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## 2. External Appearance

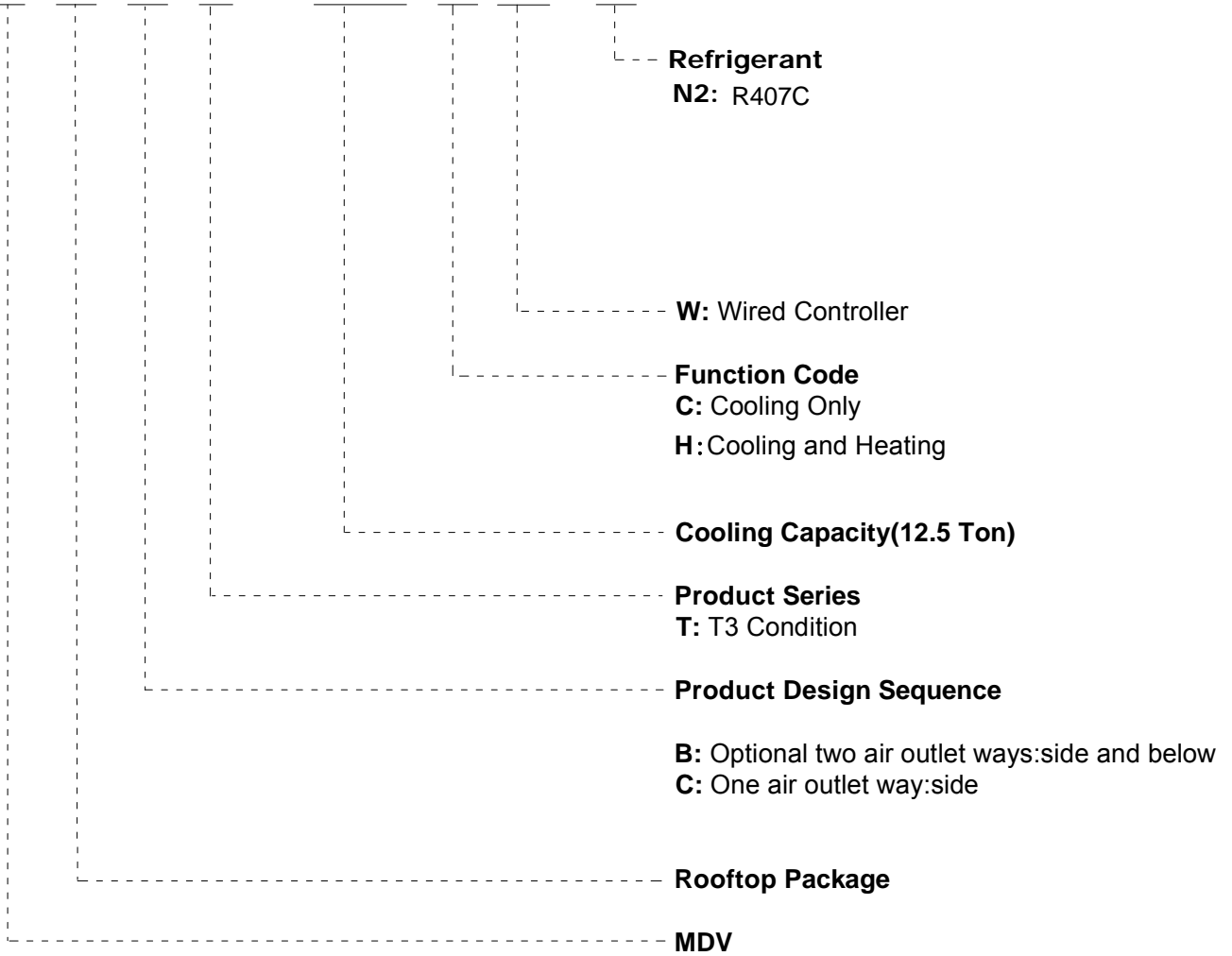
**12.5~25Ton:**



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### 3. Model Number Nomenclature

**M R C Ti - 250 C W N2**



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## 4. Feature & Benefits

### 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.

(Has been 1000 hours salt spray test)

### 2. The adoption of credible protection system

#### 2.1 The protection of 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, as others working still.

#### 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 professional compressor, heat exchanger and optimum connection pipe, the compressor can startup under low power input.

#### 3.2 Condenser

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

#### 3.3 Evaporator

By using the high-efficient, super thin wing 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.

### 4. Optional collocation

#### 4.1 Operation in High Temperature

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

#### 4.2 Strong Air Flow

The wind is sent off by exterior high static pressure produced by 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.

### 6. Optional supply/return airflow design, from side or bottom, It could be flexibly applied to multi-position.

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## 5. List of Functions

### 5.1 STANDARD SPECIFICATIONS

#### A. General

Packaged cooling or combination heating and cooling units suitable for mounting on the roof or ground. The packaged unit consists of scroll compressors, cooling coil, condenser coil, control wiring and interconnecting piping- all factory 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). Inner grooved copper tubes with wall thickness of 0.3mm, mechanically bonded to enhanced louvered aluminum fins are standard for all condenser coils. Return bends have 0.022 inch thickness (0.56mm). 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. Drain Pan: An insulated drain 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 Thermostats**

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

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

**5.2 OPTIONS AND ACCESSORIES**

**A. Electric Heaters**

Electric heaters are of the resistance open coil type and conform to the requirements of UL 573 or equivalent. Electrical characteristics, kW capacities and number of stages are as indicated. Airflow switches, fusible links and overheat limit thermostats 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 FEATURES/OPTIONS/ACCESSORIES**

Description	Standard features	Option (factory installed)	Accessory (field installed)
Horizontal discharge	◆		
Compressor crankcase heaters		◆	
Evaporator fan-belt driven(6.2ton and above)	◆		
Evaporator direct driven(5ton and below)	◆		
Evaporator fan motor-ODP type(TEFC type optional)	◆	◆	
Condenser fan-direct drive, propeller type	◆		
Condenser fan motor-totally enclosed air-over type	◆		
Electric heaters		◆	◆
Filter	◆		
Filter, synthetic media	◆		
Filter, aluminum		◆	
Compressor overload protection	◆		
Low pressure switch	◆		
High pressure switch	◆		
Cooling & heating thermostat	◆		
Condenser fan guard	◆		
Condenser coil guard	◆		
Manual outside air damper		◆	◆

