

PMCE/PMCQ

EVAPORATIVE CONDENSERS



CROSSCOOL™
Technology

**ENERGY SAVING, EASY TO INSTALL AND MAINTAIN
FORCED DRAFT, AXIAL FAN CONDENSERS**

DELIVERING QUALITY... FOCUSED ON PERFECTION!

CERTIFIED EN ISO 9001



IARW International Association of Refrigerated Warehouses

iiar International Institute of Ammonia Refrigeration

euramm@n
refrigerants delivered by mother nature



PMICE



Since its founding in 1976, EVAPCO, Inc. has become an industry leader in the engineering and manufacturing of quality heat transfer products around the world. EVAPCO's mission is to provide first class service and quality products for the following markets:

- Industrial Refrigeration
- Commercial HVAC
- Industrial Process
- Power

EVAPCO's powerful combination of financial strength and technical expertise has established the company as a recognized manufacturer of market-leading products on a worldwide basis. EVAPCO is also recognized for the superior technology of their environmentally friendly product innovations in sound reduction and water management.

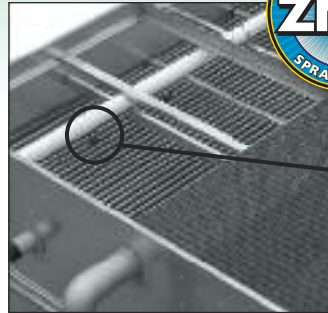
EVAPCO is an employee owned company with a strong emphasis on research & development and modern manufacturing plants. EVAPCO has earned a reputation for technological innovation and superior product quality by featuring products that are designed to offer these operating advantages:

- Higher System Efficiency
- Environmentally Friendly
- Lower Annual Operating Costs
- Reliable, Simple Operation and Maintenance

With an ongoing commitment to Research & Development programs, EVAPCO provides the most advanced products in the industry – ***Technology for the Future, Available Today!***



EVAPCO products are manufactured on five continents around the world and distributed through hundreds of factory authorized sales representatives.



PVC Water Distribution with ZM®II Nozzles

- Large orifice prevents clogging (no moving parts).
- Redesigned nozzles for superior water distribution.
- Threaded nozzles eliminate troublesome grommets.
- Fixed position require zero maintenance.
- Guaranteed for life.

Thermal-Pak®II Heat Transfer Technology

Features EVAPCO's exclusive **CROSSCOOL™** tube enhancement for greater internal heat transfer.



- Patented design
 - More surface area per plan area than competitive designs.
- Improved heat transfer efficiency due to tube geometry and orientation of tubes.
- Lower refrigerant charge.

U.S. Patent No. 4755331

Improved Water Distribution Piping

- Horizontally mounted pumps allow for reduced basin water level.*
- Simplified piping for easier basin access.
- Totally enclosed pump motors assure long, trouble-free life.

**Refer to engineering data for availability.*



PMCE DESIGN AND CONSTRUCTION FEATURES

The industry standard for forced draft axial fan condensers. The PMCE is equipped with owner-oriented features and benefits that make it Easy to install... Easy to maintain... Easy on the operating budget... The Easy Choice!



Water Saver Drift Eliminators

- New patented design reduces drift rate to 0.001%.
- Saves water and reduces water treatment cost.
- Greater structural integrity vs. old style blade-type.
- Recessed into casing for greater protection.

U.S. Patent No. 6315804

Double-Break Flange Joints

- Stronger than single-brake designs by others.
- Greater structural integrity.
- Minimizes water leaks at field joints.

Unique Field Seam

- Eliminates up to 85% of fasteners.
- Self guiding channels improve quality of field seam to eliminate leaks.
- Easy to install.
- Lower installation cost.

Optional Design Features:

- Man-sized Access Doors.
- External Service Platforms.
- Tandem Fan Drive System (Standard Fan Only).
- Stainless Steel Construction.

Sloped Pan Bottom

- Pan bottom slopes to drain.
- Easy to clean.
- Stainless steel strainer resists corrosion.

Individual Fan Drive System

- Increased flexibility for improved capacity control.
- Greater reliability through redundancy.
- Easy motor replacement.
- Front mounted drives for improved maintenance accessibility.



Optional Man-sized Access Door

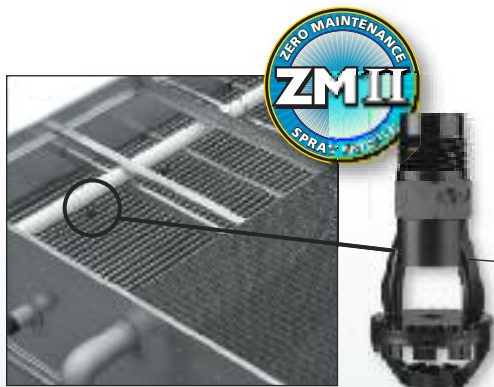
PMQCQ

EVAPCO is proud to introduce the **Super Low Sound Technology for Forced Draft Axial Fan Condensers**



Super Low Sound Fan Technology -

- One Piece Molded Heavy Duty FRP Construction
- Sound level reduction **10-13 dBA** on fan side @ 15 m



PVC Water Distribution with ZM®II Nozzles

- Large orifice prevents clogging (no moving parts)
- Threaded nozzles eliminate troublesome grommets
- Fixed position require zero maintenance

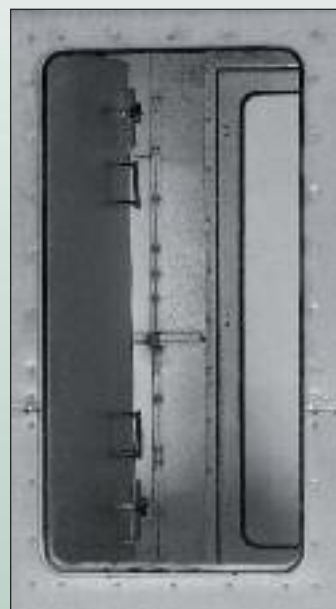
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- Patented design
- More surface area per plan area than competitive designs
- Improved heat transfer efficiency due to tube geometry and orientation of tubes
- Lower refrigerant charge

U.S. Patent No. 4755331



Standard Man-sized Access Door

Standard Man Size Access Door

- Enhanced Basin Accessibility
- Easy Basin Cleaning
- Easy Access to Internal Components



Standard Stainless Steel Strainer

Improved Water Distribution Piping

- Horizontally mounted pumps allow for reduced basin water level*
- Simplified piping for easier basin access
- Totally enclosed pump motors assure long, trouble-free life

* Refer to engineering data for availability



PMQCQ DESIGN AND CONSTRUCTION FEATURES

EVAPCO is proud to introduce the latest in evaporative condenser technology, the PMQCQ. This Evaporative Condenser features Quiet Super Low Sound Technology and is Easy to install... Easy to maintain... and Energy Saving!



Water Saver Drift Eliminators

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- Saves water and reduces water treatment cost
- Greater structural integrity vs. old style blade-type
- Recessed into casing for greater protection

Double-Break Flange Joints

- Stronger than single-brake designs by others
- Minimizes water leaks at field joints
- Greater structural integrity

Unique Field Seam

- Eliminates up to 85% of fasteners
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Sloped Pan Bottom

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- Easy to clean
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Individual Fan Drive System

- Increased flexibility for improved capacity control
- Greater reliability through redundancy
- Easy motor replacement
- Front mounted drives for improved maintenance accessibility

PMCE/PMCQ

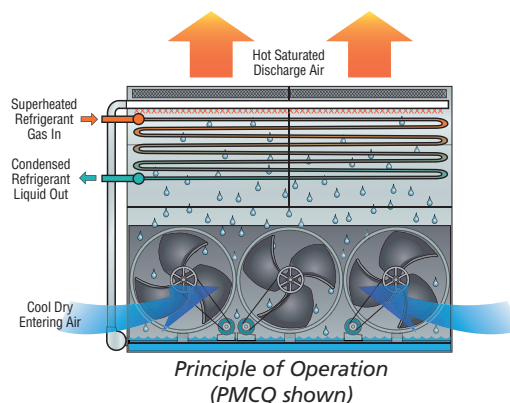
DESIGN FEATURES

Principle of Operation

The refrigerant gas is discharged from the compressor into the inlet connection of the evaporative condenser. Water from the condenser's sump is continuously flooded over the condenser coil, while ambient air is simultaneously forced into the unit. As the ambient air moves up through the coil section, a portion of the spray water is evaporated into the air stream.

The evaporative process cools the spray water, which in turn cools the tubes containing the refrigerant gas. The cool tube walls cause the refrigerant gas to give up heat and condense into a liquid. The condensed liquid flows out of the coil's sloping tubes to the high pressure liquid receiver for return to the system.

The hot, saturated air is driven through the drift eliminators, where any entrained water droplets are removed. The condenser's fan then discharges this air stream out of the top of the unit at a high velocity, where it can dissipate harmlessly into the atmosphere. The water which was not evaporated falls into the sump and is recirculated by the spray pump to the water distribution system above the condensing coil section.



Proven Performance & Design Flexibility

The new PMCE/PMCQ Evaporative Condenser offers more capacity and greater system design flexibility than ever before. EVAPCO's research and development team has invested hundreds of hours in laboratory testing to develop the next generation in Forced Draft Condenser Technology. These efforts have produced a totally new fan section design which is now combined with the proven Thermal-Pak II® coil technology to offer improved condenser performance. The PMCE/PMCQ features more plan area options and fan horsepower options for the system design engineer. With more condenser capacity, more plan area options and greater flexibility in motor selection, the design engineer can now match the condenser performance to the specific application requirements. More equipment choices and more design flexibility mean greater value for the End-User.

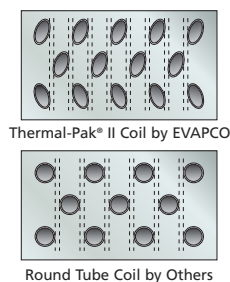


Patented Thermal-Pak®II Coil Design

Lower Refrigerant Charge

Only EVAPCO condensers offer the patented* Thermal-Pak®II Coil which assures greater operating efficiency in your condenser. Its unique elliptical tube design allows for closer tube spacing resulting in more surface area per plan area than traditional round tube designs. The Thermal-Pak®II Coil design has lower resistance to air flow and permits greater water loading, making the Thermal-Pak®II Coil the most efficient design available. And now with its new tube circuiting and orientation pattern, the Thermal-Pak®II coil yields a lower refrigerant charge. The coils are manufactured from high quality internally enhanced **CROSSCOOL™** carbon steel tubing following the most stringent quality control procedures. Each circuit is inspected to assure the material quality and then tested before being assembled into a coil. Finally, the assembled coil is tested in accordance with the "Pressure Equipment Directive" (PED) 97/23/EC. To protect the coil against corrosion, it is placed in a heavy-duty steel frame and the entire assembly is dipped in molten zinc (hot dip galvanized) at a temperature of approximately 430°C.

*U.S. Patent No. 4755331



Superior Water Saver Drift Eliminators

The PMCE/PMCQ condensers incorporate a patented* highly efficient PVC drift eliminator. The eliminator removes entrained water droplets from the air stream to limit the drift rate to less than 0.001% of the recirculating water rate.

With a low drift rate, PMCE/PMCQ condensers save valuable water and water treatment chemicals. The eliminators feature a honeycomb design which offers greater structural integrity and are recessed in the top of the casing and UV protected for longer life. They are constructed of inert polyvinyl chloride (PVC) which eliminates corrosion in this critical area of the condenser. The eliminators are assembled in sections for easy handling and removal for coil and water distribution system inspection.

*U.S. Patent No. 631580481

DESIGN FEATURES

PMCE/PMCQ

Energy Efficient for Lowest Operating Cost

Lower Horsepower Options

The new fan drive system of the PMCE/PMCQ utilizes large diameter fans in a vane-fan arrangement to provide more efficient air flow and reduced power consumption. When compared to the traditional centrifugal fan condenser models, the vane-axial fan design can offer up to a 50% reduction in energy consumption. And, with the new PMCE/PMCQ model selections even more low horsepower options are available to obtain greater energy savings.

Individual Fan Drive System

Capacity Control Flexibility & Operating Redundancy

The new PMCE/PMCQ fan drive system provides individual motor to fan configuration as standard equipment on all models. The dedicated fan to motor arrangement ensures less "wear & tear" on the drive system versus tandem fan motor drive arrangements resulting in less maintenance. The individual motor to fan design offers greater capacity control flexibility to match the system load requirements. In addition, all Evapco condensers are equipped with an internal baffle system which extends from the pan bottom vertically through the coil bundle. This unique design allows the user to cycle fan motors independently without harmful effects of air by-pass inside the unit. The individual motor to fan design ensures maximum operating redundancy in the condenser fan system when critical operation is necessary.

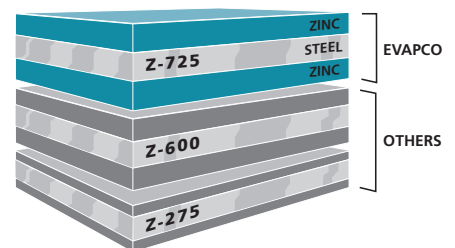


(PMCQ shown)

EVAPCOAT Corrosion Protection System

The Z-725 Mill Hot-Dip Galvanized Steel Construction is the heaviest level of galvanizing available for manufacturing evaporative condensers and has more zinc protection than competitive designs using Z-275 and Z-600 steel.

There are various grades of mill galvanized steel each with differing amounts of zinc protection. EVAPCO has been a leader in the industry in developing heavier galvanizing, and was the first to standardize on Z-725 mill hot-dip galvanized steel. Z-725 designation means there is a minimum of 725 g/m² total zinc present on the steel. During fabrication, all panel edges are coated with a 95% pure zinc-rich compound for extended corrosion resistance.



85% Fewer Fasteners Lower Installed Cost

The PMCE/PMCQ features a new field seam design which ensures easier assembly and fewer field seam leaks. The field seam incorporates new self-guiding channels to guide the coil casing section into position and set in place on the bottom fan section of the condenser. In addition, the new design eliminates up to 85% of the fasteners typically used to join the condenser sections in the field significantly reducing the contractor labor costs for installation.



PMCE/PMCQ

MAINTENANCE ADVANTAGES

Improved Maintenance

Oversized Access Door

For enhanced basin accessibility, the Oversized Access Doors (standard for PMCQ - optional for PMCE) enable maintenance personnel to quickly and easily enter the basin for float valve adjustment and unit inspection, cleaning and maintenance.

Fan Drive Accessibility

The drive components of the PMCE/PMCQ are easily accessed for routine maintenance from the front of the unit. Bearing grease fittings are extended to the outside of the unit for ease of lubrication. All drive sheaves have been relocated to the front of the fan section and motors are positioned on a platform base to allow for easy belt tension adjustment.



