RWC4 Air Cooled Residential Water Chiller Catalog

Petra Engineering Industries Co.

www.petra-eng.com

RWC4 Catalog

Residential Water Chiller

50/60 Hz - SI/IMP

Air Cooled Water Chiller
With Hermetic Scroll Compressor

16 - 185 Nominal kW @ 60 Hz
(4 - 52 Nominal Tons)

These marks apply to different products manufactured by Petra Engineering Industries Co. The inclusion of these marks does not mean they apply to all the products within this publication

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Introduction

Petra Engineering Industries Company is a highly established HVAC manufacturing company that produces a wide range of sophisticated, high quality commercial and industrial HVAC equipment. Petra's products meet the requirements of globally recognized standards and procedures.

To ensure the highest level of quality all procedures are carried out according to ISO 9001:2015, Quality management systems ISO 14001:2015 environmental management system. Also, all Petra's major products are UL and ETL listed.

Petra Residential Air-Cooled Liquid Chillers (RWC4) with hermetic scroll and R407c refrigerants, offer a wide range of sizes to meet customer requirements for different applications within residential and commercial buildings.

Petra RWC4 Chillers are designed to meet customer requirements by offering state of the art low sound, reliability, high energy efficiency and small physical footprint chillers. The wide range of cooling capacities and flexible installation arrangement makes it easy to install and maintain.

Petra RWC4 Chillers are designed to be shipped as a complete factory package which are 100% run tested in the factory.

Petra RWC4 Chillers are equipped with an intelligent microprocessor controller to manage the unit performance for optimum efficiency at both full load and part load values.

Outstanding Features

Superior Efficiency

The RWC4 series meets or exceeds the new ASHRAE 90.1 efficiency levels at both full and part load efficiency.

Low Noise Chillers

The RWC4 chillers offer low sound power levels, measured in accordance with the BS ISO 3744 standard. The low sound power levels make the RWC4 ideal for sound sensitive applications such as schools, hospitals, and sites located in residential neighborhoods.

Compact Physical Footprint

The RWC4 chillers feature compact footprints and are suitable for close-spacing installation to serve the areas that have space constraints.

Quality Assurance

To ensure the best performance, all the chillers in the RWC4 series are factory-run tested, produced in an ISO 9001:2015 listed manufacturing facility.

Easy Installation

Installation is made quick and easy with complete factory wiring, easy lifting provisions, factory installed options and start-up. To eliminate potential start-up problems, a complete factory- test run is performed on each unit.

Compact Footprint

Petra introduces the RWC4 chillers with nominal kW up to 185 (nominal tons of 53) as a single piece unit with single power entry.

This unique single unit design provides the largest capacity in one chiller model with a compact footprint.

Outstanding Finishing

Suction lines are insulated with closed cell foam insulation, then wrapped with a special protective material and finally epoxy coated. This gives further protection for the insulation against weather and other factors.

Other exposed copper pipes and headers are epoxy coated after being cleaned, to maintain pipe material and brazing protected against external conditions.

Petra paint is certified according to ASTM 117 A&B 5,000 hours salt spray test.

Nomenclature

RWC

Series
Residential **W**ater **C**hiller

4

Refrigerant
R-**4**10a

310

Nominal Capacity (MBH)
55 76 105 128
160 210 260
310 390 430
470 580 630

2

No. of Compressors
1 2 3 4

Standard Features & Benefits

Construction

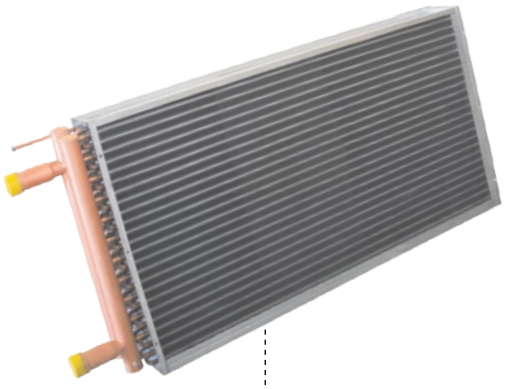
- Base is equipped with welded brackets for heavy duty lifting lugs painted with mono component catalyzed primer sprayed paint (for RWC4 55 ~ RWC4 470)
- Welded structural C-channel base painted with mono component catalyzed (for RWC4 580 ~ RWC4 630)
- Easily accessible system components
- Structural members are made from gauge 16 [1.6 mm (0.06 inch)] tubular cross members that are semi welded with stainless steel fasteners. All members & panels (side & roof) are painted with oven baked polyester electrostatic powder paint
- Petra paint is certified up to 5000 hours salt spray test as per ASTM 117 A&B
- Coil guard is placed on lower part of the unit all over the perimeter for all models to provide protection for unit components. It is also placed on the upper part as a standard features (for RWC4 210 ~ RWC4 630). It is fabricated from gauge 18 [1.25 mm (0.05 inch)] galvanized steel sheet metal & painted with Petra powder paint

Compressor

- Suction gas-cooled hermetic scroll low sound superior efficiency compressors
- Robust design of a three Teflon impregnated bearings and integral cast-iron housing for better compressor alignment
- IP 54 enclosure class of terminal box
- Scroll inherent durability with few moving parts and low motor strains
- Spiral surfaces wear in due to unique compliant design
- Mounted on a rubber-in-shear (RIS) vibration isolators
- Equipped with operating oil charge, crank case heater, crank case oil sight glass, inherent solid state motor protector, suction strainer and short cycling delay timer protection
- Maximum operating speed compressor of 2,900 / 3,500 rpm (50/60 Hz)
- Immediate internal pressure balancing (high side / low side) at shut-off
- High volumetric efficiency with no dead space design
- Minimized pressure losses with uniform gas compression in the scroll pockets at low velocities
- Minimized heat transfer losses because of a physical separation of suction and discharge gas

Condenser Coils

- Petra's air-cooled condenser coils are designed to deliver their duties with optimum performance for all design conditions
- Coils are manufactured from seamless copper tubes mechanically expanded into aluminum fins
- Coils are hydrostatic pressure tested in accordance with the UL1995-2000 standard
- High corrosion resistance
- All coils are air pressure tested by dry air up to 6,200 kPa (900 Psi) under water. They also undergo dry cleaning after manufacturing for optimum system cleanness



Condenser Coils

Condenser Fans & Motors

- Condenser fans shall be of the external rotor type
- External rotor motor with many attractive features such as space saving, compact design, optimum cooling, full speed controllability and low starting currents
- Sealed-for-life ball bearings fitted throughout the range with an L10 life expectancy of approximately
- Thermal contacts are fitted with external rotor motors
- Embedded deep in the windings of the motors, the contacts are bi-metal cutout design which are temperature-dependent. Should the temperature of the motor rise to the limit, the bi-metal cutouts
- activate and cut off the power, thereby providing full protection to the motor

Condenser fan & motor assembly

Brazed Plate Heat Exchanger

(For unit models: RWC4 55 ~ RWC4 160)

- The brazed plate heat exchanger is a complete heat exchanger which consists of stainless steel plates, permanently brazed together with pure copper filter material
- The plates are stacked together and form flow chambers for two fluids
- The cooler shall work with a maximum allowable working pressure of 1,000 kPa (145 Psi)
- The coolers insulated with 19 mm (3/4 inch) closed cell foam insulation

Brazed Plate Heat Exchanger

Standard Features & Benefits

Refrigeration

- Liquid, discharge and suction pipes are all hard copper pipes. They are formed using automated CNC pipe bending machines in order to minimize pipe-brazed joints which in turn increases system reliability
- Epoxy paint for all exposed copper piping system of the refrigeration circuit
- Components of each refrigeration circuit:
  - Liquid line solenoid valve (for models RWC4 76 and above)
  - Liquid line shut off valve (for models RWC4 76 and above)
  - Filter diier
  - Fully charged unit with R-410a refrigerant
  - High / Low safety pressure switch (capsule Type; factory pre-set)
  - Thermostatic expansion valve

Electrical

- Free terminal for remote ON/OFF connection
- Free terminal for general alarm output
- Control voltage is 220-240V for all components
- Single point power connection for each electrical panel
- Starting contactors for compressors and condenser fan motors
- ON/OFF switch for each compressor
- Control circuit breaker for short circuit protection
- Short cycling protection for compressors (time delay)
- Control transformer mounted & wired that shall supply all unit control voltage from main unit power supply to internal components such as (not limited to) solenoid valves, compressor motor protector, compressor crank case heater and microprocessor controller
- Microprocessor controller for full management of chiller operation and safety circuits
- Power supply monitor (phase failure relay) used to protect the power circuit against over or under voltage conditions and against phase loss or loss reversing conditions (for models RWC4 76 and above)

Electrical Panels

- Nema 3X with IP54 minimum enclosure standard electrical panel
- Electrical panel is equipped with a heavy gauge galvanized steel access door
- Panel is painted with oven baked polyester electrostatic powder paint
- Each door is equipped with external handle with key & tooled latch with sealing heavy duty clip on bulb gasket between the door and the panel provides effective sealing
- All doors have multiple hinges
- Each door has a door retainer to keep door open during service
- Each door has a built-in pocket to accommodate a laminated wiring diagrams & IOM (Installation & Operation Manual) documents

Optional Features

Digital scroll compressor

The Digital Scroll Compressor uses digital technology to assure stepless modulation down to 10% of the nominal capacity, enabling precise temperature control, superior comfort and energy saving. It achieves capacity modulation by averaging the two states of loaded versus unloaded operations over time. Digital scroll is a good choice for modulation where precise temperature control is employed Digital scroll is a good choice for modulation anywhere multi-evaporator systems or precise temperature control is employed. In air conditioning, there is a need for digital scroll in large commercial applications as well as in convenience stores, restaurants and other food service applications

VFD scroll compressor

With VFD Scroll Compressor energy savings are realized because the compressor speed is adapted to the actual cooling capacity and the compressor power input is directly related to this speed. Further also other motors in the system will be adjusted to actual needs. It also provides reduction of starting current by creating a current slope at motor start-up

The adaptation of compressor speed to actual needs enables a more precise process control and guarantees output values according to requirements. The number of on/off cycles is limited which reduces mechanical stress of several system components and increases in this way the total system reliability

Coil corrosion protection for condenser coil

- **Microchannel coil (MCHE)**

  Compact design aluminum microchannel coils that reduce refrigerant charge and the unit weight

- **Copper tubes Copper fins coil**

  Coils are manufactured from seamless copper tubes mechanically expanded into copper fins, with type-L, heavy wall and seamless copper tubes for the coil headers. The condenser coils are hydrostatic pressure tested in accordance with the UL 1995 -2000 standard. All coils are air pressure tested by dry air up to 6,200 kPa (900 Psi) under water. They also undergo dry cleaning after manufacturing for optimum system cleanness

- **Polyurethane Pre-coating (for aluminum fins)**

  A water based organic type pre-coated fin designed to give better retained performances compared to typical organic type. The topcoat is made of hydrophilic resin of polyvinyl Alcohol mix with hydrophilic lubricants. It provides a better level of retained as well as improvement in the area of surface friction to help lengthen the life span of a punch dies Paint is certified as per ASTM 117 A&B up to 3000 hours salt spray test

- **Polyurethane Post-coating (for aluminum & copper fins)**

  Aliphatic Acrylic Polyurethane type, with high gloss finish with exceptional weathering performance characteristics. Used extensively in virtually all industrial markets, 134 VOC provides a smooth, durable finish that has superior resistance to corrosion, abrasion and chemical exposure Paint is certified as per ASTM 117 A&B up to 3000 hours salt spray test

Optional Features

Sound reduction options

- **Low rpm condenser fan**

  Same construction and specifications as the standard fans, but with lower speed (700/900 rpm @50/60 Hz power supply)

- **Compressor jacket**

  Compressor jacket shall consist of a 9.5 mm (3/8 inch) thick closed cell rubber sound insulation material inside a sound deflecting vinyl cover to provide superior sound reduction for scroll compressors

Electronic expansion valve

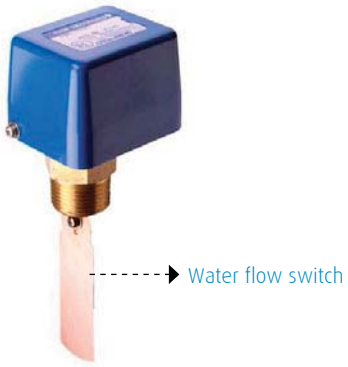
Electronically operated step motor flow control valves, intended for the precise control of liquid refrigerant flow. Synchronized signals to the motor provide discrete angular movement, which translates into precise linear positioning of the valve piston. Easily interfaced with microprocessor based controllers

High and low Pressure gauges

Optional pressure gauges for monitoring of refrigeration discharge and suction pressure. Additionally, the gauges are used to verify suitable refrigerant charge and proper system performance. The gauges shall be Bourdon type, stainless steel housing oil filled. Oil filled pressure gauges provide greater protection of the gauge internals from corrosive atmospheres. The gauges are provided with a dual scale of both PSI and BAR

Water flow switch

CE & UL approved safety interlock to prevent operation of unit without evaporator water flow (available for field installation only) The water flow switch is used to ensure water flow rate of suitable amount is flowing to the Barrel (cooler), by establishing contact in an electric circuit when flow starts or stop It is a paddle type, and the paddle consists of three segments that can be removed or trimmed and sized to match the water pipe size. The paddle is made of copper alloy. Water flow switch is supplied as a loose item for field installation



Cooler cladding

Cooler cladding can be aluminum, stainless steel or painted galvanized steel {made from gauge 22 [0.7 mm (0.03 inch)}. Cladding shall be applied above barrel (cooler) insulation

Cooler insulation thickness materials

Cooler can be insulated with closed cell foam insulation of 25 mm (1 inch), 38 mm (1.5 inch) & 50 mm (2 inch) The insulation density is 48 kg/m3 (3 lb/ft3) with a K-factor of 0.035 W/(m.°K) [0.0203 BTUH/(ft.°F)]

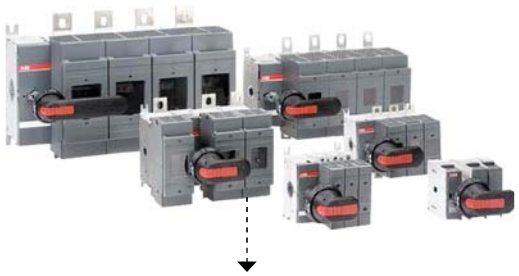
Heat pump chiller

For more data about heat pump chiller operation, please contact your nearest Petra sales office

Main disconnect switch

This is used to de energize the power supply to the chiller during servicing or repairing works because of the door interlock. It has an external handle that is installed on the electric panel door. Switch has to be de-energized to open electric panel

(This disconnect switch can be supplied with built in fuse or a non fuse type)



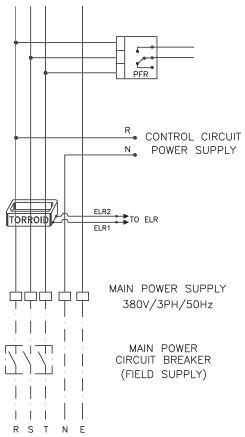
Disconnect switch

Power factor correction capacitor

Power factor correction is used to improve the power factor level . Maximizing power factor improves system reliability , minimizes voltage drops and gives better power quality. Advanced safety capacitors with harmonic filters and a main microprocessor controller are provided to manage the required capacity for the capacitor stages. Only one capacitor panel is needed for the chiller regardless the number of compressors or fans. Power factor is usually installed on a separate electrical box depending on unit size (refer to the nearest Petra sales office for more details)

Earth leakage relay

A safety device used in electrical installations with high earth impedance to prevent shock. It detects small stray voltages on the metal enclosures of electrical equipment, and interrupts the circuit if a dangerous voltage is detected earth leakage relay can be supplied for the whole unit power supply or for each compressor (refer to the nearest Petra sales office for more details)



Optional Features

Control transformer

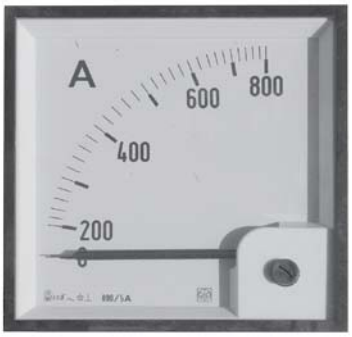
Control transformer to supply power input to auxiliary compo nents at 120 or 220 volts, such as (not limited to) bulk head light and GFI outlet

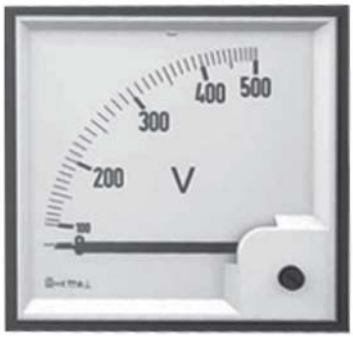
Control transformer

Ampere-meter & volt-meter

Ampere-meter & volt-meter are used to measure the power current & voltage consumption Ampere-meter is used for each phase. Voltmeter device is used to measure the voltage of the power supply between each phase and the another one and between each phase and the neutral

Ampere-meter & volt-meter



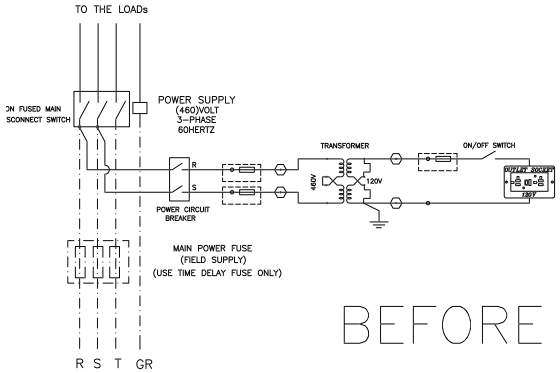


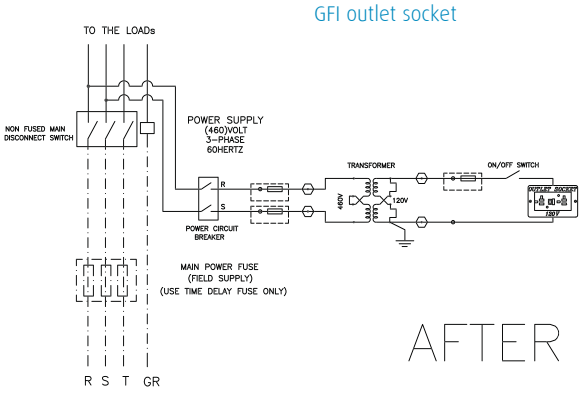
120V power supply with transformer & GFI outlet socket

The 120 volt power supply shall be connected through the trans- former to provide a 120 volt single phase circuit It can be connected before or after the disconnect

GFI socket is used to operate the electric appliances at site such as laptops, tablets and cell phones

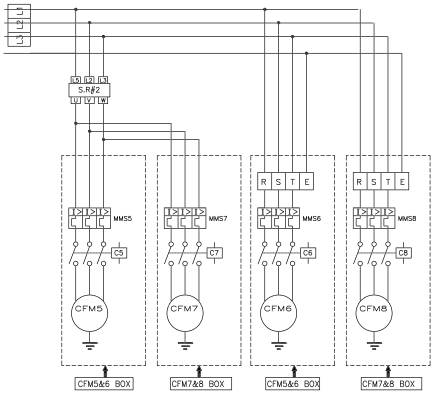
GFI outlet socket





Speed regulator for condenser fan motors

As described in the low ambient control option, these devices are used to permit the unit to operate in low ambient temperature. Head pressure control can be controlled by varying the speed for condenser fan motors



Note

- Sample wiring diagram for speed regulator on condenser fan motor

Dual power connection

Unit shall be supplied with a dual power connection. One power entry for compressors & the second for the rest of the unit. Each power connection can be equipped with a separate main disconnect switch

Electrical component options

- External over load for each compressor
- External over load for each condenser fan motor
- Circuit breaker for each compressor
- Circuit breaker for each condenser fan motor
- Nema 4x electrical panels made from galvanized steel
- Nema 4x electrical panels made from stainless steel

Cooler tape heater protection down to 0°C (32°F), -18°C (0°F) & -29°C (-20°F)

Electrical resistance heating tape is wrapped around the barrel (cooler) shell to help protect the evaporator fluid contents from freezing down to 0°C (32°F) -18°C (0°F) & -29°C (-20°F) ambient temperature. The heater has to be maintained "ON" 24/7, so the power supply to chiller has to be "ON" 24/7. This device will not protect external water pipe work connected to the unit and additional frost protection measures are required at field

Low ambient control down to 0°C (32°F)

Unit shall be capable to operate down to 0°C (32°F) using a combination of on/off sequencing of condenser fans plus speed varying. This shall be controlled through pressure transmitter of each refrigerant circuit via unit controller with a speed regulator device

Low ambient control down to -17°C (0°F)

In addition to the condenser fans combination of on/off sequencing & speed varying, a flooded condenser control design is used as well to enable unit to operate to this ambient. Multiple on/off solenoid valves on each condenser with a suitable liquid receiver shall be added to control the amount of liquid flooding the condenser & maintain condenser head pressure in the allowable operating range

Microprocessor Controller

Start up

For initial startup, the following must be met:

- Control circuit breaker switched on
- Energize the microprocessor control through keypad, remote start/stop, schedu or BMS command
- Chilled Water pump running
- Flow has been proven
- All safeties condition satisfied

When the water out temperature is above the target set point, the first compressor will start after the call for cooling. The control strategy is designed to modulate the compressor(s) capacity to maintain the control sensor reading within the specified control zone. To accomplish this, the Microprocessor controller will constantly monitor the control value, its rate of change and position in relationship to the control zone and make adjustments accordingly

Capacity control

The Capacity control logic will increase or decrease the compressors capacity as followings:

A. If the Chilled Water Out temperature is above the target setpoint and the Chilled Water Rate Of Change does not indicate that the water temperature is decreasing at a Sufficient rate, the chiller's capacity control logic will ask for more capacity by adding a cooling step. Once the step control has increased, the capacity control logic has a time delay before allowing the new step to increase again. The time delay is based on how far the temperature is from the target set point

B. If the chilled water out temperature is in the control zone, special logic functions will keep the chille with in the control zone

C. If the chilled water out temperature is below the control zone and if the Chilled Water Rate of Change does not indicate that the water temperature is increasing at a sufficient rate, the chiller's capacity control logic will ask for less capacity by subtracting from the steps. Once the step has been decreased the capacity control logic has a time delay before allowing more steps to be decreased again

Types of Controllers

1- Petra Mark II controller (RWC4 55 ~ RWC4 310)
2- Petra Mark V controller (RWC4 390 ~ RWC4 630)

Mark II controller

Mark V controller

Displayed Data

- Compressor and fan status
- Compressor operating hours
- Pump operating hours
- Leaving / Entering water temperature
- Ambient temperature
- Unit status
- Value of analog output (fan inverter) (Optional)
- Compressor starts number (for Mark V controller only)
- Compressor Ampere reading (Optional) (for Mark V controller only)
- Compressor suction/discharge pressure readings (Optional) (for Mark V controller only)
- Compressor suction/discharge (for Mark V controller only)
- Temperature readings (Optional) (for Mark V controller only)
- Status of high and low pressure switches (for Mark V controller only)
- Status of water flow switch (for Mark V controller only)
- Status of all inputs and outputs (for Mark V controller only)
- Automatic pump down (optional) (for Mark V controller only)

Safeties and Alarms

- Trip indication light
- Visible alarm code
- Anti-freeze function
- High, low-pressure alarm
- Compressor thermal alarm
- Flow switch or pump interlock alarm
- Anti-frost alarm
- Probe error alarm
- Condenser fan motor alarm
- Evaporator flow
- Alarm history (for Mark V controller only)
- High / low ambient temperature (for Mark V controller only)
- High ΔT protection (across cooler) to prevent unit from working under low (for Mark V controller only)
- Water out high/low temperature (for Mark V controller only)
- Water in high/low temperature (for Mark V controller only)

BMS Hard Wired

- Within the hard wire structure there are six features as follows:
  1. Unit start / stop command
  2. Compressor run status
  3. Compressor trip status
  4. Condenser fan run status
  5. Condenser fan trip status
  6. General alarm

USB in Microprocessor Controller

1. USB host: to connect a standard USB dongle for:
   - SW application upgrade
   - Download Pco logs

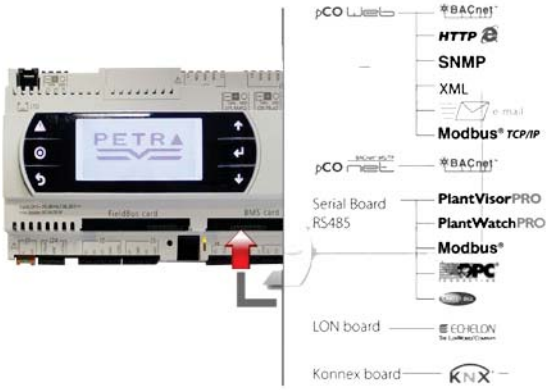
2. USB device: to connect a PC (without external convertor) for:
   - SW application upgrade
   - Download Pco logs
   - Configure and monitor the unit by commissioning tool

(Available only for Mark V controller)

BMS Card

This card provides connection for:

1. Modbus RTU - RS4 85 (STANDARD)
2. PCO WEB TCP / IP (OPTIONAL)
   - TCP / IP
   - BAC NET
   - Modbus
   - SNMP
   - E-mail
3. PCO NET (BAC NET MSTP RS4 85) (OPTIONAL)
4. LON Board (OPTIONAL)
5. Konnex Board (OPTIONAL)



Petra Graphical Touch Screen [Optional]

Touch screen is an extremely high-tech user interface, with high resolution, and a microprocessor that allows the management of complex graphic images. It also displays animated icons, non-proportional fonts in Unicode format, humidity, pressure values and air speed. The touch screen function makes it easy for the user to manage more complex installation diagrams. A keypad on the side of the display can be used in all applications where the touch screen is not the preferred choice

Smart Watch Solution (Optional)

Introduction

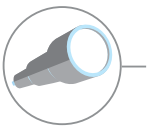
Petra introduces the next generation of its control solutions: Smart Watch. Smart Watch is designed to make the interaction between user and HVAC units simpler and easier. Smart Watch centralizes the monitoring, operations and management of the HVAC system to achieve more efficient operations. Smart Watch has become an essential part of a modern HVAC system that contributes significantly to the savings potential and function of the building

Smart Watch Solution (Optional)

Benefits of Using Smart Watch

- **Time Saving**

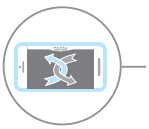
  Through smart watch, you can monitor, control and operate a large HVAC system from one central location. Viewing all system alarms from one location with the ability to reset them. This reduces troubleshooting time and man-hours



- **Monitoring**

  Creating a data logger for any variable in the system (return temperature, supply temperature, return humidity, flow rate, pressure...etc.)

