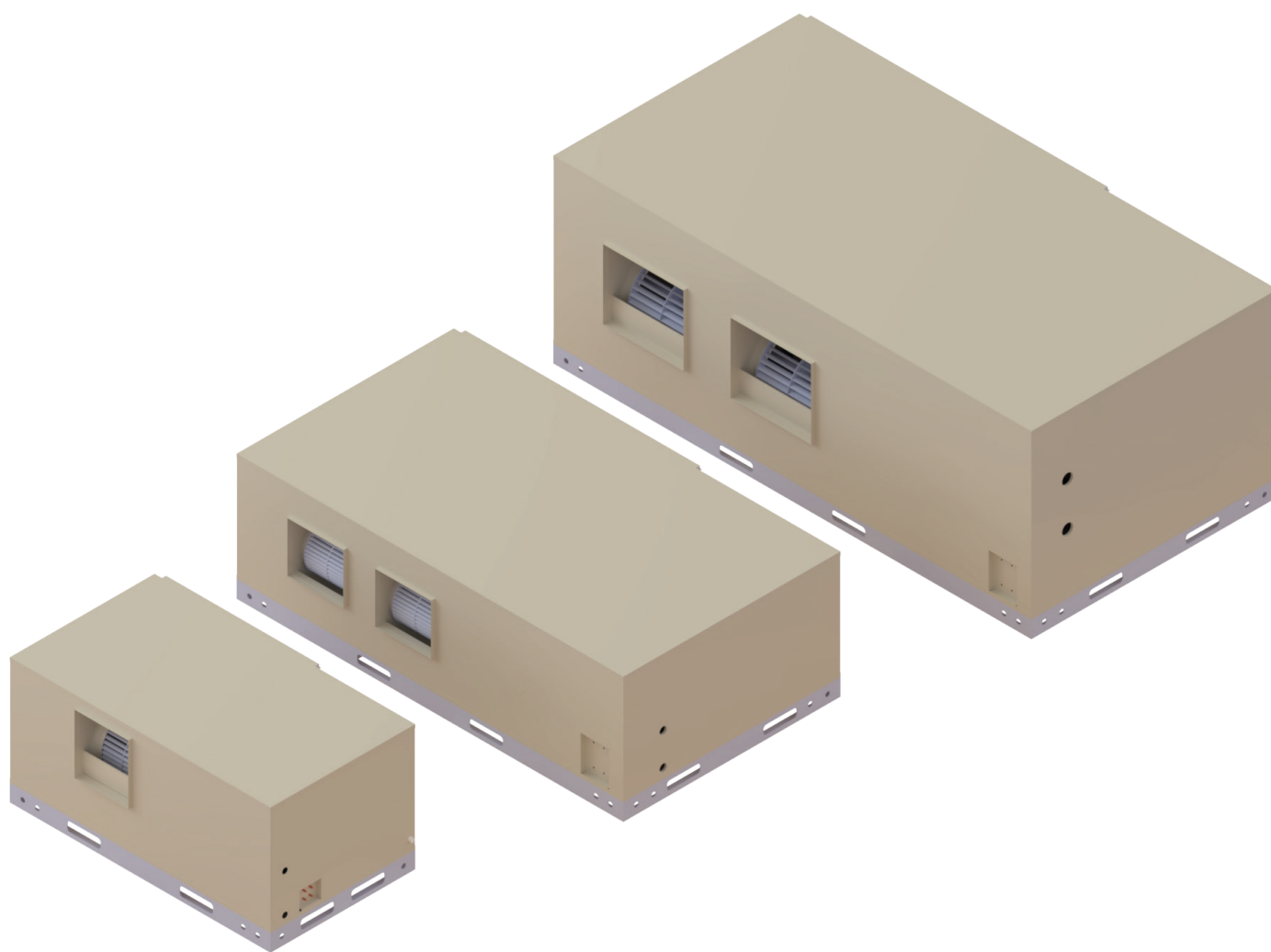




Commercial Manual **EPWC410 SERIES**

Water-Cooled Packaged Unit
Horizontal Discharge

7,5 TON - 30 TON



3	Precautions
4	General Features
5	Nomenclature
6	Technical Specifications
13	Blower Performance Data
19	Equipment Sizing
26	Safety Clearance Distance
27	Equipment Handling Recommendations
28	Refrigerant Piping Diagram
29	Electrical Diagram
31	Installation Guidelines
32	Startup Guidelines
33	Maintenance Recommendations
34	Notes

Precautions

In this document, you will find a series of key recommendations to ensure proper start-up, efficient operation, and adequate maintenance of your EPWC410 Series Water-Cooled Packaged Unit. Preventive care will not only guarantee the optimal functioning of the equipment, but it will also extend its useful life, optimize its performance, and help you save time and money in the long run.

By following these simple maintenance and operation steps, you can keep your HVAC system in the best operating conditions possible, maximizing its energy efficiency and avoiding unnecessary and costly breakdowns. Remember, regular maintenance not only improves comfort in your space, but also contributes to the well-being in general and the safety of everyone who uses it.



DANGER



Incorrect mounting, lifting, or movement may cause damage to the unit, property damage, serious personal injuries, or even death. Consult the weight and center of gravity data indicated in the project documentation to know the weights and center of gravity of the unit.



WARNING



Disconnect power source(s) before performing maintenance. Service must be performed by qualified personnel.
Risk of electric shock! May cause injury or death!



WARNING



To prevent the release of refrigerant into the atmosphere, the refrigeration circuit of this unit must be serviced only by technicians who meet local, state, and federal competency requirements.



WARNING



The installation of the system and all components, parts, and associated accessories that form part of the installation must be carried out in accordance with the regulations of ALL pertinent authorities and MUST comply with all applicable codes. It is the responsibility of the contractor/installer to determine and comply with ALL applicable regulations and codes.



WARNING



This device is not designed to be used by persons (including children) with physical, sensory, or mental limitations, or with lack of experience and knowledge, unless they have received supervision or instruction regarding the use of the device by a person responsible for their safety.



WARNING



For mechanical ventilation, the lower edge of the air exhaust opening, where air is removed from the room, shall not be more than 3.94 inches (100 mm) above the floor. The location where the extracted air is discharged from the space by mechanical ventilation must be separated by a sufficient distance, but not less than 9.84 feet (3 m), from the mechanical ventilation air intake openings, to prevent recirculation back into the space.



WARNING



Keep in mind that the center of gravity is not necessarily located in the geometric center of the unit. Additional lifting elements must not be attached or secured to the unit, as this may affect the center of gravity and cause personal injuries or death, as well as damage to property or the unit. Qualified personnel must determine and verify, according to weight data, the lifting center of the unit, the location of the center of gravity, and lifting details according to the unit configuration.



CAUTION



Do not store or install the units in corrosive environments or in places exposed to extreme temperatures or humidity. Corrosive conditions, high temperatures, or humidity can significantly affect performance, reliability, and service life. Always move and store units in a vertical position. Tilting units may cause damage to the equipment.



CAUTION



RISK OF CUT – Failure to follow this precaution may cause personal injury. Metal parts may have sharp edges or burrs. Be careful and use proper protective clothing, safety glasses, and gloves when handling parts and performing unit maintenance to avoid injuries.



CAUTION



RISK OF INSUFFICIENT WATER FLOW – Failure to follow this precaution may result in personal injury. The heat exchanger must be maintained with the proper flow rate according to its capacity. Incorrect flow or improper valve positioning can lead to increased refrigerant gas pressures, which may cause internal damage and deterioration of the equipment.



CAUTION



To extend equipment life, do not use these units as a heat source during the drying process of construction. Mechanical components and filters may become clogged quickly with dust and construction debris, which may damage the system and void the product warranty.



CAUTION



All three-phase scroll compressors must have their rotation direction checked at startup. This verification is performed by checking the compressor's amperage draw. The consumption will be significantly lower compared to the values on the nameplate. In addition, reverse rotation produces a higher noise level compared to correct rotation. Reverse rotation will activate the compressor's internal overload protection within a few minutes. Check the type of compressor before proceeding.



NOTICE



Only install in places not accessible to the general public.



NOTICE



An unconditioned attic is not considered natural ventilation.



NOTICE



Only install in places not accessible to the general public.

Improper handling due to lack of knowledge of instructions or recommendations contained in this document may cause damage to equipment, reduced performance, and shortened service life. We are not responsible for damage caused by incorrect handling, unauthorized modifications, or consequences arising from using unauthorized modifications that alter the correct operation of the equipment. To guarantee safe and efficient operation, it is essential to follow all recommendations in this manual and use only original spare parts. The manufacturer reserves the right to make technical changes or add updates to improve HVAC system operation.

The following information refers to the EPWC410 series. The supplied units may have varying characteristics according to customer requirements. For more detailed information about the purchased equipment, refer to the technical specifications and the unit nameplate.

Construction

Thermotar packaged units, EPWC410 series, are designed for heavy-duty operation. Their construction ensures a fully stable structure, capable of supporting and evenly distributing the static and dynamic loads of internal components.

- Manufactured from heavy-gauge galvanized steel sheet, providing high corrosion resistance.
- Single-wall galvanized steel panels with expanded polyethylene insulation.
- Fully insulated fan-evaporator compartment, with easy-access panels through doors featuring recessed handles.
- Galvanized sheet metal structural base, providing ease and safety during transport and installation.
- Electrostatic powder coating system: a long-lasting professional finish, ideal for aggressive environments.
- Condensate drain pan made of heavy-gauge sheet metal with electrostatic coating.
- Motor-fan assembly mounted on a galvanized steel structure with anti-vibration supports.
- Modular design that facilitates maintenance and allows for future expansions or adaptations.

Fans and Motors

Thermotar EPWC410 packaged units offer a wide variety of fan and motor selection options across different ranges and capacities, ensuring optimal operation according to the user's requirements.

Motors

- Capacities based on design criteria and customer requirements.
- Three-phase electric motor, 220V / 440V
- Protection rating IP54 / IP55
- Optional: suitable for classified areas (Explosion Proof) or aggressive environments
- High-efficiency motors (IE3 / IE4) available to reduce energy consumption

Components

- High-efficiency, low-noise scroll compressor
- High and low pressure switches
- Terminal block for 24 V control
- Replaceable air filters, flat or bag type (depending on configuration), with front access
- Compressor heater to ensure proper temperature inside the crankcase
- Evaporator Fan:
 - Centrifugal type (conventional or Plug Fan)
 - Direct drive or belt-driven
 - Forward-curved or backward-inclined blades
- Heat Exchanger (tank, coaxial, or shell-and-tube type):
- Copper tubing
- Structural iron casing

Air Cooling

The Thermotar EPWC410 series is equipped with a heat exchanger featuring copper tubes and aluminum fins. Available in different sizes and refrigerant circuit configurations, it provides the appropriate heat transfer area.

- Coils with up to 8 rows for direct expansion and/or chilled water
- Fully removable coil
- Available in Copper/Aluminum and Copper/Copper
- Galvanized steel support structure
- Drain pan available in stainless steel
- Optional: anti-corrosion coating for applications in marine or industrial environments

Control and Operation

- Digital thermostat with programmable scheduling functions
- Optional control system with HMI touchscreen for local monitoring and configuration
- Automatic protections against overcurrent, overpressure, and incorrect phase sequence

Maintenance and Safety

- Front access to all components for inspection and maintenance tasks
- Filters, fans, motors, and coils accessible without the need for special tools
- Warning labels and clear identification of electrical connections and critical components
- Installation and maintenance manual included

EPWC 410 - 090 H - TD - 3

Category

EPWC Water-Cooled Packaged Unit

Refrigerant

290 R290
32 R32
410 R410A

Nominal Capacity

024	2 Ton	150	12.5 Ton
030	2.5 Ton	180	15 Ton
036	3 Ton	240	20 Ton
042	3.5 Ton	300	25 Ton
048	4 Ton	360	30 Ton
060	5 Ton		

Cabinet Configuration / Orientation

V Vertical
H Horizontal

Number of Cooling Circuits

(Blank) One (1) Circuit
2C Two (2) Circuits
3C Three (3) Circuits
4C Four (4) Circuits

Transmission

TD Direct drive
TP Standard Belt drive

Power supply

1 220V / 60Hz / 1PH
2 110V / 60Hz / 1PH
3 220V / 60Hz / 3PH
4 440V / 60Hz / 3PH
5 380V / 50Hz / 3PH
6 480V / 60Hz / 3PH
7 380V / 60Hz / 3PH
8 220V / 50Hz / 3PH
9 440V / 50Hz / 3PH

7.5 TON

MODEL	EPWC410-090H-TD-3	EPWC410-090H-TD-4
GENERAL DATA		
Cooling capacity ^[1] (BTU/h)	90000	90000
Tons of Refrigeration	7,5	7,5
EVAPORATOR FAN		
Transmission	Direct Drive	Direct Drive
Number of Fans	2	2
Nominal Airflow (CFM)	3000	3000
Fan [DxW] (in)	10 x 10	10 x 10
Number of Engines	2	2
Current ^[2] (A)	2,9	1,5
Power ^[2] (HP)	1/2	1/2
RPM	1075 (3)	1075 (3)
EVAPORATOR COIL		
Type (Tube / Fin)	Copper / Aluminum	Copper / Aluminum
Face Area (ft²)	7,8	7,8
Rows	3	3
Fins Per Inch	14	14
FLUID CONDITIONS		
Required Flow Rate (GPM)	22,5	22,5
Maximum Entering Water Temperature (°F)	85	85
HEAT EXCHANGER		
Quantity	2	2
Pipe Inlet ^[3] (in)	1 - 1/4	1 - 1/4
Pipe Outlet ^[3] (in)	1 - 1/4	1 - 1/4
COMPRESSOR		
Refrigerant	R-410A	R-410A
Quantity	1	1
Type	Scroll	Scroll
RLA ^[4] (A)	25,0 / 27,9	12,2 / 13,6
LRA ^[4] (A)	164,0	100,0
ELECTRICAL DATA		
V / Ph / Hz	220 / 3 / 60	440 / 3 / 60
Operating Current (A)	35,0	18,0
Minimum Circuit Ampacity (A)	42,0	21,5
Max. Overload Protection (A)	70,0	35,0
DIMENSIONS [L x H x W] (mm)	900 x 870 x 1800	900 x 870 x 1800
NET WEIGHT (kg)	285	285
GROSS WEIGHT (kg)	295	295

Notes: ¹ Data corresponding to a specific condition. ² This value (A / HP) corresponds to a single motor. ³ FPT thread. ⁴ This Rated Load Amperage (RLA) / Locked Rotor Amperage (LRA) value corresponds to a single compressor. The information provided in the table is subject to change without prior notice. The unit color may also change without prior notice. Water-cooled condenser heat exchanger. Packaged unit designed for use with R-410A refrigerant.

