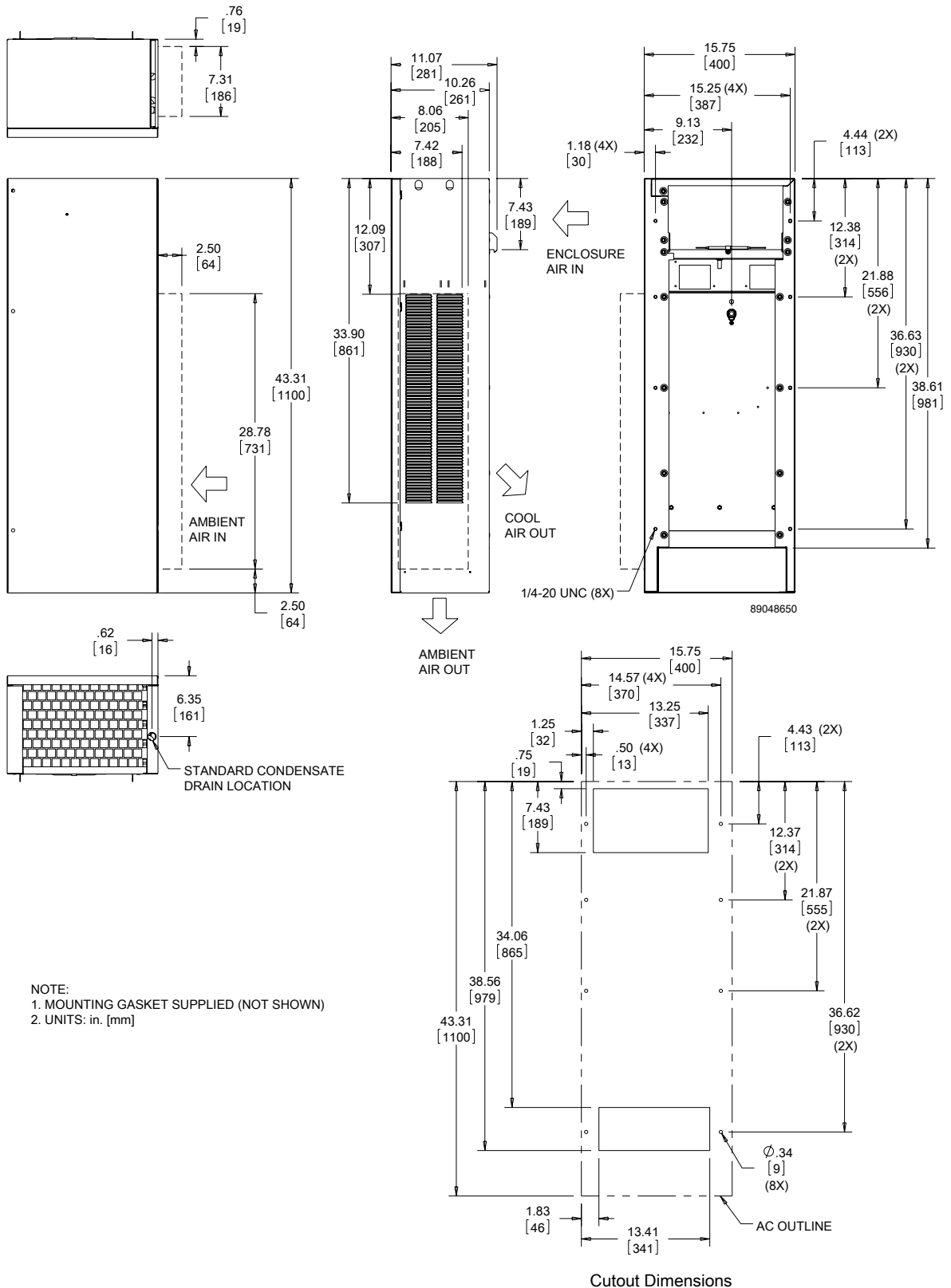


NOTE:  
 1. MOUNTING GASKET SUPPLIED (NOT SHOWN)  
 2. UNITS: in. [mm]



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CR43 Models 6000/8000 BTU/Hr. (1758/2344 Watt)



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**WATER-COOLED INDOOR**


33WC  
4000 BTU/Hr.  
1172 Watt

**INDUSTRY STANDARDS**

UL/cUL Listed; Type 12; File No. SA6453  
UR/cUR Recognized

UR/cUR Recognized on select models, reference performance data tables.

CE  
GOST

**APPLICATION**

- Industrial automation
- Package handling equipment
- Food and beverage
- Wastewater treatment
- Security and defense systems
- Pulp and paper
- And more

**FEATURES**

- Robust reciprocating compressor
- R134a earth-friendly refrigerant
- Models for 115 VAC, 230 VAC and 460 V 1-phase power input
- UL Listed or Recognized to save customers time and money with agency approvals
- Operating temperature range from 50 F/10 C to 125 F/52 C
- Attractive industrial design with minimal use of visible fasteners
- Reliable mechanical thermostat located behind the front panel of the unit
- Low-carbon mild-steel sheet-metal cover for rugged factory and outdoor environments
- Easy-mount flanges for simple installation
- Mounting hardware, gaskets and user manual furnished with the unit
- Every unit functionally tested before shipping
- Heat is removed from the system by means of the water cooling the refrigerant; no external air movers or condenser coils to get clogged
- Maximum water usage of 2 GPM at 90 F water intake temperature
- Standard Indoor Air Conditioner models also include:
  - Electro-Mechanical Thermostat
  - Surge Suppressor

**FINISH**

- RAL 7042 gray, semi-gloss powder-coat paint standard
- Stainless steel Type 304 or 316 finishes available on Type 4X models
- Other colors and textures available

**OPTIONS**

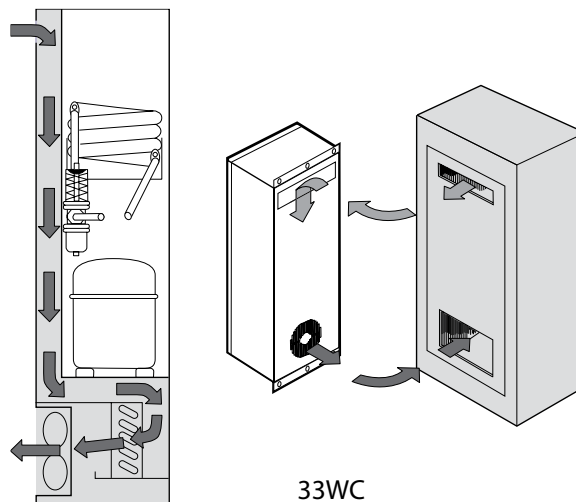
- Thermostat Malfunction Package
- Special Voltage Package
- Active Condensate Evaporator Package
- Harsh Environment Package\*
- Stainless Steel Package\*
  - \* Consult the factory for availability and catalog number.

**NOTES**

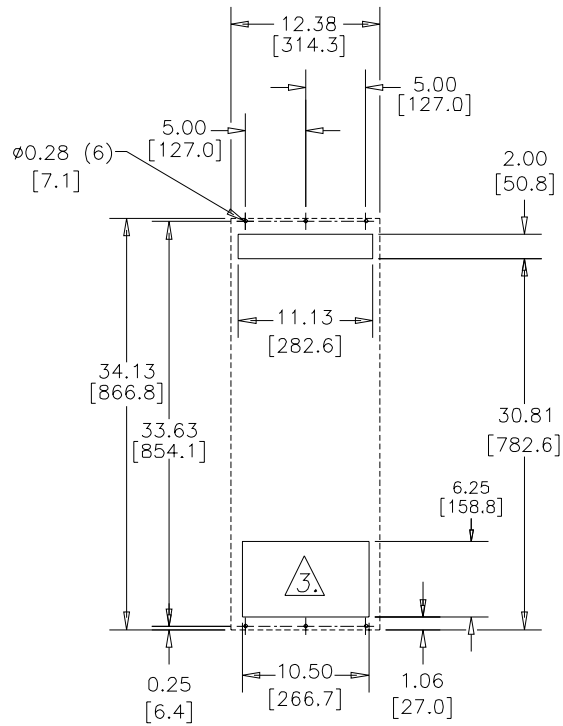
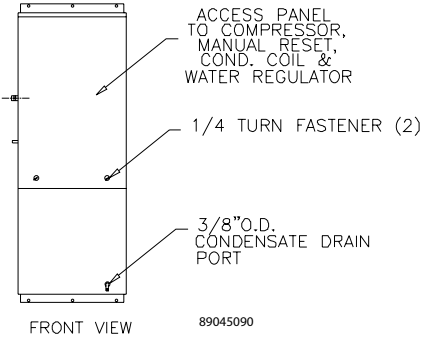
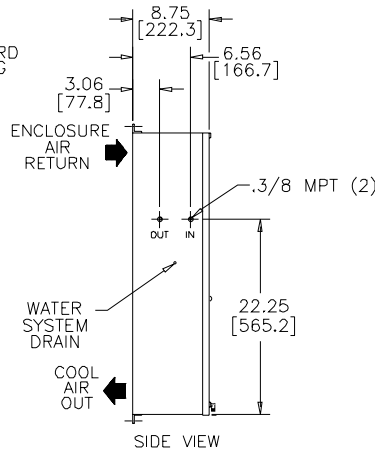
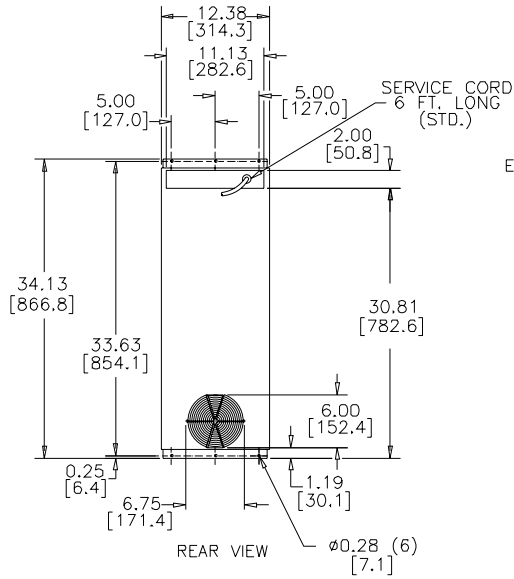
Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.

Performance Data **33WC Models 4000 BTU/Hr. (1172 Watt)**

| CATALOG NUMBER                         |                                                             |                                |                              |
|----------------------------------------|-------------------------------------------------------------|--------------------------------|------------------------------|
|                                        | 330416GW010                                                 | 330426GW014                    | 330426GW012                  |
| COOLING PERFORMANCE                    |                                                             |                                |                              |
| Nominal:                               |                                                             |                                |                              |
| <b>BTU/Hr.</b>                         | <b>3800/4000</b>                                            | <b>3800/4000</b>               | <b>3800/4000</b>             |
| <b>Watts</b>                           | <b>1113/1172</b>                                            | <b>1113/1172</b>               | <b>1113/1172</b>             |
| Refrigerant                            | R-134A                                                      | R-134A                         | R-134A                       |
| Refrigerant Charge (ounces/grams)      | 7/198                                                       | 7/198                          | 7/198                        |
| Operating Temperature Range:           |                                                             |                                |                              |
| Maximum (°F/°C)                        | 125/52                                                      | 125/52                         | 125/52                       |
| Minimum (°F/°C)                        | 50/10                                                       | 50/10                          | 50/10                        |
| Airflow at 0 Static Pressure:          |                                                             |                                |                              |
| Internal loop 50 Hz (CFM / m³/hr.)     | 135/229                                                     | 100/170                        | 100/170                      |
| External loop 50 Hz                    | Waterflow: 0.5 GPM @ 90 F                                   | Waterflow: 0.5 GPM @ 90 F      | Waterflow: 0.5 GPM @ 90 F    |
| Internal loop 60 Hz (CFM / m³/hr.)     | 145/246                                                     | 110/187                        | 110/187                      |
| External loop 60 Hz                    | Waterflow: 0.5 GPM @ 90 F                                   | Waterflow: 0.5 GPM @ 90 F      | Waterflow: 0.5 GPM @ 90 F    |
| ELECTRICAL DATA                        |                                                             |                                |                              |
| <b>Rated Voltage</b>                   | <b>115</b>                                                  | <b>220/230</b>                 | <b>460V 1PH</b>              |
| Frequency (Hz)                         | 50/60                                                       | 50/60                          | 50/60                        |
| Operating Range                        | +/- 10%                                                     | +/- 10%                        | +/- 10%                      |
| Max. Power Consumption (W at 50/60 Hz) | 690/667                                                     | 726/736                        | 828/782                      |
| Max. Nominal Current (A at 50/60 Hz)   | 6.0/5.8                                                     | 3.3/3.2                        | 1.8/1.7                      |
| Starting Current (A)                   | 28                                                          | 14.4                           | 7.4                          |
| Agency Approvals                       | cUL Listed<br>CE<br>GOST                                    |                                | cUR Recognized<br>CE<br>GOST |
| Power Input Description                | 6-ft. cord with NEMA 5-15 plug                              | 6-ft. cord with NEMA 6-15 plug | 6-ft. cord with wire leads   |
| ENCLOSURE PROTECTION                   |                                                             |                                |                              |
| UL Type                                | Type 12 standard                                            |                                |                              |
| CONTROLLER                             |                                                             |                                |                              |
| Description                            | Basic mechanical thermostat                                 |                                |                              |
| Thermostat Location                    | Behind front cover                                          |                                |                              |
| Factory Thermostat Setting (°F/°C)     | 80/27                                                       |                                |                              |
| SOUND LEVEL                            |                                                             |                                |                              |
| At 1.5 Meters                          | 61 dB(A)                                                    |                                |                              |
| UNIT CONSTRUCTION                      |                                                             |                                |                              |
| Material                               | Mild steel sheet metal standard<br>Stainless steel optional |                                |                              |
| Finish                                 | RAL 7042 gray, semi-gloss powder-coat paint standard        |                                |                              |
| UNIT DIMENSIONS                        |                                                             |                                |                              |
| Height (in./mm)                        | 34.13/867                                                   | 38.63/981.2                    |                              |
| Width (in./mm)                         | 12.38/314                                                   | 12.38/314                      |                              |
| Depth (in./mm)                         | 8.75/222                                                    | 8.75/222                       |                              |
| Weight (lb./kg)                        | 86/39                                                       | 106/48                         |                              |



33WC Models 4000 BTU/Hr. (1172 Watt)



Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.

**Notes**



**WATER-COOLED INDOOR/OUTDOOR**



CR43WC  
8000 BTU/Hr.  
2345 Watt

**INDUSTRY STANDARDS**

UL/cUL Listed; Type 4; 4X optional; File No. SA6453  
UR/cUR Recognized

UR/cUR Recognized on select models, reference performance data tables.  
CE  
GOST

**APPLICATION**

- Industrial automation
- Package handling equipment
- Food and beverage
- Wastewater treatment
- Security and defense systems
- Pulp and paper
- And more

**FEATURES**

- Robust reciprocating compressor
- R134a earth-friendly refrigerant
- Models for 115 and 230 VAC power input
- UL Listed or Recognized to save customers time and money with agency approvals
- Operating temperature range from 50 F/10 C to 125 F/52 C
- Attractive industrial design with minimal use of visible fasteners
- Reliable mechanical thermostat located behind the front panel of the unit
- Low-carbon mild-steel sheet-metal cover for rugged factory and outdoor environments
- Easy-mount flanges for simple installation
- Mounting hardware, gaskets and user manual furnished with the unit
- Every unit functionally tested before shipping
- Heat is removed from the system by means of the water cooling the refrigerant; no external air movers or condenser coils to get clogged
- Maximum water usage of 2 GPM at 90 F water intake temperature
- Standard Indoor Air Conditioner models also include:
  - Electro-Mechanical Thermostat
  - Surge Suppressor

**FINISH**

- RAL 7035 light-gray, semi-textured powder-coat paint standard
- Stainless steel Type 304 or 316 finishes available on Type 4X models
- Other colors and textures available

**OPTIONS**

- Thermostat Malfunction Package
- Special Voltage Package
- Active Condensate Evaporator Package
- Harsh Environment Package\*
- Stainless Steel Package\*
  - \* Consult the factory for availability and catalog number.

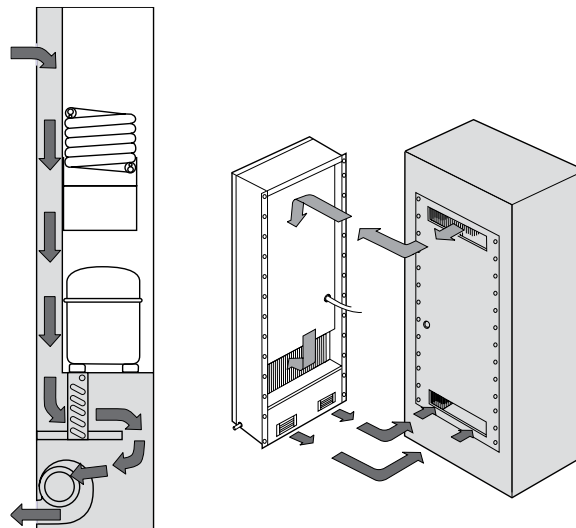
**NOTES**

Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.



Performance Data **CR43WC Models 8000 BTU/Hr. (2345 Watt)**

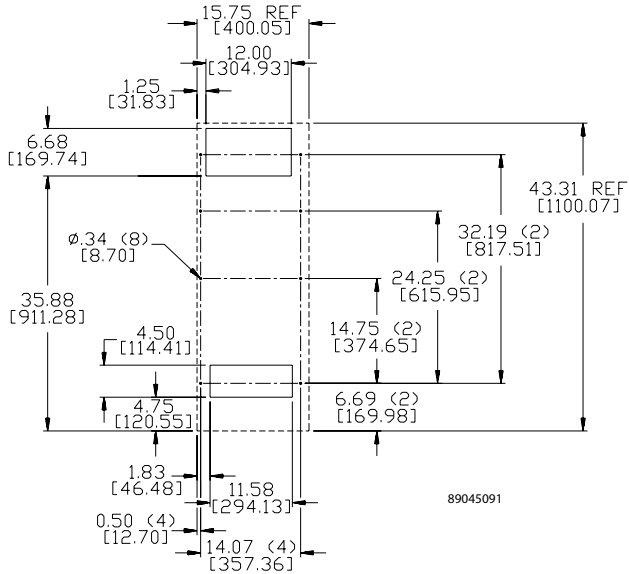
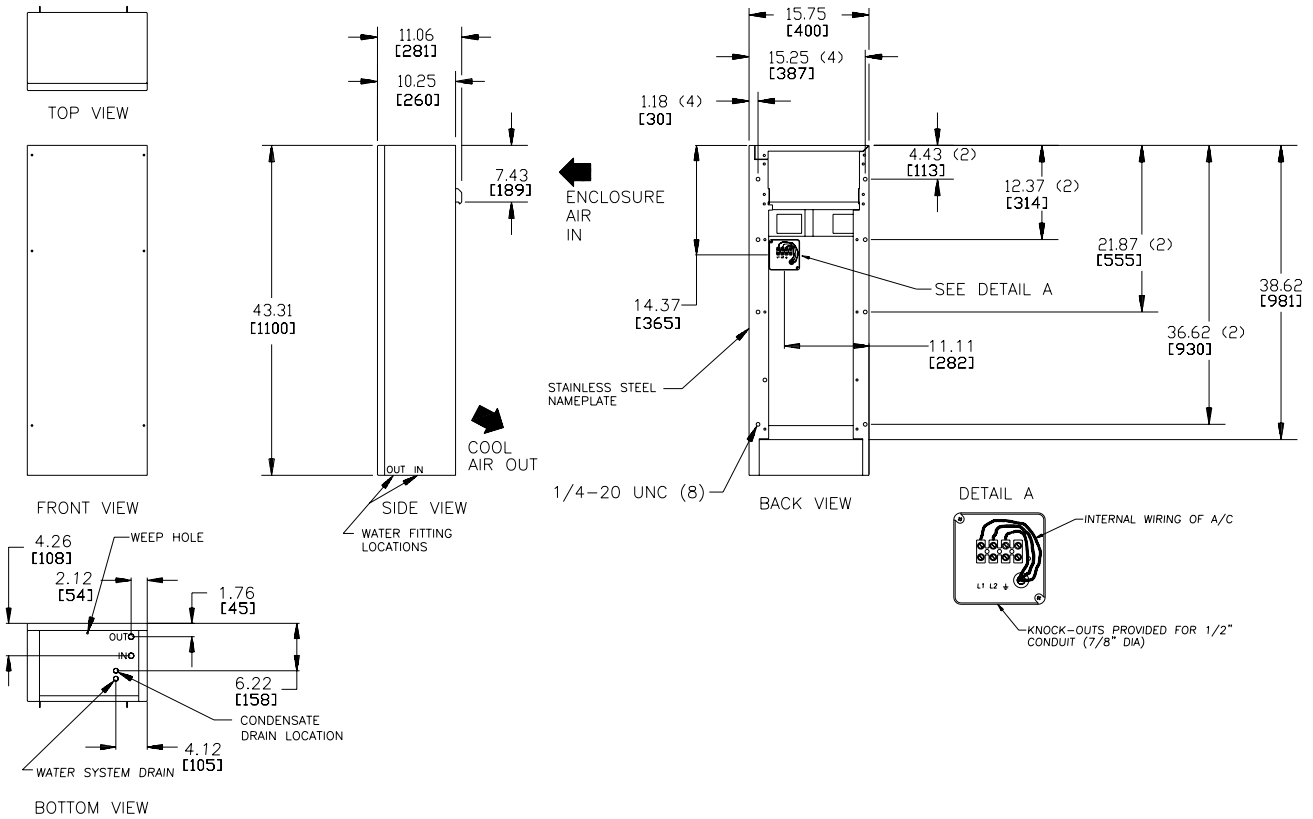
| CATALOG NUMBER                           |                                                               |                                |
|------------------------------------------|---------------------------------------------------------------|--------------------------------|
|                                          | CR430816GW010                                                 | CR430826GWXXX                  |
| <b>COOLING PERFORMANCE</b>               |                                                               |                                |
| Nominal:                                 |                                                               |                                |
| <b>BTU/Hr.</b>                           | <b>8500</b>                                                   | <b>8500</b>                    |
| <b>Watts</b>                             | <b>2490</b>                                                   | <b>2490</b>                    |
| Refrigerant                              | R-134A                                                        | R-134A                         |
| Refrigerant Charge (ounces/grams)        | 12/341                                                        | 12/341                         |
| Operating Temperature Range:             |                                                               |                                |
| Maximum (°F/°C)                          | 131/55                                                        | 131/55                         |
| Minimum (°F/°C)                          | 50/10                                                         | 50/10                          |
| Airflow at 0 Static Pressure:            |                                                               |                                |
| Internal loop 50 Hz (CFM / m³/hr.)       | 135/229                                                       | 100/170                        |
| External loop 50 Hz                      | Waterflow: 1.5 GPM @ 90F                                      | Waterflow: 1.5 GPM @ 90F       |
| Internal loop 60 Hz (CFM / m³/hr.)       | 145/246                                                       | 110/187                        |
| External loop 60 Hz                      | Waterflow: 1.5 GPM @ 90F                                      | Waterflow: 1.5 GPM @ 90F       |
| <b>ELECTRICAL DATA</b>                   |                                                               |                                |
| <b>Rated Voltage</b>                     | <b>115</b>                                                    | <b>230</b>                     |
| Frequency (Hz)                           | 50/60                                                         | 50/60                          |
| Operating Range                          | +/- 10%                                                       | +/- 10%                        |
| Max. Power Consumption (W at 50 / 60 Hz) | 1518/1495                                                     | 1518/1495                      |
| Max. Nominal Current (A at 50 / 60 Hz)   | 13.2/13                                                       | 6.6/6.5                        |
| Starting Current (A)                     | 48.3                                                          | 27                             |
| Agency Approvals                         | cUL Listed<br>CE<br>GOST                                      |                                |
| Power Input Description                  | 6-ft. cord with NEMA 5-15 plug                                | 6-ft. cord with NEMA 6-15 plug |
| <b>ENCLOSURE PROTECTION</b>              |                                                               |                                |
| UL Type                                  | Type 4 standard<br>Type 4X Stainless steel optional           |                                |
| <b>CONTROLLER</b>                        |                                                               |                                |
| Description                              | Basic mechanical thermostat                                   |                                |
| Thermostat Location                      | Behind front cover                                            |                                |
| Factory Thermostat Setting (°F/°C)       | 80/27                                                         |                                |
| <b>SOUND LEVEL</b>                       |                                                               |                                |
| At 1.5 Meters                            | 61 dB(A)                                                      |                                |
| <b>UNIT CONSTRUCTION</b>                 |                                                               |                                |
| Material                                 | Mild steel sheet metal standard<br>Stainless steel optional   |                                |
| Finish                                   | RAL 7035 light-gray, semi-textured powder-coat paint standard |                                |
| <b>UNIT DIMENSIONS</b>                   |                                                               |                                |
| Height (in./mm)                          | 43.31/1100                                                    |                                |
| Width (in./mm)                           | 15.75/400                                                     |                                |
| Depth (in./mm)                           | 10.25/260.4                                                   |                                |
| Weight (lb./kg)                          | 86/39                                                         |                                |



CR43WC



CR43WC Models 8000 BTU/Hr. (2345 Watt)



Cutout Dimensions

Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.



**Notes**



## WATER-COOLED RACK-MOUNT



LB11WC  
4000 BTU/Hr.  
1172 Watt

### INDUSTRY STANDARDS

UL/cUL Listed; Type 12; File No. SA6453  
UR/cUR Recognized

UR/cUR Recognized on select models, reference performance data tables.

CE  
GOST

### APPLICATION

- Industrial automation
- Package handling equipment
- Food and beverage
- Wastewater treatment
- Security and defense systems
- Pulp and paper
- And more

### FEATURES

- Robust reciprocating compressor
- R134a earth-friendly refrigerant
- Models for 115 and 230 VAC power input
- UL Listed or Recognized to save customers time and money with agency approvals
- Operating temperature range from 50 F/10 C to 125 F/52 C
- Reliable mechanical thermostat located behind the front panel of the unit
- Low-carbon mild-steel sheet-metal cover for rugged factory and outdoor environments
- Easy-mount flanges for simple installation

- Mounting hardware, gaskets and user manual furnished with the unit
- Every unit functionally tested before shipping
- Heat is removed from the system by means of the water cooling the refrigerant; no external air movers or condenser coils to get clogged
- Maximum water usage of 2 GPM at 90 F water intake temperature
- Standard Indoor Air Conditioner models also include:
  - Electro-Mechanical Thermostat
  - Surge Suppressor

### FINISH

- RAL 7042 gray, semi-gloss powder-coat paint standard
- Stainless steel Type 304 or 316 finishes available on Type 4X models
- Other colors and textures available

### OPTIONS

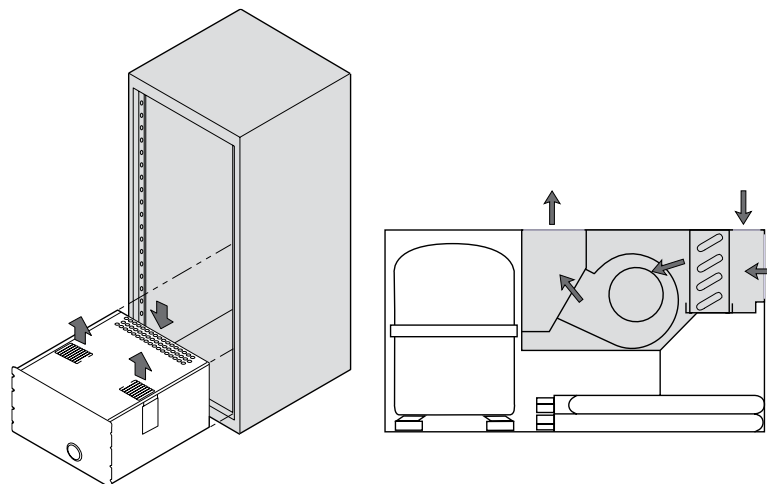
- Thermostat Malfunction Package
  - Special Voltage Package
  - Active Condensate Evaporator Package
  - Harsh Environment Package\*
  - Stainless Steel Package\*
- \* Consult the factory for availability and catalog number.

### NOTES

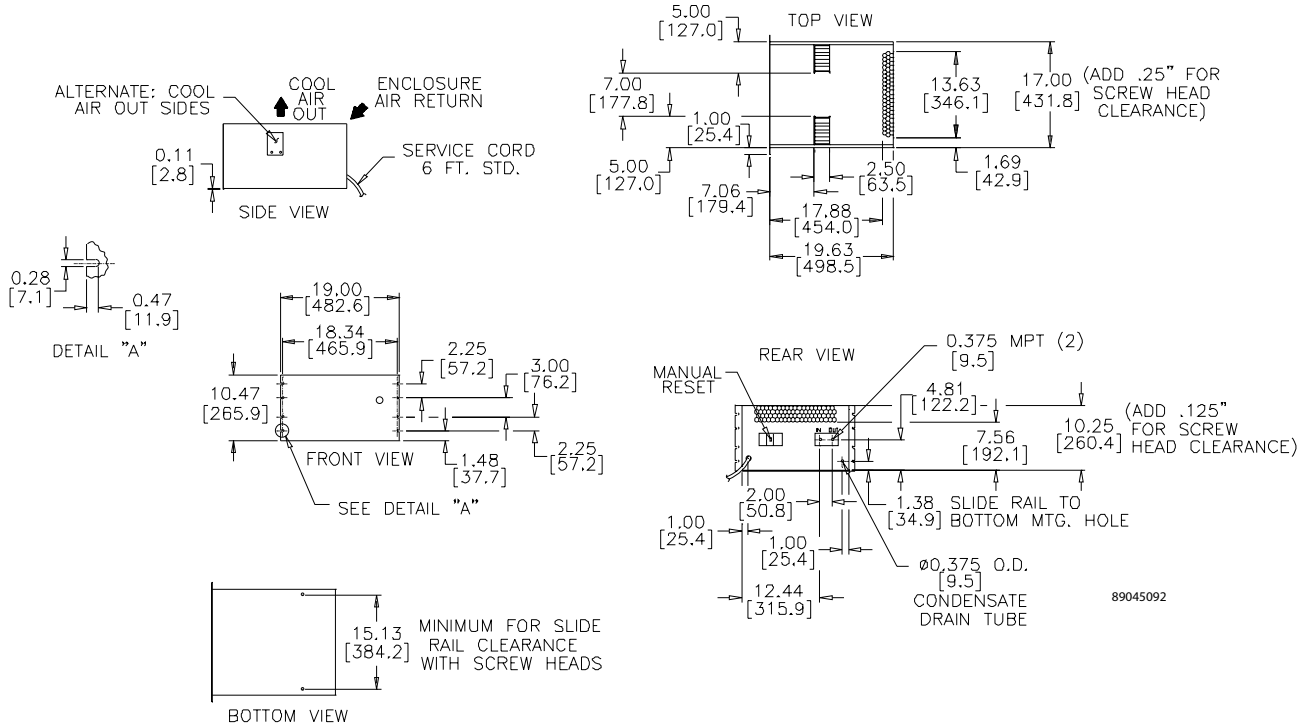
Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.

Performance Data **LB11WC Models 4000 BTU/Hr (1172 Watt)**

| CATALOG NUMBER                         |                                                             |                                |
|----------------------------------------|-------------------------------------------------------------|--------------------------------|
|                                        | LB110416GW008                                               | LB110426GW010                  |
| <b>COOLING PERFORMANCE</b>             |                                                             |                                |
| Nominal:                               |                                                             |                                |
| <b>BTU/Hr.</b>                         | <b>3900/4000</b>                                            | <b>3900/4000</b>               |
| <b>Watts</b>                           | <b>1142/1172</b>                                            | <b>1142/1172</b>               |
| Refrigerant                            | R-134A                                                      | R-134A                         |
| Refrigerant Charge (ounces/grams)      | 12/340                                                      | 12/340                         |
| Operating Temperature Range:           |                                                             |                                |
| Maximum (°F/°C)                        | 125/52                                                      | 125/52                         |
| Minimum (°F/°C)                        | 50/10                                                       | 50/10                          |
| Airflow at 0 Static Pressure:          |                                                             |                                |
| Internal loop 50 Hz (CFM / m³/hr.)     | 135/229                                                     | 100/170                        |
| External loop 50 Hz                    | Waterflow: 1.0 GPM @ 90 F                                   | Waterflow: 1.0 GPM @ 90 F      |
| Internal loop 60 Hz (CFM / m³/hr.)     | 145/246                                                     | 110/187                        |
| External loop 60 Hz                    | Waterflow: 1.0 GPM @ 90 F                                   | Waterflow: 1.0 GPM @ 90 F      |
| <b>ELECTRICAL DATA</b>                 |                                                             |                                |
| <b>Rated Voltage</b>                   | <b>115</b>                                                  | <b>230</b>                     |
| Frequency (Hz)                         | 50/60                                                       | 50/60                          |
| Operating Range                        | +/- 10%                                                     | +/- 10%                        |
| Max. Power Consumption (W at 50/60 Hz) | 885.5/828                                                   | 897/792                        |
| Max. Nominal Current (A at 50/60 Hz)   | 7.7/7.2                                                     | 3.9/3.6                        |
| Starting Current (A)                   | 28                                                          | 14.4                           |
| Agency Approvals                       | Not listed                                                  | cUL Listed<br>CE<br>GOST       |
| Power Input Description                | 6-ft. cord with NEMA 5-15 plug                              | 6-ft. cord with NEMA 6-15 plug |
| <b>ENCLOSURE PROTECTION</b>            |                                                             |                                |
| UL Type                                | Type 12 standard                                            |                                |
| <b>CONTROLLER</b>                      |                                                             |                                |
| Description                            | Basic mechanical thermostat                                 |                                |
| Thermostat Location                    | Behind front cover                                          |                                |
| Factory Thermostat Setting (°F/°C)     | 80/27                                                       |                                |
| <b>SOUND LEVEL</b>                     |                                                             |                                |
| At 1.5 Meters                          | 61 dB(A)                                                    |                                |
| <b>UNIT CONSTRUCTION</b>               |                                                             |                                |
| Material                               | Mild steel sheet metal standard<br>Stainless steel optional |                                |
| Finish                                 | RAL 7042 gray, semi-gloss powder-coat paint standard        |                                |
| <b>UNIT DIMENSIONS</b>                 |                                                             |                                |
| Height (in./mm)                        | 10.47/266                                                   |                                |
| Width (in./mm)                         | 19/483                                                      |                                |
| Depth (in./mm)                         | 19.63/499                                                   |                                |
| Weight (lb./kg)                        | 110/50                                                      |                                |



LB11WC Models 4000 BTU/Hr. (1172 Watt)



Cutout Dimensions

Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.



**Notes**



**CLIMAGUARD™ AIR-TO-AIR INDOOR**


|                                          |                                              |                                               |                                               |                                               |                                               |                                                |
|------------------------------------------|----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|------------------------------------------------|
| <b>XR20</b><br>Models<br>4 W/°F (7 W/°C) | <b>XR29-08</b><br>Models<br>8 W/°F (14 W/°C) | <b>XR29-18</b><br>Models<br>18 W/°F (32 W/°C) | <b>XR47-24</b><br>Models<br>24 W/°F (43 W/°C) | <b>XR47-35</b><br>Models<br>35 W/°F (63 W/°C) | <b>XR60-55</b><br>Models<br>55 W/°F (99 W/°C) | <b>XR60-84</b><br>Models<br>84 W/°F (151 W/°C) |
|------------------------------------------|----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|------------------------------------------------|

3

**INDUSTRY STANDARDS**

UL/cUL Listed; Type 12, 3R; File No. SA7402  
UR/cUR Recognized

Type 12 on XR20 and XR29-08 models  
Type 3R on XR29-18 and larger models when surface mounted vertically on an enclosure  
CE  
GOST

**APPLICATION**

- Industrial automation
- Package handling equipment
- Security and defense systems
- And more

**FEATURES**

- Unique counterflow aluminum core for high-efficiency and high-performance heat transfer, except for the XR20 and XR29-08 which use a modified heat pipe core
- Models for 115 and 230 VAC power input
- UL Listed or Recognized to save customers time and money with agency approvals
- Operating temperature range from -20 F/-29 C to 140 F/60 C
- Streamlined aesthetics with no visible mounting rails; Slim design allows for mounting to narrow or shallow enclosures
- Reliable top-quality bearing fans and impellers make these units run quietly and with increased reliability
- Low-carbon mild-steel sheet-metal cover for rugged factory environments
- Easy-mount flanges for simple installation
- Mounting hardware, gaskets and user manual furnished with the unit
- Every unit functionally tested before shipping
- Filterless design for low maintenance and easy cleaning
- Four fasteners allow simple removal of front cover for easy access

**FINISH**

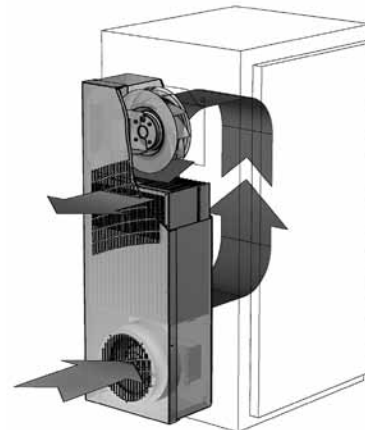
- RAL 7035 light-gray, semi-textured powder-coat paint standard
- Stainless steel Type 304 or 316 finishes available on Type 4X models
- Other colors and textures available

**OPTIONS**

- Special Voltage Package
  - Outdoor Package\*
  - Harsh Environment Package\*
  - Stainless Steel Package\*
- \* CLIMAGUARD™ may be more appropriate. Refer to CLIMAGUARD Air-to-Air Outdoor chapter. Consult the factory for availability and catalog number.

**NOTES**

Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system

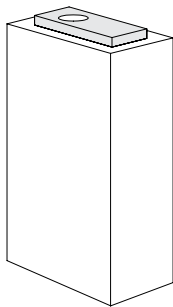




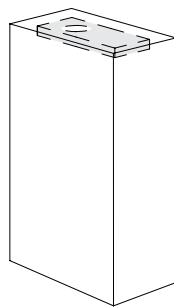
Performance Data **XR20 Models 4 W/°F (7 W/°C)**

| CATALOG NUMBER                         |                                                               |                                |
|----------------------------------------|---------------------------------------------------------------|--------------------------------|
|                                        | XR200416012                                                   | XR200426012                    |
| <b>COOLING PERFORMANCE</b>             |                                                               |                                |
| Nominal:                               |                                                               |                                |
| <b>W per °F</b>                        | <b>4</b>                                                      | <b>4</b>                       |
| <b>W per °C</b>                        | <b>7</b>                                                      | <b>7</b>                       |
| Refrigerant                            | R-134A                                                        | R-134A                         |
| Refrigerant Charge (ounces/grams)      | 4/113                                                         | 4/113                          |
| Operating Temperature Range:           |                                                               |                                |
| Maximum (°F/°C)                        | 140/60                                                        | 140/60                         |
| Minimum (°F/°C)                        | -20/-29                                                       | -20/-29                        |
| Airflow at 0 Static Pressure:          |                                                               |                                |
| Internal loop 50 Hz (CFM / m³/hr.)     | 71/121                                                        | 71/121                         |
| External loop 50 Hz (CFM / m³/hr.)     | 75/127                                                        | 75/127                         |
| Internal loop 60 Hz (CFM / m³/hr.)     | 74/126                                                        | 74/126                         |
| External loop 60 Hz (CFM / m³/hr.)     | 78/132                                                        | 78/132                         |
| <b>ELECTRICAL DATA</b>                 |                                                               |                                |
| <b>Rated Voltage</b>                   | <b>115</b>                                                    | <b>230</b>                     |
| Frequency (Hz)                         | 50/60                                                         | 50/60                          |
| Operating Range                        | +/- 10%                                                       | +/- 10%                        |
| Max. Power Consumption (W at 50/60 Hz) | 69                                                            | 69                             |
| Max. Nominal Current (A at 50/60 Hz)   | 0.6                                                           | 0.3                            |
| Agency Approvals                       |                                                               | cUL Listed<br>CE<br>GOST       |
| Power Input Description                | 6-ft. cord with NEMA 5-15 plug                                | 6-ft. cord with NEMA 6-15 plug |
| <b>ENCLOSURE PROTECTION</b>            |                                                               |                                |
| UL Type                                | Type 12 standard                                              |                                |
| <b>SOUND LEVEL</b>                     |                                                               |                                |
| At 1.5 Meters                          | 56 dBA                                                        |                                |
| <b>UNIT CONSTRUCTION</b>               |                                                               |                                |
| Material                               | Mild steel sheet metal standard<br>Stainless steel optional   |                                |
| Finish                                 | RAL 7035 light-gray, semi-textured powder-coat paint standard |                                |
| <b>UNIT DIMENSIONS</b>                 |                                                               |                                |
| Height (in./mm)                        | 20/508                                                        | 20/508                         |
| Width (in./mm)                         | 7.5/190.5                                                     | 7.5/190.5                      |
| Depth (in./mm)                         | 3/76.2                                                        | 3/76.2                         |
| Weight (lb./kg)                        | 12/5.4                                                        | 12/5.4                         |

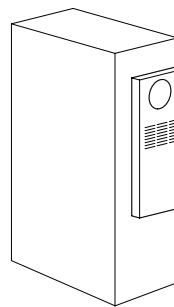
Mounting Options



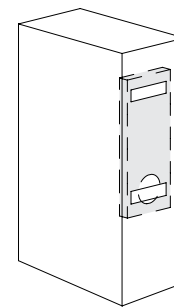
External Top-Mount



Internal Top-Mount



External Vertical-Mount



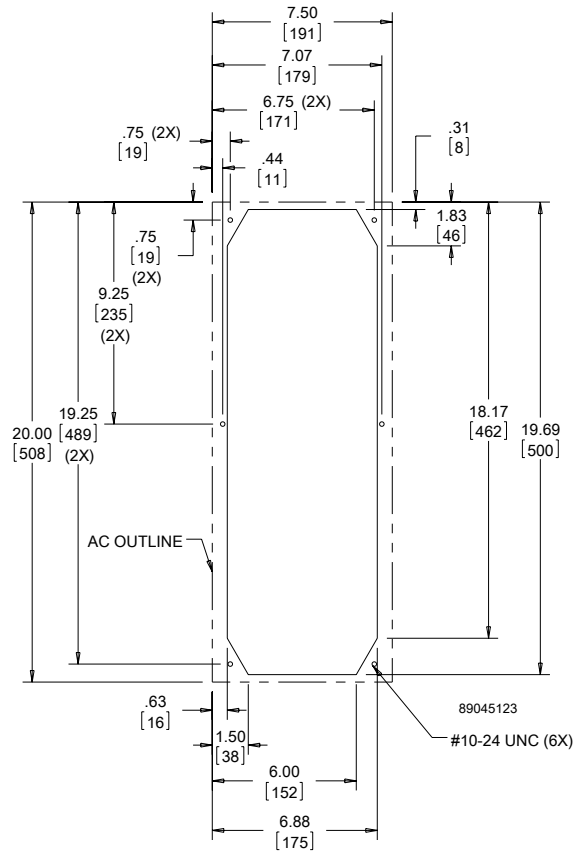
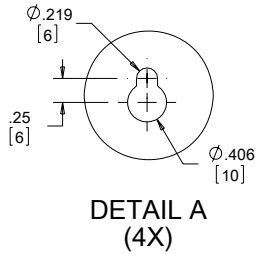
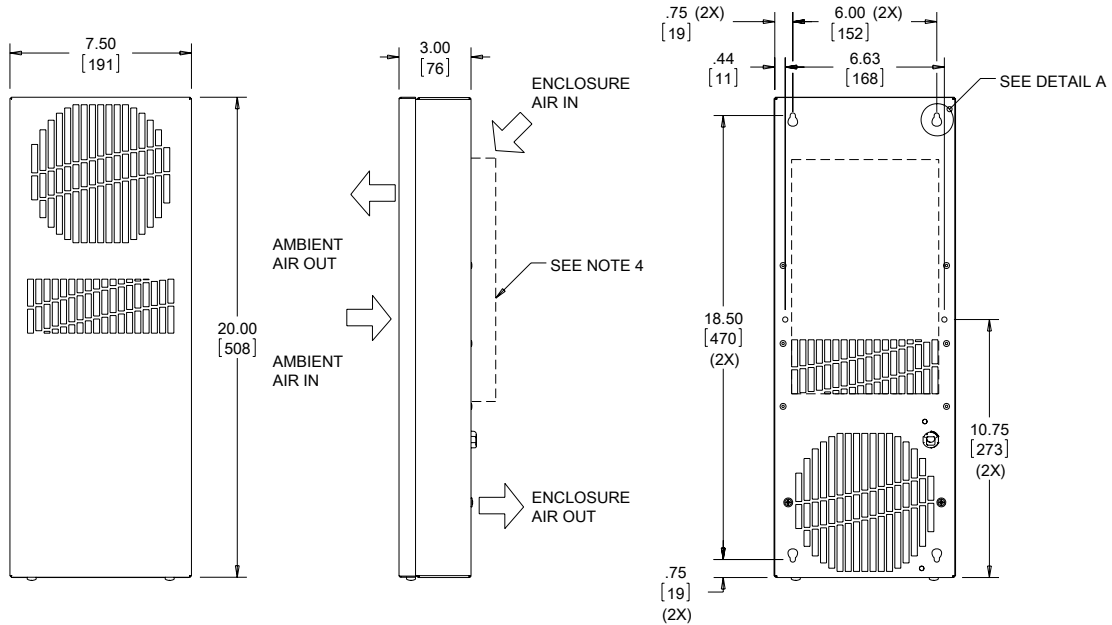
Internal Vertical-Mount

Note: Internal mounting requires inverting the heat exchanger as shown.

87569532



## XR20 Models 4 W/°F (7 W/°C)



Cutout Dimensions

- NOTE:
1. MOUNTING GASKET SUPPLIED (NOT SHOWN)
  2. UNITS: in [mm]
  3. SERVICE CORD TERMINATED WITH APPROPRIATE PLUG:  
NEMA 5-15P FOR 115V UNITS  
NEMA 6-15P FOR 230V UNITS
  4. DETACHABLE AIRFLOW PLENUM MAY BE USED WHEN MOUNTING THE HEAT EXCHANGER INSIDE OR OUTSIDE OF THE ENCLOSURE

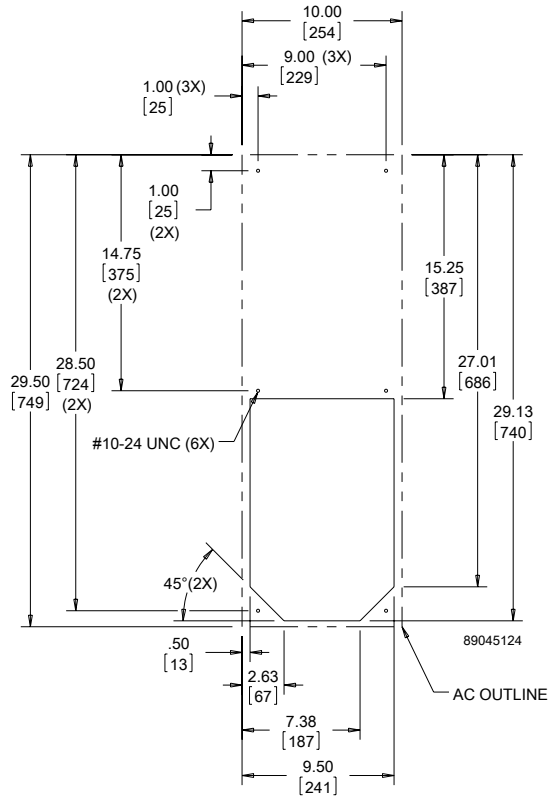
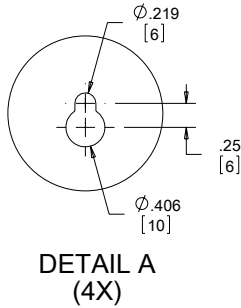
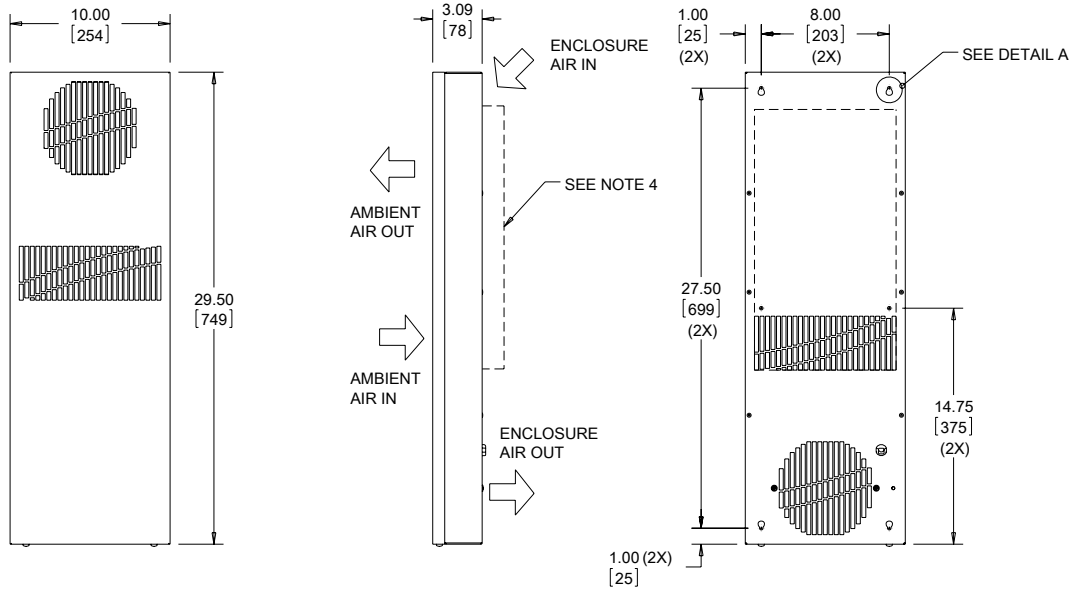
Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.

Performance Data **XR29 Models 8 W/°F (14 W/°C)**

| CATALOG NUMBER                         |                                                               |                                |
|----------------------------------------|---------------------------------------------------------------|--------------------------------|
|                                        | XR290816012                                                   | XR290826012                    |
| <b>COOLING PERFORMANCE</b>             |                                                               |                                |
| Nominal:                               |                                                               |                                |
| <b>W per °F</b>                        | <b>8</b>                                                      | <b>8</b>                       |
| <b>W per °C</b>                        | <b>14</b>                                                     | <b>14</b>                      |
| Refrigerant                            | R-134A                                                        | R-134A                         |
| Refrigerant Charge (ounces/grams)      | 5.5/156                                                       | 5.5/156                        |
| Operating Temperature Range:           |                                                               |                                |
| Maximum (°F/°C)                        | 140/60                                                        | 140/60                         |
| Minimum (°F/°C)                        | -20/-29                                                       | -20/-29                        |
| Airflow at 0 Static Pressure:          |                                                               |                                |
| Internal loop 50 Hz (CFM / m³/hr.)     | 71/121                                                        | 71/121                         |
| External loop 50 Hz (CFM / m³/hr.)     | 75/127                                                        | 75/127                         |
| Internal loop 60 Hz (CFM / m³/hr.)     | 74/126                                                        | 74/126                         |
| External loop 60 Hz (CFM / m³/hr.)     | 78/132                                                        | 78/132                         |
| <b>ELECTRICAL DATA</b>                 |                                                               |                                |
| <b>Rated Voltage</b>                   | <b>115</b>                                                    | <b>230</b>                     |
| Frequency (Hz)                         | 50/60                                                         | 50/60                          |
| Operating Range                        | +/- 10%                                                       | +/- 10%                        |
| Max. Power Consumption (W at 50/60 Hz) | 69                                                            | 69                             |
| Max. Nominal Current (A at 50/60 Hz)   | 0.6                                                           | 0.3                            |
| Agency Approvals                       | cUL Listed<br>CE<br>GOST                                      |                                |
| Power Input Description                | 6-ft. cord with NEMA 5-15 plug                                | 6-ft. cord with NEMA 6-15 plug |
| <b>ENCLOSURE PROTECTION</b>            |                                                               |                                |
| UL Type                                | Type 12 standard                                              |                                |
| <b>SOUND LEVEL</b>                     |                                                               |                                |
| At 1.5 Meters                          | 56 dBA                                                        |                                |
| <b>UNIT CONSTRUCTION</b>               |                                                               |                                |
| Material                               | Mild steel sheet metal standard<br>Stainless steel optional   |                                |
| Finish                                 | RAL 7035 light-gray, semi-textured powder-coat paint standard |                                |
| <b>UNIT DIMENSIONS</b>                 |                                                               |                                |
| Height (in./mm)                        | 29.5/749.3                                                    | 29.5/749.3                     |
| Width (in./mm)                         | 10/254                                                        | 10/254                         |
| Depth (in./mm)                         | 3.09/78.5                                                     | 3.09/78.5                      |
| Weight (lb./kg)                        | 21/9.5                                                        | 21/9.5                         |



## XR29 Models 8 W/°F (14 W/°C)



Cutout Dimensions

- NOTE:
1. MOUNTING GASKET SUPPLIED (NOT SHOWN)
  2. UNITS: in [mm]
  3. SERVICE CORD TERMINATED WITH APPROPRIATE PLUG:  
NEMA 5-15P FOR 115V UNITS  
NEMA 6-15P FOR 230V UNITS
  4. DETACHABLE AIRFLOW PLENUM MAY BE USED WHEN MOUNTING THE HEAT EXCHANGER INSIDE OR OUTSIDE OF THE ENCLOSURE

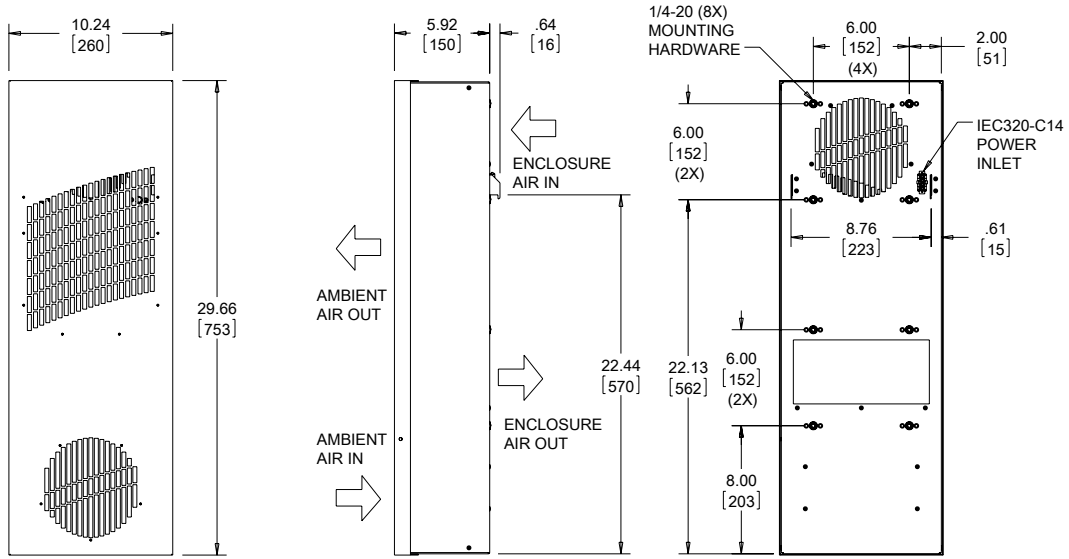
Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.

Performance Data **XR29 Models 18 W/°F (32 W/°C)**

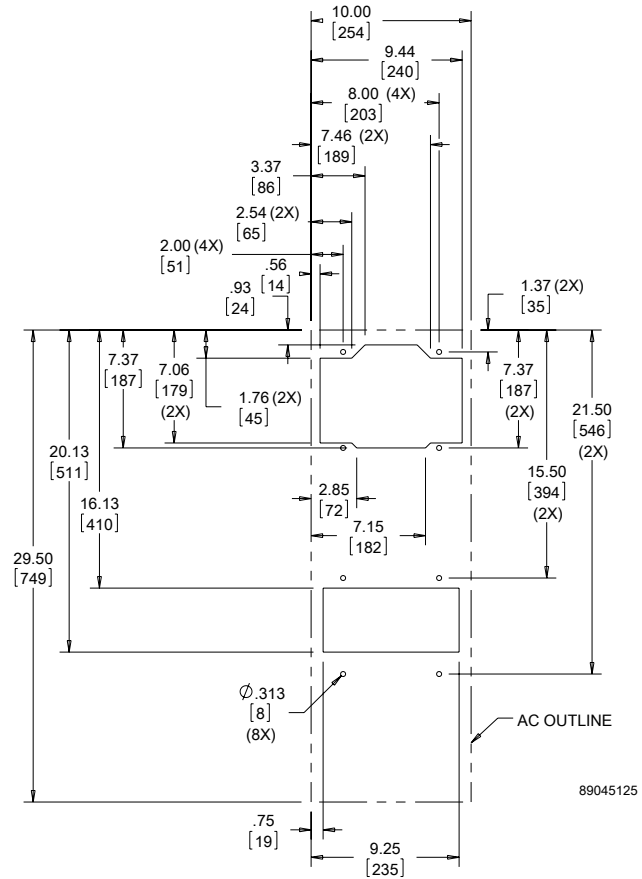
| <b>CATALOG NUMBER</b>                  |                                |                                                               |
|----------------------------------------|--------------------------------|---------------------------------------------------------------|
|                                        | XR291816012                    | XR291826012                                                   |
| <b>COOLING PERFORMANCE</b>             |                                |                                                               |
| Nominal:                               |                                |                                                               |
| <b>W per °F</b>                        | <b>18</b>                      | <b>18</b>                                                     |
| <b>W per °C</b>                        | <b>32</b>                      | <b>32</b>                                                     |
| Refrigerant                            | N/A                            | N/A                                                           |
| Refrigerant Charge (ounces/grams)      | N/A                            | N/A                                                           |
| Operating Temperature Range:           |                                |                                                               |
| Maximum (°F/°C)                        | 140/60                         | 140/60                                                        |
| Minimum (°F/°C)                        | -20/-29                        | -20/-29                                                       |
| Airflow at 0 Static Pressure:          |                                |                                                               |
| Internal loop 50 Hz (CFM / m³/hr.)     | 126/214                        | 126/214                                                       |
| External loop 50 Hz (CFM / m³/hr.)     | 120/204                        | 120/204                                                       |
| Internal loop 60 Hz (CFM / m³/hr.)     | 140/237                        | 140/237                                                       |
| External loop 60 Hz (CFM / m³/hr.)     | 133/226                        | 133/226                                                       |
| <b>ELECTRICAL DATA</b>                 |                                |                                                               |
| <b>Rated Voltage</b>                   | <b>115</b>                     | <b>230</b>                                                    |
| Frequency (Hz)                         | 50/60                          | 50/60                                                         |
| Operating Range                        | +/- 10%                        | +/- 10%                                                       |
| Max. Power Consumption (W at 50/60 Hz) | 207                            | 207                                                           |
| Max. Nominal Current (A at 50/60 Hz)   | 1.8                            | 0.9                                                           |
| Agency Approvals                       |                                | cUL Listed<br>CE<br>GOST                                      |
| Power Input Description                | 6-ft. cord with NEMA 5-15 plug | 6-ft. cord with NEMA 6-15 plug                                |
| <b>ENCLOSURE PROTECTION</b>            |                                |                                                               |
| UL Type                                |                                | Type 12 standard<br>Type 3R, 4, 4X optional                   |
| <b>SOUND LEVEL</b>                     |                                |                                                               |
| At 1.5 Meters                          |                                | 64 dBA                                                        |
| <b>UNIT CONSTRUCTION</b>               |                                |                                                               |
| Material                               |                                | Mild steel sheet metal standard<br>Stainless steel optional   |
| Finish                                 |                                | RAL 7035 light-gray, semi-textured powder-coat paint standard |
| <b>UNIT DIMENSIONS</b>                 |                                |                                                               |
| Height (in./mm)                        | 29.66/753.3                    | 29.66/753.3                                                   |
| Width (in./mm)                         | 10.24/260.1                    | 10.24/260.1                                                   |
| Depth (in./mm)                         | 5.92/150.4                     | 5.92/150.4                                                    |
| Weight (lb./kg)                        | 32/15                          | 32/15                                                         |



XR29 Models 18 W/°F (32 W/°C)



NOTE:  
 1. MOUNTING GASKET SUPPLIED (NOT SHOWN)  
 2. UNITS: in. [mm]



Cutout Dimensions

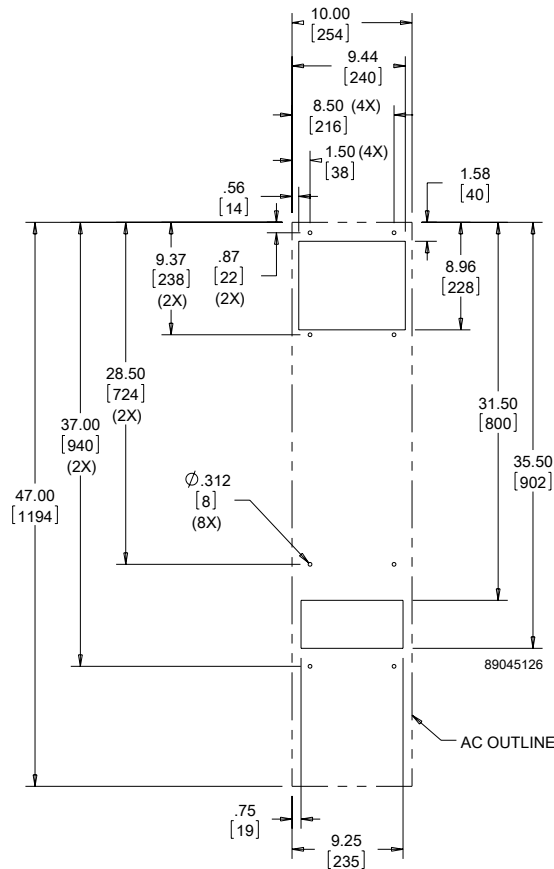
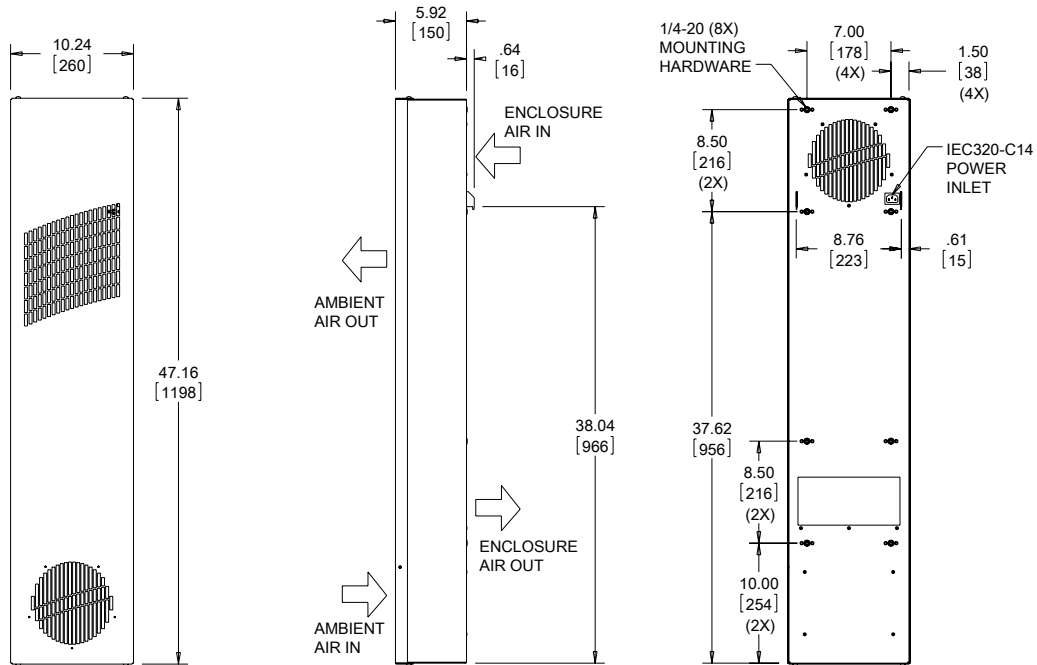
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Performance Data **XR47 Models 24 W/°F (43 W/°C)**

| CATALOG NUMBER                         |                                                               |                                |
|----------------------------------------|---------------------------------------------------------------|--------------------------------|
|                                        | XR472416012                                                   | XR472426012                    |
| <b>COOLING PERFORMANCE</b>             |                                                               |                                |
| Nominal:                               |                                                               |                                |
| <b>W per °F</b>                        | <b>24</b>                                                     | <b>24</b>                      |
| <b>W per °C</b>                        | <b>43</b>                                                     | <b>43</b>                      |
| Refrigerant                            | N/A                                                           | N/A                            |
| Refrigerant Charge (ounces/grams)      | N/A                                                           | N/A                            |
| Operating Temperature Range:           |                                                               |                                |
| Maximum (°F/°C)                        | 140/60                                                        | 140/60                         |
| Minimum (°F/°C)                        | -20/-29                                                       | -20/-29                        |
| Airflow at 0 Static Pressure:          |                                                               |                                |
| Internal loop 50 Hz (CFM / m³/hr.)     | 140/238                                                       | 140/238                        |
| External loop 50 Hz (CFM / m³/hr.)     | 118/200                                                       | 118/200                        |
| Internal loop 60 Hz (CFM / m³/hr.)     | 156/265                                                       | 156/265                        |
| External loop 60 Hz (CFM / m³/hr.)     | 131/222                                                       | 131/222                        |
| <b>ELECTRICAL DATA</b>                 |                                                               |                                |
| <b>Rated Voltage</b>                   | <b>115</b>                                                    | <b>230</b>                     |
| Frequency (Hz)                         | 50/60                                                         | 50/60                          |
| Operating Range                        | +/- 10%                                                       | +/- 10%                        |
| Max. Power Consumption (W at 50/60 Hz) | 207                                                           | 207                            |
| Max. Nominal Current (A at 50/60 Hz)   | 1.8                                                           | 0.9                            |
| Agency Approvals                       | cUL Listed<br>CE<br>GOST                                      |                                |
| Power Input Description                | 6-ft. cord with NEMA 5-15 plug                                | 6-ft. cord with NEMA 6-15 plug |
| <b>ENCLOSURE PROTECTION</b>            |                                                               |                                |
| UL Type                                | Type 12 standard<br>Type 3R, 4, 4X optional                   |                                |
| <b>SOUND LEVEL</b>                     |                                                               |                                |
| At 1.5 Meters                          | 68 dBA                                                        |                                |
| <b>UNIT CONSTRUCTION</b>               |                                                               |                                |
| Material                               | Mild steel sheet metal standard<br>Stainless steel optional   |                                |
| Finish                                 | RAL 7035 light-gray, semi-textured powder-coat paint standard |                                |
| <b>UNIT DIMENSIONS</b>                 |                                                               |                                |
| Height (in./mm)                        | 47.16/1197.9                                                  | 47.16/1197.9                   |
| Width (in./mm)                         | 10.24/260.1                                                   | 10.24/260.1                    |
| Depth (in./mm)                         | 5.92/150.4                                                    | 5.92/150.4                     |
| Weight (lb./kg)                        | 51/23                                                         | 51/23                          |



XR47 Models 24 W/°F (43 W/°C)



Cutout Dimensions

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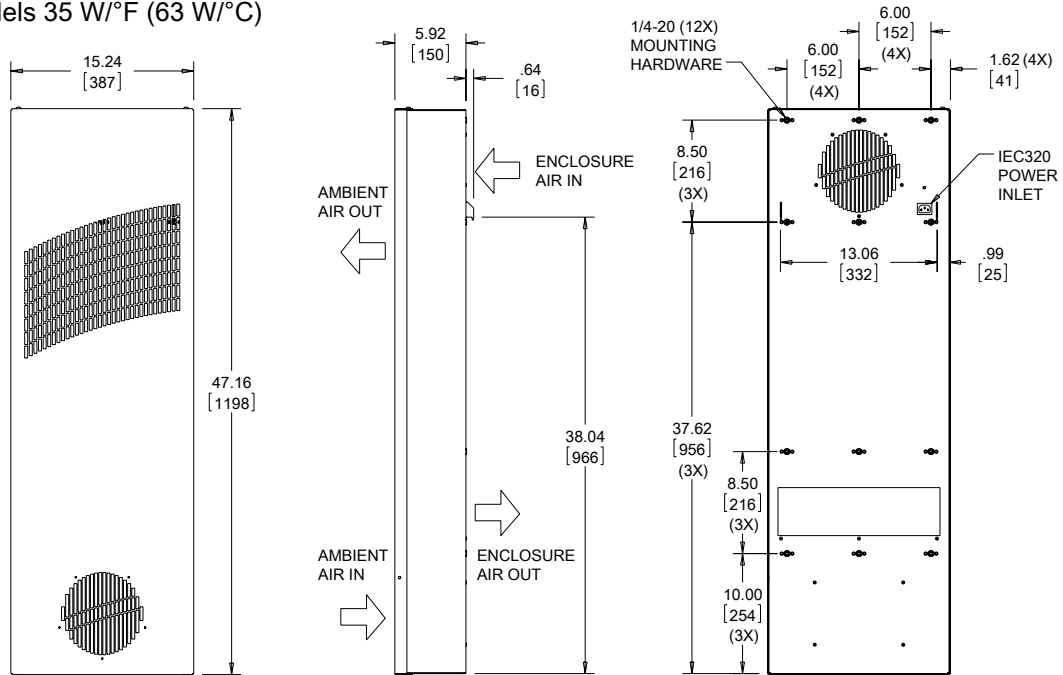


Performance Data **XR47 Models 35 W/°F (63 W/°C)**

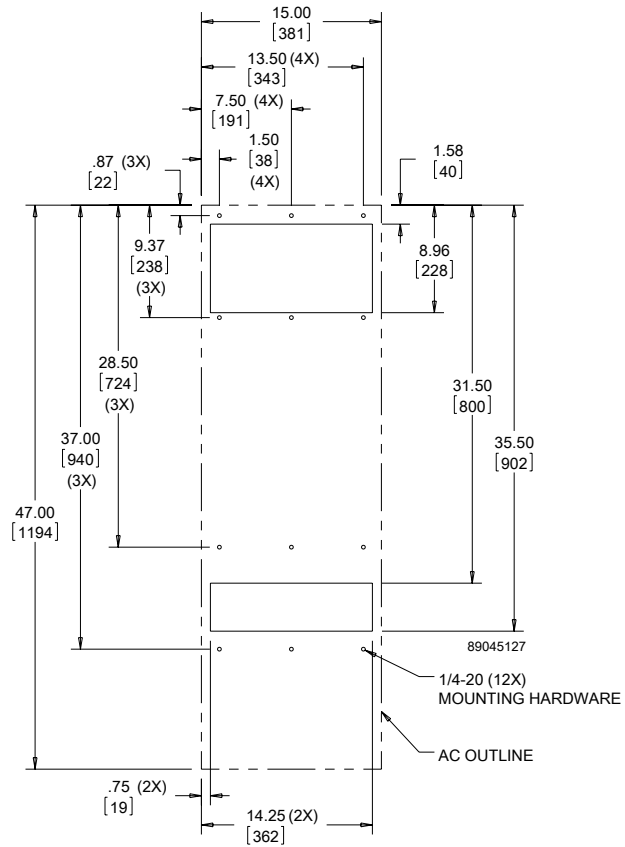
| CATALOG NUMBER                         |                                |                                                               |
|----------------------------------------|--------------------------------|---------------------------------------------------------------|
|                                        | XR473516012                    | XR473526012                                                   |
| <b>COOLING PERFORMANCE</b>             |                                |                                                               |
| Nominal:                               |                                |                                                               |
| <b>W per °F</b>                        | <b>35</b>                      | <b>35</b>                                                     |
| <b>W per °C</b>                        | <b>63</b>                      | <b>63</b>                                                     |
| Refrigerant                            | N/A                            | N/A                                                           |
| Refrigerant Charge (ounces/grams)      | N/A                            | N/A                                                           |
| Operating Temperature Range:           |                                |                                                               |
| Maximum (°F/°C)                        | 140/60                         | 140/60                                                        |
| Minimum (°F/°C)                        | -20/-29                        | -20/-29                                                       |
| Airflow at 0 Static Pressure:          |                                |                                                               |
| Internal loop 50 Hz (CFM / m³/hr.)     | 120/204                        | 120/204                                                       |
| External loop 50 Hz (CFM / m³/hr.)     | 131/222                        | 131/222                                                       |
| Internal loop 60 Hz (CFM / m³/hr.)     | 133/226                        | 133/226                                                       |
| External loop 60 Hz (CFM / m³/hr.)     | 146/248                        | 146/248                                                       |
| <b>ELECTRICAL DATA</b>                 |                                |                                                               |
| <b>Rated Voltage</b>                   | <b>115</b>                     | <b>230</b>                                                    |
| Frequency (Hz)                         | 50/60                          | 50/60                                                         |
| Operating Range                        | +/- 10%                        | +/- 10%                                                       |
| Max. Power Consumption (W at 50/60 Hz) | 207                            | 207                                                           |
| Max. Nominal Current (A at 50/60 Hz)   | 1.8                            | 0.9                                                           |
| Agency Approvals                       |                                | cUL Listed<br>CE<br>GOST                                      |
| Power Input Description                | 6-ft. cord with NEMA 5-15 plug | 6-ft. cord with NEMA 6-15 plug                                |
| <b>ENCLOSURE PROTECTION</b>            |                                |                                                               |
| UL Type                                |                                | Type 12 standard<br>Type 3R, 4, 4X optional                   |
| <b>SOUND LEVEL</b>                     |                                |                                                               |
| At 1.5 Meters                          |                                | 68 dBA                                                        |
| <b>UNIT CONSTRUCTION</b>               |                                |                                                               |
| Material                               |                                | Mild steel sheet metal standard<br>Stainless steel optional   |
| Finish                                 |                                | RAL 7035 light-gray, semi-textured powder-coat paint standard |
| <b>UNIT DIMENSIONS</b>                 |                                |                                                               |
| Height (in./mm)                        | 47.16/1197.8                   | 47.16/1197.8                                                  |
| Width (in./mm)                         | 15.24/387.1                    | 15.24/387.1                                                   |
| Depth (in./mm)                         | 5.92/150.4                     | 5.92/150.4                                                    |
| Weight (lb./kg)                        | 59/27                          | 59/27                                                         |



## XR47 Models 35 W/°F (63 W/°C)



- NOTE:
1. MOUNTING GASKET SUPPLIED (NOT SHOWN)
  2. UNITS: in [mm]
  3. 2-METER LONG SERVICE CORD TERMINATED WITH APPROPRIATE PLUG:  
NEMA 5-15P FOR 115V UNITS  
NEMA 6-15P FOR 230V UNITS



Cutout Dimensions

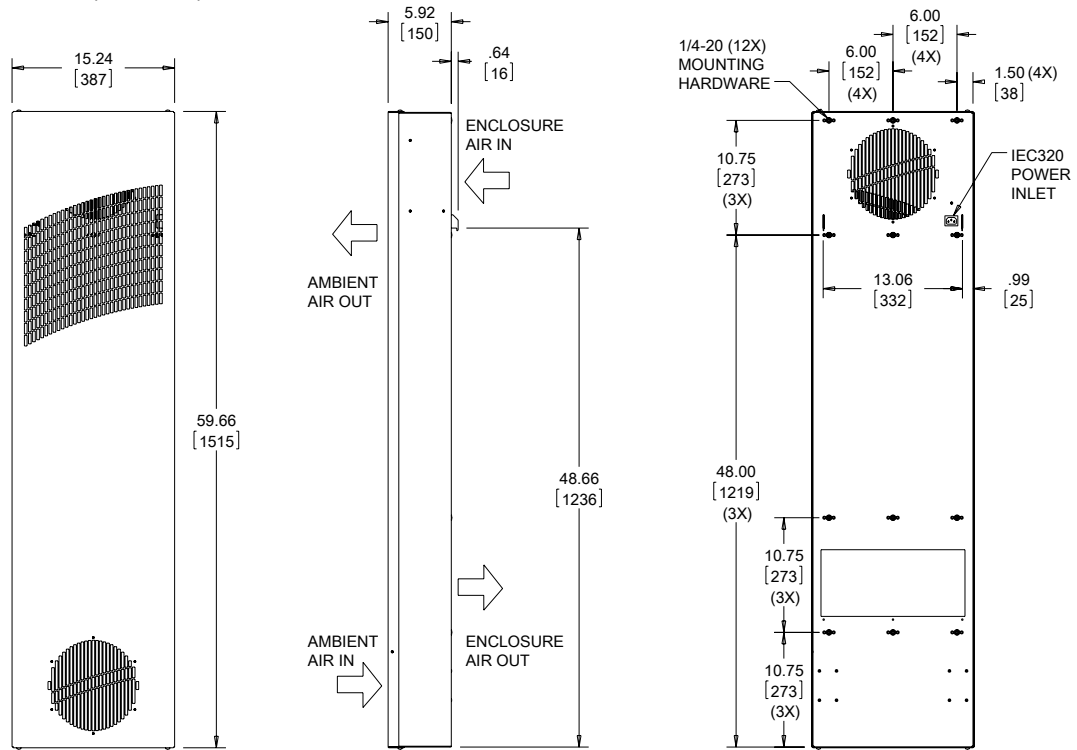
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Performance Data **XR60 Models 55 W/°F (99 W/°C)**

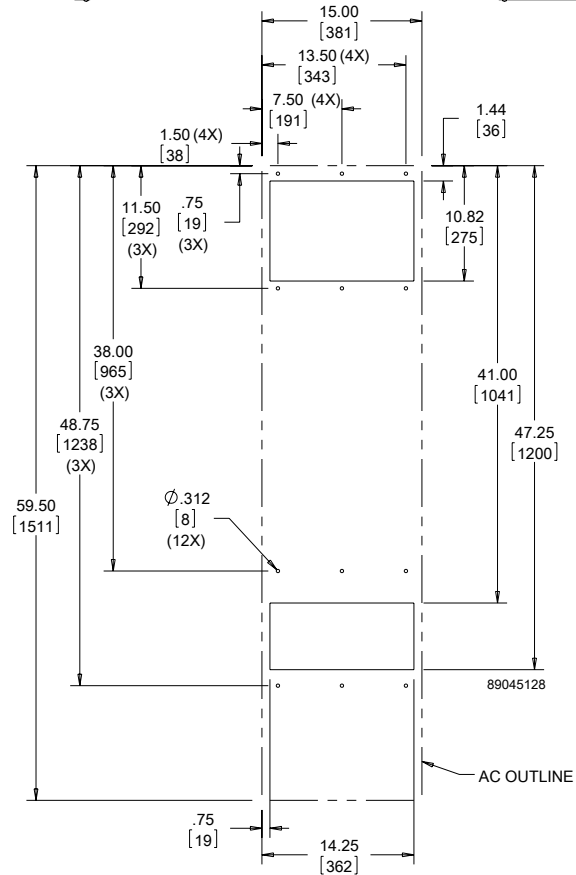
| CATALOG NUMBER                         |                                |                                                               |
|----------------------------------------|--------------------------------|---------------------------------------------------------------|
|                                        | XR605516012                    | XR605526012                                                   |
| <b>COOLING PERFORMANCE</b>             |                                |                                                               |
| Nominal:                               |                                |                                                               |
| <b>W per °F</b>                        | <b>55</b>                      | <b>55</b>                                                     |
| <b>W per °C</b>                        | <b>99</b>                      | <b>99</b>                                                     |
| Refrigerant                            | N/A                            | N/A                                                           |
| Refrigerant Charge (ounces/grams)      | N/A                            | N/A                                                           |
| Operating Temperature Range:           |                                |                                                               |
| Maximum (°F/°C)                        | 140/60                         | 140/60                                                        |
| Minimum (°F/°C)                        | -20/-29                        | -20/-29                                                       |
| Airflow at 0 Static Pressure:          |                                |                                                               |
| Internal loop 50 Hz (CFM / m³/hr.)     | 398/676                        | 398/676                                                       |
| External loop 50 Hz (CFM / m³/hr.)     | 429/729                        | 429/729                                                       |
| Internal loop 60 Hz (CFM / m³/hr.)     | 442/751                        | 442/751                                                       |
| External loop 60 Hz (CFM / m³/hr.)     | 477/810                        | 477/810                                                       |
| <b>ELECTRICAL DATA</b>                 |                                |                                                               |
| <b>Rated Voltage</b>                   | <b>115</b>                     | <b>230</b>                                                    |
| Frequency (Hz)                         | 50/60                          | 50/60                                                         |
| Operating Range                        | +/- 10%                        | +/- 10%                                                       |
| Max. Power Consumption (W at 50/60 Hz) | 759                            | 759                                                           |
| Max. Nominal Current (A at 50/60 Hz)   | 6.6                            | 3.3                                                           |
| Agency Approvals                       |                                | cUL Listed<br>CE<br>GOST                                      |
| Power Input Description                | 6-ft. cord with NEMA 5-15 plug | 6-ft. cord with NEMA 6-15 plug                                |
| <b>ENCLOSURE PROTECTION</b>            |                                |                                                               |
| UL Type                                |                                | Type 12 standard<br>Type 3R, 4, 4X optional                   |
| <b>SOUND LEVEL</b>                     |                                |                                                               |
| At 1.5 Meters                          |                                | 73 dBA                                                        |
| <b>UNIT CONSTRUCTION</b>               |                                |                                                               |
| Material                               |                                | Mild steel sheet metal standard<br>Stainless steel optional   |
| Finish                                 |                                | RAL 7035 light-gray, semi-textured powder-coat paint standard |
| <b>UNIT DIMENSIONS</b>                 |                                |                                                               |
| Height (in./mm)                        | 59.66/1515.3                   | 59.66/1515.3                                                  |
| Width (in./mm)                         | 15.24/387.1                    | 15.24/387.1                                                   |
| Depth (in./mm)                         | 5.92/150.4                     | 5.92/150.4                                                    |
| Weight (lb./kg)                        | 86/39                          | 86/39                                                         |



## XR60 Models 55 W/°F (99 W/°C)



- NOTE:
1. MOUNTING GASKET SUPPLIED (NOT SHOWN)
  2. UNITS: in [mm]
  3. 2-METER LONG SERVICE CORD SUPPLIED WITH APPROPRIATE PLUG: NEMA 5-15P FOR 115V UNITS NEMA 6-15P FOR 230V UNITS



Cutout Dimensions

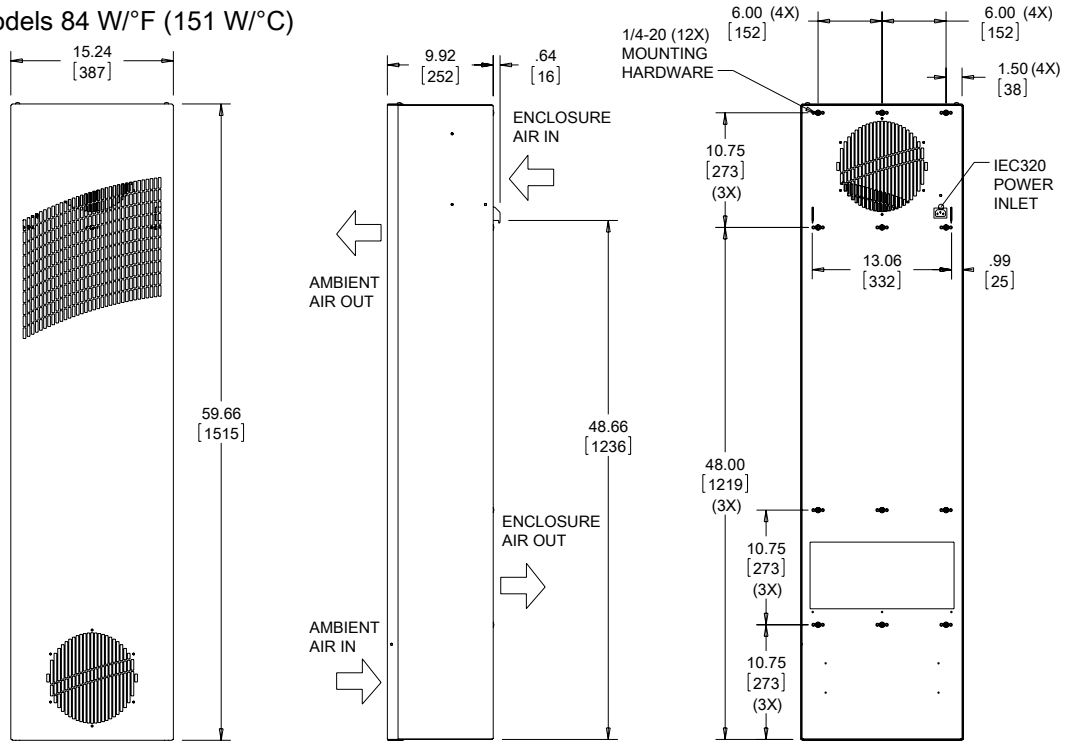
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Performance Data **XR60 Models 84 W/°F (151 W/°C)**

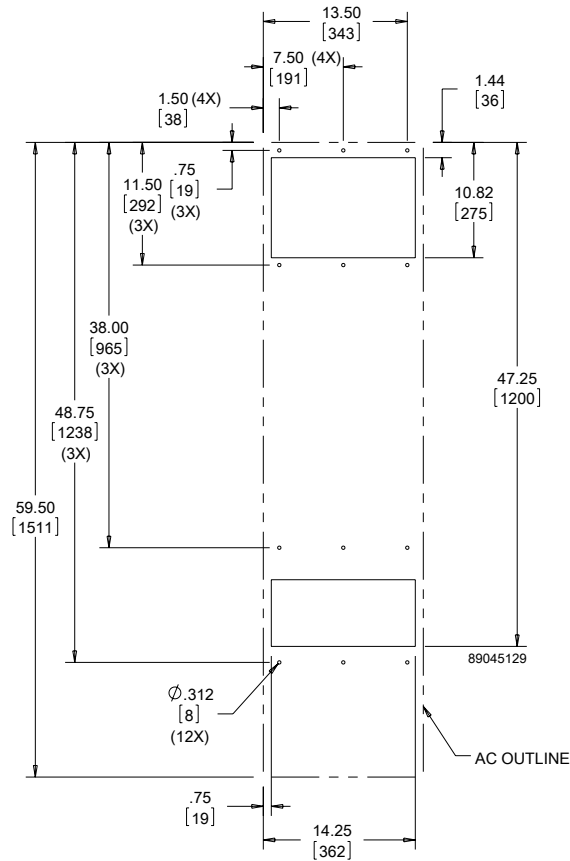
| <b>CATALOG NUMBER</b>                  |                                |                                                               |
|----------------------------------------|--------------------------------|---------------------------------------------------------------|
|                                        | XR608416012                    | XR608426012                                                   |
| <b>COOLING PERFORMANCE</b>             |                                |                                                               |
| Nominal:                               |                                |                                                               |
| <b>W per °F</b>                        | <b>84</b>                      | <b>84</b>                                                     |
| <b>W per °C</b>                        | <b>151</b>                     | <b>151</b>                                                    |
| Refrigerant                            | N/A                            | N/A                                                           |
| Refrigerant Charge (ounces/grams)      | N/A                            | N/A                                                           |
| Operating Temperature Range:           |                                |                                                               |
| Maximum (°F/°C)                        | 140/60                         | 140/60                                                        |
| Minimum (°F/°C)                        | -20/-29                        | -20/-29                                                       |
| Airflow at 0 Static Pressure:          |                                |                                                               |
| Internal loop 50 Hz (CFM / m³/hr.)     | 497/844                        | 497/844                                                       |
| External loop 50 Hz (CFM / m³/hr.)     | 434/737                        | 434/737                                                       |
| Internal loop 60 Hz (CFM / m³/hr.)     | 552/938                        | 552/938                                                       |
| External loop 60 Hz (CFM / m³/hr.)     | 482/819                        | 482/819                                                       |
| <b>ELECTRICAL DATA</b>                 |                                |                                                               |
| <b>Rated Voltage</b>                   | <b>115</b>                     | <b>230</b>                                                    |
| Frequency (Hz)                         | 50/60                          | 50/60                                                         |
| Operating Range                        | +/- 10%                        | +/- 10%                                                       |
| Max. Power Consumption (W at 50/60 Hz) | 759                            | 759                                                           |
| Max. Nominal Current (A at 50/60 Hz)   | 6.6                            | 3.3                                                           |
| Agency Approvals                       |                                | cUL Listed<br>CE<br>GOST                                      |
| Power Input Description                | 6-ft. cord with NEMA 5-15 plug | 6-ft. cord with NEMA 6-15 plug                                |
| <b>ENCLOSURE PROTECTION</b>            |                                |                                                               |
| UL Type                                |                                | Type 12 standard<br>Type 3R, 4, 4X optional                   |
| <b>SOUND LEVEL</b>                     |                                |                                                               |
| At 1.5 Meters                          |                                | 73 dBA                                                        |
| <b>UNIT CONSTRUCTION</b>               |                                |                                                               |
| Material                               |                                | Mild steel sheet metal standard<br>Stainless steel optional   |
| Finish                                 |                                | RAL 7035 light-gray, semi-textured powder-coat paint standard |
| <b>UNIT DIMENSIONS</b>                 |                                |                                                               |
| Height (in./mm)                        | 59.66/1515.3                   | 59.66/1515.3                                                  |
| Width (in./mm)                         | 15.24/387.1                    | 15.24/387.1                                                   |
| Depth (in./mm)                         | 9.92/252                       | 9.92/252                                                      |
| Weight (lb./kg)                        | 106/48                         | 106/48                                                        |



XR60 Models 84 W/°F (151 W/°C)



- NOTE:  
 1. MOUNTING GASKET SUPPLIED (NOT SHOWN)  
 2. UNITS: in [mm]  
 3. 2-METER LONG SERVICE CORD SUPPLIED WITH APPROPRIATE PLUG:  
 NEMA 5-15P FOR 115V UNITS  
 NEMA 6-15P FOR 230V UNITS



Cutout Dimensions

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**Notes**

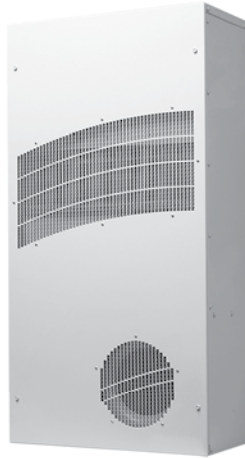


**CLIMAGUARD™ AIR-TO-AIR OUTDOOR**


**TX23**  
Models  
14 W/°F (25 W/°C)



**TX33**  
Models  
28 W/°F (50 W/°C)



**TX38**  
Models  
56 W/°F (100 W/°C)



**TX52**  
Models  
83 W/°F (150 W/°C)

3

**INDUSTRY STANDARDS**

UL/cUL Listed; Type 12, 3R, 4; 4X optional; File No. SA7402  
UR/cUR Recognized

UR/cUR Recognized on select models, reference performance data tables.