Easy Clean Sloped Basin

The PMCE/PMCQ drain pan is designed to improve maintenance access and make it easier for operating technicians to clean. The bottom of the pan is sloped to the unit drain to ensure that the basin will completely drain and allow sediment and debris that may collect in the basin to be easily flushed from the unit. The design helps to prevent buildup of sedimentary deposits, biological films and standing water.

Pressurized Water Distribution System

The water distribution system is made of schedule 40 PVC pipe and ABS plastic water diffusers for corrosion protection in this key area. The piping is easily removable for cleaning. The water diffusers have a large orifice and are practically impossible to clog. They also have an anti-sludge ring extending into the headers to prevent sediment from building up in the diffuser opening. All PMCE/PMCQ units have as per standard the ZM II™ Nozzle to ensure that every square meter of heat transfer surface receives complete and even water coverage, resulting in maximum thermal performance.



ZM II™ Nozzle

Clean Pan Basin Design

The basin of the New PMCE/PMCQ is sloped toward a depressed area where the drain is located. With the "Clean Pan" design, it is easy for a service mechanic to flush the pan.



Stainless Steel Strainers

The EVAPCO standard for many years, the stainless steel strainer is one component that is subject to excessive wear and corrosion. With stainless steel construction, this component will last the life of the unit.



OPTIONAL EQUIPMENT

PMCE/PMCQ

Two Speed Motors

Two speed fan motors can provide an excellent means of capacity control. In periods of lightened loads or reduced wet bulb temperatures, the fans can operate at low speed, which will provide about 60% of full speed capacity, yet consume only about 15% of the power compared with high speed. In addition to the energy savings, the sound levels of the units will be greatly reduced at low speed.

Remote Sump Configuration

For units operating in areas where temperatures may be very low, or where low temperatures may occur during periods when the unit is not operating, a sump located inside the building is the preferred means of ensuring that the basin water will not freeze. For these applications, the condenser will be supplied without the spray pump, suction strainers and all associated piping, but with an oversize bottom outlet.

Electric Water Level Control

Evaporative condensers may be ordered with an electric water level control in lieu of the standard mechanical float and make-up assembly. This package provides accurate control of water levels and does not require field adjustment.

Coil Options

Condensers may be supplied with **multiple circuit coils** to match various system requirements such as split systems, or if a glycol or water circuit is desired for compressor head cooling. Coils can also be executed in stainless steel without **CROSSCOOL™** tube enhancement. Contact Evapco for capacity corrections.

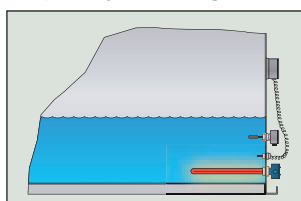
Basin Heater Package

If a remote sump configuration is not practical, electric basin heater packages are available to help prevent freeze-up of the basin water. The packages include electric heater elements, and a combination thermostat/low water cutoff.

Note: External pumps should be heat traced and insulated in the field to prevent freezing.

Electric Heaters

Electric immersion heaters are available factory installed in the basin of the condenser. They are sized to maintain a +5°C pan water temperature with the fans off and an ambient air temperature of -18°C. They are furnished with a combination thermostat/low water protection device to cycle the heater on when required and to prevent the heater elements from energizing unless they are completely submerged. All components are in weather proof enclosures for outdoor use. The heater power contactors and electric wiring are not included as standard.



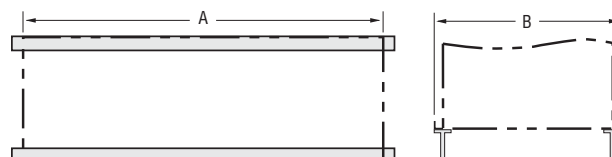
PMCE / PMCQ Heater Power

| 1,5 m Wide Models | kW |
|---|----|
| PMC-175E-1g to PMC-240E-1g | 5 |
| PMC-250E-1g to PMC-375E-1g | 8 |
| 3 m Wide Models | kW |
| PMC-332E-1g to PMC-519E-1g / PMCQ-316 to PMCQ-493 | 8 |
| PMC-503E-1g to PMC-778E-1g / PMCQ-476 to PMCQ-740 | 12 |
| PMC-772E-1g to PMC-1038E-1g / PMCQ-734 to PMCQ-986 | 16 |
| PMC-1006E-1g to PMC-1556E-1g / PMCQ-952 to PMCQ-1480 | 24 |
| 3,6 m Wide Models | kW |
| PMC-420E-1g to PMC-631E-1g / PMCQ-399 to PMCQ-561 | 10 |
| PMC-634E-1g to PMC-939E-1g / PMCQ-603 to PMCQ-845 | 14 |
| PMC-811E-1g to PMC-992E-1g / PMCQ-765 to PMCQ-893 | 16 |
| PMC-840E-1g to PMC-1261E-1g / PMCQ-798 to PMCQ-1122 | 18 |
| PMC-1269E-1g to PMC-1877E-1g / PMCQ-1206 to PMCQ-1690 | 30 |
| PMC-1705E-1g to PMC-1985E-1g / PMCQ-1618 & PMCQ-1786 | 30 |

Steel Support

The recommended support for EVAPCO condensers is structural "I" beams located under the outer flanges and running the entire length of the unit. Mounting holes, 19 mm in diameter are located in the bottom channels of the pan section to provide for bolting to the structural steel. (Refer to certified drawings from the factory for bolt hole locations.)

Beams should be level to within 3 mm in 1,8 m before setting the unit in place. Do not level the unit by shimming between it and the "I" beams as this will not provide proper longitudinal support.



PMCE / PMCQ Dimensions (mm)

| 1,5 m Wide Models | A | B |
|---|-------|------|
| PMC-175E-1g to PMC-240E-1g | 3648 | 1930 |
| PMC-250E-1g to PMC-375E-1g | 5490 | 1930 |
| 3 m Wide Models | A | B |
| PMC-332E-1g to PMC-519E-1g / PMCQ-316 to PMCQ-493 | 3651 | 2990 |
| PMC-503E-1g to PMC-778E-1g / PMCQ-476 to PMCQ-740 | 5490 | 2990 |
| PMC-772E-1g to PMC-1038E-1g / PMCQ-734 to PMCQ-986 | 7337 | 2990 |
| PMC-1006E-1g to PMC-1556E-1g / PMCQ-952 to PMCQ-1480 | 11024 | 2990 |
| 3,6 m Wide Models | A | B |
| PMC-420E-1g to PMC-631E-1g / PMCQ-399 to PMCQ-561 | 3651 | 3616 |
| PMC-634E-1g to PMC-939E-1g / PMCQ-603 to PMCQ-845 | 5490 | 3616 |
| PMC-811E-1g to PMC-992E-1g / PMCQ-765 to PMCQ-893 | 6102 | 3616 |
| PMC-840E-1g to PMC-1261E-1g / PMCQ-798 to PMCQ-1122 | 7337 | 3616 |
| PMC-1269E-1g to PMC-1877E-1g / PMCQ-1206 to PMCQ-1690 | 11024 | 3616 |
| PMC-1705E-1g to PMC-1985E-1g / PMCQ-1618 & PMCQ-1786 | 12243 | 3616 |

PMCE/PMCQ

APPLICATION

Applications

EVAPCO units are heavy-duty construction and designed for long trouble-free operation. Proper equipment selection, installation and maintenance is, however, necessary to ensure good unit performance. Some of the major considerations in the application of a condenser are presented below. For additional information, contact the factory.

Air Circulation

In reviewing the system design and unit location, it is important that proper air circulation be provided. The best location is on an unobstructed roof top or on ground level away from walls and other barriers. Care must be taken when locating condensers in wells or enclosures or next to high walls. The potential for recirculation of hot, moist discharge air back into the fan intake exists. Recirculation raises the wet bulb temperature of the entering air causing the condensing pressure to rise above the design. For these cases, a discharge hood or ductwork should be provided to raise the overall unit height even with the adjacent wall, thereby reducing the chance of recirculation. Good engineering practice dictates that the evaporative condenser's discharge air not be directed or located close to or in the vicinity of building air intakes. Engineering assistance is available from the factory to identify potential recirculation problems and recommend solutions.

For additional information regarding layout of evaporative condensers, see EVAPCO Bulletin entitled *"Equipment Layout"*.

Piping

Condenser piping should be designed and installed in accordance with generally accepted engineering practice. All piping should be anchored by properly designed hangers and supports with allowance made for possible expansion and contraction. No external loads should be placed upon condenser connections, nor should any of the pipe supports be anchored to the unit framework. For additional information concerning refrigerant pipe sizing and layout, see EVAPCO Bulletin entitled *"Piping Evaporative Condensers"*.

Bleed-off

Each unit supplied with a pump mounted on the side is furnished with a clear bleed line for visual inspection and a valve which, when fully open, will bleed-off the proper amount of water. If the make-up water supplying the unit is relatively free of impurities, it may be possible to cut back the bleed, but the unit must be checked frequently to make sure scale is not forming. Make-up water pressure should be maintained between 140 and 340 kPa.

Water Treatment

In some cases the make-up will be so high in mineral content that a normal bleed-off will not prevent scaling. In this case water treatment will be required and a reputable water treatment company familiar with the local water conditions should be consulted.

Any chemical water treatment used must be compatible with the construction of the unit. If acid is used for treatment, it should be accurately metered and the concentration properly controlled. The pH of the water should be maintained between 6.5 and 8.3. **Units constructed of galvanized steel operating with circulating water having a pH of >8.3 or higher will require periodic passivation of the galvanized steel to prevent the formation of "white rust"**. Batch chemical feeding is not recommended because it does not afford the proper degree of control. If acid cleaning is required extreme caution must be exercised and only inhibited acids recommended for use with galvanized construction **should be used. For more information see EVAPCO Bulletin entitled "Maintenance Instructions"**.

Control of Biological Contamination

Water quality should be checked regularly for biological contamination. If biological contamination is detected, a more aggressive water treatment and mechanical cleaning program should be undertaken. The water treatment program should be performed in conjunction with a qualified water treatment company. It is important that all internal surfaces be kept clean of accumulated dirt and sludge. In addition, the drift eliminators should be maintained in good operating condition.

PMQCQ



PMQCQ Condenser is now equipped with Super Low Sound fans to reduce the overall sound and improve the energy consumption by 50% compared to conventional centrifugal fan condensers.



Ultra Quiet operation for Forced Draft Counterflow Evaporative Condensers

PMCQ

SUPER LOW SOUND FAN TECHNOLOGY

Solutions for Saving Energy and Sound Sensitive Applications

The NEW **PMCQ** Condenser comes standard with Super Low Sound Fans. They reduce the overall sound generation compared to forced draft centrifugal condensers, and additionally reduce the energy consumption by 50%. Consult EVAPCO's selection software for unit sound levels. If a detailed analysis or full octave band datasheet is required for your application, please consult your EVAPCO Sales Representative.



Reduced Sound Levels and Reduced Energy Consumption versus Centrifugal Fan Units

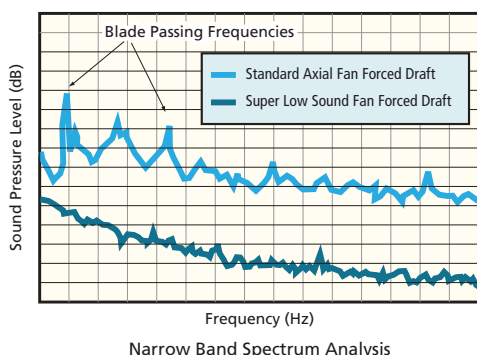
EVAPCO's Super Low Sound Fan on the **PMCQ** condensers utilizes an extremely wide chord blade design available for sound sensitive applications where the lowest sound levels are desired. The fan is one piece molded heavy duty FRP construction utilizing a forward swept blade design.

Improved Sound Quality versus standard straight bladed axial fan types

The SUPER Low Sound Fan on the **PMCQ** condensers reduces sound levels 10 to 13 dB(A) and eliminates audible blade passing frequencies indicative of straight bladed axial type fans. Refer to the Narrow Band Spectrum graph which shows how straight bladed axial fans produce blade passing frequencies – the same phenomena that produce the signature pulsating helicopter noise.

The blade passing frequencies are audible spikes in sound pressure levels, but are not apparent in the octave band sound spectrum.

The Super Low Sound Fan on the **PMCQ** Condenser reduces sound levels and fan power without compromising the sound quality!



PMCQ / LSCE Sound Comparisons

| Model No. | Fan Motor Power | Sound Pressure Levels | | | | |
|-----------|-----------------|-----------------------|----------|----------|---------------|-----|
| | | End | Fan Side | Opp. End | Opp. Fan Side | Top |
| LSCE-400 | 22 | 58 | 66 | 57 | 56 | 63 |
| PMCQ-405 | 11 | 57 | 66 | 57 | 57 | 62 |
| LSCE-625 | 37 | 59 | 66 | 59 | 56 | 63 |
| PMCQ-613 | 22 | 59 | 69 | 59 | 58 | 63 |

NOTE: Sound pressure levels in dBA 15 m from source

- Reduced energy consumption compared to Forced Draft Centrifugal Condensers
- Typical sound values equal or lower than Forced Draft Centrifugal Condensers of similar size

PMCE/PMCQ



We Stand Tall Through it All!

Wind, Rain, Earthquake and Hurricane

The International Building Code (IBC) is a comprehensive set of regulations addressing the structural design and installation requirements for building systems – including HVAC and industrial refrigeration equipment.

With the advent of the IBC, EVAPCO is proud to introduce the new and improved line of PMCQ Condensers with IBC compliance standard.

EVAPCO Condensers...
designed to withstand seismic
or wind load forces.

PMCE/PMCQ

IBC CERTIFICATION

In its continuing commitment to be the leaders in evaporative cooling equipment design and services, EVAPCO PMCE/PMCQ Condensers are now **Independently Certified** to withstand Seismic and Wind Loads in accordance with IBC.

What is IBC?

International Building Code

The International Building Code (IBC) is a comprehensive set of regulations addressing both the structural design and the installation requirements for building systems – including HVAC and industrial refrigeration equipment.

Compared to previous building codes that considered only the building structure and component anchorage, the requirements contained within the IBC address anchorage, structural integrity, and the operational capability of a component following either a seismic or wind load event. **Simply stated, the IBC code provisions require that evaporative cooling equipment, and all other components permanently installed on a structure, must be designed to meet the same seismic or wind load forces as the building to which they are attached.**

How Does IBC Apply to Condenser?

Based on site design factors, calculations are made to determine the equivalent seismic “g force” and wind load (kilo-Newton per square meter, kN/m²) on the unit. The cooling tower must be designed to withstand the greater of either the seismic or wind load.

All locations with design criteria resulting in a seismic design force of up to 1.0g or a wind load of 6,94 kN/m² or below will be provided with the standard PMCE/PMCQ structural design. An upgraded structural design is available for installations with design criteria resulting in “g forces” greater than 1.0g. The highest “g force” location in North America is 5.12g. The highest wind load shown on the maps is 273 km/h, which is approximately equal to 6,94 kN/m² velocity pressure.