Nominal ton		(Ton)	7.5	10	15	20	25
Model			MRBTI-075HWN2	MRBTI-100HWN2	MRBTI-150HWN2	MRBTI-200HWN2	MRCTI-250HWN2
Cooling	Cooling Capacity (1)	Btu/h	94000	127000	180000	240000	300000
		W	27500	37200	53000	70000	87000
	Cooling Capacity (2)	Btu/h	80100	107000	158700	209600	263000
		W	23500	31400	46500	61400	77080
	Power Input(1)	W	11260	12400	19100	25110	31280
	Power Input(2)	W	13300	14600	21700	29700	38460
Heating	Heating Capacity (3)	Btu/h	102400	135000	191100	256000	313900
		W	30000	39570	56000	75000	92000
	Power Input(3)	W	9210	10100	17000	25000	30740
Electrical data(4)	Power supply	V-PH-Hz	380~415-3-50	380~415-3-50	380~415-3-50	380~415-3-50	380~415-3-50
	Rated power Input	W	14280	16800	26800	33000	42000
Performance	Air Circulation(High speed)	CFM	3000	4000	6000	8000	10200
	Indoor external static pressure	Pa	60	75	90	100	170
	SEER (1)	Btu/h W	9.7	10.3	9.4	9.7	9.7
	SEER (2)	Btu/h W	7.3	7.4	7.3	7.3	7.3
Indoor Coil	Number of rows		2	3	3	3	4
	Fin spacing	mm	1.4	1.4	1.4	1.6	1.6
		inch	1/18	1/18	1/18	1/16	1/16
	Tube diameter	mm	Φ 7.94	Φ 7.94	Φ 7.94	Φ 7.94	Φ 7.94
inch		5/16	5/16	5/16	5/16	5/16	
Indoor fan	Type		Centrifugal Blower	Centrifugal Blower	Centrifugal Blower	Centrifugal Blower	Centrifugal Blower
	No. used		1	1	1	1	1
	Diameter(Width)	mm	Φ282(257)	Φ305(305)	Φ383(378)	Φ457(457)	Φ562(460)
		inch	11(10)	12(12)	15(15)	18(18)	22 1/10(18 1/10)
	Drive type		Belt	Belt	Belt	Belt	Belt
	No. motors		1	1	1	1	1
	Motor model		YFD90L-4	YFD90L-4	YFD132S-4	YFD132S-4	YFD132M-4
	Motor output	W	1500	1500	5500	5500	7500
Motor rpm	r/min	1020	1020	1440	1440	1420	
Compressor	Type		Scroll	Scroll	Scroll	Scroll	Scroll
	Quantity		2	2	2	2	2
	Model		VR61KF-TFP-542	ZR72KC-TFD-522	ZR72KC-TFD-522 VR144KS-TFP-522	VR144KS-TFP-522	ZR190KC-TFP-522
	Brand		Copeland	Copeland	Copeland	Copeland	Copeland
	Capacity	Btu/hr	51000(×2)	59300(×2)	59300+120000	120000(×2)	155000(×2)
	Input	W	4636(×2)	5248(×2)	5248+10100	10100(×2)	13600(×2)
	Rated current(RLA)	A	9.4(×2)	9.2(×2)	9.2+17.6	17.6(×2)	25.6(×2)
	Refrigerant oil charge	ml	1700(×2)	1700(×2)	3253+1774	3253(×2)	3000(×2)
Outdoor Coil	Number of rows		3	3	3	3	3.57
	Fin spacing	mm	1.6	1.6	1.6	1.6	1.6
		inch	1/16	1/16	1/16	1/16	1/16
	Tube diameter	mm	Φ 7.94	Φ 7.94	Φ 7.94	Φ 7.94	Φ 7.94
inch		5/16	5/16	5/16	5/16	5/16	
Outdoor Fan	Type		Axile	Axile	Axile	Axile	Axile
	No. used		1	1	2	2	2
	Diameter(Width)	mm	Φ650(90)	Φ650(90)	Φ650(208)	Φ750(185)	Φ800(106)
		inch	25 5/8(3 1/2)	25 5/8(3 1/2)	25 5/8(8 1/8)	29 1/2(7 1/4)	31 1/2(4 1/6)
	Drive type		Direct	Direct	Direct	Direct	Direct
	No. motors		1	1	2	2	2
	Motor model		YS550W-6P	YS600-6P	YS600-6P	YS1100-6	YS1500-6
Motor output	W	550	600	600(×2)	1100(×2)	1700(×2)	
Motor rpm	r/min	940	930	900(×2)	945(×2)	910(×2)	
Refrigerant	Type		R407C				
	Refrigerant volume	kg	4.4	6.4	13.7	17.6	18.8
	Refrigerant Control		Capillary tube	Capillary tube	Capillary tube	Capillary tube	Capillary tube
Dimensions	Net(W×H×D)	mm	2089X900X1235	2165X1002X1335	2229X1245X1825	2753X1245X2157	2753X1245X2157
		inch	82×35×49	85×40×53	88×49×72	108×49×85	108×49×85
	Packing(W×H×D)	mm	2135X1065X1315	2220X1165X1415	2229X1262X1825	2759X1262X2175	2759X1262X2175
		inch	84×42×52	87×46×56	88×50×72	109×50×86	109×50×86
Weight	Net Weight	Kg(lbs)	375(827)	430(948)	720(1587)	950(2094)	970(2138)
	Gross weight	Kg(lbs)	419(924)	473(1043)	740(1631)	965(2127)	985(2172)
Filter	No. Used		4	4	2	2	3
	Size	mm	529×357×12.5	566×404×12.5	815×1015×12.5	951×978×12.5	964×640×12.5
Shipping	Qty/Per 20'/40'/40'HQ	Pieces	8/18/18	8/16/16	3/6/12	2/4/8	2/4/8

**Note:**

The data are based on the following conditions:

Cooling (1)and Power input(1): Indoor Temperature 26.7°C(80°F) DB / 19.4°C(67°F) WB; - Outdoor Temperature 35°C(95°F) DB.

Cooling (2)and Power input(2): Indoor Temperature 26.7°C(80°F) DB / 19.4°C(67°F) WB; - Outdoor Temperature 46.1°C(115°F) DB.

Heating (3)and Power input(3): 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(4): Indoor Temperature 32°C(90°F) DB / 23°C(74°F) WB; - Outdoor Temperature 52°C(125°F) DB.

