

# 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



### 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

### APPLICATIONS

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

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

#### United States

Agoura Hills, CA  
800-834-4969

#### Canada

Toronto, Ontario, Canada  
+905-850-7770

chatsworth.com • techsupport@chatsworth.com

#### 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  
Toll Free within Mexico  
800-201-7592  
chatsworth.com.co

#### Asia Pacific

Shanghai  
+86 21 6880-0266  
chatsworth.com.cn



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<br>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)            | 4.9 x 4.9 (125 x 125)       | 7.0 x 7.0 (177 x 177)       | 11.5 x 11.5 (291 x 291)     | 11.5 x 11.5 (291 x 291)     |
| 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 | 7 (177)             | 65 (110)          | 115     | Hammer Gray | 2 (0.9)                 |
| 37920-003                        | 37920-004 | 7 (177)             | 65 (110)          | 230     | Hammer Gray | 2 (0.9)                 |
| 37920-005                        | 37920-006 | 7 (177)             | 65 (110)          | 115     | Black       | 2 (0.9)                 |
| 37920-007                        | 37920-008 | 7 (177)             | 65 (110)          | 230     | Black       | 2 (0.9)                 |
| 37921-001                        | 37921-002 | 11.5 (291)          | 560 (951)         | 115     | Hammer Gray | 2 (0.9)                 |
| 37921-003                        | 37921-004 | 11.5 (291)          | 560 (951)         | 230     | Hammer Gray | 2 (0.9)                 |
| 37921-005                        | 37921-006 | 11.5 (291)          | 560 (951)         | 115     | Black       | 2 (0.9)                 |
| 37921-007                        | 37921-008 | 11.5 (291)          | 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 | 6 (153)             | 38 (65)           | 115     | Hammer Gray | 5 (2.3)                 |
| 37101-003                            | 37101-004 | 6 (153)             | 38 (65)           | 230     | Hammer Gray | 5 (2.3)                 |
| 37101-005                            | 37101-006 | 6 (153)             | 38 (65)           | 115     | Black       | 5 (2.3)                 |
| 37101-007                            | 37101-008 | 7 (177)             | 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                             | 11.5 (291)          | 441 (749)         | 115     | Hammer Gray | 2 (0.9)                 |

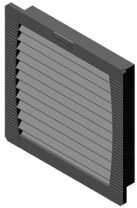
Note: Use Top Exhaust Filter Fan Kit with two Intake Filter Kits. All kits should be the same size.

| 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).



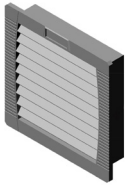
| RMR Modular Enclosure Filter Kit |                       |                         |
|----------------------------------|-----------------------|-------------------------|
| Part Number                      | Filter Cutout in (mm) | Shipping Weight lb (kg) |
| 37898-00X                        | 7 (177)               | 2 (1)                   |
| 37899-00X                        | 11.5 (291)            | 3 (2)                   |

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                             | 4.9 (125)             | 150G/M2     | 2 (1)                   |
| 37117-001                             | 4.9 (125)             | Fluted      | 3 (2)                   |

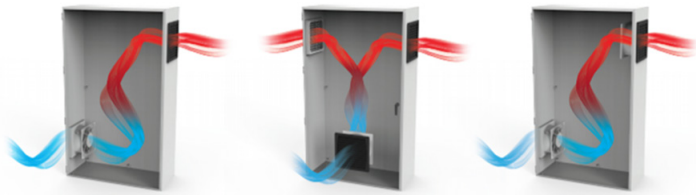


| RMR Wall-Mount Enclosure Filter Kit |                       |                         |
|-------------------------------------|-----------------------|-------------------------|
| Part Number                         | Filter Cutout in (mm) | Shipping Weight lb (kg) |
| 37102-00X                           | 4.9 (125)             | 4 (1.9)                 |

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

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.



Unit installed on a CPI RMR Industrial Enclosure

**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.



**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**

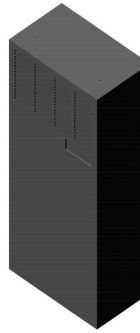
- ➔ **Closed-Loop Design**  
Designed to isolate the external ambient air from the internally conditioned air, eliminating the risk of contaminants entering the cabinet.
- ➔ **Climate Regulation**  
Cooling units regulate the enclosure climate and maintain low humidity in the enclosure environment, avoiding 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<br>145-150<br>(549 - 568)  | R134a<br>400 (1514)                                       | R134a<br>750<br>(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



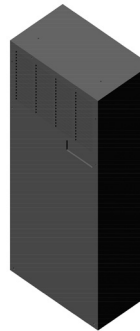
**RMR Modular Enclosure Indoor NEMA Type 12 Cooling Units—3000-4000 BTU/hr (879-1172 W) Capacity**

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](mailto:techsupport@chatsworth.com).