Therefore, the upgraded structural design package option for the New PMCE/PMCQ is designed for 5.12 g and 6,94 kN/m² making it applicable to most building locations all over the World.

Design Implementation

EVAPCO applies the seismic design and wind load information provided for the project to determine the equipment design necessary to meet IBC requirements. This process ensures that the mechanical equipment and its components are compliant per the provisions of the IBC as given in the plans and specifications for the project.

Independent Certification

Although the IBC references and is based on the structural building code ASCE 7, many chapters and paragraphs of ASCE 7 are superseded by the IBC, independent certification and methods of analysis are such paragraphs. Per the most recent edition of the code, the EVAPCO compliance process included an exhaustive analysis by an independent approval agency. As required by the International Building Code, EVAPCO supplies a certificate of compliance as part of its submittal documents. The certificate of compliance demonstrates that the equipment has been independently tested and analyzed in accordance with the IBC seismic and wind load requirements. Evapco has worked closely with the independent approval agency, The VMC Group, to complete the independent equipment testing and analysis.

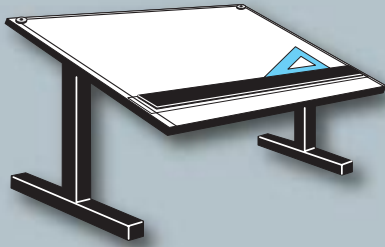
If the seismic “g force” or wind load requirements for the project site are known, EVAPCO’s online equipment selection software, iES, will allow you to choose the required structural design package – either standard construction or upgraded construction.

For further questions regarding IBC compliance, please contact your local EVAPCO Representative.

PMCE/PMCQ

Engineering Data

ENGINEERING



Dimensions

MODELS PMC-175E THRU 375E

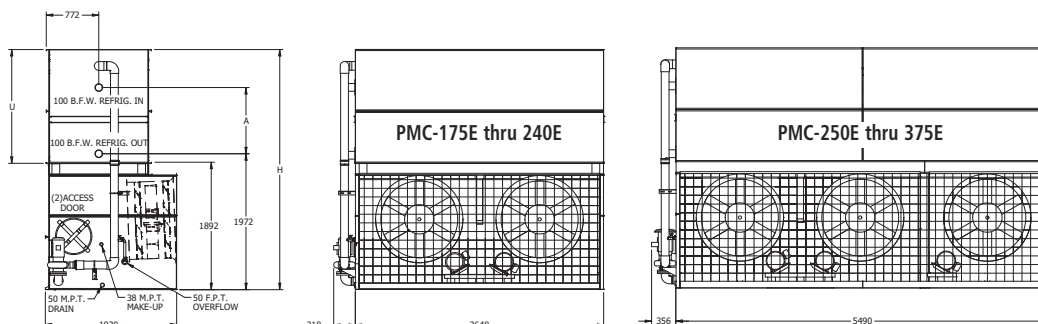


Table 1 Engineering Data

| Model No. | Fans | | Weights (kg) | | | NH ₃ Operating Charge (kg)** | Coil Volume (l) | Spray Pump (kW) | Remote Sump | | | Dimensions (mm) | | |
|-----------|------------|------------------------------|--------------|-----------|-------------------|---|-----------------|-----------------|---------------|------------|-----------------------|-----------------|---------|-----------------|
| | Motor (kW) | Air Flow (m ³ /s) | Shipping | Operating | Heaviest Section† | | | | Liters Req'd* | Conn. Size | Operating Weight (kg) | Height H | Upper U | Coil Distance E |
| PMC-175E | (2) 4 | 15 | 3.670 | 4.720 | 2.370 | 75 | 623 | 1,5 | 5663 | 200 | 4.245 | 3312 | 1457 | 781 |
| PMC-190E | (2) 4 | 16 | 3.670 | 4.720 | 2.370 | 75 | 623 | 1,5 | 5663 | 200 | 4.245 | 3312 | 1457 | 781 |
| PMC-210E | (2) 4 | 16 | 4.105 | 5.170 | 2.805 | 90 | 765 | 1,5 | 5663 | 200 | 4.695 | 3527 | 1673 | 997 |
| PMC-220E | (2) 4 | 16 | 4.560 | 5.645 | 3.255 | 110 | 934 | 1,5 | 5663 | 200 | 5.165 | 3743 | 1889 | 1213 |
| PMC-235E | (2) 5.5 | 17 | 4.150 | 5.215 | 2.805 | 90 | 765 | 1,5 | 5663 | 200 | 4.740 | 3527 | 1673 | 997 |
| PMC-240E | (2) 5.5 | 17 | 4.605 | 5.690 | 3.255 | 110 | 934 | 1,5 | 5663 | 200 | 5.210 | 3743 | 1889 | 1213 |
| PMC-250E | (3) 4 | 26 | 4.795 | 6.345 | 2.815 | 85 | 708 | 2,2 | 7362 | 250 | 5.460 | 3096 | 1241 | 565 |
| PMC-275E | (3) 4 | 23 | 5.480 | 7.060 | 3.500 | 110 | 934 | 2,2 | 7362 | 250 | 6.170 | 3312 | 1457 | 781 |
| PMC-295E | (3) 4 | 25 | 5.480 | 7.060 | 3.500 | 110 | 934 | 2,2 | 7362 | 250 | 6.170 | 3312 | 1457 | 781 |
| PMC-325E | (3) 4 | 24 | 6.135 | 7.745 | 4.160 | 135 | 1161 | 2,2 | 7362 | 250 | 6.855 | 3527 | 1673 | 997 |
| PMC-335E | (3) 4 | 24 | 6.815 | 8.450 | 4.840 | 165 | 1388 | 2,2 | 7362 | 250 | 7.560 | 3743 | 1889 | 1213 |
| PMC-360E | (3) 5.5 | 27 | 6.210 | 7.815 | 4.160 | 135 | 1161 | 2,2 | 7362 | 250 | 6.925 | 3527 | 1673 | 997 |
| PMC-375E | (3) 5.5 | 27 | 6.890 | 8.525 | 4.840 | 165 | 1388 | 2,2 | 7362 | 250 | 7.635 | 3743 | 1889 | 1213 |

† Heaviest section is the upper coil section. When 5.12 seismic design is required consult the factory for specific weights.

* Liters shown is water in suspension in unit and piping. Allow for additional water in bottom of remote sump to cover pump suction and strainer during operation. (300 mm would normally be sufficient.)

** Refrigerant charge is shown for R-717. Multiply by 1.93 for R22, 1.98 for R134A and 1.7 for R404A, R410A and R507A. Dimensions are subject to change. Do not use for pre-fabrication.

ENGINEERING DATA & DIMENSIONS

PMCE

MODELS PMC-332E THRU 778E

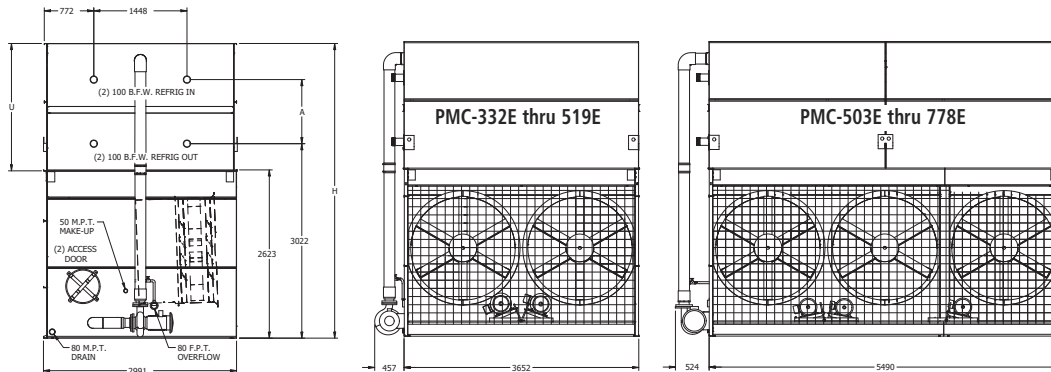


Table 2 Engineering Data

| Model No. | Fans | | Weights (kg) | | | NH ₃ Operating Charge (kg)** | Coil Volume (l) | Spray Pump (kW) | Remote Sump | | | Dimensions (mm) | | |
|-----------|------------|-----------------|--------------|-----------|-------------------|---|-----------------|-----------------|---------------|------------|-----------------------|-----------------|---------|-----------------|
| | Motor (kW) | Air Flow (m³/s) | Shipping | Operating | Heaviest Section† | | | | Liters Req'd* | Conn. Size | Operating Weight (kg) | Height H | Upper U | Coil Distance E |
| PMC-332E | (2) 4 | 29 | 5.840 | 7.690 | 3.895 | 115 | 963 | 4,0 | 14158 | 250 | 7.380 | 4150 | 1549 | 565 |
| PMC-369E | (2) 5.5 | 33 | 5.885 | 7.735 | 3.895 | 115 | 963 | 4,0 | 14158 | 250 | 7.425 | 4150 | 1549 | 565 |
| PMC-386E | (2) 4 | 28 | 7.575 | 9.500 | 5.635 | 185 | 1557 | 4,0 | 14158 | 250 | 9.190 | 4582 | 1981 | 997 |
| PMC-397E | (2) 7.5 | 36 | 5.895 | 7.745 | 3.895 | 115 | 963 | 4,0 | 14158 | 250 | 7.440 | 4150 | 1549 | 565 |
| PMC-400E | (2) 5.5 | 33 | 6.775 | 8.665 | 4.790 | 145 | 1246 | 4,0 | 14158 | 250 | 8.355 | 4366 | 1765 | 781 |
| PMC-426E | (2) 5.5 | 32 | 7.620 | 9.545 | 5.635 | 185 | 1557 | 4,0 | 14158 | 250 | 9.235 | 4582 | 1981 | 997 |
| PMC-428E | (2) 11 | 42 | 6.015 | 7.865 | 3.895 | 115 | 963 | 4,0 | 14158 | 250 | 7.555 | 4150 | 1549 | 565 |
| PMC-431E | (2) 7.5 | 36 | 6.790 | 8.675 | 4.790 | 145 | 1246 | 4,0 | 14158 | 250 | 8.370 | 4366 | 1765 | 781 |
| PMC-457E | (2) 7.5 | 35 | 7.635 | 9.555 | 5.635 | 185 | 1557 | 4,0 | 14158 | 250 | 9.250 | 4582 | 1981 | 997 |
| PMC-464E | (2) 11 | 41 | 6.910 | 8.795 | 4.790 | 145 | 1246 | 4,0 | 14158 | 250 | 8.485 | 4366 | 1765 | 781 |
| PMC-481E | (2) 7.5 | 35 | 8.520 | 10.475 | 6.520 | 220 | 1869 | 4,0 | 14158 | 250 | 10.165 | 4797 | 2197 | 1213 |
| PMC-492E | (2) 11 | 41 | 7.750 | 9.675 | 5.635 | 185 | 1557 | 4,0 | 14158 | 250 | 9.365 | 4582 | 1981 | 997 |
| PMC-519E | (2) 11 | 40 | 8.635 | 10.590 | 6.520 | 220 | 1869 | 4,0 | 14158 | 250 | 10.285 | 4797 | 2197 | 1213 |
| PMC-503E | (3) 4 | 43 | 8.885 | 11.755 | 5.705 | 165 | 1416 | 5,5 | 17556 | 300 | 10.755 | 4150 | 1549 | 565 |
| PMC-558E | (3) 5.5 | 50 | 8.960 | 11.825 | 5.705 | 165 | 1416 | 5,5 | 17556 | 300 | 10.825 | 4150 | 1549 | 565 |
| PMC-596E | (3) 7.5 | 55 | 8.980 | 11.850 | 5.705 | 165 | 1416 | 5,5 | 17556 | 300 | 10.850 | 4150 | 1549 | 565 |
| PMC-605E | (3) 5.5 | 49 | 10.285 | 13.210 | 7.035 | 220 | 1869 | 5,5 | 17556 | 300 | 12.210 | 4366 | 1765 | 781 |
| PMC-636E | (3) 11 | 63 | 9.160 | 12.025 | 5.705 | 165 | 1416 | 5,5 | 17556 | 300 | 11.025 | 4150 | 1549 | 565 |
| PMC-645E | (3) 7.5 | 54 | 10.310 | 13.230 | 7.035 | 220 | 1869 | 5,5 | 17556 | 300 | 12.235 | 4366 | 1765 | 781 |
| PMC-690E | (3) 11 | 62 | 10.485 | 13.410 | 7.035 | 220 | 1869 | 5,5 | 17556 | 300 | 12.410 | 4366 | 1765 | 781 |
| PMC-691E | (3) 7.5 | 53 | 11.590 | 14.560 | 8.315 | 270 | 2322 | 5,5 | 17556 | 300 | 13.560 | 4582 | 1981 | 997 |
| PMC-719E | (3) 7.5 | 52 | 12.920 | 15.945 | 9.645 | 325 | 2775 | 5,5 | 17556 | 300 | 14.945 | 4797 | 2197 | 1213 |
| PMC-731E | (3) 11 | 61 | 11.765 | 14.735 | 8.315 | 270 | 2322 | 5,5 | 17556 | 300 | 13.740 | 4582 | 1981 | 997 |
| PMC-778E | (3) 11 | 60 | 13.095 | 16.120 | 9.645 | 325 | 2775 | 5,5 | 17556 | 300 | 15.125 | 4797 | 2197 | 1213 |

† Heaviest section is the upper coil section. When 5.12 seismic design is required consult the factory for specific weights.

* Liters shown is water in suspension in unit and piping. Allow for additional water in bottom of remote sump to cover pump suction and strainer during operation. (300 mm would normally be sufficient.)

** Refrigerant charge is shown for R-717. Multiply by 1.93 for R22, 1.98 for R134A and 1.7 for R404A, R410A and R507A. Dimensions are subject to change. Do not use for pre-fabrication.

