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※ Manufacture reserves the right to discontinue, or change at any time, specifications or designs without notices and without incurring obligations.

# 1. Models List

Nominal	Model			Power Supply
Ton	Refrigerant	Model Name	Function	V, Ph, Hz
5	R410A	MRBT-60CWN1-D	Cooling + EAH	220V- 3Ph-60Hz
6.2		MRBT-062CWN1-D	Cooling	
6.2		MRCT-062EWN1-D	Cooling + EAH	
7.5		MRBT-075CWN1-D	Cooling	
7.5		MRCT-075EWN1-D	Cooling + EAH	
8.5		MRBT-085CWN1-D	Cooling	
8.5		MRCT-085EWN1-D	Cooling + EAH	
10		MRBT-100CWN1-D	Cooling	
10		MRCT-100EWN1-D	Cooling + EAH	
12.5		MRBT-125CWN1-D	Cooling	
15		MRBT-150CWN1-D	Cooling	
15		MRCT-150EWN1-D	Cooling + EAH	
15		MRBT-150HWN1-D	Heating & Cooling	
17.5		MRBT-175CWN1-D	Cooling	
17.5		MRCT-175EWN1-D	Cooling + EAH	
20		MRBT-200CWN1-D	Cooling	
20		MRCT-200 EWN1-D	Cooling +EAH	

Note: EAH- Electric auxiliary heater

# 2. External Appearance

5 Ton



6.2&7.5Ton



8.5&10 Ton



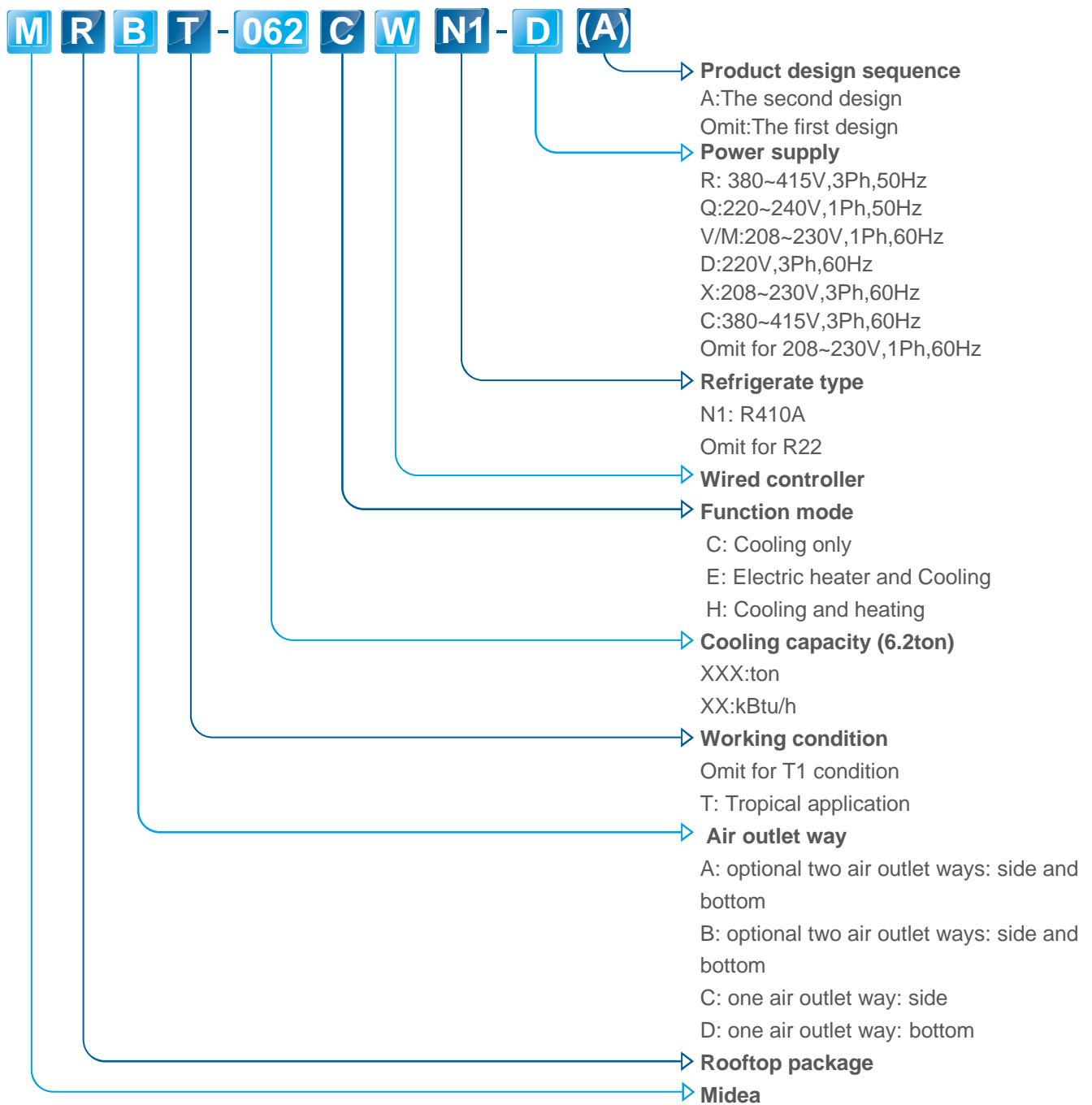
12.5 Ton



15&17.5&20 Ton



### 3. Nomenclature



## 4. Feature & Benefit

### 1. The adoption of anticorrosive-box

The reinforced anticorrosion by using galvanization armor plate and coated with man-composed paint.

The appearance is stylish and be easy for maintenance.

(It's OK for 1000 hours salt spray test)

### 2. The adoption of credible protection system

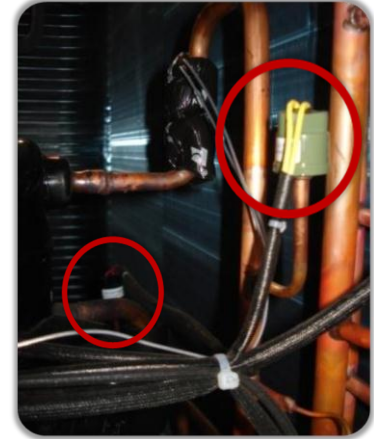
#### 2.1 The protection for compressor

High-pressure protection, low-pressure protection, compressor current protection and so on the series' protectors can ensure compressor operating normally.

Adopts independent system, except for protections of sequence and wire control output, any protection relate to its corresponding compressor. Once a compressor protection energized, the corresponding compressor will stop, others are still working.

#### 2.2 Fan motor

The fan motors for evaporator have over-heat protection and over-current protection function. The fan motors for condenser have the temperature controller protection function.



### 3. Energy saving design

#### 3.1 High efficiency compressor

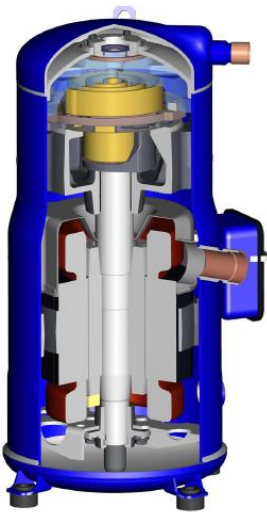
Using technical compressor, heat exchanger and optimum connection pipe, the compressor can startup under low power input. Provide maximum reliability, efficiency and quiet operation.

Two refrigerant circuits on larger units (above 12.5ton) provide efficient part load performance.

Standard low and high pressure safety switches.

#### Nice compressor control

Compressor staging is controlled directly by the indoor temperature. When the indoor temperature is warmer than the setting, cooling is staged up; when the indoor temperature is cooler than the setting, cooling is staged down. However, a stage change can only occur when the indoor 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.



#### 3.2 Condenser

By using high-efficient thin fin, the condenser has high-efficient heat exchanger, the energy waste decreases greatly.

#### 3.3 Evaporator

By using the high-efficient, super thin fin and inner-whorl copper pipe, the evaporators get the higher capacity and the lower noise level.

#### 3.4 The heat insulation of indoor unit

The heat insulation of indoor unit can availably decrease heat loss.

#### 3.5 The control and refrigerant cycle system

There are two independent control systems and refrigerant cycle system, the capacity output is adjusted automatically depending on different demand, save energy when one control system is in running according to low capacity output.

## 4. Optional collocation

### 4.1 Operation in high temperature

The air-conditioner designed for high temperature can run until the ambient temperature reaches up to 52°C (125°F) .

### 4.2 Strong air flow

Large air volume from the air inlet is forced ventilating by the condenser fan.

### 4.3 Minimum installation arrangement

The installation is fast and low cost with the easy installation and ready operation.

### 4.4 Pre-drilled duct flange

Flanges are prepared at the supply and return duct connections so that they can reduce duct connection work at site.



### 4.5 Quiet operation

Noise and vibration have been effectively reduced by adopting new style hermetic compressor. The centrifugal fan and fan casing are optimum shaped for efficient and low noise operation.

## 5. Cabinet

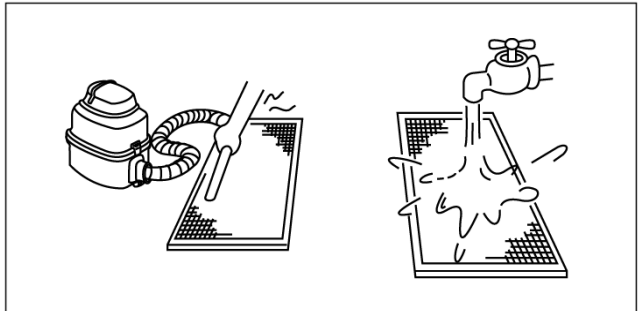
### 5.1 Sloped drain pan and drain pipe.

### 5.2 Cabinets have forklift and lifting holes for easy transportation.

### 5.3 Cabinets have fresh air function, and the filter can be washable.



Fresh air inlet  
(except for 5ton)

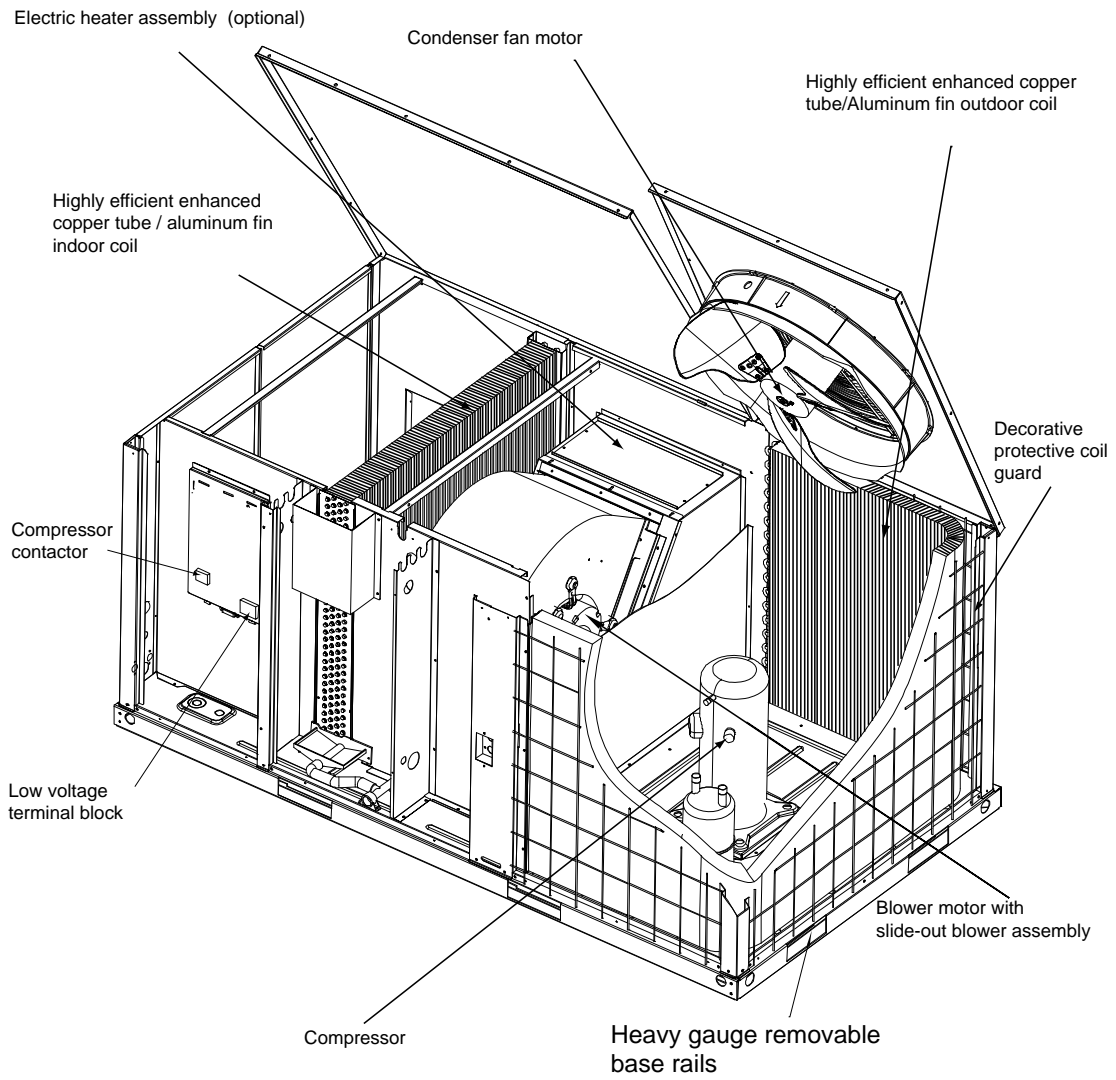


### 5.4 External pressure gauge port.

The external pressure gauge port, which is identified permanently and clearly the embossed wording, H is high pressure connection and L is low pressure connection. With the gauge port mounted externally, an accurate diagnostic for system operation can be quick and easy without disrupting airflow.

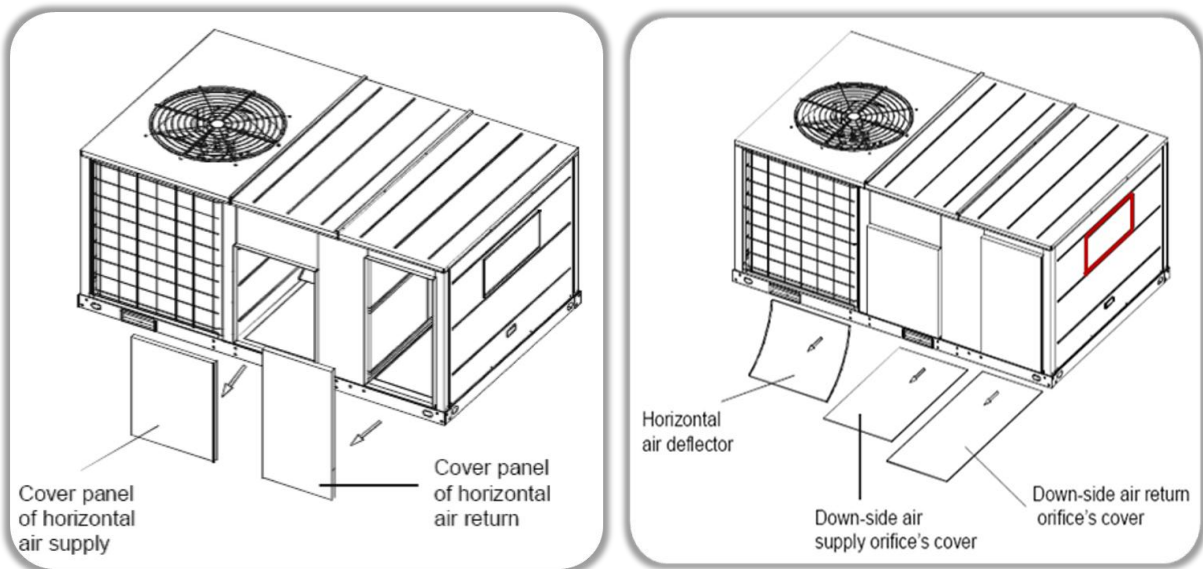
### 5.5 Durable construction.

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/m<sup>2</sup>.



5ton

**6. Optional supply/return airflow design, from side or bottom, It could be flexibly applied to multi-position. The rooftop or ground installation is optional.**



**7. Certification of the compressor**

The compressors have CE certified, UL certified.

## 5. List of Function

### 5.1 Standard specification

#### A. General

The Packaged cooling or combination heating and cooling unit is suitable for mounting on the roof or ground. The packaged unit consists of scroll compressors, evaporator coil, condenser coil, control wiring and interconnecting piping- all factories assembled and mounted on heavy gauge G-90 galvanized steel sheet press formed base, ready for field connection to utilities and ducts. The packaged unit is of rigid construction with holes provided in the base rails for overhead rigging. The unit is provided with an integral weather resistant control panel.

These units are rated and tested in accordance with ARI standard 210/ARI 360.

#### B. Unit enclosure

Panels are of heavy gauge, G-90 galvanized steel sheet with removable access panels, completely weatherized for outdoor installation and properly reinforced and brazed. Panels and access door are provided for inspection and access for all internal parts. Enclosures are provided with adequately reinforced points of support for setting in the unit. Steel sheet panels are zinc-coated and galvanized by the hot dip process of lock forming quality conforming to ASTM A 653 commercial weight G-90, followed by baked on electrostatic polyester dry powder coat paint, on all external panel.

#### C. Compressor

Compressors are scroll for all the models. They are provided with all the standard controls and accessories necessary for safe operation. These are equipped with internal motor protector; factory installed crank case heater and rubber vibration isolator for quiet and efficient operation.

#### D. Air-cooled condensing section

1. The air-cooled condensing section is enclosed within the unit housing and consists of condenser coil, fan(s) electric motor(s) and inherently protected compressor(s). As an option, enhanced coated aluminum fins may be provided. Tube support sheets are galvanized steel, formed to provide structural strength.
2. Fans are propeller type, direct driven, upward discharge and provided with fan grille mounted on the casing.
3. Motors are totally enclosed air-over type with class F insulation. Inherent thermal protection is automatic reset type.

#### E. Evaporator coil section

1. All cooling coils are of enhanced louvered fins and inner grooved copper tubes with wall thickness of 0.3mm, mechanically bonded to aluminum fins. Return bend has 0.022 inch thickness (0.56mm). As option, enhanced coated aluminum fins may be provided. Tube support sheets are galvanized steel, formed to provide structural strength.
2. Drainage pan: An insulated drainage pan made of G-90 galvanized steel is provided, for additional corrosion protection.
3. Insulation: Insulation is supplied in adequate density and thickness for all units to prevent condensation from forming on the unit casing. Insulation meets the requirements of NFPA 90A and is protected against deterioration and erosion from air currents.

#### F. 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.

### G. Electronic thermostat

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.

### 5.2 Electric heater

Electric heater is the resistance coil type and conforms to the requirement of UL 573 or equivalent. Electrical characteristic, kW capacity and number of stages are indicated. Airflow switch, fusible link and overheat limit thermostat are provided to shut-off power in case of airflow failure/overheat. Electric heater kit is installed as an externally mounted kit at the supply opening.

### 5.3 Standard feature/option/accessory

Description	Standard feature	Option (factory installed)	Accessory (field installed)
Horizontal discharge	◆		
Compressor crankcase heater	◆		
Evaporator fan-belt driven	◆		
Evaporator fan motor-ODP type(TEFC type optional)	◆		
Condenser fan-direct drive, propeller type(Except 5ton)	◆		
Condenser fan-direct drive, axial type(Only 5ton)	◆		
Condenser fan motor-totally enclosed air-over type	◆		
Electric heater		◆	◆
Filter, Nylon(Thickness 10&12.5mm, except 5ton)	◆		
Filter, aluminum(Thickness 25mm)		◆	
Compressor overload protection	◆		
Low pressure switch	◆		
High pressure switch	◆		
Cooling & heating thermostat	◆		
Condenser fan guard	◆		
Condenser coil guard	◆		
Wired controller KJR-23B			◆
Wired controller KJR-25B			◆
Wired controller KJR-12B	◆		
Drainage pipe			◆
Drainage outlet			◆
Snap ring			◆



## 6. Specification

Nominal ton		(Ton)	5	6.2	6.2	7.5
Model			MRBT-60CWN1-D	MRBT-062CWN1-D	MRCT-062EWN1-D	MRBT-075CWN1-D
Cooling	Cooling Capacity (1)	Btu/h	59000	75000	75000	89000
		kW	17	22	22	26
	Power Input (1)	kW	5.6	7.7	7.7	9.2
	Cooling Capacity (2)	Btu/h	51200	62700	62700	74500
		kW	15	18.4	18.4	21.8
Power Input (2)	kW	7.5	8.6	8.6	9.9	
Heating	Heating Capacity	Btu/h	-	-	47800	-
		kW	-	-	14	-
	Power Input	kW	-	-	14	-
Capacity steps		%	0/100	0/100	0/100	0/100
Electrical data	Power supply	V/Ph/Hz	220/3/60	220/3/60	220/3/60	220/3/60
	Max. input consumption	kW	8.3	13.2	13.2	13.2
	Max. current	A	28.5	42	42	42
Performance	Indoor fan air flow (High speed)	CFM	1970	2600	2600	3000
	ESP	Pa	70	60	60	60
	EER 1	Btu/h/W	10	9.7	9.7	9.7
	EER 2	Btu/h/W	6.8	7.4	7.4	7.3
	COP	Btu/h/W	/	/	/	/
Indoor Coil	Number of rows		4	2	2	2
	Fin spacing	mm	1.6	1.6	1.6	1.6
		inch	1/16"	1/16"	1/16"	1/16"
	Tube diameter	mm	7.94	7.94	7.94	7.94
inch		5/16"	5/16"	5/16"	5/16"	
Indoor fan	Type		FC centrifugal	FC centrifugal	FC centrifugal	FC centrifugal
	Quantity		1	1	1	1
	Diameter(Width)	mm	282	254	254	254
		inch	11.1	10	10	10
	Drive type		Direct	Belt	Belt	Belt
	Motors quantity		1	1	1	1
	Motor model		YDK600-6E	YFD90L-4	YFD90L-4	YFD90L-4
	Motor output	kW	0.6	2	2	2
Motor rpm	r/min	1004	1120	1120	1120	
Compressor	Type		Scroll	Scroll	Scroll	Scroll
	Quantity		1	1	1	1
	Model		ZP57K3E-TF5-522	SH090A3ALC	SH090A3ALC	SH090A3ALC
	Brand		Copeland	Danfoss	Danfoss	Danfoss
	Capacity	Btu/h	58000	92465	92465	92465
	Input	kW	5.5	8.569	8.569	8.569
	Rated current(RLA)	A	22.9	30.7	30.7	30.7
	Refrigerant oil charge	ml	1656	3000	3000	3000

Outdoor Coil	Number of rows		2	3	3	3
	Fin spacing	mm	1.3	1.6	1.6	1.6
		inch	1/16"	1/16"	1/16"	1/16"
	Tube diameter	mm	7.94	7.94	7.94	7.94
inch		5/16"	5/16"	5/16"	5/16"	
Outdoor Fan	Type		Axial fan	Propeller	Propeller	Propeller
	Quantity		1	1	1	1
	Diameter(Width)	mm	600	650	650	650
		inch	23.62	25.6	25.6	25.6
	Drive type		direct	Direct	Direct	Direct
	Motors quantity		1	1	1	1
	Motor model		YDK230-6G-1	YS1000-6B	YS1000-6B	YS1000-6B
	Motor output	kW	0.23	1.11	1.11	1.11
Motor rpm	r/min	1080	1120	1120	1120	
Outdoor sound level(sound pressure level )		dB(A)	62.9	70.3	70.3	70.3
Refrigerant	Type		R410A	R410A	R410A	R410A
	Refrigerant volume	Kg	3.6	5.6	5.6	5.6
	Refrigerant Control		Capillary	Capillary	Capillary	Capillary
Controller	Wired controller type		KKJR-12B	KJR-12B	KJR-12B	KJR-12B
Operation temp		°C	17~30	17~30	17~30	17~30
Ambient temp	Cooling	°C	18~52	18~52	18~52	18~52
	Heating	°C	-	-	-	-
Dimensions	Net(WxHxD)	mm	1920X840X1068	1630X1065X1068	1630X1065X1068	1630X1065X1068
		inch	75.6X33.1X42	64.2 X 41.9 X 42	64.2 X 41.9 X 42	64.2 X 41.9 X 42
	Packing(WxHxD)	mm	1955X870X1085	1700X1110X1160	1700X1110X1160	1700X1110X1160
		inch	77X34.3X42.7	66.9 X 43.7 X 45.7	66.9 X 43.7 X 45.7	66.9 X 43.7 X 45.7
Weight	Net weight	Kg(lbs)	228(503)	315(694.4)	323(712)	315(694.4)
	Gross weight	Kg(lbs)	232(511)	335(738.5)	343(756)	335(738.5)
Filter	Type		Nylon	Nylon	Nylon	Nylon
	Quantity	Pieces	1	2	2	2
	Size (WxHxD)	mm	410 X 495 X 25	447 X 885 X 10	447 X 885 X 10	447 X 885 X 10
		inch	16.1X19.5X1	17.6 X34.8 X0.4	17.6 X34.8 X0.4	17.6 X34.8 X0.4
Shipping	Qty/Per 20'/40'/40'HQ	Pieces	12/24/36	12/28/28	12/28/28	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) DB

Electrical data: Indoor Temperature 32°C(90°F) DB / 24°C(74°F) WB; - Outdoor Temperature 52°C(125°F) DB

Nominal ton		(Ton)	7.5	8.5	8.5	10
Model			MRCT-075EWN1-D	MRBT-085CWN1-D	MRCT-085EWN1-D	MRBT-100CWN1-D
Cooling	Cooling Capacity (1)	Btu/h	89000	103000	103000	120000
		kW	26	30	30	35
	Power Input (1)	kW	9.2	10.4	10.4	11.4
	Cooling Capacity (2)	Btu/h	74500	85600	85600	100000
		kW	21.8	25.1	25.1	29.3
Power Input (2)	kW	9.9	11.4	11.4	13.6	
Heating	Heating Capacity	Btu/h	47800	-	71700	-
		kW	14	-	21	-
	Power Input	kW	14	-	21	-
Capacity steps		%	0/100	0/100	0/100	0/100
Electrical data	Power supply	V/Ph/Hz	220/3/60	220/3/60	220/3/60	220/3/60
	Max. input consumption	kW	13.2	14.7	14.7	16.8
	Max. current	A	42	47.1	47.1	55
Performance	Indoor fan air flow (High speed)	CFM	3000	3600	3600	3800
	ESP	Pa	60	75	75	75
	EER 1	Btu/h/W	9.7	9.8	9.8	10.5
	EER 2	Btu/h/W	7.3	7.7	7.7	7.4
	COP	Btu/h/W	/	/	/	/
Indoor Coil	Number of rows		2	3	3	3
	Fin spacing	mm	1.6	1.4	1.4	1.4
		inch	1/16"	1/18"	1/18"	1/18"
	Tube diameter	mm	7.94	7.94	7.94	7.94
inch		5/16"	5/16"	5/16"	5/16"	
Indoor fan	Type		FC centrifugal	FC centrifugal	FC centrifugal	FC centrifugal
	Quantity		1	1	1	1
	Diameter(Width)	mm	254	305	305	305
		inch	10	12	12	12
	Drive type		Belt	Belt	Belt	Belt
	Motors quantity		1	1	1	1
	Motor model		YFD90L-4	YFD90L-4	YFD90L-4	YFD90L-4
	Motor output	kW	2	1.5	1.5	2.2
Motor rpm	r/min	1120	1400	1400	1120	
Compressor	Type		Scroll	Scroll	Scroll	Scroll
	Quantity		1	1	1	1
	Model		SH090A3ALC	SH105A4ALC	SH105A4ALC	SH120A3ALC
	Brand		Danfoss	Danfoss	Danfoss	Danfoss
	Capacity	Btu/h	92465	119000	119000	1113000
	Input	kW	8.569	10.862	10.862	11.246
	Rated current(RLA)	A	30.7	21.4	21.4	43.6
	Refrigerant oil charge	ml	3000	3300	3300	3300
Outdoor Coil	Number of rows		3	3	3	3

	Fin spacing	mm	1.6	1.6	1.6	1.6
		inch	1/16"	1/16"	1/16"	1/16"
	Tube diameter	mm	7.94	7.94	7.94	7.94
		inch	5/16"	5/16"	5/16"	5/16"
Outdoor Fan	Type		Propeller	Propeller	Propeller	Propeller
	Quantity		1	1	1	1
	Diameter(Width)	mm	650	700	700	700
		inch	25.6	27.6	27.6	27.6
	Drive type		Direct	Direct	Direct	Direct
	Motors quantity		1	1	1	1
	Motor model		YS1000-6B	YS1100-6	YS1100-6	YS1000-6B
	Motor output	kW	1.11	1.1	1.1	1.1
Motor rpm	r/min	1120	940	940	1120	
Outdoor sound level(sound pressure level )		dB(A)	70.3	72.2	72.2	72.2
Refrigerant	Type		R410A	R410A	R410A	R410A
	Refrigerant volume	Kg	5.6	6.7	6.7	6.5
	Refrigerant Control		Capillary	Capillary	Capillary	Capillary
Controller	Wired controller type		KJR-12B	KJR-12B	KJR-12B	KJR-12B
Operation temp		℃	17~30	17~30	17~30	17~30
Ambient temp	Cooling	℃	18~52	18~52	18~52	18~52
	Heating	℃	-	-	-	-
Dimensions	Net(WxHxD)	mm	1630X1065X1068	2165X1021X1335	2165X1021X1335	2165X1021X1335
		inch	64.2 X 41.9 X 42	85.2 X 40.2 X 52.6	85.2 X 40.2 X 52.6	85.2 X 40.2 X 52.6
	Packing(WxHxD)	mm	1700X1110X1160	2220X1140X1415	2220X1140X1415	2220X1140X1415
		inch	66.9 X 43.7 X 45.7	87.4 X 44.9 X 55.7	87.4 X 44.9 X 55.7	87.4 X 44.9 X 55.7
Weight	Net weight	Kg(lbs)	323(712)	445(981)	455(1003)	445(981)
	Gross weight	Kg(lbs)	343(756)	458(1009.7)	468(1031.7)	458(1009.7)
Filter	Type		Nylon	Nylon	Nylon	Nylon
	Quantity	Pieces	2	2	2	2
	Size (WxHxD)	mm	447 X 885 X 10	566 X 814 X 10	566 X 814 X 10	566 X 814 X 10
		inch	17.6 X34.8 X0.4	22.3 X 32X0.4	22.3 X 32X0.4	22.3 X 32X0.4
Shipping	Qty/Per 20'/40'/40'HQ	Pieces	12/28/28	8/16/16	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) DB

Electrical data: Indoor Temperature 32°C(90°F) DB / 24°C(74°F) WB; - Outdoor Temperature 52°C(125°F) DB

Nominal ton		(Ton)	10	12.5	15
Model			MRCT-100EWN1-D	MRBT-125CWN1-D	MRBT-150CWN1-D
Cooling	Cooling Capacity (1)	Btu/h	120000	150000	180000
		kW	35	43	53
	Power Input (1)	kW	11.4	15.3	18.1
	Cooling Capacity (2)	Btu/h	100000	125600	159600
		kW	29.3	34.2	46.7
Power Input (2)	kW	13.6	16.8	20.2	
Heating	Heating Capacity	Btu/h	71700	-	-
		kW	21	-	-
	Power Input	kW	21	-	-
Capacity steps		%	0/100	0/50/100	0/50/100
Electrical data	Power supply	V/Ph/Hz	220/3/60	220/3/60	220/3/60
	Max. input consumption	kW	16.8	20.9	26.8
	Max. current	A	55	69.2	87.9
Performance	Indoor fan air flow (High speed)	CFM	3800	5200	6600
	ESP	Pa	75	90	90
	EER 1	Btu/h/W	10.5	9.8	10
	EER 2	Btu/h/W	7.4	7.5	7.5
	COP	Btu/h/W	/	/	/
Indoor Coil	Number of rows		3	3	3
	Fin spacing	mm	1.4	1.5	1.4
		inch	1/18"	1/16"	1/18"
	Tube diameter	mm	7.94	7	7.94
inch		5/16"	9/32"	5/16"	
Indoor fan	Type		FC centrifugal	FC centrifugal	FC centrifugal
	Quantity		1	1	1
	Diameter(Width)	mm	305	383	383
		inch	12	15	15
	Drive type		Belt	Belt	Belt
	Motors quantity		1	1	1
	Motor model		YFD90L-4	Y2-100L2-4	YFD132S-4
	Motor output	kW	2.2	3	5
Motor rpm	r/min	1120	1700	1120	
Compressor	Type		Scroll	Scroll	Scroll
	Quantity		1	2	2
	Model		SH120A3ALC	ZP72KCE-TF5-522	SH090A3ALC
	Brand		Danfoss	Copeland	Danfoss
	Capacity	Btu/h	111300	72000x2	92465
	Input	kW	11.246	6.75x2	8.569
	Rated current(RLA)	A	43.6	25.9x2	30.7
	Refrigerant oil charge	ml	3300	1774x2	3000
Outdoor Coil	Number of rows		3	3.5	3
	Fin spacing	mm	1.6	1.5	1.6

		inch	1/16"	1/16"	1/16"
	Tube diameter	mm	7.94	7	7.94
		inch	5/16"	9/32"	5/16"
Outdoor Fan	Type		Propeller	Propeller	Propeller
	Quantity		1	1	2
	Diameter(Width)	mm	700	650	650
		inch	27.6	25.6	25.6
	Drive type		Direct	Direct	Direct
	Motors quantity		1	1	2
	Motor model		YS1000-6B	YS1000-6B	YS1000-6B
	Motor output	kW	1.1	1.1	1.1 X 2
Motor rpm	r/min	1120	1120	1120	
Outdoor sound level(sound pressure level )		dB(A)	72.2	72.3	72.4
Refrigerant	Type		R410A	R410A	R410A
	Refrigerant volume	Kg	6.5	3.2+3.1	5.8 X 2
	Refrigerant Control		Capillary	Capillary	Capillary
Controller	Wired controller type		KJR-12B	KJR-12B	KJR-12B
Operation temp		°C	17~30	17~30	17~30
Ambient temp	Cooling	°C	18~52	18~52	18~52
	Heating	°C	-	-	-
Dimensions	Net(WxHxD)	mm	2165X1021X1335	2230x1245x1425	2230 X1245X1824
		inch	85.2 X 40.2 X 52.6	87.8X49X56	87.8 X 49X 71.8
	Packing(WxHxD)	mm	2220X1140X1415	2265x1280x1455	2236 X1300X1855
		inch	87.4 X 44.9 X 55.7	89.2X50.4X57.3	88 X 51.2 X 73
Weight	Net weight	Kg(lbs)	445(981)	520(1146)	710/ (1565.3)
	Gross weight	Kg(lbs)	458(1009.7)	535(1179.5)	730(1609.3)
Filter	Type		Nylon	Nylon	Nylon
	Quantity	Pieces	2	2	2
	Size (WxHxD)	mm	566 X 814 X 10	605x1045x12.5	900 X 815 X 12.5
		inch	22.3 X 32X0.4	23.8X41.1X0.5	35.4 X32 X 0.5
Shipping	Qty Per 20'/40'/40'HQ	Pieces	8/16/16	4/8/16	3/6/12