10 TON

MODEL	EPWC410-120H-TD-3	EPWC410-120H-TD-4
GENERAL DATA		
Cooling capacity ^[1] (BTU/h)	120000	120000
Tons of Refrigeration	10	10
EVAPORATOR FAN		
Transmission	Direct Drive	Direct Drive
Number of Fans	2	2
Nominal Airflow (CFM)	4000	4000
Fan [DxW] (in)	10 x 10	10 x 10
Number of Engines	2	2
Current ^[2] (A)	4,0	2,0
Power ^[2] (HP)	3/4	3/4
RPM	1075 (3)	1075 (3)
EVAPORATOR COIL		
Type (Tube / Fin)	Copper / Aluminum	Copper / Aluminum
Face Area (ft ²)	7,8	7,8
Rows	4	4
Fins Per Inch	13	13
FLUID CONDITIONS		
Required Flow Rate (GPM)	30,0	30,0
Maximum Entering Water Temperature (°F)	85	85
HEAT EXCHANGER		
Quantity	2	2
Pipe Inlet ^[3] (in)	1 - 1/2	1 - 1/2
Pipe Outlet ^[3] (in)	1 - 1/2	1 - 1/2
COMPRESSOR		
Refrigerant	R-410A	R-410A
Quantity	1	1
Type	Scroll	Scroll
RLA ^[4] (A)	30,1 / 33,6	16,7 / 18,6
LRA ^[4] (A)	225,0	114,0
ELECTRICAL DATA		
V / Ph / Hz	220 / 3 / 60	440 / 3 / 60
Operating Current (A)	43,0	24,0
Minimum Circuit Ampacity (A)	52,0	29,0
Max. Overload Protection (A)	85,0	47,0
DIMENSIONS [L x H x W] (mm)	1800 x 870 x 900	1800 x 870 x 900
NET WEIGHT (kg)	315	315
GROSS WEIGHT (kg)	325	325

Notes: ¹ Data corresponding to a specific condition. ² This value (A / HP) corresponds to a single motor. ³ FPT thread. ⁴ This Rated Load Amperage (RLA) / Locked Rotor Amperage (LRA) value corresponds to a single compressor. The information provided in the table is subject to change without prior notice. The unit color may also change without prior notice. Water-cooled condenser heat exchanger. Packaged unit designed for use with R-410A refrigerant.

12.5 TON

MODEL	EPWC410-150H-TP-3	EPWC410-150H-TP-4
GENERAL DATA		
Cooling capacity ^[1] (BTU/h)	150000	150000
Tons of Refrigeration	12,5	12,5
EVAPORATOR FAN		
Transmission	Belt Drive	Belt Drive
Number of Fans	2	2
Nominal Airflow (CFM)	5000	5000
Fan [DxW] (in)	12 x 12	12 x 12
Number of Engines	1	1
Current ^[2] (A)	5,2	2,6
Power ^[2] (HP)	2	2
RPM	1750	1750
EVAPORATOR COIL		
Type (Tube / Fin)	Copper / Aluminum	Copper / Aluminum
Face Area (ft²)	12,0	12,0
Rows	4	4
Fins Per Inch	13	13
FLUID CONDITIONS		
Required Flow Rate (GPM)	37,5	37,5
Maximum Entering Water Temperature (°F)	85	85
HEAT EXCHANGER		
Quantity	2	2
Pipe Inlet ^[3] (in)	2	2
Pipe Outlet ^[3] (in)	2	2
COMPRESSOR		
Refrigerant	R-410A	R-410A
Quantity	1	1
Type	Scroll	Scroll
RLA ^[4] (A)	48,1 / 53,6	18,6 / 20,7
LRA ^[4] (A)	245,0	125,0
ELECTRICAL DATA		
V / Ph / Hz	220 / 3 / 60	440 / 3 / 60
Operating Current (A)	60,0	15,0
Minimum Circuit Ampacity (A)	74,0	18,0
Max. Overload Protection (A)	128,0	29,0
DIMENSIONS [L x H x W] (mm)	1500 x 870 x 2670	1500 x 870 x 2670
NET WEIGHT (kg)	410	410
GROSS WEIGHT (kg)	415	415

Notes: ¹ Data corresponding to a specific condition. ² This value (A / HP) corresponds to a single motor. ³ FPT thread. ⁴ This Rated Load Amperage (RLA) / Locked Rotor Amperage (LRA) value corresponds to a single compressor. The information provided in the table is subject to change without prior notice. The unit color may also change without prior notice. Water-cooled condenser heat exchanger. Packaged unit designed for use with R-410A refrigerant.

15 TON

MODEL	EPWC410-180H-TP-3	EPWC410-180H-TP-4
GENERAL DATA		
Cooling capacity ^[1] (BTU/h)	180000	180000
Tons of Refrigeration	15	15
EVAPORATOR FAN		
Transmission	Belt Drive	Belt Drive
Number of Fans	2	2
Nominal Airflow (CFM)	6000	6000
Fan [DxW] (in)	12 x 12	12 x 12
Number of Engines	1	1
Current ^[2] (A)	8,4	4,2
Power ^[2] (HP)	3	3
RPM	1750	1750
EVAPORATOR COIL		
Type (Tube / Fin)	Copper / Aluminum	Copper / Aluminum
Face Area (ft ²)	12,0	12,0
Rows	4	4
Fins Per Inch	13	13
FLUID CONDITIONS		
Required Flow Rate (GPM)	45	45
Maximum Entering Water Temperature (°F)	85	85
HEAT EXCHANGER		
Quantity	2	2
Pipe Inlet ^[3] (in)	2	2
Pipe Outlet ^[3] (in)	2	2
COMPRESSOR		
Refrigerant	R-410A	R-410A
Quantity	1	1
Type	Scroll	Scroll
RLA ^[4] (A)	55,8 / 62,1	26,3 / 29,3
LRA ^[4] (A)	340,0	179,0
ELECTRICAL DATA		
V / Ph / Hz	220 / 3 / 60	440 / 3 / 60
Operating Current (A)	72,0	35,0
Minimum Circuit Ampacity (A)	88,0	42,0
Max. Overload Protection (A)	150,0	72,0
DIMENSIONS [L x H x W] (mm)	1500 x 870 x 2670	1500 x 870 x 2670
NET WEIGHT (kg)	460	460
GROSS WEIGHT (kg)	466	466

Notes: ¹ Data corresponding to a specific condition. ² This value (A / HP) corresponds to a single motor. ³ FPT thread. ⁴ This Rated Load Amperage (RLA) / Locked Rotor Amperage (LRA) value corresponds to a single compressor. The information provided in the table is subject to change without prior notice. The unit color may also change without prior notice. Water-cooled condenser heat exchanger. Packaged unit designed for use with R-410A refrigerant.

20 TON

MODEL	EPWC410-240H-2CTP-3	EPWC410-240H-2CTP-4
GENERAL DATA		
Cooling capacity ^[1] (BTU/h)	240000	240000
Tons of Refrigeration	20	20
EVAPORATOR FAN		
Transmission	Belt Drive	Belt Drive
Number of Fans	1	1
Nominal Airflow (CFM)	8000	8000
Fan [DxW] (in)	15 x 15	15 x 15
Number of Engines	2	2
Current ^[2] (A)	13,4	6,7
Power ^[2] (HP)	5	5
RPM	1750	1750
EVAPORATOR COIL		
Type (Tube / Fin)	Copper / Aluminum	Copper / Aluminum
Face Area (ft²)	15,6	15,6
Rows	3	3
Fins Per Inch	13	13
FLUID CONDITIONS		
Required Flow Rate (GPM)	60	60
Maximum Entering Water Temperature (°F)	85	85
HEAT EXCHANGER		
Quantity	1	1
Pipe Inlet ^[3] (in)	2	2
Pipe Outlet ^[3] (in)	2	2
COMPRESSOR		
Refrigerant	R-410A	R-410A
Quantity	2	2
Type	Scroll	Scroll
RLA ^[4] (A)	28,2 / 31,4	14,7 / 16,4
LRA ^[4] (A)	240,0	130,0
ELECTRICAL DATA		
V / Ph / Hz	220 / 3 / 60	440 / 3 / 60
Operating Current (A)	76,0	40,0
Minimum Circuit Ampacity (A)	84,0	44,0
Max. Overload Protection (A)	116,0	60,0
DIMENSIONS [L x H x W] (mm)	1700 x 970 x 3080	1700 x 970 x 3080
NET WEIGHT (kg)	610	610
GROSS WEIGHT (kg)	620	620

Notes: ¹ Data corresponding to a specific condition. ² This value (A / HP) corresponds to a single motor. ³ FPT thread. ⁴ This Rated Load Amperage (RLA) / Locked Rotor Amperage (LRA) value corresponds to a single compressor. The information provided in the table is subject to change without prior notice. The unit color may also change without prior notice. Water-cooled condenser heat exchanger. Packaged unit designed for use with R-410A refrigerant.

25 TON

MODEL	EPWC410-300H-2CTP-3	EPWC410-300H-2CTP-4
GENERAL DATA		
Cooling capacity ^[1] (BTU/h)	300000	300000
Tons of Refrigeration	25	25
EVAPORATOR FAN		
Transmission	Belt Drive	Belt Drive
Number of Fans	2	2
Nominal Airflow (CFM)	10000	10000
Fan [DxW] (in)	15 x 15	15 x 15
Number of Engines	1	1
Current ^[2] (A)	13,4	6,7
Power ^[2] (HP)	5	5
RPM	1800	1800
EVAPORATOR COIL		
Type (Tube / Fin)	Copper / Aluminum	Copper / Aluminum
Face Area (ft²)	20,0	20,0
Rows	4	4
Fins Per Inch	13	13
FLUID CONDITIONS		
Required Flow Rate (GPM)	75	75
Maximum Entering Water Temperature (°F)	85	85
HEAT EXCHANGER		
Quantity	1	1
Pipe Inlet ^[3] (in)	2-1/2	2-1/2
Pipe Outlet ^[3] (in)	2-1/2	2-1/2
COMPRESSOR		
Refrigerant	R-410A	R-410A
Quantity	2	2
Type	Scroll	Scroll
RLA ^[4] (A)	48,1 / 53,6	18,6 / 20,7
LRA ^[4] (A)	245,0	125,0
ELECTRICAL DATA		
V / Ph / Hz	220 / 3 / 60	440 / 3 / 60
Operating Current (A)	122,0	50,0
Minimum Circuit Ampacity (A)	136,0	55,0
Max. Overload Protection (A)	190,0	76,0
DIMENSIONS [L x H x W] (mm)	1700 x 1090 x 3300	1700 x 1090 x 3300
NET WEIGHT (kg)	678	678
GROSS WEIGHT (kg)	681	681

Notes: ¹ Data corresponding to a specific condition. ² This value (A / HP) corresponds to a single motor. ³ FPT thread. ⁴ This Rated Load Amperage (RLA) / Locked Rotor Amperage (LRA) value corresponds to a single compressor. The information provided in the table is subject to change without prior notice. The unit color may also change without prior notice. Water-cooled condenser heat exchanger. Packaged unit designed for use with R-410A refrigerant.

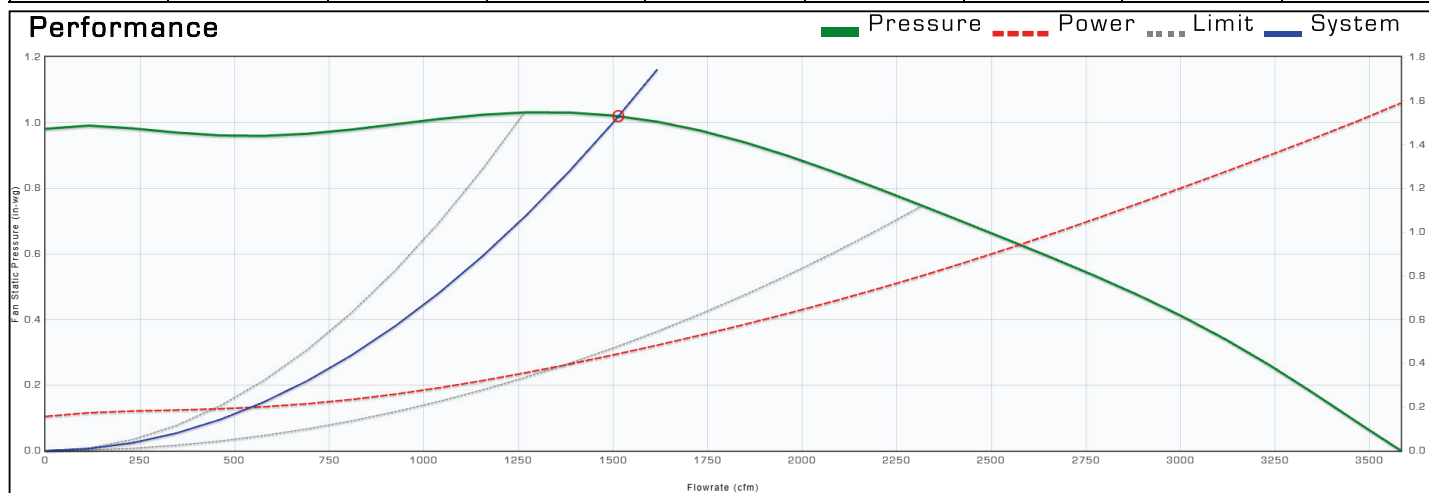
30 TON

MODEL	EPWC410-360H-2CTP-3	EPWC410-360H-2CTP-4
GENERAL DATA		
Cooling capacity ^[1] (BTU/h)	360000	360000
Tons of Refrigeration	30	30
EVAPORATOR FAN		
Transmission	Belt Drive	Belt Drive
Number of Fans	2	2
Nominal Airflow (CFM)	12000	12000
Fan [DxW] (in)	18 x 18	18 x 18
Number of Engines	1	1
Current ^[2] (A)	13,4	6,7
Power ^[2] (HP)	5	5
RPM	1800	1800
EVAPORATOR COIL		
Type (Tube / Fin)	Copper / Aluminum	Copper / Aluminum
Face Area (ft ²)	23,7	23,7
Rows	4	4
Fins Per Inch	13	13
FLUID CONDITIONS		
Required Flow Rate (GPM)	90	90
Maximum Entering Water Temperature (°F)	85	85
HEAT EXCHANGER		
Quantity	1	1
Pipe Inlet ^[3] (in)	2-1/2	2-1/2
Pipe Outlet ^[3] (in)	2-1/2	2-1/2
COMPRESSOR		
Refrigerant	R-410A	R-410A
Quantity	2	2
Type	Scroll	Scroll
RLA ^[4] (A)	55,8 / 62,1	26,3 / 29,3
LRA ^[4] (A)	340,0	179,0
ELECTRICAL DATA		
V / Ph / Hz	220 / 3 / 60	440 / 3 / 60
Operating Current (A)	138,0	66,0
Minimum Circuit Ampacity (A)	154,0	73,0
Max. Overload Protection (A)	216,0	102,0
DIMENSIONS [L x H x W] (mm)	1700 x 1245 x 3300	1700 x 1245 x 3300
NET WEIGHT (kg)	755	755
GROSS WEIGHT (kg)	765	765

Notes: ¹ Data corresponding to a specific condition. ² This value (A / HP) corresponds to a single motor. ³ FPT thread. ⁴ This Rated Load Amperage (RLA) / Locked Rotor Amperage (LRA) value corresponds to a single compressor. The information provided in the table is subject to change without prior notice. The unit color may also change without prior notice. Water-cooled condenser heat exchanger. Packaged unit designed for use with R-410A refrigerant.

