Thermal Management Accessories for RMR® Enclosure Systems

Chatsworth Products (CPI) offers a comprehensive line of Filter Fans and cooling units that provide superior thermal management to help protect the life of the electronic equipment in environments that require NEMA Type 12 and IP 55 protection. Three cooling methods are available to address different applications and requirements:

- **Forced Convection**
- **Natural Convection**
- **Closed-Loop Cooling**

Forced Convection with Filter Fans

KEY FEATURES

- Multiple sizes available
- Top-, side- or front-mounting
- Supports front/rear, side/side or side/top airflow
- Easy, tool-less installation
- Maintains NEMA Type 12 protection rating
- Hinged grill for easy filter replacement
- Optimized airflow and reduced energy consumption
- High-quality fluted filter mat allows 300% longer service time

APPLICATIONS

- Nonhazardous environments with outside temperature range that is lower than the temperature required in the enclosure

ADVANTAGES

High System Airflow
Creates airflow through the enclosure to actively exhaust heat from the enclosure

Tool-Less Installation
Patented four-corner click mechanism allows quick, tool-less installation

High-Performance Seal
Closed frame prevents unfiltered air from penetrating the enclosure

300% Longer Service Life
Large surface filter mat allows for a high filtration level, greater fan service life and maximum airflow, saving time and money

Availability: US, Canada, Latin America, Europe and Middle East

United States
Agoura Hills, CA
800-834-4969

Canada
Toronto, Ontario, Canada
+905-850-7770

Europe
Buckinghamshire, UK
+441628524834

Middle East & Africa
Dubai, UAE
+971-4-2602125

Doha, Qatar
+974-4-267422

Latin America
Mexico City
+52-55-5203-7525
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CHATSWORTH PRODUCTS

Forced Convection with Filter Fans

Filter Fans by CPI

If the installation is in a clean, nonhazardous environment with an ambient (outside the enclosure) temperature range that is lower than the temperature required in the enclosure, a simple forced-convection cooling system utilizing outside air is adequate. CPI offers Filter Fans that meet the heat removal needs of typical electronic equipment.

Use CPI Filter Fans to propel the cool ambient air into the enclosure. The patented click mechanism on the Filter Fans has a unique four-corner fastening system that enables safe and quick, tool-less installation, maintains the rated seal, and allows the filter medium to be replaced in seconds.

For intake fans, once installed, a slight positive pressure builds up inside the cabinet, so that only air filtered by the Filter Fans flows into the enclosure. The air propelled into the cabinet displaces the warm air, which exits through the exhaust filter.

The fluted filter mat's folded structure provides airflow and maintains the required NEMA Type 12 protection, while also extending the filter's lifetime 300% longer than conventional filters.

SPECIFICATIONS

Filter Fan Kits	Includes: Fan housing, fan, filter, installation hardware
	Installation Method: Snap fastener without screws
Housing Material	Injection-molded thermoplastic, self-extinguishing, UL 94 VO; top fan also has a painted metal cover
Power Connection	Terminal strip Approvals: UL®, cUL, CE Marking