  Monitor the status of the unit devices (compressor, heater, humidifier, valve, and damper). This enables engineers and technicians to achieve a better understanding of their building and/or plant



- **Flexibility**

  The smart watch will give you the flexibility to change the set points for any unit, enable/disable any unit, heating/cooling selection for any unit and duty/standby functionality with time scheduling

- **Cost Reduction**

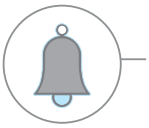
  Using the network and serial communication dramatically reduce cabling and installation between units

- **Reporting**

  Excel sheets can be created that show the system`s behavior such as alarms log, temperatures, humidity...etc. and send them by email daily, weekly...etc.

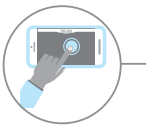
- **Graphical Analysis**

  You can get trends showing the temperature, humidity...etc. variations over a pre-set time period



- **Alarms Management & Notifications**

  Unit`s alarms can be fully monitored and reported in a user-friendly manner. All alarms can be sent via e-mail or mobile. Alarms can be automatically classified as high priority and low priority



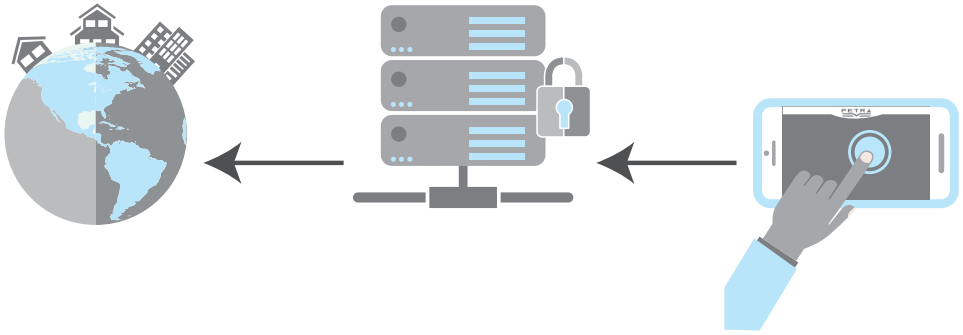
- **PC and Mobile WEB Interface**

  Using your Smart Phone or Tablet, you can control the system remotely

Smart Watch Solution (Optional)

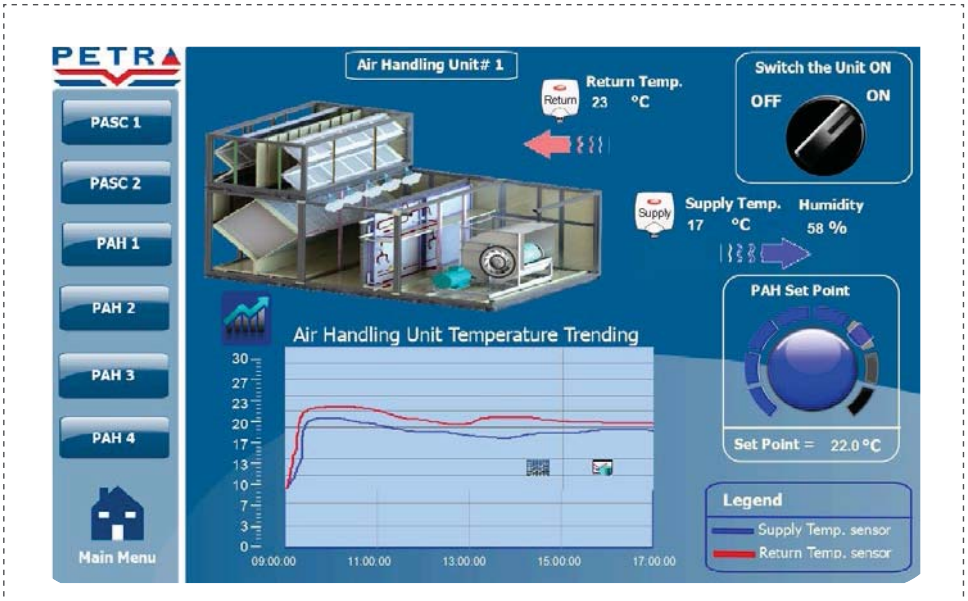
Smart Watch Features

- Compatible with BMS system
- Compatible with SCADA system
- Touch screen up to 13.3”
- Providing full details about your system
- Ability to control multi HVAC units in your system (chillers, package units, air handling units, close control units, ducted split units, fan coil units, exhaust fans...etc.)
- Using the Smart Watch, you can now exploit a new platform of services using the latest technologies available in the market and widely used in other applications
- Cloud computing, wireless connectivity & internet of things (IOT) in the HVAC units becomes a reality with this smart control system
- Security of the communications and data is the most top priority
- All systems will be secure with very well-known strong security methods
- Improve customer service levels through faster troubleshooting



Smart Watch Insight

User friendly management station for the control, monitoring and analyzing for all integrating HVAC systems

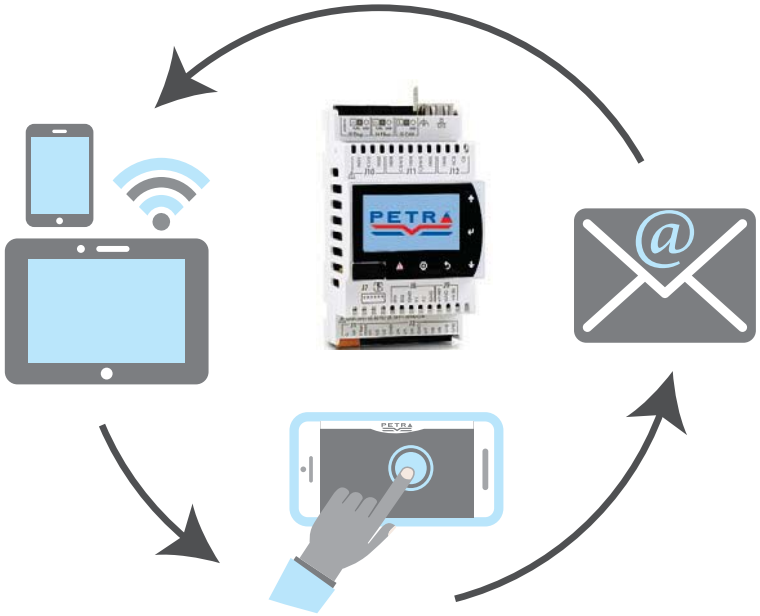


Web User Interfaces

Through this system, you can control your units through BMS, your smart phone or any hand help device

Also, through this system you will be able to send information through email alerts

You will be able to send the type of problem through an email alert



Technical Specifications

Power Supply	220-240Vac/1Ph/60Hz
Touch Keypad Type	TFT
Touch Keypad Resolution	800 x 1280, WVGA
Operating Temperature	0ºC to 50ºC
Storage Temperature	-20 ºC to 70 ºC
Operating and Storage Humidity	5 to 85% relative humidity
Interfaces	Modbus Port / USB Port

Physical Data - SI

RWC4		55	76	105	128	160	210	260
COMPRESSOR								
Type		Hermetic Scroll						
Qty		1	1	1	1	1	2	2
Oil charge (Ckt1/Ckt2)	Liter	1.7	2.5	3.3	3.3	3.3	3.3/3.3	3.3/3.3
REFRIGERANT								
Refrigerant type		R-410a						
No. of independent circuits		1	1	1	1	1	2	2
Refrigerant charge @50Hz	kg	3	4	6	7	8	11	13
Refrigerant charge @60Hz	kg	3	4	6	8	10	12	15
COOLER								
Type		Brzed Plater Heat Exchanger					DX Shell & Tube	
Qty		1						
Net fluid volume	Liter	0.9	1.1	1.8	2.1	2.7	17.0	22.0
Designed refrigeration pressure	kPa	1000	1000	1000	1000	1000	1500	1500
Max water pressure	kPa	1000						
Water connection size	mm	35	35	35	42	42	63	63
Water connection type		Threaded					Grooved Coupling	
CONDENSER COIL								
Qty		1	1	1	1	1	2	2
Fins per inch		12						
No. of rows		4	3	4	4	4	4	4
Total face area	m^2	0.6	0.8	1.3	1.4	1.5	2.2	2.5
Max working refrigeration pressure	kPa	4,100						
CONDENSER FAN								
Type		Direct Drive External Rotor						
Qty		1	2	2	3	3	4	4
Nominal speed (50/60Hz)	rpm	1400/1700	1400/1700	1400/1700	1400/1700	1400/1700	1400/1700	900/1100
No. of blades		5						
Nominal diameter	mm	450	450	450	450	450	450	630
Total air flow rate (50Hz)	L/s	1,371	2,359	2,756	3,455	3,805	5,200	10,100
Total air flow rate (60Hz)	L/s	1,662	2,886	3,342	4,231	4,643	6,321	11,567

Legend

- Ckt : Refrigeration circuit

RWC4		310	390	430	470	580	630
COMPRESSOR							
Type		Hermetic Scroll					
Qty		2	3	2	3	2+2	4
Oil charge (Ckt1/Ckt2)	Liter	3.3/3.3	3.3/3.3/3.3	4.7/4.7	3.3/3.3/3.3	3.3/3.3/3.3/3.3	3.3/3.3/3.3/3.3
REFRIGERANT							
Refrigerant type		R-410a					
No. of independent circuits		2	3	2	3	4	4
Refrigerant charge @50Hz	kg	17	20	23	20	31	34
Refrigerant charge @60Hz	kg	20	23	26	23	35	38
COOLER							
Type		DX Shell & Tube					
Qty		1					
Net fluid volume	Liter	23	23	33	23	39	39
Designed refrigeration pressure	kPa	1500					
Max water pressure	kPa	1000					
Water connection size	mm	63	63	75	63	75	75
Water connection type		Grooved Coupling					
CONDENSER COIL							
Qty		2	3	2+1	3	2+1	2+1
Fins per inch		12	14	12	12	12	12
No. of rows		4					
Total face area	m^2	2.8	3.8	3.7	3.8	5.2	5.5
Max working refrigeration pressure	kPa	4,100					
CONDENSER FAN							
Type		Direct Drive External Rotor					
Qty		4	5	5	5	6	6
Nominal speed (50/60Hz)	rpm	900/1100					
No. of blades		5					
Nominal diameter	mm	630					
Total air flow rate (50Hz)	L/s	10,447	13,385	13,289	13,385	16,701	16,871
Total air flow rate (60Hz)	L/s	11,921	15,229	15,133	15,229	18,849	19,000

Legend

- Ckt : Refrigeration circuit

Physical Data - IMP

RWC4		55	76	105	128	160	210	260
COMPRESSOR								
Type		Hermetic Scroll						
Qty		1	1	1	1	1	2	2
Oil charge (Ckt1/Ckt2)	gal	0.5	0.7	0.9	0.9	0.9	0.9/0.9	0.9/0.9
REFRIGERANT								
Refrigerant type		R-410a						
No. of independent circuits		1	1	1	1	1	2	2
Refrigerant charge @50Hz	lb	6	8	12	14	18	24	29
Refrigerant charge @60Hz	lb	7	10	14	17	21	27	33
COOLER								
Type		Brzed Plater Heat Exchanger					DX Shell & Tube	
Qty		1						
Net fluid volume	gal	0.2	0.3	0.5	0.6	0.7	4.5	5.8
Designed refrigeration pressure	psig	145	145	145	145	145	220	220
Max water pressure	psig	145						
Water connection size	inch	1 3/8	1 3/8	1 3/8	1 5/8	1 5/8	2 5/8	2 1/2
Water connection type		Threaded					Grooved Coupling	
CONDENSER COIL								
Qty		1	1	1	1	1	2	2
Fins per inch		12						
No. of rows		4	3	4	4	4	4	4
Total face area	ft^2	7.0	8.4	14.3	15.5	17.0	24.0	28.0
Max working refrigeration pressure	psig	600						
CONDENSER FAN								
Type		Direct Drive External Rotor						
Qty		1	2	2	3	3	4	4
Nominal speed (50/60Hz)	rpm	1400/1700	1400/1700	1400/1700	1400/1700	1400/1700	1400/1700	900/1100
No. of blades		5						
Nominal diameter	inch	18	18	18	18	18	18	25
Total air flow rate (50Hz)	cfm	2,905	5,000	5,841	7,321	8,064	11,020	21,402
Total air flow rate (60Hz)	cfm	3,523	6,116	7,083	8,966	9,840	13,395	24,511

Legend

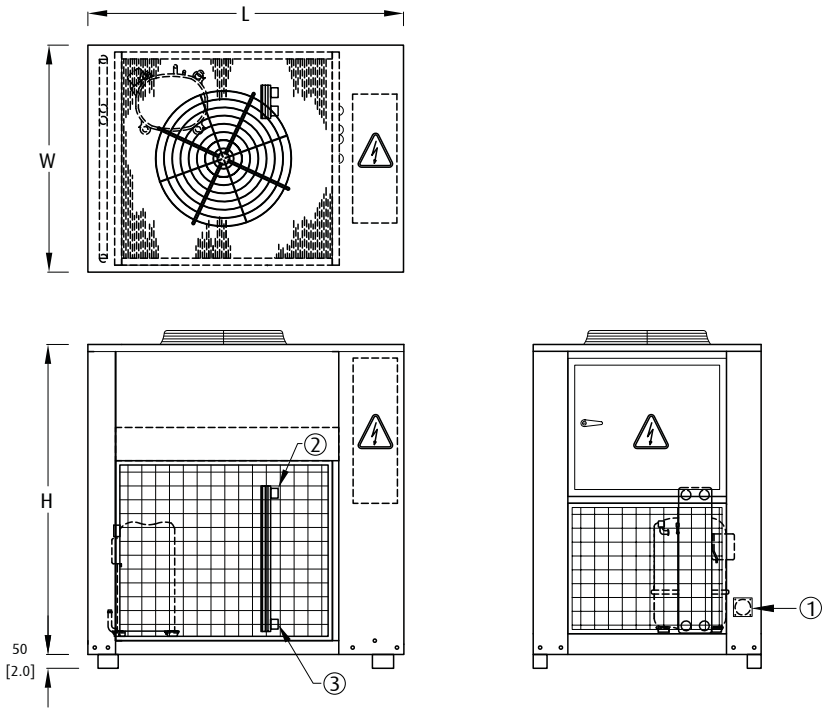
- Ckt : Refrigeration circuit

RWC4		310	390	430	470	580	630
COMPRESSOR							
Type		Hermetic Scroll					
Qty		2	3	2	3	2+2	4
Oil charge (Ckt1/Ckt2)	gal	0.9/0.9	0.9/0.9/0.9	1.2/1.2	0.9/0.9/0.9	0.9/0.9/0.9/0.9	0.9/0.9/0.9/0.9
REFRIGERANT							
Refrigerant type		R-410a					
No. of independent circuits		2	3	2	3	4	4
Refrigerant charge @50Hz	lb	39	44	51	44	68	74
Refrigerant charge @60Hz	lb	44	50	57	50	70	84
COOLER							
Type		DX Shell & Tube					
Qty		1					
Net fluid volume	gal	6	6	9	6	10	10
Designed refrigeration pressure	psig	220					
Max water pressure	psig	145					
Water connection size	inch	2 1/2	2 1/2	3	2 1/2	3	3
Water connection type		Grooved Coupling					
CONDENSER COIL							
Qty		2	3	2+1	3	2+1	2+1
Fins per inch		12	14	12	12	12	12
No. of rows		4					
Total face area	ft^2	31.0	42.0	41.0	42.0	58.1	60.7
Max working refrigeration pressure	psig	600					
CONDENSER FAN							
Type		Direct Drive External Rotor					
Qty		4	5	5	5	6	6
Nominal speed (50/60Hz)	rpm	900/1100					
No. of blades		5					
Nominal diameter	inch	25					
Total air flow rate (50Hz)	cfm	22,139	28,364	28,161	28,364	35,391	35,752
Total air flow rate (60Hz)	cfm	25,261	32,271	32,068	32,271	39,943	40,263

Legend

- Ckt : Refrigeration circuit

Model Layout



SI

MODEL	L	W	H
RWC4 55	1295	820	1120

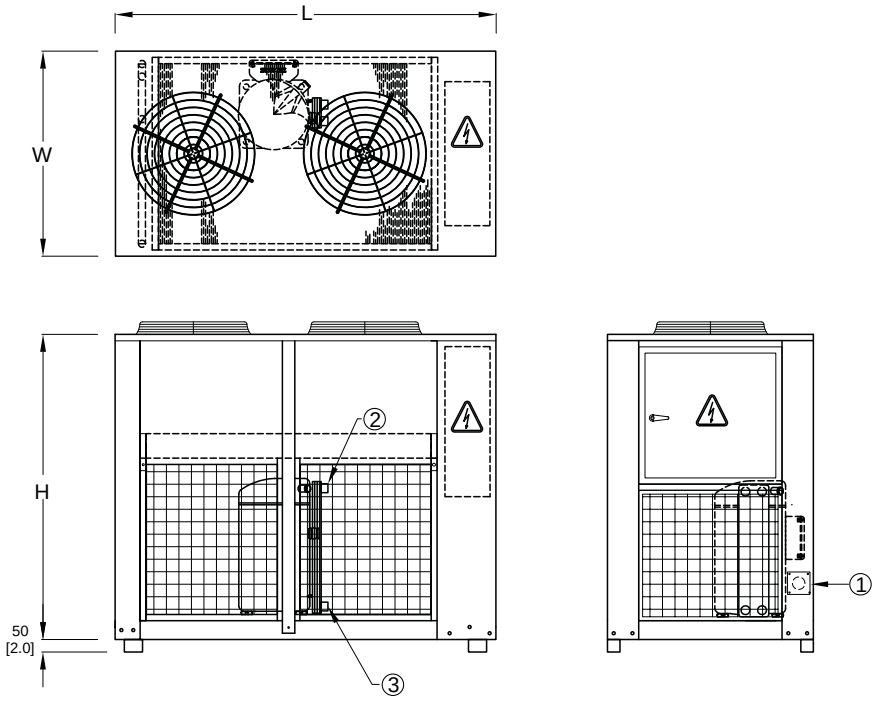
All dimensions are in mm

IMP

MODEL	L	W	H
RWC4 55	51.8	32.3	44.1

All dimensions are in inch

①	Power entry
②	Water in
③	Water out



SI

MODEL	L	W	H
RWC4 76	1525	820	1220
RWC4 105	1755	1075	1220

All dimensions are in mm

IMP

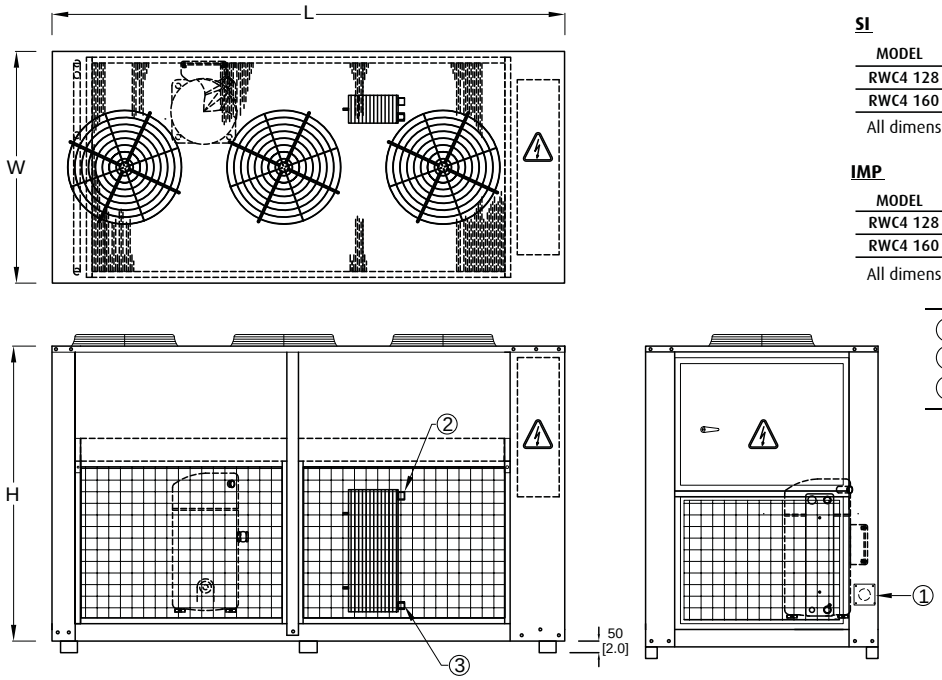
MODEL	L	W	H
RWC4 76	60.0	32.3	48.3
RWC4 105	70.1	42.3	48.3

All dimensions are in inch

①	Power entry
②	Water in
③	Water out

Note

- Unit clearance
- Top: no obstacles
- Sides: 1.8 m (6 ft)



SI

MODEL	L	W	H
RWC4 128	2210	850	1270
RWC4 160	2210	1000	1350

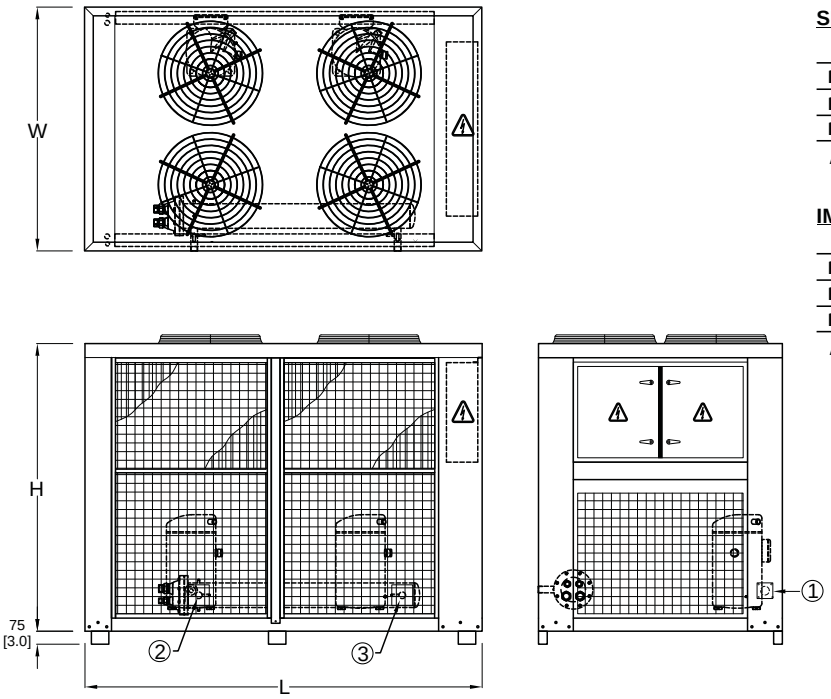
All dimensions are in mm

IMP

MODEL	L	W	H
RWC4 128	87.1	33.5	50.0
RWC4 160	87.1	39.4	53.1

All dimensions are in inch

①	Power entry
②	Water in
③	Water out



SI

MODEL	L	W	H
RWC4 210	2280	1400	1615
RWC4 260	2280	1400	1750
RWC4 310	2280	1400	1825

All dimensions are in mm

IMP

MODEL	L	W	H
RWC4 210	89.8	55.1	63.6
RWC4 260	89.8	55.1	68.9
RWC4 310	89.8	55.1	72.6

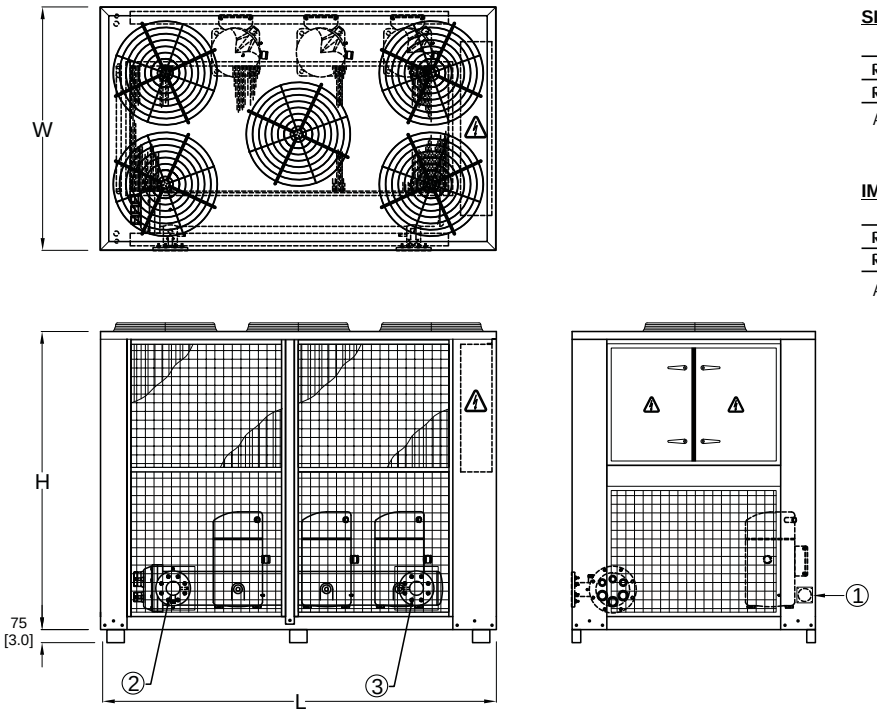
All dimensions are in inch

①	Power entry
②	Water in
③	Water out

Note

- Unit clearance
- Top: no obstacles
- Sides: 1.8 m (6 ft)