7,5 TON

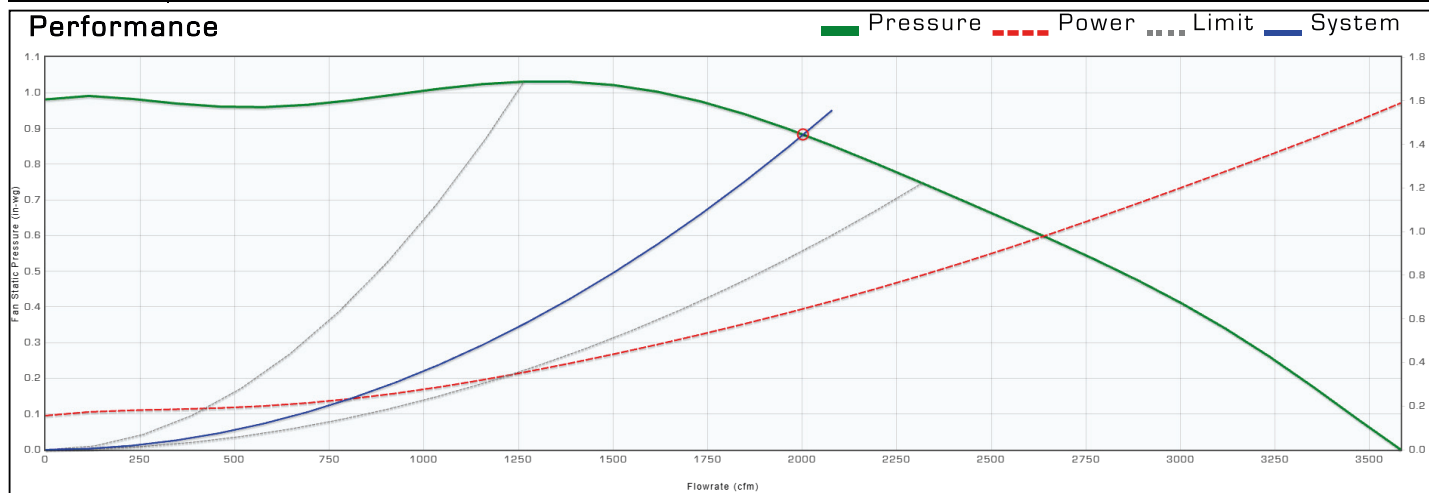
Job Name					Submitted by/notes			
Model	Flow	Pressure	Temperature	Altitude	Density	Q Derate	P Derate	Vav Set Point
DD10-10A	1514 cfm	1.02 in-wg	70 °F	0 ft	0.075 lb/ft ³	0 cfm	0.00 in-wg	0.00 in-wg
Fan Tag	Flow	Pressure	Power	Static Efficiency	Total Efficiency	Speed	Outlet Velocity	FEI
	1514 cfm	1.02 in-wg	0.44 hp	55.0 %	62.4 %	1000 rpm	1484 fpm	1.58
Fan Tag	Impeller Dia	Outlet Area	Max. Speed	AMCA Class	Drive	Blades	P Volume	TurnDown
	10.0 in	1.02 ft ²	2000 rpm	Class I	Direct Drives	48	2.19 ft ³	100 %



Sound[Lwi/Lwo]	63	125	250	500	1000	2000	4000	8000	Lw	LwA
	71/81	72/76	69/75	68/70	70/68	66/66	65/62	62/58	78/83	74/74

10 TON

Job Name					Submitted by/notes			
Model	Flow	Pressure	Temperature	Altitude	Density	Q Derate	P Derate	Vav Set Point
DD10-10A	2002 cfm	0.88 in-wg	70 °F	0 ft	0.075 lb/ft ³	0 cfm	0.00 in-wg	0.00 in-wg
Fan Tag	Flow	Pressure	Power	Static Efficiency	Total Efficiency	Speed	Outlet Velocity	FEI
	2002 cfm	0.88 in-wg	0.65 hp	43.2 %	54.9 %	1000 rpm	1963 fpm	1.37
Fan Tag	Impeller Dia	Outlet Area	Max. Speed	AMCA Class	Drive	Blades	P Volume	TurnDown
	10.0 in	1.02 ft ²	2000 rpm	Class I	Direct Drives	48	2.19 ft ³	100 %

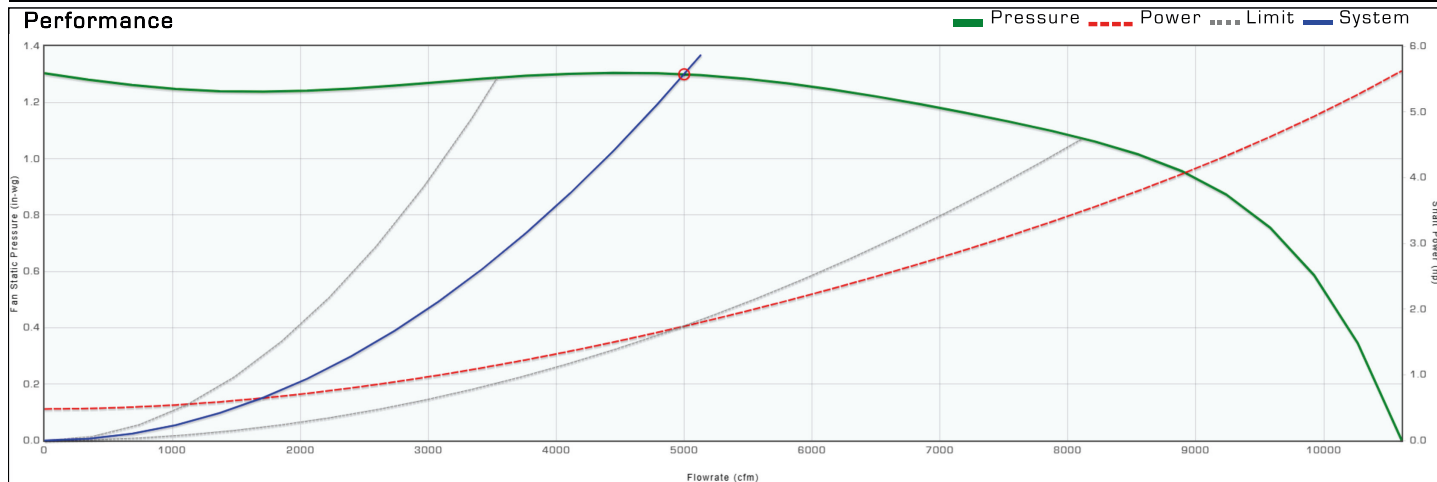


Sound[Lwi/Lwo]	63	125	250	500	1000	2000	4000	8000	Lw	LwA
	74/79	75/76	72/75	71/69	73/68	69/65	68/62	64/58	80/82	77/74

Notes: Airflow performance data are obtained in accordance with AMCA 210-07. Installed performance will vary depending on the cabinet geometry and installation configuration. Sound data are estimated based on industry experience for the selected product type. These values are provided for comparison purposes only and do not represent installed performance.

12,5 TON

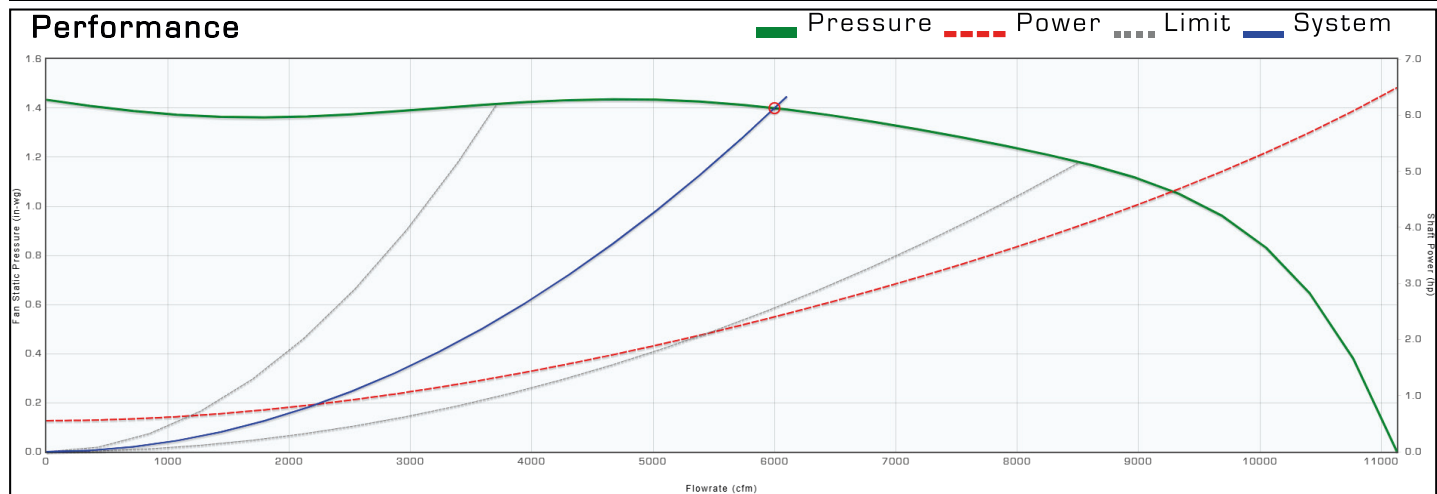
Job Name					Submitted by/notes				
Model 2A12-12A	Flow 5000 cfm	Pressure 1.30 in-wg	Temperature 70 °F	Altitude 0 ft	Density 0.075 lb/ft ³	Q Derate 0 cfm	P Derate 0.00 in-wg	Vav Set Point 0.00 in-wg	
Fan Tag	Flow 5000 cfm	Pressure 1.30 in-wg	Power 1.74 hp	Static Efficiency 59.0 %	Total Efficiency 67.5 %	Speed 909 rpm	Outlet Velocity 1736 fpm	FEI 1.33	
	Impeller Dia 12.0 in	Outlet Area 2.88 ft ²	Max. Speed 2090 rpm	AMCA Class 0	Drive Belt Drive	Blades 43	P Volume 14.32 ft ³	TurnDown 100 %	



Sound(Lwi)	63	125	250	500	1000	2000	4000	8000	Lw	LwA
	85	83	78	77	78	75	73	71	89	82

15 TON

Job Name					Submitted by/notes				
Model 2A12-12A	Flow 6000 cfm	Pressure 1.40 in-wg	Temperature 70 °F	Altitude 0 ft	Density 0.075 lb/ft ³	Q Derate 0 cfm	P Derate 0.00 in-wg	Vav Set Point 0.00 in-wg	
Fan Tag	Flow 6000 cfm	Pressure 1.40 in-wg	Power 2.40 hp	Static Efficiency 55.1 %	Total Efficiency 65.7 %	Speed 954 rpm	Outlet Velocity 2083 fpm	FEI 1.27	
	Impeller Dia 12.0 in	Outlet Area 2.88 ft ²	Max. Speed 2090 rpm	AMCA Class 0	Drive Belt Drive	Blades 43	P Volume 14.32 ft ³	TurnDown 100 %	

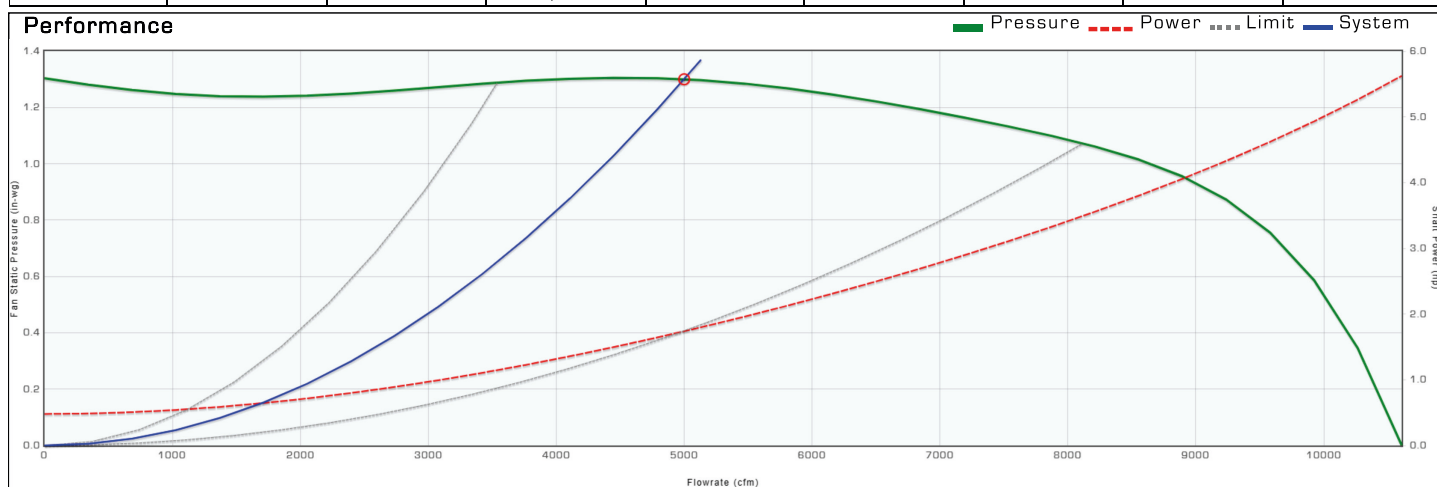


Sound(Lwi)	63	125	250	500	1000	2000	4000	8000	Lw	LwA
	88	86	80	79	80	77	75	73	91	84

Notes: Airflow performance data are obtained in accordance with AMCA 210-07. Installed performance will vary depending on the cabinet geometry and installation configuration. Sound data are estimated based on industry experience for the selected product type. These values are provided for comparison purposes only and do not represent installed performance.