**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) DB

Electrical data: Indoor Temperature 32°C(90°F) DB / 24°C(74°F) WB; - Outdoor Temperature 52°C(125°F) DB

Nominal ton		(Ton)	15	17.5	17.5
Model			MRCT-150EWN1-D	MRBT-175CWN1-D	MRCT-175EWN1-D
Cooling	Cooling Capacity (1)	Btu/h	180000	205000	205000
		kW	53	60	60
	Power Input (1)	kW	18.1	20	20
	Cooling Capacity (2)	Btu/h	159600	180600	180600
		kW	46.7	52.9	52.9
Power Input (2)	kW	20.2	23.5	23.5	
Heating	Heating Capacity	Btu/h	102400	-	102400
		kW	30	-	30
	Power Input	kW	30	-	30
Capacity steps		%	0/50/100	0/50/100	0/50/100
Electrical data	Power supply	V/Ph/Hz	220/3/60	220/3/60	220/3/60
	Max. input consumption	kW	26.8	32.8	37.4
	Max. current	A	87.9	98.6	98.6
Performance	Indoor fan air flow (High speed)	CFM	6600	7300	7300
	ESP	Pa	90	100	100
	EER 1	Btu/h/W	10	10.2	10.2
	EER 2	Btu/h/W	7.5	7.7	7.7
	COP	Btu/h/W	/	/	/
Indoor Coil	Number of rows		3	3	3
	Fin spacing	mm	1.4	1.4	1.4
		inch	1/18"	1/18"	1/18"
	Tube diameter	mm	7.94	7.94	7.94
inch		5/16"	5/16"	5/16"	
Indoor fan	Type		FC centrifugal	FC centrifugal	FC centrifugal
	Quantity		1	1	1
	Diameter(Width)	mm	383	383	383
		inch	15	15	15
	Drive type		Belt	Belt	Belt
	Motors quantity		1	1	1
	Motor model		YFD132S-4	YFD132S-4	YFD132S-4
	Motor output	kW	5	5	5
Motor rpm	r/min	1120	1120	1120	
Compressor	Type		Scroll	Scroll	Scroll
	Quantity		2	2	2
	Model		SH090A3ALC	SH105A3ALC	SH105A3ALC
	Brand		Danfoss	Danfoss	Danfoss
	Capacity	Btu/h	92465	109530	109530
	Input	kW	8.569	9.957	9.957
	Rated current(RLA)	A	30.7	32.9	32.9
	Refrigerant oil charge	ml	3000	3300	3300
Outdoor Coil	Number of rows		3	3	3
	Fin spacing	mm	1.6	1.6	1.6



		inch	1/16"	1/16"	1/16"
	Tube diameter	mm	7.94	7.94	7.94
		inch	5/16"	5/16"	5/16"
Outdoor Fan	Type		Propeller	Propeller	Propeller
	Quantity		2	2	2
	Diameter(Width)	mm	650	650	650
		inch	25.6	25.6	25.6
	Drive type		Direct	Direct	Direct
	Motors quantity		2	2	2
	Motor model		YS1000-6B	YS1000-6B	YS1000-6B
	Motor output	kW	1.1X 2	1.11X 2	1.11X 2
Motor rpm	r/min	1120	1120	1120	
Outdoor sound level(sound pressure level )		dB(A)	72.4	72.4	72.4
Refrigerant	Type		R410A	R410A	R410A
	Refrigerant volume	Kg	5.8 X 2	4.5 X 2	4.5 X 2
	Refrigerant Control		Capillary	Capillary	Capillary
Controller	Wired controller type		KJR-12B	KJR-12B	KJR-12B
Operation temp		°C	17~30	17~30	17~30
Ambient temp	Cooling	°C	18~52	18~52	18~52
	Heating	°C	-	-	-
Dimensions	Net(WxHxD)	mm	2230 X1245X1824	2230 X1245X1824	2230 X1245X1824
		inch	87.8 X 49X 71.8	87.8 X 49X 71.8	87.8 X 49X 71.8
	Packing(WxHxD)	mm	2236 X1300X1855	2236 X1300X1855	2236 X1300X1855
		inch	88 X 51.2 X 73	88 X 51.2 X 73	88 X 51.2 X 73
Weight	Net weight	Kg(lbs)	720/ (1609.3)	710/ (1565.3)	720/ (1609.3)
	Gross weight	Kg(lbs)	740(1653.4)	730(1609.3)	740(1653.4)
Filter	Type		Nylon	Nylon	Nylon
	Quantity	Pieces	2	2	2
	Size (WxHxD)	mm	900 X 815 X 12.5	900 X 815 X 12.5	900 X 815 X 12.5
		inch	35.4 X32 X 0.5	35.4 X32 X 0.5	35.4 X32 X 0.5
Shipping	Qty/Per 20'/40'/40'HQ	Pieces	3/6/12	3/6/12	3/6/12

**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) DB

Electrical data: Indoor Temperature 32°C(90°F) DB / 24°C(74°F) WB; - Outdoor Temperature 52°C(125°F) DB

Nominal ton		(Ton)	20	20
Model			MRBT-200CWN1-D	MRCT-200EWN1-D
Cooling	Cooling Capacity (1)	Btu/h	240000	240000
		kW	70	70
	Power Input (1)	kW	23.6	23.6
	Cooling Capacity (2)	Btu/h	213000	213000
		kW	62.4	62.4
Power Input (2)	kW	27.7	27.7	
Heating	Heating Capacity	Btu/h	-	133100
		kW	-	39
	Power Input	kW	-	39
Capacity steps		%	0/50/100	0/50/100
Electrical data	Power supply	V/Ph/Hz	220/3/60	220/3/60
	Max. input consumption	kW	38.2	38.2
	Max. current	A	127.3	127.3
Performance	Indoor fan air flow (High speed)	CFM	8400	8400
	ESP	Pa	100	100
	EER 1	Btu/h/W	10.1	10.1
	EER 2	Btu/h/W	7.6	7.6
	COP	Btu/h/W	/	/
Indoor Coil	Number of rows		3	3
	Fin spacing	mm	1.6	1.6
		inch	1/18"	1/16"
	Tube diameter	mm	7.94	7.94
inch		5/16"	5/16"	
Indoor fan	Type		FC centrifugal	FC centrifugal
	Quantity		1	1
	Diameter(Width)	mm	452	452
		inch	17.8	17.8
	Drive type		Belt	Belt
	Motors quantity		1	1
	Motor model		YFD132S-4	YFD132S-4
	Motor output	kW	5.5	5.5
Motor rpm	r/min	835	835	
Compressor	Type		Scroll	Scroll
	Quantity		2	2
	Model		SH120A3ALC	SH120A3ALC
	Brand		Danfoss	Danfoss
	Capacity	Btu/h	111300	111300
	Input	kW	11.246	11.246
	Rated current(RLA)	A	43.6	43.6
	Refrigerant oil charge	ml	3000	3300
Outdoor Coil	Number of rows		4	4
	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		2	2
	Diameter(Width)	mm	750	750
		inch	29.5	29.5
	Drive type		Direct	Direct
	Motors quantity		2	2
	Motor model		YS2200-6	YS2200-6
	Motor output	kW	5.4 X 2	5.4 X 2
Motor rpm	r/min	1130	1130	
Outdoor sound level(sound pressure level )		dB(A)	72.4	74.2
Refrigerant	Type		R410A	R410A
	Refrigerant volume	Kg	7.2X 2	7.2X 2
	Refrigerant Control		Capillary	Capillary
Controller	Wired controller type		KJR-12B	KJR-12B
Operation temp		°C	17~30	17~30
Ambient temp	Cooling	°C	18~52	18~52
	Heating	°C	-	-
Dimensions	Net(WxHxD)	mm	2230 X1245X1824	2753 X1245X2157
		inch	87.8 X 49X 71.8	108.4 X 49 X 84.9
	Packing(WxHxD)	mm	2236 X1300X1855	2755 X1300X2180
		inch	88 X 51.2 X 73	108.5X51.2 X85.8
Weight	Net weight	Kg(lbs)	730/ (1609.3)	925(2039.2)
	Gross weight	Kg(lbs)	750(1653.4)	940(2072.3)
Filter	Type		Nylon	Nylon
	Quantity	Pieces	2	3
	Size (WxHxD)	mm	900 X 815 X 12.5	640 X 1008 X 12.5
		inch	35.4 X32 X 0.5	25.2 X39.7 X 0.5
Shipping	Qty'Per 20'/40'/40'HQ	Pieces	2/4/8	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.

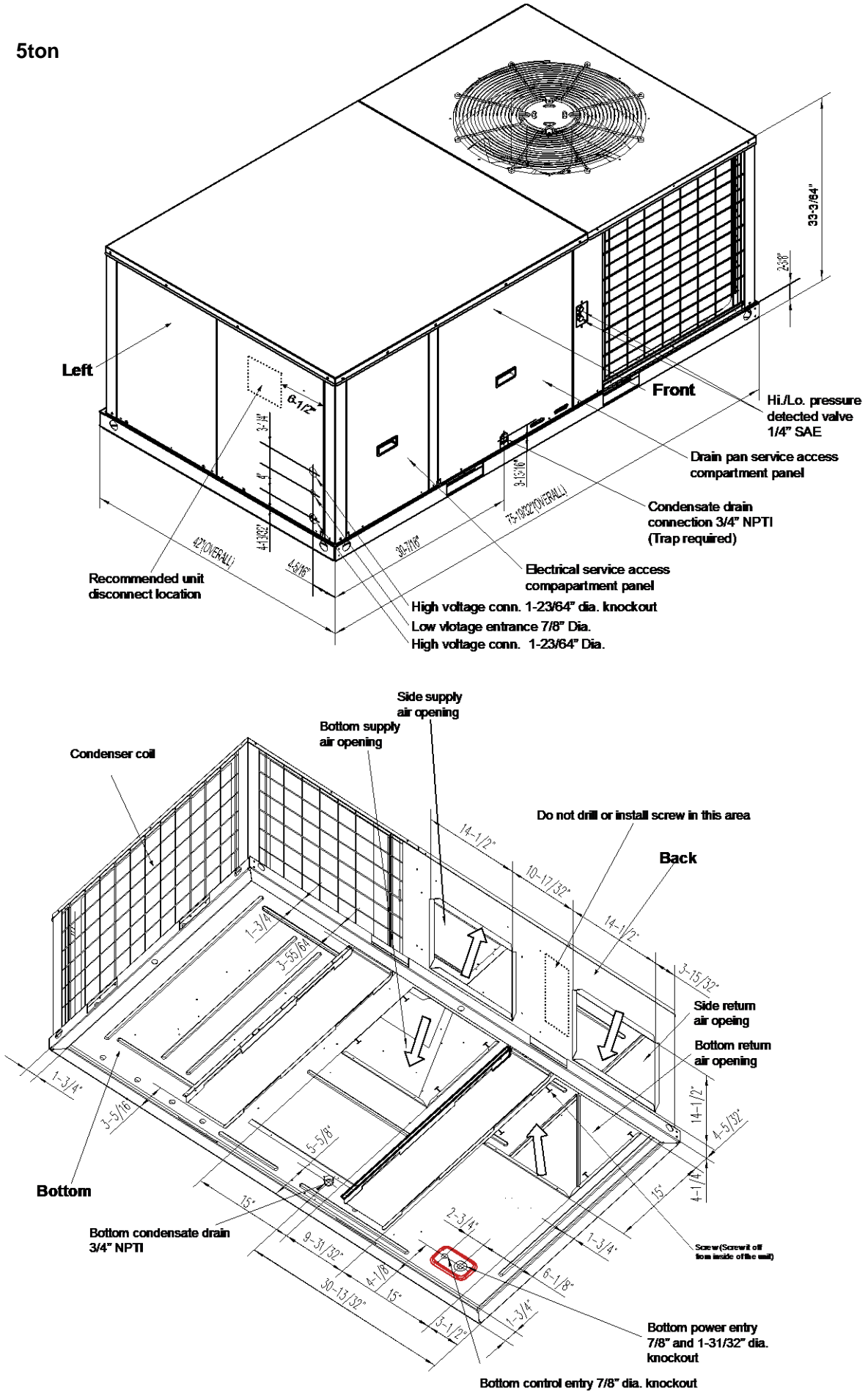
(2): Indoor Temperature 26.7°C(80°F) DB / 19.4°C(67°F) WB; - Outdoor Temperature 46°C(114°F) DB.

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) DB

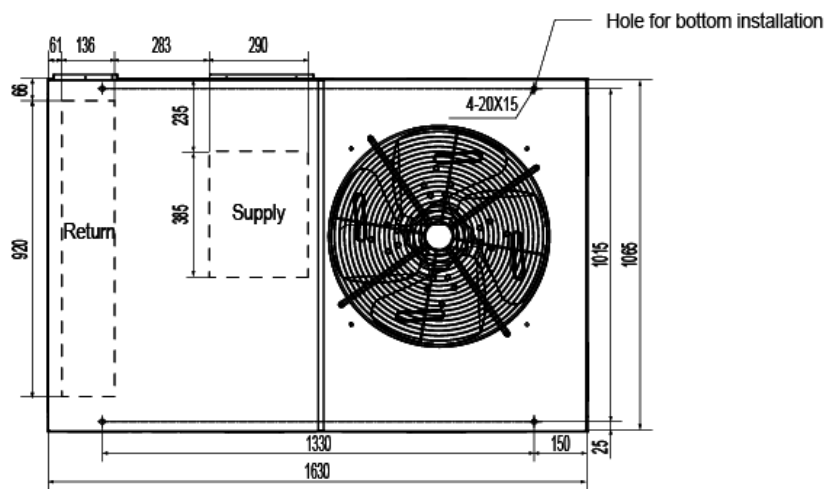
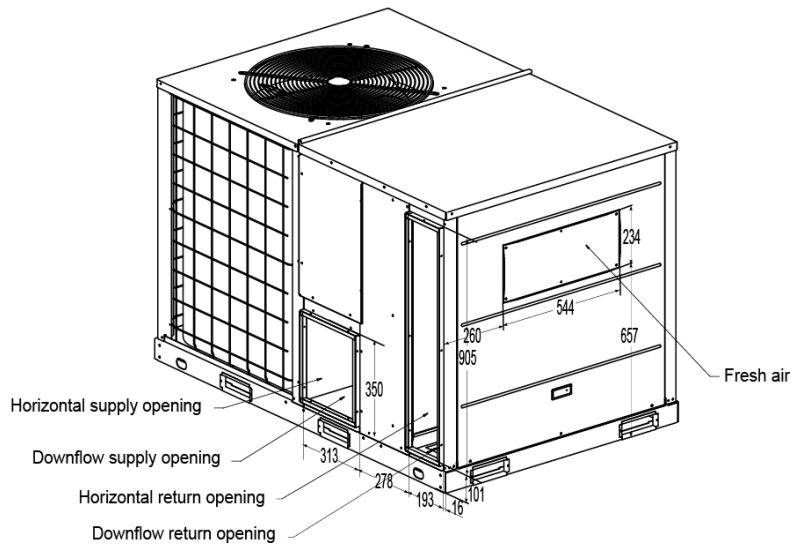
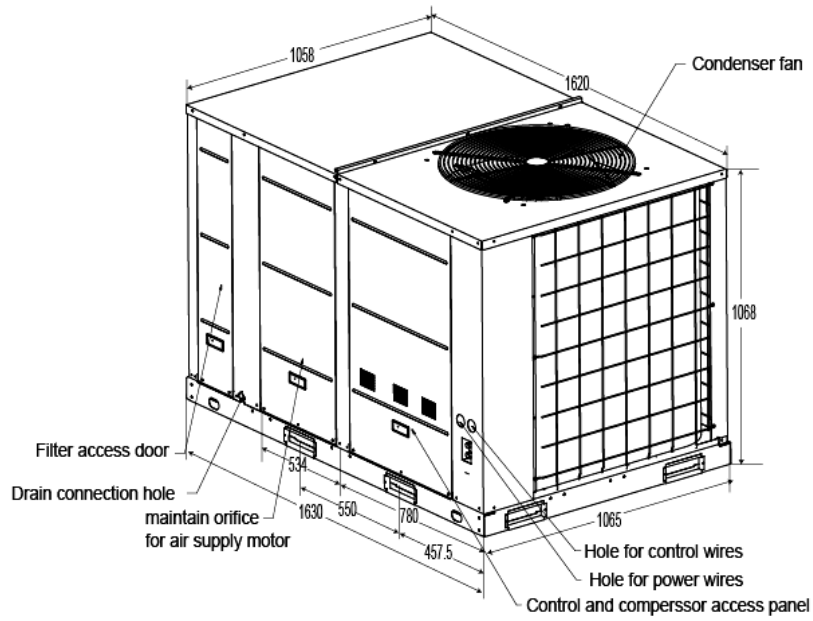
Electrical data: Indoor Temperature 32°C(90°F) DB / 24°C(74°F) WB; - Outdoor Temperature 52°C(125°F) DB

# 7. Dimensional Drawing

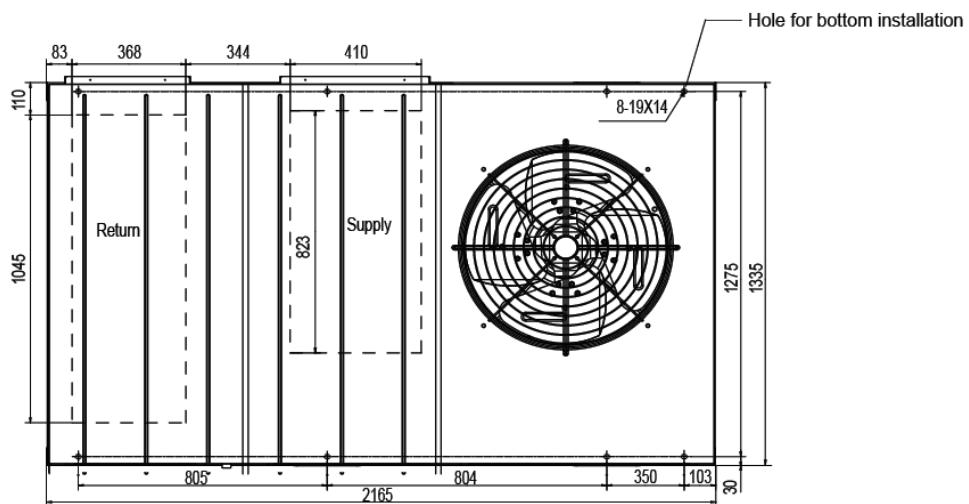
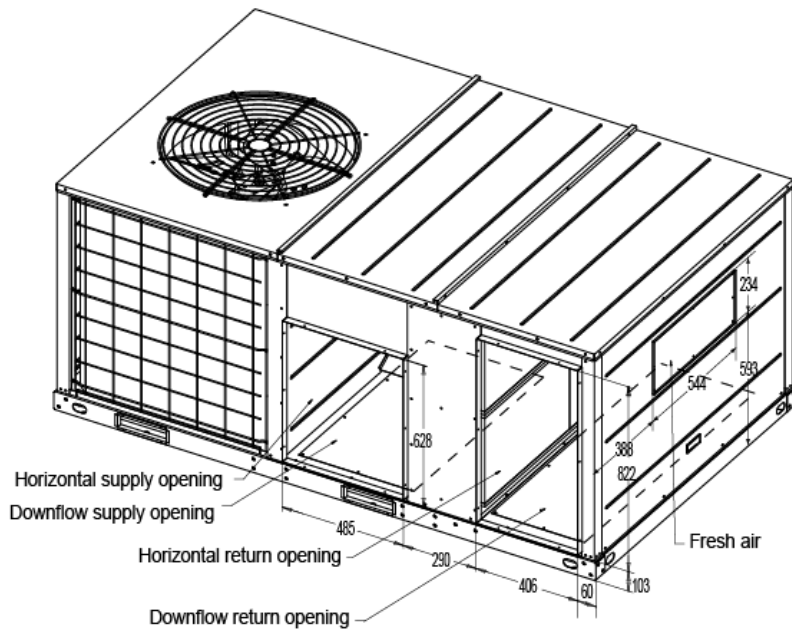
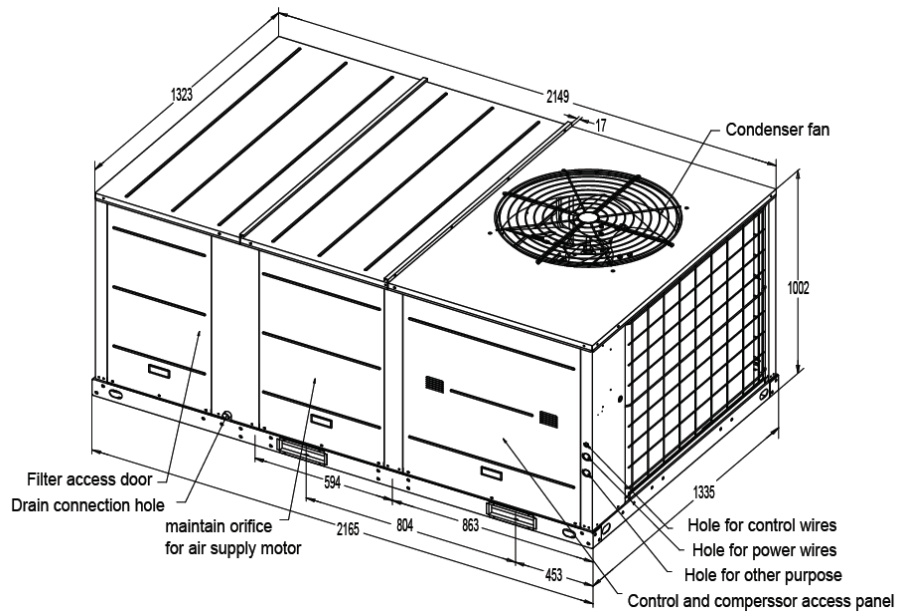
## 7.1 5ton



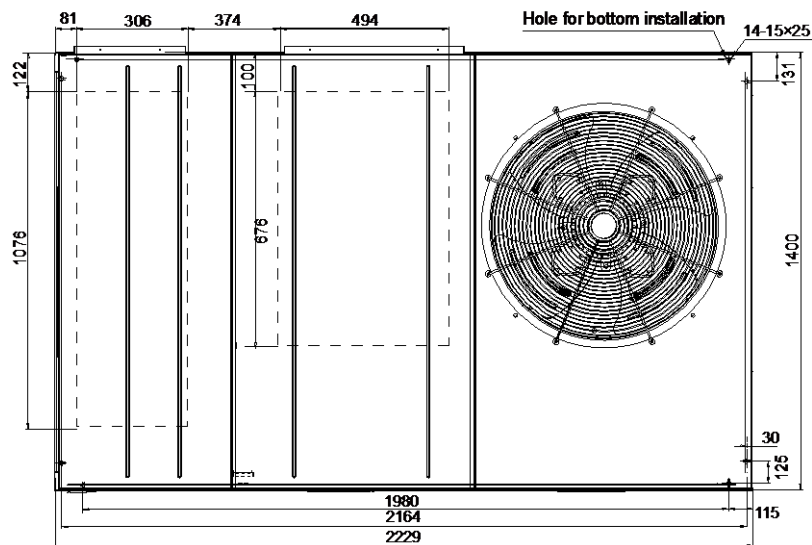
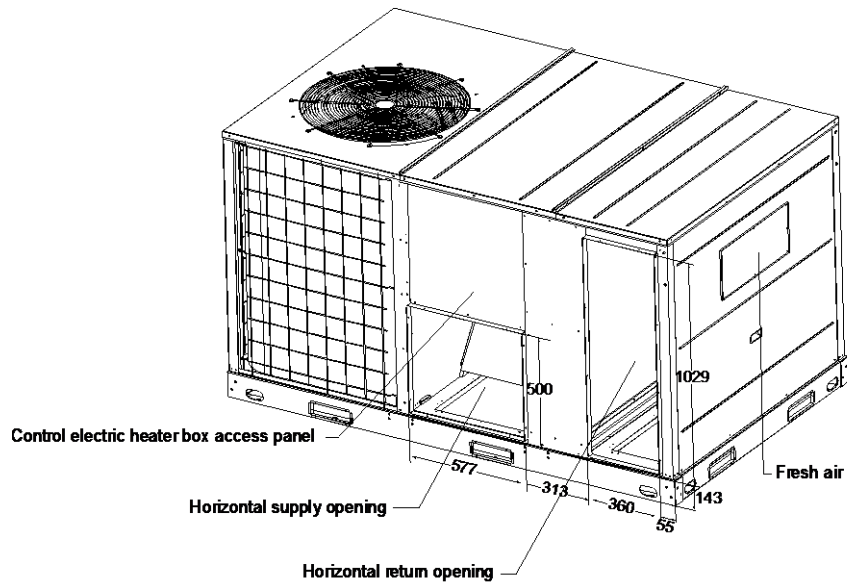
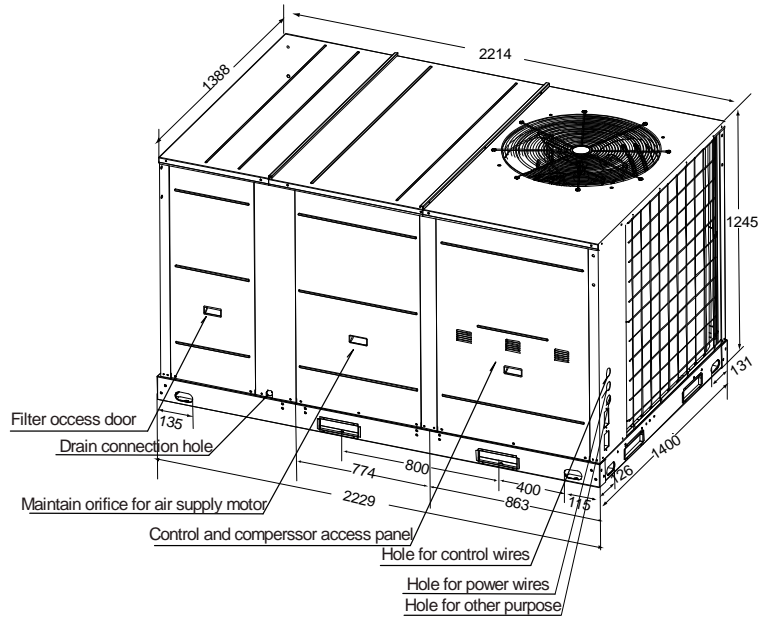
7.2 6.2&7.5ton



7.3 8.5&10ton

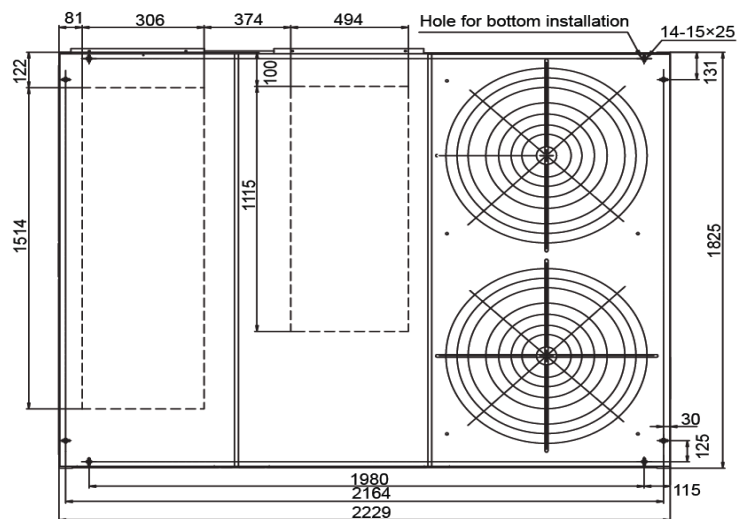
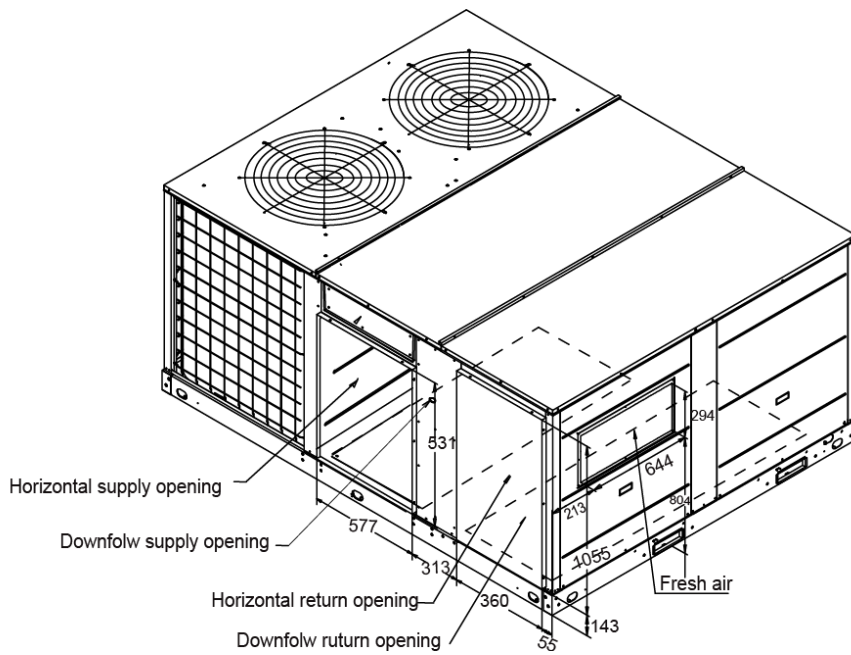
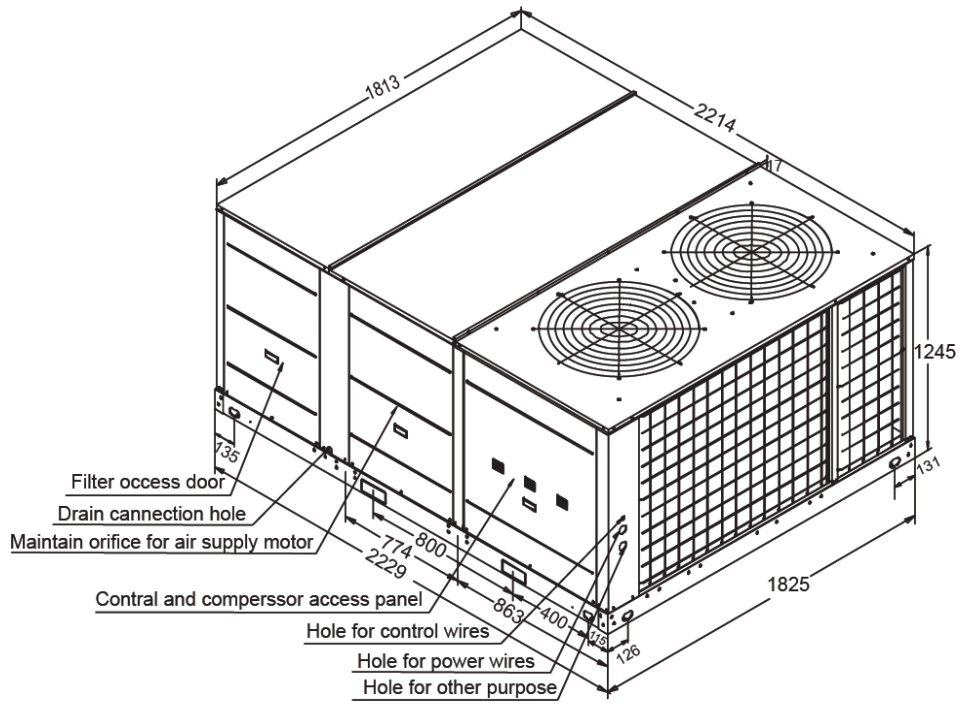