Nominal ton		(Ton)	12.5	15	17.5	20	25
Model			MRBTI-125CWN2	MRBTI-150CWN2	MRBTI-175CWN2	MRBTI-200CWN2	MRCTI-250CWN2
Cooling	Cooling Capacity (1)	Btu/h	150000	180000	210000	240000	300000
		W	44000	53000	61000	70000	87000
	Cooling Capacity (2)	Btu/h	129000	158700	185600	209600	263000
		W	37800	46500	54400	61400	77080
Power Input(1)	W	15000	19100	21000	24800	31280	
	W	17400	21400	24700	28300	38460	
Electrical data(3)	Power supply	V-PH-Hz	380-415-3-60	380-415-3-60	380-415-3-60	380-415-3-60	380-415-3-60
	Rated power Input	W	21000	25100	39000	39000	42000
Performance	Air Circulation (High speed)	CFM	5000	6000	7000	8000	10200
	Indoor external static pressure	Pa	90	90	100	100	170
	SEER (1)	Btu/h W	10	9.4	10	9.7	9.7
	SEER (2)	Btu/h W	7.4	7.4	7.5	7.4	7.3
Indoor Coil	Number of rows		3	3	3	3	4
	Fin spacing	mm	1.7	1.7	1.7	1.7	1.6
		inch	1/15	1/15	1/15	1/15	1/16
	Tube diameter	mm	Φ9.5	Φ9.5	Φ9.5	Φ9.5	Φ7.94
inch		3/8	3/8	3/8	3/8	5/16	
Indoor fan	Type		Centrifugal Blower	Centrifugal Blower	Centrifugal Blower	Centrifugal Blower	Centrifugal Blower
	No. used		1	1	1	1	1
	Diameter(Width)	mm	Φ383(378)	Φ383(378)	Φ457(457)	Φ457(457)	Φ562(460)
		inch	15(15)	15(15)	18(18)	18(18)	31 1/2(4 1/6)
	Drive type		Belt	Belt	Belt	Belt	Belt
	No. motors		1	1	1	1	1
	Motor model		YFD132S-4		YFD132S-4	YFD132S-4	YFD132M-4
	Motor output	W	5500	5500	5500	5500	7500
Motor rpm	r/min	1680	1680	1680	1680	1420	
Compressor	Type		Scroll	Scroll	Scroll	Scroll	Scroll
	Quantity		2	2	2	2	2
	Model	C-SB353H9A		C-SB373H9A	SM110S9VC	SM120S9VC	SM147A9ALB
		SM110S9VC		SM120S9VC			
	Brand		SANYO+Danfoss	SANYO+Danfoss	Danfoss	Danfoss	Danfoss
	Capacity	Btu/hr	56639+101677	60734+125181	101677×2	125181×2	155000(×2)
	Input	W	5100+9348	5500+10811	9348×2	10811×2	13600(×2)
	Rated current(RLA)	A	8.74+17.49	9.4+19.79	17.49×2	19.79×2	25.6(×2)
Refrigerant oil charge	ml	1700+3250	1700+3250	3250×2	3250×2	3000(×2)	
Outdoor Coil	Number of rows		3	3	3	3	3.57
	Fin spacing	mm	1.7	1.7	1.7	1.7	1.6
		inch	1/15	1/15	1/15	1/15	1/16
	Tube diameter	mm	Φ9.5	Φ9.5	Φ9.5	Φ9.5	Φ7.94
inch		3/8	3/8	3/8	3/8	5/16	
Outdoor Fan	Type		Axile	Axile	Axile	Axile	Axile
	No. used		2	2	2	2	2
	Diameter(Width)	mm	Φ650(208)	Φ650(208)	Φ750(185)	Φ750(185)	Φ800(106)
		inch	25 5/8(8 1/8)	25 5/8(8 1/8)	29 1/2(7 1/4)	29 1/2(7 1/4)	31 1/2(4 1/6)
	Drive type		Direct	Direct	Direct	Direct	Direct
	No. motors		2	2	2	2	2
	Motor model		YS750-6B	YS750-6B	YS750-6B	YS750-6B	YS1500-6
	Motor output	W	750×2	750×2	750×2	750×2	1500(×2)
Motor rpm	r/min	1120×2	1120×2	1120×2	1120×2	910(×2)	
Refrigerant	Type		R407C				
	Refrigerant volume	kg	12.2	12.5	16	16	18.8
Refrigerant Control		Capillary tube		Capillary tube	Capillary tube	Capillary tube	
Dimensions	Net(W×H×D)	mm	2229X1245X1825	2229X1245X1825	2753X1245X2157	2753X1245X2157	2753X1245X2157
		inch	88×49×72	88×49×72	108×49×85	108×49×85	108×49×85
	Packing(W×H×D)	mm	2229X1262X1825	2229X1262X1825	2759X1262X2175	2759X1262X2175	2759X1262X2175
		inch	88×50×72	88×50×72	109×50×86	109×50×86	109×50×86
Weight	Net Weight	Kg(lbs)	700(1543)	710(1565)	900(1984)	930(2050)	970(2138)
	Gross weight	Kg(lbs)	720(1587)	730(1609)	915(2017)	945(2083)	985(2172)
Filter	No. Used		2	2	2	2	3
	Size	mm	815×1015×12.5	815×1015×12.5	951×978×12.5	951×978×12.5	964×640×12.5
Shipping	Qty/Per 20'/40'/40'HQ	Pieces	3/6/12	3/6/12	2/4/8	2/4/8	2/4/8

**Note:**

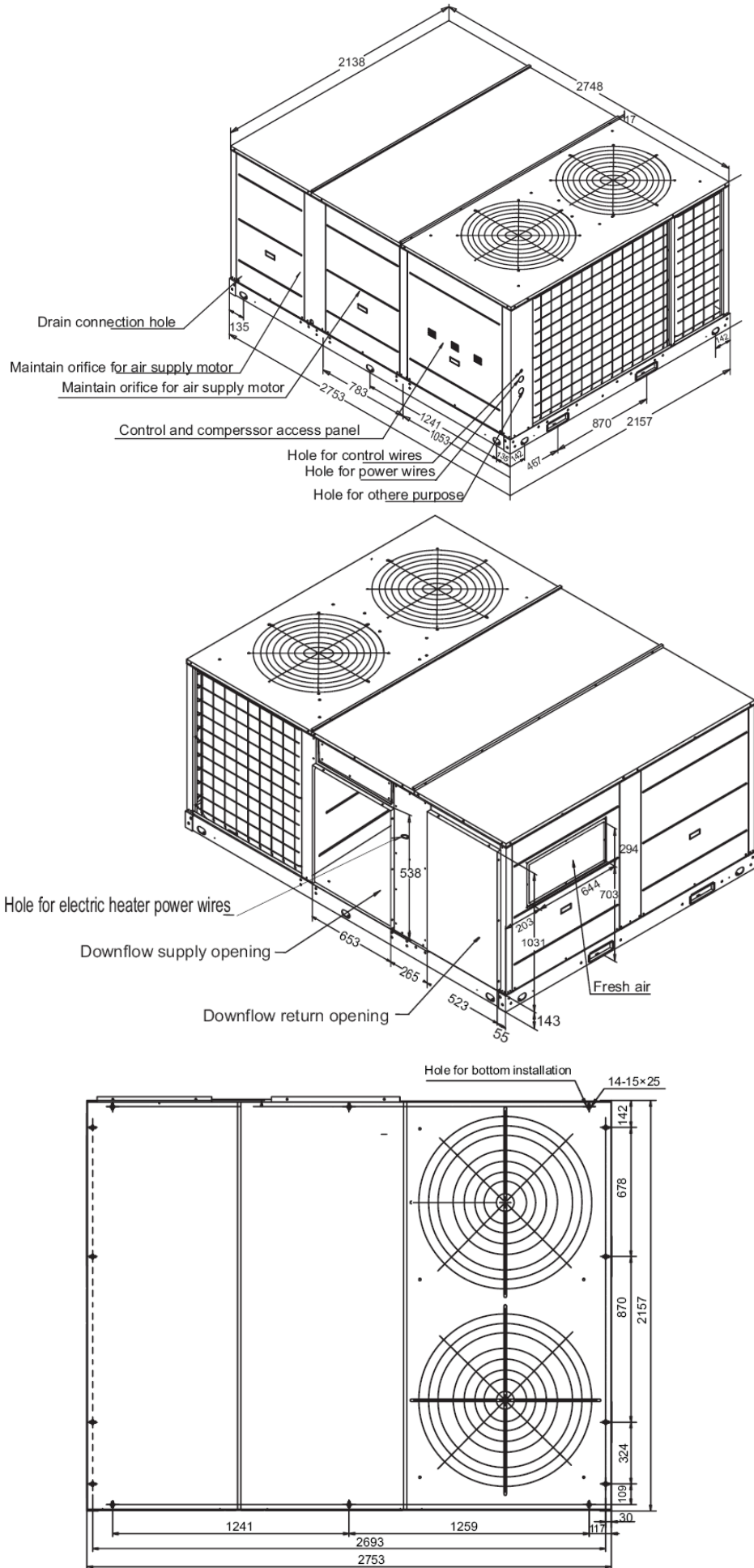
The data are based on the following conditions:

Cooling (1)and Power input(1): Indoor Temperature 26.7°C(80°F) DB / 19.4°C(67°F) WB; - Outdoor Temperature 35°C(95°F) DB.

Cooling (2)and Power input(2): Indoor Temperature 26.7°C(80°F) DB / 19.4°C(67°F) WB; - Outdoor Temperature 46.1°C(115°F) DB.

Electrical data(3): Indoor Temperature 32°C(90°F) DB / 23°C(74°F) WB; - Outdoor Temperature 52°C(125°F) DB.

