

EXAIR®

MANUFACTURING INTELLIGENT COMPRESSED AIR® PRODUCTS SINCE 1983



COAT



CONSERVE



COOL



CONVEY



CLEAN



Super Air Knife™

- 1/4 & 1 NPT Back Blow Nozzles..... pg. 53
- 1/2 NPT No Drip Atomizing Nozzles... pg. 81

NEW



28
CATALOG



YOU REQUESTED THIS CATALOG AND PRICE LIST.
PLEASE SEE MAILING LABEL ON BACK COVER.

EXAIR[®] Corporation

MANUFACTURING INTELLIGENT COMPRESSED AIR[®] PRODUCTS SINCE 1983

Terms and Conditions	4
Efficiency Lab	5



EXAIR Optimization

Minimize compressed air use and detect wasteful leaks

6 Steps to Optimization	6
Electronic Flow Control	7
Digital Sound Level Meter	10
Ultrasonic Leak Detector	11
Digital Flowmeter	13



Air Knives

Blowoff, clean, dry and cool with less noise and air consumption

Super Air Knife	15
Compare Blowoffs	18
Explanation of Materials	21
Universal Air Knife Mounting System	24
Plumbing Kits	24
Long Super Air Knife	26
Standard Air Knife	28
Full-Flow Air Knife	31



Air Wipes

Blowoff, dry, clean and cool pipe, cable, extruded shapes and hose

Super Air Wipes	33
Standard Air Wipes	37



Air Amplifiers

Vent, exhaust, cool, dry and clean - with no moving parts

Super Air Amplifiers	41
Adjustable Air Amplifiers	45



Air Nozzles and Jets

Reduce noise levels and air costs on blowoff operations

Air Nozzles	47
Air Nozzle Comparison Chart	49
Super Air Nozzles	50
Flat Super Air Nozzles	52
Back Blow Air Nozzles	53
Safety Air Nozzles	54
Air Jets	55
High Force Air Nozzles	57
High Force Air Nozzle Comparison Chart	57
High Force Flat Super Air Nozzles	57
High Force Super Air Nozzles	58
Super Air Nozzle Clusters	61
Stay Set Hoses	61
Swivel Fittings	62



Atomizing Nozzles

All stainless steel construction for durability and corrosion resistance

1/4 NPT Atomizing Nozzles	65
Internal Mix Narrow Angle Round Atomizing Nozzles	65
Internal Mix Wide Angle Round Atomizing Nozzles	66
Internal Mix Flat Fan Atomizing Nozzles	67
Internal Mix Deflected Flat Fan Atomizing Nozzles	68
Internal Mix 360° Hollow Circular Atomizing Nozzles	68
External Mix Round Atomizing Nozzles	69

Atomizing Nozzles continued

External Mix Narrow Angle Flat Fan	70
External Mix Wide Angle Flat Fan Nozzles	71
Siphon Fed Round Atomizing Nozzles	72
Siphon Fed Flat Fan Atomizing Nozzles	73
1/2 NPT Atomizing Nozzles	74
Internal Mix Narrow Angle Round Atomizing Nozzles	74
Internal Mix Wide Angle Round Atomizing Nozzles	75
Internal Mix Flat Fan Atomizing Nozzles	76
Internal Mix 360° Hollow Circular Atomizing Nozzles	77
External Mix Narrow Angle Flat Fan	78
Siphon Fed Round Atomizing Nozzles	79



No Drip Atomizing Nozzles

Eliminate drips to conserve valuable liquids and improve product finishes.

1/4 NPT No Drip Atomizing Nozzles	81
No Drip Internal Mix Narrow Angle Round Atomizing Nozzles	81
No Drip Internal Mix Wide Angle Round Atomizing Nozzles	81
No Drip Internal Mix Flat Fan Atomizing Nozzles	81
No Drip Internal Mix Deflected Flat Fan Atomizing Nozzles	81
No Drip Internal Mix 360° Hollow Circular Atomizing Nozzles	81
No Drip External Mix Round Atomizing Nozzles	82
No Drip External Mix Narrow Angle Flat Fan Atomizing Nozzle	82
No Drip External Mix Wide Angle Flat Fan Atomizing Nozzle	82
No Drip Siphon Fed Round Atomizing Nozzles	82
No Drip Siphon Fed Flat Fan Atomizing Nozzles	82
1/2 NPT No Drip Atomizing Nozzles	81
No Drip Internal Mix Narrow Angle Round Atomizing Nozzles	81
No Drip Internal Mix Wide Angle Round Atomizing Nozzles	81
No Drip Internal Mix Flat Fan Atomizing Nozzles	81
No Drip Internal Mix 360° Hollow Circular Atomizing Nozzles	81
No Drip External Mix Narrow Angle Flat Fan	82
No Drip Siphon Fed Round Atomizing Nozzles	82
Droplet Size/Spray Angle Information	83

84

Safety Air Guns

Safety air guns use engineered air nozzles for high performance

Chip Shields	85
Precision Safety Air Guns	86
Soft Grip Safety Air Guns	86
Heavy Duty Safety Air Guns	89
Back Blow Safety Air Guns	90
Super Blast Safety Air Guns	91

93

Static Eliminators

Eliminate static electricity, dust and shock hazard

Super Ion Air Knife	95
Power Supplies	97
Standard Ion Air Knife	101
Ionizing Bars	103
Super Ion Air Wipes	105
Ion Air Cannon	107
Ion Air Gun	109
Ion Air Jet/Stay Set Ion Air Jet	111
Ionizing Point	113
Static Meter, AC Sensor	114

115

E-Vac® Vacuum Generators

Vacuums for lifting, clamping, mounting and placement

How to Build an E-Vac System	116
In-Line	117
Adjustable	120
Vacuum Cups	122

126

Air Operated Conveyors

Convey parts, materials and waste - with no moving parts

Line Vac	126
Threaded Line Vac	132
Heavy Duty Line Vac	135
Light Duty Line Vac	137

139

Industrial Housekeeping

Reliable vacuums for chip removal, liquid transfer and cleaning

Reversible Drum Vac	139
High Lift Reversible Drum Vac	141
Chip Trapper	143
High Lift Chip Trapper	145
Chip Vac	147
Heavy Duty Dry Vac	149
Heavy Duty HEPA Vac	151
Vac-u-Gun	153
Deep Hole Vac-u-Gun	155
Air Stik Window	157