MODELS PMC-772E THRU 1556E

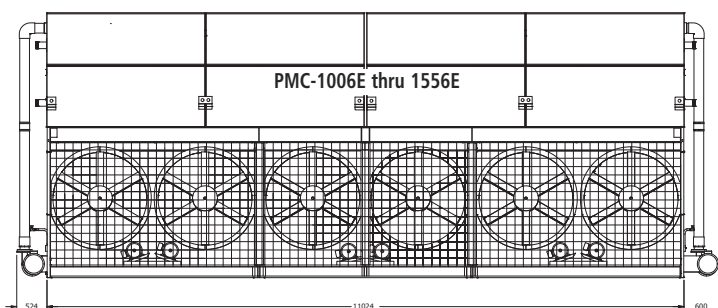
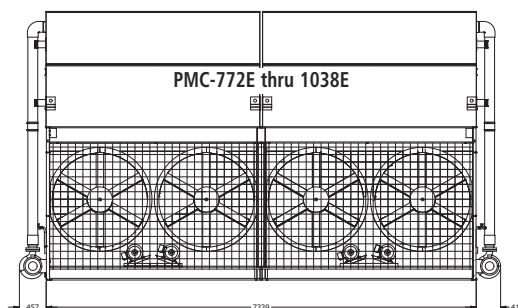
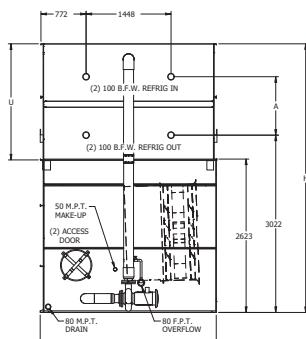


Table 3 Engineering Data

| Model No. | Fans | | Weights (kg) | | | NH ₃ Operating Charge (kg)** | Coil Volume (l) | Spray Pump (kW) | Remote Sump | | | Dimensions (mm) | | |
|-----------|------------|------------------------------|--------------|-----------|-------------------|---|-----------------|-----------------|---------------|------------|-----------------------|-----------------|---------|-----------------|
| | Motor (kW) | Air Flow (m ³ /s) | Shipping | Operating | Heaviest Section† | | | | Liters Req'd* | Conn. Size | Operating Weight (kg) | Height H | Upper U | Coil Distance E |
| PMC-772E | (4) 4 | 56 | 15.355 | 19.365 | 5.590 | 365 | 3115 | (2) 4 | 26335 | 300 | 18.395 | 4582 | 1981 | 997 |
| PMC-801E | (4) 5.5 | 65 | 13.670 | 17.610 | 4.700 | 295 | 2520 | (2) 4 | 26335 | 300 | 16.640 | 4366 | 1765 | 781 |
| PMC-853E | (4) 5.5 | 64 | 15.450 | 19.460 | 5.590 | 365 | 3115 | (2) 4 | 26335 | 300 | 18.490 | 4582 | 1981 | 997 |
| PMC-863E | (4) 7.5 | 72 | 13.705 | 17.640 | 4.700 | 295 | 2520 | (2) 4 | 26335 | 300 | 16.670 | 4366 | 1765 | 781 |
| PMC-888E | (4) 5.5 | 63 | 17.310 | 21.385 | 6.520 | 435 | 3710 | (2) 4 | 26335 | 300 | 20.415 | 4797 | 2197 | 1213 |
| PMC-929E | (4) 11 | 83 | 13.940 | 17.875 | 4.700 | 295 | 2520 | (2) 4 | 26335 | 300 | 16.905 | 4366 | 1765 | 781 |
| PMC-962E | (4) 7.5 | 70 | 17.340 | 21.420 | 6.520 | 435 | 3710 | (2) 4 | 26335 | 300 | 20.450 | 4797 | 2197 | 1213 |
| PMC-983E | (4) 11 | 81 | 15.715 | 19.725 | 5.590 | 365 | 3115 | (2) 4 | 26335 | 300 | 18.755 | 4582 | 1981 | 997 |
| PMC-1038E | (4) 11 | 80 | 17.575 | 21.655 | 6.520 | 435 | 3710 | (2) 4 | 26335 | 300 | 20.685 | 4797 | 2197 | 1213 |
| PMC-1006E | (6) 4 | 87 | 17.090 | 22.975 | 6.025 | 335 | 2832 | (2) 5.5 | 39644 | 350 | 21.485 | 4150 | 1549 | 565 |
| PMC-1088E | (6) 4 | 85 | 19.865 | 25.855 | 6.920 | 440 | 3738 | (2) 5.5 | 39644 | 350 | 24.370 | 4366 | 1765 | 781 |
| PMC-1116E | (6) 5.5 | 99 | 17.230 | 23.115 | 6.165 | 335 | 2832 | (2) 5.5 | 39644 | 350 | 21.625 | 4150 | 1549 | 565 |
| PMC-1189E | (6) 7.5 | 110 | 17.275 | 23.160 | 6.210 | 335 | 2832 | (2) 5.5 | 39644 | 350 | 21.675 | 4150 | 1549 | 565 |
| PMC-1211E | (6) 5.5 | 98 | 20.010 | 25.995 | 6.920 | 440 | 3738 | (2) 5.5 | 39644 | 350 | 24.510 | 4366 | 1765 | 781 |
| PMC-1275E | (6) 5.5 | 97 | 22.685 | 28.780 | 8.260 | 545 | 4644 | (2) 5.5 | 39644 | 350 | 27.295 | 4582 | 1981 | 997 |
| PMC-1290E | (6) 7.5 | 108 | 20.055 | 26.040 | 6.920 | 440 | 3738 | (2) 5.5 | 39644 | 350 | 24.555 | 4366 | 1765 | 781 |
| PMC-1382E | (6) 7.5 | 106 | 22.730 | 28.825 | 8.260 | 545 | 4644 | (2) 5.5 | 39644 | 350 | 27.340 | 4582 | 1981 | 997 |
| PMC-1438E | (6) 7.5 | 105 | 25.495 | 31.695 | 9.645 | 650 | 5550 | (2) 5.5 | 39644 | 350 | 30.210 | 4797 | 2197 | 1213 |
| PMC-1556E | (6) 11 | 121 | 25.850 | 32.050 | 9.645 | 650 | 5550 | (2) 5.5 | 39644 | 350 | 30.565 | 4797 | 2197 | 1213 |

† Heaviest section is the upper coil section. When 5.12 seismic design is required consult the factory for specific weights.

* Liters shown is water in suspension in unit and piping. Allow for additional water in bottom of remote sump to cover pump suction and strainer during operation. (300 mm would normally be sufficient.)

** Refrigerant charge is shown for R-717. Multiply by 1.93 for R22, 1.98 for R134A and 1.7 for R404A, R410A and R507A. Dimensions are subject to change. Do not use for pre-fabrication.

ENGINEERING DATA & DIMENSIONS

PMCE

MODELS PMC-420E THRU 631E

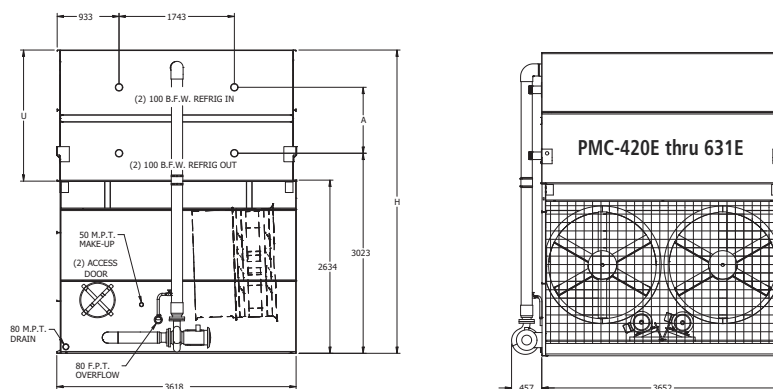


Table 4 Engineering Data

| Model No. | Fans | | Weights (kg) | | | NH ₃ Operating Charge (kg)** | Coil Volume (l) | Spray Pump (kW) | Remote Sump | | | Dimensions (mm) | | |
|-----------|------------|------------------------------|--------------|-----------|-------------------|---|-----------------|-----------------|---------------|------------|-----------------------|-----------------|---------|-----------------|
| | Motor (kW) | Air Flow (m ³ /s) | Shipping | Operating | Heaviest Section† | | | | Liters Req'd* | Conn. Size | Operating Weight (kg) | Height H | Upper U | Coil Distance E |
| PMC-420E | (2) 5.5 | 37 | 6.825 | 9.115 | 4.520 | 140 | 1189 | 4.0 | 16141 | 250 | 8.645 | 4150 | 1549 | 565 |
| PMC-450E | (2) 7.5 | 40 | 6.845 | 9.130 | 4.520 | 140 | 1189 | 4.0 | 16141 | 250 | 8.665 | 4150 | 1549 | 565 |
| PMC-488E | (2) 7.5 | 39 | 7.930 | 10.260 | 5.605 | 180 | 1557 | 4.0 | 16141 | 250 | 9.795 | 4366 | 1765 | 781 |
| PMC-495E | (2) 11 | 46 | 6.965 | 9.250 | 4.520 | 140 | 1189 | 4.0 | 16141 | 250 | 8.780 | 4150 | 1549 | 565 |
| PMC-515E | (2) 15 | 47 | 7.015 | 9.305 | 4.520 | 140 | 1189 | 4.0 | 16141 | 250 | 8.835 | 4150 | 1549 | 565 |
| PMC-536E | (2) 11 | 45 | 8.045 | 10.380 | 5.605 | 180 | 1557 | 4.0 | 16141 | 250 | 9.910 | 4366 | 1765 | 781 |
| PMC-559E | (2) 15 | 47 | 8.100 | 10.435 | 5.605 | 180 | 1557 | 4.0 | 16141 | 250 | 9.965 | 4366 | 1765 | 781 |
| PMC-564E | (2) 11 | 45 | 9.075 | 11.450 | 6.635 | 225 | 1926 | 4.0 | 16141 | 250 | 10.980 | 4582 | 1981 | 997 |
| PMC-591E | (2) 11 | 44 | 10.090 | 12.505 | 7.650 | 270 | 2294 | 4.0 | 16141 | 250 | 12.040 | 4797 | 2197 | 1213 |
| PMC-601E | (2) 15 | 47 | 9.130 | 11.505 | 6.635 | 225 | 1926 | 4.0 | 16141 | 250 | 11.035 | 4582 | 1981 | 997 |
| PMC-631E | (2) 15 | 47 | 10.140 | 12.560 | 7.650 | 270 | 2294 | 4.0 | 16141 | 250 | 12.095 | 4797 | 2197 | 1213 |

† Heaviest section is the upper coil section. **When 5.12 seismic design is required consult the factory for specific weights.**

* Liters shown is water in suspension in unit and piping. Allow for additional water in bottom of remote sump to cover pump suction and strainer during operation. (300 mm would normally be sufficient.)

** Refrigerant charge is shown for R-717. Multiply by 1.93 for R22, 1.98 for R134A and 1.7 for R404A, R410A and R507A. Dimensions are subject to change. Do not use for pre-fabrication.

MODELS PMC-634E THRU 939E

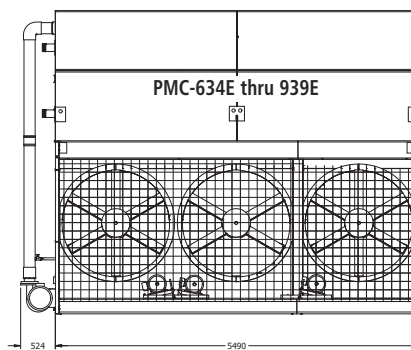
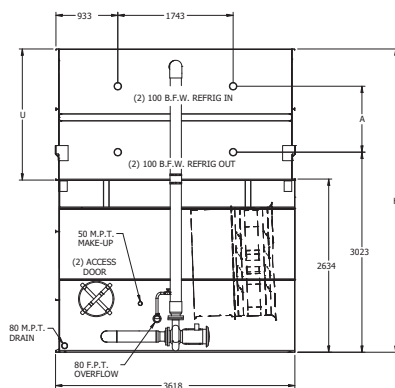


Table 5 Engineering Data

| Model No. | Fans | | Weights (kg) | | | NH ₃ Operating Charge (kg)** | Coil Volume (l) | Spray Pump (kW) | Remote Sump | | | Dimensions (mm) | | |
|-----------|------------|------------------------------|--------------|-----------|-------------------|---|-----------------|-----------------|---------------|------------|-----------------------|-----------------|---------|-----------------|
| | Motor (kW) | Air Flow (m ³ /s) | Shipping | Operating | Heaviest Section† | | | | Liters Req'd* | Conn. Size | Operating Weight (kg) | Height H | Upper U | Coil Distance E |
| PMC-634E | (3) 5.5 | 56 | 10.395 | 13.720 | 6.770 | 205 | 1756 | 5,5 | 20954 | 300 | 12.515 | 4150 | 1549 | 565 |
| PMC-679E | (3) 7.5 | 60 | 10.420 | 13.745 | 6.770 | 205 | 1756 | 5,5 | 20954 | 300 | 12.535 | 4150 | 1549 | 565 |
| PMC-688E | (3) 5.5 | 55 | 12.015 | 15.410 | 8.385 | 270 | 2294 | 5,5 | 20954 | 300 | 14.200 | 4366 | 1765 | 781 |
| PMC-723E | (3) 5.5 | 54 | 13.575 | 17.030 | 9.945 | 335 | 2860 | 5,5 | 20954 | 300 | 15.825 | 4582 | 1981 | 997 |
| PMC-737E | (3) 7.5 | 59 | 12.040 | 15.430 | 8.385 | 270 | 2294 | 5,5 | 20954 | 300 | 14.225 | 4366 | 1765 | 781 |
| PMC-774E | (3) 7.5 | 58 | 13.600 | 17.055 | 9.945 | 335 | 2860 | 5,5 | 20954 | 300 | 15.850 | 4582 | 1981 | 997 |
| PMC-800E | (3) 11 | 68 | 12.215 | 15.610 | 8.385 | 270 | 2294 | 5,5 | 20954 | 300 | 14.400 | 4366 | 1765 | 781 |
| PMC-831E | (3) 15 | 70 | 12.300 | 15.695 | 8.385 | 270 | 2294 | 5,5 | 20954 | 300 | 14.490 | 4366 | 1765 | 781 |
| PMC-856E | (3) 11 | 67 | 13.775 | 17.230 | 9.945 | 335 | 2860 | 5,5 | 20954 | 300 | 16.025 | 4582 | 1981 | 997 |
| PMC-889E | (3) 11 | 66 | 15.230 | 18.755 | 11.405 | 400 | 3426 | 5,5 | 20954 | 300 | 17.550 | 4797 | 2197 | 1213 |
| PMC-894E | (3) 15 | 71 | 13.860 | 17.320 | 9.945 | 335 | 2860 | 5,5 | 20954 | 300 | 16.110 | 4582 | 1981 | 997 |
| PMC-939E | (3) 15 | 70 | 15.320 | 18.840 | 11.405 | 400 | 3426 | 5,5 | 20954 | 300 | 17.635 | 4797 | 2197 | 1213 |

† Heaviest section is the upper coil section. When 5.12 seismic design is required consult the factory for specific weights.

* Liters shown is water in suspension in unit and piping. Allow for additional water in bottom of remote sump to cover pump suction and strainer during operation. (300 mm would normally be sufficient.)

** Refrigerant charge is shown for R-717. Multiply by 1.93 for R22, 1.98 for R134A and 1.7 for R404A, R410A and R507A. Dimensions are subject to change. Do not use for pre-fabrication.