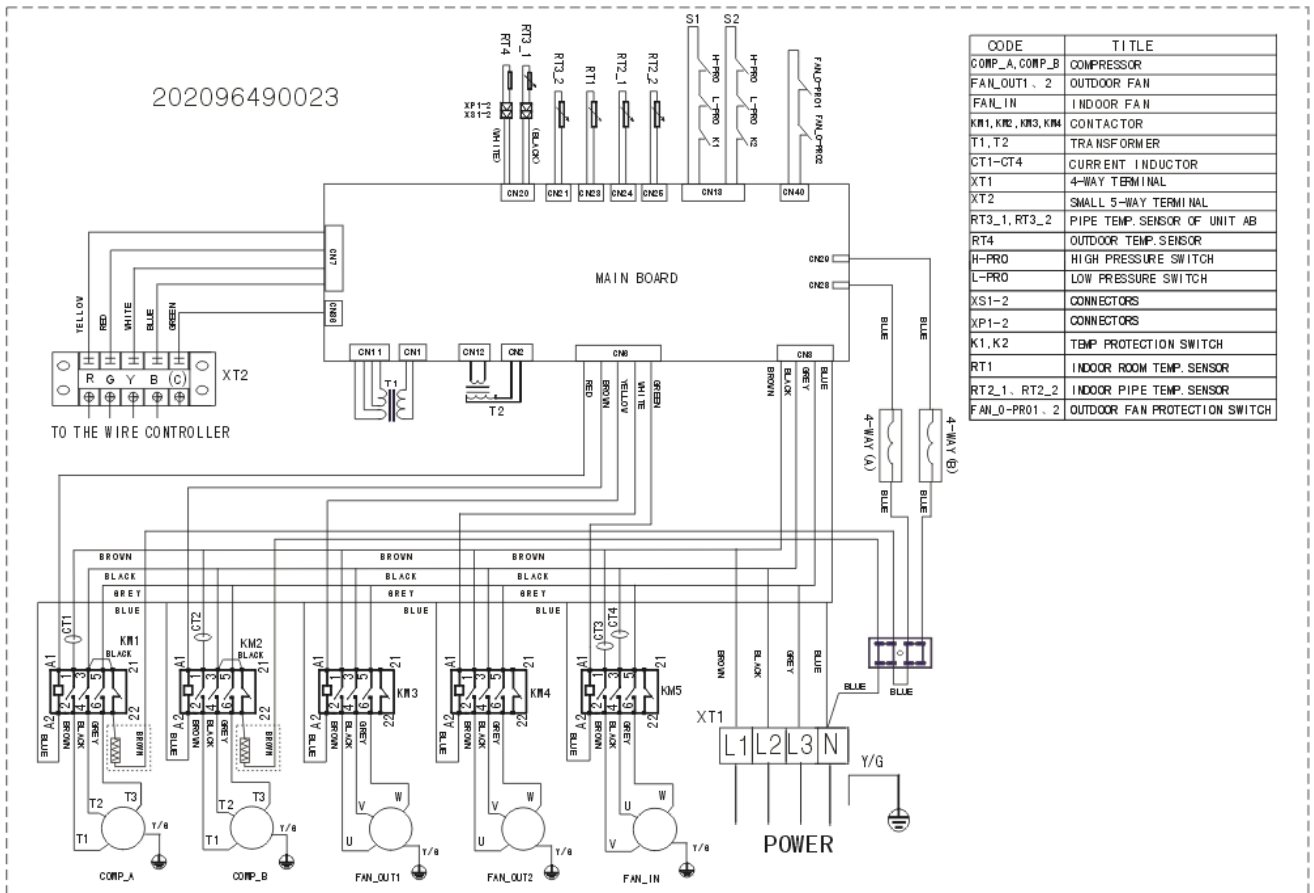
# 7.6 25Ton



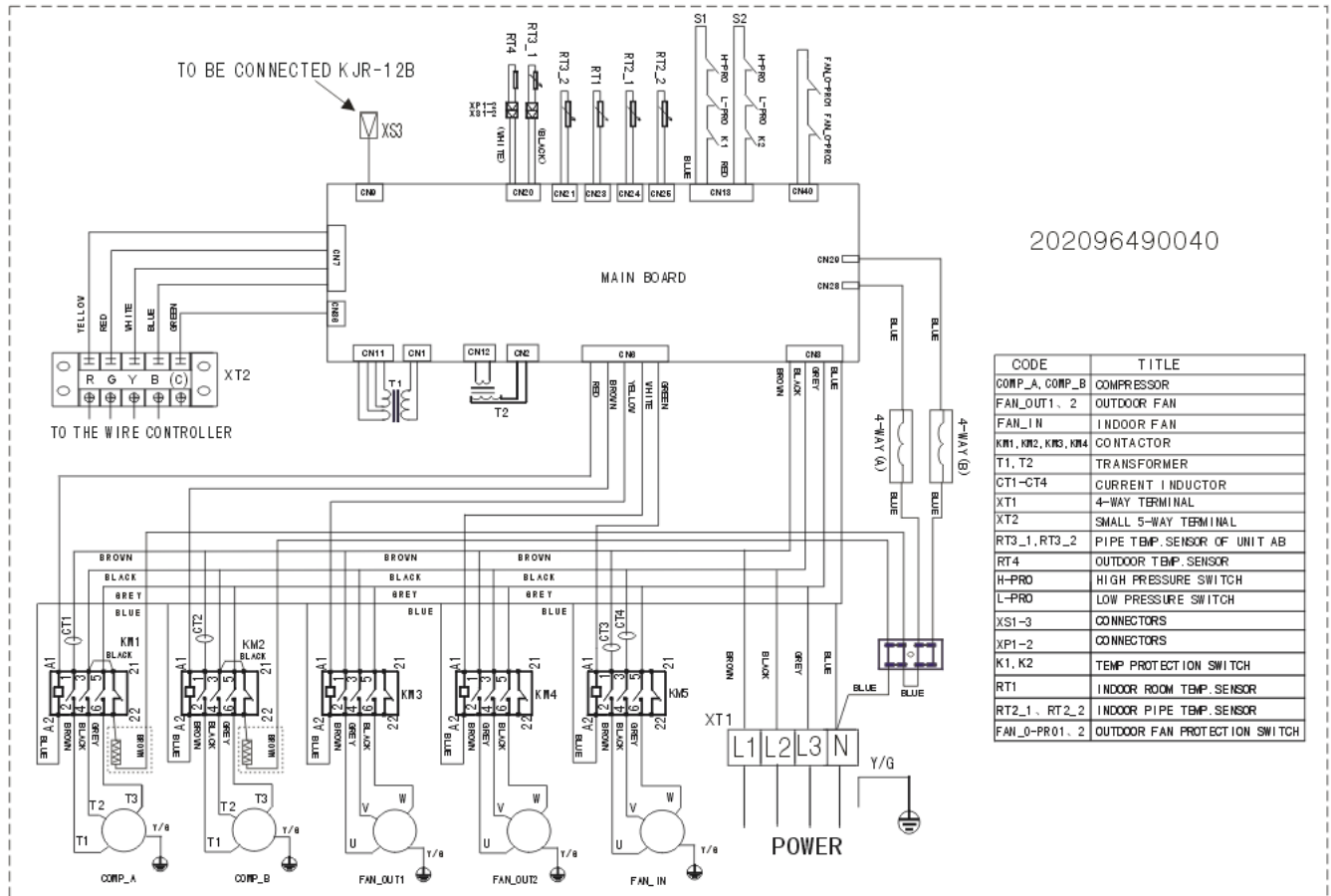




## 8.12 MRCTi-250HWN2



### 8.13 MRCTi-250HWN2



## 9. Performance Data

### Cooling capacity for 25Ton:

Ambient Temperature (°F)	Air Ent	Flow DB	CFM (°F)	9500				10000					
				75	80	85	90	75	80	85	90		
				61	67	73	73	61	67	73	73		
85	Entering Wet Bulb (°F)	61	MBH	277	283	288	294	285	290	296	302		
			SHC	242	247	252	257	258	263	268	274		
			67	MBH	309	315	321	327	312	318	324	331	
				SHC	183	230	276	312	189	241	295	321	
			73	MBH	320	326	333	339	321	327	334	340	
				SHC	119	172	209	248	121	175	216	267	
			95	61	MBH	257	262	267	273	265	270	275	281
					SHC	232	236	241	246	248	253	258	263
				67	MBH	284	290	296	302	289	300	306	312
					SHC	177	225	269	309	186	237	285	295
				73	MBH	317	323	330	336	318	324	331	337
					SHC	116	164	204	245	118	167	211	262
			105	61	MBH	236	241	246	251	245	249	254	259
					SHC	222	226	230	235	238	243	248	253
				67	MBH	276	281	287	293	282	288	294	300
					SHC	169	216	265	289	178	230	280	295
				73	MBH	310	316	322	328	312	318	324	331
					SHC	111	158	198	234	113	164	203	259
			115	61	MBH	216	220	224	229	223	227	232	237
					SHC	212	216	220	224	216	220	224	229
				67	MBH	253	258	263	269	258	263	268	274
					SHC	159	208	255	260	168	221	263	269
				73	MBH	298	304	310	316	300	306	312	319
					SHC	106	153	193	222	107	160	196	253
125	61	MBH	196	200	204	208	203	207	211	215			
		SHC	192	196	200	204	196	200	204	208			
	67	MBH	230	235	240	244	235	239	244	249			
		SHC	144	189	232	237	153	200	239	244			
	73	MBH	271	276	282	287	273	278	284	290			
		SHC	96	139	175	202	98	146	178	230			

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

## Heating capacity for 25Ton:

Net Capacities(kW)-10000 CFM								
Outdoor Temp(°C) 70% RH	Peak Net Heating(kW) at Indicated Dry Bulb(°C)				Peak Total Power(KW) at Indicated Dry Bulb(°C)			
	15	21	24	27	15	21	24	27
-15	49.5	46.5	45.5	44.8	23.0	25.3	26.8	28.3
-12	53.3	51.0	50.0	49.5	23.5	25.8	27.0	28.8
-9	56.5	55.0	54.5	54.5	23.8	26.0	27.3	29.3
-6	59.3	57.5	57.0	56.3	24.0	26.3	27.8	29.8
-3	62.8	61.8	61.3	60.3	24.3	26.5	28.3	30.3
