



COMMERCIAL AIR CONDITIONERS

R410A Tropical Rooftop Package Unit 50Hz

5-20ton

2012



GD Midea Refrigeration Equipment Co., Ltd.
Have received ISO 9001 certification for quality assurance.
Certificate Registration
NO.01 100 019209



GD Midea Refrigeration Equipment Co., Ltd.
Have received environmental management system
Standard ISO 14001 certification
Certificate NO.CC 1417

The International Division

Midea Air Conditioning and Refrigeration Sector

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Note: The data in this book may be changed without notice for further improvement on quality and performance.

Corporate Introduction

Midea Group

From its humble beginnings in 1968, Midea has developed into a large corporation, covering HVAC, appliances, lighting, industrial components, logistics, and real estate. Its 40 years of relentless growth has brought its global turnover to \$14 billion USD in 2009. Consequently, Midea has created over 150,000 jobs both within China and all over the world. In addition to providing affordable goods to consumers worldwide, Midea is a responsible corporate citizen, and has contributed to several social causes.

Midea believes in creating value through rapid response to market demands, cost-efficient operations and consumer satisfaction. As a result, Midea wields vast production capacities to meet these demands, a fully integrated manufacturing process, and a comprehensive range of affordable, high-quality products to serve its global customers.

Today, Midea is a home appliance leader in China. The company continues to actively globalize its operation by opening plants in Vietnam, Belarus and Egypt. Additionally, Midea has several forthcoming plants in order to offer enhanced products and services closer to the market.



Midea TID

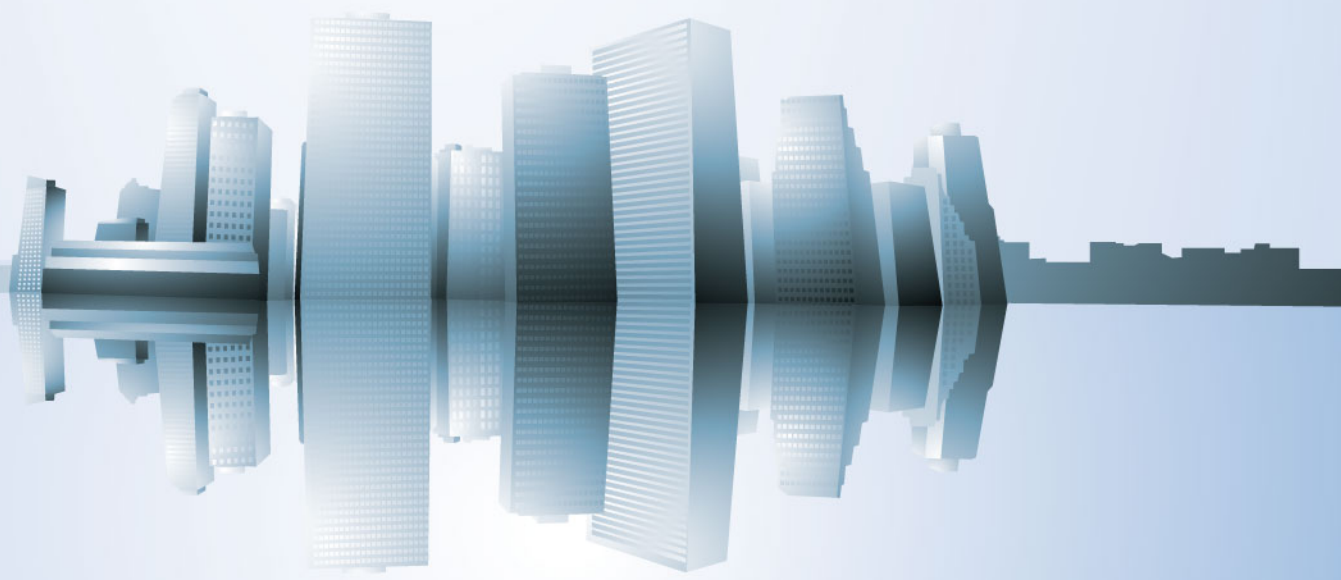
As a key part of Midea Group, The International Division (TID) of Midea Air-conditioning and Refrigeration Sector is a comprehensive export platform for residential and commercial air-conditioners, washing machines, refrigerators and heat pump water heaters. As a result, the division provides top-class service to customers worldwide.

With the core values, "safety, quality, cost and efficiency," Midea TID has achieved significant international growth while successfully maintaining leadership in RAC, CAC, washing machine and refrigerator exports. Now, the competitive advantages of innovation, production capacity and dedicated support services have made Midea TID a leading white goods supplier in the global market.



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Product introduction ➔



Product introduction

Midea R410A Tropical Packaged Air Conditioners are designed and manufactured to meet the requirements of the severe climatic conditions and are built specifically for outdoor installations, either on ground or roof level. The R410A Tropical Packaged Air Conditioners are ideal for warehouses, large halls, schools, residences, or wherever the requirement is for a heavy duty unit with a hermetic scroll compressor.

The units are available in 5 different sizes from 5 to 20 ton nominal (17.5 to 70 kW) in 50Hz. The units are designed to operate in a wide ambient temperature range from 14°F (-10°C) to 125.6°F (52°C) and even lower if an optional head pressure control system is provided.

R410A Tropical Packaged Air Conditioners are completely assembled, internally wired, charged with R410A refrigerant at factory, tested before ship and ready for installation. All that is required on site is connecting ducting and power supply. This greatly reduces installation work and costs. They are designed for ducted systems which will enable them to be installed on rooftops or on the ground.



5 Ton



7.5ton



8.5&10 Ton



15&17.5 Ton



20 Ton

Features and benefits



Features and benefits

Outstanding reliability

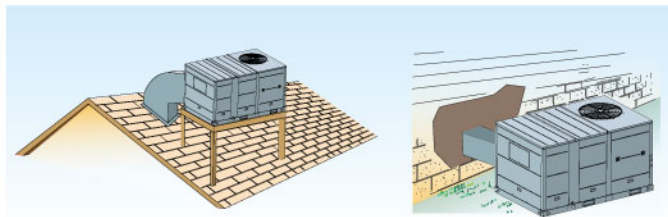
The rational design of Midea reduces the risk of defects, while the high efficiency allows saving on energy consumption and therefore on system costs. Midea is therefore the ideal solution for all applications in the residential, tertiary and industrial sectors with simultaneous heating and cooling load requirements. Total comfort, reliability and saving for large commercial surface areas.

Excellent efficiency

- High efficiency scroll compressor.
- High EER.

Design flexibility

- Install only when the capacity is required.
- Rooftop or ground installation is optional.
- Anywhere removable as requirement without fixed.



Easy to install, service and maintain

- Installer no need enter indoor, only out-of-doors.
- Compact size and integrate indoor unit and outdoor unit, save the transportation, lifting and installation cost.
- Most components are standard.
- Heat exchanger is easy for clean and maintenance.
- A complete factory run test is performed on each unit without any potential start up problem.

Advanced control system

- Operates only the capacity required by the load.
- Operates at peak efficiency at any given load.

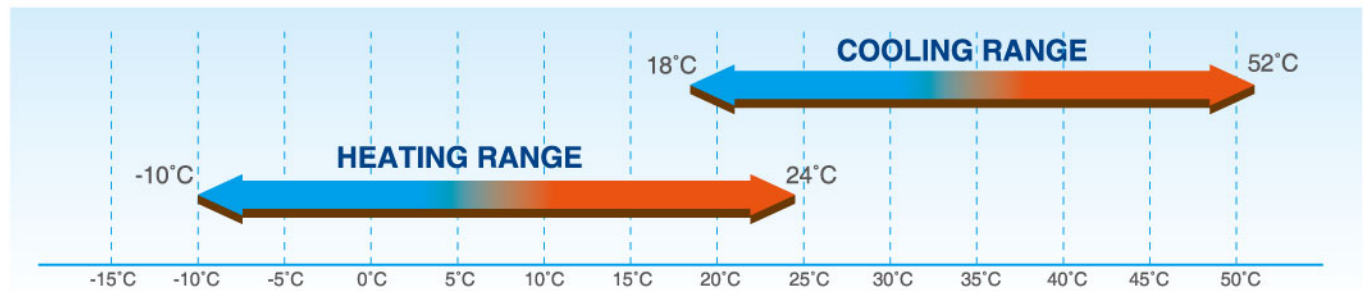
Durable construction

- Pre-painted exterior cabinet panels pass 1000-hour Salt Spray Test for durability.
- Weather-resistant construction with capped seams and sloped top panels.
- G90 galvanized heavy gauge plate conforming to ASTM-A-653, Zinc content of galvanized plate is 275 g/m².



Wide range of operation temperature

Wide range of operating temperature, cool operating range up to 52°C in tropical model and heating down to -10°C ambient.



Environmental friendly R410A refrigerant

- Chlorine-free and environmental friendly refrigerant, zero ozone depletion potential.
- High density refrigerant, therefore, less refrigerant required.
- Leak-tight refrigerant circuit, Brazed refrigerant connections for increased leak-tightness.

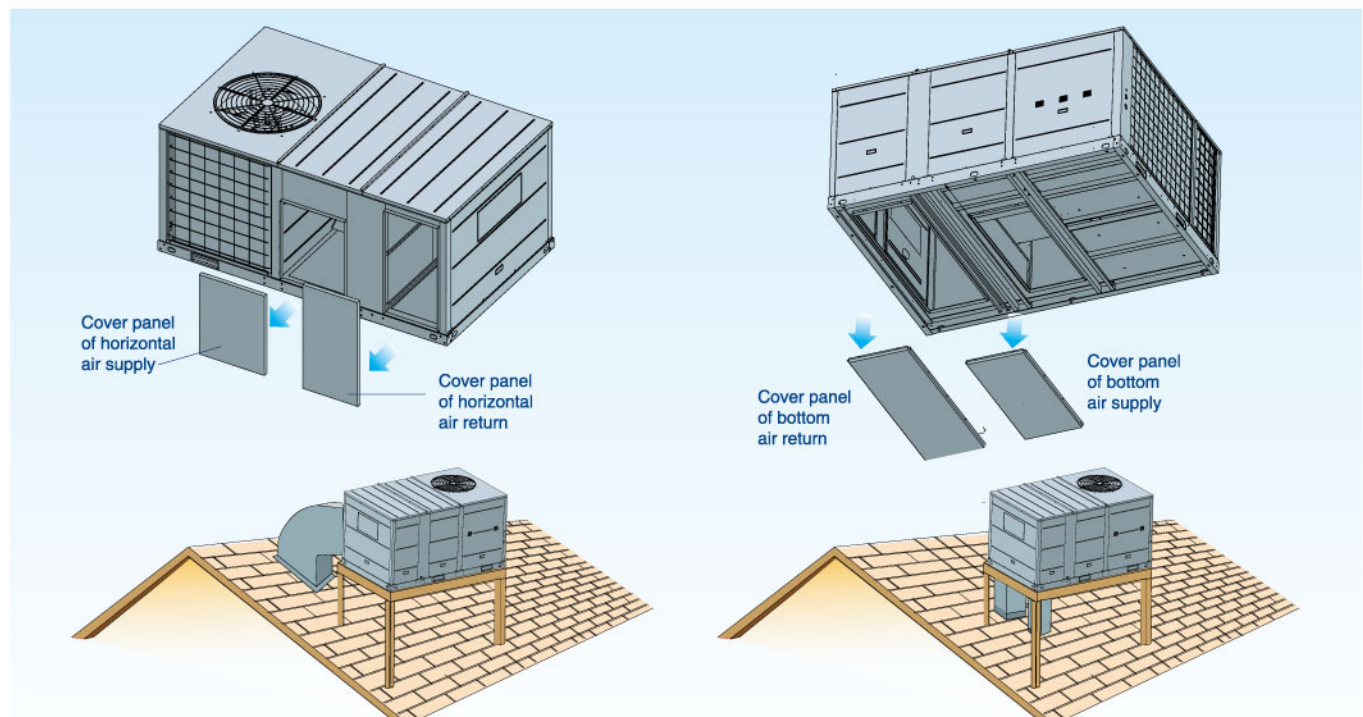
External pressure gauge ports

To external pressure gauge ports, which are permanently identified embossed wording that clearly identifies the compressor circuit, high pressure connection and low pressure connection. With the gauge ports mounted externally, an accurate diagnostic of system operation can be performed quickly and easily without disrupting airflow.

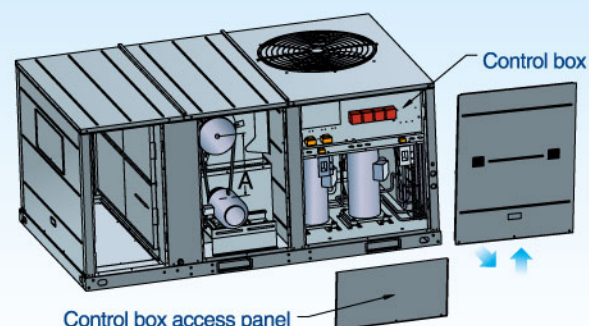


Convertible airflow

The unit ship in a horizontal configuration. They can be easily converted to downflow by simple moving two panels. The air inlet & outlet with horizontal duct flanges are convenient and quick to connect the duct, so the connection needn't to field fabricate, high efficiency and economic connection to flanges.



Easy access doors



- Provides easy access to system components for maintenance and serviceable.
- Removable access doors on the filter, fan motor, and control box sections.

Belt drive motor (Three phase, except 5ton)



For additional static requirements, precedent three-phase belt drive motors offer capability for a wide range of airflow needs.

Motor pulley (Except 5ton)

The adjustable motor pulley can easily be adjusted by loosening the bolts on either side of the motor mounted. Removing the bolts allows for easy removal of the motor pulley by pushing the motor assembly up to loosen the belt. Once the belt is removed, the motor sheave can be adjusted to the desired position.

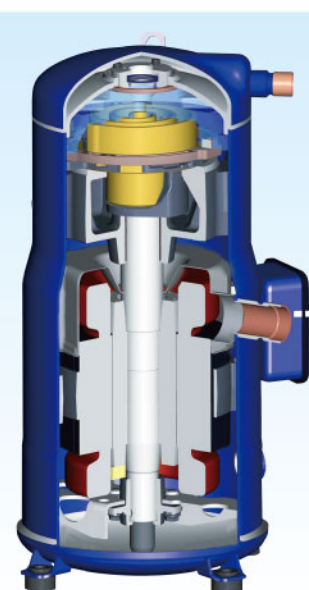


High efficiency scroll compressor

- Provide maximum reliability, efficiency and quiet operation.
- Two refrigerant circuits on larger units (above 12.5ton) provide efficient part load performance.
- Standard low and high pressure safety switches.