Model Layout



SI

MODEL	L	W	H
RWC4 390	2280	1400	1750
RWC4 470	2280	1400	1750

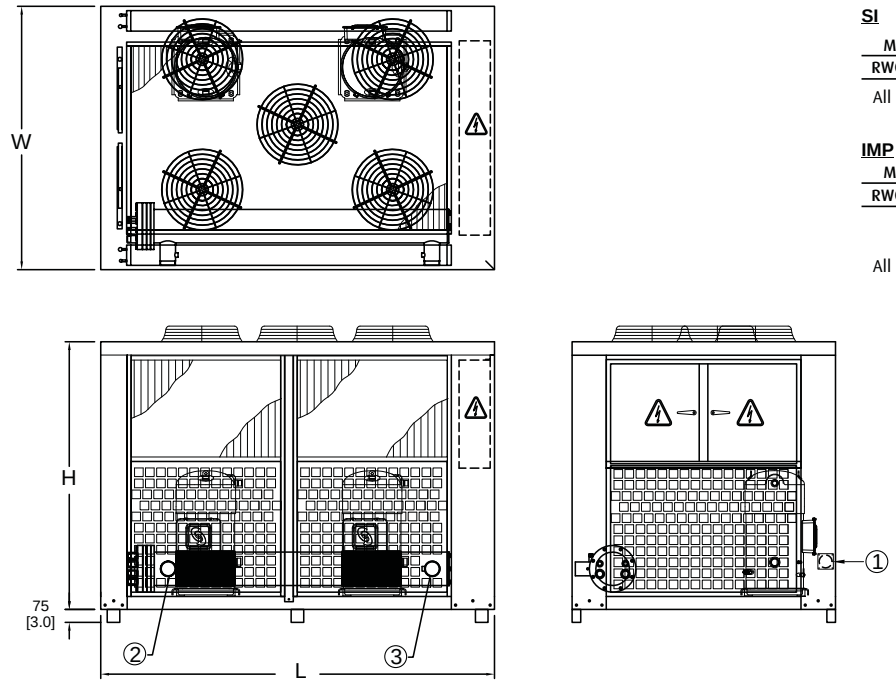
All dimensions are in mm

IMP

MODEL	L	W	H
RWC4 390	89.8	55.1	68.9
RWC4 470	89.8	55.1	68.9

All dimensions are in inch

①	Power entry
②	Water in
③	Water out



SI

MODEL	L	W	H
RWC4 430	2280	1525	1550

All dimensions are in mm

IMP

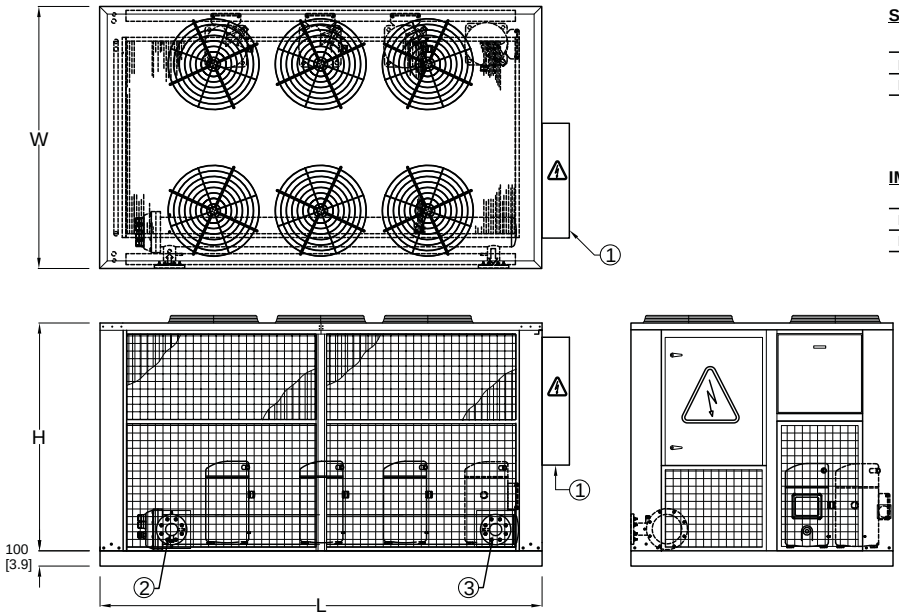
MODEL	L	W	H
RWC4 430	89.8	60.0	61.0

All dimensions are in inch

①	Power entry
②	Water in
③	Water out

Note

- Unit clearance
- Top: no obstacles
- Sides: 1.8 m (6 ft)



SI

MODEL	L	W	H
RWC4 580	2910	1725	1500
RWC4 630	2910	1725	1525

All dimensions are in mm

IMP

MODEL	L	W	H
RWC4 390	114.6	67.9	59.1
RWC4 470	114.6	67.9	60.0

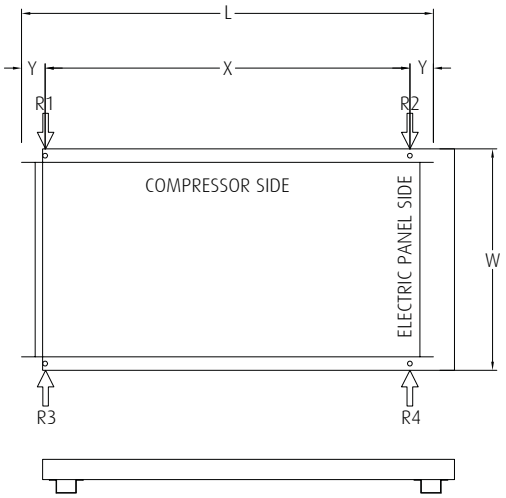
All dimensions are in inch

①	Power entry
②	Water in
③	Water out

Note

- Unit clearance
- Top: no obstacles
- Sides: 1.8 m (6 ft)

Load Distribution



MODEL (RWC4)	L		W		X		Y	
	mm	[Inch]	mm	[Inch]	mm	[Inch]	mm	[Inch]
55	1,295	51	820	32	1,121	44.1	87	3.4
76	1,525	60	820	32	1,351	53.2	87	3.4
105	1,755	69	1,075	42	1,581	62.2	87	3.4
128	2,210	87	850	33	2,036	80.2	87	3.4
160	2,210	87	1,000	39	2,036	80.2	87	3.4

MODEL (RWC4)	Copper tubes Aluminum fins coil									
	R1		R2		R3		R4		Total	
	kg	[lb]	kg	[lb]	kg	[lb]	kg	[lb]	kg	[lb]
55	42	92	68	149	40	88	55	122	205	451
76	78	172	100	221	59	129	68	149	304	671
105	96	211	151	333	96	211	110	242	452	997
128	93	204	123	272	89	197	101	222	406	895
160	102	225	130	286	93	206	100	220	425	937

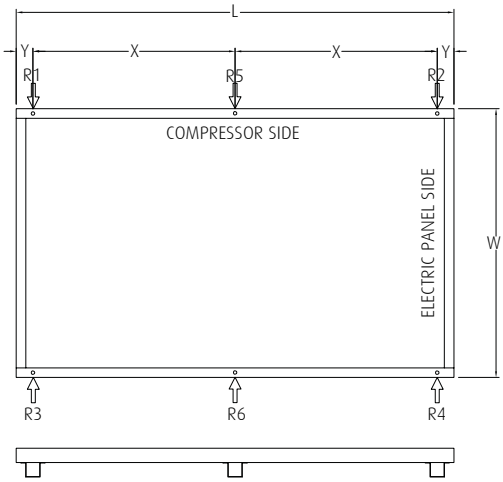
MODEL (RWC4)	Copper tubes Copper fins coil									
	R1		R2		R3		R4		Total	
	kg	[lb]	kg	[lb]	kg	[lb]	kg	[lb]	kg	[lb]
55	47	104	77	169	45	100	63	138	232	511
76	84	186	108	239	63	139	73	161	329	725
105	107	237	170	374	107	237	123	272	508	1,120
128	105	232	140	309	102	224	115	253	462	1,018
160	118	260	150	331	108	238	115	254	491	1,084

Legend

L: Base length
W: Base width
X: Distance between supports
Y: Distance between supports
R1, R2, R3, R4, R5, R6 Loads supports

Note

- Load points & total weights are shipping point without barrel (cooler) fluid content



MODEL (RWC4)	L		W		X		Y	
	mm	[Inch]	mm	[Inch]	mm	[Inch]	mm	[Inch]
210	2280	89.8	1400	55.1	1,053	41.5	87	3.4
260	2280	89.8	1400	55.1	1,053	41.5	87	3.4
310	2280	89.8	1400	55.1	1,053	41.5	87	3.4
390	2280	89.8	1400	55.1	1,053	41.5	87	3.4
430	2280	89.8	1525	60.0	1,053	41.5	87	3.4
470	2280	89.8	1400	55.1	1,053	41.5	87	3.4

MODEL (RWC4)	Copper tubes Aluminum fins coil													
	R1		R2		R3		R4		R5		R6		Total	
	kg	[lb]	kg	[lb]	kg	[lb]	kg	[lb]	kg	[lb]	kg	[lb]	kg	[lb]
210	120	265	113	250	95	210	95	210	162	358	118	260	704	1553
260	129	285	121	267	106	234	106	234	173	382	136	300	772	1702
310	139	306	130	287	112	247	112	247	189	417	145	320	827	1824
390	151	333	169	372	132	290	141	310	235	518	188	415	1,015	2238
430	166	365	186	411	141	311	151	334	262	578	202	446	1,109	2445
470	151	333	169	372	132	290	141	310	235	518	188	415	1,015	2238

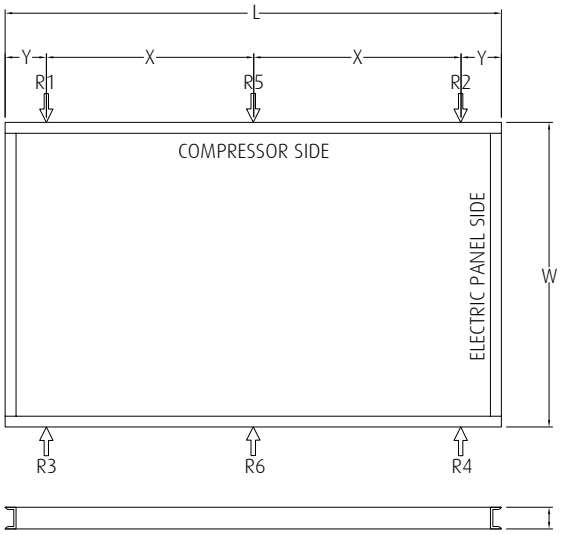
MODEL (RWC4)	Copper tubes Copper fins coil													
	R1		R2		R3		R4		R5		R6		Total	
	kg	[lb]	kg	[lb]	kg	[lb]	kg	[lb]	kg	[lb]	kg	[lb]	kg	[lb]
210	136	300	128	283	108	238	108	238	184	406	134	295	798	1,760
260	148	325	138	305	121	267	121	267	198	436	155	343	881	1,943
310	159	351	149	329	128	283	128	283	217	478	166	367	948	2,091
390	175	387	196	432	153	337	163	360	273	602	219	482	1,179	2,600
430	194	428	218	482	165	364	177	391	307	677	237	523	1,299	2,865
470	175	387	196	432	153	337	163	360	273	602	219	482	1,179	2,600

Legend

L: Base length
W: Base width
X: Distance between supports
Y: Distance between supports
R1, R2, R3, R4, R5, R6: Loads supports

Note

- Load points & total weights are shipping point without barrel (cooler) fluid content



MODEL (RWC4)	L		W		X		Y	
	mm	[Inch]	mm	[Inch]	mm	[Inch]	mm	[Inch]
580	2910	114.6	1725	67.9	1,215	47.8	240	9.4
630	2910	114.6	1725	67.9	1,215	47.8	240	9.4

MODEL (RWC4)	Copper tubes Aluminum fins coil													
	R1		R2		R3		R4		R5		R6		Total	
	kg	[lb]	kg	[lb]	kg	[lb]	kg	[lb]	kg	[lb]	kg	[lb]	kg	[lb]
580	206	454	236	520	182	402	196	432	317	699	257	566	1,394	3073
630	225	496	259	571	202	445	220	485	352	776	290	639	1,547	3412

MODEL (RWC4)	Copper tubes Copper fins coil													
	R1		R2		R3		R4		R5		R6		Total	
	kg	[lb]	kg	[lb]	kg	[lb]	kg	[lb]	kg	[lb]	kg	[lb]	kg	[lb]
580	278	614	319	703	246	543	265	584	428	945	347	765	1,884	4,153
630	299	659	344	759	268	592	292	645	468	1,032	385	850	2,057	4,537

Legend

L: Base length
W: Base width
X: Distance between supports
Y: Distance between supports
R1, R2, R3, R4, R5, R6: Loads supports

Note

- Load points & total weights are shipping point without barrel (cooler) fluid content

Selection Procedure

Before you proceed with unit selection, the capacity should be corrected according to the location where the chiller will be installed

Altitude Correction Factors:

Since air density decreases at elevations above sea level, the fans provide less air mass over the condenser so unit performance should be corrected when operated substantially above sea level

Selection:

To select any chiller from the RWC4 series, the following should be provided:

- Design capacity in kW (Tons) of refrigeration
- Entering and leaving water temperature in °C (°F)
- Entering condenser air temperature in °C (°F)
- Altitude of space where chiller is to be installed

Example:

Design capacity	74 kW (21 Tons)
EWT/LWT	12.2/6.7 °C (54/44 °F)
Entering condenser air	35 °C (95 °F)
Altitude	305 m (1000 ft)
Power supply	380V/3Ph/60Hz
Fouling factor (Cooler)	0.00010 ft2.hr.°F/BTU (0.0176 m2.°C/W)

Altitude Meter [ft]	Correction Factor	Compressor Power Factor
Sea Level	1.000	1.000
305 (1000)	0.995	1.005
610 (2000)	0.990	1.010
915 (3000)	0.985	1.015
1220 (4000)	0.980	1.020
1525 (5000)	0.973	1.025
1830 (6000)	0.976	1.030
2135 (7000)	0.960	1.035
2440 (8000)	0.950	1.040

Selection Procedure:

The capacity should be corrected at 305 m (1000 ft)
Correction of capacity: 74 (21) / 0.995
= 74.3 kW (21.1 Tons)

Result of selection:

From the performance table on page 36, the operating data for the selected unit:

Unit:	RWC4 260
Capacity:	75.3 kW (21.4 Tons)
Power input:	20.6x1.005 = 20.7 kW
Barrel (Cooler) flow rate:	3.3 L/s (51.6 GPM)

Performance - 50 Hz - SI

LWT (°C)	Model (RWC4)	Ambient Temperature (°C)															
		30			35			40			45			50			
		T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	
4	55	14.4	0.6	4.1	13.7	0.6	4.6	12.7	0.6	5.1	12.0	0.5	5.6	10.9	0.5	6.2	
	76	19.3	0.8	5.7	18.3	0.8	6.3	17.2	0.7	6.9	16.2	0.7	7.7	14.8	0.6	8.6	
	105	27.1	1.2	7.0	25.7	1.1	7.8	24.3	1.0	8.7	22.5	1.0	9.7	20.8	0.9	10.8	
	128	30.6	1.3	7.8	28.8	1.3	8.7	27.4	1.2	9.6	25.3	1.1	10.5	23.6	1.0	11.7	
	160	39.7	1.7	11.0	38.0	1.6	11.9	35.5	1.5	13.1	33.1	1.4	14.4	30.9	1.3	15.8	
	210	52.4	2.3	14.3	47.5	2.1	15.8	44.3	1.9	17.6	40.8	1.8	19.7	37.6	1.6	21.8	
	260	62.6	2.7	14.7	59.1	2.6	16.3	55.6	2.4	18.1	51.3	2.2	20.1	47.1	2.1	22.2	
	310	80.9	3.5	20.8	76.3	3.3	22.9	72.1	3.1	25.0	66.8	2.9	27.5	61.5	2.7	30.4	
	390	91.4	4.0	22.1	86.9	3.8	24.5	80.9	3.5	27.2	74.9	3.3	30.2	68.6	3.0	33.4	
	430	100.2	4.4	28.2	95.0	4.1	30.8	88.3	3.9	34.0	82.3	3.6	37.6	76.7	3.3	41.7	
	470	116.1	5.1	32.1	109.7	4.8	35.1	102.0	4.5	38.8	95.0	4.2	42.5	88.3	3.8	46.5	
	580	135.8	5.9	38.3	128.4	5.6	42.0	119.2	5.2	46.4	110.1	4.8	51.0	100.6	4.4	56.0	
	630	149.8	6.6	45.1	142.1	6.2	49.3	131.9	5.8	54.3	122.7	5.4	59.2	112.9	4.9	64.7	

LWT (°C)	Model (RWC4)	Ambient Temperature (°C)															
		30			35			40			45			50			
		T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	
5	55	15.1	0.6	4.2	14.1	0.6	4.6	13.4	0.6	5.1	12.3	0.5	5.6	11.3	0.5	6.2	
	76	20.0	0.9	5.7	19.0	0.8	6.3	17.6	0.8	7.0	16.5	0.7	7.8	15.1	0.7	8.7	
	105	28.1	1.2	7.0	26.7	1.1	7.9	25.0	1.1	8.8	23.2	1.0	9.7	21.5	0.9	10.8	
	128	31.3	1.4	7.8	29.9	1.3	8.7	28.1	1.2	9.6	26.4	1.1	10.6	23.9	1.0	11.8	
	160	40.8	1.8	11.0	38.6	1.7	12.1	36.2	1.6	13.2	34.1	1.5	14.5	31.7	1.4	15.9	
	210	53.5	2.3	14.4	50.3	2.2	16.0	46.8	2.0	17.8	42.2	1.8	19.8	38.7	1.7	22.0	
	260	64.4	2.8	14.8	61.2	2.7	16.4	57.3	2.5	18.2	52.8	2.3	20.2	48.5	2.1	22.3	
	310	83.0	3.6	21.0	79.1	3.4	23.0	73.9	3.2	25.2	68.9	3.0	27.8	63.3	2.8	30.6	
	390	95.0	4.1	22.2	89.7	3.9	24.6	83.7	3.7	27.3	77.4	3.4	30.3	71.0	3.1	33.7	
	430	103.4	4.5	28.4	97.1	4.3	31.1	91.1	4.0	34.3	85.5	3.7	37.9	78.8	3.4	42.1	
	470	119.6	5.2	32.4	112.5	4.9	35.6	105.5	4.6	38.9	98.5	4.3	42.7	89.7	3.9	47.0	
	580	140.3	6.1	38.6	131.5	5.8	42.4	122.7	5.4	46.8	113.6	5.0	51.5	104.5	4.6	56.3	
	630	155.5	6.8	45.5	145.3	6.4	49.8	136.5	6.0	54.4	126.3	5.5	59.7	115.7	5.1	65.4	

LWT (°C)	Model (RWC4)	Ambient Temperature (°C)															
		30			35			40			45			50			
		T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	
6	55	15.5	0.7	4.2	14.4	0.6	4.6	13.7	0.6	5.2	12.7	0.6	5.7	12.0	0.5	6.2	
	76	20.8	0.9	5.7	19.3	0.8	6.3	18.3	0.8	7.0	17.2	0.7	7.8	15.5	0.7	8.7	
	105	29.2	1.3	7.1	27.4	1.2	7.9	25.7	1.1	8.8	23.6	1.0	9.8	22.2	1.0	10.9	
	128	32.7	1.4	7.9	30.6	1.3	8.8	29.2	1.3	9.8	27.1	1.2	10.7	25.0	1.1	11.8	
	160	41.9	1.8	11.2	39.7	1.7	12.2	37.6	1.6	13.3	35.2	1.5	14.6	32.4	1.4	16.0	
	210	55.6	2.4	14.4	52.1	2.3	16.1	48.2	2.1	17.9	44.7	1.9	19.9	39.7	1.7	22.1	
	260	66.5	2.9	14.9	63.0	2.7	16.6	58.7	2.6	18.3	54.9	2.4	20.3	50.6	2.2	22.5	
	310	85.8	3.7	21.2	80.9	3.5	23.1	76.3	3.3	25.4	70.7	3.1	28.0	65.8	2.9	30.6	
	390	97.4	4.3	22.4	92.1	4.0	24.8	85.8	3.8	27.6	80.2	3.5	30.5	73.5	3.2	33.7	
	430	106.2	4.6	28.7	100.2	4.4	31.5	94.3	4.1	34.6	87.6	3.8	38.2	81.2	3.5	42.4	
	470	123.1	5.4	32.8	115.7	5.1	35.7	108.7	4.7	39.2	101.6	4.4	43.0	92.8	4.1	47.2	
	580	143.8	6.3	39.0	136.1	5.9	42.7	126.6	5.5	47.1	117.1	5.1	51.7	107.6	4.7	56.8	
	630	159.3	7.0	45.8	150.2	6.6	50.0	140.7	6.1	54.9	129.8	5.7	60.1	119.6	5.2	65.8	

Legend

LWT : Leaving Water Temperature
T. CAP : Total Capacity
WFR : Water Flow Rate
PI : Compressor Power Input

Note

- Ratings based on 5.5°C cooler water temperature difference between inlet and outlet water temperature
- Power input in this page should not be used for cable or breaker selection. MCA and MOP values in the electrical data section should be referred for the same

LWT (°C)	Model (RWC4)	Ambient Temperature (°C)														
		30			35			40			45			50		
		T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)
7	55	15.8	0.7	4.2	14.8	0.6	4.7	14.1	0.6	5.2	13.4	0.6	5.7	12.3	0.5	6.3
	76	21.1	0.9	5.8	20.0	0.9	6.4	18.6	0.8	7.1	17.6	0.8	7.8	16.2	0.7	8.8
	105	29.9	1.3	7.1	28.1	1.2	7.9	26.4	1.1	8.8	24.6	1.1	9.9	22.9	1.0	10.9
	128	33.4	1.5	8.0	31.7	1.4	8.9	29.9	1.3	9.8	27.8	1.2	10.8	25.7	1.1	11.9
	160	43.3	1.9	11.2	41.1	1.8	12.3	38.7	1.7	13.4	36.2	1.6	14.7	33.8	1.5	16.2
	210	57.3	2.5	14.5	53.5	2.3	16.2	49.6	2.2	18.0	45.7	2.0	20.1	41.9	1.8	22.2
	260	68.9	3.0	15.0	64.7	2.8	16.6	60.8	2.6	18.4	56.6	2.5	20.4	52.4	2.3	22.6
	310	88.3	3.8	21.3	83.4	3.6	23.4	78.8	3.4	25.6	73.2	3.2	28.2	67.2	2.9	30.9
	390	100.9	4.4	22.5	94.6	4.1	25.1	89.0	3.9	27.7	83.0	3.6	30.6	76.0	3.3	34.0
	430	109.7	4.8	29.0	103.8	4.5	31.8	96.7	4.2	35.0	90.7	3.9	38.5	84.1	3.7	42.6
	470	126.6	5.5	33.0	119.9	5.2	36.0	111.8	4.9	39.6	104.1	4.5	43.4	96.0	4.2	47.5
	580	148.8	6.5	39.3	139.3	6.1	43.1	130.1	5.7	47.5	120.6	5.2	52.2	110.8	4.8	57.1
	630	164.2	7.2	46.2	154.4	6.7	50.8	144.2	6.3	55.3	134.0	5.8	60.5	123.1	5.4	66.1

LWT (°C)	Model (RWC4)	Ambient Temperature (°C)														
		30			35			40			45			50		
		T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)
8	55	16.2	0.7	4.3	15.5	0.7	4.8	14.4	0.6	5.2	13.7	0.6	5.7	12.7	0.5	6.3
	76	21.8	0.9	5.9	20.8	0.9	6.5	19.3	0.8	7.2	17.9	0.8	7.9	16.5	0.7	8.8
	105	30.6	1.3	7.2	28.8	1.3	8.0	27.1	1.2	8.9	25.3	1.1	9.9	23.6	1.0	11.0
	128	34.5	1.5	8.0	32.7	1.4	8.9	30.6	1.3	9.8	28.8	1.2	10.8	26.7	1.2	12.0
	160	44.7	1.9	11.3	42.2	1.8	12.4	39.7	1.7	13.5	37.3	1.6	14.8	34.5	1.5	16.2
	210	58.7	2.6	14.7	55.2	2.4	16.3	51.3	2.2	18.2	47.5	2.1	20.1	43.3	1.9	22.4
	260	71.0	3.1	15.1	66.8	2.9	16.7	63.0	2.7	18.5	58.4	2.5	20.5	53.8	2.3	22.6
	310	91.1	4.0	21.5	85.8	3.7	23.6	80.9	3.5	25.8	74.9	3.3	28.3	69.6	3.0	31.0
	390	103.8	4.5	22.7	97.8	4.3	25.2	91.8	4.0	27.8	85.5	3.7	30.8	78.8	3.4	34.0
	430	113.6	4.9	29.3	106.2	4.6	32.2	99.9	4.3	35.3	92.8	4.0	39.0	86.9	3.8	42.8
	470	130.8	5.7	33.2	122.4	5.3	36.5	115.7	5.0	39.8	107.3	4.7	43.7	99.2	4.3	47.8
	580	151.9	6.6	39.8	143.8	6.2	43.5	134.3	5.8	47.9	124.9	5.4	52.4	114.7	5.0	57.3
	630	168.8	7.3	46.8	158.6	6.9	51.1	148.1	6.4	56.0	138.2	6.0	60.9	126.6	5.5	66.7