ENGINEERING DATA & DIMENSIONS

PMCE

MODELS PMC-811E THRU 992E

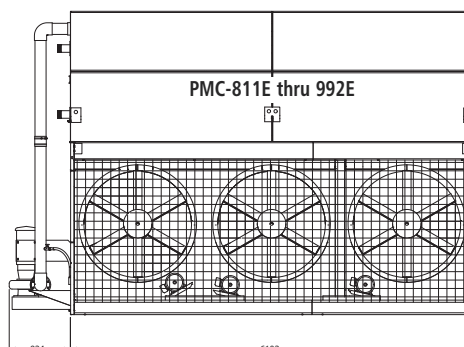
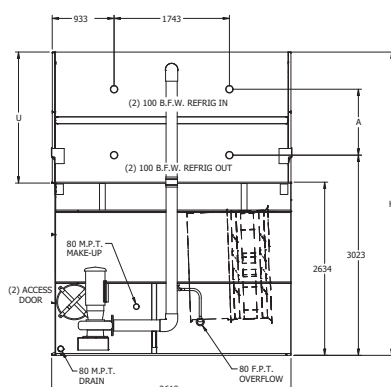


Table 6 Engineering Data

| Model No. | Fans | | Weights (kg) | | | NH ₃ Operating Charge (kg)** | Coil Volume (l) | Spray Pump (kW) | Remote Sump | | | Dimensions (mm) | | |
|-----------|------------|------------------------------|--------------|-----------|-------------------|---|-----------------|-----------------|---------------|------------|-----------------------|-----------------|---------|-----------------|
| | Motor (kW) | Air Flow (m ³ /s) | Shipping | Operating | Heaviest Section† | | | | Liters Req'd* | Conn. Size | Operating Weight (kg) | Height H | Upper U | Coil Distance E |
| PMC-811E | (3) 7.5 | 61 | 14.885 | 18.820 | 10.940 | 370 | 3171 | 7,5 | 22937 | 350 | 17.465 | 4582 | 1981 | 997 |
| PMC-852E | (3) 7.5 | 60 | 16.735 | 20.740 | 12.785 | 445 | 3794 | 7,5 | 22937 | 350 | 19.380 | 4797 | 2197 | 1213 |
| PMC-895E | (3) 11 | 71 | 15.065 | 18.995 | 10.940 | 370 | 3171 | 7,5 | 22937 | 350 | 17.640 | 4582 | 1981 | 997 |
| PMC-940E | (3) 11 | 69 | 16.910 | 20.915 | 12.785 | 445 | 3794 | 7,5 | 22937 | 350 | 19.560 | 4797 | 2197 | 1213 |
| PMC-949E | (3) 15 | 75 | 15.150 | 19.085 | 10.940 | 370 | 3171 | 7,5 | 22937 | 350 | 17.725 | 4582 | 1981 | 997 |
| PMC-992E | (3) 15 | 74 | 16.995 | 21.000 | 12.785 | 445 | 3794 | 7,5 | 22937 | 350 | 19.645 | 4797 | 2197 | 1213 |

† Heaviest section is the upper coil section. When 5.12 seismic design is required consult the factory for specific weights.

* Liters shown is water in suspension in unit and piping. Allow for additional water in bottom of remote sump to cover pump suction and strainer during operation. (300 mm would normally be sufficient.)

** Refrigerant charge is shown for R-717. Multiply by 1.93 for R22, 1.98 for R134A and 1.7 for R404A, R410A and R507A. Dimensions are subject to change. Do not use for pre-fabrication.

MODELS PMC-840E THRU 1261E

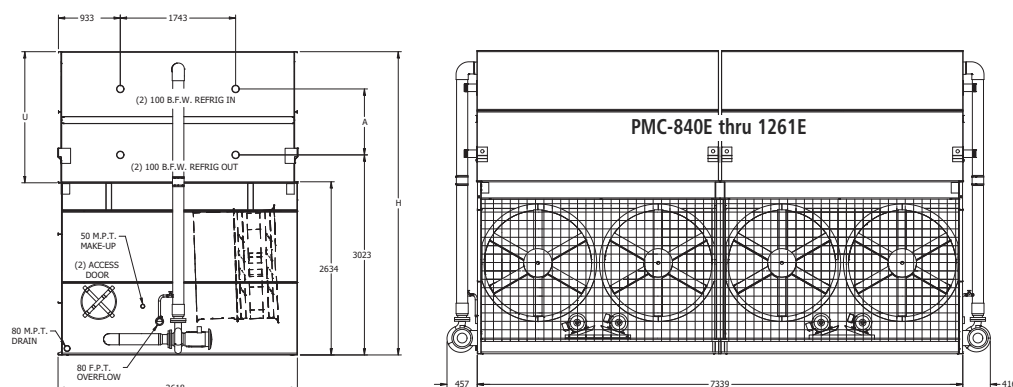


Table 7 Engineering Data

| Model No. | Fans | | Weights (kg) | | | NH ₃ Operating Charge (kg)** | Coil Volume (l) | Spray Pump (kW) | Remote Sump | | | Dimensions (mm) | | |
|-----------|------------|------------------------------|--------------|-----------|-------------------|---|-----------------|-----------------|---------------|------------|-----------------------|-----------------|---------|-----------------|
| | Motor (kW) | Air Flow (m ³ /s) | Shipping | Operating | Heaviest Section† | | | | Liters Req'd* | Conn. Size | Operating Weight (kg) | Height H | Upper U | Coil Distance E |
| PMC-840E | (4) 5.5 | 75 | 13.340 | 18.045 | 4.595 | 275 | 2350 | (2) 4 | 30582 | 350 | 16.775 | 4150 | 1549 | 565 |
| PMC-900E | (4) 7.5 | 80 | 13.370 | 18.075 | 4.625 | 275 | 2350 | (2) 4 | 30582 | 350 | 16.805 | 4150 | 1549 | 565 |
| PMC-956E | (4) 5.5 | 73 | 17.775 | 22.655 | 6.590 | 450 | 3823 | (2) 4 | 30582 | 350 | 21.385 | 4582 | 1981 | 997 |
| PMC-976E | (4) 7.5 | 79 | 15.650 | 20.445 | 5.510 | 365 | 3087 | (2) 4 | 30582 | 350 | 19.175 | 4366 | 1765 | 781 |
| PMC-989E | (4) 11 | 92 | 13.610 | 18.310 | 4.865 | 275 | 2350 | (2) 4 | 30582 | 350 | 17.040 | 4150 | 1549 | 565 |
| PMC-1024E | (4) 7.5 | 77 | 17.810 | 22.690 | 6.590 | 450 | 3823 | (2) 4 | 30582 | 350 | 21.420 | 4582 | 1981 | 997 |
| PMC-1073E | (4) 11 | 90 | 15.885 | 20.680 | 5.510 | 365 | 3087 | (2) 4 | 30582 | 350 | 19.410 | 4366 | 1765 | 781 |
| PMC-1117E | (4) 15 | 93 | 16.000 | 20.795 | 5.510 | 365 | 3087 | (2) 4 | 30582 | 350 | 19.525 | 4366 | 1765 | 781 |
| PMC-1127E | (4) 11 | 89 | 18.045 | 22.925 | 6.590 | 450 | 3823 | (2) 4 | 30582 | 350 | 21.655 | 4582 | 1981 | 997 |
| PMC-1182E | (4) 11 | 88 | 20.160 | 25.125 | 7.650 | 540 | 4559 | (2) 4 | 30582 | 350 | 23.855 | 4797 | 2197 | 1213 |
| PMC-1203E | (4) 15 | 95 | 18.155 | 23.040 | 6.590 | 450 | 3823 | (2) 4 | 30582 | 350 | 21.770 | 4582 | 1981 | 997 |
| PMC-1261E | (4) 15 | 93 | 20.270 | 25.240 | 7.650 | 540 | 4559 | (2) 4 | 30582 | 350 | 23.970 | 4797 | 2197 | 1213 |

† Heaviest section is the upper coil section. When 5.12 seismic design is required consult the factory for specific weights.

* Liters shown is water in suspension in unit and piping. Allow for additional water in bottom of remote sump to cover pump suction and strainer during operation. (300 mm would normally be sufficient.)

** Refrigerant charge is shown for R-717. Multiply by 1.93 for R22, 1.98 for R134A and 1.7 for R404A, R410A and R507A. Dimensions are subject to change. Do not use for pre-fabrication.

ENGINEERING DATA & DIMENSIONS

PMCE

ENGINEERING

MODELS PMC-1269E THRU 1877E MODELS PMC-1705E THRU 1985E

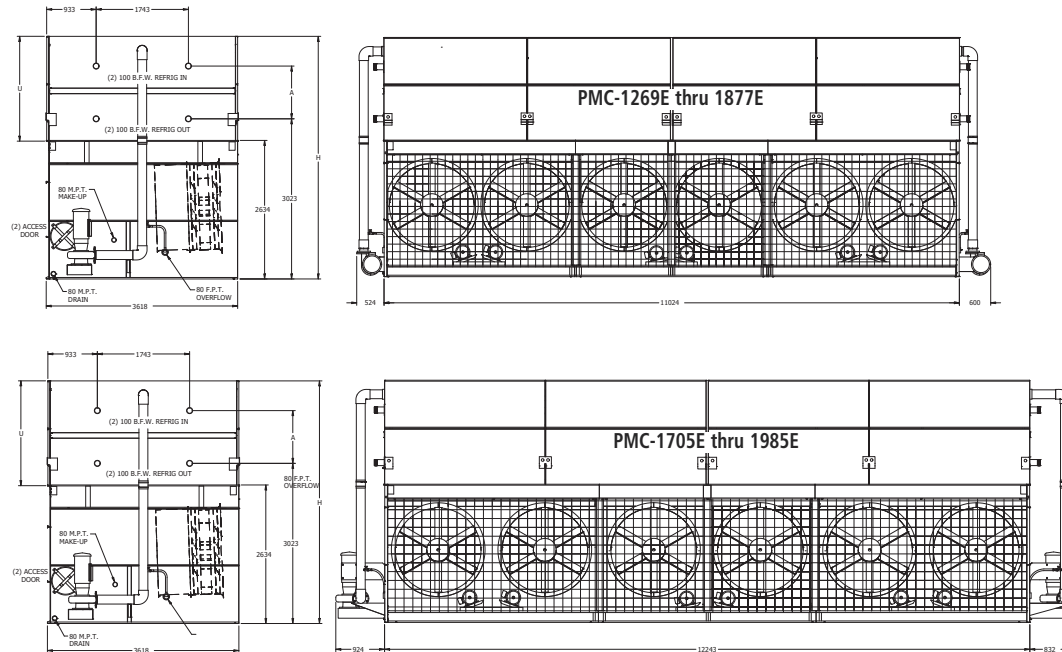


Table 8 Engineering Data

| Model No. | Fans | | Weights (kg) | | | NH ₃ Operating Charge (kg)** | Coil Volume (l) | Spray Pump (kW) | Remote Sump | | | Dimensions (mm) | | |
|-----------|------------|------------------------------|--------------|-----------|-------------------|---|-----------------|-----------------|---------------|------------|-----------------------|-----------------|---------|-----------------|
| | Motor (kW) | Air Flow (m ³ /s) | Shipping | Operating | Heaviest Section† | | | | Liters Req'd* | Conn. Size | Operating Weight (kg) | Height H | Upper U | Coil Distance E |
| PMC-1269E | (6) 5.5 | 112 | 19.855 | 26.845 | 6.690 | 410 | 3483 | (2) 5.5 | 41343 | 400 | 24.280 | 4150 | 1549 | 565 |
| PMC-1358E | (6) 7.5 | 119 | 19.895 | 26.885 | 6.730 | 410 | 3483 | (2) 5.5 | 41343 | 400 | 24.320 | 4150 | 1549 | 565 |
| PMC-1376E | (6) 5.5 | 110 | 23.210 | 30.330 | 8.260 | 540 | 4616 | (2) 5.5 | 41343 | 400 | 27.770 | 4366 | 1765 | 781 |
| PMC-1446E | (6) 5.5 | 109 | 26.460 | 33.710 | 9.885 | 670 | 5720 | (2) 5.5 | 41343 | 400 | 31.145 | 4582 | 1981 | 997 |
| PMC-1473E | (6) 7.5 | 118 | 23.250 | 30.375 | 8.260 | 540 | 4616 | (2) 5.5 | 41343 | 400 | 27.810 | 4366 | 1765 | 781 |
| PMC-1549E | (6) 7.5 | 116 | 26.500 | 33.750 | 9.885 | 670 | 5720 | (2) 5.5 | 41343 | 400 | 31.185 | 4582 | 1981 | 997 |
| PMC-1599E | (6) 11 | 135 | 23.610 | 30.730 | 8.260 | 540 | 4616 | (2) 5.5 | 41343 | 400 | 28.170 | 4366 | 1765 | 781 |
| PMC-1625E | (6) 7.5 | 114 | 29.540 | 36.920 | 11.405 | 805 | 6824 | (2) 5.5 | 41343 | 400 | 34.355 | 4797 | 2197 | 1213 |
| PMC-1712E | (6) 11 | 133 | 26.855 | 34.110 | 9.885 | 670 | 5720 | (2) 5.5 | 41343 | 400 | 31.545 | 4582 | 1981 | 997 |
| PMC-1776E | (6) 11 | 131 | 29.895 | 37.280 | 11.405 | 805 | 6824 | (2) 5.5 | 41343 | 400 | 34.715 | 4797 | 2197 | 1213 |
| PMC-1788E | (6) 15 | 142 | 27.030 | 34.285 | 9.885 | 670 | 5720 | (2) 5.5 | 41343 | 400 | 31.715 | 4582 | 1981 | 997 |
| PMC-1877E | (6) 15 | 139 | 30.070 | 37.455 | 11.405 | 805 | 6824 | (2) 5.5 | 41343 | 400 | 34.885 | 4797 | 2197 | 1213 |
| PMC-1705E | (6) 7.5 | 121 | 33.075 | 41.210 | 12.875 | 890 | 7589 | (2) 7.5 | 46156 | 400 | 38.385 | 4797 | 2197 | 1213 |
| PMC-1879E | (6) 11 | 139 | 33.435 | 41.565 | 12.875 | 890 | 7589 | (2) 7.5 | 46156 | 400 | 38.740 | 4797 | 2197 | 1213 |
| PMC-1985E | (6) 15 | 148 | 33.605 | 41.740 | 12.875 | 890 | 7589 | (2) 7.5 | 46156 | 400 | 38.915 | 4797 | 2197 | 1213 |

† Heaviest section is the upper coil section. When 5.12 seismic design is required consult the factory for specific weights.

* Liters shown is water in suspension in unit and piping. Allow for additional water in bottom of remote sump to cover pump suction and strainer during operation. (300 mm would normally be sufficient.)

** Refrigerant charge is shown for R-717. Multiply by 1.93 for R22, 1.98 for R134A and 1.7 for R404A, R410A and R507A. Dimensions are subject to change. Do not use for pre-fabrication.