USE WITH

- Filter Fan Thermostats to reduce energy and maintenance costs

Filter Fan Kits – Individual Specifications				
Part Number	**P/N 37101-00X**	**P/N 37920-00X**	**P/N 37921-00X**	**P/N 37903-00X**
Typical Use	RMR Wall-Mount Enclosure	RMR Modular Enclosure	RMR Modular Enclosure	RMR Modular Enclosure
Airflow Rate, unimpeded, CFM (CMH)	38 (65)	65 (110)	560 (951)	441 (749)
Filter Mat Quality Class	G 4	G 4	G 4	G 3
Rated Voltage, VAC (±10%)	28 (48)	38 (65)	368 (625)	294 (500)
Service Life, hours (115V/230V + 40°C)	40,000 / 37,500	40,000 / 37,500	40,000	40,000
Power Consumption, Watts (115V/230V)	20 / 18	20 / 18	195 / 200	160
Weight, lb (kg)	1.5 (.68)	1.9 (.86)	8.2 (3.7)	6.0 (2.7)
Filtration Efficiency	91%	91%	91%	81%
Noise level (EN ISO 3741)	44 dB (A)	40 dB (A)	69 dB (A)	77 dB (A)
Cutout Dimension, H x W, in (mm)	4.92 x 4.92 (125 x 125)	6.97 x 6.97 (177 x 177)	11.49 x 11.49 (292 x 292)	11.49 x 11.49 (292 x 292)
Color	Gray, Black	Gray, Black	Gray, Black	Gray
System Protection, NEMA (IP)	UL 50, NEMA Type 12 (IP 55)	UL 50, NEMA Type 12 (IP 55)	UL 50, NEMA Type 12 (IP 55)	UL 50, NEMA Type 12 (IP 55)

ORDERING INFORMATION

RMR Modular Enclosure Filter Fan						
Part Number		**Cutout Size in (mm)**	**Airflow CFM (CMH)**	**Voltage**	**Color**	**Shipping Weight lb (kg)**
Type of Filter						
Intake	**Exhaust**					
37920-001	37920-002	6.97 (177)	65 (110)	115	Hammer Gray	2 (0.9)
37920-003	37920-004	6.97 (177)	65 (110)	230	Hammer Gray	2 (0.9)
37920-005	37920-006	6.97 (177)	65 (110)	115	Black	2 (0.9)
37920-007	37920-008	6.97 (177)	65 (110)	230	Black	2 (0.9)
37921-001	37921-002	11.49 (292)	560 (951)	115	Hammer Gray	2 (0.9)
37921-003	37921-004	11.49 (292)	560 (951)	230	Hammer Gray	2 (0.9)
37921-005	37921-006	11.49 (292)	560 (951)	115	Black	2 (0.9)
37921-007	37921-008	11.49 (292)	560 (951)	230	Black	2 (0.9)

Note: Use Intake Filter Fan Kit with Filter Kit or Exhaust Filter Fan Kit. Both kits are the same size.

RMR Wall-Mount Enclosure Filter Fans						
Part Number		**Cutout Size in (mm)**	**Airflow CFM (CMH)**	**Voltage**	**Color**	**Shipping Weight lb (kg)**
Fan Configuration						
Intake	**Exhaust**					
37101-001	37101-002	4.92 (125)	38 (65)	115	Hammer Gray	5 (2.3)
37101-003	37101-004	4.92 (125)	38 (65)	230	Hammer Gray	5 (2.3)
37101-005	37101-006	4.92 (125)	38 (65)	115	Black	5 (2.3)
37101-007	37101-008	4.92 (125)	38 (65)	230	Black	5 (2.3)

Note: Use Filter Fan Kit with a Filter Kit. Both kits should be the same size.

RMR Modular Enclosure Top Exhaust Fan					
Part Number	**Cutout Size in (mm)**	**Airflow CFM (CMH)**	**Voltage**	**Color**	**Shipping Weight lb (kg)**
37903-001	11.49 (292)	441 (749)	115	Hammer Gray	2 (0.9)

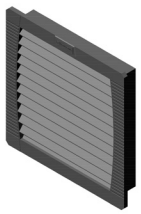
Note: Use Top Exhaust Filter Fan Kit with two Intake Filter Kits. All kits should be the same size.

RMR Power Cord For Filter Fan			
Part Number	**Voltage**	**Plug Type**	**Shipping Weight lb (kg)**
37902-001	115	NEMA 5-15P	2 (0.9)
37902-002	230	NEMA 6-15P	2 (0.9)
37902-003	115 or 230	IEC C14	2 (0.9)

Color: Black. Order one Power Cord per Filter Fan Kit. Match to Fan Voltage requirement.

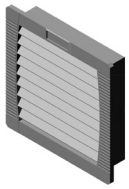
Natural Convection with Filter Kit

Can be effective when the amount of heat being removed from your enclosure is minimal. Filters can be used in either intake (when combined with Filter Fans) or exhaust applications (ideal).