LWT (°C)	Model (RWC4)	Ambient Temperature (°C)														
		30			35			40			45			50		
		T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)
10	55	17.2	0.7	4.4	16.2	0.7	4.8	15.5	0.7	5.3	14.1	0.6	5.7	13.0	0.6	6.3
	76	23.2	1.0	6.0	21.8	0.9	6.6	20.4	0.9	7.3	17.9	0.8	7.9	17.6	0.8	9.0
	105	31.3	1.4	7.2	29.5	1.3	8.0	27.8	1.2	8.9	26.7	1.2	10.0	25.0	1.1	11.1
	128	35.5	1.5	8.1	34.5	1.5	9.0	32.4	1.4	10.0	30.2	1.3	11.0	28.1	1.2	12.1
	160	47.1	2.0	11.5	44.7	1.9	12.5	41.0	1.8	13.6	39.4	1.7	15.0	36.6	1.6	16.4
	210	62.3	2.7	15.0	58.4	2.5	16.6	54.5	2.4	18.4	50.6	2.2	20.4	46.4	2.0	22.5
	260	75.3	3.3	15.3	70.7	3.1	16.9	66.8	2.9	18.7	62.3	2.7	20.7	57.7	2.5	22.9
	310	96.7	4.2	21.9	91.1	3.9	24.0	85.1	3.7	26.3	79.8	3.5	28.7	73.9	3.2	31.5
	390	109.7	4.8	23.0	104.1	4.5	25.5	97.8	4.2	28.2	91.1	3.9	31.2	84.1	3.6	34.4
	430	119.9	5.2	30.0	113.2	4.9	32.8	106.2	4.6	35.9	98.5	4.3	39.6	92.1	4.0	43.6
	470	138.2	6.0	33.9	130.5	5.6	37.1	122.4	5.3	40.4	113.2	4.9	44.3	105.2	4.5	48.3
	580	161.8	7.0	40.5	151.9	6.6	44.4	141.7	6.2	48.7	132.6	5.7	53.1	122.0	5.3	58.1
	630	178.7	7.7	47.7	167.4	7.3	52.0	156.9	6.8	57.0	145.6	6.3	62.2	134.7	5.8	67.3

Legend

LWT : Leaving Water Temperature
T. CAP : Total Capacity
WFR : Water Flow Rate
PI : Compressor Power Input

Note

- Ratings based on 5.5°C cooler water temperature difference between inlet and outlet water temperature
- Power input in this page should not be used for cable or breaker selection. MCA and MOP values in the electrical data section should be referred for the same

Performance - 50 Hz - IMP

LWT (°F)	MODEL (RWC4)	AMBIENT TEMPERATURE (°F)														
		85			95			105			115			125		
		T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)
40	55	4.2	10.1	4.1	4.0	9.5	4.6	3.7	8.8	5.2	3.4	8.1	5.7	3.1	7.4	6.4
	76	5.6	13.5	5.6	5.3	12.6	6.3	4.9	11.7	7.1	4.5	10.9	7.9	4.1	10.0	8.9
	105	8.0	19.0	6.9	7.4	17.7	7.8	6.9	16.5	8.9	6.4	15.2	9.9	5.8	13.8	11.2
	128	8.9	21.2	7.7	8.4	19.9	8.7	7.9	18.6	9.8	7.2	17.2	10.8	6.5	15.7	12.1
	160	11.6	27.5	10.8	10.9	26.0	12.0	10.2	24.2	13.3	9.4	22.4	14.8	8.6	20.6	16.4
	210	15.2	36.6	14.1	14.1	34.0	15.9	12.7	30.6	17.9	11.6	27.9	20.2	10.4	25.3	22.7
	260	18.2	43.8	14.6	17.0	41.1	16.4	15.9	38.2	18.4	14.6	35.1	20.6	13.2	31.8	23.1
	310	23.4	56.5	20.7	21.9	53.1	22.9	20.5	49.4	25.4	18.9	45.7	28.2	17.2	41.6	31.4
	390	26.6	64.3	21.9	25.0	60.2	24.6	23.1	56.0	27.6	21.3	51.4	31.0	19.2	46.4	34.7
	430	29.2	70.3	27.9	27.3	65.7	31.0	25.3	61.2	34.5	23.4	56.4	38.7	21.3	51.7	43.5
	470	33.6	81.2	31.9	31.6	76.3	35.2	29.2	70.8	39.2	27.1	65.1	43.4	24.5	59.2	48.2
	580	39.5	95.1	38.0	36.9	88.9	42.2	34.0	82.2	47.1	31.3	75.3	52.2	28.1	67.8	58.1
	630	43.5	105.3	44.9	41.0	98.6	49.3	37.8	91.6	54.7	34.7	83.8	60.7	31.4	76.0	67.0

LWT (°F)	MODEL (RWC4)	AMBIENT TEMPERATURE (°F)														
		85			95			105			115			125		
		T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)
42	55	4.3	10.4	4.1	4.1	9.8	4.6	3.8	9.1	5.2	3.5	8.4	5.8	3.2	7.7	6.4
	76	5.8	13.9	5.7	5.4	13.1	6.3	5.1	12.2	7.1	4.7	11.2	8.0	4.3	10.3	9.0
	105	8.2	19.7	6.9	7.7	18.4	7.8	7.1	17.0	8.9	6.6	15.7	10.0	6.0	14.4	11.2
	128	9.2	22.0	7.8	8.7	20.7	8.7	8.1	19.3	9.8	7.4	17.8	10.9	6.8	16.3	12.1
	160	11.8	28.4	11.0	11.2	26.8	12.1	10.5	25.1	13.4	9.7	23.2	14.9	9.0	21.4	16.4
	210	15.7	37.6	14.3	14.6	35.0	16.1	13.5	32.3	18.1	12.2	29.4	20.4	10.8	26.1	22.8
	260	18.7	45.4	14.7	17.7	42.5	16.4	16.4	39.5	18.5	15.1	36.3	20.8	13.7	33.1	23.1
	310	24.2	58.4	20.9	22.8	54.7	23.1	21.2	51.2	25.6	19.6	47.1	28.5	17.8	43.0	31.6
	390	27.6	66.5	22.0	25.9	62.2	24.7	24.0	57.9	27.8	22.2	53.1	31.1	20.0	48.0	34.9
	430	30.2	72.7	28.2	28.3	67.8	31.3	26.2	63.2	34.8	24.3	58.5	38.8	22.2	53.5	43.7
	470	34.8	83.9	32.2	32.6	78.6	35.6	30.4	73.0	39.4	27.9	67.4	43.7	25.4	61.2	48.5
	580	40.8	97.9	38.4	38.0	91.9	42.5	35.4	84.9	47.3	32.3	77.8	52.7	29.2	70.4	58.3
	630	45.0	108.2	45.4	42.1	101.8	49.9	39.0	94.4	55.1	35.8	86.3	61.2	32.4	77.9	67.8

LWT (°F)	MODEL (RWC4)	AMBIENT TEMPERATURE (°F)														
		85			95			105			115			125		
		T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)
44	55	4.5	10.8	4.2	4.2	10.1	4.7	3.9	9.4	5.2	3.7	8.7	5.8	3.3	8.0	6.5
	76	6.0	14.4	5.7	5.7	13.5	6.4	5.2	12.5	7.2	4.9	11.6	8.1	4.4	10.5	9.2
	105	8.5	20.3	7.0	7.9	19.0	7.9	7.4	17.7	8.9	6.8	16.2	10.1	6.2	14.9	11.3
	128	9.4	22.7	7.9	8.9	21.3	8.8	8.4	19.9	9.9	7.7	18.4	11.0	7.0	16.9	12.2
	160	12.3	29.4	11.0	11.5	27.7	12.2	10.8	25.9	13.5	10.1	24.0	15.0	9.2	22.0	16.6
	210	16.2	38.9	14.4	15.1	36.2	16.2	14.0	33.5	18.1	12.7	30.6	20.4	11.5	27.7	22.9
	260	19.4	46.7	14.8	18.3	43.8	16.6	17.0	40.8	18.6	15.7	37.6	20.8	14.2	34.2	23.3
	310	25.1	60.1	21.1	23.4	56.4	23.4	22.0	52.6	25.8	20.2	48.6	28.7	18.5	44.5	31.7
	390	28.4	68.6	22.3	26.7	64.2	25.0	24.9	59.8	27.9	22.8	55.0	31.3	20.7	50.0	35.0
	430	31.1	75.0	28.5	29.1	70.0	31.7	27.2	65.2	35.2	25.1	60.1	39.4	23.1	55.4	43.9
	470	36.0	86.3	32.5	33.8	81.0	35.9	31.3	75.4	39.8	28.9	69.5	44.0	26.4	63.1	48.8
	580	42.0	101.1	38.8	39.3	94.4	43.1	36.4	87.6	47.8	33.5	80.3	53.0	30.4	73.0	58.5
	630	46.3	111.9	45.8	43.3	104.4	50.6	40.4	97.1	55.7	37.2	89.2	61.5	33.5	80.8	68.1

Legend

LWT : Leaving Water Temperature
T. CAP : Total Capacity
WFR : Water Flow Rate
PI : Compressor Power Input

Note

- Ratings based on 10°F cooler water temperature difference between inlet and outlet water temperature
- Power input in this page should not be used for cable or breaker selection. MCA and MOP values in the electrical data section should be referred for the same

LWT (°F)	MODEL (RWC4)	AMBIENT TEMPERATURE (°F)														
		85			95			105			115			125		
		T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)
46	55	4.6	11.1	4.2	4.4	10.4	4.7	4.1	9.7	5.3	3.8	9.0	5.9	3.5	8.2	6.5
	76	6.2	14.8	5.8	5.8	13.9	6.5	5.4	12.9	7.3	5.0	11.9	8.2	4.6	10.9	9.2
	105	8.8	20.9	7.1	8.2	19.7	8.0	7.6	18.3	9.0	7.1	16.9	10.1	6.5	15.5	11.3
	128	9.8	23.4	7.9	9.2	22.1	8.9	8.6	20.7	9.9	8.0	19.1	11.1	7.3	17.5	12.3
	160	12.7	30.3	11.2	11.9	28.5	12.4	11.2	26.7	13.6	10.4	24.8	15.1	9.5	22.8	16.7
	210	16.7	40.1	14.5	15.6	37.3	16.4	14.3	34.4	18.4	13.2	31.6	20.5	11.9	28.5	23.1
	260	20.1	48.3	14.9	18.9	45.2	16.7	17.6	42.1	18.8	16.3	38.9	20.9	14.8	35.6	23.4
	310	25.9	62.2	21.2	24.3	58.0	23.6	22.7	54.3	26.1	20.9	50.1	28.8	19.1	45.8	31.9
	390	29.5	70.6	22.5	27.7	66.4	25.1	25.7	61.8	28.1	23.7	56.9	31.5	21.6	51.7	35.2
	430	32.1	76.9	29.0	30.1	72.2	32.0	28.1	67.1	35.6	25.9	62.1	39.8	23.8	57.2	44.3
	470	37.0	88.9	33.0	34.8	83.7	36.2	32.3	77.7	40.1	29.9	71.4	44.4	27.1	65.2	49.2
	580	43.3	104.1	39.3	40.7	97.2	43.5	37.7	90.2	48.3	34.6	83.1	53.3	31.4	75.3	59.0
	630	48.0	115.5	46.1	44.9	107.6	51.1	41.6	99.7	56.4	38.3	91.7	62.2	34.7	83.1	68.6

LWT (°F)	MODEL (RWC4)	AMBIENT TEMPERATURE (°F)														
		85			95			105			115			125		
		T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)
48	55	4.8	11.5	4.3	4.5	10.7	4.8	4.2	10.0	5.3	3.9	9.4	5.9	3.6	8.6	6.5
	76	6.4	15.3	5.8	6.0	14.4	6.5	5.6	13.4	7.3	5.1	12.3	8.3	4.7	11.2	9.2
	105	9.0	21.6	7.2	8.5	20.3	8.1	7.9	18.9	9.0	7.3	17.5	10.2	6.7	16.0	11.4
	128	10.1	24.2	8.0	9.5	22.8	9.0	8.9	21.3	10.0	8.3	19.7	11.2	7.6	18.2	12.4
	160	13.0	31.3	11.3	12.3	29.4	12.5	11.5	27.5	13.8	10.7	25.6	15.2	9.9	23.6	16.7
	210	17.3	41.3	14.7	16.1	38.6	16.5	14.9	35.5	18.5	13.7	32.7	20.6	12.4	29.6	23.1
	260	20.8	49.7	15.0	19.6	46.8	16.8	18.2	43.7	18.8	16.8	40.3	21.1	15.4	36.7	23.5
	310	26.8	64.0	21.5	25.1	60.0	23.8	23.4	56.0	26.2	21.6	51.8	29.0	19.7	47.2	32.2
	390	30.5	72.9	22.7	28.5	68.5	25.3	26.6	63.7	28.4	24.6	58.8	31.7	22.5	53.7	35.3
	430	33.3	79.6	29.3	31.1	74.4	32.4	28.9	69.1	36.1	26.7	64.1	40.2	24.7	59.3	44.5
	470	38.4	91.9	33.1	35.8	85.8	36.8	33.4	80.0	40.5	30.8	73.6	44.8	28.0	67.3	49.5
	580	44.8	107.0	39.7	41.9	100.2	44.0	38.9	93.0	48.7	35.6	85.5	54.0	32.4	77.4	59.7
	630	49.5	118.3	46.9	46.4	110.8	51.5	42.8	103.0	56.9	39.4	94.4	62.7	35.8	85.8	69.0

LWT (°F)	MODEL (RWC4)	AMBIENT TEMPERATURE (°F)														
		85			95			105			115			125		
		T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)
50	55	4.9	11.8	4.3	4.6	11.1	4.8	4.3	10.4	5.4	4.0	9.7	5.9	3.7	8.9	6.6
	76	6.6	15.8	5.9	6.2	14.9	6.6	5.8	13.8	7.4	5.3	12.7	8.4	4.8	11.7	9.3
	105	9.3	22.2	7.3	8.8	21.0	8.2	8.1	19.5	9.1	7.5	18.1	10.3	6.9	16.6	11.4
	128	10.4	24.9	8.1	9.8	23.5	9.1	9.2	22.1	10.1	8.5	20.5	11.2	7.9	18.9	12.4
	160	13.5	32.2	11.4	12.7	30.3	12.6	11.9	28.3	13.9	11.0	26.5	15.3	10.1	24.4	16.9
	210	17.8	42.5	14.9	16.7	39.7	16.6	15.4	36.8	18.6	14.2	33.8	20.8	12.8	30.6	23.2
	260	21.6	51.4	15.1	20.1	48.3	16.9	18.9	45.0	18.9	17.5	41.6	21.2	16.0	38.1	23.6
	310	27.6	65.8	21.8	25.9	61.8	24.0	24.1	57.7	26.5	22.4	53.4	29.2	20.5	48.8	32.3
	390	31.5	75.4	22.8	29.6	70.7	25.5	27.6	65.7	28.6	25.5	60.8	31.9	23.2	55.7	35.5
	430	34.2	82.1	29.7	32.2	76.8	32.8	29.9	71.4	36.4	27.6	66.3	40.5	25.6	61.1	44.9
	470	39.4	94.7	33.6	37.1	88.5	37.1	34.4	82.1	41.1	31.7	76.2	45.1	29.0	69.2	49.8
	580	46.2	110.1	40.2	43.2	103.2	44.4	40.0	96.0	49.1	37.0	88.2	54.3	33.5	79.9	60.2
	630	51.2	122.2	47.3	47.7	114.3	52.0	44.3	105.7	57.5	40.7	97.1	63.3	37.0	88.4	69.4

Legend

LWT : Leaving Water Temperature
T. CAP : Total Capacity
WFR : Water Flow Rate
PI : Compressor Power Input

Note

- Ratings based on 10°F cooler water temperature difference between inlet and outlet water temperature
- Power input in this page should not be used for cable or breaker selection. MCA and MOP values in the electrical data section should be referred for the same

Performance - 60 Hz - SI

LWT (°C)	Model (RWC4)	Ambient Temperature (°C)															
		30			35			40			45			50			
		T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	
4	55	4.8	11.6	5.0	4.5	11.0	5.5	4.3	10.3	6.1	4.0	9.6	6.8	3.7	8.8	7.4	
	76	6.4	15.5	7.0	6.1	14.7	7.8	5.8	13.9	8.5	5.3	12.9	9.4	4.9	11.8	10.3	
	105	9.1	22.0	8.7	8.6	20.7	9.6	8.1	19.5	10.7	7.5	18.2	11.9	7.0	16.7	13.2	
	128	10.2	24.7	9.6	9.7	23.4	10.5	9.1	21.9	11.6	8.4	20.4	12.9	7.8	19.0	14.2	
	160	13.2	31.9	13.4	12.6	30.3	14.6	11.8	28.6	16.0	11.1	26.7	17.5	10.3	24.8	19.1	
	210	17.5	42.8	17.7	16.3	40.0	19.6	15.2	37.1	21.8	14.0	34.1	24.3	12.8	31.2	27.0	
	260	20.9	51.0	18.4	19.7	48.2	20.3	18.4	45.0	22.4	17.1	41.9	24.7	15.8	38.5	27.2	
	310	27.0	65.8	25.9	25.4	62.1	28.3	23.7	58.1	31.1	22.2	54.0	33.9	20.6	50.1	36.9	
	390	30.8	74.8	27.5	28.8	70.3	30.5	26.9	65.8	33.6	24.9	61.0	37.1	23.1	56.1	40.7	
	430	32.9	80.5	34.9	31.1	75.7	38.0	29.0	71.2	41.5	27.2	66.1	45.6	25.0	61.4	50.2	
	470	38.6	93.9	40.0	36.1	88.5	43.7	33.9	82.3	47.9	31.4	76.8	52.2	28.9	70.9	56.9	
	580	44.9	110.0	47.7	42.1	103.1	52.4	39.5	96.2	57.2	36.5	89.1	62.7	33.4	81.9	68.4	
	630	49.6	121.6	56.1	46.6	113.8	61.3	43.1	105.7	67.3	40.2	97.9	73.2	36.9	90.5	80.0	

LWT (°C)	Model (RWC4)	Ambient Temperature (°C)															
		30			35			40			45			50			
		T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	
5	55	4.9	11.9	5.1	4.7	11.3	5.6	4.4	10.6	6.2	4.1	9.9	6.8	3.8	9.1	7.5	
	76	6.6	16.0	7.1	6.3	15.1	7.8	5.9	14.3	8.6	5.5	13.3	9.5	5.1	12.3	10.3	
	105	9.4	22.7	8.7	8.9	21.4	9.7	8.3	20.1	10.8	7.8	18.7	12.0	7.2	17.3	13.3	
	128	10.5	25.4	9.7	9.9	24.0	10.6	9.4	22.6	11.7	8.8	21.1	12.9	8.2	19.7	14.2	
	160	13.6	32.8	13.5	13.0	31.2	14.7	12.2	29.5	16.1	11.4	27.6	17.6	10.6	25.5	19.2	
	210	18.1	44.0	17.8	16.9	41.2	19.8	15.6	38.2	22.0	14.4	35.1	24.5	13.2	32.3	27.0	
	260	21.6	52.7	18.5	20.4	49.5	20.4	19.0	46.3	22.6	17.7	43.3	24.7	16.4	39.8	27.3	
	310	27.8	67.8	26.1	26.2	63.8	28.6	24.5	59.8	31.2	22.9	55.7	34.1	21.2	51.6	37.1	
	390	31.6	77.1	27.7	29.7	72.4	30.7	27.9	67.6	33.8	25.8	62.9	37.3	23.8	57.9	41.0	
	430	34.1	82.8	35.2	31.9	78.1	38.3	30.0	73.2	41.9	27.9	68.2	46.0	25.9	63.3	50.5	
	470	39.5	96.5	40.4	37.5	91.0	43.9	34.9	85.3	48.0	32.4	79.3	52.3	29.9	72.9	57.3	
	580	46.6	112.9	48.1	43.5	106.0	52.8	40.6	99.1	57.7	37.6	91.8	63.1	34.6	84.3	68.8	
	630	51.2	124.5	56.7	48.0	117.1	61.8	44.5	108.5	67.9	20.9	51.0	35.0	38.2	93.5	79.5	

LWT (°C)	Model (RWC4)	Ambient Temperature (°C)															
		30			35			40			45			50			
		T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	
6	55	5.1	12.3	5.1	4.8	11.6	5.7	4.5	10.9	6.2	4.2	10.2	6.9	3.8	9.3	7.6	
	76	6.8	16.4	7.1	6.4	15.6	7.9	6.1	14.7	8.6	5.6	13.7	9.5	5.2	12.7	10.4	
	105	9.7	23.3	8.8	9.1	22.1	9.8	8.6	20.7	10.9	8.0	19.3	12.0	7.4	17.9	13.3	
	128	10.9	26.2	9.7	10.2	24.7	10.8	9.6	23.3	11.8	9.0	21.8	13.0	8.4	20.3	14.3	
	160	14.0	33.9	13.6	13.2	32.1	15.0	12.6	30.3	16.3	11.8	28.4	17.7	10.9	26.3	19.3	
	210	18.5	45.3	18.1	17.4	42.4	19.9	16.1	39.4	22.1	14.9	36.3	24.6	13.7	33.2	27.1	
	260	22.3	54.1	18.7	21.0	51.1	20.5	19.6	47.8	22.7	18.3	44.5	24.9	16.8	41.1	27.4	
	310	28.5	69.6	26.4	26.9	65.5	28.9	25.3	61.6	31.4	23.6	57.3	34.4	21.9	53.1	37.3	
	390	32.6	79.3	28.0	30.7	74.5	30.8	28.7	69.8	34.0	26.8	64.8	37.4	24.6	59.8	41.2	
	430	35.0	85.4	35.6	32.9	80.3	38.8	31.0	75.3	42.3	28.9	70.1	46.4	26.7	65.1	51.0	
	470	40.9	99.1	40.8	38.3	93.5	44.5	36.1	87.5	48.4	33.4	81.3	52.9	30.8	75.2	57.5	
	580	47.8	116.3	48.6	44.9	109.0	53.2	41.9	101.3	58.4	38.8	94.5	63.5	35.8	86.7	69.2	
	630	52.2	127.5	57.7	49.4	120.2	62.4	46.1	112.2	68.0	42.7	104.1	73.9	39.4	96.0	80.2	

Legend

LWT : Leaving Water Temperature
T. CAP : Total Capacity
WFR : Water Flow Rate
PI : Compressor Power Input

Note

- Ratings based on 5.5°C cooler water temperature difference between inlet and outlet water temperature
- Power input in this page should not be used for cable or breaker selection. MCA and MOP values in the electrical data section should be referred for the same

LWT (°C)	Model (RWC4)	Ambient Temperature (°C)														
		30			35			40			45			50		
		T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)
7	55	5.2	12.7	5.1	4.9	12.0	5.7	4.7	11.3	6.3	4.3	10.6	6.9	4.0	9.6	7.6
	76	7.0	16.9	7.2	6.6	16.0	8.0	6.2	15.2	8.7	5.8	14.1	9.6	5.4	13.0	10.5
	105	10.0	24.1	8.9	9.4	22.8	9.8	8.9	21.4	10.9	8.2	20.0	12.1	7.6	18.4	13.4
	128	11.1	27.0	9.9	10.5	25.5	10.8	9.9	24.1	11.9	9.3	22.5	13.1	8.6	20.9	14.4
	160	14.4	34.9	13.7	13.7	33.0	15.1	12.9	31.2	16.4	12.1	29.3	17.8	11.2	27.0	19.4
	210	19.2	46.5	18.2	17.9	43.7	20.1	16.7	40.5	22.3	15.4	37.4	24.7	14.2	34.3	27.2
	260	22.9	55.8	18.8	21.6	52.5	20.7	20.3	49.2	22.8	19.0	45.8	25.0	17.4	42.4	27.5
	310	29.5	71.6	26.6	27.8	67.5	29.1	26.0	63.3	31.7	24.2	59.0	34.6	22.5	54.7	37.6
	390	33.5	81.5	28.3	31.6	76.7	31.1	29.6	71.7	34.3	27.4	66.9	37.7	25.5	61.7	41.3
	430	36.1	87.6	36.1	33.9	82.1	39.5	31.9	77.2	42.8	29.9	72.2	46.7	27.6	67.1	51.2
	470	41.9	102.0	41.2	39.5	96.3	44.8	37.0	90.1	48.8	34.4	83.3	53.5	31.7	77.2	57.9
	580	49.3	119.2	49.1	46.0	112.0	53.8	43.0	104.5	58.8	40.1	97.2	63.9	36.7	89.3	69.9
	630	54.0	131.1	58.1	50.9	123.6	62.9	47.5	115.2	68.6	41.2	98.9	74.2	40.6	98.5	80.8