7.4 12.5ton

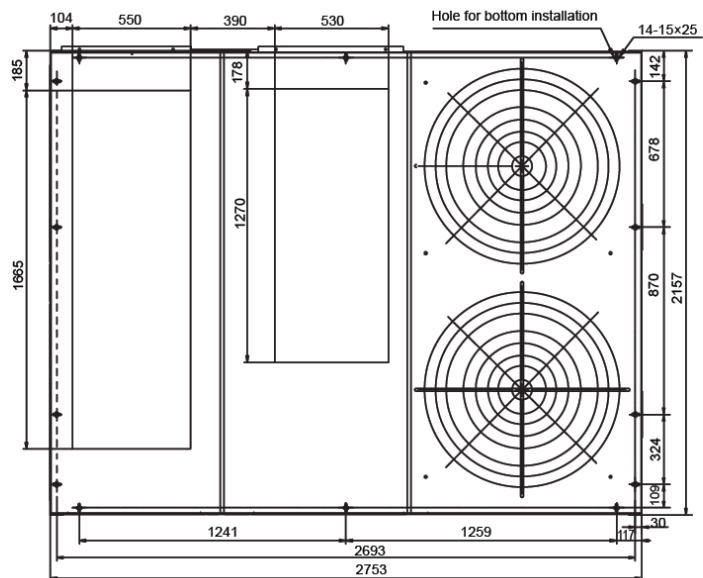
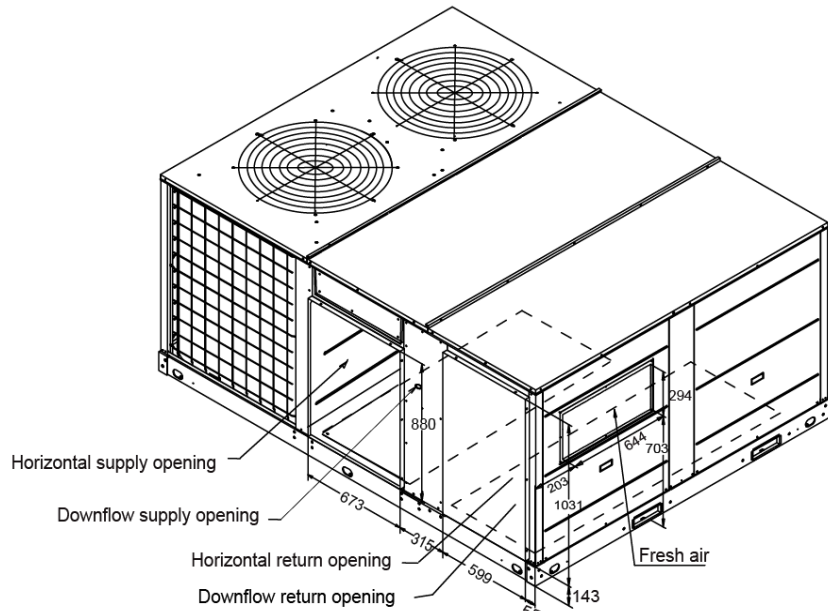
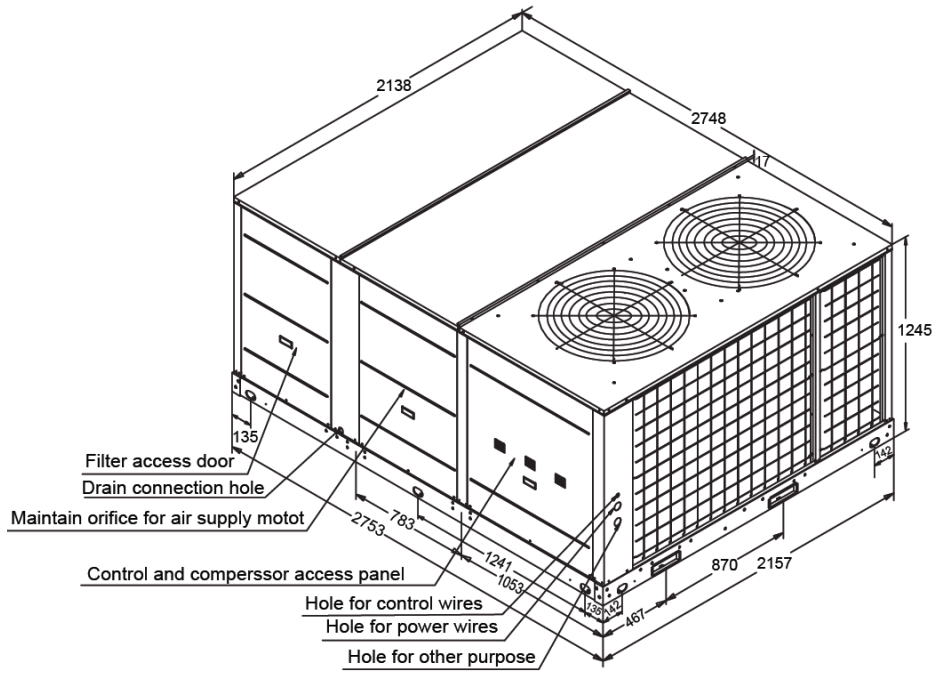




7.5 15&17.5ton



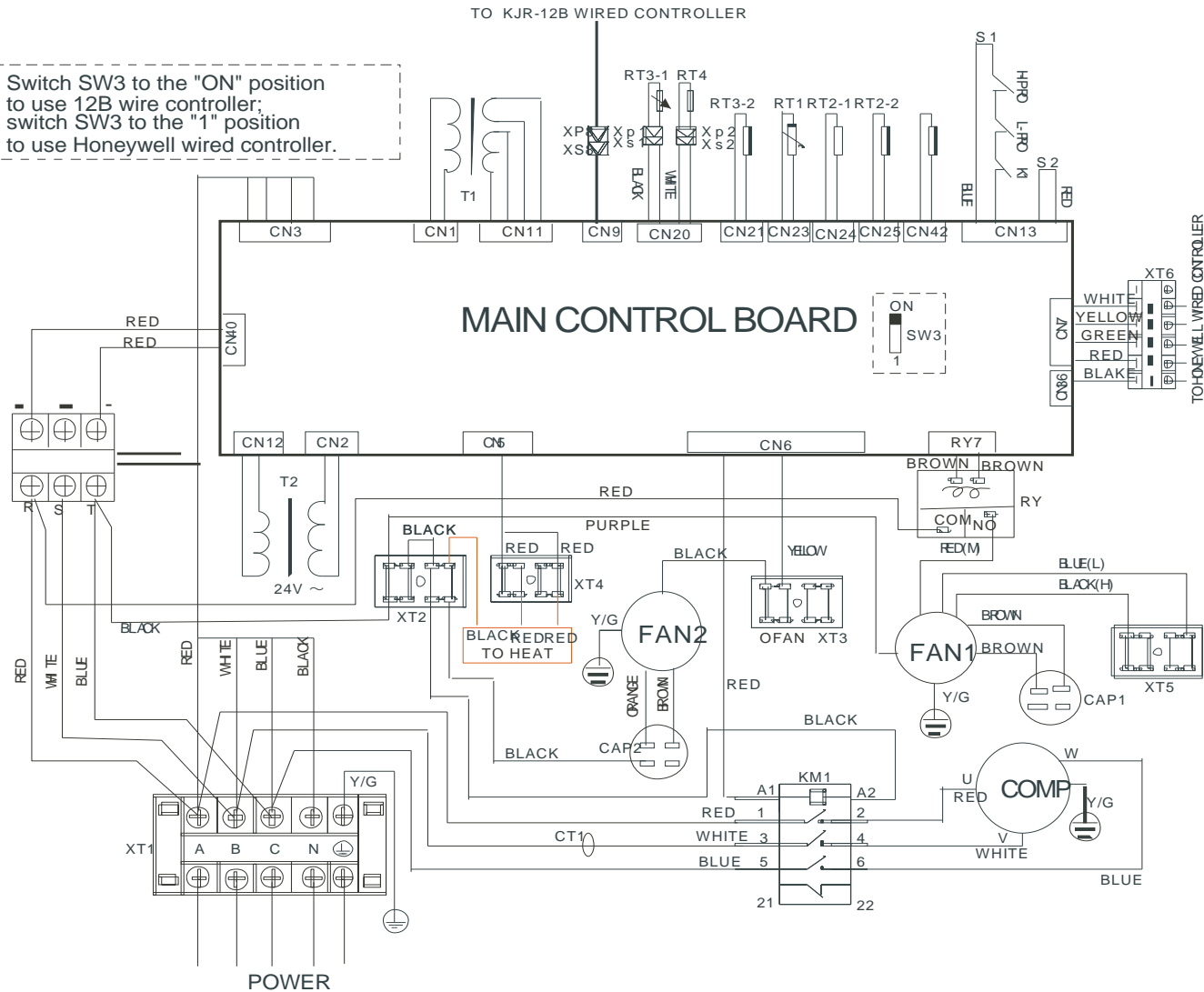
7.6 20ton



## 8. Wiring Diagram

### MRBT-60CWN1-D

Switch SW3 to the "ON" position to use 12B wire controller; switch SW3 to the "1" position to use Honeywell wired controller.



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WIRING DIAGRAM

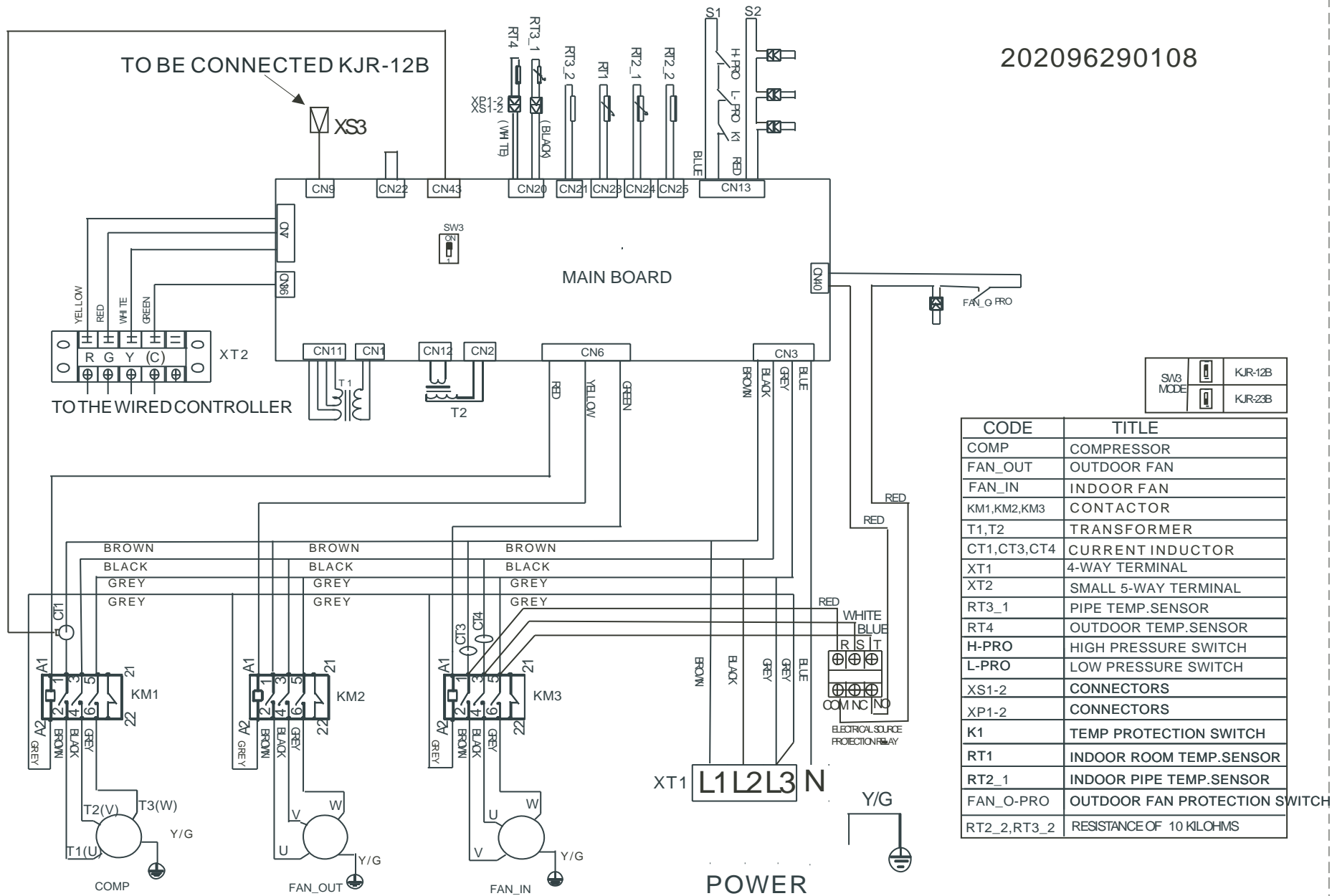
CODE	PART NAME
COMP	COMPRESSOR
FAN1	INDOOR FAN
FAN2	OUTDOOR FAN
CAP1	INDOOR FAN CAP
CAP2	OUTDOOR FAN CAP
XP1~2XP8	CONNECTORS
XS1~2XS8	CONNECTORS
RT1 RT3-1	TEMP.SENSOR
RT2-1 RT2-2 RT4CN42	10K RESISTANCE
KM1	AC CONTACTOR
T2	TRANSFORMER(24V~)
T1	TRANSFORMER
K1	COMP.TEMP. SWITCH
RY	RELAY
H/L-PRO	HIGH/LOW PRESS SWITCH
XT1	5-WAY TERMINAL
XT2-5	MIDDLE TERMINAL
Xt6	SMALL 6-WAY TERMINAL



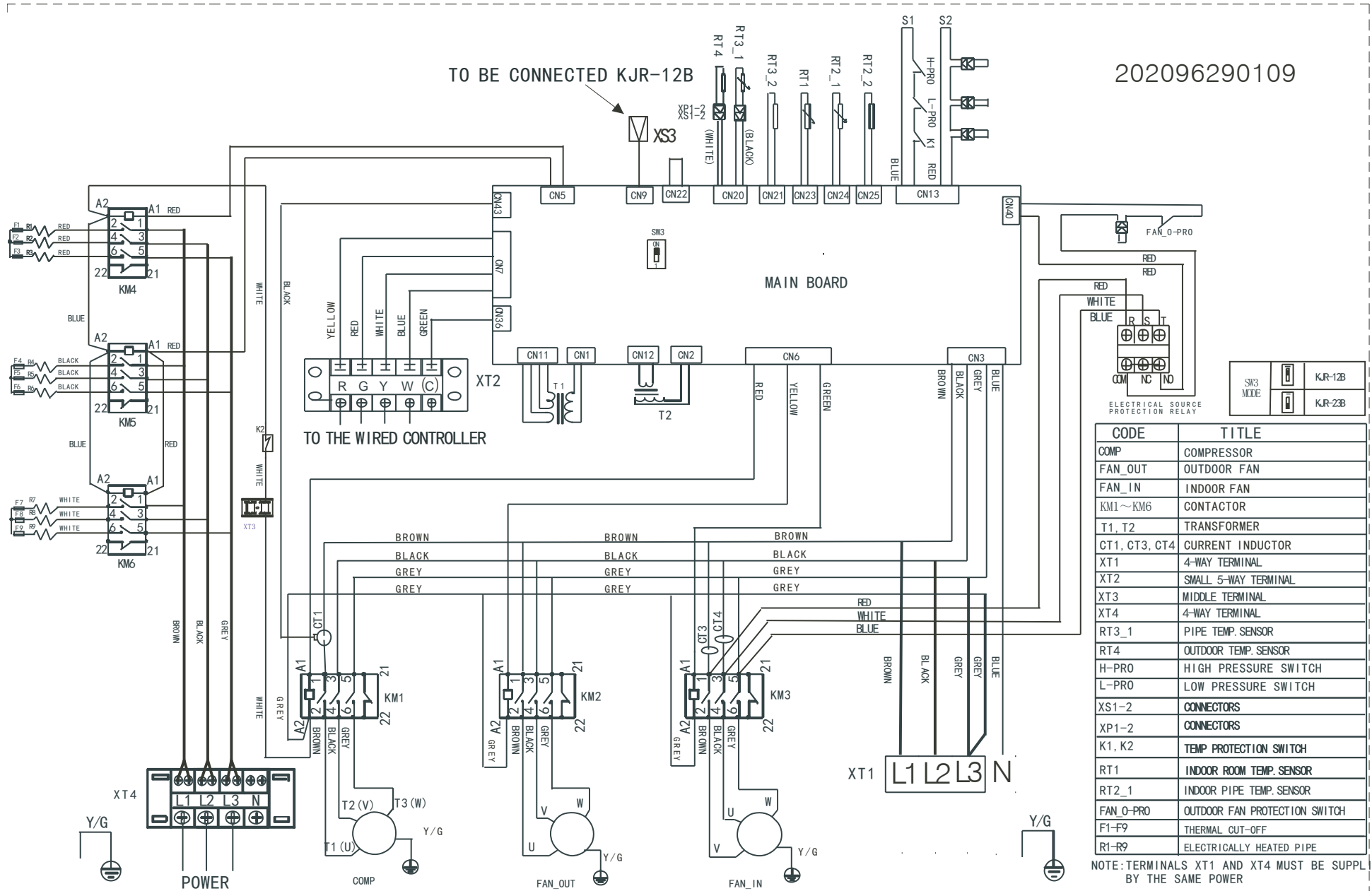


MRBT-085CWN1-D /MRBT-100CWN1-D

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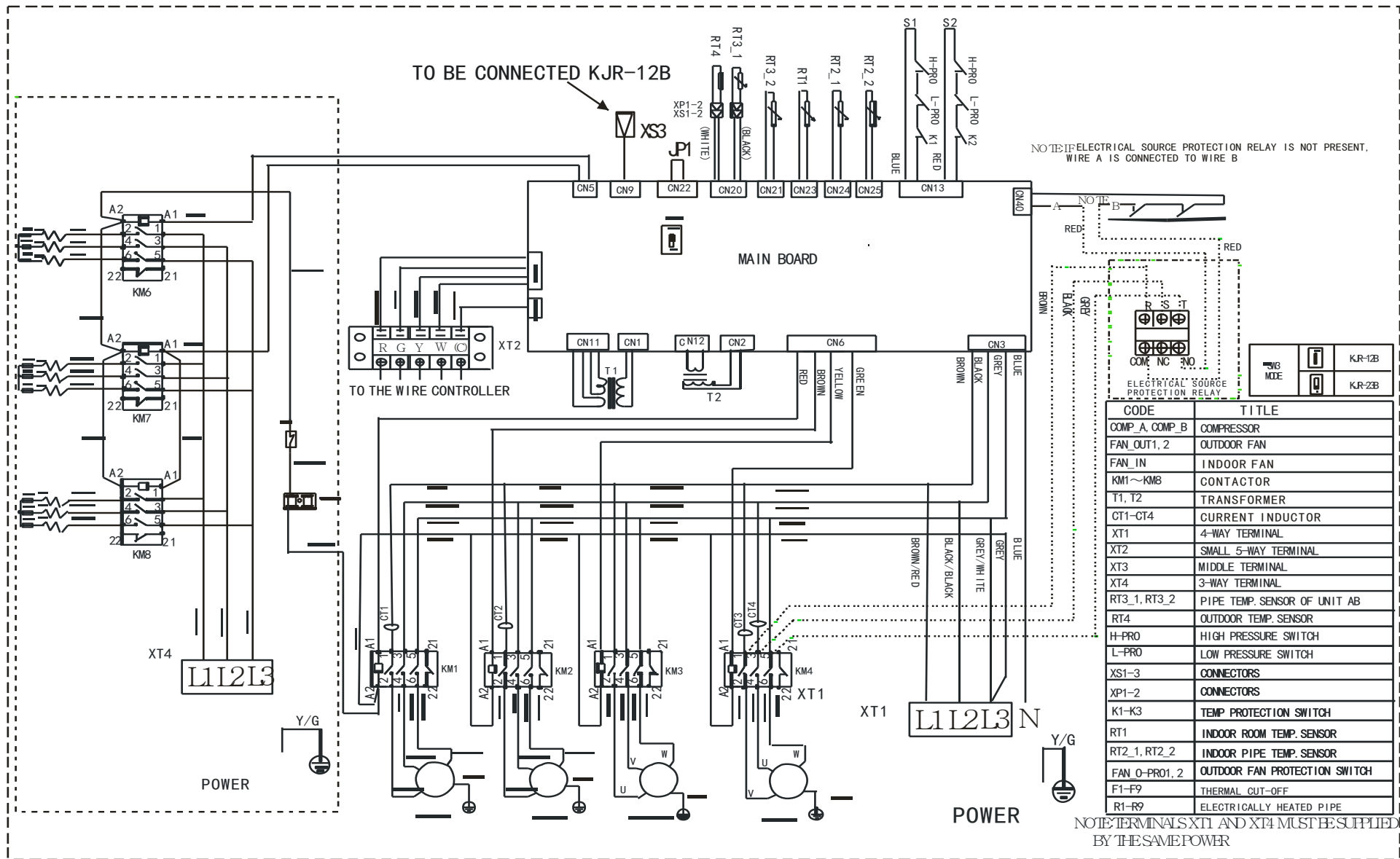


MRCT-085EWN1-D /MRCT-100EWN1-D



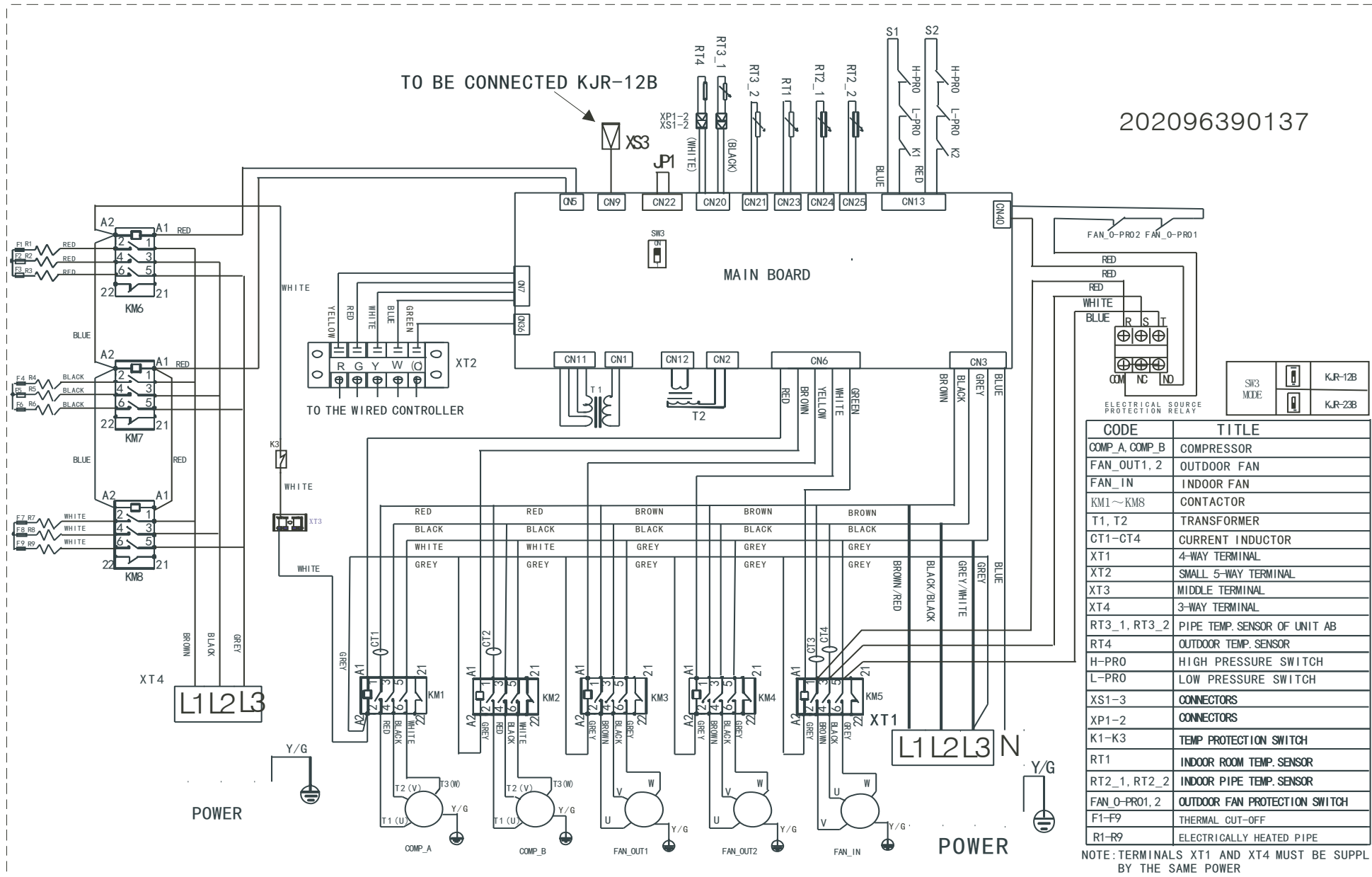


MRBT-125CWN1-D

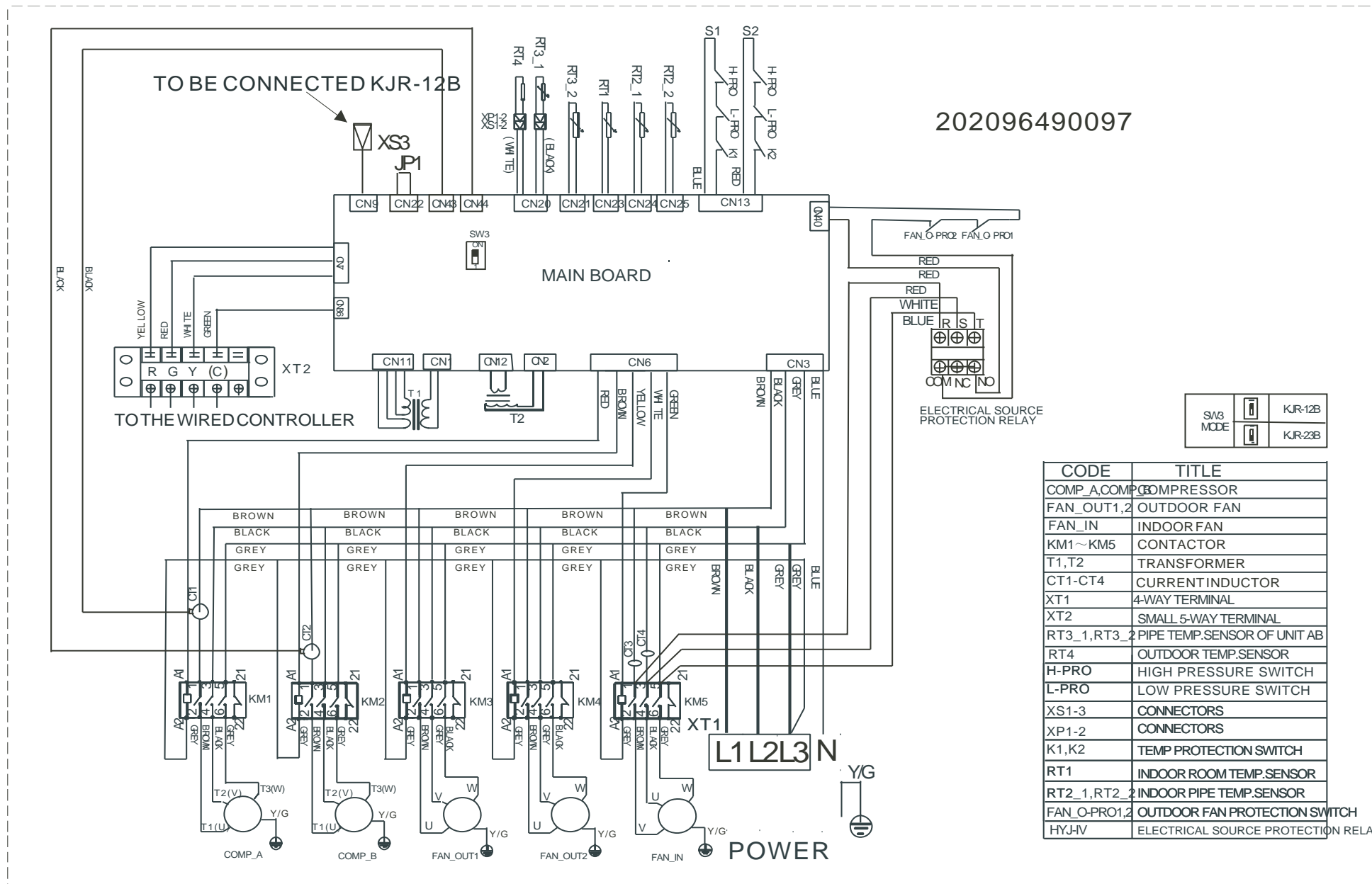




MRCT-150EWN1-D /MRCT-175EWN1-D

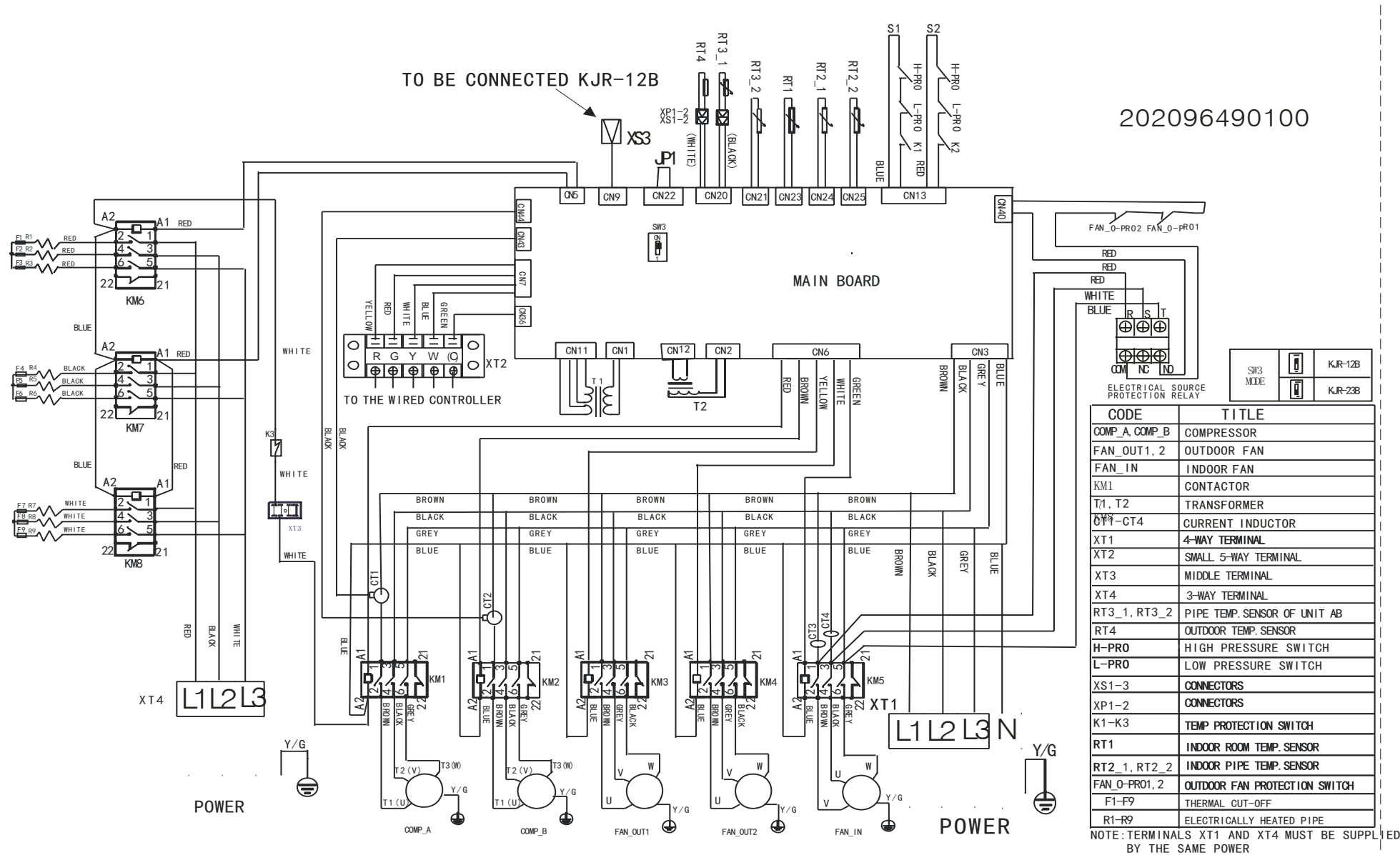


MRBT-200CWN1-D



MRCT-200EWN1-D

202096490100



## 9. Performance Data

### 9.1 Cooling capacity for 5Ton:

	Air Flow	CFM	1800				
			Ent DB	(°F)	75	80	85
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:

1. All capacities are gross and have not considered indoor fan heat. To obtain NET cooling capacity subtract indoor fan heat.
2. TGC=Total Gross Capacity. (Unit:1000Btu/h).
3. SHC=Sensible Heat Capacity. (Unit: 1000Btu/h).