RMR Modular Enclosure Filter Kit		
Part Number	Filter Cutout in (mm)	Shipping Weight lb (kg)
37898-00X	6.97 (177)	2 (1)
37899-00X	11.49 (292)	3 (2)

X=Color, 1=Hammer Gray, 2=Black



RMR Wall-Mount Enclosure Filter Kit		
Part Number	Filter Cutout in (mm)	Shipping Weight lb (kg)
37102-00X	4.92 (125)	4 (1.9)

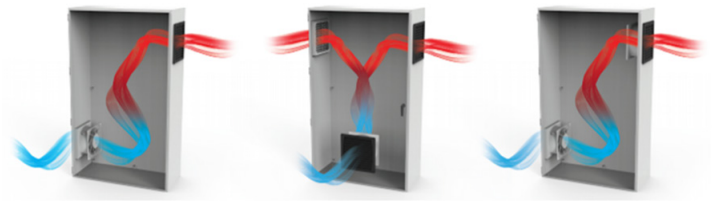
X=Color, 1=Hammer Gray, 2=Black

37117-001

RMR Enclosure Replacement Filter Mats			
Part Number	Filter Cutout in (mm)	Filter Type	Shipping Weight lb (kg)
37116-001	4.92 (125)	150G/M2	2 (1)
37117-001	4.92 (125)	Fluted	3 (2)

If installing a combination of Filter Fans and exhaust filters, fit the Filter Fans in the lower third of the cabinet and the exhaust filter(s) near the top of the cabinet for optimum airflow. Recommended methods are shown below.

Intake Filter Fan + Exhaust Filter	Intake Filter Fan + Exhaust Filters	Intake Filter Fan + Exhaust Filter Fan



Closed Loop Cooling

Closed-loop cooling is required when the ambient temperature is greater than the target internal temperature of the enclosure, or when higher ingress protection (NEMA Type 12 rating) is necessary.

CPI offers closed-loop cooling units by Pfannenberg, which consist of two separate circulation systems. One system seals out the ambient air, cooling and recirculating clean, cool air throughout the enclosure. The second system uses ambient air to remove and discharge the heat.

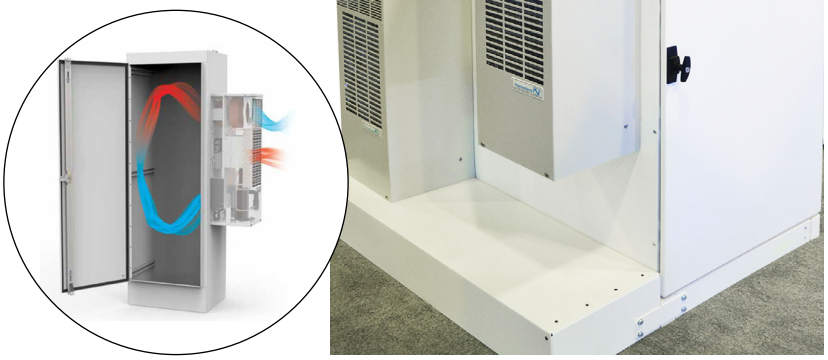
Cooling units operate on the principle of the Carnot cycle. This means that the cooling unit functions as a heat pump that "pumps" the thermal energy transferred from the electronic enclosure (heat dissipated from the components) up to a higher level of temperature (the ambient temperature can reach levels as high as +55°C). The air inside the enclosure is cooled down by the evaporator and at the same time dehumidified.

When using cooling units, ensure a good supply of air intake and outtake from the external circuit of the cooling unit, so that thermal energy can be transferred to the surroundings. The lowest temperature inside the enclosure may not necessarily be the best. CPI recommends an inside temperature of 95 °F (35 °C), which represents a good compromise between service life and the accumulation of condensation.