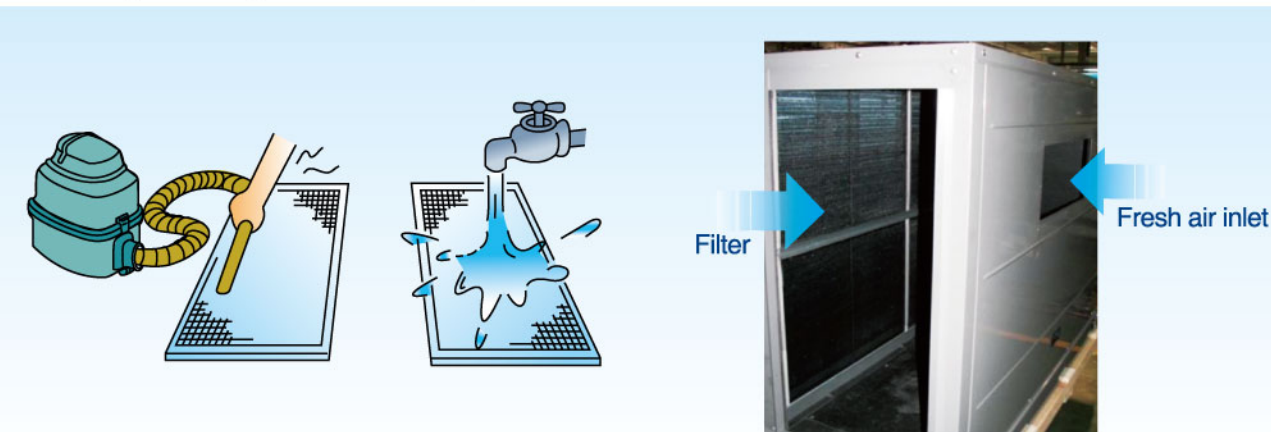
Well compressor control

Compressor staging is controlled directly by the control temperature. When the control temperature is warmer than the cooling set point, cooling is staged up; when the control temperature is cooler than the cooling set point, cooling is staged down. However, a stage change can only occur when the control temperature is outside the dead band. Staging is constrained by an inter-stage delay timer. These constraints protect the compressors from short cycling while eliminating temperature variations near the diffusers.



Recyclable and washable filter

Conveniently and easily remove and install, to save the maintenance cost.

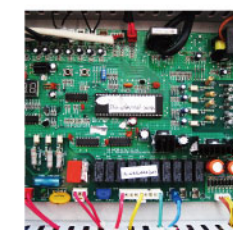


Easy drainage



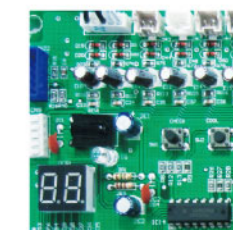
External drainage port reserved, quickly and accurately connect the rubber drainage pipe.

Low voltage connections



The wiring of the low voltage connections to the unit and the zone sensors is as simple as the picture. This simplified system makes it easy for the installer to wiring.

System self diagnostic



The system self-diagnostic function, press the "check" button before start up, the LED displays the normal checking code. When the unit is in running with abnormal operation, the LED will display the malfunction code and the unit will stop running to protect the unit.





Standard features ➔

Standard features

Be able to work continuously in high ambient temperature up to 52°C

High efficiency and high reliability scroll compressor

Discharge temperature protection for compressor

Environmental friendly R410A refrigerant

Condenser's high temperature protection

Indoor fan overload of current protection

Temperature sensor on/off protection

High/Low pressure switch protection

Evaporator anti-freezing protection

Outdoor fan integrate protection

Compressor integrate protection

Compressor current protection

Anti-cold protection

Phase monitor

Washable filter

*Belt driving motors

*Rubber drain pipe

Stainless steel bolt

Convertible airflow

Crankcase heaters

Metal condenser fan

Quickly access doors

*Fresh air intake function

*Thermal expansion valve

Cooling & heating thermostat

All coils are tested at 450psig

External pressure gauge port

Wired controller KJR-12B/DP (T)-E

*Adjustable fan motor mounting track

Easy access low voltage terminal board

Forward curved design of blower wheels

Salt spray test of steel sheet for 1000 hours

*Belt driven & forward curved blower for air supply

Copper tube+hydrophilic aluminium fin heat-exchanger

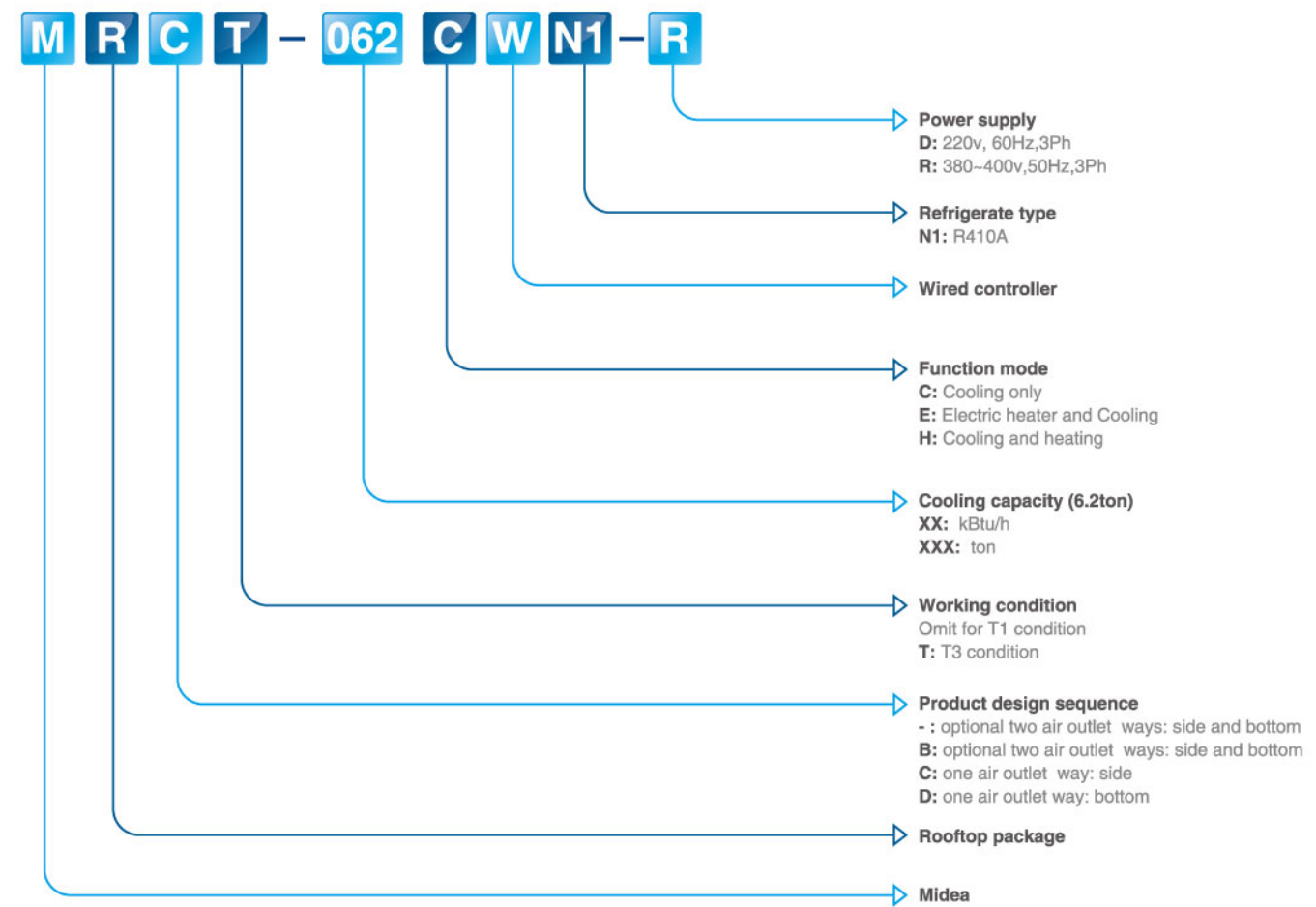
G90 galvanized heavy gauge plate conforming to ASTM A 653

Note: The item with "*" will not be applied to 5ton.

Options & accessories

Description	Optional	Accessory
Auxiliary electric heaters	☒	
Filter, aluminum(thickness 25mm)	☒	
Wired controller KJR-23B	☒	
Wired controller KJR-25B	☒	
Wired controller KJR-12B		☒
Drainage pipe		☒
Drainage outlet		☒
Snap ring		☒

Nomenclature



Product lineup

■ 380-400V/3Ph/50Hz			
Nominal Capacity (Ton)	Model Name	Function	Air outlet
5	MRBT-60CWN1-R	Cooling+ PTC(optional)	Two options air supply
7.5	MRBT-075CWN1-R	Cooling	Two options air supply
7.5	MRCT-075EWN1-R	Cooling +PTC	Side air supply
7.5	MRBT-075HWN1-R	Heating & Cooling	Two options air supply
8.5	MRBT-085CWN1-R	Cooling	Two options air supply
8.5	MRCT-085EWN1-R	Cooling +PTC	Side air supply
8.5	MRBT-085HWN1-R	Heating & Cooling	Two options air supply
10	MRBT-100CWN1-R	Cooling	Two options air supply
10	MRCT-100EWN1-R	Cooling +PTC	Side air supply
10	MRBT-100HWN1-R	Heating & Cooling	Two options air supply
15	MRBT-150CWN1-R	Cooling	Two options air supply
15	MRCT-150EWN1-R	Cooling +PTC	Side air supply
15	MRBT-150HWN1-R	Heating & Cooling	Two options air supply
17.5	MRBT-175CWN1-R	Cooling	Two options air supply
17.5	MRCT-175EWN1-R	Cooling +PTC	Side air supply
17.5	MRBT-175HWN1-R	Heating & Cooling	Two options air supply
20	MRBT-200CWN1-R	Cooling	Two options air supply
20	MRCT-200EWN1-R	Cooling +PTC	Side air supply
20	MRBT-200HWN1-R	Heating & Cooling	Two options air supply



Specifications

			MRBT-60CWN1-R	MRBT-075CWN1-R	MRCT-075EWN1-R	MRBT-075HWN1-R
Picture						
Cooling	Cooling Capacity(1)	Btu/h	59000	89000		
		kW	17	26		
	Power Input(1)	kW	5.6	9.2		
	Cooling Capacity(2)	Btu/h	51200	80100		
		kW	15	23.5		
	Power Input(2)	kW	6.7	10.7		
Heating	Heating Capacity	Btu/h	-	-	47800	102000
		kW	-	-	14	30
	Power Input	kW	-	-	16	8.8
Capacity steps		%	0/100	0/100		
Performance	Indoor fan air flow	CFM	1800	2900		
	ESP	Pa	50	60		
	Outdoor fan air flow	CFM	4114	5880		
	ESP	Pa	0	0		
	Number of rows		4	2		
Indoor Coil	Fin spacing	mm	1.6	1.6		
		inch	1/16"	1/16"		
	Tube diameter	mm	7.94	7.94		
		inch	3/8"	5/16"		
Indoor fan	Type		FC centrifugal	FC centrifugal		
	Quantity		1	1		
	Drive type		Direct	Belt		
	Motors quantity		1	1		
Compressor	Type		Hermetically sealed scroll	Hermetically sealed scroll		
	Quantity		1	1		
	Capacity	Btu/hr	55000	91500		
	Charge	ml	1656	3000		
Outdoor Coil	Number of rows		3	3		
	Fin spacing	mm	1.3	1.6		
		inch	1/16"	1/16"		
	Tube diameter	mm	7	7.94		
		inch	1/4"	5/16"		
Outdoor Fan	Type		Axial fan	Propeller		
	Quantity		1	1		
	Drive type		Direct	Direct		
	Motors quantity		1	1		
Refrigerant	Type		R410A	R410A		
	Charge	kg	5	5.6	5.6	6
Shipping	Qty/Per20'/40'/40'HQ	Pieces	12/24/36	12/28/28		

Note:
The data are based on the following conditions:
■ Cooling:(1)Indoor Temperature 26.7°C(80°F) DB / 19.4°C(67°F) WB; - Outdoor Temperature 35°C(95°F) DB.
(2)Indoor Temperature 26.7°C(80°F) DB / 19.4°C(67°F) WB; - Outdoor Temperature 46°C(114°F) DB.
■ Heating and Power input: Indoor Temperature 20°C(68°F) DB/15°C(59°F) WB; - Outdoor Temperature 7°C(44.6°F) DB/6°C(42.8°F) WB.

			MRBT-085CWN1-R	MRCT-085EWN1-R	MRBT-085HWN1-R	MRBT-100CWN1-R	MRCT-100EWN1-R	MRBT-100HWN1-R
Picture								
Cooling	Cooling Capacity(1)	Btu/h	103000			120000		
		kW	30			35		
	Power Input(1)	kW	10.4			11.8		
	Cooling Capacity(2)	Btu/h	84500			107000		
		kW	24.8			31.4		
	Power Input(2)	kW	12.1			13.1		
Heating	Heating Capacity	Btu/h	-	71700	11900	-	71700	126000
		kW	-	21	35	-	21	37
	Power Input	kW	-	23.2	10.2	-	23.2	10.9
Capacity steps		%	0/100			0/100		
Performance	Indoor fan air flow	CFM	3600			4030		
	ESP	Pa	75			75		
	Outdoor fan air flow	CFM	7060			7060		
	ESP	Pa	0			0		
	Number of rows		3			3		
Indoor Coil	Fin spacing	mm	1.4			1.4		
		inch	1/16"			1/16"		
	Tube diameter	mm	7.94			7.94		
		inch	5/16"			5/16"		
Indoor fan	Type		FC centrifugal			FC centrifugal		
	Quantity		1			1		
	Drive type		Belt			Belt		
	Motors quantity		1			1		
Compressor	Type		Hermetically sealed scroll			Hermetically sealed scroll		
	Quantity		1			1		
	Capacity	Btu/hr	102200			119000		
	Charge	ml	3300			3300		
Outdoor Coil	Number of rows		3			3		
	Fin spacing	mm	1.6			1.6		
		inch	1/16"			1/16"		
	Tube diameter	mm	7.94			7.94		
		inch	5/16"			5/16"		
Outdoor Fan	Type		Propeller			Propeller		
	Quantity		1			1		
	Drive type		Direct			Direct		
	Motors quantity		1			1		
Refrigerant	Type		R410A			R410A		
	Charge	kg	6.5	6.5	6.8	6.7	6.7	7.5
Shipping	Qty/Per20'/40'/40'HQ	Pieces	8/16/16			8/16/16		

Note:
The data are based on the following conditions:
■ Cooling:(1)Indoor Temperature 26.7°C(80°F) DB / 19.4°C(67°F) WB; - Outdoor Temperature 35°C(95°F) DB.
(2)Indoor Temperature 26.7°C(80°F) DB / 19.4°C(67°F) WB; - Outdoor Temperature 46°C(114°F) DB.
■ Heating and Power input: Indoor Temperature 20°C(68°F) DB/15°C(59°F) WB; - Outdoor Temperature 7°C(44.6°F) DB/6°C(42.8°F) WB.