LWT (°C)	Model (RWC4)	Ambient Temperature (°C)														
		30			35			40			45			50		
		T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)
8	55	5.4	13.1	5.2	5.1	12.4	5.7	4.8	11.6	6.4	4.5	10.8	7.0	4.1	10.0	7.7
	76	7.2	17.3	7.3	6.8	16.5	8.0	6.4	15.6	8.8	6.0	14.5	9.6	5.6	13.5	10.5
	105	10.3	24.8	9.0	9.7	23.4	9.9	9.1	22.1	11.0	8.5	20.6	12.1	7.8	19.0	13.4
	128	11.5	27.7	9.9	10.8	26.3	10.9	10.3	24.8	12.0	9.6	23.2	13.2	9.0	21.6	14.4
	160	14.8	35.8	13.9	14.1	34.1	15.2	13.3	32.1	16.6	12.5	30.1	18.0	11.4	27.7	19.6
	210	19.7	47.9	18.3	18.5	44.9	20.3	17.2	41.6	22.5	15.9	38.6	24.8	14.6	35.5	27.3
	260	23.7	57.4	18.9	22.3	54.0	20.9	21.0	50.7	22.9	19.5	47.3	25.2	18.1	43.7	27.7
	310	30.5	73.7	26.8	28.6	69.2	29.4	26.9	65.1	31.9	25.0	60.7	34.8	23.2	56.2	37.9
	390	34.7	83.8	28.4	32.7	79.0	31.3	30.4	74.1	34.4	28.4	68.8	37.9	26.3	63.5	41.6
	430	37.3	90.0	36.5	35.0	84.6	39.8	32.9	79.5	43.3	30.6	74.3	47.2	28.4	69.0	51.7
	470	43.3	105.3	41.4	40.4	98.9	45.3	38.1	92.4	49.2	35.5	85.9	53.6	32.7	79.1	58.5
	580	50.5	122.2	49.8	47.5	115.1	54.2	44.4	107.6	59.2	41.3	100.1	64.3	37.9	91.8	70.3
	630	55.6	134.9	58.6	52.3	126.8	63.5	49.0	118.3	69.1	23.0	55.8	35.7	41.8	101.0	81.4

LWT (°C)	Model (RWC4)	Ambient Temperature (°C)														
		30			35			40			45			50		
		T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)	T. CAP (kW)	WFR (L/s)	PI (kW)
10	55	5.7	13.9	5.3	5.4	13.1	5.9	5.1	12.3	6.5	4.7	11.4	7.1	4.4	10.7	7.7
	76	7.6	18.4	7.4	7.2	17.5	8.1	6.9	16.6	8.8	6.3	15.3	9.7	5.9	14.3	10.6
	105	10.8	26.3	9.1	10.2	24.9	10.1	9.7	23.5	11.1	9.1	21.9	12.3	8.4	20.2	13.5
	128	12.1	29.2	10.2	11.5	27.8	11.1	10.9	26.3	12.2	10.2	24.7	13.3	9.5	23.0	14.6
	160	15.6	37.9	14.2	14.9	36.0	15.4	14.1	33.9	16.9	13.2	31.8	18.3	12.2	29.4	19.7
	210	20.9	50.5	18.7	19.6	47.5	20.6	18.3	44.2	22.8	16.9	40.8	25.1	15.1	36.5	27.4
	260	25.1	60.6	19.3	23.6	57.2	21.2	22.3	53.6	23.2	20.8	50.2	25.4	19.2	46.3	28.0
	310	32.2	77.5	27.5	30.4	73.2	29.9	28.3	68.8	32.5	26.6	64.2	35.3	24.6	59.3	38.5
	390	36.6	88.8	28.9	34.7	83.5	31.7	32.5	78.3	34.9	30.2	73.2	38.2	28.0	67.5	42.0
	430	39.3	95.3	37.4	37.1	89.4	40.7	34.8	83.9	44.3	32.6	78.5	48.1	30.4	73.2	52.3
	470	45.8	110.5	42.5	41.4	101.6	45.8	40.4	97.5	50.2	37.8	91.1	54.2	34.7	83.8	59.2
	580	53.5	129.0	50.8	50.4	121.4	55.2	47.1	113.5	60.2	43.5	105.2	65.7	40.4	97.3	71.1
	630	57.0	138.2	59.3	55.1	133.3	65.2	51.8	124.8	70.3	43.7	105.1	74.9	43.0	103.5	82.0

Legend

LWT : Leaving Water Temperature
T. CAP : Total Capacity
WFR : Water Flow Rate
PI : Compressor Power Input

Note

- Ratings based on 5.5°C cooler water temperature difference between inlet and outlet water temperature
- Power input in this page should not be used for cable or breaker selection. MCA and MOP values in the electrical data section should be referred for the same

Performance - 60 Hz - IMP

LWT (°F)	MODEL (RWC4)	AMBIENT TEMPERATURE (°F)														
		85			95			105			115			125		
		T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)
40	55	4.9	11.7	5.0	4.6	11.0	5.5	4.3	10.2	6.2	4.0	9.4	7.0	3.6	8.6	7.7
	76	6.5	15.6	7.0	6.2	14.7	7.8	5.8	13.9	8.6	5.3	12.7	9.6	4.9	11.6	10.6
	105	9.3	22.3	8.6	8.7	20.8	9.6	8.1	19.4	10.8	7.5	17.9	12.2	6.8	16.3	13.7
	128	10.4	24.9	9.5	9.8	23.5	10.6	9.2	21.9	11.8	8.5	20.2	13.2	7.8	18.6	14.6
	160	13.5	32.3	13.3	12.6	30.4	14.7	11.9	28.5	16.2	11.0	26.4	17.9	10.1	24.1	19.7
	210	17.9	43.2	17.6	16.6	40.1	19.7	15.3	36.8	22.2	13.9	33.6	24.9	12.6	30.4	27.9
	260	21.4	51.6	18.3	20.0	48.3	20.3	18.6	44.9	22.7	17.2	41.3	25.3	15.6	37.6	28.1
	310	27.5	66.5	25.7	25.7	62.2	28.4	24.1	57.8	31.4	22.0	53.3	34.7	20.2	48.9	38.1
	390	31.4	75.6	27.3	29.2	70.6	30.5	27.1	65.4	34.1	25.0	60.0	38.0	22.7	54.7	42.2
	430	33.7	81.5	34.6	31.6	76.0	38.1	29.2	70.7	42.2	27.0	65.2	46.9	24.9	60.0	51.9
	470	39.4	94.8	39.7	36.6	88.6	43.9	34.2	82.4	48.2	31.7	76.6	55.5	28.5	69.1	58.6
	580	45.9	111.1	47.4	42.9	103.1	52.7	39.6	95.8	58.0	36.3	87.9	64.1	33.2	79.7	70.5
	630	50.4	122.2	56.1	47.3	114.2	61.5	43.7	104.9	68.2	40.0	96.9	74.5	39.2	93.9	77.1

LWT (°F)	MODEL (RWC4)	AMBIENT TEMPERATURE (°F)														
		85			95			105			115			125		
		T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)
42	55	5.1	12.1	5.0	4.8	11.3	5.7	4.4	10.6	6.3	4.1	9.8	7.0	3.7	8.9	7.7
	76	6.8	16.2	7.0	6.4	15.2	7.9	6.0	14.3	8.7	5.5	13.2	9.7	5.0	12.1	10.7
	105	9.6	23.0	8.7	9.0	21.6	9.7	8.4	20.2	10.9	7.8	18.6	12.2	7.1	16.9	13.7
	128	10.8	25.7	9.7	10.1	24.2	10.7	9.4	22.7	11.9	8.8	21.0	13.3	8.0	19.3	14.7
	160	13.9	33.2	13.4	13.2	31.4	14.8	12.3	29.5	16.4	11.4	27.3	18.1	10.5	24.9	19.8
	210	18.5	44.5	17.8	17.2	41.4	19.9	15.8	38.1	22.3	14.4	34.8	25.1	13.1	31.6	27.9
	260	22.1	53.4	18.4	20.7	49.8	20.5	19.2	46.4	22.8	17.8	42.7	25.4	16.2	38.9	28.3
	310	28.4	68.4	26.1	26.8	64.2	28.6	24.7	59.8	31.7	22.8	55.2	34.9	20.8	50.4	38.5
	390	32.3	78.2	27.6	30.2	72.9	30.8	28.2	67.6	34.3	25.8	62.3	38.2	23.6	56.7	42.3
	430	34.9	83.9	35.1	32.6	78.4	38.6	30.4	73.0	42.6	28.0	67.3	47.3	25.7	62.0	52.3
	470	40.5	97.8	40.2	38.1	91.6	44.2	35.3	85.0	48.7	32.5	78.5	53.5	29.6	71.4	59.0
	580	47.6	114.4	47.9	44.1	106.7	53.0	40.8	98.7	58.7	37.6	90.4	64.7	34.2	82.7	70.9
	630	52.1	125.5	56.9	49.2	117.9	61.8	44.8	108.5	68.7	41.3	99.7	75.3	40.1	95.9	78.8

LWT (°F)	MODEL (RWC4)	AMBIENT TEMPERATURE (°F)														
		85			95			105			115			125		
		T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)
44	55	5.2	12.5	5.1	4.9	11.7	5.7	4.6	10.9	6.4	4.2	10.1	7.1	3.8	9.2	7.8
	76	7.0	16.7	7.1	6.5	15.7	7.9	6.2	14.8	8.8	5.7	13.6	9.7	5.2	12.5	10.7
	105	9.9	23.7	8.7	9.3	22.3	9.8	8.7	20.8	11.0	8.0	19.2	12.4	7.3	17.5	13.8
	128	11.1	26.6	9.7	10.5	25.0	10.8	9.8	23.5	12.0	9.1	21.8	13.3	8.3	20.0	14.8
	160	14.4	34.4	13.5	13.5	32.5	15.0	12.7	30.4	16.5	11.8	28.2	18.2	10.7	25.7	19.9
	210	19.2	45.9	17.9	17.8	42.7	20.1	16.4	39.3	22.6	15.0	36.1	25.1	13.5	32.7	28.1
	260	22.9	55.1	18.5	21.4	51.6	20.6	20.0	47.8	23.0	18.4	44.2	25.5	16.8	40.4	28.4
	310	29.5	70.6	26.3	27.5	66.4	28.9	25.6	61.8	31.8	23.7	56.9	35.2	21.7	52.2	38.6
	390	33.5	80.4	27.9	31.4	75.2	31.0	28.9	69.9	34.6	26.8	64.5	38.3	24.5	58.7	42.6
	430	36.1	86.4	35.6	33.6	81.1	39.1	31.2	75.4	43.1	29.0	69.5	47.7	26.6	64.0	52.8
	470	42.1	100.9	40.5	39.3	94.4	44.7	36.4	87.6	49.2	34.0	81.5	56.4	30.6	73.7	59.4
	580	48.8	117.8	48.6	45.7	109.9	53.6	42.4	101.7	59.2	39.0	93.5	65.1	35.2	85.0	71.7
	630	54.0	129.2	57.5	50.1	121.0	63.1	46.7	112.1	69.1	42.8	102.7	75.9	40.9	97.9	80.6

Legend

LWT : Leaving Water Temperature
T. CAP : Total Capacity
WFR : Water Flow Rate
PI : Compressor Power Input

Note

- Ratings based on 10°F cooler water temperature difference between inlet and outlet water temperature
- Power input in this page should not be used for cable or breaker selection. MCA and MOP values in the electrical data section should be referred for the same

LWT (°F)	MODEL (RWC4)	AMBIENT TEMPERATURE (°F)														
		85			95			105			115			125		
		T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)
46	55	5.4	13.0	5.1	5.1	12.2	5.7	4.7	11.3	6.4	4.4	10.5	7.1	4.0	9.5	7.9
	76	7.2	17.3	7.1	6.8	16.2	8.0	6.4	15.3	8.8	5.9	14.0	9.8	5.4	12.9	10.7
	105	10.2	24.5	8.8	9.6	23.0	9.9	9.0	21.5	11.1	8.3	20.0	12.4	7.6	18.2	13.8
	128	11.5	27.5	9.8	10.7	25.8	10.9	10.1	24.2	12.1	9.4	22.5	13.4	8.7	20.7	14.8
	160	14.8	35.5	13.7	14.0	33.5	15.1	13.1	31.3	16.7	12.2	29.2	18.3	11.1	26.6	20.1
	210	19.7	47.4	18.2	18.4	44.1	20.3	16.9	40.6	22.7	15.5	37.2	25.3	14.1	33.8	28.1
	260	23.6	56.8	18.7	22.1	53.2	20.8	20.6	49.5	23.1	19.1	45.8	25.7	17.4	41.7	28.6
	310	30.3	72.8	26.6	28.4	68.5	29.2	26.5	63.5	32.2	24.5	58.7	35.4	22.4	53.8	38.9
	390	34.5	83.0	28.2	32.4	77.8	31.2	30.0	72.2	34.8	27.8	66.5	38.6	25.4	60.7	42.9
	430	37.2	89.3	36.0	34.7	83.4	39.7	32.3	77.7	43.6	29.9	71.9	48.1	27.6	66.0	53.2
	470	43.7	104.0	40.8	40.5	97.2	45.2	37.7	90.4	49.6	34.7	83.0	54.7	31.7	76.0	59.8
	580	50.6	121.0	49.2	47.4	113.3	54.1	43.8	104.9	59.7	40.2	96.5	65.7	36.6	87.8	72.1
	630	55.2	133.1	58.4	51.0	124.1	64.4	48.6	115.7	69.5	44.2	106.3	76.4	41.8	100.0	82.4

LWT (°F)	MODEL (RWC4)	AMBIENT TEMPERATURE (°F)														
		85			95			105			115			125		
		T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)
48	55	5.6	13.4	5.2	5.3	12.5	5.8	4.9	11.7	6.5	4.5	10.9	7.1	4.1	9.9	7.9
	76	7.4	17.8	7.3	7.0	16.8	8.1	6.6	15.8	8.9	6.0	14.5	9.8	5.6	13.3	10.7
	105	10.6	25.3	8.9	10.0	23.9	10.0	9.3	22.3	11.2	8.6	20.6	12.5	7.9	18.8	13.8
	128	11.9	28.4	9.9	11.1	26.6	11.0	10.5	25.0	12.2	9.8	23.3	13.5	8.9	21.4	15.0
	160	15.2	36.5	14.0	14.5	34.5	15.3	13.5	32.4	16.9	12.6	30.1	18.5	11.5	27.5	20.2
	210	20.4	48.8	18.3	19.1	45.6	20.4	17.5	42.0	22.9	16.1	38.6	25.4	14.6	34.9	28.2
	260	24.5	58.5	18.9	23.0	54.9	21.0	21.3	51.1	23.3	19.8	47.2	25.8	18.1	43.3	28.7
	310	31.3	75.1	26.9	29.5	70.4	29.5	27.4	65.5	32.5	25.4	60.6	35.7	23.2	55.5	39.2
	390	35.8	85.7	28.4	33.5	80.4	31.4	31.2	74.6	35.0	28.9	68.9	38.7	26.2	62.8	43.2
	430	38.5	92.0	36.5	35.9	86.2	40.1	33.5	80.2	44.1	30.9	74.2	48.6	28.5	68.0	53.7
	470	45.3	107.1	41.1	41.7	100.0	45.7	38.9	93.0	50.1	36.2	86.7	57.5	32.9	78.8	60.0
	580	52.1	124.6	49.9	48.8	116.7	54.6	45.2	108.2	60.3	41.5	99.2	66.4	37.7	90.3	72.8
	630	56.9	136.9	59.1	53.3	127.8	64.7	49.7	119.4	70.2	45.7	109.5	77.0	42.7	102.0	84.2

LWT (°F)	MODEL (RWC4)	AMBIENT TEMPERATURE (°F)														
		85			95			105			115			125		
		T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)	T. CAP (Tons)	WFR (GPM)	PI (kW)
50	55	5.8	13.8	5.2	5.4	13.0	5.9	5.1	12.2	6.5	4.7	11.2	7.2	4.3	10.3	8.0
	76	7.7	18.3	7.4	7.2	17.3	8.1	6.8	16.3	9.0	6.3	14.9	9.9	5.8	13.7	10.7
	105	10.9	26.2	9.0	10.3	24.7	10.1	9.6	23.0	11.3	8.9	21.3	12.5	8.1	19.4	13.8
	128	12.2	29.2	10.0	11.5	27.5	11.1	10.8	25.8	12.3	10.1	24.1	13.6	9.3	22.1	15.0
	160	15.7	37.8	14.0	14.8	35.6	15.5	14.0	33.4	17.0	13.0	31.0	18.7	11.9	28.3	20.4
	210	21.0	50.3	18.5	19.7	47.0	20.6	18.1	43.3	23.0	16.7	39.8	25.5	15.1	36.1	28.5
	260	25.3	60.3	19.1	23.6	56.6	21.2	22.1	52.8	23.4	20.5	48.8	26.0	18.7	44.7	28.8
	310	32.3	77.2	27.3	30.4	72.5	29.9	28.2	67.6	32.8	26.2	62.4	36.0	24.0	57.3	39.4
	390	36.9	88.4	28.6	34.7	82.7	31.8	32.3	77.0	35.2	29.7	71.3	39.1	27.2	65.0	43.3
	430	39.7	95.0	37.0	37.1	88.5	40.7	34.7	82.8	44.5	32.0	76.5	49.1	29.5	70.0	54.1
	470	46.2	110.4	41.9	42.9	102.8	46.2	40.1	95.8	50.6	37.0	88.3	55.6	33.8	80.6	60.8
	580	53.8	128.2	50.5	50.1	120.5	55.2	46.7	111.3	60.9	42.8	102.6	66.8	38.9	92.8	73.4
	630	59.3	141.4	59.4	55.1	131.9	65.2	51.2	122.3	71.2	47.2	112.9	77.6	43.5	104.0	86.0

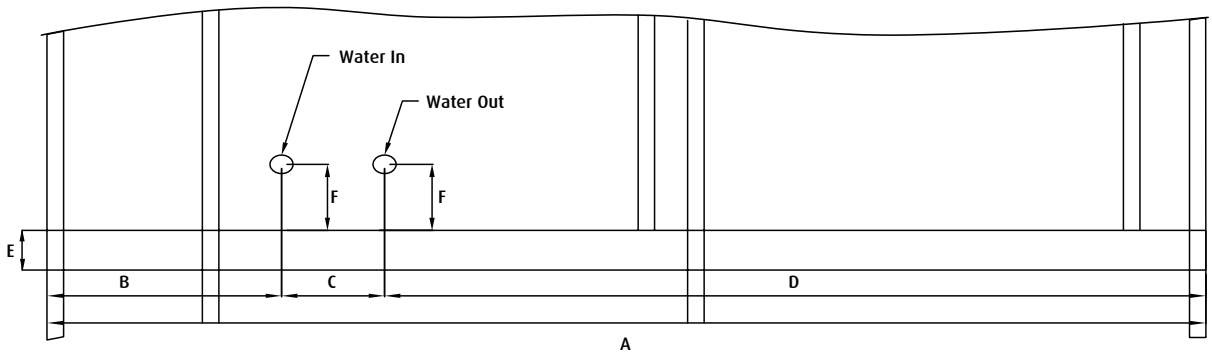
Legend

LWT : Leaving Water Temperature
T. CAP : Total Capacity
WFR : Water Flow Rate
PI : Compressor Power Input

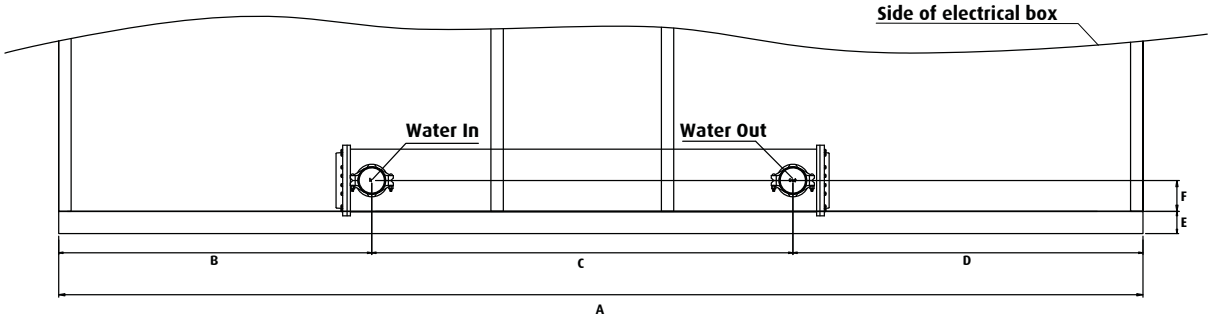
Note

- Ratings based on 10°F cooler water temperature difference between inlet and outlet water temperature
- Power input in this page should not be used for cable or breaker selection. MCA and MOP values in the electrical data section should be referred for the same

Cooler Connections



MODEL (RWC4)	A		B		C		D		E		F		Water In Connection Diameter		Water Out Connection Diameter	
	mm	[Inch]	mm	[Inch]	mm	[Inch]	mm	[Inch]	mm	[Inch]	mm	[Inch]	mm	[Inch]	mm	[Inch]
55	1295	51	340	13	156	6	799	31	50	2	105	4	31	1 1/4	31	1 1/4
76	1525	60	340	13	180	7	1005	40	75	3	125	5	31	1 1/4	31	1 1/4
105	1755	69	355	14	156	6	1244	49	75	3	125	5	31	1 1/4	31	1 1/4
128	2210	87	345	14	150	6	1715	68	75	3	125	5	37.5	1 1/2	37.5	1 1/2
160	2210	87	395	16	192	8	1623	64	75	3	126	5	37.5	1 1/2	37.5	1 1/2

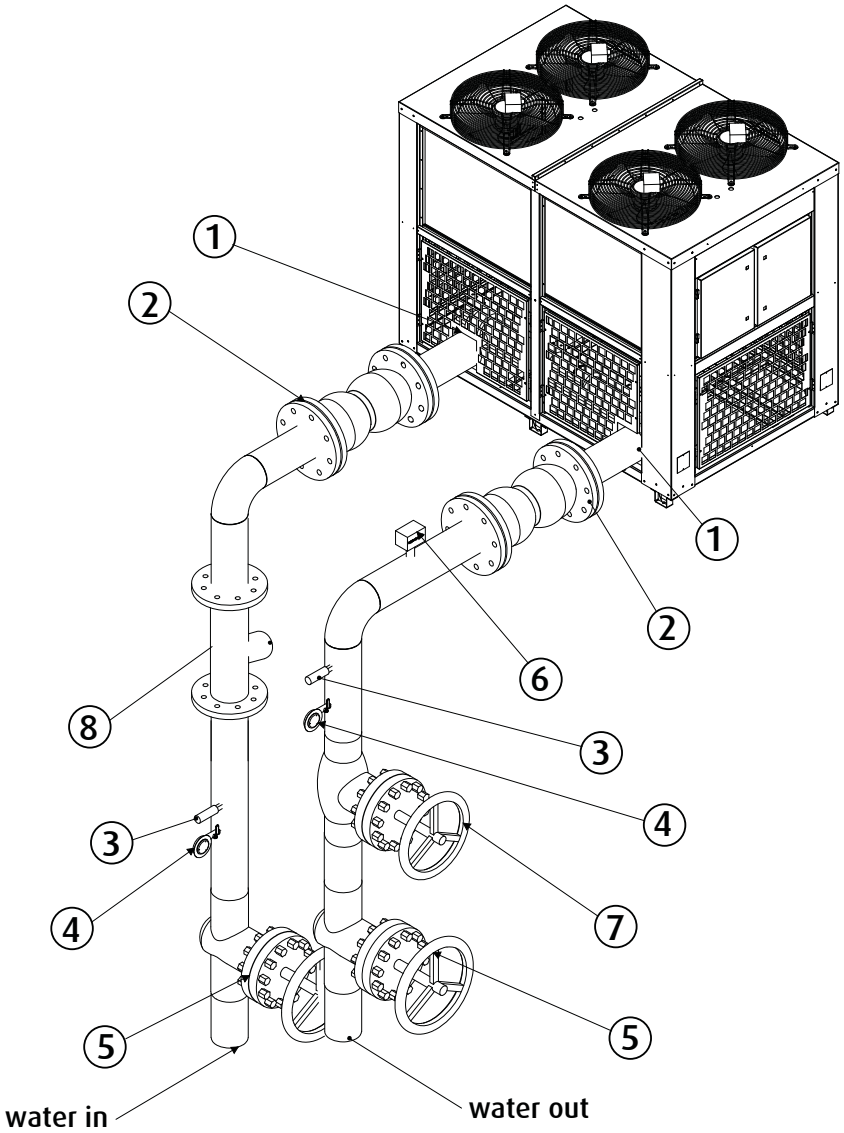


MODEL (RWC4)	A		B		C		D		E		F		Water In Connection Diameter		Water Out Connection Diameter	
	mm	[Inch]	mm	[Inch]	mm	[Inch]	mm	[Inch]	mm	[Inch]	mm	[Inch]	mm	[Inch]	mm	[Inch]
210	2280	90	750	30	1030	41	500	20	75	3	164	6	63	2 1/2	63	2 1/2
260	2280	90	550	22	1380	54	350	14	75	3	164	6	63	2 1/2	63	2 1/2
310	2280	90	490	19	1530	60	260	10	75	3	180	7	63	2 1/2	63	2 1/2
390	2280	90	490	19	1530	60	260	10	75	3	180	7	63	2 1/2	63	2 1/2
430	2280	90	570	22	1530	60	180	7	75	3	210	8	75	3	75	3
470	2280	90	490	19	1530	60	260	10	75	3	180	7	63	2 1/2	63	2 1/2
580	2910	115	645	25	2030	80	235	9	100	4	200	8	75	3	75	3
630	2910	115	645	25	2030	80	235	9	100	4	180	7	75	3	75	3