CE  
GOST  
Telcordia GR-487 capable

**APPLICATION**

- Telecom shelters
- Outdoor cabinets
- Equipment buildings
- Instrument enclosures
- And more

**FEATURES**

- Unique counterflow aluminum core for high efficiency and high performance heat transfer
- Models for 24 VDC, 48 VDC, 115 VAC and 230 VAC power supplies
- UL Listed or Recognized to save customers time and money with agency approvals
- Operating temperature range from -40 F/-40 C to 149 F/65 C
- Variable speed blowers standard on DC powered units for quiet running
- Surface or recessed mount capable
- Low-carbon mild-steel sheet-metal cover for rugged factory environments

- Easy-mount flanges for simple installation
- Mounting hardware, gaskets and user manual furnished with the unit
- Every unit functionally tested before shipping
- Filterless design for low maintenance and easy cleaning
- Engineered for temperature extremes, corrosive environments and wind driven rain

**FINISH**

- RAL 7035 light-gray, semi-textured powder-coat paint standard
- Stainless steel Type 304 or 316 finishes available on Type 4X models
- Other colors and textures available

**OPTIONS**

- Thermostat Package
  - Special Voltage Package
  - Outdoor Package
  - Harsh Environment Package\*
  - Stainless Steel Package\*
  - Heater Package\*
- \* Consult the factory for availability and catalog number.

**NOTES**

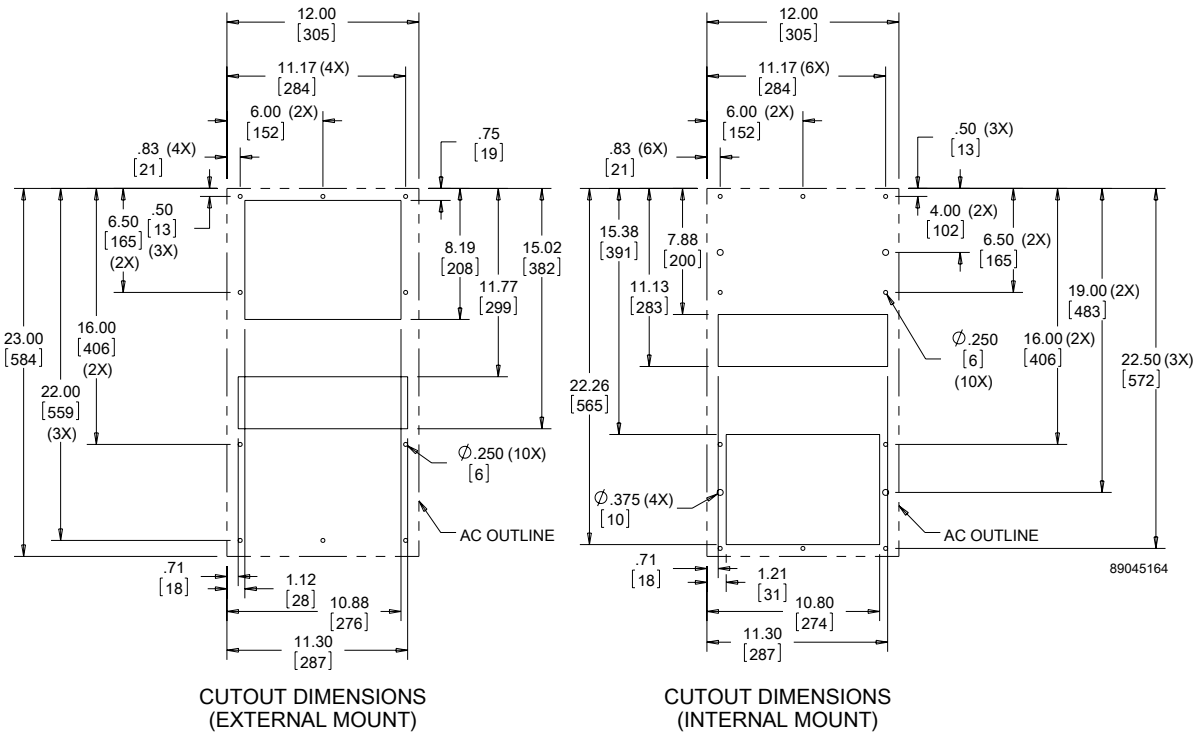
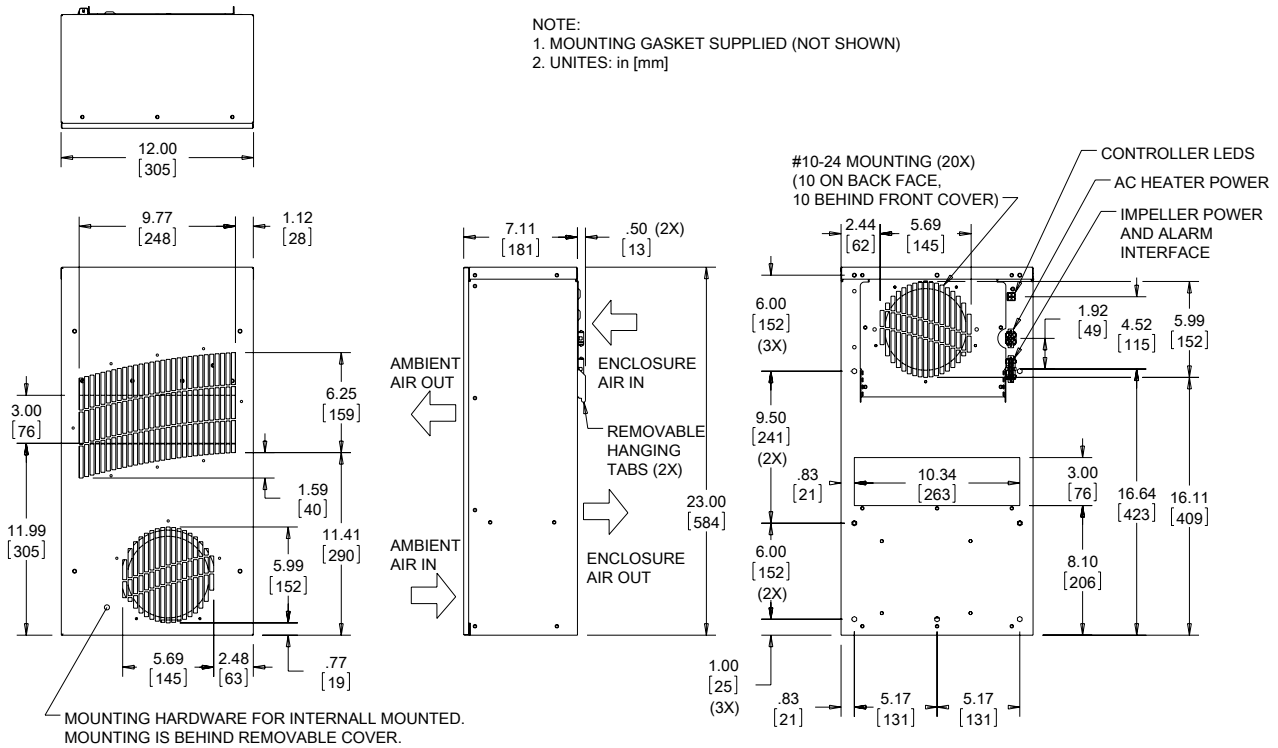
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## Performance Data TX23 Models 14 W/°F (25 W/°C)

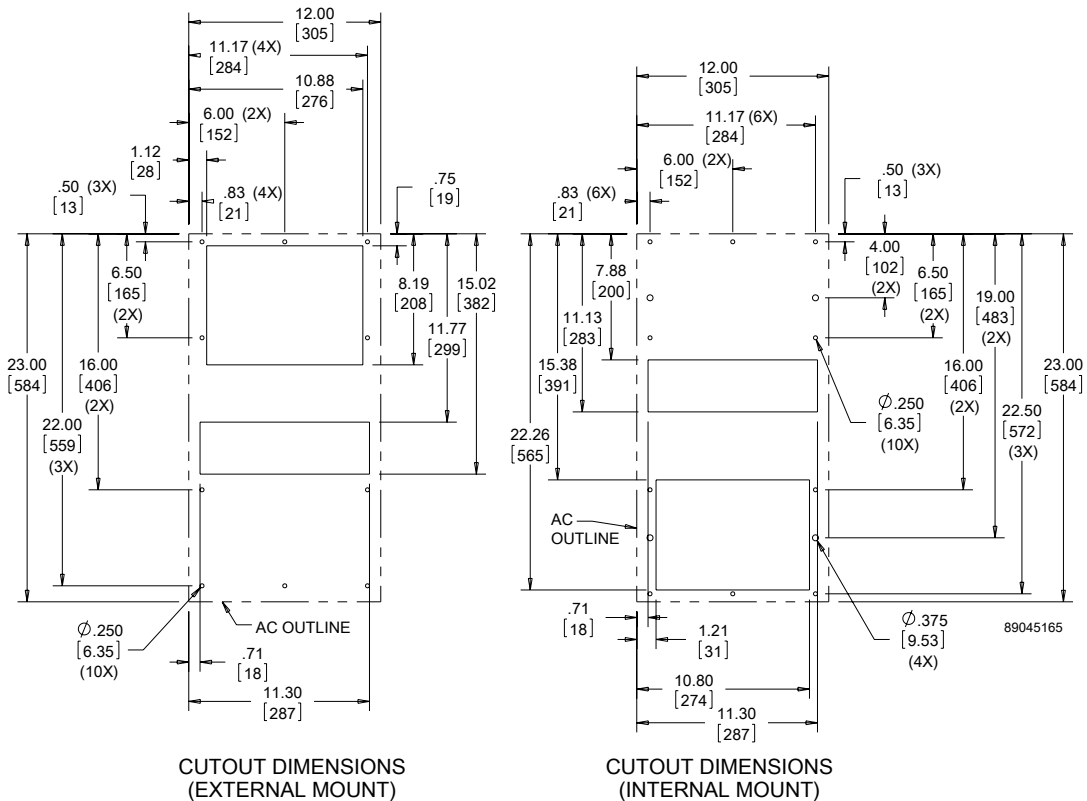
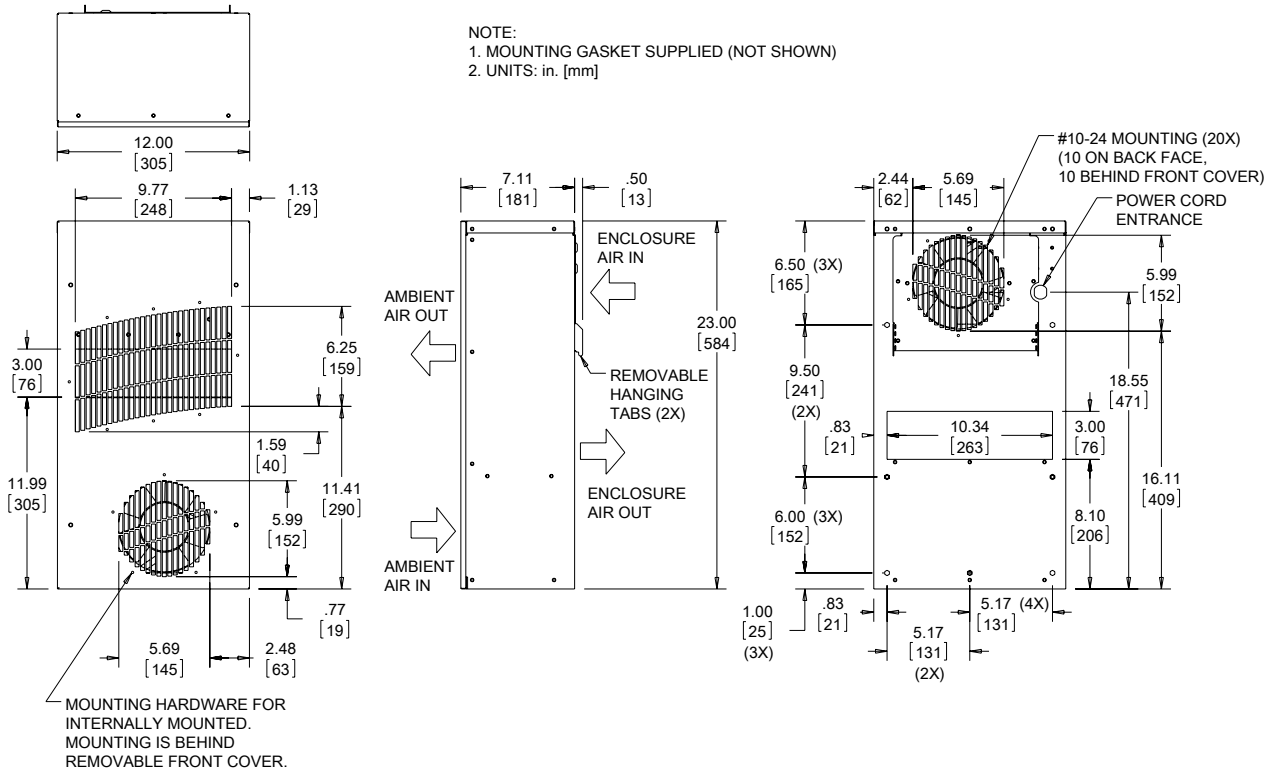
| CATALOG NUMBER                                  | TX231416100                                                      | TX231426100                       | TX231424100                                                      | TX231448100              |
|-------------------------------------------------|------------------------------------------------------------------|-----------------------------------|------------------------------------------------------------------|--------------------------|
| <b>COOLING PERFORMANCE</b>                      |                                                                  |                                   |                                                                  |                          |
| Nominal:                                        |                                                                  |                                   |                                                                  |                          |
| W per °F                                        | 14                                                               | 14                                | 14                                                               | 14                       |
| W per °C                                        | 25                                                               | 25                                | 25                                                               | 25                       |
| Refrigerant                                     | N/A                                                              | N/A                               | N/A                                                              | N/A                      |
| Refrigerant Charge (ounces/grams)               | N/A                                                              | N/A                               | N/A                                                              | N/A                      |
| Operating Temperature Range                     |                                                                  |                                   |                                                                  |                          |
| Maximum (°F/°C)                                 | 149/65                                                           | 149/65                            | 149/65                                                           | 149/65                   |
| Minimum (°F/°C)                                 | -40/-40                                                          | -40/-40                           | -40/-40                                                          | -40/-40                  |
| Airflow at 0 Static Pressure:                   |                                                                  |                                   |                                                                  |                          |
| Internal loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 69/117                                                           | 69/117                            | N/A                                                              | N/A                      |
| External loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 58/98                                                            | 58/98                             | N/A                                                              | N/A                      |
| Internal loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 84/142                                                           | 84/142                            | 175/268                                                          | 175/268                  |
| External loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 69/117                                                           | 69/117                            | 158/297                                                          | 158/297                  |
| <b>ELECTRICAL DATA</b>                          |                                                                  |                                   |                                                                  |                          |
| Rated Voltage                                   | 115 VAC                                                          | 230 VAC                           | 24 VDC                                                           | 48 VDC                   |
| Frequency (Hz)                                  | 50/60                                                            | 50/60                             | 50/60                                                            | 50/60                    |
| Operating Range                                 | +/- 10%                                                          | +/- 10%                           | +/- 10%                                                          | +/- 10%                  |
| Max. Power Consumption (W at 50/60 Hz)          | 69                                                               | 23                                | 82                                                               | 87                       |
| Max. Nominal Current (A at 50/60 Hz)            | 0.6                                                              | 0.1                               | 3.4                                                              | 1.8                      |
| Agency Approvals                                |                                                                  | cUL Listed<br>CE<br>GOST          |                                                                  | cUL Listed<br>CE<br>GOST |
| Power Input Description                         | 6-ft. cord with<br>NEMA 5-15 plug                                | 6-ft. cord with<br>NEMA 6-15 plug | Terminal block                                                   | Terminal block           |
| <b>ENCLOSURE PROTECTION</b>                     |                                                                  |                                   |                                                                  |                          |
| UL Type                                         | Type 12, 3R, 4 standard<br>Type 4X optional                      |                                   | Type 12, 3R, 4 standard<br>Type 4X optional                      |                          |
| <b>SOUND LEVEL</b>                              |                                                                  |                                   |                                                                  |                          |
| At 1.5 Meters                                   | 56 dBA                                                           |                                   | 56 dBA                                                           |                          |
| <b>UNIT CONSTRUCTION</b>                        |                                                                  |                                   |                                                                  |                          |
| Material                                        | Mild steel sheet metal standard<br>Stainless steel optional      |                                   | Mild steel sheet metal standard<br>Stainless steel optional      |                          |
| Finish                                          | RAL 7035 light-gray, semi-textured<br>powder-coat paint standard |                                   | RAL 7035 light-gray, semi-textured<br>powder-coat paint standard |                          |
| <b>UNIT DIMENSIONS</b>                          |                                                                  |                                   |                                                                  |                          |
| Height (in./mm)                                 | 23/584.2                                                         | 23/584.2                          | 23/584.2                                                         | 23/584.2                 |
| Width (in./mm)                                  | 12/304.8                                                         | 12/304.8                          | 12/304.8                                                         | 12/304.8                 |
| Depth (in./mm)                                  | 7.1/180.3                                                        | 7.1/180.3                         | 7.1/180.3                                                        | 7.1/180.3                |
| Weight (lb./kg)                                 | 30/13.6                                                          | 30/13.6                           | 30/13.6                                                          | 30/13.6                  |

TX23 DC Models 14 W/F (25°C)



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TX23 AC Models 14W/°F (25 W /°C)

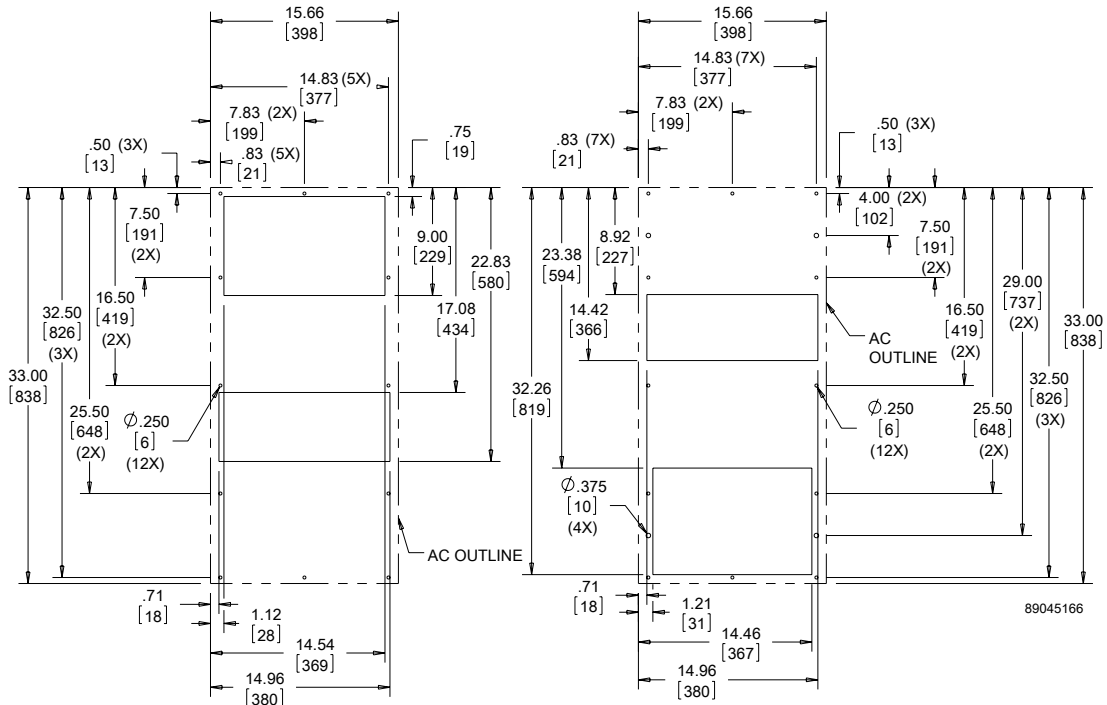
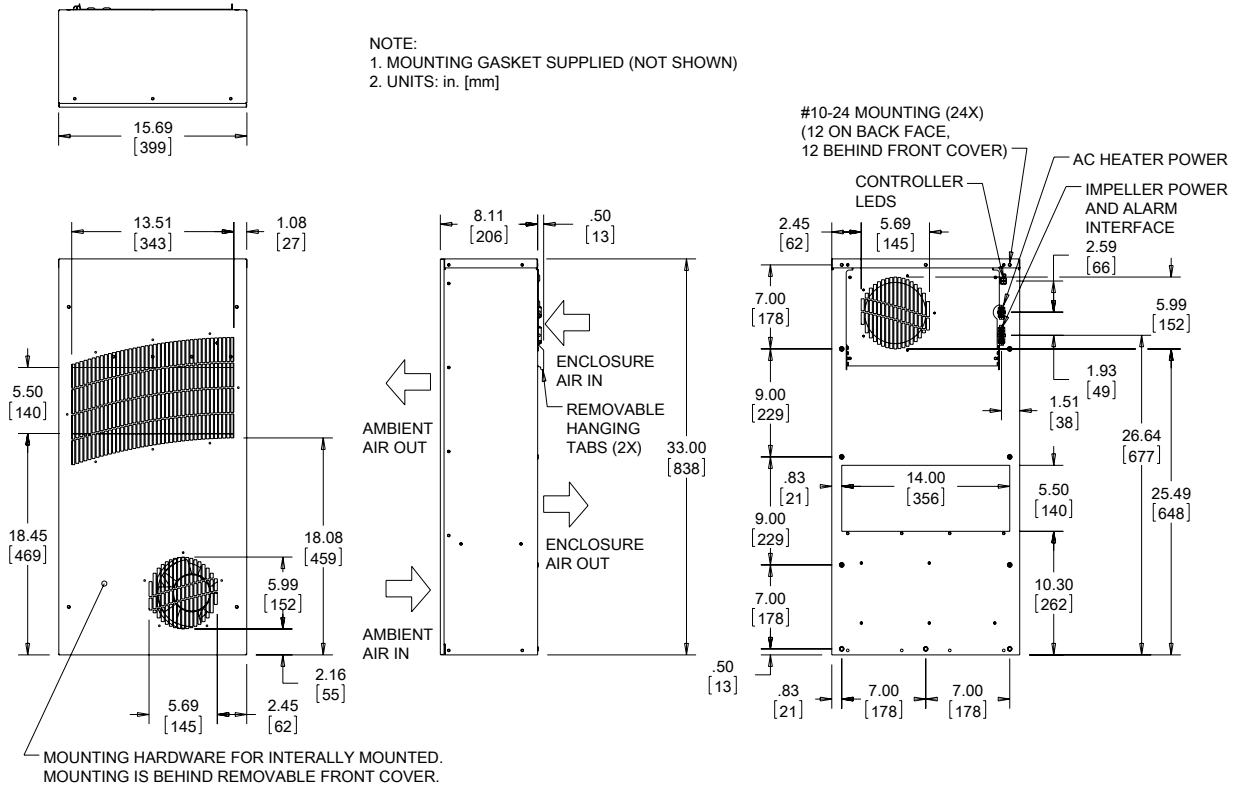


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## Performance Data TX33 Models 28 W/°F (50 W/°C)

| CATALOG NUMBER                                  | TX332816100                                                      | TX332826100                       | TX332824100                                                      | TX332848100    |
|-------------------------------------------------|------------------------------------------------------------------|-----------------------------------|------------------------------------------------------------------|----------------|
| <b>COOLING PERFORMANCE</b>                      |                                                                  |                                   |                                                                  |                |
| Nominal:                                        |                                                                  |                                   |                                                                  |                |
| W per °F                                        | 28                                                               | 28                                | 28                                                               | 28             |
| W per °C                                        | 50                                                               | 50                                | 50                                                               | 50             |
| Refrigerant                                     | N/A                                                              | N/A                               | N/A                                                              | N/A            |
| Refrigerant Charge (ounces/grams)               | N/A                                                              | N/A                               | N/A                                                              | N/A            |
| Operating Temperature Range:                    |                                                                  |                                   |                                                                  |                |
| Maximum (°F/°C)                                 | 149/65                                                           | 149/65                            | 149/65                                                           | 149/65         |
| Minimum (°F/°C)                                 | -40/-40                                                          | -40/-40                           | -40/-40                                                          | -40/-40        |
| Airflow at 0 Static Pressure:                   |                                                                  |                                   |                                                                  |                |
| Internal loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 212/360                                                          | 212/360                           | N/A                                                              | N/A            |
| External loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 238/404                                                          | 238/404                           | N/A                                                              | N/A            |
| Internal loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 228/387                                                          | 228/387                           | 228/387                                                          | 228/387        |
| External loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 263/447                                                          | 263/447                           | 166/282                                                          | 166/282        |
| <b>ELECTRICAL DATA</b>                          |                                                                  |                                   |                                                                  |                |
| Rated Voltage                                   | 115 VAC                                                          | 230 VAC                           | 24 VDC                                                           | 48 VDC         |
| Frequency (Hz)                                  | 50/60                                                            | 50/60                             | 50/60                                                            | 50/60          |
| Operating Range                                 | +/- 10%                                                          | +/- 10%                           | +/- 10%                                                          | +/- 10%        |
| Max. Power Consumption (W at 50/60 Hz)          | 161                                                              | 92                                | 82                                                               | 87             |
| Max. Nominal Current (A at 50/60 Hz)            | 1.4                                                              | 0.4                               | 3.4                                                              | 1.8            |
| Agency Approvals                                | cUL Listed<br>CE<br>GOST                                         |                                   | cUL Listed<br>CE<br>GOST                                         |                |
| Power Input Description                         | 6-ft. cord with<br>NEMA 5-15 plug                                | 6-ft. cord with<br>NEMA 6-15 plug | Terminal block                                                   | Terminal block |
| <b>ENCLOSURE PROTECTION</b>                     |                                                                  |                                   |                                                                  |                |
| UL Type                                         | Type 12, 3R, 4 standard<br>Type 4X optional                      |                                   | Type 12, 3R, 4 standard<br>Type 4X optional                      |                |
| <b>SOUND LEVEL</b>                              |                                                                  |                                   |                                                                  |                |
| At 1.5 Meters                                   | 56 dBA                                                           |                                   | 56 dBA                                                           |                |
| <b>UNIT CONSTRUCTION</b>                        |                                                                  |                                   |                                                                  |                |
| Material                                        | Mild steel sheet metal standard<br>Stainless steel optional      |                                   | Mild steel sheet metal standard<br>Stainless steel optional      |                |
| Finish                                          | RAL 7035 light-gray, semi-textured<br>powder-coat paint standard |                                   | RAL 7035 light-gray, semi-textured<br>powder-coat paint standard |                |
| <b>UNIT DIMENSIONS</b>                          |                                                                  |                                   |                                                                  |                |
| Height (in./mm)                                 | 33/838.2                                                         | 33/838.2                          | 33/838.2                                                         | 33/838.2       |
| Width (in./mm)                                  | 15.7/398.8                                                       | 15.7/398.8                        | 15.7/398.8                                                       | 15.7/398.8     |
| Depth (in./mm)                                  | 8.1/205.7                                                        | 8.1/205.7                         | 8.1/205.7                                                        | 8.1/205.7      |
| Weight (lb./kg)                                 | 45/20.4                                                          | 45/20.4                           | 45/20.4                                                          | 45/20.4        |

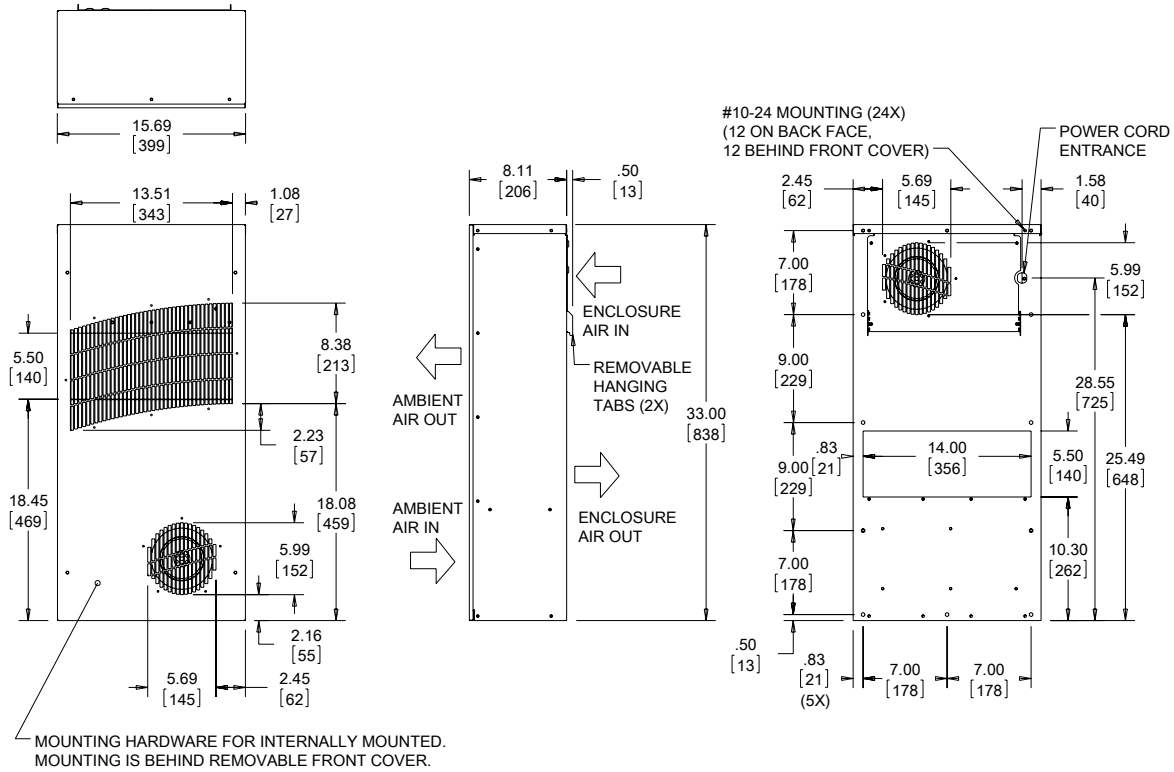
TX 33 DC Models 28 W/°F (50 W/°C)



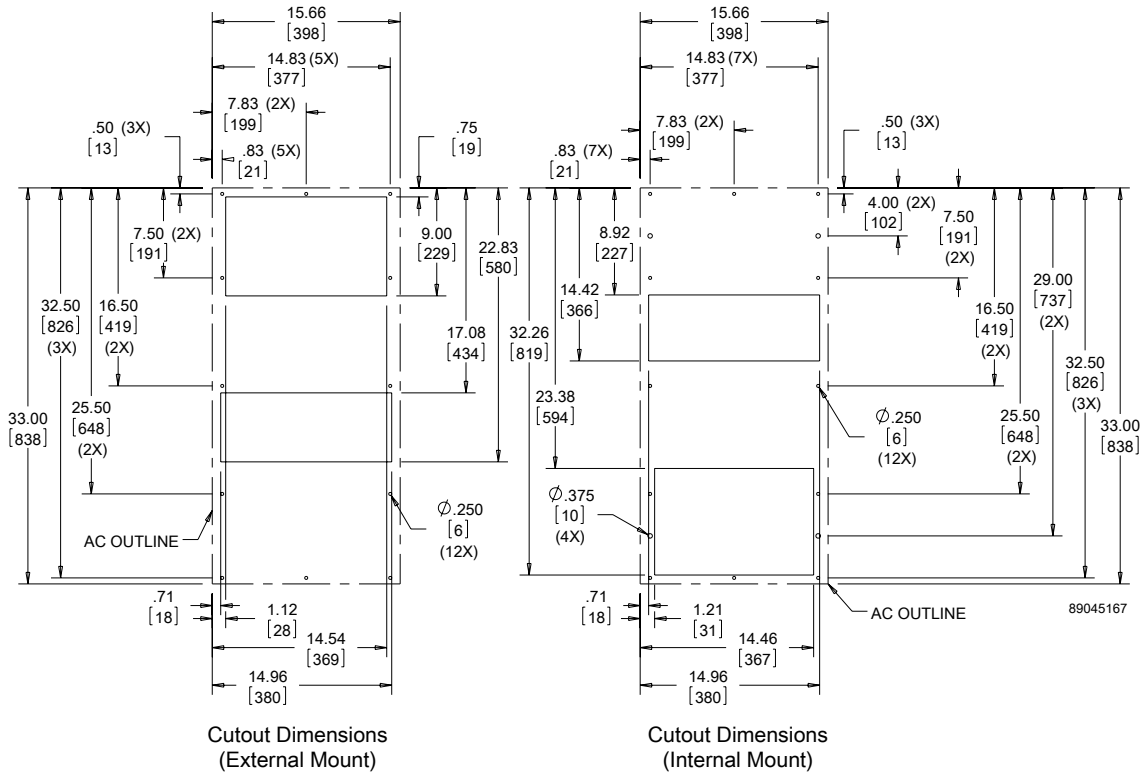
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TX33 AC Models 28 W/°F (50 W/°C)



MOUNTING HARDWARE FOR INTERNALLY MOUNTED. MOUNTING IS BEHIND REMOVABLE FRONT COVER.

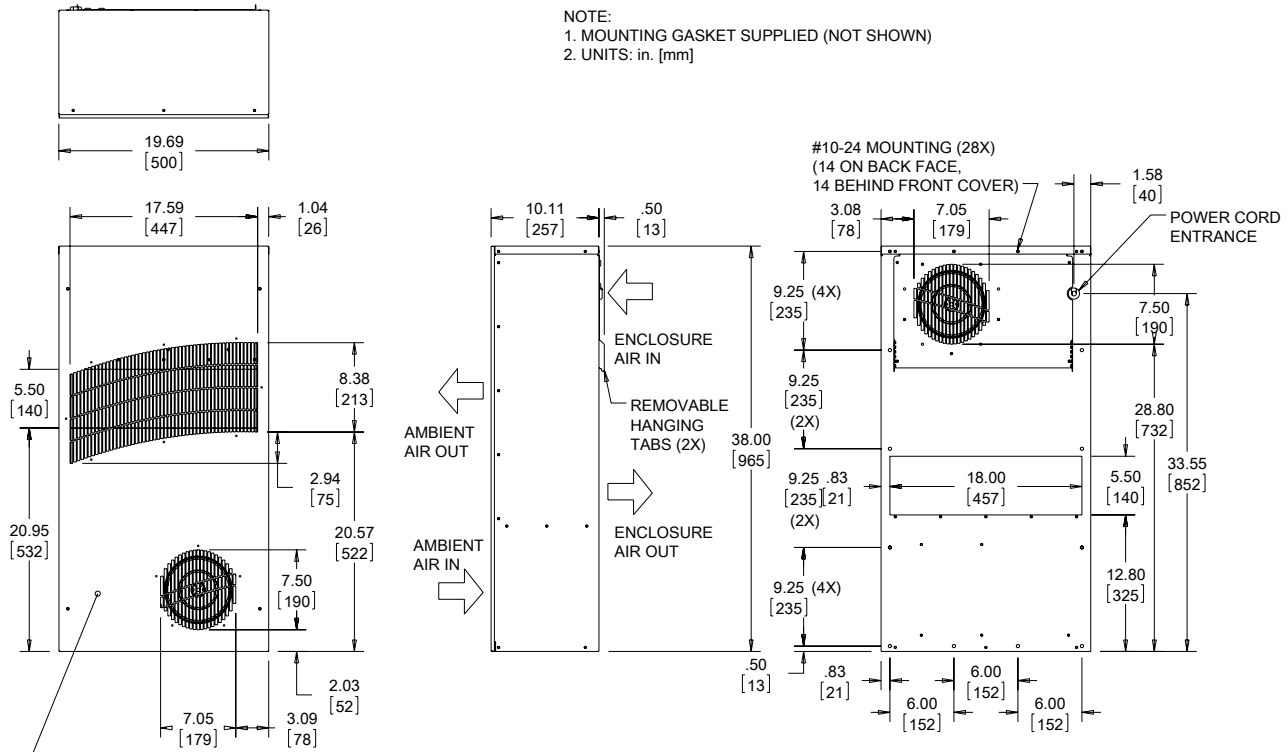


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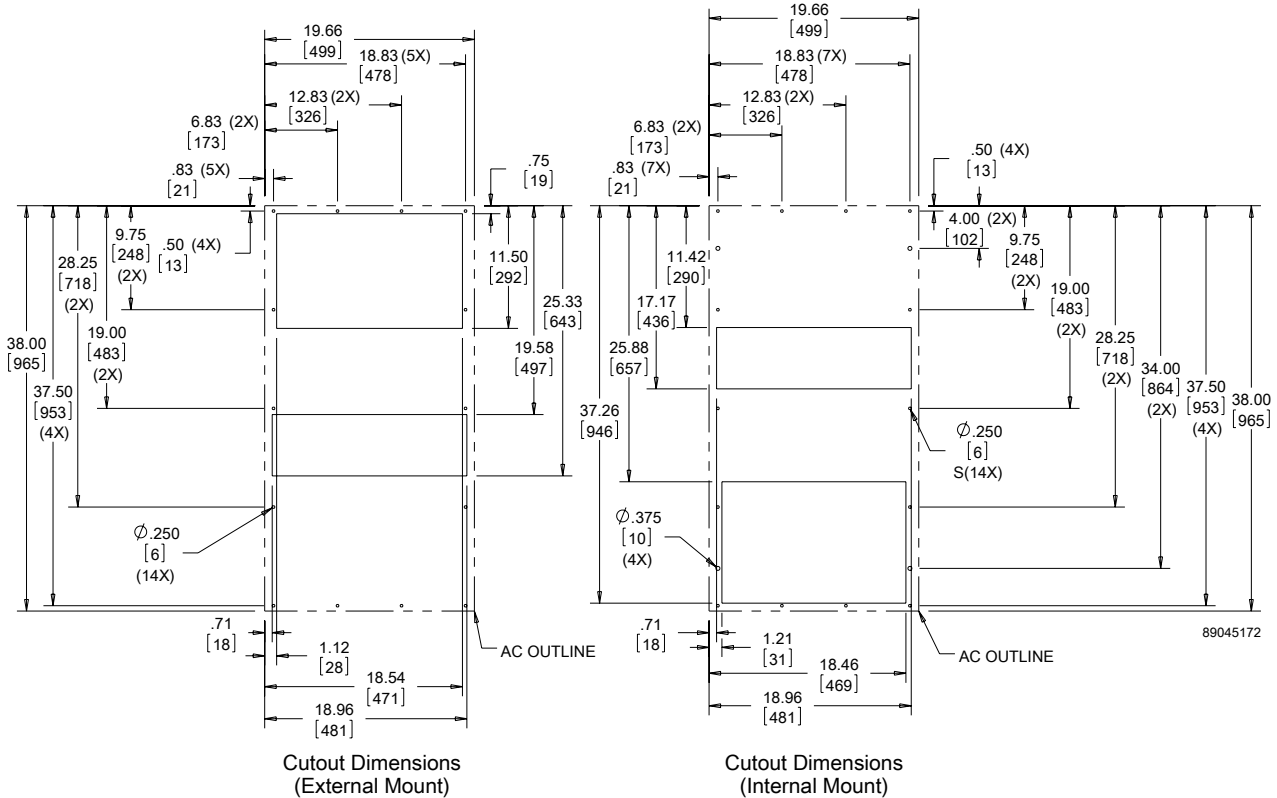
## Performance Data TX38 Models 56 W/°F (100 W/°C)

| CATALOG NUMBER                                  | TX385616100                                                      | TX385626100                       | TX38562400                                                       | TX385648100              |
|-------------------------------------------------|------------------------------------------------------------------|-----------------------------------|------------------------------------------------------------------|--------------------------|
| <b>COOLING PERFORMANCE</b>                      |                                                                  |                                   |                                                                  |                          |
| Nominal:                                        |                                                                  |                                   |                                                                  |                          |
| W per °F                                        | 56                                                               | 56                                | 56                                                               | 56                       |
| W per °C                                        | 100                                                              | 100                               | 100                                                              | 100                      |
| Refrigerant                                     | N/A                                                              | N/A                               | N/A                                                              | N/A                      |
| Refrigerant Charge (ounces/grams)               | N/A                                                              | N/A                               | N/A                                                              | N/A                      |
| Operating Temperature Range:                    |                                                                  |                                   |                                                                  |                          |
| Maximum (°F/°C)                                 | 149/65                                                           | 149/65                            | 149/65                                                           | 149/65                   |
| Minimum (°F/°C)                                 | -40/-40                                                          | -40/-40                           | -40/-40                                                          | -40/-40                  |
| Airflow at 0 Static Pressure:                   |                                                                  |                                   |                                                                  |                          |
| Internal loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 425/722                                                          | 425/722                           | N/A                                                              | N/A                      |
| External loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 461/738                                                          | 461/738                           | N/A                                                              | N/A                      |
| Internal loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 477/810                                                          | 477/810                           | 368/625                                                          | 368/625                  |
| External loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 517/878                                                          | 517/878                           | 422/717                                                          | 422/717                  |
| <b>ELECTRICAL DATA</b>                          |                                                                  |                                   |                                                                  |                          |
| Rated Voltage                                   | 115 VAC                                                          | 230 VAC                           | 24 VDC                                                           | 48 VDC                   |
| Frequency (Hz)                                  | 50/60                                                            | 50/60                             | 50/60                                                            | 50/60                    |
| Operating Range                                 | +/- 10%                                                          | +/- 10%                           | +/- 10%                                                          | +/- 10%                  |
| Max. Power Consumption (W at 50/60 Hz)          | 368                                                              | 276                               | 207                                                              | 279                      |
| Max. Nominal Current (A at 50/60 Hz)            | 2.3/3.2                                                          | 0.7/1.2                           | 8.6                                                              | 5.8                      |
| Agency Approvals                                |                                                                  | cUL Listed<br>CE<br>GOST          |                                                                  | cUL Listed<br>CE<br>GOST |
| Power Input Description                         | 6-ft. cord with<br>NEMA 5-15 plug                                | 6-ft. cord with<br>NEMA 6-15 plug | Terminal block                                                   | Terminal block           |
| <b>ENCLOSURE PROTECTION</b>                     |                                                                  |                                   |                                                                  |                          |
| UL Type                                         | Type 12, 3R, 4 standard<br>Type 4X optional                      |                                   | Type 12, 3R, 4 standard<br>Type 4X optional                      |                          |
| <b>SOUND LEVEL</b>                              |                                                                  |                                   |                                                                  |                          |
| At 1.5 Meters                                   | 64 dBA                                                           |                                   | 64 dBA                                                           |                          |
| <b>UNIT CONSTRUCTION</b>                        |                                                                  |                                   |                                                                  |                          |
| Material                                        | Mild Mild steel sheet metal standard                             |                                   | Mild Mild steel sheet metal standard                             |                          |
| Finish                                          | RAL 7035 light-gray, semi-textured<br>powder-coat paint standard |                                   | RAL 7035 light-gray, semi-textured<br>powder-coat paint standard |                          |
| <b>UNIT DIMENSIONS</b>                          |                                                                  |                                   |                                                                  |                          |
| Height (in./mm)                                 | 38/965.2                                                         | 38/965.2                          | 38/965.2                                                         | 38/965.2                 |
| Width (in./mm)                                  | 19.7/500.4                                                       | 19.7/500.4                        | 19.7/500.4                                                       | 19.7/500.4               |
| Depth (in./mm)                                  | 10.1/256.5                                                       | 10.1/256.5                        | 10.1/256.5                                                       | 10.1/256.5               |
| Weight (lb./kg)                                 | 66/30                                                            | 66/30                             | 66/30                                                            | 66/30                    |

## TX38 DC Models 56 W/°F (100 W/°C)



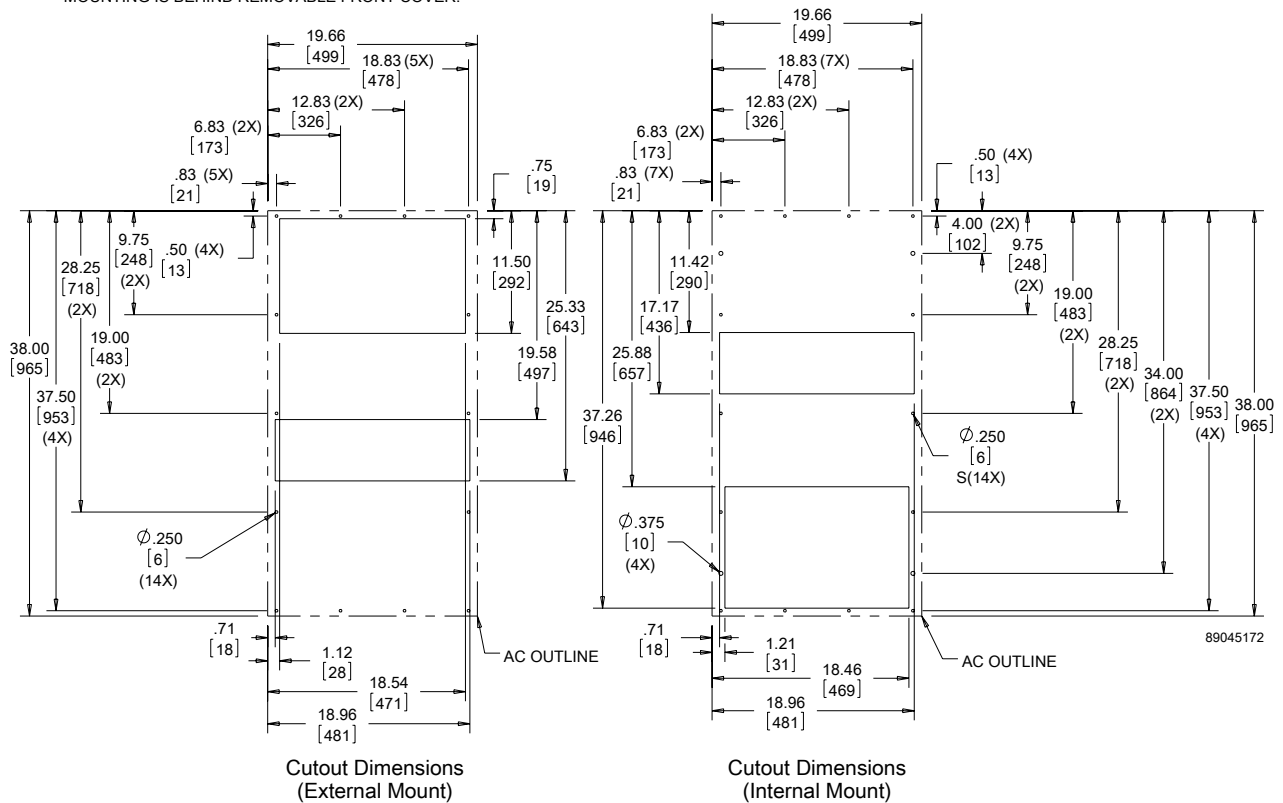
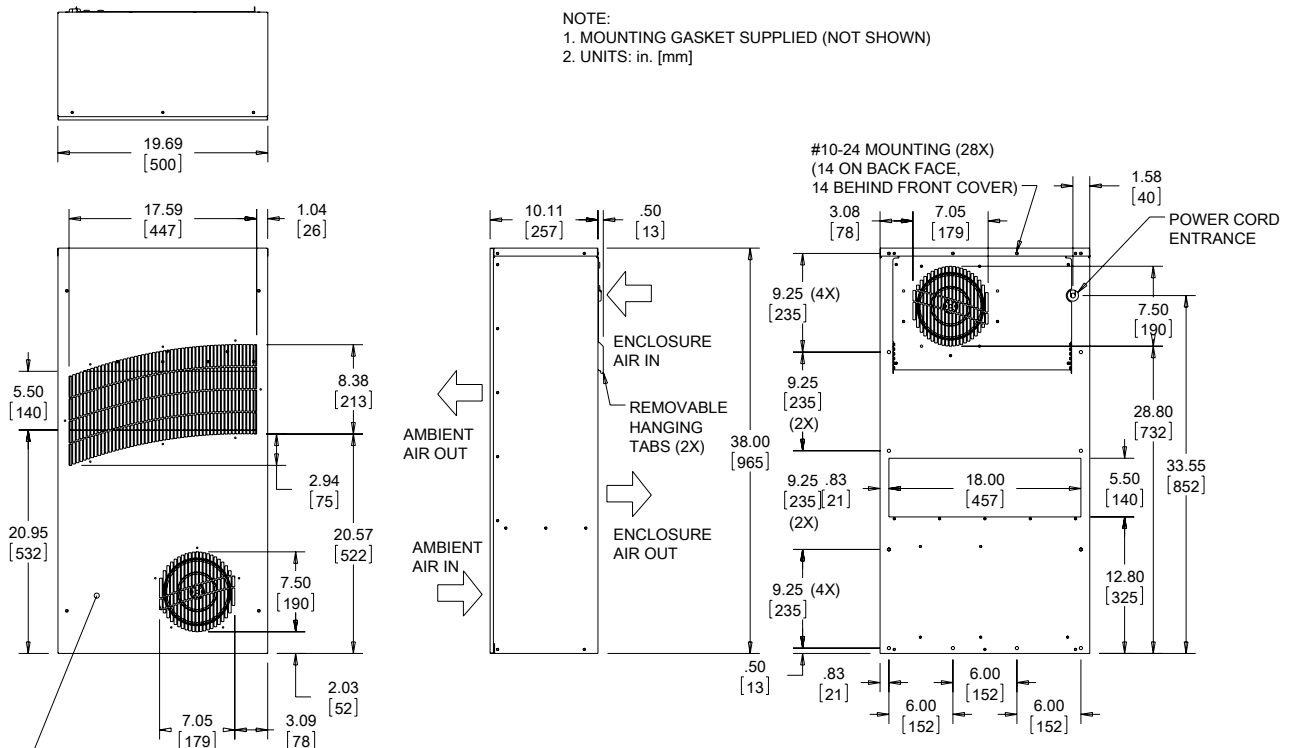
MOUNTING HARDWARE FOR INTERNALLY MOUNTED.  
 MOUNTING IS BEHIND REMOVABLE FRONT COVER.



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TX38 DC Models 56 W/°F (100 W/°C)



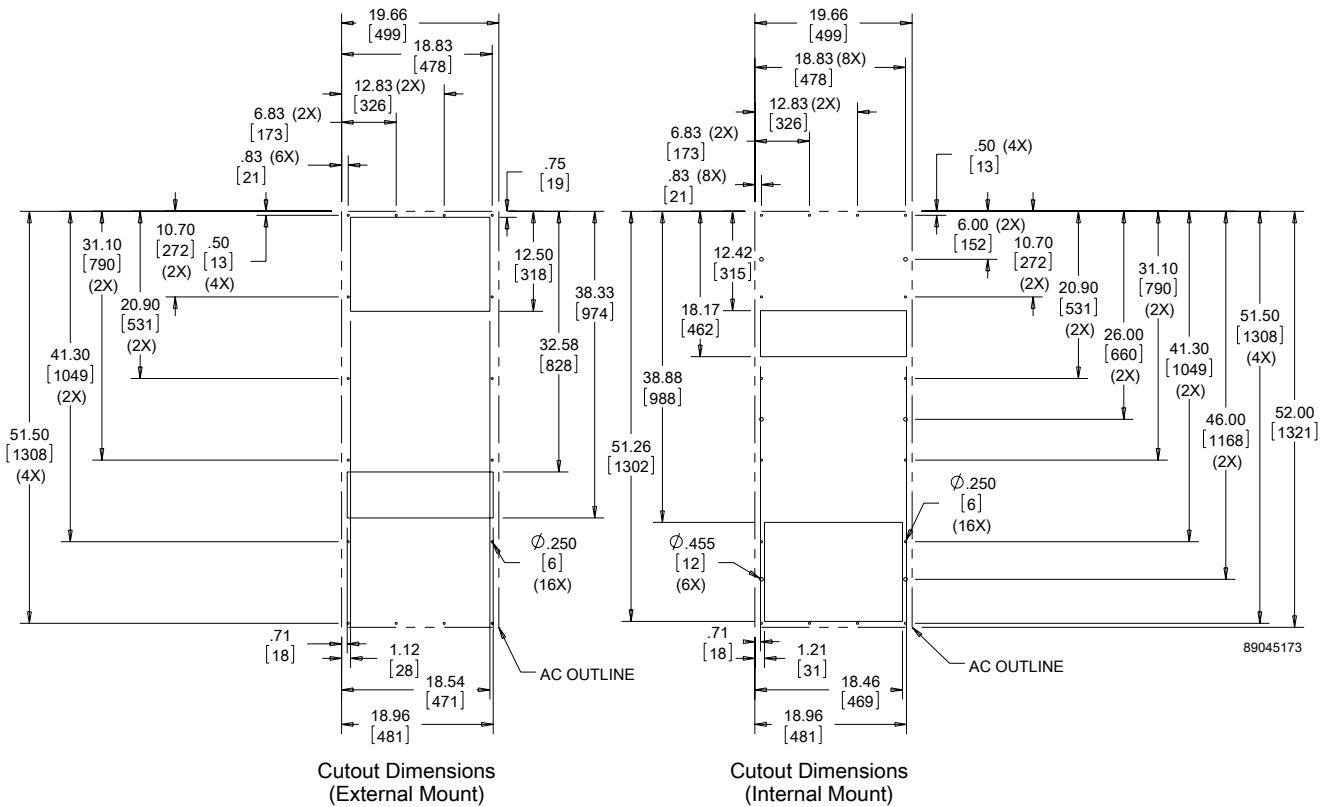
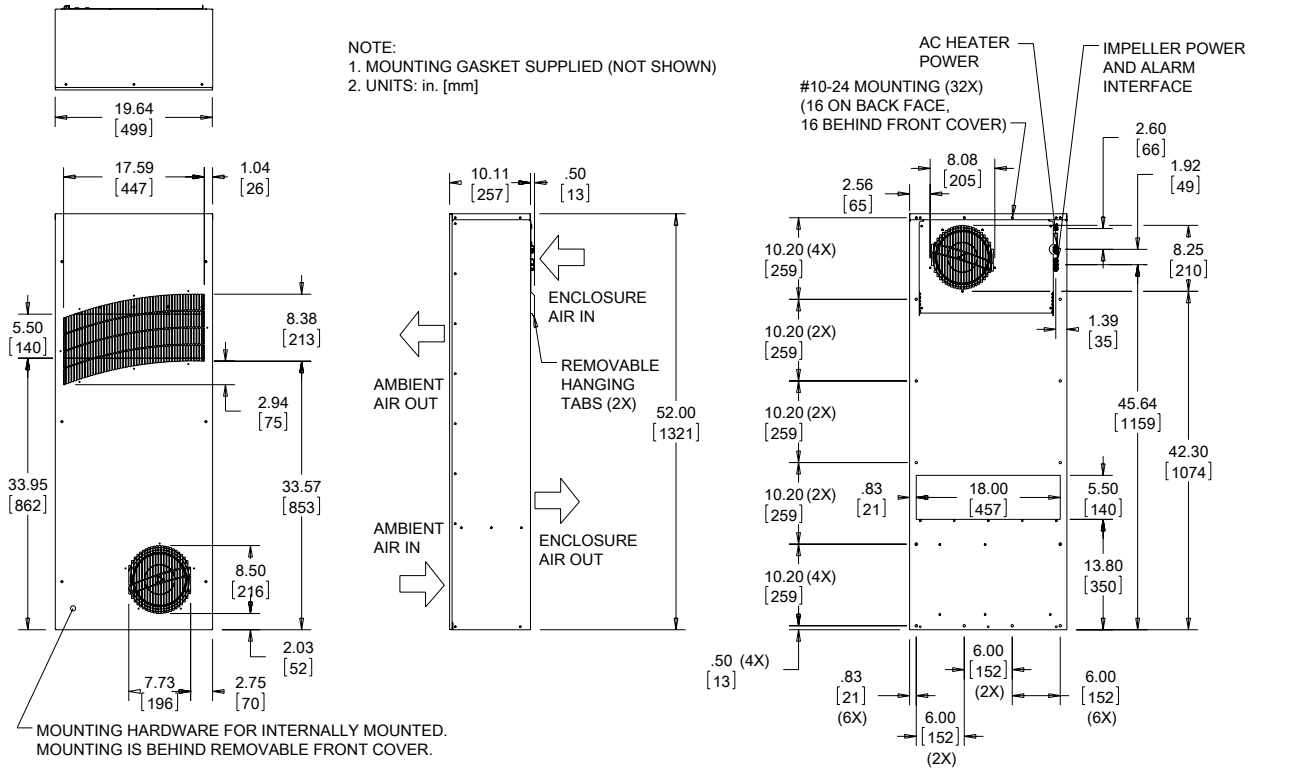
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Performance Data **TX52 Models 83 W/°F (150 W/°C)**

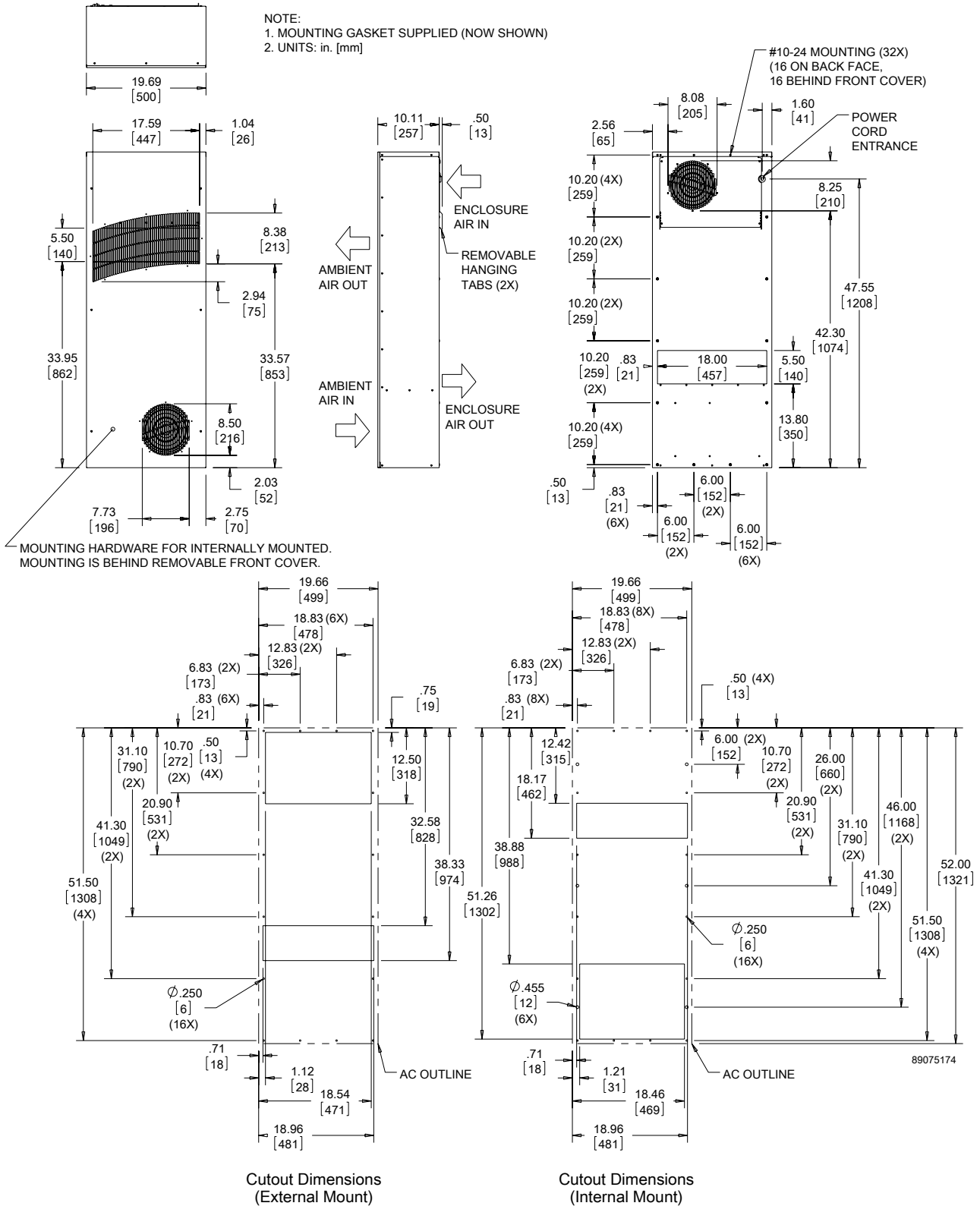
| <b>CATALOG NUMBER</b>                           |                                                                  |                                   |                                                                  |                |
|-------------------------------------------------|------------------------------------------------------------------|-----------------------------------|------------------------------------------------------------------|----------------|
|                                                 | TX528316100                                                      | TX528326100                       | TX528324100                                                      | TX528348100    |
| <b>COOLING PERFORMANCE</b>                      |                                                                  |                                   |                                                                  |                |
| Nominal:                                        |                                                                  |                                   |                                                                  |                |
| <b>W per °F</b>                                 | <b>83</b>                                                        | <b>83</b>                         | <b>83</b>                                                        | <b>83</b>      |
| <b>W per °C</b>                                 | <b>150</b>                                                       | <b>150</b>                        | <b>150</b>                                                       | <b>150</b>     |
| Refrigerant                                     | N/A                                                              | N/A                               | N/A                                                              | N/A            |
| Refrigerant Charge (ounces/grams)               | N/A                                                              | N/A                               | N/A                                                              | N/A            |
| Operating Temperature Range:                    |                                                                  |                                   |                                                                  |                |
| Maximum (°F/°C)                                 | 149/65                                                           | 149/65                            | 149/65                                                           | 149/65         |
| Minimum (°F/°C)                                 | -40/-40                                                          | -40/-40                           | -40/-40                                                          | -40/-40        |
| Airflow at 0 Static Pressure:                   |                                                                  |                                   |                                                                  |                |
| Internal loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 495/841                                                          | 495/841                           | N/A                                                              | N/A            |
| External loop 50 Hz (CFM / m <sup>3</sup> /hr.) | 540/917                                                          | 540/917                           | N/A                                                              | N/A            |
| Internal loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 533/905                                                          | 533/905                           | 466/792                                                          | 466/792        |
| External loop 60 Hz (CFM / m <sup>3</sup> /hr.) | 605/1028                                                         | 605/1028                          | 547/929                                                          | 547/929        |
| <b>ELECTRICAL DATA</b>                          |                                                                  |                                   |                                                                  |                |
| <b>Rated Voltage</b>                            | <b>115 VAC</b>                                                   | <b>230 VAC</b>                    | <b>24 VDC</b>                                                    | <b>48 VDC</b>  |
| Frequency (Hz)                                  | 50/60                                                            | 50/60                             | 50/60                                                            | 50/60          |
| Operating Range                                 | +/- 10%                                                          | +/- 10%                           | +/- 10%                                                          | +/- 10%        |
| Max. Power Consumption (W at 50/60 Hz)          | 782                                                              | 771                               | 507                                                              | 375            |
| Max. Nominal Current (A at 50/60 Hz)            | 4.3/6.7                                                          | 2.2/3.4                           | 21.1                                                             | 7.8            |
| Agency Approvals                                | cUL Listed<br>CE<br>GOST                                         |                                   | cUL Listed<br>CE<br>GOST                                         |                |
| Power Input Description                         | 6-ft. cord with<br>NEMA 5-15 plug                                | 6-ft. cord with<br>NEMA 6-15 plug | Terminal block                                                   | Terminal block |
| <b>ENCLOSURE PROTECTION</b>                     |                                                                  |                                   |                                                                  |                |
| UL Type                                         | Type 12, 3R, 4 standard<br>Type 4X optional                      |                                   | Type 12, 3R, 4 standard<br>Type 4X optional                      |                |
| <b>SOUND LEVEL</b>                              |                                                                  |                                   |                                                                  |                |
| At 1.5 Meters                                   | 68 dBA                                                           |                                   | 68 dBA                                                           |                |
| <b>UNIT CONSTRUCTION</b>                        |                                                                  |                                   |                                                                  |                |
| Material                                        | Mild steel sheet metal standard<br>Stainless steel optional      |                                   | Mild steel sheet metal standard<br>Stainless steel optional      |                |
| Finish                                          | RAL 7035 light-gray, semi-textured<br>powder-coat paint standard |                                   | RAL 7035 light-gray, semi-textured<br>powder-coat paint standard |                |
| <b>UNIT DIMENSIONS</b>                          |                                                                  |                                   |                                                                  |                |
| Height (in./mm)                                 | 52/1320.8                                                        | 52/1320.8                         | 52/1320.8                                                        | 52/1320.8      |
| Width (in./mm)                                  | 19.7/500.4                                                       | 19.7/500.4                        | 19.7/500.4                                                       | 19.7/500.4     |
| Depth (in./mm)                                  | 10.1/256.5                                                       | 10.1/256.5                        | 10.1/256.5                                                       | 10.1/256.5     |
| Weight (lb./kg)                                 | 100/45.3                                                         | 100/45.3                          | 100/45.3                                                         | 100/45.3       |

TX52 DC Models 83 W°F (150 W/°C)



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## TX52 AC Models 83 W/°F (150 W/°C)



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**Notes**



**CLIMAGUARD™ AIR-TO-WATER INDOOR**


**WCHE01**  
2968 BTU/Hr.  
870 Watts

**WCHE04/WCHE06**  
7506/10577 BTU/Hr.  
2200/3100 Watts

**WCHE14**  
22861 BTU/Hr.  
6700 Watts

3

**INDUSTRY STANDARDS**

UL/cUL Listed; Type 12; File No. SA33866

CE  
IP55

**APPLICATION**

- Industrial process controls
- Industrial robotics controls
- Electronic cabinets in harsh environments
- Conveyor systems

**FEATURES**

- Capacities ranging from 870 watts to 6700 watts
- Filterless design
- NEMA power cord connection standard
- Copper pipe and aluminum fins heat exchanger core
- Air movers with thermal protection
- Regulating mechanical thermostat set at 35 C (95 F), differential of 4 C (7 F)
- Operating temperature from 10-50 C (50-122 F)
- Solenoid water valve
- UL Listed to save customers time and money with agency approvals
- Recovery of condensation system and condensation discharge pipe
- Requires an available cooled water source

**FINISH**

- Standard models constructed of rugged steel
- RAL 7035 light-gray, powder-coat polyester paint

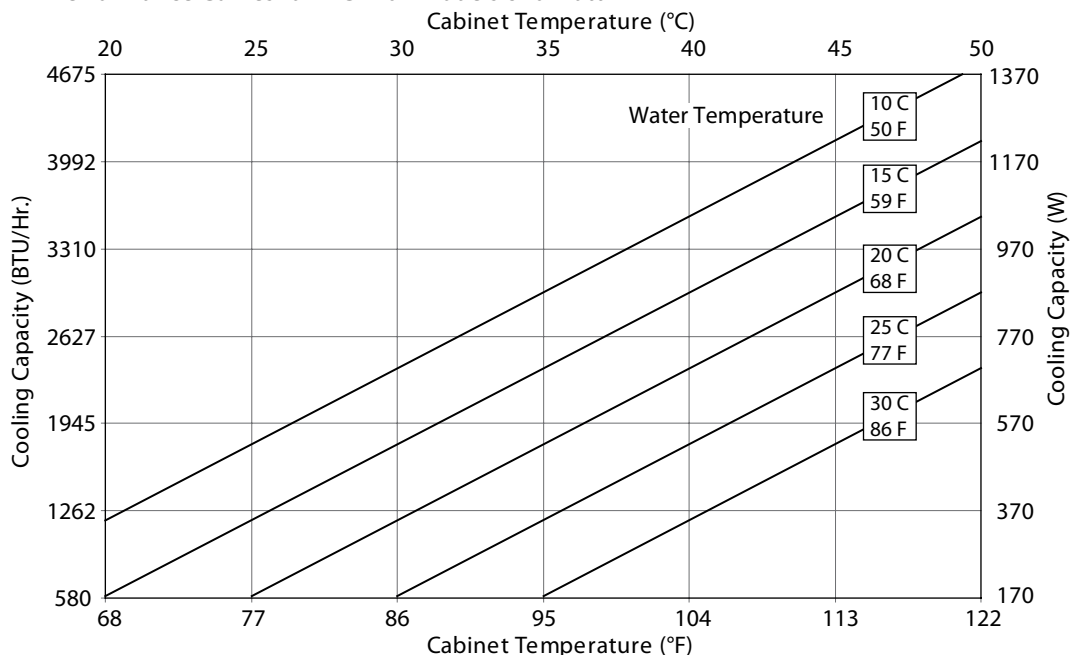
**NOTES**

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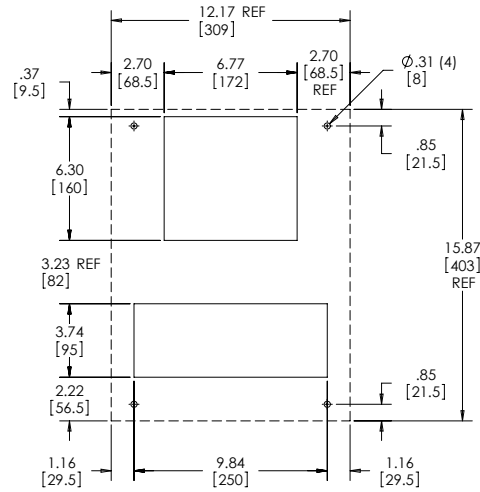
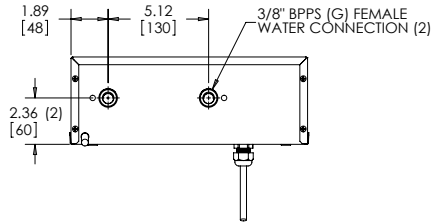
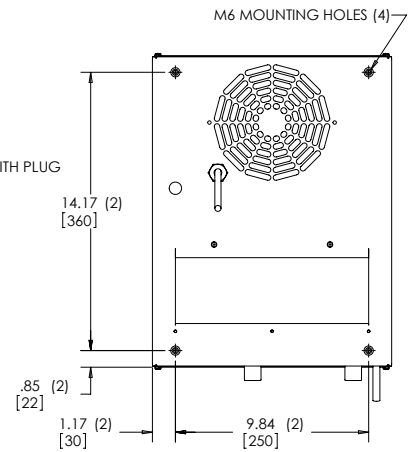
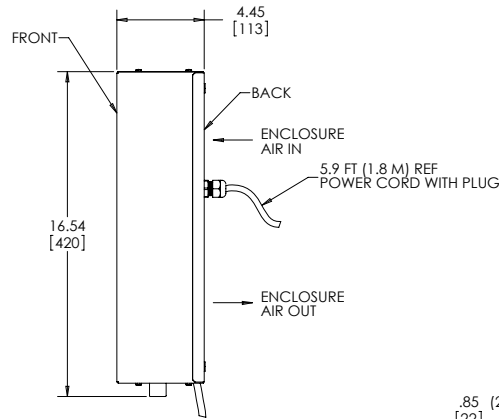
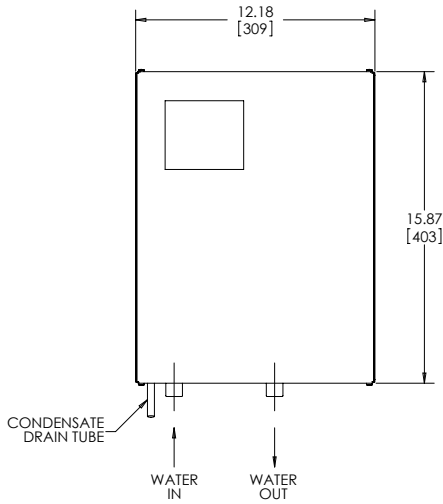
Performance Data WCHE01 Models 870 Watt

| CATALOG NUMBER                              | WCHE01916002                                                  | WCHE01926002             |
|---------------------------------------------|---------------------------------------------------------------|--------------------------|
| <b>COOLING PERFORMANCE</b>                  |                                                               |                          |
| Nominal:                                    |                                                               |                          |
| <b>BTU/Hr. @ Δt 25 C</b>                    | 2968                                                          | 2968                     |
| <b>Watts @ Δt 25 C</b>                      | 870                                                           | 870                      |
| Refrigerant                                 | NA                                                            | NA                       |
| Refrigerant Charge (ounces/grams)           | NA                                                            | NA                       |
| Operating Temperature Range:                |                                                               |                          |
| Maximum (°F/°C)                             | 122/50                                                        | 122/50                   |
| Minimum (°F/°C)                             | 50/10                                                         | 50/10                    |
| Flow at 0 Static Pressure:                  |                                                               |                          |
| Internal loop 50 Hz (Airflow: CFM / m³/hr.) | 194/330                                                       | 194/330                  |
| External loop 50 Hz (Waterflow: GPM @ 95 F) | 0.66                                                          | 0.66                     |
| Internal loop 60 Hz (Airflow: CFM / m³/hr.) | 194/330                                                       | 194/330                  |
| External loop 60 Hz (Waterflow: GPM @ 95 F) | 0.66                                                          | 0.66                     |
| <b>ELECTRICAL DATA</b>                      |                                                               |                          |
| <b>Rated Voltage</b>                        | 115                                                           | 230                      |
| Frequency (Hz)                              | 50/60                                                         | 50/60                    |
| Operating Range                             | +/- 10%                                                       | +/- 10%                  |
| Max. Power Consumption (W at 50/60 Hz)      | 28                                                            | 28                       |
| Max. Nominal Current (A at 50/60 Hz)        | 0.5                                                           | 0.5                      |
| Starting Current (Amps)                     | 0.7                                                           | 0.7                      |
| Agency Approvals                            | UL/cUL Listed                                                 |                          |
| Power Input Description                     | Cord with NEMA 5-15 plug                                      | Cord with NEMA 6-15 plug |
| <b>ENCLOSURE PROTECTION</b>                 |                                                               |                          |
| UL Type                                     | Type 12/IP55                                                  | Type 12/IP55             |
| <b>CONTROLLER</b>                           |                                                               |                          |
| Description                                 | Basic Mechanical Thermostat                                   |                          |
| Thermostat Location                         | Behind front cover, near the fan                              |                          |
| Factory Thermostat Setting (°F/°C)          | 95/35                                                         | 95/35                    |
| <b>SOUND LEVEL</b>                          |                                                               |                          |
| At 1.0 Meters                               | 58 dBA                                                        | 58 dBA                   |
| <b>UNIT CONSTRUCTION</b>                    |                                                               |                          |
| Material                                    | Mild Steel Sheet Metal Standard                               |                          |
| Finish                                      | RAL 7035 light-gray, semi-textured powder-coat paint standard |                          |
| <b>UNIT DIMENSIONS</b>                      |                                                               |                          |
| Height (in./mm)                             | 15.9/404                                                      | 15.9/404                 |
| Width (in./mm)                              | 12.12/308                                                     | 12.12/308                |
| Depth (in./mm)                              | 4.49/114                                                      | 4.49/114                 |
| Weight (lb./kg)                             | 19.84/9                                                       | 19.84/9                  |