12,5 TON

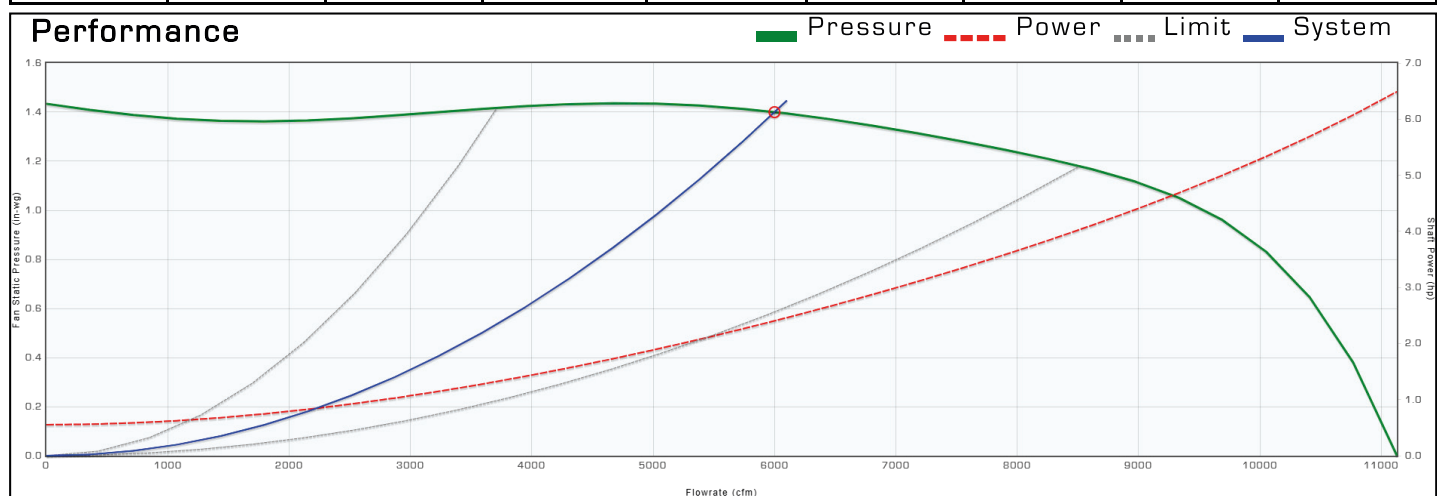
Job Name					Submitted by/notes				
Model 2A12-12A	Flow 5000 cfm	Pressure 1.30 in-wg	Temperature 70 °F	Altitude 0 ft	Density 0.075 lb/ft ³	Q Derate 0 cfm	P Derate 0.00 in-wg	Vav Set Point 0.00 in-wg	
Fan Tag	Flow 5000 cfm	Pressure 1.30 in-wg	Power 1.74 hp	Static Efficiency 59.0 %	Total Efficiency 67.5 %	Speed 909 rpm	Outlet Velocity 1736 fpm	FEI 1.33	
	Impeller Dia 12.0 in	Outlet Area 2.88 ft ²	Max. Speed 2090 rpm	AMCA Class 0	Drive Belt Drive	Blades 43	P Volume 14.32 ft ³	TurnDown 100 %	



Sound(Lwi)	63	125	250	500	1000	2000	4000	8000	Lw	LwA
	85	83	78	77	78	75	73	71	89	82

15 TON

Job Name					Submitted by/notes				
Model 2A12-12A	Flow 6000 cfm	Pressure 1.40 in-wg	Temperature 70 °F	Altitude 0 ft	Density 0.075 lb/ft ³	Q Derate 0 cfm	P Derate 0.00 in-wg	Vav Set Point 0.00 in-wg	
Fan Tag	Flow 6000 cfm	Pressure 1.40 in-wg	Power 2.40 hp	Static Efficiency 55.1 %	Total Efficiency 65.7 %	Speed 954 rpm	Outlet Velocity 2083 fpm	FEI 1.27	
	Impeller Dia 12.0 in	Outlet Area 2.88 ft ²	Max. Speed 2090 rpm	AMCA Class 0	Drive Belt Drive	Blades 43	P Volume 14.32 ft ³	TurnDown 100 %	

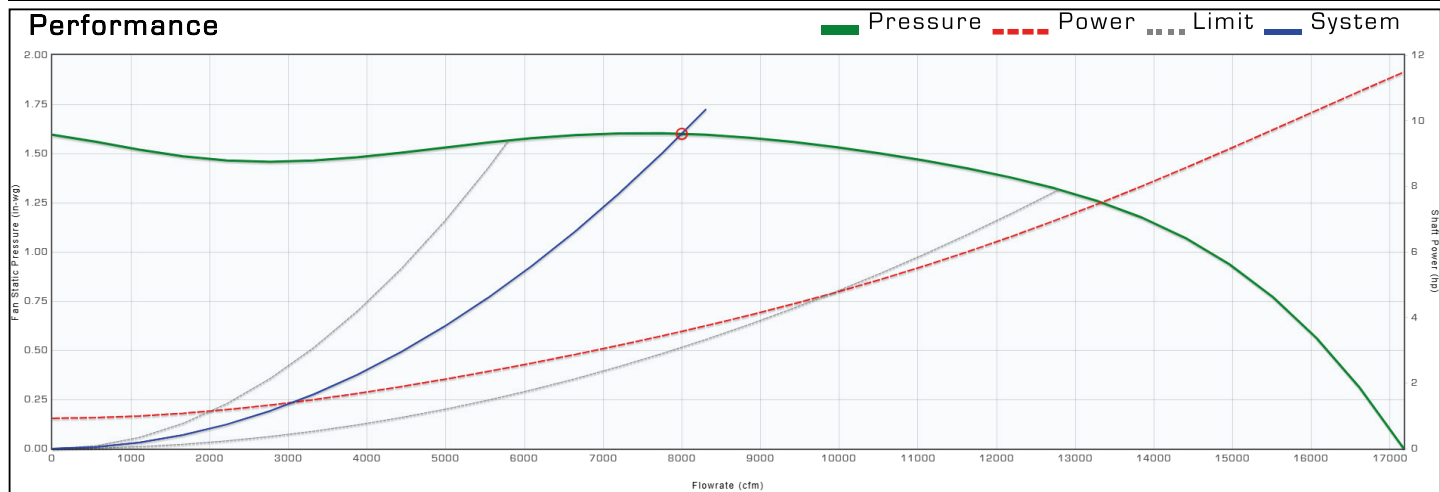


Sound(Lwi)	63	125	250	500	1000	2000	4000	8000	Lw	LwA
	88	86	80	79	80	77	75	73	91	84

Notes: Airflow performance data are obtained in accordance with AMCA 210-07. Installed performance will vary depending on the cabinet geometry and installation configuration. Sound data are estimated based on industry experience for the selected product type. These values are provided for comparison purposes only and do not represent installed performance.

20 TON

Job Name					Submitted by/notes			
Model 2A15-15A	Flow 8000 cfm	Pressure 1.60 in-wg	Temperature 70 °F	Altitude 0 ft	Density 0.075 lb/ft ³	Q Derate 0 cfm	P Derate 0.00 in-wg	Vav Set Point 0.00 in-wg
Fan Tag	Flow 8000 cfm	Pressure 1.60 in-wg	Power 3.57 hp	Static Efficiency 56.5 %	Total Efficiency 65.2 %	Speed 843 rpm	Outlet Velocity 1990 fpm	FEI 1.23
	Impeller Dia 15.0 in	Outlet Area 4.02 ft ²	Max. Speed 1730 rpm	AMCA Class Class I	Drive Belt Drive	Blades 51	P Volume 22.72 ft ³	TurnDown 100 %

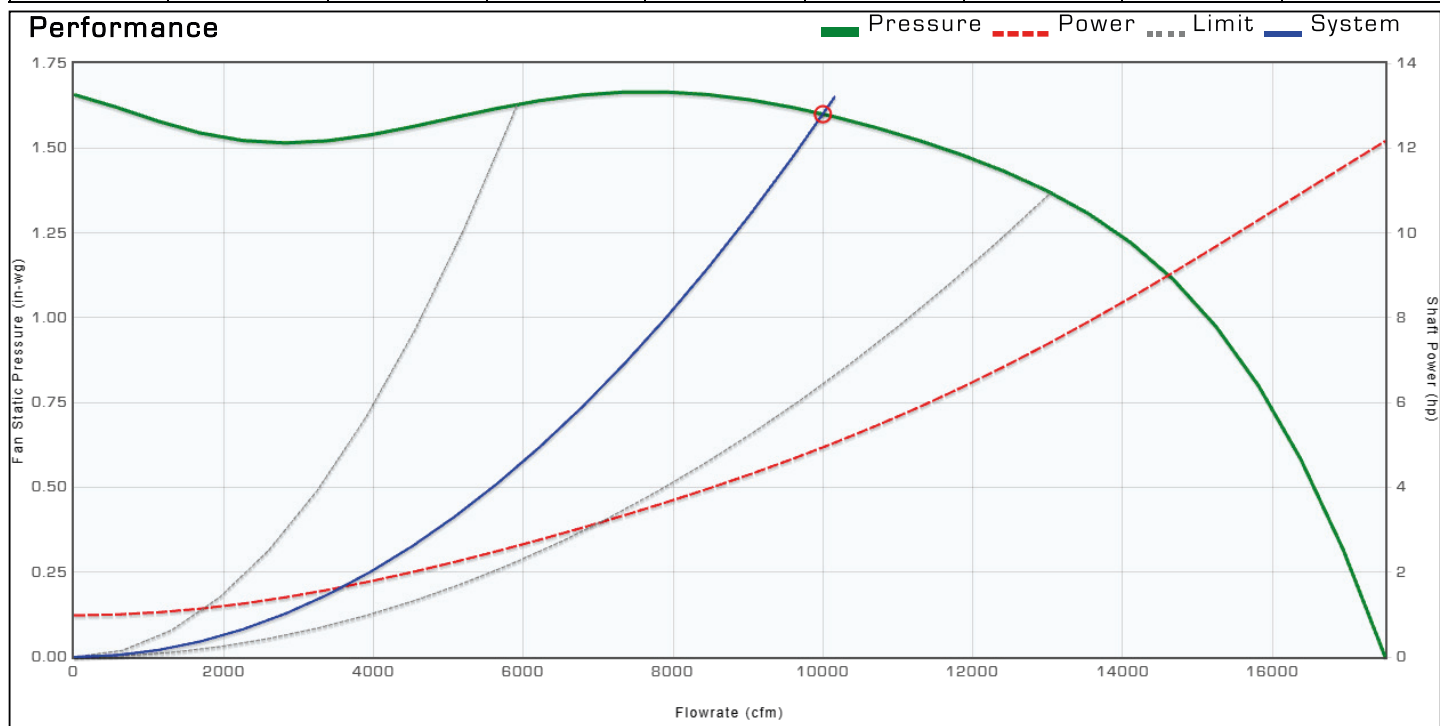


Sound(Lwi)	63	125	250	500	1000	2000	4000	8000	Lw	LwA
	89	88	81	80	81	78	76	74	93	86

Notes: Airflow performance data are obtained in accordance with AMCA 210-07. Installed performance will vary depending on the cabinet geometry and installation configuration. Sound data are estimated based on industry experience for the selected product type. These values are provided for comparison purposes only and do not represent installed performance.

25 TON

Job Name					Submitted by/notes			
Model 2A15-15A	Flow 10000 cfm	Pressure 1.60 in-wg	Temperature 70 °F	Altitude 0 ft	Density 0.075 lb/ft ³	Q Derate 0 cfm	P Derate 0.00 in-wg	Vav Set Point 0.00 in-wg
Fan Tag	Flow 10000 cfm	Pressure 1.60 in-wg	Power 4.94 hp	Static Efficiency 51.0 %	Total Efficiency 63.3 %	Speed 859 rpm	Outlet Velocity 2488 fpm	FEL 1.17
	Impeller Dia 15.0 in	Outlet Area 4.02 ft ²	Max. Speed 1730 rpm	AMCA Class Class I	Drive Belt Drive	Blades 51	P Volume 22.72 ft ³	TurnDown 100 %

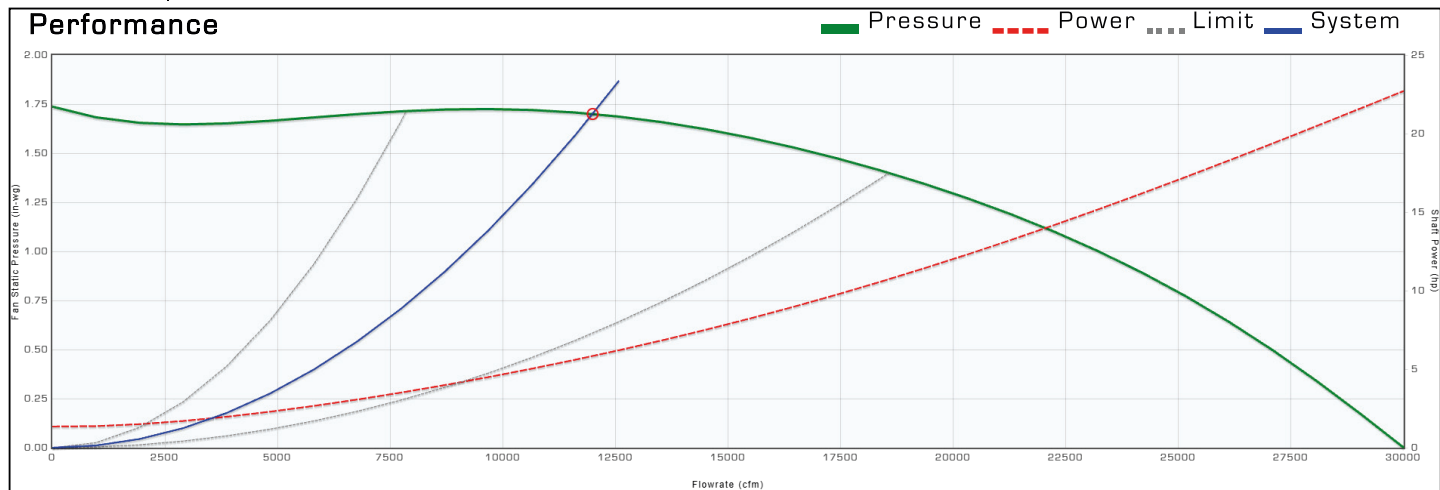


Sound(Lwi)	63	125	250	500	1000	2000	4000	8000	Lw	LwA
	91	90	82	82	83	80	78	76	95	88

Notes: Airflow performance data are obtained in accordance with AMCA 210-07. Installed performance will vary depending on the cabinet geometry and installation configuration. Sound data are estimated based on industry experience for the selected product type. These values are provided for comparison purposes only and do not represent installed performance.

30 TON

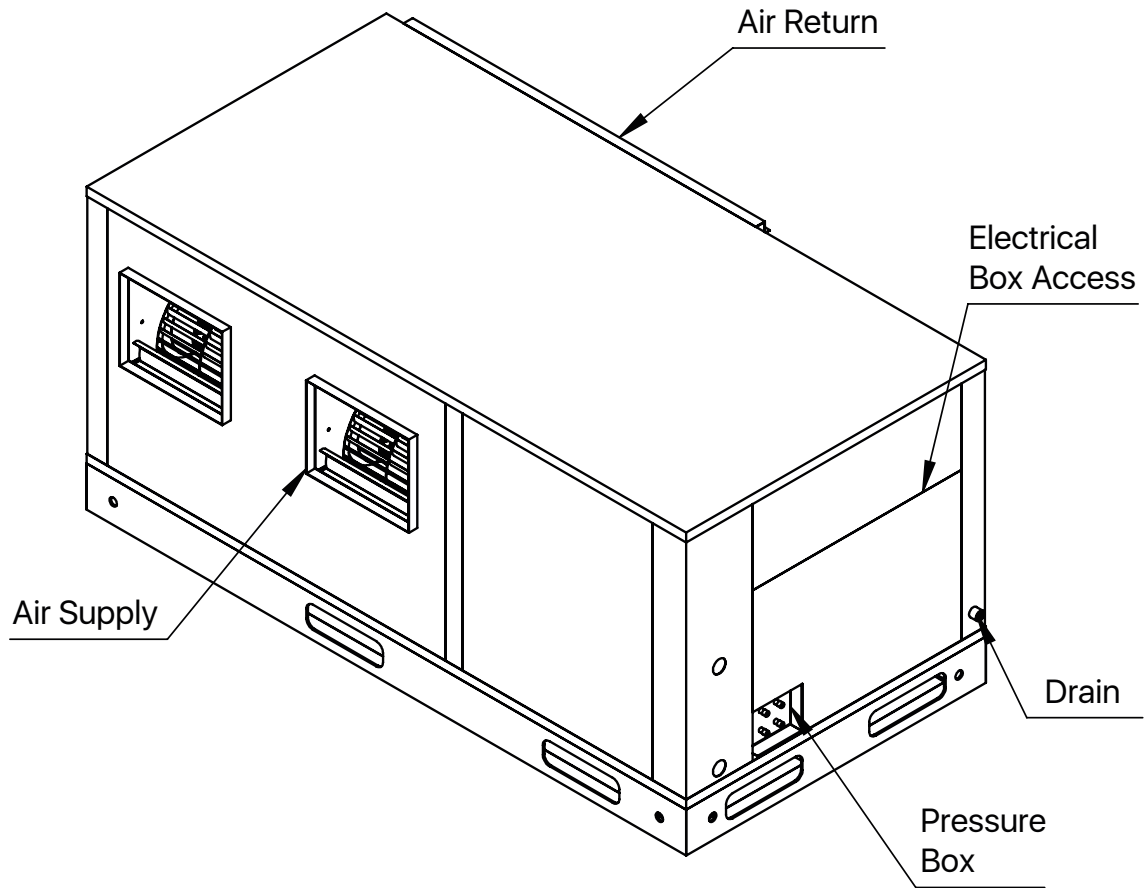
Job Name					Submitted by/ notes			
Model 2A18-18A	Flow 12000 cfm	Pressure 1.70 in-wg	Temperature 70 °F	Altitude 0 ft	Density 0.075 lb/ft ³	Q Derate 0 cfm	P Derate 0.00 in-wg	Vav Set Point 0.00 in-wg
Fan Tag	Flow 12000 cfm	Pressure 1.70 in-wg	Power 5.84 hp	Static Efficiency 55.1 %	Total Efficiency 63.9 %	Speed 758 rpm	Outlet Velocity 2091 fpm	FEI 1.18
	Impeller Dia 18.0 in	Outlet Area 5.74 ft ²	Max. Speed 1500 rpm	AMCA Class Class I	Drive Belt Drive	Blades 48	P Volume 37.75 ft ³	TurnDown 100 %



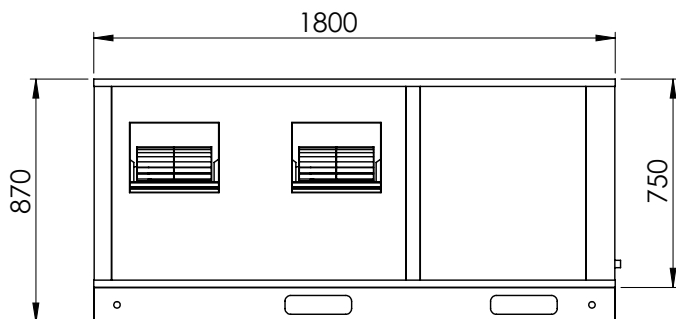
Sound(Lwi)	63	125	250	500	1000	2000	4000	8000	Lw	LwA
	82	82	80	82	78	76	73	68	88	84

Notes: Airflow performance data are obtained in accordance with AMCA 210-07. Installed performance will vary depending on the cabinet geometry and installation configuration. Sound data are estimated based on industry experience for the selected product type. These values are provided for comparison purposes only and do not represent installed performance.