MODELS PMCQ-316 THRU 740

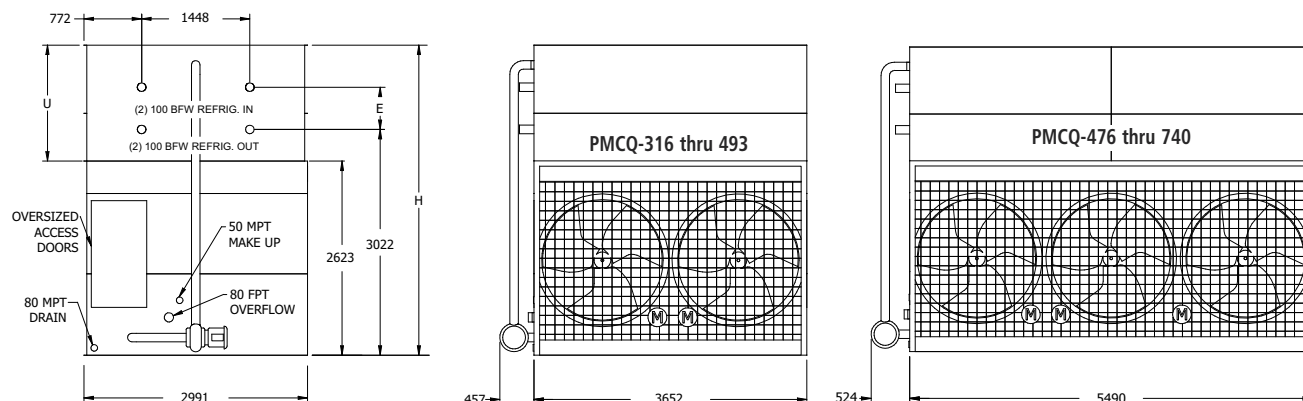


Table 9 Engineering Data

| Model No. | Fans | | Weights (kg) | | | NH ₃ Operating Charge (kg)** | Coil Volume (l) | Spray Pump (kW) | Remote Sump | | | Dimensions (mm) | | |
|-----------|------------|------------------------------|--------------|-----------|-------------------|---|-----------------|-----------------|---------------|------------|-----------------------|-----------------|---------|-----------------|
| | Motor (kW) | Air Flow (m ³ /s) | Shipping | Operating | Heaviest Section† | | | | Liters Req'd* | Conn. Size | Operating Weight (kg) | Height H | Upper U | Coil Distance E |
| PMCQ-316 | (2) 4 | 26 | 6.055 | 7.905 | 3.895 (C) | 115 | 963 | 4,0 | 1.893 | 250 | 7.600 | 4150 | 1549 | 565 |
| PMCQ-350 | (2) 5.5 | 29 | 6.105 | 7.955 | 3.895 (C) | 115 | 963 | 4,0 | 1.893 | 250 | 7.650 | 4150 | 1549 | 565 |
| PMCQ-367 | (2) 4 | 25 | 7.795 | 9.715 | 5.635 (C) | 185 | 1557 | 4,0 | 1.893 | 250 | 9.410 | 4582 | 1981 | 997 |
| PMCQ-379 | (2) 7.5 | 32 | 6.120 | 7.970 | 3.895 (C) | 115 | 963 | 4,0 | 1.893 | 250 | 7.660 | 4150 | 1549 | 565 |
| PMCQ-380 | (2) 5.5 | 29 | 7.000 | 8.885 | 4.790 (C) | 145 | 1246 | 4,0 | 1.893 | 250 | 8.575 | 4366 | 1765 | 781 |
| PMCQ-405 | (2) 5.5 | 29 | 7.845 | 9.765 | 5.635 (C) | 185 | 1557 | 4,0 | 1.893 | 250 | 9.455 | 4582 | 1981 | 997 |
| PMCQ-407 | (2) 11 | 37 | 6.235 | 8.090 | 3.895 (C) | 115 | 963 | 4,0 | 1.893 | 250 | 7.780 | 4150 | 1549 | 565 |
| PMCQ-410 | (2) 7.5 | 32 | 7.015 | 8.900 | 4.790 (C) | 145 | 1246 | 4,0 | 1.893 | 250 | 8.590 | 4366 | 1765 | 781 |
| PMCQ-434 | (2) 7.5 | 32 | 7.855 | 9.780 | 5.635 (C) | 185 | 1557 | 4,0 | 1.893 | 250 | 9.470 | 4582 | 1981 | 997 |
| PMCQ-441 | (2) 11 | 37 | 7.130 | 9.015 | 4.790 (C) | 145 | 1246 | 4,0 | 1.893 | 250 | 8.710 | 4366 | 1765 | 781 |
| PMCQ-458 | (2) 7.5 | 31 | 8.740 | 10.695 | 6.520 (C) | 220 | 1869 | 4,0 | 1.893 | 250 | 10.385 | 4797 | 2197 | 1213 |
| PMCQ-467 | (2) 11 | 36 | 7.975 | 9.895 | 5.635 (C) | 185 | 1557 | 4,0 | 1.893 | 250 | 9.590 | 4582 | 1981 | 997 |
| PMCQ-493 | (2) 11 | 36 | 8.860 | 10.815 | 6.520 (C) | 220 | 1869 | 4,0 | 1.893 | 250 | 10.505 | 4797 | 2197 | 1213 |
| PMCQ-476 | (3) 4 | 39 | 9.215 | 12.085 | 5.705 (C) | 165 | 1416 | 5,5 | 2.347 | 300 | 11.085 | 4150 | 1549 | 565 |
| PMCQ-530 | (3) 5.5 | 44 | 9.290 | 12.155 | 5.705 (C) | 165 | 1416 | 5,5 | 2.347 | 300 | 11.160 | 4150 | 1549 | 565 |
| PMCQ-566 | (3) 7.5 | 49 | 9.310 | 12.180 | 5.705 (C) | 165 | 1416 | 5,5 | 2.347 | 300 | 11.180 | 4150 | 1549 | 565 |
| PMCQ-575 | (3) 5.5 | 44 | 10.620 | 13.540 | 7.035 (C) | 220 | 1869 | 5,5 | 2.347 | 300 | 12.540 | 4366 | 1765 | 781 |
| PMCQ-604 | (3) 11 | 56 | 9.490 | 12.355 | 5.705 (C) | 165 | 1416 | 5,5 | 2.347 | 300 | 11.360 | 4150 | 1549 | 565 |
| PMCQ-613 | (3) 7.5 | 48 | 10.640 | 13.560 | 7.035 (C) | 220 | 1869 | 5,5 | 2.347 | 300 | 12.565 | 4366 | 1765 | 781 |
| PMCQ-655 | (3) 11 | 55 | 10.820 | 13.740 | 7.035 (C) | 220 | 1869 | 5,5 | 2.347 | 300 | 12.740 | 4366 | 1765 | 781 |
| PMCQ-656 | (3) 7.5 | 47 | 11.920 | 14.890 | 8.315 (C) | 270 | 2322 | 5,5 | 2.347 | 300 | 13.895 | 4582 | 1981 | 997 |
| PMCQ-683 | (3) 7.5 | 47 | 13.250 | 16.275 | 9.645 (C) | 325 | 2775 | 5,5 | 2.347 | 300 | 15.275 | 4797 | 2197 | 1213 |
| PMCQ-694 | (3) 11 | 54 | 12.095 | 15.070 | 8.315 (C) | 270 | 2322 | 5,5 | 2.347 | 300 | 14.070 | 4582 | 1981 | 997 |
| PMCQ-740 | (3) 11 | 54 | 13.425 | 16.450 | 9.645 (C) | 325 | 2775 | 5,5 | 2.347 | 300 | 15.455 | 4797 | 2197 | 1213 |

† (C) = Casing (P) = Pan

* Liters shown is water in suspension in unit and piping. Allow for additional water in bottom of remote sump to cover pump suction and strainer during operation. (300 mm would normally be sufficient.)

** Refrigerant charge is shown for R-717. Multiply by 1.93 for R22, 1.98 for R134A and 1.7 for R404A, R410A and R507A. Dimensions are subject to change. Do not use for pre-fabrication.

ENGINEERING DATA & DIMENSIONS

PMCQ

MODELS PMCQ-734 THRU 1480

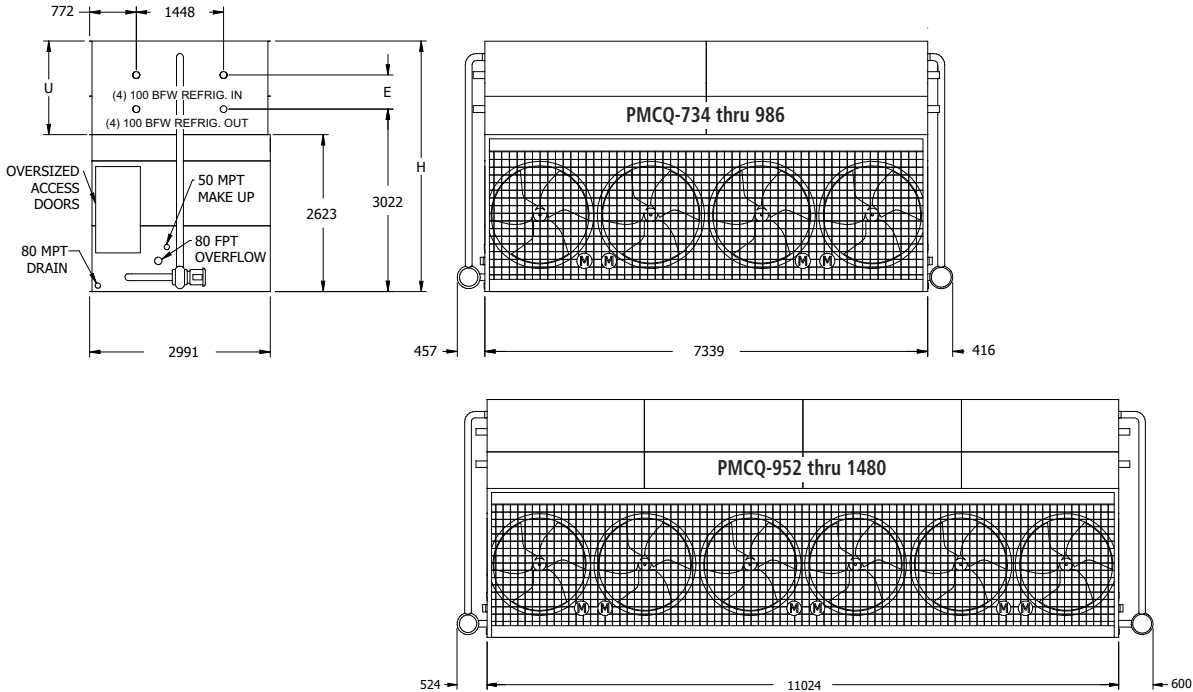


Table 10 Engineering Data

| Model No. | Fans | | Weights (kg) | | | NH ₃ Operating Charge (kg)** | Coil Volume (l) | Spray Pump (kW) | Remote Sump | | | Dimensions (mm) | | |
|-----------|------------|------------------------------|--------------|-----------|-------------------|---|-----------------|-----------------|---------------|------------|-----------------------|-----------------|---------|-----------------|
| | Motor (kW) | Air Flow (m ³ /s) | Shipping | Operating | Heaviest Section† | | | | Liters Req'd* | Conn. Size | Operating Weight (kg) | Height H | Upper U | Coil Distance E |
| PMCQ-734 | (4) 4 | 50 | 15.800 | 19.810 | 5590 (C) | 365 | 3115 | (2) 4 | 3.520 | 300 | 18.840 | 4582 | 1981 | 997 |
| PMCQ-760 | (4) 5.5 | 58 | 14.115 | 18.055 | 4715 (P) | 295 | 2520 | (2) 4 | 3.520 | 300 | 17.080 | 4366 | 1765 | 781 |
| PMCQ-810 | (4) 5.5 | 57 | 15.895 | 19.905 | 5590 (C) | 365 | 3115 | (2) 4 | 3.520 | 300 | 18.935 | 4582 | 1981 | 997 |
| PMCQ-820 | (4) 7.5 | 64 | 14.145 | 18.080 | 4745 (P) | 295 | 2520 | (2) 4 | 3.520 | 300 | 17.110 | 4366 | 1765 | 781 |
| PMCQ-842 | (4) 5.5 | 56 | 17.755 | 21.830 | 6520 (C) | 435 | 3710 | (2) 4 | 3.520 | 300 | 20.860 | 4797 | 2197 | 1213 |
| PMCQ-882 | (4) 11 | 73 | 14.385 | 18.320 | 4985 (P) | 295 | 2520 | (2) 4 | 3.520 | 300 | 17.350 | 4366 | 1765 | 781 |
| PMCQ-916 | (4) 7.5 | 62 | 17.780 | 21.860 | 6520 (C) | 435 | 3710 | (2) 4 | 3.520 | 300 | 20.890 | 4797 | 2197 | 1213 |
| PMCQ-934 | (4) 11 | 72 | 16.160 | 20.170 | 5590 (C) | 365 | 3115 | (2) 4 | 3.520 | 300 | 19.200 | 4582 | 1981 | 997 |
| PMCQ-986 | (4) 11 | 71 | 18.020 | 22.100 | 6520 (C) | 435 | 3710 | (2) 4 | 3.520 | 300 | 21.130 | 4797 | 2197 | 1213 |
| PMCQ-952 | (6) 4 | 77 | 17.755 | 23.635 | 6685 (P) | 335 | 2832 | (2) 5.5 | 5.299 | 350 | 22.150 | 4150 | 1549 | 565 |
| PMCQ-1034 | (6) 4 | 76 | 20.530 | 26.515 | 6920 (C) | 440 | 3738 | (2) 5.5 | 5.299 | 350 | 25.035 | 4366 | 1765 | 781 |
| PMCQ-1060 | (6) 5.5 | 88 | 17.895 | 23.775 | 6825 (P) | 335 | 2832 | (2) 5.5 | 5.299 | 350 | 22.290 | 4150 | 1549 | 565 |
| PMCQ-1132 | (6) 7.5 | 98 | 17.940 | 23.825 | 6870 (P) | 335 | 2832 | (2) 5.5 | 5.299 | 350 | 22.335 | 4150 | 1549 | 565 |
| PMCQ-1150 | (6) 5.5 | 87 | 20.670 | 26.660 | 6920 (C) | 440 | 3738 | (2) 5.5 | 5.299 | 350 | 25.175 | 4366 | 1765 | 781 |
| PMCQ-1212 | (6) 5.5 | 86 | 23.345 | 29.445 | 8260 (C) | 545 | 4644 | (2) 5.5 | 5.299 | 350 | 27.955 | 4582 | 1981 | 997 |
| PMCQ-1226 | (6) 7.5 | 96 | 20.715 | 26.705 | 6920 (C) | 440 | 3738 | (2) 5.5 | 5.299 | 350 | 25.220 | 4366 | 1765 | 781 |
| PMCQ-1312 | (6) 7.5 | 95 | 23.390 | 29.490 | 8260 (C) | 545 | 4644 | (2) 5.5 | 5.299 | 350 | 28.000 | 4582 | 1981 | 997 |
| PMCQ-1366 | (6) 7.5 | 93 | 26.160 | 32.360 | 9645 (C) | 650 | 5550 | (2) 5.5 | 5.299 | 350 | 30.870 | 4797 | 2197 | 1213 |
| PMCQ-1480 | (6) 11 | 107 | 26.510 | 32.715 | 9645 (C) | 650 | 5550 | (2) 5.5 | 5.299 | 350 | 31.225 | 4797 | 2197 | 1213 |

† (C) = Casing (P) = Pan

* Liters shown is water in suspension in unit and piping. Allow for additional water in bottom of remote sump to cover pump suction and strainer during operation. (300 mm would normally be sufficient.)