Properly sizing a cooling unit

To properly size a cooling unit you must know the required cooling capacity in Watts, mounting requirements (side or door mount) and the dimensions of the cooling unit and enclosure.

CPI offers cooling units for indoor use that have NEMA Type 12 rating and are ideal for small enclosures and for the cooling of hot spots in larger control cabinets.



Unit installed on a CPI RMR Industrial Enclosure

KEY FEATURES

- Closed-Loop Cooling isolates the external ambient air from the internally conditioned air, eliminating the risk of contaminants entering the enclosure
- Multiple sizes available
- Side- or front-mounting
- Able to perform efficiently in high temperature areas
- Uses environmentally friendly HFC-free R134a refrigerant
- Backward curve impeller fan optimizes airflow and extends service life
- Wide condenser fin spacing reduces particulate clogging while balancing performance
- Hermetically sealed compressors prevent refrigerant loss
- Actively evaporates condensate to remove moisture
- Condensate drain port to remove moisture

APPLICATIONS

- Nonhazardous environments with outside temperature range that is lower than the temperature required in the enclosure
- Whenever NEMA Type 12 protection is required

ADVANTAGES

Closed-Loop Design
Designed to isolate the external ambient air from the internally conditioned air, eliminating the risk of contaminants entering the cabinet.

Climate Regulation
Cooling units regulate the enclosure climate and maintain low humidity in the enclosure environment, avoiding premature aging and overheating of electrical equipment.

Hermetically Sealed Compressor
The absence of any refrigerant fill valves eliminates leak paths. Recharging is never needed.
100% cooling capacity efficiency is ensured.

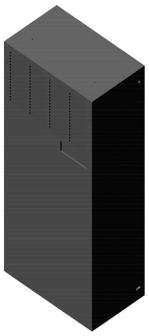
Thermal Expansion Valve
Regulates the flow of refrigerant based on thermal demand for efficient performance over the entire operating temperature range.

Closed-Loop Cooling

Closed-Loop Cooling – Individual Specifications			
Part Number	**P/N 37103-00X**	**P/N 37900-00X**	**P/N 37901-00X**
Typical Use	RMR Wall-Mount Enclosure	RMR Modular Enclosure	RMR Modular Enclosure
Cooling Capacity, BTU/hr (W)	900 - 1300 (263 - 381)	3000 - 4000 (879 - 1172)	5000 - 7000 (1465 - 2051)
Ambient Temperature Range, Outside Enclosure, °F (°C)	46 - 114 (8 - 45)	59 – 131 (15 -55)	59 – 131 (15 – 55)
Control Range, Inside Enclosure, °F (°C)	50 – 104 (10 – 40)	77 – 113 (25 – 45)	77 – 113 (25 – 45)
Factory Setting, Inside Enclosure, °F (°C)	95 (35)	95 (35)	95 (35)
Refrigerant, Type; Quantity, Gal. (L)	R134a 145-150 (549 – 568)	R134a 400 (1514)	R134a 750 (2839)
Condensate Management	Condensate Drain	Active Condensate Evaporation System with Safety Overflow	Active Condensate Evaporation System with Safety Overflow
Dimensions, Overall, H x W x D, in (mm)	15.5 x 7.5 x 7 (394 x 191 x 178)	29.5 x 9.3 x 15.55 (748 x 237 x 395)	36 x 12 x 12 (918 x 305 x 304)
Voltage (V)	115 or 230	115 or 230	115 or 230
Frequency (Hz)	50 to 60	50 to 60	50 to 60
Power Consumption (W)	243 or 253	845 or 795	1000 or 1283
Nominal Current (A)	1.2 at 30A; 2.1 at 35A	7.0 at 35A; 4.0 at 35A	8.6 at 30A; 1.8 at 35 A
Fuse (maximum class CC)	15 A	15 A	15 A
Noise Level, dB (A)	<64	<70	<70
Weight, lb (kg)	30 (13.6)	84 (38)	108 (49)
Environment	For indoor use only	For indoor use only	For indoor use only
Industry Standards	NEMA Type 12	NEMA Type 12	NEMA Type 12
Approvals	UL, cUL, CE mark, ERP Efficiency	UL, cUL, CE mark, ERP Efficiency	UL, cUL, CE mark, ERP Efficiency
Material	Galvanized Sheet Steel Housing	Galvanized Sheet Steel Housing	Galvanized Sheet Steel Housing
Finish	Powder Coat Paint	Powder Coat Paint	Powder Coat Paint
Color	Hammer Gray (RAL 7035)	Hammer Gray (RAL 7035)	Hammer Gray (RAL 7035)