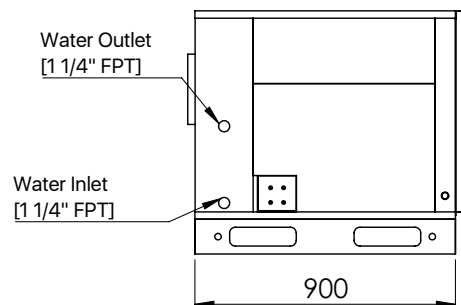
7,5 TON



Side View

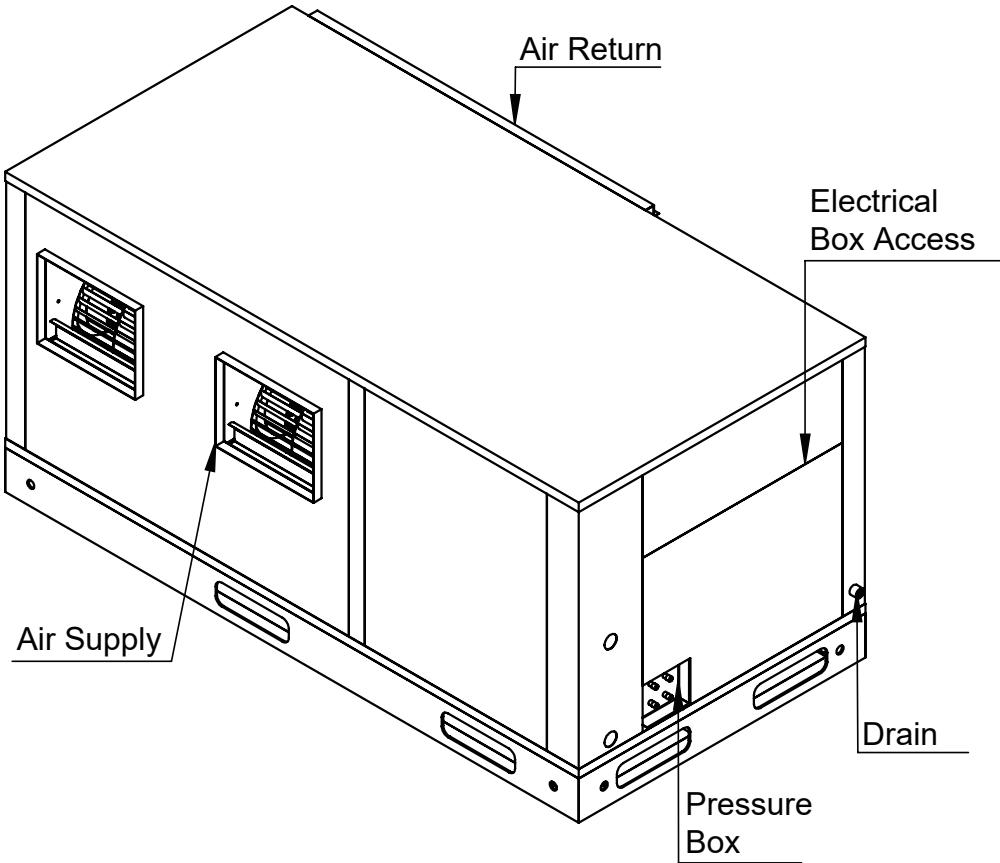


Front View

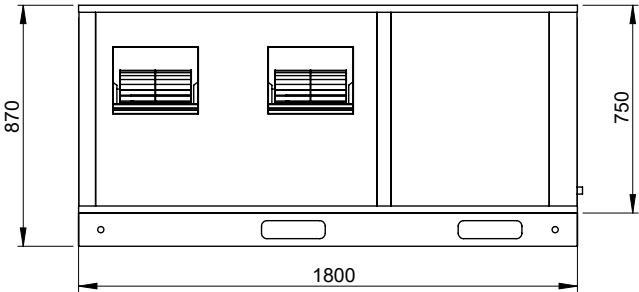


Note: All measurements are in millimeters (mm).

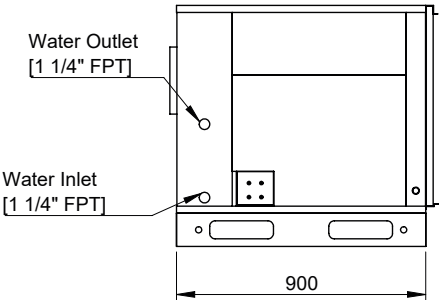
10 TON



Side View

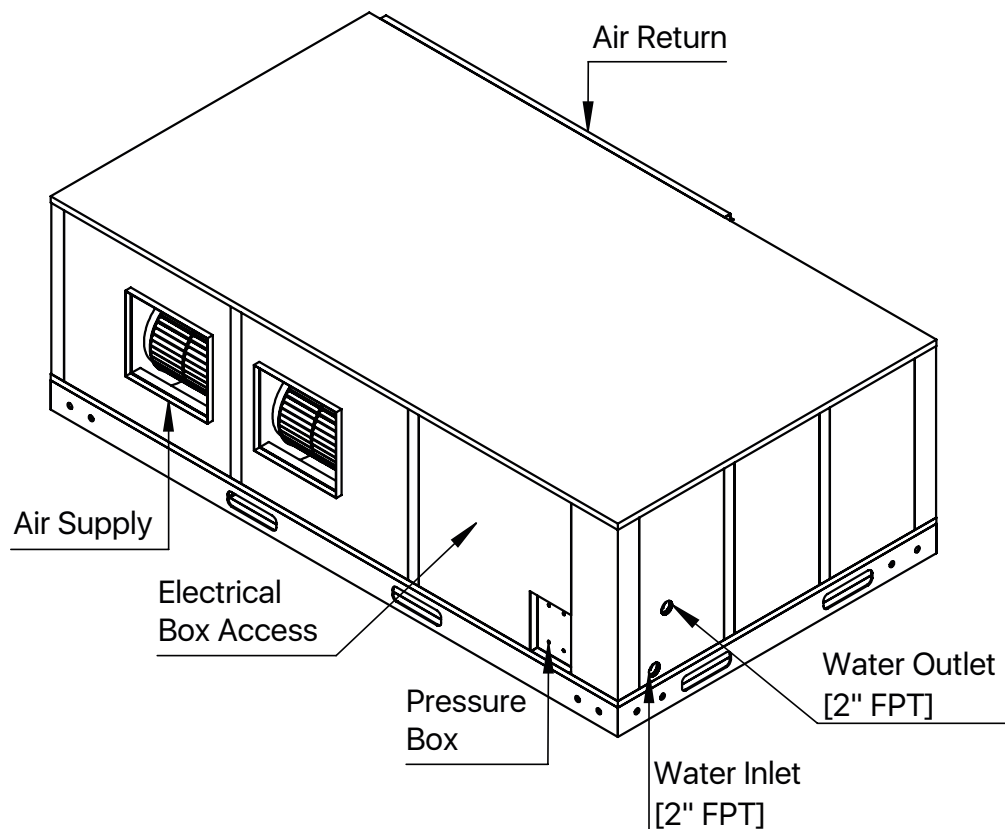


Front View

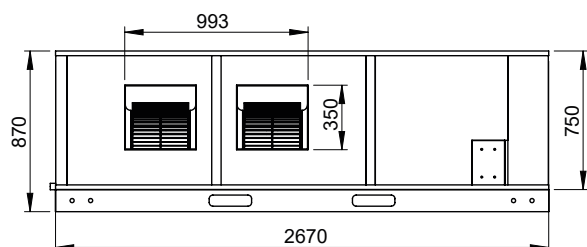


Note: All measurements are in millimeters (mm).

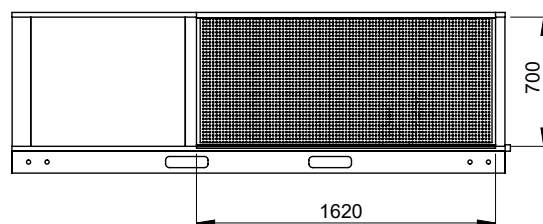
12,5 TON



Front View

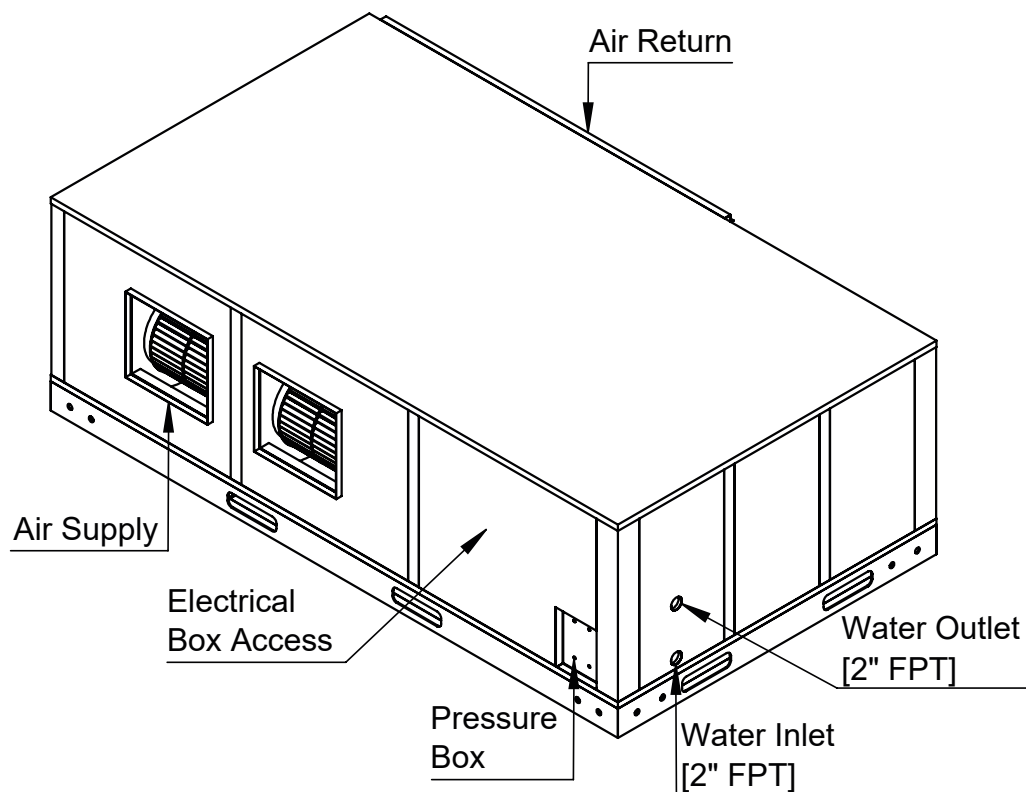


Side View

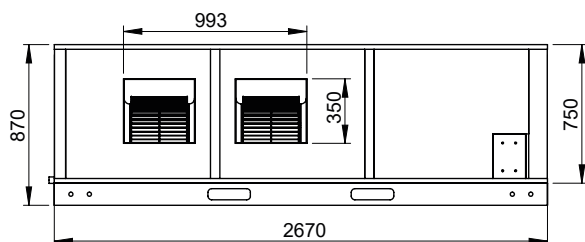


Note: All measurements are in millimeters (mm).

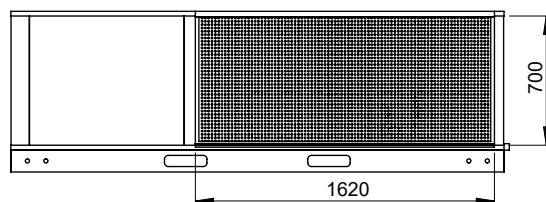
15 TON



Front View

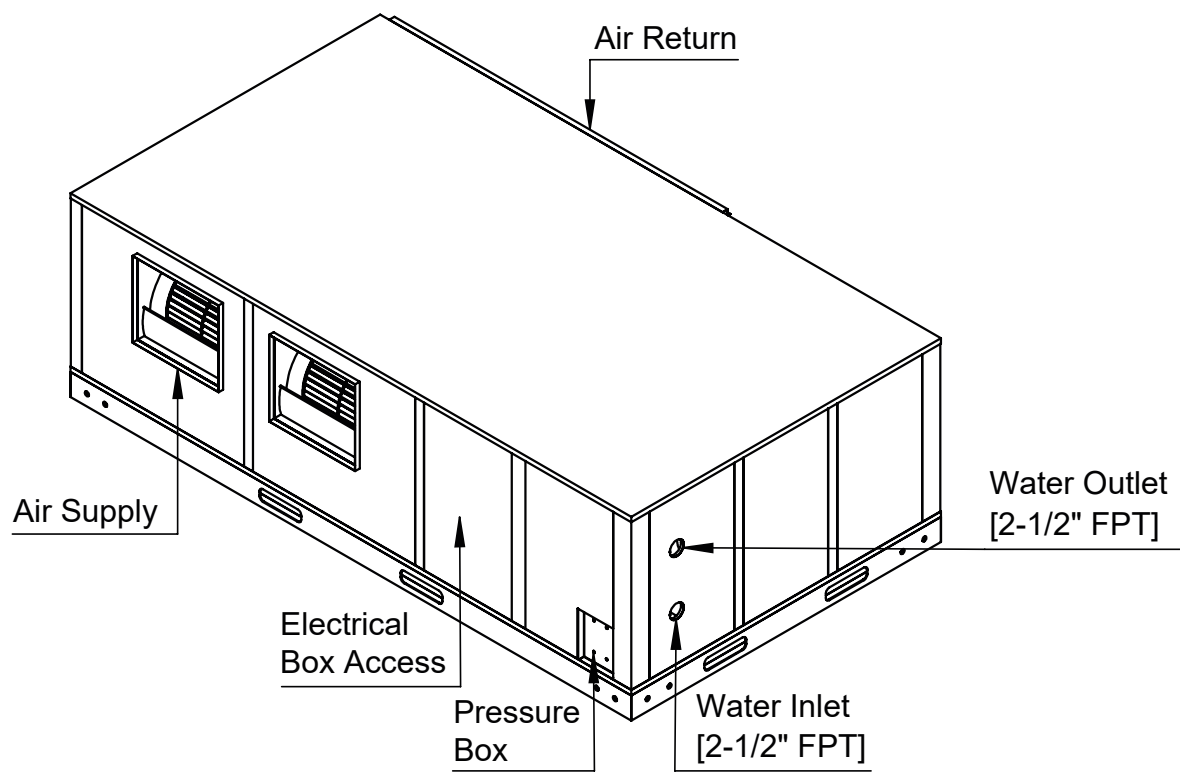


Side View

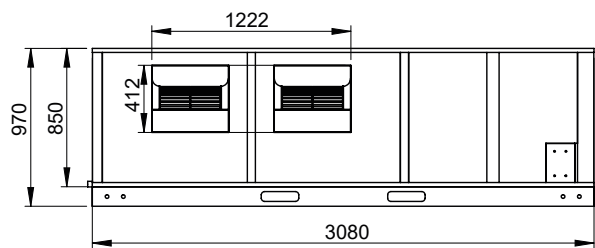


Note: All measurements are in millimeters (mm).