Performance Curves for WCHE01 Models 870 Watt



WCHE01 Models 870 Watt



89091145

CUTOUT DIMENSIONS

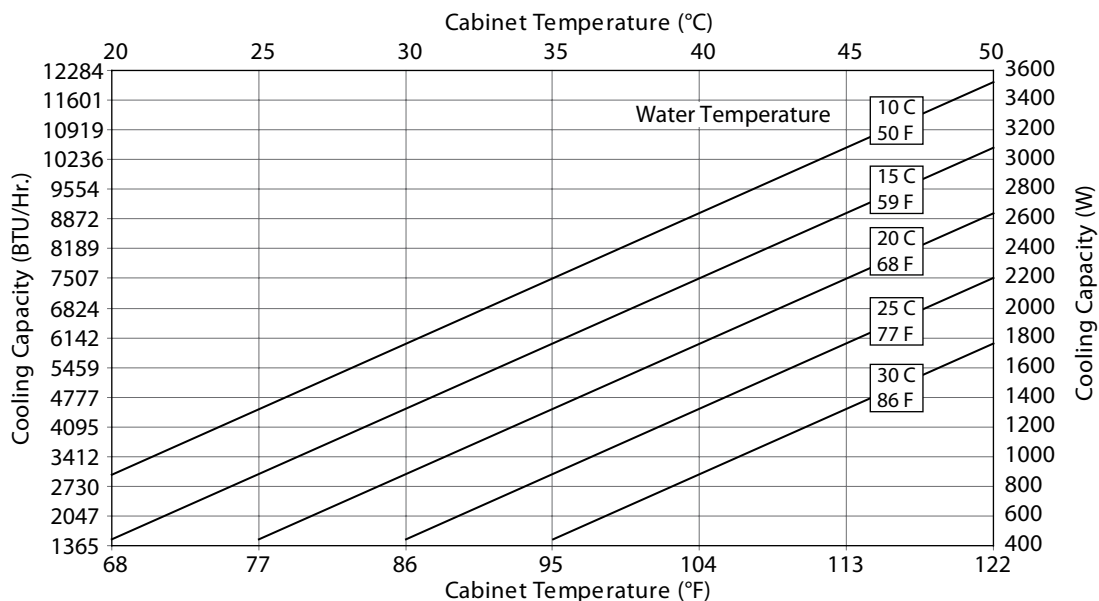
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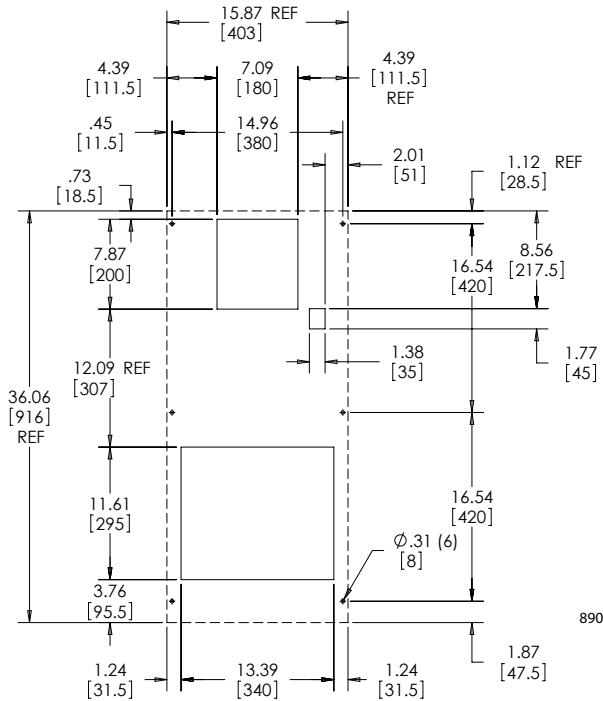
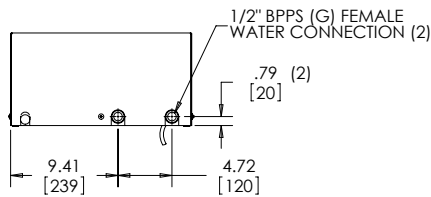
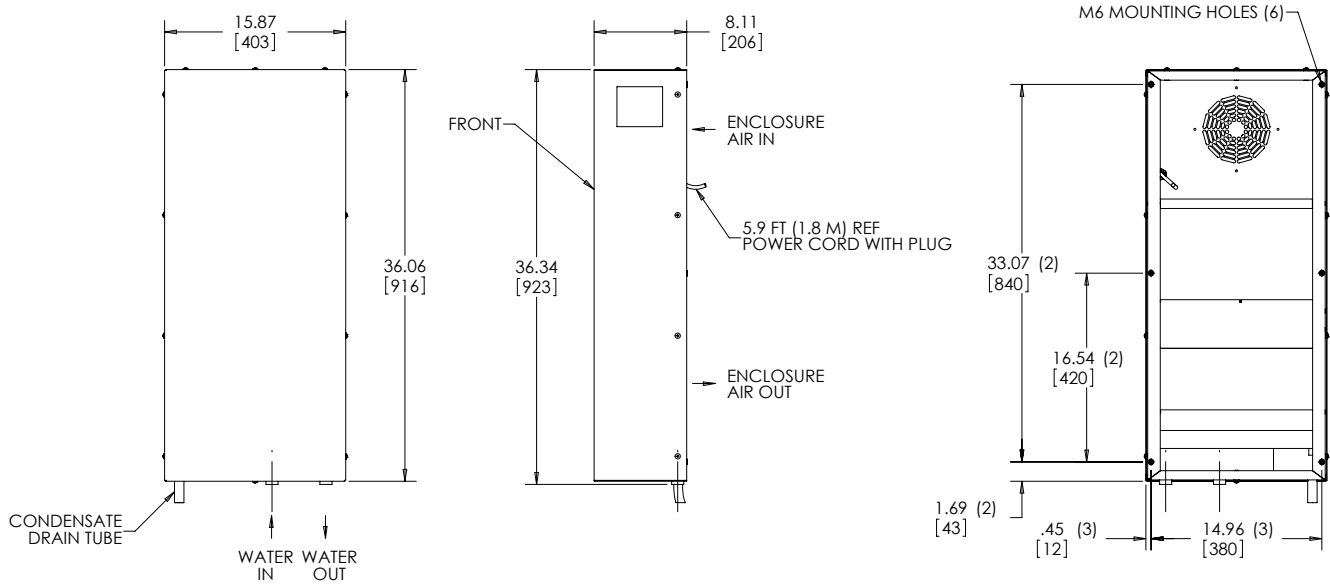
Performance Data **WCHE04 Models 2200 Watt**

| CATALOG NUMBER                              | WCHE04916002                                                  | WCHE04926002             |
|---------------------------------------------|---------------------------------------------------------------|--------------------------|
| <b>COOLING PERFORMANCE</b>                  |                                                               |                          |
| Nominal:                                    |                                                               |                          |
| <b>BTU/Hr. @ Δt 25 C</b>                    | 7506                                                          | 7506                     |
| <b>Watts @ Δt 25 C</b>                      | 2200                                                          | 2200                     |
| Refrigerant                                 | NA                                                            | NA                       |
| Refrigerant Charge (ounces/grams)           | NA                                                            | NA                       |
| Operating Temperature Range:                |                                                               |                          |
| Maximum (°F/°C)                             | 122/50                                                        | 122/50                   |
| Minimum (°F/°C)                             | 50/10                                                         | 50/10                    |
| Flow at 0 Static Pressure:                  |                                                               |                          |
| Internal loop 50 Hz (Airflow: CFM / m³/hr.) | 339/575                                                       | 339/575                  |
| External loop 50 Hz (Waterflow: GPM @ 95 F) | 0.66                                                          | 0.66                     |
| Internal loop 60 Hz (Airflow: CFM / m³/hr.) | 339/575                                                       | 339/575                  |
| External loop 60 Hz (Waterflow: GPM @ 95 F) | 0.66                                                          | 0.66                     |
| <b>ELECTRICAL DATA</b>                      |                                                               |                          |
| <b>Rated Voltage</b>                        | 115                                                           | 230                      |
| Frequency (Hz)                              | 50/60                                                         | 50/60                    |
| Operating Range                             | +/- 10%                                                       | +/- 10%                  |
| Max. Power Consumption (W at 50/60 Hz)      | 90                                                            | 90                       |
| Max. Nominal Current (A at 50/60 Hz)        | 0.8                                                           | 0.8                      |
| Starting Current (Amps)                     | 1                                                             | 1                        |
| Agency Approvals                            | UL/cUL Listed                                                 |                          |
| Power Input Description                     | Cord with NEMA 5-15 plug                                      | Cord with NEMA 6-15 plug |
| <b>ENCLOSURE PROTECTION</b>                 |                                                               |                          |
| UL Type                                     | Type 12/IP55                                                  | Type 12/IP55             |
| <b>CONTROLLER</b>                           |                                                               |                          |
| Description                                 | Basic Mechanical Thermostat                                   |                          |
| Thermostat Location                         | Behind front cover, near the fan                              |                          |
| Factory Thermostat Setting (°F/°C)          | 95/35                                                         | 95/35                    |
| <b>SOUND LEVEL</b>                          |                                                               |                          |
| At 1.0 Meters                               | 58 dBA                                                        | 58 dBA                   |
| <b>UNIT CONSTRUCTION</b>                    |                                                               |                          |
| Material                                    | Mild Steel Sheet Metal Standard                               |                          |
| Finish                                      | RAL 7035 light-gray, semi-textured powder-coat paint standard |                          |
| <b>UNIT DIMENSIONS</b>                      |                                                               |                          |
| Height (in./mm)                             | 36.41/925                                                     | 36.41/925                |
| Width (in./mm)                              | 15.75/400                                                     | 15.75/400                |
| Depth (in./mm)                              | 8.07/205                                                      | 8.07/205                 |
| Weight (lb./kg)                             | 44.1/20                                                       | 44.1/20                  |

Performance Curves for **WCHE04 Models 2200 Watt**



WCHE04 Models 2200 Watt



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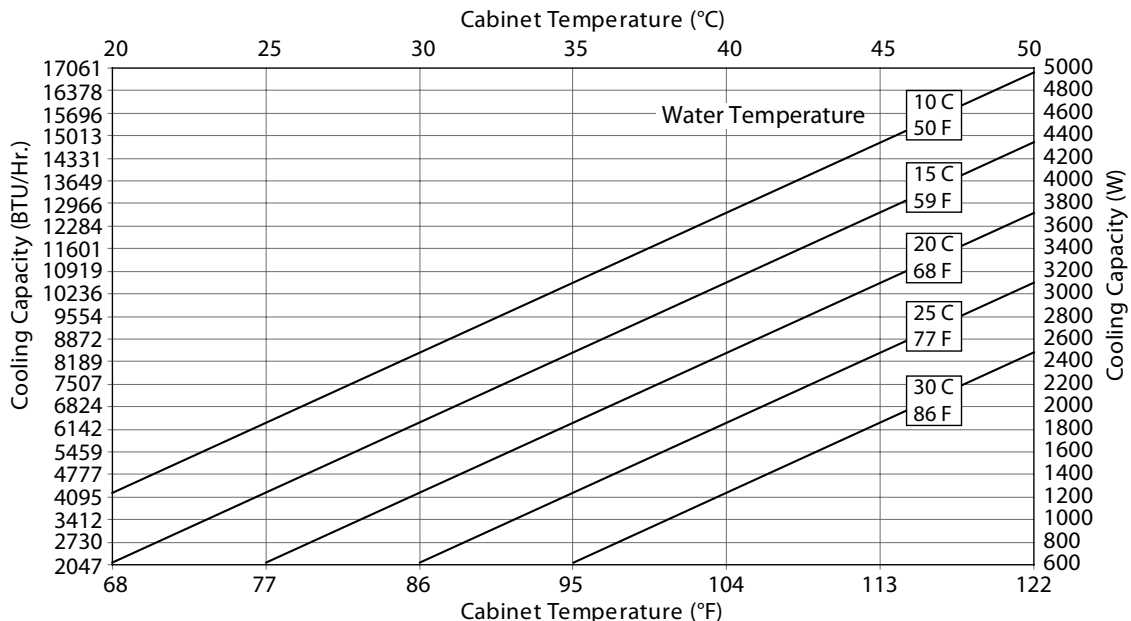
CUTOUT DIMENSIONS

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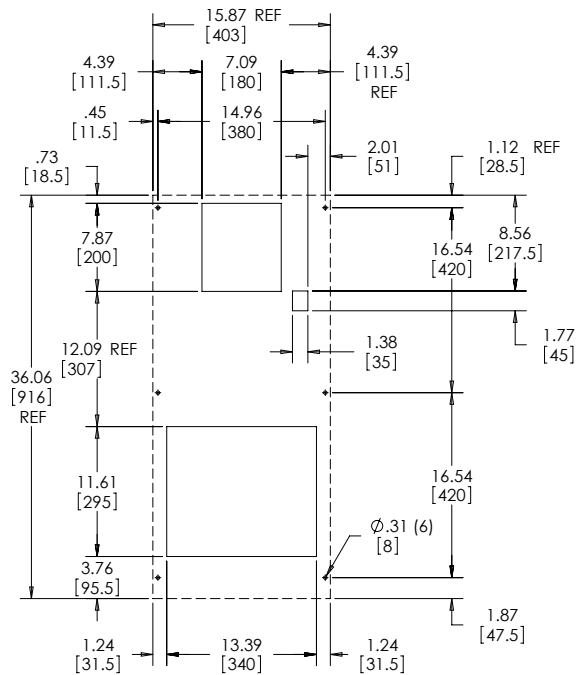
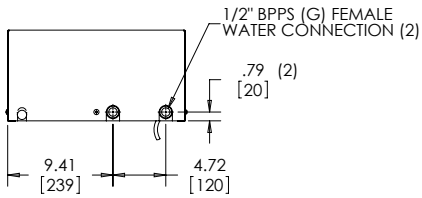
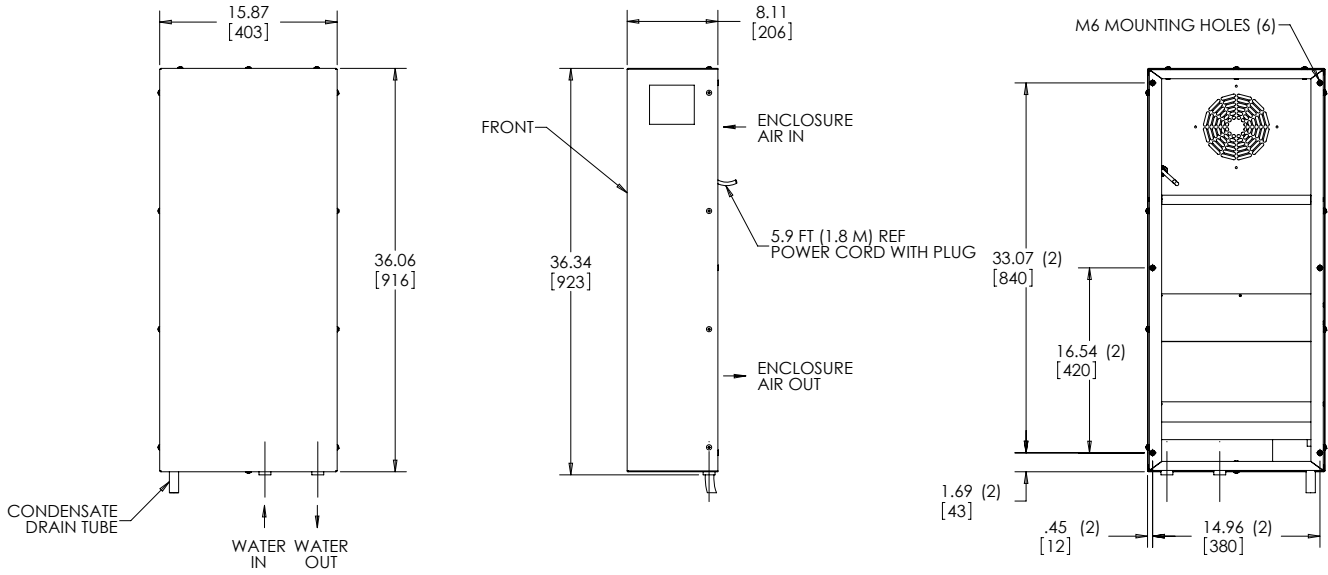
Performance Data **WCHE06 Models 3100 Watt**

| CATALOG NUMBER                              |                                                               |                          |
|---------------------------------------------|---------------------------------------------------------------|--------------------------|
|                                             | WCHE06916002                                                  | WCHE06926002             |
| <b>COOLING PERFORMANCE</b>                  |                                                               |                          |
| Nominal:                                    |                                                               |                          |
| <b>BTU/Hr. @ Δt 25 C</b>                    | 10577                                                         | 10577                    |
| <b>Watts @ Δt 25 C</b>                      | 3100                                                          | 3100                     |
| Refrigerant                                 | NA                                                            | NA                       |
| Refrigerant Charge (ounces/grams)           | NA                                                            | NA                       |
| Operating Temperature Range:                |                                                               |                          |
| Maximum (°F/°C)                             | 122/50                                                        | 122/50                   |
| Minimum (°F/°C)                             | 50/10                                                         | 50/10                    |
| Flow at 0 Static Pressure:                  |                                                               |                          |
| Internal loop 50 Hz (Airflow: CFM / m³/hr.) | 507/860                                                       | 507/860                  |
| External loop 50 Hz (Waterflow: GPM @ 95 F) | 2.2                                                           | 2.2                      |
| Internal loop 60 Hz (Airflow: CFM / m³/hr.) | 507/860                                                       | 507/860                  |
| External loop 60 Hz (Waterflow: GPM @ 95 F) | 2.2                                                           | 2.2                      |
| <b>ELECTRICAL DATA</b>                      |                                                               |                          |
| <b>Rated Voltage</b>                        | 115                                                           | 230                      |
| Frequency (Hz)                              | 50/60                                                         | 50/60                    |
| Operating Range                             | +/- 10%                                                       | +/- 10%                  |
| Max. Power Consumption (W at 50/60 Hz)      | 110                                                           | 115                      |
| Max. Nominal Current (A at 50/60 Hz)        | 2                                                             | 1                        |
| Starting Current (Amps)                     | 2.4                                                           | 1.2                      |
| Agency Approvals                            | UL/cUL Listed                                                 |                          |
| Power Input Description                     | Cord with NEMA 5-15 plug                                      | Cord with NEMA 6-15 plug |
| <b>ENCLOSURE PROTECTION</b>                 |                                                               |                          |
| UL Type                                     | Type 12/IP55                                                  | Type 12/IP55             |
| <b>CONTROLLER</b>                           |                                                               |                          |
| Description                                 | Basic Mechanical Thermostat                                   |                          |
| Thermostat Location                         | Behind front cover, near the fan                              |                          |
| Factory Thermostat Setting (°F/°C)          | 95/35                                                         | 95/35                    |
| <b>SOUND LEVEL</b>                          |                                                               |                          |
| At 1.0 Meters                               | 58 dBA                                                        | 58 dBA                   |
| <b>UNIT CONSTRUCTION</b>                    |                                                               |                          |
| Material                                    | Mild Steel Sheet Metal Standard                               |                          |
| Finish                                      | RAL 7035 light-gray, semi-textured powder-coat paint standard |                          |
| <b>UNIT DIMENSIONS</b>                      |                                                               |                          |
| Height (in./mm)                             | 36.41/925                                                     | 36.41/925                |
| Width (in./mm)                              | 15.75/400                                                     | 15.75/400                |
| Depth (in./mm)                              | 8.07/205                                                      | 8.07/205                 |
| Weight (lb./kg)                             | 46.3/21                                                       | 46.3/21                  |

Performance Curves for WCHE06 Models 3100 Watt



WCHE06 Models 3100 Watt



CUTOUT DIMENSIONS

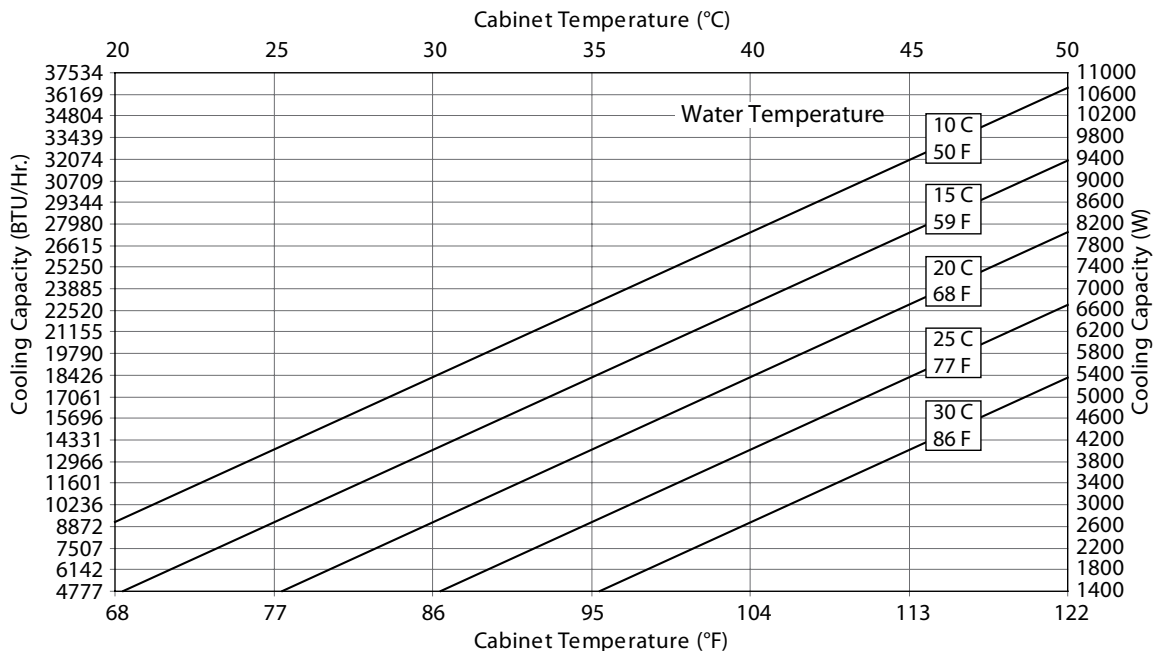
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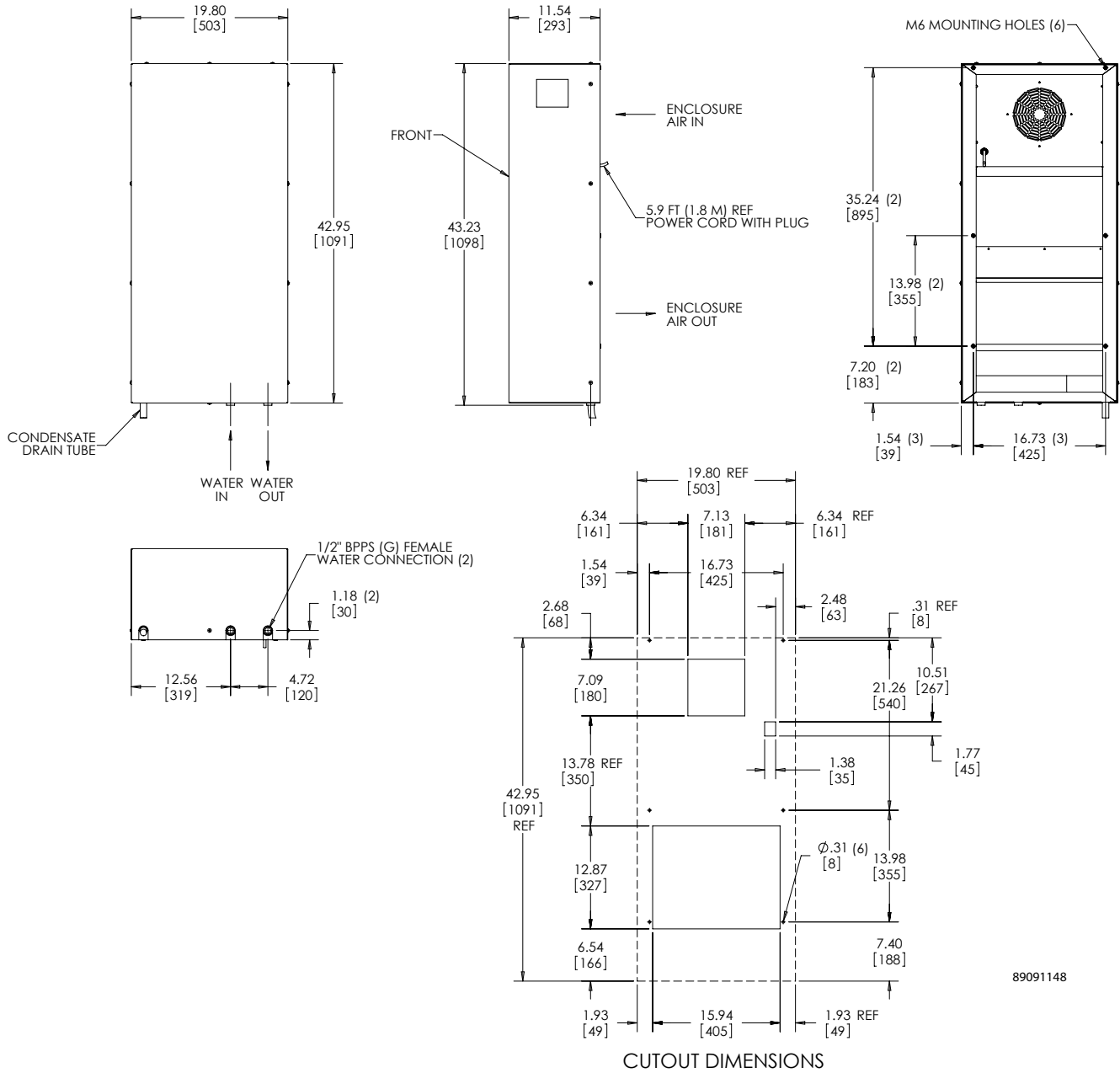
Performance Data **WCHE14 Models 6700 Watt**

| CATALOG NUMBER                              | WCHE14916002                                                  | WCHE14926002             |
|---------------------------------------------|---------------------------------------------------------------|--------------------------|
| <b>COOLING PERFORMANCE</b>                  |                                                               |                          |
| Nominal:                                    |                                                               |                          |
| <b>BTU/Hr. @ Δt 25 C</b>                    | 22861                                                         | 22861                    |
| <b>Watts @ Δt 25 C</b>                      | 6700                                                          | 6700                     |
| Refrigerant                                 | NA                                                            | NA                       |
| Refrigerant Charge (ounces/grams)           | NA                                                            | NA                       |
| Operating Temperature Range:                |                                                               |                          |
| Maximum (°F/°C)                             | 122/50                                                        | 122/50                   |
| Minimum (°F/°C)                             | 50/10                                                         | 50/10                    |
| Flow at 0 Static Pressure:                  |                                                               |                          |
| Internal loop 50 Hz (Airflow: CFM / m³/hr.) | 855/1450                                                      | 855/1450                 |
| External loop 50 Hz (Waterflow: GPM @ 95 F) | 3.78                                                          | 3.78                     |
| Internal loop 60 Hz (Airflow: CFM / m³/hr.) | 855/1450                                                      | 855/1450                 |
| External loop 60 Hz (Waterflow: GPM @ 95 F) | 3.78                                                          | 3.78                     |
| <b>ELECTRICAL DATA</b>                      |                                                               |                          |
| <b>Rated Voltage</b>                        | 115                                                           | 230                      |
| Frequency (Hz)                              | 50/60                                                         | 50/60                    |
| Operating Range                             | +/- 10%                                                       | +/- 10%                  |
| Max. Power Consumption (W at 50/60 Hz)      | 200                                                           | 245                      |
| Max. Nominal Current (A at 50/60 Hz)        | 2                                                             | 1.3                      |
| Starting Current (Amps)                     | 2.4                                                           | 1.4                      |
| Agency Approvals                            | UL/cUL Listed                                                 |                          |
| Power Input Description                     | Cord with NEMA 5-15 plug                                      | Cord with NEMA 6-15 plug |
| <b>ENCLOSURE PROTECTION</b>                 |                                                               |                          |
| UL Type                                     | Type 12/IP55                                                  | Type 12/IP55             |
| <b>CONTROLLER</b>                           |                                                               |                          |
| Description                                 | Basic Mechanical Thermostat                                   |                          |
| Thermostat Location                         | Behind front cover, near the fan                              |                          |
| Factory Thermostat Setting (°F/°C)          | 95/35                                                         | 95/35                    |
| <b>SOUND LEVEL</b>                          |                                                               |                          |
| At 1.0 Meters                               | 58 dBA                                                        | 58 dBA                   |
| <b>UNIT CONSTRUCTION</b>                    |                                                               |                          |
| Material                                    | Mild Steel Sheet Metal Standard                               |                          |
| Finish                                      | RAL 7035 light-gray, semi-textured powder-coat paint standard |                          |
| <b>UNIT DIMENSIONS</b>                      |                                                               |                          |
| Height (in./mm)                             | 43.34/1101                                                    | 43.34/1101               |
| Width (in./mm)                              | 19.72/501                                                     | 19.72/501                |
| Depth (in./mm)                              | 11.81/300                                                     | 11.81/300                |
| Weight (lb./kg)                             | 86/39                                                         | 86/39                    |

Performance Curves for **WCHE14 Models 6700 Watt**



WCHE14 Models 6700 Watt



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**Notes**



**THERMOELECTRIC COOLERS INDOOR/OUTDOOR**


Unshrouded  
60, 100 and 200 Watts



Shrouded  
60, 100 and 200 Watts

**INDUSTRY STANDARDS**

UR, cUR Recognized; Type 12, 3R, 4, 4X; File No. SA6453

CE  
IP 65

**APPLICATION**

The McLean Thermoelectric Cooler minimizes downtime and component loss by removing heat around critical components within an enclosure. These compact, low-profile coolers using the Peltier effect allow for cooling of small indoor and outdoor enclosures. No condensers, compressors or filters are required making it a reliable solution for demanding low-maintenance environments.

**FEATURES**

- DC Powered operation for 24V and 48V applications
- Low profile design allows for mounting vertically and horizontally on any enclosure to avoid interference with internal components
- Filterless design reduces maintenance requirements
- Contains no refrigerant, making it earth friendly
- Prewired with simple terminal block for easy wiring connections
- Operates on the Peltier effect for cooling or heating
- Compressor-free air conditioning for demanding indoor and outdoor applications
- Shrouded and unshrouded models included in standard packages
- Operating temperature range -40 C (-40 F) to 55 C (131 F)
- Partial recess mount

**SPECIFICATIONS**

- Models
  - 60 Watt, 24 Volt
  - 100 Watt, 24/48 Volt
  - 200 Watt, 24/48 Volt

**FINISH**

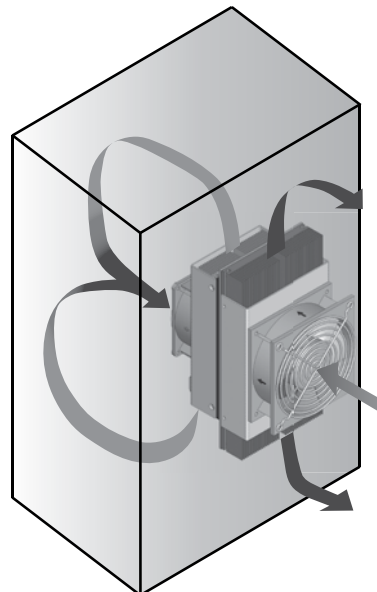
- Shrouded finish includes both powder coat paint RAL 7035 light gray standard and stainless steel 304
- Other colors and textures available

**ACCESSORIES**

- Optional thermoelectric temperature controller regulates cooling and heating automatically

**NOTES**

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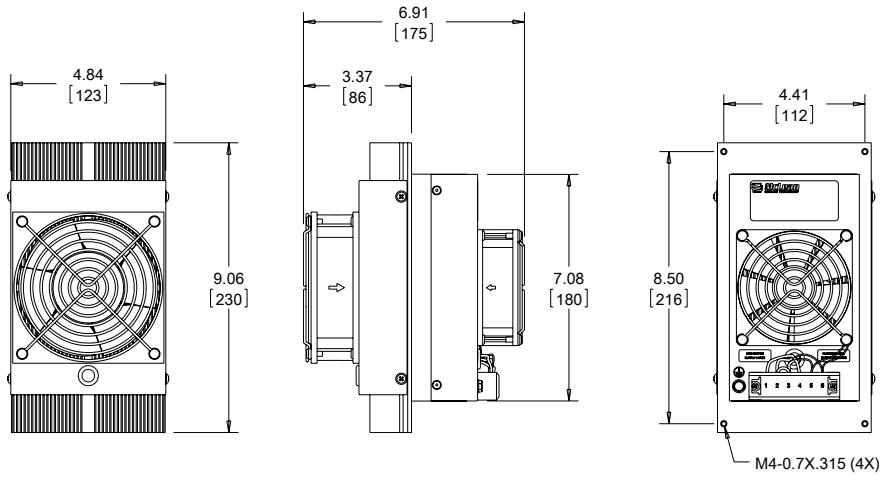
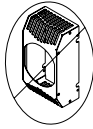




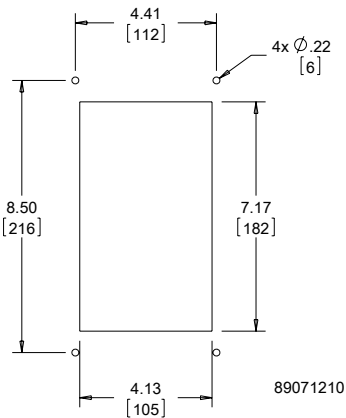
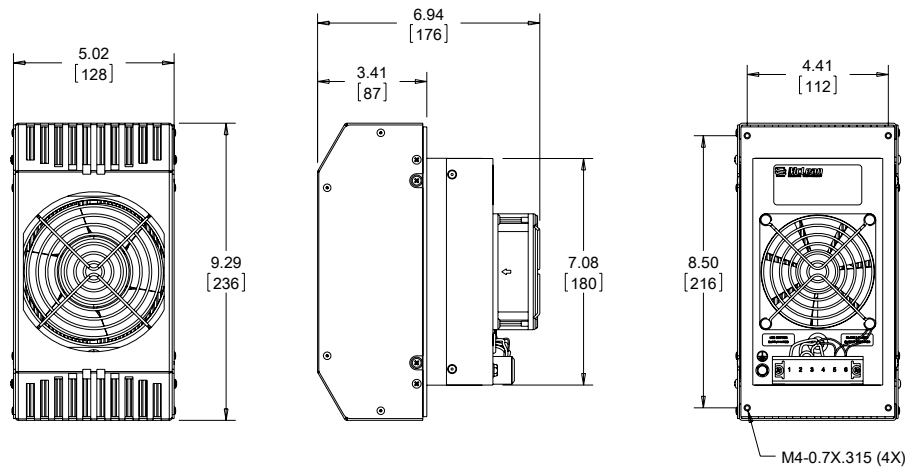
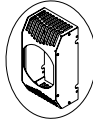
Performance Data **TE09 60W 204 BTU/Hr. (24 V)**

| <b>CATALOG NUMBERS</b>                      |                          |                                                                        |                          |
|---------------------------------------------|--------------------------|------------------------------------------------------------------------|--------------------------|
| Description                                 | 24V w/o shroud           | 24V w/ painted shroud                                                  | 24V w/ SS shroud         |
| Catalog Number                              | TE090624020              | TE090624010                                                            | TE090624011              |
| <b>COOLING PERFORMANCE</b>                  |                          |                                                                        |                          |
| <b>BTU/Hr.</b>                              | <b>178</b>               | <b>178</b>                                                             | <b>178</b>               |
| <b>Watts</b>                                | <b>52</b>                | <b>52</b>                                                              | <b>52</b>                |
| Operating Temperature Range:                |                          |                                                                        |                          |
| Maximum (°C / °F)                           | 55 / 131                 | 55 / 131                                                               | 55 / 131                 |
| Minimum (°C / °F)                           | -40 / -40                | -40 / -40                                                              | -40 / -40                |
| Air Flow at 0 Static Pressure:              |                          |                                                                        |                          |
| Internal loop (CFM / M³/Hr.)                | 24 / 41                  | 24 / 41                                                                | 24 / 41                  |
| External loop (CFM / M³/Hr.)                | 80 / 136                 | 80 / 136                                                               | 80 / 136                 |
| Nominal Heating Watts                       | 64                       | 64                                                                     | 64                       |
| <b>ELECTRICAL DATA</b>                      |                          |                                                                        |                          |
| <b>Input DC Voltage</b>                     |                          |                                                                        |                          |
| Nominal (VDC)                               | <b>24</b>                | <b>24</b>                                                              | <b>24</b>                |
| Minimum (VDC)                               | 18                       | 18                                                                     | 18                       |
| Maximum (VDC)                               | 27.6                     | 27.6                                                                   | 27.6                     |
| Power Consumption 95 F / 95 F (35 C / 35 C) | 89                       | 89                                                                     | 89                       |
| Max Current (Amps)                          | 4.4                      | 4.4                                                                    | 4.4                      |
| Agency Approvals                            | UR, cUR Recognized<br>CE | UR, cUR Recognized<br>CE                                               | UR, cUR Recognized<br>CE |
| Power Input Description                     | Terminal Block           | Terminal Block                                                         | Terminal Block           |
| <b>ENCLOSURE PROTECTION</b>                 |                          |                                                                        |                          |
| UL Type / IP Rating                         | Type 12,3R,4,4X / IP 65  | Type 12,3R,4 / IP 65                                                   | Type 12,3R,4,4X / IP 65  |
| <b>SOUND LEVEL</b>                          |                          |                                                                        |                          |
| At 1.5 Meters                               | 65 dBA                   | 65 dBA                                                                 | 65 dBA                   |
| <b>UNIT CONSTRUCTION</b>                    |                          |                                                                        |                          |
| Heat Sink Material                          | Anodized Aluminum        | Anodized Aluminum                                                      | Anodized Aluminum        |
| Shroud Material                             | N/A                      | Galvanized Steel                                                       | Stainless Steel          |
| Shroud Finish                               | N/A                      | RAL 7035 light-gray,<br>semi-textured<br>powder-coat<br>paint standard | No. 4 Brushed Finish     |
| <b>UNIT DIMENSIONS</b>                      |                          |                                                                        |                          |
| Height (in. / mm)                           | 9.06/230                 | 9.29/236                                                               | 9.29/236                 |
| Width (in. / mm)                            | 4.84/123                 | 5.02/128                                                               | 5.02/128                 |
| Depth (in. / mm)                            | 6.91/176                 | 6.94/176                                                               | 6.94/176                 |
| Weight (lb. / kg)                           | 6.00/2.70                | 7.80/3.60                                                              | 7.80/3.60                |

60 W 24 V



60 W 24 V



Cutout Dimensions

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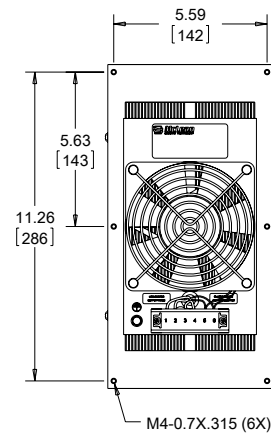
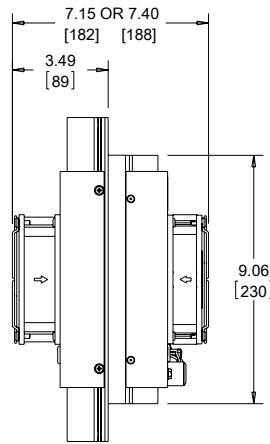
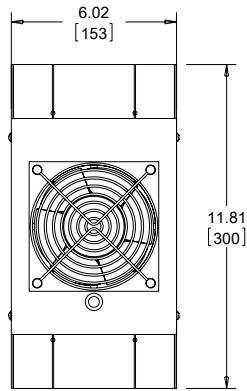
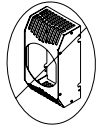


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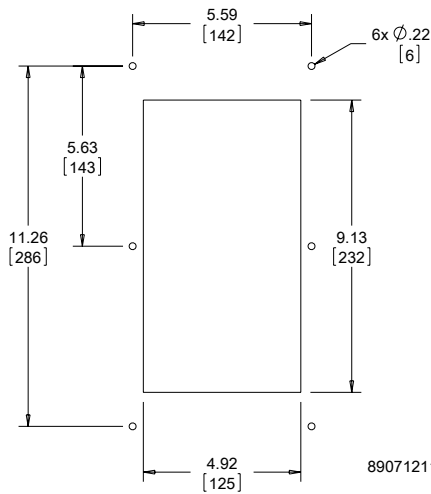
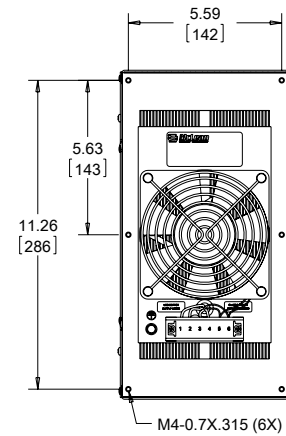
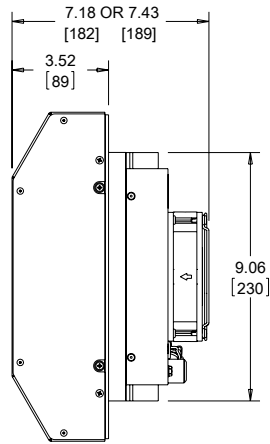
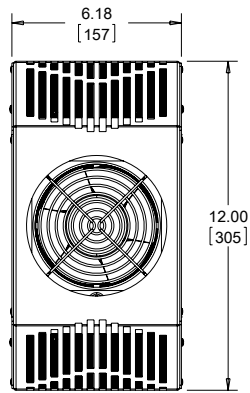
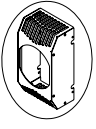
Performance Data **TE12 100W 341 BTU/Hr. (24/48 V)**

| <b>CATALOG NUMBERS</b>                         |                                  |                                                                        |                                  |                                  |                                                                        |
|------------------------------------------------|----------------------------------|------------------------------------------------------------------------|----------------------------------|----------------------------------|------------------------------------------------------------------------|
| Description                                    | 24V w/o shroud                   | 24V w/ painted shroud                                                  | 24V w/ SS shroud                 | 48V w/o shroud                   | 48V w/ painted shroud                                                  |
| Catalog Number                                 | TE121024020                      | TE121024010                                                            | TE121024011                      | TE121048020                      | TE121048010                                                            |
| <b>COOLING PERFORMANCE</b>                     |                                  |                                                                        |                                  |                                  |                                                                        |
| <b>BTU/Hr.</b>                                 | <b>321</b>                       | <b>321</b>                                                             | <b>321</b>                       | <b>321</b>                       | <b>321</b>                                                             |
| <b>Watts</b>                                   | <b>94</b>                        | <b>94</b>                                                              | <b>94</b>                        | <b>94</b>                        | <b>94</b>                                                              |
| Operating Temperature Range:                   |                                  |                                                                        |                                  |                                  |                                                                        |
| Maximum (°C / °F)                              | 55 / 131                         | 55 / 131                                                               | 55 / 131                         | 55 / 131                         | 55 / 131                                                               |
| Minimum (°C / °F)                              | -40 / -40                        | -40 / -40                                                              | -40 / -40                        | -40 / -40                        | -40 / -40                                                              |
| Air Flow at 0 Static Pressure:                 |                                  |                                                                        |                                  |                                  |                                                                        |
| Internal loop (CFM / M <sup>3</sup> /Hr.)      | 62 / 105                         | 62 / 105                                                               | 62 / 105                         | 62 / 105                         | 62 / 105                                                               |
| External loop (CFM / M <sup>3</sup> /Hr.)      | 86 / 146                         | 86 / 146                                                               | 86 / 146                         | 86 / 146                         | 86 / 146                                                               |
| Nominal Heating Watts                          | 94                               | 94                                                                     | 94                               | 94                               | 94                                                                     |
| <b>ELECTRICAL DATA</b>                         |                                  |                                                                        |                                  |                                  |                                                                        |
| <b>Input DC Voltage</b>                        |                                  |                                                                        |                                  |                                  |                                                                        |
| Nominal (VDC)                                  | <b>24</b>                        | <b>24</b>                                                              | <b>24</b>                        | <b>48</b>                        | <b>48</b>                                                              |
| Minimum (VDC)                                  | 18                               | 18                                                                     | 18                               | 40                               | 40                                                                     |
| Maximum (VDC)                                  | 27.6                             | 27.6                                                                   | 27.6                             | 56.7                             | 56.7                                                                   |
| Power Consumption<br>95 F / 95 F (35 C / 35 C) | 162                              | 162                                                                    | 162                              | 162                              | 162                                                                    |
| Max Current (Amps)                             | 8.5                              | 8.5                                                                    | 8.5                              | 4.4                              | 4.4                                                                    |
| Agency Approvals                               | UR, cUR Recognized<br>CE<br>GOST | UR, cUR Recognized<br>CE<br>GOST                                       | UR, cUR Recognized<br>CE<br>GOST | UR, cUR Recognized<br>CE<br>GOST | UR, cUR Recognized<br>CE<br>GOST                                       |
| Power Input Description                        | Terminal Block                   | Terminal Block                                                         | Terminal Block                   | Terminal Block                   | Terminal Block                                                         |
| <b>ENCLOSURE PROTECTION</b>                    |                                  |                                                                        |                                  |                                  |                                                                        |
| UL Type / IP Rating                            | Type 12,3R,4,4X /<br>IP 65       | Type 12,3R,4 / IP 65                                                   | Type 12,3R,4,4X /<br>IP 65       | Type 12,3R,4,4X /<br>IP 65       | Type 12,3R,4 / IP 65                                                   |
| <b>SOUND LEVEL</b>                             |                                  |                                                                        |                                  |                                  |                                                                        |
| At 1.5 Meters                                  | 68 dBA                           | 68 dBA                                                                 | 68 dBA                           | 68 dBA                           | 68 dBA                                                                 |
| <b>UNIT CONSTRUCTION</b>                       |                                  |                                                                        |                                  |                                  |                                                                        |
| Heat Sink Material                             | Anodized Aluminum                | Anodized Aluminum                                                      | Anodized Aluminum                | Anodized Aluminum                | Anodized Aluminum                                                      |
| Shroud Material                                | N/A                              | Galvanized Steel                                                       | Stainless Steel                  | N/A                              | Galvanized Steel                                                       |
| Shroud Finish                                  | N/A                              | RAL 7035 light-gray,<br>semi-textured<br>powder-coat<br>paint standard | No. 4 Brushed Finish             | N/A                              | RAL 7035 light-gray,<br>semi-textured<br>powder-coat<br>paint standard |
| <b>UNIT DIMENSIONS</b>                         |                                  |                                                                        |                                  |                                  |                                                                        |
| Height (in. / mm)                              | 11.81/300                        | 12.00/305                                                              | 12.00/305                        | 11.81/300                        | 12.00/305                                                              |
| Width (in. / mm)                               | 6.02/153                         | 6.18/157                                                               | 6.18/157                         | 6.02/153                         | 6.18/157                                                               |
| Depth (in. / mm)                               | 7.40/188                         | 7.43/189                                                               | 7.43/189                         | 7.40/188                         | 7.43/189                                                               |
| Weight (lb. / kg)                              | 8.50/3.90                        | 11.00/5.00                                                             | 11.00/5.00                       | 8.50/3.90                        | 11.00/5.00                                                             |

100 W 24/48 V



100 W 24/48 V

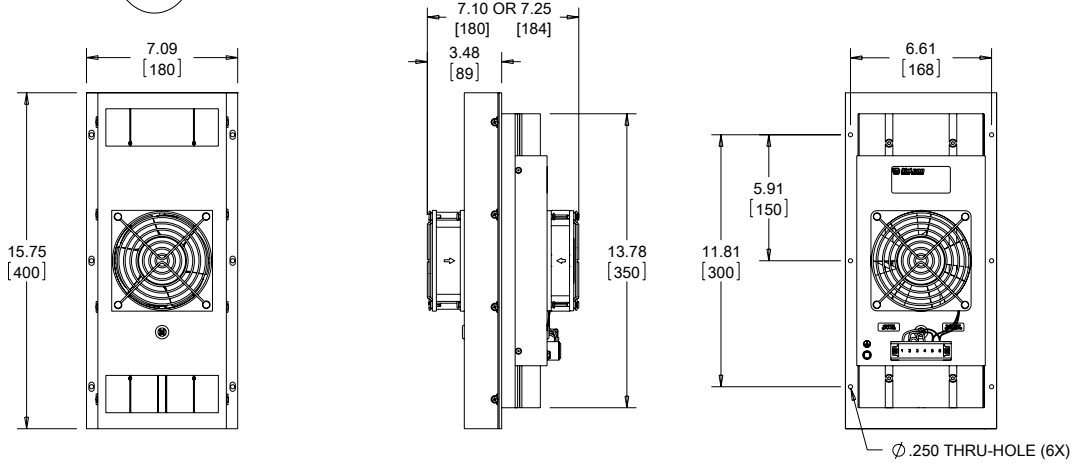
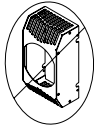


Cutout Dimensions

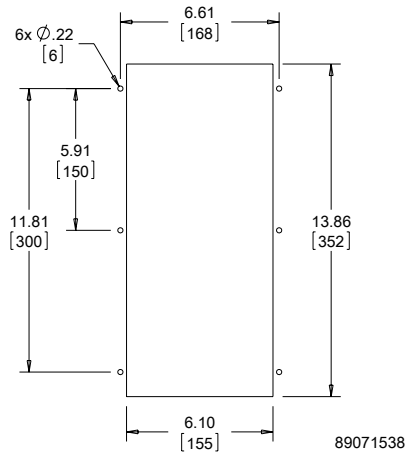
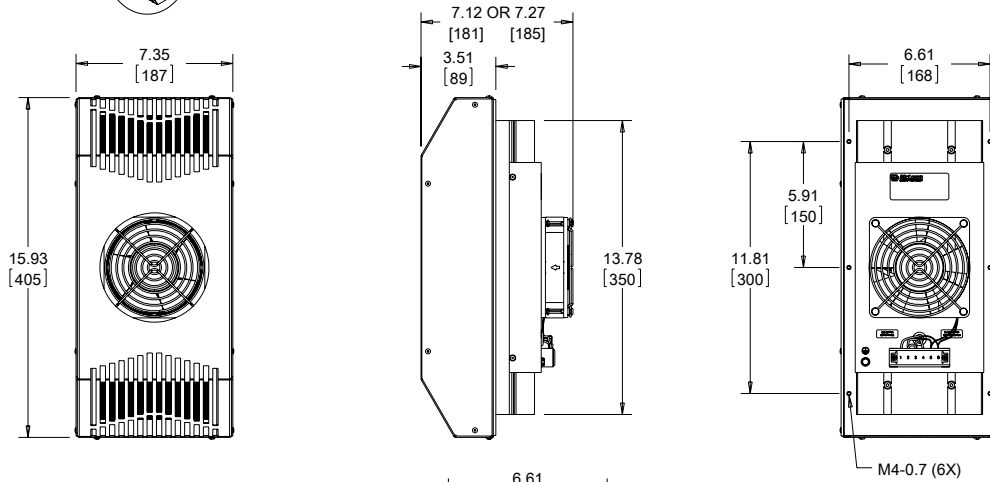
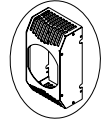
Performance Data **TE16 200W 682 BTU/Hr. (24/48 V)**

| <b>CATALOG NUMBERS</b>                         |                                  |                                                                        |                                  |                                  |                                                                        |
|------------------------------------------------|----------------------------------|------------------------------------------------------------------------|----------------------------------|----------------------------------|------------------------------------------------------------------------|
| Description                                    | 24V w/o shroud                   | 24V w/ painted shroud                                                  | 24V w/ SS shroud                 | 48V w/o shroud                   | 48V w/ painted shroud                                                  |
| Catalog Number                                 | TE162024020                      | TE162024010                                                            | TE162024011                      | TE162048020                      | TE162048010                                                            |
| <b>COOLING PERFORMANCE</b>                     |                                  |                                                                        |                                  |                                  |                                                                        |
| <b>BTU/Hr.</b>                                 | <b>567</b>                       | <b>567</b>                                                             | <b>567</b>                       | <b>567</b>                       | <b>567</b>                                                             |
| <b>Watts</b>                                   | <b>166</b>                       | <b>166</b>                                                             | <b>166</b>                       | <b>166</b>                       | <b>166</b>                                                             |
| Operating Temperature Range:                   |                                  |                                                                        |                                  |                                  |                                                                        |
| Maximum (°C / °F)                              | 55 / 131                         | 55 / 131                                                               | 55 / 131                         | 55 / 131                         | 55 / 131                                                               |
| Minimum (°C / °F)                              | -40 / -40                        | -40 / -40                                                              | -40 / -40                        | -40 / -40                        | -40 / -40                                                              |
| Air Flow at 0 Static Pressure:                 |                                  |                                                                        |                                  |                                  |                                                                        |
| Internal loop (CFM / M <sup>3</sup> /Hr.)      | 62 / 105                         | 62 / 105                                                               | 62 / 105                         | 62 / 105                         | 62 / 105                                                               |
| External loop (CFM / M <sup>3</sup> /Hr.)      | 86 / 146                         | 86 / 146                                                               | 86 / 146                         | 86 / 146                         | 86 / 146                                                               |
| Nominal Heating Watts                          | 146                              | 146                                                                    | 146                              | 146                              | 146                                                                    |
| <b>ELECTRICAL DATA</b>                         |                                  |                                                                        |                                  |                                  |                                                                        |
| <b>Input DC Voltage</b>                        |                                  |                                                                        |                                  |                                  |                                                                        |
| Nominal (VDC)                                  | <b>24</b>                        | <b>24</b>                                                              | <b>24</b>                        | <b>48</b>                        | <b>48</b>                                                              |
| Minimum (VDC)                                  | 18                               | 18                                                                     | 18                               | 40                               | 40                                                                     |
| Maximum (VDC)                                  | 27.6                             | 27.6                                                                   | 27.6                             | 56.7                             | 56.7                                                                   |
| Power Consumption<br>95 F / 95 F (35 C / 35 C) | 295                              | 295                                                                    | 295                              | 295                              | 295                                                                    |
| Max Current (Amps)                             | 14.7                             | 14.7                                                                   | 14.7                             | 7.6                              | 7.6                                                                    |
| Agency Approvals                               | UR, cUR Recognized<br>CE<br>GOST | UR, cUR Recognized<br>CE<br>GOST                                       | UR, cUR Recognized<br>CE<br>GOST | UR, cUR Recognized<br>CE<br>GOST | UR, cUR Recognized<br>CE<br>GOST                                       |
| Power Input Description                        | Terminal Block                   | Terminal Block                                                         | Terminal Block                   | Terminal Block                   | Terminal Block                                                         |
| <b>ENCLOSURE PROTECTION</b>                    |                                  |                                                                        |                                  |                                  |                                                                        |
| UL Type / IP Rating                            | Type 12,3R,4,4X / IP 65          | Type 12,3R,4 / IP 65                                                   | Type 12,3R,4,4X / IP 65          | Type 12,3R,4,4X / IP 65          | Type 12,3R,4 / IP 65                                                   |
| <b>SOUND LEVEL</b>                             |                                  |                                                                        |                                  |                                  |                                                                        |
| At 1.5 Meters                                  | 68 dBA                           | 68 dBA                                                                 | 68 dBA                           | 68 dBA                           | 68 dBA                                                                 |
| <b>UNIT CONSTRUCTION</b>                       |                                  |                                                                        |                                  |                                  |                                                                        |
| Heat Sink Material                             | Anodized Aluminum                | Anodized Aluminum                                                      | Anodized Aluminum                | Anodized Aluminum                | Anodized Aluminum                                                      |
| Shroud Material                                | N/A                              | Galvanized Steel                                                       | Stainless Steel                  | N/A                              | Galvanized Steel                                                       |
| Shroud Finish                                  | N/A                              | RAL 7035 light-gray,<br>semi-textured<br>powder-coat<br>paint standard | No. 4 Brushed Finish             | N/A                              | RAL 7035 light-gray,<br>semi-textured<br>powder-coat<br>paint standard |
| <b>UNIT DIMENSIONS</b>                         |                                  |                                                                        |                                  |                                  |                                                                        |
| Height (in. / mm)                              | 15.75/400                        | 15.93/405                                                              | 15.93/405                        | 15.75/400                        | 15.93/405                                                              |
| Width (in. / mm)                               | 7.09/180                         | 7.35/187                                                               | 7.35/187                         | 7.09/180                         | 7.35/187                                                               |
| Depth (in. / mm)                               | 7.25/184                         | 7.27/185                                                               | 7.27/185                         | 7.25/184                         | 7.27/185                                                               |
| Weight (lb. / kg)                              | 14.80/6.70                       | 18.60/8.40                                                             | 18.60/8.40                       | 14.80/6.70                       | 18.60/8.40                                                             |

200 W 24/48 V



200 W 24/48 V

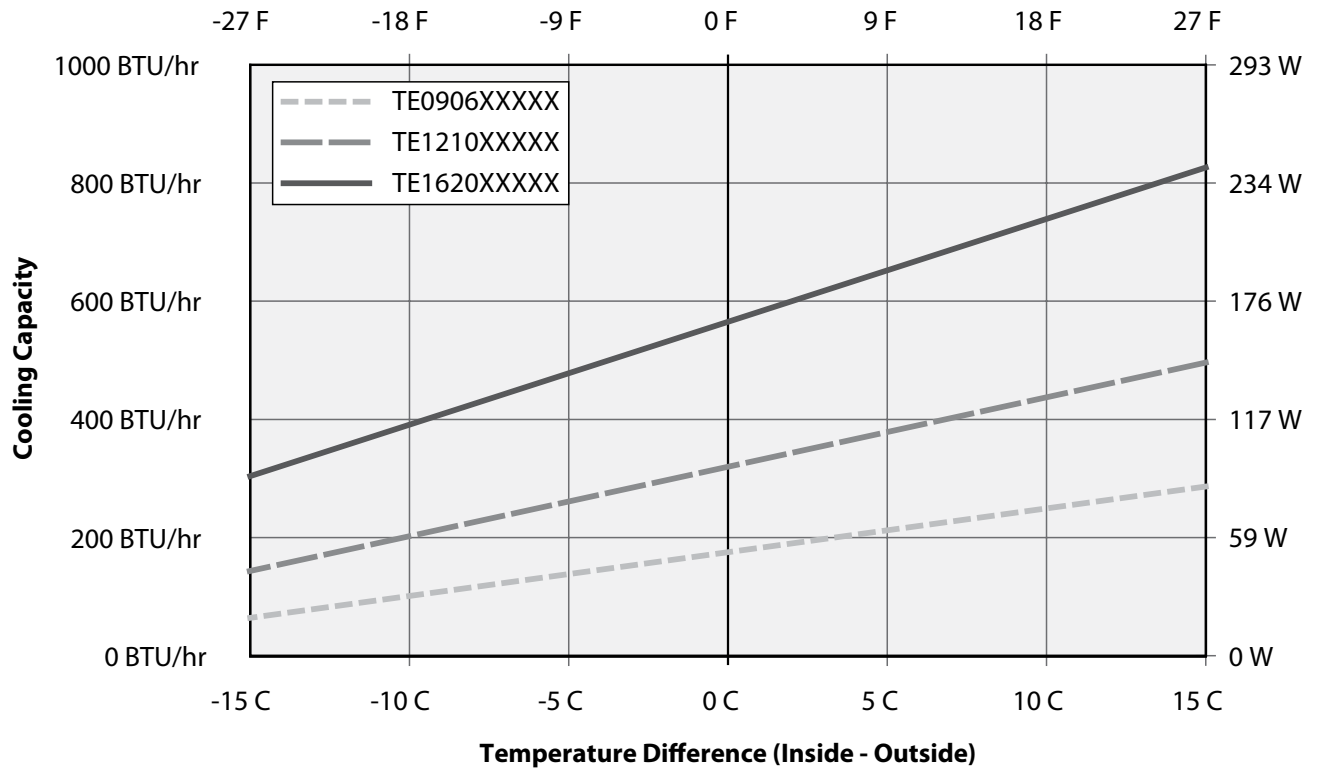


Cutout Dimensions

89071538



**Cooling Capacity versus Temperature Difference at 35 C (95 F) Ambient**



## THERMOELECTRIC TEMPERATURE CONTROLLER



### FEATURES

- Provides PWM regulation of cooling and heating output for Thermoelectric Cooler
- Automatically switches between cooling and heating
- Six cooling temperature set points range from 22.5 C (72.5 F) to 35 C (95 F) [35 C factory setting]
- Seven heating temperature set points range from -15 C (5 F) to 15 C (59 F) [15 C factory setting]
- Heating function can be easily disabled if desired
- LEDs indicate cooling and heating mode, low and high temperature alarms, and overall system status
- Dry contact relay output provides for external alarm indication
- Can be mounted in a convenient dry location near the thermoelectric cooler; mounting hardware included

### FINISH

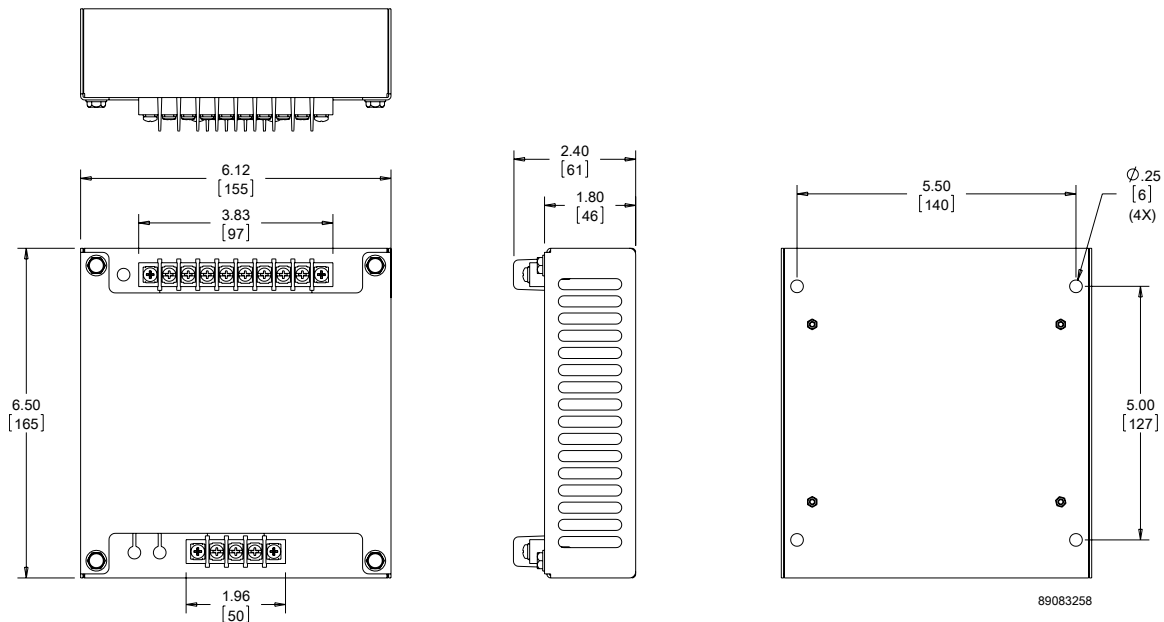
- RAL 7035 light-gray powder-coat painted galvanized steel

### Performance Data

#### CATALOG NUMBERS

|                                | TEC24VCNTR                                                    | TEC48VCNTR |
|--------------------------------|---------------------------------------------------------------|------------|
| <b>ELECTRICAL DATA</b>         |                                                               |            |
| Rated Voltage (VDC)            | 24                                                            | 48         |
| Operating Range (VDC)          | 18 to 30                                                      | 40 to 60   |
| Current @ Rated Voltage (Amps) | 17.2                                                          | 8.6        |
| Power (Watts)                  |                                                               | 410        |
| Operating Temperature Range    |                                                               |            |
| Maximum [°F/°C]                |                                                               | 149/65     |
| Minimum [°F/°C]                |                                                               | -40/-40    |
| <b>UNIT CONSTRUCTION</b>       |                                                               |            |
| Material                       |                                                               | Steel      |
| Finish                         | RAL 7035 light-gray, semi-textured powder-coat paint standard |            |
| <b>UNIT DIMENSIONS</b>         |                                                               |            |
| Height (in./mm)                |                                                               | 6.50/165.0 |
| Width (in./mm)                 |                                                               | 6.12/155.5 |
| Depth - overall (in./mm)       |                                                               | 2.50/63.5  |
| Depth - enclosure (in./mm)     |                                                               | 1.75/44.5  |
| Weight (lb./kg)                |                                                               | 3.0/1.6    |

### 24V and 48V TEC Controllers





**THERMOELECTRIC CONDENSATE MANAGER**



**INDUSTRY STANDARDS**

Maintains UL/cUL Type 3R, 12, 4 and 4X rating when properly installed

**FEATURES**

- Includes all required hardware and vent drain
- Maintains the integrity of Type 4 or Type 4X enclosure
- Drains condensation to bottom of enclosure via vent drain (vent drain included with package)
- Utilizes existing mounting holes and fasteners of thermoelectric cooler that requires no additional mounting

**FINISH**

- Pan Material Galvanized steel polyester powder coat paint with RAL 7035
- Vent drain material options include stainless steel or non-metallic

Performance Data

| <b>CATALOG NUMBERS</b>   |                                                               |              |                 |              |                 |              |
|--------------------------|---------------------------------------------------------------|--------------|-----------------|--------------|-----------------|--------------|
|                          | TEC60WCMSS4                                                   | TEC60WCMNM   | TEC100WCMSS4    | TEC100WCMNM  | TEC200WCMSS4    | TEC200WCMNM  |
| Fits TEC Unit Model      | All TE09                                                      | All TE09     | All TE12        | All TE12     | All TE16        | All TE16     |
| <b>UNIT CONSTRUCTION</b> |                                                               |              |                 |              |                 |              |
| Pan Material             | Galvanized Steel                                              |              |                 |              |                 |              |
| Pan Finish               | RAL 7035 light-gray, semi-textured powder-coat paint standard |              |                 |              |                 |              |
| Vent Drain Material      | Stainless Steel                                               | Non-Metallic | Stainless Steel | Non-Metallic | Stainless Steel | Non-Metallic |
| <b>UNIT DIMENSIONS</b>   |                                                               |              |                 |              |                 |              |
| Height (in./mm)          | .75/19                                                        | .75/19       | .75/19          | .75/19       | .75/19          | .75/19       |
| Width (in./mm)           | 5.50/140                                                      | 5.50/140     | 6.25/159        | 6.25/159     | 7.44/189        | 7.44/189     |
| Depth (in./mm)           | 2.50/64                                                       | 2.50/64      | 2.50/64         | 2.50/64      | 2.50/64         | 2.50/64      |



## VORTEX COOLERS INDOOR/OUTDOOR



3

### INDUSTRY STANDARDS

#### NEMA Type 4 Models:

Maintains UL/cUL Type 4 when properly installed on a UL/cUL Type 4 enclosure.

UL508 Listed; Type 4; File No. E187045

#### NEMA Type 4X Models:

Maintains UL/cUL Type 4X when properly installed on a UL/cUL Type 4X enclosure.

UL508 Listed; Type 4X; File No. E187045

#### NEMA Type 12 Models:

Maintains UL/cUL Type 12 when properly installed on a UL/cUL Type 12 enclosure.

UL508 Listed; Type 12; File No. E187045

### APPLICATION

Powered by compressed air, Vortex Cooling Systems generate chilled air to cool small enclosures without refrigerants or moving parts. These systems are exceptionally reliable and low maintenance, even in the harshest and dirtiest environments.

### FEATURES

- Five-micron airline filter, 115 V solenoid
- Thermostat
- Ducting kit
- Cooling capacities to 2500 BTU/Hr. (733 W)

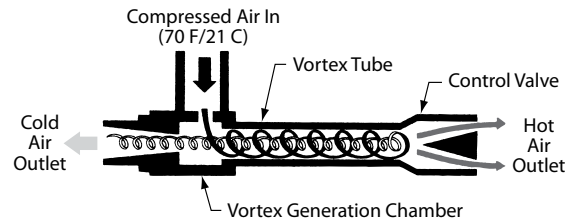
### FINISH

Brushed satin aluminum or stainless steel

### ACCESSORIES

(for the enclosure)

Can be installed on all enclosure product families. Separate accessories include an in-line oil filter.



**Vortex Tube Air Flow Schematic**

Performance Data **VC Series NEMA Type 12**

| CATALOG NUMBERS                                |           |           |           |           |
|------------------------------------------------|-----------|-----------|-----------|-----------|
| Aluminum                                       | VC0416012 | VC0916012 | VC1516012 | VC2516012 |
| <b>COOLING PERFORMANCE</b>                     |           |           |           |           |
| Cooling Capacity (BTU/Hr.)                     | 400       | 900       | 1500      | 2500      |
| Cooling Capacity (Watts)                       | 117       | 264       | 440       | 733       |
| Compressed Air Consumption (SCFM)              | 8         | 15        | 25        | 35        |
| Compressed Air Consumption (L <sup>3</sup> /M) | 227       | 425       | 708       | 991       |
| <b>SOUND LEVEL</b>                             |           |           |           |           |
| Noise Level (dB)                               | 69        | 80        | 83        | 90        |
| <b>ENCLOSURE PROTECTION</b>                    |           |           |           |           |
| UL Type                                        | Type 12   |           |           |           |
| <b>ELECTRICAL DATA</b>                         |           |           |           |           |
| Rated Voltage                                  | 115       | 115       | 115       | 115       |
| Frequency (Hz)                                 | 50/60     | 50/60     | 50/60     | 50/60     |
| <b>UNIT DIMENSIONS</b>                         |           |           |           |           |
| Weight (lb./kg)                                | 5/2.27    | 6/2.72    | 6/2.72    | 6/2.72    |

Performance Data **VC Series NEMA Type 4, 4X**

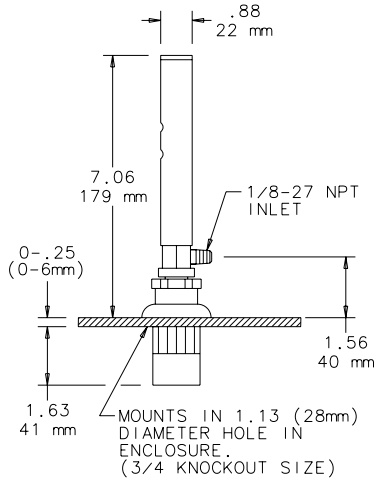
| CATALOG NUMBERS                                |            |           |           |
|------------------------------------------------|------------|-----------|-----------|
| Aluminum                                       | VC0916004  | VC1716004 | VC2516004 |
| Stainless Steel                                | VC091604X  | VC171604X | VC251604X |
| <b>COOLING PERFORMANCE</b>                     |            |           |           |
| Cooling Capacity (BTU/Hr.)                     | 900        | 1700      | 2500      |
| Cooling Capacity (Watts)                       | 264        | 498       | 733       |
| Compressed Air Consumption (SCFM)              | 15         | 25        | 35        |
| Compressed Air Consumption (L <sup>3</sup> /M) | 425        | 708       | 991       |
| <b>SOUND LEVEL</b>                             |            |           |           |
| Noise Level (dB)                               | 83         | 86        | 90        |
| <b>ENCLOSURE PROTECTION</b>                    |            |           |           |
| UL Type                                        | Type 4, 4X |           |           |
| <b>ELECTRICAL DATA</b>                         |            |           |           |
| Rated Voltage                                  | 115        | 115       | 115       |
| Frequency (Hz)                                 | 50/60      | 50/60     | 50/60     |
| <b>UNIT DIMENSIONS</b>                         |            |           |           |
| Weight (lb./kg)                                | 6/2.72     | 6/2.72    | 6/2.72    |

Vortex Cooling System Accessories

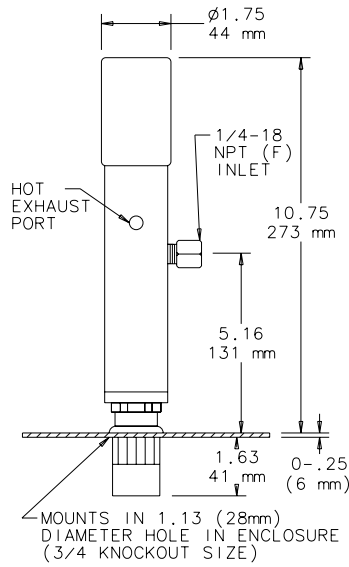
| CATALOG NUMBERS               |                    |              |
|-------------------------------|--------------------|--------------|
|                               | VCOF17             | VCOF25       |
| <b>PERFORMANCE</b>            |                    |              |
| Description                   |                    | Oil Filter   |
| Use with VCool Model Capacity | Up to 1700 BTU/Hr. | 2500 BTU/Hr. |



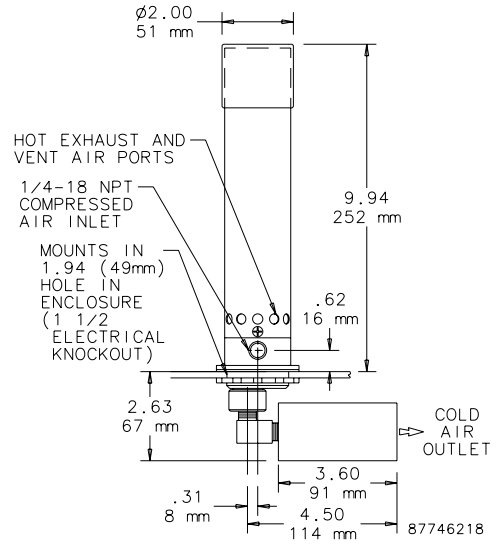
NEMA Type 12 - 400 BTU/Hr.



NEMA Type 12 - 900, 1500, 2500 BTU/Hr.

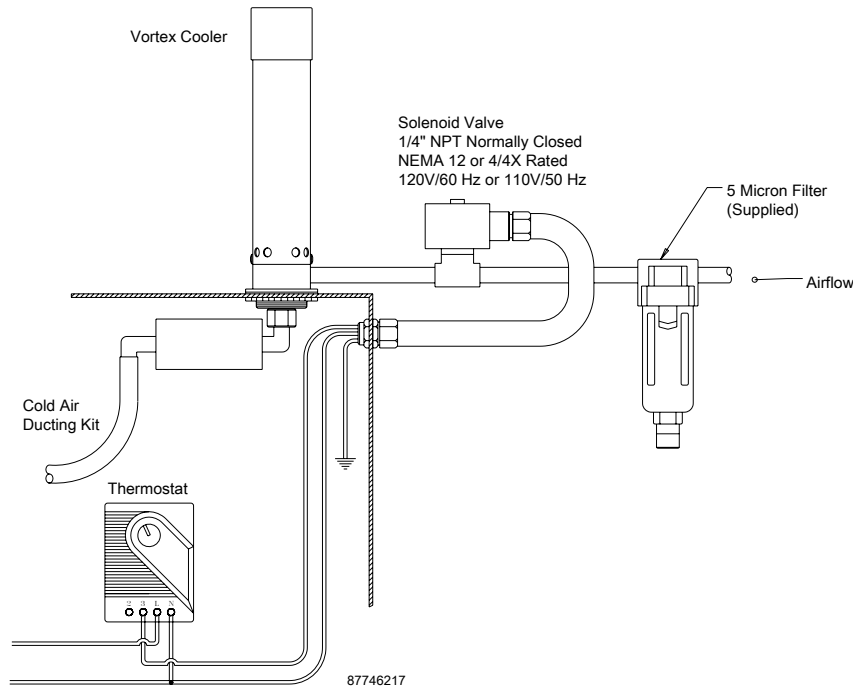


NEMA Type 4X 900, 1700, 2500 BTU/Hr.



ENCLOSURE COOLER MUST REMAIN IN A VERTICAL ORIENTATION TO MAINTAIN NEMA 4/4X RATINGS.

Typical Installation



**Notes**



**McLean®**

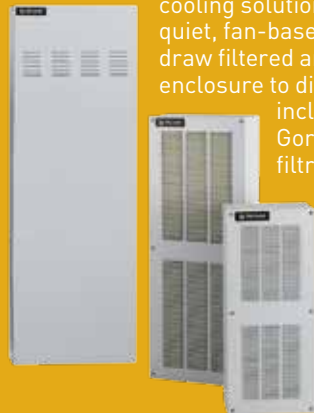
# CHAPTER 4 FRESH AIR ENCLOSURE COOLING



## FEATURED PRODUCTS

### DIRECT AIR COOLING SYSTEMS (DACS)

DACS provides flexible, effective heat removal for outdoor enclosures. A cost-efficient alternative to closed-loop cooling solutions, DACS utilizes quiet, fan-based technology to draw filtered ambient air into the enclosure to dissipate heat. Models include Hydrophobic Gore™ and MERV 12 filtration styles to protect against outdoor elements such as water, dust, bugs and rain.



### FILTER FANS

Filter Fans cool a wide range of heat loads in applications ranging from industrial drives to process equipment and controls. With more than 175 models, Type 12, Type 3R and Type 1 options, a wide range of airflow capabilities and various mounting options, Filter Fans are available for diverse environments.