			MRBT-150CWN1-R		MRCT-150EWN1-R		MRBT-150HWN1-R		MRBT-175CWN1-R		MRCT-175EWN1-R		MRBT-175HWN1-R	
Picture														
Cooling	Cooling Capacity(1)	Btu/h	180000					205000						
		kW	53					60						
	Power Input(1)	kW	18.6					22						
		Cooling Capacity(2)	Btu/h	158700					176500					
	kW		46.5					51.7						
	Power Input(2)	kW	21.3					25.2						
Heating	Heating Capacity	Btu/h	-	102400	191000	-	102400	228600						
		kW	-	30	56	-	30	67						
	Power Input	kW	-	32	17.5	-	32	19.8						
Capacity steps		%	0/50/100											
Performance	Indoor fan air flow	CFM	6150					7311						
	ESP	Pa	90					100						
	Outdoor fan air flow	CFM	11000					12700						
	ESP	Pa	0					0						
Indoor Coil	Number of rows		3											
	Fin spacing	mm	1.4					1.6						
		inch	1/16"					1/16"						
	Tube diameter	mm	7.94											
		inch	5/16"											
Indoor fan	Type		FC centrifugal											
	Quantity		1											
	Drive type		Belt											
	Motors quantity		1											
Compressor	Type		Hermetically sealed scroll											
	Quantity		2											
	Capacity	Btu/hr	91500					102200						
	Charge	ml	3000					3300						
Outdoor Coil	Number of rows		3											
	Fin spacing	mm	1.6											
		inch	1/16"											
	Tube diameter	mm	7.94											
		inch	5/16"											
Outdoor Fan	Type		Propeller											
	Quantity		2											
	Drive type		Direct											
	Motors quantity		2											
Refrigerant	Type		R410A											
	Charge	kg	5.8x2	5.8x2	6.5x2	5.2 X 2	5.2 X 2	5.6 X 2						
Shipping	Qty/Per20'/40'/40'HQ	Pieces	3/6/12					3/6/12						

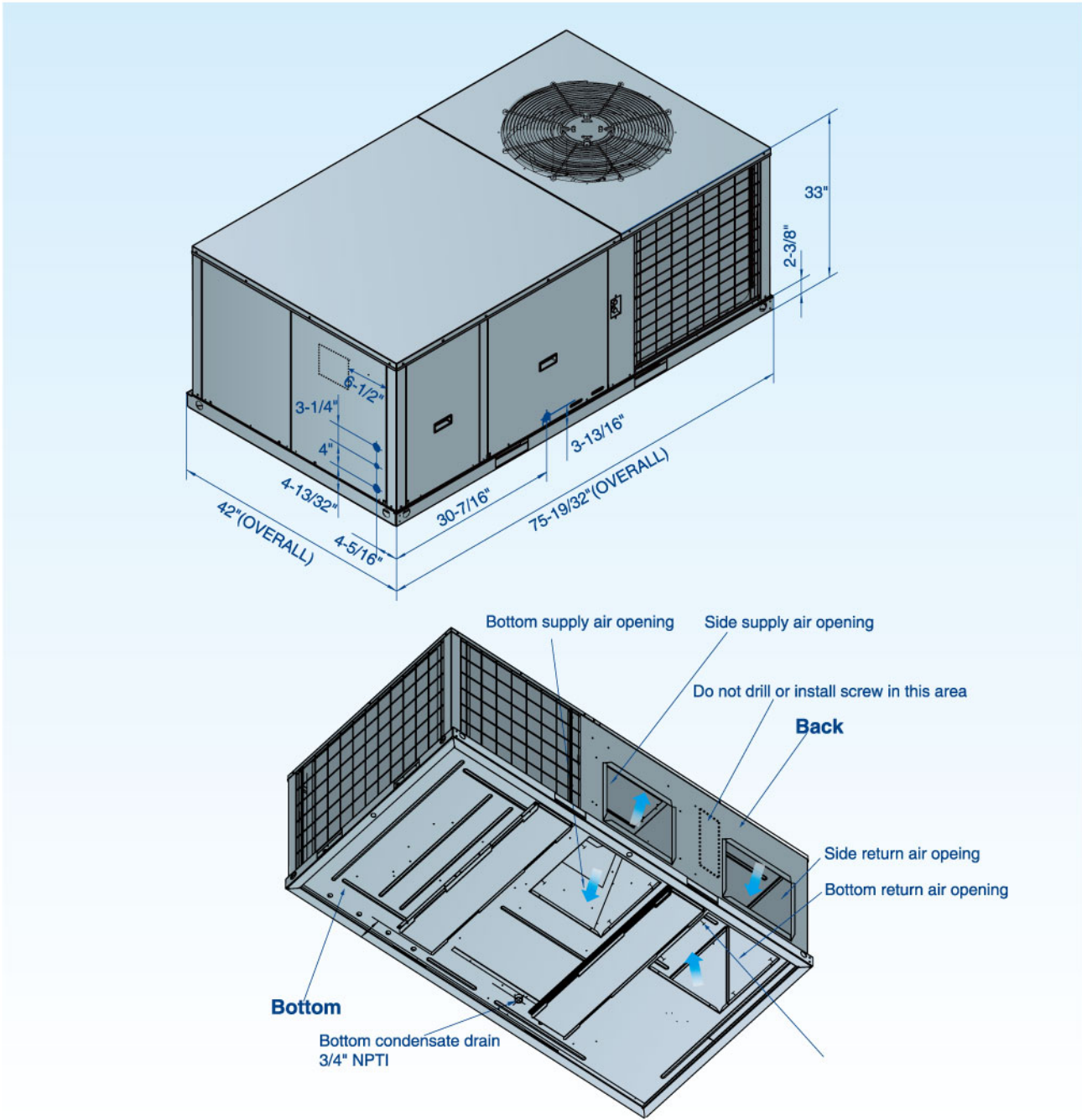
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■ Heating and Power input: Indoor Temperature 20°C(68°F) DB/15°C(59°F) WB; - Outdoor Temperature 7°C(44.6°F) DB/6°C(42.8°F) WB.

			MRBT-200CWN1-R		MRCT-200EWN1-R		MRBT-200HWN1-R	
Picture								
Cooling	Cooling Capacity(1)	Btu/h	240000					
		kW	70					
	Power Input(1)	kW	25.1					
	Cooling Capacity(2)	Btu/h	210000					
		kW	61.4					
	Power Input(2)	kW	28.2					
Heating	Heating Capacity	Btu/h	-	133100		256000		
		kW	-	39		75		
	Power Input	kW	-	41		23.4		
Capacity steps		%	0/50/100					
Performance	Indoor fan air flow	CFM	7810					
	ESP	Pa	100					
	Outdoor fan air flow	CFM	14000					
	ESP	Pa	0					
Indoor Coil	Number of rows		3					
	Fin spacing	mm	1.6					
		inch	1/16"					
	Tube diameter	mm	7.94					
		inch	5/16"					
Indoor fan	Type		FC centrifugal					
	Quantity		1					
	Drive type		Belt					
	Motors quantity		1					
Compressor	Type		Hermetically sealed scroll					
	Quantity		2					
	Capacity	Btu/hr	119000					
	Charge	ml	3300					
Outdoor Coil	Number of rows		4					
	Fin spacing	mm	1.6					
		inch	1/16"					
	Tube diameter	mm	7.94					
		inch	5/16"					
Outdoor Fan	Type		Propeller					
	Quantity		2					
	Drive type		Direct					
	Motors quantity		2					
Refrigerant	Type		R410A					
	Charge	kg	8.1x2	8.1x2		8.8x2		
Shipping	Qty/Per20'/40'/40'HQ	Pieces	2/4/8					

Note:
The data are based on the following conditions:
■ Cooling:(1)Indoor Temperature 26.7°C(80°F) DB / 19.4°C(67°F) WB; - Outdoor Temperature 35°C(95°F) DB.
(2)Indoor Temperature 26.7°C(80°F) DB / 19.4°C(67°F) WB; - Outdoor Temperature 46°C(114°F) DB.
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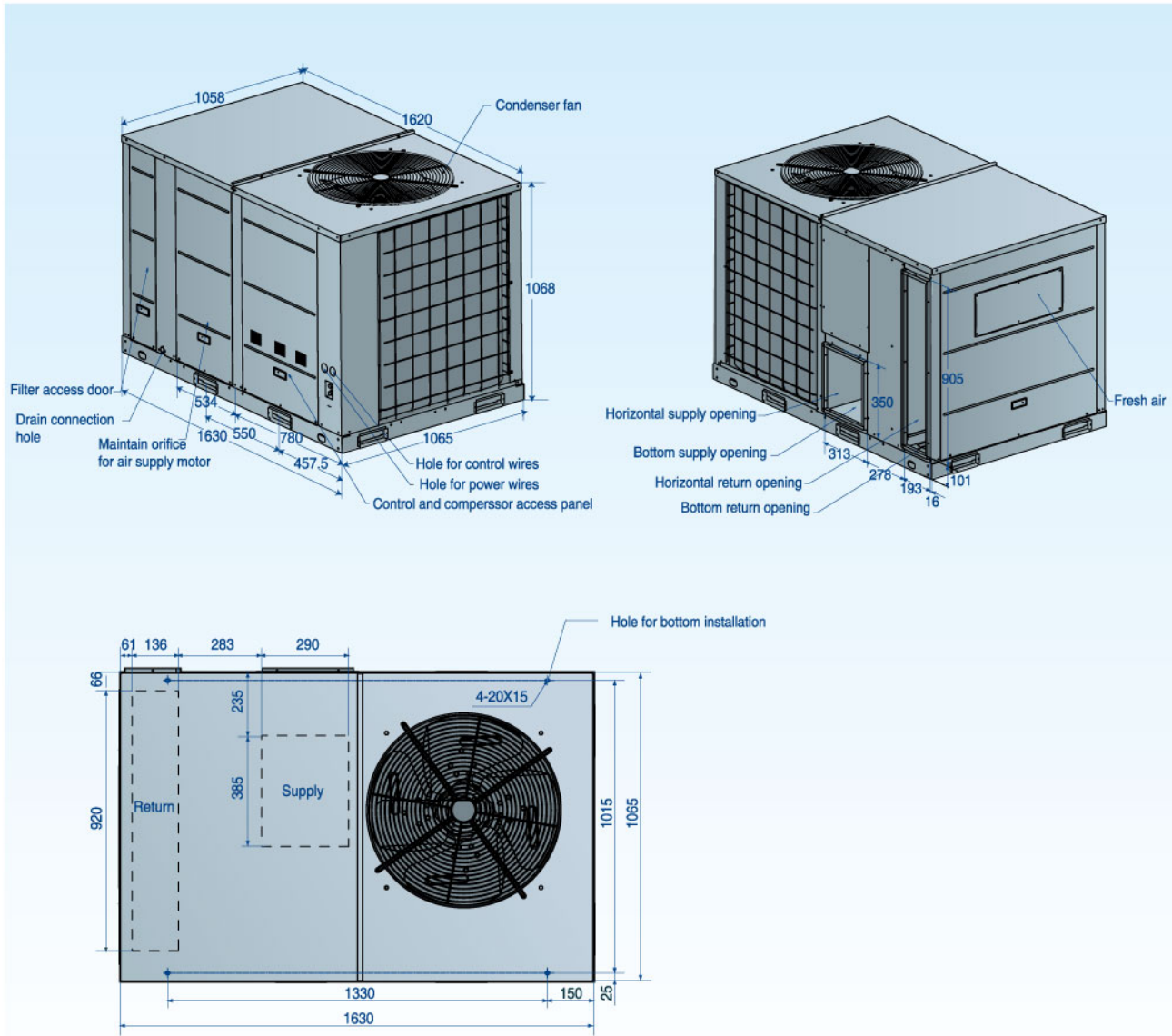
Dimensional data