0	67.5	66.5	65.5	64.8	24.5	27.0	28.8	30.5
3	77.8	77.0	75.8	74.8	25.0	27.5	29.3	31.0
6	89.5	88.3	87.3	86.8	26.0	28.0	30.3	32.0
9	101.8	100.5	99.5	98.5	27.0	30.0	31.8	33.8
12	108.0	111.8	111.3	110.3	28.0	31.3	33.0	35.0
15	116.5	114.8	114.0	112.8	28.8	32.0	33.8	35.8
18	123.5	121.3	120.0	119.0	29.5	32.8	34.8	36.5
21	132.5	129.8	128.0	126.3	30.0	33.3	35.0	36.8
24	140.0	136.3	134.0	132.5	30.8	33.8	36.3	37.5

Notes: 1. For other airflows, see heating capacity correction factor tables.  
 2. Heating capacities and power are integrated to include the effects of defrost in the frost region.

## 10. Electrical Data

Model	Unit main power			Applicable		Compressor motor			Evaporator fan		Condenser fan		Auxiliary
	VOL	Hz	Ph	Max.	Min.	STC	RNC	IPT	RNC	IPT	RNC	IPT	IPT
MRCTi-250CWN2	380-415	50	3	418	342	195	50.2	27.2	10	7.5	6.5	3.4	--
MRCTi-250HWN2	380-415	50	3	418	342	195	50.2	27.2	10	7.5	6.5	3.4	--

**Note:**

- 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.
- The starting current is indicated for each compressor motor.
- The maximum currents of the compressor can be estimated as follows.

**VOL:** Unit Power Supply Rated (plated) Voltage (V)

**Hz:** Frequency (Hz)

**STC:** Starting Current (A)

**RNC:** Running Current (A)

**IPT:** Input (kW)

	One compressor unit	Two compressor unit
Max. current	$RNC \times \text{Max. IPT} \times / \text{IPT}$	$RNC \times \text{Max. IPT} \times / \text{IPT}$
Max. instantaneous current	STC	$STC + RNC \times 0.5 \times \text{Max. IPT} \times / \text{IPT}$

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

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

- The data in the compressor motor column shall indicate the respective values of the refrigeration cycle.

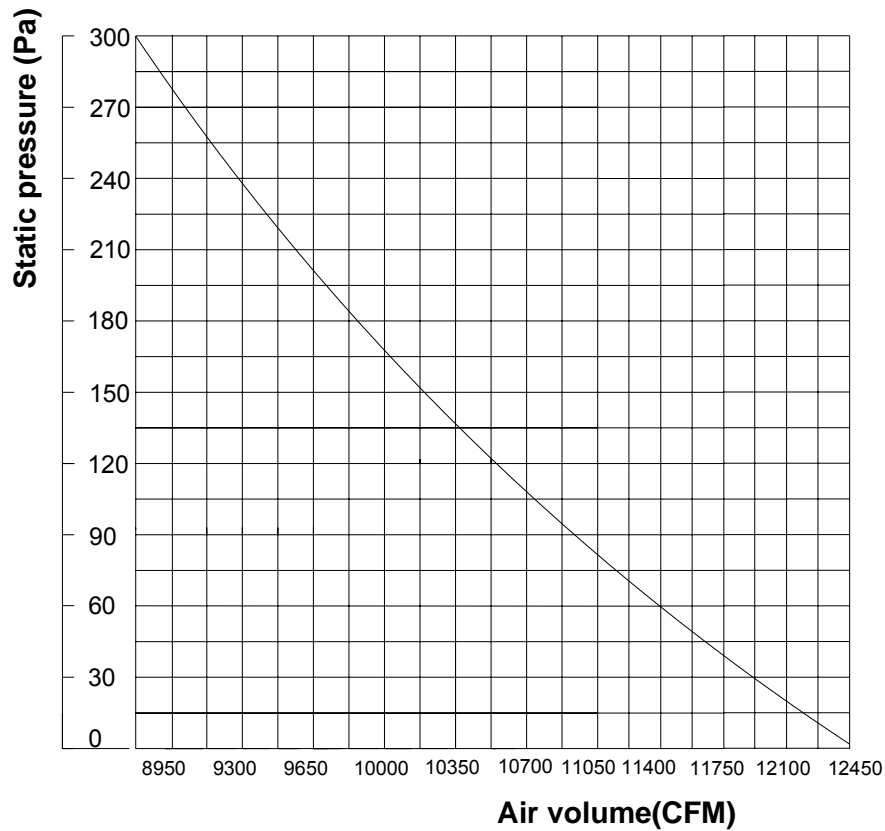
# 11. Parameter and Pressure Chart for Air Volume

## 11.11 Model: 25Ton

Parameter table for indoor unit air volume:

Static pressure (Pa)	0	75	100	125	150	170	200	225	250	300
Air flow (CFM)	12450	11400	11125	10000	10325	10200	9900	9790	9300	8600
Brake power (kW)	6.4	6	5.8	5.7	5.53	5.4	5.24	5.17	5.01	4.7
Fan speed (rpm)	1000	1002	1003	1005	1006	1008	1010	1015	1017	1022