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### FRESH AIR ENCLOSURE COOLING

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4

### FAN TRAYS

Fan Trays deliver a versatile solution to efficiently cool card cages and racks. Redundant cooling with optional failure detection ensures reliable cooling for sensitive electronic equipment. With a slim, field-adjustable design, these 19-inch rack mountable trays provide simple installation and easy access.



**DACS OUTDOOR**



**INDUSTRY STANDARDS**

UL Recognized

CE  
Telcordia GR-487 capable

**APPLICATION**

- Outdoor telecommunications equipment
- Industrial automation
- Outdoor kiosk
- Outdoor displays
- OSP applications

**FEATURES**

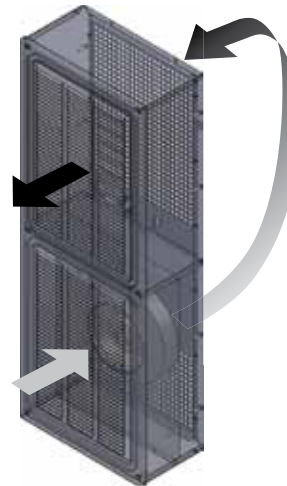
- Customizable solutions to meet any customer need
- Two models utilizing Hydrophobic GORE® filter
- Two models with MERV 12, pleated filter
- Standard power input: 48 VDC
- UL Listed to save time and money with agency approvals
- Power Cord included
- Easy to replace filters
- Broad operating temperature range -40 C to 55 C
- Every unit functionally tested before shipping
- Hydrophobic GORE® filter protects against salt and other corrosive agents
- Controller provides soft start and current limiting at start up
- Vibration resistant to withstand over-the-ground transportation of the telecom system
- Variable speed blowers standard on units for quiet running
- Controller provides fan speed control and temperature alarm

**FINISH**

- Standard Finish: Galvanized steel with RAL 7035 light-gray semi-textured powder coat paint

**OPTIONS**

- Custom Material: Aluminum, Stainless Steel, Mild Steel
- Custom Finish: Paint Color
- Custom Power Input: 24 VDC, 115 VAC, & 230 VAC
- Custom Sizes: Height 29 in. (737 mm) to 56 in. (1422 mm)



**NOTES**

Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.

GORE® is a registered trademark of W.L. Gore & Associates, Inc.



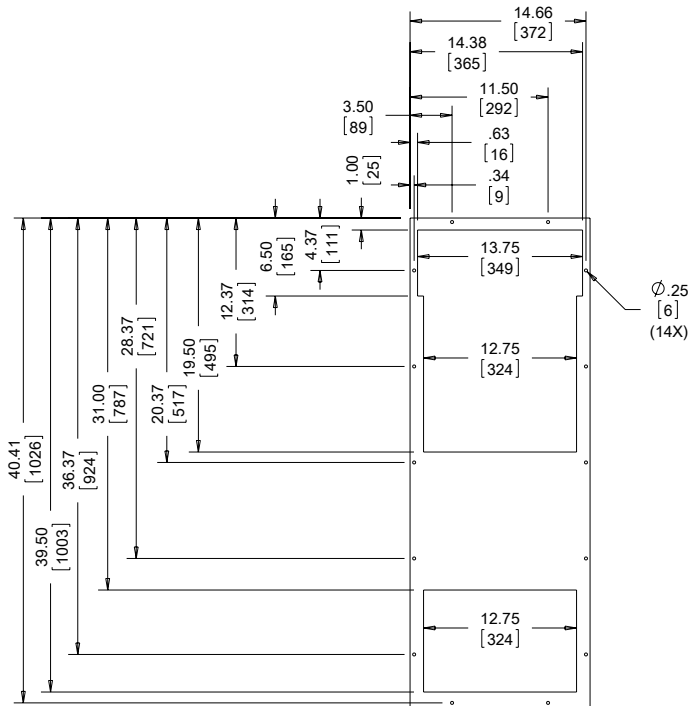
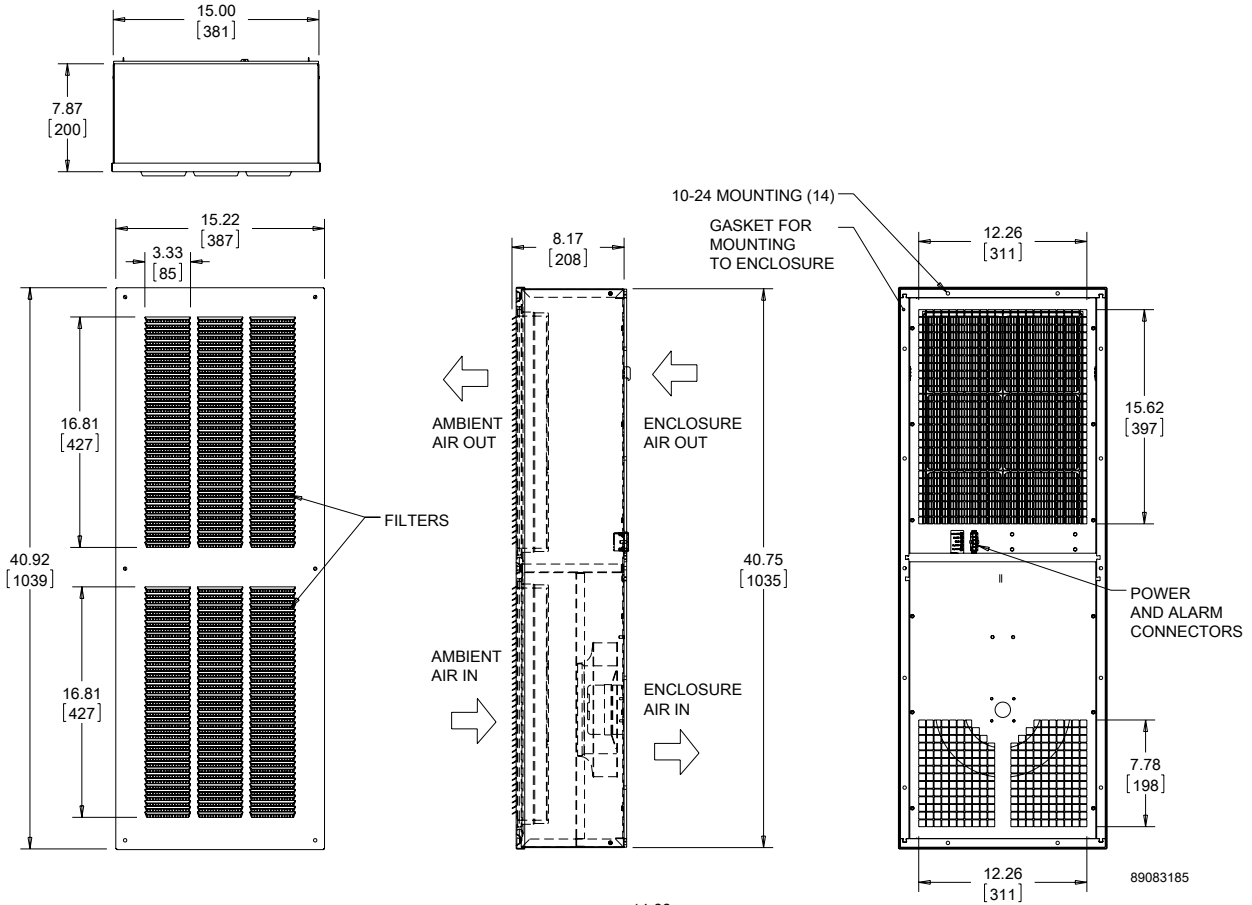


Performance Data **DACS**

| <b>CATALOG NUMBERS</b>                       |                                                               |               |                        |               |
|----------------------------------------------|---------------------------------------------------------------|---------------|------------------------|---------------|
| Catalog Number                               | DCG4108548100                                                 | DCG2904248100 | DCT5615048100          | DCT3809448100 |
| <b>COOLING PERFORMANCE</b>                   |                                                               |               |                        |               |
| <b>Nominal:</b>                              |                                                               |               |                        |               |
| Watts/°F                                     | 85                                                            | 42            | 50                     | 94            |
| Watts/°C                                     | 152                                                           | 75            | 270                    | 170           |
| Operating Temperature Range:                 |                                                               |               |                        |               |
| Maximum (°F/°C)                              | 131/55                                                        | 131/55        | 131/55                 | 131/55        |
| Minimum (°F/°C)                              | -40/-40                                                       | -40/-40       | -40/-40                | -40/-40       |
| Air Flow at 0 Static Pressure: (CFM/ m³/hr.) | 265/450                                                       | 130/221       | 470/799                | 300/510       |
| <b>ELECTRICAL DATA</b>                       |                                                               |               |                        |               |
| Rated Voltage (VDC)                          | 48                                                            |               |                        |               |
| Operating Range (VDC)                        | 40-60                                                         |               |                        |               |
| Max. Power Consumption (Watts)               | 159                                                           | 159           | 192                    | 173           |
| Max. Nominal Current (Amps)                  | 3.3                                                           | 3.3           | 4.0                    | 3.6           |
| Agency Approvals                             | cUL Listed, CE                                                |               |                        |               |
| <b>ENCLOSURE PROTECTION</b>                  |                                                               |               |                        |               |
| UL Type                                      | Type 3R                                                       |               |                        |               |
| <b>CONTROLLER</b>                            |                                                               |               |                        |               |
| Description                                  | Fan speed control and temperature alarm                       |               |                        |               |
| Factory Thermostat Setting (°F/°C)           | 104/40                                                        |               |                        |               |
| <b>SOUND LEVEL</b>                           |                                                               |               |                        |               |
| At 1.5 Meters - Full Speed (dBA)             | 67.1                                                          | 68.1          | 65.0                   | 63.4          |
| <b>UNIT CONSTRUCTION</b>                     |                                                               |               |                        |               |
| Material                                     | Galvanized Steel                                              |               |                        |               |
| Finish                                       | RAL 7035 light-gray, semi-textured powder-coat paint standard |               |                        |               |
| Filter Type                                  | Hydrophobic GORE®                                             |               | Pleated Filter Merv 12 |               |
| <b>UNIT DIMENSIONS</b>                       |                                                               |               |                        |               |
| Height (in./mm)                              | 40.75/1035                                                    | 28.75/730     | 56/1422                | 38/965        |
| Width (in./mm)                               | 15/381                                                        | 12/305        | 20/508                 | 16/406        |
| Depth (in./mm)                               | 7.88/200                                                      | 7.12/181      | 7/178                  | 6/152         |
| Weight (lb./kg)                              | 50/22.7                                                       | 40/18.1       | 65/29.5                | 38/17.2       |



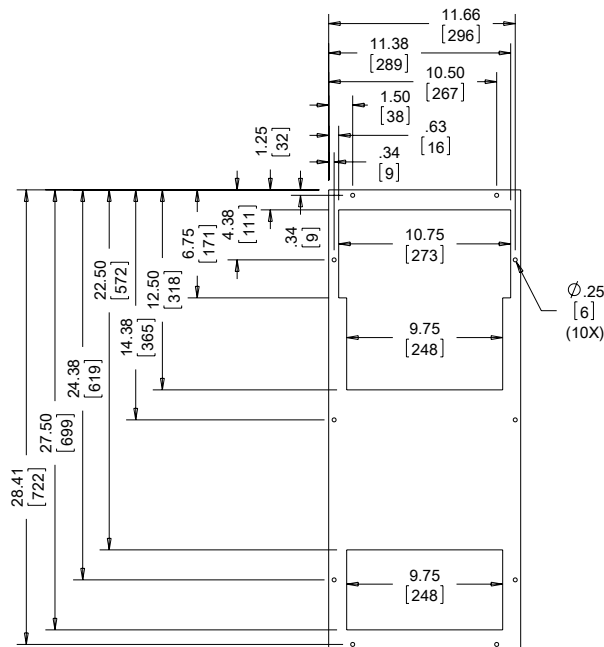
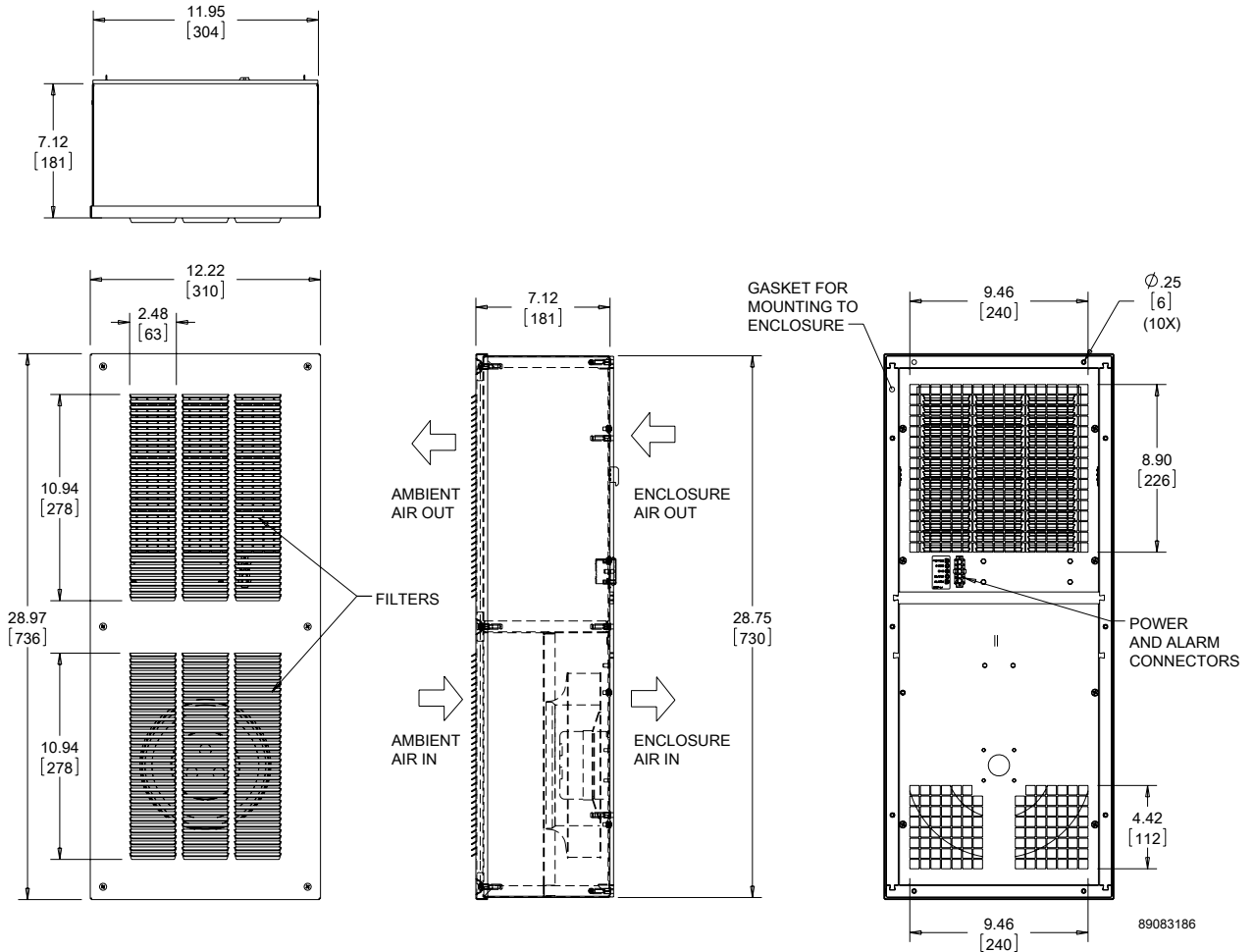
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CUTOUT DIMENSIONS



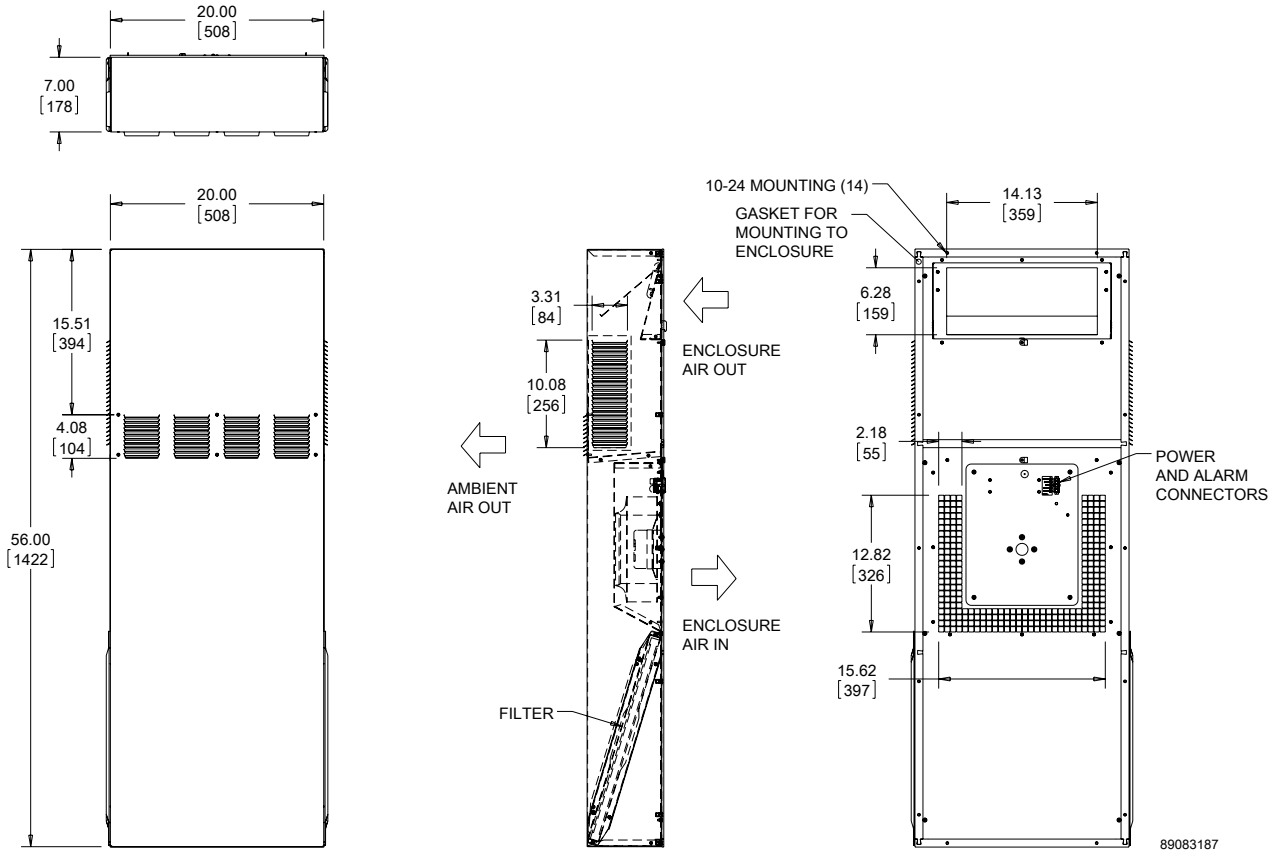
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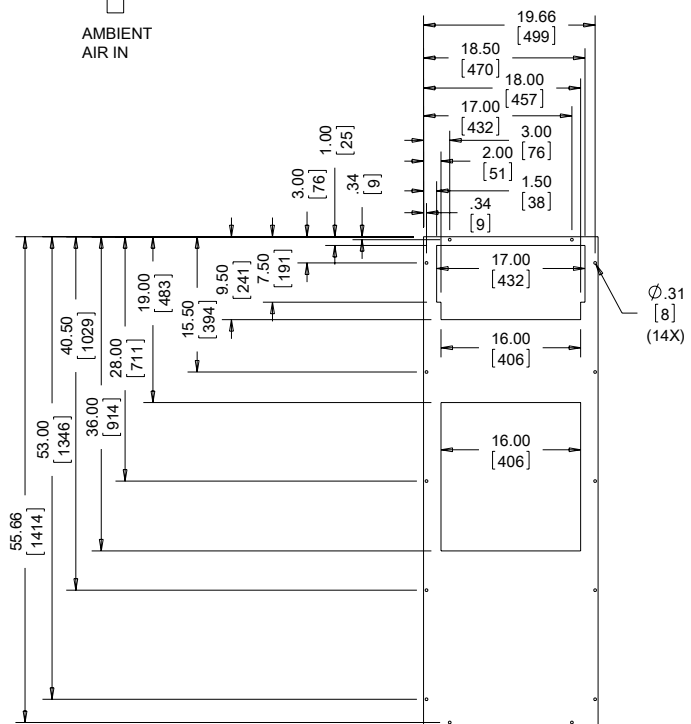
CUTOUT DIMENSIONS



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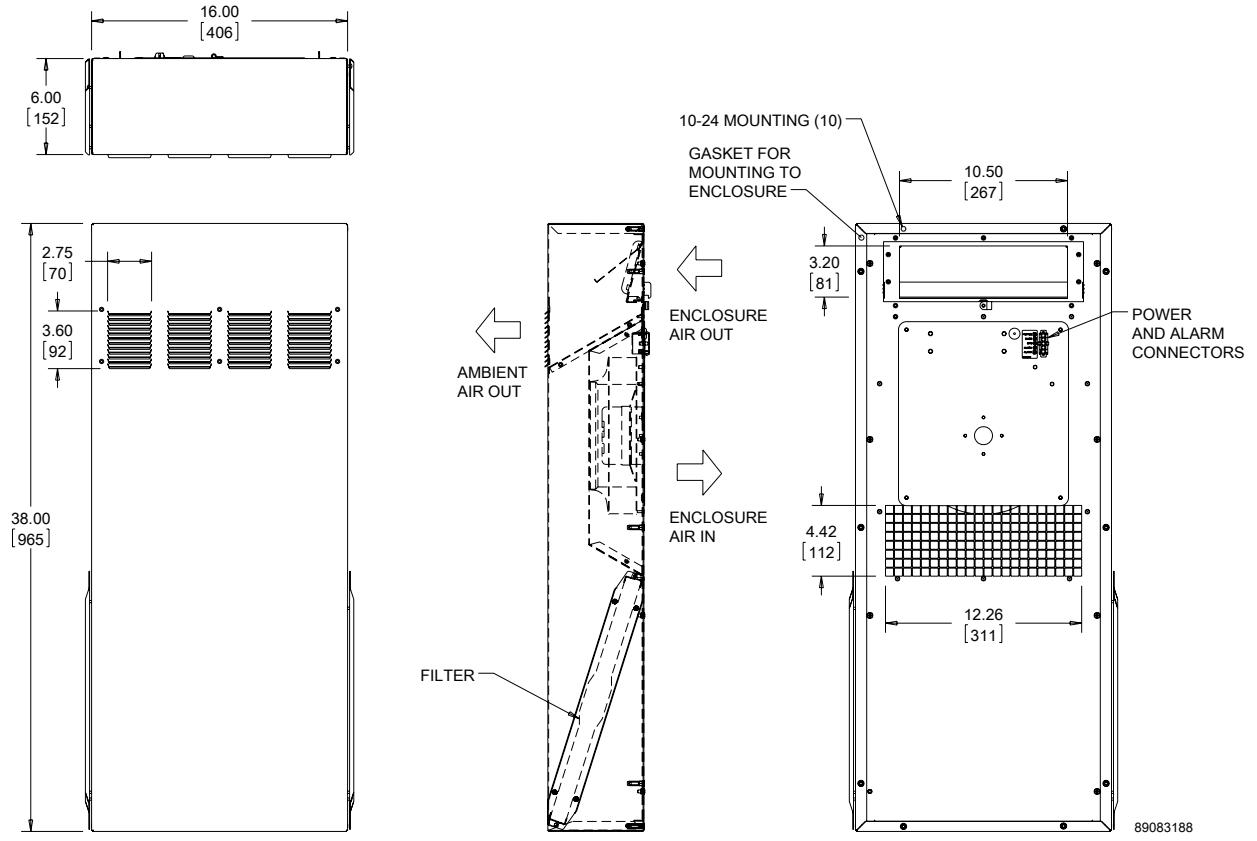


CUTOUT DIMENSIONS



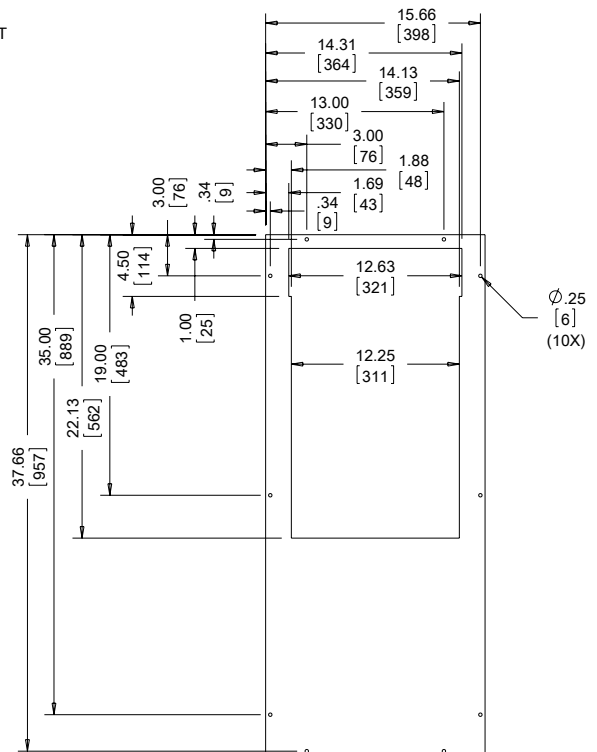
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↑  
AMBIENT  
AIR IN



CUTOUT DIMENSIONS



**SF SIDE-MOUNT**

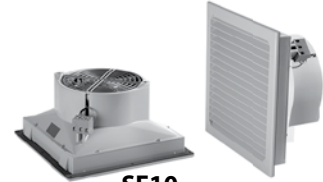

**SF04**  
16 CFM (28 m<sup>3</sup>/hr.)



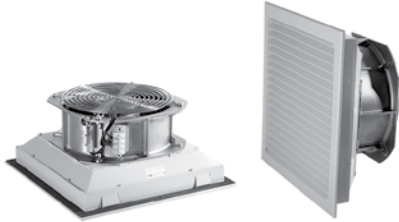
**SF05**  
39 CFM (66 m<sup>3</sup>/hr.)



**SF09**  
75 CFM (127 m<sup>3</sup>/hr.)



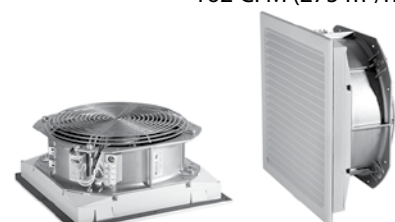
**SF10**  
162 CFM (275 m<sup>3</sup>/hr.)



**SF13**  
376 CFM (638 m<sup>3</sup>/hr.)



**SF13**  
473 CFM (803 m<sup>3</sup>/hr.)



**SF13**  
571 CFM (970 m<sup>3</sup>/hr.)

**INDUSTRY STANDARDS**

UL/cUL recognized; File No. 235470

CE, CSA (fan motor only)  
Type 12, IP54 standard  
Type 12, IP 55 optional

**APPLICATION**

- Industrial automation
- Automotive assembly
- Package handling equipment
- Food and beverage process controls
- Wind energy systems

**FEATURES**

- Click-fit design quickly installs into enclosure wall; no tools or screws required
- Simple snap-open grille for easy filter replacement
- Enclosure side wall mounting
- Reverse airflow option on SF13 models available to push/pull air through higher static pressure
- Standard foam-in-place gasket
- Similar cut-out sizes as other filter fan manufacturers
- Terminal wire connections
- Optional thermostat available to save energy and extend service life

**SPECIFICATIONS**

- Size range from 4 in. (102 mm) to 13 in. (325 mm)
- Free air flow from 16 CFM (28 m<sup>3</sup>/hr.) to 571 CFM (920 m<sup>3</sup>/hr.)
- Service life hours from 40000 to 70000 hours
- Operating temperature range from -4 F/-20 C to 149 F/65 C

**FINISH**

- RAL 7035 light-gray, UV-resistant plastic standard
- RAL 9011 black, UV-resistant plastic optional

**ACCESSORIES**

- Replacement filters
- Thermostat
- Rain shroud

**NOTES**

Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.

Performance Data **SF04 16 CFM (28 m³/hr.) Side-Mount Filter Fan**

| <b>ELECTRICAL DATA</b>                        |                                     |                  |                  |                  |
|-----------------------------------------------|-------------------------------------|------------------|------------------|------------------|
| <b>Rated Voltage</b>                          | <b>115</b>                          | <b>230</b>       | <b>24</b>        | <b>48</b>        |
| Frequency (Hz)                                | 50 / 60                             | 50 / 60          | —                | —                |
| Nominal Current Maximum (Amps)                | 1.40/1.20                           | 0.70             | 1.00             | 0.54             |
| Power Consumption Maximum (Watts)             | 12 / 11                             | 12               | 2.2              | 2.6              |
| Power Connection                              | Terminal Block                      |                  |                  |                  |
| <b>TYPE 12 / IP54 FILTER FANS</b>             |                                     |                  |                  |                  |
| RAL 7035 Light Gray:                          |                                     |                  |                  |                  |
| Catalog Number                                | <b>SF0416414</b>                    | <b>SF0426414</b> | <b>SF0424414</b> | <b>SF0448414</b> |
| RAL 9011 Black:                               |                                     |                  |                  |                  |
| Catalog Number                                | <b>SF0416413</b>                    | <b>SF0426413</b> | <b>SF0424413</b> | <b>SF0448413</b> |
| Free Airflow (CFM / m³/hr.)                   | 16 / 28                             | 16 / 28          | 16 / 28          | 16 / 28          |
| Airflow with 1 Exhaust Grille (CFM / m³/hr.)  | 10/17                               | 10/17            | 10/17            | 10/17            |
| Airflow with 2 Exhaust Grilles (CFM / m³/hr.) | 12/21                               | 12 / 21          | 12 / 21          | 12 / 21          |
| <b>FILTER FAN UNIT CONSTRUCTION</b>           |                                     |                  |                  |                  |
| Fan RPM                                       | 2700 / 3200                         | 2700 / 3200      | 3300             | 3300             |
| Sound Pressure (dBA)                          | 30                                  | 30               | 36               | 36               |
| Operating Temperature Range:                  |                                     |                  |                  |                  |
| Maximum (°F / °C)                             | 131 / 55                            | 131 / 55         | 149 / 65         | 149 / 65         |
| Minimum (°F / °C)                             | 14 / -10                            | 14 / -10         | -4 / -20         | -4 / -20         |
| Service Life (hours)                          | 37,500                              | 37,500           | 70,000           | 70,000           |
| Unit Dimensions - H x W x D (in. / mm)        | 4.13 x 4.13 x 2.17 / 105 x 105 x 55 |                  |                  |                  |
| Cutout Dimensions - H x W (in. / mm)          | 3.62 x 3.62 / 92 x 92               |                  |                  |                  |
| Weight (lb. / kg)                             | .73 / .33                           |                  |                  |                  |
| <b>TYPE 12 / IP54 EXHAUST GRILLES</b>         |                                     |                  |                  |                  |
| RAL 7035 Light Gray:                          |                                     |                  |                  |                  |
| Catalog Number                                | SG0400404                           |                  |                  |                  |
| RAL 9011 Black:                               |                                     |                  |                  |                  |
| Catalog Number                                | SG0400403                           |                  |                  |                  |
| <b>ACCESSORIES</b>                            |                                     |                  |                  |                  |
| Replacement Filters:                          |                                     |                  |                  |                  |
| Type 12 / IP54 Catalog Number                 | 10100059H                           |                  |                  |                  |
| Thermostat Catalog Number                     | TWR60                               |                  |                  |                  |

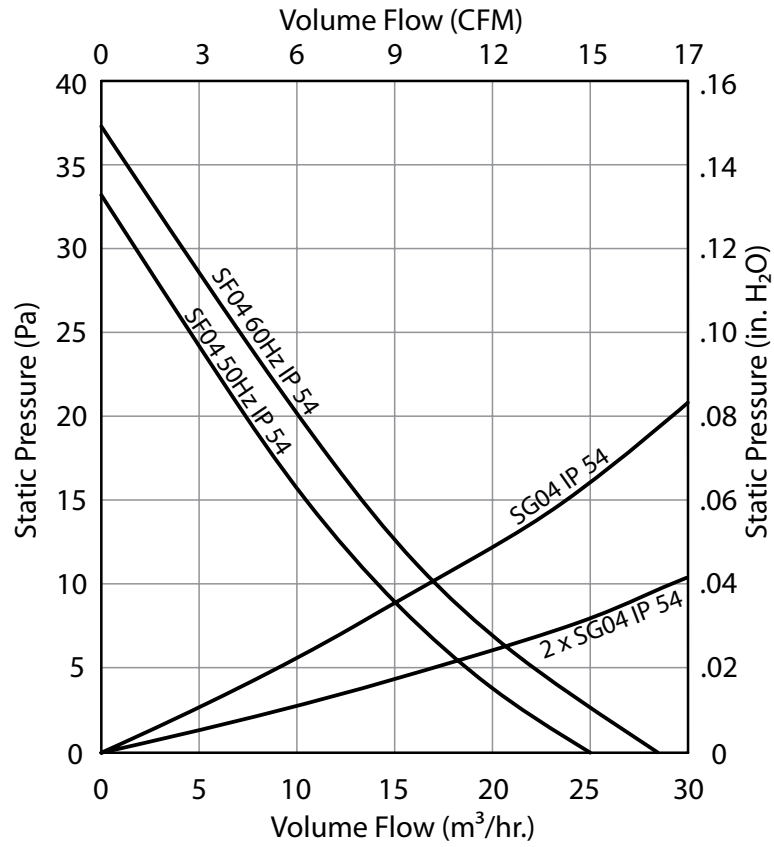
Above airflow rates at 60 Hz; see performance curves for airflow at 50 Hz and more details.

Unit depth is from the back edge of the grille to the back of the fan.

Exhaust Grilles sold separately.

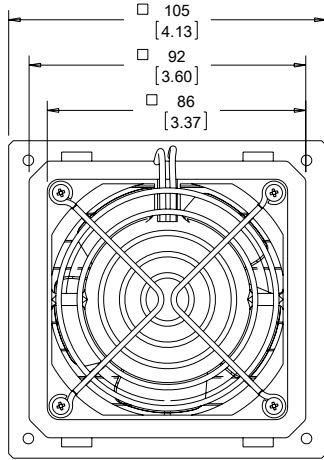


SF04 16 CFM (28 m<sup>3</sup>/hr.) Side-Mount Filter Fan  
Performance Curve

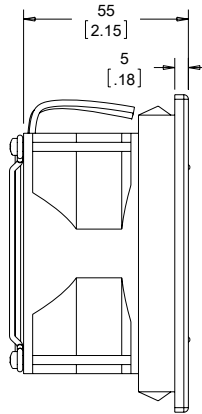




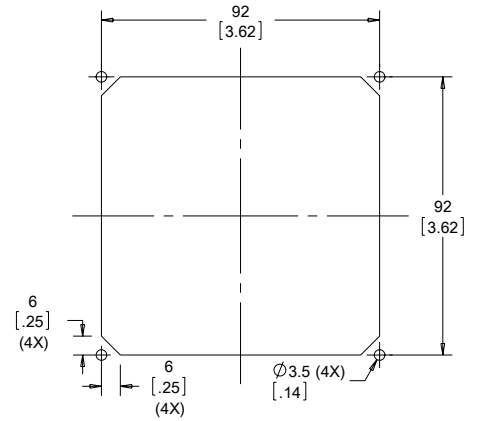
Filter Fan, SF04 16 CFM (28m³/hr.)



BACK VIEW

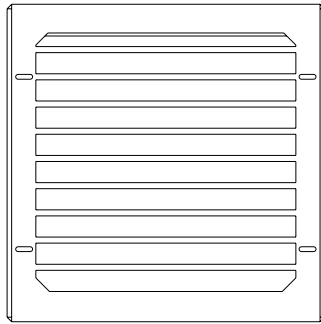


SIDE VIEW

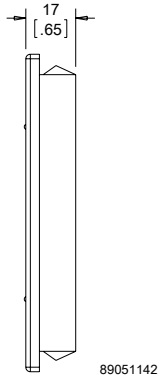


CUTOUT DIMENSIONS

EXHAUST GRILLE



Order Exhaust Grille Kits separately



89051142

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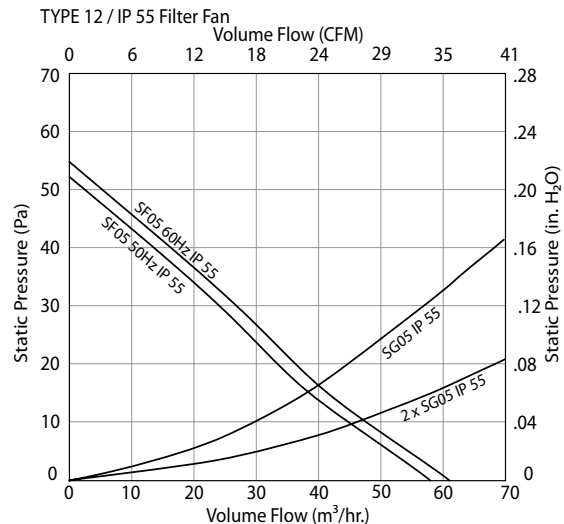
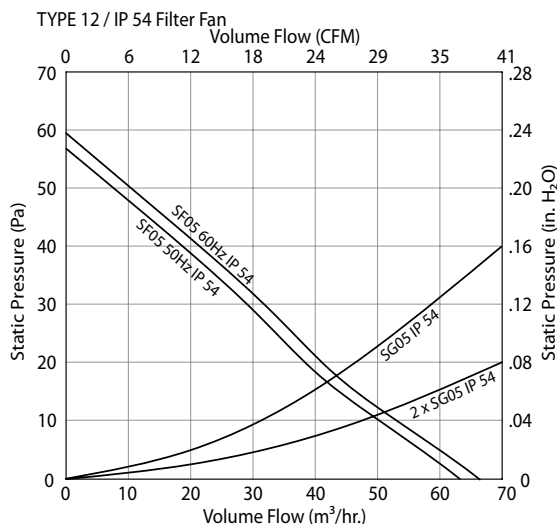
Performance Data **SF05 39 CFM (66 m<sup>3</sup>/hr.) Side-Mount Filter Fan**

| ELECTRICAL DATA                                            |                  |                                     |                  |                  |
|------------------------------------------------------------|------------------|-------------------------------------|------------------|------------------|
| <b>Rated Voltage</b>                                       | <b>115</b>       | <b>230</b>                          | <b>24</b>        | <b>48</b>        |
| Frequency (Hz)                                             | 50 / 60          | 50 / 60                             | —                | —                |
| Nominal Current Maximum (Amps)                             | 0.23             | 0.11                                | 0.17             | 0.08             |
| Power Consumption Maximum (Watts)                          | 20               | 20                                  | 4.1              | 3.5              |
| Power Connection                                           | Terminal Block   |                                     |                  |                  |
| <b>TYPE 12 / IP54 FILTER FANS</b> RAL 7035 Light Gray:     |                  |                                     |                  |                  |
| RAL 7035 Light Gray:                                       |                  |                                     |                  |                  |
| Catalog Number                                             | <b>SF0516414</b> | <b>SF0526414</b>                    | <b>SF0524414</b> | <b>SF0548414</b> |
| RAL 9011 Black:                                            |                  |                                     |                  |                  |
| Catalog Number                                             | <b>SF0516413</b> | <b>SF0526413</b>                    | <b>SF0524413</b> | <b>SF0548413</b> |
| Free Airflow [CFM / m <sup>3</sup> /hr.]                   | 39 / 66          | 39 / 66                             | 39 / 66          | 39 / 66          |
| Airflow with 1 Exhaust Grille [CFM / m <sup>3</sup> /hr.]  | 26 / 44          | 26 / 44                             | 26 / 44          | 26 / 44          |
| Airflow with 2 Exhaust Grilles [CFM / m <sup>3</sup> /hr.] | 30 / 51          | 30 / 51                             | 30 / 51          | 30 / 51          |
| <b>TYPE 12 / IP55 FILTER FANS</b>                          |                  |                                     |                  |                  |
| RAL 7035 Light Gray:                                       |                  |                                     |                  |                  |
| Catalog Number                                             | <b>SF0516514</b> | <b>SF0526514</b>                    | <b>SF0524514</b> | <b>SF0548514</b> |
| RAL 9011 Black:                                            |                  |                                     |                  |                  |
| Catalog Number                                             | <b>SF0516513</b> | <b>SF0526513</b>                    | <b>SF0524513</b> | <b>SF0548513</b> |
| Free Airflow [CFM / m <sup>3</sup> /hr.]                   | 36 / 61          | 36 / 61                             | 36 / 61          | 36 / 61          |
| Airflow with 1 Exhaust Grille [CFM / m <sup>3</sup> /hr.]  | 24 / 40          | 24 / 40                             | 24 / 40          | 24 / 40          |
| Airflow with 2 Exhaust Grilles [CFM / m <sup>3</sup> /hr.] | 28 / 47          | 28 / 47                             | 28 / 47          | 28 / 47          |
| <b>FILTER FAN UNIT CONSTRUCTION</b>                        |                  |                                     |                  |                  |
| Fan RPM                                                    | 2650 / 3100      | 2650 / 3100                         | 3050             | 3050             |
| Sound Pressure (dBA)                                       | 42               | 42                                  | 42               | 42               |
| Operating Temperature Range:                               |                  |                                     |                  |                  |
| Maximum [°F / °C]                                          | 131 / 55         | 131 / 55                            | 149 / 65         | 149 / 65         |
| Minimum [°F / °C]                                          | 14 / -10         | 14 / -10                            | -4 / -20         | -4 / -20         |
| Service Life (hours)                                       | 27,500           | 27,500                              | 50,000           | 50,000           |
| Unit Dimensions - H x W x D (in. / mm)                     |                  | 5.83 x 5.83 x 2.56 / 148 x 148 x 65 |                  |                  |
| Cutout Dimensions - H x W (in. / mm)                       |                  | 4.92 x 4.92 / 125 x 125             |                  |                  |
| Weight (lb. / kg)                                          |                  | 1.19 / .54                          |                  |                  |
| <b>TYPE 12 / IP54 EXHAUST GRILLES</b>                      |                  |                                     |                  |                  |
| RAL 7035 Light Gray:                                       |                  |                                     |                  |                  |
| Catalog Number                                             |                  | SG0500404                           |                  |                  |
| RAL 9011 Black:                                            |                  |                                     |                  |                  |
| Catalog Number                                             |                  | SG0500403                           |                  |                  |
| <b>TYPE 12 / IP55 EXHAUST GRILLES</b>                      |                  |                                     |                  |                  |
| RAL 7035 Light Gray:                                       |                  |                                     |                  |                  |
| Catalog Number                                             |                  | SG0500504                           |                  |                  |
| RAL 9011 Black:                                            |                  |                                     |                  |                  |
| Catalog Number                                             |                  | SG0500503                           |                  |                  |
| <b>ACCESSORIES</b>                                         |                  |                                     |                  |                  |
| Replacement Filters:                                       |                  |                                     |                  |                  |
| Type 12 / IP54 Catalog Number                              |                  | 10100060                            |                  |                  |
| Type 12 / IP55 Catalog Number                              |                  | 10100064H                           |                  |                  |
| Thermostat Catalog Number                                  |                  | TWR60                               |                  |                  |
| Stainless Steel Washdown Shroud Catalog Number             |                  | SH0500005                           |                  |                  |

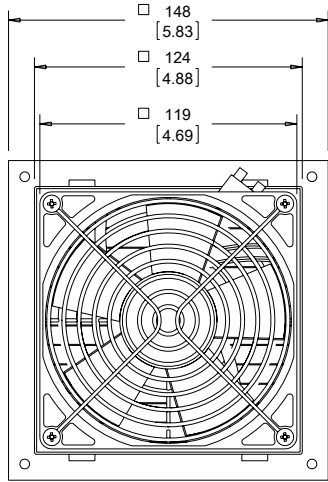
Above airflow rates at 60 Hz; see performance curves for airflow at 50 Hz and more details.

Unit depth is from the back edge of the grille to the back of the fan.

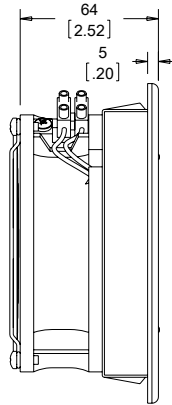
Exhaust Grilles sold separately.

**SF05 39 CFM (66 m<sup>3</sup>/hr.) Side-Mount Filter Fan Performance Curve**


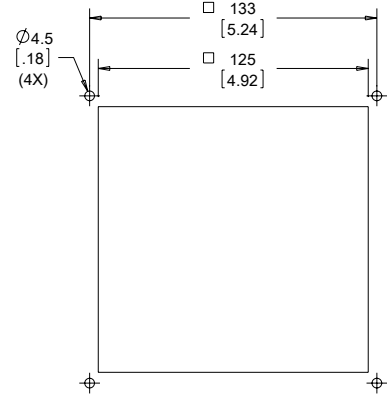
Filter Fan SF05 39 CFM (66 m³/hr.)



BACK VIEW

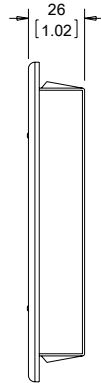
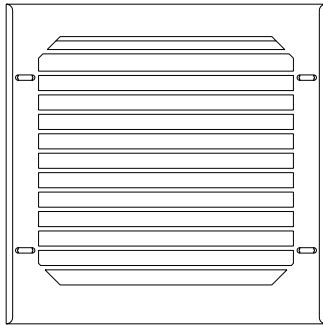


SIDE VIEW



CUTOUT DIMENSIONS

EXHAUST GRILLE



89051216

Order Exhaust Grille Kits separately

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Performance Data **SF09 75 CFM (127 m<sup>3</sup>/hr.) Side-Mount Filter Fan**

| <b>ELECTRICAL DATA</b>                                     |                                     |                  |                  |                  |
|------------------------------------------------------------|-------------------------------------|------------------|------------------|------------------|
| <b>Rated Voltage</b>                                       | <b>115</b>                          | <b>230</b>       | <b>24</b>        | <b>48</b>        |
| Frequency (Hz)                                             | 50 / 60                             | 50 / 60          | —                | —                |
| Nominal Current Maximum (Amps)                             | 0.23                                | 0.11             | 0.17             | 0.08             |
| Power Consumption Maximum (Watts)                          | 20                                  | 20               | 4.1              | 3.5              |
| Power Connection                                           | Terminal Block                      |                  |                  |                  |
| <b>TYPE 12 / IP54 FILTER FANS</b>                          |                                     |                  |                  |                  |
| RAL 7035 Light Gray:                                       |                                     |                  |                  |                  |
| Catalog Number                                             | <b>SF0916414</b>                    | <b>SF0926414</b> | <b>SF0924414</b> | <b>SF0948414</b> |
| RAL 9011 Black:                                            |                                     |                  |                  |                  |
| Catalog Number                                             | <b>SF0916413</b>                    | <b>SF0926413</b> | <b>SF0924413</b> | <b>SF0948413</b> |
| Free Airflow (CFM / m <sup>3</sup> /hr.)                   | 75 / 127                            | 75 / 127         | 75 / 127         | 75 / 127         |
| Airflow with 1 Exhaust Grille (CFM / m <sup>3</sup> /hr.)  | 59 / 100                            | 59 / 100         | 59 / 100         | 59 / 100         |
| Airflow with 2 Exhaust Grilles (CFM / m <sup>3</sup> /hr.) | 67 / 114                            | 67 / 114         | 67 / 114         | 67 / 114         |
| <b>TYPE 12 / IP55 FILTER FANS</b>                          |                                     |                  |                  |                  |
| RAL 7035 Light Gray:                                       |                                     |                  |                  |                  |
| Catalog Number                                             | <b>SF0916514</b>                    | <b>SF0926514</b> | <b>SF0924514</b> | <b>SF0948514</b> |
| RAL 9011 Black:                                            |                                     |                  |                  |                  |
| Catalog Number                                             | <b>SF0916513</b>                    | <b>SF0926513</b> | <b>SF0924513</b> | <b>SF0948513</b> |
| Free Airflow (CFM / m <sup>3</sup> /hr.)                   | 70 / 118                            | 70 / 118         | 70 / 118         | 70 / 118         |
| Airflow with 1 Exhaust Grille (CFM / m <sup>3</sup> /hr.)  | 54 / 92                             | 54 / 92          | 54 / 92          | 54 / 92          |
| Airflow with 2 Exhaust Grilles (CFM / m <sup>3</sup> /hr.) | 62 / 106                            | 62 / 106         | 62 / 106         | 62 / 106         |
| <b>FILTER FAN UNIT CONSTRUCTION</b>                        |                                     |                  |                  |                  |
| Fan RPM                                                    | 2650 / 3100                         | 2650 / 3100      | 3050             | 3050             |
| Sound Pressure (dBA)                                       | 51                                  | 51               | 51               | 51               |
| Operating Temperature Range:                               |                                     |                  |                  |                  |
| Maximum (°F / °C)                                          | 131 / 55                            | 131 / 55         | 149 / 65         | 149 / 65         |
| Minimum (°F / °C)                                          | 14 / -10                            | 14 / -10         | -4 / -20         | -4 / -20         |
| Service Life (hours)                                       | 27,500                              | 27,500           | 50,000           | 50,000           |
| Unit Dimensions - H x W x D (in. / mm)                     | 8.03 x 8.03 x 3.54 / 204 x 204 x 90 |                  |                  |                  |
| Cutout Dimensions - H x W (in. / mm)                       | 6.97 x 6.97 / 177 x 177             |                  |                  |                  |
| Weight (lb. / kg)                                          | 1.74 / .79                          |                  |                  |                  |
| <b>TYPE 12 / IP54 EXHAUST GRILLES</b>                      |                                     |                  |                  |                  |
| RAL 7035 Light Gray:                                       |                                     |                  |                  |                  |
| Catalog Number                                             | SG0900404                           |                  |                  |                  |
| RAL 9011 Black:                                            |                                     |                  |                  |                  |
| Catalog Number                                             | SG0900403                           |                  |                  |                  |
| <b>TYPE 12 / IP55 EXHAUST GRILLES</b>                      |                                     |                  |                  |                  |
| RAL 7035 Light Gray:                                       |                                     |                  |                  |                  |
| Catalog Number                                             | SG0900504                           |                  |                  |                  |
| RAL 9011 Black:                                            |                                     |                  |                  |                  |
| Catalog Number                                             | SG0900503                           |                  |                  |                  |
| <b>ACCESSORIES</b>                                         |                                     |                  |                  |                  |
| Replacement Filters:                                       |                                     |                  |                  |                  |
| Type 12 / IP54 Catalog Number                              | 10100061                            |                  |                  |                  |
| Type 12 / IP55 Catalog Number                              | 10100065H                           |                  |                  |                  |
| Thermostat Catalog Number                                  | TWR60                               |                  |                  |                  |
| Stainless Steel Washdown Shroud Catalog Number             | SH0900005                           |                  |                  |                  |

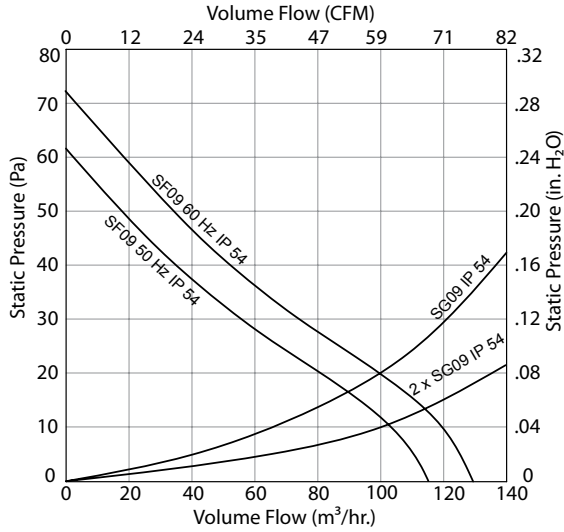
Above airflow rates at 60 Hz; see performance curves for airflow at 50 Hz and more details.

Unit depth is from the back edge of the grille to the back of the fan.

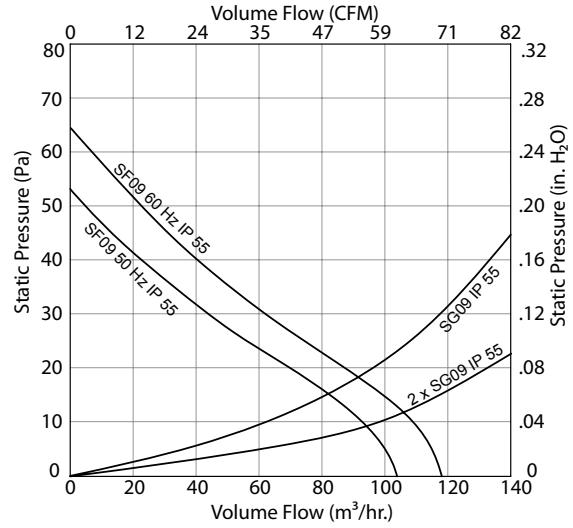
Exhaust Grilles sold separately.

SF09 75 CFM (127 m<sup>3</sup>/hr.) Side-Mount Filter Fan Performance Curve

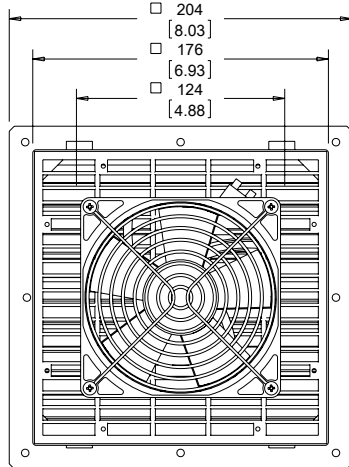
TYPE 12 / IP 54 Filter Fan



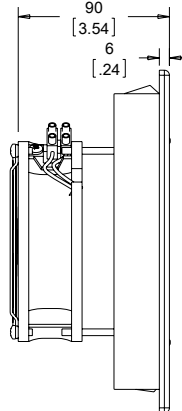
TYPE 12 / IP 55 Filter Fan



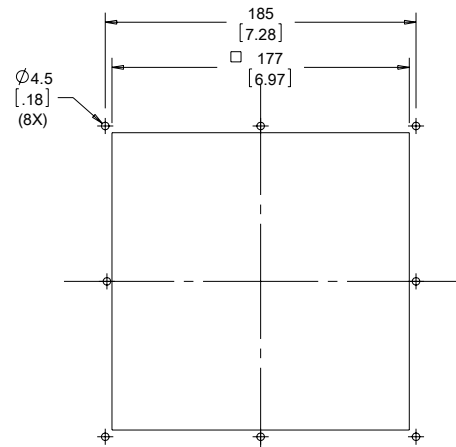
Filter Fan SF09 75 CFM (127 m<sup>3</sup>/hr.)



BACK VIEW

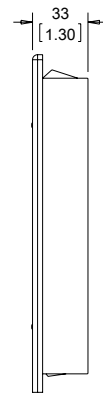
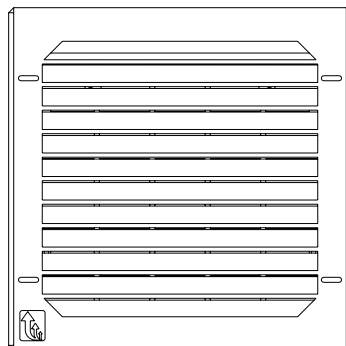


SIDE VIEW



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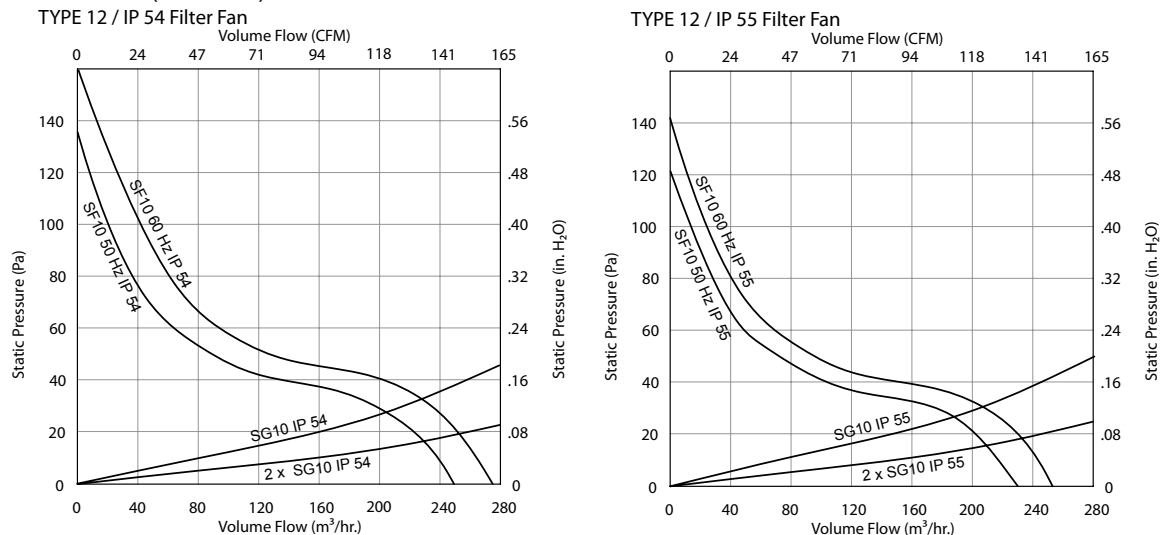
Performance Data **SF10 162 CFM (275 m<sup>3</sup>/Hr.) Side-Mount Filter Fan**

| ELECTRICAL DATA                                            |                                      |                  |                  |                  |
|------------------------------------------------------------|--------------------------------------|------------------|------------------|------------------|
| <b>Rated Voltage</b>                                       | <b>115</b>                           | <b>230</b>       | <b>24</b>        | <b>48</b>        |
| Frequency (Hz)                                             | 50 / 60                              | 50 / 60          | —                | —                |
| Nominal Current Maximum (Amps)                             | .53 / .50                            | .30 / .25        | 0.66             | 0.33             |
| Power Consumption Maximum (Watts)                          | 43 / 40                              | 45 / 39          | 16               | 16               |
| Power Connection                                           | Terminal Block                       |                  |                  |                  |
| TYPE 12 / IP54 FILTER FANS                                 |                                      |                  |                  |                  |
| RAL 7035 Light Gray:                                       |                                      |                  |                  |                  |
| Catalog Number                                             | <b>SF1016414</b>                     | <b>SF1026414</b> | <b>SF1024414</b> | <b>SF1048414</b> |
| RAL 9011 Black:                                            |                                      |                  |                  |                  |
| Catalog Number                                             | <b>SF1016413</b>                     | <b>SF1026413</b> | <b>SF1024413</b> | <b>SF1048413</b> |
| Free Airflow (CFM / m <sup>3</sup> /hr.)                   | 162 / 275                            | 162 / 275        | 162 / 275        | 162 / 275        |
| Airflow with 1 Exhaust Grille (CFM / m <sup>3</sup> /hr.)  | 133 / 226                            | 133 / 226        | 133 / 226        | 133 / 226        |
| Airflow with 2 Exhaust Grilles (CFM / m <sup>3</sup> /hr.) | 149 / 253                            | 149 / 253        | 149 / 253        | 149 / 253        |
| TYPE 12 / IP55 FILTER FANS                                 |                                      |                  |                  |                  |
| RAL 7035 Light Gray:                                       |                                      |                  |                  |                  |
| Catalog Number                                             | <b>SF1016514</b>                     | <b>SF1026514</b> | <b>SF1024514</b> | <b>SF1048514</b> |
| RAL 9011 Black:                                            |                                      |                  |                  |                  |
| Catalog Number                                             | <b>SF1016513</b>                     | <b>SF1026513</b> | <b>SF1024513</b> | <b>SF1048513</b> |
| Free Airflow (CFM / m <sup>3</sup> /hr.)                   | 149 / 253                            | 149 / 253        | 149 / 253        | 149 / 253        |
| Airflow with 1 Exhaust Grille (CFM / m <sup>3</sup> /hr.)  | 122 / 207                            | 122 / 207        | 122 / 207        | 122 / 207        |
| Airflow with 2 Exhaust Grilles (CFM / m <sup>3</sup> /hr.) | 137 / 233                            | 137 / 233        | 137 / 233        | 137 / 233        |
| FILTER FAN UNIT CONSTRUCTION                               |                                      |                  |                  |                  |
| Fan RPM                                                    | 2760 / 3030                          | 2760 / 3030      | 2950             | 2950             |
| Sound Pressure (dBA)                                       | 52                                   | 52               | 52               | 52               |
| Operating Temperature Range:                               |                                      |                  |                  |                  |
| Maximum (°F / °C)                                          | 131 / 55                             | 131 / 55         | 131 / 55         | 131 / 55         |
| Minimum (°F / °C)                                          | 14 / -10                             | 14 / -10         | 14 / -10         | 14 / -10         |
| Service Life (hours)                                       | 40,000                               | 40,000           | 40,000           | 40,000           |
| Unit Dimensions - H x W x D (in. / mm)                     | 9.84 x 9.84 x 4.72 / 250 x 250 x 120 |                  |                  |                  |
| Cutout Dimensions - H x W (in. / mm)                       | 8.78 x 8.78 / 223 x 223              |                  |                  |                  |
| Weight (lb. / kg)                                          | 4.19 / 1.9                           |                  |                  |                  |
| TYPE 12 / IP54 EXHAUST GRILLES                             |                                      |                  |                  |                  |
| RAL 7035 Light Gray:                                       |                                      |                  |                  |                  |
| Catalog Number                                             | SG1000404                            |                  |                  |                  |
| RAL 9011 Black:                                            |                                      |                  |                  |                  |
| Catalog Number                                             | SG1000403                            |                  |                  |                  |
| TYPE 12 / IP55 EXHAUST GRILLES                             |                                      |                  |                  |                  |
| RAL 7035 Light Gray:                                       |                                      |                  |                  |                  |
| Catalog Number                                             | SG1000504                            |                  |                  |                  |
| RAL 9011 Black:                                            |                                      |                  |                  |                  |
| Catalog Number                                             | SG1000503                            |                  |                  |                  |
| ACCESSORIES                                                |                                      |                  |                  |                  |
| Replacement Filters:                                       |                                      |                  |                  |                  |
| Type 12 / IP54 Catalog Number                              | 10100062                             |                  |                  |                  |
| Type 12 / IP55 Catalog Number                              | 10100066H                            |                  |                  |                  |
| Thermostat Catalog Number                                  | TWR60                                |                  |                  |                  |
| Stainless Steel Washdown Shroud Catalog Number             | SH1000005                            |                  |                  |                  |

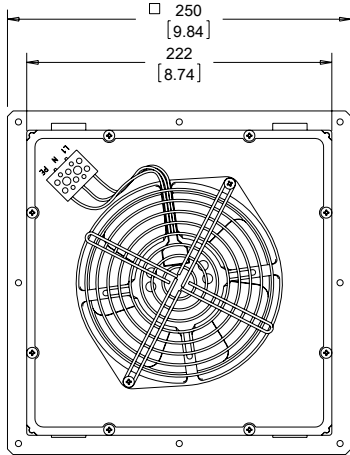
Above airflow rates at 60 Hz; see performance curves for airflow at 50 Hz and more details.

Unit depth is from the back edge of the grille to the back of the fan.

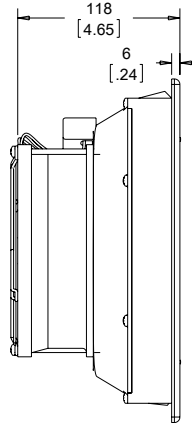
Exhaust Grilles sold separately.

**SF10 162 CFM (275 m<sup>3</sup>/hr.) Side-Mount Filter Fan Performance Curve**


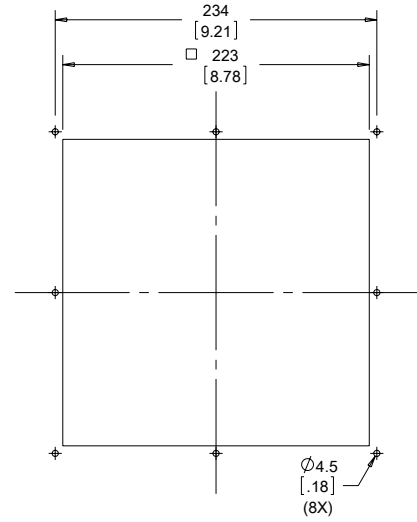
Filter Fan SF10 162 CFM (275 m<sup>3</sup>/hr.)



BACK VIEW

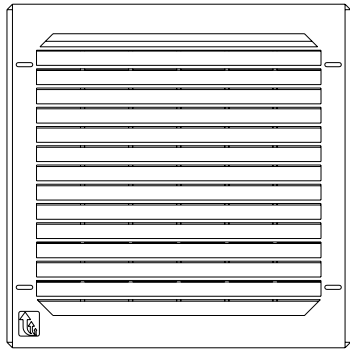


SIDE VIEW

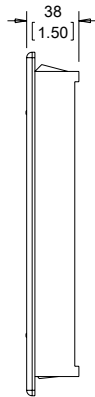


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Performance Data **SF13 376 CFM (638 m<sup>3</sup>/hr.) Side-Mount Filter Fan - Standard and Reverse**

| <b>ELECTRICAL DATA</b>                                     |                                        |                  |                  |                  |                   |                   |
|------------------------------------------------------------|----------------------------------------|------------------|------------------|------------------|-------------------|-------------------|
| <b>Rated Voltage</b>                                       | <b>115</b>                             | <b>230</b>       | <b>24</b>        | <b>48</b>        | <b>115 Rvrs</b>   | <b>230 Rvrs</b>   |
| Frequency (Hz)                                             | 50 / 60                                | 50 / 60          | —                | —                | 50 / 60           | 50 / 60           |
| Nominal Current Maximum (Amps)                             | .58 / .70                              | .29 / .35        | 2.60             | 1.30             | .58 / .70         | .29 / .35         |
| Power Consumption Maximum (Watts)                          | 64 / 80                                | 64 / 80          | 55               | 55               | 64 / 80           | 64 / 80           |
| Power Connection                                           | Terminal Block                         |                  |                  |                  |                   |                   |
| <b>TYPE 12 / IP54 FILTER FANS</b>                          |                                        |                  |                  |                  |                   |                   |
| RAL 7035 Light Gray:                                       |                                        |                  |                  |                  |                   |                   |
| Catalog Number                                             | <b>SF1316414</b>                       | <b>SF1326414</b> | <b>SF1324414</b> | <b>SF1348414</b> | <b>SF1316414R</b> | <b>SF1326414R</b> |
| RAL 9011 Black:                                            |                                        |                  |                  |                  |                   |                   |
| Catalog Number                                             | <b>SF1316413</b>                       | <b>SF1326413</b> | <b>SF1324413</b> | <b>SF1348413</b> | <b>SF1316413R</b> | <b>SF1326413R</b> |
| Free Airflow (CFM / m <sup>3</sup> /hr.)                   | 375 / 638                              | 375 / 638        | 375 / 638        | 375 / 638        | 375 / 638         | 375 / 638         |
| Airflow with 1 Exhaust Grille (CFM / m <sup>3</sup> /hr.)  | 249 / 423                              | 249 / 423        | 249 / 423        | 249 / 423        | 249 / 423         | 249 / 423         |
| Airflow with 2 Exhaust Grilles (CFM / m <sup>3</sup> /hr.) | 333 / 565                              | 333 / 565        | 333 / 565        | 333 / 565        | 333 / 565         | 333 / 565         |
| <b>TYPE 12 / IP55 FILTER FANS</b>                          |                                        |                  |                  |                  |                   |                   |
| RAL 7035 Light Gray:                                       |                                        |                  |                  |                  |                   |                   |
| Catalog Number                                             | <b>SF1316514</b>                       | <b>SF1326514</b> | <b>SF1324514</b> | <b>SF1348514</b> | —                 | —                 |
| RAL 9011 Black:                                            |                                        |                  |                  |                  |                   |                   |
| Catalog Number                                             | <b>SF1316513</b>                       | <b>SF1326513</b> | <b>SF1324513</b> | <b>SF1348513</b> | —                 | —                 |
| Free Airflow (CFM / m <sup>3</sup> /hr.)                   | 346 / 587                              | 346 / 587        | 346 / 587        | 346 / 587        | —                 | —                 |
| Airflow with 1 Exhaust Grille (CFM / m <sup>3</sup> /hr.)  | 228 / 387                              | 228 / 387        | 228 / 387        | 228 / 387        | —                 | —                 |
| Airflow with 2 Exhaust Grilles (CFM / m <sup>3</sup> /hr.) | 301 / 511                              | 301 / 511        | 301 / 511        | 301 / 511        | —                 | —                 |
| <b>FILTER FAN UNIT CONSTRUCTION</b>                        |                                        |                  |                  |                  |                   |                   |
| Fan RPM                                                    | 2550 / 2800                            | 2550 / 2800      | 2950             | 2950             | 2550 / 2800       | 2550 / 2800       |
| Sound Pressure (dBA)                                       | 60                                     | 60               | 60               | 60               | 60                | 60                |
| Operating Temperature Range:                               |                                        |                  |                  |                  |                   |                   |
| Maximum (°F / °C)                                          | 131 / 55                               | 131 / 55         | 140 / 60         | 140 / 60         | 131 / 55          | 131 / 55          |
| Minimum (°F / °C)                                          | 14 / -10                               | 14 / -10         | -13 / -25        | -13 / -25        | 14 / -10          | 14 / -10          |
| Service Life (hours)                                       | 40,000                                 | 40,000           | 40,000           | 40,000           | 40,000            | 40,000            |
| Unit Dimensions - H x W x D (in. / mm)                     | 12.72 x 12.72 x 5.83 / 323 x 323 x 148 |                  |                  |                  |                   |                   |
| Cutout Dimensions - H x W (in. / mm)                       | 11.5 x 11.5 / 292 x 292                |                  |                  |                  |                   |                   |
| Weight (lb. / kg)                                          | 7.5 / 3.4                              |                  |                  |                  |                   |                   |
| <b>TYPE 12 / IP54 EXHAUST GRILLES</b>                      |                                        |                  |                  |                  |                   |                   |
| RAL 7035 Light Gray:                                       |                                        |                  |                  |                  |                   |                   |
| Catalog Number                                             | SG1300404                              |                  |                  |                  |                   |                   |
| RAL 9011 Black:                                            |                                        |                  |                  |                  |                   |                   |
| Catalog Number                                             | SG1300403                              |                  |                  |                  |                   |                   |
| <b>TYPE 12 / IP55 EXHAUST GRILLES</b>                      |                                        |                  |                  |                  |                   |                   |
| RAL 7035 Light Gray:                                       |                                        |                  |                  |                  |                   |                   |
| Catalog Number                                             | SG1300504                              |                  |                  |                  |                   |                   |
| RAL 9011 Black:                                            |                                        |                  |                  |                  |                   |                   |
| Catalog Number                                             | SG1300503                              |                  |                  |                  |                   |                   |
| <b>ACCESSORIES</b>                                         |                                        |                  |                  |                  |                   |                   |
| Replacement Filters:                                       |                                        |                  |                  |                  |                   |                   |
| Type 12 / IP54 Catalog Number                              | 10100063                               |                  |                  |                  |                   |                   |
| Type 12 / IP55 Catalog Number                              | 10100067H                              |                  |                  |                  |                   |                   |
| Thermostat Catalog Number                                  | TWR60                                  |                  |                  |                  |                   |                   |
| Stainless Steel Washdown Shroud Catalog Number             | SH1300005                              |                  |                  |                  |                   |                   |

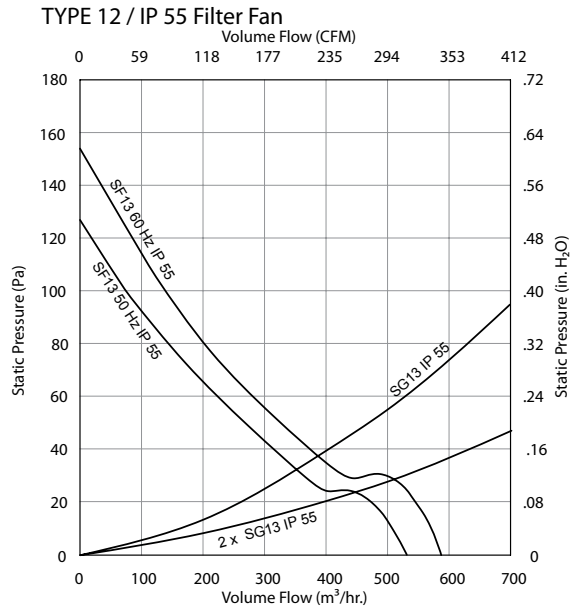
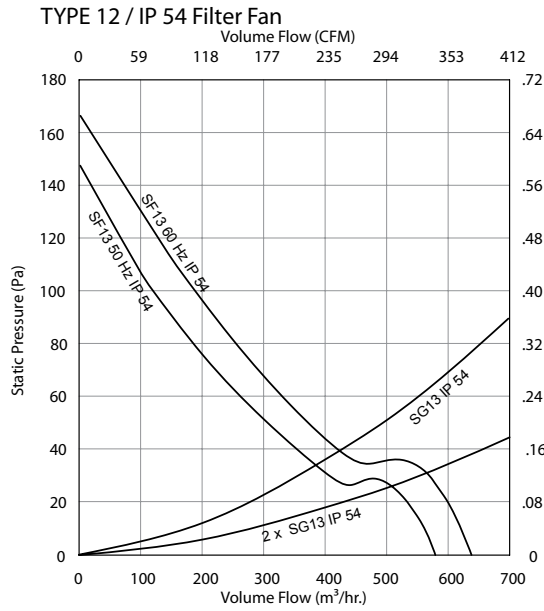
Above airflow rates at 60 Hz; see performance curves for airflow at 50 Hz and more details.

Unit depth is from the back edge of the grille to the back of the fan.

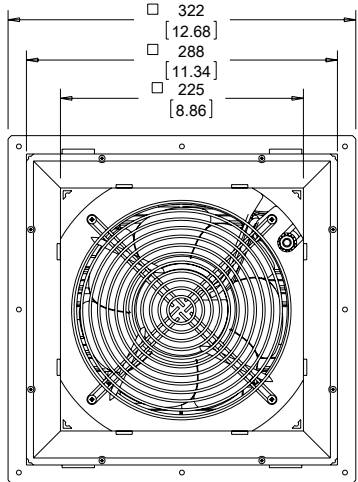
Exhaust Grilles sold separately.



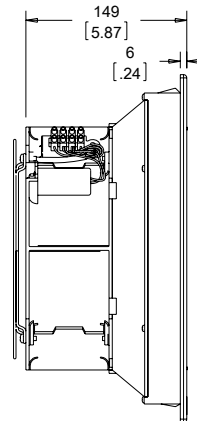
SF13 376 CFM (638 m<sup>3</sup>/hr.) Side-Mount Filter Fan Performance Curve



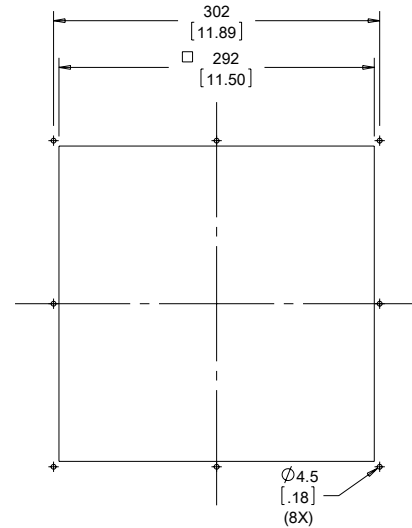
Filter Fan SF13 376 CFM (638 m<sup>3</sup>/hr.)



BACK VIEW

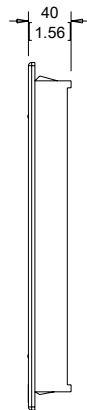
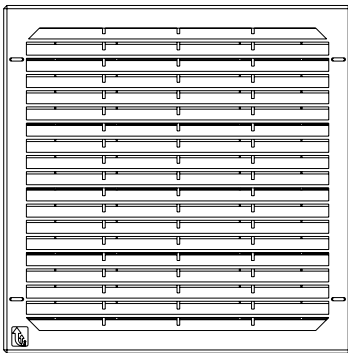


SIDE VIEW



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Performance Data **SF13 473 CFM (803 m<sup>3</sup>/hr.) Side-Mount Filter Fan - Standard**

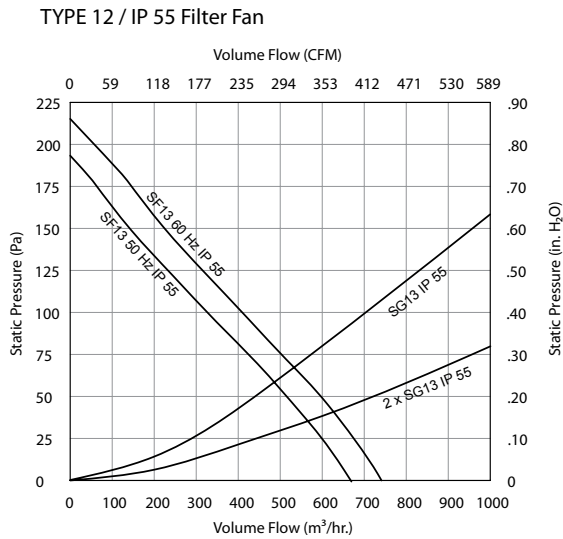
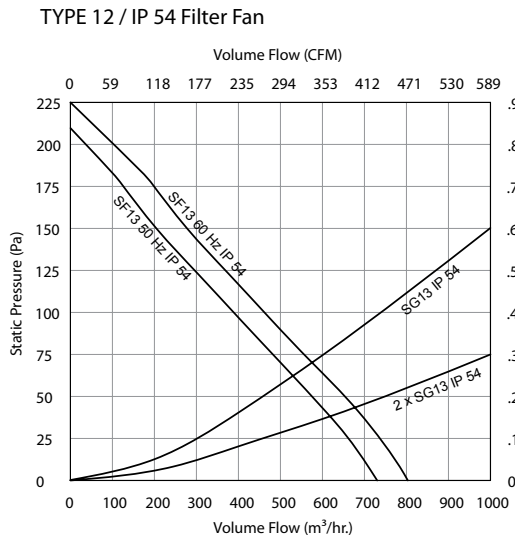
| <b>ELECTRICAL DATA</b>                                     |                                        |                  |                  |
|------------------------------------------------------------|----------------------------------------|------------------|------------------|
| <b>Rated Voltage</b>                                       | <b>115</b>                             | <b>230</b>       | <b>400</b>       |
| Frequency (Hz)                                             | 50 / 60                                | 50 / 60          | 50 / 60          |
| Nominal Current Maximum (Amps)                             | 1.02 / 1.4                             | .51 / .74        | .22 / .26        |
| Power Consumption Maximum (Watts)                          | 115 / 166                              | 115 / 175        | 110 / 150        |
| Power Connection                                           | Terminal Block                         |                  |                  |
| <b>TYPE 12 / IP54 FILTER FANS</b>                          |                                        |                  |                  |
| RAL 7035 Light Gray:                                       |                                        |                  |                  |
| Catalog Number                                             | <b>SF1316424</b>                       | <b>SF1326424</b> | <b>SF1340424</b> |
| RAL 9011 Black:                                            |                                        |                  |                  |
| Catalog Number                                             | <b>SF1316423</b>                       | <b>SF1326423</b> | <b>SF1340423</b> |
| Free Airflow (CFM / m <sup>3</sup> /hr.)                   | 473 / 803                              | 473 / 803        | 473 / 803        |
| Airflow with 1 Exhaust Grille (CFM / m <sup>3</sup> /hr.)  | 343 / 583                              | 343 / 583        | 343 / 583        |
| Airflow with 2 Exhaust Grilles (CFM / m <sup>3</sup> /hr.) | 399 / 677                              | 399 / 677        | 399 / 677        |
| <b>TYPE 12 / IP55 FILTER FANS</b>                          |                                        |                  |                  |
| RAL 7035 Light Gray:                                       |                                        |                  |                  |
| Catalog Number                                             | <b>SF1316524</b>                       | <b>SF1326524</b> | <b>SF1340524</b> |
| RAL 9011 Black:                                            |                                        |                  |                  |
| Catalog Number                                             | <b>SF1316523</b>                       | <b>SF1326523</b> | <b>SF1340523</b> |
| Free Airflow (CFM / m <sup>3</sup> /hr.)                   | 436 / 740                              | 436 / 740        | 436 / 740        |
| Airflow with 1 Exhaust Grille (CFM / m <sup>3</sup> /hr.)  | 314 / 533                              | 314 / 533        | 314 / 533        |
| Airflow with 2 Exhaust Grilles (CFM / m <sup>3</sup> /hr.) | 369 / 627                              | 369 / 627        | 369 / 627        |
| <b>FILTER FAN UNIT CONSTRUCTION</b>                        |                                        |                  |                  |
| Fan RPM                                                    | 2450 / 2650                            | 2550 / 2750      | 2650 / 2900      |
| Sound Pressure (dBA)                                       | 70                                     | 70               | 70               |
| Operating Temperature Range:                               |                                        |                  |                  |
| Maximum (°F / °C)                                          | 131 / 55                               | 131 / 55         | 131 / 55         |
| Minimum (°F / °C)                                          | 14 / -10                               | 14 / -10         | 14 / -10         |
| Service Life (hours)                                       | 40,000                                 | 40,000           | 40,000           |
| Unit Dimensions - H x W x D (in. / mm)                     | 12.72 x 12.72 x 6.38 / 323 x 323 x 162 |                  |                  |
| Cutout Dimensions - H x W (in. / mm)                       | 11.50 x 11.50 / 292 x 292              |                  |                  |
| Weight (lb. / kg)                                          | 7.72 / 3.5                             |                  |                  |
| <b>TYPE 12 / IP54 EXHAUST GRILLES</b>                      |                                        |                  |                  |
| RAL 7035 Light Gray:                                       |                                        |                  |                  |
| Catalog Number                                             | SG1300404                              |                  |                  |
| RAL 9011 Black:                                            |                                        |                  |                  |
| Catalog Number                                             | SG1300403                              |                  |                  |
| <b>TYPE 12 / IP55 EXHAUST GRILLES</b>                      |                                        |                  |                  |
| RAL 7035 Light Gray:                                       |                                        |                  |                  |
| Catalog Number                                             | SG1300504                              |                  |                  |
| RAL 9011 Black:                                            |                                        |                  |                  |
| Catalog Number                                             | SG1300503                              |                  |                  |
| <b>ACCESSORIES</b>                                         |                                        |                  |                  |
| Replacement Filters:                                       |                                        |                  |                  |
| Type 12 / IP54 Catalog Number                              | 10100063                               |                  |                  |
| Type 12 / IP55 Catalog Number                              | 10100067H                              |                  |                  |
| Thermostat Catalog Number                                  | TWR60                                  |                  |                  |
| Stainless Steel Washdown Shroud Catalog Number             | SH1300005                              |                  |                  |

Above airflow rates at 60 Hz; see performance curves for airflow at 50 Hz and more details.