** Refrigerant charge is shown for R-717. Multiply by 1.93 for R22, 1.98 for R134A and 1.7 for R404A, R410A and R507A. Dimensions are subject to change. Do not use for pre-fabrication.

PMCQ

ENGINEERING DATA & DIMENSIONS

MODELS PMCQ-399 THRU 845

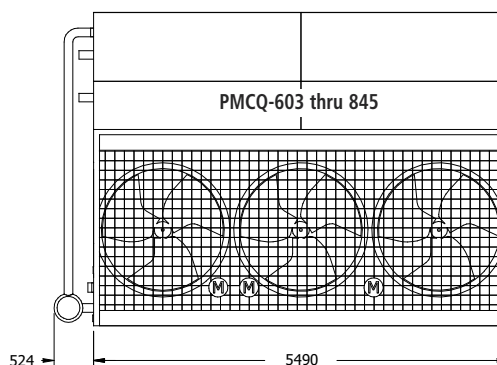
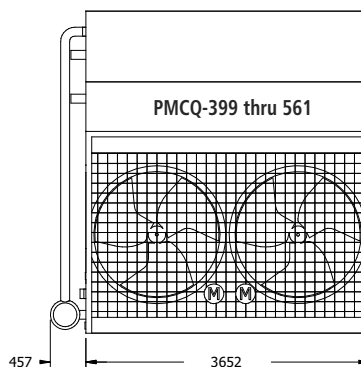
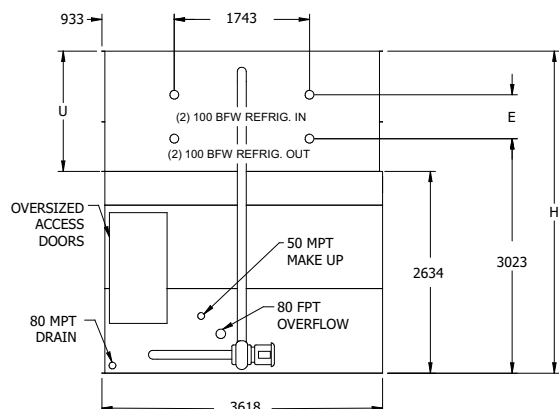


Table 11 Engineering Data

| Model No. | Fans | | Weights (kg) | | | NH ₃ Operating Charge (kg)** | Coil Volume (l) | Spray Pump (kW) | Remote Sump | | | Dimensions (mm) | | |
|-----------|------------|------------------------------|--------------|-----------|-------------------|---|-----------------|-----------------|---------------|------------|-----------------------|-----------------|---------|-----------------|
| | Motor (kW) | Air Flow (m ³ /s) | Shipping | Operating | Heaviest Section† | | | | Liters Req'd* | Conn. Size | Operating Weight (kg) | Height H | Upper U | Coil Distance E |
| PMCQ-399 | (2) 5.5 | 35 | 7.050 | 9.335 | 4.520 (C) | 140 | 1189 | 4.0 | 2.158 | 250 | 8.870 | 4150 | 1549 | 565 |
| PMCQ-427 | (2) 7.5 | 38 | 7.060 | 9.350 | 4.520 (C) | 140 | 1189 | 4.0 | 2.158 | 250 | 8.880 | 4150 | 1549 | 565 |
| PMCQ-463 | (2) 7.5 | 37 | 8.145 | 10.480 | 5.605 (C) | 180 | 1557 | 4.0 | 2.158 | 250 | 10.010 | 4366 | 1765 | 781 |
| PMCQ-469 | (2) 11 | 43 | 7.185 | 9.470 | 4.520 (C) | 140 | 1189 | 4.0 | 2.158 | 250 | 9.005 | 4150 | 1549 | 565 |
| PMCQ-510 | (2) 11 | 42 | 8.270 | 10.600 | 5.605 (C) | 180 | 1557 | 4.0 | 2.158 | 250 | 10.135 | 4366 | 1765 | 781 |
| PMCQ-535 | (2) 11 | 42 | 9.300 | 11.670 | 6.635 (C) | 225 | 1926 | 4.0 | 2.158 | 250 | 11.205 | 4582 | 1981 | 997 |
| PMCQ-561 | (2) 11 | 41 | 10.310 | 12.730 | 7.650 (C) | 270 | 2294 | 4.0 | 2.158 | 250 | 12.260 | 4797 | 2197 | 1213 |
| PMCQ-603 | (3) 5.5 | 53 | 10.725 | 14.050 | 6.770 (C) | 205 | 1756 | 5.5 | 2.782 | 300 | 12.845 | 4150 | 1549 | 565 |
| PMCQ-644 | (3) 7.5 | 56 | 10.750 | 14.075 | 6.770 (C) | 205 | 1756 | 5.5 | 2.782 | 300 | 12.870 | 4150 | 1549 | 565 |
| PMCQ-654 | (3) 5.5 | 52 | 12.345 | 15.740 | 8.385 (C) | 270 | 2294 | 5.5 | 2.782 | 300 | 14.535 | 4366 | 1765 | 781 |
| PMCQ-687 | (3) 5.5 | 51 | 13.905 | 17.365 | 9.945 (C) | 335 | 2860 | 5.5 | 2.782 | 300 | 16.155 | 4582 | 1981 | 997 |
| PMCQ-701 | (3) 7.5 | 55 | 12.370 | 15.760 | 8.385 (C) | 270 | 2294 | 5.5 | 2.782 | 300 | 14.555 | 4366 | 1765 | 781 |
| PMCQ-736 | (3) 7.5 | 54 | 13.930 | 17.385 | 9.945 (C) | 335 | 2860 | 5.5 | 2.782 | 300 | 16.180 | 4582 | 1981 | 997 |
| PMCQ-761 | (3) 11 | 63 | 12.545 | 15.940 | 8.385 (C) | 270 | 2294 | 5.5 | 2.782 | 300 | 14.735 | 4366 | 1765 | 781 |
| PMCQ-815 | (3) 11 | 63 | 14.105 | 17.565 | 9.945 (C) | 335 | 2860 | 5.5 | 2.782 | 300 | 16.355 | 4582 | 1981 | 997 |
| PMCQ-845 | (3) 11 | 62 | 15.565 | 19.085 | 11.405 (C) | 400 | 3426 | 5.5 | 2.782 | 300 | 17.880 | 4797 | 2197 | 1213 |

† (C) = Casing (P) = Pan

* Liters shown is water in suspension in unit and piping. Allow for additional water in bottom of remote sump to cover pump suction and strainer during operation. (300 mm would normally be sufficient.)

** Refrigerant charge is shown for R-717. Multiply by 1.93 for R22, 1.98 for R134A and 1.7 for R404A, R410A and R507A. Dimensions are subject to change. Do not use for pre-fabrication.

ENGINEERING DATA & DIMENSIONS

PMCQ

MODELS PMCQ-765 THRU 893 MODELS PMCQ-798 THRU 1122

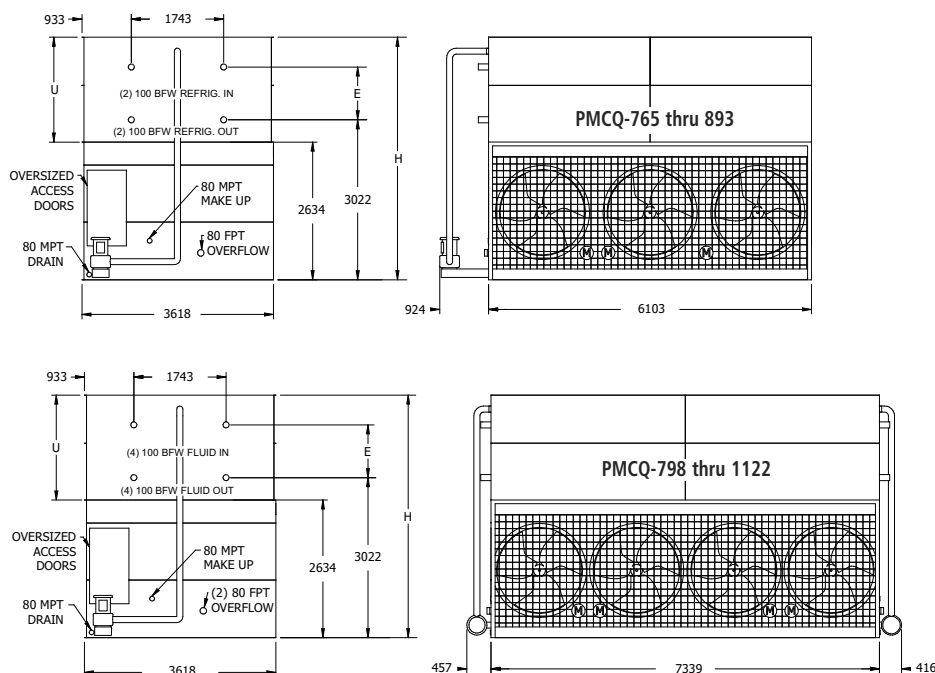


Table 12 Engineering Data

| Model No. | Fans | | Weights (kg) | | | NH ₃ Operating Charge (kg)** | Coil Volume (l) | Spray Pump (kW) | Remote Sump | | | Dimensions (mm) | | |
|-----------|------------|------------------------------|--------------|-----------|-------------------|---|-----------------|-----------------|---------------|------------|-----------------------|-----------------|---------|-----------------|
| | Motor (kW) | Air Flow (m ³ /s) | Shipping | Operating | Heaviest Section† | | | | Liters Req'd* | Conn. Size | Operating Weight (kg) | Height H | Upper U | Coil Distance E |
| PMCQ-765 | (3) 7.5 | 58 | 15.220 | 19.150 | 10.940 (C) | 370 | 3171 | 7,5 | 3.085 | 350 | 17.795 | 4582 | 1981 | 997 |
| PMCQ-809 | (3) 7.5 | 57 | 17.065 | 21.070 | 12.785 (C) | 445 | 3794 | 7,5 | 3.085 | 350 | 19.715 | 4797 | 2197 | 1213 |
| PMCQ-850 | (3) 11 | 66 | 15.395 | 19.330 | 10.940 (C) | 370 | 3171 | 7,5 | 3.085 | 350 | 17.970 | 4582 | 1981 | 997 |
| PMCQ-893 | (3) 11 | 65 | 17.240 | 21.245 | 12.785 (C) | 445 | 3794 | 7,5 | 3.085 | 350 | 19.890 | 4797 | 2197 | 1213 |
| PMCQ-798 | (4) 5.5 | 70 | 13.785 | 18.490 | 5.040 (P) | 275 | 2350 | (2) 4 | 4.088 | 350 | 17.220 | 4150 | 1549 | 565 |
| PMCQ-854 | (4) 7.5 | 75 | 13.810 | 18.515 | 5.065 (P) | 275 | 2350 | (2) 4 | 4.088 | 350 | 17.245 | 4150 | 1549 | 565 |
| PMCQ-908 | (4) 5.5 | 68 | 18.220 | 23.100 | 6.590 (C) | 450 | 3823 | (2) 4 | 4.088 | 350 | 21.830 | 4582 | 1981 | 997 |
| PMCQ-926 | (4) 7.5 | 74 | 16.090 | 20.885 | 5.510 (C) | 365 | 3087 | (2) 4 | 4.088 | 350 | 19.615 | 4366 | 1765 | 781 |
| PMCQ-938 | (4) 11 | 86 | 14.050 | 18.755 | 5.305 (P) | 275 | 2350 | (2) 4 | 4.088 | 350 | 17.485 | 4150 | 1549 | 565 |
| PMCQ-972 | (4) 7.5 | 73 | 18.250 | 23.130 | 6.590 (C) | 450 | 3823 | (2) 4 | 4.088 | 350 | 21.860 | 4582 | 1981 | 997 |
| PMCQ-1020 | (4) 11 | 85 | 16.330 | 21.125 | 5.510 (C) | 365 | 3087 | (2) 4 | 4.088 | 350 | 19.855 | 4366 | 1765 | 781 |
| PMCQ-1070 | (4) 11 | 84 | 18.490 | 23.370 | 6.590 (C) | 450 | 3823 | (2) 4 | 4.088 | 350 | 22.100 | 4582 | 1981 | 997 |
| PMCQ-1122 | (4) 11 | 82 | 20.600 | 25.570 | 7.650 (C) | 540 | 4559 | (2) 4 | 4.088 | 350 | 24.300 | 4797 | 2197 | 1213 |

† (C) = Casing (P) = Pan

* Liters shown is water in suspension in unit and piping. Allow for additional water in bottom of remote sump to cover pump suction and strainer during operation. (300 mm would normally be sufficient.)

** Refrigerant charge is shown for R-717. Multiply by 1.93 for R22, 1.98 for R134A and 1.7 for R404A, R410A and R507A. Dimensions are subject to change. Do not use for pre-fabrication.