Curve diagram of static pressure, air flow volume:

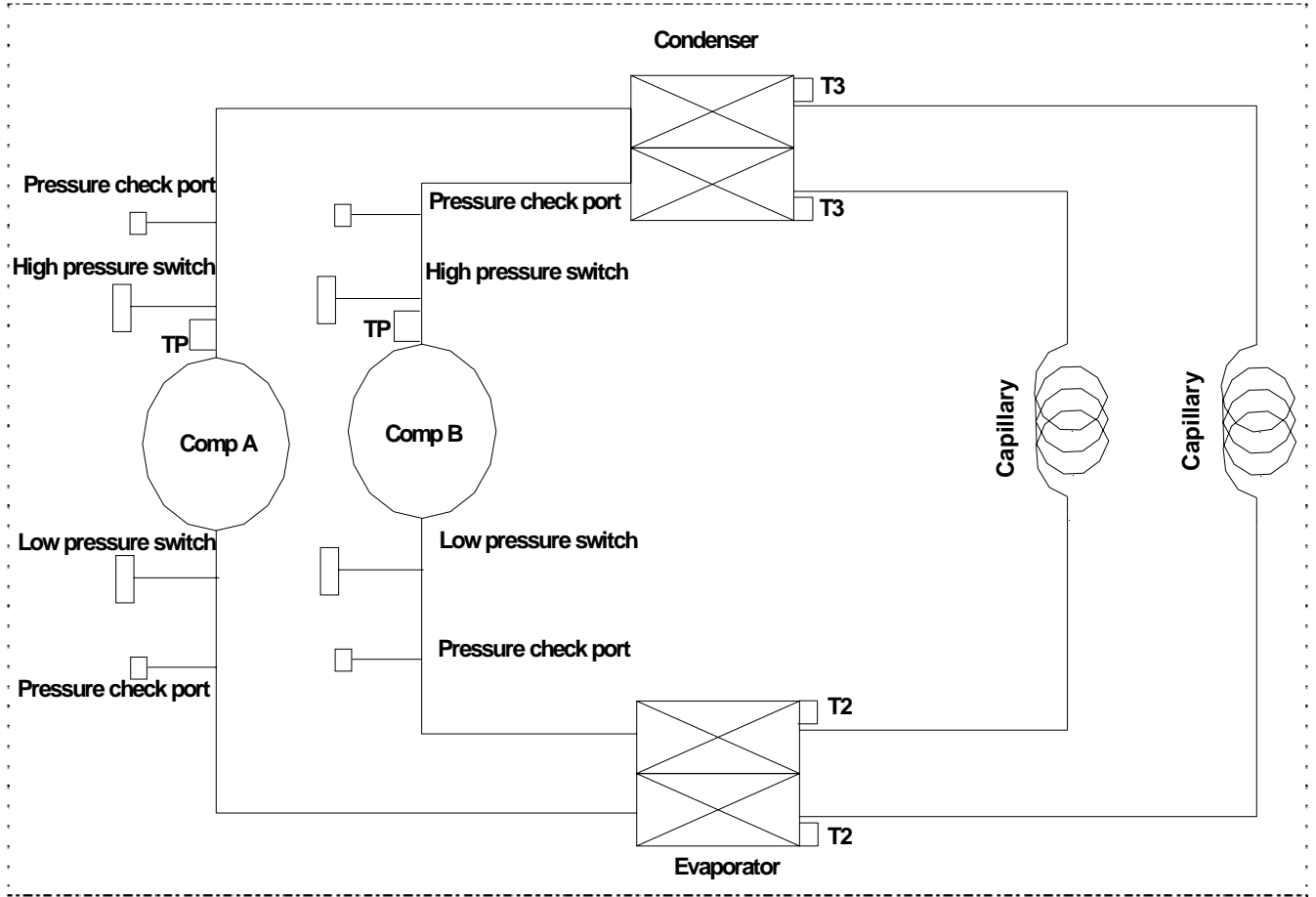


Parameter table for outdoor unit air volume:

Model	Static pressure (Pa)	Air flow (CFM)	Brake power (kW)	Fan speed (rpm)
25Ton	0	16765	1.7*2	910
	10	16470	1.6*2	900
	20	16176	1.5*2	890

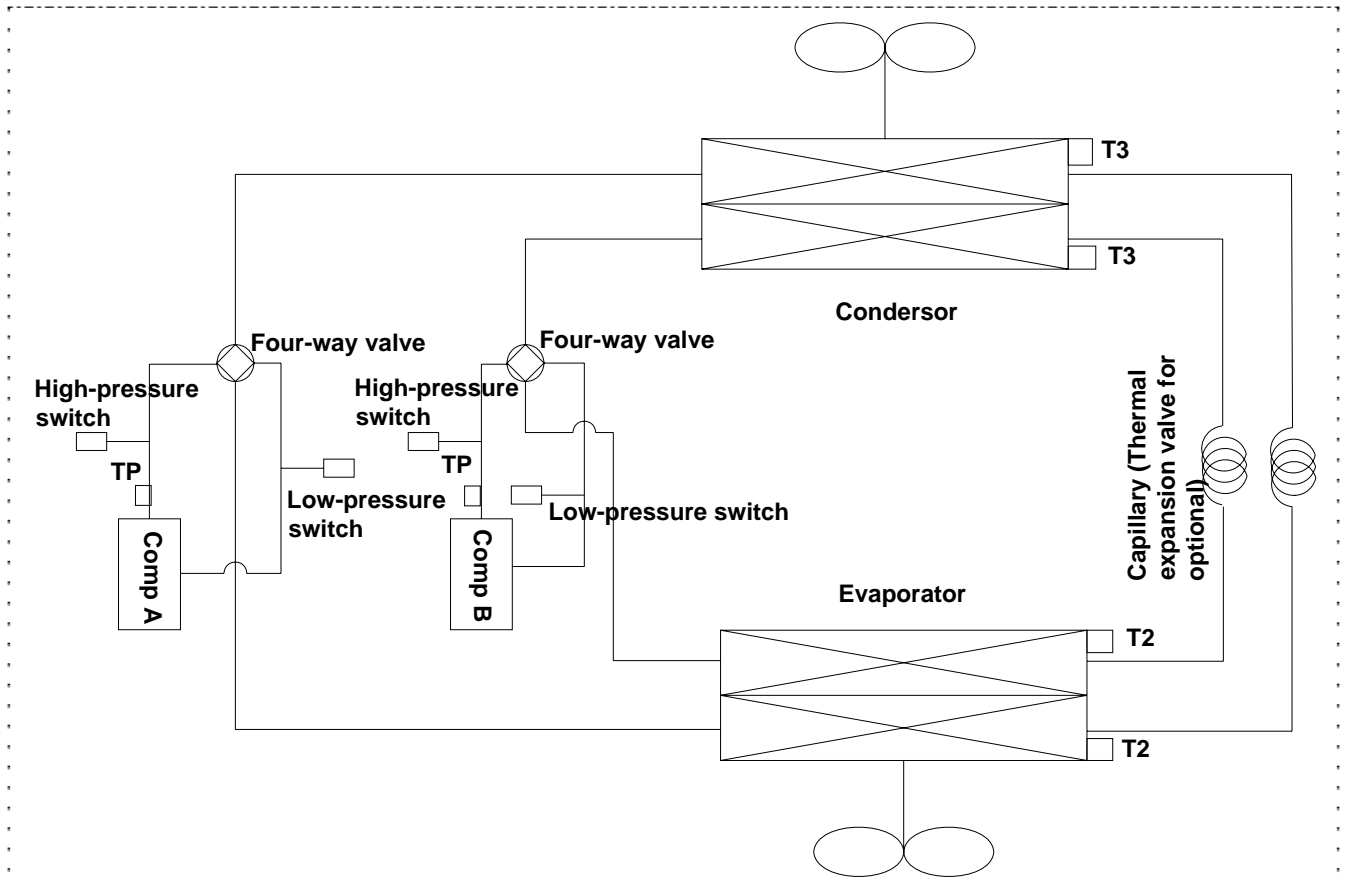
# 12. Refrigerant Cycle Diagram

Cooling only type (6.2 and above) :