5 ton



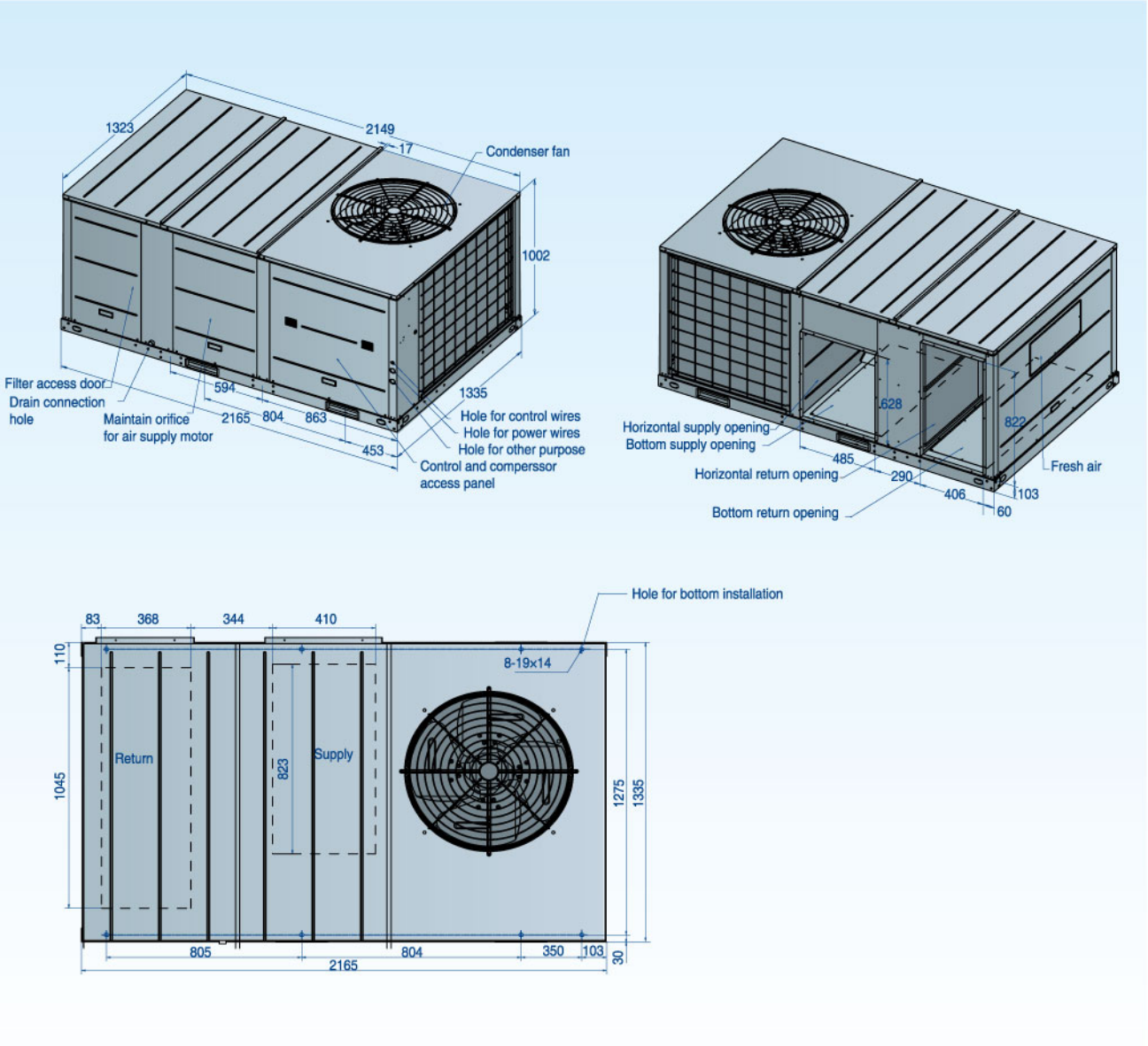
MODEL	NET SIZE(mm)	PACKING SIZE (mm)	NET WEIGHT(kg)	GROSS WEIGHT(kg)
MRBT-60CWN1-R	1920x840x1068	1955x870x1085	230	234

7.5 ton



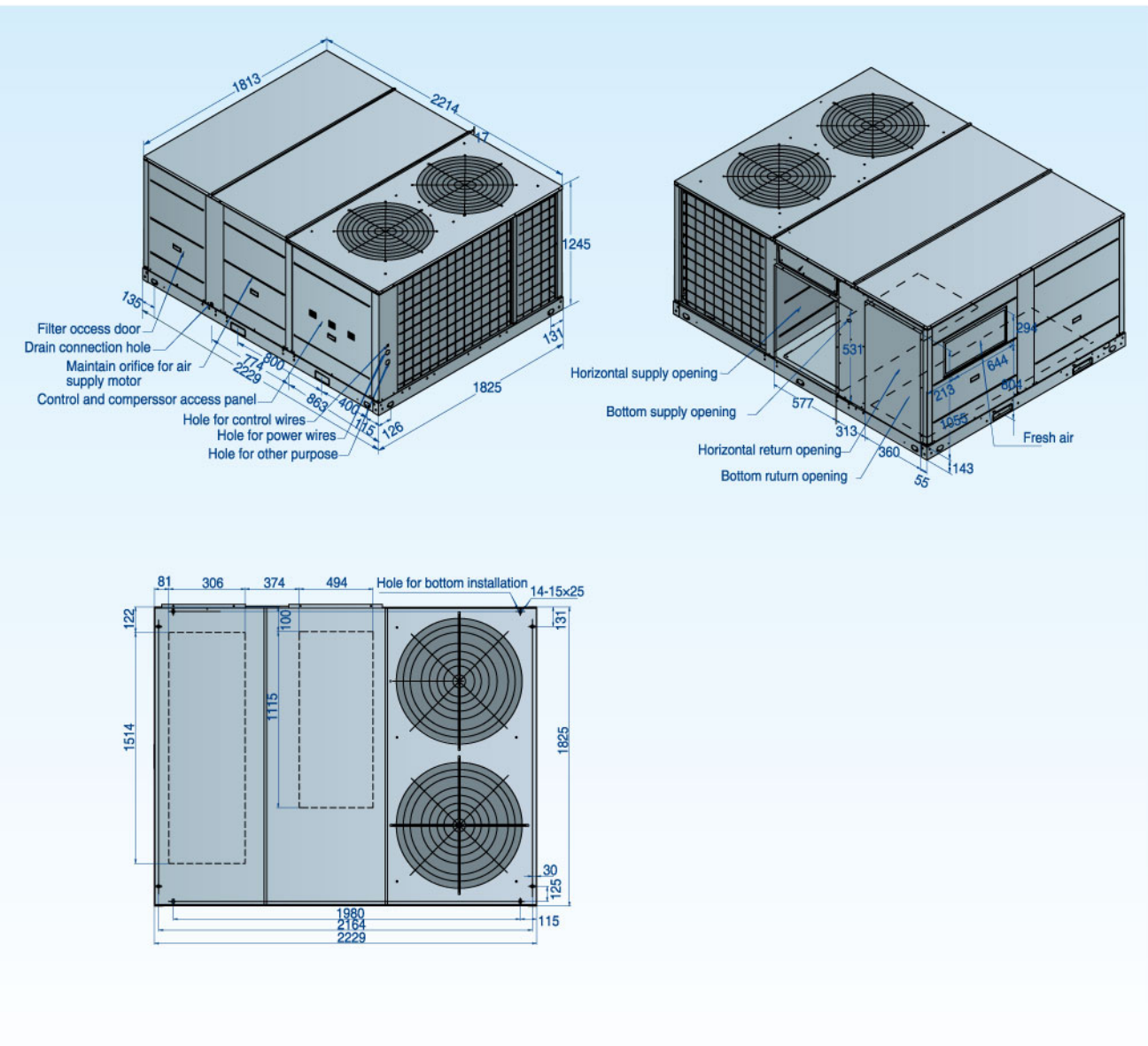
MODEL	NET SIZE(mm)	PACKING SIZE (mm)	NET WEIGHT(kg)	GROSS WEIGHT(kg)
MRBT-075CWN1-R	1630x1065x1068	1700x1110x1160	315	335
MRCT-075EWN1-R	1630x1065x1068	1700x1110x1160	323	343
MRBT-075HWN1-R	1630x1065x1068	1700x1110x1160	380	390

8.5 & 10 ton



MODEL	NET SIZE(mm)	PACKING SIZE (mm)	NET WEIGHT(kg)	GROSS WEIGHT(kg)
MRBT-085CWN1-R	2165×1021×1335	2220×1140×1415	445	458
MRCT-085EWN1-R	2165×1021×1335	2220×1140×1415	455	468
MRBT-085HWN1-R	2165×1021×1335	2220×1140×1415	450	463
MRBT-100CWN1-R	2165×1021×1335	2220×1140×1415	445	458
MRCT-100EWN1-R	2165×1021×1335	2220×1140×1415	455	468
MRBT-100HWN1-R	2165×1021×1335	2220×1140×1415	450	463

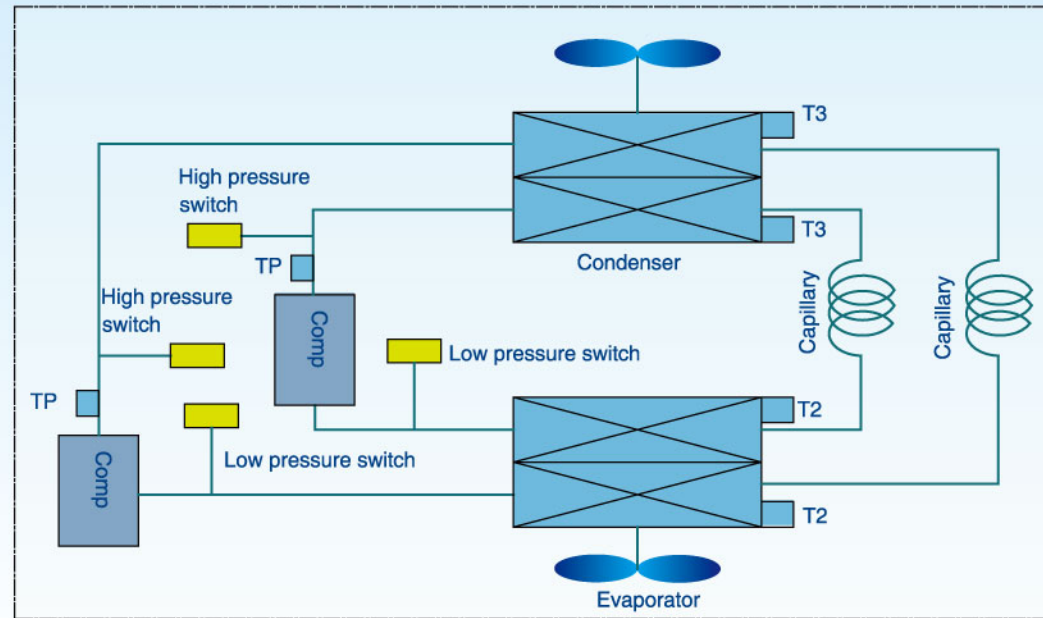
15 & 17.5 ton



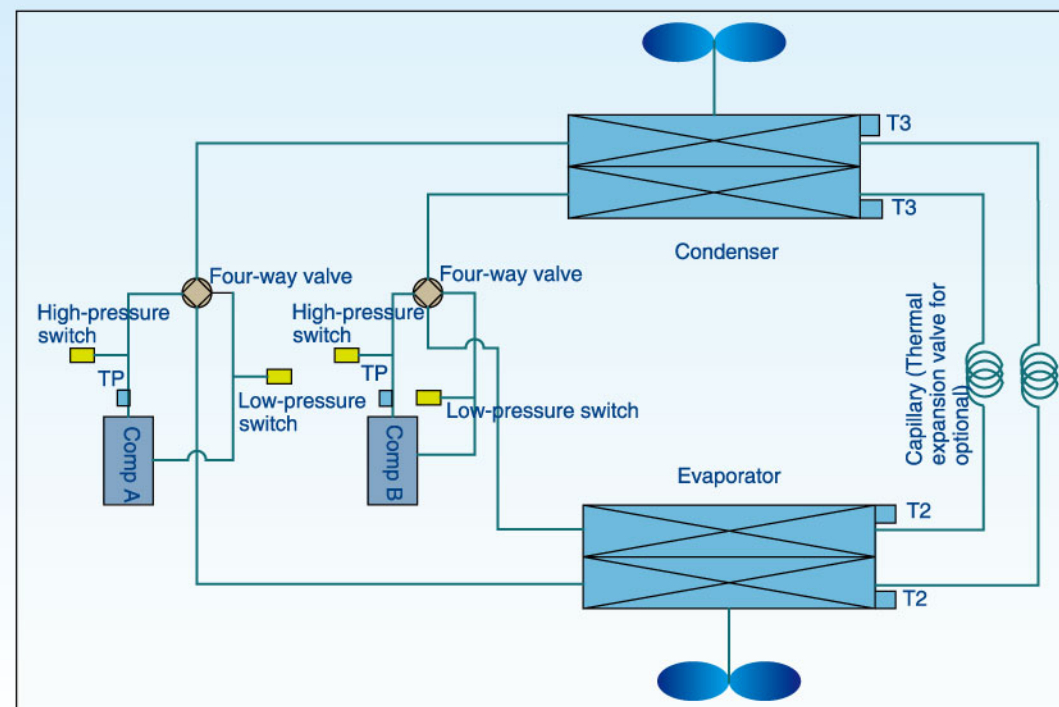
MODEL	NET SIZE(mm)	PACKING SIZE (mm)	NET WEIGHT(kg)	GROSS WEIGHT(kg)
MRBT-150CWN1-R	2230×1245×1824	2236×1300×1855	710	730
MRCT-150EWN1-R	2230×1245×1824	2236×1300×1855	720	740
MRBT-150HWN1-R	2230×1245×1824	2236×1300×1855	730	750
MRBT-175CWN1-R	2230×1245×1824	2236×1300×1855	730	750
MRCT-175EWN1-R	2230×1245×1824	2236×1300×1855	750	760
MRBT-175HWN1-R	2230×1245×1824	2236×1300×1855	750	770

15,17.5 & 20 ton

Cooling, cooling+PTC type



Cooling and heating type



TP: Compressor discharge temperature sensor in system A and B
 T2: Indoor coil temperature sensor in system A and B
 T3: Outdoor coil temperature sensor in system A and B

Capacity table

Cooling capacity for 5 ton

		Air Flow		1800				
		Ent DB	CFM	(°F)	75	80	85	90
Ambient Temperature(°F)	75	61	TGC	63.6	66.8	72.8	75	
			SHC	46.8	48.1	51.7	53.2	
		67	TGC	65.7	69	74.5	76.7	
			SHC	47.3	49	52.9	54.5	
		73	TGC	67.4	70.7	76.4	78.3	
			SHC	47.8	50.2	54.2	55.7	
	85	61	TGC	59.6	62.6	68.2	70.3	
			SHC	42.9	45.1	49.1	50.6	
		67	TGC	61.5	64.6	69.7	71.8	
			SHC	44.3	46.5	50.2	51.7	
		73	TGC	63	66.2	71.5	73.3	
			SHC	45.4	47.7	51.5	52.8	
	95	61	TGC	55.5	58.3	63	64.8	
			SHC	41.1	43.1	46.6	48	
		67	TGC	57.1	60	65	66.9	
			SHC	41.7	44	47.2	48.8	
		73	TGC	58.7	61.7	66.6	68.3	
			SHC	42.9	45	48.6	49.8	
	105	61	TGC	51.6	54.2	59	60.8	
			SHC	39.7	41.7	45.5	46.8	
		67	TGC	53.2	55.9	60.3	62.2	
			SHC	40.4	42.5	45.9	47.2	
		73	TGC	54.6	57.3	61.9	63.4	
			SHC	40.9	43	46.4	47.6	
	115	61	TGC	47.4	49.7	54.2	55.8	
			SHC	38.8	39.3	42.8	44.1	
		67	TGC	48.8	51.2	55.7	57.4	
			SHC	39	39.8	43.7	45.4	
		73	TGC	49.9	52.4	57.1	58.6	
			SHC	39.4	41.4	45.1	46.2	

Notes:

- All capacities are gross and have not considered indoor fan heat. To obtain NET cooling capacity subtract indoor fan heat.
- TGC=Total Gross Capacity.(Unit:kBtu/h).
- SHC=Sensible Heat Capacity. (Unit: kBtu/h).