MODELS PMcq-1206 THRU 1690 MODELS PMcq-1618 THRU 1786

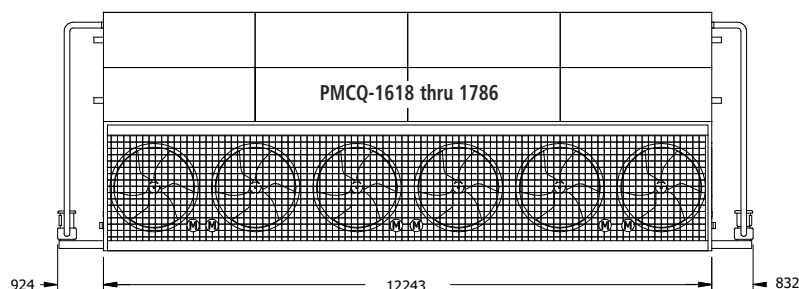
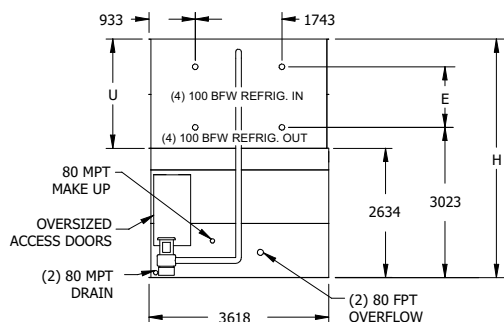
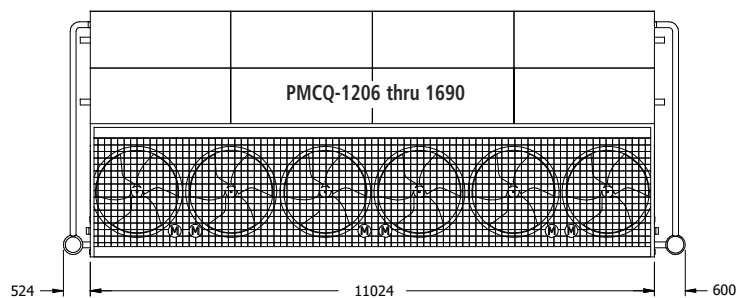
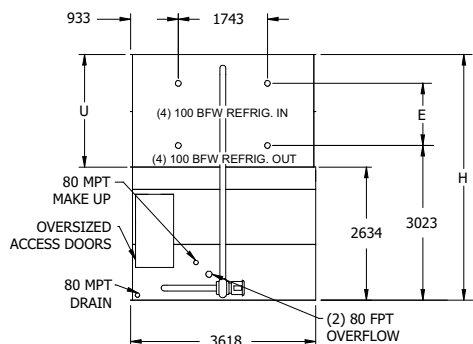


Table 13 Engineering Data

| Model No. | Fans | | Weights (kg) | | | NH ₃ Operating Charge (kg)** | Coil Volume (l) | Spray Pump (kW) | Remote Sump | | | Dimensions (mm) | | |
|-----------|------------|------------------------------|--------------|-----------|-------------------|---|-----------------|-----------------|---------------|------------|-----------------------|-----------------|---------|-----------------|
| | Motor (kW) | Air Flow (m ³ /s) | Shipping | Operating | Heaviest Section† | | | | Liters Req'd* | Conn. Size | Operating Weight (kg) | Height H | Upper U | Coil Distance E |
| PMcq-1206 | (6) 5.5 | 105 | 20.515 | 27.505 | 7.355 (P) | 410 | 3483 | (2) 5.5 | 5.526 | 400 | 24.945 | 4150 | 1549 | 565 |
| PMcq-1288 | (6) 7.5 | 112 | 20.555 | 27.545 | 7.395 (P) | 410 | 3483 | (2) 5.5 | 5.526 | 400 | 24.985 | 4150 | 1549 | 565 |
| PMcq-1308 | (6) 5.5 | 104 | 23.875 | 30.995 | 8.260 (C) | 540 | 4616 | (2) 5.5 | 5.526 | 400 | 28.430 | 4366 | 1765 | 781 |
| PMcq-1374 | (6) 5.5 | 102 | 27.120 | 34.375 | 9.885 (C) | 670 | 5720 | (2) 5.5 | 5.526 | 400 | 31.805 | 4582 | 1981 | 997 |
| PMcq-1402 | (6) 7.5 | 110 | 23.915 | 31.035 | 8.260 (C) | 540 | 4616 | (2) 5.5 | 5.526 | 400 | 28.470 | 4366 | 1765 | 781 |
| PMcq-1472 | (6) 7.5 | 109 | 27.160 | 34.415 | 9.885 (C) | 670 | 5720 | (2) 5.5 | 5.526 | 400 | 31.845 | 4582 | 1981 | 997 |
| PMcq-1522 | (6) 11 | 127 | 24.270 | 31.395 | 8.260 (C) | 540 | 4616 | (2) 5.5 | 5.526 | 400 | 28.830 | 4366 | 1765 | 781 |
| PMcq-1550 | (6) 7.5 | 107 | 30.200 | 37.585 | 11.405 (C) | 805 | 6824 | (2) 5.5 | 5.526 | 400 | 35.015 | 4797 | 2197 | 1213 |
| PMcq-1630 | (6) 11 | 125 | 27.520 | 34.770 | 9.885 (C) | 670 | 5720 | (2) 5.5 | 5.526 | 400 | 32.205 | 4582 | 1981 | 997 |
| PMcq-1690 | (6) 11 | 123 | 30.560 | 37.945 | 11.405 (C) | 805 | 6824 | (2) 5.5 | 5.526 | 400 | 35.375 | 4797 | 2197 | 1213 |
| PMcq-1618 | (6) 7.5 | 114 | 33.740 | 41.870 | 12.875 (C) | 890 | 7589 | (2) 7.5 | 6.170 | 400 | 39.045 | 4797 | 2197 | 1213 |
| PMcq-1786 | (6) 11 | 131 | 34.095 | 42.230 | 12.875 (C) | 890 | 7589 | (2) 7.5 | 6.170 | 400 | 39.405 | 4797 | 2197 | 1213 |

† (C) = Casing (P) = Pan

* Liters shown is water in suspension in unit and piping. Allow for additional water in bottom of remote sump to cover pump suction and strainer during operation. (300 mm would normally be sufficient.)

** Refrigerant charge is shown for R-717. Multiply by 1.93 for R22, 1.98 for R134A and 1.7 for R404A, R410A and R507A. Dimensions are subject to change. Do not use for pre-fabrication.

SPECIFICATIONS

PMCE/PMCQ

1.0 FORCED DRAFT PMCE / PMCQ CONDENSER

1.1 General

Furnish and install factory assembled condenser of blow through, counterflow design with a horizontal single air side entry and a vertical air discharge. The unit shall be completely factory assembled and conform to the specifications and schedules.

The total fan power should not exceed ____ kW and the total overall unit dimensions should not exceed the following:

Length : mm
Width : mm
Height : mm

The unit will be delivered in two parts: the bottom section (pan-fan) and the top section (heat transfer).

The unit (top and bottom section) shall be joined together with elastic sealer and bolted together with corrosion resistance fasteners.

Approved manufacturer: Evapco – model PMCE ____
Evapco – model PMCQ ____

1.2 Thermal Performance – Performance Warranty

The condenser shall be capable of performing the thermal duties as shown in the data sheets and on drawings.

1.3 Applicable Standards

ATC 128 Test Code for Measurement of Sound from Water Cooling Towers

1.4 Submittals

- The manufacturer shall submit a five year history of the proposed type of cooling tower with a minimum of 10 installations for similar sized equipment.
- Shop drawings: submit shop drawings indicating dimensions, weight loadings and required clearances.
- Product data: submit manufacturers technical product data, original selection printouts and clearance requirements.
- Complete noise data sheet for the selected condenser.
- Maintenance data for condenser and accessories.
- The condenser manufacturer shall provide factory test run certificates of the fans and fan motor.

1.5 Product Delivery – Storage and Handling

- The contractor shall make the provisions for proper storage at site before installation and handle the product per the instructions of the manufacturer.
- Once installed provide the necessary measures that the units remain clean and protected from any dust and mechanical damage.

1.6 Quality Assurance

- The manufacturer shall have a quality assurance system in place which is certified by an accredited registrar and complying with the requirements of ISO 9000. This is to guarantee a consistent level of product and service quality.
- Manufacturers without ISO 9001 certification are not acceptable.

1.7 Warranty

- The products will be warranted for a period of minimum two years from the date of shipment.

2.0 PRODUCT

2.1 Construction – Corrosion Resistance

- The structure and all steel elements of the pan and casing shall be constructed of Z 725 hot dip galvanized

steel for long life and durability. Alternatives with lower zinc layer thickness and external paint or coating are not accepted as equal.

- The strainer shall be made of stainless steel type 304L.
- During fabrication all panel edges shall be coated with a 95% pure zinc compound.

OPTIONAL EXECUTION – BASIN IN SST 304L

2.1. Construction – Corrosion Resistance

- The structure and all steel elements of the pan up to the water level shall be made of SST 304L.
- Alternatives with hot dip galvanized steel and epoxy coatings in lieu of the SST 304L are not considered equal and accepted.
- All other steel components and the casing shall be constructed of Z 725 hot dip galvanized steel for long life and durability. Alternatives with lower zinc layer thickness and external paint or coating are not accepted as equal.
- The strainer shall be made of stainless steel type 304L.
- During fabrication all galvanized steel panel edges shall be coated with a 95% pure zinc compound.

OPTIONAL EXECUTION – Complete Unit SST 304L (except moving parts)

2.1. Construction – Corrosion Resistance

- The structure and all steel elements shall be made of SST 304L.
- Alternatives with hot dip galvanized steel and epoxy coatings to replace the SST 304L are not considered equal and accepted.

2.2 Pan / Fan section

- The heat transfer section shall be removable from the pan to provide easy handling and rigging.
- The pan – fan section shall include fans and drives mounted and aligned in the factory. These items shall be located in the dry air stream.
- Standard pan accessories shall include strainer(s) of anti vortex design, brass make up valve with unsinkable plastic float arranged for easy adjustment.
- PMCE: optional man-sized rectangular access door. PMCQ: a man-sized rectangular access door shall be located above the basin to allow for easy access to the pan interior.

2.3 Mechanical Equipment

2.3.1-A PMCE Fan(s) Power-Mizer Fan Drives

- Fans shall be vane-axial type constructed of cast aluminum alloy blades. They shall be arranged in a two-stage system installed in a closely fitted cowl with venturi air inlet and air stabilizing vanes. Fan shaft bearings shall be a heavy-duty self aligning ball type with grease fittings extended to the outside of the unit. The fan drive shall be solid backed Power-Band constructed of neoprene with polyester cords designed for 150% of motor nameplate horsepower. Drives are to be mounted and aligned at the factory. Each fan shall be driven individually by a dedicated fan motor. Fan motors may be cycled independently without harmful moist air bypass.

2.3.1-B PMCQ Fan(s)

- Type and Material: axial propeller, one piece heavy duty FRP hub and blade construction. Galvanized steel closely fitted fan cowl with venturi air inlet for maximum fan efficiency, covered with a heavy gauge hot-dip galvanized steel fan guard. (Optional Type 304 stainless steel).

PMCE/PMCQ

SPECIFICATIONS

- b) Fan Housing: the complete drive system, including the electric motor, belts, bearings, fan, and drives shall be completely enclosed in a protective housing which covers the drive system and provides sound reduction.
- c) Maximum sound pressure level of _____ dB(A) at _____ m.

2.3.2 Bearings and Drive

- a) The fan shaft (s) shall be supported by heavy duty , self aligning pillow block bearings with cast iron housings and lubrication fittings for maintenance.
- b) The fan drives shall be V belt type with taper lock sheaves designed for 150 % of the motor nameplate horsepower.

2.3.3 Motor

- a) The fan motor shall be Totally Enclosed , Fan Cooled (TEFC) , squirrel cage, ball bearing type motor.
- b) The motor shall be minimum IP 55 degree of protection, Class F insulation, Service Factor 1 and selected for the appropriate cooling tower duty and the correct ambient temperature but minimum 40°C.
- c) Motor bearings shall be greased for life or external grease lines shall be provided.
- d) The motor shall be mounted on an adjustable heavy duty steel motor base.
- e) The motor power supply shall be _____ volts, _____ hertz and _____ phase.

2.4. Casing Section

2.4.1 Heat Transfer Coil

- a) The evaporative condenser shall use internally enhanced heat exchange coils of an elliptical tube design to obtain lower air flow resistance and allow higher water loadings around the tubes.
- b) The heat transfer coil(s) shall be made of all prime surface, encased in a steel framework and hot dip galvanized after fabrication as a complete assembly.
- c) The tubes shall be arranged in a self spacing, staggered pattern in the direction of air flow for maximum heat transfer efficiency and minimum pressure drop.
- d) The heat exchange coils shall be air pressure tested under water.
- e) The design and manufacturing process shall be approved and in accordance with the "Pressure Equipment Directive " – PED 97 / 23 EC.
- f) The manufacturer shall be responsible for the manufacturing and performance testing of the entire heat transfer coil. This is to assure single source responsibility.
- g) The casing shall totally encase the complete coil section to protect the complete coil from direct atmospheric contact.

2.4.2 Water Distribution

- a) The spray header and branches shall be constructed of Schedule 40, Polyvinyl Chloride (PVC) pipe for corrosion resistance and shall have a steel connection to attach the external piping.
- b) The internal water distribution piping shall be easily removable for cleaning purposes.
- c) The branches have end caps to assist with debris removal.
- d) The water shall be distributed over the fill by precision molded ABS spray nozzles with large minimum 1 inch orifice openings to eliminate clogging.
- e) The nozzles shall be threaded into the water distribution piping to assure positive positioning. The nozzles allow larger debris to flow easily through the water distribution system.
- f) Water Recirculation Pump: the pump(s) shall be a closecoupled, centrifugal type with mechanical seal, installed at the factory. _____ kW totally enclosed,

motor shall be furnished suitable for outdoor service on _____ volts, _____ hertz, and _____ phase.

2.4.3 Drift Eliminators

- a) The drift eliminators shall be constructed entirely inert polyvinyl (PVC) that has been specially treated to resist ultra violet light.
- b) Assembled in easily handled sections , the eliminator blades shall be spaced on 1 inch centers and shall incorporate three changes in air direction to assure efficient removal of entrained moisture from the discharge air stream.
- c) The maximum drift rate shall not exceed 0,001 % of the recirculated water rate.

3.0 ACCESSORIES (optional)

3.1 Electric Heaters

- a) The just remove cold water basin shall be provided with a electric heater package to prevent freezing of the water in the cold water basin.
- b) The electric heater package includes : electric heater elements and a combination of thermostat and low water level cutoff.
- c) The heaters shall be selected to maintain 4°C basin water temperature at _____ °C ambient
- d) The heater(s) shall be _____ V / _____ phase / _____ Hz electric power supply.

3.2 Three Probe Electric Water Level Control Package

- a) The condenser manufacturer shall provide an electric water level control package instead of the mechanical float valve arrangement.
- b) The package consist of the following elements :
 - Multiple heavy duty stainless steel SST 316 static probes mounted in a stilling tube outside the unit. Electrodes or sensors mounted inside the unit are not accepted as there operation will disturbed by the moving water in the basin.
 - A ABS , IP 56 case contains all the contactors for the different level probes and will provide a output signal of a relay for automatic filling and one relay for alarm level.
 - The power supply to the control package is 24 Vac / 230 Vac - _____ Hz .
 - A weather protected solenoid valve for the water make up ready for Piping to a water supply with pressure between 140 kPa and 340 kPa.

3.5 Vibration Switch

- a) A vibration limit switch shall be installed on the mechanical equipment support and wired into the control panel. The purpose of this switch will be interrupt power to the motor in the event of excessive vibration.
- b) The switch shall be adjustable for sensitivity, and shall require manual reset.

PMCE/PMCQ

Notes:



EVAPCO PRODUCTS ARE MANUFACTURED WORLDWIDE



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