## Cooling and Heating type:



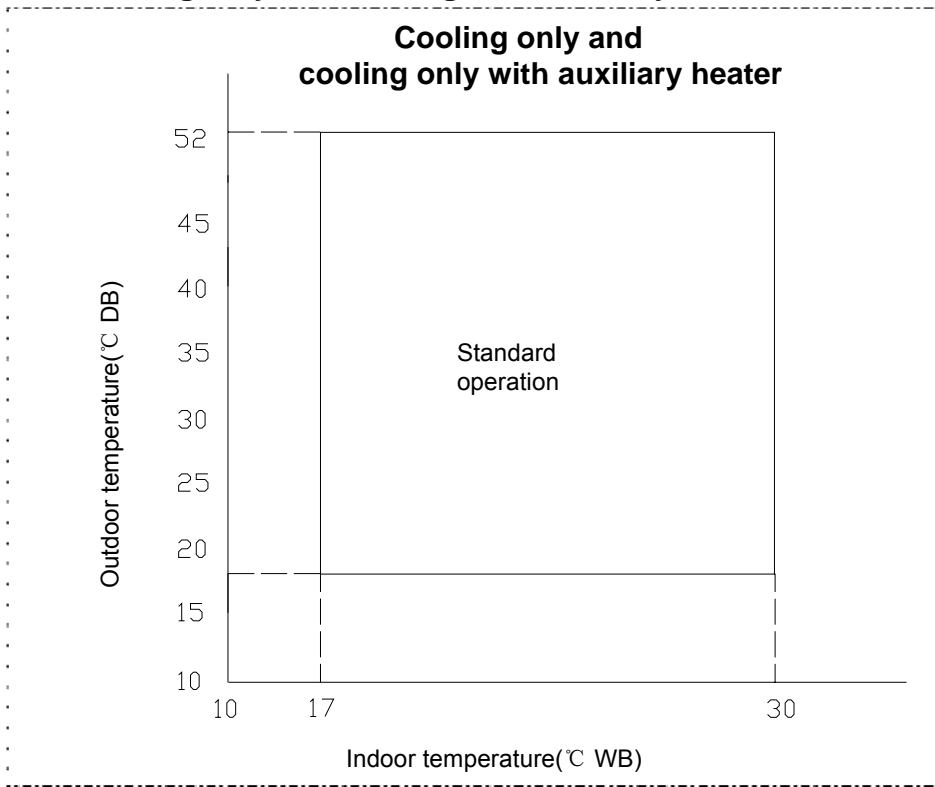
**TP:** Compressor discharge temperature sensor in system A and B

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

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

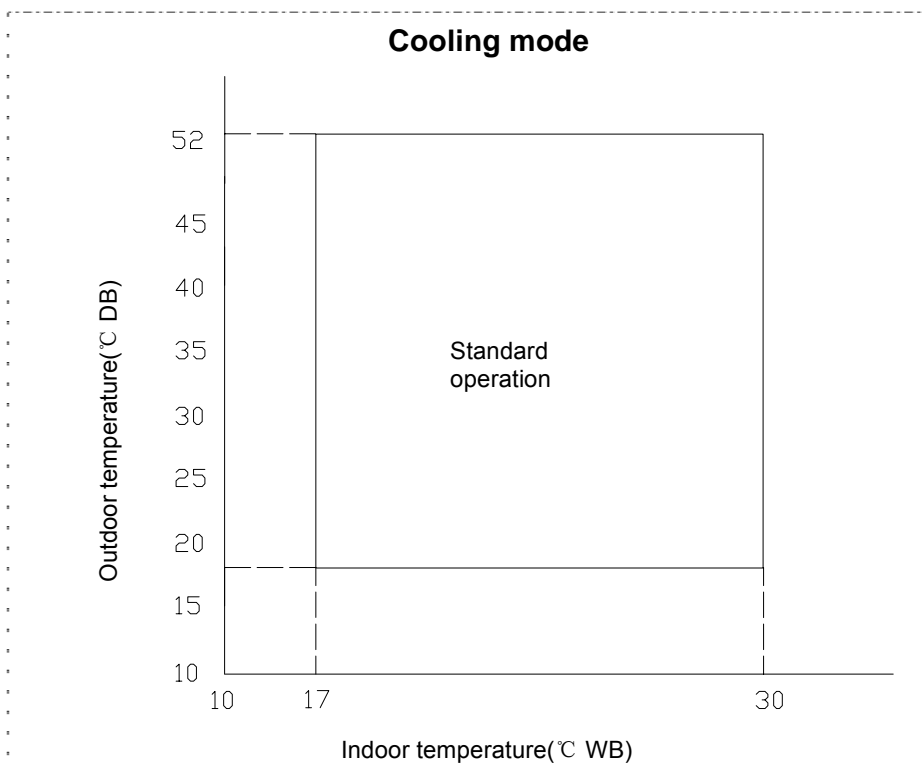
# 13. Operation Limit

## 13.1 Cooling only and cooling with auxiliary heater

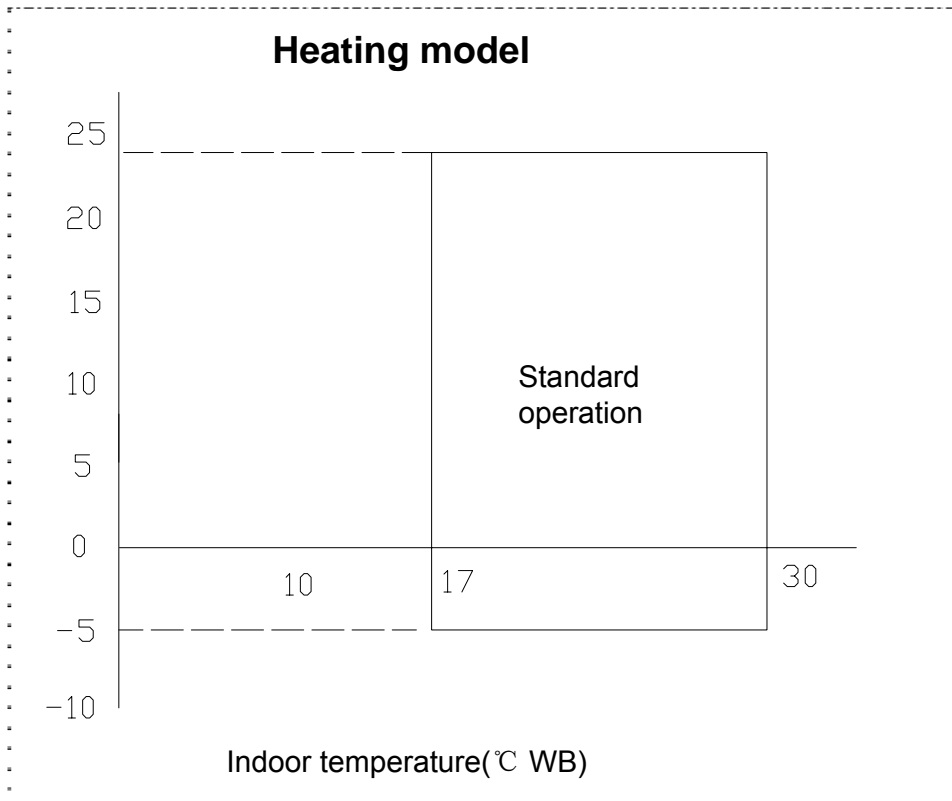


Model	Outdoor temperature	Indoor temperature
Without auxiliary electric heater models	18°C~52°C	17°C~30°C
With auxiliary electric heater models	--	17°C~30°C