**9.2 Cooling capacity for 6.2Ton:**

Air Flow (CFM)			2200				2400				2600				2800				
Ent (DB)		(°F)	75	80	85	90	75	80	85	90	75	80	85	90	75	80	85	90	
Ambient Temperature	85	61	TGC	63.4	64.8	66.2	67.6	67.5	68.9	70.4	72.0	69.2	70.7	72.2	73.8	70.6	72.1	73.7	75.3
			SHC	55.1	61.6	65.8	67.6	59.1	64.9	68.2	70.7	63.0	65.1	68.0	71.7	66.5	70.0	72.7	74.2
		67	TGC	73.8	75.4	77.0	78.7	74.7	76.4	78.0	79.7	75.4	77.0	78.7	80.4	75.9	77.5	79.2	81.0
			SHC	40.6	51.8	62.8	73.4	42.7	55.0	65.9	75.1	43.9	56.0	68.2	78.3	45.0	57.7	70.3	78.9
		73	TGC	77.0	78.7	80.4	82.1	77.5	79.2	80.9	82.6	77.7	79.4	81.1	82.9	78.0	79.7	81.3	83.1
			SHC	24.7	36.8	46.1	54.9	25.2	36.5	46.3	57.1	25.6	40.0	47.2	57.4	26.0	41.6	47.9	58.6
	95	61	TGC	60.1	61.5	62.8	64.2	62.1	63.5	64.9	66.4	64.1	65.5	67.0	68.4	65.8	67.2	68.7	70.2
			SHC	52.5	57.6	59.6	62.5	54.8	60.1	62.3	65.8	57.2	60.7	64.3	67.0	64.5	65.6	67.4	69.2
		67	TGC	66.0	67.5	69.0	70.4	67.3	73.1	75.3	76.5	70.9	75.0	76.6	78.0	72.5	76.6	79.0	79.8
			SHC	39.2	50.9	62.6	66.5	41.2	54.2	66.8	70.9	43.3	57.1	70.4	71.4	45.3	59.7	73.6	74.7
		73	TGC	76.4	78.0	79.7	81.4	76.8	78.5	80.2	81.9	77.1	78.8	80.5	82.2	77.0	78.7	80.4	82.1
			SHC	23.8	36.1	46.3	56.6	24.2	36.9	47.8	59.0	24.7	37.6	49.1	60.6	25.2	40.6	50.2	62.2
	105	61	TGC	54.6	55.8	57.1	58.3	56.6	57.8	59.1	60.4	58.3	59.6	61.0	62.3	59.9	61.3	62.6	64.0
			SHC	49.8	51.4	53.9	55.5	53.8	54.9	58.2	59.9	57.3	58.3	59.5	61.6	58.0	60.1	61.5	63.4
		67	TGC	65.0	66.5	67.9	69.4	66.6	68.1	69.6	71.1	67.9	69.4	70.9	72.5	69.0	70.5	72.0	73.6
			SHC	36.8	48.6	60.6	66.6	39.0	49.6	65.5	70.0	41.2	55.6	70.3	71.7	43.4	58.9	69.8	71.8
		73	TGC	74.2	75.8	77.5	79.1	74.2	75.8	77.4	79.1	75.4	77.0	78.7	80.4	75.8	77.4	79.1	80.8
			SHC	22.5	35.0	47.9	58.6	22.5	36.2	49.1	60.3	23.6	37.8	50.5	62.1	24.0	38.8	51.9	64.3
	115	61	TGC	48.9	50.0	51.1	52.2	50.5	51.6	52.7	53.9	52.7	53.8	55.0	56.3	54.6	55.8	57.1	58.3
			SHC	47.1	48.3	49.8	51.6	45.4	48.0	50.8	52.1	50.5	52.1	53.7	55.5	53.1	53.8	55.9	57.7
		67	TGC	58.5	59.8	61.1	62.5	60.0	61.4	62.7	64.1	61.4	62.7	64.1	65.5	62.6	63.9	65.4	66.8
			SHC	34.0	46.1	57.4	61.5	36.3	49.4	59.9	63.1	38.5	53.0	63.1	65.2	40.7	56.6	63.1	66.0
		73	TGC	70.4	72.0	73.6	75.2	66.4	67.8	69.3	70.9	72.2	73.8	75.4	77.0	72.8	74.4	76.0	77.6
			SHC	21.0	32.8	45.4	58.2	21.5	34.6	47.3	59.7	22.1	36.2	50.0	63.2	22.6	38.0	52.3	66.3
125	61	TGC	44.3	45.3	46.3	47.4	45.8	46.8	47.8	48.9	47.8	48.9	50.0	51.1	49.5	50.7	51.8	53.0	
		SHC	42.7	43.8	45.1	46.8	41.1	43.5	46.1	47.2	45.8	47.2	48.7	50.5	48.2	48.9	50.7	52.4	
	67	TGC	53.2	54.4	55.5	56.8	54.5	55.8	57.0	58.2	55.8	57.1	58.3	59.6	56.9	58.2	59.4	60.7	
		SHC	30.7	41.8	52.2	55.9	32.8	44.9	54.4	57.3	34.8	48.1	57.3	59.3	36.8	51.4	57.3	60.0	
	73	TGC	64.1	65.5	67.0	68.4	60.4	61.7	63.1	64.4	65.7	67.1	68.7	70.1	66.3	67.7	69.2	70.7	
		SHC	18.7	29.6	41.1	52.9	19.2	31.2	42.9	54.3	19.7	32.7	45.3	57.5	20.3	34.4	47.5	60.3	

- Notes: 1. All capacities are gross and have not considered indoor fan heat. To obtain NET cooling capacity subtract indoor fan heat.  
 2. TGC=Total Gross Capacity. (Unit: 1000Btu/h).  
 3. SHC=Sensible Heat Capacity. (Unit: 1000Btu/h).



**9.3 Cooling capacity for 7.5Ton:**

Air Flow (CFM)			2600				2800				3000				3200				
Ambient Temperature	Ent (DB)	(°F)	75	80	85	90	75	80	85	90	75	80	85	90	75	80	85	90	
			85	61	TGC	75.3	77.0	78.6	80.3	80.1	81.8	83.6	85.4	82.1	83.9	85.7	87.6	83.8	85.6
SHC	65.5	73.2			78.1	78.9	70.2	77.1	81.0	83.9	74.8	77.3	80.7	85.1	79.0	83.1	86.3	88.0	
67	TGC	87.6		89.5	91.4	93.4	88.7	90.6	92.6	94.6	89.5	91.4	93.4	95.4	90.1	92.0	94.0	96.1	
	SHC	48.4		61.6	74.6	87.1	50.8	65.4	78.2	89.1	52.3	66.6	81.0	92.9	53.6	68.6	83.5	93.6	
73	TGC	91.4		93.4	95.4	97.4	92.0	94.0	96.0	98.0	92.2	94.2	96.2	98.3	92.5	94.5	96.5	98.6	
	SHC	29.6		43.8	54.8	65.2	30.1	43.5	55.1	67.9	30.6	47.6	56.1	68.2	31.1	49.5	57.0	69.6	
95	61	TGC		71.4	73.0	74.6	76.2	73.8	75.4	77.1	78.8	76.1	77.8	79.5	81.2	78.1	79.8	81.5	83.3
		SHC		62.4	68.4	70.8	74.2	65.1	71.4	74.0	78.1	68.0	72.1	76.3	79.5	76.6	77.9	80.0	82.1
	67	TGC		78.4	80.1	81.9	83.6	79.9	86.8	89.4	90.8	84.2	89.0	90.9	92.6	86.0	90.9	93.7	94.7
		SHC		46.7	60.5	74.4	79.0	49.1	64.4	79.3	84.1	51.5	67.8	83.6	84.8	53.9	70.9	87.3	88.7
	73	TGC		90.6	92.6	94.6	96.6	91.1	93.1	95.1	97.1	91.5	93.5	95.5	97.5	91.4	93.4	95.4	97.4
		SHC		28.5	43.0	55.1	67.3	29.0	44.0	56.9	70.1	29.6	44.8	58.4	72.0	30.1	48.4	59.7	73.9
105	61	TGC		64.9	66.3	67.8	69.3	67.2	68.7	70.2	71.8	69.3	70.8	72.4	74.0	71.2	72.8	74.4	76.0
		SHC		59.2	61.1	64.1	66.0	64.0	65.2	69.1	71.2	68.1	69.3	70.7	73.2	68.9	71.4	73.1	75.3
	67	TGC		77.2	78.9	80.6	82.4	79.1	80.8	82.6	84.4	80.6	82.4	84.1	86.0	81.9	83.7	85.5	87.4
		SHC		43.8	57.8	72.0	79.1	46.5	59.0	77.8	83.1	49.1	66.1	83.4	85.1	51.6	70.0	82.9	85.2
	73	TGC		88.1	90.0	92.0	93.9	88.0	89.9	91.8	93.8	89.5	91.4	93.4	95.4	89.9	91.8	93.8	95.8
		SHC		27.0	41.7	57.0	69.6	26.9	43.2	58.4	71.6	28.2	45.0	60.0	73.7	28.7	46.2	61.7	76.3
115	61	TGC		58.1	59.4	60.7	62.1	60.0	61.3	62.7	64.1	62.6	64.0	65.4	66.9	64.9	66.3	67.8	69.3
		SHC		56.0	57.4	59.2	61.4	54.0	57.1	60.4	61.9	60.1	61.9	63.8	66.0	63.1	64.0	66.4	68.6
	67	TGC		69.5	71.0	72.6	74.2	71.3	72.9	74.5	76.1	72.9	74.5	76.1	77.8	74.3	75.9	77.6	79.3
		SHC		40.6	54.9	68.2	73.0	43.3	58.8	71.1	74.9	45.9	63.0	74.9	77.4	48.5	67.2	74.9	78.4
	73	TGC		83.6	85.4	87.3	89.2	78.8	80.5	82.3	84.1	85.7	87.6	89.5	91.4	86.4	88.3	90.2	92.1
		SHC		25.2	39.1	54.0	69.2	25.8	41.2	56.3	70.9	26.5	43.2	59.4	75.1	27.1	45.3	62.2	78.7
125	61	TGC	52.7	53.9	55.1	56.4	54.5	55.7	56.9	58.2	56.8	58.1	59.4	60.8	58.9	60.3	61.6	63.0	
		SHC	50.8	52.1	53.7	55.7	48.9	51.8	54.8	56.2	54.5	56.2	57.9	60.0	57.3	58.1	60.3	62.3	
	67	TGC	63.2	64.6	66.0	67.5	64.8	66.3	67.7	69.2	66.3	67.8	69.3	70.8	67.6	69.1	70.6	72.1	
		SHC	36.7	49.8	62.0	66.4	39.1	53.4	64.6	68.1	41.5	57.2	68.1	70.4	43.9	61.1	68.1	71.3	
	73	TGC	76.1	77.8	79.5	81.2	71.7	73.3	74.9	76.5	78.0	79.7	81.5	83.2	78.7	80.4	82.1	83.9	
		SHC	22.5	35.3	48.9	62.9	23.1	37.2	51.1	64.5	23.7	39.0	53.9	68.3	24.3	41.0	56.5	71.6	

- Notes: 1. All capacities are gross and have not considered indoor fan heat. To obtain NET cooling capacity subtract indoor fan heat.  
 2. TGC=Total Gross Capacity. (Unit:1000Btu/h).  
 3. SHC=Sensible Heat Capacity. (Unit: 1000Btu/h).

**9.4 Cooling capacity for 8.5Ton:**

Air Flow (CFM)			3000				3300				3600				3900				
Ent (DB)		(°F)	75	80	85	90	75	80	85	90	75	80	85	90	75	80	85	90	
Ambient Temperature	85	61	TGC	88.4	90.2	92.2	94.2	90.8	92.8	94.8	96.8	93.2	95.1	97.2	99.2	95.0	97.0	99.1	101.2
			SHC	76.3	77.9	79.6	81.3	81.8	83.6	85.4	87.2	86.9	88.8	90.7	92.6	91.6	93.6	95.6	97.6
		67	TGC	99.1	101.2	103.4	105.6	100.1	102.2	104.4	106.6	101.0	103.2	105.4	107.6	101.6	104.7	105.9	108.2
			SHC	56.0	72.2	86.1	100.3	58.1	74.1	90.0	103.4	60.2	76.7	93.2	105.1	61.5	78.8	95.6	105.8
		73	TGC	102.9	105.2	107.4	109.6	103.3	105.5	107.7	110.0	103.5	105.8	108.0	110.3	104.6	106.8	109.0	111.3
			SHC	34.2	48.9	61.5	75.0	34.7	49.7	62.9	76.2	35.3	55.1	63.9	77.6	35.9	58.1	65.5	80.1
	95	61	TGC	81.4	83.2	85.0	86.8	84.1	85.9	87.8	89.6	86.6	88.5	90.4	92.4	88.5	90.2	92.4	94.4
			SHC	72.8	74.4	75.9	77.6	78.3	80.0	81.8	83.6	83.6	85.4	87.3	89.2	79.4	81.2	83.0	84.8
		67	TGC	95.0	97.1	99.2	101.3	98.3	102.2	103.4	104.8	99.4	103.0	103.6	106.7	100.5	104.2	104.7	107.6
			SHC	54.0	70.3	86.4	99.1	57.0	74.6	91.0	99.8	59.6	78.4	96.4	103.4	62.0	81.8	101.0	103.2
		73	TGC	102.0	104.1	106.4	108.7	102.2	104.4	106.6	108.9	102.8	105.1	107.3	109.5	103.1	105.3	107.6	109.8
			SHC	33.0	49.4	63.2	77.1	33.8	50.5	65.6	80.6	34.0	51.2	66.8	83.0	34.8	52.2	68.6	84.8
	105	61	TGC	74.3	75.9	77.6	79.3	77.1	78.8	80.6	82.3	78.8	80.6	82.3	84.1	82.0	83.8	85.6	87.4
			SHC	69.2	70.8	72.3	73.9	74.9	76.5	78.2	79.9	73.4	75.0	76.6	78.2	80.0	81.8	83.6	85.4
		67	TGC	87.8	89.7	91.7	93.7	90.1	92.0	94.0	96.0	91.5	93.5	95.5	97.5	93.0	95.0	97.0	99.1
			SHC	51.2	67.4	84.1	92.4	54.4	72.2	90.8	94.4	56.9	77.6	92.3	94.1	60.0	81.4	92.4	97.3
		73	TGC	99.4	101.6	103.7	105.9	100.1	102.2	104.4	106.6	100.6	102.8	105.0	107.2	101.1	103.3	105.5	107.7
			SHC	31.3	47.5	62.7	77.6	32.0	49.5	66.4	82.2	32.5	51.2	67.8	84.8	33.0	53.0	71.5	87.9
	115	61	TGC	67.3	68.7	70.3	71.8	69.8	71.3	72.8	74.5	72.4	74.0	75.6	77.2	75.4	77.0	78.8	80.5
			SHC	65.8	67.3	68.7	70.3	67.2	68.6	70.2	71.7	70.6	72.2	73.7	75.3	74.1	75.8	77.4	79.1
		67	TGC	80.1	81.8	83.6	85.4	81.8	85.0	85.4	87.2	83.8	85.6	87.5	89.4	86.0	87.9	89.8	91.7
			SHC	47.7	64.6	80.8	82.5	51.0	68.9	83.6	85.4	54.0	74.0	85.3	88.0	56.8	78.7	87.8	89.7
		73	TGC	95.5	97.5	99.6	101.7	96.2	98.3	100.4	102.6	96.8	98.9	101.0	103.2	97.1	99.2	101.3	103.4
			SHC	29.5	45.8	62.0	77.9	30.1	48.2	65.6	82.5	30.8	50.6	68.6	87.0	31.3	52.5	71.5	89.9
125	61	TGC	60.6	61.9	63.2	64.7	62.8	64.2	65.6	67.1	65.2	66.7	68.6	69.6	68.0	69.4	71.0	72.5	
		SHC	59.2	60.5	61.9	63.2	60.5	61.8	63.2	64.6	63.6	65.0	66.4	67.9	66.8	68.2	69.8	71.3	
	67	TGC	72.2	73.8	75.4	77.0	73.7	77.2	77.5	78.7	75.6	77.4	78.9	80.6	77.6	79.3	81.0	82.8	
		SHC	42.8	58.1	72.8	74.5	45.8	62.0	75.3	77.0	48.5	66.6	76.9	79.4	51.1	70.9	79.3	81.0	
	73	TGC	86.2	88.0	89.9	91.9	86.9	88.8	90.7	92.6	87.4	89.3	91.3	93.2	87.7	89.6	91.4	93.4	
		SHC	26.2	41.0	55.7	70.2	26.7	43.3	59.0	74.4	27.3	45.3	61.8	78.5	27.8	47.1	64.4	81.2	

- Notes:
1. All capacities are gross and have not considered indoor fan heat. To obtain NET cooling capacity subtract indoor fan heat.
  2. TGC=Total Gross Capacity. (Unit: 1000Btu/h).
  3. SHC=Sensible Heat Capacity. (Unit: 1000Btu/h).

**9.5 Cooling capacity for 10Ton:**

Air Flow (CFM)			3600				3800				4000				4200				
Ent (DB)		(°F)	75	80	85	90	75	80	85	90	75	80	85	90	75	80	85	90	
Ambient Temperature	85	61	TGC	104.1	106.3	108.6	110.9	107.0	109.3	111.6	114.0	109.7	112.0	114.4	116.8	111.8	114.2	116.6	119.1
			SHC	90.0	91.9	93.9	95.9	96.4	98.5	100.6	102.7	102.4	104.6	106.8	109.1	107.9	110.2	112.5	114.9
		67	TGC	116.6	119.1	121.6	124.2	117.8	120.3	122.8	125.4	118.9	121.4	124.0	126.6	119.5	123.2	124.6	127.2
			SHC	66.4	85.2	101.5	118.0	68.8	87.5	106.0	121.7	71.2	90.5	109.7	123.6	72.8	92.9	112.6	124.4
		73	TGC	121.1	123.7	126.3	128.9	121.5	124.1	126.7	129.4	121.8	124.4	127.0	129.7	123.0	125.6	128.2	130.9
			SHC	40.9	58.1	72.8	88.5	41.5	59.0	74.4	89.9	42.2	65.3	75.6	91.6	42.9	68.8	77.4	94.5
	95	61	TGC	96.0	98.1	100.2	102.3	99.1	101.2	103.4	105.6	102.1	104.3	106.5	108.8	104.3	106.5	108.8	111.1
			SHC	85.9	87.8	89.6	91.6	92.4	94.4	96.4	98.5	98.6	100.7	102.9	105.1	93.7	95.7	97.8	99.9
		67	TGC	111.9	114.3	116.7	119.2	115.7	120.2	121.7	123.3	117.0	121.2	121.9	125.5	118.3	122.6	123.2	126.5
			SHC	64.0	83.0	101.8	116.6	67.5	88.0	107.2	117.5	70.6	92.5	113.5	121.6	73.4	96.4	118.9	121.4
		73	TGC	120.0	122.5	125.1	127.8	120.3	122.8	125.4	128.1	121.0	123.6	126.2	128.8	121.3	123.9	126.5	129.1
			SHC	39.5	58.6	74.7	91.0	40.4	59.9	77.5	95.1	40.7	60.8	79.0	97.9	41.6	61.9	81.1	100.0
	105	61	TGC	87.7	89.6	91.5	93.5	91.0	93.0	95.0	97.0	93.0	95.0	97.0	99.1	96.7	98.8	100.9	103.0
			SHC	81.8	83.6	85.4	87.2	88.4	90.3	92.2	94.2	86.6	88.5	90.4	92.3	94.4	96.4	98.5	100.6
		67	TGC	103.5	105.7	108.0	110.3	106.1	108.4	110.7	113.0	107.8	110.1	112.4	114.8	109.5	111.8	114.2	116.6
			SHC	60.8	79.6	99.1	108.8	64.5	85.3	106.9	111.1	67.4	91.5	108.7	110.8	71.0	96.0	108.8	114.5
		73	TGC	117.0	119.5	122.0	124.6	117.8	120.3	122.8	125.4	118.4	120.9	123.5	126.1	119.0	121.5	124.1	126.7
			SHC	37.5	56.4	74.2	91.5	38.4	58.8	78.5	96.9	38.9	60.7	80.1	100.0	39.5	62.9	84.4	103.6
	115	61	TGC	79.5	81.2	83.0	84.8	82.4	84.2	86.0	87.9	85.5	87.3	89.2	91.1	89.0	90.9	92.9	94.9
			SHC	77.8	79.5	81.2	83.0	79.4	81.1	82.9	84.7	83.4	85.2	87.0	88.9	87.5	89.4	91.3	93.3
		67	TGC	94.5	96.5	98.6	100.7	96.4	100.2	100.6	102.7	98.8	100.9	103.1	105.3	101.4	103.6	105.8	108.0
			SHC	56.7	76.4	95.3	97.3	60.5	81.4	98.5	100.6	64.0	87.3	100.5	103.7	67.3	92.8	103.5	105.7
		73	TGC	112.4	114.8	117.2	119.7	113.3	115.7	118.2	120.7	114.0	116.4	118.9	121.4	114.3	116.7	119.2	121.7
			SHC	35.4	54.5	73.3	91.9	36.1	57.3	77.5	97.3	36.9	60.0	81.1	102.5	37.5	62.3	84.4	105.9
125	61	TGC	71.7	73.2	74.8	76.5	74.3	75.9	77.6	79.3	77.1	78.8	80.5	82.2	80.3	82.0	83.8	85.6	
		SHC	70.1	71.6	73.2	74.8	71.6	73.1	74.7	76.4	75.2	76.8	78.5	80.2	78.9	80.6	82.4	84.2	
	67	TGC	85.3	87.1	89.0	90.9	87.0	91.1	91.4	92.8	89.2	91.3	93.1	95.1	91.6	93.5	95.5	97.6	
		SHC	50.9	68.8	86.0	87.9	54.4	73.4	88.9	90.8	57.6	78.7	90.7	93.7	60.6	83.7	93.5	95.5	
	73	TGC	101.6	103.7	105.9	108.2	102.4	104.6	106.8	109.1	103.0	105.2	107.5	109.7	103.3	105.5	107.7	110.0	
		SHC	31.6	48.9	66.0	82.9	32.2	51.5	69.8	87.8	32.9	53.9	73.1	92.6	33.5	56.0	76.1	95.7	

- Notes:
1. All capacities are gross and have not considered indoor fan heat. To obtain NET cooling capacity subtract indoor fan heat.
  2. TGC=Total Gross Capacity. (Unit: 1000Btu/h).
  3. SHC=Sensible Heat Capacity. (Unit: 1000Btu/h).

**9.6 Cooling capacity for 12.5Ton:**

Ambient Temperature	AirFlow (CFM)			4600				5100				5600				6100			
	Ent	DB	(F)	75	80	85	90	75	80	85	90	75	80	85	90	75	80	85	90
				TGC	SHC	TGC	SHC	TGC	SHC	TGC	SHC	TGC	SHC	TGC	SHC	TGC	SHC	TGC	SHC
85	61		TGC	1295	1321	1349	1376	1330	1357	1385	1414	1362	1390	1418	1447	1387	1416	1445	1475
			SHC	1126	1148	1172	1196	1202	1228	1253	1278	1274	1301	1327	1355	1340	1368	1396	1424
	67		TGC	1445	1475	1505	1536	1459	1489	1519	1550	1472	1502	1534	1565	1480	1524	1541	1572
			SHC	842	1068	1264	1462	871	1096	1318	1506	900	1132	1362	1529	919	1160	1397	1538
	73		TGC	1499	1530	1561	1592	1504	1535	1566	1598	1507	1538	1570	1602	1522	1553	1584	1616
			SHC	536	743	919	1108	544	754	938	1124	552	829	953	1145	560	871	974	1180
95	61		TGC	1198	1223	1248	1273	1235	1260	1286	1313	1271	1297	1324	1351	1297	1321	1351	1379
			SHC	1076	1099	1121	1145	1154	1178	1202	1228	1229	1254	1280	1307	1170	1194	1219	1244
	67		TGC	1388	1417	1446	1476	1434	1488	1506	1525	1450	1500	1508	1552	1465	1517	1524	1564
			SHC	814	1042	1267	1445	856	1102	1332	1456	893	1156	1408	1505	926	1202	1472	1502
	73		TGC	1486	1516	1547	1579	1489	1519	1550	1583	1498	1529	1560	1591	1501	1532	1564	1595
			SHC	520	749	942	1138	530	764	976	1187	534	775	994	1220	545	788	1019	1246
105	61		TGC	1098	1121	1144	1168	1138	1162	1186	1210	1162	1186	1210	1235	1206	1231	1256	1282
			SHC	1027	1049	1070	1092	1106	1129	1152	1176	1085	1108	1130	1153	1178	1202	1228	1253
	67		TGC	1288	1314	1342	1369	1319	1346	1374	1402	1339	1367	1394	1423	1360	1387	1416	1445
			SHC	775	1001	1235	1351	820	1069	1328	1379	854	1144	1350	1375	898	1198	1351	1420
	73		TGC	1450	1480	1510	1541	1459	1489	1519	1550	1466	1496	1528	1559	1474	1504	1535	1566
			SHC	496	722	936	1144	506	751	988	1208	512	774	1007	1246	520	800	1058	1289
115	61		TGC	1000	1020	1042	1063	1034	1056	1078	1100	1072	1093	1116	1139	1114	1136	1160	1184
			SHC	979	1000	1020	1042	998	1019	1040	1062	1046	1068	1090	1112	1096	1118	1141	1165
	67		TGC	1180	1204	1229	1254	1202	1248	1253	1278	1231	1256	1283	1309	1262	1289	1315	1342
			SHC	726	962	1189	1213	772	1022	1228	1253	814	1093	1252	1290	853	1159	1288	1314
	73		TGC	1394	1423	1452	1482	1405	1434	1464	1494	1414	1442	1472	1502	1417	1446	1476	1506
			SHC	470	700	925	1148	479	733	976	1213	488	766	1019	1276	496	793	1058	1316
125	61		TGC	906	924	943	964	937	956	977	997	971	991	1018	1032	1009	1030	1051	1073
			SHC	887	905	924	943	905	923	942	962	948	967	988	1008	992	1013	1034	1056
	67		TGC	1069	1091	1114	1136	1090	1139	1142	1159	1116	1141	1163	1187	1145	1168	1192	1217
			SHC	656	871	1078	1100	698	926	1112	1135	737	990	1134	1170	773	1050	1168	1192
	73		TGC	1265	1290	1316	1344	1274	1301	1327	1355	1282	1308	1336	1362	1285	1312	1338	1366
			SHC	425	632	838	1040	432	664	883	1099	440	692	923	1157	448	718	959	1194

- Notes: 1. All capacities are gross and have not considered indoor fan heat. To obtain NET cooling capacity subtract indoor fan heat.  
 2. TGC=Total Gross Capacity. (Unit:1000Btu/h).  
 3. SHC=Sensible Heat Capacity. (Unit: 1000Btu/h).

**9.7 Cooling capacity for 15Ton:**

AirFlow (CFM)		5400				6000				6600				7200					
Ent (DB)		(°F)	75	80	85	90	75	80	85	90	75	80	85	90	75	80	85	90	
Ambient Temperature	85	61	TGC	157.1	159.1	166.4	176.2	161.5	165.1	172.5	182.2	163.4	167.7	178.6	187.1	170.1	172.5	182.3	189.6
			SHC	125.0	149.3	159.5	168.8	132.2	159.1	167.1	176.5	139.6	160.7	171.2	179.4	145.8	165.3	174.8	181.7
		67	TGC	176.8	179.0	181.1	183.7	182.2	183.5	184.6	185.9	184.5	186.0	187.1	188.6	186.0	187.1	189.6	190.8
			SHC	98.2	121.3	143.3	166.4	102.8	126.2	150.6	173.7	104.7	129.9	155.5	181.1	107.2	133.6	160.3	187.1
		73	TGC	187.1	190.8	193.3	195.7	189.3	192.0	195.7	198.0	191.8	194.5	196.8	199.3	194.5	197.7	200.1	202.6
			SHC	65.7	90.3	110.5	129.9	67.1	92.5	113.1	132.1	68.4	93.4	115.1	137.2	69.6	94.5	116.6	141.1
	95	61	TGC	146.9	150.6	158.0	168.9	148.8	155.5	165.2	174.9	154.3	158.0	170.1	179.8	158.0	164.0	174.9	183.5
			SHC	118.8	143.3	153.0	163.6	126.2	150.6	160.1	169.5	133.6	153.0	164.8	174.3	139.6	158.9	169.5	177.8
		67	TGC	165.2	167.7	170.1	173.7	172.5	173.5	176.2	177.4	178.6	180.0	181.2	182.2	179.2	181.7	183.3	191.4
			SHC	93.4	116.5	139.6	162.7	97.6	122.5	147.0	172.5	101.6	126.3	154.3	179.8	104.6	132.4	160.3	182.4
		73	TGC	182.3	184.6	187.0	189.6	183.7	185.7	188.7	192.0	185.4	187.8	190.3	191.5	189.1	192.8	195.2	197.7
			SHC	62.5	86.6	108.3	128.7	64.0	89.8	111.3	133.6	65.3	91.4	114.2	137.2	66.7	93.0	116.5	140.9
	105	61	TGC	136.2	139.9	147.3	159.6	141.1	144.8	157.1	164.5	143.6	149.7	163.2	172.1	147.3	155.9	168.2	178.0
			SHC	113.1	134.0	141.1	152.9	121.4	138.7	150.5	157.6	128.8	145.0	158.1	166.7	133.6	151.0	162.9	172.5
		67	TGC	157.1	159.6	163.2	164.5	158.3	162.0	166.9	169.4	166.9	169.4	171.9	174.3	170.6	173.1	175.5	180.0
			SHC	88.1	111.6	134.8	159.2	102.5	117.7	143.3	164.1	96.1	123.8	150.6	168.9	99.8	128.7	158.0	178.0
		73	TGC	179.2	180.5	181.7	182.9	181.7	182.9	184.2	186.6	184.2	185.4	186.6	187.8	185.4	186.6	187.8	190.3
			SHC	59.1	82.7	105.2	126.3	60.5	85.8	109.0	132.4	61.8	88.8	112.1	135.9	63.1	90.1	115.0	142.3
	115	61	TGC	123.9	128.8	141.1	153.4	127.6	135.0	147.3	159.6	131.3	133.9	144.4	165.7	135.0	144.8	158.3	169.4
			SHC	108.0	124.7	136.7	148.6	115.1	129.3	141.1	152.9	121.4	129.7	139.9	160.5	120.8	140.3	153.4	164.1
		67	TGC	147.3	149.7	150.9	154.4	148.5	152.2	154.6	157.1	157.1	159.6	163.2	167.5	160.8	163.2	165.7	169.4
			SHC	91.9	106.9	130.0	153.4	96.8	113.4	138.6	157.1	101.7	119.0	144.8	162.3	95.3	125.1	154.6	165.9
		73	TGC	166.9	169.4	171.9	173.1	171.9	174.3	175.5	176.8	175.5	176.8	178.0	179.2	176.8	178.0	179.2	180.5
			SHC	55.6	79.1	102.4	125.1	57.0	83.3	106.7	130.0	59.9	85.8	111.6	137.4	59.9	89.4	114.0	139.9
125	61	TGC	118.9	123.6	135.4	145.6	122.4	129.5	141.3	153.2	126.0	134.2	147.3	159.1	129.5	139.0	152.0	162.6	
		SHC	103.6	119.7	131.2	141.0	110.5	125.4	136.9	148.4	116.5	130.0	142.6	154.1	115.9	133.2	145.6	155.9	
	67	TGC	141.3	143.7	144.9	147.3	142.5	146.1	148.4	150.8	150.8	153.2	156.7	160.6	154.3	156.7	159.1	164.6	
		SHC	88.1	102.5	124.8	147.3	92.8	108.8	133.1	146.1	97.6	114.1	139.0	155.6	91.4	120.0	148.4	159.5	
	73	TGC	160.3	162.6	165.0	166.2	165.0	167.4	168.5	169.7	168.5	169.7	170.9	172.1	169.7	170.9	172.1	173.3	
		SHC	53.2	75.8	98.2	120.0	54.5	79.8	102.3	124.8	57.4	82.2	107.0	131.9	57.4	85.8	109.4	134.2	

- Notes:
1. All capacities are gross and have not considered indoor fan heat. To obtain NET cooling capacity subtract indoor fan heat.
  2. TGC=Total Gross Capacity. (Unit: 1000Btu/h).
  3. SHC=Sensible Heat Capacity. (Unit: 1000Btu/h).

**9.8 Cooling capacity for 17.5Ton:**

		AirFlow (CFM)		7000				7300				7600				7900			
		Ent (DB)	(°F)	75	80	85	90	75	80	85	90	75	80	85	90	75	80	85	90
Ambient Temperature	85	61	TGC	1862	1885	1969	2081	1912	1954	2039	2150	1934	1983	2108	2206	201.1	2039	215.1	2235
			SHC	1494	1773	1889	1996	1576	1885	1977	2084	1661	1903	2024	2118	1732	1956	2065	2144
		67	TGC	2088	2113	2137	2167	2150	2165	2177	2192	2176	2193	2206	2223	2193	2206	2235	2248
			SHC	1187	145.1	170.4	196.9	1239	1508	178.7	205.2	126.1	155.0	184.4	213.7	1290	159.2	189.9	220.6
		73	TGC	2206	2248	2277	2305	2231	2262	2305	2331	2260	2291	231.7	234.6	229.1	232.7	235.5	238.4
			SHC	81.4	109.6	132.8	155.0	830	112.1	135.7	157.5	84.5	113.2	138.0	163.4	85.9	114.4	139.8	167.8
	95	61	TGC	1745	178.7	187.2	199.7	176.7	184.4	195.5	206.6	183.0	187.2	201.1	212.2	187.2	194.1	206.6	216.5
			SHC	1423	170.4	181.5	193.6	150.8	178.7	189.6	200.4	159.2	181.5	195.0	205.9	166.1	188.3	200.4	209.9
		67	TGC	1955	198.3	201.1	205.2	2039	205.0	208.1	209.5	210.8	212.5	213.8	215.0	211.5	214.4	216.2	225.5
			SHC	1132	139.6	166.1	192.6	1180	146.5	174.6	203.9	122.6	150.9	183.0	212.2	126.0	157.9	189.9	215.2
		73	TGC	215.1	217.7	220.5	223.5	216.7	219.0	222.4	226.2	218.6	221.4	224.3	225.6	222.9	227.1	229.9	232.7
			SHC	77.7	105.4	130.2	153.6	79.4	109.0	133.7	159.2	80.9	110.9	137.0	163.4	82.5	112.7	139.6	167.6
	105	61	TGC	1622	166.5	175.0	189.1	167.8	172.1	186.2	194.7	170.7	177.7	193.2	205.9	175.0	184.8	198.9	210.2
			SHC	135.7	159.7	167.8	181.4	145.3	165.1	178.6	186.8	153.7	172.3	187.3	197.2	159.2	179.2	192.8	203.9
		67	TGC	1862	189.1	193.2	194.7	187.6	191.8	197.4	200.3	197.4	200.3	203.2	205.9	201.7	204.5	207.3	212.5
			SHC	107.1	134.0	160.6	188.6	123.6	141.0	170.4	194.2	116.2	148.0	178.7	199.7	120.5	153.6	187.2	210.2
		73	TGC	211.5	213.0	214.4	215.8	214.4	215.8	217.3	220.0	217.3	218.6	220.0	221.4	218.6	220.0	221.4	224.3
			SHC	73.8	100.9	126.7	150.9	75.4	104.4	131.0	157.9	76.9	107.9	134.6	161.9	78.4	109.4	137.9	169.2
	115	61	TGC	148.1	153.7	167.8	182.0	152.4	160.9	175.0	189.1	156.6	159.6	171.6	196.1	160.9	172.1	187.6	200.3
			SHC	129.9	149.0	162.8	176.4	138.0	154.3	167.8	181.4	145.3	154.8	167.0	190.1	144.6	166.9	182.0	194.2
		67	TGC	175.0	177.7	179.1	182.0	176.3	180.6	183.3	186.2	186.2	189.1	193.2	198.1	190.4	193.2	196.1	200.3
			SHC	111.4	128.6	155.1	182.0	117.1	136.1	165.0	186.2	122.7	142.5	172.1	192.2	115.3	149.5	183.3	196.3
		73	TGC	197.4	200.3	203.2	204.5	203.2	205.9	207.3	208.8	207.3	208.8	210.2	211.5	208.8	210.2	211.5	213.0
			SHC	69.8	96.8	123.5	149.5	71.4	101.6	128.4	155.1	74.7	104.4	134.0	163.6	74.7	108.6	136.8	166.5
125	61	TGC	142.4	147.8	161.3	173.0	146.4	154.5	168.1	181.7	150.5	159.9	175.0	188.5	154.5	165.4	180.3	192.5	
		SHC	124.8	143.3	156.5	167.7	132.8	149.8	163.0	176.2	139.6	155.1	169.6	182.8	139.0	158.8	173.0	184.8	
	67	TGC	168.1	170.8	172.2	175.0	169.5	173.6	176.2	179.0	179.0	181.7	185.7	190.2	183.0	185.7	188.5	194.8	
		SHC	99.0	123.6	149.2	175.0	112.1	130.8	158.7	173.6	118.0	136.9	165.4	184.5	110.9	143.7	176.2	188.9	
	73	TGC	189.9	192.5	195.3	196.6	195.3	198.0	199.3	200.6	199.3	200.6	202.0	203.4	200.6	202.0	203.4	204.8	
		SHC	67.1	93.0	118.7	143.7	68.5	97.6	123.4	149.2	71.9	100.3	128.7	157.3	71.9	104.4	131.5	159.9	

- Notes:
1. All capacities are gross and have not considered indoor fan heat. To obtain NET cooling capacity subtract indoor fan heat.
  2. TGC=Total Gross Capacity. (Unit: 1000Btu/h).
  3. SHC=Sensible Heat Capacity. (Unit: 1000Btu/h).