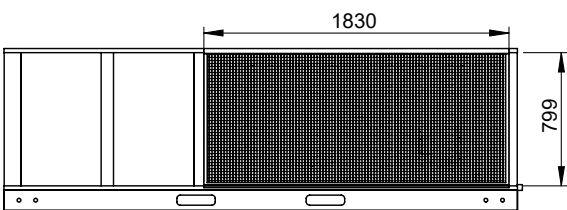
20 TON



Front View

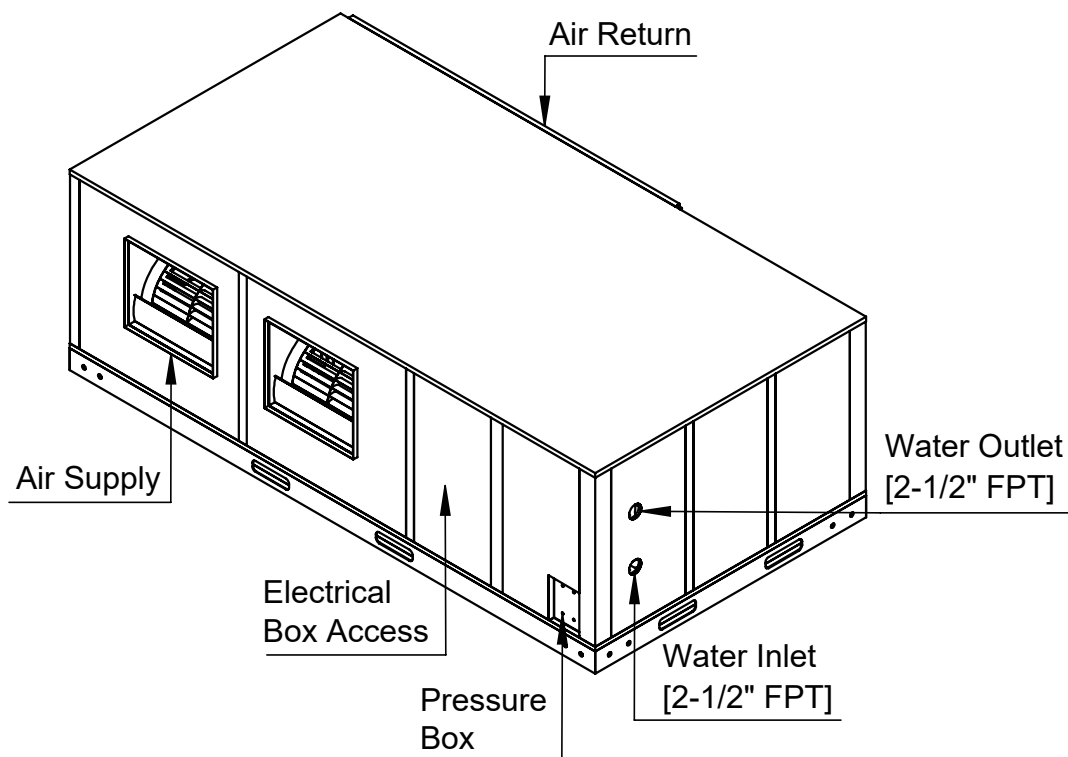


Side View

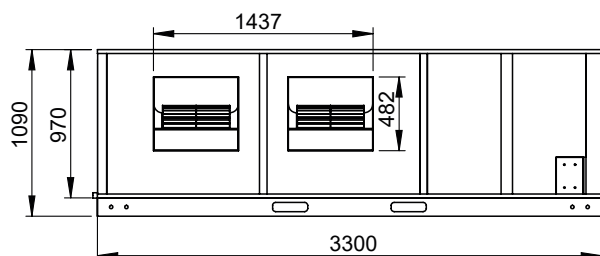


Note: All measurements are in millimeters (mm).

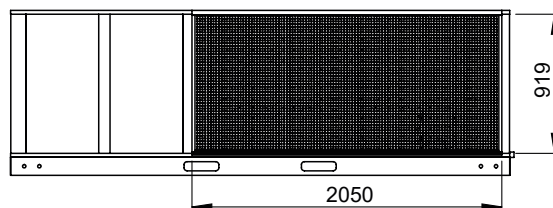
25 TON



Front View

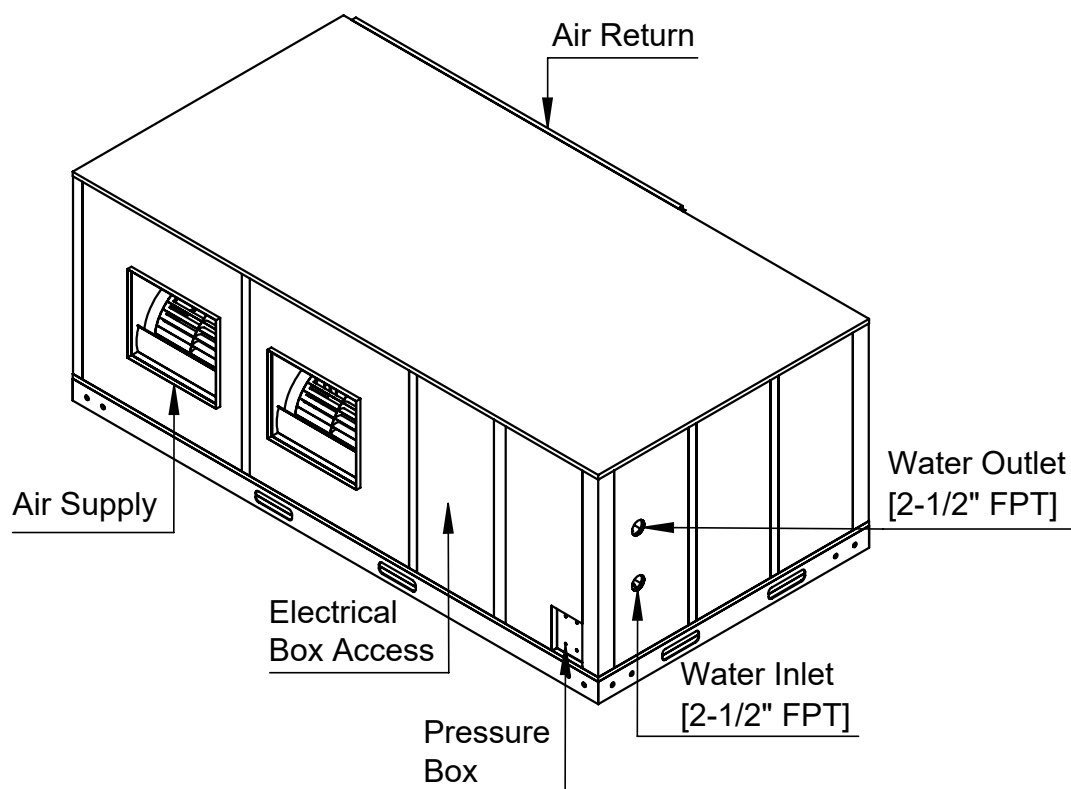


Side View

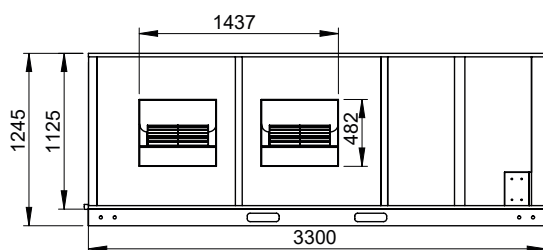


Note: All measurements are in millimeters (mm).

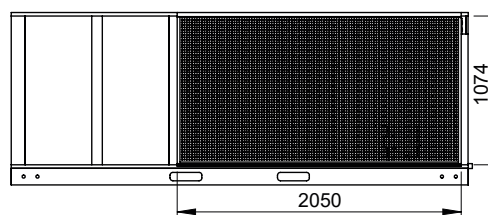
30 TON



Front View



Side View



Note: All measurements are in millimeters (mm).

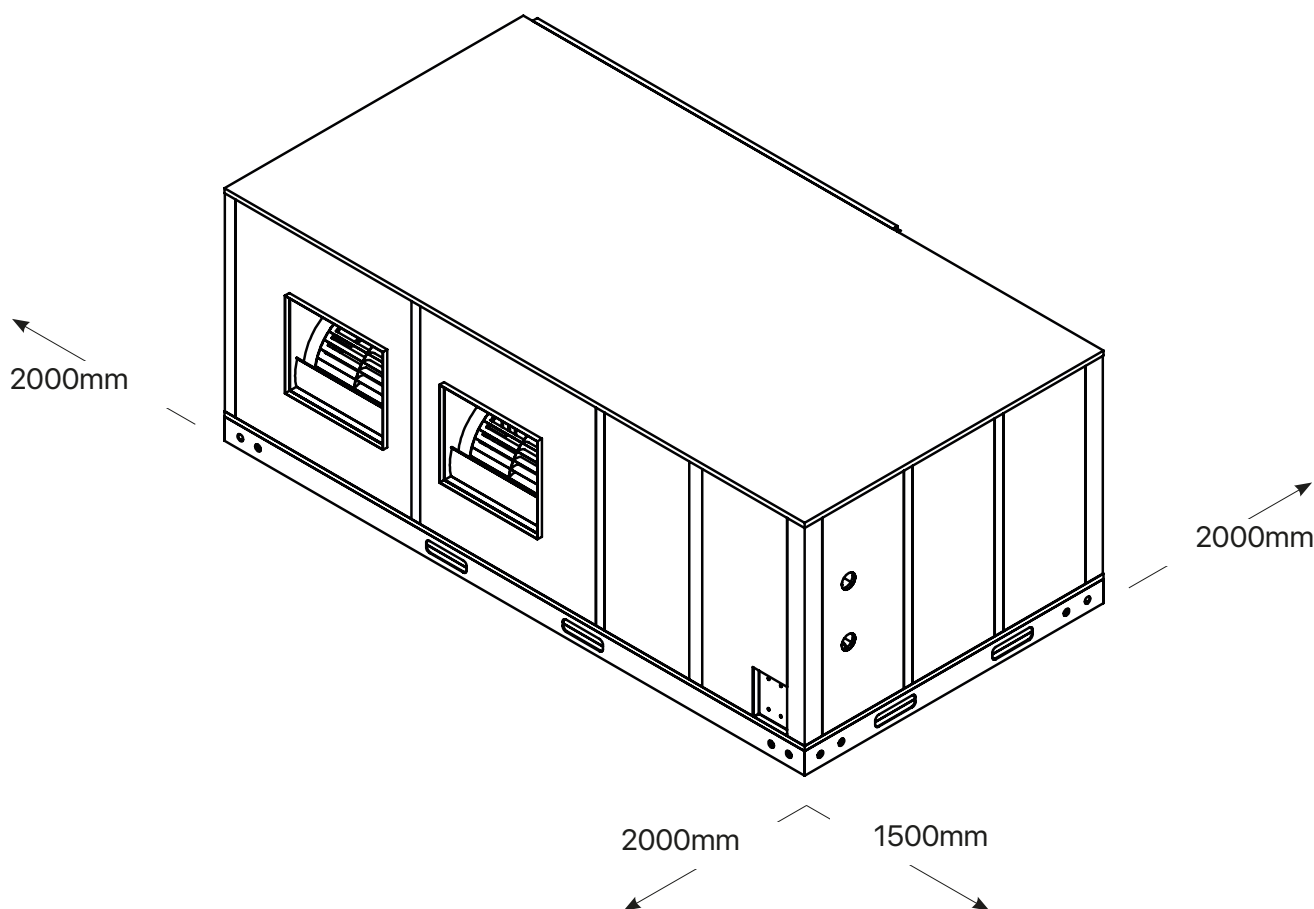
Safety Clearance Distance

The following minimum clearance recommendations for ventilation are provided. The installer must evaluate each application and ensure adequate ventilation. Failure to do so may result in improper unit operation. Reasons for providing clearance:

1. Door opening – All hinged access doors require sufficient space to fully open and allow standard maintenance operations, such as filter replacement.
2. Component removal – In the event of a component failure, such as an energy recovery wheel, adequate side clearance is required to allow complete removal of the component.
3. Air recirculation – Whether from building exhaust outlets or a gas burner flue, a minimum separation distance is required to prevent unwanted air streams from entering the outdoor air intake.

4. Applicable codes – Electrical and other local codes often require minimum clearances around electrical or motorized equipment.
5. Air Recirculation – Whether from the building exhaust or a gas burner flue, a minimum clearance must be maintained to prevent these unwanted air streams from entering the outdoor air intake.

The following minimum clearances must be maintained to ensure proper unit performance and service accessibility. It is essential that the air discharge outlets are not connected to a common duct until a minimum distance of 1.5 m (5 ft) has been maintained; a distance of 2 m (6.6 ft) is recommended.





DANGER



Improper mounting, lifting, or relocation of a unit may result in equipment damage, property damage, serious personal injury, or even death. Refer to the certified dimensioned drawings included in the project documentation for unit weights and center of gravity information.