Note

- Water connections are victaulic coupling
- Water connections are shipped loose & tied inside chiller enclosure

Typical piping

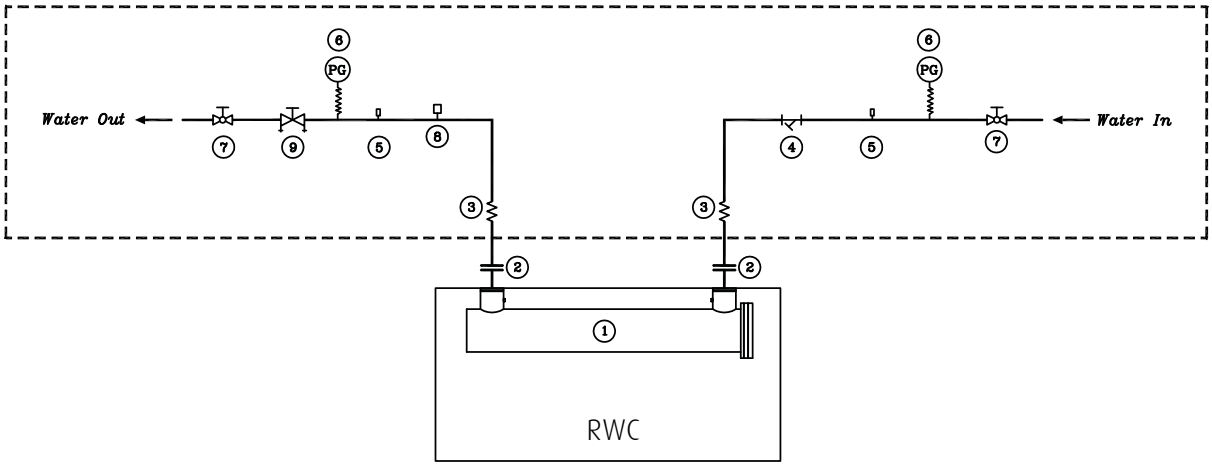


	COMPONENTS
1	Flange adapter
2	Flexible joint
3	Thermometer
4	Pressure gauge
5	Valve
6	Flow switch
7	Balancing valve
8	Strainer

Note

- Piping shown are general points of connection guides only and are not intended for a specific installation
- Piping shown are for a quick overview of system and are not in accordance with recognized standards
- All piping must follow standard piping techniques. Refer to appropriate ASHRAE (American Society of Heating, Refrigerating, and Air Conditioning Engineers) handbook for details

Water Schematic Diagram

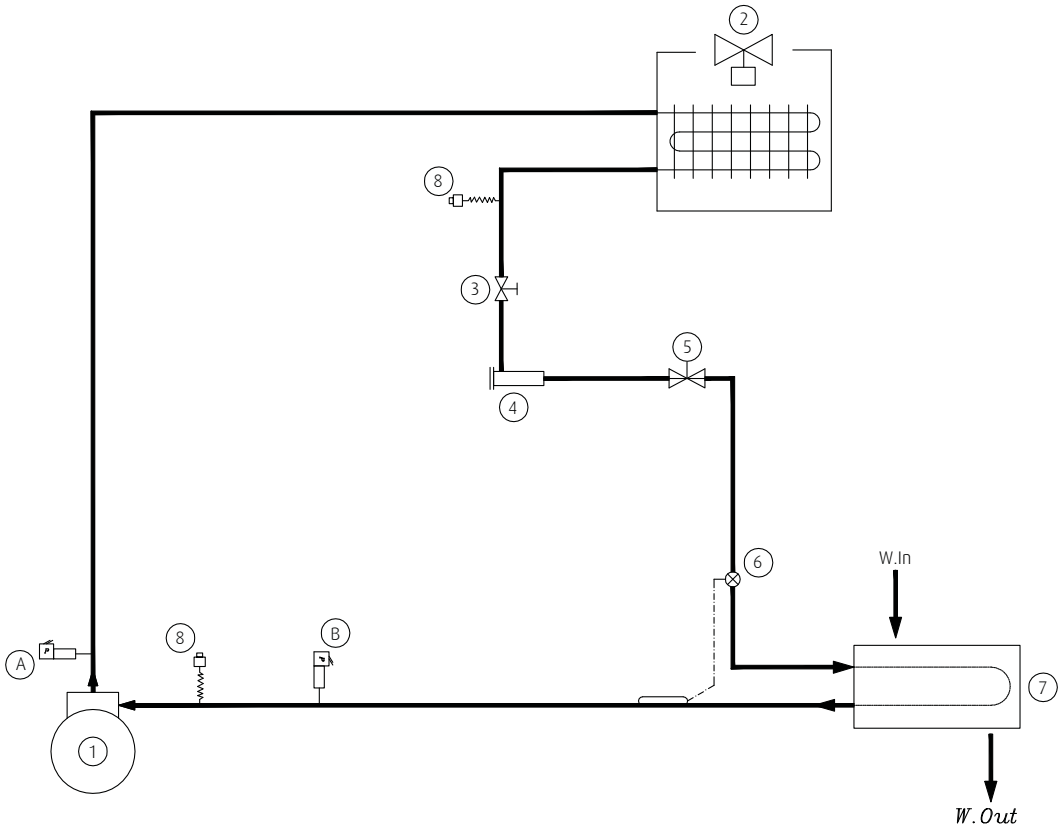


	ITEM
1	Cooler
2	Flange
3	Flexible joint
4	Strainer
5	Thermometer
6	Water pressure gauge
7	Valve
8	Flow switch
9	Balancing Valve

Note

- Schematics shown is typical schematic diagram for (RWC4 210 ~ RWC4 630). for more information, please contact
- your nearest Petra sales office

Refrigeration Schematic Diagram



	ITEM
1	Hermatic Compressor
2	Condenser Coil
3	Shut off Valve
4	Filler Drier
5	Solenoid Valve
6	Expansion Valve
7	Cooler (Barrel)
8	Flow Charging Nipple

	CONTROLLER
A	Hi Pressure Switch
B	Low Pressure Switch

Note

- Schematics shown is typical schematic diagram for (RWC4 210 ~ RWC4 630). for more information, please contact your nearest Petra sales office

Sound Dat

• 380V/3Ph/50Hz

Model (RWC4)	Sound Power (dBA)								
	Band Frequency (Hz)								
	63	125	250	500	1000	2000	4000	8000	dBA
55	61	64	71	72	76	73	66	58	80
76	64	67	74	75	78	76	70	62	83
105	64	67	74	76	78	76	70	62	83
128	66	69	76	78	80	79	73	65	85
160	66	69	76	77	80	78	72	66	85
210	67	70	77	79	81	79	73	65	86
260	67	70	77	79	81	79	73	65	86
310	67	70	77	79	81	79	73	65	86
390	67	70	77	79	81	79	73	65	86
430	67	70	77	79	81	79	73	65	86
470	67	70	77	79	81	79	73	65	86
580	67	70	77	79	81	79	73	65	86
630	67	70	77	79	81	79	73	65	86

• 380-460V/3Ph/60Hz

Model (RWC4)	Sound Power (dBA)								
	Band Frequency (Hz)								
	63	125	250	500	1000	2000	4000	8000	dBA
55	63	66	73	74	78	75	68	60	82
76	66	69	76	77	80	78	72	64	85
105	66	69	76	78	80	78	72	64	85
128	68	71	78	80	82	81	75	67	87
160	68	71	78	79	82	80	74	68	87
210	69	72	79	81	83	81	75	67	88
260	69	72	79	81	83	81	75	67	88
310	69	72	79	81	83	81	75	67	88
390	69	72	79	81	83	81	75	67	88
430	69	72	79	81	83	81	75	67	88
470	69	72	79	81	83	81	75	67	88
580	69	72	79	81	83	81	75	67	88
630	69	72	79	81	83	81	75	67	88

Note

- Sound data is calculated based on standard components design
- Sound data shall be as per AHRI 370 and ISO BS 3744 standard
- Sound data are ±2 dBA

Electrical Data

MODEL (RWC4)	POWER SUPPLY (V/Ph/Hz)	SUPPLIED VOLTAGE		COMPREDDOR			CONDENSOR FAN MOTOR			MCA	MOP	MDS
		MIN	MAX	No.	RLA (A)	LRA	NO.	kW	FLA (A)			
55	380/3/50	357	403	1	12	74	1	0.2	0.6	15	25	25
	380/3/60	357	403	1	12	88	1	0.2	0.6	16	25	25
76	380/3/50	357	403	1	16	95	2	0.2	0.6	22	35	25
	380/3/60	357	403	1	19	123	2	0.2	0.6	25	40	25
105	380/3/50	357	403	1	20	118	2	0.2	0.6	26	45	25
	380/3/60	357	403	1	26	145	2	0.2	0.6	34	60	40
128	380/3/50	357	403	1	21	118	3	0.2	0.6	28	50	40
	380/3/60	357	403	1	26	145	3	0.2	0.6	35	60	40
160	380/3/50	357	403	1	28	173	3	0.2	0.6	37	60	40
	380/3/60	357	403	1	38	196	3	0.2	0.6	49	80	60
210	380/3/50	357	403	2	20	118	4	0.2	0.6	48	60	60
	380/3/60	357	403	2	26	145	4	0.2	0.6	62	80	80
260	380/3/50	357	403	2	21	118	4	0.5	1.1	51	70	80
	230/3/60	196	244	2	54	245	4	0.7	2.1	129	175	160
	380/3/60	357	403	2	26	145	4	0.7	1.2	64	90	80
	460/3/60	432	488	2	21	125	4	0.8	1.3	52	70	60
310	380/3/50	357	403	2	28	173	4	0.5	1.1	67	90	80
	230/3/60	196	244	2	62	340	4	0.7	2.1	148	200	160
	380/3/60	357	403	2	38	196	4	0.7	1.2	90	125	100
	460/3/60	432	488	2	29	179	4	0.8	1.3	71	100	100
390	380/3/50	357	403	3	21	118	5	0.5	1.1	73	90	80
	230/3/60	196	244	3	54	245	5	0.7	2.1	185	225	200
	380/3/60	357	403	3	26	145	5	0.7	1.2	92	110	100
	460/3/60	432	488	3	21	125	5	0.8	1.3	74	90	80
430	380/3/50	357	403	4	34	229	5	0.5	1.1	82	110	100
	230/3/60	196	244	4	81	538	5	0.7	2.1	192	250	200
	380/3/60	357	403	4	39	290	5	0.7	1.2	94	125	100
	460/3/60	432	488	4	34	229	5	0.8	1.3	83	110	100
470	380/3/50	357	403	3	28	173	5	0.5	1.1	96	110	125
	230/3/60	196	244	3	62	340	5	0.7	2.1	213	250	250
	380/3/60	357	403	3	38	196	5	0.7	1.2	129	150	160
	460/3/60	432	488	3	29	179	5	0.8	1.3	101	125	125
580	380/3/50	357	403	2+2	20.7+27.9	118+173	6	0.5	1.1	111	125	160
	230/3/60	196	244	2+2	53.6+62.1	245+340	6	0.7	2.1	260	300	315
	380/3/60	357	403	2+2	26.4+37.9	145+196	6	0.7	1.2	145	175	200
	460/3/60	432	488	2+2	20.7+29.3	125+179	6	0.8	1.3	115	125	125
630	380/3/50	357	403	4	28	173	6	0.5	1.1	125	150	160
	230/3/60	196	244	4	62	340	6	0.7	2.1	277	300	315
	380/3/60	357	403	4	38	196	6	0.7	1.2	168	200	200
	460/3/60	432	488	4	29	179	6	0.8	1.3	132	150	160

Legend

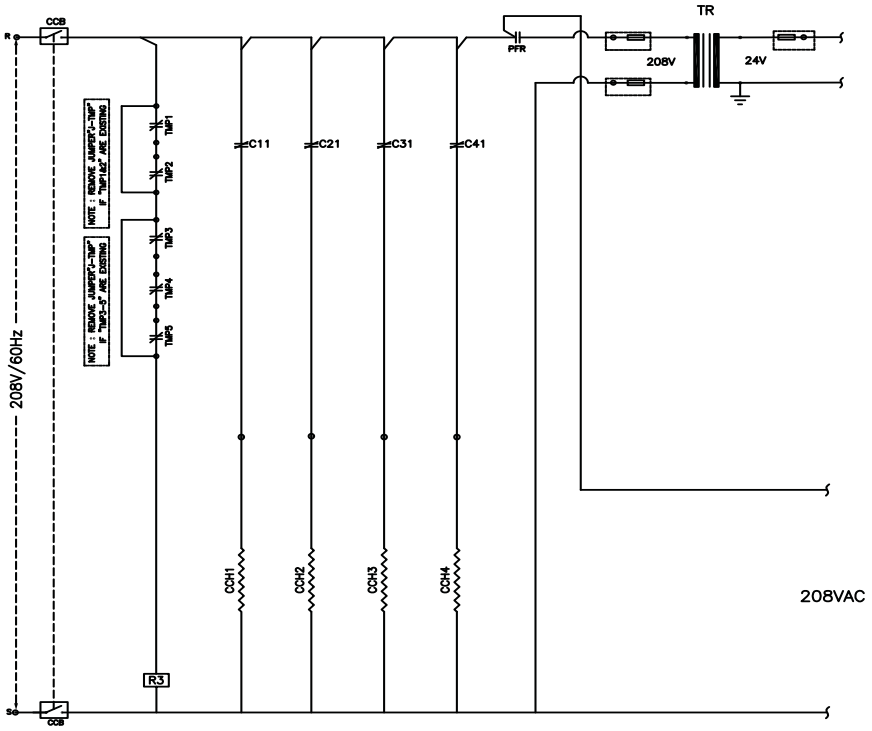
- kW: Nominal Output Power (for each Fan motor)
- RLA: Rated Load Ampere
- FLA: Full Load Ampere (for each Fan motor)
- MOP: Maximum Overcurrent Protection
- MDS: Non-Fused Main Disconnect Switch
- LRA: Locked Rotor Ampere
- MCA: Minimum Circuit Ampacity
- PW: Part winding connection
- Y-D: Star-Delta connection

Note

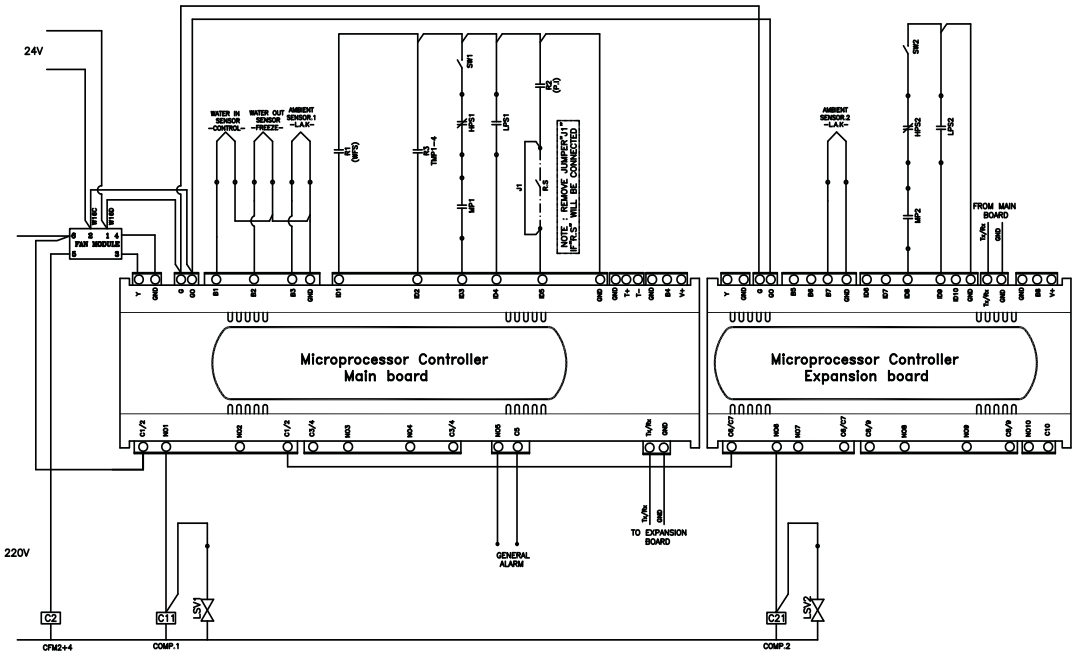
- MCA is based on 125% of the RLA for the largest motor plus 100% of the RLA/FLA for all other loads included in the circuit (NEC-Article 430-24)
- MOP is based on 225% of the RLA for the largest motor plus 100% of the RLA for all other loads included in the circuit (NEC-Article 440-22)
- MDS is based on 115% of the total summation of RLA/FLA for all loads included in the circuit (NEC-Article 440- 12A1)

Typical Wiring - 380V/3Ph/50Hz

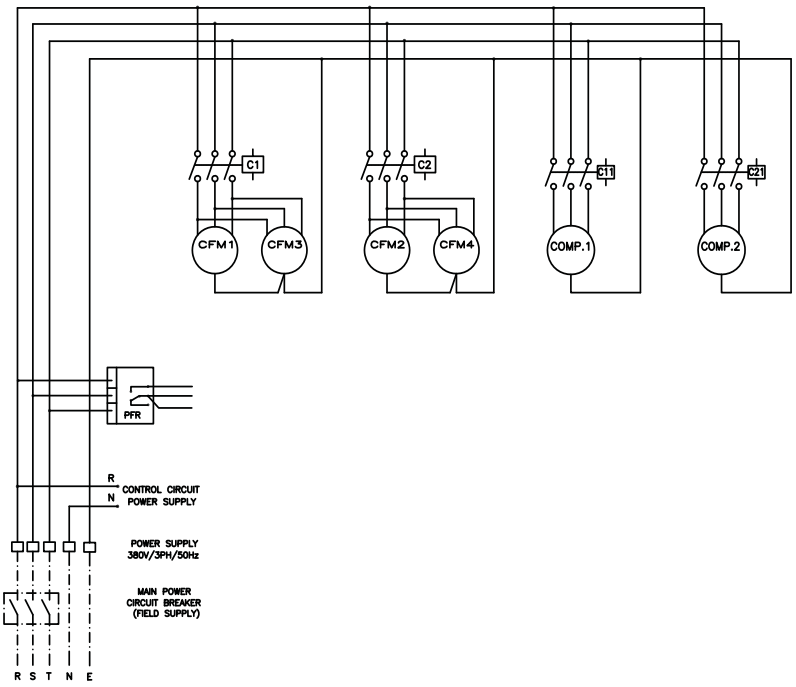
- Control Diagram



- Control Diagram



• Power Diagram



• Lists & Tables

LEGEND			
R.S	REMOTE SWITCH	R	CONTROL RELAY
C	CONTACTOR	HPS	HIGH PRESSURE SWITCH
CCB	CONTROL CIRCUIT BREAKER	LPS	LOW PRESSURE SWITCH
CCH	CRANKCASE HEATER	PFR	PHASE FAILURE RELAY
CFM	CONDENSER FAN MOTOR	LSV	LIQUID SOLENOID VALVE
WFS	WATER FLOW SWITCH	L.A.K	LOW AMBIENT KIT
COMP.	COMPRESSOR	MP	MOTOR PROTECTOR
TR	TRANSFORMER	Wn	WIRING NUMBER
SW	ON/OFF SWITCH	◉n	TERMINAL NUMBER
P.I	PUMP INTERLOCK	— · — · —	FIELD CONNECTION (BY OTHERS)

MESSAGES	
CODE	MEANING
HP1	SWITCH1,HIGH PRESSURE SWITCH CIRCUIT#1,MP1
LP1	LOW PRESSURE SWITCH CIRCUIT#1
HP2	SWITCH2,HIGH PRESSURE SWITCH CIRCUIT#2,MP2
LP2	LOW PRESSURE SWITCH CIRCUIT#2
FL	WATER FLOW SWITCH
TP	TMP1-4
E1	WATER IN SENSOR FAULT
E2	WATER OUT SENSOR FAULT
E3	AMBIENT.1 TEMPERATURE SENSOR
E7	AMBIENT.2 TEMPERATURE SENSOR
A1	ANTIFREEZE PROTECTION
EPr	EEPROM ERROR DURING OPERATION
EPb	EEPROM ERROR AT THE START-UP
HT	HIGH TEMPERATURE
LT	LOW TEMPERATURE
AHT	HIGH TEMPERATURE AT START-UP
ALT	LOW TEMPERATURE AT START-UP

PHASE FAILURE TROUBLESHOOTING		
SUPPLY FAULT	GREEN LED	RED LED
AFTER POWER APPLIED/FAULT CLEARED	ON	FLASHING
PHASE MISSING	ON	OFF
PHASE REVERSED (NO DELAY)	FLASHING	OFF
UNDER OR OVER VOLTAGE CONDITION (DURING DELAY T)	ON	ON FOR DELAY (T)
UNDER OR OVER VOLTAGE CONDITION (AFTER DELAY T)	ON	OFF
PHASE BELOW 70% OF UN (FIXED) UNDER TRIP LEVEL [3]	ON	OFF

PROBES	
BY PUSHING THE (SEL) BUTTON FOR 5 Sec.YOU WILL SEE ON THE DISPLAY PARAM. (-r-),NOW USE UP/DOWN ARROWS TO SCROLL THROUGH THE PARAMES. TO REACH PARAM -b- PRESSING(SEL) AGAIN WILL DISPLAY THE VALUE	
b01	WATER IN PROBE TEMPERATURE
b02	WATER OUT PROBE TEMPERATURE
b03	AMBIENT.1 PROBE TEMPERATURE
b07	AMBIENT.2 PROBE TEMPERATURE

ACCESS TO SET POINT

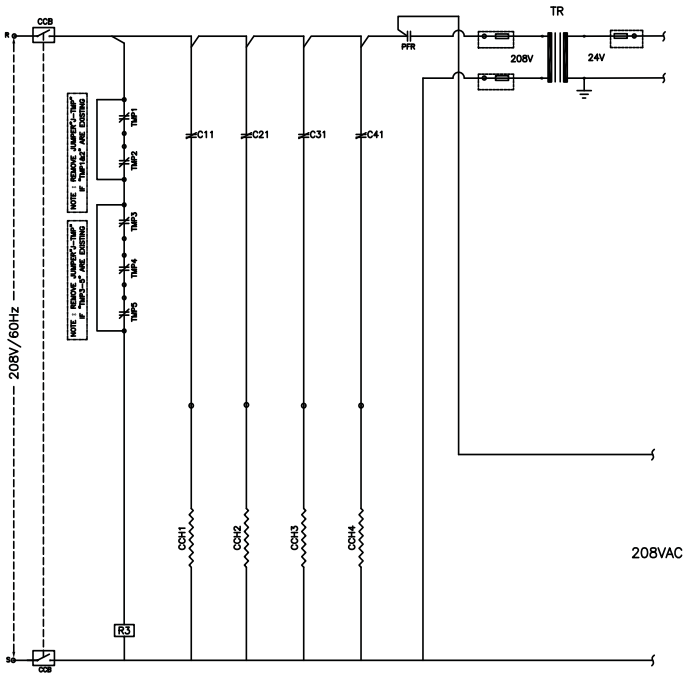
COOLING SET POINT :

BY PUSHING THE SEL BUTTON FOR 5 Sec.YOU WILL SEE ON THE DISPLAY PARAM. (-r-) THEN BY (▼) BUTTON GO TO PAR (r-) PUSH THE SEL BUTTON AGAIN TO DISPLAY THE SET VALUE IN THIS MODE YOU CAN CHAINGE THE SET POINT BY PUSHING THE UP AND DOWN ARROWS. (r01) COOLING SETPOINT
THEN PUSH THE SEL BUTTON AGAIN TO EXIT AND (PRG) FOR STORING THIS VALUE AND TO RETURN TO THE MAIN MENU

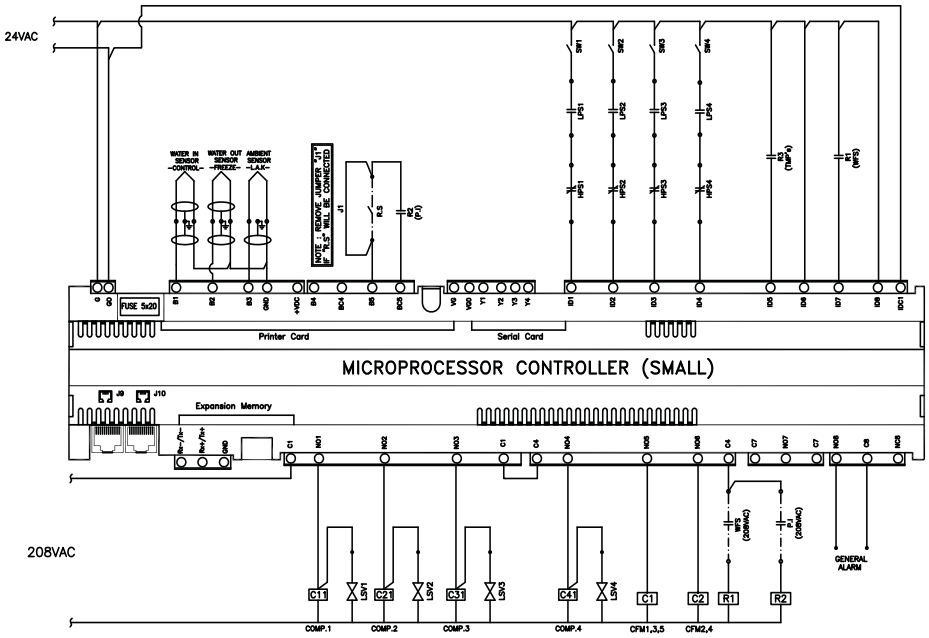
NOTE: *TO SILENCE THE BUZZER AFTER ALARM SITUATION PRESS (Mute)BUTTON.
*TO RESET THE CONTROLLER AFTER ALARM SITUATION PRESS (▲&▼) BUTTONS SIMULTANEOUSLY FOR 5Sec.
*INCASE OF KEYPAD OFF,CHECK : R.S.P.I

Typical Wiring - 208V/3Ph/60Hz

- Control Diagram

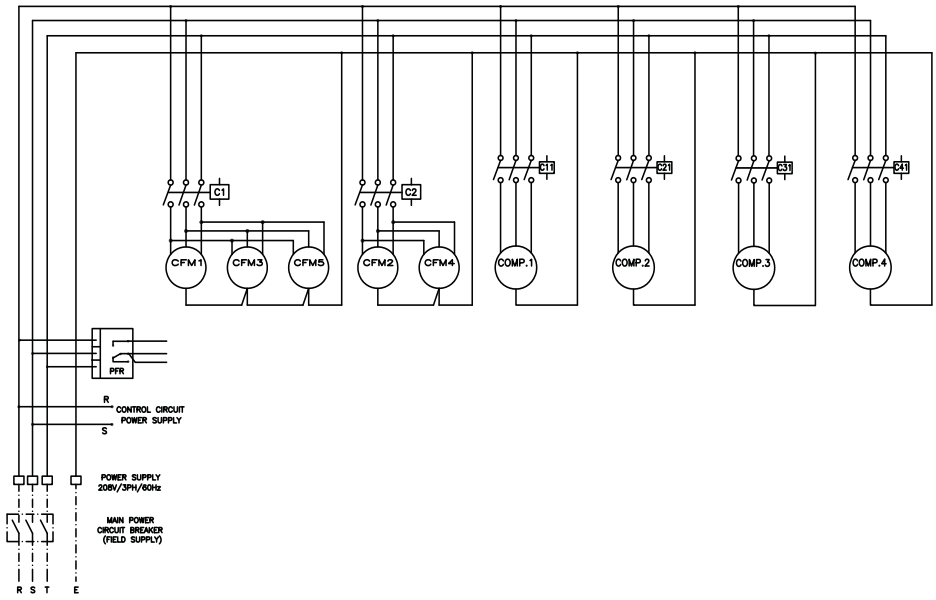


- Control Diagram



Typical Wiring - 460V/3Ph/60Hz

- Power Diagram



- Lists & Tables

LEGEND			
COMP.	COMPRESSOR	HPS	HIGH PRESSURE SWITCH
C	CONTACTOR	LPS	LOW PRESSURE SWITCH
CCB	CONTROL CIRCUIT BREAKER	LSV	LIQUID SOLENOID VALVE
CCH	CRANKCASE HEATER	P.I	PUMP INTERLOCK
CFM	CONDENSER FAN MOTOR	WFS	WATER FLOW SWITCH
PFR	PHASE FAILURE RELAY	R	CONTROL RELAY
TR	TRANSFORMER	Wn	WIRING NUMBER
SW	ON/OFF SWITCH	⊙n	TERMINAL NUMBER
L.A.K	LOW AMBIENT KIT	— · — · —	FIELD CONNECTION (BY OTHERS)
R.S	REMOTE SWITCH		

ERROR CONDITION

1 * ANY ABNORMAL CONDITION COULD HAPPENED THE CONTROLLER WILL AUTOMATICALLY SWITCH OFF THE CONCERNED CIRCUIT OR THE WHOLE CHILLER DEPENDING ON ALARM TYPE, THEN IT WILL GIVE ALARM MESSAGE AND THE CONTROLLER WILL ENERGIZE THE GENERAL ALARM RELAY.