159

Vortex Tubes & Spot Cooling

Cold air for industrial spot cooling problems

Vortex Tubes	159
Adjustable Spot Cooler	167
Mini Cooler	170

171

Cold Gun Aircoolant Systems

Cool machining operations with clean, cold air

175

Cabinet Cooler® Systems

Cool and purge NEMA 12, 4 and 4X electrical control panels

How it Works	176
Selecting the Right Model	176
Special Duty Cabinet Coolers	177
Calculating Heat Load	179
Cabinet Cooler Sizing Guide	180
NEMA 12 Models	182
NEMA 4 Models	183
NEMA 4X Models	184
Cabinet Cooler System Accessories	185

186


Accessories

Mufflers, filters, regulators, valves, swivel fittings and more

Filters	186
Regulators	187
Silencing Mufflers	188
Valves, Swivels, Thermostats	190
Magnetic Bases, Stay Sets, Hoses	191
Air Hoses	191
Fittings	192
Receiver Tank	192



Catalog item orders received before 3 pm EDT/ EST are generally shipped from Cincinnati, Ohio on the same day. You can expect delivery within 1-4 days depending on your location.



EXAIR®

EFFICIENCYLAB

EXAIR's Intelligent Compressed Air® products vs Your current installation

EXAIR's FREE Efficiency Lab service determines how much air and dollar savings you will achieve by installing one of our Intelligent Compressed Air products.

How does the Efficiency Lab work?

Our Efficiency Lab service begins with receiving a sample of the product(s) you currently use for your application. One of our qualified Application Engineers will use calibrated testing equipment to compare the performance of your existing product(s) to an EXAIR engineered solution. These tests will determine air consumption, noise levels and force. The test results will then be published in a comprehensive report, which includes a cost savings analysis, and be provided to you. For most applications, EXAIR products can help you improve application efficiency AND typically pay for themselves in a matter of weeks.

How can I get a product tested for free?

To participate in our FREE Efficiency Lab please contact one of our Application Engineers and get the details about sending us your product(s).

You may reach them by phone at (800) 903-9247 or (513) 671-3322. You can send an email to lab@exair.com or visit our website and take advantage of our live help at www.exair.com.

Unable to send your product to EXAIR's Efficiency Lab?

If it is not possible to send us your product, we have a one page Product Efficiency Survey on our website (www.exair.com/labdoc.htm) which will provide us the details about a current inefficient compressed air application. Fill in the information and click submit. You will hear from one of our Application Engineers within 24 business hours.

Okay, so what is the fine print?

This offer is available to all customers in the U.S. and Canada only. Some restrictions may apply.

What about confidentiality?

Yes, EXAIR will keep the results of our Efficiency Lab test and report confidential unless given permission to share that information with others.

Products must be shipped to EXAIR freight prepaid. EXAIR will pay the return shipping via UPS ground.



Cabinet Cooler® Systems

An **INTELLIGENT**
COMPRESSED AIR®
Product

Cabinet Cooler® Systems

Stop electronic control downtime due to heat, dirt, and moisture!

Cabinet Coolers maintain NEMA 4, 4X, and 12 integrity.

All Cabinet Coolers are
UL LISTED and CE compliant!



A Model 4830 NEMA 4 Cabinet Cooler cools a panel with 20°F (-7°) air while keeping the inside dry.



What is an EXAIR Cabinet Cooler System?



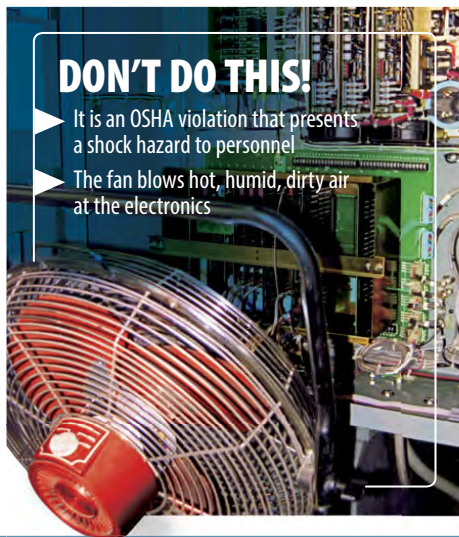
Watch the video!

www.exair.com/ccvideo.htm

A low cost, reliable way to cool and purge electronic control panels. EXAIR Cabinet Coolers incorporate a vortex tube to produce cold air from compressed air - **with no moving parts**. The compact Cabinet Cooler can be installed in minutes through a standard electrical knockout. NEMA 12, 4, and 4X (IP54 and IP66) Cabinet Coolers that match the NEMA rating of the enclosure are available in many cooling capacities for large and small control panels.

Why EXAIR Cabinet Cooler Systems?

The vortex tubes incorporated in the EXAIR Cabinet Coolers are constructed of **stainless steel**. The wear, corrosion and oxidation resistance of stainless steel assures long life and maintenance free operation. All Cabinet Coolers are UL Listed and CE compliant.



Applications

- Programmable controllers
- Line control cabinets
- Motor control centers
- Relay panels
- NC/CNC systems
- Modular control centers
- CCTV cameras
- Computer cabinets
- Laser housings
- Electronic scales
- Food service equipment

Advantages

- Low cost
- Compact
- Cooling capacities to 5,600 Btu/hr. (1,411 Kcal/hr.)
- Quiet
- Install in minutes
- Maintain NEMA 12, 4 and 4X integrity (IP54 and IP66)
- Stabilize enclosure temperature and humidity
- No CFC's
- No moving parts-maintenance free
- Mount in standard electrical knockout

- Stop nuisance tripping
- Stop heat damage
- Eliminate fans and filters
- Eliminate lost production
- Stop circuit drift
- Stop dirt contamination
- Provide washdown protection

Special Cabinet Coolers

- High temp. models for ambients up to 200°F (93°C) available
- Type 316 stainless steel available
- Purge models for non-hazardous locations available