Cooling capacity for 7.5 ton

				Air Flow		CFM	2700				3000				3300			
				Ent DB		(°F)	75	80	85	90	75	80	85	90	75	80	85	90
Ambient Temperature(°F)	85	Entering Wet Bulb(°F)	61	TGC	82.5	84.2	85.8	87.5	87.3	89	90.8	92.6	89.3	91.1	92.9	94.8		
				SHC	72.7	80.4	85.3	87.5	77.4	84.3	88.2	91.1	82	84.5	87.9	92.3		
			67	TGC	94.8	96.7	98.6	100.6	95.9	97.8	99.8	101.8	96.7	98.6	100.6	102.6		
				SHC	55.6	68.8	81.8	94.3	58	72.6	85.4	96.3	59.5	73.8	83.2	100.1		
			73	TGC	98.6	100.6	102.6	104.6	99.2	101.2	103.2	105.2	99.4	101.4	103.4	105.5		
				SHC	36.8	51	62	72.4	37.3	50.7	62.3	75.1	37.8	54.8	63.3	75.4		
	95		61	TGC	78.6	80.2	81.8	83.4	81	82.6	84.3	86	83.3	85	86.7	88.4		
				SHC	69.6	75.6	78	81.4	72.3	78.6	81.2	85.3	75.2	79.3	83.5	86.7		
			67	TGC	85.6	87.3	89.1	90.8	87.1	89	96.6	98	91.4	96.2	98.1	99.8		
				SHC	53.9	67.7	81.6	86.2	56.3	71.6	86.5	91.3	58.7	75	90.8	92		
			73	TGC	97.8	99.8	101.8	103.8	98.3	100.3	102.3	104.3	98.7	100.7	102.7	104.7		
				SHC	35.7	50.2	62.3	74.5	36.2	51.2	64.1	77.3	36.8	52	65.6	79.2		
	105		61	TGC	72.1	73.5	75	76.5	74.4	75.9	77.4	79	76.5	78	79.6	81.2		
				SHC	66.4	68.3	71.3	73.2	71.2	72.4	76.3	78.4	75.3	76.5	77.9	80.4		
			67	TGC	84.4	86.1	87.8	89.6	86.3	88	89.8	91.6	87.8	89.6	91.3	93.2		
				SHC	51	65	79.2	86.3	53.7	66.2	85	90.3	56.3	73.3	90.6	92.3		
			73	TGC	95.3	97.2	99.2	101.1	95.2	97.1	99	101	96.7	98.6	100.6	102.6		
				SHC	34.2	48.9	64.2	76.8	34.1	50.4	65.6	78.8	35.4	52.2	67.2	80.9		
	115		61	TGC	65.3	66.6	67.9	69.3	67.2	68.5	69.9	71.3	69.8	71.2	72.6	74.1		
				SHC	63.2	64.6	66.4	68.6	61.2	64.3	67.6	69.1	67.3	69.1	71	73.2		
			67	TGC	76.7	78.2	79.8	81.4	78.5	80.1	81.7	83.3	80.1	817	83.3	85		
				SHC	47.8	62.1	75.4	80.2	50.5	66	78.3	82.1	53.1	70.2	82.1	84.6		
			73	TGC	90.8	92.6	94.5	96.4	86	87.7	89.5	91.3	92.9	94.8	96.7	98.6		
				SHC	32.4	46.3	61.2	76.4	33	48.4	63.5	78.1	33.7	50.4	66.6	82.3		
	125		61	TGC	59.9	61.1	62.3	63.6	61.7	62.9	64.1	65.4	64	65.3	66.6	68		
				SHC	58	59.3	60.9	62.9	56.1	59	62	63.4	61.7	63.4	65.1	67.2		
			67	TGC	70.4	71.8	73.2	74.7	72	73.5	74.9	76.4	73.5	75	76.5	78		
				SHC	43.9	57	69.2	73.6	46.3	60.6	71.8	75.3	48.7	64.4	75.3	77.6		
			73	TGC	83.3	85	86.7	88.4	78.9	80.5	82.1	83.7	85.2	86.9	88.7	90.4		
				SHC	29.7	42.5	56.1	70.1	30.3	44.4	58.3	71.7	30.9	46.2	61.1	75.5		

Notes:
■ All capacities are gross and have not considered indoor fan heat. To obtain NET cooling capacity subtract indoor fan heat.
■ TGC=Total Gross Capacity.(Unit:kBtu/h).
■ SHC=Sensible Heat Capacity. (Unit: kBtu/h).

Cooling capacity for 8.5 ton

				Air Flow		CFM	3000				3300				3600			
				Ent DB		(°F)	75	80	85	90	75	80	85	90	75	80	85	90
Ambient Temperature(°F)	85	Entering Wet Bulb(°F)	61	TGC	91.6	95.5	99.3	102.4	96.5	100.7	104.5	107.8	98.6	102.8	106.7	110.2		
				SHC	71.4	82.1	90.1	94.9	76.8	88.1	96.6	101.7	80.8	92.8	101.7	107.1		
			67	TGC	101.4	103.2	104.7	105.6	106.7	108.6	110.2	111.4	109	110.9	112.5	113.7		
				SHC	54.1	67.9	81.7	90.6	58.1	72.8	87.7	97.3	61.2	76.6	92.3	102.6		
			73	TGC	103.2	104.8	106.4	107.7	108.6	109.5	111.2	113.5	112.4	114.1	115.8	117.1		
				SHC	23.9	44.5	61.6	74.9	25.8	48.3	67.9	86.1	27.2	56.3	74.6	97.8		
	95		61	TGC	88.5	92.3	95.8	99.0	93.1	97.1	100.8	104.2	95.1	99.2	102.9	106.3		
				SHC	72.6	83.2	91.7	96.3	78.2	89.8	98.6	103.7	82.4	94.6	98.1	102.1		
			67	TGC	97.8	99.6	101.0	102.3	99.8	101.8	104.3	105.4	101.1	103.0	105.5	107.7		
				SHC	55.2	68.7	83.4	92.4	59.2	74.3	89.4	99.8	62.4	78.1	94.1	104.5		
			73	TGC	104.1	106	107.5	109.1	110.7	111.8	112.9	114.1	113.2	114.6	116.3	118.7		
				SHC	26.4	55.2	67.8	88.9	26.1	48.9	69.8	82.3	30.8	67.2	94.3	106.7		
	105		61	TGC	83.7	87.5	90.8	93.8	88.1	91.9	95.4	98.5	90.1	93.8	97.4	100.6		
				SHC	69.7	80.0	87.7	92.3	74.7	85.8	94.1	98.5	78.7	90.4	93.5	96.5		
			67	TGC	92.6	94.2	95.8	97.1	97.4	99.1	100.5	101.7	99.5	101.2	102.7	103.8		
				SHC	52.8	66.1	79.5	88.4	56.6	70.8	86.1	98.3	59.6	74.7	89.9	99.8		
			73	TGC	94.5	96.1	97.8	99.4	104.1	105.6	107.2	108.6	106.9	108.3	109.7	111.2		
				SHC	23.3	44.7	59.8	72.6	82.3	87.1	90.6	99.8	31.2	67.4	98.6	106.8		
	115		61	TGC	78.3	81.6	84.7	87.6	82.3	86.1	89.6	92.3	84.1	87.7	92.1	94.0		
				SHC	67.2	77.1	83.5	86.6	72	82.7	89.1	92.0	75.8	87.1	91.0	92.7		
			67	TGC	76.5	78.1	79.3	80.6	81	82.6	84.0	85.4	82.9	84.6	86.0	87.1		
				SHC	50.9	63.7	76.7	85.2	54.5	68.7	82.3	94.6	57.4	71.9	86.6	96.2		
			73	TGC	95.1	96.4	97.8	99.8	97.8	99.3	101.4	103.6	99.9	101.3	103.4	105.2		
				SHC	22.5	41.8	57.7	70.5	28.3	53.2	89.1	101.6	32.1	68.4	98.9	103.6		
	125		61	TGC	71.2	74.2	77.0	79.6	74.8	78.3	81.5	83.9	76.5	79.7	83.7	85.5		
				SHC	61.1	70.1	76.8	78.5	65.5	75.2	81.0	83.6	68.9	79.2	82.7	84.3		
			67	TGC	78.6	80.1	81.2	82.4	82.7	84.2	85.5	86.7	84.5	86.0	87.3	88.3		
				SHC	46.3	57.9	69.7	77.5	49.5	62.5	74.8	86.0	52.2	65.4	78.7	87.5		
			73	TGC	86.5	87.6	88.9	90.7	88.9	90.3	92.2	94.2	90.8	92.1	94.0	95.6		
				SHC	20.5	38.0	52.5	64.1	25.7	48.4	81.0	92.4	29.2	62.2	89.9	94.2		

Notes:
■ All capacities are gross and have not considered indoor fan heat. To obtain NET cooling capacity subtract indoor fan heat.
■ TGC=Total Gross Capacity.(Unit:kBtu/h).
■ SHC=Sensible Heat Capacity. (Unit: kBtu/h).

Cooling capacity for 10 ton

				Air Flow		CFM	3600				4000				4400			
				Ent DB		(°F)	75	80	85	90	75	80	85	90	75	80	85	90
Ambient Temperature(°F)	85	Entering Wet Bulb(°F)	61	TGC	110.9	113.1	115.4	117.7	113.8	116.1	118.4	120.8	116.5	118.8	121.2	123.6		
				SHC	96.8	98.7	100.7	102.7	103.2	105.3	107.4	109.5	109.2	111.4	113.6	115.9		
			67	TGC	123.4	125.9	128.4	131	124.6	127.1	129.6	132.2	125.7	128.2	130.8	133.4		
				SHC	73.2	92	108.3	124.8	75.6	94.3	112.8	128.5	78	97.3	116.5	130.4		
			73	TGC	127.9	130.5	133.1	135.7	128.3	130.9	133.5	136.2	128.6	131.2	133.8	136.5		
				SHC	47.7	64.9	79.6	95.3	48.3	65.8	81.2	96.7	49	72.1	82.4	98.4		
	95		61	TGC	102.8	104.9	107	109.1	105.9	108	110.2	112.4	108.9	111.1	113.3	115.6		
				SHC	92.7	94.6	96.4	98.4	99.2	101.2	103.2	105.3	105.4	107.5	109.7	111.9		
			67	TGC	116.7	117	118.5	121	119.5	121	123.5	126	124	126	128.7	132.3		
				SHC	70.8	89.8	108.6	123.4	74.3	94.8	114	124.3	77.4	99.3	120.3	128.4		
			73	TGC	126.8	129.3	131.9	134.6	127.1	129.6	132.2	134.9	127.8	130.4	133	135.6		
				SHC	46.3	65.4	81.5	97.8	47.2	66.7	84.3	101.9	47.5	67.6	85.8	104.7		
	105		61	TGC	94.5	96.4	98.3	100.3	97.8	99.8	101.8	103.8	99.8	101.8	103.8	105.9		
				SHC	88.6	90.4	92.2	94	95.2	97.1	99	101	93.4	95.3	97.2	99.1		
			67	TGC	110.3	112.5	114.8	117.1	112.9	115.2	117.5	119.8	114.6	116.9	119.2	121.6		
				SHC	67.6	86.4	105.9	115.6	71.3	92.1	113.7	117.9	74.2	98.3	115.5	117.6		
			73	TGC	123.8	126.3	128.8	131.4	124.6	127.1	129.6	132.2	125.2	127.7	130.3	132.9		
				SHC	44.3	63.2	81	98.3	45.2	65.6	85.3	103.7	45.7	67.5	86.9	106.8		
	115		61	TGC	86.3	88	89.8	91.6	89.2	91	92.8	94.7	92.3	94.1	96	97.9		
				SHC	84.6	86.3	88	89.8	86.2	87.9	89.7	91.5	90.2	92	93.8	95.7		
			67	TGC	101.3	103.3	105.4	107.5	103.2	107	107.4	109.5	105.6	107.7	109.9	112.1		
				SHC	63.5	83.2	102.1	104.1	67.3	88.2	105.3	107.4	70.8	94.1	107.3	110.5		
			73	TGC	119.2	121.6	124	126.5	120.1	122.5	125	127.5	120.8	123.2	125.7	128.2		
				SHC	42.2	61.3	80.1	98.7	42.9	64.1	84.3	104.1	43.7	66.8	87.9	109.3		
	125		61	TGC	78.5	80	81.6	83.3	81.1	82.7	84.4	86.1	83.9	85.6	87.8	89		
				SHC	76.9	78.4	80	81.6	78.4	79.9	81.5	83.2	82	83.6	85.3	87		
			67	TGC	92.1	93.9	95.8	97.7	93.8	97.9	98.2	99.6	96	98.1	99.9	101.9		
				SHC	57.7	75.6	92.8	94.7	61.2	80.2	95.7	97.6	64.4	85.5	97.7	100.5		
			73	TGC	108.4	110.5	112.7	115	109.2	111.4	113.6	115.9	109.8	112	114.3	116.5		
				SHC	38.4	55.7	72.8	89.7	39	58.3	76.6	94.6	39.7	60.7	79.9	99.4		

Notes:
■ All capacities are gross and have not considered indoor fan heat. To obtain NET cooling capacity subtract indoor fan heat.
■ TGC=Total Gross Capacity.(Unit:kBtu/h).
■ SHC=Sensible Heat Capacity. (Unit: kBtu/h).