**9.9 Cooling capacity for 20Ton:**

AirFlow (CFM)		6800				7600				8400				9200					
Ent (DB)		(°F)	75	80	85	90	75	80	85	90	75	80	85	90	75	80	85	90	
Ambient Temperature	85	61	TGC	209.7	212.3	222.1	234.9	215.6	220.3	230.0	242.9	218.0	223.7	238.2	249.4	227.0	230.0	243.0	252.6
			SHC	167.3	199.5	215.2	227.7	176.9	212.3	222.9	235.4	186.7	216.8	230.8	241.7	194.8	222.9	235.6	244.9
		67	TGC	235.7	238.7	241.4	244.8	242.9	244.7	246.1	247.8	246.0	247.9	249.4	251.3	247.9	249.4	252.6	254.3
			SHC	131.9	162.4	191.5	222.1	138.1	168.9	201.1	231.7	140.5	173.8	207.6	241.4	143.8	178.7	214.0	249.4
		73	TGC	249.4	254.3	257.5	260.8	252.3	255.9	260.8	263.8	255.6	259.1	262.2	265.5	259.1	263.4	266.6	269.9
			SHC	89.0	121.5	148.1	173.8	90.8	124.4	151.6	176.7	92.6	125.6	154.3	183.4	94.2	127.0	156.3	188.6
	95	61	TGC	196.2	201.1	210.9	225.3	198.8	207.6	220.5	233.3	206.0	210.9	227.0	239.8	210.9	218.8	233.3	244.7
			SHC	159.2	191.5	204.3	218.4	168.9	199.1	211.4	223.7	178.7	204.3	219.9	232.4	186.7	212.1	226.1	237.1
		67	TGC	220.5	223.7	227.0	231.7	230.0	233.6	234.9	236.5	238.2	240.0	241.6	242.9	239.0	242.2	244.3	247.1
			SHC	125.6	156.1	186.7	217.2	131.1	164.1	196.4	230.0	136.4	169.1	206.0	239.8	140.3	177.1	214.0	227.1
		73	TGC	243.0	246.1	249.2	252.6	244.8	247.6	251.5	255.9	247.1	250.4	253.6	255.2	252.0	256.9	260.1	263.4
			SHC	84.8	116.6	145.2	172.2	86.7	120.8	149.3	178.7	88.5	123.0	153.0	183.4	90.3	125.1	156.1	188.3
	105	61	TGC	182.1	187.0	196.7	213.0	188.6	193.5	209.7	219.5	191.9	200.0	217.9	232.5	196.7	208.1	224.4	237.4
			SHC	151.6	181.2	190.6	206.4	162.6	187.5	203.2	212.7	172.4	193.8	211.1	225.3	178.7	201.7	217.4	230.0
		67	TGC	209.7	213.0	217.9	219.5	211.4	216.2	222.7	226.0	222.7	226.0	229.2	232.5	227.6	230.9	234.1	237.4
			SHC	118.6	149.6	180.3	212.5	137.6	157.7	191.5	202.7	129.1	165.7	201.1	232.5	134.0	172.2	210.9	227.4
		73	TGC	239.0	240.6	242.2	243.9	242.2	243.9	245.5	248.7	245.5	247.1	248.7	250.4	247.1	248.7	250.4	253.6
			SHC	80.2	111.4	141.2	169.1	82.2	115.6	146.2	177.1	83.8	119.5	150.3	181.8	85.6	121.2	154.2	190.2
	115	61	TGC	165.9	172.4	188.6	204.9	170.7	180.5	196.7	213.0	175.6	187.0	204.9	221.1	180.5	193.5	211.4	226.0
			SHC	144.9	167.0	182.8	198.5	154.3	174.9	190.6	206.4	162.6	181.2	198.5	214.3	174.5	187.5	204.8	219.0
		67	TGC	196.7	200.0	201.6	204.9	198.4	203.2	206.5	209.7	209.7	213.0	217.9	221.1	214.6	217.9	221.1	227.7
			SHC	123.6	143.4	174.0	204.9	130.1	152.0	185.4	209.7	136.6	159.4	193.5	221.1	128.2	167.5	206.5	226.0
		73	TGC	222.7	226.0	229.2	230.9	229.2	232.5	234.1	236.7	234.1	236.7	237.4	239.0	236.7	237.4	239.0	240.6
			SHC	75.7	106.7	137.4	167.5	77.5	112.2	143.1	174.0	81.4	115.5	149.6	183.7	81.4	120.4	152.9	187.0
125	61	TGC	156.1	162.2	177.6	192.9	160.7	169.9	185.2	200.6	165.3	176.0	192.9	208.2	169.9	182.2	199.0	212.8	
		SHC	136.3	157.2	172.0	186.9	145.2	164.6	179.5	194.3	153.0	170.6	186.9	201.8	163.9	176.5	192.9	206.2	
	67	TGC	185.2	188.3	189.8	203.9	186.8	191.4	194.4	197.5	197.5	200.6	205.2	208.2	202.1	205.2	208.2	214.7	
		SHC	116.2	134.9	163.8	182.9	122.4	143.1	174.5	193.4	128.5	150.0	182.2	203.9	120.5	157.6	194.4	210.3	
	73	TGC	209.8	212.8	215.9	217.4	215.9	219.0	220.5	222.0	220.5	222.0	223.6	225.1	222.0	223.6	225.1	226.6	
		SHC	71.0	100.3	129.3	157.6	72.7	105.5	134.6	163.8	76.4	108.6	140.8	173.0	76.4	113.2	143.8	176.0	

- Notes:
1. All capacities are gross and have not considered indoor fan heat. To obtain NET cooling capacity subtract indoor fan heat.
  2. TGC=Total Gross Capacity. (Unit: 1000Btu/h).
  3. SHC=Sensible Heat Capacity. (Unit: 1000Btu/h).

# 10. Electrical Data

## 10.1 Electrical Data

220v/3Ph/60Hz

Model	Power Supply			Compressor				Evaporator fan motor			Condenser fan motor		
	MCA	TOCA	MFA	STC	RNC	IPT	Qty	RNC	IPT	Qty	RNC	IPT	Qty
MRBT-60CWN1-D	34.1	34.2	50	115	20	5.85	1	3.85	0.6	1	1.67	0.23	1
MRBT-062CWN1-D	49	58	80	203	30.7	8.569	1	6	1.871	1	4.1	1.1	1
MRCT-062EWN1-D	49	58	80	203	30.7	8.569	1	6	1.871	1	4.1	1.1	1
MRBT-075CWN1-D	49	58	80	203	30.7	8.6	1	6.4	2.1	1	4.1	1.1	1
MRCT-075EWN1-D	49	58	80	203	30.7	8.6	1	6.4	2.1	1	4.1	1.1	1
MRBT-075HWN1-D	49	58	80	203	30.7	8.6	1	6.4	2.1	1	4.1	1.1	1
MRBT-085CWN1-D	52	61	85	203	32.9	9.957	1	5.4	1.6	1	4.1	1.11	1
MRCT-085EWN1-D	52	61	85	203	32.9	9.957	1	5.4	1.6	1	4.1	1.11	1
MRBT-100CWN1-D	65	76	109	267	43.6	11.2	1	6.4	2.1	1	4.1	1.1	1
MRCT-100EWN1-D	65	76	109	267	43.6	11.2	1	6.4	2.1	1	4.1	1.1	1
MRBT-100HWN1-D	65	76	109	267	43.6	11.2	1	6.4	2.1	1	4.1	1.1	1
MRBT-125CWN1-D	81	105	132	163	40.2	6.7	2	11.7	3	1	4.1	1.1	1
MRBT-150CWN1-D	111	119	172	203	61.4	17.2	2	26	3.6	1	8.2	2.22	2
MRCT-150EWN1-D	111	119	172	203	61.4	17.2	2	26	3.6	1	8.2	2.22	2
MRBT-150HWN1-D	111	119	172	203	61.4	17.2	2	26	3.6	1	8.2	2.22	2
MRBT-175CWN1-D	112	121	178	203	65.8	19.9	2	17.3	5.2	1	8.2	2.22	2
MRCT-175EWN1-D	112	121	178	203	65.8	19.9	2	17.3	5.2	1	8.2	2.22	2
MRBT-200CWN1-D	144	156	231	267	87.6	20.6	2	26	5.5	1	18	5.4	2
MRCT-200EWN1-D	144	156	231	267	87.6	20.6	2	26	5.5	1	18	5.4	2
MRBT-200HWN1-D	144	156	231	267	87.6	20.6	2	26	5.5	1	18	5.4	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)

**Note:**

1. These data are based on the following conditions:  
 Evaporator Air Input Temperature 85°F DB, 66 °F WB.  
 Condenser Air Input Temperature 115°F DB.
2. The starting current is indicated for each compressor motor.
3. The maximum currents of the compressor can be estimated as follows.

	One compressor unit	Two compressor unit
Max. current	RNC×Max. IPT×/IPT	RNC×Max. IPT×/IPT
Max. instantaneous current	STC	STC+RNC×0.5×Max. IPT×/IPT

**Max. IPTx:** Compressor power input from the performance table at the expected maximum condition

**STC, IPT, RNC:** Compressor data from the above table

4. The data in the compressor motor column shall indicate the respective values of the refrigeration cycle. 他 the voltage imbalance is to be <2% between phases.



**10.2 Motor protection class**

Model	Compressor	Indoor fan motor		Indoor coil	Outdoor fan motor		Outdoor coil
	Motor protection	Insulation class	Safe class	Pressure	Insulation class	Safe class	Pressure
MRBT-60CWN1-D	IOP	F	IPX0	250psi	B	IPX4	450psi
MRBT-062CWN1-D	IOP	F	IP44	250psi	F	IP54	450psi
MRCT-062EWN1-D	IOP	F	IP44	250psi	F	IP54	450psi
MRBT-075CWN1-D	IOP	F	IP44	250psi	F	IP54	450psi
MRCT-075EWN1-D	IOP	F	IP44	250psi	F	IP54	450psi
MRBT-075HWN1-D	IOP	F	IP44	250psi	F	IP54	450psi
MRBT-085CWN1-D	IOP	F	IP44	250psi	F	IP54	450psi
MRCT-085EWN1-D	IOP	F	IP44	250psi	F	IP54	450psi
MRBT-100CWN1-D	IOP	F	IP44	250psi	F	IP54	450psi
MRCT-100EWN1-D	IOP	F	IP44	250psi	F	IP54	450psi
MRBT-100HWN1-D	IOP	F	IP44	250psi	F	IP54	450psi
MRBT-125CWN1-D	IOP	F	IP44	250psi	F	IP54	450psi
MRBT-150CWN1-D	IOP	F	IP44	250psi	F	IP54	450psi
MRCT-150EWN1-D	IOP	F	IP44	250psi	F	IP54	450psi
MRBT-150HWN1-D	IOP	F	IP44	250psi	F	IP54	450psi
MRBT-175CWN1-D	IOP	F	IP44	250psi	F	IP54	450psi
MRCT-175EWN1-D	IOP	F	IP44	250psi	F	IP54	450psi
MRBT-200CWN1-D	IOP	F	IP44	250psi	F	IP54	450psi
MRCT-200EWN1-D	IOP	F	IP44	250psi	F	IP54	450psi
MRBT-200HWN1-D	IOP	F	IP44	250psi	F	IP54	450psi

**IOP:** Internal overload protector

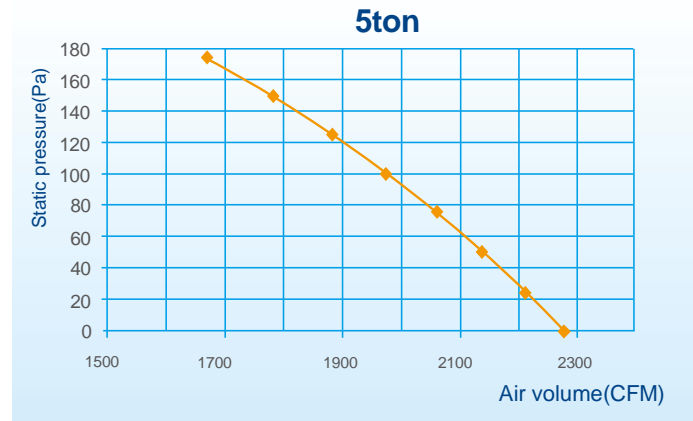
# 11. Parameter and Pressure Chart

## 11.1 Model: 5Ton

Parameter table for indoor unit air volume:

	Static pressure (Pa)	0	25	50	75	100	125	150	175	200	225	250
H	Air flow (CFM)	2280	2212	2137	2059	1976	1883	1783	1670	1526	1305	964
	Brake power (kW)	0.878	0.852	0.828	0.801	0.777	0.747	0.719	0.687	0.655	0.575	0.543
	Fan speed (rpm)	998	1012	1023	1036	1049	1060	1071	1082	1091	1116	1126
M	Air flow (CFM)	2180	2113	2044	1973	1889	1808	1706	1606	1478	1257	931
	Brake power (kW)	0.807	0.779	0.751	0.73	0.703	0.679	0.651	0.624	0.593	0.518	0.488
	Fan speed (rpm)	955	973	992	1007	1021	1036	1052	1065	1080	1106	1118
L	Air flow (CFM)	2067	2006	1945	1878	1808	1729	1645	1539	1415	1211	866
	Brake power (kW)	0.7313	0.7115	0.687	0.6664	0.643	0.6182	0.5948	0.57	0.5384	0.4705	0.4333
	Fan speed (rpm)	905	929	953	974	993	1011	1028	1045	1062	1095	1110

Curve diagram of static pressure, air flow volume:



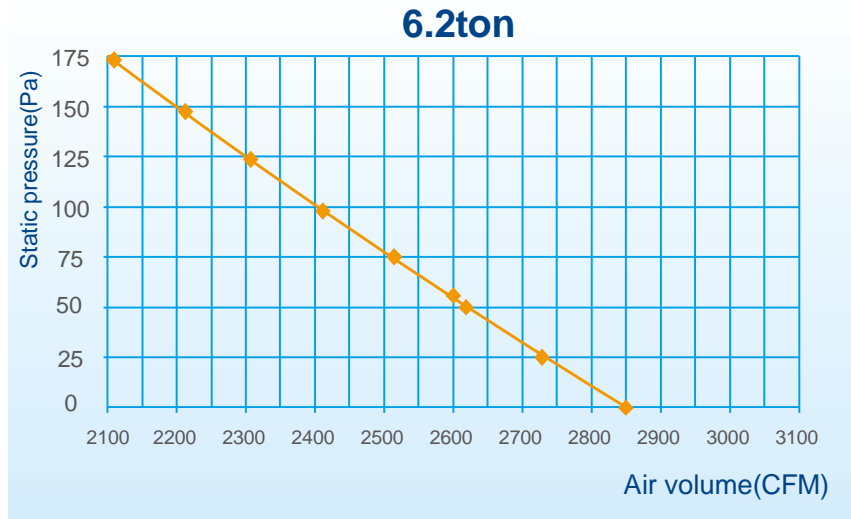
Parameter table for outdoor unit air volume:

Model	Static pressure (Pa)	Air flow (CFM)	Brake power (kW)	Fan speed (rpm)
5Ton	0	4532	0.36	1080

### 11.2 Model: 6.2ton

Parameter table for indoor unit air volume:

Static pressure (Pa)	0	25	50	60	75	100	125	150	175
Air flow (CFM)	2881	2754	2632	2602	2522	2445	2310	2208	2108
Brake power (kW)	1.51	1.4	1.36	1.34	1.2	1.14	1.09	1.05	0.98
Fan speed (rpm)	1068	1072	1077	1077	1080	1082	1085	1089	1091



Parameter table for outdoor unit air volume:

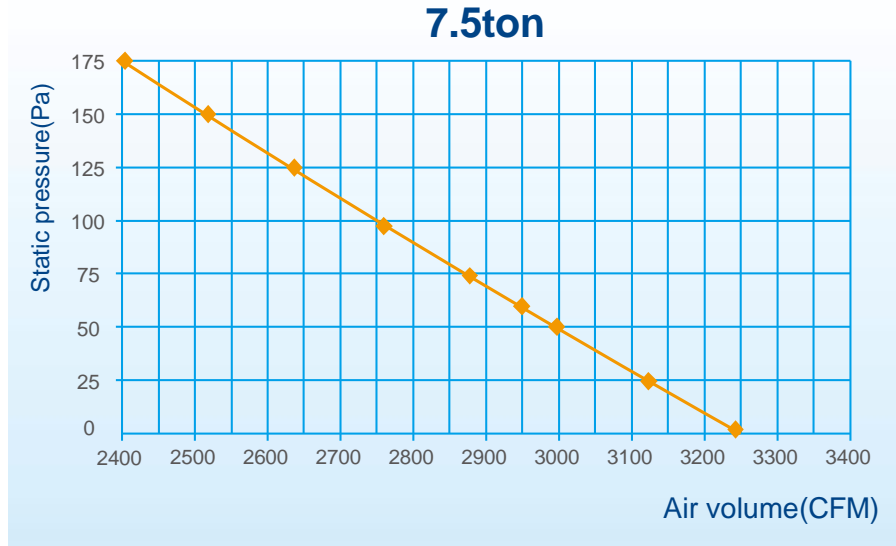
Model	Static pressure (Pa)	Air flow (CFM)	Brake power (kW)	Fan speed (rpm)
6.2Ton	0	5880	0.78	900
	10	5647	0.79	889
	20	5411	0.80	875

**11.3 Model: 7.5Ton**

**Parameter table for indoor unit air volume:**

Static pressure (Pa)	0	25	50	60	75	100	125	150	175
Air flow (CFM)	3250	3149	2996	2941	2886	2782	2664	2540	2411
Brake power (kW)	1.83	1.78	1.70	1.66	1.63	1.58	1.53	1.47	1.41
Fan speed (rpm)	1260	1265	1268	1271	1274	1277	1281	1285	1287

**Curve diagram of static pressure, air flow volume:**



**Parameter table for outdoor unit air volume:**

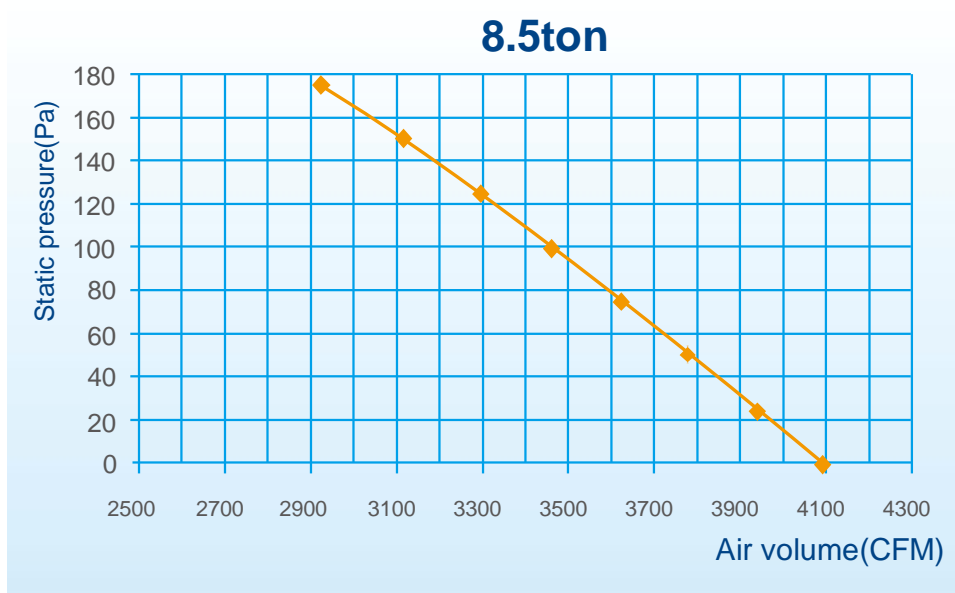
Model	Static pressure (Pa)	Air flow (CFM)	Brake power (kW)	Fan speed (rpm)
7.5Ton	0	5880	0.78	900
	10	5647	0.79	889
	20	5411	0.80	875

### 11.4 Model: 8.5Ton

**Parameter table for indoor unit air volume:**

Static pressure (Pa)	0	25	50	75	100	125	150	175
Air flow (CFM)	4099	3933	3772	3491	3442	3259	2064	2886
Brake power (kW)	1.88	1.81	1.73	1.66	1.59	1.51	1.43	1.35
Fan speed (rpm)	933	937	939	944	946	949	952	953

**Curve diagram of static pressure, air flow volume:**



**Parameter table for outdoor unit air volume:**

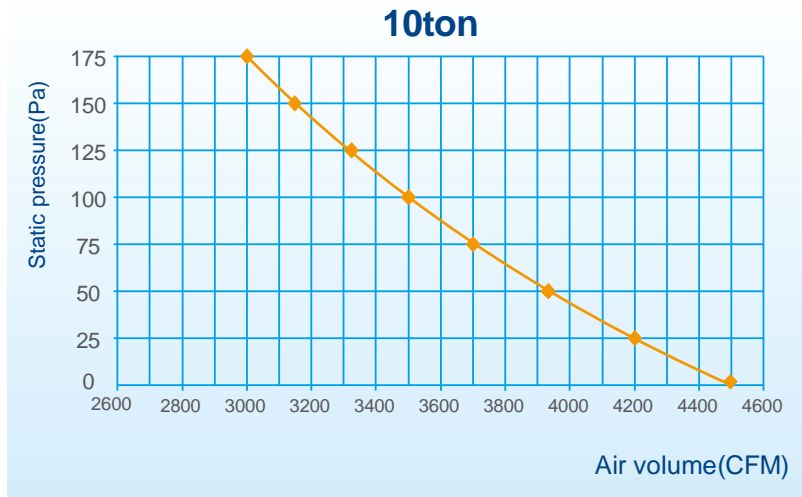
Model	Static pressure (Pa)	Air flow (CFM)	Brake power (kW)	Fan speed (rpm)
8.5Ton	0	7060	0.78	935
	10	6765	0.79	926
	20	6471	0.80	918

### 11.5 Model: 10Ton

**Parameter table for indoor unit air volume:**

Static pressure (Pa)	0	25	50	75	100	125	150	175
Air flow (CFM)	4325	4156	3929	3756	3579	3382	3218	3020
Brake power (kW)	2.18	2.1	2.02	1.96	1.86	1.79	1.71	1.62
Fan speed (rpm)	1000	1004	1006	1011	1014	1016	1020	1021

**Curve diagram of static pressure, air flow volume:**



**Parameter table for outdoor unit air volume:**

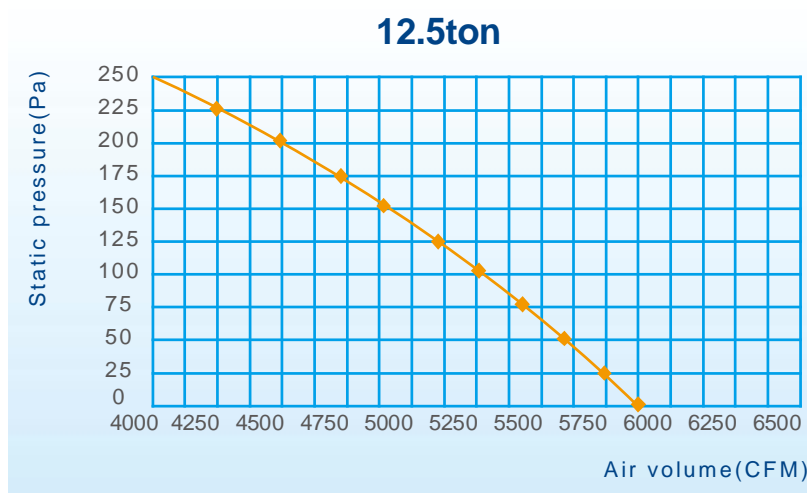
Model	Static pressure (Pa)	Air flow (CFM)	Brake power (kW)	Fan speed (rpm)
10Ton	0	7060	0.78	935
	10	6765	0.79	926
	20	6471	0.80	918

### 11.6 Model: 12.5Ton

Parameter table for indoor unit air volume:

Static pressure (Pa)	0	25	50	90	125	175	200	225
Air flow (CFM)	6000	5875	5700	5380	5200	4870	4625	4375
Brake power (kW)	3.06	2.95	2.85	2.69	2.56	2.35	2.24	2.14
Fan speed (rpm)	895	895	896	897	898	898	899	899

Curve diagram of static pressure, air flow volume:



Parameter table for outdoor unit air volume:

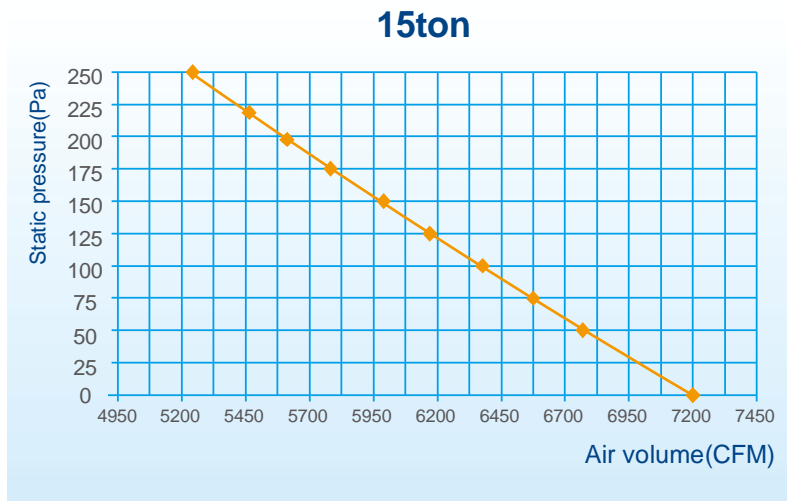
Model	Static pressure (Pa)	Air flow (CFM)	Brake power (kW)	Fan speed (rpm)
12.5Ton	0	7060	0.78	935
	10	6765	0.79	926
	20	6471	0.80	918

### 11.7 Model: 15Ton

**Parameter table for indoor unit air volume:**

Static pressure (Pa)	0	50	75	90	125	150	200	250
Air flow (CFM)	7209	6814	6756	6631	6316	6044	5639	5227
Brake power (kW)	5.11	4.85	4.71	4.65	4.45	4.32	4.08	3.82
Fan speed (rpm)	1029	1029	1030	1031	1031	1032	1033	1034

**Curve diagram of static pressure, air flow volume:**



**Parameter table for outdoor unit air volume:**

Model	Static pressure (Pa)	Air flow (CFM)	Brake power (kW)	Fan speed (rpm)
15Ton	0	11000	0.78x2	935
	10	9800	0.79x2	926
	20	9600	0.80x2	918

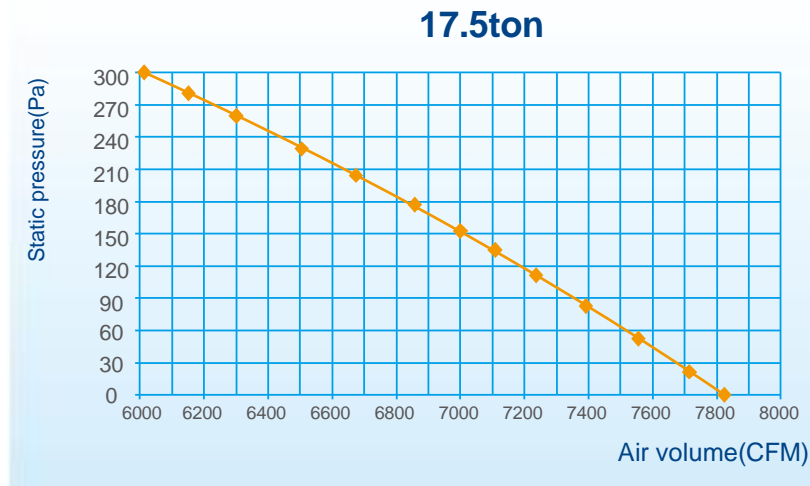


### 11.8 Model: 17.5Ton

**Parameter table for indoor unit air volume:**

Static pressure (Pa)	0	25	50	75	100	125	150	175	200	225	250	275	300
Air flow (CFM)	7858	7712	7546	7392	7271	7091	6977	6836	6680	6534	6354	6178	6020
Brake power (kW)	5.76	5.66	5.57	5.36	5.3	5.14	5.05	4.88	4.78	4.67	4.55	4.37	4.12
Fan speed (rpm)	1019	1020	1020	1021	1022	1022	1023	1024	1025	1025	1026	1027	1030

**Curve diagram of static pressure, air flow volume:**



**Parameter table for outdoor unit air volume:**

Model	Static pressure (Pa)	Air flow (CFM)	Brake power (kW)	Fan speed (rpm)
17.5Ton	0	11000	0.78×2	935
	10	9800	0.79×2	926
	20	9600	0.80×2	918

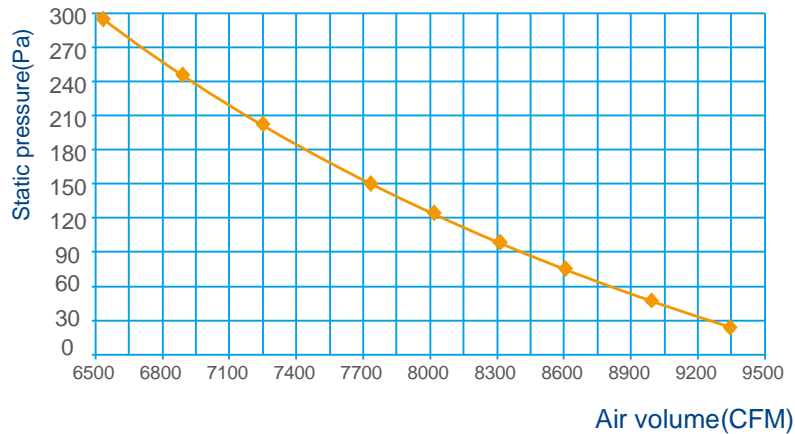
### 11.9 Model: 20Ton

**Parameter table for indoor unit air volume:**

Static pressure (Pa)	25	50	75	100	125	150	200	250	300
Air flow (CFM)	9296	9041	8682	8389	8179	7826	7388	6955	6555
Brake power (kW)	5.86	5.73	5.59	5.44	5.50	5.27	4.98	4.66	4.32
Fan speed (rpm)	818	819	819	820	820	821	822	823	825

**Curve diagram of static pressure, air flow volume:**

### 20ton



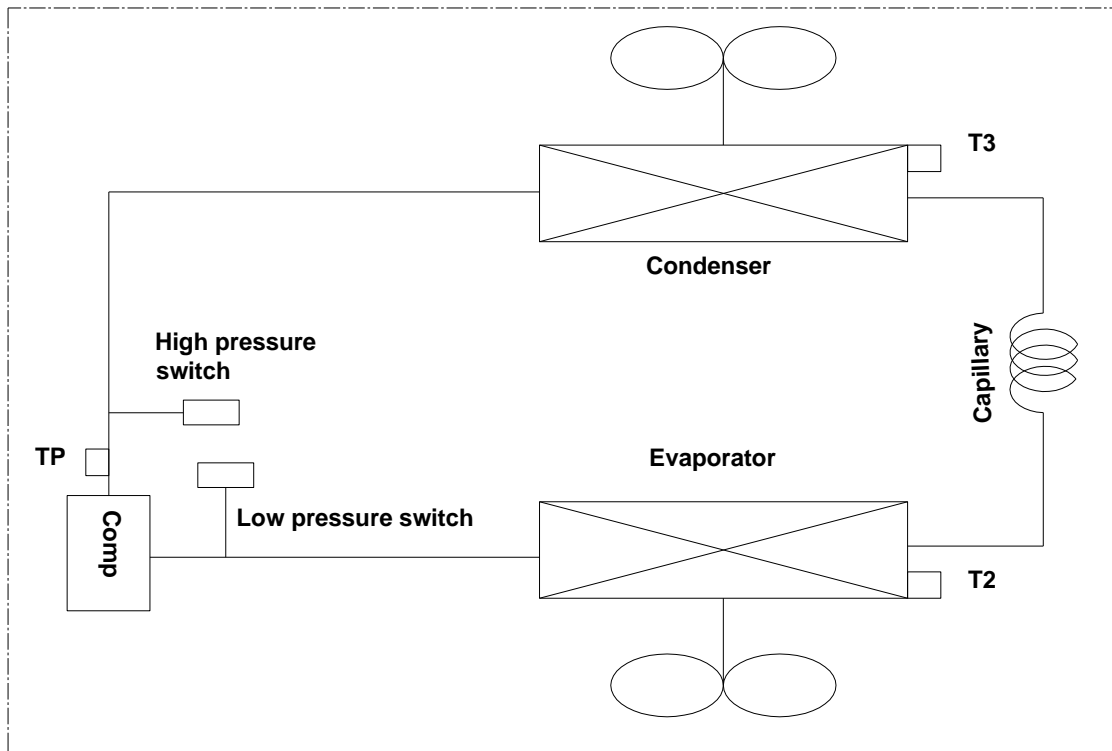
**Parameter table for outdoor unit air volume:**