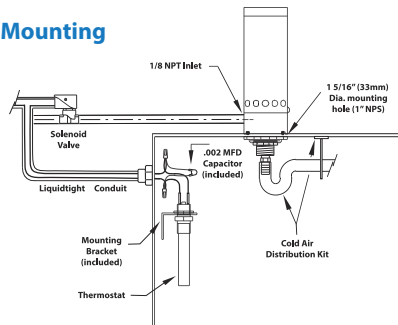
Cabinet Cooler® Systems

How The Cabinet Cooler Works



Compressed air enters the vortex tube powered Cabinet Cooler and is converted into two streams, one hot and one cold. (For more information on vortex tube operation, see page 160.) Hot air from the vortex tube is muffled and exhausted through the **vortex tube exhaust**. The cold air is discharged into the control cabinet through the cold air distribution kit. The displaced hot air in the cabinet rises and exhausts to atmosphere through the **cabinet air exhaust** at a slight positive pressure. Thus, the control cabinet is both cooled and purged with cool, clean air. **Outside air is never allowed to enter the control panel.**

Mounting



The Cabinet Cooler mounts to the enclosure through a drilled hole or electrical knockout. The NEMA 12 (IP54) Cabinet Coolers may be mounted on the top or side of the panel. NEMA 4 and 4X (IP66) Cabinet Coolers must be mounted on the top of the panel or on the side of the panel using one of our Side Mount Kits (See page 185).

Selecting The Right Model – Know Your System Options

Each different NEMA rated Cabinet Cooler system is available with a thermostat control or in a continuous operation system. Each of these systems will include a water-dirt filter separator to prevent water condensate and dirt from entering your enclosure and cold air distribution kit used to direct the air for circulation or on to hot spots. EXAIR also manufactures Cabinet Cooler systems for difficult environments. We have provided additional information on our Cabinet Cooler systems suitable for high temperature environments, Non-Hazardous purge environments and Type 316SS material coolers for highly corrosive environments.

NEMA Rating

The first step to solving your overheating problem is to identify the NEMA integrity your enclosure will require. At right is an explanation to help you determine which NEMA integrity Cabinet Cooler system we should ship to you.

Environmental Considerations

NEMA 12 (IP54) Cabinet Coolers (dust-tight, oil-tight) are ideal for general industrial environments where no liquids or corrosives are present.

NEMA 4 (IP66) Cabinet Coolers (dust-tight, oil-tight, splash resistant, indoor/outdoor service) incorporate a low pressure relief valve for both the vortex tube and cabinet air exhaust. This valve closes and seals when the cooler is not operating **to maintain the integrity of a NEMA 4 enclosure.**

NEMA 4X (IP66) Cabinet Coolers offer the same protection as NEMA 4 but are **constructed of stainless steel for food service and corrosive environments.**

Thermostat Control

The thermostat control systems are the most efficient way to operate a Cabinet Cooler. They save air by activating the cooler only when internal temperatures approach critical levels. Thermostat controlled cooler systems are the best option when experiencing fluctuating heat loads caused by environment or seasonal changes. The standard thermostat control systems include an adjustable thermostat factory set at 95°F (35°C).



Systems with thermostat control include a Cabinet Cooler, thermostat, solenoid valve, cold air distribution kit and filter.

Selecting The Right Model – Know Your System Options (continued)

ETC Electronic Temperature Control

EXAIR's digital ETC (Electronic Temperature Control) provides precise temperature control for your electrical enclosure. It can accurately maintain a constant temperature that is slightly under the maximum rating of the electronics, permitting just enough cooling for the electronics without going so cold as to waste compressed air. The LED readout of the ETC displays the internal temperature

of the electrical enclosure (°F or °C) that is constantly being monitored by a quick response thermocouple. The control activates the solenoid valve (included) when the temperature setting is exceeded. The polycarbonate plastic enclosure of the ETC is suitable for NEMA 12, 4 and 4X environments. (Cabinet Cooler not included.)

	Sample Rate	Max Temp	Solenoid Valve	Setting Temp	Supply Current	Sensor
Model 9238 – 120VAC, 50-60 Hz	1/sec.	158°F (70°C)	¼ NPT	Push Button	250 mA max	Type J Thermocouple
Model 9258 – 120VAC, 50/60 Hz	1/sec.	158°F (70°C)	½ NPT	Push Button	325 mA max	Type J Thermocouple
Model 9239 – 240VAC, 50/60 Hz	1/sec.	158°F (70°C)	¼ NPT	Push Button	165 mA max	Type J Thermocouple
Model 9259 – 240VAC, 50/60 Hz	1/sec.	158°F (70°C)	½ NPT	Push Button	215 mA max	Type J Thermocouple

ETC controls are available within Cabinet Cooler Systems (see pages 182-184) or separate for retrofitting on existing coolers. All ETC enclosures are NEMA 4X (IP66), UL508 and UL94-5V. ETCs are RoHS and CE compliant.



ETC (Electronic Temperature Control) units are available in four different models. See above for details.

Continuous Operation

Also available in any of our NEMA ratings, continuous Cabinet Cooler systems are recommended when constant cooling and constant positive purge are desirable.



Systems for continuous operation include a Cabinet Cooler, cold air distribution kit and filter.

Special Cabinet Coolers

EXAIR manufactures special NEMA 12 (IP54), 4 (IP66) and 4X (IP66) Cabinet Coolers suited to specific environmental requirements:

High Temperature Cabinet Coolers (shown top right) for ambient temperatures of 125° to 200°F (52° to 93°C) are available. Internal components can withstand high temperatures (like those near furnaces, ovens, etc.).

Non-Hazardous Purge Cabinet Cooler Systems (shown middle right) are ideal for dirty areas where contaminants might normally pass through small holes or conduits. Under normal conditions, the NHP Cabinet Cooler Systems provide a slight positive pressure in the enclosure by passing 1 SCFM (28 SLPM) of air through the cooler, when the solenoid valve is in the closed position. When the thermostat detects high temperature, it energizes the solenoid valve to pass full line pressure to the Cabinet Cooler, giving it full cooling capability.

Type 316 Stainless Steel NEMA 4X Cabinet Coolers (shown bottom right) are suitable for food service, pharmaceutical, harsh and corrosive environments, and other applications where 316SS is preferred. Capacities from 650 to 5,600 Btu/hr. (164 to 1,411 Kcal/hr.) are available.