WARNING

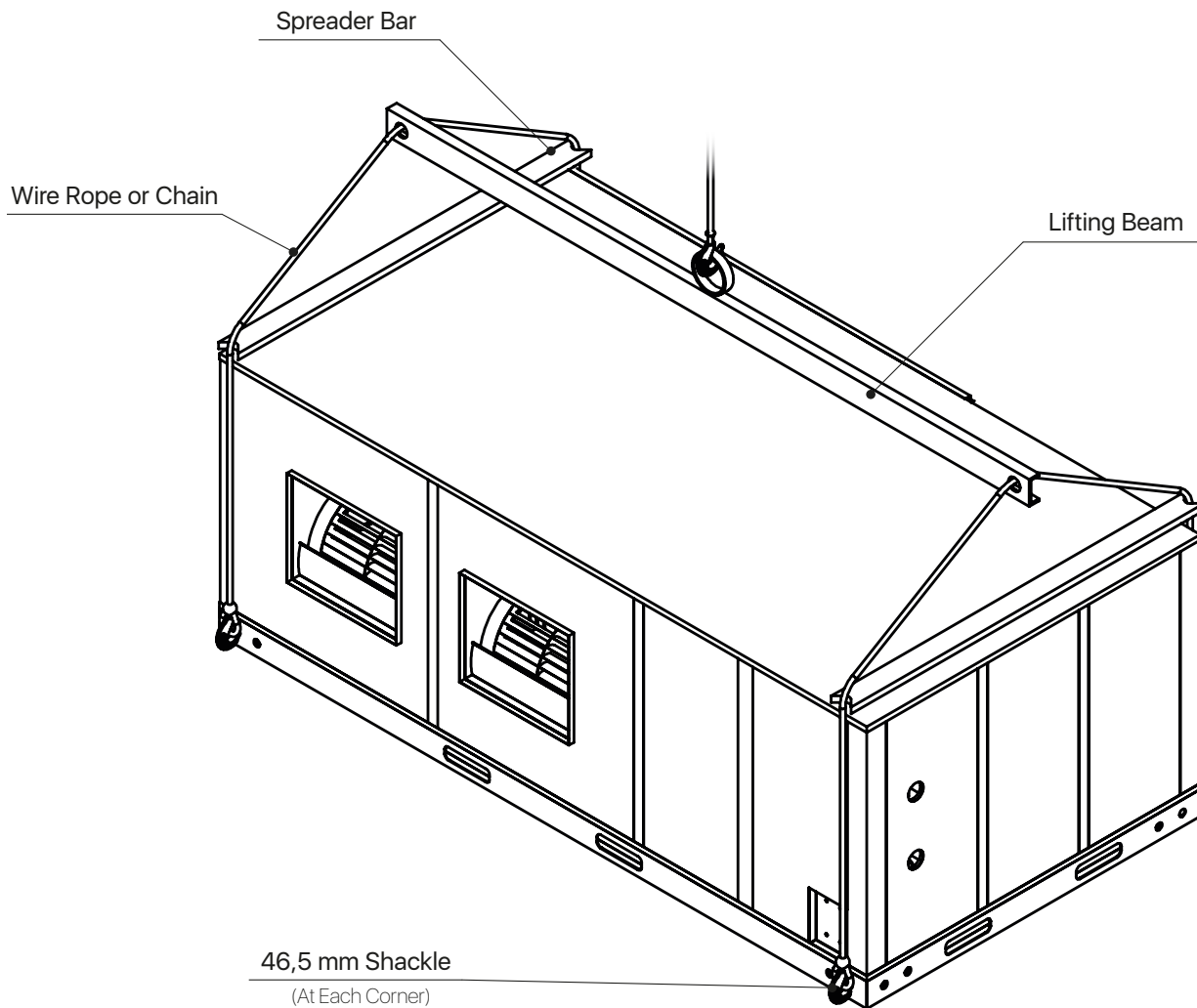


The lifting angle shall not exceed 30 degrees from the vertical, as the unit may become unstable, which could result in equipment damage, property damage, serious personal injury, or even death.

The equipment is designed to withstand the loads associated with lifting and handling operations in accordance with ASME P30.1 – Planning for Load Handling Activities, or its

equivalent. Lifting instructions are intended for the installation of newly delivered equipment. If a previously installed unit is to be moved for relocation or disposal, the condition of the equipment must be evaluated. Additionally, the unit must be properly drained, as the weight and center of gravity values do not account for the presence of water during lifting.

Installation shall be performed only by qualified personnel familiar with applicable local codes and regulations, and experienced with this type of equipment. The lifting equipment and rigging methods must be determined by the Lift Director in accordance with the current edition of ASME P30.1, or its equivalent, and must be suitable for the required load capacity. It is the customer's responsibility to consult a certified rigging contractor to properly and safely lift, hoist, and move components and subcomponents as required.



Refrigeration Piping Diagram



WARNING



To prevent the release of refrigerant into the atmosphere, the refrigeration circuit of this unit must be serviced only by technicians who meet all applicable local, state, and federal competency requirements.



WARNING

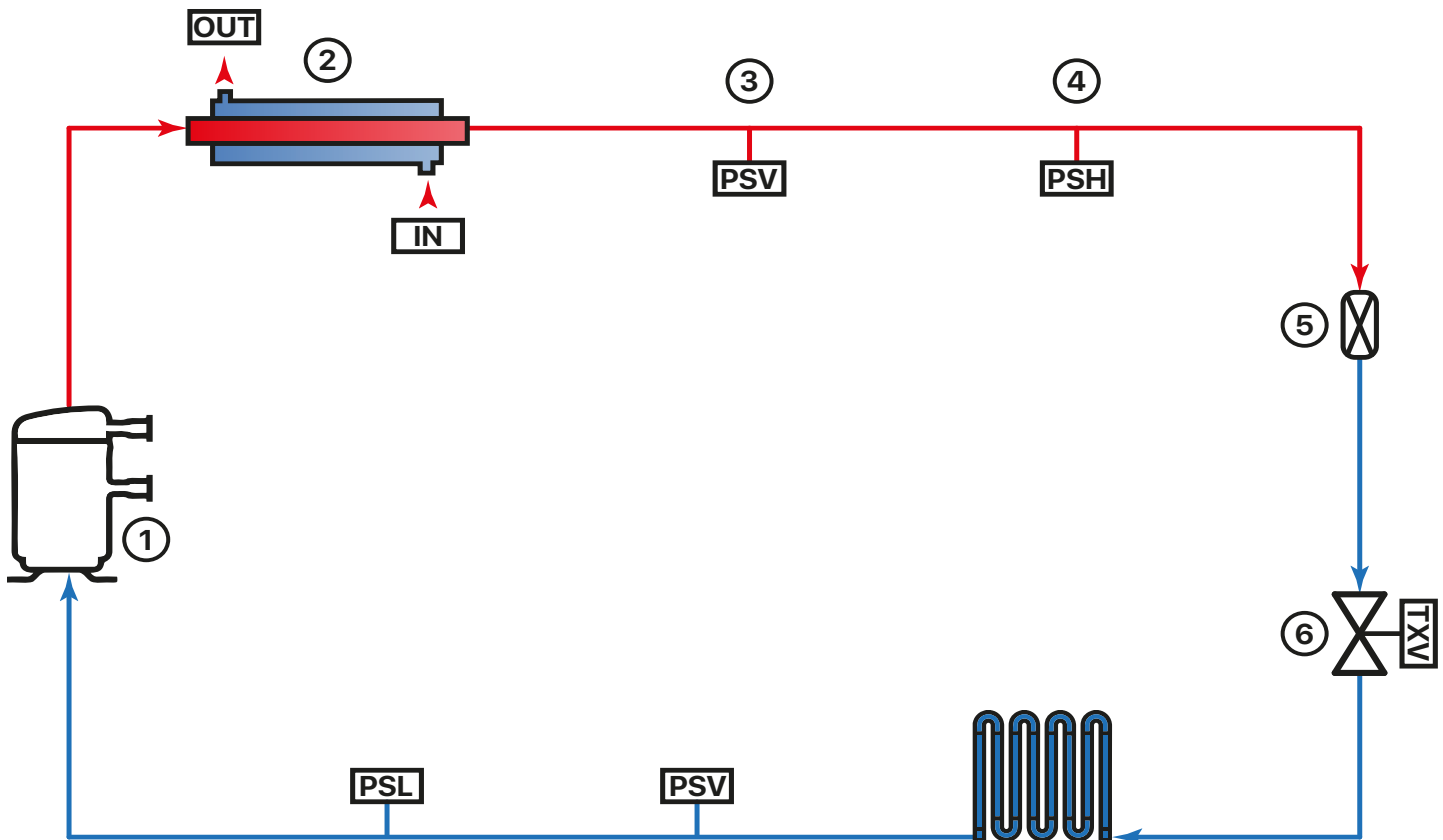


Be aware that refrigerants may be odorless.

Some refrigeration and air conditioning units are designed with multiple independent refrigeration circuits. This configuration provides improved operating efficiency, increased cooling capacity, and, in some applications, system redundancy to help maintain operation in the event of a circuit failure. Each circuit operates independently and includes the essential components of the refrigeration cycle.

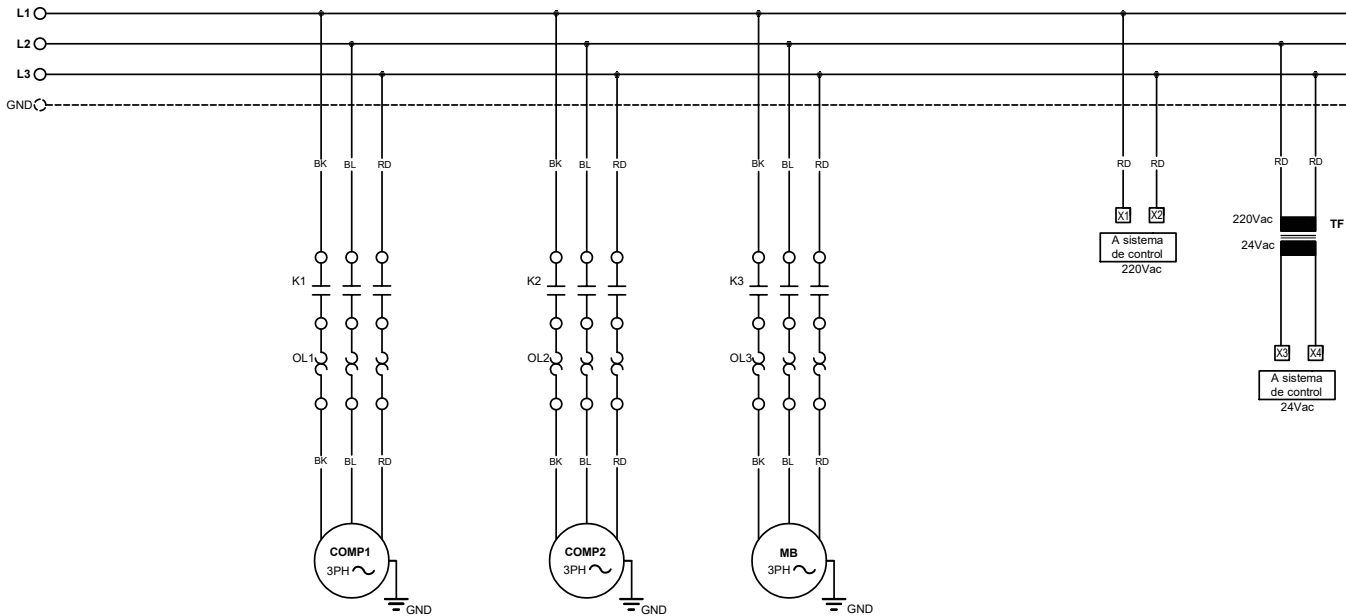
1. **Scroll Compressor:** Compresses the refrigerant vapor, increasing its pressure and temperature to drive the refrigeration cycle. It provides high efficiency, low noise levels, and reduced maintenance requirements.
2. **Water-Cooled Heat Exchanger:** Transfers heat between the refrigerant circuit and a water circuit, ensuring efficient heat exchange without mixing the two fluids.

3. **Access Valve for Charging and Service:** Provides access for refrigerant charging, pressure measurement, system diagnostics, and maintenance.
4. **High-Pressure Switch:** Protects the system by shutting down the compressor if the discharge pressure exceeds the allowable operating limit.
5. **Filter Drier:** Removes moisture and contaminants from the refrigerant, protecting the system against corrosion, acid formation, and blockages.
6. **Thermostatic Expansion Valve (TXV):** Regulates the flow of refrigerant into the evaporator based on the suction temperature, ensuring proper superheat and efficient heat absorption.
7. **Evaporator Coil and Fan:** The refrigerant absorbs heat as it evaporates inside the coil, while the fan circulates conditioned air throughout the space.
8. **Access Valve for Charging and Service:** An additional service valve strategically located to facilitate diagnostics, refrigerant charging, and maintenance.
9. **Low-Pressure Switch:** Shuts down the compressor if the suction pressure drops below the allowable limit, protecting the system from damage caused by refrigerant loss or flow restrictions.

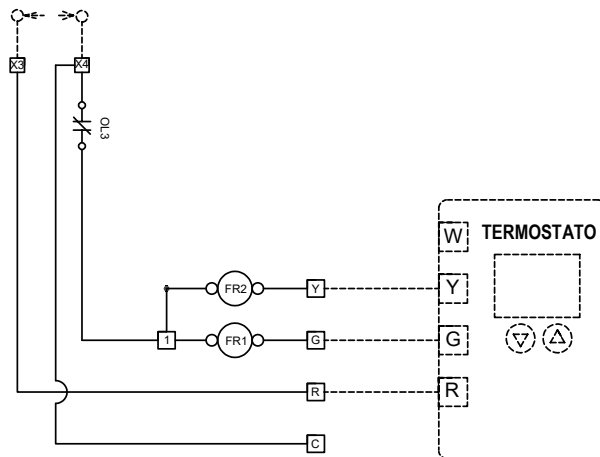


While performing the electrical installation, the authorized technician must verify that the electrical circuit of the equipment shown below is in compliance:

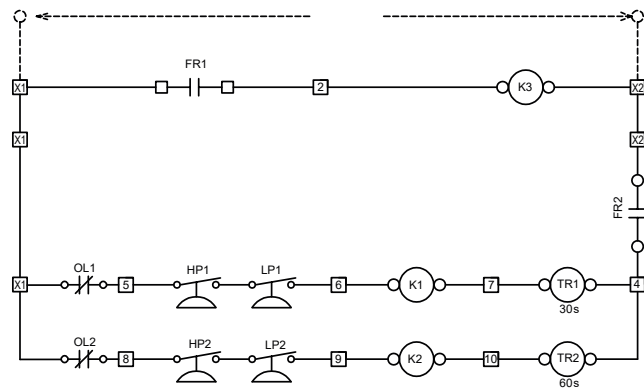
220V / 3PH / 60Hz Power



Control



Utilice los puntos C & R para energizar termostatos que requieran alimentación externa a 24Vac.



WARNING

High Voltage: Disconnect the power source(s) before performing maintenance. Service must be performed by qualified personnel. Risk of electric shock! May cause injury or death!