Cooling capacity for 15 ton

				Air Flow		CFM	5500				6000				6500			
				Ent DB	(°F)	75	80	85	90	75	80	85	90	75	80	85	90	
Ambient Temperature(°F)	85	Entering Wet Bulb(°F)	61	TGC	163.6	165.6	172.9	182.7	168	171.6	179	188.7	169.9	174.2	185.1	193.6		
				SHC	131.5	155.8	166	175.3	138.7	165.6	173.6	183	146.1	167.2	177.7	185.9		
			67	TGC	183.3	185.5	187.6	190.2	188.7	190	191.1	192.4	191	192.5	193.6	195.1		
				SHC	104.7	127.8	149.8	172.9	109.3	132.7	157.1	180.2	111.2	136.4	162	187.6		
			73	TGC	193.6	197.3	199.8	202.2	195.8	198.5	202.2	204.5	198.3	201	203.3	205.8		
				SHC	72.2	96.8	117	136.4	73.6	99	119.6	138.6	74.9	99.9	121.6	143.7		
	95		61	TGC	153.4	157.1	164.5	175.4	155.3	162	171.7	181.4	160.8	164.5	176.6	186.3		
				SHC	125.3	149.8	159.5	170.1	132.7	157.1	166.6	176	140.1	159.5	171.3	180.8		
			67	TGC	171.7	174.2	176.6	180.2	179	180	182.7	183.9	185.1	186.5	187.7	188.7		
				SHC	99.9	123	146.1	169.2	104.1	129	153.5	179	108.1	132.8	160.8	186.3		
			73	TGC	188.8	191.1	193.5	196.1	190.2	192.2	195.2	198.5	191.9	194.3	196.8	198		
				SHC	69	93.1	114.8	135.2	70.5	96.3	117.8	140.1	71.8	97.9	120.7	143.7		
	105		61	TGC	142.7	146.4	153.8	166.1	147.6	151.3	163.6	171	150.1	156.2	169.7	180.8		
				SHC	119.6	140.5	147.6	159.4	127.9	145.2	157	164.1	135.3	151.5	164.6	173.2		
			67	TGC	163.6	166.1	169.7	171	164.8	168.5	173.4	175.9	173.4	175.9	178.4	180.8		
				SHC	94.6	118.1	141.3	165.7	109	124.2	149.8	170.6	102.6	130.3	157.1	175.4		
			73	TGC	185.7	187	188.2	189.4	188.2	189.4	190.7	193.1	190.7	191.9	193.1	194.3		
				SHC	65.6	89.2	111.7	132.8	67	92.3	115.5	138.9	68.3	95.3	118.6	142.4		
	115		61	TGC	130.4	135.3	147.6	159.9	134.1	141.5	153.8	166.1	137.8	140.4	150.9	172.2		
				SHC	114.5	131.2	143.2	155.1	121.6	135.8	147.6	159.4	127.9	136.2	146.9	167		
			67	TGC	153.8	156.2	157.4	160.9	155	158.7	161.1	163.6	163.6	166.1	169.7	174		
				SHC	98.4	113.4	136.5	159.9	103.3	119.9	145.1	163.6	108.2	125.5	151.3	168.8		
			73	TGC	173.4	175.9	178.4	179.6	178.4	180.8	182	183.3	182	183.3	184.5	185.7		
				SHC	62.1	85.6	108.9	131.6	63.5	89.8	113.2	136.5	66.4	92.3	118.1	143.9		
	125		61	TGC	125.4	130.1	141.9	152.1	128.9	136	147.8	159.7	132.5	140.7	153.8	165.6		
				SHC	110.1	126.2	137.7	147.5	117	131.9	143.4	154.9	13	136.5	149.1	160.6		
			67	TGC	147.8	150.2	151.4	153.8	149	152.6	154.9	157.3	157.3	159.7	163.2	167.1		
				SHC	94.6	109	131.3	153.8	99.3	115.3	139.6	152.6	104.1	120.6	145.5	162.1		
			73	TGC	166.8	169.1	171.5	172.7	171.5	173.9	175	176.2	175	176.2	177.4	178.6		
				SHC	59.7	82.3	104.7	126.5	61	86.3	108.8	131.3	63.9	88.7	113.5	138.4		

Notes:
■ All capacities are gross and have not considered indoor fan heat. To obtain NET cooling capacity subtract indoor fan heat.
■ TGC=Total Gross Capacity.(Unit:kBtu/h).
■ SHC=Sensible Heat Capacity. (Unit: kBtu/h).

Cooling capacity for 17.5 ton

				Air Flow		CFM	7300				7600			
				Ent DB		(°F)	75	80	85	90	75	80	85	90
Ambient Temperature(°F)	85	Entering Wet Bulb(°F)	61	TGC	191.4	193.7	202.3	213.7	196.6	200.7	209.4	220.7		
				SHC	153.8	182.3	196.3	207.3	162.3	193.7	203.1	214.1		
			67	TGC	214.4	217.0	219.4	222.5	220.7	222.3	223.6	225.1		
				SHC	122.5	149.5	175.3	202.3	127.9	155.3	183.8	210.8		
			73	TGC	226.5	230.8	233.7	236.6	229.1	232.3	236.6	239.3		
				SHC	84.5	113.2	136.8	159.6	86.1	115.8	139.9	162.2		
	95		61	TGC	179.4	183.8	192.4	205.2	181.7	189.5	200.9	212.3		
				SHC	146.6	175.3	186.6	199.0	155.3	183.8	194.9	205.9		
			67	TGC	200.9	203.8	206.6	208.0	207.0	210.0	213.7	215.1		
				SHC	116.8	143.9	171.0	198.0	121.7	151.0	179.6	209.4		
			73	TGC	220.9	223.6	226.4	229.4	222.5	224.9	228.4	232.3		
				SHC	80.7	108.9	134.3	158.1	82.5	112.7	137.9	163.9		
	105		61	TGC	166.9	171.2	179.9	194.3	172.7	177.0	191.4	200.0		
				SHC	139.9	166.1	174.5	188.4	149.7	171.7	185.6	194.0		
			67	TGC	191.4	194.3	198.6	200.0	192.8	197.1	202.9	205.8		
				SHC	110.7	138.1	165.3	193.8	127.5	145.3	175.3	199.6		
			73	TGC	217.3	218.7	220.2	221.6	220.2	221.6	223.0	225.9		
				SHC	76.7	104.3	130.7	155.4	78.4	108.0	135.1	162.5		
	115		61	TGC	152.5	158.3	172.7	187.1	156.9	165.5	179.9	194.3		
				SHC	134.0	145.3	161.7	170.1	142.3	155.5	168.9	184.3		
			67	TGC	179.9	182.8	184.2	187.1	181.3	185.6	188.5	191.4		
				SHC	115.1	132.7	159.7	167.1	120.9	140.3	169.8	181.4		
			73	TGC	202.9	205.8	208.7	210.1	208.7	211.5	213.0	214.4		
				SHC	72.7	100.2	127.4	154.0	74.3	105.0	132.4	159.7		
	125		61	TGC	145.3	150.8	164.5	178.2	149.4	157.6	171.3	185.0		
				SHC	127.6	146.2	159.5	172.8	135.5	152.9	166.2	179.5		
			67	TGC	171.3	174.1	175.4	180.2	172.7	176.8	179.5	182.3		
				SHC	109.6	126.4	152.1	178.2	115.1	133.6	161.7	171.3		
			73	TGC	193.2	196.0	198.7	200.1	198.7	201.4	202.8	204.2		
				SHC	69.2	95.4	121.3	146.6	70.7	100.0	126.1	152.1		

Notes:

- All capacities are gross and have not considered indoor fan heat. To obtain NET cooling capacity subtract indoor fan heat.
- TGC=Total Gross Capacity.(Unit:kBtu/h).
- SHC=Sensible Heat Capacity. (Unit: kBtu/h).

Cooling capacity for 20 ton

				Air Flow		CFM	7700				8000				8300			
				Ent DB		(°F)	75	80	85	90	75	80	85	90	75	80	85	90
Ambient Temperature(°F)	85	Entering Wet Bulb(°F)	61	TGC	216.1	218.7	228.5	241.3	222	226.7	236.4	249.3	224.4	230.1	244.6	255.8		
				SHC	173.7	205.9	221.6	234.1	183.3	218.7	229.3	241.8	193.1	223.2	237.2	248.1		
			67	TGC	242.1	245.1	247.8	251.2	249.3	251.1	252.5	254.2	252.4	254.3	255.8	257.7		
				SHC	138.3	168.8	197.9	228.5	144.5	175.3	207.5	238.1	146.9	180.2	214	247.8		
			73	TGC	255.8	260.7	263.9	267.2	258.7	262.3	267.2	270.2	262	265.5	268.6	271.9		
				SHC	95.4	127.9	154.5	180.2	97.2	130.8	158	183.1	99	132	160.7	189.8		
	95		61	TGC	202.6	207.5	217.3	231.7	205.2	214	226.9	239.7	212.4	217.3	233.4	246.2		
				SHC	165.6	197.9	210.7	224.8	175.3	205.5	217.8	230.1	185.1	210.7	226.3	238.8		
			67	TGC	226.9	230.1	233.4	238.1	236.4	240	241.3	242.9	244.6	246.4	248	249.3		
				SHC	132	162.5	193.1	223.6	137.5	170.5	202.8	236.4	142.8	175.5	212.4	246.2		
			73	TGC	249.4	252.5	255.6	259	251.2	254	257.9	262.3	253.5	256.8	260	261.6		
				SHC	91.2	123	151.6	178.6	93.1	127.2	155.7	185.1	94.9	129.4	159.4	189.8		
	105		61	TGC	188.5	193.4	203.1	219.4	195	199.9	216.1	225.9	198.3	206.4	224.3	238.9		
				SHC	158	187.6	197	212.8	169	193.9	209.6	219.1	178.8	200.2	217.5	231.7		
			67	TGC	216.1	219.4	224.3	225.9	217.8	222.6	229.1	232.4	229.1	232.4	235.6	238.9		
				SHC	125	156	186.7	218.9	144	164.1	197.9	209.1	135.5	172.1	207.5	238.9		
			73	TGC	245.4	247	248.6	250.3	248.6	250.3	251.9	255.1	251.9	253.5	255.1	256.8		
				SHC	86.6	117.8	147.6	175.5	88.6	122	152.6	183.5	90.2	125.9	156.7	188.2		
	115		61	TGC	172.3	178.8	195	211.3	177.1	186.9	203.1	219.4	182	193.4	211.3	227.5		
				SHC	151.3	173.4	189.2	204.9	160.7	181.3	197	212.8	169	187.6	204.9	220.7		
			67	TGC	203.1	206.4	208	211.3	204.8	209.6	212.9	216.1	216.1	219.4	224.3	227.5		
				SHC	130	149.8	180.4	211.3	136.5	158.4	191.8	216.1	143	165.8	199.9	227.5		
			73	TGC	229.1	232.4	235.6	237.3	235.6	238.9	240.5	242.1	240.5	242.1	243.8	245.4		
				SHC	82.1	113.1	143.8	173.9	83.9	118.6	149.5	180.4	87.8	121.9	156	190.1		
	125		61	TGC	162.5	168.6	184	199.3	167.1	176.3	191.6	207	171.6	182.4	199.3	214.6		
				SHC	142.7	163.6	178.4	193.3	151.6	171	185.9	200.7	159.4	177	193.3	208.2		
			67	TGC	191.6	194.7	196.2	210.3	193.2	197.8	200.8	203.9	203.9	207	211.6	214.6		
				SHC	122.6	141.3	170.2	189.3	128.8	149.5	180.9	199.8	134.9	156.4	188.6	210.3		
			73	TGC	216.2	219.2	222.3	223.8	222.3	225.4	226.9	228.4	226.9	228.4	230	231.5		
				SHC	77.4	106.7	135.7	164	79.1	111.9	141	170.2	82.8	115	147.2	179.4		

Notes:

- All capacities are gross and have not considered indoor fan heat. To obtain NET cooling capacity subtract indoor fan heat.
- TGC=Total Gross Capacity.(Unit:kBtu/h).
- SHC=Sensible Heat Capacity. (Unit: kBtu/h).

Heating capacity for 7.5 ton

Outdoor Temp(°F) 70% RH	Net Capacities(kW)-3000 CFM							
	Peak Net Heating(kW) at Indicated Dry Bulb(°F)				Peak Total Power(kW) at Indicated Dry Bulb(°F)			
	59	68	75.2	80.6	59	68	75.2	80.8
5	14.9	14.0	13.7	13.4	6.9	7.6	8.0	8.5
10.4	16.0	15.3	15.0	14.9	7.1	7.7	8.1	8.6
15.8	17.0	16.5	16.4	16.4	7.1	7.8	8.2	8.8
21.2	17.8	17.3	17.1	16.9	7.2	7.9	8.3	8.9
26.6	18.8	18.5	18.4	18.1	7.3	8.0	8.5	9.1
32	20.3	20.0	19.7	19.4	7.4	8.1	8.6	9.2
37.4	23.3	23.1	22.7	22.4	7.5	8.3	8.8	9.3
44.6	30.3	30	29.6	29.2	7.8	8.8	9.1	9.6
48.2	30.5	30.2	29.9	29.6	8.1	9.0	9.5	10.1
53.6	32.4	33.5	33.4	33.1	8.4	9.4	9.9	10.5
59	35.0	34.4	34.2	33.8	8.6	9.6	10.1	10.7
64.4	37.1	36.4	36.0	35.7	8.9	9.8	10.4	11.0
69.8	39.8	38.9	38.4	37.9	9.0	10.0	10.5	11.0
75.2	42.0	40.9	40.2	39.8	9.2	10.1	10.9	11.3

- Notes:
- For other airflows, see heating capacity correction factor tables.
 - Heating capacities and power are integrated to include the effects of defrost in the frost region.

Heating capacity for 8.5 ton

Outdoor Temp(°F) 70% RH	Net Capacities(kW)-3600 CFM							
	Peak Net Heating(kW) at Indicated Dry Bulb(°F)				Peak Total Power(kW) at Indicated Dry Bulb(°F)			
	59	68	75.2	80.6	59	68	75.2	80.8
5	18.7	17.6	17.2	16.9	8.6	8.8	9.2	9.7
10.4	20.1	19.3	18.9	18.7	8.8	8.9	9.4	9.9
15.8	21.4	20.8	20.6	20.6	8.9	9.1	9.6	10.1
21.2	22.4	21.8	21.6	21.3	9.0	9.3	9.9	10.3
26.6	23.7	23.4	23.2	22.8	9.1	9.6	10.1	10.5
32	25.5	25.2	24.8	24.5	9.2	9.8	10.3	10.8
37.4	29.4	29.1	28.7	28.3	9.4	10.0	10.5	11.0
44.6	35.4	35.0	33.0	32.8	9.7	10.2	10.7	11.2
48.2	38.5	38.0	37.7	37.3	9.9	10.4	10.9	11.5
53.6	40.9	42.3	42.1	41.7	10.1	10.6	11.1	11.7
59	44.1	43.4	43.1	42.7	10.3	10.9	11.4	12.1
64.4	46.7	45.9	45.4	45.0	10.5	11.1	11.7	12.3
69.8	50.1	49.1	48.4	47.8	10.9	11.4	11.9	12.5
75.2	53.0	51.6	50.7	50.1	11.1	11.6	12.2	12.8

- Notes:
- For other airflows, see heating capacity correction factor tables.
 - Heating capacities and power are integrated to include the effects of defrost in the frost region.