EXAIR High Temperature Cabinet Coolers, Non-Hazardous Purge Cabinet Coolers and Type 316 Cabinet Coolers are **now available from stock**.



Cabinet Cooler® Systems

Filtration: EXAIR Cabinet Cooler Systems include a 5 micron automatic drain water and dirt filter. This filter is **critical** for protection of electronics from water in the compressed air line. If oil is present in the compressed air, a coalescing (oil removal) filter, such as EXAIR Model 9005 is recommended. (See page 186)

Inlet Air Temperature: Cabinet Cooler Systems provide a 50°F (10°C) temperature drop from supply air temperature when the inlet pressure is 80 PSIG (5.5 BAR). Elevated inlet temperature will produce a corresponding rise in cold air temperature and reduction in cooling capacity. Low air pressures will also reduce the cooling capacity.

Humidity: For a continuous operating Cabinet Cooler System, relative humidity inside the enclosure stabilizes at 45%. No moisture condenses inside the enclosure. (The enclosure must be sealed to prevent condensation.)



Cold Air Distribution Kit:

The kit includes a length of flexible vinyl tubing used to direct the cold air for circulation, or to hot spots. Tubing connectors and adhesive backed clips to hold the tubing in place are provided.



Solenoid Valve and Thermostat:

Cabinet Cooler Systems with thermostat control include a solenoid valve and thermostat that limit the flow of compressed air to only cool when needed. The solenoid valve is rated 120V, 60Hz or 110V, 50Hz. It is UL Listed, CSA Certified. See page 190 for more options.



The thermostat is factory set at 95°F (35°C). It will normally hold $\pm 2^\circ\text{F}$ (1°C) inside the cabinet. It is rated 24VAC-240VAC, 50/60Hz, 24VDC and is UL Recognized, CSA Certified.



A

Heat Can Stop Your Machines

When hot weather causes the electronics inside a control cabinet to fail, there is a panic to get the machinery up and running again. There are several cooling options out there and it's important to know the facts.

A. Heat Exchangers and Heat Pipes

These have serious limitations. On hot summer days when the temperatures of the room and inside of the enclosure are about equal, there's not enough difference for effective heat exchange.

- They fail when dust and dirt clog the filter
- The cooling capacity is limited due to ambient conditions



B

B. Refrigerant Panel Air Conditioners

These coolers are prone to failure in dirty, industrial environments when dust and dirt clog the filter.

- It takes almost a day to install
- Vibration from machinery causes refrigerant leaks and component failures



C

C. "Plastic Box" Coolers

The "plastic box" cooler from a competitor uses an inaccurate mechanical thermostat that's designed for liquids. This thermostat has a poor ability to react quickly to changes in air temperature.

It costs up to 85% more to operate than EXAIR's ETC Cabinet Cooler® System with the same SCFM rating and Btu/hr. output.

- Electronics can overheat before it turns on
- It runs far longer than necessary before shutting off

EXAIR Cabinet Cooler® Systems

EXAIR has a complete line of Cabinet Cooler Systems to dependably cool and purge your electrical enclosures. They convert an ordinary supply of compressed air into clean, cold 20°F (-7°C) air. They mount in minutes through an ordinary electrical knockout and have no moving parts to wear out. The compressed air filtration that is provided keeps water, oil and other contaminants out of the enclosure.

- There is no room air filter to clog
- An accurate electrical thermostat control minimizes compressed air use
- All Cabinet Coolers are UL Listed to US and Canadian safety standards
- They are the only compressed air powered coolers that are CE compliant



Sizing Guide - Let us do the work

On the following page, EXAIR provides a simple guide to fill in and send to us so we may do the heat load calculations for you and specify a Cabinet Cooler system. You may e-mail the information to techelp@exair.com, call 1-800-903-9247, online chat with us at www.EXAIR.com, or fax the information to 1-866-329-3924.

How To Calculate Heat Load for Your Enclosure

If you would like to determine the correct model for your enclosure without our assistance, it is first necessary to determine the total heat load to which the control panel is subjected. This total heat load is the combination of two factors – heat dissipated within the enclosure and heat transfer from outside the enclosure.

To Calculate Btu/hr.:

1. First, determine the approximate Watts of heat generated within the enclosure. $\text{Watts} \times 3.41 = \text{Btu/hr.}$
2. Then, calculate outside heat transfer as follows:
 - a. Determine the area in square feet exposed to the air, ignoring the top of the cabinet.
 - b. Determine the temperature differential between maximum surrounding temperature and desired internal temperature. Then, using the Temperature Conversion Table (*below*), determine the Btu/hr./ft.^2 for that differential. Multiplying the cabinet surface area times Btu/hr./ft.^2 provides external heat transfer in Btu/hr.
3. Add internal and external heat loads for total heat load.

Temperature Conversion Table

Temperature Differential °F	Btu/hr./ft. ²
5	1.5
10	3.3
15	5.1
20	7.1
25	9.1
30	11.3
35	13.8
40	16.2

After picking which NEMA integrity you need, choosing your options and calculating your heat load - go to page 182-184 to specify a model number.

OR

Contact EXAIR and we'll walk you right through it.

To Calculate Kcal/hr.:

1. First, determine the approximate Watts of heat generated within the enclosure. $\text{Watts} \times .86 = \text{Kcal/hr.}$
2. Then, calculate outside heat transfer as follows:
 - a. Determine the area in square meters exposed to the air, ignoring the top of the cabinet.
 - b. Determine the temperature differential between maximum surrounding temperature and desired internal temperature. Then, using the Metric Temperature Conversion Table (*below*), determine the Kcal/hr./m^2 for that differential. Multiplying the cabinet surface area times Kcal/hr./m^2 provides external heat transfer in Kcal/hr.
3. Add internal and external heat loads for total heat load.

Temperature Conversion Table (METRIC)

Temperature Differential °C	Kcal/hr./m ²
3	4.5
6	9.7
9	15.1
12	21.0
15	27.0
18	34.0
21	41.0

Example:

Internal heat dissipation: 471 Watts or 1,606 Btu/hr.
Cabinet area: 40 ft.²
Maximum outside temperature: 110°F
Desired internal temperature: 95°F

The conversion table (*above*) shows that a 15°F temperature differential inputs 5.1 Btu/hr./ft.²

$40 \text{ ft.}^2 \times 5.1 \text{ Btu/hr./ft.}^2 = 204 \text{ Btu/hr.}$ external heat load.