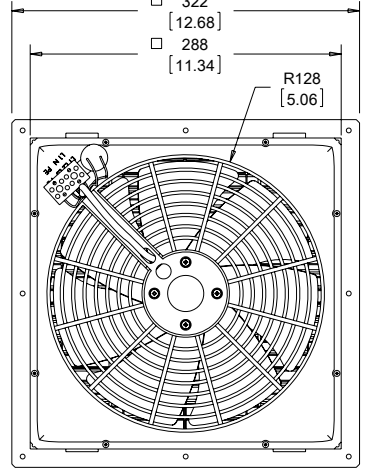
Unit depth is from the back edge of the grille to the back of the fan.

Exhaust Grilles sold separately.

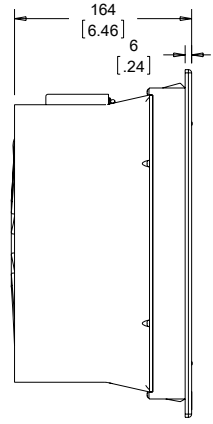
SF13 473 CFM (803 m<sup>3</sup>/hr.) Side-Mount Filter Fan Performance Curve



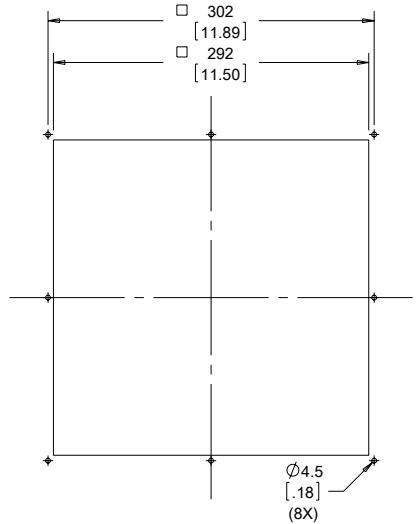
Filter Fan SF13 473 CFM (803 m<sup>3</sup>/hr.)



BACK VIEW

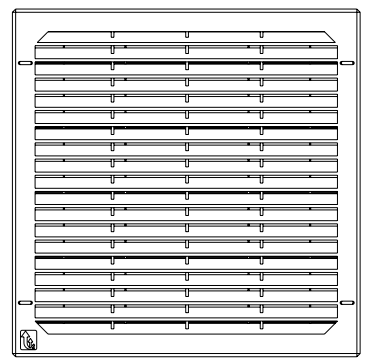


SIDE VIEW

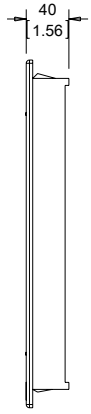


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Performance Data **SF13 473 CFM (803 m<sup>3</sup>/hr.) Side-Mount Filter Fan - Reverse**

| <b>ELECTRICAL DATA</b>                                     |                                        |                   |                   |
|------------------------------------------------------------|----------------------------------------|-------------------|-------------------|
| <b>Rated Voltage</b>                                       | <b>115 Rvrs</b>                        | <b>230 Rvrs</b>   | <b>400 Rvrs</b>   |
| Frequency (Hz)                                             | 50 / 60                                | 50 / 60           | 50 / 60           |
| Nominal Current Maximum (Amps)                             | 1.05 / 1.5                             | .51 / .70         | .22 / .26         |
| Power Consumption Maximum (Watts)                          | 120 / 175                              | 115 / 165         | 110 / 150         |
| Power Connection                                           | Terminal Block                         |                   |                   |
| <b>TYPE 12 / IP54 FILTER FANS</b>                          |                                        |                   |                   |
| RAL 7035 Light Gray:                                       |                                        |                   |                   |
| Catalog Number                                             | <b>SF1316424R</b>                      | <b>SF1326424R</b> | <b>SF1340424R</b> |
| RAL 9011 Black:                                            |                                        |                   |                   |
| Catalog Number                                             | <b>SF1316423R</b>                      | <b>SF1326423R</b> | <b>SF1340423R</b> |
| Free Airflow (CFM / m <sup>3</sup> /hr.)                   | 473 / 803                              | 473 / 803         | 473 / 803         |
| Airflow with 1 Exhaust Grille (CFM / m <sup>3</sup> /hr.)  | 343 / 583                              | 343 / 583         | 343 / 583         |
| Airflow with 2 Exhaust Grilles (CFM / m <sup>3</sup> /hr.) | 399 / 677                              | 399 / 677         | 399 / 677         |
| <b>FILTER FAN UNIT CONSTRUCTION</b>                        |                                        |                   |                   |
| Fan RPM                                                    | 2450 / 2650                            | 2550 / 2750       | 2650 / 2900       |
| Sound Pressure (dBA)                                       | 70                                     | 70                | 70                |
| Operating Temperature Range:                               |                                        |                   |                   |
| Maximum (°F / °C)                                          | 131 / 55                               | 131 / 55          | 131 / 55          |
| Minimum (°F / °C)                                          | 14 / -10                               | 14 / -10          | 14 / -10          |
| Service Life (hours)                                       | 40,000                                 | 40,000            | 40,000            |
| Unit Dimensions - H x W x D (in. / mm)                     | 12.72 x 12.72 x 6.38 / 323 x 323 x 162 |                   |                   |
| Cutout Dimensions - H x W (in. / mm)                       | 11.50 x 11.50 / 292 x 292              |                   |                   |
| Weight (lb. / kg)                                          | 7.72 / 3.5                             |                   |                   |
| <b>TYPE 12 / IP54 EXHAUST GRILLES</b>                      |                                        |                   |                   |
| RAL 7035 Light Gray:                                       |                                        |                   |                   |
| Catalog Number                                             | SG1300404                              |                   |                   |
| RAL 9011 Black:                                            |                                        |                   |                   |
| Catalog Number                                             | SG1300403                              |                   |                   |
| <b>TYPE 12 / IP55 EXHAUST GRILLES</b>                      |                                        |                   |                   |
| RAL 7035 Light Gray:                                       |                                        |                   |                   |
| Catalog Number                                             | SG1300504                              |                   |                   |
| RAL 9011 Black:                                            |                                        |                   |                   |
| Catalog Number                                             | SG1300503                              |                   |                   |
| <b>ACCESSORIES</b>                                         |                                        |                   |                   |
| Replacement Filters:                                       |                                        |                   |                   |
| Type 12/IP54 Catalog Number                                | 10100063                               |                   |                   |
| Type 12 / IP55 Catalog Number                              | 10100067H                              |                   |                   |
| Thermostat Catalog Number                                  | TWR60                                  |                   |                   |
| Stainless Steel Washdown Shroud Catalog Number             | SH1300005                              |                   |                   |

Above airflow rates at 60 Hz; see performance curves for airflow at 50 Hz and more details.

Unit depth is from the back edge of the grille to the back of the fan.

Exhaust Grilles sold separately.

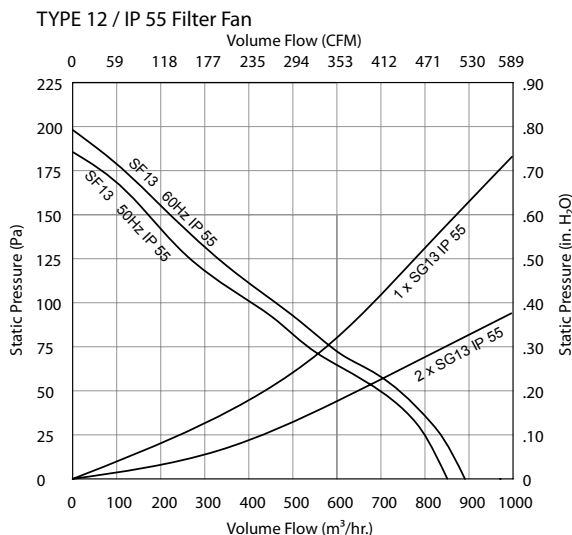
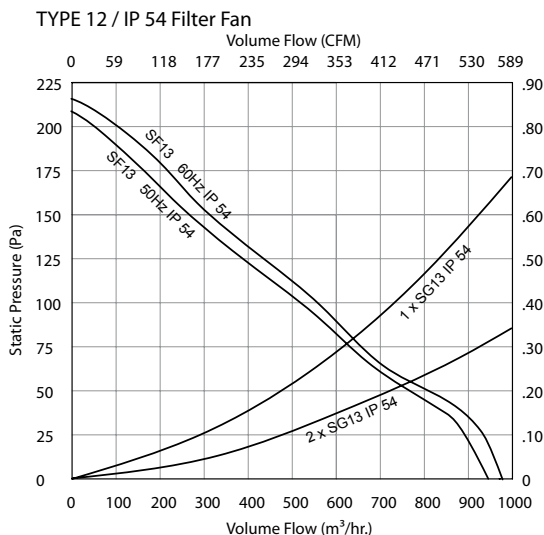
Performance Data **SF13 571 CFM (970 m³/hr.) Side-Mount Filter Fan - Standard**

| <b>ELECTRICAL DATA</b>                         |                                        |                  |                  |                  |                  |
|------------------------------------------------|----------------------------------------|------------------|------------------|------------------|------------------|
| <b>Rated Voltage</b>                           | <b>115</b>                             | <b>230</b>       | <b>24</b>        | <b>48</b>        | <b>400/460</b>   |
| Frequency (Hz)                                 | 50 / 60                                | 50 / 60          | —                | —                | 50 / 60          |
| Nominal Current Maximum (Amps)                 | 1.02 / 1.47                            | .6 / .92         | 5.00             | 2.60             | .25 / .27        |
| Power Consumption Maximum (Watts)              | 115 / 175                              | 135 / 215        | 105              | 105              | 113 / 172        |
| Power Connection                               | Terminal Block                         |                  |                  |                  |                  |
| <b>TYPE 12 / IP54 FILTER FANS</b>              |                                        |                  |                  |                  |                  |
| RAL 7035 Light Gray:                           |                                        |                  |                  |                  |                  |
| Catalog Number                                 | <b>SF1316434</b>                       | <b>SF1326434</b> | <b>SF1324434</b> | <b>SF1348434</b> | <b>SF1346434</b> |
| RAL 9011 Black:                                |                                        |                  |                  |                  |                  |
| Catalog Number                                 | <b>SF1316433</b>                       | <b>SF1326433</b> | <b>SF1324433</b> | <b>SF1348433</b> | <b>SF1346433</b> |
| Free Airflow [CFM / m³/hr.]                    | 571 / 970                              | 571 / 970        | 571 / 970        | 571 / 970        | 571 / 970        |
| Airflow with 1 Exhaust Grille [CFM / m³/hr.]   | 377 / 640                              | 377 / 640        | 377 / 640        | 377 / 640        | 377 / 640        |
| Airflow with 2 Exhaust Grilles [CFM / m³/hr.]  | 454 / 770                              | 454 / 770        | 454 / 770        | 454 / 770        | 454 / 770        |
| <b>TYPE 12 / IP55 FILTER FANS</b>              |                                        |                  |                  |                  |                  |
| RAL 7035 Light Gray:                           |                                        |                  |                  |                  |                  |
| Catalog Number                                 | <b>SF1316534</b>                       | <b>SF1326534</b> | <b>SF1324534</b> | <b>SF1348534</b> | <b>SF1346534</b> |
| RAL 9011 Black:                                |                                        |                  |                  |                  |                  |
| Catalog Number                                 | <b>SF1316533</b>                       | <b>SF1326533</b> | <b>SF1324533</b> | <b>SF1348533</b> | <b>SF1346533</b> |
| Free Airflow [CFM / m³/hr.]                    | 526 / 893                              | 526 / 893        | 526 / 893        | 526 / 893        | 526 / 893        |
| Airflow with 1 Exhaust Grille [CFM / m³/hr.]   | 345 / 586                              | 345 / 586        | 345 / 586        | 345 / 586        | 345 / 586        |
| Airflow with 2 Exhaust Grilles [CFM / m³/hr.]  | 415 / 705                              | 415 / 705        | 415 / 705        | 415 / 705        | 415 / 705        |
| <b>FILTER FAN UNIT CONSTRUCTION</b>            |                                        |                  |                  |                  |                  |
| Fan RPM                                        | 2600 / 2850                            | 2650 / 2950      | 2750             | 2750             | 2650 / 3050      |
| Sound Pressure (dBA)                           | 70                                     | 69               | 70               | 70               | 73               |
| Operating Temperature Range:                   |                                        |                  |                  |                  |                  |
| Maximum [°F / °C]                              | 140 / 60                               | 140 / 60         | 140 / 60         | 140 / 60         | 140 / 60         |
| Minimum [°F / °C]                              | 5 / -15                                | 5 / -15          | 5 / -15          | 5 / -15          | 5 / -15          |
| Service Life (hours)                           | 40,000                                 | 40,000           | 40,000           | 40,000           | 40,000           |
| Unit Dimensions - H x W x D (in. / mm)         | 12.72 x 12.72 x 5.51 / 323 x 323 x 140 |                  |                  |                  |                  |
| Cutout Dimensions - H x W (in. / mm)           | 11.50 x 11.50 / 292 x 292              |                  |                  |                  |                  |
| Weight (lb. / kg)                              | 10.14 / 4.6                            |                  |                  |                  |                  |
| <b>TYPE 12 / IP54 EXHAUST GRILLES</b>          |                                        |                  |                  |                  |                  |
| RAL 7035 Light Gray:                           |                                        |                  |                  |                  |                  |
| Catalog Number                                 | SG1300404                              |                  |                  |                  |                  |
| RAL 9011 Black:                                |                                        |                  |                  |                  |                  |
| Catalog Number                                 | SG1300403                              |                  |                  |                  |                  |
| <b>TYPE 12 / IP55 EXHAUST GRILLES</b>          |                                        |                  |                  |                  |                  |
| RAL 7035 Light Gray:                           |                                        |                  |                  |                  |                  |
| Catalog Number                                 | SG1300504                              |                  |                  |                  |                  |
| RAL 9011 Black:                                |                                        |                  |                  |                  |                  |
| Catalog Number                                 | SG1300503                              |                  |                  |                  |                  |
| <b>ACCESSORIES</b>                             |                                        |                  |                  |                  |                  |
| Replacement Filters:                           |                                        |                  |                  |                  |                  |
| Type 12 / IP54 Catalog Number                  | 1010063                                |                  |                  |                  |                  |
| Type 12 / IP55 Catalog Number                  | 1010067H                               |                  |                  |                  |                  |
| Thermostat Catalog Number                      | TWR60                                  |                  |                  |                  |                  |
| Stainless Steel Washdown Shroud Catalog Number | SH1300005                              |                  |                  |                  |                  |

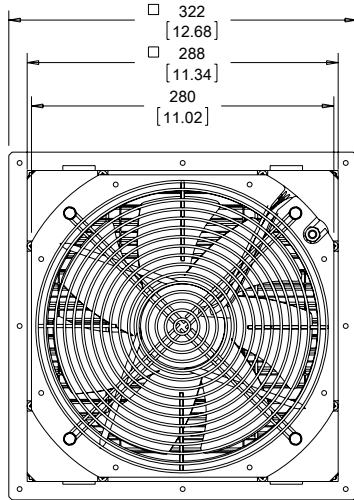
Unit depth is from the back edge of the grille to the back of the fan.

Exhaust Grilles sold separately.

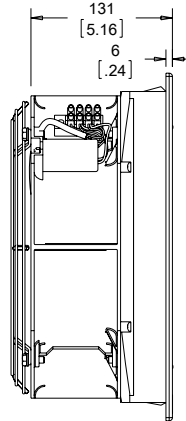
**SF13 571 CFM (970 m³/hr.) Side-Mount Filter Fan Performance Curve**



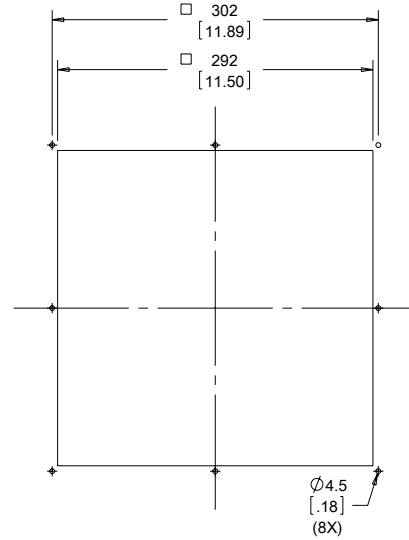
Filter Fan SF13 571 CFM (970 m<sup>3</sup>/hr.)



BACK VIEW

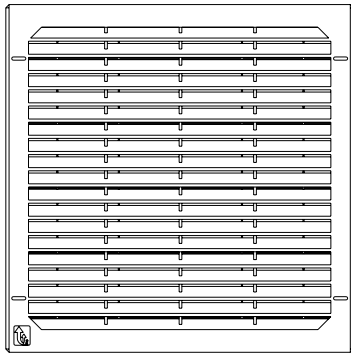


SIDE VIEW

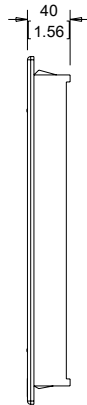


CUTOUT DIMENSIONS

EXHAUST GRILLE



Order Exhaust Grille Kits separately



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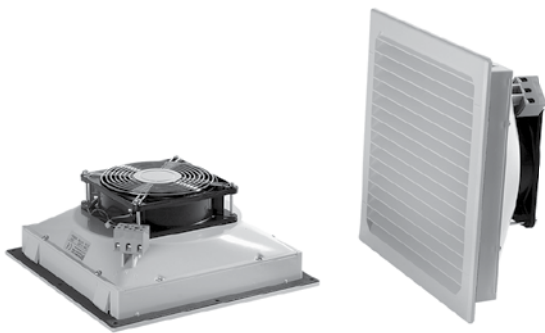
Performance Data **SF13 571 CFM (970 m³/hr.) Side-Mount Filter Fan - Reverse**

| <b>ELECTRICAL DATA</b>                         |                                        |                   |                   |
|------------------------------------------------|----------------------------------------|-------------------|-------------------|
| <b>Rated Voltage</b>                           | <b>115</b>                             | <b>230</b>        | <b>400/460</b>    |
| Frequency (Hz)                                 | 50 / 60                                | 50 / 60           | 50 / 60           |
| Nominal Current Maximum (Amps)                 | 1.02 / 1.47                            | .6 / .92          | .25 / .27         |
| Power Consumption Maximum (Watts)              | 115 / 175                              | 135 / 215         | 113 / 160         |
| Power Connection                               | Terminal Block                         |                   |                   |
| <b>TYPE 12 / IP54 FILTER FANS</b>              |                                        |                   |                   |
| RAL 7035 Light Gray:                           |                                        |                   |                   |
| Catalog Number                                 | <b>SF1316434R</b>                      | <b>SF1326434R</b> | <b>SF1340434R</b> |
| RAL 9011 Black:                                |                                        |                   |                   |
| Catalog Number                                 | <b>SF1316433R</b>                      | <b>SF1326433R</b> | <b>SF1346433R</b> |
| Free Airflow (CFM / m³/hr.)                    | 571 / 970                              | 571 / 970         | 571 / 970         |
| Airflow with 1 Exhaust Grille (CFM / m³/hr.)   | 377 / 640                              | 377 / 640         | 377 / 640         |
| Airflow with 2 Exhaust Grilles (CFM / m³/hr.)  | 454 / 770                              | 454 / 770         | 454 / 770         |
| <b>FILTER FAN UNIT CONSTRUCTION</b>            |                                        |                   |                   |
| Fan RPM                                        | 2600 / 2850                            | 2650 / 2950       | 2650 / 3050       |
| Sound Pressure (dBA)                           | 70                                     | 69                | 73                |
| Operating Temperature Range:                   |                                        |                   |                   |
| Maximum (°F / °C)                              | 140 / 60                               | 140 / 60          | 140 / 60          |
| Minimum (°F / °C)                              | 5 / -15                                | 5 / -15           | 5 / -15           |
| Service Life (hours)                           | 40,000                                 | 40,000            | 40,000            |
| Unit Dimensions - H x W x D (in. / mm)         | 12.72 x 12.72 x 5.51 / 323 x 323 x 140 |                   |                   |
| Cutout Dimensions - H x W (in. / mm)           | 11.50 x 11.50 / 292 x 292              |                   |                   |
| Weight (lb. / kg)                              | 10.14 / 4.6                            |                   |                   |
| <b>TYPE 12 / IP54 EXHAUST GRILLES</b>          |                                        |                   |                   |
| RAL 7035 Light Gray:                           |                                        |                   |                   |
| Catalog Number                                 | SG1300404                              |                   |                   |
| RAL 9011 Black:                                |                                        |                   |                   |
| Catalog Number                                 | SG1300403                              |                   |                   |
| <b>TYPE 12 / IP55 EXHAUST GRILLES</b>          |                                        |                   |                   |
| RAL 7035 Light Gray:                           |                                        |                   |                   |
| Catalog Number                                 | SG1300504                              |                   |                   |
| RAL 9011 Black:                                |                                        |                   |                   |
| Catalog Number                                 | SG1300503                              |                   |                   |
| <b>ACCESSORIES</b>                             |                                        |                   |                   |
| Replacement Filters:                           |                                        |                   |                   |
| Type 12 / IP54 Catalog Number                  | 10100063                               |                   |                   |
| Type 12 / IP55 Catalog Number                  | 10100067H                              |                   |                   |
| Thermostat Catalog Number                      | TWR60                                  |                   |                   |
| Stainless Steel Washdown Shroud Catalog Number | SH1300005                              |                   |                   |

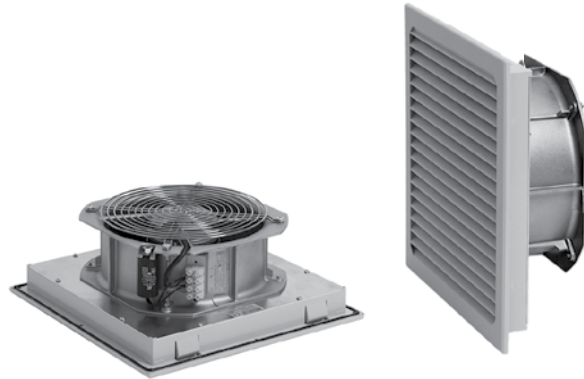
Above airflow rates at 60 Hz; see performance curves for airflow at 50 Hz and more details.

Unit depth is from the back edge of the grille to the back of the fan.

Exhaust Grilles sold separately.

**ST THIN SIDE-MOUNT**


**ST10**  
100 CFM (170 m<sup>3</sup>/hr.)



**ST13**  
303 CFM (515 m<sup>3</sup>/hr.)

**INDUSTRY STANDARDS**

UL/cUL recognized; File no. 235470

CE, CSA (fan motor only)  
Type 12, IP54 standard  
Type 12, IP55 optional

**APPLICATION**

- Industrial automation
- Automotive assembly
- Package handling equipment
- Food and beverage process controls
- Wind energy systems

**FEATURES**

- ST13 has reverse airflow option available to push/pull air through higher static pressure
- Click-fit design quickly installs into enclosure wall; no tools or screws required
- Thin depth to minimize cabinet intrusion
- Enclosure side wall mounting
- Standard foam-in-place gasket
- Similar cut-out sizes as other filter fan manufacturers

- Terminal wire connections
- Simple snap-open grille for easy filter replacement
- Optional thermostat available to save energy and extend service life

**SPECIFICATIONS**

- Free airflow from 100 CFM (170 m<sup>3</sup>/hr.) to 303 CFM (515 m<sup>3</sup>/hr.)
- Service life hours range from 40000 to 57500
- Operating temperature range of -4 F / -20 C to 149 F / 65 C

**FINISH**

- RAL 7035 light-gray UV-resistant plastic standard
- RAL 9011 black UV-resistant plastic optional

**ACCESSORIES**

- Replacement filters
- Thermostat
- Rain shroud

**NOTES**

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Performance Data **ST10 100 CFM (170 m³/hr.) Thin Side-Mount Filter Fan**

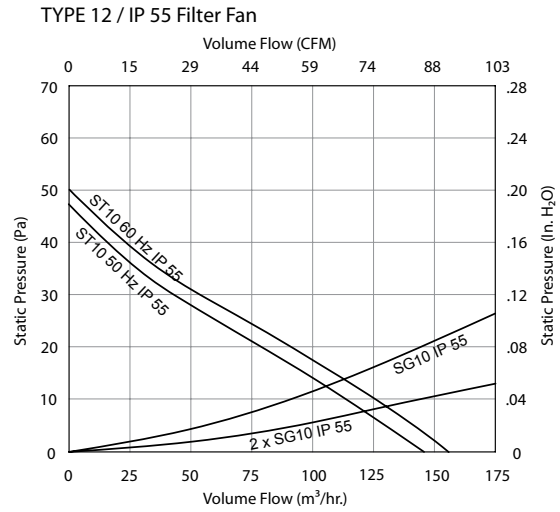
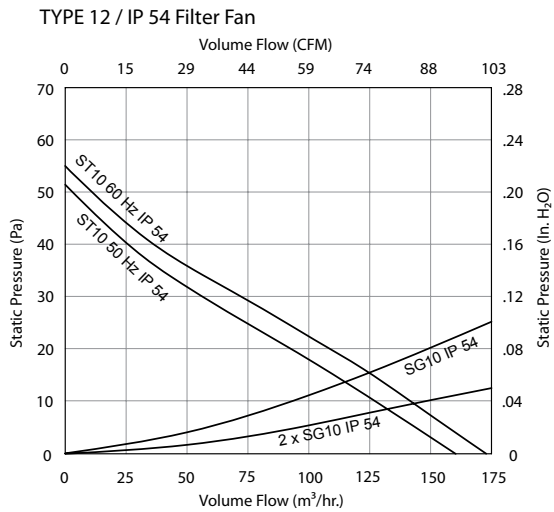
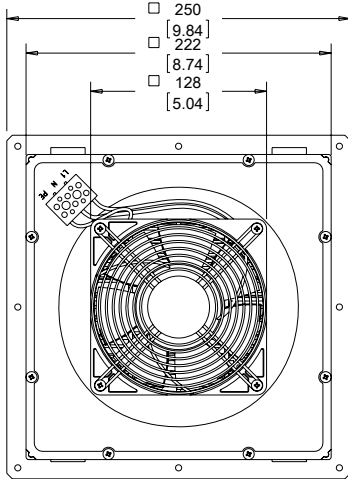
| <b>ELECTRICAL DATA</b>                         |                                      |                  |                  |                  |
|------------------------------------------------|--------------------------------------|------------------|------------------|------------------|
| <b>Rated Voltage</b>                           | <b>115</b>                           | <b>230</b>       | <b>24</b>        | <b>48</b>        |
| Frequency (Hz)                                 | 50 / 60                              | 50 / 60          | —                | —                |
| Nominal Current Maximum (Amps)                 | 0.2                                  | 0.10             | 0.27             | 0.14             |
| Power Consumption Maximum (Watts)              | 18                                   | 18               | 6.5              | 6.5              |
| Power Connection                               | Terminal Block                       |                  |                  |                  |
| <b>TYPE 12 / IP54 FILTER FANS</b>              |                                      |                  |                  |                  |
| RAL 7035 Light Gray:                           |                                      |                  |                  |                  |
| Catalog Number                                 | <b>ST1016414</b>                     | <b>ST1026414</b> | <b>ST1024414</b> | <b>ST1048414</b> |
| RAL 9011 Black:                                |                                      |                  |                  |                  |
| Catalog Number                                 | <b>ST1016413</b>                     | <b>ST1026413</b> | <b>ST1024413</b> | <b>ST1048413</b> |
| Free Airflow (CFM / m³/hr.)                    | 100 / 170                            | 100 / 170        | 100 / 170        | 100 / 170        |
| Airflow with 1 Exhaust Grille (CFM / m³/hr.)   | 74 / 125                             | 74 / 125         | 74 / 125         | 74 / 125         |
| Airflow with 2 Exhaust Grilles (CFM / m³/hr.)  | 84 / 143                             | 84 / 143         | 84 / 143         | 84 / 143         |
| <b>TYPE 12 / IP55 FILTER FANS</b>              |                                      |                  |                  |                  |
| RAL 7035 Light Gray:                           |                                      |                  |                  |                  |
| Catalog Number                                 | <b>ST1016514</b>                     | <b>ST1026514</b> | <b>ST1024514</b> | <b>ST1048514</b> |
| RAL 9011 Black:                                |                                      |                  |                  |                  |
| Catalog Number                                 | <b>ST1016513</b>                     | <b>ST1026513</b> | <b>ST1024513</b> | <b>ST1048513</b> |
| Free Airflow (CFM / m³/hr.)                    | 92 / 156                             | 92 / 156         | 92 / 156         | 92 / 156         |
| Airflow with 1 Exhaust Grille (CFM / m³/hr.)   | 67 / 114                             | 67 / 114         | 67 / 114         | 67 / 114         |
| Airflow with 2 Exhaust Grilles (CFM / m³/hr.)  | 77 / 130                             | 77 / 130         | 77 / 130         | 77 / 130         |
| <b>FILTER FAN UNIT CONSTRUCTION</b>            |                                      |                  |                  |                  |
| Fan RPM                                        | 2750 / 3100                          | 2750 / 3100      | 3150             | 3150             |
| Sound Pressure (dBA)                           | 44                                   | 44               | 46               | 46               |
| Operating Temperature Range:                   |                                      |                  |                  |                  |
| Maximum (°F / °C)                              | 131 / 55                             | 131 / 55         | 149 / 65         | 149 / 65         |
| Minimum (°F / °C)                              | 14 / -10                             | 14 / -10         | -4 / -20         | -4 / -20         |
| Service Life (hours)                           | 40,000                               | 40,000           | 57,500           | 57,500           |
| Unit Dimensions - H x W x D (in. / mm)         | 9.84 x 9.84 x 4.02 / 250 x 250 x 102 |                  |                  |                  |
| Cutout Dimensions - H x W (in. / mm)           | 8.78 x 8.78 / 223 x 223              |                  |                  |                  |
| Weight (lb. / kg)                              | 2.54 / 1.15                          |                  |                  |                  |
| <b>TYPE 12 / IP54 EXHAUST GRILLES</b>          |                                      |                  |                  |                  |
| RAL 7035 Light Gray:                           |                                      |                  |                  |                  |
| Catalog Number                                 | SG1000404                            |                  |                  |                  |
| RAL 9011 Black:                                |                                      |                  |                  |                  |
| Catalog Number                                 | SG1000403                            |                  |                  |                  |
| <b>TYPE 12 / IP55 EXHAUST GRILLES</b>          |                                      |                  |                  |                  |
| RAL 7035 Light Gray:                           |                                      |                  |                  |                  |
| Catalog Number                                 | SG1000504                            |                  |                  |                  |
| RAL 9011 Black:                                |                                      |                  |                  |                  |
| Catalog Number                                 | SG1000503                            |                  |                  |                  |
| <b>ACCESSORIES</b>                             |                                      |                  |                  |                  |
| Replacement Filters:                           |                                      |                  |                  |                  |
| Type 12 / IP54 Catalog Number                  | 10100062                             |                  |                  |                  |
| Type 12 / IP55 Catalog Number                  | 10100066H                            |                  |                  |                  |
| Thermostat Catalog Number                      | TWR60                                |                  |                  |                  |
| Stainless Steel Washdown Shroud Catalog Number | SH1000005                            |                  |                  |                  |

Above airflow rates at 60 Hz; see performance curves for airflow at 50 Hz and more details.

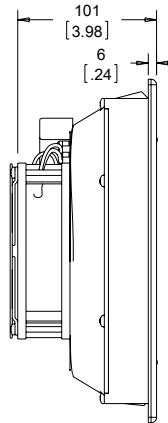
Unit depth is from the back edge of the grille to the back of the fan.

Exhaust Grilles sold separately.

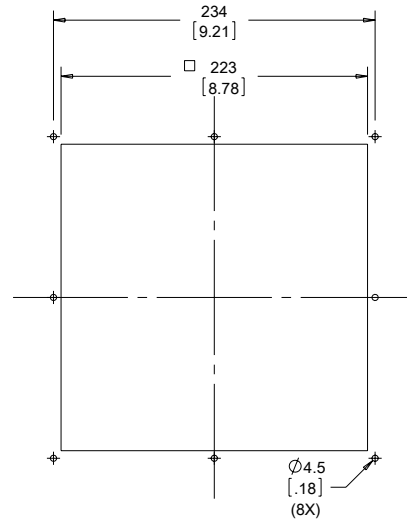


ST10 100 CFM (170 m<sup>3</sup>/hr.) Thin Side-Mount Filter Fan  
 Performance Curve

 Filter Fan ST10 100 CFM (170 m<sup>3</sup>/hr.)


BACK VIEW

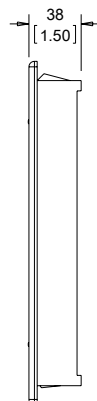
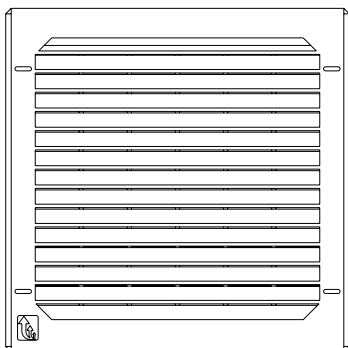


SIDE VIEW



CUTOUT DIMENSIONS

## EXHAUST GRILLE



89051218

Order Exhaust Grille Kits separately

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Performance Data **ST13 303 CFM (515 m³/hr.) Thin Side-Mount Filter Fan - Standard and Reverse**

| <b>ELECTRICAL DATA</b>                         |                                       |                  |                   |                   |
|------------------------------------------------|---------------------------------------|------------------|-------------------|-------------------|
| <b>Rated Voltage</b>                           | <b>115</b>                            | <b>230</b>       | <b>115</b>        | <b>230</b>        |
| Frequency (Hz)                                 | 50 / 60                               | 50 / 60          | 50 / 60           | 50 / 60           |
| Nominal Current Maximum (Amps)                 | .58 / .70                             | .29 / .35        | .58 / .70         | .29 / .35         |
| Power Consumption Maximum (Watts)              | 64 / 80                               | 64 / 80          | 64 / 80           | 64 / 80           |
| Power Connection                               | Terminal Block                        |                  |                   |                   |
| <b>TYPE 12 / IP54 FILTER FANS</b>              |                                       |                  |                   |                   |
| RAL 7035 Light Gray:                           |                                       |                  |                   |                   |
| Catalog Number                                 | <b>ST1316414</b>                      | <b>ST1326414</b> | <b>ST1316414R</b> | <b>ST1326414R</b> |
| RAL 9011 Black:                                |                                       |                  |                   |                   |
| Catalog Number                                 | <b>ST1316413</b>                      | <b>ST1326413</b> | <b>ST1316413R</b> | <b>ST1326413R</b> |
| Free Airflow (CFM / m³/hr.)                    | 303 / 515                             | 303 / 515        | 303 / 515         | 303 / 515         |
| Airflow with 1 Exhaust Grille (CFM / m³/hr.)   | 209 / 355                             | 209 / 355        | 209 / 355         | 209 / 355         |
| Airflow with 2 Exhaust Grilles (CFM / m³/hr.)  | 249 / 422                             | 249 / 422        | 249 / 422         | 249 / 422         |
| <b>TYPE 12 / IP55 FILTER FANS</b>              |                                       |                  |                   |                   |
| RAL 7035 Light Gray:                           |                                       |                  |                   |                   |
| Catalog Number                                 | <b>ST1316514</b>                      | <b>ST1326514</b> | <b>ST1316514R</b> | <b>ST1326514R</b> |
| RAL 9011 Black:                                |                                       |                  |                   |                   |
| Catalog Number                                 | <b>ST1316513</b>                      | <b>ST1326513</b> | <b>ST1316513R</b> | <b>ST1326513R</b> |
| Free Airflow (CFM / m³/hr.)                    | 277 / 470                             | 277 / 470        | 277 / 470         | 277 / 470         |
| Airflow with 1 Exhaust Grille (CFM / m³/hr.)   | 191 / 325                             | 191 / 325        | 191 / 325         | 191 / 325         |
| Airflow with 2 Exhaust Grilles (CFM / m³/hr.)  | 219 / 372                             | 219 / 372        | 219 / 372         | 219 / 372         |
| <b>FILTER FAN UNIT CONSTRUCTION</b>            |                                       |                  |                   |                   |
| Fan RPM                                        | 2550 / 2800                           | 2550 / 2800      | 2550 / 2800       | 2550 / 2800       |
| Sound Pressure (dBA)                           | 60                                    | 60               | 60                | 60                |
| Operating Temperature Range:                   |                                       |                  |                   |                   |
| Maximum (°F / °C)                              | 131 / 55                              | 131 / 55         | 131 / 55          | 131 / 55          |
| Minimum (°F / °C)                              | 14 / -10                              | 14 / -10         | 14 / -10          | 14 / -10          |
| Service Life (hours)                           | 40,000                                | 40,000           | 40,000            | 40,000            |
| Unit Dimensions - H x W x D (in. / mm)         | 12.72 x 12.72 x 4.8 / 323 x 323 x 122 |                  |                   |                   |
| Cutout Dimensions - H x W (in. / mm)           | 11.50 x 11.50 / 292 x 292             |                  |                   |                   |
| Weight (lb. / kg)                              | 7.5 / 3.4                             |                  |                   |                   |
| <b>TYPE 12 / IP54 EXHAUST GRILLES</b>          |                                       |                  |                   |                   |
| RAL 7035 Light Gray:                           |                                       |                  |                   |                   |
| Catalog Number                                 | SG1300404                             |                  |                   |                   |
| RAL 9011 Black:                                |                                       |                  |                   |                   |
| Catalog Number                                 | SG1300403                             |                  |                   |                   |
| <b>TYPE 12 / IP55 EXHAUST GRILLES</b>          |                                       |                  |                   |                   |
| RAL 7035 Light Gray:                           |                                       |                  |                   |                   |
| Catalog Number                                 | SG1300504                             |                  |                   |                   |
| RAL 9011 Black:                                |                                       |                  |                   |                   |
| Catalog Number                                 | SG1300503                             |                  |                   |                   |
| <b>ACCESSORIES</b>                             |                                       |                  |                   |                   |
| Replacement Filters:                           |                                       |                  |                   |                   |
| Type 12 / IP54 Catalog Number                  | 10100063                              |                  |                   |                   |
| Type 12 / IP55 Catalog Number                  | 10100067H                             |                  |                   |                   |
| Thermostat Catalog Number                      | TWR60                                 |                  |                   |                   |
| Stainless Steel Washdown Shroud Catalog Number | SH1300005                             |                  |                   |                   |

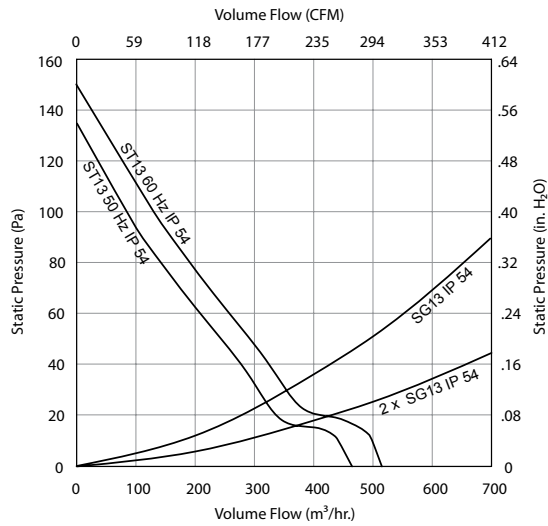
Above airflow rates at 60 Hz; see performance curves for airflow at 50 Hz and more details.

Unit depth is from the back edge of the grille to the back of the fan.

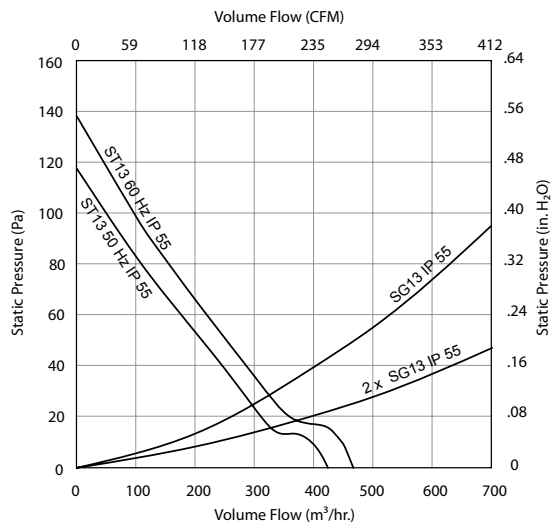
Exhaust Grilles sold separately.



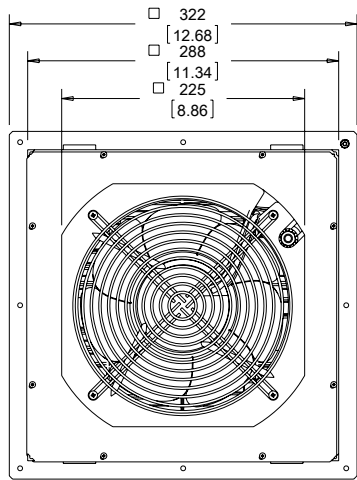
**ST13 303 CFM (515 m<sup>3</sup>/hr.) Thin Side-Mount Filter Fan  
Performance Curve  
TYPE 12 / IP 54 Filter Fan**



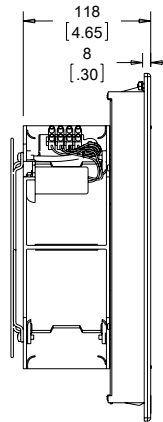
**TYPE 12 / IP 55 Filter Fan**



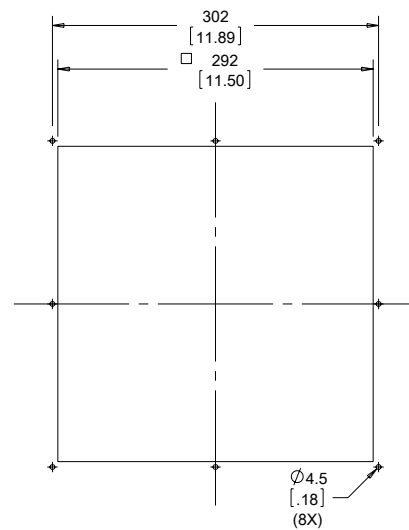
**Filter Fan ST13 303 CFM (515 m<sup>3</sup>/hr.)**



BACK VIEW

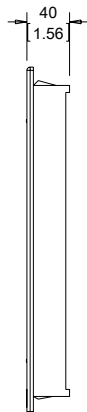
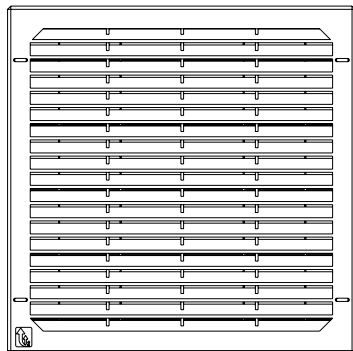


SIDE VIEW



CUTOUT DIMENSIONS

**EXHAUST GRILLE**



89051222

Order Exhaust Grille Kit separately

Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.

**Notes**



**SR TOP-MOUNT**

**INDUSTRY STANDARDS**

UL (fan motor only)

CE, CSA (fan motor only)

**APPLICATION**

- Industrial automation
- Automotive assembly
- Package handling equipment
- Food and beverage process controls
- Wind energy systems

**FEATURES**

- Free airflow up to 280 CFM (475 m<sup>3</sup>/hr.) or 459 CFM (780 m<sup>3</sup>/hr.)
- Enclosure roof mounting
- Bolt in place to ensure a tight seal
- Terminal wire connections

**FINISH**

- RAL 7035 light-gray UV-resistant mild steel standard
- RAL 9011 black UV-resistant mild steel optional

**NOTES**

 Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.

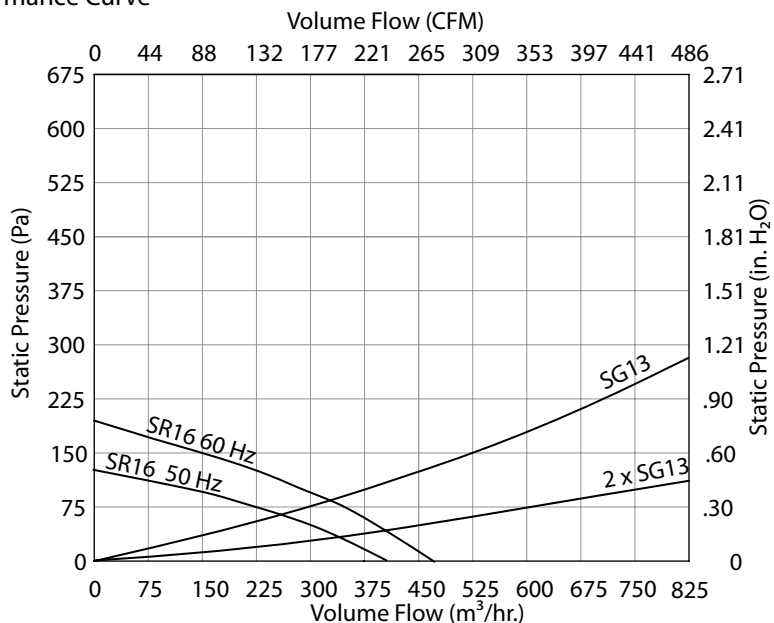
 Performance Data **SR16 280 CFM (475 m<sup>3</sup>/hr.) Roof-Mount Filter Fan**

| ELECTRICAL DATA                                            |                                        |                  |
|------------------------------------------------------------|----------------------------------------|------------------|
| <b>Rated Voltage</b>                                       | <b>115</b>                             | <b>230</b>       |
| Frequency (Hz)                                             | 50 / 60                                | 50 / 60          |
| Nominal Current Maximum (Amps)                             | .35 / .40                              | .20 / .21        |
| Power Consumption Maximum (Watts)                          | 40 / 45                                | 40 / 45          |
| Power Connection                                           | Terminal Block                         |                  |
| FILTER FANS                                                |                                        |                  |
| RAL 7035 Light Gray:                                       |                                        |                  |
| Catalog Number                                             | <b>SR1616414</b>                       | <b>SR1626414</b> |
| Free Airflow (CFM / m <sup>3</sup> /hr.)                   | 227 / 386                              | 227 / 386        |
| Airflow with 1 Exhaust Grille (CFM / m <sup>3</sup> /hr.)  | 151 / 257                              | 151 / 257        |
| Airflow with 2 Exhaust Grilles (CFM / m <sup>3</sup> /hr.) | 183 / 311                              | 183 / 311        |
| FILTER FAN UNIT CONSTRUCTION                               |                                        |                  |
| Fan RPM                                                    | 1430 / 1700                            | 1430 / 1700      |
| Sound Pressure (dBA)                                       | 58 / 62                                | 58 / 62          |
| Operating Temperature Range:                               |                                        |                  |
| Maximum (°F / °C)                                          | 140 / 60                               | 140 / 60         |
| Minimum (°F / °C)                                          | 14 / -10                               | 14 / -10         |
| Service Life (hours)                                       | 40,000                                 | 40,000           |
| Unit Dimensions - H x W x D (in. / mm)                     | 13.52 x 16.27 x 4.19 / 343 x 413 x 107 |                  |
| Cutout Dimensions - H x W (in. / mm)                       | 10.43 x 13.58 / 265 x 345              |                  |
| Weight (lb. / kg)                                          | 17.20 / 7.8                            |                  |
| EXHAUST GRILLES                                            |                                        |                  |
| RAL 7035 Light Gray:                                       |                                        |                  |
| Catalog Number                                             | SG1300404                              |                  |
| ACCESSORIES                                                |                                        |                  |
| Replacement Filters:                                       |                                        |                  |
| Catalog Number                                             | 10100063                               |                  |
| Thermostat Catalog Number                                  | TWR60                                  |                  |

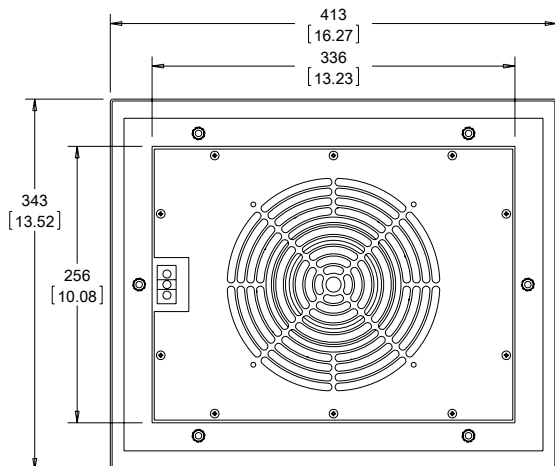
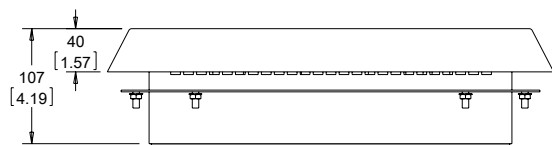
Above airflow rates at 60 Hz; see performance curves for airflow at 50 Hz and more details.

Unit depth is from the back edge of the grille to the back of the fan.

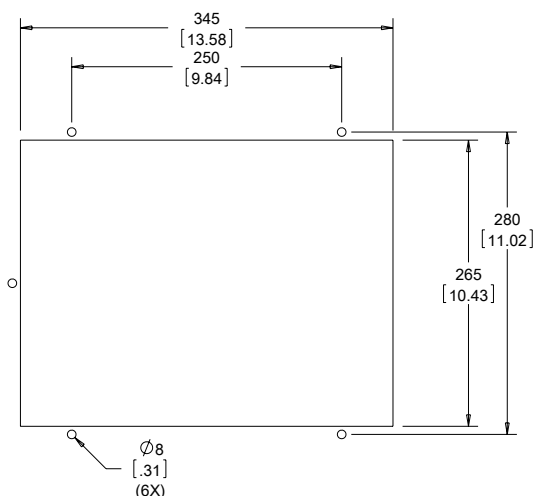
SR16 280 CFM (475 m<sup>3</sup>/hr.) Roof-Mount Filter Fan  
Performance Curve



Filter Fan SR16 28 CFM (475 m<sup>3</sup>/hr.)



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CUTOUT DIMENSIONS

Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.



Performance Data **SR16 459 CFM (780 m<sup>3</sup>/hr.) Roof-Mount Filter Fan**

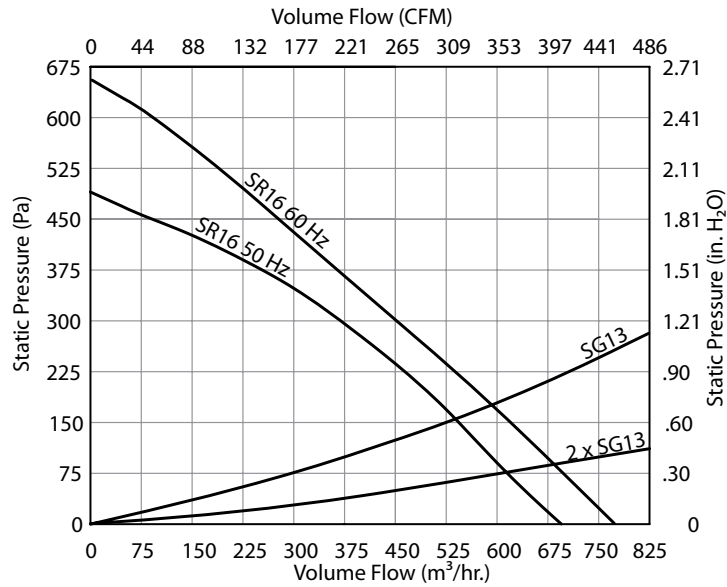
| <b>ELECTRICAL DATA</b>                                     |                                        |                  |
|------------------------------------------------------------|----------------------------------------|------------------|
| <b>Rated Voltage</b>                                       | <b>115</b>                             | <b>230</b>       |
| Frequency (Hz)                                             | 50 / 60                                | 50 / 60          |
| Nominal Current Maximum (Amps)                             | .60 / .80                              | .55 / .73        |
| Power Consumption Maximum (Watts)                          | 100 / 130                              | 110 / 150        |
| Power Connection                                           | Terminal Block                         |                  |
| <b>FILTER FANS</b>                                         |                                        |                  |
| RAL 7035 Light Gray:                                       |                                        |                  |
| Catalog Number                                             | <b>SR1616424</b>                       | <b>SR1626424</b> |
| Free Airflow (CFM / m <sup>3</sup> /hr.)                   | 459 / 780                              | 459 / 780        |
| Airflow with 1 Exhaust Grille (CFM / m <sup>3</sup> /hr.)  | 347 / 590                              | 347 / 590        |
| Airflow with 2 Exhaust Grilles (CFM / m <sup>3</sup> /hr.) | 400 / 680                              | 400 / 680        |
| <b>FILTER FAN UNIT CONSTRUCTION</b>                        |                                        |                  |
| Fan RPM                                                    | 2650 / 2950                            | 2650 / 2950      |
| Sound Pressure (dBA)                                       | 73 / 76                                | 73 / 76          |
| Operating Temperature Range:                               |                                        |                  |
| Maximum (°F / °C)                                          | 140 / 60                               | 140 / 60         |
| Minimum (°F / °C)                                          | 14 / -10                               | 14 / -10         |
| Service Life (hours)                                       | 40,000                                 | 40,000           |
| Unit Dimensions - H x W x D (in. / mm)                     | 13.52 x 16.27 x 4.19 / 343 x 413 x 107 |                  |
| Cutout Dimensions - H x W (in. / mm)                       | 10.43 x 13.58 / 265 x 345              |                  |
| Weight (lb. / kg)                                          | 17.20 / 7.8                            |                  |
| <b>EXHAUST GRILLES</b>                                     |                                        |                  |
| RAL 7035 Light Gray:                                       |                                        |                  |
| Catalog Number                                             | SG1300404                              |                  |
| <b>ACCESSORIES</b>                                         |                                        |                  |
| Replacement Filters:                                       |                                        |                  |
| Catalog Number                                             | 10100063                               |                  |
| Thermostat Catalog Number                                  | TWR60                                  |                  |

Above airflow rates at 60 Hz; see performance curves for airflow at 50 Hz and more details.

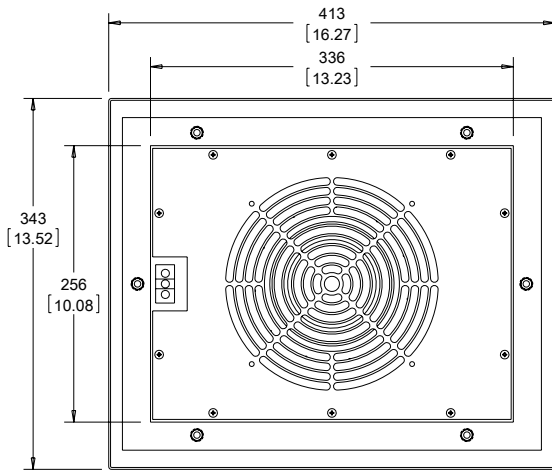
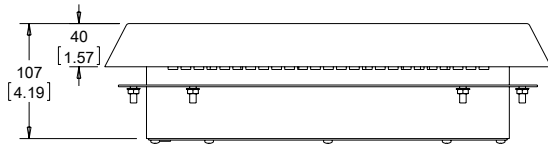
Unit depth is from the back edge of the grille to the back of the fan.



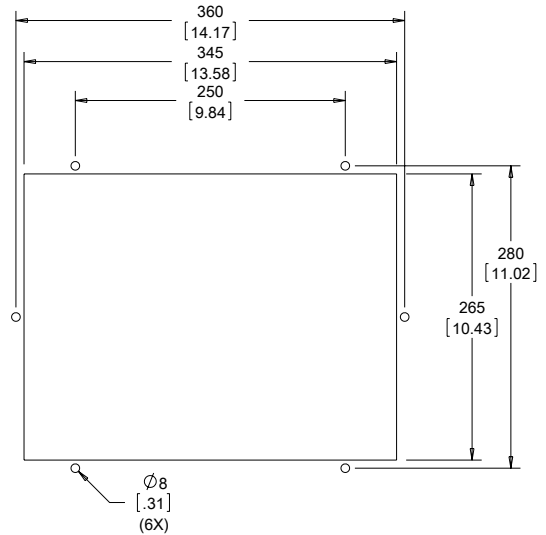
SR16 459 CFM (780 m<sup>3</sup>/hr.) Roof-Mount Filter Fan  
Performance Curve



Filter Fan SR16 459 CFM (780 m<sup>3</sup>/hr)



89051229



CUTOUT DIMENSIONS

Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.



**FILTER FAN SHROUDS**

**INDUSTRY STANDARDS**

Maintains UR/cUR Type 3R and Type 12 rating when properly installed on a Type 3R or Type 12 enclosure

UL 508A UR/cUR; Type 3R; File No. 61997

**FEATURES**

- Protects filter fan and exhaust grille from wind-driven rain and high-pressure hose water
- Does not impede air flow of filter fan and exhaust grill
- Easy one person installation with simple back panel mounting
- Easily accessed filter simplifies replacement
- Low profile design
- Stainless steel pest screen
- Provides Type 3R protections and maintains a Type 12 rating when used with an equivalent rated filter kit

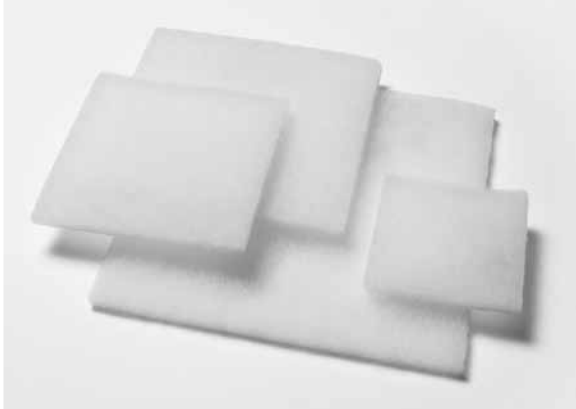
**FINISH**

- RAL 7035 light gray polyester powder coat paint on galvanized metal
- ANSI 61 gray polyester powder coat paint on galvanized metal
- Stainless Steel #304

## Performance Data

| <b>SH05 Models</b>                 |                                      |                                       |                                     |
|------------------------------------|--------------------------------------|---------------------------------------|-------------------------------------|
| Catalog Number                     | <b>SH05GS35001</b>                   | <b>SH05GS61001</b>                    | <b>SH05SS04001</b>                  |
| Provides protection for:           |                                      |                                       |                                     |
| Filter Fan Models                  | SF04 and SF05                        | SF04 and SF05                         | SF04 and SF05                       |
| Exhaust Grille Models              | SG04 and SG05                        | SG04 and SG05                         | SG04 and SG05                       |
| Unit Construction                  |                                      |                                       |                                     |
| Material                           | Glvanized                            | Glvanized                             | Stainless Steel #304                |
| Finish                             | RAL 7035 polyester powder coat paint | ANSI 61 polyester powder coated paint | N/A                                 |
| Unit Dimensions H x W x D (in./mm) | 10.25 x 8.0 x 2.25/260 x 203 x 57    | 10.25 x 8.0 x 2.25/260 x 203 x 57     | 10.25 x 8.0 x 2.25/260 x 203 x 57   |
| <b>SH09 Models</b>                 |                                      |                                       |                                     |
| Catalog Number                     | <b>SH09GS35001</b>                   | <b>SH09GS61001</b>                    | <b>SH09SS04001</b>                  |
| Provides protection for:           |                                      |                                       |                                     |
| Filter Fan Models                  | SF09 and TFP4                        | SF09 and TFP4                         | SF09 and TFP4                       |
| Exhaust Grille Models              | SG09 and TFP4                        | SG09 and TFP4                         | SG09 and TFP4                       |
| Unit Construction                  |                                      |                                       |                                     |
| Material                           | Glvanized                            | Glvanized                             | Stainless Steel #304                |
| Finish                             | RAL 7035 polyester powder coat paint | ANSI 61 polyester powder coated paint | N/A                                 |
| Unit Dimensions H x W x D (in./mm) | 12.75 x 10.0 x 3.0/324 x 254 x 76    | 12.75 x 10.0 x 3.0/324 x 254 x 76     | 12.75 x 10.0 x 3.0/324 x 254 x 76   |
| <b>SH10 Models</b>                 |                                      |                                       |                                     |
| Catalog Number                     | <b>SH10GS35001</b>                   | <b>SH10GS61001</b>                    | <b>SH10SS04001</b>                  |
| Provides protection for:           |                                      |                                       |                                     |
| Filter Fan Models                  | SF10, ST10 and TFP6                  | SF10, ST10 and TFP6                   | SF10, ST10 and TFP6                 |
| Exhaust Grille Models              | SG10 and TFP6                        | SG10 and TFP6                         | SG10 and TFP6                       |
| Unit Construction                  |                                      |                                       |                                     |
| Material                           | Glvanized                            | Glvanized                             | Stainless Steel #304                |
| Finish                             | RAL 7035 polyester powder coat paint | ANSI 61 polyester powder coated paint | N/A                                 |
| Unit Dimensions H x W x D (in./mm) | 14.74 x 12.0 x 3.50/374 x 304 x 89   | 14.74 x 12.0 x 3.50/374 x 304 x 89    | 14.74 x 12.0 x 3.50/374 x 304 x 89  |
| <b>SH13 Models</b>                 |                                      |                                       |                                     |
| Catalog Number                     | <b>SH13GS35001</b>                   | <b>SH13GS61001</b>                    | <b>SH13SS04001</b>                  |
| Provides protection for:           |                                      |                                       |                                     |
| Filter Fan Models                  | SF13, ST13 and TFP10                 | SF13, ST13 and TFP10                  | SF13, ST13 and TFP10                |
| Exhaust Grille Models              | SG13 and TFP10                       | SG13 and TFP10                        | SG13 and TFP10                      |
| Unit Construction                  |                                      |                                       |                                     |
| Material                           | Glvanized                            | Glvanized                             | Stainless Steel #304                |
| Finish                             | RAL 7035 polyester powder coat paint | ANSI 61 polyester powder coated paint | N/A                                 |
| Unit Dimensions H x W x D (in./mm) | 17.62 x 16.0 x 4.75/447 x 406 x 121  | 17.62 x 16.0 x 4.75/447 x 406 x 121   | 17.62 x 16.0 x 4.75/447 x 406 x 121 |

**SF/ST REPLACEMENT FILTERS**

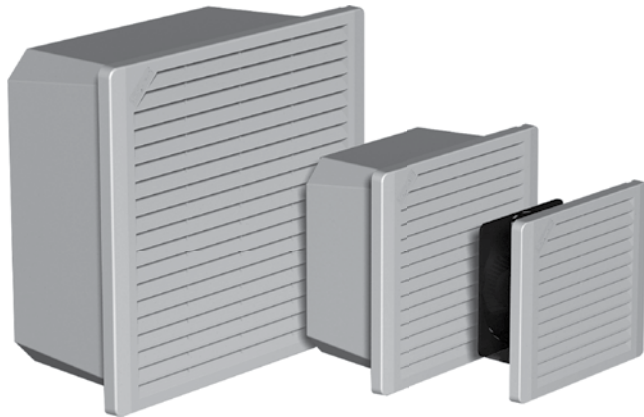


- Type 12 / IP54 filter option provides protection against dust infiltration
- IP55 filter adds additional protection against moisture
- See individual product pages for catalog and item numbers to order

| <b>REPLACEMENT FILTER</b> |                          |
|---------------------------|--------------------------|
| <b>CATALOG NUMBERS</b>    | <b>FITS FAN PACKAGES</b> |
| <b>10100059H</b>          | All SF04 Models          |
| <b>10100060</b>           | All SF05 IP54 Models     |
| <b>10100064H</b>          | All SF05 IP55 Models     |
| <b>10100061</b>           | All SF09 IP54 Models     |
| <b>10100065H</b>          | All SF09 IP55 Models     |
| <b>10100062</b>           | All SF10 IP54 Models     |
| <b>10100066H</b>          | All SF10 IP55 Models     |
| <b>10100063</b>           | All SF13 IP54 Models     |
| <b>10100067H</b>          | All SF13 IP55 Models     |



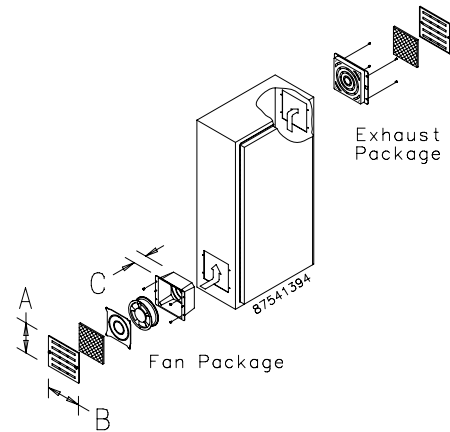
**TFP SIDE-MOUNT**



**TFP10**  
215 CFM  
(365 m<sup>3</sup>/hr.)

**TFP6**  
140 CFM  
(238 m<sup>3</sup>/hr.)

**TFP4**  
55 CFM  
(93 m<sup>3</sup>/hr.)



**INDUSTRY STANDARDS**

UL 508A Component Recognized; File No. E61997  
TFP# Models: Type 1  
TFP# UL 12 Models: Type 12

CSA certified (fan only)  
CE

**APPLICATION**

- Industrial automation
- Automotive assembly
- Package handling equipment
- Food and beverage process controls
- Wind energy systems

**FEATURES**

- Cooling Fan Package includes fan, air filter, composite air plenum, finger guard and grille
- Exhaust Package includes air filter, filter retainer with integral finger guard and grille
- EMC Upgrade Kit includes a grille standoff collar and a special EMC shielding grille
- Reliable cooling for enclosures with limited space requiring simple filtered airflow for basic cooling
- 24 VDC, 115 VAC and 230 VAC options available
- Washable foam (Type 1) or disposable (Type 12) filter in fan
- Dynamically-balanced fan impellers molded from polycarbonate material

- 4-in. fan is thermally protected and uses permanently-lubricated ball bearings
- 6- and 10-in. fans have ball bearing construction and split-capacitor motors that are thermally protected to avoid premature failure
- Fans have lead wires for power connection with ends stripped 1/2 in. (12 mm)
- All mounting hardware and installation instructions are furnished

**SPECIFICATIONS**

- Free airflow from 45 CFM (76 m<sup>3</sup>/hr.) to 215 CFM (365 m<sup>3</sup>/hr.)
- Maximum operating temperature 158 F / 70 C
- Engineered for 50,000 hours of continuous operation without lubrication or service (a monthly maintenance schedule is recommended to ensure optimal cooling performance)

**FINISH**

- Stainless steel grilles have brushed finish.
- ABS composite grille is black.

**ACCESSORIES**

Aluminum Type 1 and Hi-Density Type 12 Filters  
EMC Upgrade Kit  
Grille Options:  
Stainless Steel  
Black ABS Plastic

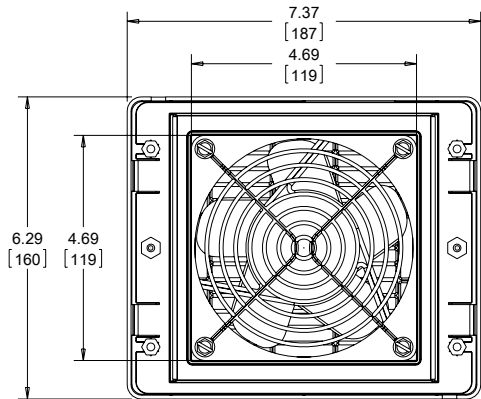


Performance Data **TFP4 Models**

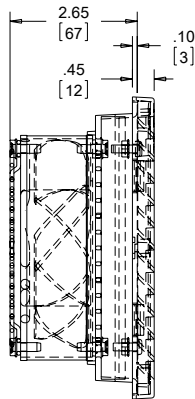
| <b>ELECTRICAL DATA</b>                       |               |                                   |                  |
|----------------------------------------------|---------------|-----------------------------------|------------------|
| <b>Rated Voltage</b>                         | <b>24 VDC</b> | <b>115 VAC</b>                    | <b>230 VAC</b>   |
| Frequency (Hz)                               |               | 50/60                             |                  |
| Nominal Current Maximum @ 50/60 Hz(Amps)     | .35           | .26/.21                           | .14/.11          |
| Power Consumption Maximum @ 50/60 Hz (Watts) | 8.4           | 17/15                             | 16/14            |
| Power Connection                             |               | Stripped Leadwires                |                  |
| <b>CATALOG NUMBERS</b>                       |               |                                   |                  |
| Composite Type 1                             |               |                                   |                  |
| Catalog Number                               | <b>TFP424</b> | <b>TFP41</b>                      | <b>TFP42</b>     |
| Stainless Steel Type 1                       |               |                                   |                  |
| Catalog Number                               | —             | <b>TFP41SS</b>                    | <b>TFP42SS</b>   |
| Composite Type 12                            |               |                                   |                  |
| Catalog Number                               | —             | <b>TFP41UL12</b>                  | <b>TFP42UL12</b> |
| Free Airflow @ 50/60 Hz (CFM)*               | 55            | 45/55                             | 45/55            |
| Free Airflow @ 50/60 Hz (m³/hr.)*            | 93            | 76/93                             | 76/93            |
| <b>UNIT CONSTRUCTION</b>                     |               |                                   |                  |
| Noise SIL @ 50/60 Hz (dBA)                   | 65            | 37/41                             | 37/41            |
| Maximum Operating Temperature (°F/°C)        |               | 158/70                            |                  |
| Unit Dimensions - H x W x D (in./mm)         |               | 6.29 x 7.37 x 2.65/160 x 187 x 67 |                  |
| Cutout Dimensions - H x W (in./mm)           |               | 5.66 x 5.66/144 x 144             |                  |
| Weight (lb./kg)                              |               | 4.2/1.90                          | 4.3/1.95         |
| <b>EXHAUST GRILLE CATALOG NUMBERS</b>        |               |                                   |                  |
| Composite Type 1                             |               |                                   |                  |
| Catalog Number                               |               | TEP4                              |                  |
| Stainless Steel Type 1                       |               |                                   |                  |
| Catalog Number                               |               | TEP4SS                            |                  |
| Composite Type 12                            |               |                                   |                  |
| Catalog Number                               |               | TEP4UL12                          |                  |

\*CFM with single exhaust grille installed.

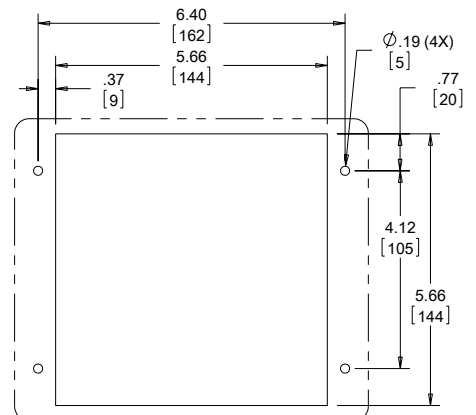
**TFP4 Models**



**BACK VIEW**

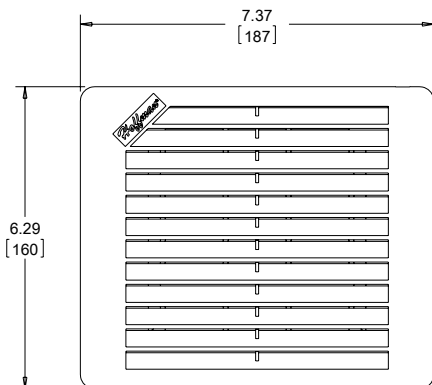


**SIDE VIEW**

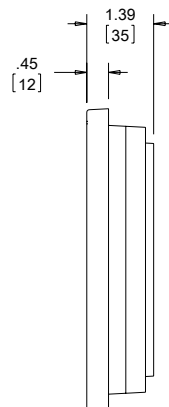


**CUTOUT DIMENSIONS**

**TEP4 EXHAUST GRILLE**



Exhaust grille included with fan package

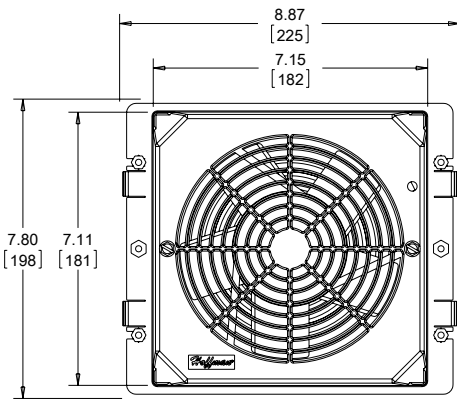


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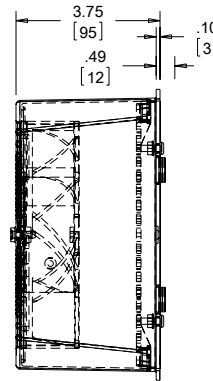
Performance Data **TFP6 Models**

| ELECTRICAL DATA                                |                                   |                  |                  |
|------------------------------------------------|-----------------------------------|------------------|------------------|
| <b>Rated Voltage</b>                           | <b>24 VDC</b>                     | <b>115 VAC</b>   | <b>230 VAC</b>   |
| Frequency (Hz)                                 |                                   | 50/60            |                  |
| Nominal Current Maximum @ 50/60 Hz (Amps)      | .88                               | .45/.36          | .23/.18          |
| Power Consumption Maximum @ 50/60 Hz (Watts)   | 21.1                              | 36/32            | 39/35            |
| Power Connection                               | Stripped Leadwires                |                  |                  |
| CATALOG NUMBERS                                |                                   |                  |                  |
| Composite Type 1                               |                                   |                  |                  |
| Catalog Number                                 | <b>TFP624</b>                     | <b>TFP61</b>     | <b>TFP62</b>     |
| Stainless Steel Type 1                         |                                   |                  |                  |
| Catalog Number                                 | —                                 | <b>TFP61SS</b>   | <b>TFP62SS</b>   |
| Composite Type 12                              |                                   |                  |                  |
| Catalog Number                                 | —                                 | <b>TFP61UL12</b> | <b>TFP62UL12</b> |
| Free Airflow @ 50/60 Hz (CFM)*                 | 140                               | 117/140          | 117/140          |
| Free Airflow @ 50/60 Hz (m <sup>3</sup> /hr.)* | 238                               | 199/238          | 199/238          |
| UNIT CONSTRUCTION                              |                                   |                  |                  |
| Noise SIL @ 50/60 Hz (dBA)                     | 62.5                              | 50/56            | 50/56            |
| Maximum Operating Temperature (°F/°C)          |                                   | 158/70           |                  |
| Unit Dimensions - H x W x D (in./mm)           | 7.80 x 8.87 x 3.75/198 x 225 x 95 |                  |                  |
| Cutout Dimensions - H x W (in./mm)             | 7.16 x 7.16/182 x 182             |                  |                  |
| Weight (lb./kg)                                | 5.3/2.40                          |                  | 5.4/2.45         |
| EXHAUST GRILLE CATALOG NUMBERS                 |                                   |                  |                  |
| Composite Type 1                               |                                   |                  |                  |
| Catalog Number                                 | TEP6                              |                  |                  |
| Stainless Steel Type 1                         |                                   |                  |                  |
| Catalog Number                                 | TEP6SS                            |                  |                  |
| Composite Type 12                              |                                   |                  |                  |
| Catalog Number                                 | TEP6UL12                          |                  |                  |

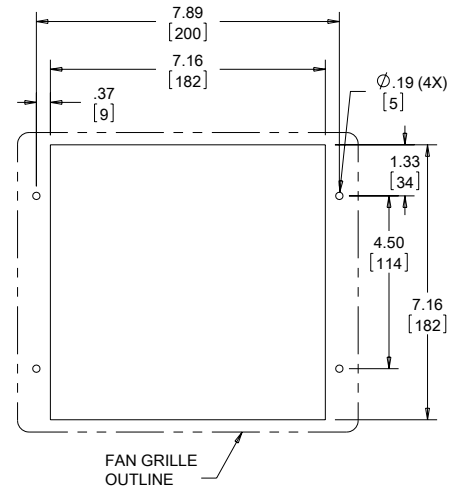
\*CFM with single exhaust grille installed.

**TFP6 Models**


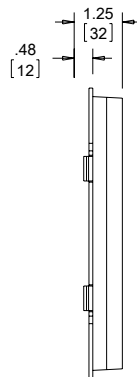
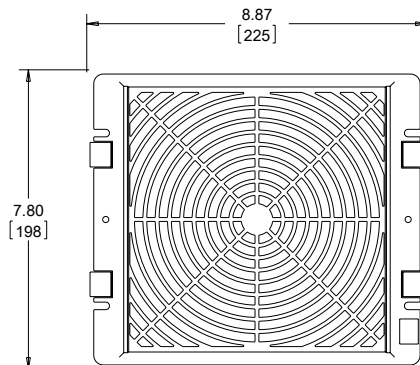
BACK VIEW



SIDE VIEW



CUTOUT DIMENSIONS

**TEP6 EXHAUST GRILLE**


Exhaust grille included with fan package

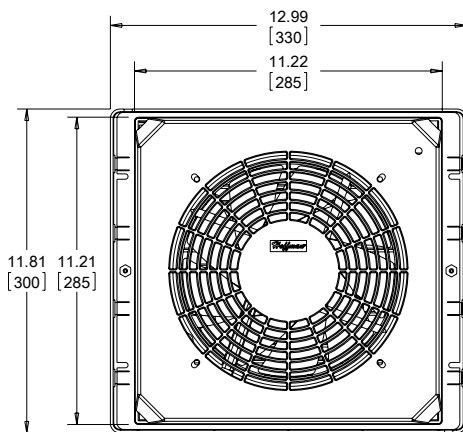
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Performance Data **TFP10 Models**

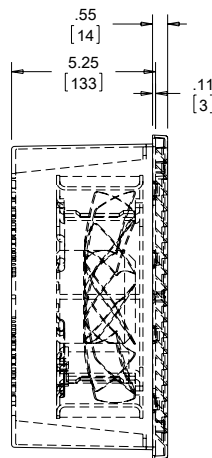
| <b>ELECTRICAL DATA</b>                       |                                      |           |                   |
|----------------------------------------------|--------------------------------------|-----------|-------------------|
| <b>Rated Voltage</b>                         | <b>115 VAC</b>                       |           | <b>230 VAC</b>    |
| Frequency (Hz)                               |                                      | 50/60     |                   |
| Nominal Current Maximum @ 50/60 Hz(Amps)     | .58/.70                              |           | .29/.35           |
| Power Consumption Maximum @ 50/60 Hz (Watts) | 64/80                                |           | 64/80             |
| Power Connection                             | Stripped Leadwires                   |           |                   |
| <b>CATALOG NUMBERS</b>                       |                                      |           |                   |
| Composite Type 1                             |                                      |           |                   |
| Catalog Number                               | <b>TFP101</b>                        |           | <b>TFP102</b>     |
| Stainless Steel Type 1                       |                                      |           |                   |
| Catalog Number                               | <b>TFP101SS</b>                      |           | <b>TFP102SS</b>   |
| Composite Type 12                            |                                      |           |                   |
| Catalog Number                               | <b>TFP101UL12</b>                    |           | <b>TFP102UL12</b> |
| Free Airflow @ 50/60 Hz (CFM)*               | 180/215                              |           | 180/215           |
| Free Airflow @ 50/60 Hz (m³/hr.)*            | 306/365                              |           | 306/365           |
| <b>UNIT CONSTRUCTION</b>                     |                                      |           |                   |
| Noise SIL @ 50/60 Hz (dBA)                   | 54/61                                |           | 54/61             |
| Maximum Operating Temperature (°F/°C)        | 167/75                               |           | 167/75            |
| Unit Dimensions - H x W x D (in./mm)         | 11.81 x 12.99 x 5.25/300 x 330 x 133 |           |                   |
| Cutout Dimensions - H x W (in./mm)           | 11.16 x 11.16/283 x 283              |           |                   |
| Weight (lb./kg)                              | 12.0/2.45                            |           | 11.4/5.17         |
| <b>EXHAUST GRILLE CATALOG NUMBERS</b>        |                                      |           |                   |
| Composite Type 1                             |                                      |           |                   |
| Catalog Number                               |                                      | TEP10     |                   |
| Stainless Steel Type 1                       |                                      |           |                   |
| Catalog Number                               |                                      | TEP10SS   |                   |
| Composite Type 12                            |                                      |           |                   |
| Catalog Number                               |                                      | TEP10UL12 |                   |

\*CFM with single exhaust grille installed.