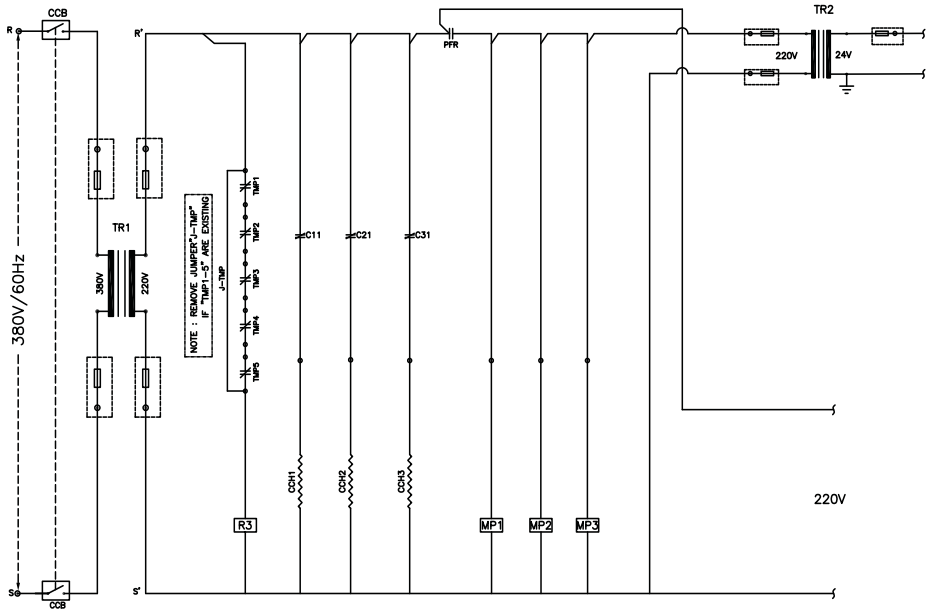
2 * IF THIS CONDITION HAPPENED, PUSH THE ALARM BUTTON TO DISPLAY THE ALARM MESSAGE.

3 * AFTER FIXING THE ALARM,TO RESET THE ALARM PUSH ALARM BUTTON AGAIN.

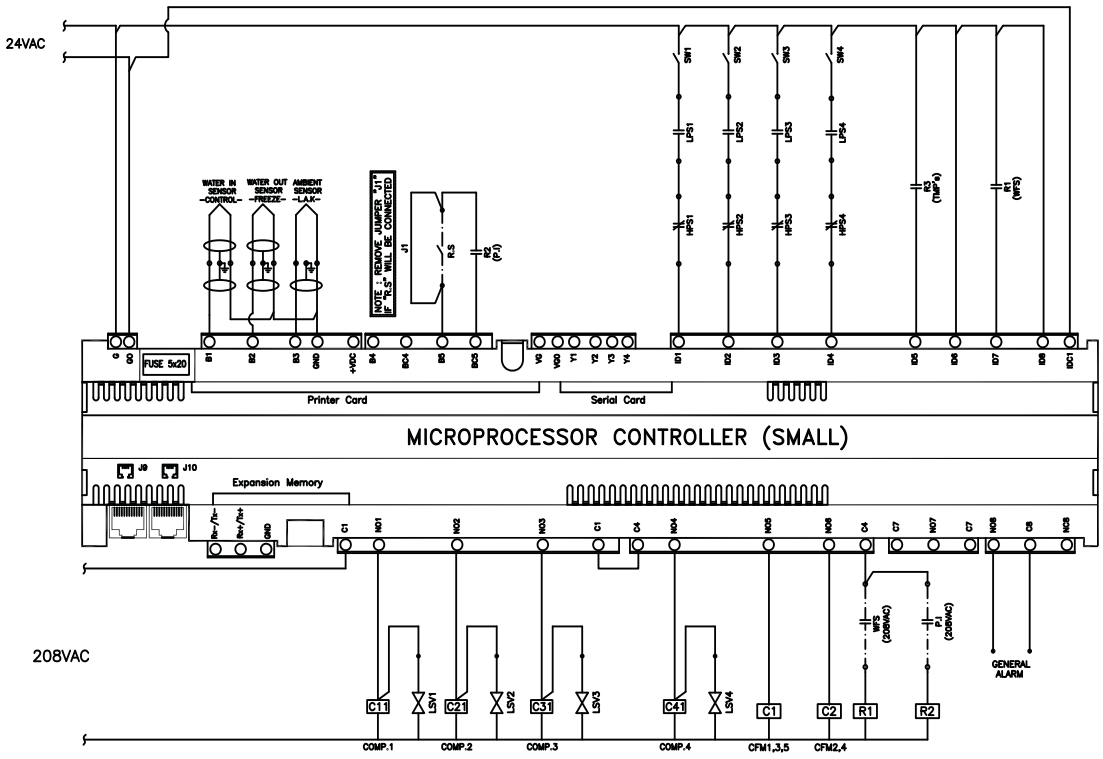
PHASE FAILURE TROUBLESHOOTING		
SUPPLY FAULT	GREEN LED	RED LED
AFTER POWER APPLIED/FAULT CLEARED	ON	FLASHING
PHASE MISSING	ON	OFF
PHASE REVERSED (NO DELAY)	FLASHING	OFF
UNDER OR OVER VOLTAGE CONDITION (DURING DELAY T)	ON	ON FOR DELAY (T)
UNDER OR OVER VOLTAGE CONDITION (AFTER DELAY T)	ON	OFF
PHASE BELOW 70% OF UN (FIXED UNDER TRIP LEVEL [2])	ON	OFF

Typical Wiring - 380V/3Ph/60Hz

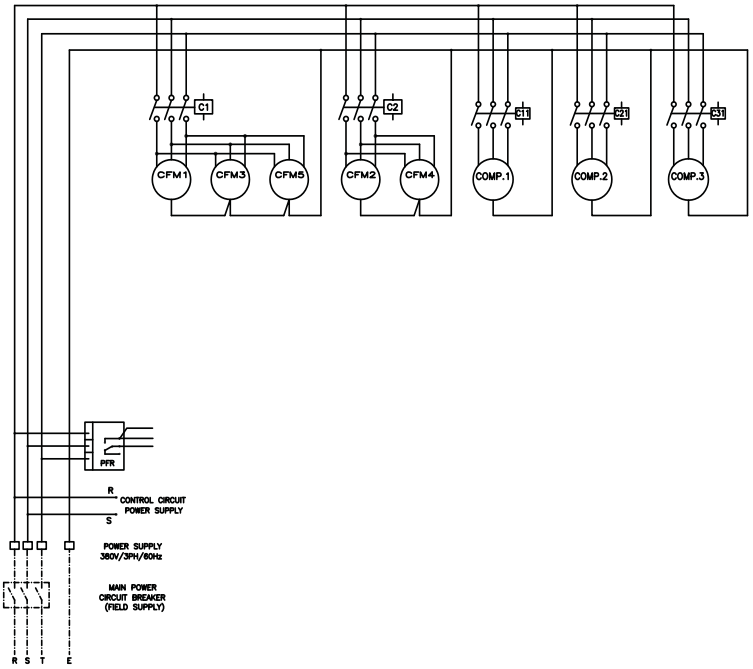
- Control Diagram



- Control Diagram



• Power Diagram



• Lists & Tables

LEGEND			
C	CONTACTOR	LSV	LIQUID SOLENOID VALVE
CCB	CONTROL CIRCUIT BREAKER	HPS	HIGH PRESSURE SWITCH
CCH	CRANKCASE HEATER	LPS	LOW PRESSURE SWITCH
CFM	CONDENSER FAN MOTOR	MP	MOTOR PROTECTOR
WFS	WATER FLOW SWITCH	P.I	PUMP INTERLOCK
COMP.	COMPRESSOR	PFR	PHASE FAILURE RELAY
TR	TRANSFORMER	TMP	THERMAL MOTOR PROTECTOR
SW	ON/OFF SWITCH	Wn	WIRING NUMBER
R	CONTROL RELAY	⊙n	TERMINAL NUMBER
R.S	REMOTE SWITCH	—·—·—	FIELD CONNECTION (BY OTHERS)

ERROR CONDITION

1 * ANY ABNORMAL CONDITION COULD HAPPENED THE CONTROLLER WILL AUTOMATICALLY SWITCH OFF THE CONCERNED CIRCUIT OR THE WHOLE CHILLER DEPENDING ON ALARM TYPE, THEN IT WILL GIVE ALARM MESSAGE AND THE CONTROLLER WILL ENERGIZE THE GENERAL ALARM RELAY.

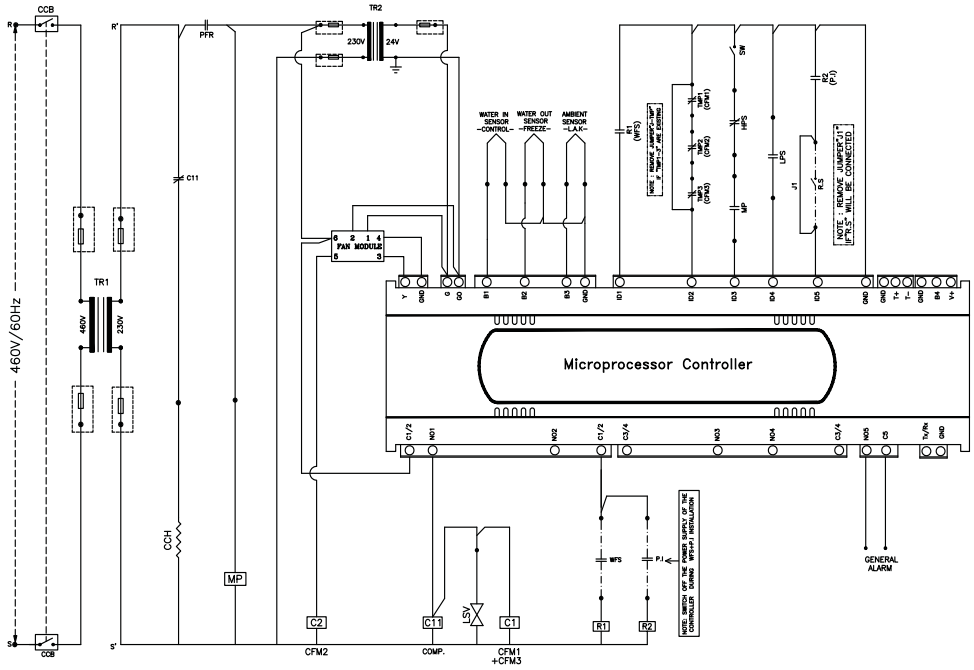
2 * IF THIS CONDITION HAPPENED, PUSH THE ALARM BUTTON TO DISPLAY THE ALARM MESSAGE.

3 * AFTER FIXING THE ALARM,TO RESET THE ALARM PUSH ALARM BUTTON AGAIN.

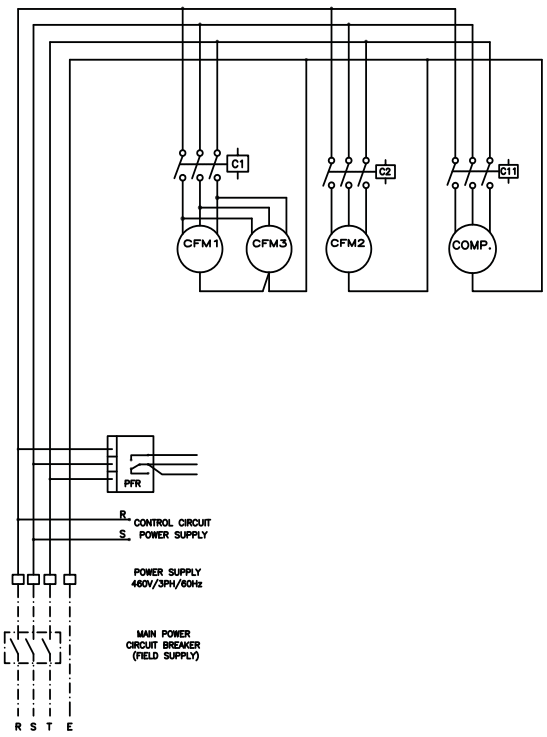
PHASE FAILURE TROUBLESHOOTING		
SUPPLY FAULT	GREEN LED	RED LED
AFTER POWER APPLIED/FAULT CLEARED	ON	FLASHING
PHASE MISSING	ON	OFF
PHASE REVERSED (NO DELAY)	FLASHING	OFF
UNDER OR OVER VOLTAGE CONDITION (DURING DELAY T)	ON	ON FOR DELAY (T)
UNDER OR OVER VOLTAGE CONDITION (AFTER DELAY T)	ON	OFF
PHASE BELOW 70% OF UN (FIXED UNDER TRIP LEVEL [2])	ON	OFF

Typical Wiring - 460V/3Ph/60Hz

- Control Diagram



- Power Diagram



• Lists & Tables

LEGEND			
R.S	REMOTE SWITCH	R	CONTROL RELAY
C	CONTACTOR	HPS	HIGH PRESSURE SWITCH
CCB	CONTROL CIRCUIT BREAKER	LPS	LOW PRESSURE SWITCH
CCH	CRANKCASE HEATER	PFR	PHASE FAILURE RELAY
CFM	CONDENSER FAN MOTOR	LSV	LIQUID SOLENOID VALVE
WFS	WATER FLOW SWITCH	MP	MOTOR PROTECTOR
COMP.	COMPRESSOR	Wn	WIRING NUMBER
TR	TRANSFORMER	◉n	TERMINAL NUMBER
SW	ON/OFF SWITCH	— · — · —	FIELD CONNECTION (BY OTHERS)
P.I	PUMP INTERLOCK		

MESSAGES	
DE	MEANING
'1	SWITCH1,HIGH PRESSURE SWITCH CIRCUIT
1	LOW PRESSURE SWITCH CIRCUIT
.	WATER FLOW SWITCH
I	WATER IN SENSOR FAULT
2	WATER OUT SENSOR FAULT
5	AMBIENT TEMPERATURE SENSOR
1	ANTIFREEZE PROTECTION
'r	EEPROM ERROR DURING OPERATION
b	EEPROM ERROR AT THE START-UP
ł	HIGH TEMPERATURE
'	LOW TEMPERATURE
łt	HIGH TEMPERATURE AT START-UP
.t	LOW TEMPERATURE AT START-UP

PFR INDICATOR LIGHT DIAGNOSTICS	
RUN	GREEN
RESTART DELAY	GREEN
REVERSE PHASE	RED
UNBALANCE/SINGLE PHASE	RED
HIGH/LOW VOLTAGE	RED

PROBES

BY PUSHING THE (SEL) BUTTON FOR 5 Sec.YOU WILL SE
ON THE DISPLAY PARAM. (r'),NOW USE UP/DOWN ARROV
TO SCROLL THROUGH THE PARAMES. TO REACH PARAM -
PRESSING(SEL) AGAIN WILL DISPLAY THE VALUE

b01	WATER IN PROBE TEMPERATURE
b02	WATER OUT PROBE TEMPERATURE
b03	AMBIENT. PROBE TEMPERATURE

ACCESS TO SET POINT

COOLING SET POINT :

BY PUSHING THE SEL BUTTON FOR 5 Sec.YOU WILL SEE
ON THE DISPLAY PARAM. (r') THEN BY (▼) BUTTON GO TO PAR (r-
PUSH THE SEL BUTTON AGAIN TO DISPLAY THE SET VALUE
IN THIS MODE YOU CAN CHANGE THE SET POINT BY PUSHING THE
UP AND DOWN ARROWS. (r01) COOLING SETPOINT
THEN PUSH THE SEL BUTTON AGAIN TO EXIT AND (PRG) FOR
STORING THIS VALUE AND TO RETURN TO THE MAIN MENU

NOTE: *TO SILENCE THE BUZZER AFTER ALARM SITUATION
PRESS (Mute)BUTTON.
*TO RESET THE CONTROLLER AFTER ALARM SITUATION
PRESS (▲&▼) BUTTONS SIMULTANEOUSLY FOR 5Sec.
*INCASE OF KEYPAD OFF,CHECK : R.S,P.I

Application Data

Unit Leveling

Unit must be leveled when installed to ensure proper oil returnto the compressor

Fluid Temperature

1. Maximum leaving chilled fluid temperature for unit is 10ºC (50ºF). For continuous operation, it is recommended that return fluid temperature does not exceed 16ºC (60ºF) (If continuous operation is required for return water temperature above 16ºC (60ºF) please refer to Petra nearest sales office)
2. Minimum leaving chilled fluid temperature for a standard unit is 4ºC (40ºF) (for lower leaving temperature contact Petra nearest sales office)

Barrel (Cooler) Flow Range

Chiller ratings and performance data pertain to a fluid temperature rise of 5.5ºC (10°F). Chillers may be suitable for operation in a range from 3ºC (5.4°F)to 9ºC (16°F) temperature rise without adjustment and provided flow limits are within the minimum limits (for larger or smaller temperature rise, a mixing loop is required; please contact Petra nearest sales office)

Minimum Cooler Flow

Is based on the maximum permissible temperature rise across the cooler of 9ºC (16°F)

Fluid loop volume

To obtain proper temperature control, the loop fluid volume must be at least 297 (L/s)/kW (5 GPM/Ton) based on a 5.5ºC (10°F) temperature rise for chiller nominal capacity in air conditioning applications, taking into consideration the minimum system volume

Cooler protection:

Protection against low ambient freeze-up is required for ambient temperatures below 0ºC (32°F) protection should be in the form of:

1. Inhibited ethylene glycol or any other suitable glycol (please contact Petra nearest sales office
2. Cooler is equipped with an electric tape heat that prevents freeze-up (Optional)

High Ambient Temperature

High outdoor ambient chiller start-up and operation is possible for chillers at ambient temperatures up to 52ºC (125°F) at nominal voltage (for standard units) (for higher ambient temperatures, please contact Petra nearest sales office)

Condenser Airflow

Any restrictions on the unit's fan airflow will affect the unit's capacity, condenser head pressure, and compressor power input. Such restrictions -not providing vertical clearance or lateral clearance, insufficient unit-to-unit clearance- will cause warm air re-circulation or coil starvation. Minimum required operational and maintenance clearances around the unit are shown in the figure on page 89

Altitude correction factors

Capacity correction and compressor power factors must be applied to standard ratings at altitudes above sea level using the multipliers on the right

Altitude Meter [ft]	Correction Factor	Compressor Power Factor
Sea Level	1.000	1.000
305 (1000)	0.995	1.005
610 (2000)	0.990	1.010
915 (3000)	0.985	1.015
1220 (4000)	0.980	1.020
1525 (5000)	0.973	1.025
1830 (6000)	0.976	1.030
2135 (7000)	0.960	1.035
2440 (8000)	0.950	1.040

Application Data

MODEL (RWC4)	Nominal water flow rate				Minimum water flow rate				Minimum loop volume			
	50 Hz		60 Hz		50 Hz		60 Hz		50 Hz		60 Hz	
	L/s	GPM	L/s	GPM	L/s	GPM	L/s	GPM	Liter	gallon	Liter	gallon
55	0.6	10	0.7	12	0.4	7	0.5	8	185	49	221	59
76	0.9	14	1.0	16	0.6	10	0.7	11	248	66	297	79
105	1.2	19	1.4	22	0.8	13	1.0	16	350	93	422	112
128	1.3	21	1.6	25	0.9	15	1.1	18	432	114	473	125
160	1.7	28	2.1	33	1.2	19	1.4	23	509	135	615	163
210	2.3	36	2.7	43	1.6	25	1.9	30	666	176	808	214
260	2.8	44	3.3	52	1.9	31	2.3	36	893	236	977	258
310	3.6	56	4.2	66	2.5	39	2.9	46	1,037	274	1,257	332
390	4.1	64	4.7	75	2.8	45	3.3	52	1,304	345	1,423	376
430	4.4	70	5.1	81	3.1	49	3.5	56	1,365	361	1,535	406
470	5.1	81	6.0	94	3.6	56	4.1	66	1,490	394	1,787	472
580	6.0	94	6.9	110	4.1	66	4.8	76	1,874	495	2,080	550
630	6.6	104	7.6	121	4.6	72	5.3	84	1,989	526	2,290	605

Note

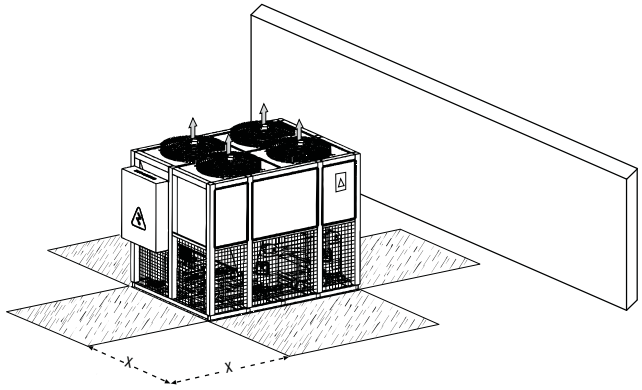
Nominal water flow rate is based on AHRI condition of 35 °C (95 °F) ambient and leaving water temperature of 6.7°C (44°F) and inlet water temperature of 12.2°C (54°F)
Minimum water flow rate is based on leaving water temperature of 4°C (40°F) and inlet water temperature of 13°C (55°F)
Minimum cooler loop volume is based on normal air conditioning application

Unit Clearance

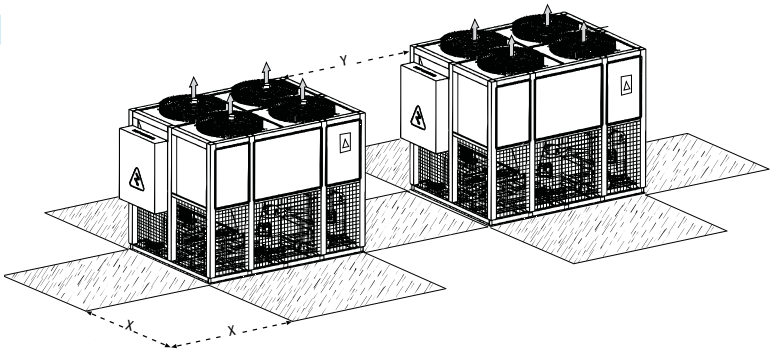
When locating the chiller, pay particular attention to the clearances between the unit and adjacent objects. The relevant electrical code (NEC or CEC) requires a minimum of 36 inches (100 cm) of service space between the face of any electrical enclosure and any wall or obstruction.