Therefore, 204 Btu/hr. external heat load plus 1,606 Btu/hr. internal heat load = 1,810 Btu/hr. total heat load or Btu/hr. refrigeration required to maintain desired temperature.

In this example, the correct choice is a 2,000 Btu/hr. Cabinet Cooler System. Choose a Cabinet Cooler model by determining the NEMA rating of the enclosure (type of environment), and with or without thermostat control.

Example:

Internal heat dissipation: 471 Watts or 405 Kcal/hr.
Cabinet area: 3.7m²
Maximum outside temperature: 44°C
Desired internal temperature: 35°C

The conversion table (*above*) shows that a 9°C temperature differential inputs 15.1 Kcal/hr./m².

$3.7 \text{ m}^2 \times 15.1 \text{ Kcal/hr./m}^2 = 56 \text{ Kcal/hr.}$ external heat load.

Therefore, 56 Kcal/hr. external heat load plus 405 Kcal/hr. internal heat load = 461 Kcal/hr. total heat load or Kcal/hr. refrigeration required to maintain desired temperature.

In this example, the correct choice is a 504 Kcal/hr. Cabinet Cooler System. Choose a Cabinet Cooler model by determining the NEMA rating of the enclosure (type of environment), and with or without thermostat control.

EXAIR® Cabinet Cooler® System Sizing Guide

Deliver your Data – Receive a Quote

Use this form to gather the information necessary to specify a Cabinet Cooler system and choose a delivery method below.



submit online

www.exair.com/sizing.htm



Call us at

1-800-903-9247



TO QUICK
MOBILE
VERSION

www.exair.com/m_ccszg.htm



Online chat with us at

www.exair.com



FAX

it to

1-866-329-3924

We'll respond with our recommended solution within 24 hours.

-----Send Us The Facts!-----

Cabinet Cooler Sizing Guide

To: Application Engineering Department, **EXAIR® Corporation**

From: **Name** _____

Company _____

FAX number _____

Phone number _____ **Ext.#** _____

E-mail _____

In a hurry? For help NOW, call
our Application Engineering
Department at 1-800-903-9247

**You can fill this
form out online at:**
www.exair.com/sizing.htm

1. Height (H) _____ 2. Width (W) _____ 3. Depth (D) _____

4. *External air temperature now? °F or °C

5. *Internal air temperature now? °F or °C

6. Maximum external air temperature possible? _____ °F or °C

7. Maximum internal air temperature desired? _____ °F or °C

8. My cabinet rating is: ☐ NEMA 12 ☐ NEMA 4 ☐ NEMA 4X

☐ Other (explain) _____

9. My cabinet is (check all that apply): ☐ Vented - outside air circulates through the enclosure

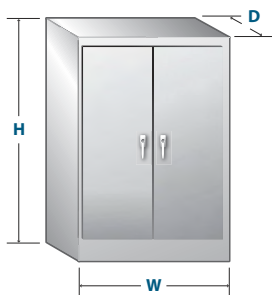
☐ Not Vented - outside air does not circulate through the enclosure

☐ Wall mounted

☐ Fan(s)/Vent(s) - Indicate diameter or SCFM _____

Number of fans/vents _____

10. Available voltage for thermostat control: ☐ 24 VDC ☐ 110 VAC ☐ 240 VAC



*Using a "Temperature Gun" or infrared thermometer will result in measuring surface temperatures. Air temperatures are needed for the cabinet cooling calculations. Please use a standard thermometer or thermocouple to measure the air temperature.

Cabinet Coolers Keep Working at Full Capacity After Seven Years of Near Constant Operation

The Problem: A manufacturer of automotive radiators had a problem relating to an overheated motor drive which caused one of their two production lines to come to a stop. They used a refrigerant based air conditioner set on the panel, but the air conditioner began leaking water into the inside of the panel. The water got into the motor drive, shorted it out and caused the production line to go down. Not only was production down for 1 month, but the motor drive cost them \$20,000 to replace by the time they purchased, had it shipped and got it installed.

The Solution: The manufacturer was unsure of what they were going to use for an air conditioning unit because the motor drives had to stay cool. They purchased EXAIR's **Model 4330 NEMA 12 2,000 Btu/hr. (504 Kcal/hr.) Cabinet Cooler System** with thermostat control for the panel. The Cabinet Cooler System worked perfectly at solving the cooling problem.



Seven years later, this manufacturer contacted EXAIR for another application. They mentioned the old EXAIR Cabinet Cooler system still on the motor drive panel, cranking out cold air. No maintenance had been performed on the Cabinet Cooler System in that time (as none was necessary) even though the environment was quite dirty. It was still working perfectly!



Comment: When we talk to customers about the EXAIR Cabinet Cooler Systems, one of their initial concerns is how long they last. With a source of clean/dry compressed air, the life span of a Cabinet Cooler can easily be in the range of 20 years or more, since there are no moving parts to wear out. In that time frame, you could have to purchase four refrigerant based units, pay to have them changed out and pay for them to be maintained 2 - 4 times per year, changing filters, replacing compressors, and re-charging refrigerant. Not only does the Cabinet Cooler last a long time, but when it is operating, it produces a positive pressure inside the panel which keeps dust and debris from getting inside your cabinet over time.

Cooling in a Hostile Environment



The Problem: A traditional refrigerant based air conditioner was installed on wastewater clarifier controls but could not withstand the harsh chemical environment of the wastewater industry. Controls on a wastewater clarifier process were mounted outdoors and experienced weather related overheating problems in the hotter months of the year. Not only did higher temperatures compromise the performance of the traditional refrigerant based air conditioner, the corrosive environment from the many different wastewater chemicals, acids and bases prematurely wore the critical moving parts of the air conditioner.

The Solution: A **Model 4850SS-316 Cabinet Cooler System** provided 3,400 Btu/hr. (857 Kcal/hr.) of cooling for the clarifier controls and kept them running efficiently. The Cabinet Cooler is resistant to seasonal temperature fluctuations because it operates from a source of compressed air and not ambient air. The 316SS construction also provided high corrosion resistance to the chemical environment. Since EXAIR Cabinet Coolers have no moving parts, another maintenance concern was eliminated.