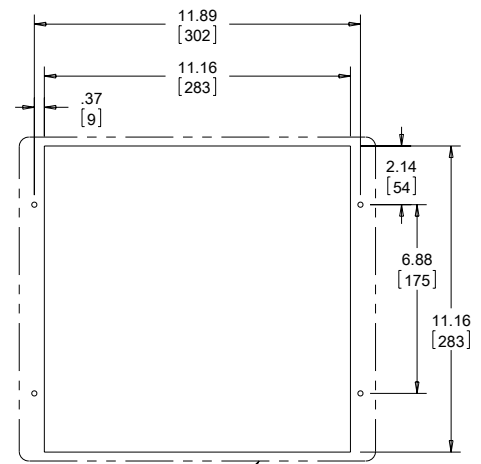
**TFP10 Models**



**BACK VIEW**

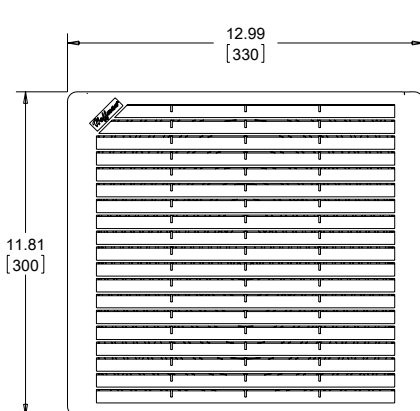


**SIDE VIEW**



**CUTOUT DIMENSIONS**

**TEP10 EXHAUST GRILLE**



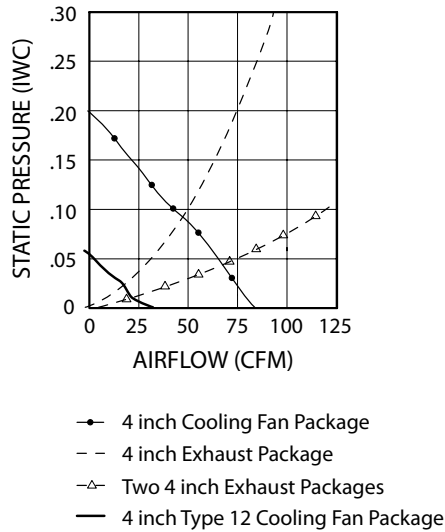
Exhaust grille included with fan package



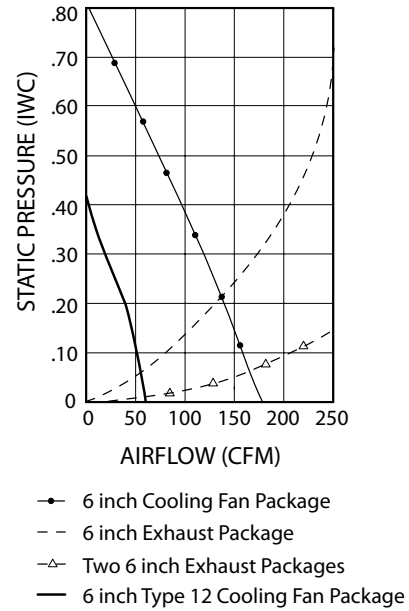
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Performance Curves for TFP Filter Fans

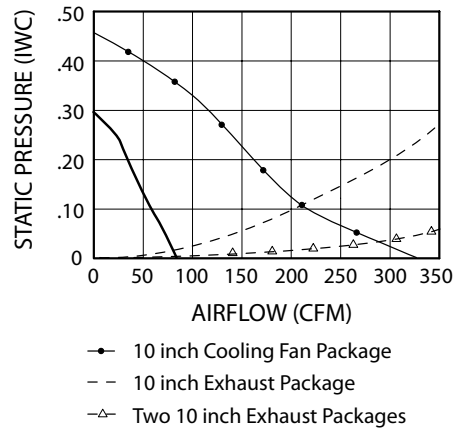
Performance Curve for a 4 inch Cooling Fan Package @ 60 Hz



Performance Curve for a 6 inch Cooling Fan Package @ 60 Hz



Performance Curve for a 10 inch Cooling Fan Package @ 60 Hz



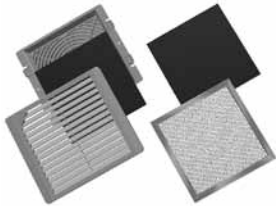


**TFP EXHAUST GRILLES**



| CATALOG NUMBERS     |  | Nominal Fan Size<br>in./mm |
|---------------------|--|----------------------------|
| <b>TEP4 Models</b>  |  |                            |
| TEP4                |  | 4                          |
| TEP4SS              |  | 4                          |
| TEP4UL12            |  | 4                          |
| <b>TEP6 Models</b>  |  |                            |
| TEP6                |  | 6                          |
| TEP6SS              |  | 6                          |
| TEP6UL12            |  | 6                          |
| <b>TEP10 Models</b> |  |                            |
| TEP10               |  | 10                         |
| TEP10SS             |  | 10                         |
| TEP10UL12           |  | 10                         |

**TFP OPTIONAL GRILLES AND REPLACEMENT FILTERS**



Optional grilles offer the choice of stainless steel or black ABS plastic. These grilles replace the standard RAL 7035 gray composite or stainless steel grilles on both fan and exhaust packages. Standard replacement filters are washable foam (Type 1) or disposable (Type 12). To maintain UL Type 12 rating on the enclosure, UL Type 12 filters must be used on the fan package inlet. Washable aluminum filters are also available. Aluminum filters are compatible with Type 1 systems only. *Type 12 air filters are not washable.*

| CATALOG NUMBERS           | Description                             | Fits Fan and Exhaust Nominal Size | Fits Fan and Exhaust Grill Size (in./mm) |
|---------------------------|-----------------------------------------|-----------------------------------|------------------------------------------|
| <b>4-inch Fan Models</b>  |                                         |                                   |                                          |
| TG4SS                     | Brushed stainless steel grille          | 4                                 | 6.29 x 7.31 x .81<br>160 x 186 x 21      |
| TG4B                      | Black ABS plastic grille                | 4                                 | 6.29 x 7.37 x .81<br>160 x 187 x 21      |
| AFLTR4                    | Type 1 filter replacement (5/package)   | 4                                 | —                                        |
| AFLTR4AL                  | Aluminum filter replacement (5/package) | 4                                 | —                                        |
| TFLT4UL12                 | Type 12 filter replacement (5/package)  | 4                                 | —                                        |
| <b>6-inch Fan Models</b>  |                                         |                                   |                                          |
| TG6SS                     | Brushed stainless steel grille          | 6                                 | 7.80 x 8.81 x .75<br>198 x 224 x 19      |
| TG6B                      | Black ABS plastic grille                | 6                                 | 7.80 x 8.87 x .49<br>198 x 225 x 12      |
| AFLTR6                    | Foam filter replacement (5/package)     | 6                                 | —                                        |
| AFLTR6AL                  | Aluminum filter replacement (5/package) | 6                                 | —                                        |
| TFLT6UL12                 | UL 12 filter replacement (5/package)    | 6                                 | —                                        |
| <b>10-inch Fan Models</b> |                                         |                                   |                                          |
| TG10SS                    | Brushed stainless steel grille          | 10                                | 11.81 x 12.92 x .75<br>300 x 328 x 19    |
| TG10B                     | Black ABS plastic grille                | 10                                | 11.81 x 12.99 x .75<br>300 x 330 x 19    |
| AFLTR10                   | Foam filter replacement (5/package)     | 10                                | —                                        |
| AFLTR10AL                 | Aluminum filter replacement (5/package) | 10                                | —                                        |
| TFLT10UL12                | UL 12 filter replacement (5/package)    | 10                                | —                                        |

Replacement filter for Type 12 fan package only (models TFF\_\_UL12). For Type 12 exhaust package use replacement filter AFLTRX. Filters fit all fan and exhaust packages according to their size.

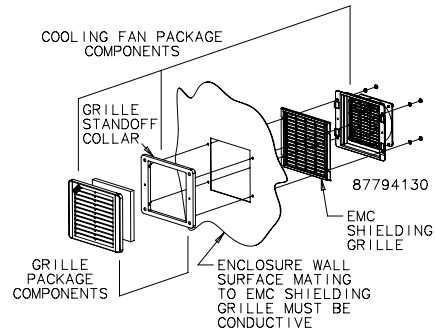


### TFP EMC UPGRADE KIT

With the addition of this kit, the cooling fan and exhaust packages are upgraded to provide EMC (electromagnetic compatibility) protection. Consult Hoffman for shielding effectiveness (dB attenuation vs. frequency).

Separate kits must be installed on both the inlet and outlet. Cooling fan and exhaust package must be ordered separately. EMC upgrade kit will not work with stainless steel grille option.

| CATALOG NUMBERS           | Fits Cooling Fan Package | Fits Exhaust Grille |
|---------------------------|--------------------------|---------------------|
| <b>4-inch Fan Models</b>  |                          |                     |
| T4EMC                     | TFP41/TFP42              | TEP4                |
| <b>6-inch Fan Models</b>  |                          |                     |
| T6EMC                     | TFP61/TFP62              | TEP6                |
| <b>10-inch Fan Models</b> |                          |                     |
| T10EMC                    | TFP101/TFP102            | TEP10               |



**Notes**



## OUTDOOR FILTER FAN AND EXHAUST PACKAGE



### INDUSTRY STANDARDS

cURus File No. E234324

NEMA Type 3R  
IEC/EN60529, IP55  
CE

### FEATURES

- Ball bearing axial fan, service life minimum 50,000 hours at 77 F (25 C) and 65 percent RH
- Airflow 11.8 CFM (20 cubic meters/hour) free blowing
- High-impact plastic is highly weatherproof and resistant to UV light
- Removable F5 filter
- Lockable door in hood
- Two-sided tape provided
- Filter hood permanently fixed to enclosure from inside

- 2 lead wires, 3.94-in. (100-mm) long, with pressure clamps, 14 gauge max. (2.5 mm)
- Synthetic filter material, temperature resistant to 212 F (100 C), self-extinguishing class F1, moisture resistant to 100 percent RH
- Filter mat: Fine grade F5 to DIN EN779 filtering degree: 98 percent of particles larger than 10 µm (10 microns)

### SPECIFICATIONS

- Aluminum fan body, plastic impeller

### FINISH

- Light gray plastic, UL94H-B

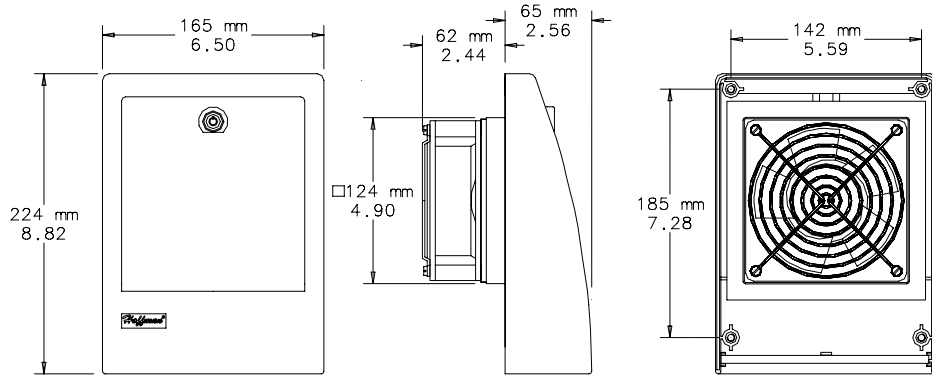
### ACCESSORIES

This fan package meets basic requirements for outdoor or indoor applications that require warm air dissipation.

### Performance Data Outdoor Filter Fan

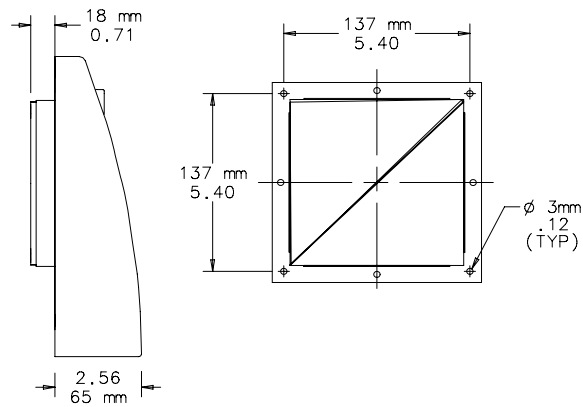
| ELECTRICAL DATA                  |                                |
|----------------------------------|--------------------------------|
| Rated Voltage                    | 120 VAC                        |
| Frequency (Hz)                   | 60                             |
| Full Load (Amps)                 | 0.3                            |
| FILTER FAN                       |                                |
| Catalog Number                   | AOFF118                        |
| UNIT CONSTRUCTION                |                                |
| External Mounting Depth (in./mm) | 2.56/65                        |
| Internal Mounting Depth (in./mm) | 2.44/62                        |
| Enclosure Cutout (in./mm)        | 4.92 x 4.92 / 125 x 125        |
| EXHAUST GRILLE                   |                                |
| Catalog Number                   | AOEFG118                       |
| ACCESSORIES                      |                                |
| Replacement Filters:             |                                |
| Catalog Number                   | AOFILTER                       |
| Description                      | Filter Mat, F5 (3 per package) |
| Filter Size (in./mm)             | 4.80 x 4.80 / 122 x 122        |

Outdoor Filter Fan and Exhaust Package



87921431

FILTER FAN



EXHAUST  
FILTER

MOUNTING  
FRAME



4

## COMPACT AXIAL FANS



### INDUSTRY STANDARDS

UL Component Recognized

CSA certified

### APPLICATION

Compact Cooling Fans are ideal for applications where enclosure space is limited and quiet, reliable cooling is required. Engineered for 50,000 hours of continuous operation without lubrication or service.

### Installation

Can be installed on any surface of an enclosure. With the addition of accessory fan brackets, Compact Cooling Fans can also be installed in any position inside the enclosure for spot cooling or air circulation.

### FEATURES

- Maximum operating temperature is 158 F (70 C)
- 4-in. fan is thermally protected and uses permanently lubricated ball bearings
- 6- and 10-in. fans have ball-bearing construction and split-capacitor motors

- Split-capacitor motors are thermally protected to avoid premature failure
- Dynamically balanced impellers molded from polycarbonate material
- One finger guard is furnished (additional finger guards are available)
- All mounting hardware is provided
- 240 and 560 CFM fans have ball bearing construction and split capacitor motors
- Fans have leadwires with ends stripped 1/2-in. (12-mm) or 6-ft. (1.8-m) cord with polarized plug for power connections

*Fan bracket and additional finger guards must be purchased separately*

### FINISH

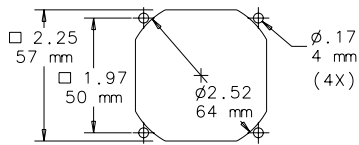
- Fan housing is black.

### ACCESSORIES

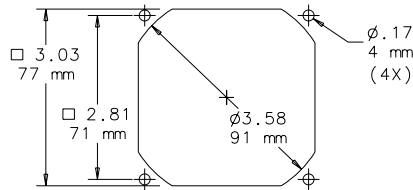
Fan Power Cords  
Fan Brackets  
Finger Guards  
Temperature Control Switch

Design Data **Compact Axial Fans**

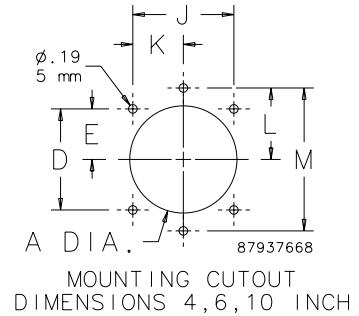
| CATALOG NUMBERS    | Nominal Size | Voltage | A<br>in./mm | D<br>in./mm | E<br>in./mm | J<br>in./mm | K<br>in./mm | L<br>in./mm | M<br>in./mm |
|--------------------|--------------|---------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| A2AXFN24           | 2            | 24 VDC  | —           | 1.97/50     | .98/25      | 1.97/50     | .98/25      | —           | —           |
| <b>3-in. Fans</b>  |              |         |             |             |             |             |             |             |             |
| A3AXFN             | 3            | 115 VAC | —           | 2.81/71     | 1.40/36     | 2.81/71     | 1.40/36     | —           | —           |
| A3AXFN24           | 3            | 24 VDC  | —           | 2.81/71     | 1.40/36     | 2.81/71     | 1.40/36     | —           | —           |
| <b>4-in. Fans</b>  |              |         |             |             |             |             |             |             |             |
| A4AXFNGQ           | 4            | 115 VAC | 4.62/117    | 4.12/105    | 2.06/52     | 4.12/105    | 2.06/52     | —           | —           |
| A4AXFNPG           | 4            | 115 VAC | 4.62/117    | 4.12/105    | 2.06/52     | 4.12/105    | 2.06/52     | —           | —           |
| A4AXFN             | 4            | 115 VAC | 4.62/117    | 4.12/105    | 2.06/52     | 4.12/105    | 2.06/52     | —           | —           |
| A4AXFN2            | 4            | 230 VAC | 4.62/117    | 4.12/105    | 2.06/52     | 4.12/105    | 2.06/52     | —           | —           |
| A4AXFN24           | 4            | 24 VDC  | 4.62/117    | 4.12/105    | 2.06/52     | 4.12/105    | 2.06/52     | —           | —           |
| <b>6-in. Fans</b>  |              |         |             |             |             |             |             |             |             |
| A6AXFNGQ           | 6            | 115 VAC | 5.88/149    | —           | —           | —           | —           | 3.19/81     | 6.38/162    |
| A6AXFNPG           | 6            | 115 VAC | 5.88/149    | —           | —           | —           | —           | 3.19/81     | 6.38/162    |
| A6AXFN             | 6            | 115 VAC | 5.88/149    | —           | —           | —           | —           | 3.19/81     | 6.38/162    |
| A6AXFN2            | 6            | 230 VAC | 5.88/149    | —           | —           | —           | —           | 3.19/81     | 6.38/162    |
| A6AXFN24           | 6            | 24 VDC  | 5.88/149    | —           | —           | —           | —           | 3.19/81     | 6.38/162    |
| <b>10-in. Fans</b> |              |         |             |             |             |             |             |             |             |
| A10AXFNPG          | 10           | 115 VAC | 9.00/229    | 6.88/175    | 3.44/87     | 6.88/175    | 3.44/87     | —           | —           |
| A10AXFN            | 10           | 115 VAC | 9.00/229    | 6.88/175    | 3.44/87     | 6.88/175    | 3.44/87     | —           | —           |
| A10AXFN2           | 10           | 230 VAC | 9.00/229    | 6.88/175    | 3.44/87     | 6.88/175    | 3.44/87     | —           | —           |



MOUNTING CUTOUT DIMENSIONS 2 INCH



MOUNTING CUTOUT DIMENSIONS 3 INCH



MOUNTING CUTOUT DIMENSIONS 4, 6, 10 INCH



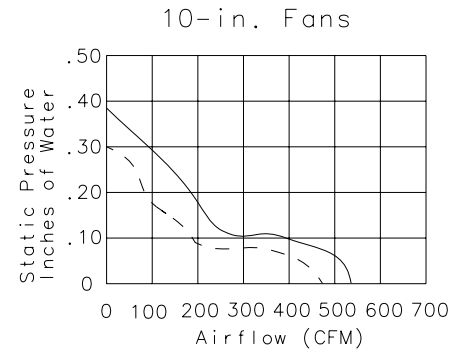
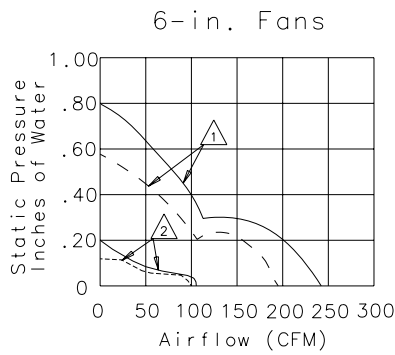
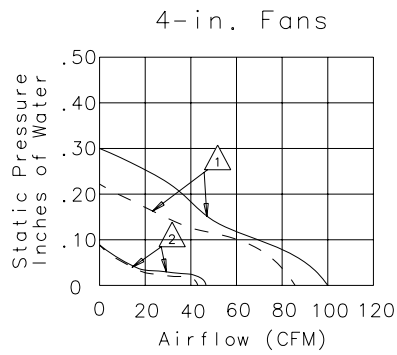
Performance Data **Compact Axial Fans**

| <b>ELECTRICAL DATA</b>                         |                 |                           |                                     |                           |                           |
|------------------------------------------------|-----------------|---------------------------|-------------------------------------|---------------------------|---------------------------|
| <b>Rated Voltage</b>                           | <b>24 VDC</b>   | <b>115 VAC Lead Wires</b> | <b>115 VAC Power Cord Quiet Fan</b> | <b>115 VAC Power Cord</b> | <b>230 VAC Lead Wires</b> |
| Frequency (Hz)                                 | 50/60           | 50/60                     | 50/60                               | 50/60                     | 50/60                     |
| Power Connection                               | Lead Wires      | Lead Wires                | Power Cord                          | Power Cord                | Lead Wires                |
| <b>2 inch Nominal-Size Fans</b>                |                 |                           |                                     |                           |                           |
| Catalog Number                                 | <b>A2AXFN24</b> | —                         | —                                   | —                         | —                         |
| Nominal Current Maximum @50/60 Hz (Amps)       | .09             | —                         | —                                   | —                         | —                         |
| Power Consumption Maximum @ 50/60 Hz (Watts)   | 2.16            | —                         | —                                   | —                         | —                         |
| Free Airflow @ 50/60 Hz (CFM)*                 | 21.5            | —                         | —                                   | —                         | —                         |
| Free Airflow @ 50/60 Hz (m <sup>3</sup> /hr.)* | 36.5            | —                         | —                                   | —                         | —                         |
| Noise SIL @ 50/60 Hz (dBA)                     | 65              | —                         | —                                   | —                         | —                         |
| Maximum RPM @50/60 Hz (RPM)                    | 4550            | —                         | —                                   | —                         | —                         |
| Fan Size Diameter (in.)                        | 2.36            | —                         | —                                   | —                         | —                         |
| Fan Depth (in.)                                | .98             | —                         | —                                   | —                         | —                         |
| <b>3 inch Nominal-Size Fans</b>                |                 |                           |                                     |                           |                           |
| Catalog Number                                 | <b>A3AXFN24</b> | <b>A3AXFN</b>             | —                                   | —                         | —                         |
| Nominal Current Maximum @50/60 Hz (Amps)       | .14             | .09                       | —                                   | —                         | —                         |
| Power Consumption Maximum @ 50/60 Hz (Watts)   | 3.36            | 7                         | —                                   | —                         | —                         |
| Free Airflow @ 50/60 Hz (CFM)*                 | 40              | 27                        | —                                   | —                         | —                         |
| Free Airflow @ 50/60 Hz (m <sup>3</sup> /hr.)* | 68              | 46                        | —                                   | —                         | —                         |
| Noise SIL @ 50/60 Hz (dBA)                     | 35              | 40                        | —                                   | —                         | —                         |
| Maximum RPM @50/60 Hz (RPM)                    | 3400            | 2700                      | —                                   | —                         | —                         |
| Fan Size Diameter (in.)                        | 3.15            | 3.15                      | —                                   | —                         | —                         |
| Fan Depth (in.)                                | .98             | 1.50                      | —                                   | —                         | —                         |
| <b>4 inch Nominal-Size Fans</b>                |                 |                           |                                     |                           |                           |
| Catalog Number                                 | <b>A4AXFN24</b> | <b>A4AXFN</b>             | <b>A4AXFNGQ</b>                     | <b>A4AXFNPG</b>           | <b>A4AXFN2</b>            |
| Nominal Current Maximum @50/60 Hz (Amps)       | .35             | .26/.21                   | .09/.08                             | .26/.21                   | .14/.11                   |
| Power Consumption Maximum @ 50/60 Hz (Watts)   | 84              | 17/15                     | 6/5                                 | 17/15                     | 16/14                     |
| Free Airflow @ 50/60 Hz (CFM)*                 | 118             | 85/100                    | 46/49                               | 85/100                    | 85/100                    |
| Free Airflow @ 50/60 Hz (m <sup>3</sup> /hr.)* | 200             | 144/170                   | 78/83                               | 144/170                   | 144/170                   |
| Noise SIL @ 50/60 Hz (dBA)                     | 46.5            | 37/41                     | 27/28                               | 37/41                     | 37/41                     |
| Maximum RPM @50/60 Hz (RPM)                    | 3200            | 2415/2900                 | 1350/1450                           | 2415/2900                 | 2415/2900                 |
| Fan Size Diameter (in.)                        | 4.69            | 4.69                      | 4.69                                | 4.69                      | 4.69                      |
| Fan Depth (in.)                                | 1.52            | 1.52                      | 1.52                                | 1.52                      | 1.52                      |
| <b>6 inch Nominal-Size Fans</b>                |                 |                           |                                     |                           |                           |
| Catalog Number                                 | <b>A6AXFN24</b> | <b>A6AXFN</b>             | <b>A6AXFNGQ</b>                     | <b>A6AXFNPG</b>           | <b>A6AXFN2</b>            |
| Nominal Current Maximum @50/60 Hz (Amps)       | .88             | .45/.36                   | .16/.19                             | .45/.36                   | .23/.18                   |
| Power Consumption Maximum @ 50/60 Hz (Watts)   | 21.1            | 36/32                     | 16/18                               | 36/32                     | 39/35                     |
| Free Airflow @ 50/60 Hz (CFM)*                 | 280             | 200/240                   | 85/102                              | 200/240                   | 200/240                   |
| Free Airflow @ 50/60 Hz (m <sup>3</sup> /hr.)* | 476             | 340/408                   | 144/173                             | 340/408                   | 340/408                   |
| Noise SIL @ 50/60 Hz (dBA)                     | 62.5            | 50/56                     | 35/38                               | 50/56                     | 50/56                     |
| Maximum RPM @50/60 Hz (RPM)                    | 3750            | 2670/3200                 | 1400/1650                           | 2670/3200                 | 2670/3200                 |
| Fan Size Diameter (in.)                        | 6.77            | 6.77                      | 6.77                                | 6.77                      | 6.77                      |
| Fan Depth (in.)                                | 2.00            | 1.50                      | 1.50                                | 1.50                      | 1.50                      |
| <b>10 inch Nominal-Size Fans</b>               |                 |                           |                                     |                           |                           |
| Catalog Number                                 | —               | <b>A10AXFN</b>            | —                                   | <b>A10AXFNPG</b>          | <b>A10AXFN2</b>           |
| Nominal Current Maximum @50/60 Hz (Amps)       | —               | 1.0/.88                   | —                                   | 1.0/.88                   | .47/.43                   |
| Power Consumption Maximum @ 50/60 Hz (Watts)   | —               | 36/36                     | —                                   | 36/36                     | 36/36                     |
| Free Airflow @ 50/60 Hz (CFM)*                 | —               | 480/560                   | —                                   | 480/560                   | 480/560                   |
| Free Airflow @ 50/60 Hz (m <sup>3</sup> /hr.)* | —               | 816/951                   | —                                   | 816/951                   | 816/951                   |
| Noise SIL @ 50/60 Hz (dBA)                     | —               | 46/49                     | —                                   | 46/49                     | 46/49                     |
| Maximum RPM @50/60 Hz (RPM)                    | —               | 1350/1650                 | —                                   | 1350/1650                 | 1350/1650                 |
| Fan Size Diameter (in.)                        | —               | 10.00                     | —                                   | 10.00                     | 10.00                     |
| Fan Depth (in.)                                | —               | 3.50                      | —                                   | 3.50                      | 3.50                      |

\* CFM without exhaust grille



Performance Curves for Compact Axial Fans



1 FNGP, FN, FN2 models  
 2 FNGQ models

(Curves represent fan performance only.)

— 60 Hz  
 - - - - 50 Hz 87744317



**FAN CORDS**



Used to power Compact Cooling Fans when positive ground of the cabinet case is required. Available with connectors for one or two fans. Five-foot (1.52-meter) cord with grounded three-prong plug. Fits A4AXFNPG, A6AXFNPG, A10AXFNPG, A4AXFNGQ and A10AXFNGQ.

| CATALOG NUMBERS    |               |                |
|--------------------|---------------|----------------|
|                    | ACORD1        | ACORD2         |
| <b>DESIGN DATA</b> |               |                |
| Description        | One connector | Two connectors |

**FAN CORDS WITH INLINE THERMOSTAT**



Use to power 120 VAC Compact Cooling Fans; replaces existing supplied power cord. Fan cord includes inline thermostat. The cord automatically activates up to two fans. Fan(s) will turn on when the inline thermostat reaches 86F (30C). Fan(s) will run only when temperature is above 86F (30C). Use with 110-120 VAC fans with power cords only. One or two fans can be used with power cord.

| ELECTRICAL DATA                    |             |
|------------------------------------|-------------|
| Rated Voltage                      | 110-120 VAC |
| Maximum Current (Amps)             | 10          |
| Fan Activation Temperature (°F/°C) | 86/30       |
| <b>CATALOG NUMBERS</b>             |             |
| ACORD2T                            |             |

**FAN FILTER AND FINGER GUARD KIT**



Low-density filter kit for 4-in. (102-mm) and 6-in. (152-mm) fans. Can also be used as vent. Filter is removable and can be cleaned and reused. Mounting hardware included.

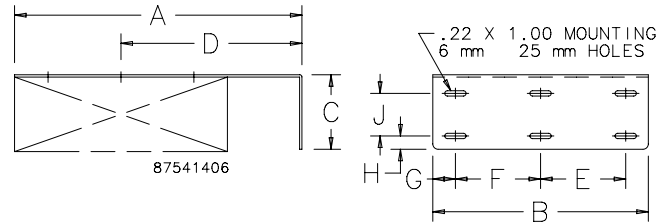
| CATALOG NUMBERS    |                                 |            |
|--------------------|---------------------------------|------------|
|                    | AFLTR4LD                        | AFLTR6LD   |
| <b>DESIGN DATA</b> |                                 |            |
| Description        | Fan Filter and Finger Guard Kit |            |
| Fits               | 4-in. fans                      | 6-in. fans |



**FAN BRACKETS**

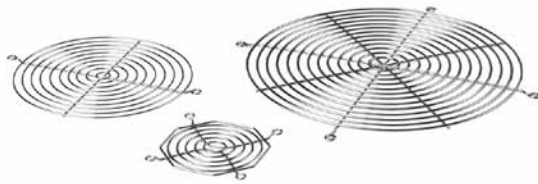


Designed to provide easy mounting of compact axial fans on enclosure panels. Brackets can be used for general air circulation or to direct air at problem areas. All sizes are .100-in. aluminum. Package quantity of 1 bracket. Fans must be ordered separately.



| CATALOG NUMBERS | AxBxC in./mm                   | Used with Fan Catalog Number                 | D in./mm | E in./mm | F in./mm | G in./mm | H in./mm | J in./mm |
|-----------------|--------------------------------|----------------------------------------------|----------|----------|----------|----------|----------|----------|
| ABRKT2          | 3.75x2.75x1.50<br>95x70x38     | A2AXFN24                                     | 2.38/60  | —        | 1.75/44  | .50/13   | .37/9    | .62/16   |
| ABRKT3          | 4.50x3.50x1.50<br>114x89x38    | A3AXFN, A3AXFN24                             | 2.75/70  | —        | 2.50/64  | .50/13   | .37/9    | .62/16   |
| ABRKT4          | 6.00x5.00x1.50<br>152x127x38   | A4AXFNPG, A4AXFNGQ, A4AXFN<br>or A4AXFN2     | 3.50/89  | —        | 3.00/76  | 1.00/25  | .38/10   | .62/16   |
| ABRKT6          | 10.00x6.88x2.00<br>254x175x51  | A6AXFNPG, A6AXFNGQ, A6AXFN<br>or A6AXFN2     | 6.50/51  | —        | 5.00/127 | .94/24   | .38/10   | 1.00/25  |
| ABRKT10         | 13.50x10.12x3.50<br>343x257x89 | A10AXFNPG, A10AXFNGQ, A10AXFN<br>or A10AXFN2 | 8.50/216 | 4.00/102 | 4.00/102 | 1.06/27  | .62/16   | 2.00/51  |

**FINGER GUARDS**



One finger guard is included with each Compact Axial Fan and Cooling Fan Package. Additional Finger Guards can be mounted on either side of the fan for maximum safety. All guards are chrome-plated and meet UL 507 .25-in. plug gauge test.

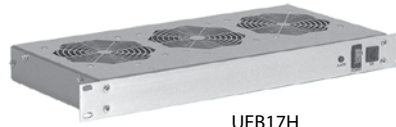
| CATALOG NUMBERS | Use on Compact Axial Fan Catalog Numbers |
|-----------------|------------------------------------------|
| AGARD2          | A2AXFN24                                 |
| AGARD3          | A3AXFN, A3AXFN24                         |
| AGARD4          | A4AXFNPG, A4AXFNGQ, A4AXFN, A4AXFN2      |
| AGARD6          | A6AXFNPG, A6AXFNGQ, A6AXFN, A6AXFN2      |
| AGARD10         | A10AXFNPG, A10AXFNQR, A10AXFN, A10AXFN2  |



## RACK-MOUNTABLE ASSEMBLIES



2EB17H



UEB17H



3EB17H

### INDUSTRY STANDARDS

UL recognized

- CSA Certified Motors
- CE

### APPLICATION

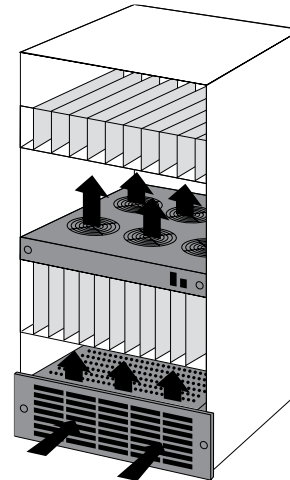
Fan trays are a versatile solution to cooling card cages and racks. Redundant cooling with optional failure detection makes this air mover the obvious choice for sensitive equipment. Minimal rack space and repositionable fans are suited to today's smaller enclosures.

### FEATURES

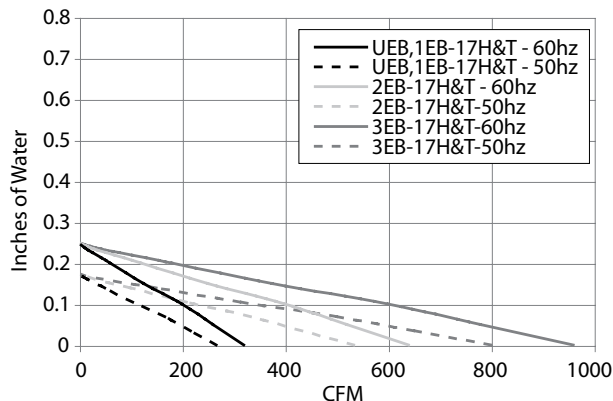
- Slim 1.75 in. (44 mm) Panel Height
- 19-in. rack mountable
- Field adjustable fan strips to optimize air flow
- Easy access to fan tray from front and back
- Simplified installation without the need for side access
- Support bracket
- Exhaust Guard
- 6-inch Power Cord AC trays, Terminal block on DC trays
- Permanently lubricated ball bearing motors
- 100% functionally tested

### SPECIFICATIONS

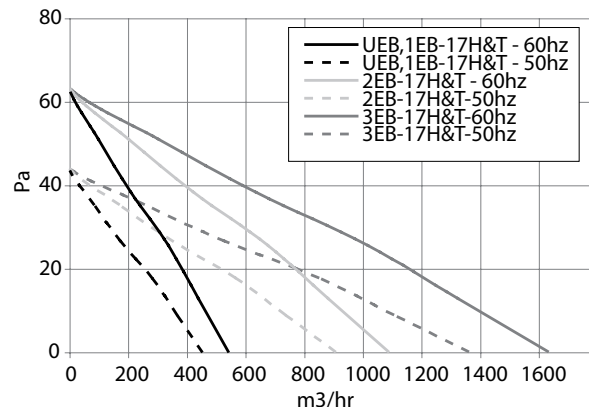
- 115/230 VAC
- 24 VDC
- 50/60 Hz

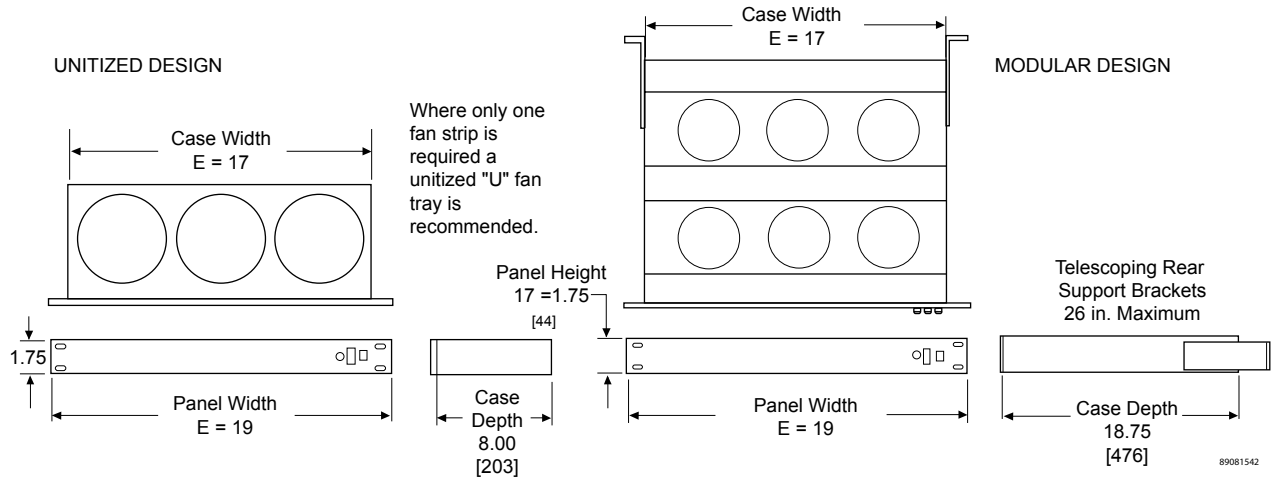


#### Performance Curves (Inches of Water to CFM)



#### Performance Curves (Pa to m<sup>3</sup>/hr)





Performance Data Rack-Mountable Assemblies

| ELECTRICAL DATA                              |           |                                     |          |
|----------------------------------------------|-----------|-------------------------------------|----------|
| Rated Voltage                                | 115 VAC   | 230 VAC                             | 24 VDC   |
| Frequency (Hz)                               | 50/60     | 50/60                               | DC       |
| RPM                                          | 3100      | 3100                                | 3000     |
| Nominal Current Maximum (Amps)               | 0.4       | 0.2                                 | 0.8      |
| Power Consumption Maximum (Watts)            | 42        | 42                                  | 21       |
| Maximum Operating Temperature (°F/°C)        |           | 158/70                              |          |
| UEB17H                                       |           |                                     |          |
| Catalog Numbers                              | UEB17H115 | UEB17H230                           | UEB17H24 |
| Nominal Current Maximum @50/60 Hz (Amps)     | .4        | .2                                  | .8       |
| Power Consumption Maximum @ 50/60 Hz (Watts) | 42        | 42                                  | 21       |
| Free Airflow @ 50/60 Hz (CFM)*               | 315       | 315                                 | 330      |
| Free Airflow @ 50/60 Hz (m³/hr.)*            | 536       | 536                                 | 561      |
| Number of Fans                               |           | 3                                   |          |
| Unit Dimensions H x W x D (In./mm)           |           | 1.75 x 19.00 x 8.00/44 x 482 x 203  |          |
| Weight (lb./kg)                              | 7.8/3.4   | 7.8/3.4                             | 7.6/3.3  |
| 2EB17H                                       |           |                                     |          |
| Catalog Numbers                              | 2EB17H115 | 2EB17H230                           | —        |
| Nominal Current Maximum @50/60 Hz (Amps)     | .9        | .5                                  | —        |
| Power Consumption Maximum @ 50/60 Hz (Watts) | 84        | 84                                  | —        |
| Free Airflow @ 50/60 Hz (CFM)*               | 630       | 630                                 | —        |
| Free Airflow @ 50/60 Hz (m³/hr.)*            | 1071      | 1071                                | —        |
| Number of Fans                               |           | 6                                   | —        |
| Unit Dimensions H x W x D (In./mm)           |           | 1.75 x 19.00 x 18.75/44 x 482 x 476 | —        |
| Weight (lb./kg)                              | 10.2/4.5  | 10.2/4.5                            | —        |
| 3EB17H                                       |           |                                     |          |
| Catalog Numbers                              | 3EB17H115 | 3EB17H230                           | —        |
| Nominal Current Maximum @50/60 Hz (Amps)     | 1.4       | .8                                  | —        |
| Power Consumption Maximum @ 50/60 Hz (Watts) | 126       | 126                                 | —        |
| Free Airflow @ 50/60 Hz (CFM)*               | 945       | 945                                 | —        |
| Free Airflow @ 50/60 Hz (m³/hr.)*            | 1607      | 1607                                | —        |
| Number of Fans                               |           | 9                                   | —        |
| Unit Dimensions H x W x D (In./mm)           |           | 1.75 x 19.00 x 18.75/44 x 482 x 476 | —        |
| Weight (lb./kg)                              | 12.5/5.5  | 12.5/5.5                            | —        |



## 19-IN. RACK-MOUNTABLE TRAY



### APPLICATION

Fan trays enhance the natural convection airflow within a cabinet when installed with other 19-in. rack-mount equipment.

### FEATURES

- Fan trays available with either three or six 4-in. fans
- Includes 72-in. (1829-mm) power cord with IEC 320 standard power socket
- Power cord plugs into standard 115 VAC outlet
- Lighted rocker switch provides on-off control and indicates when fans are on

### FINISH

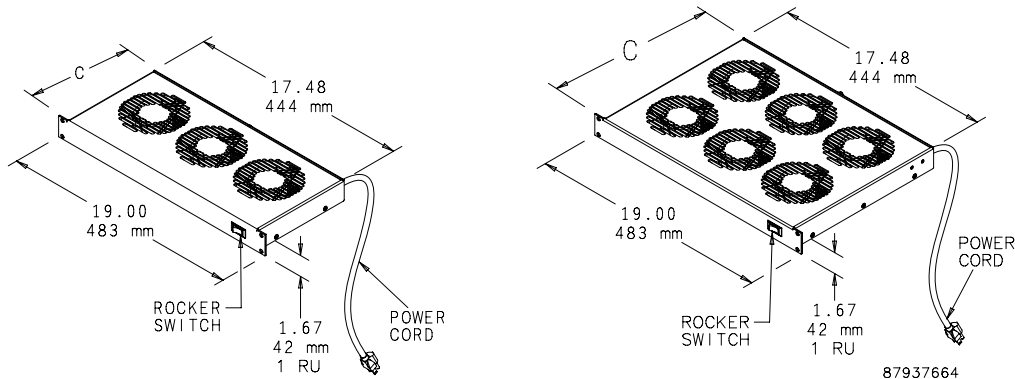
- RAL 9005 black, lightly textured polyester powder paint

### ACCESSORIES

Rack mounting hardware

### Performance Data 19-in. Rack-Mountable Tray

| ELECTRICAL DATA                                |          |           |
|------------------------------------------------|----------|-----------|
| Rated Voltage                                  | 115      | 115       |
| Frequency (Hz)                                 | 60       | 60        |
| Power Consumption (Watts)                      | 45       | 90        |
| CATALOG NUMBERS                                |          |           |
|                                                | A19FT3B  | A19FT6B   |
| Maximum Airflow (CFM)                          | 253      | 506       |
| Maximum Airflow (m <sup>3</sup> /hr.)          | 430      | 860       |
| Nominal Airflow Capacity (CFM)                 | 102      | 102       |
| Nominal Airflow Capacity (m <sup>3</sup> /hr.) | 173      | 173       |
| UNIT CONSTRUCTION                              |          |           |
| Sound Pressure (dBA)                           | 41       | 41        |
| Maximum Operating Temperature Range (°F/°C)    | 158/70   | 158/70    |
| Maximum Static Pressure (in. WC)               | 0.27     | 0.27      |
| Number of Fans                                 | 3        | 6         |
| C (in./mm)                                     | 8.10/206 | 12.96/329 |



**RACK-MOUNT FAN SPEED CONTROL**



**INDUSTRY STANDARDS**

UL 508 Listed; File No. E249700  
 cUL Listed per CSA C22.2 No. 14; File No. E249700

**APPLICATION**

Perfect for offices, classrooms and other noise-sensitive areas. Fan Speed Control optimizes airflow in a cabinet or rack, balancing air volume requirements with noise level and power use.

**FEATURES**

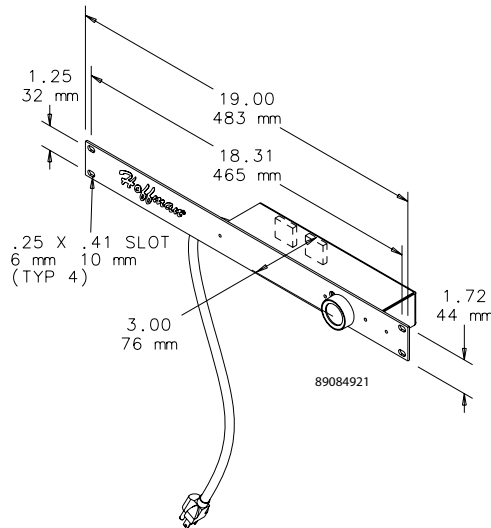
- Continuously variable fan speed control knob with minimum speed adjustment
- Uses 1 RU rack space
- Steel construction
- Two NEMA 5-15R outlets provide power to fan
- Six-foot (1.83-m) power cord plugs into standard 120 V 60 Hz outlet

**FINISH**

- A19FANSC: RAL 9005 black polyester powder paint

Performance Data **Rack-Mount Fan Speed Controls**

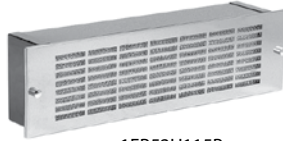
| CATALOG NUMBERS                |                                     |
|--------------------------------|-------------------------------------|
|                                | A19FANSC                            |
| <b>ELECTRICAL DATA</b>         |                                     |
| Rated Voltage                  | 120 VAC                             |
| Maximum Nominal Current (Amps) | 4                                   |
| Temperature Settings (°F)      | 86, 95, 104, 113                    |
| Temperature Settings (°C)      | 30, 35, 40, 45                      |
| <b>DESIGN DATA</b>             |                                     |
| Description                    | 19-in. Rack-Mount Fan Speed Control |
| Application                    | Fan speed adjusted manually         |



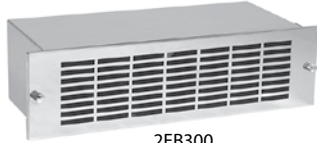
## RACK-MOUNTABLE BLOWERS



1EB52H115A



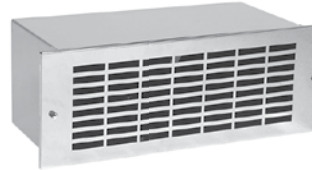
1EB52H115B



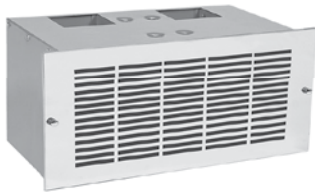
2EB300



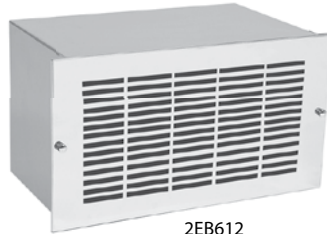
2EB3500



2EB412



2EB512



2EB612



4EB300

### INDUSTRY STANDARDS

UL recognized

CSA Certified Motors  
CE

### APPLICATION

Fanpack packaged blowers are filtered inlet redundant fan packages. The compact size of the "B" models result in minimal intrusion into the enclosure.

Standard packaged blowers offer reliable rack cooling in a variety of case styles. Two exhaust styles are available with air flowing out the rear or out the top. Specify exhaust style (R or T) when ordering.

Multi-exhaust packaged blowers feature top and rear exhausts, for a wide, deep airflow pattern. Designed with two separate blowers inside, multi-exhaust blowers also offer redundancy and increased airflow.

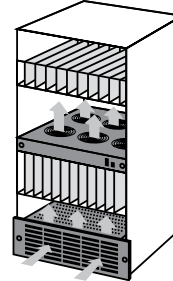
### FEATURES

- Permanent, Washable Aluminum Filter
- 19-in. Rack Mountable
- Brushed Aluminum Grille
- Exhaust Guard
- Power Cord
- Permanently lubricated ball bearing motors
- 100% functionally tested

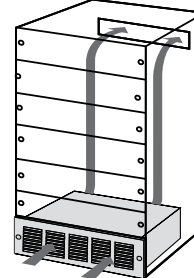
### SPECIFICATIONS

- 115/230 VAC
- 50/60 Hz

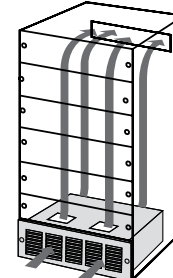
1EB Models



2EB Models



4EB Models

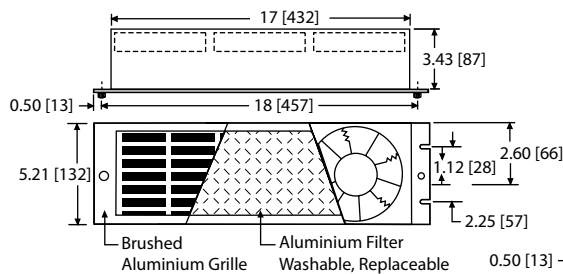




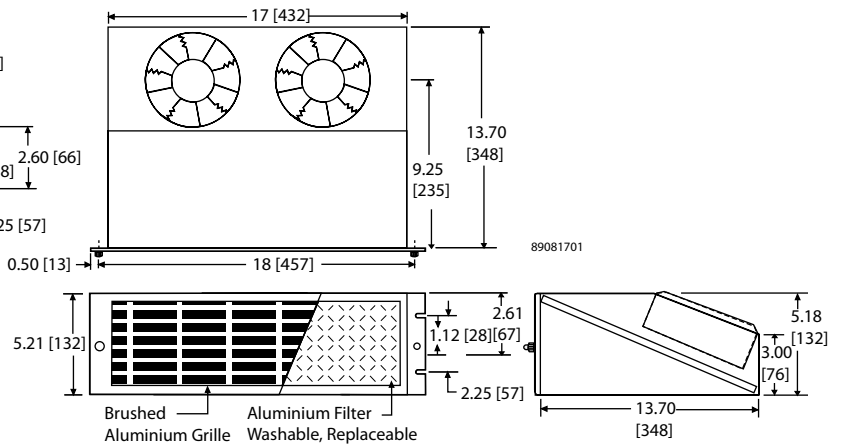
Performance Data **1EB Models**

| <b>ELECTRICAL DATA</b>                 |                   |                   |
|----------------------------------------|-------------------|-------------------|
| <b>Rated Voltage</b>                   | <b>115</b>        | <b>230</b>        |
| Frequency (Hz)                         | 50/60             | 50/60             |
| Maximum Operating Temperatur (°F/°C)   | 140/60            | 140/60            |
| <b>"A" Models</b>                      |                   |                   |
| <b>Catalog Numbers</b>                 | <b>1EB52H115A</b> | <b>1EB52H230A</b> |
| Free Airflow [CFM/M <sup>3</sup> /hr.] | 320/544           | 320/544           |
| RPM                                    | 3300              | 3300              |
| Nominal Run Current Maximum (Amps)     | .52               | .26               |
| Nominal Start Current Maximum (Amps)   | 1.00              | .50               |
| Power Consumption (Watts)              | 62                | 62                |
| Weight (lb./kg)                        | 14/6.3            | 14/6.3            |
| <b>"B" Models</b>                      |                   |                   |
| <b>Catalog Numbers</b>                 | <b>1EB52H115B</b> | <b>1EB52H230B</b> |
| Free Airflow [CFM/M <sup>3</sup> /hr.] | 235/400           | 235/400           |
| RPM                                    | 3100              | 3100              |
| Nominal Run Current Maximum (Amps)     | .55               | .31               |
| Nominal Start Current Maximum (Amps)   | .80               | .40               |
| Power Consumption (Watts)              | 44                | 44                |
| Weight (lb./kg)                        | 8/3.6             | 8/3.6             |

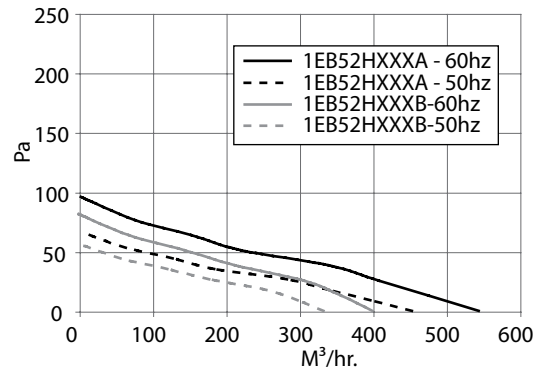
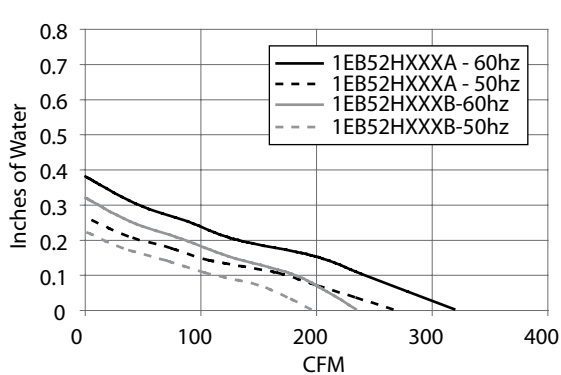
1EB52HxxxB Models



1EB52HxxxA Models



1EB Models

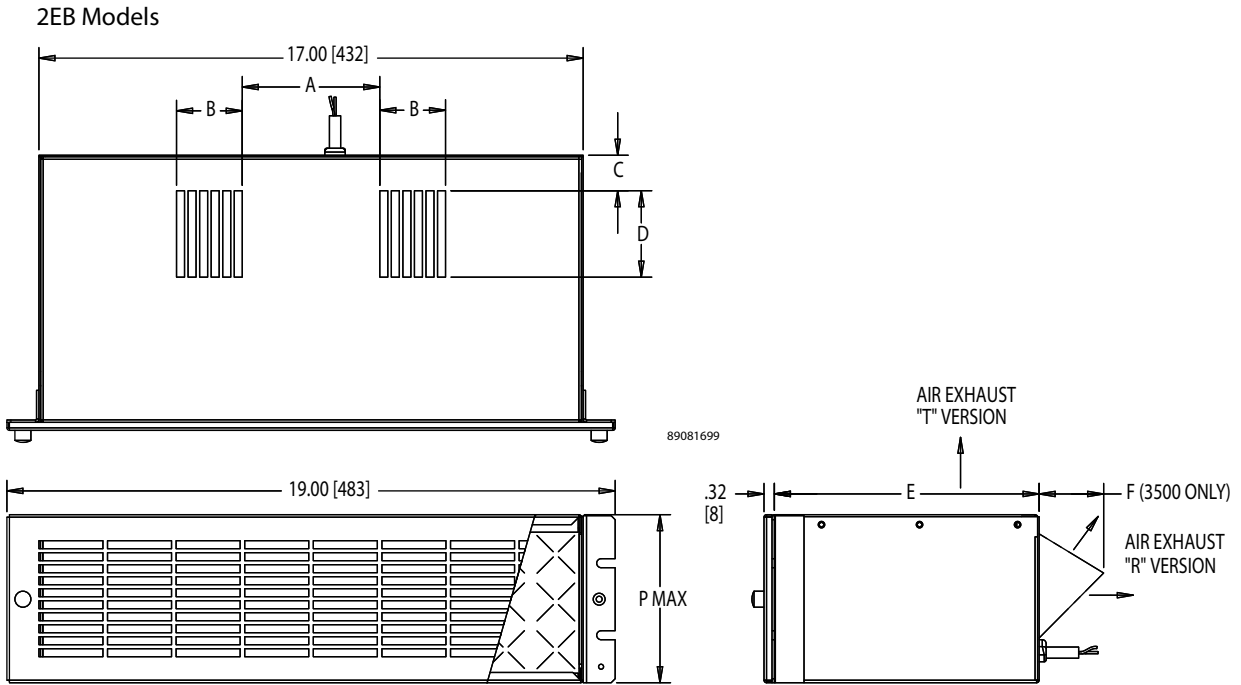


Performance Data **2EB Models**

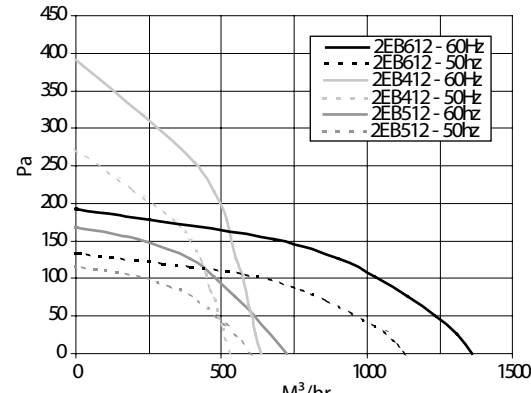
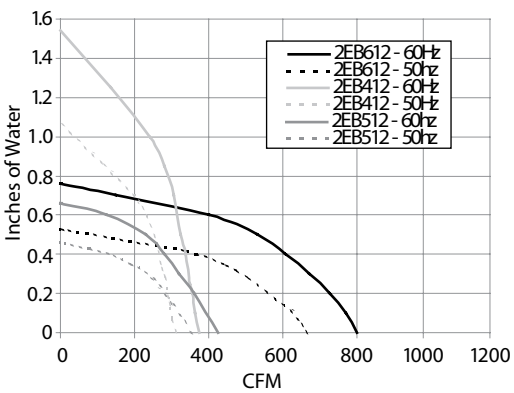
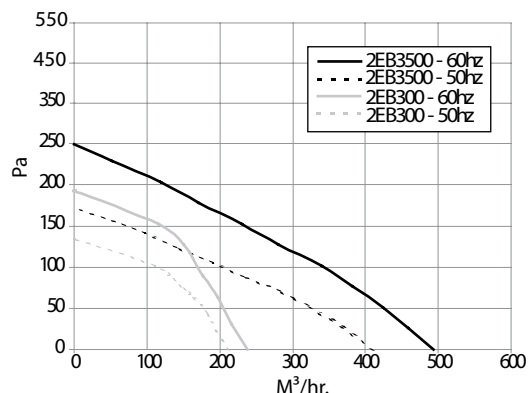
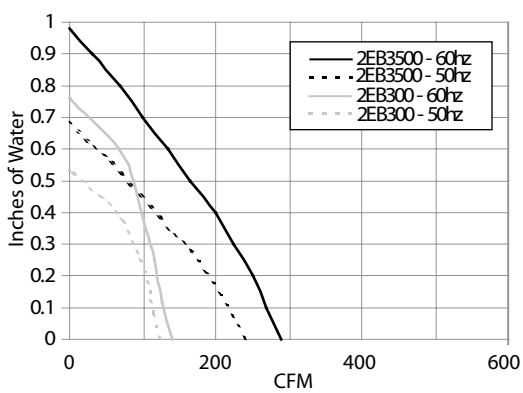
| <b>ELECTRICAL DATA</b>                 |                    |                    |
|----------------------------------------|--------------------|--------------------|
| <b>Rated Voltage</b>                   | <b>115</b>         | <b>230</b>         |
| Frequency (Hz)                         | 50/60              | 50/60              |
| Maximum Operating Temperature (°F/°C)  | 104/40             | 104/40             |
| <b>2EB300R Models</b>                  |                    |                    |
| <b>Catalog Numbers</b>                 | <b>2EB300R115</b>  | <b>2EB300R230</b>  |
| Free Airflow (CFM/M <sup>3</sup> /hr.) | 125/212            | 125/212            |
| RPM                                    | 3000               | 3000               |
| Nominal Run Current Maximum (Amps)     | .9                 | .5                 |
| Power Consumption (Watts)              | 70                 | 70                 |
| Weight (lb./kg)                        | 16/17.3            | 16/17.3            |
| <b>2EB3500R Models</b>                 |                    |                    |
| <b>Catalog Numbers</b>                 | <b>2EB3500R115</b> | <b>2EB3500R230</b> |
| Free Airflow (CFM/M <sup>3</sup> /hr.) | 290/493            | 290/493            |
| RPM                                    | 3050               | 3050               |
| Nominal Run Current Maximum (Amps)     | 1.8                | .9                 |
| Power Consumption (Watts)              | 125                | 125                |
| Weight (lb./kg)                        | 17/7.7             | 17/7.7             |
| <b>2EB412R Models</b>                  |                    |                    |
| <b>Catalog Numbers</b>                 | <b>2EB412R115</b>  | <b>2EB412R230</b>  |
| Free Airflow (CFM/M <sup>3</sup> /hr.) | 375/637            | 375/637            |
| RPM                                    | 3100               | 3100               |
| Nominal Run Current Maximum (Amps)     | 1.8                | .8                 |
| Power Consumption (Watts)              | 200                | 200                |
| Weight (lb./kg)                        | 22/10              | 22/10              |
| <b>2EB512R Models</b>                  |                    |                    |
| <b>Catalog Numbers</b>                 | <b>2EB512R115</b>  |                    |
| Free Airflow (CFM/M <sup>3</sup> /hr.) | 425/722            |                    |
| RPM                                    | 1700               |                    |
| Nominal Run Current Maximum (Amps)     | 1.3                |                    |
| Power Consumption (Watts)              | 140                |                    |
| Weight (lb./kg)                        | 25/11.3            |                    |
| <b>2EB512T Models</b>                  |                    |                    |
| <b>Catalog Numbers</b>                 | <b>2EB512T115</b>  |                    |
| Free Airflow (CFM/M <sup>3</sup> /hr.) | 425/722            |                    |
| RPM                                    | 1700               |                    |
| Nominal Run Current Maximum (Amps)     | 1.3                |                    |
| Power Consumption (Watts)              | 140                |                    |
| Weight (lb./kg)                        | 25/11.3            |                    |
| <b>2EB612R Models</b>                  |                    |                    |
| <b>Catalog Numbers</b>                 | <b>2EB612R115</b>  | <b>2EB612R230</b>  |
| Free Airflow (CFM/M <sup>3</sup> /hr.) | 800/1359           | 800/1359           |
| RPM                                    | 1650               | 1650               |
| Nominal Run Current Maximum (Amps)     | 2.2                | 1.0                |
| Power Consumption (Watts)              | 220                | 220                |
| Weight (lb./kg)                        | 41/18.6            | 41/18.6            |

 Design Data **2EB Models**

| <b>CATALOG NUMBERS</b> | <b>PMax</b><br>in./mm | <b>A</b><br>in./mm | <b>B</b><br>in./mm | <b>C</b><br>in./mm | <b>D</b><br>in./mm | <b>E</b><br>in./mm | <b>F</b><br>in./mm |
|------------------------|-----------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 2EB300R115             | 5.25/133              | 4.30/109           | 2.05/52            | —                  | —                  | 8.22/209           | —                  |
| 2EB3500R115            | 5.25/133              | 4.38/111           | 4.56/116           | —                  | —                  | 7.17/182           | 1.75/44            |
| 2EB412R115             | 7.00/178              | 4.23/107           | 3.15/80            | —                  | —                  | 8.22/209           | —                  |
| 2EB512R115             | 8.75/222              | 4.13/105           | 3.63/92            | —                  | —                  | 8.22/209           | —                  |
| 2EB512T115             | 8.75/222              | 4.13/105           | 3.63/92            | .80/20             | 3.40/86            | 9.61/244           | —                  |
| 2EB612R115             | 10.50/267             | 4.38/111           | 3.99/101           | —                  | —                  | 10.22/620          | —                  |



2EB Models



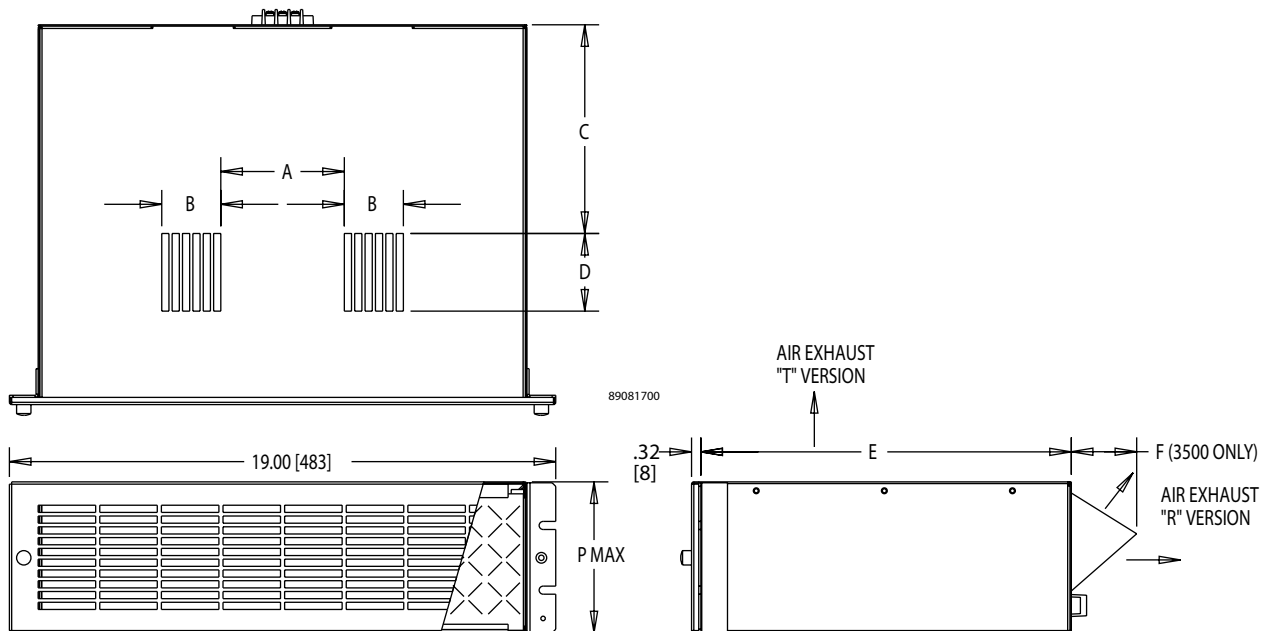
Performance Data **4EB Models**

| ELECTRICAL DATA                        |             |
|----------------------------------------|-------------|
| Rated Voltage                          | 115         |
| Frequency (Hz)                         | 50/60       |
| Maximum Operating Temperature (°F/°C)  | 104/40      |
| 4EB300RT Models                        |             |
| Catalog Number                         | 4EB300RT115 |
| Free Airflow [CFM/M <sup>3</sup> /hr.] | 225/382     |
| RPM                                    | 2900        |
| Nominal Run Current Maximum (Amps)     | 1.8         |
| Power Consumption (Watts)              | 130         |
| Weight (lb./kg)                        | 21/9.5      |

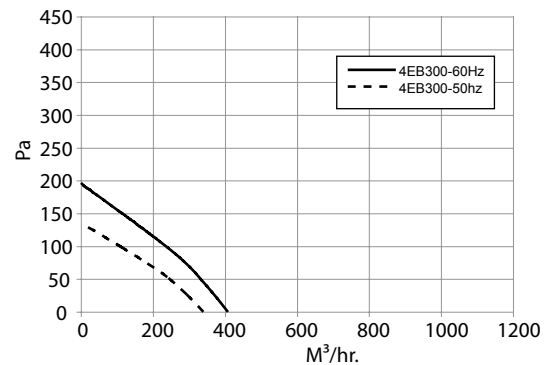
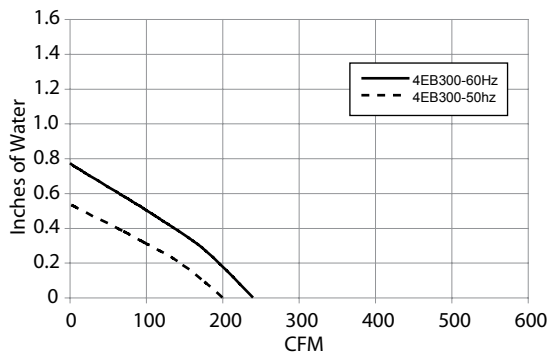
 Design Data **4EB Models**

| CATALOG NUMBERS | PMax<br>in./mm | A<br>in./mm | B<br>in./mm | C<br>in./mm | D<br>in./mm | E<br>in./mm | F<br>in./mm |
|-----------------|----------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 4EB300RT115     | 5.25/133       | 4.30/109    | 2.05/52     | 7.25/184    | 2.70/69     | 12.88/327   | —           |

4EB Models



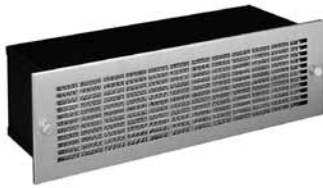
4EB Models



**Notes**



## RACK-MOUNTABLE FAN PACKAGE



### INDUSTRY STANDARDS

UL Component Recognized; File No. E61997

EIA RS-310-D  
 CSA certified  
 (blower motor only)

### APPLICATION

For enclosure or 19-in. rack applications, the Blower Fan Package provides the maximum amount of cooling air in the least amount of space by utilizing 115 volt AC, 60/50 hertz, single-phase input power. Engineered for 20,000 hours of continuous operation when properly powered.

### FEATURES

- Intake grille is easily removed with two captive thumbnuts
- Washable aluminum filter
- Single phase motor powers the statically balanced blower
- Motor is thermally protected and cooled by incoming forced air
- Direct drive induction motor contains permanently lubricated ball bearings
- Lubricant protects from -20 F to 298 F (-29 C to 148 C)

- Rotating components are suspended on neoprene shock-mounts
- Three-conductor power cord (five feet long)
- The unit is self-supporting with 16 gauge steel flanges notched per EIA RS-310-D.
- An exhaust grille and filter package (catalog number AEXGR275) is required and must be ordered separately

### SPECIFICATIONS

- 16 gauge steel housing

### FINISH

- Blower housing is black enamel.
- Grille is brushed stainless steel.

### ACCESSORIES

Exhaust Grille and Filter  
 Filter Adhesive  
 Temperature Control Switch

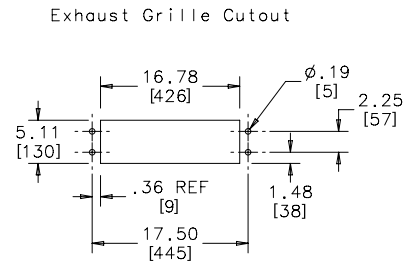
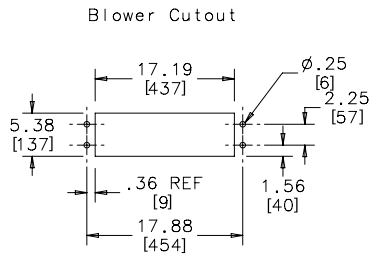
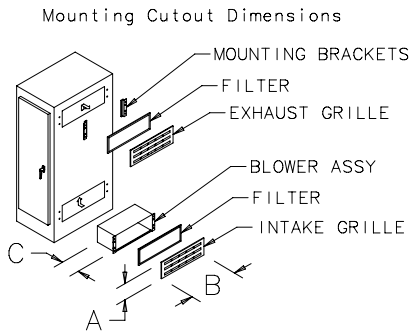
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### Performance Data Rack-Mountable Fan Package

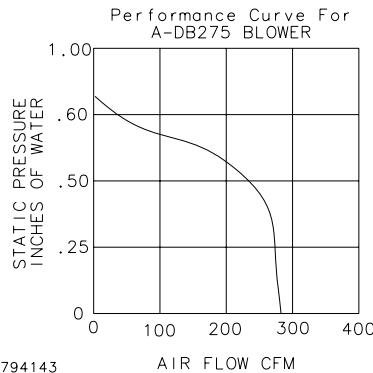
| CATALOG NUMBERS                       |  | ADB275     |
|---------------------------------------|--|------------|
| <b>ELECTRICAL DATA</b>                |  |            |
| <b>Rated Voltage</b>                  |  | <b>115</b> |
| Frequency                             |  | 50/60      |
| Free Airflow (CFM)                    |  | 230/275    |
| RPM                                   |  | 2580/3100  |
| Nominal Current Maximum (Amps)        |  | 1.2        |
| Power Consumption (Watts)             |  | 84         |
| <b>SOUND LEVEL</b>                    |  |            |
| Sound Pressure (dBA)                  |  | 56         |
| <b>UNIT CONSTRUCTION</b>              |  |            |
| Weight (lb./kg)                       |  | 15/7       |
| <b>EXHAUST GRILLE CATALOG NUMBERS</b> |  |            |
| Catalog Number                        |  | AEXGR275*  |

\* Exhaust grille sold separately

Rack-Mountable Fan Package

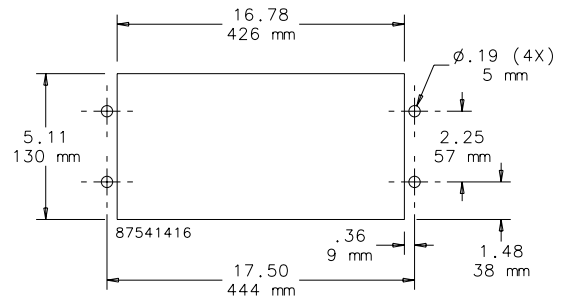


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EXHAUST GRILLES AND REPLACEMENT FILTERS

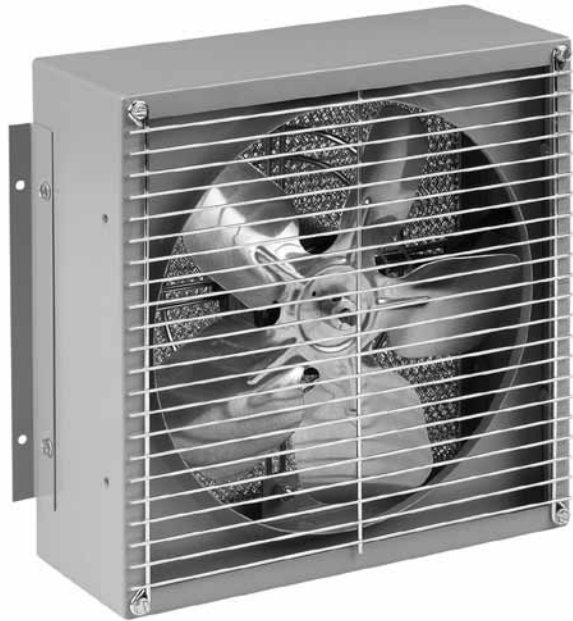


CUTOUT DIMENSIONS

Located at air discharge side of an enclosure using Blower Package ADB275. Polished stainless steel grille is 65 percent open and offers low resistance to airflow. Expanded aluminum filter (included with each grille) is easily removed for cleaning from outside the enclosure. Mounting hardware is furnished.

Performance Data Exhaust Grilles and Replacement Filters for Rack-Mountable Fan Package

| CATALOG NUMBERS           |                                             |
|---------------------------|---------------------------------------------|
|                           | <b>AEXGR275</b>                             |
| UNIT CONSTRUCTION         |                                             |
| Dimensions H x W (in./mm) | 5.75/146 x 19.00/483                        |
| Filter Size (in./mm)      | 4.98/126 x 16.56/421                        |
| ACCESSORIES               |                                             |
| Replacement Filters:      |                                             |
| Catalog Number            | <b>AFLTR275AL</b>                           |
| Description               | Aluminum Filter Replacement [5 per package] |

**FILTER BOX FANS**

**INDUSTRY STANDARDS**

|                     |
|---------------------|
| Motor UL Recognized |
|---------------------|

Motor CSA

**APPLICATION**

Thermal filter boxes are high volume air movers that require minimal enclosure space. Repositionable mounting ears allow the fans to be mounted internally or externally, and used for either intake or exhaust.