Model	Static pressure (Pa)	Air flow (CFM)	Brake power (kW)	Fan speed (rpm)
20Ton	0	14000	1.3x2	940
	10	13500	1.4x2	938
	20	13100	1.5x2	930

## 12. Refrigerant Cycle Diagram

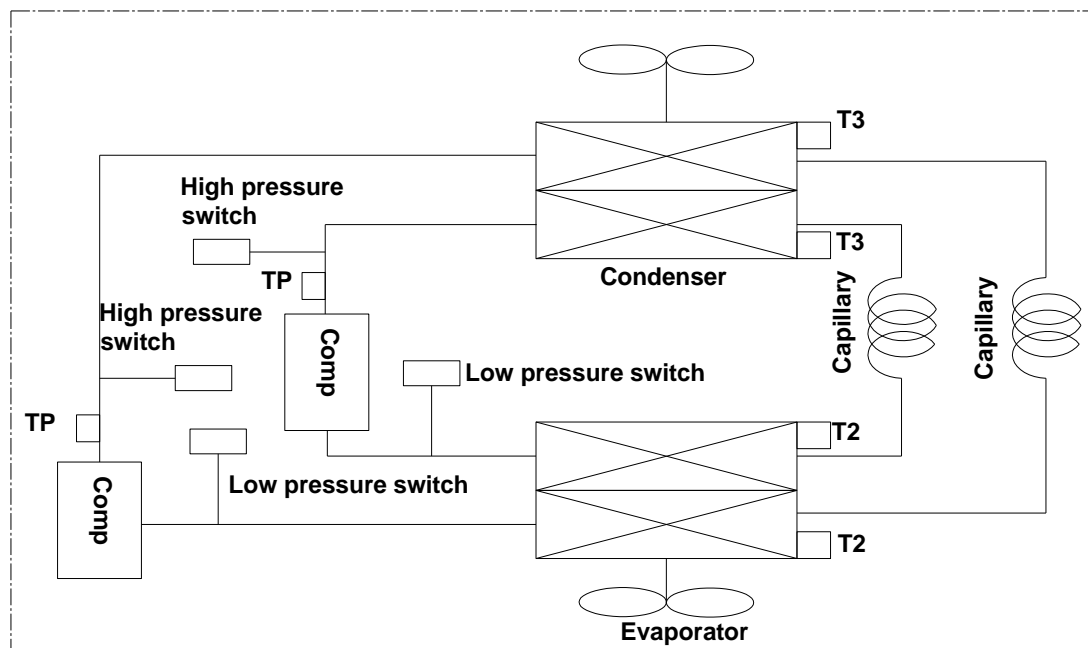
### 12.1 5,6.2,7.5,8.5,10 ton:

Cooling, Cooling+EAH type



### 12.2 12.5,15,17.5,20 ton:

Cooling, Cooling+EAH type



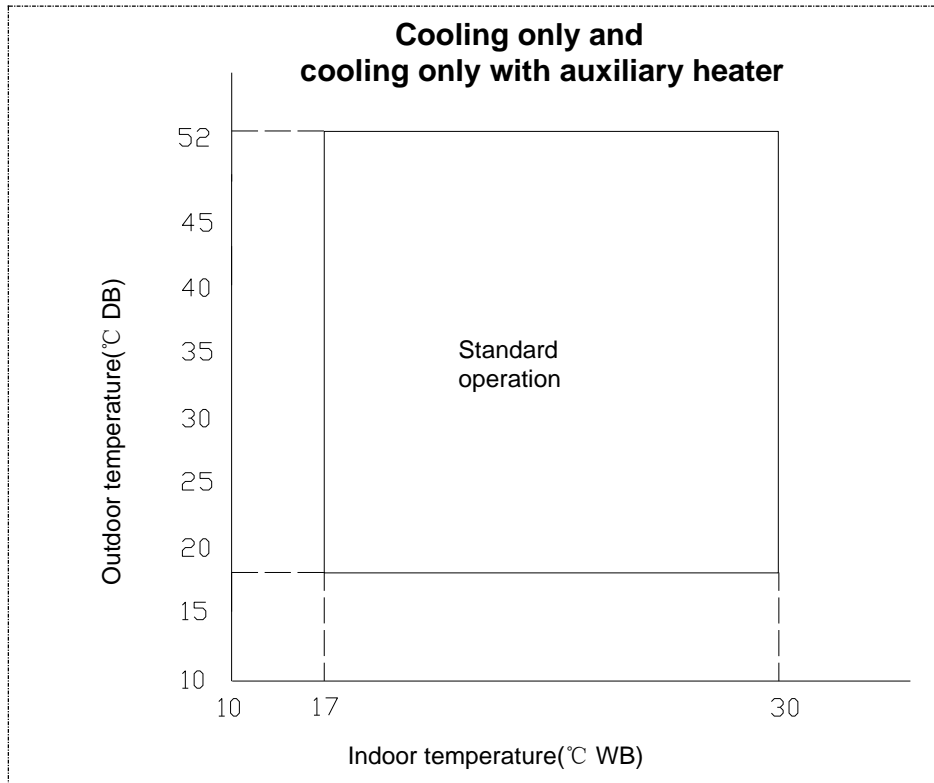
**TP:** Compressor discharge temperature sensor in system A and B

**T2:** Indoor coil temperature sensor in system A and B

**T3:** Outdoor coil temperature sensor in system A and B

# 13. Operation Limit

## 13.1 Cooling only and cooling with auxiliary heater



Model	Temperature	Outdoor temperature	Indoor temperature
	Cooling mode	18°C ~ 52°C	17°C ~ 30°C
	With auxiliary electric heater models	--	17°C ~ 30°C

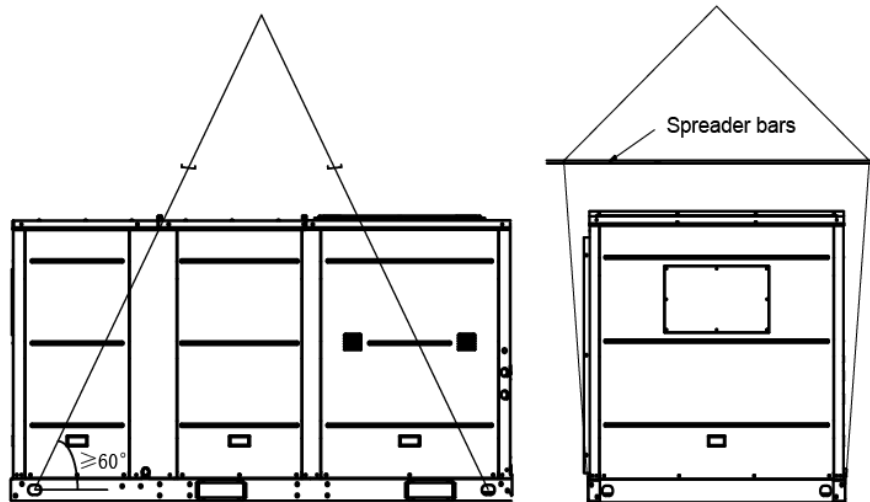
## 14. Installation

### 14.1 Lifting

Rigging cables should have adequate capability to resist 3 times weight of unit. Before lift, please check and ensure that hooks are holding tightly to unit and lifting angles are no less than 60°.

Cloth material or hard-paper should be padded in the contact place between unit and rigging cable. Rigging cable should be entwined a round at the hook to forbid danger because of weight unbalance.

During lifting, anyone forbidden lingering under the lifting unit.

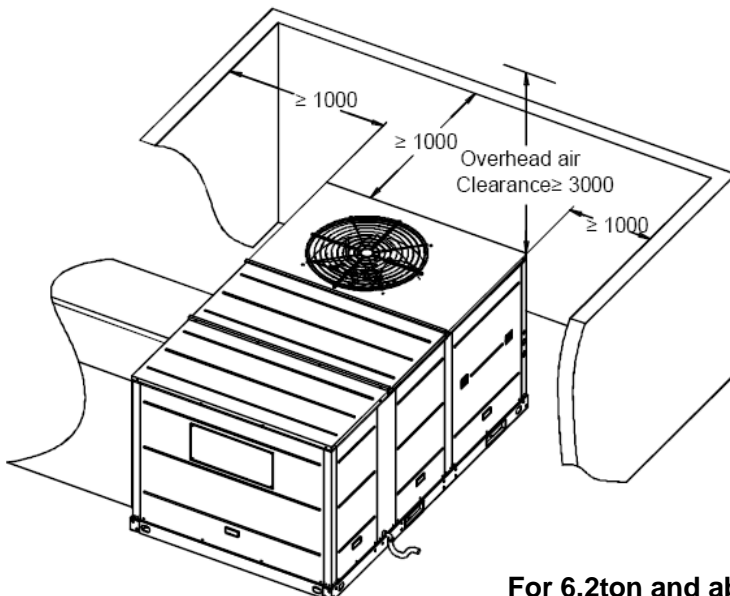


### 14.2 Service Space

1. The recommended clearances for single-unit installations are illustrated in following Fig.

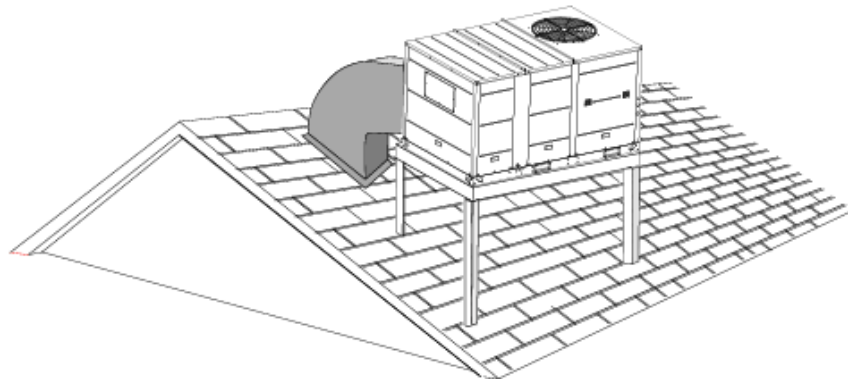
These minimum requirements are not only an important consideration when determining unit placement, but they are also essential to ensure adequate serviceability, maximum capacity, and peak operating efficiency.

2. Any reduction of the unit clearances indicated in these illustrations may result in condenser coil starvation or the recirculation of warm condenser air. Actual clearances which appear to be inadequate should be reviewed with a local engineer.

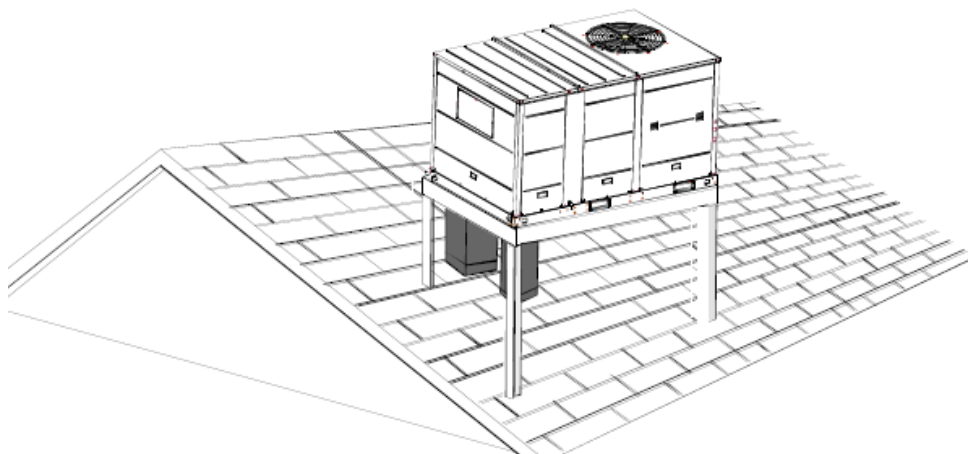
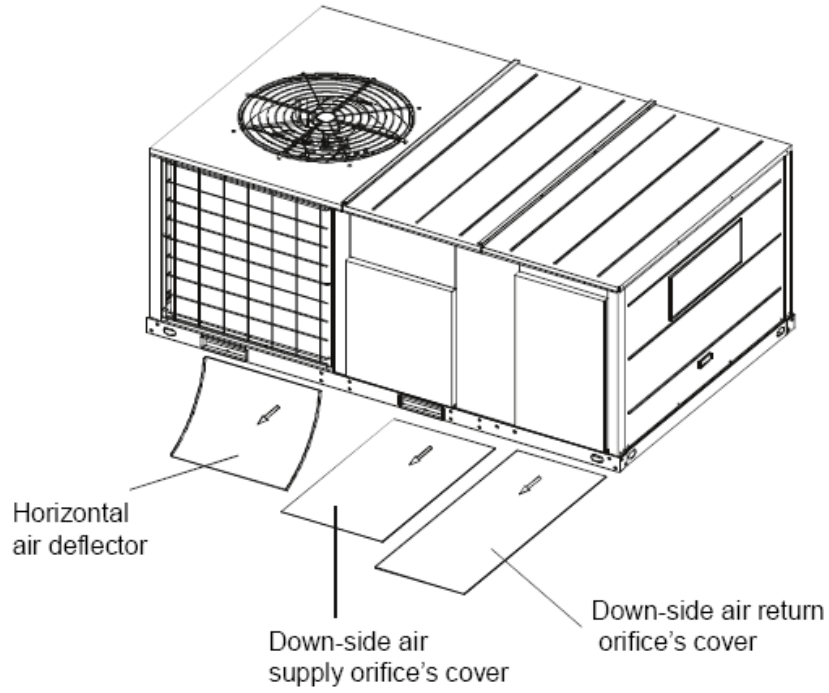


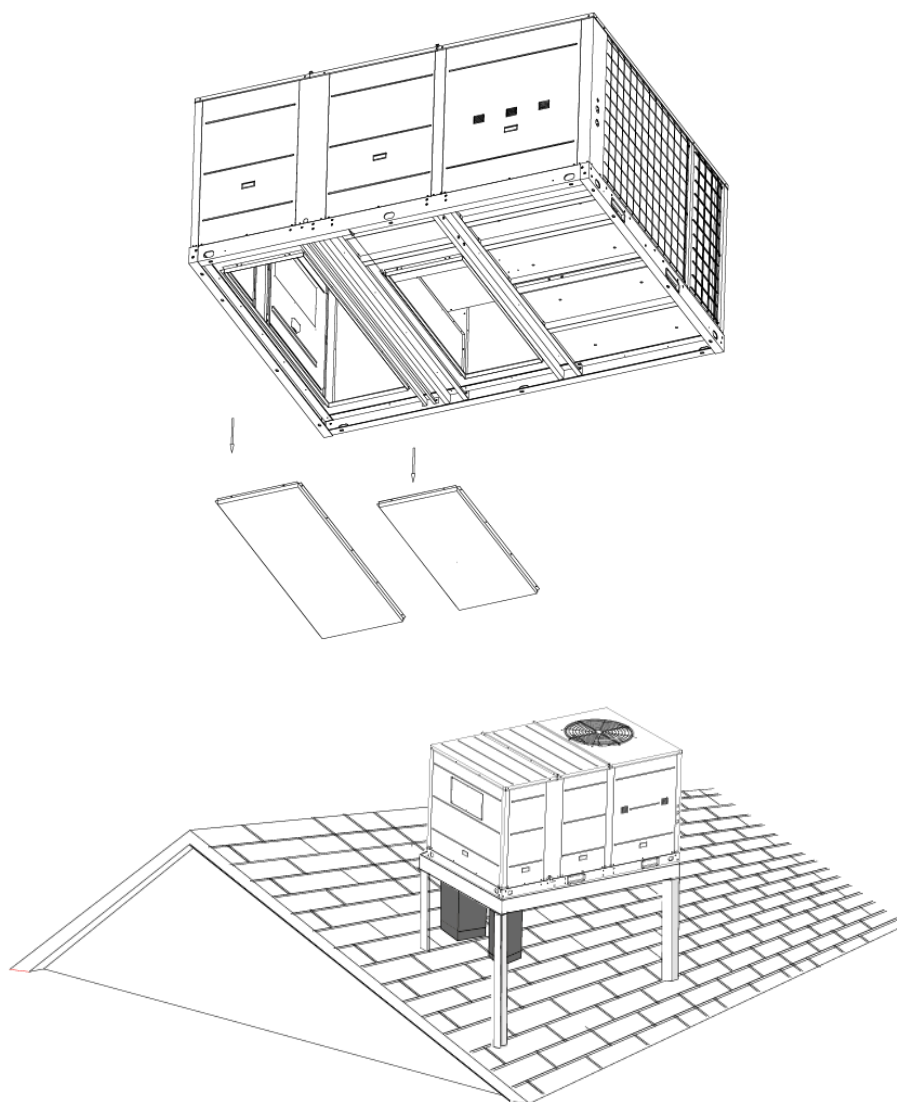
For 6.2ton and above





Typical rooftop application with frame:





#### 14.4 Ground Level -- Horizontal Units

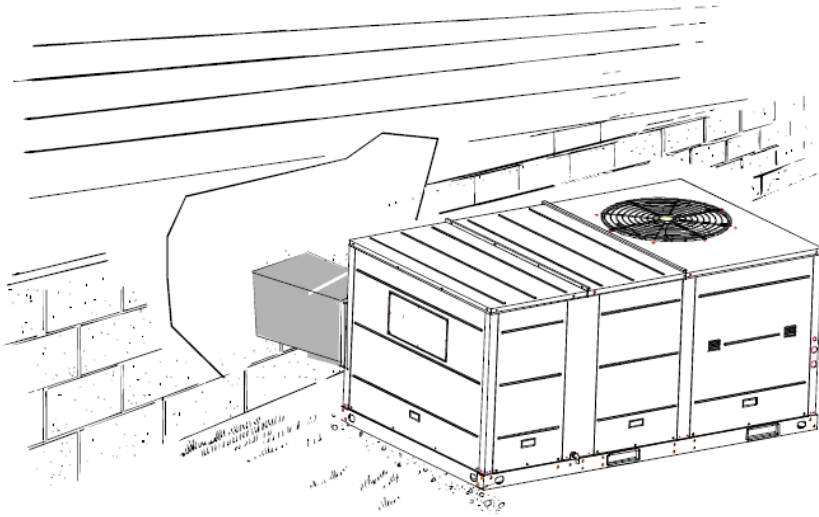
For ground level installations, the unit should be positioned on a pad the size of the unit or larger. The unit must be level on the pad. The pad must not come in contact with the structure. Be sure the outdoor portion of the supply and return air ducts are as short as possible.

Installation according to the following procedure:

- 1) Place the unit on the pad.
- 2) Attach the supply and return air ducts to the unit.
- 3) Insulate any ductwork outside of the structure with at least 2 inches of insulation and weatherproof. There must be a weatherproof seal where the duct enters the structure.
- 4) Complete the installation according to the instructions.

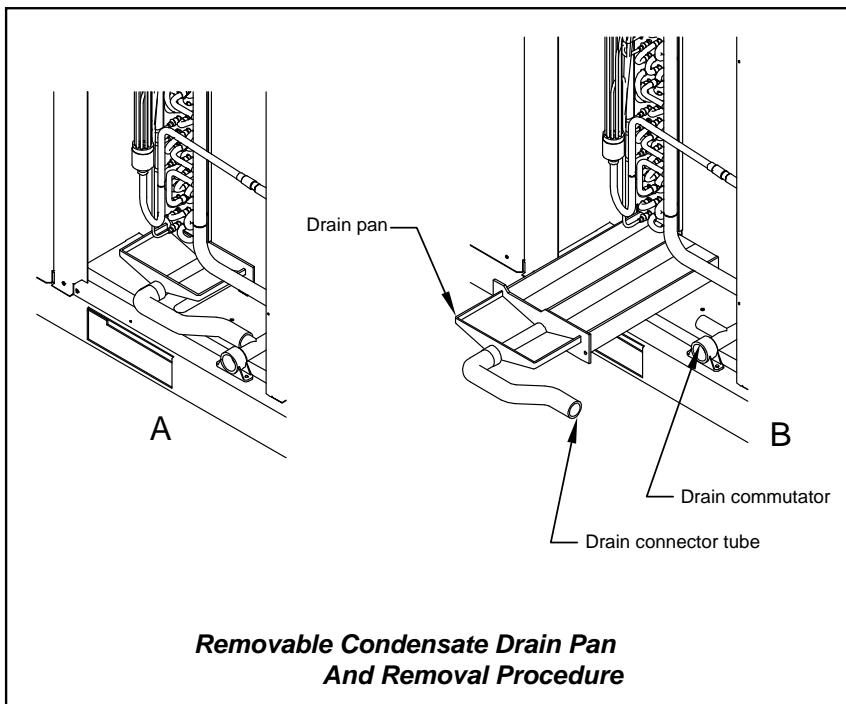


**Typical ground level application:**

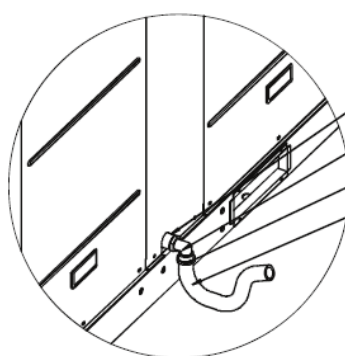
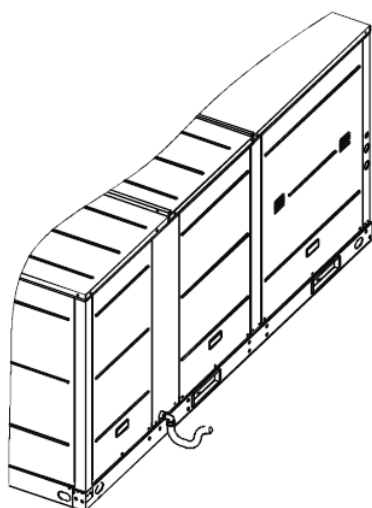


**14.5 Installation of condensate drain piping**

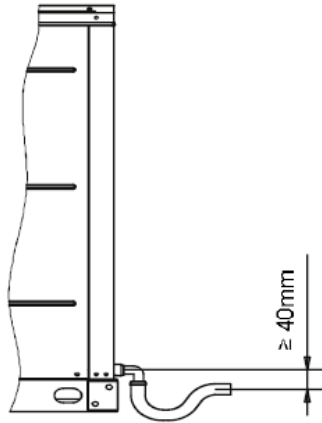
**5ton:**



**6.2&7.5&8.5&10&12.5&15&17.5&20ton:**



- Drain connection hole
  - Drain outlet
  - Snap ring
  - Drain pipe
- Outer diameter:28 mm/1.1 inch**  
**Inner diameter:21 mm/0.83 inch**



## 14.6 Ductwork

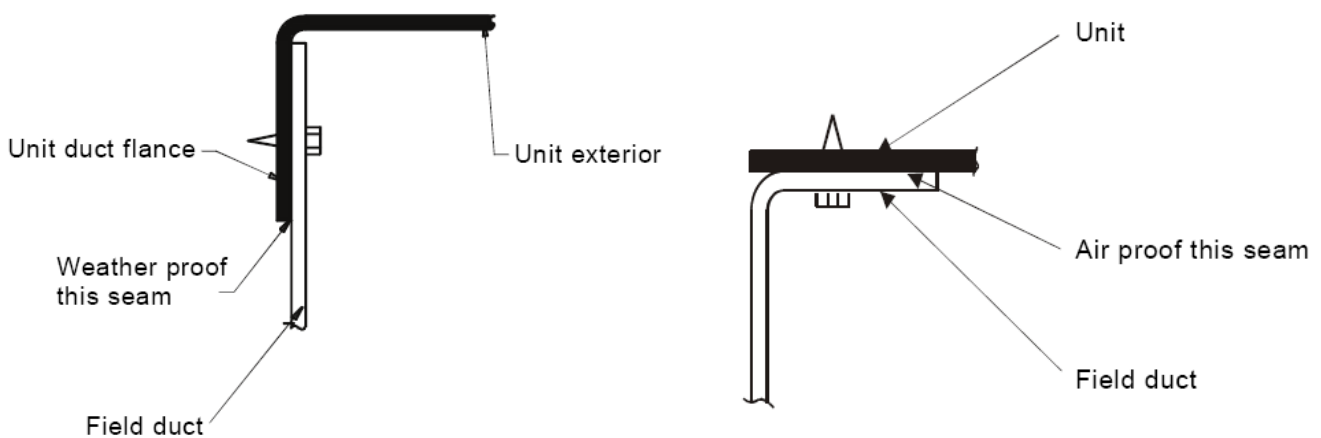
### 1. Attaching horizontal ductwork to unit

1) All conditioned air ductwork should be insulated to minimize heating and cooling duct losses. Use a minimum of two (2) inches of insulation with a vapor barrier. The outside ductwork must be weatherproofed between the unit and the building.

2) When attaching ductwork to a horizontal unit, provide a flexible watertight connection to prevent noise transmission from the unit to the ducts. The flexible connection must be indoors and made out of heavy canvas.

#### Note:

Do not draw the canvas taut between the solid ducts.



### 2. Attaching down flow ductwork to roof curb

Supply and return air flanges are provided on the roof curb for easy duct installation. All ductwork must be run and attached to the curb before the unit is set into place.

Follow these guidelines for ductwork construction:

- 1) Connections to the unit should be made with three-inch canvas connectors to minimize noise and vibration transmission.
- 2) Elbows with turning vanes or splitters are recommended to minimize air noise and resistance.
- 3) The first elbow in the ductwork leaving the unit should be no closer than two feet from the unit, to minimize noise and resistance.

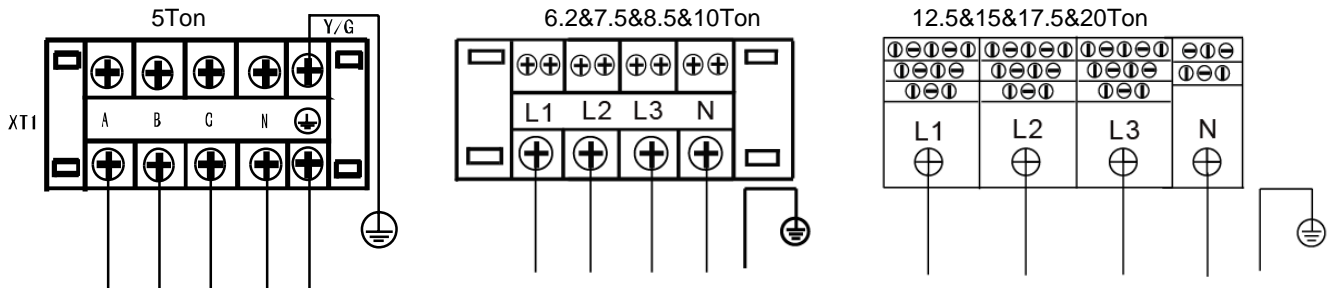
### 14.7 Wiring provision

#### Field wiring

The units are internally wired at the factory according to generally accepted electrical technology.

#### Required field wiring

Main power wiring to the unit control wiring between the control center and the unit, and earth wiring are required in the field.



#### Required components

The following components are required: main power fuse, conduit coupling, and field supplied room thermostat.

#### Wire and fuse size selection for main power source.

The wire and fuse size should be selected in accordance with national standard, taking the designed maximum current shall be the total of the compressor maximum current, condenser fan motor current and evaporator fan motor current (refer to “electrical data”).

#### Wire size between room thermostat and unit.

The wire size between the room thermostat and the unit should be determined according to the following table, because the 24V power source is applied to the control circuit.

	Wiring length between room thermostat and unit(one way)				
	10m	15m	20m	30m	40m
Minimum wire size(mm <sup>2</sup> )	0.5	0.5	0.75	0.75	1.0

# 15 Wired Controller

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



KJR-12B/DP (T)-E

### 1. Safety precaution

The following contents are stated on the product and the operation manual, including usage, precautions against personal harm and property loss, and the methods of using the product correctly and safely. After fully understanding the following contents (identifiers and icons), read the text body and observe the following rules.

#### Identifier description

Identifier	Meaning
Warning	Means improper handling may lead to personal death or severe injury.
Caution	Means improper handling may lead to personal injury or property loss.
[Note]: 1. "Harm" means injury, burn and electric shock which need long-term treatment but need no hospitalization 2. "Property loss" means loss of properties and materials.	

#### Icon description

Icon	Meaning
	It indicates forbidding. The forbidden subject-matter is indicated in the icon or by images or characters aside.
	It indicates compulsory implementation. The compulsory subject-matter is indicated in the icon or by images or characters aside.

#### Warning

	Delegate installation	Please entrust the distributor or professionals to install the unit. The installers must have the relevant know-how. Improper installation performed by the user without permission may cause fire, electric shock, personal injury or water leakage.
--	-----------------------	---

	Forbid	Do not spray flammable aerosol to the wire controller directly. Otherwise, fire may occur.
	Forbid	Do not operate with wet hands or let water enter the wire controller. Otherwise, electric shock may occur.

## 2. Summarize

Usage condition:

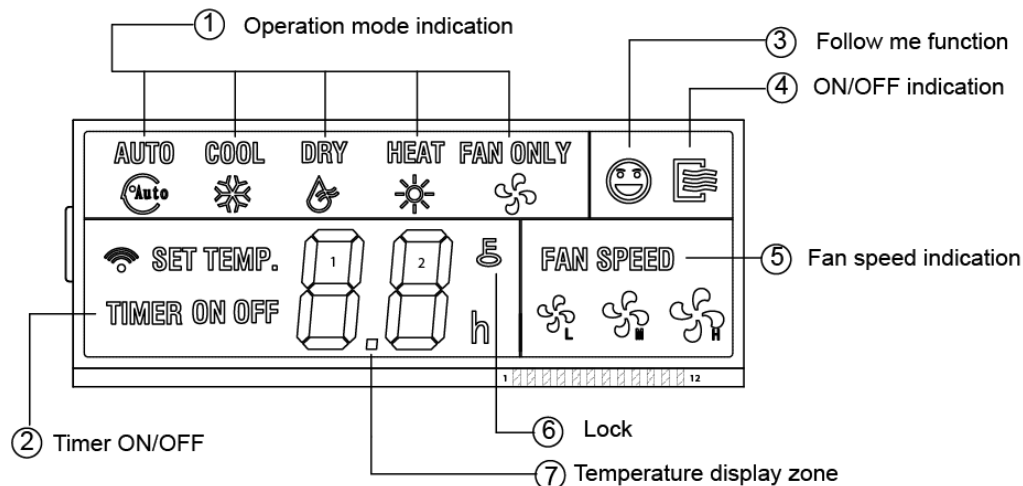
- ①. Power supply: 5V DC.
- ②. Operation temperature: -15°C~+43°C.
- ③. Operation humidity: 40%-90%, RH.

## 3. Function summary

Main function:

- ①. Connecting to indoor unit by A, B, C, D, E terminal;
- ②. Button setting action mode.
- ③. LCD display.
- ④. Timer for rest time.

## 4. Name and function of indicators on the controller



### ① Operation mode indication:

When press "MODE" button, the following mode can be selected in circle. Auto→Cool →Dry→Heat→Fan only→Auto. For cooling only model,heat mode is skipped.

### ② Timer :

When adjust setting on time or only on time is set, the "ON" is lighted.

When adjust setting off time or only off time is set, the "OFF" is lighted. If both 'on' and 'off' timer are set, both the "ON" and "OFF" are lighted.

### ③ Follow me function:

There is a temperature sensor inside the wired controller, after setting temperature, it will compare the two temperatures, and the space of wired controller will be the same as setting temperature. It is available under cooling, heating, auto mode.

### ④ ON/OFF indication :

When it is on, the icon display, otherwise it is extinguished.

### ⑤ Fan speed indication :

There are four fan modes: low, middle, high and auto. For some models, no middle fan then the middle fan is seen as high speed. The function is not suitable for the rooftop package units.

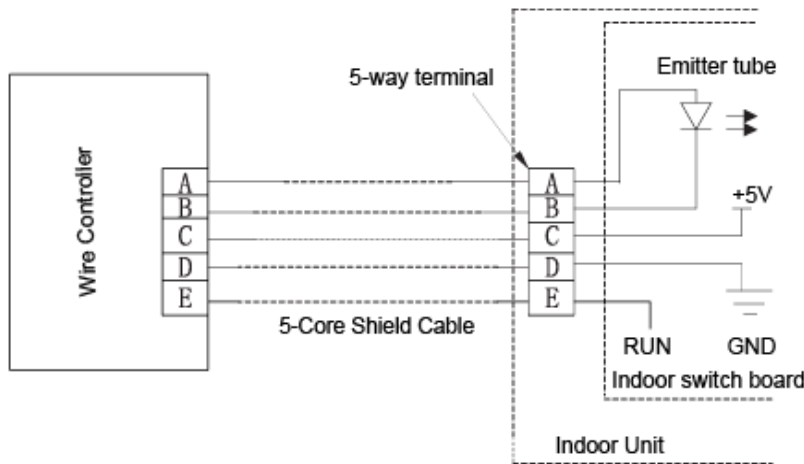
### ⑥ Lock:

When the "LOCK" button is pressed, the icon appear and other buttons is unable, press again, the icon disappear.