Comment: The inherent reliability of the vortex tube operated Cabinet Cooler System is another important advantage in this application. Because they have no moving parts, **EXAIR Cabinet Coolers are virtually impervious to hostile environments.** Wastewater treatment, chemical processing, paper manufacturing, steel mills and power generation are just a few of the facilities benefitting from this simple, yet effective technology.

Cabinet Cooler® Systems

NEMA 12 (IP54) Cabinet Cooler Systems

	120V Thermostat Control Model #	ETC 120V Thermostats Control Model #	ETC 240V Thermostats Control Model #	High Temp Thermostat Control Model #	Non-Hazardous Purge Thermostat Control Model #	Capacity* Btu/ Hr	Kcal/ hr	Sound level dBA
NEMA 12 (IP54) (Dust, Oil Resistant)	4304	4304-ETC120	4304-ETC240	N/A	NHP4304	275	69	59**
	4308	4308-ETC120	4308-ETC240	N/A	NHP4308	550	139	67**
	4315	4315-ETC120	4315-ETC240	HT4315	NHP4315	1,000	252	73**
	4325	4325-ETC120	4325-ETC240	HT4325	NHP4325	1,700	428	74**
	4330	4330-ETC120	4330-ETC240	HT4330	NHP4330	2,000	504	74**
	4340	4340-ETC120	4340-ETC240	HT4340	NHP4340	2,800	706	78**
	4350	4350-ETC120	4350-ETC240	HT4350	NHP4350	3,400	857	75**
	4360	4360-ETC120	4360-ETC240	HT4360	NHP4360	4,000	1,007	77**
	4370	4370-ETC120	4370-ETC240	HT4370	NHP4370	4,800	1,209	77**
	4380	4380-ETC120	4380-ETC240	HT4380	NHP4380	5,600	1,411	79**

	Cabinet Cooler Only Model #	Continuous Operation Model #	High Temp Continuous Operation Model #	Non-Hazardous Purge Continuous Operation Model #	Capacity* Btu/ Hr	Kcal/ hr	Sound level dBA
NEMA 12 (IP54) (Dust, Oil Resistant)	4004	4204	N/A	NHP4204	275	69	59**
	4008	4208	N/A	NHP4208	550	139	67**
	4015	4215	HT4215	NHP4215	1,000	252	73**
	4025	4225	HT4225	NHP4225	1,700	428	74**
	4030	4230	HT4230	NHP4230	2,000	504	74**
	4040	4240	HT4240	NHP4240	2,800	706	78**
	N/A	4250	HT4250	NHP4250	3,400	857	75**
	N/A	4260	HT4260	NHP4260	4,000	1,007	77**
	N/A	4270	HT4270	NHP4270	4,800	1,209	77**
	N/A	4280	HT4280	NHP4280	5,600	1,411	79**

*Cooling capacity at 100 PSIG (6.9 BAR) supply pressure. **With optional cold muffler installed.

NEMA 12 (IP54) Cabinet Cooler systems are dust and oil tight. They are ideal for general industrial environments where no liquids or corrosives are present.

Thermostat control systems (Models 4304-4380) are the most efficient cabinet cooler system because it will turn itself on and off as needed to cool your enclosure. Includes cooler, solenoid valve, thermostat, filter separator and cold air distribution kit. Models are available in 110VAC, 240VAC and 24VDC.

Continuous operation systems (Models 4204-4280) include the cooler, a filter separator and cold air distribution kit.

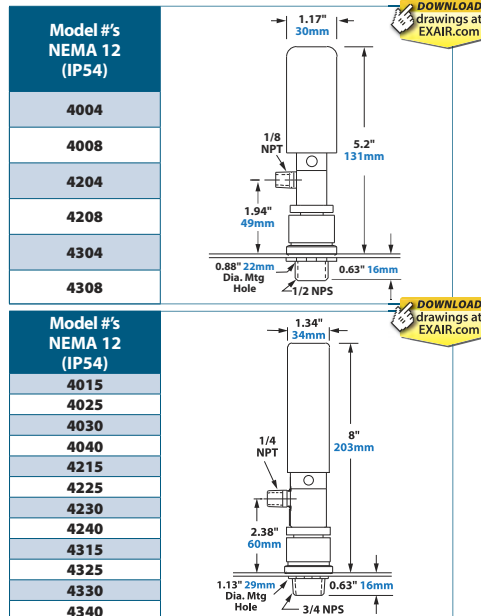
ETC Thermostat control systems provide on the fly temperature adjustment and an internal temperature feedback display.

High Temperature Cabinet Cooler systems should be used when ambient temperatures reach 125°F to 200°F (52°C to 93°C).

Non-Hazardous Purge (NHP) models provide a continuous positive purge within the enclosure to prevent contaminants from entering. They are suited for extremely dirty and dusty environments.

Dual Cabinet Cooler systems (Models (##50-##80) provide for additional cooling.

Dimensions



NEMA 4 (IP66) Cabinet Cooler Systems

	120V Thermostat Control Model#	ETC 120V Thermostats Control Model#	ETC 240V Thermostats Control Model#	High Temp Thermostat Control Model#	Non-Hazardous Purge Thermostat Control Model#	Capacity* Btu/ Hr	Kcal/ hr	Sound level dBA
NEMA 4 (IP66) (Splash Resistant)	4804	4804-ETC120	4804-ETC240	N/A	NHP4804	275	69	59**
	4808	4808-ETC120	4808-ETC240	N/A	NHP4808	550	139	67**
	4815	4815-ETC120	4815-ETC240	HT4815	NHP4815	1,000	252	73
	4825	4825-ETC120	4825-ETC240	HT4825	NHP4825	1,700	428	80
	4830	4830-ETC120	4830-ETC240	HT4830	NHP4830	2,000	504	80
	4840	4840-ETC120	4840-ETC240	HT4840	NHP4840	2,800	706	82
	4850	NEW 4850-ETC120	NEW 4850-ETC240	HT4850	NHP4850	3,400	857	84
	4860	NEW 4860-ETC120	NEW 4860-ETC240	HT4860	NHP4860	4,000	1,007	84
	4870	NEW 4870-ETC120	NEW 4870-ETC240	HT4870	NHP4870	4,800	1,209	84
	4880	NEW 4880-ETC120	NEW 4880-ETC240	HT4880	NHP4880	5,600	1,411	85