Heating capacity for 10 ton

Outdoor Temp(°F) 70% RH	Net Capacities(kW)-4000 CFM							
	Peak Net Heating(kW) at Indicated Dry Bulb(°F)				Peak Total Power(kW) at Indicated Dry Bulb(°F)			
	59	68	75.2	80.6	59	68	75.2	80.8
5	19.8	18.6	18.2	17.9	9.2	9.3	9.7	11.1
10.4	21.3	20.4	20	19.8	9.4	9.5	10.0	11.3
15.8	22.6	22	21.8	21.8	9.5	9.7	10.3	11.6
21.2	23.7	23	22.8	22.5	9.6	10.0	10.6	11.8
26.6	25.1	24.7	24.5	24.1	9.7	10.2	10.9	12.0
32	27	26.6	26.2	25.9	9.8	10.4	11.2	12.3
37.4	31.1	30.8	30.3	29.9	10	10.7	11.5	12.5
44.6	37.8	37	36.3	35.7	10.4	10.9	11.9	12.8
48.2	40.7	40.2	39.8	39.4	10.6	11.1	12.1	13.1
53.6	43.2	44.7	44.5	44.1	10.9	11.5	12.4	13.4
59	46.6	45.9	45.6	45.1	11.1	11.7	12.8	13.7
64.4	49.4	48.5	48	47.6	11.4	12.0	13.0	14.0
69.8	53	51.9	51.2	50.5	11.7	12.3	13.3	14.3
75.2	56	54.5	53.6	53	11.9	12.5	13.5	14.6

- Notes:
- For other airflows, see heating capacity correction factor
 - Heating capacities and power are integrated to include the effects of defrost in the frost region.

Heating capacity for 15 ton

Outdoor Temp(°F) 70% RH	Net Capacities(kW)-6000 CFM							
	Peak Net Heating(kW) at Indicated Dry Bulb(°F)				Peak Total Power(kW) at Indicated Dry Bulb(°F)			
	59	68	75.2	80.6	59	68	75.2	80.8
5	29.7	27.9	27.3	26.9	13.8	15.2	16.1	17.0
10.4	32.0	30.6	30.0	29.7	14.1	15.5	16.2	17.3
15.8	33.9	33.0	32.7	32.7	14.3	15.6	16.4	17.6
21.2	35.6	34.5	34.2	33.8	14.4	15.8	16.7	17.9
26.6	37.7	37.1	36.8	36.2	14.6	15.9	17.0	18.2
32	40.5	39.9	39.3	38.9	14.7	16.2	17.3	18.3
37.4	46.7	46.2	45.5	44.9	15.0	16.5	17.6	18.6
44.6	56.7	56	54.3	53.7	15.6	17.5	18.2	19.2
48.2	61.1	60.3	59.7	59.1	16.2	18.0	19.1	20.3
53.6	64.8	67.1	66.8	66.2	16.8	18.8	19.8	21.0
59	69.9	68.9	68.4	67.7	17.3	19.2	20.3	21.5
64.4	74.1	72.8	72.0	71.4	17.7	19.7	20.9	21.9
69.8	79.5	77.9	76.8	75.8	18.0	20.0	21.0	22.1
75.2	84.0	81.8	80.4	79.5	18.5	20.3	21.8	22.5

- Notes:
- For other airflows, see heating capacity correction factor tables.
 - Heating capacities and power are integrated to include the effects of defrost in the frost region.

Heating capacity for 17.5 ton

Outdoor Temp(°F) 70% RH	Net Capacities(kW)-7300 CFM							
	Peak Net Heating(kW) at Indicated Dry Bulb(°F)				Peak Total Power(kW) at Indicated Dry Bulb(°F)			
	59	68	75.2	80.6	59	68	75.2	80.8
5	35.6	33.5	32.8	32.3	15.6	17.2	18.2	19.2
10.4	38.4	36.7	36.0	35.6	15.9	17.5	18.3	19.5
15.8	40.7	39.6	39.2	39.2	16.2	17.6	18.5	19.9
21.2	42.7	41.4	41.0	40.6	16.3	17.9	18.9	20.2
26.6	45.2	44.5	44.2	43.4	16.5	18.0	19.2	20.6
32	48.6	47.9	47.2	46.7	16.6	18.3	19.5	20.7
37.4	56.0	55.4	54.6	53.9	17.0	18.6	19.9	21.0
44.6	68.5	67.0	62.9	62.5	17.6	19.8	20.6	21.7
48.2	73.3	72.4	71.6	70.9	18.3	20.3	21.6	22.9
53.6	77.8	80.5	80.2	79.4	19.0	21.2	22.4	23.7
59	83.9	82.7	82.1	81.2	19.5	21.7	22.9	24.3
64.4	88.9	87.4	86.4	85.7	20.0	22.3	23.6	24.7
69.8	95.4	93.5	92.2	91.0	20.3	22.6	23.7	25.0
75.2	100.8	98.2	96.5	95.4	20.9	22.9	24.6	25.4

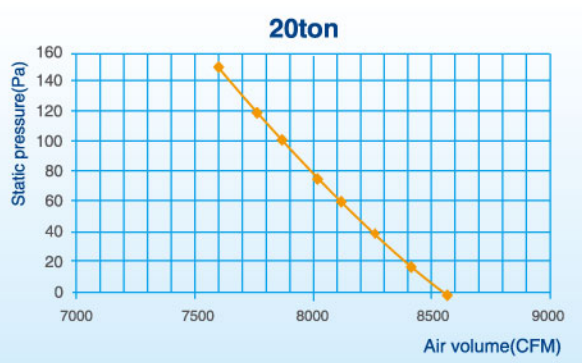
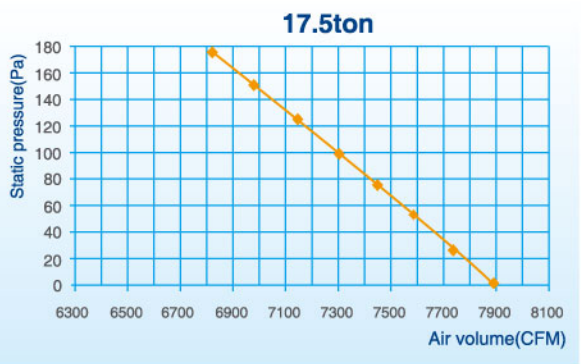
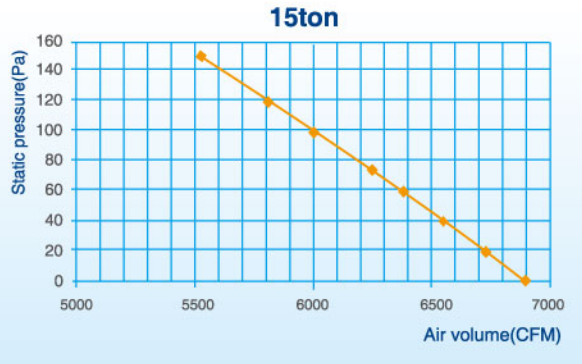
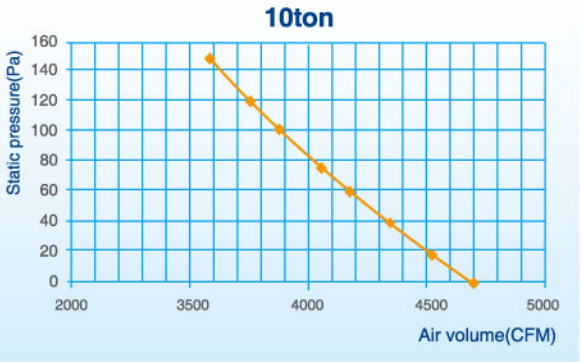
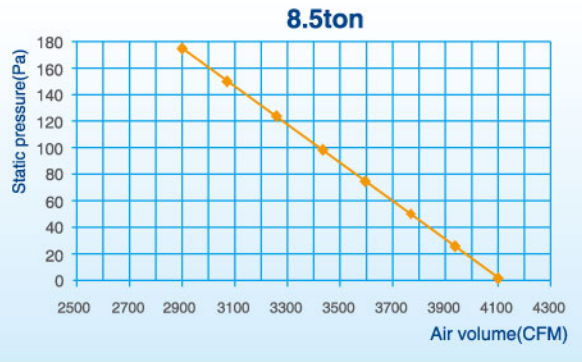
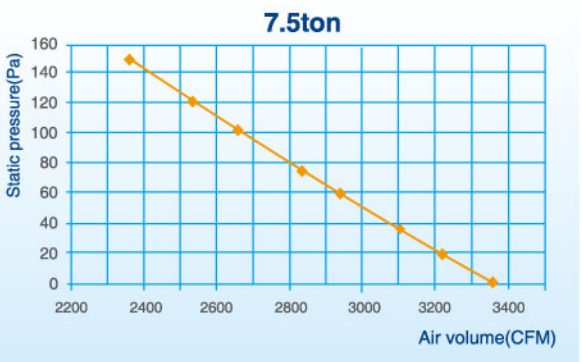
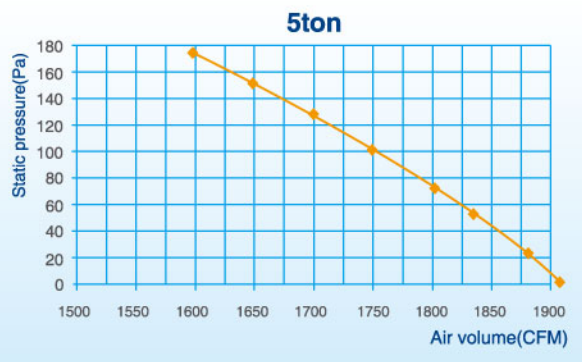
- Notes:
- For other airflows, see heating capacity correction factor tables.
 - Heating capacities and power are integrated to include the effects of defrost in the frost region.

Heating capacity for 20 ton

Outdoor Temp(°F) 70% RH	Net Capacities(kW)-8000 CFM							
	Peak Net Heating(kW) at Indicated Dry Bulb(°F)				Peak Total Power(kW) at Indicated Dry Bulb(°F)			
	59	68	75.2	80.6	59	68	75.2	80.8
5	39.6	37.2	36.4	35.8	18.4	20.2	21.4	22.6
10.4	42.6	40.8	40.0	39.6	18.8	20.6	21.6	23.0
15.8	45.2	44.0	43.6	43.6	19.0	20.8	21.8	23.4
21.2	47.4	46.0	45.6	45.0	19.2	21.0	22.2	23.8
26.6	50.2	49.4	49.0	48.2	19.4	21.2	22.6	24.2
32	54.0	53.2	52.4	51.8	19.6	21.6	23.0	24.4
37.4	62.2	61.6	60.6	59.8	20.0	22.0	23.4	24.8
44.6	75.8	75	74.2	73.6	20.8	23.4	24.2	25.6
48.2	81.4	80.4	79.6	78.8	21.6	24.0	25.4	27.0
53.6	86.4	89.4	89.0	88.2	22.4	25.0	26.4	28.0
59	93.2	91.8	91.2	90.2	23.0	25.6	27.0	28.6
64.4	98.8	97.0	96.0	95.2	23.6	26.2	27.8	29.2
69.8	106.0	103.8	102.4	101.0	24.0	26.6	28.0	29.4
75.2	112.0	109.0	107.2	106.0	24.6	27.0	29.0	30.0

- Notes:
- For other airflows, see heating capacity correction factor tables.
 - Heating capacities and power are integrated to include the effects of defrost in the frost region.

Static pressure chart for air volume



Electrical data

■ 380-400v/3Ph/50Hz(Tolerance:342v-440v)

Model	Power Supply			Compressor				Evaporator fan motort			Condenser fan motor		
	MCA	TOCA	MFA	STC	RNC	IPT	Qty	RNC	IPT	Qty	RNC	IPT	Qty
*MRBT-60CWN1-R	19.75	21.5	25	74	11.8	5.2	1	3.5	0.8	1	1.5	0.35	1
MRBT-075CWN1-R	26	32	42	142	16.4	8.47	1	3.7	1.9	1	1.7	0.85	1
MRCT-075EWN1-R	26	32	42	142	16.4	8.47	1	3.7	1.9	1	1.7	0.85	1
MRBT-075HWN1-R	26	32	42	142	16.4	8.47	1	3.7	1.9	1	1.7	0.85	1
MRBT-085CWN1-R	32	39	53	142	20.7	9.5	1	3.7	1.9	1	2.7	1.3	1
MRCT-085EWN1-R	32	39	53	142	20.7	9.5	1	3.7	1.9	1	2.7	1.3	1
MRBT-085HWN1-R	32	39	53	142	20.7	9.5	1	3.7	1.9	1	2.7	1.3	1
MRBT-100CWN1-R	33	40	55	147	29.5	10.8	1	3.7	1.9	1	2.7	1.3	1
MRCT-100EWN1-R	33	40	55	147	29.5	10.8	1	3.7	1.9	1	2.7	1.3	1
MRBT-100HWN1-R	33	40	55	147	29.5	10.8	1	3.7	1.9	1	2.7	1.3	1
MRBT-150CWN1-R	56	67	89	110	32.8	16.8	2	9.2	4.65	1	1.7	0.85	2
MRCT-150EWN1-R	56	67	89	110	32.8	16.8	2	9.2	4.65	1	1.7	0.85	2
MRBT-150HWN1-R	56	67	89	110	32.8	16.8	2	9.2	4.65	1	1.7	0.85	2
MRBT-175CWN1-R	66	79	108	142	20.7	9.5	2	10.3	5.3	1	2.7	1.3	2
MRCT-175EWN1-R	66	79	108	142	20.7	9.5	2	10.3	5.3	1	2.7	1.3	2
MRBT-175HWN1-R	66	79	108	142	20.7	9.5	2	10.3	5.3	1	2.7	1.3	2
MRBT-200CWN1-R	72	85	115	140	42.8	21.6	2	11.8	5.5	1	3.3	1.7	2
MRCT-200EWN1-R	72	85	115	140	42.8	21.6	2	11.8	5.5	1	3.3	1.7	2
MRBT-200HWN1-R	72	85	115	140	42.8	21.6	2	11.8	5.5	1	3.3	1.7	2

Note:

■ The item with "*" power supply:380~415V/3Ph/50Hz(Tolerance:342~440V)

■ Voltage imbalance between phases to be <2%.