### ⑦ Temperature display zone:

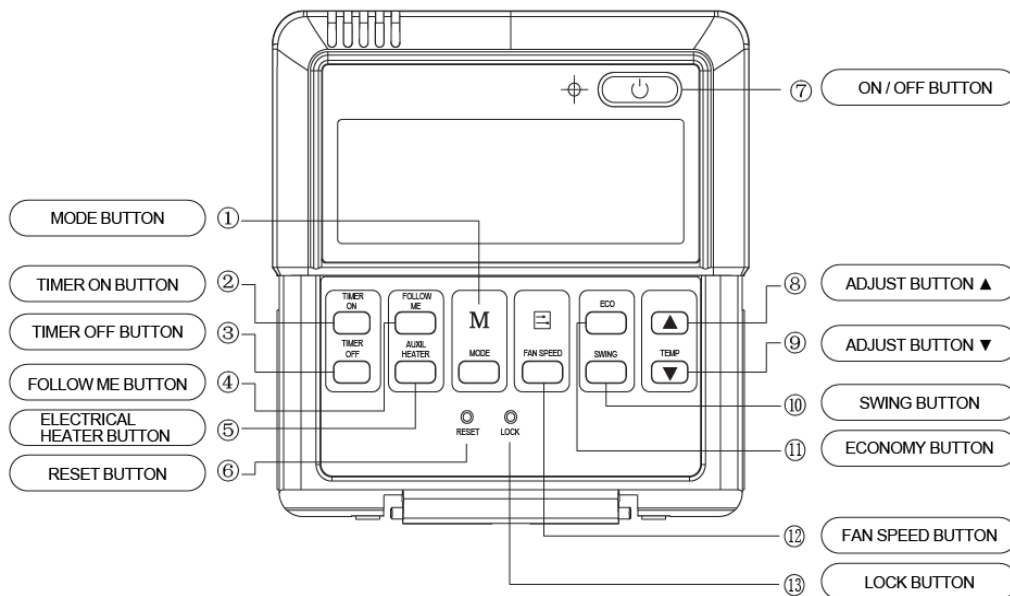
Generally it displays setting temperature, it can be adjusted by press temperature button ▲ and ▼. But for fan mode, no display is here.

**5. Installation method**



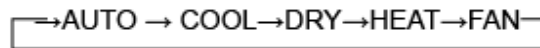
When a wired controller is needed, a small 5-way terminal should be added. Fix an infrared emitter with gum water near the receiver on the switch board. Connect its anode and cathode to A and B, and +5V, GND, RUN to C, D, E on the switch board.

**6. Name and operation of the button on the wired controller**



① Mode button:

When press this button, the operation mode change as the following sequence:



Remark: For the cooling only model, the heating mode is skipped.

② Timer on button :

Press this button, timer on function is active. Then every press, the time increase 0.5h, after 10h, 1h increase after each press. If cancel this Function, just set it to "0.0".

③ Timer off button:

Press this button, timer off function is active. Then every press, the time increase 0.5h, after 10h, per 1h increase after each press. If cancel this function, just set it to "0.0".

④ Follow me button:

When under cool, heat and auto mode, press this button, follow me function is active. Press again, this function is ineffective.

⑤ Electrical heater button :

If press this button in heat mode, electrical heater function become ineffective.

## ⑥ Reset button(hidden):

Use a 1mm stick to press in the little hole , then the current setting is canceled . The wired controller will enter into original state.

## ⑦ ON/OFF button:

When in off state, press this button, the indicator is on, the wired controller enter into on state, and send setting information to in door PCB. When in on state, press this button, the indicator is off, and send instruction. If timer on or timer off has been set, it cancel this setting then send instruction to stop the machine.

## ⑧ Adjust button ▲ :

Set indoor temperature up. If press and hold on, it will increase at 1 degree per 0.5 second.

## ⑨ Adjust button ▼ :

Set indoor temperature down. If press and hold on, it will decrease at 1degree per 0.5 second.

## ⑩ Swing button:

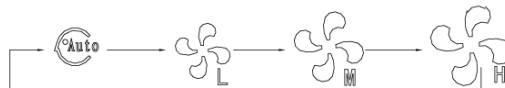
First pressing: start swing function; second pressing: stop swing. (Match to some model with swing function).

## ⑪ Economy operation button:

Press this button, the indoor unit operates in economy mode, press it again, exit this mode (it may be ineffective for some models)

## ⑫ Fan speed button:

Press this button consecutively, the fan speed will circle as follow:



## ⑬ Lock button (hidden):

When you push the LOCK button, all current settings are locked in and the wired controller does not accept any operation except that of the LOCK button. Use the lock mode when you want to prevent setting from being changed accidentally or play fully. Push the LOCK button again when you want to cancel the LOCK mode.

## 7. Using method

### Automatic operation

Connect to power, indoor operation lamp flash.

- ①. Press "MODE" button, select " AUTO " ;
- ②. Press the button "▲" and "▼", set temperature you want, generally it is among 17°C~30°C;
- ③. Press "ON/OFF" button, operation lamp is on, the air-conditioner work in auto mode, indoor fan is auto, and cannot be changed. Auto is displayed on LCD. Press " ON/OFF" button again to stop.
- ④. Economy operation is valid in auto mode.

### Cool/Heat/Fan mode operation

- ①. Press "MODE" button, select "COOL", "HEAT" or "FAN ONLY" mode.
- ②. Press temperature adjust button to select setting temp..
- ③. Press "FAN SPEED" button to select high/mid/low/auto.
- ④. Press "ON/OFF" button, indoor unit operation lamp on, it works in selected mode. Press "ON/OFF" button again, it stops to work.

Remark: When in fan mode, no temperature can be set.

### Dry operation

- ①. Press "MODE" button, select "DRY" mode.
- ②. Press temperature adjust button to select setting temp.
- ③. Press "ON/OFF" button, indoor unit operation lamp on, it works in dry mode. Press ON/OFF button again, it stops to work.
- ④. In dry mode, economy operation and fan speed are ineffective.

### Timer setting

#### Timer on only:

- ①. Press "TIME ON" button, it display "SET" on LCD, and display "H" and "ON" , it is waiting for timer on setting.
- ②. Press " timer " on button repeatedly to adjust time setting.
- ③. If press this button and hold on, the time will increase at 0.5h, after 10h, it increases at 1h.
- ④. After setting 0.5 second, the wired controller send timer on information, it is finished.

#### Timer off only:

- ①. Press "TIME OFF " button, it display "SET" on LCD, and display " H " and ON, it is waiting for timer on setting.
- ②. Press "TIME OFF" button repeatedly to adjust time setting.
- ③. If press this button and hold on, the time will increase at 0.5h, after 10h, it increases at 1h.
- ④. After setting 0.5 second, the wired controller send timer off information, it is finished.

### TIMER ON AND TIMER OFF BOTH

- ①. Set timer on time as the corresponding step1 and 2.
- ②. Set timer off time as the corresponding step1 and 2.
- ③. Timer off time must be longer than timer on time.
- ④. 0.5 second after setting, the wired controller send information, the setting is finished.

### Change timer

If there is a timer of changing time to be need, press corresponding button to revise it. If cancel timer, change time to 0.0.

**NOTE:** The timer time is relative time, that is delay after setting time ( i, e: setting time is 8:05 A,M). So when timer is set, the standard time cannot be adjusted.

## 8. Technical indication and requirement

EMC and EMI comply with the CE certification requirements.

### 15.2 Optional wired controller:

**KJR-23B: For cooling only and cooling with auxiliary heater**

**KJR-25B: For Cooling and heating**



**KJR-23B**



**KJR-25B**

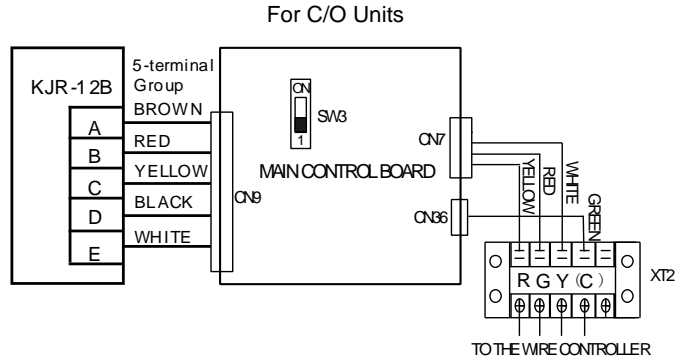
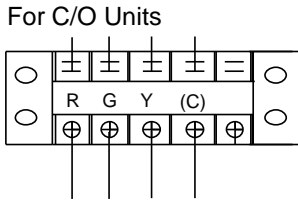


### 15.3 Field wiring

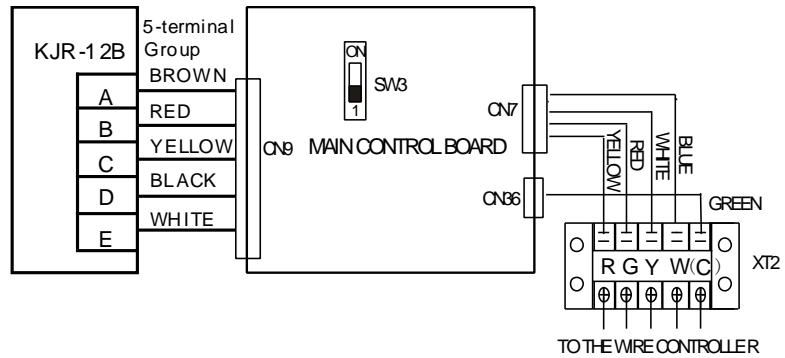
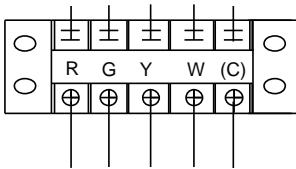
To connect with wired controller

The wired controller KJR-12B can be used when the SW3 is on “on”, if the SW3 is on ‘1’, the wired controller KJR-23B or KJR-25B can be used. After setting, please shut off the power supply and then power to it again, otherwise, the new setting function will be invalid

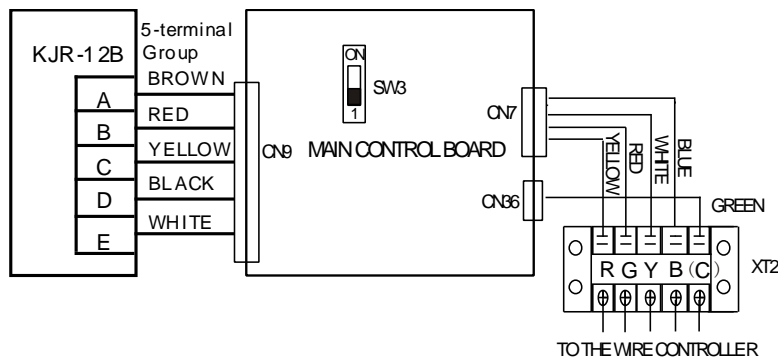
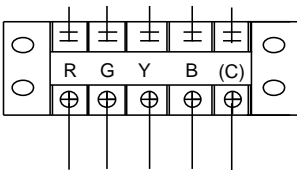
#### For Cooling Units



#### For Cooling +EAH Units



#### For Heating & cooling Units



**Remark:** Two stage capacity controlling is optional.

# 16. Error Code

## 16.1 Error Code for 5ton

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 T3-1 default	E1	Manual reset
Error	Outdoor coil temp. sensor T3-2 default	E2	Manual reset
Error	Indoor coil temp. sensor T2-1 default	E5	Manual reset
Error	Indoor coil temp. sensor T2-2 default	E6	Manual reset
Error	High, low pressure protection or discharge temperature protection of system A reached 3 times	E7	Unit shall be power off to recovery
Error	High, low pressure protection or discharge temperature protection of system B reached 3 times	E8	Unit shall be power off to recovery
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	Over current protection	P0	Auto reset
Protection	Comprehensive protection for outdoor fan	P3	Auto reset
Protection	Protection for High/Low Pressure or exhaust temp. (System 1)	P4	Auto reset
Protection	Protection for High/Low Pressure or exhaust temp. (System 1)	P5	Auto reset
Protection	Protection for High temperature of the outdoor condenser	P8	Auto reset

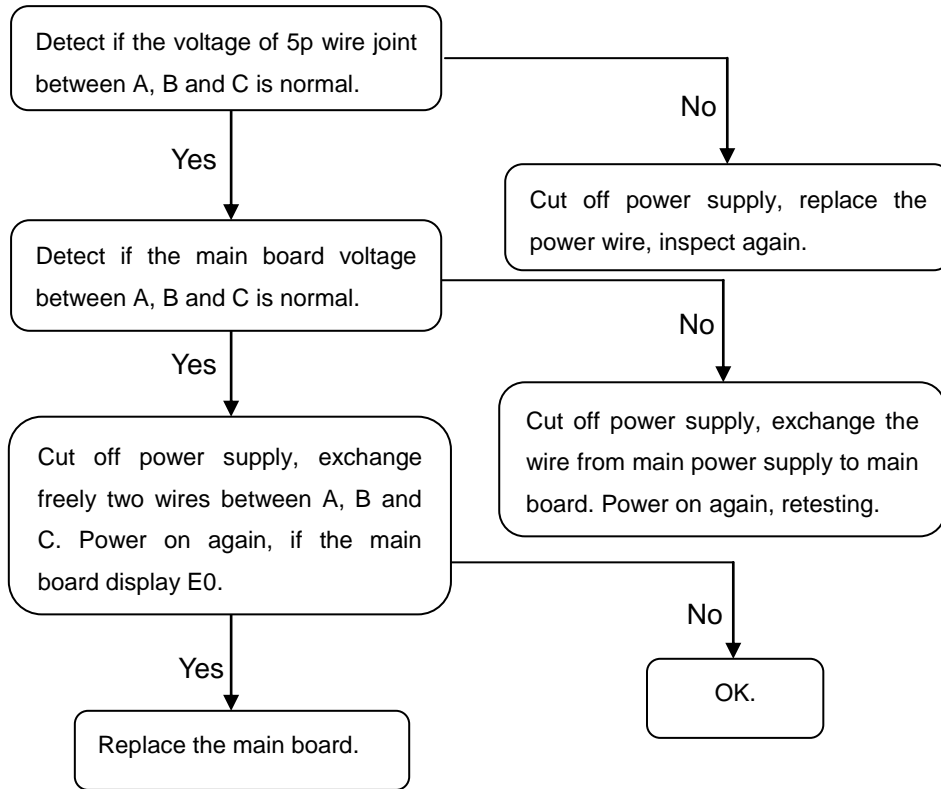
**Error code for 6.2ton and above**

Type	Content	Code	Remarks
Normal	Standby	--	
Normal	Constraint cool	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	High, low pressure protection or discharge temperature protection of system A reached 3 times	E7	Unit shall be power off to recovery
Error	High, low pressure protection or discharge temperature protection of system B reached 3 times	E8	Unit shall be power off to recovery
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	Over-current protection in sys. A	P0	Auto reset
Protection	Over-current protection in sys. B	P1	Auto reset
Protection	Over-current protection for indoor fan	P2	Auto reset
Protection	Comprehensive protection for outdoor fan	P3	Auto reset
Protection	Protection for High/Low Pressure or exhaust temp. in sys. A	P4	Comprehensive protection in sys. A
Protection	Protection for High/Low 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

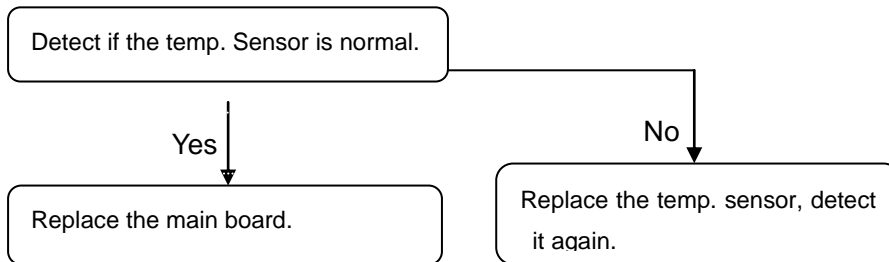
**16.2 Trouble shooting****For 5ton**

Item	Content	Error code
1	Compressor phase sequence error or phase default	E0
2	Outdoor coil temp. sensor T3-1 default	E1
3	Outdoor coil temp. sensor T3-2 default	E2
4	Indoor coil temp. sensor T2-1 default	E5
5	Indoor coil temp. sensor T2-2 default	E6
6	Indoor temp. sensor T1 error	E9
7	Outdoor ambient temp. sensor T4 error	EA
8	Wired controller output error	Eb
9	Over current protection	P0
10	Comprehensive protection for outdoor fan	P3
11	Protection for High/Low Pressure or exhaust temp.	P4

**E0: Compressor phase sequence error or phase default**

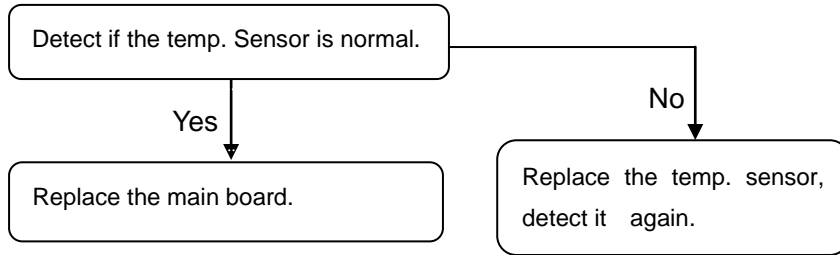


**1) E1: Outdoor coil temp. sensor T3 default.**



**2) E9: Indoor coil temp. sensor T2 default.**

(Indoor temp. and Pipe Temp. Sensor Resistance Value Table, see **Appendix 2**)



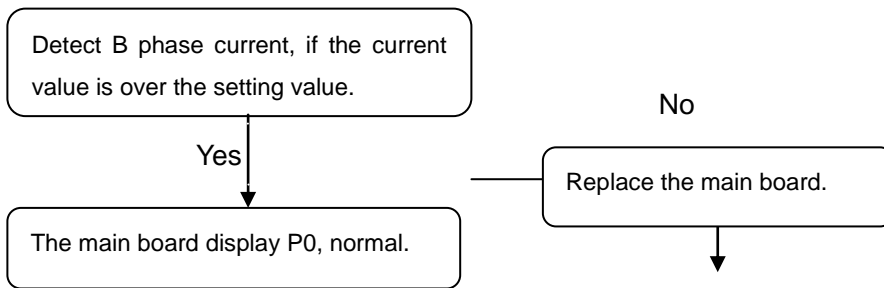
**3) When E2,E5,E6 or EA displays, please check the wired nameplate, if the terminals of T2\_1、 T2\_2、 T3\_2、 T4 are connected as short circuit. If no, please connect all as short circuit, unless replace main board.**

**4) Eb: Wired controller output error.(Only for KJR-23B or KJR-25B).**

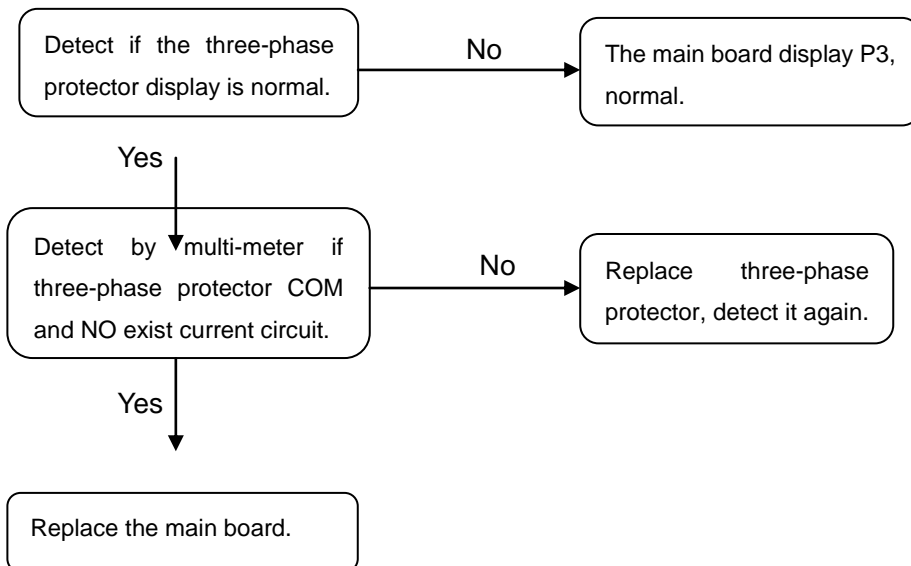
Avoid three conditions as following:

- 1) The wired controller output signal has Y, no G.
- 2) The wired controller output signal has W, no G.
- 3) The wired controller output signal has Y and W, no G.

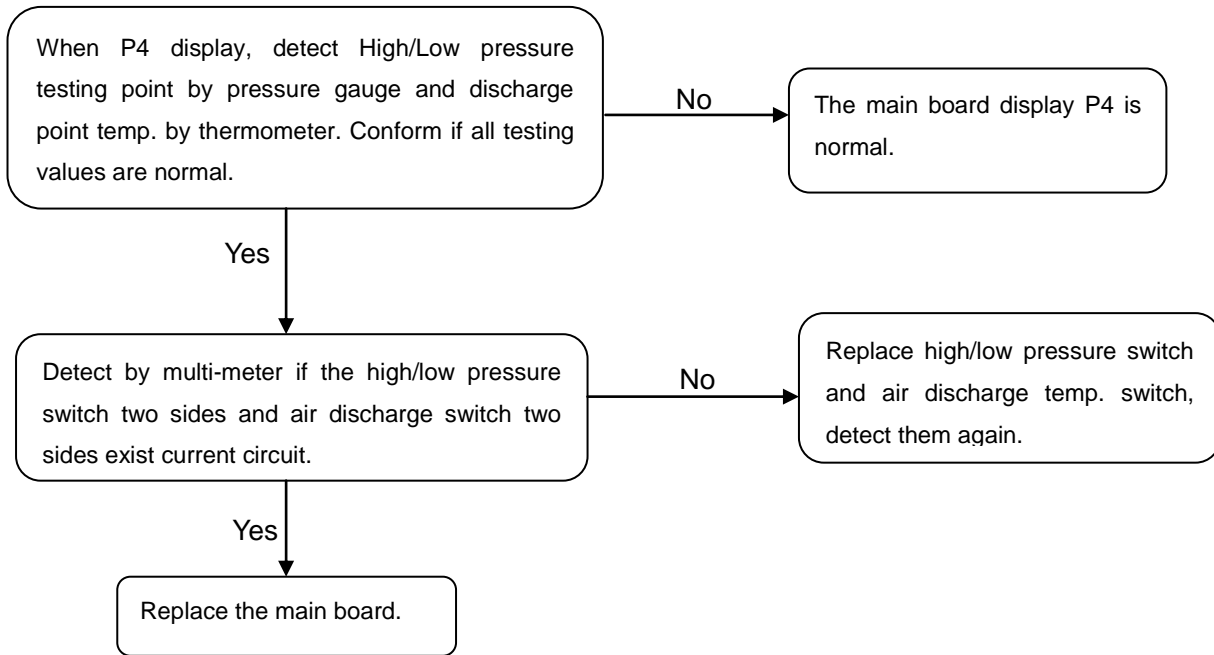
**6). P0: Compressor over current protection.(The over current protection value is 16A)**



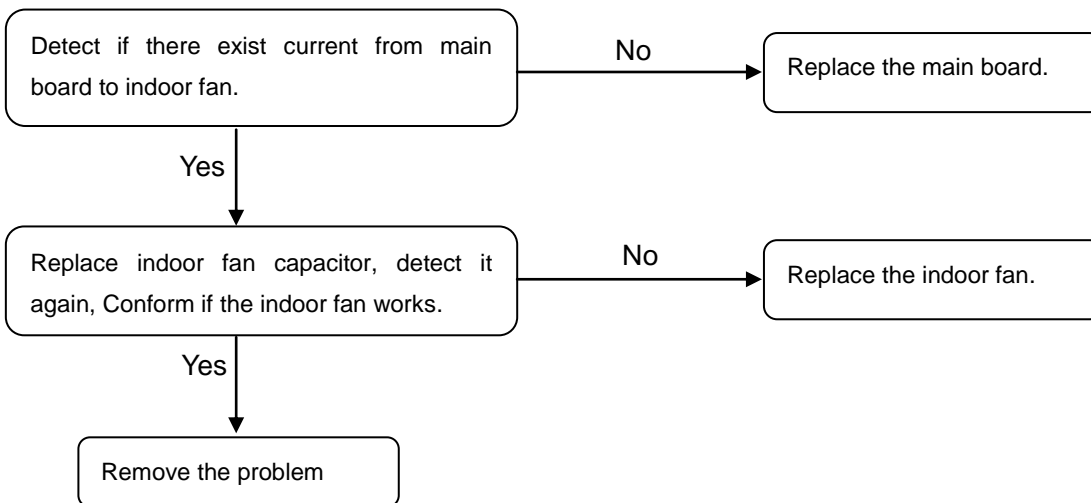
**7). P3: Comprehensive protection for outdoor fan**



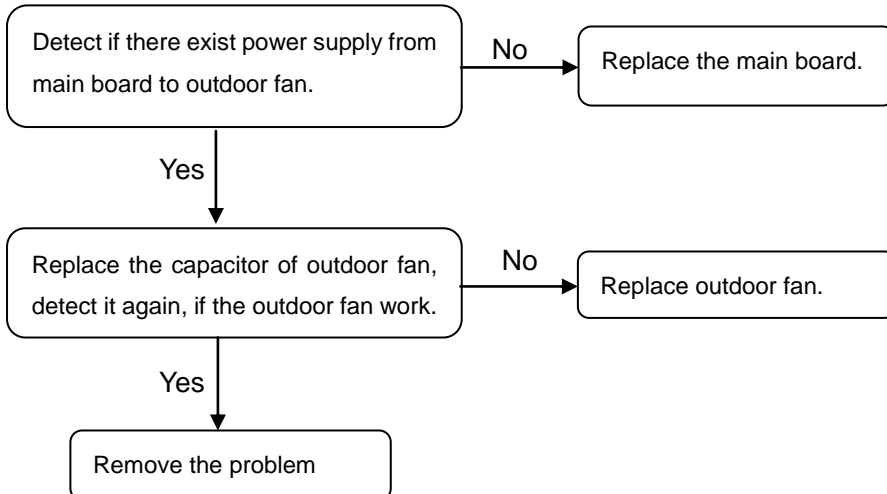
**8). P4: Protection for High/Low Pressure or exhaust temp. (High pressure protection value: 4.4MPa, High pressure protection value: 0.14MPa; air discharge temp. protection value: 130°C above)**



**9). Indoor fan motor didn't work.**



**10). Outdoor fan motor didn't work.**

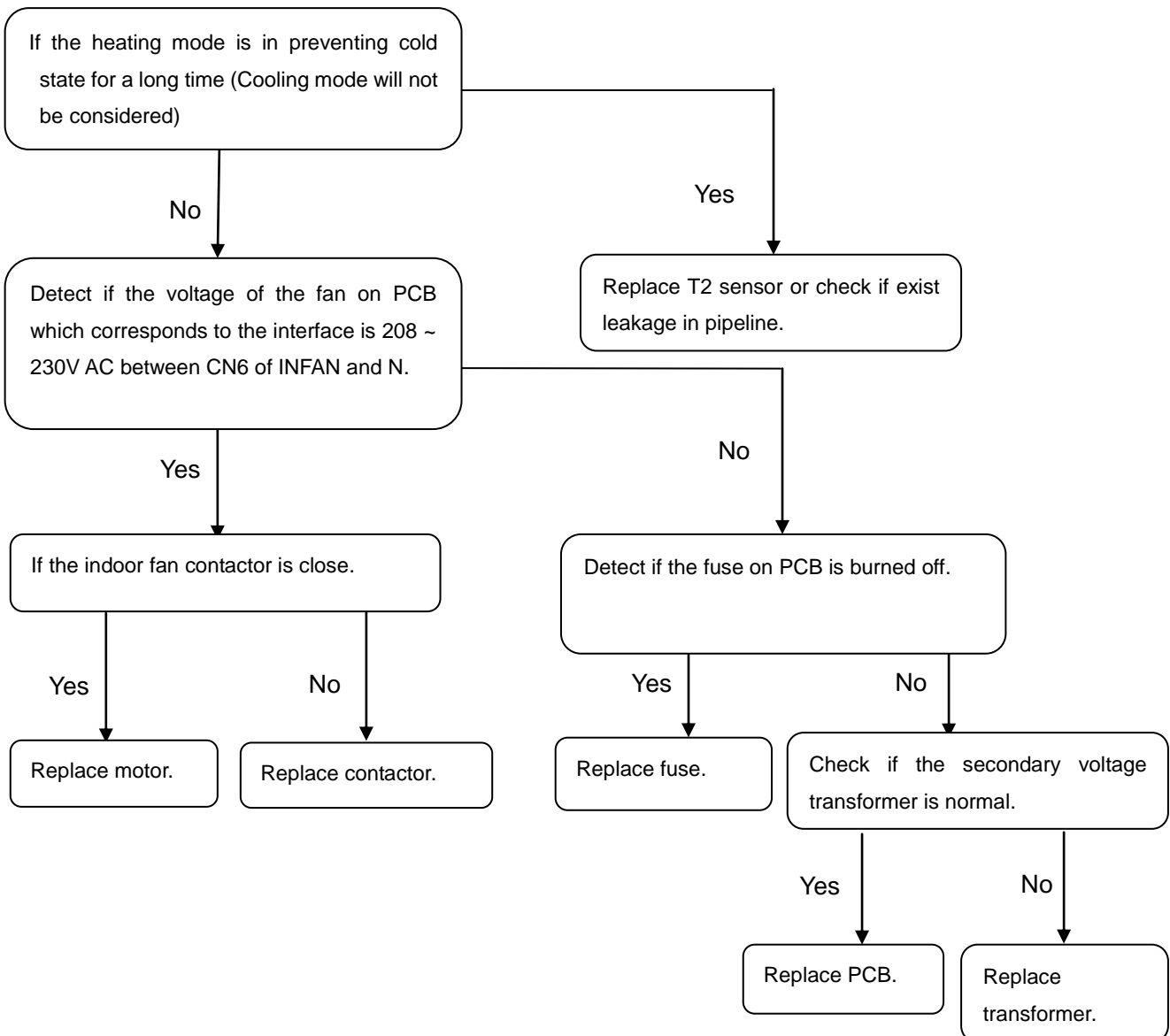


**For 6.2ton and above**

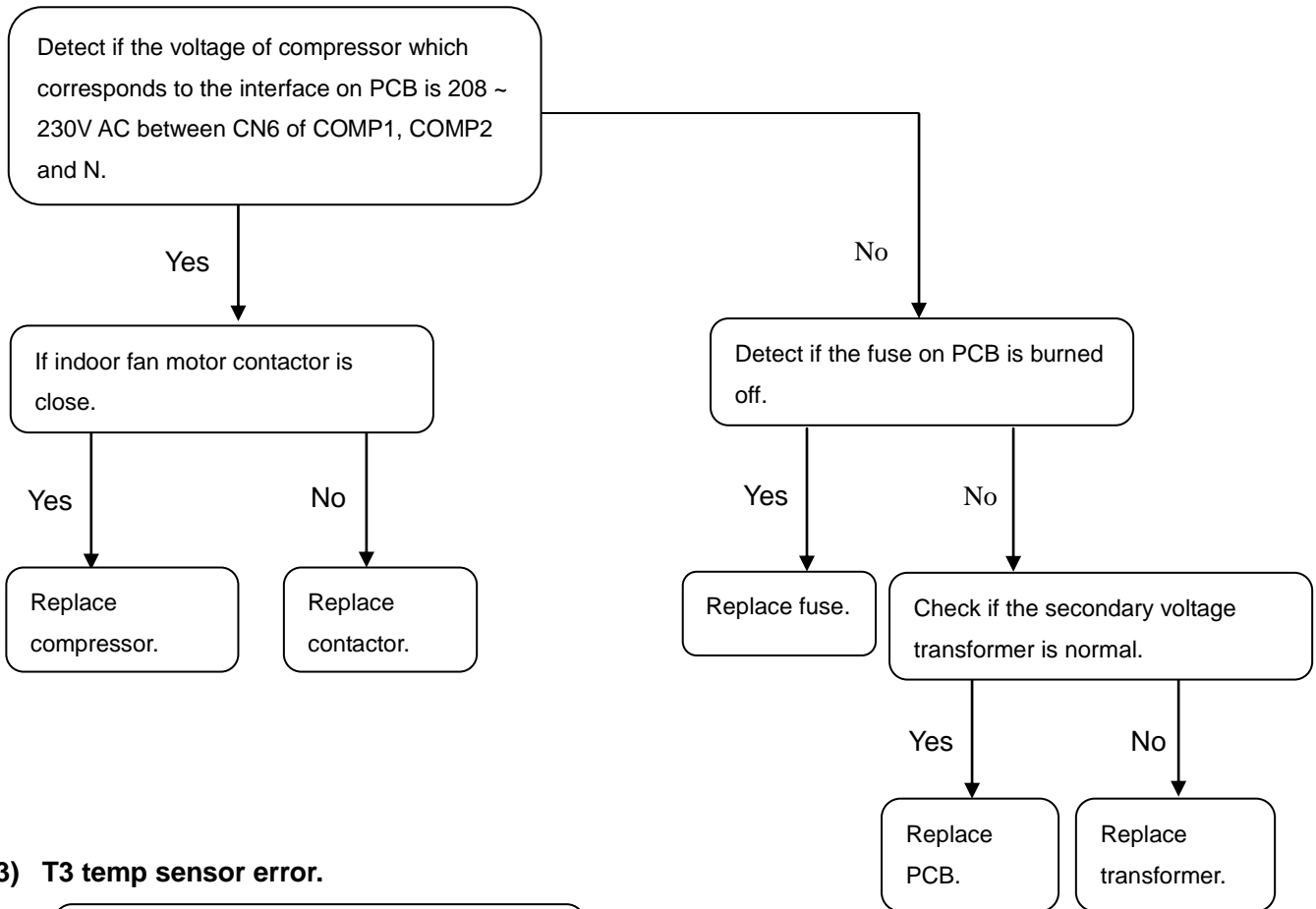
Item	Content	Error code
1	Indoor fan motor didn't run.	--
2	Compressor didn't run.	--
3	T3 temp sensor error.	EA
4	Check if the low pressure protection is normal.	--
5	Outdoor fan motor didn't run.	--
6	Four ways valve didn't work.	--
7	Condenser high temp protection.	P8,P9

**1) Indoor fan motor didn't run.**

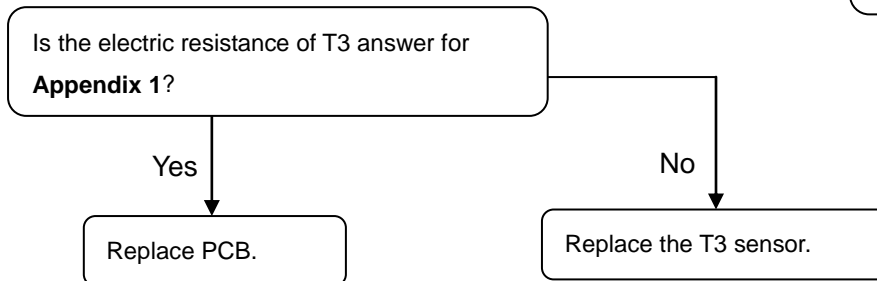
The first check if the power supplier is normal, if all wire connection terminal is loose, if the wired controller set and wire connection are correct, operating as flow process after confirm.