Elements:

COMP: Compressor
MB: Blower Motor
MV: Fan Motor
L: AC Power Supply Lines
FR: Auxiliary Relay
G: Fan Signal
Y: Condensing Unit Signal
W: Dehumidifier Signal
OL: Thermal Overload Relay
GND: Ground
R: 24 VAC Common Lines

C: 24 VAC Auxiliary Line
HP: High-Pressure Switch
LP: Low-Pressure Switch
TR: Timer Relay
K1: Compressor Contactor 1
K2: Compressor Contactor 2
K3: Blower Motor Contactor
K4: Fan Motor Contactor
TF: Transformer

Factory Wiring

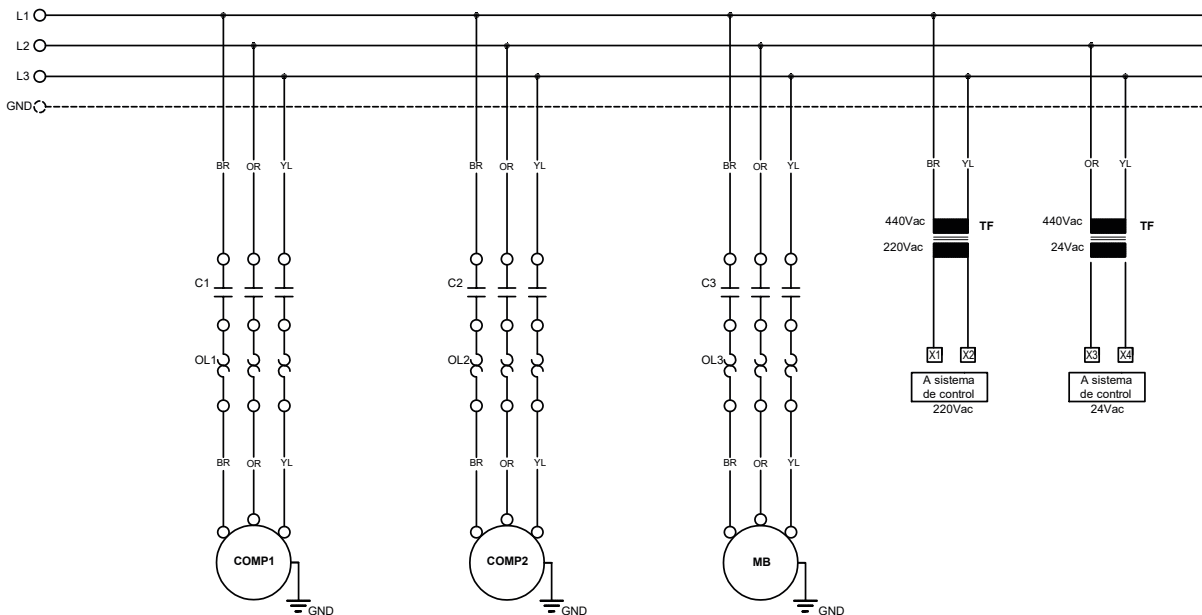
Field Wiring

Color Code:

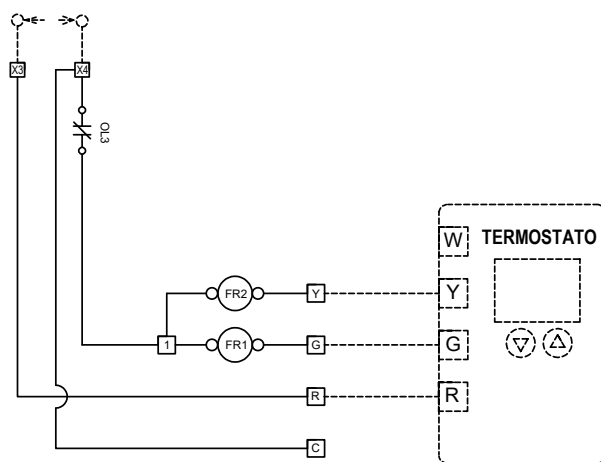
BK: Black
BL: Blue
BR: Brown
GR: Green
PU: Purple
RD: Red
WH: White
YL: Yellow
PK: Pink

While performing the electrical installation, the authorized technician must verify that the electrical circuit of the equipment shown below is in compliance:

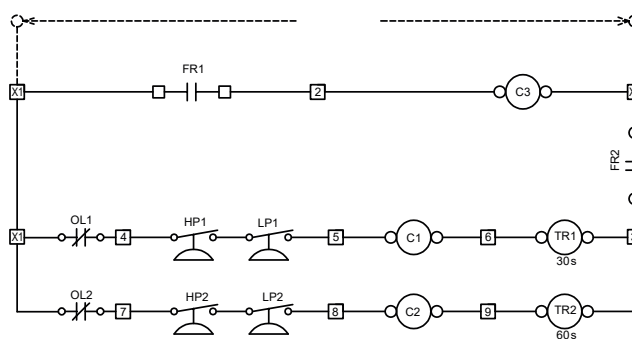
440V / 3PH / 60Hz Power



Control



Utilice los puntos C & R para energizar termostatos que requieran alimentación externa a 24Vac.



WARNING

High Voltage: Disconnect the power source(s) before performing maintenance. Service must be performed by qualified personnel. Risk of electric shock! May cause injury or death!

Elements:

COMP: Compressor
MB: Blower Motor
MV: Fan Motor
L: AC Power Supply Lines
FR: Auxiliary Relay
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W: Dehumidifier Signal
OL: Thermal Overload Relay
GND: Ground
R: 24 VAC Common Lines

C: 24 VAC Auxiliary Line
HP: High-Pressure Switch
LP: Low-Pressure Switch
TR: Timer Relay
K1: Compressor Contactor 1
K2: Compressor Contactor 2
K3: Blower Motor Contactor
K4: Fan Motor Contactor
TF: Transformer

Factory Wiring

Field Wiring

Color Code:

BK: Black
BL: Blue
BR: Brown
GR: Green
PU: Purple
RD: Red
WH: White
YL: Yellow
PK: Pink

The general conditions that must be considered before installing the equipment:

**WARNING**

Work on the equipment must be carried out exclusively by professionals. Do not connect the power supply until all work has been completed.

**CAUTION**

RISK OF CUT – Failure to follow this precaution may result in personal injury. Metal parts may have sharp edges or burrs. Be careful and use proper protective clothing, safety glasses, and gloves when handling parts and performing maintenance on the air conditioning units.

**NOTICE**

For installation only in areas not accessible to the general public, such as mechanical rooms or rooftops.

IMPORTANT CONSIDERATIONS

1. Electrical installation: All wiring shall be performed by qualified personnel in accordance with applicable local and national codes.
2. Grounding: Follow NEC requirements or applicable local regulations for grounding to ensure safety and protection against faults.
3. Power supply: Verify that the electrical supply complies with the manufacturer's specifications, including voltage stability and adequate current capacity.
4. Safe environment: Select a location away from gases, flammable vapors, or combustible materials that could pose risks during operation or maintenance.
5. Structural support: Ensure the supporting structure is capable of withstanding the total unit weight, including vibration and long-term structural stress.
6. Weight Distribution: Most of the unit's weight is concentrated in the refrigerant condensing section. Ensure the supporting base is adequately reinforced.
7. Drain location: Select a location that allows easy connection to the drainage system. Install a trap to prevent backflow or odors.
8. Unit leveling: Install the unit level to ensure proper performance, efficient drainage, and to prevent operational issues or vibration-related wear.
9. Seismic restraints (if applicable): In seismic zones, secure the unit with anchors or restraint systems compliant with local codes.
10. Vibration isolation: Install vibration isolators between the unit and its base to minimize noise transmission and structural vibration.
11. Service Clearance: Maintain the recommended minimum clearances to allow access for maintenance, filter replacement, and servicing.
12. External visual inspection: Inspect the exterior — top panel, access panels, and hardware — for shipping or handling damage.
13. Internal inspection: Perform a visual inspection of internal components for bent fins, loose wiring, or misaligned fans.
14. Equipment verification: Confirm that model number, options, and voltage match the unit nameplate to avoid compatibility or warranty issues.
15. Pest protection: Seal cable entries, piping penetrations, and duct openings to prevent the ingress of rodents or insects.
16. Pipe insulation: Insulate refrigerant lines and drain piping to prevent condensation, energy loss, and thermal degradation.
17. Outdoor Electrical Connections: Use weatherproof electrical enclosures and appropriate sealants for all outdoor electrical connections to prevent corrosion and moisture intrusion.
18. Air discharge separation: For direct-drive units, do not combine discharge outlets into a common duct before a minimum distance of 1.5 meters (2 meters recommended).
19. Unrestricted airflow: Ensure there are no obstructions in the supply and return air paths to maintain proper circulation and temperature control.
20. Duct connections: Use airtight flexible duct connectors to prevent transmission of noise, vibration, or thermal stress.
21. Airflow verification: Confirm proper fan and duct airflow before sealing connections to avoid rework.
22. Labeling and documentation: Label all wiring and piping. Keep wiring diagrams and manuals accessible near the unit.
23. Surge protection: Install surge protection devices to prevent damage from lightning strikes or electrical fluctuations.
24. Required Water Flow Verification: Verify that the water storage system provides the required flow rate (GPM) to ensure proper refrigerant condensation in the heat exchanger (tank, coaxial, or shell-and-tube type), preventing loss of system efficiency.
25. Verify that the refrigeration circuit is properly pressurized and inspect all joints and refrigerant lines for leaks to prevent refrigerant loss and the accumulation of refrigerant in enclosed spaces.

The following is a brief description of the steps for system startup and commissioning (to be carried out only by an authorized technician):



WARNING



Never perform work on the equipment without the assistance of qualified professionals. Before making any connection, make sure that the power supply lines are completely disconnected and without energy until all work is fully completed..

STEPS FOR SYSTEM STARTUP:

1. Verify grounding connection: Confirm that the grounding connection is reliable and that the conductor is properly connected to the building's grounding system. Never connect the grounding conductor to gas piping, water piping, telephone lines, or other non-dedicated systems, as this may compromise equipment safety.
2. Ensure adequate electrical capacity: Verify that sufficient electrical capacity is available for proper equipment operation. Confirm that the conductor size complies with the specified current consumption indicated in the technical specifications.
3. Provide power from the breaker panel: Connect the electrical supply to the unit from the main breaker panel. Ensure that the circuit breaker rating is adequate to protect the equipment and prevent overload or internal component damage.
4. Connect power supply lines: Connect the supply conductors to the corresponding terminals. For single-phase units, use terminals labeled L1 and L2. For three-phase units, ensure that phases L1, L2, and L3 are correctly connected within the electrical panel.
5. Tighten all electrical terminals: During transportation or over time, terminals may loosen. Retighten all terminal screws to prevent arcing or electrical faults.
6. Inspect for visible damage or debris: Examine the unit for physical damage, loose panels, or foreign objects inside the cabinet before energizing. Remove any obstruction that may interfere with moving parts or airflow.
7. Inspect drain lines: Ensure that the condensate drain line is free of obstructions and properly routed to prevent overflow or water damage to the unit or building.
8. Connect control wiring: From the unit, connect the control conductors (R, G, Y, and O*, if applicable) as indicated in the electrical panel to the corresponding thermostat terminals to ensure proper system control.
9. Verify all electrical connections: Confirm that all electrical connections are properly made and secured in accordance with the wiring diagrams supplied with the equipment to ensure safe and reliable operation.
10. Verify fan rotation (three-phase units): For three-phase equipment, confirm that the fan or blower motor rotates in the correct direction. If incorrect, interchange any two phases (e.g., L1 and L2) to correct rotation.
11. Inspect air filters and ductwork prior to start-up: Ensure filters are clean and properly installed. Inspect ductwork for blockages, leaks, or disconnections that could affect airflow and system efficiency.
12. Energize the unit: After completing all connections, switch on the field-installed disconnects or breakers to energize the unit. Verify correct connections before proceeding.
13. Verify refrigerant levels: Before operating the unit, confirm that refrigerant levels are within the manufacturer's recommended range. Low refrigerant levels may affect performance, efficiency, and compressor reliability. If levels are incorrect, contact a certified technician.
14. Measure voltage and current at start-up: After energizing, measure supply voltage and operating current to confirm they are within acceptable limits according to the unit nameplate. This helps identify issues such as undervoltage or overcurrent conditions.
15. Test system operation: Once all connections are verified and the unit is energized, test system operation. Set the thermostat to the desired temperature and confirm that the unit cools properly without unusual noise or vibration.
16. Operate unit under observation: Allow the system to operate for at least 15–20 minutes while monitoring pressures, temperatures, and overall performance to detect any early signs of malfunction.
17. Thermostat adjustment: System operation is controlled by the indoor thermostat. Ensure it is set to the desired temperature to maintain indoor comfort conditions.
18. Program thermostat (if applicable): If a programmable thermostat is used, ensure it is properly configured with operating schedules, cooling setpoints, and fan settings.

With proper maintenance and care, your air conditioning unit will operate efficiently and cost-effectively. Before performing any maintenance task, consider the following essential safety precautions:

**WARNING**

To avoid equipment damage and prevent personal injury or even death, make sure to completely disconnect the power supply before performing any maintenance task. This includes disconnecting power from both indoor and outdoor units.
NOTE: There may be multiple electrical disconnect switches. Verify and deactivate all of them to ensure your safety.

**WARNING**

Although special attention has been given to minimizing sharp edges during equipment manufacturing, we recommend handling parts very carefully and avoiding placing hands inside the unit without proper precautions.

MAINTENANCE RECOMMENDATIONS

1. **Electrical Power Supply Inspection:** Periodically check the unit's power supply to ensure proper operation. Monitor the current of the main components according to the equipment's nameplate.
2. **Tighten Electrical Connections:** Inspect and tighten all terminals and electrical connections to prevent arcing, voltage drops, or overheating due to loose or corroded connections.
3. **Inspection and Testing of Capacitors and Contactors:** Check capacitors for bulging or leakage and test contactors to ensure proper operation. Faulty components may cause start-up failures.
4. **Inspection of Safety Controls and Sensors:** Test the operation of safety switches, pressure sensors, and other automatic shutdown systems to ensure proper functioning under emergency or overload conditions.
5. **Operating Pressure Inspection:** Periodically check the system's operating pressures (high and low). Make sure they do not exceed the established ranges for normal operation.
6. **Inspection of Hydraulic Lines:** Ensure there are no blockages in the water supply and return lines to prevent overpressure or stagnation that could damage piping or heat exchangers.
7. **Fan Motor Lubrication (if applicable):** Lubricate fan motors and bearings (for models with serviceable components) according to manufacturer recommendations to prevent overheating or failures.
8. **Air filter cleaning:** Clean the air filter to prevent airflow restriction, which may reduce unit efficiency and shorten its service life.
9. **Evaporator coil inspection:** Verify the condition of the evaporator coil to ensure it is free of obstructions, allowing unrestricted airflow and proper heat transfer.
10. **Coil Cleaning:** If necessary, clean the coil with a mild detergent solution and rinse with water. This process may require coil removal. Be careful not to damage the fins.
11. **Inspection of Refrigerant Line Insulation Wear:** Check whether refrigerant line insulation is deteriorated, which may cause energy loss or reduced cooling performance.
12. **Blower inspection:** Regularly inspect the blower to prevent dirt accumulation or friction between the blades, which could negatively impact system performance.
13. **Avoid Debris Accumulation:** Do not allow debris to accumulate around or on top of the unit, as this may reduce cooling capacity.
14. **Check for Unusual Noises or Vibrations:** Listen for abnormal noises (knocking, humming, squealing) that may indicate loose components or imminent failures.
15. **Controller Calibration:** Periodically check and calibrate the controller to ensure accuracy in water return temperature and achieve optimal comfort.
16. **Exhaust Air Grille Cleaning:** Remove dust and debris from the exhaust air grilles or replace them if damaged.
17. **System Shutdown and Restart Test:** Verify that the system shuts down and restarts correctly after a power outage, sensor activation, or controller adjustment.
18. **Annual comprehensive maintenance:** After one year of operation, perform a complete maintenance inspection of the unit, including verification of the motor, bearings, and shaft condition.
19. **Cooling Tank Inspection:** Continuously inspect the cooling tank or water storage reservoir to prevent the accumulation of dirt, debris, or other solid contaminants that could impair the refrigerant condensation process. Failure to maintain a clean tank may result in increased condensing pressure and reduced system efficiency.





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