MCA: Min. Current Amps. (A) **TOCA:** Total Over-current Amps. (A)

MFA: Max. Fuse Amps. (A) **STC:** Starting Current (A)

RNC: Running Current (A) **IPT:** Input (kW)



Error code

Error code for 5ton

Type	Content	Code	Remarks
Normal	Standby	--	
Normal	Constraint cooling	On	
Normal	Run	10.	
Error	Compressor phase sequence error or phase failure	E0	Manual reset
Error	Outdoor coil temp. sensor T3-1 error	E1	Manual reset
Error	Outdoor coil temp. sensor T3-2 error	E2	Manual reset
Error	Indoor coil temp. sensor T2-1 error	E5	Manual reset
Error	Indoor coil temp. sensor T2-2 error	E6	Manual reset
Error	Indoor temp. sensor T1 error	E9	Manual reset
Error	Outdoor ambient temp. sensor T4 error	EA	Manual reset
Error	Wired controller output error	Eb	Manual reset
Protection	Overcurrent protection	P0	Auto reset
Protection	Comprehensive protection for outdoor fan	P3	Auto reset
Protection	Protection for hi./lo pressure or exhaust temperature(system 1)	P4	Auto reset
Protection	Protection for hi./lo pressure or exhaust temperature(system 1)	P5	Auto reset
Protection	Protection for high temperature of the outdoor condenser	P8	Auto reset

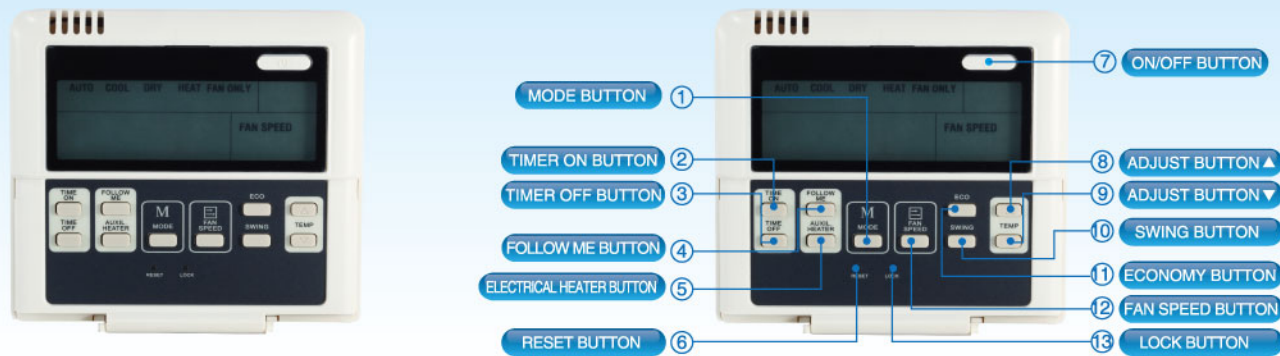
Error code for 7.5ton and above

Type	Content	Code	Remarks
Normal	Standby	--	
Normal	Constraint cooling	On	
Normal	Running	10.	
Error	Compressor phase sequence error or phase default	E0	Manual reset
Error	Outdoor coil temp. sensor in sys. A error	E1	Manual reset
Error	Outdoor coil temp. sensor in sys. B error	E2	Manual reset
Error	Indoor coil temp. sensor in sys. A error	E5	Manual reset
Error	Indoor coil temp. sensor in sys. B error	E6	Manual reset
Error	Indoor temp. sensor error	E9	Manual reset
Error	Outdoor ambient temp. sensor error	EA	Manual reset
Error	Wired controller output error	Eb	Manual reset
Protection	Overcurrent protection in sys. A	P0	Auto reset
Protection	Overcurrent protection in sys. B	P1	Auto reset
Protection	Overcurrent protection for indoor fan	P2	Auto reset
Protection	Comprehensive protection for outdoor fan	P3	Auto reset
Protection	Protection for Hi./Lo. Pressure or exhaust temp. in sys. A	P4	Comprehensive protection in sys. A
Protection	Protection for Hi./Lo. Pressure or exhaust temp. in sys. B	P5	Comprehensive protection in sys. B
Protection	T2 evaporator Hi-temperature protection stop outdoor unit fan	P6	Auto reset
Protection	T2 evaporator Hi- temperature protection then stop outdoor unit fan and compressor	P7	Auto reset
Protection	Protection for condenser Hi-temp. in sys. A	P8	Auto reset
Protection	Protection for condenser Hi-temp. in sys. B	P9	Auto reset
Protection	Anti-freezing protection for evaporator in sys. A	Pc	Auto reset
Protection	Anti-freezing protection for evaporator in sys. B	Pd	Auto reset
Protection	Defrosting	dF	Auto reset

Wired controller

Wired controller is a human-machine interaction(HMI) used for the communication between indoor & outdoor and main board. The setting and operation can be sent to main board and the running condition can be displayed by the wired controller.

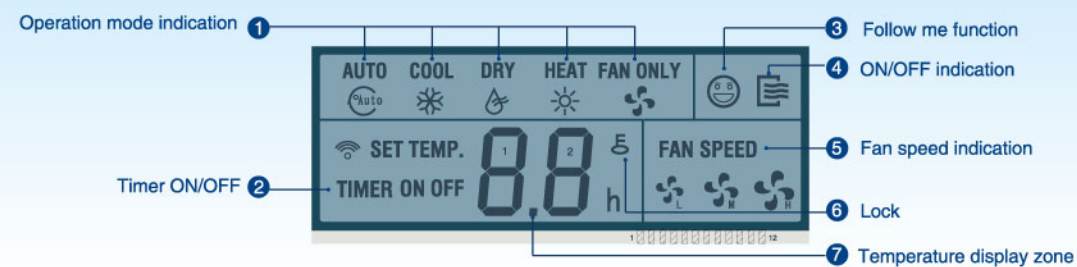
Standard wired controller:KJR-12B/DP (T)-E



Feature

- Easier to read because LCD screen is larger.
- Digital display lets you set temperature in 1°C units.
- Built in a thermostat sensor that makes more comfortable room temperature control.
- Simply and conveniently select cool/heat/fan operation mode
- Economical operation power supply 5V DC.
- Wide operation temperature from -15°C to +43°C.
- Wide operation humidity from 40% to 90%, RH.
- Timer for rest time.

Name and function of indicators on the controller



Optional wired controller



For cooling only and cooling with auxiliary heater



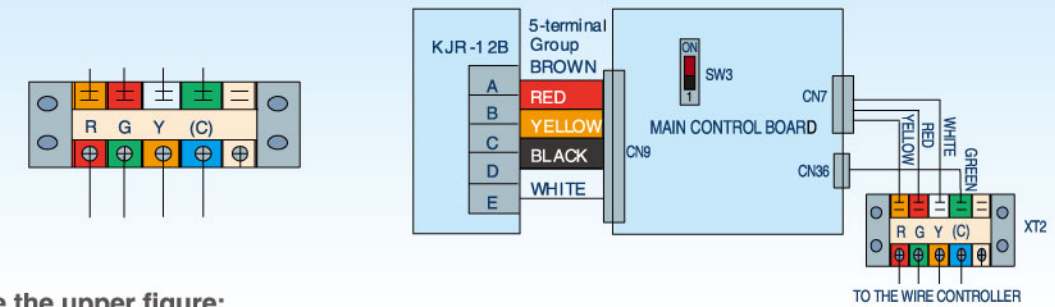
For cooling and heating

Field wiring

To connect with wired controller

Set the dial code SW3 of PCB in roof-top unit's wire control box as per the wired controller you are in using. After settings, please shut off the power supply and then power to it again, otherwise, the new settings function couldn't work.

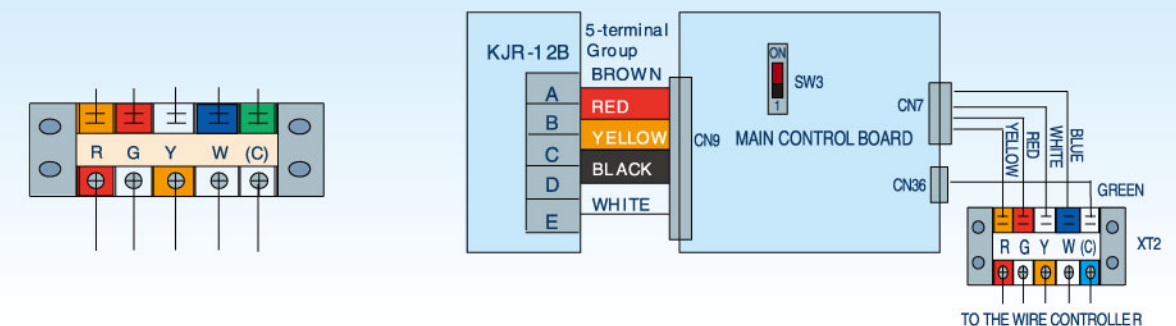
For cooling units



See the upper figure:

- When SW3 has been set in "ON", please select KJR-12B wired controller.
- When SW3 has been set in "1", please select the wired controller be recommended.

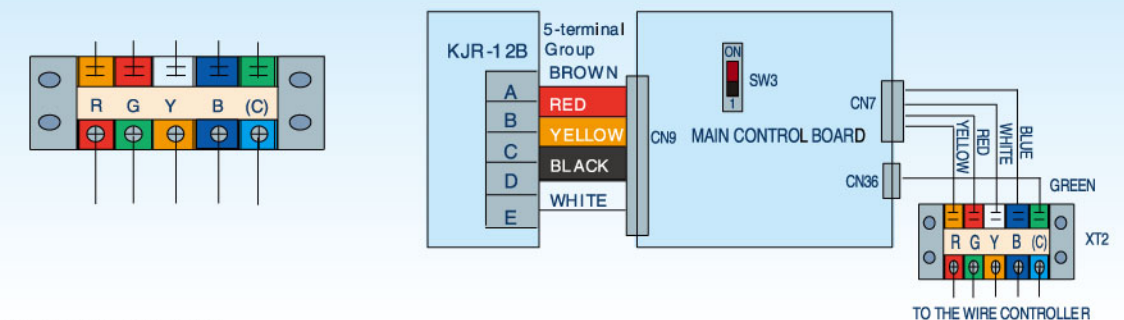
For cooling +PTC units



See the upper figure:

- When SW3 has been set in "ON", please select KJR-12B wired controller.
- When SW3 has been set in "1", please select the wired controller be recommended.

For heating & cooling units



See the upper figure:

- When SW3 has been set in "ON", please select KJR-12B wired controller.
- When SW3 has been set in "1", please select the wired controller be recommended.

Mechanical specifications

General

The units are convertible airflow. The ambient temperature range shall be between 52°C and -10°C as standard from the factory. All units shall be factory assembled, internally wired, fully charged with R-410A, and 100% run tested to check cooling and heating operation, fan and blower rotation, and control sequence before leaving the factory. Wiring internal to the unit shall be colored and numbered for simplified identification. The unit is provided with an integral weather resistant control panel.

Casing

Unit casing shall be constructed of zinc coated, heavy gauge, galvanized steel. Exterior surfaces shall be cleaned, G90 galvanized heavy gauge plate conforming to ASTM A 653, followed by baked on electrostatic polyester dry powder coat paint on all external panels, completely weatherized for outdoor installation and properly reinforced and brazed. Salt spray test for steel sheet under 1000 hours, specially treated can be up to 2000 hours and even more. Cabinet construction shall allow for all maintenance on one side of the unit, only the unit with auxiliary electrical heater shall allow for maintenance on two sides. Service panels shall be removed easily and reinstalled by removing bolts. All panels and top covers indoor side of the unit shall be insulated with 16 mm, foam-faced (foil-faced only for 5ton), closed-cell insulation. The unit has provisions for forklift and crane lifting, with forklift capabilities on four sides of the unit.

Compressors

All units shall have direct-drive, hermetic, scroll type compressors with centrifugal type oil pumps. Motor shall be suction gas-cooled and shall have a voltage utilization range of plus or minus 10 percent of unit nameplate voltage. Internal overloads shall be provided with the scroll compressors.

Compressors used in Rooftop package unit are hermetically sealed reciprocating type. They are equipped with a crankcase heater as standard.

The compressors, incorporating a built in muffler, are mounted on springs within a heavy gauge steel housing to give a low noise level.

The unit contains the best compressor technology available to achieve the highest possible performance. Dual compressors are outstanding for humidity control, light load cooling conditions and system back-up applications. Dual compressors are available on 12.5 to 20 ton models.

Controls

The unit shall be completely factory-wired with necessary controls and terminal block for power wiring. The unit shall provide an external location for mounting a fused disconnect device.

Microprocessor controls provide for all 24V control functions. The precision control shall make all heating, cooling, or ventilating decisions in response to electronic signals from sensors measuring indoor and outdoor temperatures. The control maintains accurate temperature control, minimizes drift from set point, and provides better building comfort. A centralized microprocessor shall provide a higher level of machine protection.

Evaporator and condenser coils

Internally finned, 7.94 mm (5/16 inch) copper tubes mechanically bonded to a configured hydrophilic aluminum fin shall be standard. Coils shall be leak tested at the factory to ensure the pressure integrity. The evaporator coil and condenser coil shall be leak tested to 3100 kPa (450 psig). A removable, double-sloped condensate drain pan with through the base condensate drain is standard.

Filters

Washable filters shall be standard on all units.

Evaporator fan

Evaporator fan is of centrifugal forward-curved blade design capable of handling total required CFM and static pressure in the low and the medium ranges. Casings are made of galvanized steel. Blower motors are of open drip proof type (totally enclosed types are optional) and conform to NEMA MG-1 and MG-2. Blower motor is mounted on adjustable base and secured by locking device. Fan wheels shafts and bearing are selected to operate at 25% below first critical speed. Pillow block bearing are selected for at 200,000 hours average life at design operating conditions. Shaft is turned, ground and polished from solid steel. Fans and pulleys are keyed to shaft and designed for continuous operation at maximum motor horse power and fan speed. All rotating components and assemblies are statically and dynamically balanced and every unit is vibration tested before shipment from the factory.

Condenser fan

The fan is direct drive by weatherproof motor to ensure reliable continuous operation. Statically and dynamically balanced drive motor design with maintenance-free bearings for outdoor installation. The fan is multi-blade vane-axial type, made of metal material for quiet operation and durability.

Electronic thermostats

General information: A dedicated electronic thermostat is supplied with unit controls as standard. This thermostat controls one or two stage heating and cooling applications. The thermostat normally displays room temperature and mode of operation.

The temperature can be set by up/down buttons for both cooling and heating cycles. The thermostat also allows you to select continuous fan operation, or have the fan on intermittent operation with the equipment. It also displays the status of unit, thus providing maximum information for the end user.

Phase monitoring protection

The unit with 3-phase power supply is equipped with phase monitoring protection as standard. These devices protect motors and compressors against problems caused by phase lack, phase imbalance and phase reversal indication.