**FEATURES**

- Inlet Guard
- Outlet Guard
- Power Cord
- 5-15 plug available on catalog numbers ending with "M" only
- Permanently lubricated ball bearing motors
- 100% functionally tested

**SPECIFICATIONS**

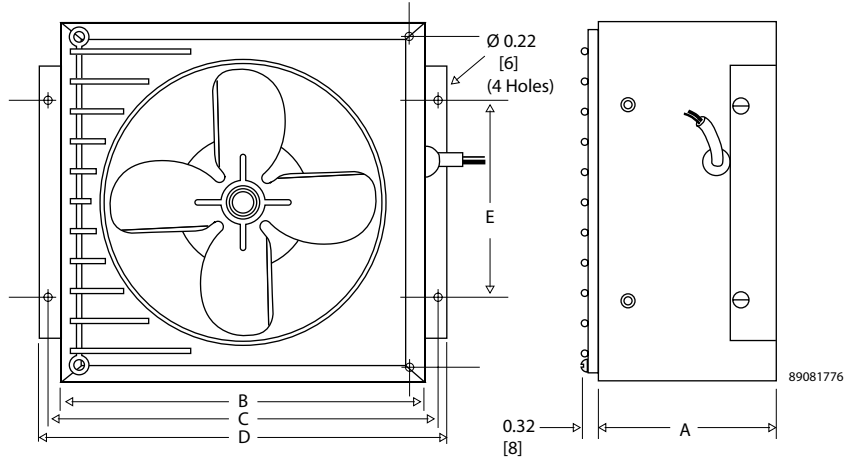
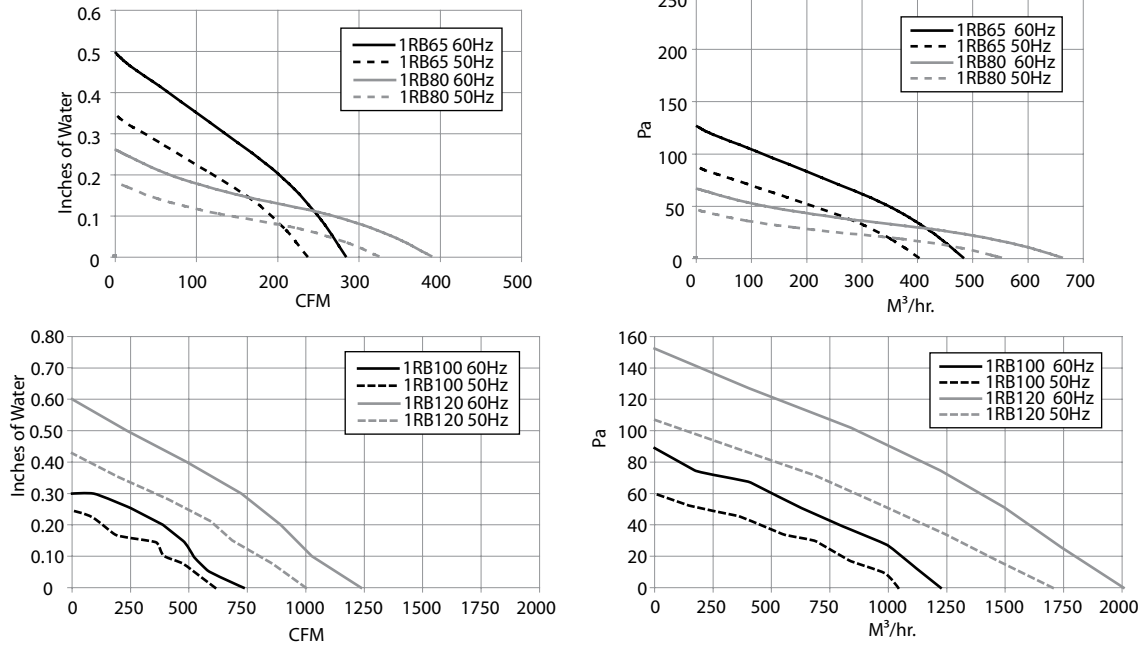
- 115 VAC
- 50/60Hz

**Performance Data Filter Box Fans**

| <b>ELECTRICAL DATA</b>                 |               |                |
|----------------------------------------|---------------|----------------|
| <b>Rated Voltage</b>                   | <b>115</b>    | <b>115</b>     |
| Frequency (Hz)                         | 50/60         | 50/60          |
| Maximum Operating Temperature (°F/°C)  | 104/40        | 104/40         |
| <b>1RB65 Models</b>                    |               |                |
| <b>Catalog Numbers</b>                 | <b>1RB65</b>  | <b>1RB65M</b>  |
| Free Airflow (CFM/M <sup>3</sup> /hr.) | 275/493       | 275/493        |
| RPM                                    | 3000          | 3000           |
| Nominal Run Current Maximum (Amps)     | .85           | .85            |
| Nominal Start Current Maximum (Amps)   | 1.2           | 1.2            |
| Power Consumption (Watts)              | 70            | 70             |
| Filter                                 | N/A           | Aluminum       |
| Weight (lb./kg)                        | 8/3.5         | 8/3.5          |
| <b>1RB80 Models</b>                    |               |                |
| <b>Catalog Numbers</b>                 | <b>1RB80</b>  | <b>1RB80M</b>  |
| Free Airflow (CFM/M <sup>3</sup> /hr.) | 390/699       | 390/699        |
| RPM                                    | 1600          | 1600           |
| Nominal Run Current Maximum (Amps)     | 1.1           | 1.1            |
| Nominal Start Current Maximum (Amps)   | 1.5           | 1.5            |
| Power Consumption (Watts)              | 80            | 80             |
| Filter                                 | N/A           | Aluminum       |
| Weight (lb./kg)                        | 10/4.5        | 10/4.5         |
| <b>1RB100 Models</b>                   |               |                |
| <b>Catalog Numbers</b>                 | <b>1RB100</b> | <b>1RB100M</b> |
| Free Airflow (CFM/M <sup>3</sup> /hr.) | 725/1299      | 725/1299       |
| RPM                                    | 1600          | 1600           |
| Nominal Run Current Maximum (Amps)     | 1.2           | 1.2            |
| Nominal Start Current Maximum (Amps)   | 1.5           | 1.5            |
| Power Consumption (Watts)              | 90            | 90             |
| Filter                                 | N/A           | Aluminum       |
| Weight (lb./kg)                        | 12/5.4        | 12/5.4         |
| <b>1RB120 Models</b>                   |               |                |
| <b>Catalog Numbers</b>                 | <b>1RB120</b> | <b>1RB120M</b> |
| Free Airflow (CFM/M <sup>3</sup> /hr.) | 1200/2151     | 1200/2151      |
| RPM                                    | 1500          | 1500           |
| Nominal Run Current Maximum (Amps)     | 1.5           | 1.5            |
| Nominal Start Current Maximum (Amps)   | 2.5           | 2.5            |
| Power Consumption (Watts)              | 160           | 160            |
| Filter                                 | N/A           | Aluminum       |
| Weight (lb./kg)                        | 24/10.8       | 24/10.8        |



Performance Curves Filter Box



Design Data Filter Box

| CATALOG NUMBERS | A<br>in./mm | B<br>in./mm | C<br>in./mm | D<br>in./mm | E<br>in./mm |
|-----------------|-------------|-------------|-------------|-------------|-------------|
| 1RB65           | 4.50/114    | 8.88/226    | 9.56/243    | 10.13/257   | 4.88/124    |
| 1RB65M          | 4.50/114    | 8.88/226    | 9.56/243    | 10.13/257   | 4.88/124    |
| 1RB80           | 4.50/114    | 8.88/226    | 9.56/243    | 10.13/257   | 4.88/124    |
| 1RB80M          | 4.50/114    | 8.88/226    | 9.56/243    | 10.13/257   | 4.88/124    |
| 1RB100          | 4.50/114    | 12.13/308   | 12.81/325   | 13.38/340   | 6.13/156    |
| 1RB100M         | 4.50/114    | 12.13/308   | 12.81/325   | 13.38/340   | 6.13/156    |
| 1RB120          | 7.38/187    | 15.13/384   | 15.81/402   | 16.38/416   | 9.00/229    |
| 1RB120M         | 7.38/187    | 15.13/384   | 15.81/402   | 16.38/416   | 9.00/229    |

## CENTRIFUGAL BLOWERS



### INDUSTRY STANDARDS

UL Recognized

CSA Certified Motors

### APPLICATION

Single Centrifugal Blowers are compact for the maximum in spot cooling applications. Single centrifugal blowers can be mounted in any position for effective air movement.

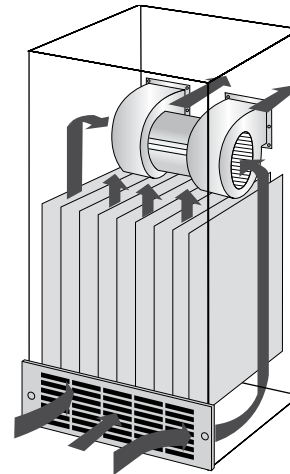
Dual Centrifugal Blowers are designed for applications where space limitations are a problem. Mountable in any position, these blowers provide dual blasts from separate housings mounted on a reliable motor.

### FEATURES

- 100% Functionally Tested

### SPECIFICATIONS

- 115/230 VAC
- 50/60 Hz



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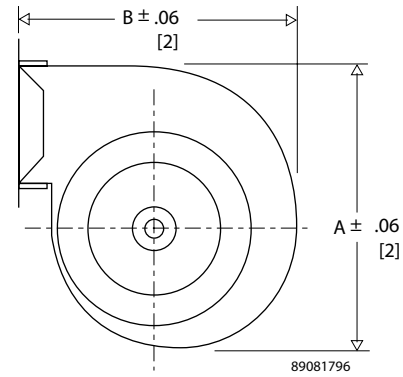
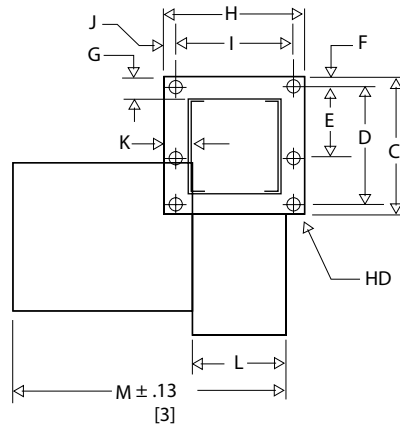
### Performance Data 1NB Models

| ELECTRICAL DATA                        |           |           |
|----------------------------------------|-----------|-----------|
| Rated Voltage                          | 115       | 230       |
| Frequency (Hz)                         | 50/60     | 50/60     |
| Maximum Operating Temperature (°F/°C)  | 104/40    | 104/40    |
| 1NB412 Models                          |           |           |
| Catalog Numbers                        | 1NB412115 | 1NB412230 |
| Free Airflow (CFM/M <sup>3</sup> /hr.) | 200/340   | 200/340   |
| RPM                                    | 3100      | 3100      |
| Nominal Run Current Maximum (Amps)     | 1.2       | 0.6       |
| Nominal Start Current Maximum (Amps)   | 2.1       | 1.5       |
| Power Consumption (Watts)              | 120       | 120       |
| Weight (lb./kg)                        | 6/2.7     | 6/2.7     |

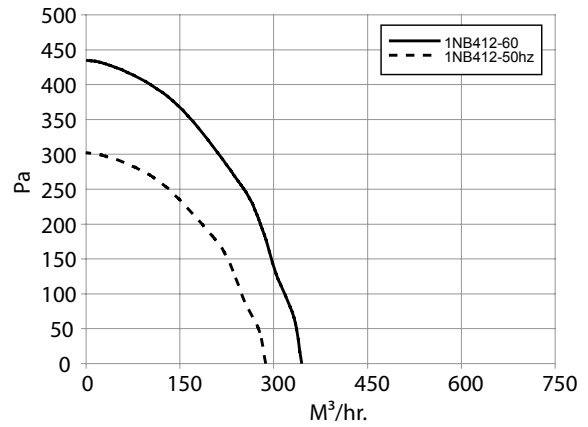
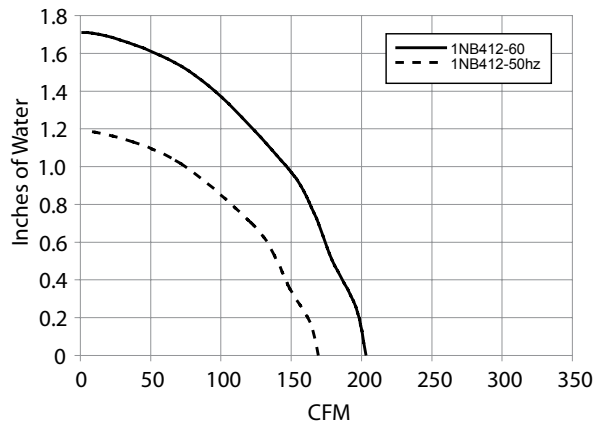
### Design Data 1NB Models

| CATALOG NUMBERS | A        | B        | C       | D       | F      | G       | H        | I        | J      | K       | L       | M        | HD     |
|-----------------|----------|----------|---------|---------|--------|---------|----------|----------|--------|---------|---------|----------|--------|
|                 | in./mm   | in./mm   | in./mm  | in./mm  | in./mm | in./mm  | in./mm   | in./mm   | in./mm | in./mm  | in./mm  | in./mm   | in./mm |
| 1NB412115       | 6.81/173 | 6.14/156 | 3.84/96 | 3.29/84 | 0.31/8 | 0.62/16 | 4.66/118 | 4.03/102 | 0.31/8 | 0.72/18 | 3.22/82 | 7.47/190 | 0.28/7 |
| 1NB412230       | 6.81/173 | 6.14/156 | 3.84/96 | 3.29/84 | 0.31/8 | 0.62/16 | 4.66/118 | 4.03/102 | 0.31/8 | 0.72/18 | 3.22/82 | 7.47/190 | 0.28/7 |

1NB Models



Performance Curves 1NB Models



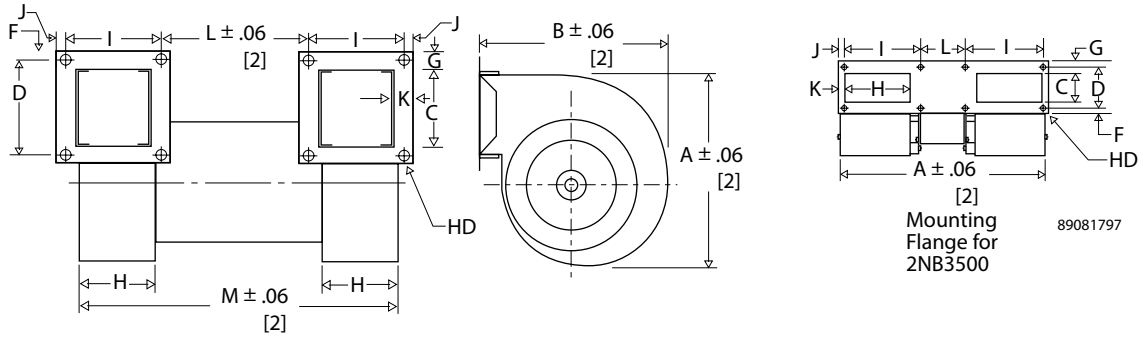
Performance Data **2NB Models**

| <b>ELECTRICAL DATA</b>                 |                   |                   |
|----------------------------------------|-------------------|-------------------|
| <b>Rated Voltage</b>                   | <b>115</b>        | <b>230</b>        |
| Frequency (Hz)                         | 50/60             | 50/60             |
| Maximum Operating Temperature (°F/°C)  | 104/40            | 104/40            |
| <b>2NB300 Models</b>                   |                   |                   |
| <b>Catalog Numbers</b>                 | <b>2NB300115</b>  | <b>2NB300230</b>  |
| Free Airflow (CFM/M <sup>3</sup> /hr.) | 130/221           | 130/221           |
| RPM                                    | 2900              | 2900              |
| Nominal Run Current Maximum (Amps)     | 0.9               | 0.5               |
| Nominal Start Current Maximum (Amps)   | 1.2               | 0.6               |
| Power Consumption (Watts)              | 70                | 70                |
| Weight (lb./kg)                        | 6/2.7             | 6/2.7             |
| <b>2NB3500 Models</b>                  |                   |                   |
| <b>Catalog Numbers</b>                 | <b>2NB3500115</b> | <b>2NB3500230</b> |
| Free Airflow (CFM/M <sup>3</sup> /hr.) | 300/510           | 300/510           |
| RPM                                    | 3050              | 3050              |
| Nominal Run Current Maximum (Amps)     | 1.8               | 0.9               |
| Nominal Start Current Maximum (Amps)   | 2.5               | 1.3               |
| Power Consumption (Watts)              | 125               | 125               |
| Weight (lb./kg)                        | 8/3.6             | 8/3.6             |
| <b>2NB412 Models</b>                   |                   |                   |
| <b>Catalog Numbers</b>                 | <b>2NB412115</b>  | <b>2NB412230</b>  |
| Free Airflow (CFM/M <sup>3</sup> /hr.) | 360/612           | 360/612           |
| RPM                                    | 3000              | 3000              |
| Nominal Run Current Maximum (Amps)     | 1.6               | 0.8               |
| Nominal Start Current Maximum (Amps)   | 4                 | 2                 |
| Power Consumption (Watts)              | 225               | 225               |
| Weight (lb./kg)                        | 9/4.1             | 9/4.1             |
| <b>2NB424 Models</b>                   |                   |                   |
| <b>Catalog Numbers</b>                 | <b>2NB424115</b>  | <b>2NB424230</b>  |
| Free Airflow (CFM/M <sup>3</sup> /hr.) | 595/1011          | 595/1011          |
| RPM                                    | 3100              | 3100              |
| Nominal Run Current Maximum (Amps)     | 4                 | 2                 |
| Nominal Start Current Maximum (Amps)   | 6.8               | 3.5               |
| Power Consumption (Watts)              | 400               | 400               |
| Weight (lb./kg)                        | 12/5.4            | 12/5.4            |
| <b>2NB512 Models</b>                   |                   |                   |
| <b>Catalog Numbers</b>                 | <b>2NB512115</b>  | <b>2NB512230</b>  |
| Free Airflow (CFM/M <sup>3</sup> /hr.) | 500/850           | 500/850           |
| RPM                                    | 1700              | 1700              |
| Nominal Run Current Maximum (Amps)     | 1.5               | 0.8               |
| Nominal Start Current Maximum (Amps)   | 3.5               | 1.7               |
| Power Consumption (Watts)              | 130               | 130               |
| Weight (lb./kg)                        | 14/6.3            | 14/6.3            |

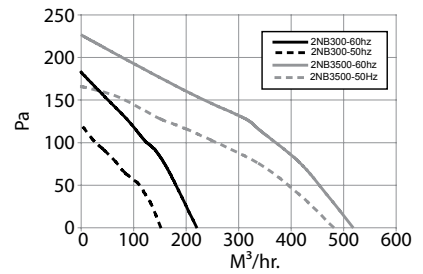
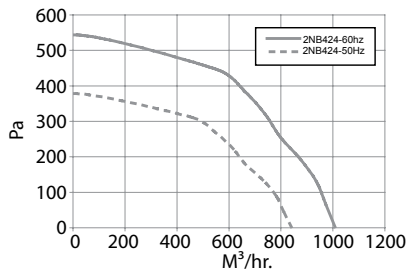
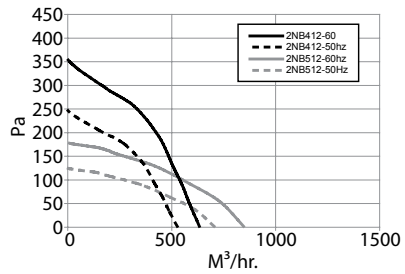
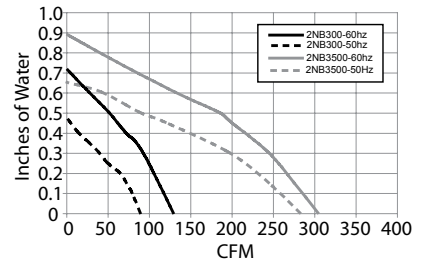
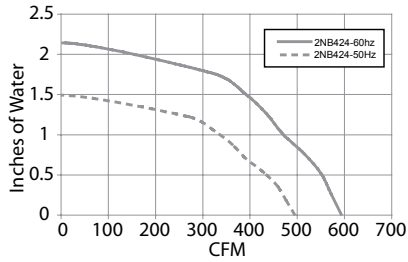
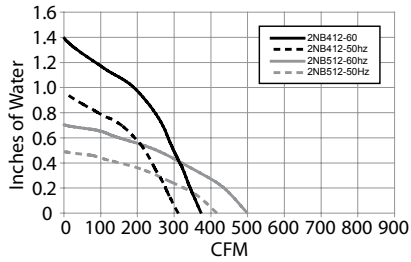
 Design Data **2NB Models**

| CATALOG NUMBERS | A        | B        | C       | D        | F      | G      | H        | I        | J      | K       | L       | M         | HD in/mm |
|-----------------|----------|----------|---------|----------|--------|--------|----------|----------|--------|---------|---------|-----------|----------|
| 2NB300XXX       | 5.19/132 | 5.25/133 | 2.19/56 | 2.50/64  | .28/7  | .14/4  | 2.13/54  | 3.50/89  | .22/6  | .47/12  | 3.81/97 | 8.59/218  | .25/6    |
| 2NB3500XXX      | 5.57/141 | 5.07/129 | 2.00/51 | 2.75/70  | .38/10 | .78/20 | 4.37/111 | 5.25/133 | .38/10 | .50/13  | 3.00/76 | 13.80/350 | .22/6    |
| 2NB412XXX       | 6.19/157 | 6.47/164 | 2.59/66 | 3.22/82  | .31/8  | .63/16 | 3.22/82  | 4.03/102 | .31/8  | .72/18  | 3.31/84 | 10.57/268 | .28/7    |
| 2NB424XXX       | 8.06/205 | 7.00/178 | 3.13/80 | 3.25/83  | .63/16 | .13/3  | 3.50/89  | 4.13/105 | .69/18 | 1.12/28 | 3.63/92 | 11.25/286 | .25/6    |
| 2NB512XXX       | 8.06/205 | 7.75/197 | 3.44/87 | 4.06/103 | .31/8  | .63/16 | 3.66/93  | 4.25/108 | .31/8  | .63/16  | 3.63/92 | 11.56/294 | .28/7    |

2NB Models



Performance Curves 2NB Models



## AC MOTORIZED IMPELLERS



### FEATURES

- Quiet, space-saving fresh air cooling
- Backward curved blades with high efficiency air flow
- Clockwise rotation as viewed from air intake side
- Permanently lubricated double-sealed ball bearings
- Impeller blades made of plastic PA66, galvanized steel or aluminum

### SPECIFICATIONS

- Models that deliver 147– 1558 CFM (250 – 2647 M<sup>3</sup>/Hr)
- Maximum operating temperature of 140°F (60°C)
- For 115 volt AC 60 hz or 230 volt AC 50/60 hz power input voltage with +/- 10% tolerance.
- 54 inch (137cm) lead length
- Separate capacitor included
- Optional inlet ring adds 5% air flow

### NOTES

Visit [www.McLeanCoolingTech.com](http://www.McLeanCoolingTech.com) to download 2D and 3D CAD drawings into the overall design of your electronic system.

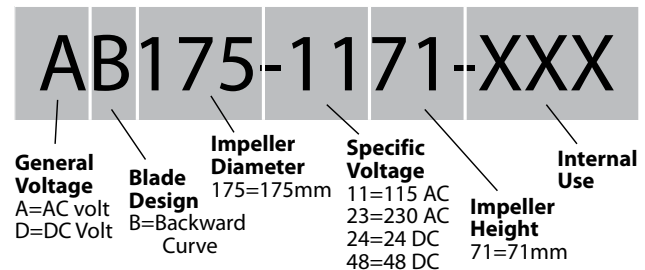
### INDUSTRY STANDARDS

UL Recognized

CE

### APPLICATION

McLean Thermal AC Motorized Impellers offer a quiet, compact cooling option. Slim space-saving design compared to centrifugal blowers that allow multiple mounting options.



### Performance Data AC Motorized Impellers

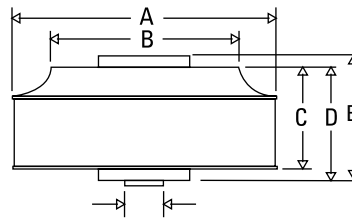
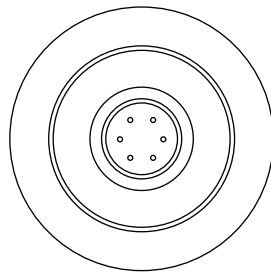
| CATALOG NUMBERS | Diameter  |     | Power Draw |         |           | Free Air Flow       |           |                     | Static Pressure |        | Max. Temp °F/°C | Min. Temp °F/°C | Shipping Weight lb./kg |
|-----------------|-----------|-----|------------|---------|-----------|---------------------|-----------|---------------------|-----------------|--------|-----------------|-----------------|------------------------|
|                 | in./mm    | VAC | Hz         | Watts   | CFM       | M <sup>3</sup> /Hr. | RPM       | In H <sub>2</sub> O | Pa              |        |                 |                 |                        |
| AB1331196701    | 5.24/133  | 115 | 60         | 30      | 173       | 294                 | 3150      | .84                 | 209             | 140/60 | -13/-25         | 2/9             |                        |
| AB1332396701    | 5.24/133  | 230 | 50/60      | 28/30   | 147/173   | 250/294             | 2725/3150 | .60/.84             | 149/209         | 140/60 | -13/-25         | 2/9             |                        |
| AB1751171701    | 6.89/175  | 115 | 60         | 44      | 294       | 500                 | 2875      | 1.08                | 269             | 140/60 | -13/-25         | 2/9             |                        |
| AB1752371701    | 6.89/175  | 230 | 50/60      | 39/44   | 255/294   | 433/500             | 2515/2875 | .83/1.08            | 207/269         | 140/60 | -13/-25         | 2/9             |                        |
| AB1901169901    | 7.48/190  | 115 | 60         | 109     | 384       | 652                 | 2930      | 1.75                | 436             | 104/40 | -13/-25         | 3/1.4           |                        |
| AB1902369901    | 7.48/190  | 230 | 50/60      | 87/109  | 343/384   | 583/652             | 2600/2930 | 1.31/1.75           | 326/436         | 104/40 | -13/-25         | 3/1.4           |                        |
| AB2201171901    | 8.78/223  | 115 | 60         | 120     | 608       | 1033                | 2600      | 1.78                | 443             | 140/60 | -13/-25         | 4/1.6           |                        |
| AB2202371901    | 8.78/223  | 230 | 50/60      | 95/120  | 564/608   | 958/1033            | 2400/2600 | 1.43/1.78           | 356/443         | 104/40 | -13/-25         | 4/1.6           |                        |
| AB2251110901    | 8.86/225  | 115 | 60         | 195     | 834       | 1417                | 3100      | 2.67                | 665             | 140/60 | -13/-25         | 4/1.6           |                        |
| AB2252310901    | 8.86/225  | 230 | 50/60      | 147/195 | 712/834   | 1210/1417           | 2800/3100 | 1.91/2.67           | 476/665         | 140/60 | -13/-25         | 4/1.6           |                        |
| AB2501199901    | 9.88/251  | 115 | 60         | 246     | 846       | 1437                | 2760      | 2.33                | 580             | 140/60 | -13/-25         | 6/2.9           |                        |
| AB2502399901    | 9.88/251  | 230 | 50/60      | 174/246 | 794/846   | 1349/1437           | 2600/2760 | 1.98/2.33           | 493/580         | 140/60 | -13/-25         | 6/2.9           |                        |
| AB2801193901    | 11.06/281 | 115 | 60         | 313     | 1033      | 1755                | 2850      | 2.83                | 705             | 140/60 | -13/-25         | 7/3.3           |                        |
| AB2802393901    | 11.06/281 | 230 | 50/60      | 220/313 | 939/1033  | 1595/1755           | 2600/2850 | 2.32/2.83           | 578/705         | 113/45 | -13/-25         | 7/3.3           |                        |
| AB3201116101    | 12.52/318 | 115 | 60         | 161     | 1244      | 2114                | 1600      | 1.48                | 369             | 140/60 | -13/-25         | 8/3.8           |                        |
| AB3202316101    | 12.52/318 | 230 | 50/60      | 117/161 | 1095/1244 | 1860/2114           | 1400/1600 | 1.08/1.48           | 269/369         | 140/60 | -13/-25         | 8/3.8           |                        |
| AB3551117101    | 14.13/359 | 115 | 60         | 172     | 1558      | 2647                | 1590      | 1.99                | 496             | 104/40 | -13/-25         | 10/4.9          |                        |
| AB3552317101    | 14.13/359 | 230 | 50/60      | 172/250 | 1398/1558 | 2375/2647           | 1400/1590 | 1.48/1.99           | 369/496         | 104/40 | -13/-25         | 10/4.9          |                        |

Free air flow and static pressure listed at 60 hz. See Performance Curves for complete details.

UL pending for AB355 models.

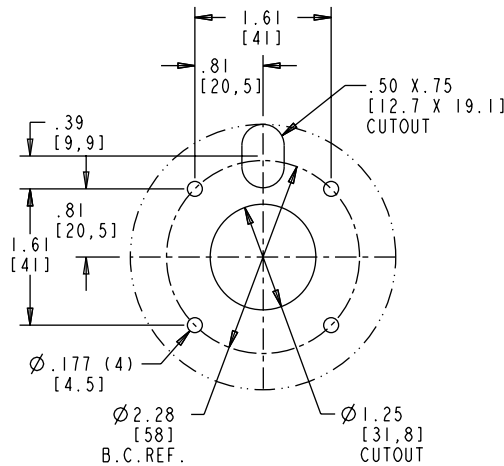
Impeller Dimensions AC Motorized Impellers

| CATALOG NUMBERS | Diameter (A) | Inside Diameter (B) | Height (C) | Height (D) | Motor Height (E) |
|-----------------|--------------|---------------------|------------|------------|------------------|
|                 | in./mm       | in./mm              | in./mm     | in./mm     | in./mm           |
| AB133           | 5.24/133     | 3.67/93             | 2.36/60    | 3.78/96    | --               |
| AB175           | 6.89/175     | 5.16/131            | 2.44/62    | 2.80/71    | --               |
| AB190           | 7.48/190     | 5.16/131            | 2.44/62    | 2.70/69    | 2.80/71          |
| AB220           | 8.78/223     | 6.36/162            | 2.52/64    | 2.80/71    | --               |
| AB225           | 8.86/225     | 6.06/154            | 3.50/89    | 4.21/107   | --               |
| AB250           | 9.88/251     | 6.85/174            | 3.36/85    | 3.90/99    | --               |
| AB280           | 11.06/281    | 7.48/190            | 3.24/82    | 3.64/93    | 3.82/97          |
| AB320           | 12.52/318    | 8.66/220            | 5.51/140   | 6.10/155   | --               |
| AB355           | 14.13/359    | 9.84/250            | 5.79/147   | 6.50/165   | --               |

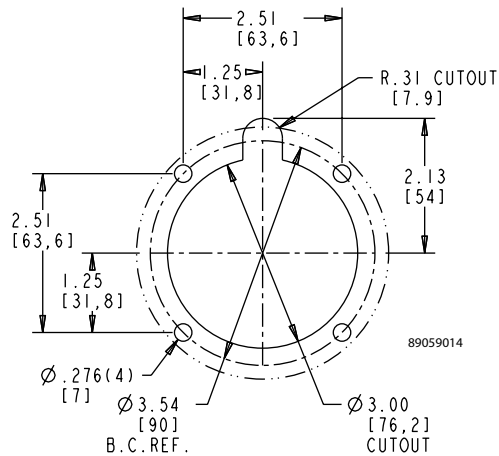


See below for base mounting patterns

AB133 - AB280



AB320 / AB355



**Base Mounting Patterns**

For models AB133 thru AB280:

- 4 Holes on 2.28 (58.0 mm) bolt circle diameter.
- M4 x 5mm maximum thread depth.
- 1.25 (31.8 mm) diameter cutout

For models AB320 and AB355:

- 4 Holes on 3.54 (90.0 mm) bolt circle diameter.
- M6 x 12mm maximum thread depth.
- 3.00 (76.2 mm) diameter cutout.

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## Inlet Ring Dimensions AC Motorized Impellers

| CATALOG NUMBERS | Inlet Ring Part No. | Diameter (A) |         | Height (B) |        | Mounting (C)* |        | Number of Mounting Holes |
|-----------------|---------------------|--------------|---------|------------|--------|---------------|--------|--------------------------|
|                 |                     | in./mm       | in./mm  | in./mm     | in./mm | in./mm        | in./mm |                          |
| AB133           | 101072120SP         | 5.08/129     | .51/13  | 4.65/118   |        |               | 4      |                          |
| AB175           | 101072121SP         | 6.69/170     | .55/14  | 6.22/158   |        |               | 4      |                          |
| AB190           | 101072121SP         | 6.69/170     | .55/14  | 6.22/158   |        |               | 4      |                          |
| AB220           | 101072123SP         | 9.92/252     | .83/21  | 9.29/236   |        |               | 3      |                          |
| AB225           | 101072124SP         | 8.78/223     | 1.10/28 | 8.30/211   |        |               | 4      |                          |
| AB250           | 101072125SP         | 10.04/255    | 1.30/33 | 9.45/240   |        |               | 4      |                          |
| AB280           | 101072126SP         | 11.02/280    | 1.38/35 | 10.24/260  |        |               | 4      |                          |
| AB320           | 101072127SP         | 11.81/300    | 1.06/27 | 11.02/280  |        |               | 4      |                          |
| AB355           | 101072129SP         | 13.78/350    | 1.22/31 | 12.80/325  |        |               | 6      |                          |

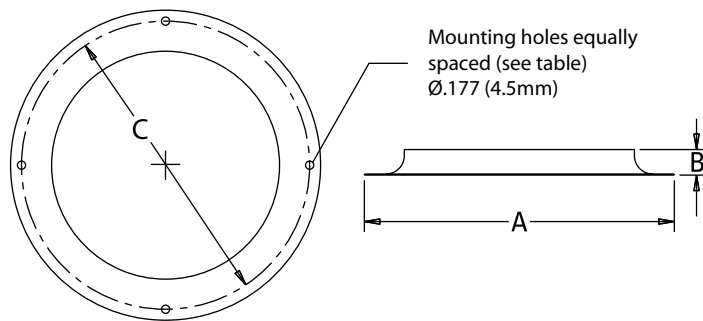
Order Separately

\*Bolt Circle Diameter for equally spaced holes listed:

Holes are .177 (4.5 mm) each.

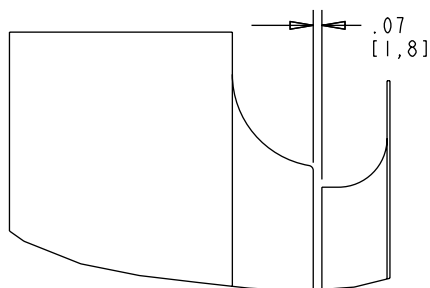
All inlet rings have 4 holes, except for 101072123SP which has 3 holes and 101072129SP has 6 holes.

Inlet Ring

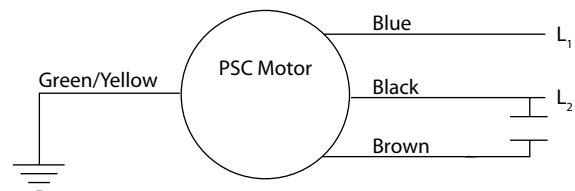


## Impeller and Inlet Ring Interface

Wheel / Inlet Ring Recommended Gap



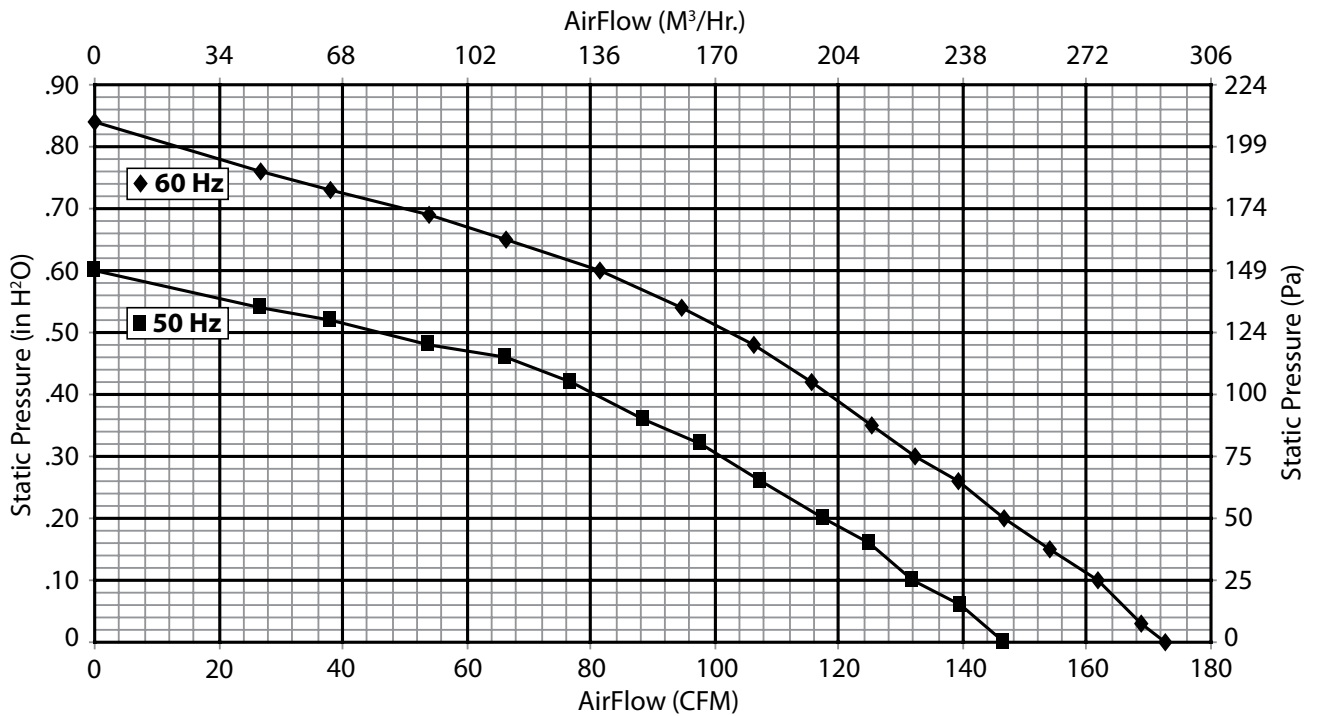
## Motor Wiring



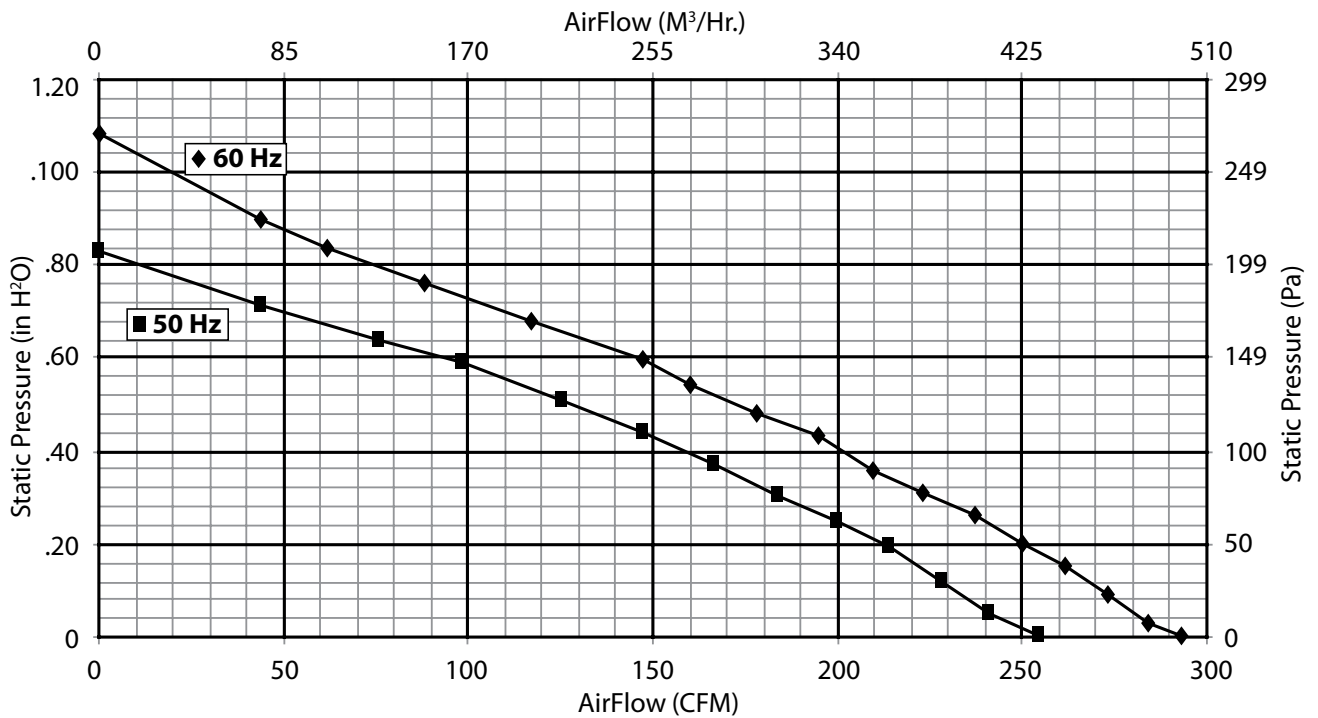
89059015



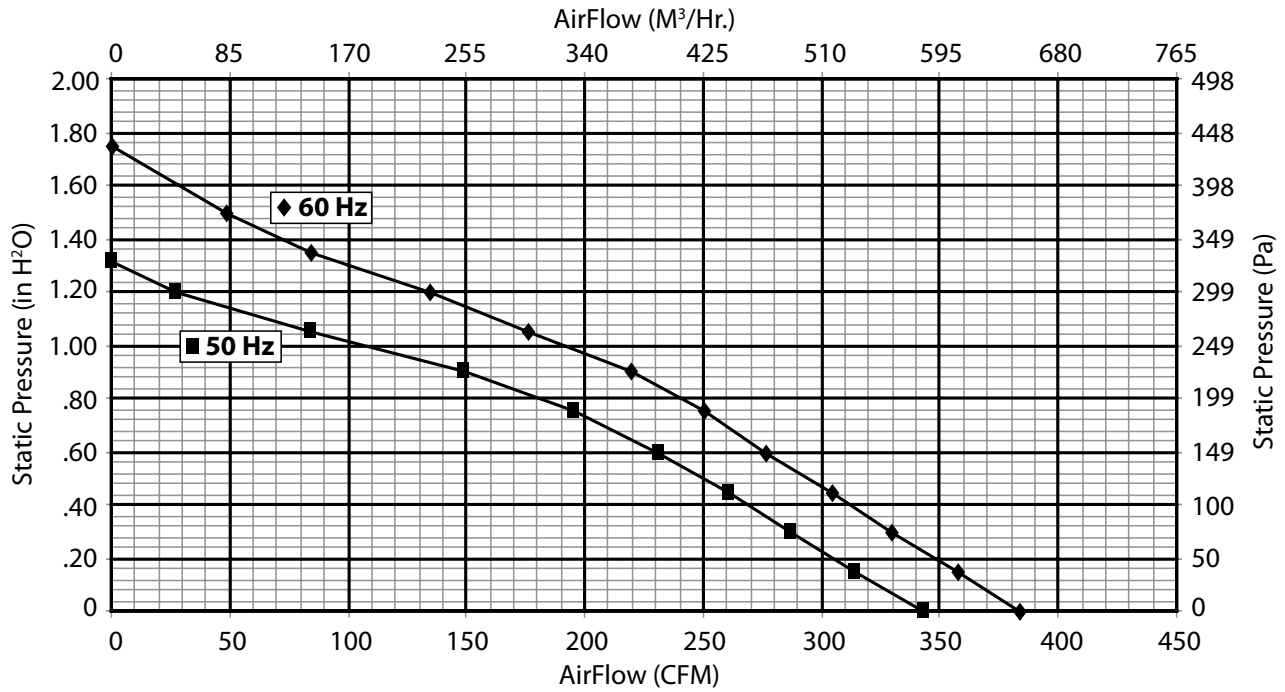
Performance Curve for AB133 (airflow with inlet ring)



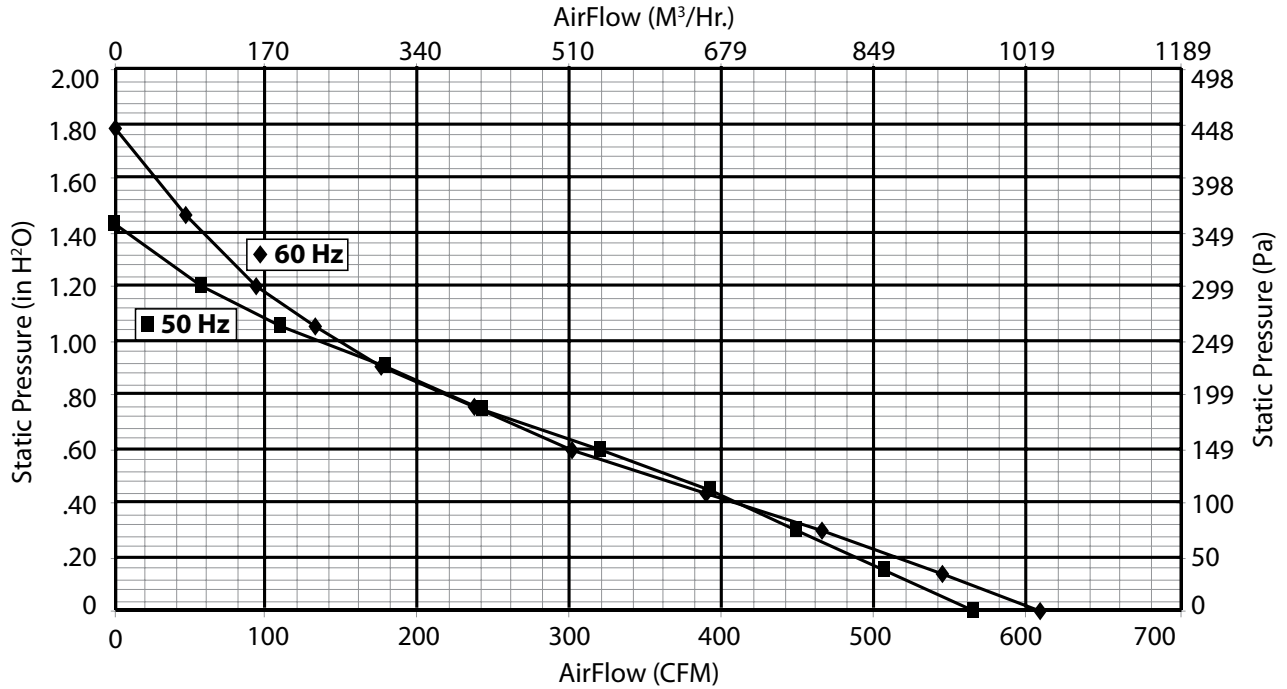
Performance Curve for AB175 (airflow with inlet ring)



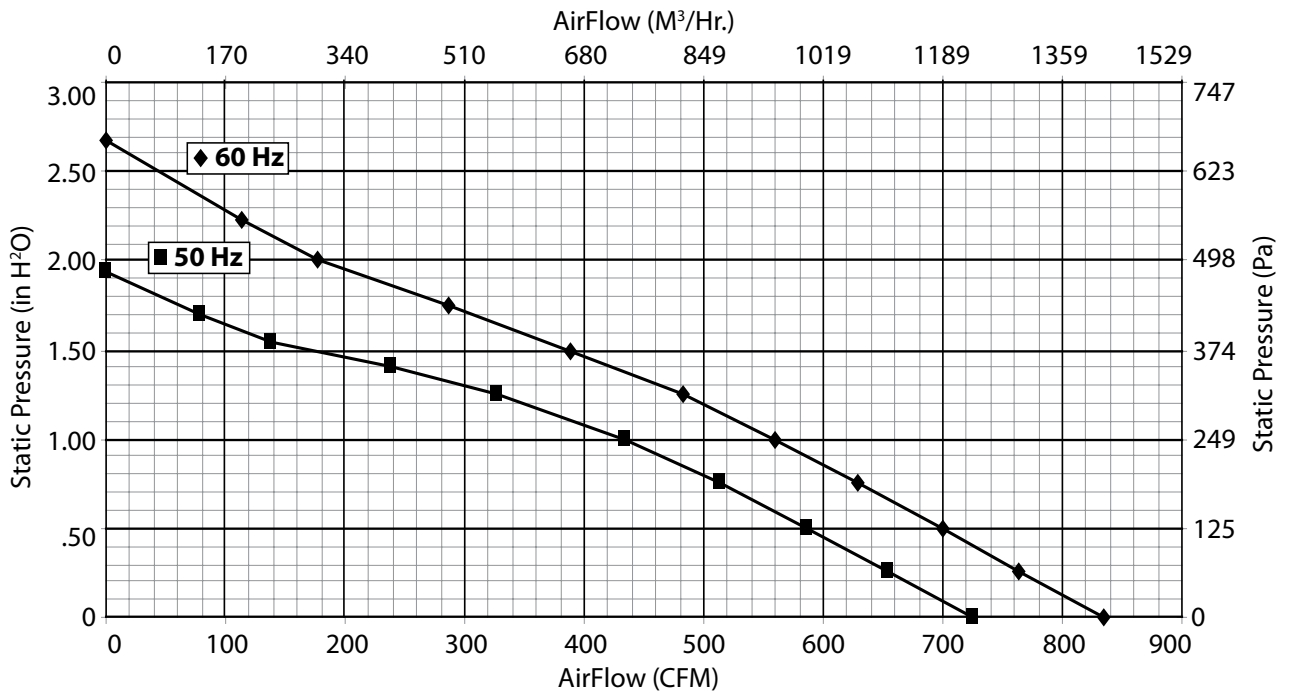
Performance Curve for AB190 (airflow with inlet ring)



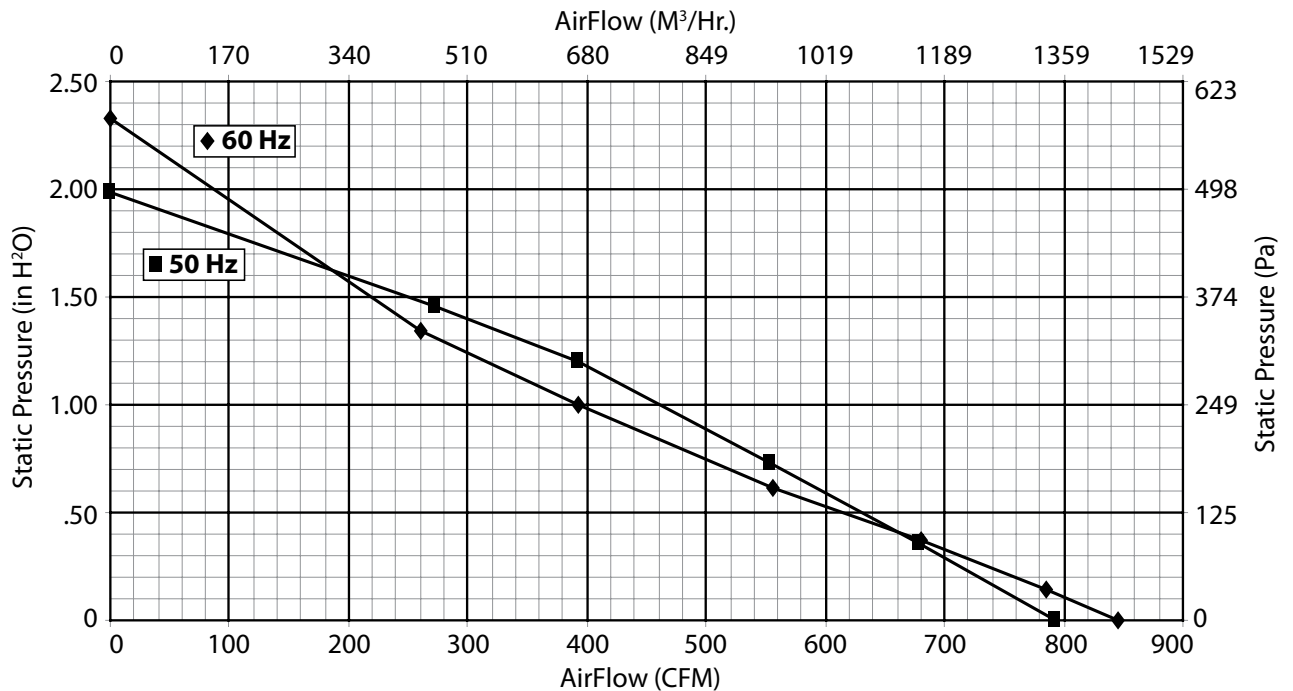
Performance Curve for AB220 (airflow with inlet ring)



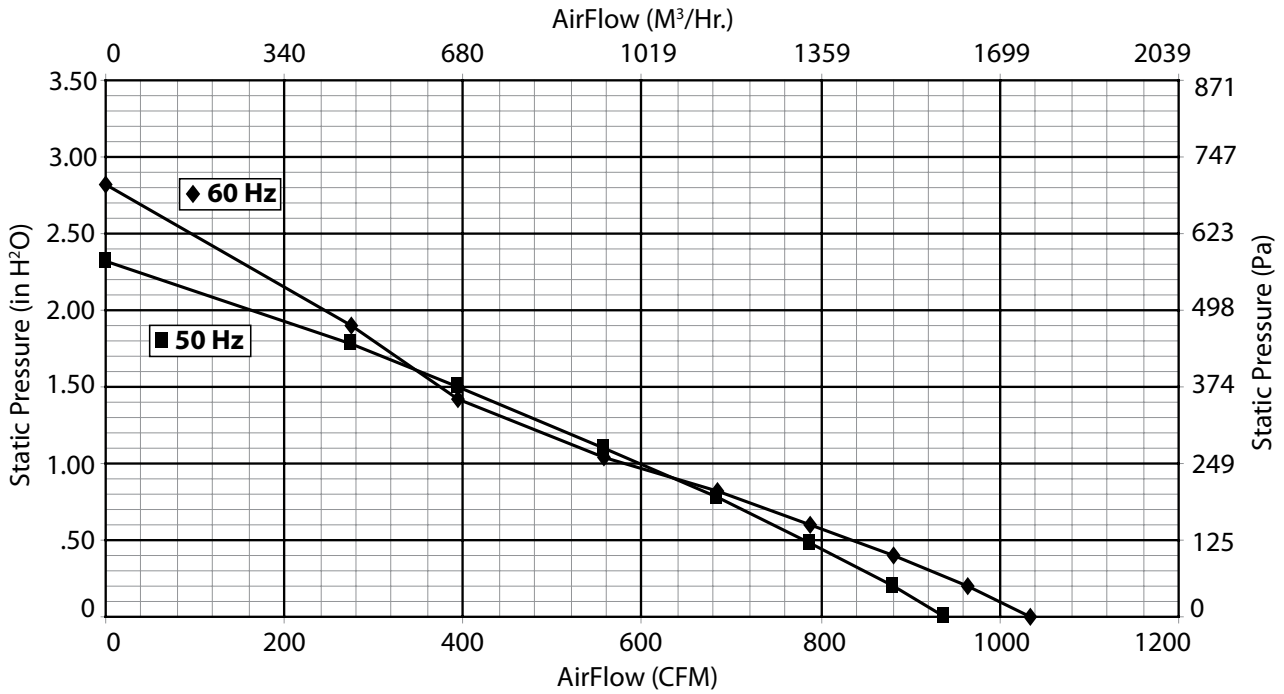
Performance Curve for AB225 (airflow with inlet ring)



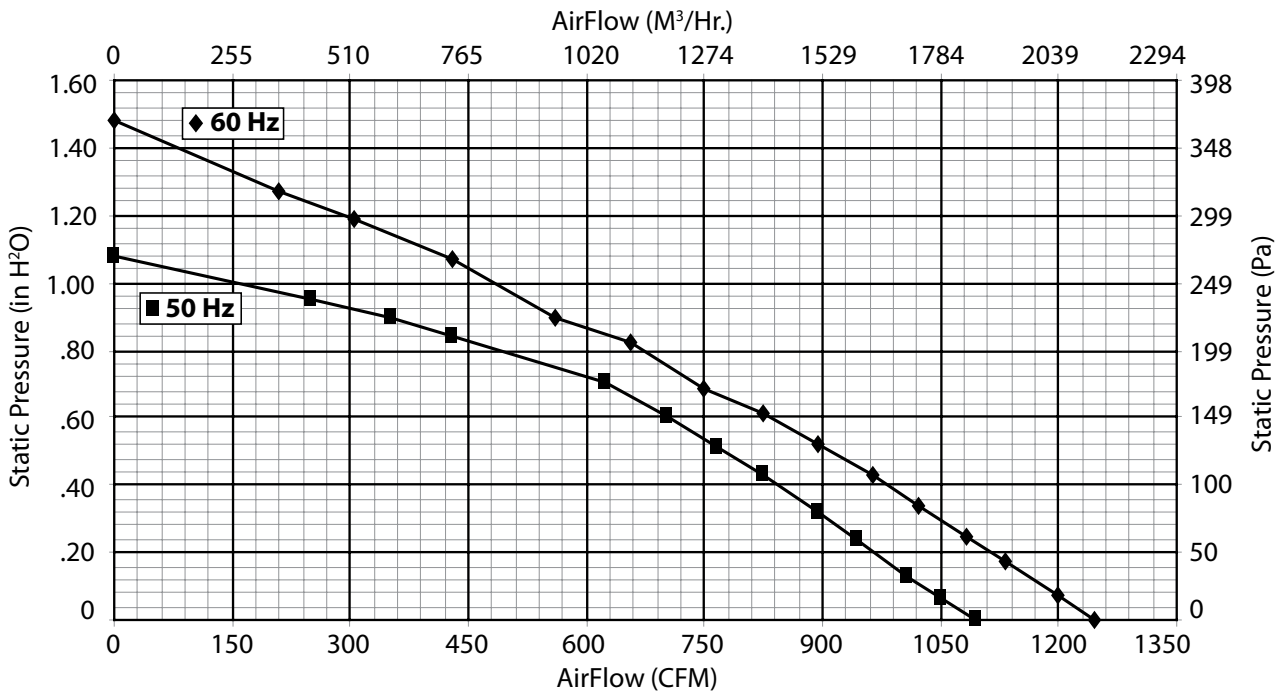
Performance Curve for AB250 (airflow with inlet ring)



Performance Curve for AB280 (airflow with inlet ring)

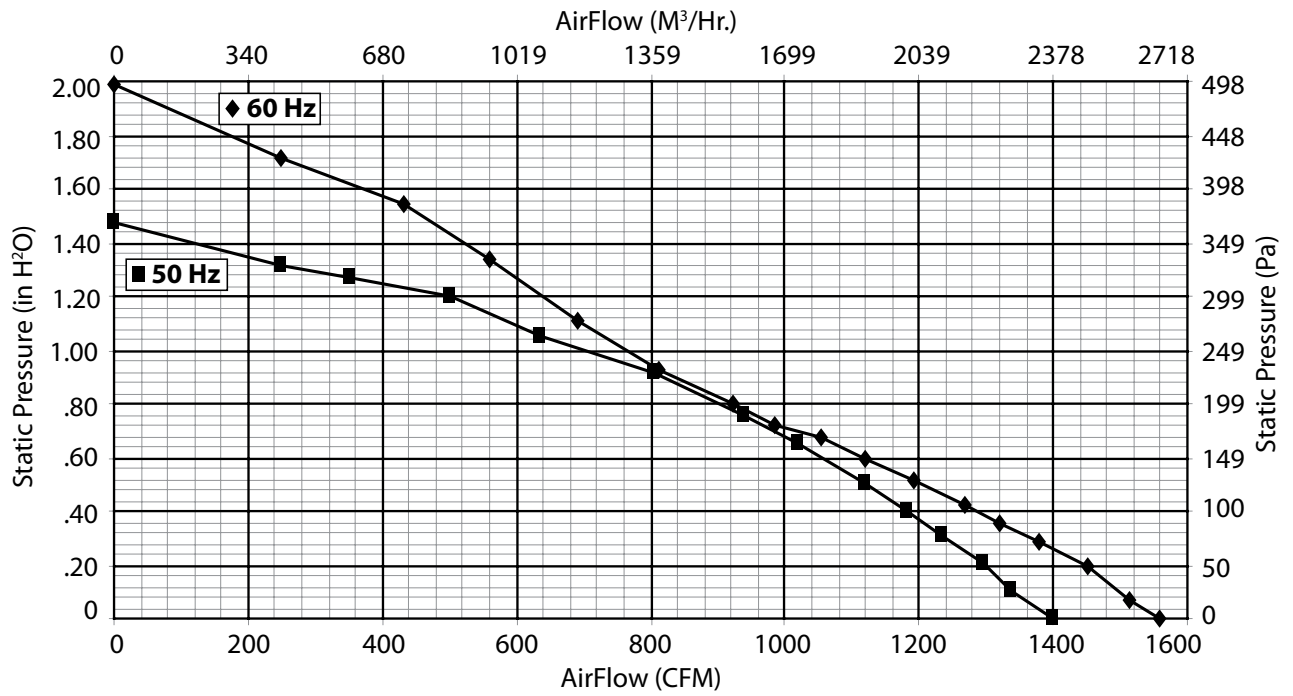


Performance Curve for AB320 (airflow with inlet ring)



Note: Without inlet ring, assume 5% reduction in air flow.

Performance Curve for AB355 (airflow with inlet ring)



## DC MOTORIZED IMPELLERS



### FEATURES

- Quiet, space-saving fresh air cooling
- Backward curved blades with high efficiency air flow
- Clockwise rotation as viewed from air intake side
- Permanently lubricated double-sealed ball bearings
- Impeller blades made of plastic PA66, galvanized steel or aluminum
- Brushless DC motor for excellent control
- Reverse polarity protected
- Every unit functionally tested before shipping

### SPECIFICATIONS

- Models that deliver 100 – 565 CFM (170 – 960 M<sup>3</sup>/Hr)
- Maximum operating temperature of 149°F (65°C)
- Input voltage +/- 25% tolerance
- 24 VDC, 48 VDC, select 12 VDC models
- Capable of working with PWM (Pulse Width Modulation) and linear controls for variable speed operation. 5 volt (2 pulse per rev) tach output.

### OPTIONS

- Optional inlet ring
- Custom solutions available, including additional 12 volt DC models and custom wire connections

### NOTES

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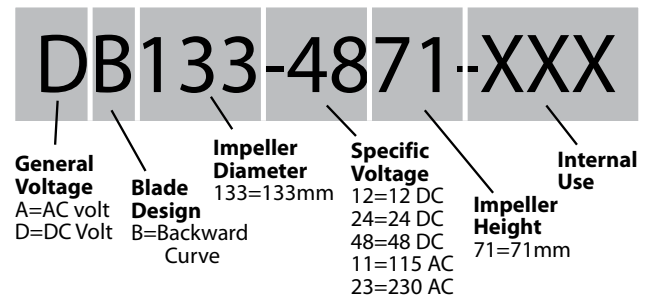
### INDUSTRY STANDARDS

UL Recognized

CE

### APPLICATION

McLean Thermal DC Motorized Impellers offer a quiet, compact cooling option. Slim space-saving design compared to centrifugal blowers that allow multiple mounting options.

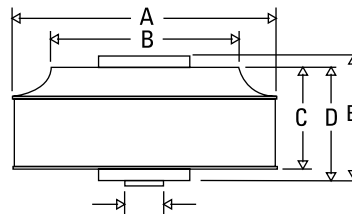
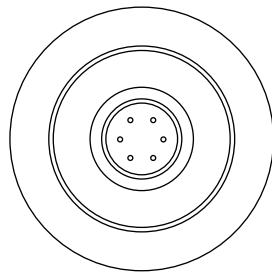


### Performance Data DC Motorized Impellers

| CATALOG NUMBERS | Diameter in./mm | Power Draw |       | Free Air Flow |                     |      | Static Pressure     |     | Max. Temp °F/°C | Min. Temp °F/°C | Shipping Weight lb./kg |
|-----------------|-----------------|------------|-------|---------------|---------------------|------|---------------------|-----|-----------------|-----------------|------------------------|
|                 |                 | VDC        | Watts | CFM           | M <sup>3</sup> /Hr. | RPM  | In H <sub>2</sub> O | Pa  |                 |                 |                        |
| DB1021254401    | 4.02/102        | 12         | 28    | 100           | 170                 | 6400 | 1.7                 | 423 | 149/65          | -4/-20          | 1/5                    |
| DB1022454401    | 4.02/102        | 24         | 27    | 100           | 170                 | 6300 | 1.7                 | 423 | 149/65          | -4/-20          | 1/5                    |
| DB1024854401    | 4.02/102        | 48         | 29    | 100           | 170                 | 6400 | 1.7                 | 423 | 149/65          | -4/-20          | 1/5                    |
| DB1331242401    | 5.24/133        | 12         | 27    | 140           | 238                 | 4600 | 1.4                 | 348 | 149/65          | -4/-20          | 2/9                    |
| DB1332442401    | 5.24/133        | 24         | 32    | 140           | 238                 | 4900 | 1.4                 | 348 | 149/65          | -4/-20          | 2/9                    |
| DB1334842401    | 5.24/133        | 48         | 39    | 140           | 238                 | 5300 | 1.4                 | 348 | 149/65          | -4/-20          | 2/9                    |
| DB1332491701    | 5.24/133        | 24         | 68    | 220           | 373                 | 4800 | 1.6                 | 399 | 149/65          | -4/-20          | 2/9                    |
| DB1334891701    | 5.24/133        | 48         | 72    | 220           | 373                 | 4800 | 1.6                 | 399 | 149/65          | -4/-20          | 2/9                    |
| DB1752455701    | 6.89/175        | 24         | 68    | 305           | 518                 | 4200 | 2.3                 | 573 | 149/65          | -4/-20          | 3/1.4                  |
| DB1754855701    | 6.89/175        | 48         | 72    | 305           | 518                 | 4200 | 2.3                 | 573 | 149/65          | -4/-20          | 3/1.4                  |
| DB1752469701    | 6.89/175        | 24         | 68    | 360           | 611                 | 3900 | 1.8                 | 448 | 149/65          | -4/-20          | 3/1.4                  |
| DB1754869701    | 6.89/175        | 48         | 72    | 360           | 611                 | 3900 | 1.8                 | 448 | 149/65          | -4/-20          | 3/1.4                  |
| DB2202471701    | 8.66/220        | 24         | 92    | 565           | 960                 | 2950 | 2.0                 | 498 | 149/65          | -4/-20          | 4/1.8                  |
| DB2204871701    | 8.66/220        | 48         | 92    | 565           | 960                 | 2950 | 2.0                 | 498 | 149/65          | -4/-20          | 4/1.8                  |

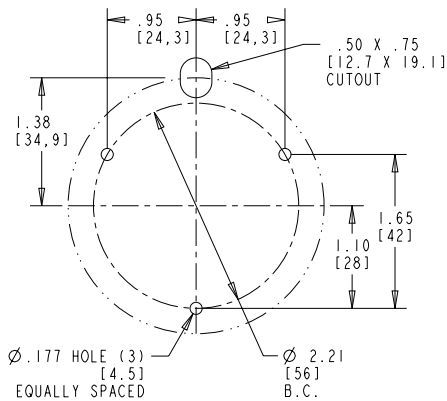
Impeller Dimensions **DC Motorized Impellers**

| CATALOG NUMBERS | Diameter (A) |     | Diameter (B) |     | Height (C) |    | Height (D) |    | Motor Height (E) |    |
|-----------------|--------------|-----|--------------|-----|------------|----|------------|----|------------------|----|
|                 | in.          | mm  | in.          | mm  | in.        | mm | in.        | mm |                  |    |
| DB102XX54       | 4.00         | 102 | 2.80         | 71  | 1.78       | 45 | 2.13       | 54 | --               | -- |
| DB133XX42       | 5.25         | 133 | 3.70         | 94  | 1.35       | 34 | 1.65       | 42 | --               | -- |
| DB133XX91       | 5.25         | 133 | 3.70         | 94  | 2.35       | 60 | 3.58       | 91 | --               | -- |
| DB175XX55       | 6.89         | 175 | 5.16         | 131 | 1.87       | 48 | 2.15       | 55 | 2.41             | 61 |
| DB175XX69       | 6.89         | 175 | 5.16         | 131 | 2.46       | 63 | 2.70       | 69 | --               | -- |
| DB220XX71       | 8.66         | 220 | 6.28         | 160 | 2.47       | 63 | 2.80       | 71 | --               | -- |

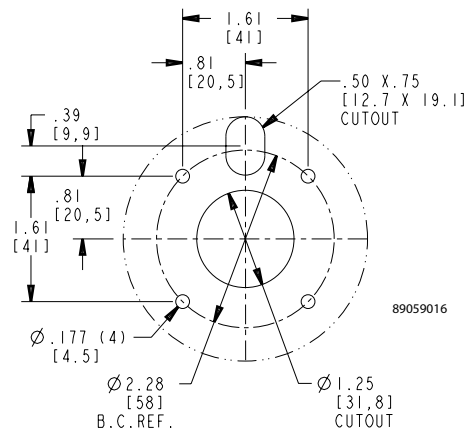


See below for base mounting patterns

DB102 - DB133-XX42



DB133-XX91 - DB220



**Base Mounting Patterns**

For models DB102-XX54 and DB133-XX42

- 3 Holes on 2.21 (56 mm) bolt circle diameter.
- 8-32 x .19 maximum thread depth.

For all other models:

- 4 Holes on 2.28 (58.0 mm) bolt circle diameter.
- M4 x 5mm maximum thread depth.

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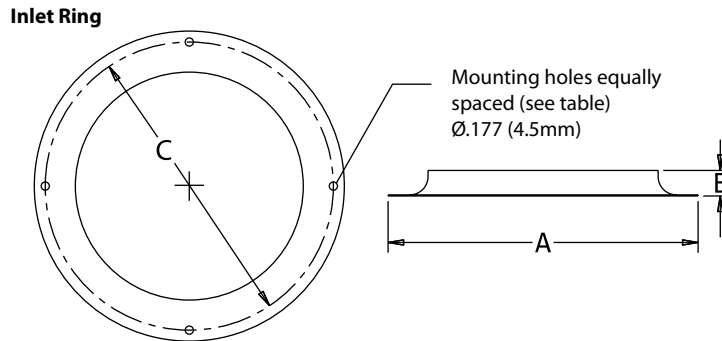
Inlet Ring Dimensions **DC Motorized Impellers**

| CATALOG NUMBERS | Inlet Ring Part No. | Diameter (A) |     | Height (B) |     | Mounting (C)* |     | Number of Mounting Holes |
|-----------------|---------------------|--------------|-----|------------|-----|---------------|-----|--------------------------|
|                 |                     | in.          | mm  | in.        | mm  | in.           | mm  |                          |
| DB102           | 89070536            | 4.00         | 102 | .25        | 6.4 | 3.70          | 94  | 3                        |
| DB133           | 101072120SP         | 5.08         | 129 | .51        | 13  | 4.65          | 118 | 4                        |
| DB175           | 101072121SP         | 6.69         | 170 | .55        | 14  | 6.22          | 158 | 4                        |
| DB220           | 101072123SP         | 9.92         | 252 | .83        | 21  | 9.29          | 236 | 3                        |

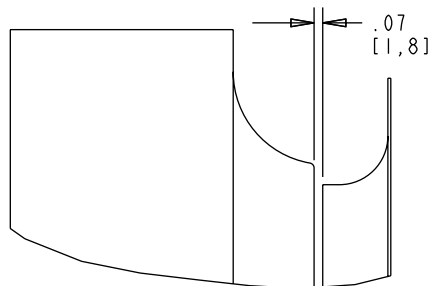
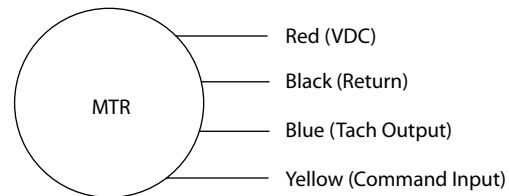
\*Bolt Circle Diameter for equally spaced holes listed:

Holes are .177 (4.5 mm) each.

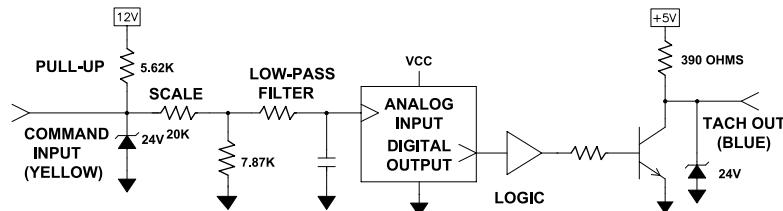
All inlet rings have 4 holes, except for 10-1072-123 which has 3 holes.


**Impeller and Inlet Ring Interface**

Wheel / Inlet Ring Recommended Gap


**Motor Wiring**


89059017

**Impeller Speed Control Interface**


DC Impellers can be speed controlled via the yellow input lead in either of two ways:

1. 250 Hz to 4kHz 10 VDC PWM signal.
2. 0 to 10 VDC analog signal (linear control).

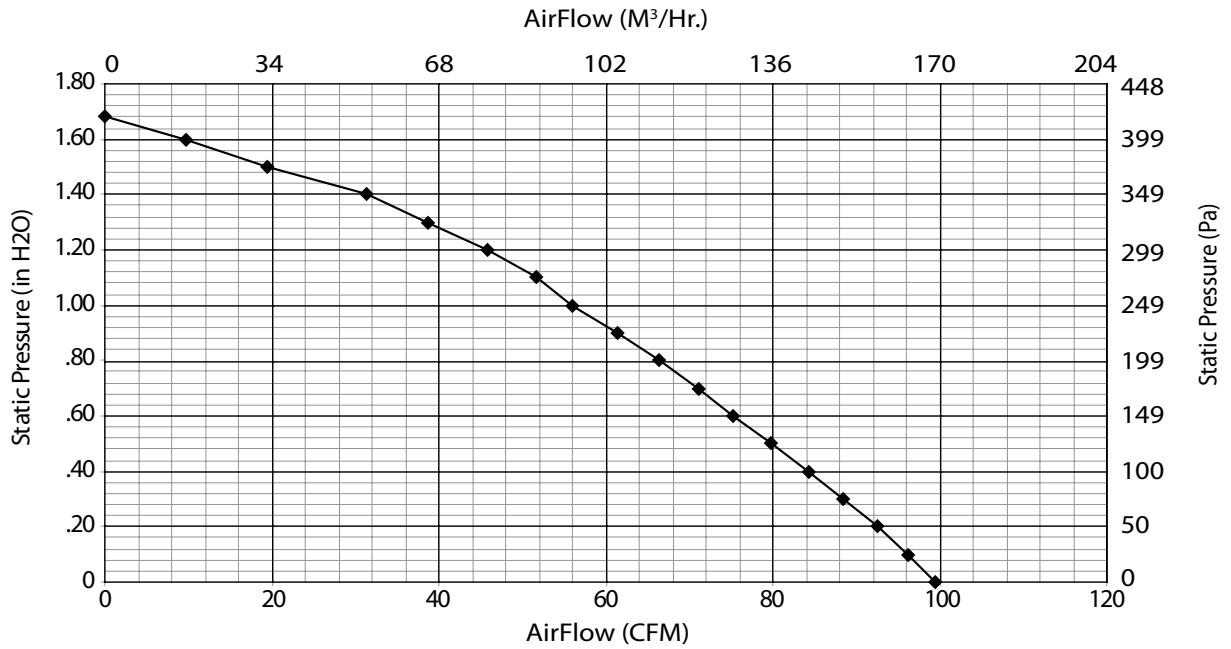
Command input (1 - 10VDC) corresponds linearly from zero to max bus voltage applied to the motor. Command input must be above 1 VDC before any measurable voltage is applied to the motor. The applied voltage is roughly proportional to the motor speed.

- With the yellow lead left open, the impeller will run at full speed.
- With the yellow lead connected to the black lead, the impeller will stop.
- The blue lead produces a 5 VDC Tach output, 2 pulses per revolution.

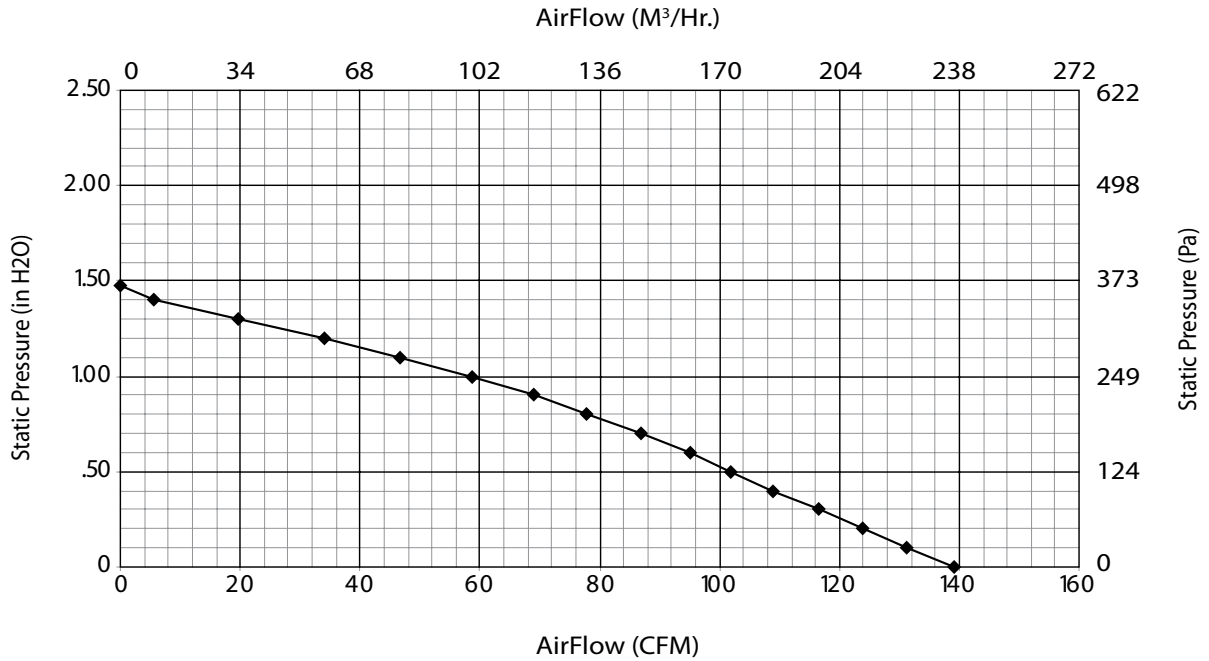
89059018



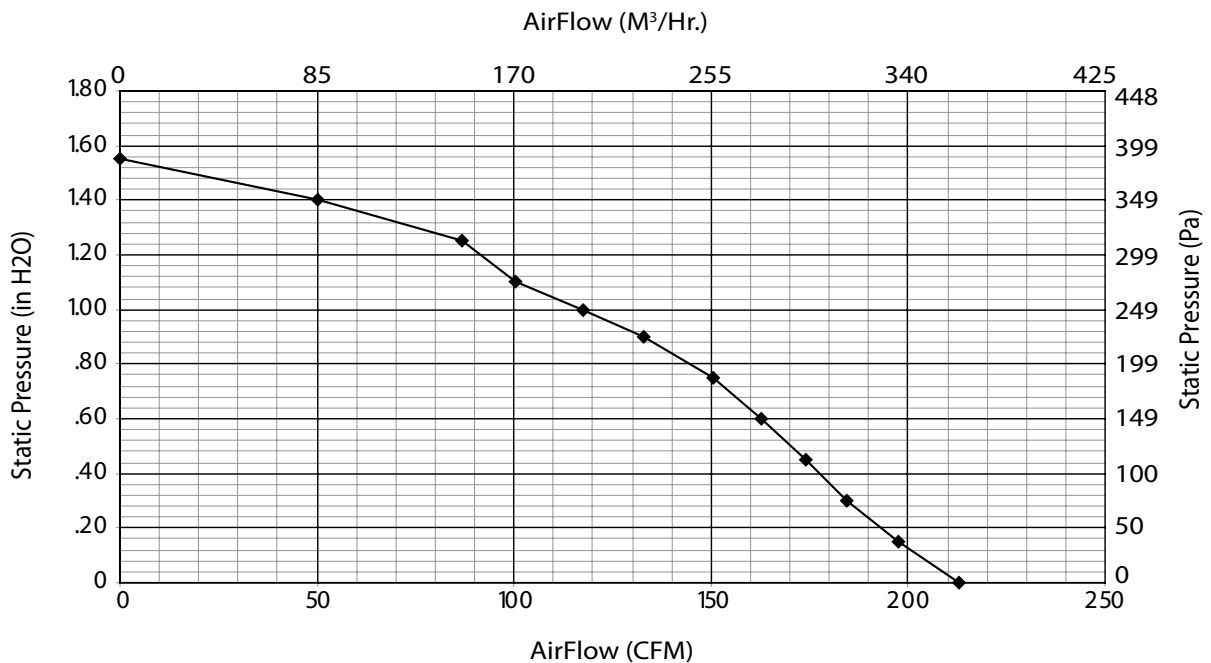
Performance Curve for DB102-XX54 (airflow with inlet ring)



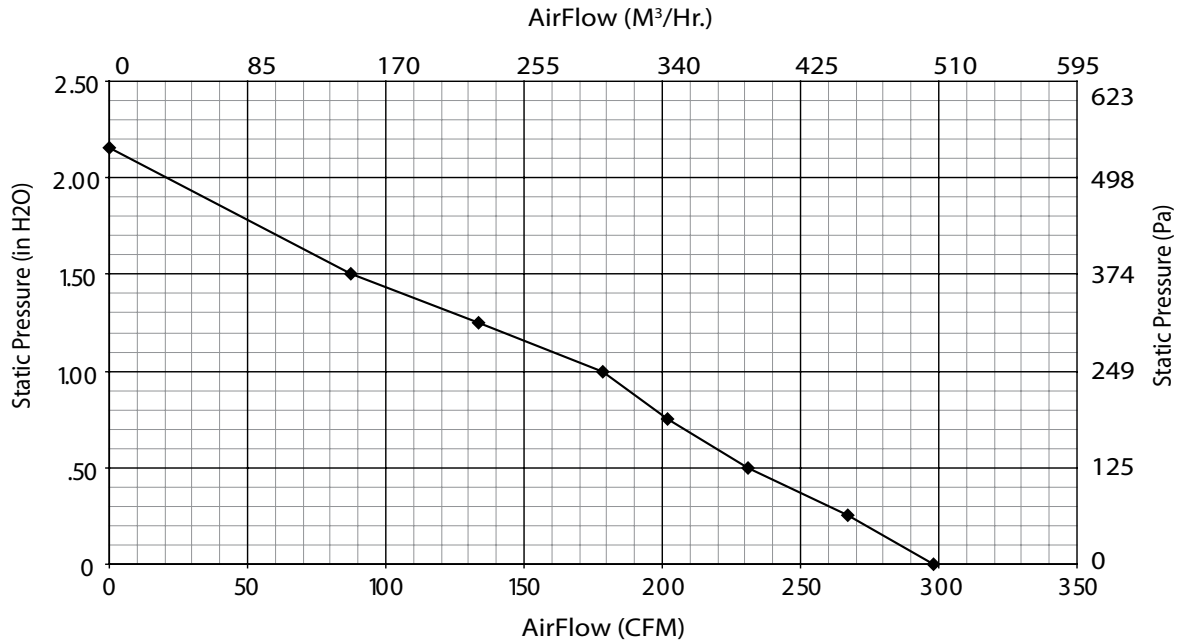
Performance Curve for DB133-XX42 (airflow with inlet ring)



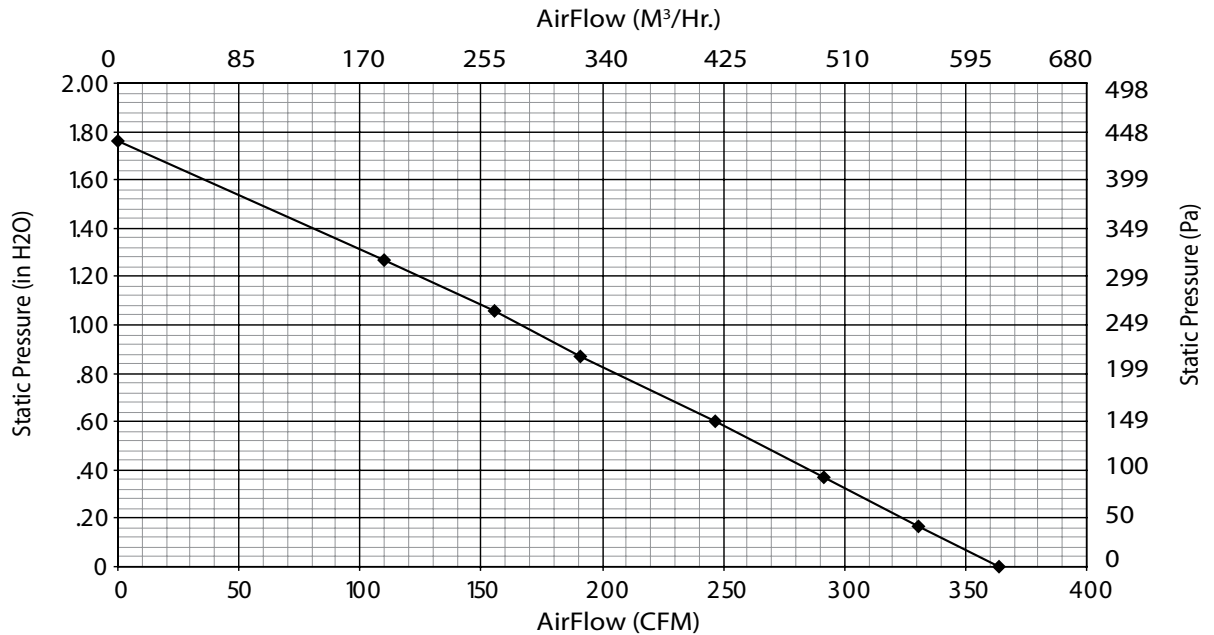
Performance Curve for DB133-XX91 (airflow with inlet ring)



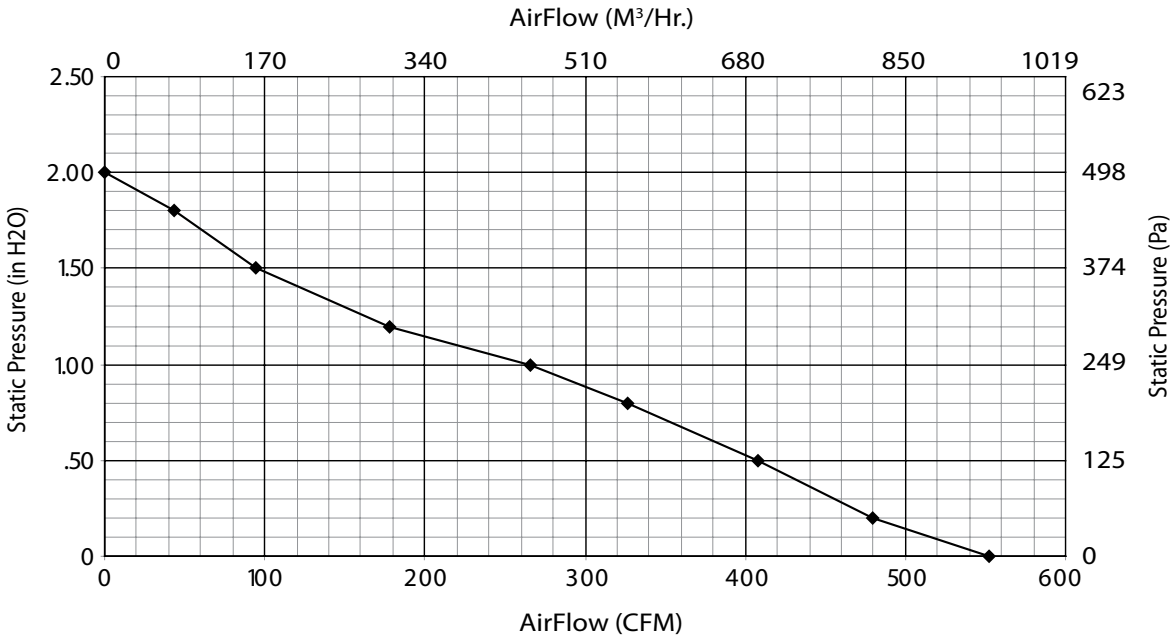
Performance Curve for DB175-XX55 (airflow with inlet ring)



Performance Curve for DB175-XX69 (airflow with inlet ring)



Performance Curve for DB220-XX71 (airflow with inlet ring)

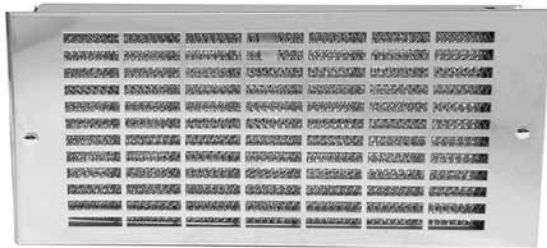


4

**Notes**



## FILTER GRILLE PANEL



### APPLICATION

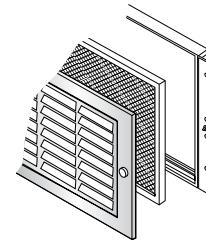
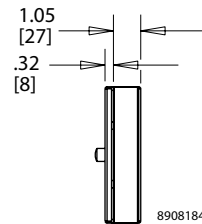
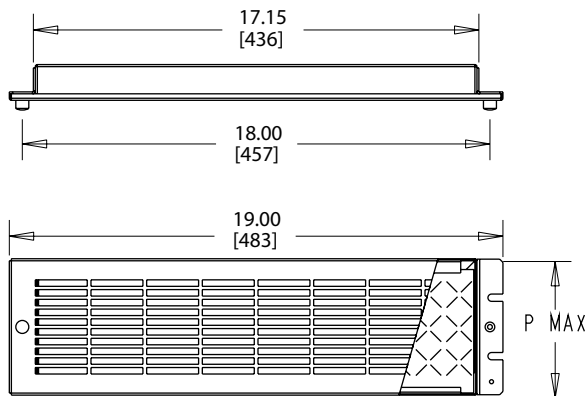
Filter Grille Panels add valuable ventilation to a rack for either inlet or exhaust air. Used alone, filter grille panels allow adequate air flow on natural convection applications or in conjunction with an air moving device to provide filtered air intake.