Click here for Thermal Management Accessories online ordering information.

Ordering Information



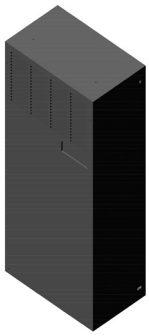
RMR Modular Enclosure Indoor NEMA Type 12 Cooling Units–3000-4000 BTU/hr (879-1172 W) Capacity

Attaches to the outside of the AC Door Assembly.

- Cooling Unit is 30"H x 16"W x 10"D (750 mm x 397 mm x 239 mm).

Part Number	Voltage	Color	Shipping Weight lb (kg)
37900-001	115	Hammer Gray	100 (45.4)
37900-002	230	Hammer Gray	100 (45.4)
37900-003	115	Black	100 (45.4)
37900-004	230	Black	100 (45.4)

Note: Recommended for use with 37872-XXX or 37896-XXX door. Order power cord separately or hardwire.



RMR Modular Enclosure Indoor NEMA Type 12 Cooling Units–5000-7000 BTU/hr (1465-2051 W) Capacity

Attaches to the outside of the Side Panel Assembly.

- Cooling Unit is 36"H x 13"W x 12"D (915 mm x 318 mm x 303 mm).

Part Number	Voltage	Color	Shipping Weight lb (kg)
37901-001	115	Hammer Gray	128 (58)
37901-002	230	Hammer Gray	128 (58)
37901-003	115	Black	128 (58)
37901-004	230	Black	128 (58)

Note: Recommended for use with 37879-XXX Side Panel. Order power cord separately or hardwire.

RMR Wall-Mount Enclosure Indoor NEMA Type 12 Cooling Units (900-1300 BTU)

Mounts to the side of the enclosure.

- Cooling Unit is 15.5"H x 7"W x 9"D (394 mm x 229 mm x 178 mm).

Part Number	Voltage	Color	Shipping Weight lb (kg)
37103-001	115	Hammer Gray	35 (15.9)
37103-002	230	Hammer Gray	35 (15.9)
37103-003	115	Black	35 (15.9)
37103-004	230	Black	35 (15.9)

Wall-Mount Cooling Unit includes an attached power cord.

Power Cord for Cooling Units			
Part Number	**Voltage**	**Plug Type**	**Shipping Weight lb (kg)**
37908-001	125	5-15P	2 (1.0)
37908-002	230	6-15P	2 (1.0)
37908-003	250	IEC C14	2 (1.0)

Note: For use with 37900-XXX and 37901-XXX cooling units.

Select Your Preferred Thermal Management Solution, According to Your Environmental Condition

Products	Ambient Temp				Dust			Water			Specific		
	Low <40 °F	Climate Controlled 65-50 °F	Medium 80–100 °F	High 100+ °F 80–100 °F	Clean	Moderate	Heavy	Dry	Light	Washdown	Corrosive	Oily	Sea Air
Filter Fans	Good	Optimum	Good	Consult CPI	Optimum	Good	Consult CPI	Optimum	Good	Good*	Consult CPI		
Cooling Units	Consult CPI	Good	Optimum	Good	Optimum	Good	Consult CPI	Optimum	Consult CPI	Consult CPI*	Consult CPI*		

** With Rainhood*

Interested in learning more about our RMR Industrial Enclosures? Call us at 800-834-4969, or email Technical Support at techsupport@chatsworth.com.

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