Provide sufficient clearance to ensure full access door swings, panel removal and room for piping and wiring ducting. There must be no obstructions to prevent airflow through hoods or louvers. Allow a distance equivalent to the horizontal width of the louver between the louver and any wall facing the louver.

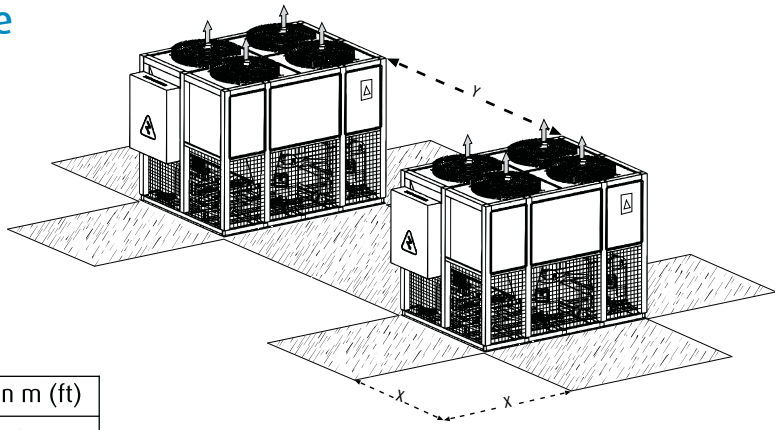
· Single unit



· End-to-end



· Side-by-side



Clearance Dimension m (ft)	
A	B
1.8 (6)	1.8 (6)

Legend

- Free Space For Service
- Electric Box
- No Obstacles

Note

- Unit must be leveled
- Service area above is the minimum accepted
- For any other site installation requirements or multiple chiller installation, please contact your nearest Petra sales office

Guide Specification

Part 1 — General

1.01 SYSTEM DESCRIPTION

A. This section includes a microprocessor controlled Residential Water Chiller with scroll hermetic compressors, suitable for residential applications with low sound fans and independent refrigeration circuits. Chiller will have the scheduled capacities as shown and indicated on the plans tables and drawings

1.02 QUALITY ASSURANCE

A. Chiller unit shall be designed, manufactured, tested, rated and certified in accordance with the applicable section of the following standards and codes:

1- AHRI 370, "Sound Rating of Large Outdoor Refrigeration and Air-Conditioning Equipment"
2- ASHRAE 90.1, "Energy Standard for Buildings Except Low-Rise Residential Buildings"
3- ANSI/ASHRAE 15, "Safety Code for Mechanical Refrigeration". Comply with ASHRAE guideline 3 for refrigerant leaks, recovery, handling and storage requirements
4- ANSI/ASHRAE 34, "Number Designation and Safety Classification of Refrigerants"
5- ANSI/NFPA 70, "National Electrical Code (NEC)"
6- OSHA, "Occupational Safety and Health Act"
7- ASME Compliance: Fabricate and label water chiller heat exchangers (Barrel) to comply with "ASME Boiler and Pressure Vessel Code: Section VIII, Division I"
8- Manufactured in a facility registered to ISO 9001-2008, "Manufacturing Quality Standard" that define, establish, and maintain an effective quality assurance system for manufacturing and service industries and ISO 14001-2004, "Environmental Management System" that identify and control the environment impact and constantly improve the organization environmental performance
9- Conform to UL 1995-2000 under "Intertek Testing Services" for construction of chillers and bear the ETL/cETL mark

B. Factory Run Test

1- Unit shall be full load run tested at the factory. This includes pressure testing, evacuation of refrigeration circuits and charging afterward with refrigerant and oil. The run test will be carried out in a controlled environment based on the ambient design temperature, entering and leaving water temperatures and with water flowing through the barrel (Evaporator)

1.03 DELIVERY, STORAGE AND HANDLING

A. Unit controls shall be capable of withstanding 65.5 °C (150 °F) storage temperatures in the control compartment
B. Unit shall be delivered to job site fully assembled with all interconnecting refrigeration piping and internal wiring ready for field installation and charged with refrigerant and oil by the manufacturer
C. Unit to have a protective transparent shipping cover over the whole. This cover shall be secured to the unit base through special welded steel rods with nylon robes. Barrel opening shall be protected with plastic caps
D. Unit shall be stored and handled per unit manufacturer's recommendations

1.04 WARRANTY

A. Manufacturer shall warrant the equipment (parts only) against defects of workmanship and/or material for a period of eighteen (18) months from date of shipment or twelve (12) months from date of start-up, whichever occurs first

Part 2 — PRODUCTS

2.01 APROVED MANUFACTURERS

A. The design shown on the Plans & Drawings is based on PETRA model RWC4 chiller manufactured by Petra Engineering Industries Co. Alternate equipment will be acceptable if the manufacturer's equipment meets the scheduled performance and complies with these specifications.
If equipment manufactured by a manufacturer other than that scheduled is utilized, then the Mechanical Contractor shall be responsible for coordinating with the General Contractor and all affected Subcontractors to insure proper provisions for installation of the furnished unit. This coordination shall include, but not be limited to, the following:

1- Electrical power requirements, wire and conduit sizes, circuit breakers and feeders sizes and overcurrent protection size
2- Structural supports for units
3- Chiller physical size on plant layout and apace availability
4- Water piping sizes and water connection locations on the unit
5- Compliance with the proper international codes such as AHRI, ANSI, NFPA, UL and ASME
6- Site noise considerations

Guide Specification

B. The Mechanical Contractor shall be Responsible for all costs incurred by the General contractor, Subcontractors, and Consultants to modify the building provisions to accept the furnished alternate equipment

2.02 GENERAL

A. Description:

1- Furnish, install and commission a factory assembled single piece chassis Residential Water Chiller unit that is charged and run tested in the factory as specified herein and shown on the Drawings. Chiller shall include, but is not limited to: scroll hermetic compressors, a complete refrigeration system with independent refrigerant circuit, brazed plate heat exchanger or shell and tube DX type barrel (evaporator), air-cooled condenser, a full charge of R-407c refrigerant, flanged on lubrication system, interconnecting wiring, safety and operating controls and all special features as specified herein or required for safe and automatic operation

B. Unit Paint and Color:

1-Unit panels, structural members, control and electrical boxes shall be constructed of a minimum of G-60-90 galvanized steel that shall be coated with a polyester oven baked powder paint that meets a minimum 5,000 hours salt spray tested in accordance with the ASTM B117 standard. Color code will be RAL 9002 (White Gray). Any other paint process that meets less than 5,000 hours shall not be accepted

C. Unit Base Structure And Finish:

1- Unit will be supported by a structural welded steel of heights of 100 mm (3.1″). The base shall incorporate cross members to support internal components and will be equipped with screwed-in lifting lugs (eye bolts) of suitable loading capacity. Each lifting lug will be fitted on a welded bracket to the side of the C-channel.
The base members will be coated with mono component catalyzed primer sprayed paint. Welded rods inside the C-channel shall be added to tie-in the unit roof cover for shipment purposes

2- OPTIONAL: Sprayed base by two layers of the same color epoxy paintD

D. Compressors:

1- Fully hermetic scroll type compressors
2- Direct drive compressor, 2900/3500 rpm (50/60 power supply cycle). Motor shall be protected by internal thermal protection
3- A crank-case heater is fitted to the compressor to heat up the oil before startups. It is recommended to turn on the chiller controls before at least 24-hours to energize the crank case heater
4- Compressor starting shall be direct on line
5- Compressor shall be supported by rubber-in-shear vibration isolators and provided with ample space around it for service and removal

E. Brazed plate heat exchanger

1- The brazed plate heat exchanger shall have stainless steel plates, permanently brazed together with pure copper filter material
2- Plates shall be stacked together and form flow chambers for two fluids
3- The cooler shall work with a maximum allowable working pressure of 1,000 kPa (145 Psi)
4- The coolers insulated with 19 mm (3/4 inch) closed cell foam insulation removal

F. Shell & Tube Heat Exchanger (Evaporator Cooler - Barrel):

1- Shall be a shell-and-tube, Direct Expansion (DX) type with tubes removable head. Water in the shell and refrigerant in tubes
2- Tubes shall be internally enhanced seamless copper type rolled into tube sheets. Baffles shall be provided in the shell to ensure maximum water distribution for best heat transfer
3- Cooler will be designed with independent refrigeration circuits
4- Shall be insulated with a closed cell foam insulation of 19 mm (3/4″) thickness with a maximum K factor of 0.035 W/(m-K°) {0.020 BTUH/(ft-°F)}
4- OPTIONAL: Shall be insulated with a closed cell foam insulation of 25 mm (1″) thickness with a maximum K factor of 0.035 W/(m-K°) {0.020 BTUH/(ft-°F)}
4- OPTIONAL: Shall be insulated with a closed cell foam insulation of 38 mm (1 1/2″) thickness with a maximum K factor of 0.035 W/(m-K°) {0.020 BTUH/(ft-°F)}
4- OPTIONAL: Shall be insulated with a closed cell foam insulation of 50 mm (2″) thickness with a maximum K factor of 0.035 W/(m-K°) {0.020 BTUH/(ft-°F)}
5- Cooler shall have a built on drain and vent connection
6- It shall be equipped with threaded connection

7- Cooler shall be tested and stamped in accordance with ASME Code for refrigerant. Refrigerant side design working pressure shall be 1500 kPa (220 psig) and the maximum water side design working pressure shall be 1000 kPa (145 psig)

8- OPTIONAL: Anti-freeze protection tape heater to protect the cooler down to 0°C (32°F). Heater will be energized directly from unit electrical panel and requires no external power supply. Anti-freeze tape heater that requires an external power supply is not accepted. Unit must be kept ON to enable this protection 24/7

9- OPTIONAL: Aluminum protective Cladding cover that shall be applied above barrel (cooler) insulation. Aluminum cladding shall be of gauge 22 [0.7 mm (0.03″)] thick

9- OPTIONAL: Stainless steel protective Cladding cover that shall be applied above barrel (cooler) insulation. Aluminum cladding shall be of gauge 22 [0.7mm (0.03″)] thick

9- OPTIONAL: Painted galvanized steel protective Cladding cover that shall be applied above barrel (cooler) insulation. Aluminum cladding shall be of gauge 22 [0.7 mm (0.03″)] thick

10- OPTIONAL: Water flow switch shall be supplied as a loose item to be field installed by contractor. Flow switch shall be of the paddle type. The paddle shall be made from copper alloy. Switch shall be SPDT, IP 42 protection, with operating range of water temperature of -20°C to 80°C (-4°F to 176°F)

G. Condenser Coils:

1- Coils shall be fabricated from internally enhanced seamless copper tubes, mechanically expanded into aluminum alloys fins

2- Tubes are made from seamless copper of the L-type and of with a nominal wall thickness of 0.4 mm (0.016″) and a nominal diameter of 9.5 mm (3/8″)

3- Fins are made from Aluminum alloy of and manufactured in a sinusoidal shape with ripple edges to maximize the heat transfer. Each tube opening in the fin has a full height collar to allow the tube to expand using the collar material and reduce any fin failure at the expansion point. Aluminum fins have a nominal wall thickness of 0.12 mm (0.005″). Flat fin design is not accepted

3- OPTIONAL: Post Coated Fins are made from Aluminum alloy and sprayed on with a polyurethane coat that provides a protection up to 3,000-hour salt spray tested in accordance with the ASTM B117 standard. Finns shall be manufactured in a sinusoidal shape with ripple edges to maximize the heat transfer. Each tube opening in the fin has a full height collar to allow the tube to expand using the collar material and reduce any fin failure at the expansion point. Aluminum fins have a nominal wall thickness of 0.12 mm (0.005″). Flat fin design is not accepted

3- OPTIONAL: Pre Coated Fins are made from Aluminum alloy that is pre-painted (pre coated) with a polyurethane coat that provides a protection up to 3,000-hour salt spray tested in accordance with the ASTM B117 standard. Finns shall be manufactured in a sinusoidal shape with ripple edges to maximize the heat transfer. Each tube opening in the fin has a full height collar to allow the tube to expand using the collar material and reduce any fin failure at the expansion point. Aluminum fins have a nominal wall thickness of 0.12 mm (0.005″). Flat fin design is not accepted

3- OPTIONAL: Fins are made from Copper alloy and manufactured in a sinusoidal shape with ripple edges to maximize the heat transfer. Each tube opening in the fin has a full height collar to allow the tube to expand using the collar material and reduce any fin failure at the expansion point. Aluminum fins have a nominal wall thickness of 0.10 mm (0.004″). Flat fin design is not accept

4- Coils shall be fitted with galvanized steel end plates all around that are made from gauge 16 (1.5 mm {0.0635″}). All plates have full height collars for tubes penetration, to prevent any tube damage and thus leakage

4- OPTIONAL: Coils shall be fitted with Stainless steel end plates all around that are made from gauge 16 (1.5 mm {0.0635″}). All plates have full height collars for tubes penetration, to prevent any tube damage and thus leakage

5- All coil U-bends shall be protected with a painted galvanized steel cover plate

6- Condenser coils shall be manufactured by the chiller unit manufacturer in the same factory. Coils manufactured in other coils manufacturer factory shall not be accepted

Guide Specification

7- Assemble coils shall be pressure tested at the factory by dry air under water at a pressure of 3,100 kPa (450 psig). Then cleaned and dehydrated in a drying room up to a temperature of 40 °C (105 °F) to evaporate any oil or water residuals

H. Condenser Fans:

1- Fans are of the low noise, external rotor type with the stator in the center and the rotor on the exterior
2- Fan, motor protection grill and electrical junction box are manufactured in one single piece assembly
3- Fan shall be of the direct drive, 5-blade, airfoil cross section, and axial type blades
4- Motors are TEFC, IP 54 protection with class F motor insulation with inherent motor protection imbedded inside the windings
5- Motor shall have a sealed for life ball bearing with a life expectancy of L40, 40,000 hours of operation. Motor nominal speed is 900/1100 RPM (50/60 HZ power supply)
6- Assembly is statically and dynamically balanced and can be replaced as one single piece
7- Fans shall be protected by coated steel wire safety guards
8- OPTIONAL: Ultra low sound fans with reduced speed (700/900 RPM {50/60 HZ power supply})
9- OPTIONAL: Speed control for condenser fan motors shall be carried out by speed regulators

I. Refrigeration Circuits and Components:

1- Refrigerant used shall be R-407c
2- Unit shall have independent refrigeration circuits
3- Refrigeration circuit components shall include disposable filter drier, thermostatic expansion valve, liquid line service valve and a complete operating charge of refrigerant R-407c and compressor oil
4- Each compressor shall be equipped with an external high/low pressure cut outs
5- All suction lines shall be sand papered, insulated with closed cell foam insulation, wrapped with protective material and finally epoxy coated
6- All other exposed refrigeration pipes shall be sand papered cleaned and epoxy coated afterwards
7- All safety devices and valves are marked after unit run test to indicate factory position for each component

J. Acoustical Data:

1- Provide acoustical sound power or sound pressure level data in decibels (dB) at the scheduled eight (8) octave band center frequencies and/or at 1/3 of each octave band upon request. A-weighted sound data alone is not acceptable
2- Supplied equipment shall not exceed scheduled sound power or sound pressure level data at any load point. The mechanical Contractor shall be responsible for any additional costs associated with equipment deviation
3- Acoustical performance ratings shall be in accordance with AHRI 370 and ISO BS 3744 Standards
4- OPTIONAL: Ultra low sound fans with reduced speed (700/900 RPM {50/60 HZ power supply}) to meet the specified sound levels scheduled in the plans at full load and all other load points (if requested)
4- OPTIONAL: Compressor Jacket to meet the specified sound levels scheduled in the plans at full load and all other load points (if requested). Compressor jacket shall consists of a 9.5 mm (3/8") thick closed cell rubber sound insulation material encapsulated in a sound deflecting vinyl cover

K. Operating Characteristics:

1- Unit shall be capable of starting and running at outdoor ambient temperatures from 7°C (45°F) to 52 °C (125°F) for all sizes, without any additional added accessory
1- OPTIONAL: Low ambient control down to 0°C (32°F):
a. Unit shall be capable of starting and running at outdoor ambient from 0°C (32°F) to 52 °C (125°F) for all sizes. Working down to a low ambient of 0°C (32°F) shall be achieved by a combination of on/off condenser fans sequencing plus speed varying using a speed regulator option.
This shall be controlled through a pressure transmitter for each refrigerant circuit via the unit controller
2- Unit shall be capable of starting up with 35°C (95°F) entering fluid temperature to the cooler

L. Power & Electrical:

1- Power/Control Panel:

a. Factory installed and wired IP 54 (NEMA 3R) panel, that shall be made from welded G-60/90 (as a minimum) galvanized steel gauge 18 (1.25 mm {0.05"}). Panel shall be equipped with lockable and gasket sealed access doors with a minimum of two external handles and multiple hinges
a. OPTIONAL: Factory installed and wired IP 54 (NEMA 4X) panel, that shall be made from fully welded all around G-60/90 (as a minimum) galvanized steel gauge 12 (3 mm {0.12"}). Panel shall be equipped with lockable and gasket sealed access doors with a minimum of two external handles and multiple hinges
a. OPTIONAL: Factory installed and wired IP 54 (NEMA 4X) panel, that shall be made from fully welded all around Stainless steel gauge 12 (3 mm {0.12"}). Panel shall be equipped with lockable and gasket sealed access doors with a minimum of two external handles and multiple hinges
b. Panel doors shall be provided with a door retainer for each door to keep the door open during service
c. Panel door shall be provided with a pocket to place the laminated wiring diagrams and IOM manuals
d. Panel shall have one power entry either form the side or bottom

2- Main Power and Control components:

a. Free terminal for ON/OFF unit connection
b. Free terminal for general alarm output
c. Interlock for pump and water flow switch
d. *OPTIONAL: Circuit breaker for each compressor*
e. Starting contactors for each compressor and condenser fan motors
f. OPTIONAL: Manual motor starter for condenser fans
g. ON/OFF switch for each compressor
h. Control circuit breaker for short circuit protection
i. Short cycling protection timer for each compressor
j. Control transformer mounted and wired that shall supply all unit control voltage from the main unit power supply to internal components such as (not limited to) solenoid valves, compressor motor protector, compressor crank case heater and Microprocessor controller
k. Power supply monitor (Phase Failure Relay) to protect power circuit against over voltage, under voltage, phase loss, phase imbalance and phase reversing conditions
l. Control transformer for the secondary and controller voltages
m. Microprocessor controller
n. All running wiring inside panels must be contained within PVC trunks
o. All wires connection shall be marked with a clear and typed on tags to identify each wire
p. An extra loop of wires must be provided for each power connection to a circuit breaker, contactor or motor start to allow for a clamp on measuring current device to be installed during start up and service
q. Full documentation shall be provided inside the electrical panel pocket. This shall include (not limited to) a laminated wiring diagram, IOM manual, hard copy of wiring diagram, and quality check list
r. OPTIONAL: Power Factor correction capacitor:
1- Provide unit with power factor correction capacitors upon request to maintain a displacement power factor of 95% at all load conditions
2- The installing contractor shall be responsible for any and all additional cost to furnish and install power factor correction capacitors if they are requested and not factory mounted and wired
s. OPTIONAL: Earth Leakage Relay:
1- Provide unit with an earth leakage relay for the unit power supply to shut down the unit if the amount of leakage is above the set point
2- Provide unit with an earth leakage relay for the each compressor power supply to shut down the associated compressor if the amount of leakage is above the set point
t. OPTIONAL: External over load for each compressor
u. OPTIONAL: External over load for condenser fan motor
v. OPTIONAL: Control transformer to supply power input to auxiliary components at 120 or 220 volt, such as bulk head light and GFI outlet
w. OPTIONAL: Bulk Head Light for electrical panel:
1- IP 54 protection, class I electric safety bulk head light fixture shall be installed in the electrical panel for inspection purposes. The bulb shall be supplied at field by the installing contractor
x. OPTIONAL: Ampere-meter and Volt-meter:
1- Shall be mounted on power panel exterior door. Ampere-meter shall be provided for each phase and the Volt-meter shall be provide for one phase
y. OPTIONAL: 120 Volt (or 220 Volt) power supply with Transformer and GFI outlet socket:
1- A 120 volt (or 220 Volt) power supply shall be connected through a transformer to provide a 120 volt (or 220 Volt) circuit, to connect a female GFI outlet socket to provide connection to site appliances such as laptop, tablet or cell phone. 120 volt (or 220 Volt) power circuit shall be connected after the unit main disconnect switch, so as to be OFF upon main disconnect switch OFF position
2. A 120 volt (or 220 Volt) power supply shall be connected through a transformer to provide a 120 volt (or 220 Volt) circuit, to connect a GFI outlet socket to provide connection to site appliances such as laptop, tablet or cell phone.120 volt (or 220 Volt) power circuit shall be connected before the unit main disconnect switch, so as to be ON upon main disconnect switch OFF position

3- Power Entry:

a. Provide a SINGLE point power entry connection to chiller, that shall be of THREE phase as per scheduled voltage
b. Terminal Block connections shall be provided at the point of incoming single point connection for
c. The incoming power wiring must comply with local codes
d. OPTIONAL: A Main Non-Fused Disconnect Switch lockable external handle shall be supplied to isolate the unit power voltage for servicing. Disconnect switch shall be provided for all power connections to the unit
e. OPTIONAL: A Main Fused Disconnect Switch lockable external handle shall be supplied to isolate the unit power voltage for servicing. Disconnect switch shall be provided for all power connections to the unit
f. OPTIONAL: Provide a DUAL point power connection to chiller, that shall be of THREE phase as per scheduled voltage. One connection shall be for compressors and the second connection shall be for the rest of the unit. Each power connection can be equipped with a separate main disconnect switch

Guide Specification

4- Minimum Circuit Ampacity (MCA):

a. Supplied equipment shall not exceed the scheduled Minimum Circuit Ampacity (MCA). The mechanical Contractor shall be responsible for any additional costs associated with equipment deviation in this matter

5- Control Circuit components:

a. Unit control circuit shall include the following minimum components:

1- Microprocessor with non-volatile memory. Battery backup system shall not be accepted
2- Separate terminal block for power and controls
3- Separate 220 volt power supply to serve all controllers, relay, control controllers, relays and control components
4- ON/OFF control by the controller keypad
5- Replaceable solid-state controller
6- Thermistors installed to measure barrel (cooler) entering and leaving fluid temperatures

b. Microprocessor controller shall contain the following:

1- Microprocessor main board designed to supervise and monitor the unit with access port for external connection to a laptop
2- LCD screen display with I/O status and ability to adjust set point. The LCD consists of a liquid crystal display) with adjustable contrast and backlighting

c. Displayed data on the LCD display:

1- Leaving and return water temperatures (for RWC4 390 ~ RWC4 630)
2- Ambient temperature (for RWC4 390 ~ RWC4 630)
3- Compressor times
4- Digital inputs status (for RWC4 390 ~ RWC4 630)
5- Output relays status (for RWC4 390 ~ RWC4 630)
6- Protection status
7- Historical alarms (for RWC4 390 ~ RWC4 630)
8- Schedules (for RWC4 390 ~ RWC4 630)
9- Adjustable set point

d. Unit controls shall include the following functions:

1- Automatic circuit lead/lag
2- Leaving and return chilled fluid temperature reset from BMS system (for RWC4 390 ~ RWC4 630)
3- Chilled water pump and water flow interlock connection
4- Barrel (cooler) freeze protection by energizing tape heaters (if installed)
5- High discharge pressure protection
6- Low leaving water temperature protection
7- Prevent start for all compressors

e. LCD display panel features:

1- Display shall allow access to configuration, maintenance, alarm history, set points, time schedule and status data (for RWC4 390 ~ RWC4 630)
2- Display shall have one button for chiller ON/OFF
3- Display shall include multi levels of password protection against unauthorized access to programming files and imbedded set points
4- Display shall allow for easy connection of a portable hand held technician tool such as a laptop to access information and upload and/ or download chiller settings (for RWC4 390 ~ RWC4 630)

f. Safeties and Alarms:

1- High discharge pressure
2- Low suction pressure
3- Low suction temperature
4- Freeze state
5- Unsafe suction pressure
6- Flow switch (no flow protection)
7- Phase loss protection
8- Probe error alarm

g. Supporting protocols (for RWC4 390 ~ RWC4 630):

1- Modbus RTU
2- Bacnet IP (OPTIONAL)
3- Bacnet MS/TP (OPTIONAL)
4- Modbus IP (OPTIONAL)
5- Lontalk with a BMS gateway (OPTIONAL)

Part 3 — EXECUTION

3.01 INSTALLATION

A. General:

1- Rig and Install in full accordance with manufacturer's requirements, Project drawings, and contract documents

B. Location

1- Locate chiller as indicated on drawings, including cleaning and service maintenance clearance per manufacturer instructions. Adjust and level chiller on support structure

C. Components:

1- Installing Contractor shall provide and install all auxiliary devices and accessories for fully operational chiller

D. Electrical

1- Coordinate electrical requirements and connections for all power feeds with Electrical Contractor

E. Controls:

1- Coordinate all control requirements and connections with Controls Contractor

F. Finish:

1- Installing Contractor shall paint damaged and abraded factory finish with touch-up paint matching factory finish