### FEATURES

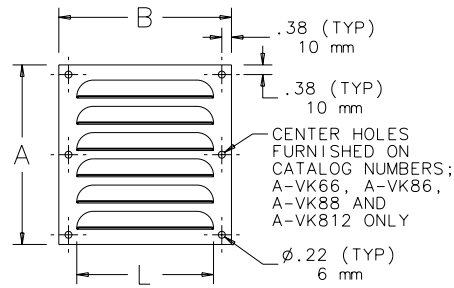
- Permanent, Washable Aluminum Filter
- 19-inch Rack Mountable
- Brushed Aluminum or Stainless Steel Grilles

### Performance Data Filter Grille Panel

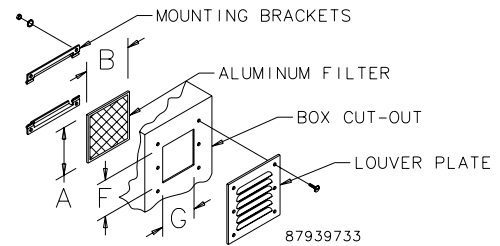
| CATALOG NUMBERS      |        |          |          |          |           |
|----------------------|--------|----------|----------|----------|-----------|
| Stainless Steel      | 35G19  | 525G19   | 7G19     | 875G19   | 105G19    |
| Aluminum             | 35H19  | 525H19   | 7H19     | 875H19   | 105H19    |
| UNIT CONSTRUCTION    |        |          |          |          |           |
| Height PMax (in./mm) | 3.5/89 | 5.25/133 | 7.00/178 | 8.75/222 | 10.50/267 |
| Width (in./mm)       | 19/483 | 19/483   | 19/483   | 19/483   | 19/483    |
| Weight (lb./kg)      | 2/1.0  | 3/1.4    | 5/2.2    | 5/2.2    | 5/2.2     |



**LOUVER PLATE KITS**



Designed to provide ventilation in enclosures where excessive internal heat or excessive moisture is a problem. Although louvers cannot keep all moisture out of an enclosure, gasketing or sealing the perimeter of the louver plate reduces problems associated with moisture intrusion. These kits may be easily installed in the field by making a cutout of the proper size and attaching the louver plate in place. Louver plates are made from 14 gauge steel with an ANSI 61 gray polyester powder finish over pretreated surfaces or 316 stainless steel. Hardware is furnished for mounting. Custom sizes, materials, finishes, etc., can be provided on special order.

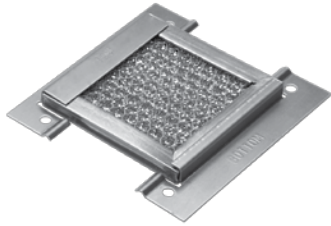


**Design Data Louver Plate Kits**

| CATALOG NUMBERS | Dimensions<br>A x B<br>in./mm | Number<br>of<br>Louvers | Depth D<br>in./mm | Length L<br>in./mm | Cutout<br>Size, F<br>in./mm | Cutout<br>Size, G<br>in./mm |
|-----------------|-------------------------------|-------------------------|-------------------|--------------------|-----------------------------|-----------------------------|
| AVK23           | 3.25 x 3.25/83 x 83           | 3                       | 0.19/5 2.00/51    | .86/5.54           | 2.00/51                     | 1.75/44                     |
| AVK23SS6        | 3.25 x 3.25/83 x 83           | 3                       | 0.19/5 2.00/51    | .86/5.54           | 2.00/51                     | 1.75/44                     |
| AVK33           | 3.88 x 4.50/98 x 114          | 3                       | 0.25/6 3.00/76    | 1.32/8.52          | 2.62/67                     | 3.00/76                     |
| AVK33SS6        | 3.88 x 4.50/98 x 114          | 3                       | 0.25/6 3.00/76    | 1.32/8.52          | 2.62/67                     | 3.00/76                     |
| AVK34           | 4.75 x 4.50/121 x 114         | 4                       | 0.25/6 3.00/76    | 1.76/11.35         | 3.50/89                     | 3.00/76                     |
| AVK34SS6        | 4.75 x 4.50/121 x 114         | 4                       | 0.25/6 3.00/76    | 1.76/11.35         | 3.50/89                     | 3.00/76                     |
| AVK43           | 4.50 x 5.50/114 x 140         | 3                       | 0.25/6 4.00/102   | 1.88/12.10         | 3.25/83                     | 4.00/102                    |
| AVK43SS6        | 4.50 x 5.50/114 x 140         | 3                       | 0.25/6 4.00/102   | 1.88/12.10         | 3.25/83                     | 4.00/102                    |
| AVK44           | 5.62 x 5.50/143 x 140         | 4                       | 0.25/6 4.00/102   | 2.50/16.13         | 4.38/111                    | 4.00/102                    |
| AVK44SS6        | 5.62 x 5.50/143 x 140         | 4                       | 0.25/6 4.00/102   | 2.50/16.13         | 4.38/111                    | 4.00/102                    |
| AVK64           | 5.62 x 7.50/143 x 191         | 4                       | 0.31/8 6.00/152   | 5.21/33.61         | 4.38/111                    | 6.00/152                    |
| AVK64SS6        | 5.62 x 7.50/143 x 191         | 4                       | 0.31/8 6.00/152   | 5.21/33.61         | 4.38/111                    | 6.00/152                    |
| AVK66           | 7.88 x 7.50/200 x 191         | 6                       | 0.31/8 6.00/152   | 7.82/50.45         | 6.62/168                    | 6.00/152                    |
| AVK66SS6        | 7.88 x 7.50/200 x 191         | 6                       | 0.31/8 6.00/152   | 7.82/50.45         | 6.62/168                    | 6.00/152                    |
| AVK84           | 5.81 x 9.50/148 x 241         | 4                       | 0.31/8 8.00/203   | 8.08/52.12         | 4.56/116                    | 8.00/203                    |
| AVK84SS6        | 5.81 x 9.50/148 x 241         | 4                       | 0.31/8 8.00/203   | 8.08/52.12         | 4.56/116                    | 8.00/203                    |
| AVK86           | 8.19 x 9.50/208 x 241         | 6                       | 0.31/8 8.00/203   | 12.11/78.13        | 6.94/176                    | 8.00/203                    |
| AVK86SS6        | 8.19 x 9.50/208 x 241         | 6                       | 0.31/8 8.00/203   | 12.11/78.13        | 6.94/176                    | 8.00/203                    |
| AVK88           | 10.56 x 9.50/268 x 241        | 8                       | 0.31/8 8.00/203   | 16.15/104.19       | 9.31/236                    | 8.00/203                    |
| AVK88SS6        | 10.56 x 9.50/268 x 241        | 8                       | 0.31/8 8.00/203   | 16.15/104.19       | 9.31/236                    | 8.00/203                    |
| AVK812          | 15.31 x 9.50/389 x 241        | 12                      | 0.31/8 8.00/203   | 24.22/156.26       | 14.06/357                   | 8.00/203                    |
| AVK812SS6       | 15.31 x 9.50/389 x 241        | 12                      | 0.31/8 8.00/203   | 24.22/156.26       | 14.06/357                   | 8.00/203                    |

Catalog numbers ending in SS6 indicates 316L stainless steel

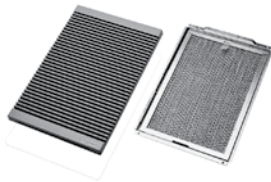
## LOUVER PLATE KIT FILTERS



### Design

Designed for use with Louver Plate Kit. Mounting holes on filter bracket align with louver mounting holes. Hardware supplied with louvers also secures filter brackets in place. Aluminum air filters provide good arrestment of airborne dust and dirt.

## VENT KIT



Includes a stylized louvered cover and filter package. Use as an air inlet when a cooling fan is mounted in an enclosure or use two vent kits to allow passive airflow. Mounting hardware included. Vent Kit requires cutout shown in diagram. Available in gray (RAL 7042) or black.

4

## VENTILATOR



Designed to fit most metallic and non-metallic enclosures. Proper installation will provide rainproof ventilation but will not meet Type 4 or 12 requirements. Kit includes mounting hardware, and instructions.

Supplied screws are 13-mm (.515-inch) long. Some applications may require longer screws.

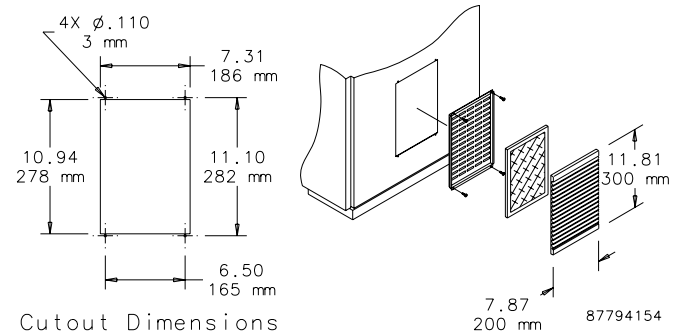
### Filter Media

Filter media is composed of layers of slit and expanded aluminum providing hundreds of adhesive coated baffle surfaces for trapping impurities. Impurities are held throughout the depth of the filter. Washing with warm water will keep the filter clean. To achieve best results, Filter Adhesive is recommended.

| CATALOG NUMBERS | Dimensions H x W<br>(in./mm) | Use with<br>Steel<br>Louver | Use with<br>Stainless<br>Steel<br>Louver |
|-----------------|------------------------------|-----------------------------|------------------------------------------|
| AFLT33          | 3.22 x 3.25/82 x 83          | AVK33                       | AVK33SS6                                 |
| AFLT34          | 4.09 x 3.25/104 x 83         | AVK34                       | AVK34SS6                                 |
| AFLT43          | 3.84 x 4.25/98 x 108         | AVK43                       | AVK43SS6                                 |
| AFLT44          | 4.97 x 4.25/126 x 108        | AVK44                       | AVK44SS6                                 |
| AFLT64          | 4.45 x 6.25/113 x 159        | AVK64                       | AVK64SS6                                 |
| AFLT66          | 6.72 x 6.25/171 x 159        | AVK66                       | AVK66SS6                                 |
| AFLT84          | 4.64 x 8.25/118 x 210        | AVK84                       | AVK84SS6                                 |
| AFLT86          | 7.02 x 8.25/178 x 210        | AVK86                       | AVK86SS6                                 |
| AFLT88          | 9.39 x 8.25/239 x 210        | AVK88                       | AVK88SS6                                 |
| AFLT812         | 14.14 x 8.25/359 x 210       | AVK812                      | AVK812SS6                                |

### CATALOG NUMBERS

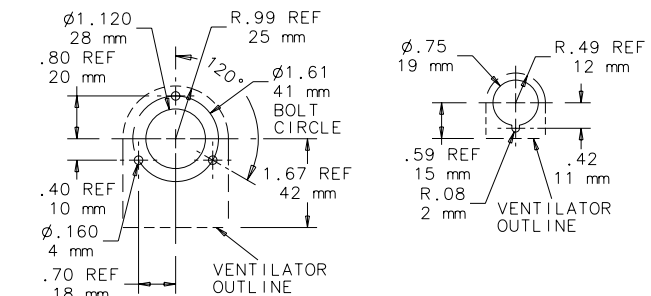
|                                 | XPV32                                 | PPV32B                                |
|---------------------------------|---------------------------------------|---------------------------------------|
| <b>UNIT CONSTRUCTION</b>        |                                       |                                       |
| Dimension H x W x D<br>(in./mm) | 11.81 x 7.88 x 1.03/300 x<br>200 x 26 | 11.81 x 7.88 x 1.03/300 x<br>200 x 26 |
| Color                           | Gray                                  | Black                                 |



Cutout Dimensions

### CATALOG NUMBERS

|                    | ANMV6                  | ANMV3                  |
|--------------------|------------------------|------------------------|
| <b>DESIGN DATA</b> |                        |                        |
| Description        | Large nonmetallic vent | Small nonmetallic vent |



Large Ventilator

Small Ventilator

87541390



**FILTER ADHESIVE**



Designed to maximize the efficiency of all expanded aluminum air filters. Use of Filter Adhesive doubles the dust-retention capacity of the filter. Adhesive contains a low-viscosity water-soluble oil which absorbs dirt particles trapped on the surface of the filter. Through the circulation of the oil, a renewed impurity-absorbing surface is constantly established. Washing with water will remove dust, dirt and other impurities. Once the filter is dry, re-coat with adhesive.

| CATALOG NUMBERS |                |
|-----------------|----------------|
|                 | AFLTAD         |
| DESIGN DATA     |                |
| Description     | Spray Adhesive |



# McLean® CHAPTER 5 ACCESSORIES

## FEATURED PRODUCTS

### H2OMIT™ VENT DRAINS

UL-approved vent drains allow accumulated water to drain out the bottom of an enclosure, while also functioning as an air pressure equalizer to prevent water and moisture from being pulled into the enclosure. Installs in the bottom of mild steel, aluminum, stainless steel or non-metallic enclosures.



### H2OMIT™ THERMOELECTRIC DEHUMIDIFIER

Thermoelectric dehumidifiers remove moisture from the air within an enclosure and standing liquids, providing a cost-effective way to protect sensitive electronics from condensation. A built-in drain provision with plastic hose directs collected moisture to the vent drain (sold separately).





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### ENCLOSURE HEATERS

Protect electronic, pneumatic, hydraulic and mechanical equipment from low temperatures, condensation and corrosion with Enclosure Heaters. To accommodate diverse applications, semiconductor, electric and hazardous locations are available.

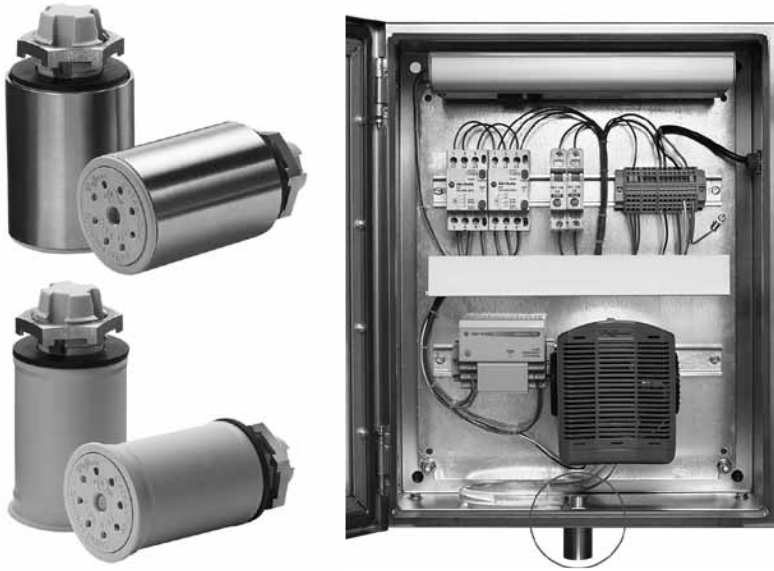


### DUAL THERMOSTAT

With two thermostats in one unit, the Dual Thermostat independently controls equipment heating and cooling systems. Temperatures range from 32 to 140 degrees Fahrenheit.



## H20MIT™ VENT DRAINS



### INDUSTRY STANDARDS

Maintains UL/cUL Type 4, 4X rating when properly installed on a UL/cUL Type 4 or 4X enclosure.

UL 508A Listed; Type 4, 4X; File No. E61997  
 cUL Listed per CSA C22.2 No 94; Type 4, 4X; File No. E61997

NEMA/EEMAC Type 4, 4X  
 IEC 60529, IP66

### APPLICATION

H20MIT™ Vent Drains allow accumulated water to drain out the bottom of an enclosure. The UL-approved vent drains also function as an air pressure equalizer, reducing the harmful effects of temperature-induced vacuums that could pull water and moisture into the enclosure.

### FEATURES

- Uses gravity to remove collected liquids
- One-way mechanical shut-off when pressure is equalized prevents water and contaminants from entering the enclosure
- Helps reduce corrosion that can limit the life of internal electrical and electronic components
- Installs in a 7/8-in. hole in the bottom of enclosure with provided nut or in a 1/2-in. NPT/NPS threaded conduit hub
- Installs in the bottom of mild steel, aluminum, stainless steel or non-metallic enclosures
- Maintains enclosure's UL Type rating when properly installed

### SPECIFICATIONS

#### Stainless Steel Vent Drain

- Corrosion-resistant polyester material with a Type 304 stainless steel sleeve
- 2.00-in. long x 1.38-in outside diameter

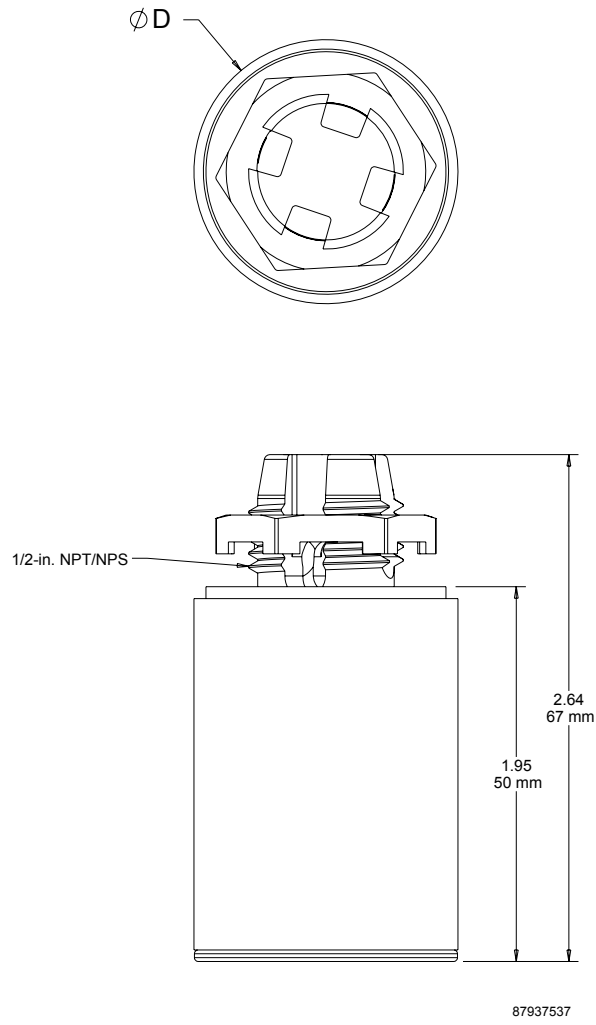
#### Non-Metallic Drain Vent

- Corrosion-resistant polyester material
- 2.00-in. long x 1.25-in. outside diameter

### Performance Data H20MIT Vent Drains

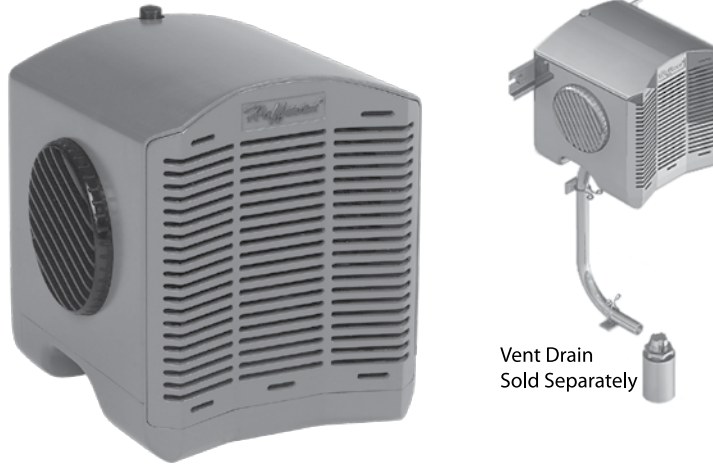
| CATALOG NUMBERS   |                         |                            |
|-------------------|-------------------------|----------------------------|
|                   | AVDR4NM                 | AVDR4SS4                   |
| UNIT CONSTRUCTION |                         |                            |
| Description       | Non-metallic Vent Drain | Stainless Steel Vent Drain |
| D (in./mm)        | 1.25/32                 | 1.38/35                    |
| Quantity          | 1                       | 1                          |

### H2OMIT Vent Drains





## H20MIT™ THERMOELECTRIC DEHUMIDIFIER



### INDUSTRY STANDARDS

UL 508A Listed; File No. E61997  
cUL Listed per C22.2 No. 14; File No. E61997

CE

### APPLICATION

The H20MIT™ Thermoelectric Dehumidifier removes moisture from the air within an enclosure, providing an inexpensive yet highly effective way to protect electronic and electrical components from condensation.

### FEATURES

- Reduces corrosion that can limit the life of internal electrical and electronic components
- Condenses moisture from internal enclosure air and standing liquids
- Built-in drain provision with plastic hose directs collected moisture to the Vent Drain (sold separately)
- Rotating side air vents direct recirculating air away from critical controls
- Mounts via DIN rail on internal panel or mounts directly onto the inside bottom of enclosure above the Vent Drain (sold separately)
- Can be used in mild steel, aluminum, stainless steel and non-metallic enclosures

### SPECIFICATIONS

- High-impact ABS shell
- Operates on 24-Volt DC power
- 4.5 A max. (84 W)
- Runs continuously above 32 F<sup>a</sup> (power supply not included)
- Removes 8 oz. of moisture in 24 hours
- Compact 6.00-in. x 5.50-in. x 5.75-in. design
- One Thermoelectric Dehumidifier includes:
  - Four feet of plastic hose
  - Two hose retainers
  - One double-ended hose retainer
  - Six inches of Velcro®
  - Seven-inch strip of DIN rail
  - Two mounting screws

*Must be used with UL-certified drain to remove pooled liquid from enclosure.*

*<sup>a</sup>If continual operation is not desired, a Mechanical Hygrostat (AMHUM) can be wired to the thermoelectric dehumidifier and then set to turn the dehumidifier on at the desired relative humidity.*

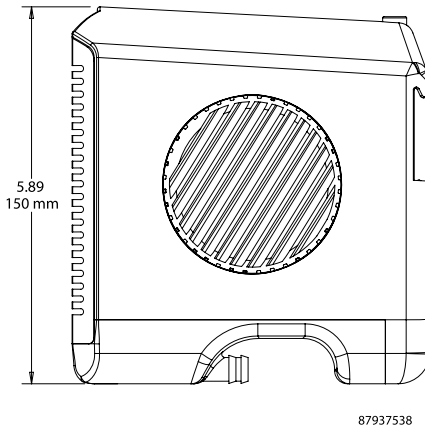
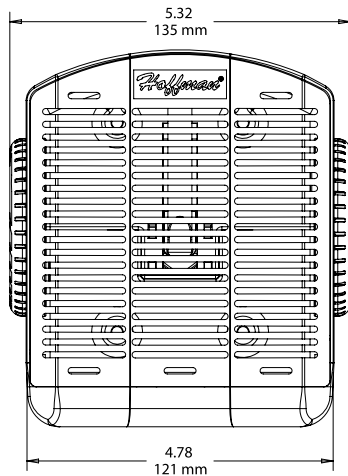
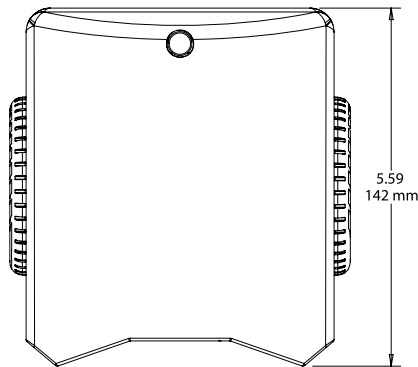
*VELCRO is a trademark of Velcro Industries B.V.*

Performance Data **H2OMIT Thermoelectric Dehumidifier**

CATALOG NUMBERS

| H2OMITTER                                         |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|---------------------------------------------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Dew Point Temperature : Percent Relative Humidity |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Temp. (° F)                                       | 100% | 95% | 90% | 85% | 80% | 75% | 70% | 65% | 60% | 55% | 50% | 45% | 40% | 35% | 30% | 25% | 20% | 15% | 10% |
| 110                                               | 110  | 108 | 106 | 104 | 102 | 100 | 98  | 95  | 93  | 90  | 87  | 84  | 80  | 76  | 72  | 65  | 60  | 51  | 41  |
| 105                                               | 105  | 103 | 101 | 99  | 97  | 95  | 93  | 91  | 88  | 85  | 83  | 80  | 76  | 72  | 67  | 62  | 55  | 47  | 37  |
| 100                                               | 100  | 99  | 97  | 95  | 93  | 91  | 89  | 86  | 84  | 81  | 78  | 75  | 71  | 67  | 63  | 58  | 52  | 44  | 32  |
| 95                                                | 95   | 96  | 92  | 90  | 88  | 86  | 87  | 81  | 79  | 76  | 73  | 70  | 67  | 63  | 59  | 54  | 48  | 40  | 32  |
| 90                                                | 90   | 88  | 87  | 85  | 83  | 81  | 79  | 79  | 74  | 71  | 68  | 65  | 62  | 59  | 54  | 49  | 43  | 36  | 32  |
| 85                                                | 85   | 83  | 81  | 80  | 78  | 76  | 74  | 71  | 69  | 67  | 64  | 61  | 58  | 54  | 50  | 45  | 38  | 32  | —   |
| 80                                                | 80   | 78  | 77  | 75  | 73  | 71  | 69  | 67  | 65  | 62  | 59  | 56  | 53  | 50  | 45  | 40  | 35  | 32  | —   |
| 75                                                | 75   | 73  | 72  | 70  | 68  | 66  | 64  | 62  | 60  | 58  | 55  | 52  | 49  | 45  | 41  | 36  | 32  | —   | —   |
| 70                                                | 70   | 68  | 67  | 65  | 63  | 61  | 59  | 58  | 55  | 53  | 50  | 47  | 44  | 40  | 37  | 32  | —   | —   | —   |
| 65                                                | 65   | 63  | 62  | 60  | 59  | 57  | 55  | 53  | 50  | 48  | 45  | 42  | 40  | 36  | 32  | —   | —   | —   | —   |
| 60                                                | 60   | 58  | 57  | 55  | 53  | 52  | 50  | 48  | 45  | 43  | 41  | 38  | 35  | 32  | —   | —   | —   | —   | —   |
| 55                                                | 55   | 53  | 52  | 50  | 49  | 47  | 45  | 43  | 40  | 38  | 36  | 33  | 32  | —   | —   | —   | —   | —   | —   |
| 50                                                | 50   | 48  | 46  | 45  | 44  | 42  | 40  | 38  | 36  | 34  | 32  | —   | —   | —   | —   | —   | —   | —   | —   |
| 45                                                | 45   | 43  | 42  | 40  | 39  | 37  | 35  | 34  | 32  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   |
| 40                                                | 40   | 39  | 37  | 35  | 34  | 32  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   |
| 35                                                | 35   | 34  | 32  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   |
| 32                                                | 32   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   |

**Definition:** Dew Point is the temperature at which condensation forms. If the temperature of the enclosure is 85 F and the relative humidity is 80 percent, Dew Point is reached at a temperature of 78 F or below. This means that moisture vapor will condense on any surface that is below the Dew Point temperature of 78 F.



**TOUCH-SAFE HEATERS**



**INDUSTRY STANDARDS**

cURus Component Recognized; File No. E150057

IP 20  
CE

**APPLICATION**

Protect electronic, mechanical equipment from low temperatures, condensation, and corrosion with this heater, which will maintain stable enclosure temperatures by using natural convection resulting in current circulation of warm air.

**SPECIFICATIONS**

- Heating element PTC resistor - temperature limiting
- Double Insulated Protection
- Mounting clip for 35mm DIN rail, EN 60 715
- Vertical mount

**FINISH**

- UL 94 V-0 Black Plastic Housing

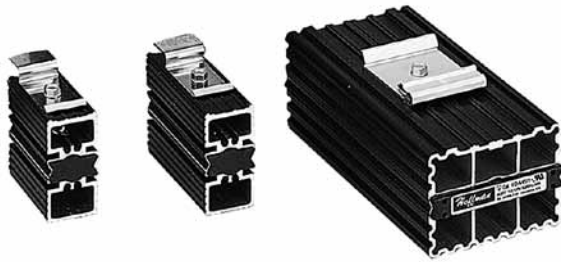
Performance Data

| CATALOG NUMBERS              |                              |                              |                               |
|------------------------------|------------------------------|------------------------------|-------------------------------|
|                              | DAH101TS                     | DAH201TS                     | DAH501TS                      |
| <b>Electrical Data</b>       |                              |                              |                               |
| <b>Rated Voltage (AC/DC)</b> | <b>110/120</b>               | <b>110/120</b>               | <b>110/120</b>                |
| Power Consumption (Watts)    | 10                           | 20                           | 50                            |
| Start Nominal Current (Amps) | 2.5                          | 4.5                          | 8                             |
| <b>Unit Construction</b>     |                              |                              |                               |
| H x W x D (in./mm)           | 3.9 X 1.5 X 3.0/98 x 38 x 75 | 3.9 X 1.5 X 3.0/98 x 38 x 75 | 4.3 X 2.4 X 3.5/110 x 60 x 90 |
| Weight (oz)                  | 5.0                          | 6.1                          | 10.4                          |





**SEMICONDUCTOR HEATER**



**INDUSTRY STANDARDS**

cURus Component Recognized; File No. E150057

IEC IP54  
CE

**APPLICATION**

Protect electronic, pneumatic, hydraulic and mechanical equipment from low temperatures, condensation and corrosion with this heater, which maintains a stable enclosure temperature.

**SPECIFICATIONS**

- PTC (Positive Temperature Coefficient) heating element
- Mounting clip for 35-mm DIN rails EN 50022

**FINISH**

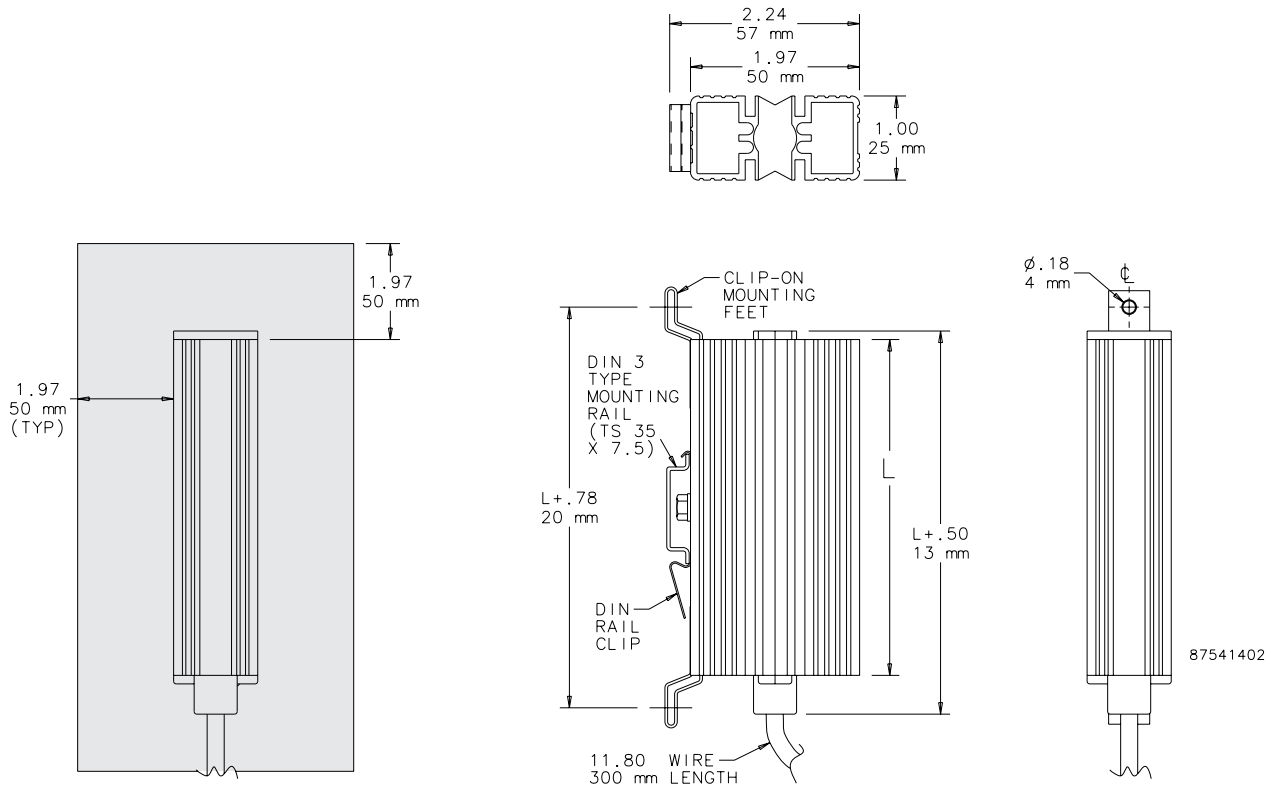
- Black anodized, extruded aluminum.

Performance Data **Semiconductor Heater**

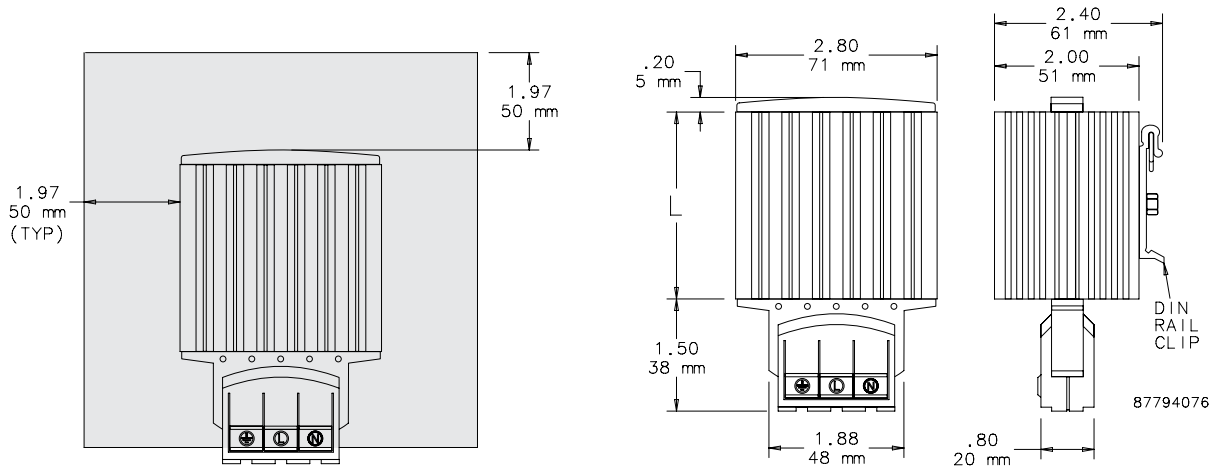
| CATALOG NUMBERS              |                      |                      |                      |
|------------------------------|----------------------|----------------------|----------------------|
|                              | DAH101               | DAH301               | DAH601               |
| <b>ELECTRICAL DATA</b>       |                      |                      |                      |
| <b>Rated Voltage</b>         | <b>AC/DC 110/120</b> | <b>AC/DC 110/120</b> | <b>AC/DC 110/250</b> |
| Power Consumption (Watts)    | 10                   | 30                   | 60                   |
| Start Nominal Current (Amps) | 0.8                  | 1.2                  | 2.5                  |
| <b>HEATING PERFORMANCE</b>   |                      |                      |                      |
| <b>Watts</b>                 | <b>10</b>            | <b>30</b>            | <b>60</b>            |
| <b>UNIT CONSTRUCTION</b>     |                      |                      |                      |
| L (in./mm)                   | 1.97/50              | 3.93/100             | 5.5/140              |
| Weight (lb./kg)              | 0.45/0.20            | 0.66/0.30            | 1.10/0.50            |



Clearance Range for DAH101 and DAH301



Clearance Range for DAH601



## ELECTRIC HEATER



115/230 Volt  
100/200 Watt

115/230 Volt  
400/800 Watt

115/230 Volt  
1300 Watt

## INDUSTRY STANDARDS

UL 508A Component Recognized; File No. E61997

CE

## APPLICATION

Protect mechanical, electrical and electronic equipment from low temperatures, condensation and corrosion with this thermostatically controlled, fan-driven heater that maintains a stable enclosure temperature.

Fan draws cool air from the bottom of the enclosure and passes this air across the thermostat and heating element before being released into enclosure cavity. Heated air is discharged through the top of the heater unit.

## SPECIFICATIONS

- Aluminum housing
- Thermostat range adjustable from 0 F to 100 F (-18 C to 38 C)
- Four 10-32 x self-tapping screws are included with each heater
- Ball bearing fan
- Terminal strip with clamp connector that accepts both solid and stranded wire

## FINISH

- Brushed aluminum


**CAUTION**

These electric heaters are not designed for use in dusty, dirty, corrosive, or hazardous locations. Portions of the heater can get hot. Adequate protection must be taken to protect people from potential burns, and to protect other components from this heat. Pentair Technical Products recommends this heater only be installed in a totally-enclosed metal enclosure.

**DO NOT INSTALL HEATERS ON WOOD PANELS.**  
Heat sensitive components should not be placed near the heater discharge area since this air can be quite warm. The clearance range defines the space that must be kept free of these components for proper and safe operation of the heater.

Performance Data **100 and 200 Watt Heaters**

| <b>CATALOG NUMBERS</b>     |            |            |            |            |
|----------------------------|------------|------------|------------|------------|
|                            | DAH1001A   | DAH1002A   | DAH2001A   | DAH2002A   |
| <b>ELECTRICAL DATA</b>     |            |            |            |            |
| <b>Rated Voltage</b>       | <b>115</b> | <b>230</b> | <b>115</b> | <b>230</b> |
| Frequency (Hz)             | 50/60      | 50/60      | 50/60      | 50/60      |
| Power Consumption (Watts)  | 100        | 100        | 200        | 200        |
| Nominal Current (Amps)     | 0.98       | 0.49       | 1.89       | 0.95       |
| <b>HEATING PERFORMANCE</b> |            |            |            |            |
| <b>Watts</b>               | <b>100</b> | <b>100</b> | <b>200</b> | <b>200</b> |
| <b>UNIT CONSTRUCTION</b>   |            |            |            |            |
| Weight (lb./kg)            | 1.6/0.73   | 1.6/0.73   | 1.6/0.73   | 1.6/0.73   |
| X (in./mm)                 | 4.00/102   | 4.00/102   | 4.00/102   | 4.00/102   |

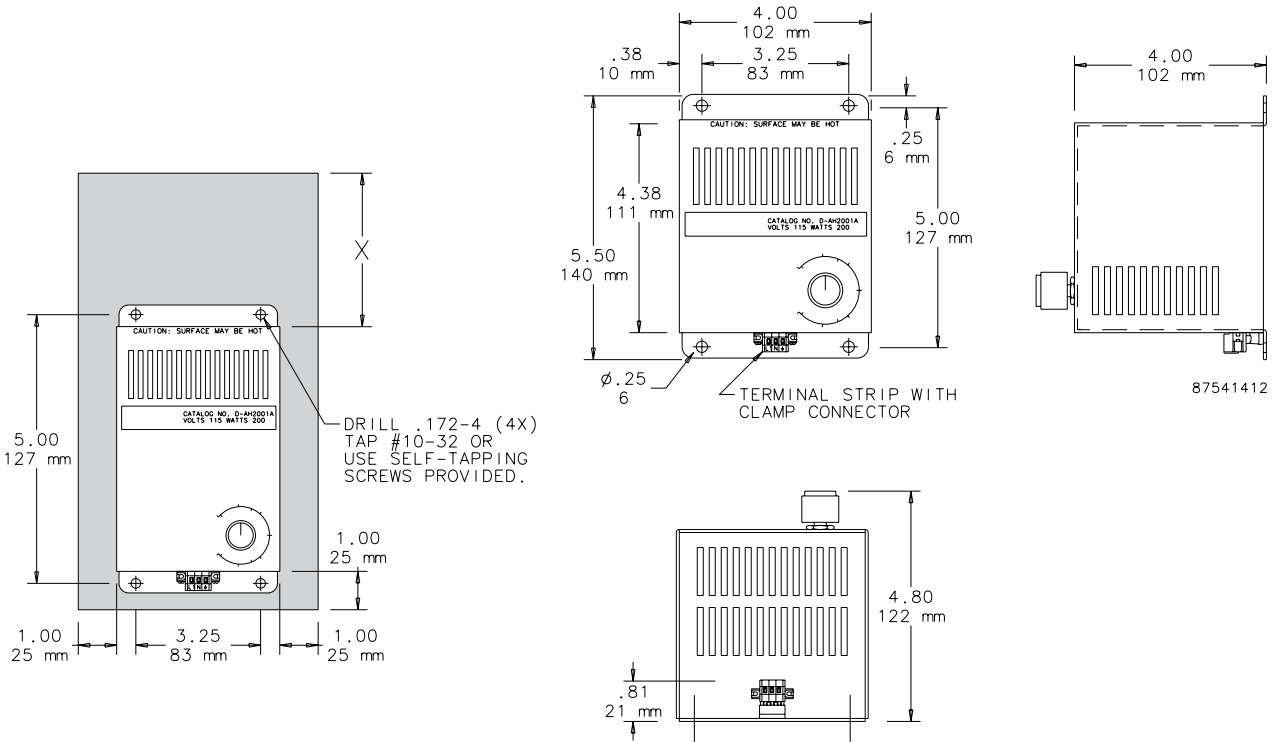
 Performance Data **400 and 800 Watt Heaters**

| <b>CATALOG NUMBERS</b>     |            |            |            |            |
|----------------------------|------------|------------|------------|------------|
|                            | DAH4001B   | DAH4002B   | DAH8001B   | DAH8002B   |
| <b>ELECTRICAL DATA</b>     |            |            |            |            |
| <b>Rated Voltage</b>       | <b>115</b> | <b>230</b> | <b>115</b> | <b>230</b> |
| Frequency (Hz)             | 50/60      | 50/60      | 50/60      | 50/60      |
| Power Consumption (Watts)  | 400        | 400        | 800        | 800        |
| Nominal Current (Amps)     | 3.72       | 1.86       | 7.37       | 3.69       |
| <b>HEATING PERFORMANCE</b> |            |            |            |            |
| <b>Watts</b>               | <b>400</b> | <b>400</b> | <b>800</b> | <b>800</b> |
| <b>UNIT CONSTRUCTION</b>   |            |            |            |            |
| Weight (lb./kg)            | 2.2/1.00   | 2.2/1.00   | 2.2/1.00   | 2.2/1.00   |
| X (in./mm)                 | 6.00/152   | 6.00/152   | 8.00/203   | 8.00/203   |

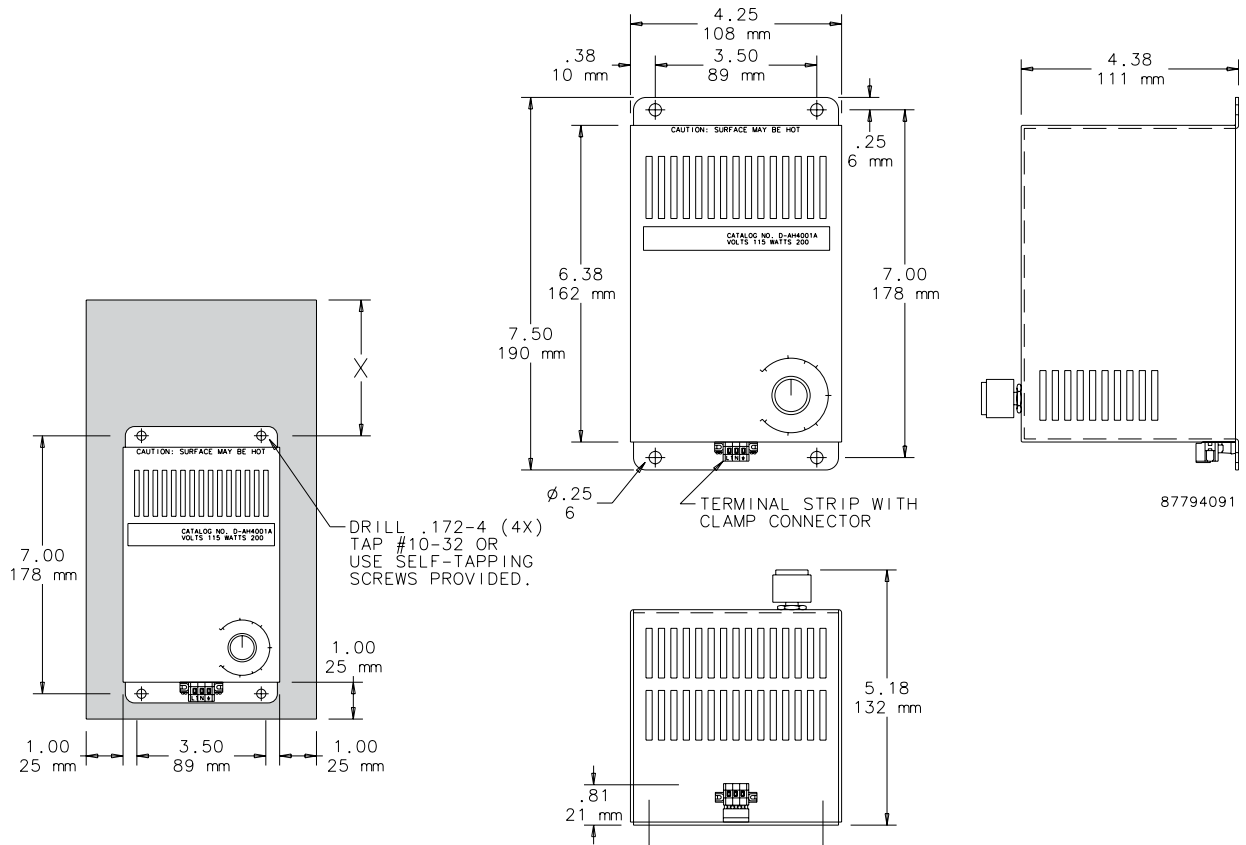
 Performance Data **1300 Watt Heaters**

| <b>CATALOG NUMBERS</b>     |             |             |
|----------------------------|-------------|-------------|
|                            | DAH13001C   | DAH13002C   |
| <b>ELECTRICAL DATA</b>     |             |             |
| <b>Rated Voltage</b>       | <b>115</b>  | <b>230</b>  |
| Frequency (Hz)             | 50/60       | 50/60       |
| Power Consumption (Watts)  | 1300        | 1300        |
| Nominal Current (Amps)     | 11.5        | 5.7         |
| <b>HEATING PERFORMANCE</b> |             |             |
| <b>Watts</b>               | <b>1300</b> | <b>1300</b> |
| <b>UNIT CONSTRUCTION</b>   |             |             |
| Weight (lb./kg)            | 3.4/1.54    | 3.4/1.54    |
| X (in./mm)                 | 8.00/203    | 8.00/203    |

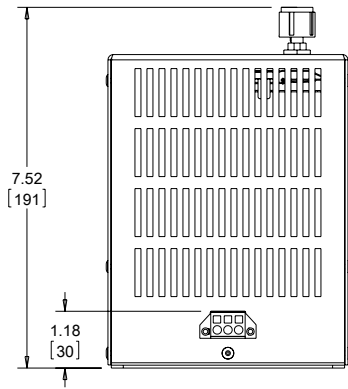
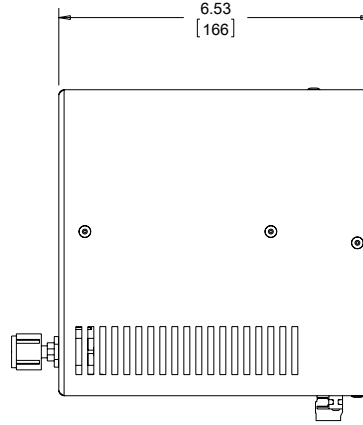
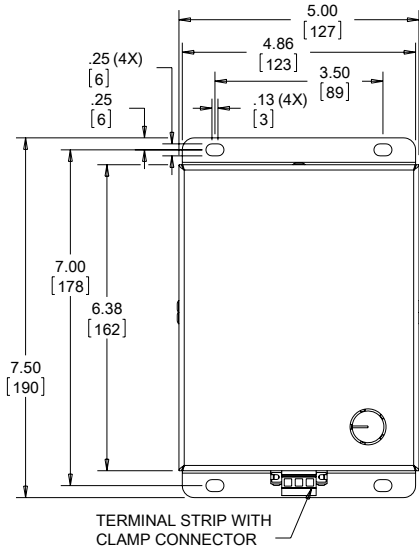
Dimensions and Clearance Range Drawing for DAH1001A, -2A and DAH2001A, -2A



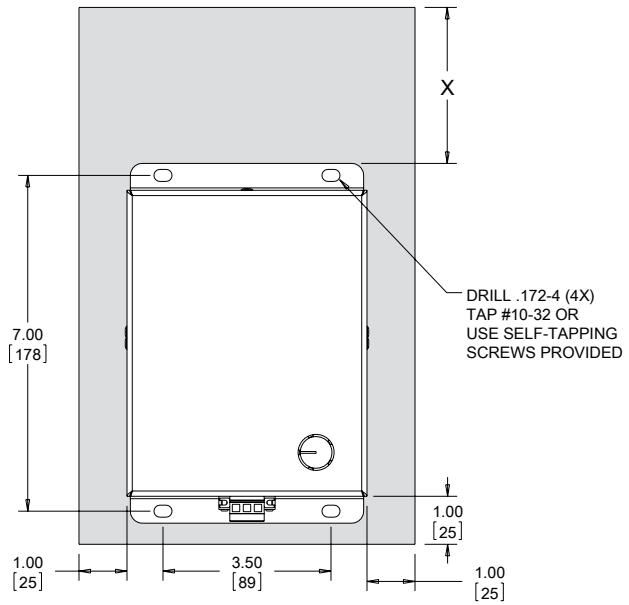
Dimensions and Clearance Range Drawing for DAH4001B, -2B and DAH8001B, -2B



Dimensions and Clearance Range Drawing for DAH13001C and DAH13002C



89091692



**HAZARDOUS LOCATION HEATER**



**INDUSTRY STANDARDS**

CE  
 Conformity Certificate LCIE (Laboratoire Central des Industries  
 Electriques) LCIE 01 ATEX 6073  
 EEx d IIC T4/II 2 GD, IP6x T135°C  
 IEC 60529, IP65/I (grounded)

**APPLICATION**

Designed for use in hazardous locations where electronic  
 components require protection from condensation and corrosion,  
 sudden temperature drops and low temperatures.

**FEATURES**

- Maintenance-free
- High-performance heating cartridge (element)
- Large convection surface
- Extruded aluminum heat sink
- DIN clip for mounting
- Connection cable: Si HF-JZ 3 x AWG 18 x 3.3 ft. (0.75 mm<sup>2</sup> x 1 m)
- Operating voltage 110-120 VAC

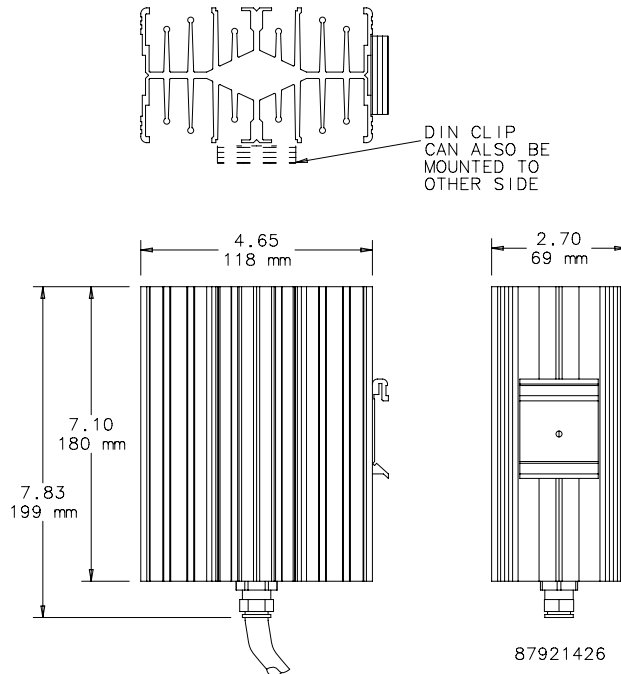
**FINISH**

- Black anodized

Performance Data **Hazardous Location Heater**

| CATALOG NUMBERS                              |                               |
|----------------------------------------------|-------------------------------|
|                                              | HLHEAT100                     |
| DESIGN DATA                                  |                               |
| Heating Power (Watts)                        | 100                           |
| Surface Temperature T <sub>4</sub> (°F/°C) * | 275/135                       |
| UNIT CONSTRUCTION                            |                               |
| Unit Dimensions - H x W x D (in. / mm)       | 7.10/180 x 4.65/118 x 2.70/69 |

\* Surface temperature when mounted vertically.



**THERMOSTAT CONTROLLER**

**FEATURES**

- Saves energy, reduces filter replacement frequency and extends filter fan life
- Terminal block connection
- 38-mm DIN rail mounting bracket (according to EN 60715) and screws included

**FINISH**

- RAL7035 light gray
- Plastic housing UL94 V-0

**NOTES**

**Caution:** When setting the temperature of the break contact (NC) and the changeover contact (CO) to use it as a break contact, care must be taken to add the maximum hysteresis (that consists of the switching difference and the operating tolerance) to the required minimum temperature. For instance, if the temperature in the enclosure may not fall below 5 C, the controller must be set to 5+7+3=15 C (with a switching) difference of 4-7 k and tolerance of +/- 3 k.

 Performance Data **Thermostat Controller**

| CATALOG NUMBERS                         |                                                                                                     |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------|
|                                         | TWR60                                                                                               |
| <b>DESIGN DATA</b>                      |                                                                                                     |
| Control Range (°F / °C)                 | -4 / -20 to 104 / 40 or<br>32 / 0 to 140 / 60 or<br>68 / 20 to 176 / 80 (see type plate)            |
| Switching Differences:                  |                                                                                                     |
| Bimetal controllers                     | Approx. 1 k, approx. 3 k, 4-7 k (see type plate)                                                    |
| Capillary controllers                   | less than 7 k                                                                                       |
| Contact                                 | Snap contact as break contact = NC<br>Make contact = NO<br>Changeover contact = CO (see type plate) |
| Switching Capacity:                     |                                                                                                     |
| Break contact/make contact              | 100V...250V / 10(2)A, at 4 max. 30 W                                                                |
| Changeover contact - heating            | 100V...250V / 10(2)A, at 4 max. 30 W                                                                |
| Changeover contact - cooling            | 100V...250V / 15(2)A, at 4 max. 30 W                                                                |
| <b>Supply Voltage</b>                   | <b>Controller (CO) requires 230V</b>                                                                |
| Protection                              | IP20                                                                                                |
| Switchpoint Tolerance                   | +/- 3k                                                                                              |
| Sensor                                  | Bimetal                                                                                             |
| Power Connection                        | Terminal screws 0.5 to 2.5 mm <sup>2</sup>                                                          |
| Bimetal Controller Ambient Temperature: |                                                                                                     |
| T40                                     | -4 / -20 to 104 / 40                                                                                |
| T60                                     | 32 / 0 to 140 / 60                                                                                  |
| T80                                     | 68 / 20 to 176 / 80                                                                                 |
| Storage Temperature (°F / °C)           | -4 / -20 to 140 / 60                                                                                |
| <b>UNIT CONSTRUCTION</b>                |                                                                                                     |
| Unit Dimensions - H x W x D (in. / mm)  | 2.52 x 1.46 x 1.81 / 64 x 37 x 46                                                                   |
| Weight (ounces / grams)                 | 1.8 / 50                                                                                            |



DUAL THERMOSTAT



INDUSTRY STANDARDS

cURus; File No. E164102

CSA File No. 215952  
CE

APPLICATION

Two thermostats in one, the Dual Thermostat independently controls equipment heating and cooling systems.

FEATURES

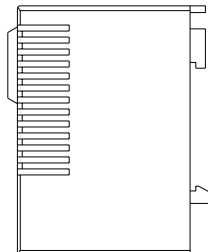
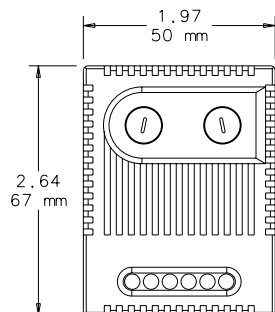
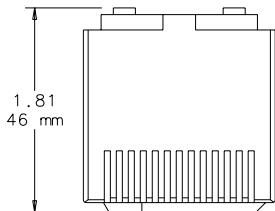
- Two thermostats; one normally closed (NC), red, and one normally open (NO), blue, in one casing
- Wide adjustable temperature range (32 -140 F)
- Thermostatic bimetallic sensor element
- Connection: 4-pole terminal for AWG 14 max (2.5 mm<sup>2</sup>)
- Mounting clip for 35-mm DIN rail

FINISH

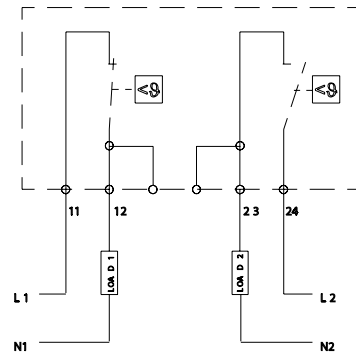
- Light-gray plastic, UL94V-0

Performance Data Dual Thermostat

| CATALOG NUMBERS                         |                                                |
|-----------------------------------------|------------------------------------------------|
| ADLTEMP                                 |                                                |
| <b>ELECTRICAL DATA</b>                  |                                                |
| Switching Capacity (Normally Closed)    | 10 A resistive/2 A inductive @250 VAC, DC 30 W |
| Switching Capacity - Normally Open      | 5 A resistive/2 A inductive @250 VAC, DC 30 W  |
| Setting Range - Normally Closed (°F/C°) | 32/0 to 140/60                                 |
| Setting Range - Normally Open (°F/C°)   | 32/0 to 140/60                                 |
| <b>UNIT CONSTRUCTION</b>                |                                                |
| Unit Dimensions - H x W x D (in./mm)    | 2.64/67 x 1.97/50 x 1.81/46                    |



87939707



CONNECTION DIAGRAM



**ELECTRONIC HYGROTHERM**



**APPLICATION**

The Electronic Hygrotherm senses ambient temperature and relative air humidity and adjusts a connected device to maintain temperature and humidity set points.

**FEATURES**

- Temperature (32-140 F) and humidity (50%-90% RH) adjustment
- High switching capacity
- Optical function displays (LED) in each control
- Long service life (100,000 cycles NO) (50,000 cycles, NC)
- Mounting clip for 35-mm DIN rail
- Change-over contact (relay)
- Connection: 5-pole terminal for AWG 14 max (2.5-mm square)
- Plastic housing UL94V-0
- Vertical mounting
- Maximum switching capacity:
  - 120 VAC 8A (Resistive Load)
  - 240 VAC 8A (Resistive Load)
  - 120 VAC 3A (Inductive Load)
  - 240 VAC 3A (Inductive Load)
  - 24 VDC 4A

**FINISH**

- Light-gray plastic UL94V-0

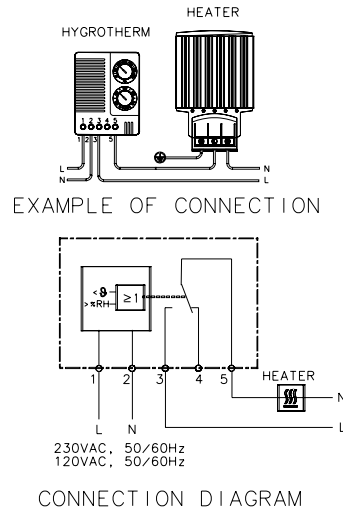
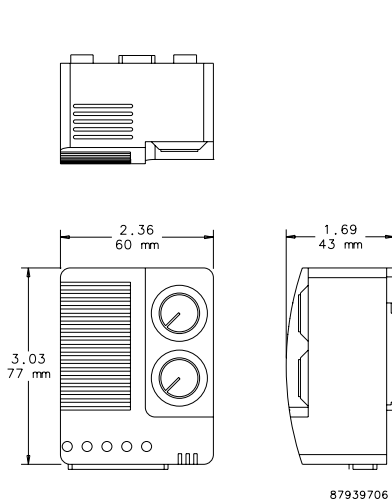
**INDUSTRY STANDARDS**

cURus; File No. E164102

CE

Performance Data **Electronic Hygrotherm**

| CATALOG NUMBERS                            |                                         |
|--------------------------------------------|-----------------------------------------|
|                                            | ATEMHUM                                 |
| <b>ELECTRICAL DATA</b>                     |                                         |
| Hysteresis                                 | ~ 3.6 F (2K) ± 1.8 F (1K) tolerance     |
| Humidity Set Point (adjustable)            | 50-90% RH                               |
| Temperature Set Point (adjustable) (°F/°C) | 32/0 to 140/60                          |
| Operating Temperature Range (°F/°C)        | 32/0 to 140/60                          |
| Storage Temperature (°F/°C)                | -4/-20 to 176/80                        |
| <b>CONTACTS</b>                            |                                         |
| 3 and 5                                    |                                         |
| Close at...                                | humidity rise or temperature drop       |
| Open at...                                 | humidity drop or temperature rise       |
| Use for...                                 | heaters, dehumidifiers, low-temp alarms |
| 4 and 5                                    |                                         |
| Close at...                                | humidity drop or temperature rise       |
| Open at...                                 | humidity rise or temperature drop       |
| Use for...                                 | cooling, humidifiers, high-temp alarms  |
| <b>UNIT CONSTRUCTION</b>                   |                                         |
| Unit Dimensions - H x W x D (in./mm)       | 3.03/77 x 2.36/60 x 1.69/43             |



**MECHANICAL HYGROSTAT**



**INDUSTRY STANDARDS**

cURus; File No. E164102

CE

**APPLICATION**

The Mechanical Hygrostat controls relative air humidity inside an enclosure to prevent condensation and corrosion that can damage components. It can also be connected to an enclosure heater, cooling fans, warning lights or other devices.

*The critical relative humidity (RH) level for most components is 65 percent. Above 65 percent RH, condensation can form and cause electronic equipment to malfunction.*

**FEATURES**

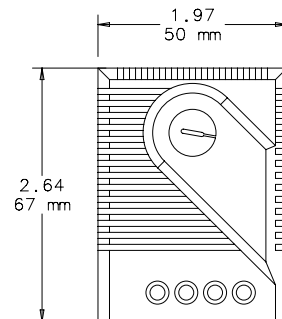
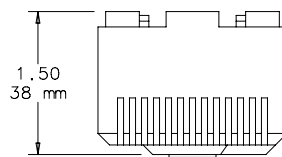
- Adjustable relative humidity range
- High switching capacity
- Long service life (>100,000 cycles)
- Maximum permissible air velocity of 50 ft./sec. (15 m/s)
- Maximum switching voltage = 250 VAC  
*250 V should be switched only in a non-condensing environment*
- Change-over contact
- Mounting clip for 35-mm DIN rail
- Connection: 3-pole terminal for AWG 14 max. (2.5-mm squared)
- Contact resistance less than 10 mΩ

**FINISH**

- Light-gray plastic, UL94V-0

Performance Data **Mechanical Hygrostat**

| CATALOG NUMBERS                            |                                                                                             |
|--------------------------------------------|---------------------------------------------------------------------------------------------|
|                                            | AMHUM                                                                                       |
| ELECTRICAL DATA                            |                                                                                             |
| Switching Capacity (Minimum)               | 100mA @ AC/DC 20 V                                                                          |
| Switching Capacity (Maximum)               | 5A @ AC 250 V (resistive load)<br>0.2A @ AC 250 V (inductive load at cos 0 = 0.8)<br>DC 20W |
| Operating Temperature (Adjustable) [°F/°C] | 32/0 to 140/60                                                                              |
| Storage Temperature [°F/°C]                | -4/-20 to 176/80                                                                            |
| UNIT CONSTRUCTION                          |                                                                                             |
| Unit Dimensions - H x W x D (in./mm)       | 2.64/67 x 1.97/50 x 1.5/38                                                                  |



87921430



**TEMPERATURE CONTROL SWITCH**



**FEATURES**

- Additional label for conversion to Celsius scale and blank label to cover set point range label when adjustment after initial setting is not desired are included
- Bimetal temperature sensor
- Plastic housing
- Connections consist of tubular screw terminals for AWG 14 (.04 sq. in.)
- Provision for both panel mounting and DIN rail mounting

**FINISH**

- Molded plastic housing is black

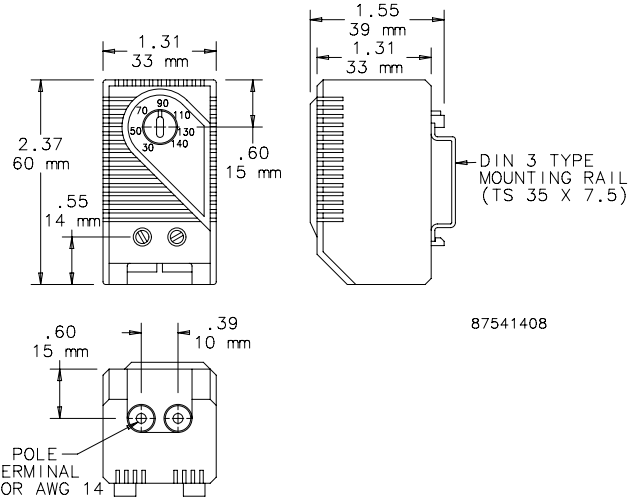
**INDUSTRY STANDARDS**

cURus; File No. E164102  
UL94-V0

Protection rating IEC IP30  
CSA Certified, File Number 215952  
CE

**APPLICATION**

These easy-to-install thermostats regulate and monitor air temperature in enclosures that contain heat-emitting equipment. Thermostats prolong heater and fan life expectancy by controlling operation time and increase electrical component working efficiency by exposing them to fewer environmental contaminants.



Performance Data **Temperature Control Switch**

| CATALOG NUMBERS                      |  | ATEMNC                                   | ATEMNO                           |
|--------------------------------------|--|------------------------------------------|----------------------------------|
| <b>ELECTRICAL DATA</b>               |  |                                          |                                  |
| Maximum Load (Switching Capacity)    |  |                                          |                                  |
| 120 VAC                              |  | 15 A resistive / 2 A inductive @ 120 VAC |                                  |
| 250 VAC                              |  | 10 A resistive / 2 A inductive @ 250 VAC |                                  |
| DC                                   |  | DC 30 W                                  |                                  |
| Minimum load                         |  | 20 mA (all voltages)                     |                                  |
| Contact Type                         |  | NC (normally closed), quick acting       | NO (normally open), quick acting |
| Control Application                  |  | Heater                                   | Fan                              |
| <b>UNIT CONSTRUCTION</b>             |  |                                          |                                  |
| Unit Dimensions - H x W x D (in./mm) |  | 2.37/60 x 1.31/33 x 1.55/39              |                                  |

**PANEL-MOUNT FAN SPEED CONTROLS**



**INDUSTRY STANDARDS**

UL 508 Listed; File No. E249700  
 cUL Listed per CSA C22.2 No. 14; File No. E249700

**APPLICATION**

Perfect for offices, classrooms and other noise-sensitive areas. Fan Speed Control optimizes airflow in a cabinet or rack, balancing air volume requirements with noise level and power use.

**FEATURES**

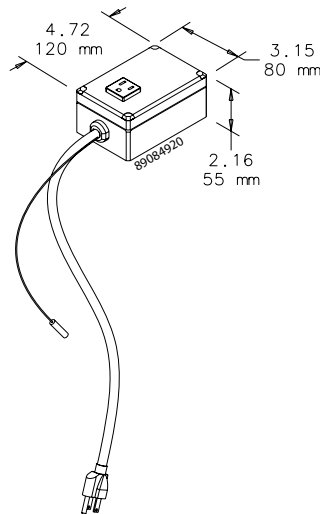
- Automatically adjusts fan speed depending on remote temperature sensor input
- Temperature set point is field adjustable; preset at 35 C (95 F)
- Idle speed and temperature slope are field-adjustable
- Push-to-reset thermal circuit breaker inside control housing
- Compact polycarbonate control housing can be mounted in any position
- NEMA 5-15R outlet provides power to fan
- Six-foot (1.83-m) power cord plugs into standard 120 V, 50 or 60 Hz outlet
- Remote temperature sensor with 10-ft. (3.05-m) lead mounts in airflow
- Mounting brackets included

**FINISH**

- AFANTSC: Light-gray polycarbonate control housing

Performance Data **Panel-Mount Fan Speed Controls**

| CATALOG NUMBERS                |                                                                   |
|--------------------------------|-------------------------------------------------------------------|
|                                | AFANTSC                                                           |
| ELECTRICAL DATA                |                                                                   |
| <b>Rated Voltage</b>           | <b>120 VAC</b>                                                    |
| Maximum Nominal Current (Amps) | 2                                                                 |
| Temperature Settings (°F)      | 86, 95, 104, 113                                                  |
| Temperature Settings (°C)      | 30, 35, 40, 45                                                    |
| DESIGN DATA                    |                                                                   |
| Description                    | Panel-Mount Fan Speed Control                                     |
| Application                    | Fan speed controlled automatically with remote temperature sensor |



## HAZARDOUS LOCATION THERMOSTAT



### INDUSTRY STANDARDS

CE  
 Conformity Certificate LCIE (Laboratoire Central des Industries  
 Electriques) LCIE 01 ATEX 6074

EEx d IIC T6/II 2 GD, IP6x T85 °C  
 IEC 60529, IP65/1 (grounded)

### APPLICATION

Compact mechanical thermostat for temperature control of heaters or low-temperature alarms in enclosures that are used in explosion-hazardous areas.

### FEATURES

- Compact design
- Set temperature
- High switching capacity
- Small hysteresis (switching difference)
- Long service life (greater than 100,000 cycles)
- Can usually be connected directly and switched without the need for additional relays
- Thermostatic bimetallic sensor element
- One-pole contact opens with rising temperature
- Mounting bracket and DIN clip for mounting
- Connection cable: Si HF - JZ 3 x AWG 18 x 3.3 ft. (0.75 mm<sup>2</sup> x 1 m)

### FINISH

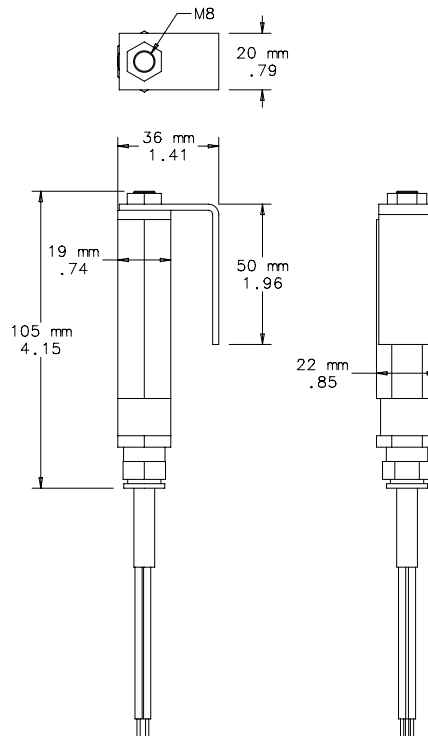
- Black anodized aluminum

Performance Data **Hazardous Location Thermostat**

#### CATALOG NUMBERS

HLTHERMNC

| DESIGN DATA                                                      |                                     |
|------------------------------------------------------------------|-------------------------------------|
| Maximum Operating Voltage (AC)                                   | 250 V                               |
| Maximum Operating Voltage (DC)                                   | 100 V                               |
| Switching Capacity @ 250 VAC                                     | 4A resistive; 1A ind. (cos f = 0.6) |
| Switch Off (Open) Temperature (°F)                               | 77 +/- 6                            |
| Switch Off (Open) Temperature (°C)                               | 25 +/- 3K                           |
| Switch On (Closed) Temperature below Switch Off Temperature (°F) | 7.2 +/- 2                           |
| Switch On (Closed) Temperature below Switch Off Temperature (°C) | 4 +/- 1K                            |



87921425

**Notes**



## STAINLESS STEEL PRESSURE COMPENSATION



### INDUSTRY STANDARDS

CE  
NEMA Type 4X  
IEC/EN 60529, IP66

### APPLICATION

Pressure differentials in a tightly sealed enclosure result from heat generated by electrical and electronic equipment within the enclosure and fluctuations of outside ambient temperature. Stainless steel pressure compensation devices provide IP66 protection in corrosive applications requiring slow pressure equalization. For optimal performance, install two plugs diagonally to each other.

### FEATURES

- Air permeability = 42 cubic feet/hour (1,200 liters/hour) at a pressure difference of min. 70 mbar
- Easy installation: drill one 1.60-in. (41-mm) diameter hole
- Sealing gasket (Nitrile Buna-N Rubber)

### SPECIFICATIONS

- Type 316L stainless steel
- Semipermeable membrane inside the plug filters moisture and dust
- Mounting thread M40 with union nut

### FINISH

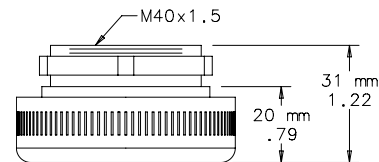
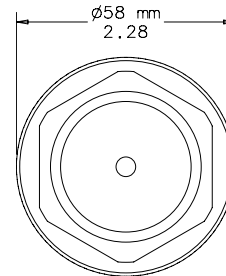
- Machined Type 316L stainless steel

### CATALOG NUMBERS

APCDSS6

### UNIT CONSTRUCTION

|                                       |                    |
|---------------------------------------|--------------------|
| Operating/Storage Temperature [°F/°C] | -40/-40 to 176/80  |
| Unit Dimensions (in./mm)              | 2.28/58Ø x 1.22/31 |
| Depth into Enclosure (in./mm)         | .35/9              |



87921423



**PRESSURE COMPENSATION**



**INDUSTRY STANDARDS**

UL Type 1, 4, 4X; File No. E234324

CE  
IEC/EN 60529, IP66

**APPLICATION**

Pressure differentials in a tightly sealed enclosure result from heat generated by electrical and electronic equipment within the enclosure and fluctuations of outside ambient temperature. Pressure compensation devices provide IP66 protection in applications requiring slow pressure equalization. For optimal performance, install two plugs diagonally to each other.

**FEATURES**

- Air permeability = 42 cubic feet/hour (1,200 liters/hour) at a pressure difference of min. 70 mbar
- Easy installation: drill one 1.60-in. (41-mm) diameter hole
- Sealing gasket (Nitrile Buna-N Rubber)

**SPECIFICATIONS**

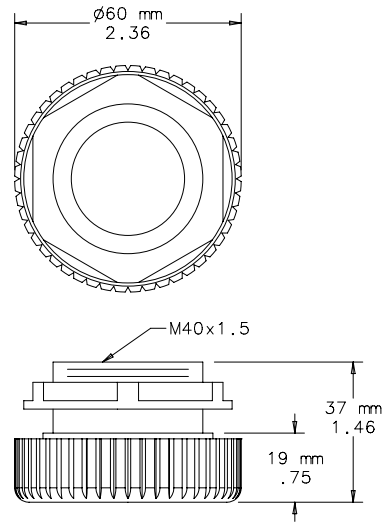
- Semipermeable membrane inside the plug to filter moisture and dust
- Mounting thread M40 with union nut
- Plastic PA66

**FINISH**

- Light-gray plastic. Polymeric material manufactured by DuPont™.
- DuPont is the trademark of E. I. duPont de Nemours and Company.*

**CATALOG NUMBERS**

| UNIT CONSTRUCTION                     |                    |
|---------------------------------------|--------------------|
| Operating/Storage Temperature (°F/°C) | -49/-45 to 158/70  |
| Unit Dimensions (in./mm)              | 2.36/60Ø x 1.46/37 |
| Depth into Enclosure (in./mm)         | .6/15              |



87921424



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