	Cabinet Cooler Only Model#	Continuous Operation Model#	High Temp Continuous Operation Model#	Non-Hazardous Purge Continuous Operation Model#	Capacity* Btu/ Hr	Kcal/ hr	Sound level dBA
NEMA 4 (IP66) (Splash Resistant)	4604	4704	N/A	NHP4704	275	69	59**
	4608	4708	N/A	NHP4708	550	139	67**
	4615	4715	HT4715	NHP4715	1,000	252	73
	4625	4725	HT4725	NHP4725	1,700	428	80
	4630	4730	HT4730	NHP4730	2,000	504	80
	4640	4740	HT4740	NHP4740	2,800	706	82
	N/A	4750	HT4750	NHP4750	3,400	857	84
	N/A	4760	HT4760	NHP4760	4,000	1,007	84
	N/A	4770	HT4770	NHP4770	4,800	1,209	84
	N/A	4780	HT4780	NHP4780	5,600	1,411	85

*Cooling capacity at 100 PSIG (6.9 BAR) supply pressure. **With optional cold muffler installed.

NEMA 4 (IP66) Cabinet Cooler systems are dust and oil tight, splash resistant and indoor/outdoor capable. By incorporating a low pressure valve for all air exhaust, the valve closes and seals when not operating to **maintain NEMA 4 enclosure integrity**.

Thermostat control systems (Models 4804-4880) are the most efficient system because it will turn itself on and off as needed to cool your enclosure. Includes cooler, solenoid valve and thermostat, filter separator and cold air distribution kit. Models are available in 110VAC, 240VAC and 24VDC.

Continuous operation systems (Models 4704-4780) include the cooler, a filter separator and cold air distribution kit.

ETC Thermostat control systems provide on the fly temperature adjustment and an internal temperature feedback display.

High Temperature Cabinet Cooler systems should be used when ambient temperatures reach 125°F to 200°F (52°C to 93°C).

Non-Hazardous Purge (NHP) models provide a continuous positive purge within the enclosure to prevent contaminants from entering. They are suited for extremely dirty and dusty environments.

Dual Cabinet Cooler systems (Models (##50-##80) provide for additional cooling.

Dimensions

Model #s NEMA 4 (IP66)	Diagram
4604 4608 4704 4708 4804 4808	
4615 4625 4630 4640 4715 4725 4730 4740 4815 4825 4830 4840	

DOWNLOAD
drawings at
EXAIR.com

DOWNLOAD
drawings at
EXAIR.com

Cabinet Cooler® Systems

NEMA 4X (IP66) Cabinet Cooler Systems

	120V Thermostat Control Model#	ETC 120V Thermostats Control Model#	ETC 240V Thermostats Control Model#	High Temp Thermostat Control Model#	Non-Hazardous Purge Thermostat Control Model#	Capacity* Btu/ Hr	Kcal/ hr	Sound level dBA
NEMA 4X (IP66) (Corrosion- Resistant)	4804SS	4804SS-ETC120	4804SS-ETC240	N/A	NHP4804SS	275	69	59**
	4808SS	4808SS-ETC120	4808SS-ETC240	N/A	NHP4808SS	550	139	67**
	4815SS	4815SS-ETC120	4815SS-ETC240	HT4815SS	NHP4815SS	1,000	252	73
	4825SS	4825SS-ETC120	4825SS-ETC240	HT4825SS	NHP4825SS	1,700	428	80
	4830SS	4830SS-ETC120	4830SS-ETC240	HT4830SS	NHP4830SS	2,000	504	80
	4840SS	4840SS-ETC120	4840SS-ETC240	HT4840SS	NHP4840SS	2,800	706	82
	4850SS	4850SS-ETC120	4850SS-ETC240	HT4850SS	NHP4850SS	3,400	857	84
	4860SS	4860SS-ETC120	4860SS-ETC240	HT4860SS	NHP4860SS	4,000	1,007	84
	4870SS	4870SS-ETC120	4870SS-ETC240	HT4870SS	NHP4870SS	4,800	1,209	84
	4880SS	4880SS-ETC120	4880SS-ETC240	HT4880SS	NHP4880SS	5,600	1,411	85

	Cabinet Cooler Only Model#	Continuous Operation Model#	High Temp Continuous Operation Model#	Non-Hazardous Purge Continuous Operation Model#	Capacity* Btu/ Hr	Kcal/ hr	Sound level dBA
NEMA 4X (IP66) (Corrosion Resistant)	4604SS	4704SS	N/A	NHP4704SS	275	69	59**
	4608SS	4708SS	N/A	NHP4708SS	550	139	67**
	4615SS	4715SS	HT4715SS	NHP4715SS	1,000	252	73
	4625SS	4725SS	HT4725SS	NHP4725SS	1,700	428	80
	4630SS	4730SS	HT4730SS	NHP4730SS	2,000	504	80
	4640SS	4740SS	HT4740SS	NHP4740SS	2,800	706	82
	4650SS	4750SS	HT4750SS	NHP4750SS	3,400	857	84
	N/A	4760SS	HT4760SS	NHP4760SS	4,000	1,007	84
	N/A	4770SS	HT4770SS	NHP4770SS	4,800	1,209	84
	N/A	4780SS	HT4780SS	NHP4780SS	5,600	1,411	85

*Cooling capacity at 100 PSIG (6.9 BAR) supply pressure. **With optional cold muffler installed.

NEMA 4X (IP66) Cabinet Cooler systems are made from 303 stainless steel, dust and oil tight, splash resistant, indoor/outdoor capable and corrosion resistant. By incorporating a low pressure valve for all air exhaust, the valve closes and seals when not operating to **maintain NEMA 4X enclosure integrity**.

Thermostat control systems (Models 4804SS-4880SS) are the most efficient system because it will turn itself on and off as needed to cool your enclosure. Includes cooler, solenoid valve and thermostat, filter separator and cold air distribution kit. Models are available in 110VAC, 240VAC and 24VDC.

Continuous operation systems (Models 4704SS-4780SS) include the cooler, a filter separator and cold air distribution kit.