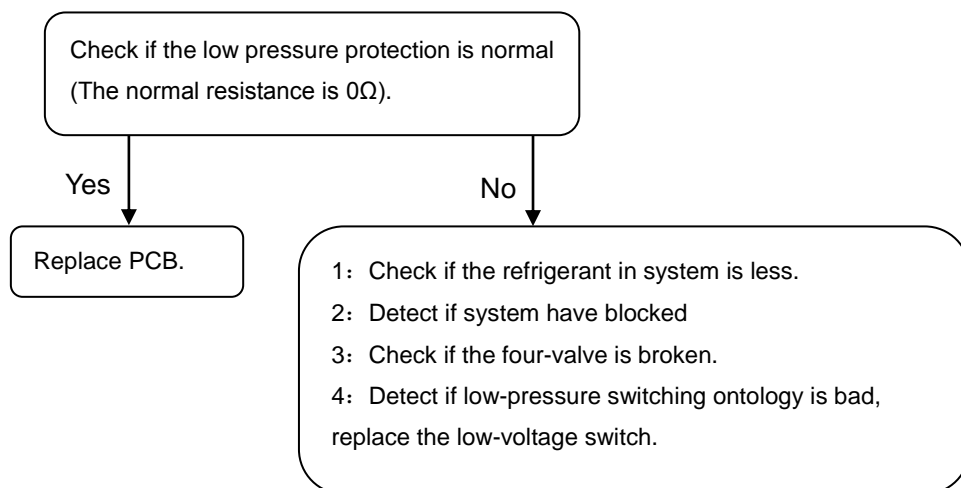
**2) Compressor didn't run (All wires connection are correct and reliable, if power supplier is required range. If compressor didn't run, you can analysis as flowing)**



**3) T3 temp sensor error.**

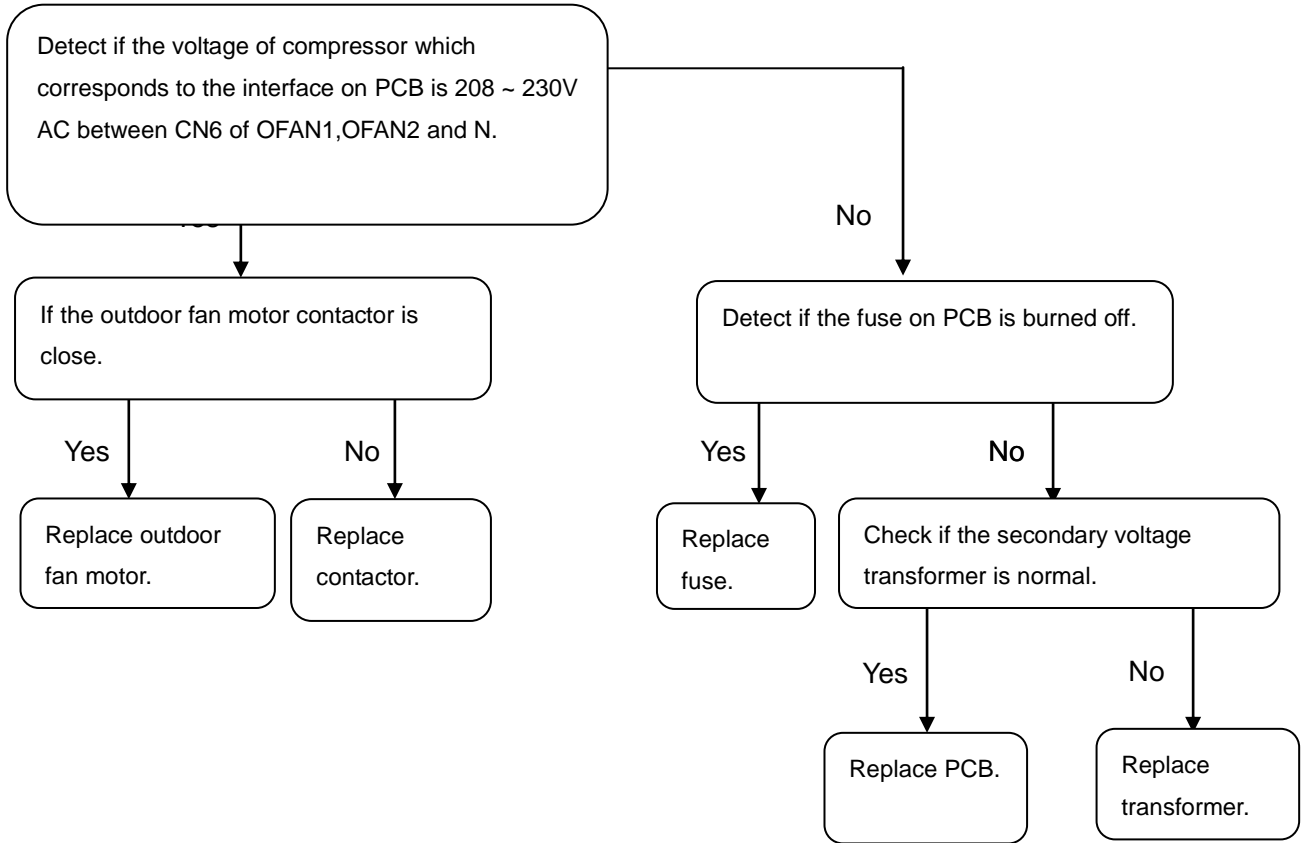


**4) Check if the low pressure protection is normal.**

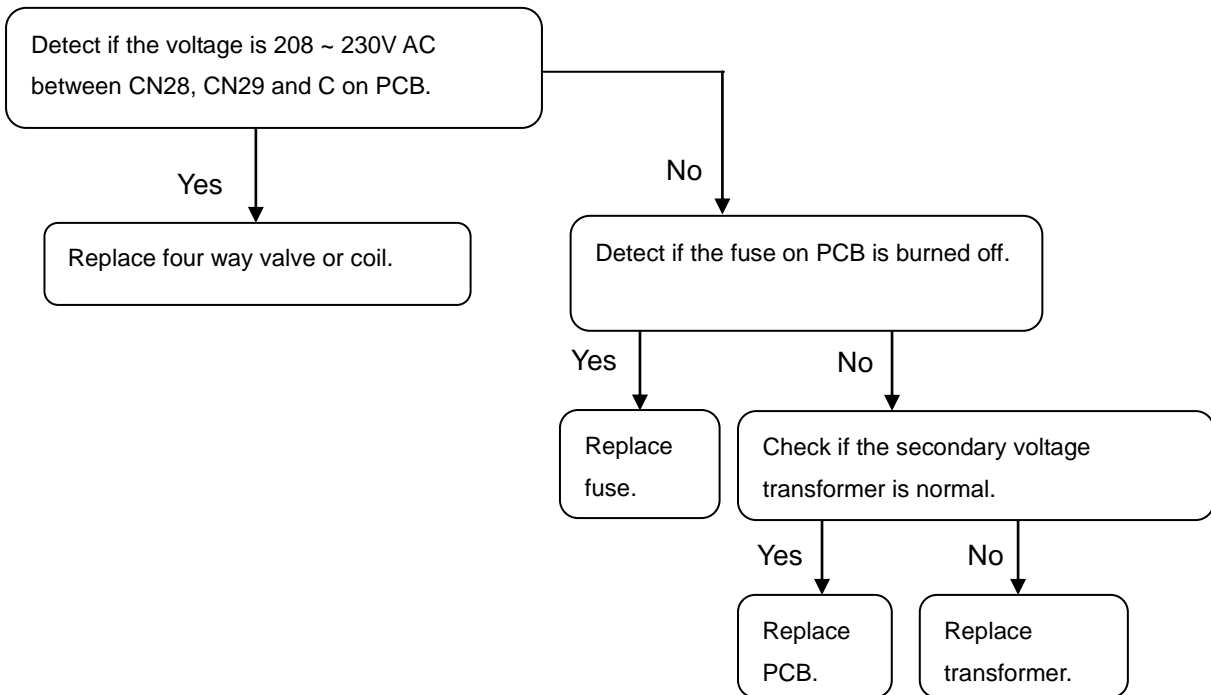




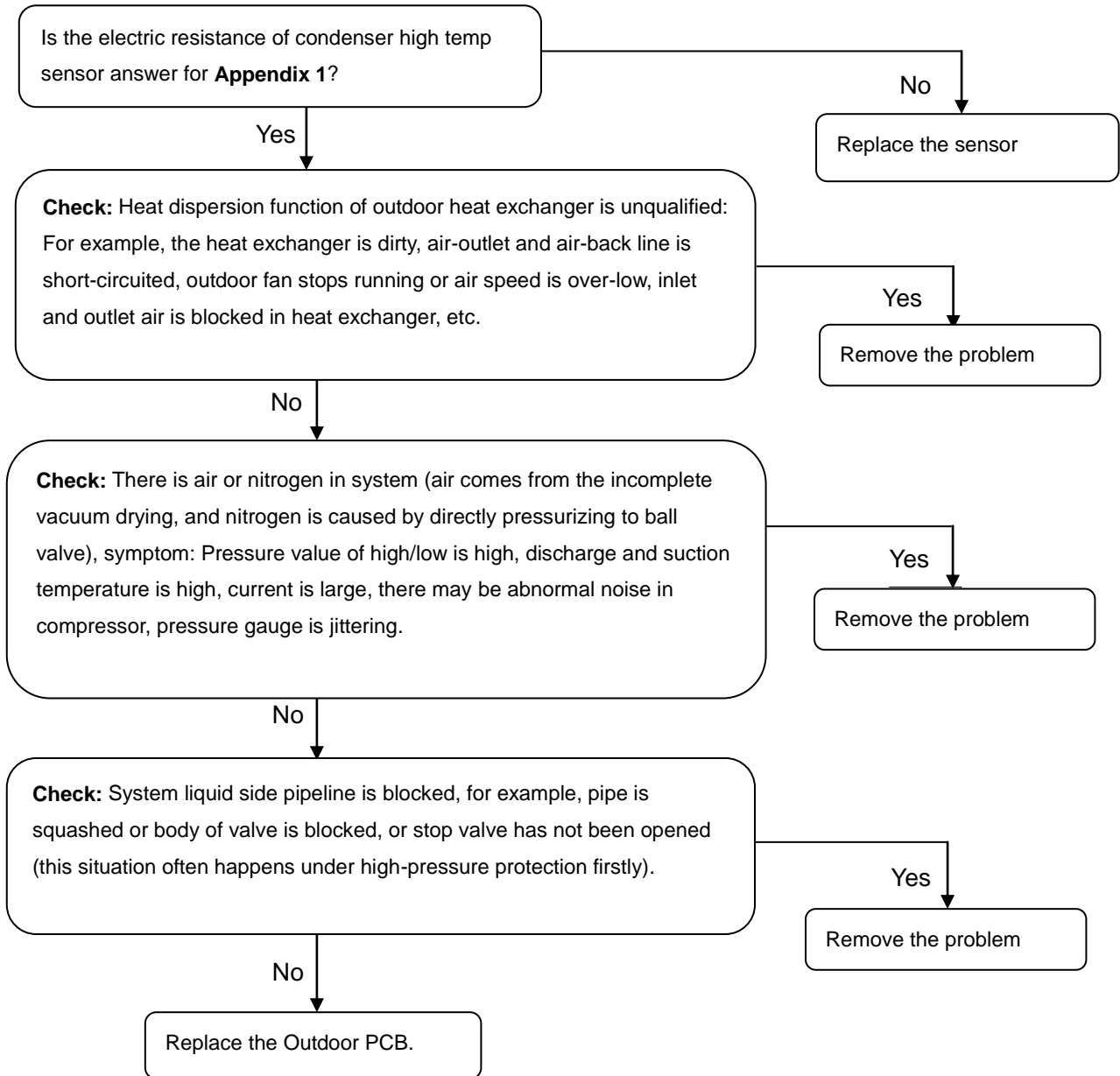
**5) Outdoor fan motor didn't run.**







**6) Four ways valve didn't work.**



7) Condenser high temperature protection



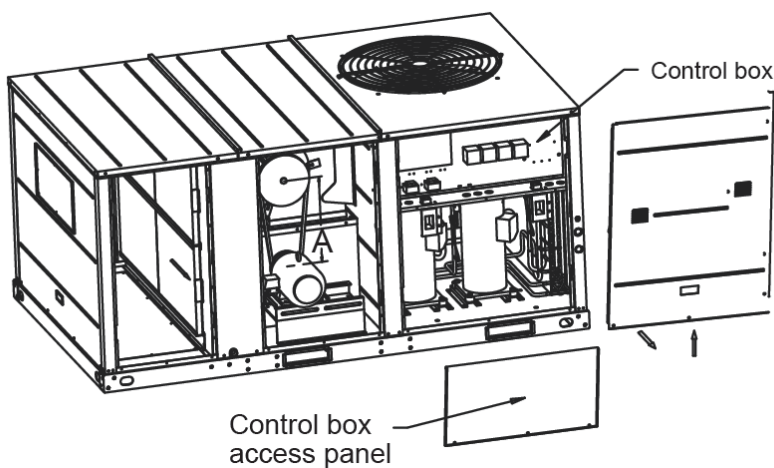
## 17. Accessory

Name of accessories	Qty	Shape
Manual	1	—————
Drain outlet	1	
Snap ring	1	
Drain pipe	1	
KJR-12B Wired controller	1	

## 18. Maintenance and Upkeep

Regular maintenance and upkeep

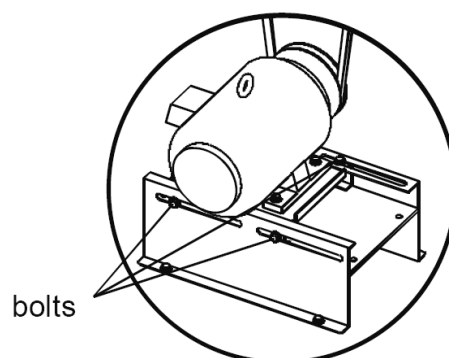
Some regular maintenance and upkeep have been carry on by user, includes: change the one-time dust filter, clean casing, wash condenser and replace a new belt, as well as do some test for the equipment.



Model	A
6.2 Ton	328mm
7.5 Ton	328mm
8.5Ton	395mm
10 Ton	395mm
12.5Ton	620mm
15 Ton	576mm
17.5 Ton	576mm
20 Ton	525mm

**Note:** At least 1m flame resistant layer must be laid at the end of the air duct internal surface.

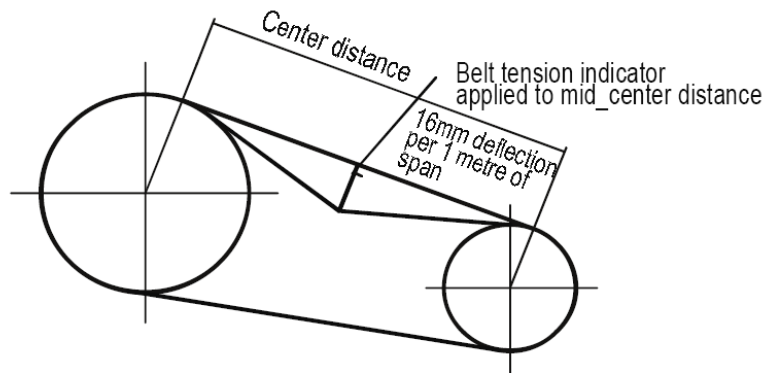
Regulating belt of rate of tension, inner fan Refer to the following Fig. fixed bolt of electric motor's supporting slide was loosened, following electric motor was droved, rate of belt tension will begin change.



Method of belt tensioning using belt tension indicator

Calculate the deflection in mm on a basis of 16mm per meter of center distance

Center distance (m) x16=deflection (mm).



Belt section	For required to deflection belt 16 mm per meter of span		
	Small pulley diameter (mm)	Newton (N)	Kilogram-force (kgf)
SPA	80 to 132	25 to 35	2.5 to 3.6
SPB	140 to 224	45 to 65	4.6 to 6.6

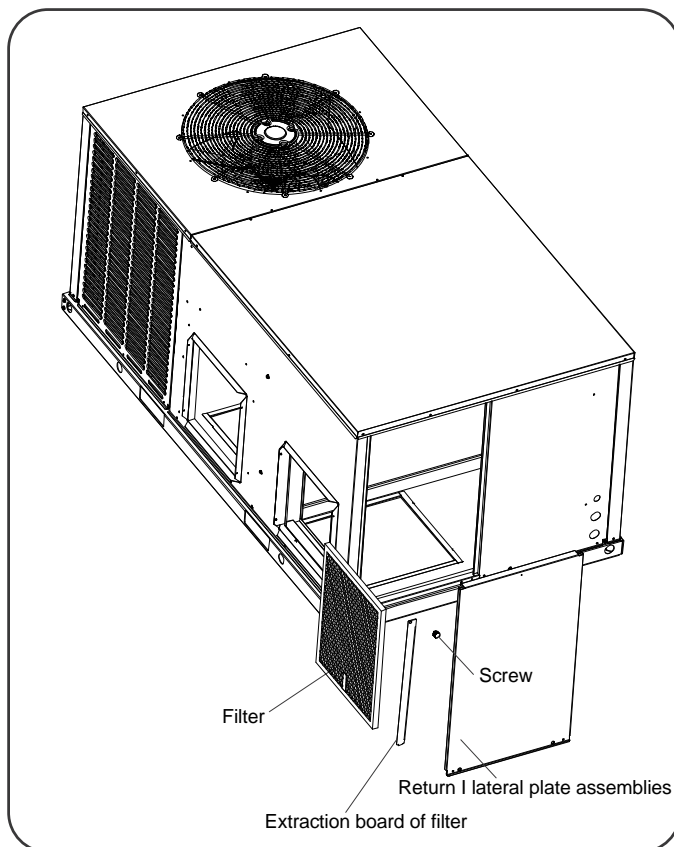
**NOTE:** The belt which is too tight or too loose may generate noise and be harmful to the unit.

**Dismantle the air filter.**

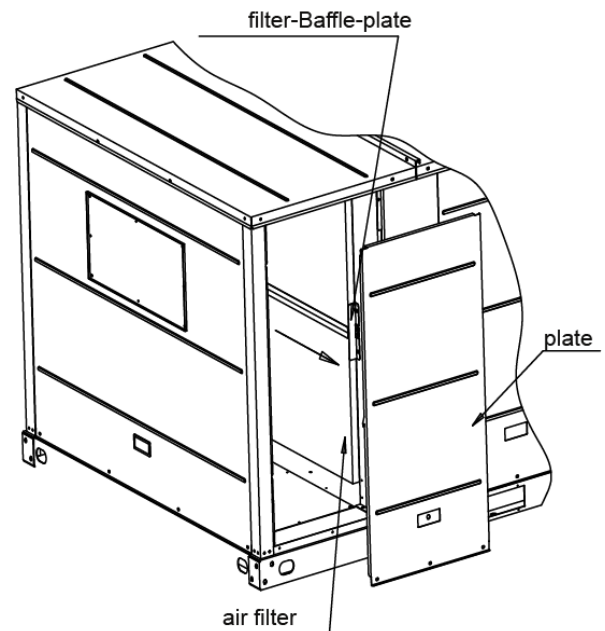
Twist of screws and up the plate that is gets out.

Upon loose the filter-baffle-plate, the filter could be pulled out along the supporting slot.

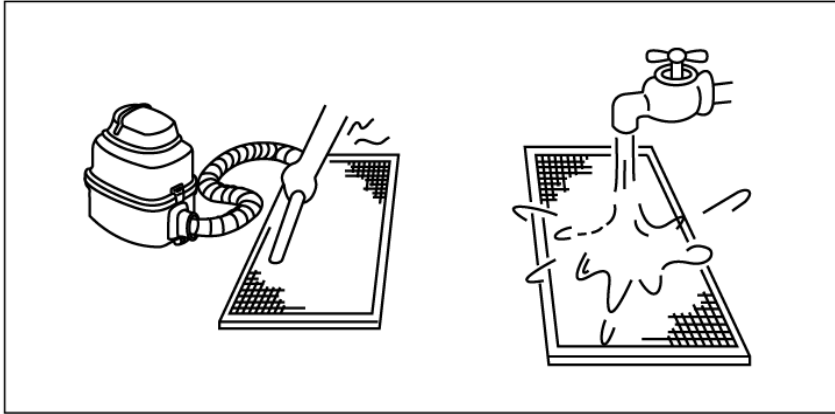
**5ton**



**6.2ton and above**



Clean the air filter (Vacuum cleaner or pure water may be used to clean the air filter. If the dust accumulation is too heavy, please use soft brush and mild detergent to clean it and dry out in cool place).



The air-in side should face up when using vacuum cleaner.

The air-in side should face down when using water.

**CAUTION:** Do not dry out the air filter under direct sunshine or with fire.

### Re-install the air filter

#### Condenser coil

Unfiltered air circulates through the unit's condenser coil and can cause the coil's surface to become clogged with dust, dirt, etc. To clean the coil, vertically (i.e., with the fins) stroke the coil surface with a soft-bristled brush. Be sure to keep all vegetation away from the condenser coil area.

Maintenance performed by serviceman.

To keep your unit operating safely and efficiently, the manufacturer recommends that a qualified serviceman check the entire system at least once each year and any other time that you feel one is needed. Your serviceman should examine these areas of your unit:

Filters

Motors and drive system components

Economizer gaskets (for possible replacement)

Safety controls (for mechanical cleaning)

Electrical components and wiring (for possible replacement and connection tightness)

Condensate drain (for cleaning)

Unit duct connections (to see that they are physically sound and sealed to the unit casing)

Unit mounting support (for structural integrity)

The unit (for obvious unit deterioration)

### CAUTION:

Do not operate the unit without the evaporator fan access panel in place. Reinstall the access panel after performing any maintenance. Operating the unit without the access panel may result in severe personal injury or death.

# Appendix

**Appendix 1: Indoor Temp. and Pipe Temp. Sensor Resistance Value Table (°C--K)(for 6.2tons and above)**

°C	K Ohm	°C	K Ohm	°C	K Ohm	°C	K Ohm
-20	115.266	20	12.6431	60	2.35774	100	0.62973
-19	108.146	21	12.0561	61	2.27249	101	0.61148
-18	101.517	22	11.5000	62	2.19073	102	0.59386
-17	96.3423	23	10.9731	63	2.11241	103	0.57683
-16	89.5865	24	10.4736	64	2.03732	104	0.56038
-15	84.2190	25	10.000	65	1.96532	105	0.54448
-14	79.3110	26	9.55074	66	1.89627	106	0.52912
-13	74.5360	27	9.12445	67	1.83003	107	0.51426
-12	70.1698	28	8.71983	68	1.76647	108	0.49989
-11	66.0898	29	8.33566	69	1.70547	109	0.48600
-10	62.2756	30	7.97078	70	1.64691	110	0.47256
-9	58.7079	31	7.62411	71	1.59068	111	0.45957
-8	56.3694	32	7.29464	72	1.53668	112	0.44699
-7	52.2438	33	6.98142	73	1.48481	113	0.43482
-6	49.3161	34	6.68355	74	1.43498	114	0.42304
-5	46.5725	35	6.40021	75	1.38703	115	0.41164
-4	44.0000	36	6.13059	76	1.34105	116	0.40060
-3	41.5878	37	5.87359	77	1.29078	117	0.38991
-2	39.8239	38	5.62961	78	1.25423	118	0.37956
-1	37.1988	39	5.39689	79	1.21330	119	0.36954
0	35.2024	40	5.17519	80	1.17393	120	0.35982
1	33.3269	41	4.96392	81	1.13604	121	0.35042
2	31.5635	42	4.76253	82	1.09958	122	0.3413
3	29.9058	43	4.57050	83	1.06448	123	0.33246
4	28.3459	44	4.38736	84	1.03069	124	0.32390
5	26.8778	45	4.21263	85	0.99815	125	0.31559
6	25.4954	46	4.04589	86	0.96681	126	0.30754
7	24.1932	47	3.88673	87	0.93662	127	0.29974
8	22.5662	48	3.73476	88	0.90753	128	0.29216
9	21.8094	49	3.58962	89	0.87950	129	0.28482
10	20.7184	50	3.45097	90	0.85248	130	0.27770
11	19.6891	51	3.31847	91	0.82643	131	0.27078
12	18.7177	52	3.19183	92	0.80132	132	0.26408
13	17.8005	53	3.07075	93	0.77709	133	0.25757
14	16.9341	54	2.95896	94	0.75373	134	0.25125
15	16.1156	55	2.84421	95	0.73119	135	0.24512
16	15.3418	56	2.73823	96	0.70944	136	0.23916
17	14.6181	57	2.63682	97	0.68844	137	0.23338
18	13.9180	58	2.53973	98	0.66818	138	0.22776
19	13.2631	59	2.44677	99	0.64862	139	0.22231

**Appendix 2: Indoor Temp. and Pipe Temp. Sensor Resistance Value Table (5ton)**

Temp (°C)	Resistance (KΩ)			Resist.tol (%)		Temp.tol(°C)	
	Rmax	R (t) Normal	Rmin	MAX(+)	MIN(-)	MAX(+)	MIN(-)
-20	116.539	106.732	96.920	9.19	9.19	1.59	1.59
-19	110.231	100.552	91.451	9.63	9.05	1.57	1.57
-18	103.743	94.769	86.328	9.47	8.91	1.56	1.55
-17	97.673	89.353	81.525	9.31	8.76	1.54	1.54
-16	91.990	84.278	77.017	9.15	8.62	1.53	1.52
-15	86.669	79.521	72.788	8.99	8.47	1.51	1.50
-14	81.684	75.059	68.815	8.83	8.32	1.49	1.48
-13	77.013	70.873	65.083	8.66	8.17	1.47	1.47
-12	72.632	66.943	61.574	8.50	8.02	1.45	1.45
-11	68.523	63.252	58.274	8.33	7.87	1.44	1.43
-10	64.668	59.784	55.169	8.17	7.72	1.42	1.41
-9	61.048	56.524	52.246	8.00	7.57	1.40	1.39
-8	57.649	53.458	49.492	7.84	7.42	1.38	1.37
-7	54.456	50.575	46.899	7.67	7.27	1.35	1.35
-6	51.456	47.862	44.455	7.51	7.12	1.33	1.32
-5	48.636	45.308	42.150	7.35	6.97	1.31	1.30
-4	45.984	42.903	39.977	7.18	6.82	1.29	1.28
-3	43.490	40.638	37.927	7.02	6.67	1.27	1.26
-2	41.144	38.504	35.992	6.86	6.52	1.25	1.24
-1	38.935	36.492	34.165	6.70	6.38	1.23	1.21
0	36.857	34.596	32.440	6.53	6.23	1.21	1.19
1	34.898	32.807	30.810	6.38	6.09	1.18	1.17
2	33.055	31.120	29.271	6.22	5.94	1.16	1.15
3	31.317	29.528	27.815	6.06	5.80	1.14	1.12
4	29.681	28.026	26.440	5.90	5.66	1.12	1.10
5	28.138	26.608	25.140	5.75	5.52	1.10	1.08
6	26.682	25.268	23.909	5.60	5.38	1.07	1.06
7	25.310	24.003	22.745	5.45	5.24	1.05	1.03
8	24.016	22.808	21.644	5.30	5.10	1.03	1.01
9	22.794	21.678	20.601	5.15	4.97	1.01	0.99
10	21.641	20.610	19.614	5.00	4.83	0.99	0.97
11	20.553	19.601	18.680	4.86	4.70	0.96	0.94
12	19.525	18.646	17.794	4.71	4.57	0.94	0.92
13	18.554	17.743	16.955	4.57	4.44	0.92	0.90
14	17.636	16.888	16.160	4.43	4.31	0.90	0.88
15	16.769	16.079	15.406	4.29	4.19	0.88	0.85
16	15.949	15.313	14.691	4.15	4.06	0.86	0.83
17	15.174	14.588	14.014	4.02	3.94	0.84	0.81
18	14.442	13.902	13.372	3.89	3.81	0.81	0.79
19	13.748	13.251	12.762	3.75	3.69	0.79	0.76
20	13.093	12.635	12.183	3.62	3.57	0.77	0.74
21	12.471	12.050	11.634	3.50	3.46	0.75	0.72
22	11.883	11.496	11.112	3.37	3.34	0.73	0.70
23	11.327	10.971	10.617	3.25	3.23	0.71	0.68
24	10.800	10.473	10.147	3.12	3.11	0.69	0.66
25	10.300	10.000	9.700	3.00	3.00	0.67	0.63
26	9.848	9.551	9.255	3.11	3.10	0.69	0.66
27	9.418	9.125	8.834	3.21	3.19	0.72	0.69

28	9.010	8.721	8.434	3.31	3.29	0.75	0.71
29	8.621	8.337	8.055	3.41	3.38	0.77	0.74
30	8.252	7.972	7.695	3.51	3.47	0.80	0.77
31	7.900	7.625	7.353	3.61	3.57	0.83	0.79
32	7.566	7.296	7.029	3.70	3.66	0.85	0.82
33	7.247	6.982	6.721	3.80	3.74	0.88	0.84
34	6.944	6.684	6.428	3.89	3.83	0.91	0.87
35	6.656	6.401	6.150	3.98	3.92	0.93	0.90
36	6.381	6.131	5.886	4.08	4.00	0.96	0.93
37	6.119	5.874	5.634	4.17	4.09	0.98	0.95
38	5.870	5.630	5.395	4.26	4.17	1.01	0.98
39	5.631	5.397	5.167	4.34	4.26	1.03	1.01
40	5.404	5.175	4.951	4.43	4.34	1.06	1.03
41	5.188	4.964	4.745	4.52	4.42	1.09	1.06
42	4.982	4.763	4.549	4.60	4.50	1.12	1.09
43	4.785	4.571	4.362	4.69	4.58	1.14	1.12
44	4.596	4.387	4.183	4.77	4.66	1.17	1.14
45	4.417	4.213	4.014	4.85	4.74	1.19	1.17
46	4.246	4.046	3.851	4.93	4.81	1.22	1.20
47	4.082	3.887	3.697	5.02	4.89	1.25	1.23
48	3.925	3.735	3.550	5.10	4.97	1.28	1.25
49	3.776	3.590	3.409	5.18	5.04	1.30	1.28
50	3.632	3.451	3.274	5.25	5.12	1.33	1.30
51	3.495	3.318	3.146	5.33	5.19	1.35	1.33
52	3.363	3.191	3.023	5.41	5.26	1.41	1.36
53	3.237	3.069	2.905	5.49	5.34	1.43	1.38
54	3.116	2.952	2.793	5.56	5.41	1.46	1.41
55	3.001	2.841	2.685	5.64	5.48	1.48	1.44
56	2.890	2.734	2.582	5.71	5.55	1.51	1.46
57	2.784	2.632	2.484	5.79	5.62	1.54	1.49
58	2.682	2.534	2.390	5.86	5.69	1.56	1.52
59	2.585	2.440	2.299	5.93	5.76	1.59	1.54
60	2.491	2.350	2.213	6.01	5.83	1.62	1.57
61	2.401	2.264	2.130	6.08	5.90	1.64	1.60
62	2.315	2.181	2.051	6.15	5.96	1.67	1.62
63	2.233	2.102	1.975	6.22	6.03	1.70	1.65
64	2.154	2.026	1.903	6.29	6.10	1.72	1.68
65	2.077	1.953	1.833	6.36	6.16	1.75	1.70
66	2.004	1.883	1.766	6.42	6.23	1.77	1.73
67	1.934	1.816	1.702	6.49	6.29	1.80	1.76
68	1.867	1.752	1.641	6.56	6.35	1.83	1.78
69	1.802	1.690	1.582	6.62	6.41	1.85	1.81
70	1.740	1.631	1.525	6.69	6.48	1.88	1.84
71	1.680	1.574	1.471	6.75	6.54	1.91	1.86
72	1.622	1.519	1.419	6.82	6.60	1.93	1.89
73	1.567	1.466	1.369	6.88	6.66	1.96	1.92
74	1.514	1.416	1.321	6.94	6.71	1.98	1.94
75	1.463	1.367	1.275	7.00	6.77	2.01	1.97