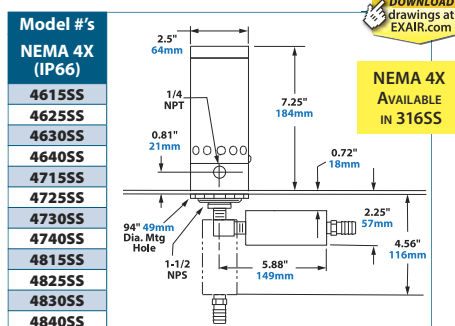
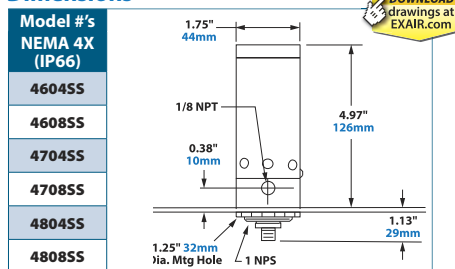
ETC Thermostat control systems provide on the fly temperature adjustment and an internal temperature feedback display.

High Temperature Cabinet Cooler systems should be used when ambient temperatures reach 125°F to 200°F (52°C to 93°C).

Non-Hazardous Purge (NHP) models provide a continuous positive purge within the enclosure to prevent contaminants from entering. They are suited for extremely dirty and dusty environments.

Dual Cabinet Cooler systems (Models (##50-##80) provide for additional cooling.

Dimensions



Accessories and Components

Model #	Description	Model #	Description
4902	Cold Muffler only	9044	Valve and Thermostat Kit, 240V, 50/60 Hz
4904	Cold Air Distribution Kit (For all Cabinet Coolers except 550 Btu/hr. output)	9016	NEMA 4-4X Valve and Thermostat Kit, 120V, 50/60 Hz
4905	Cold Air Distribution Kit (For Cabinet Coolers with 550 Btu/hr. output only)	9045	NEMA 4-4X Valve and Thermostat Kit, 240V, 50/60 Hz
9004	Automatic Drain Filter Separator, 1/4 NPT, 43 SCFM (1,359 SLPM)	9017	Thermostat Only, 24V-240V, 50/60Hz
9027	Oil Removal Filter (For Cabinet Coolers with 550 Btu/hr. output), 1/4 NPT, 7-24 SCFM (198-680 SLPM)	9018	NEMA 4-4X Solenoid Valve Only, 120V, 50/60 Hz, 1/4 NPT, 40 SCFM (1,133 SLPM)
9005	Oil Removal Filter (For all Cabinet Coolers except 550 Btu/hr. output), 3/8 NPT, 15-37 SCFM (425-1,048 SLPM)	9024	NEMA 4-4X Solenoid Valve Only, 240V, 50/60 Hz, 1/4 NPT, 40 SCFM (1,133 SLPM)
9006	Oil Removal Filter, 3/4 NPT, 50-150 SCFM (1,416-4,248 SLPM)	9020	Solenoid Valve Only, 120V, 50/60 Hz, 1/4 NPT, 40 SCFM (1,133 SLPM)
9008	Pressure Regulator with Gauge, 1/4 NPT, 50 SCFM (1,416 SLPM)	9021	Solenoid Valve Only, 200-240V, 50/60 Hz, 1/4 NPT, 40 SCFM (1,133 SLPM)
9238	ETC - Electronic Temperature Control, 120V, 50/60 Hz, 1/4 NPT	9031	NEMA 4-4X Solenoid Valve Only, 24VDC, 1/4 NPT, 40 SCFM (1,133 SLPM)
9239	ETC - Electronic Temperature Control, 240V, 50/60 Hz, 1/4 NPT	9065	NEMA 4-4X Solenoid Valve Only, 24VDC, 1 NPT, 350 SCFM (9,911 SLPM)
9258	ETC - Electronic Temperature Control, 120V, 50/60 Hz, 1/2 NPT		
9259	ETC - Electronic Temperature Control, 240V, 50/60 Hz, 1/2 NPT		
9015	Valve and Thermostat Kit, 120V, 50/60 Hz		

EXAIR's Side Mount Kits for NEMA 12, 4 and 4X Cabinet Coolers offer convenient mounting to the side of an electrical enclosure.



Side Mount Kits

EXAIR's Side Mount Kits make mounting on the side of an electrical enclosure possible when there is limited space on the top or side. (NEMA 4 and 4X Cabinet Cooler Systems must be mounted vertically.) The Side Mount Kits maintain the NEMA rating of large and small NEMA Type 12, 4 and 4X enclosures. They mount in a standard electrical knockout (1-1/2 NPS). Side Mount Kits for NEMA 12 Cabinet Cooler Systems have an aluminum construction. Those for NEMA 4 and 4X Cabinet Cooler Systems are Type 303 or Type 316 stainless steel.

Accessories and Components

Model #	Description
4909	Side Mount Kit for NEMA 12 Cabinet Coolers up to 550 Btu/hr. (139 Kcal/hr.)
4910	Side Mount Kit for NEMA 12 Cabinet Coolers, 650 Btu/hr. (165 Kcal/hr.) and higher
4906	Side Mount Kit for NEMA 4 and 4X Cabinet Coolers up to 550 Btu/hr. (139 Kcal/hr.)
4907	Side Mount Kit for NEMA 4 and 4X Cabinet Coolers, 650 Btu/hr. (165 Kcal/hr.) and higher
4907-316	Type 316 Stainless Steel Side Mount Kit for NEMA 4 and 4X Cabinet Coolers, 650 Btu/hr. (165 Kcal/hr.) and higher



90 Degree Side Mount Kit Dimensions

Model		A	B	C	D	E	F	G
4906	in	2.50	2.50	1.50	3.50	3.03	1 NPS	1-1/2 NPS
	mm	64	64	38	89	77		
4907	in	2.50	2.50	1.50	3.50	3.03	1-1/2 NPS	1-1/2 NPS
	mm	64	64	38	89	77		
4909	in	2.50	2.50	1.50	2.19	1.73	1/2 NPS	1-1/2 NPS
	mm	64	64	38	56	44		
4910	in	2.50	2.50	1.50	2.19	1.73	3/4 NPS	1-1/2 NPS
	mm	64	64	38	56	44		

Side Mount Kit Dimensions