## 13.1 Cooling and heating



Model	Temperature	Outdoor temperature	Indoor temperature
Cooling model		18°C ~ 52°C	17°C ~ 30°C



Model	Temperature	Outdoor temperature	Indoor temperature
Heating model		-5°C ~ 24°C	17°C ~ 30°C

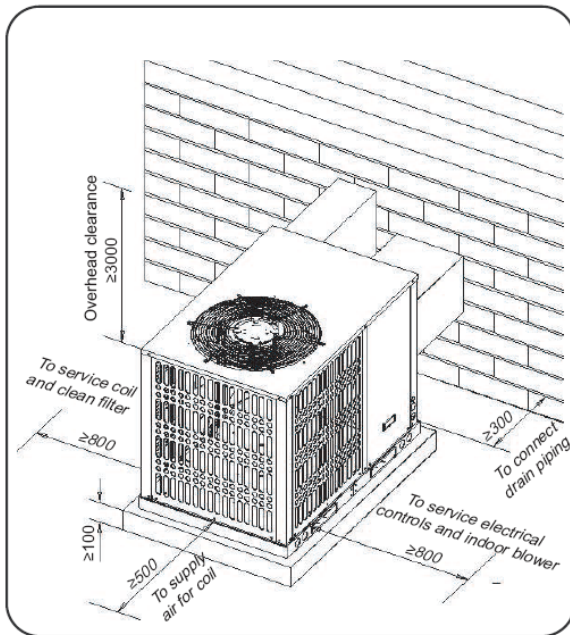
## 14. Installations

### 14.1 Service Space

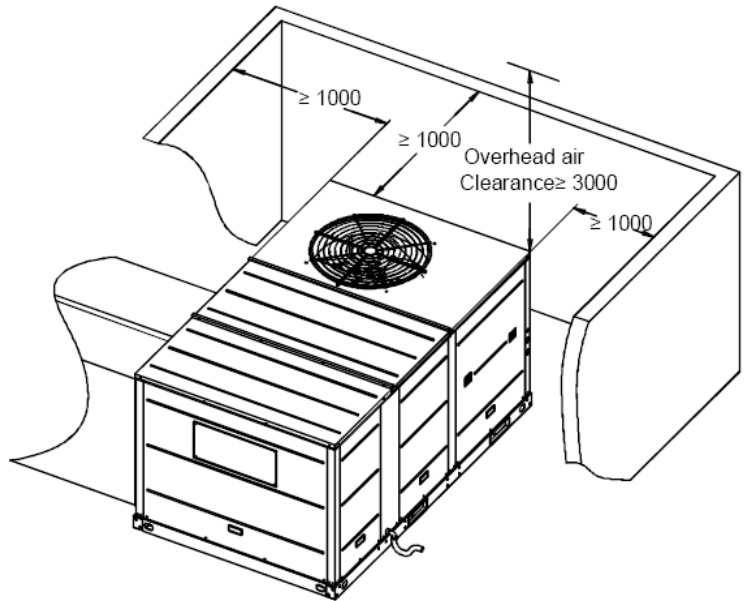
1. The recommended clearances for single-unit installations are illustrated in following *Fig.*

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 5ton and below



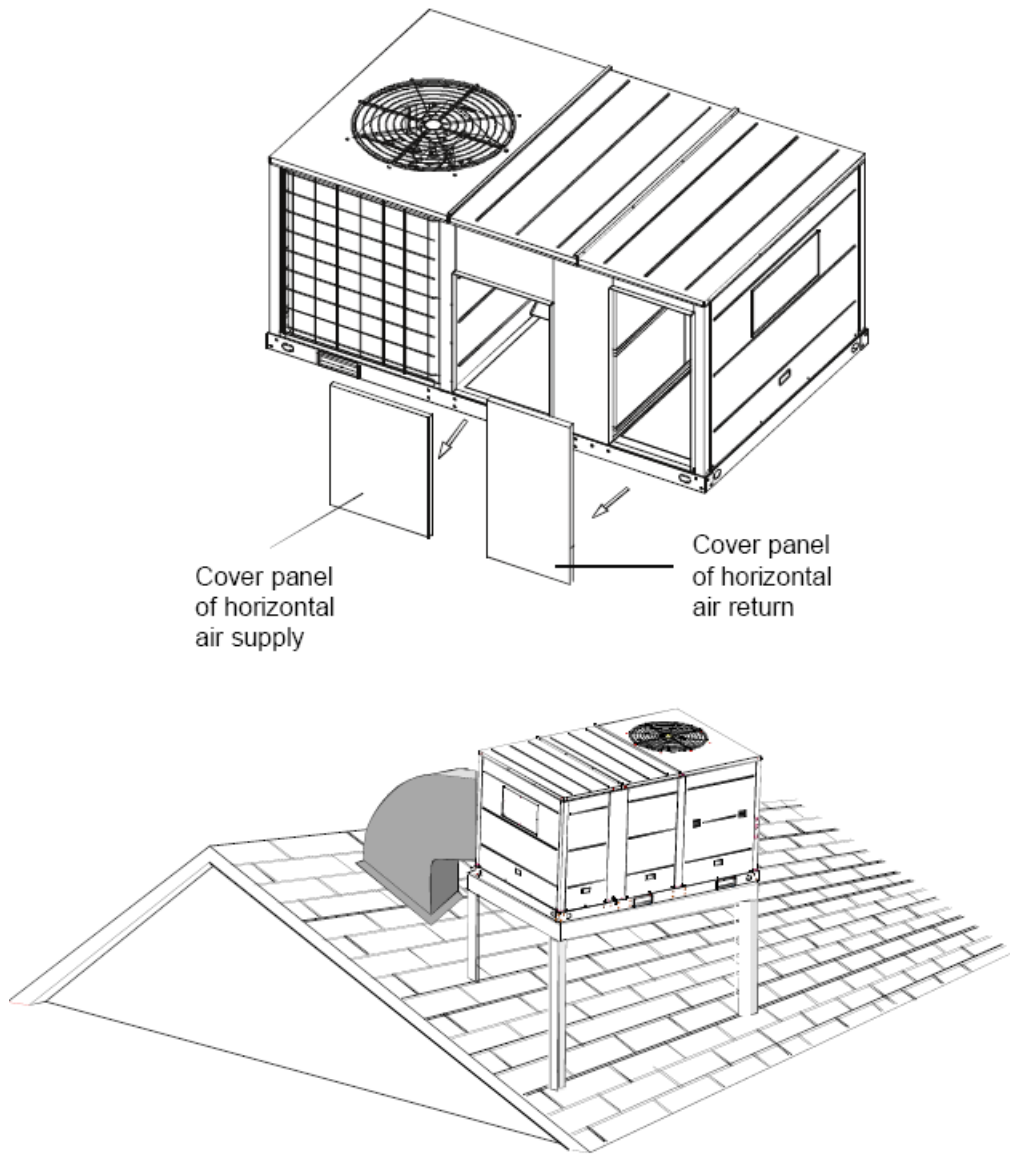
For 6.2ton and above

### 14.2 Rooftop -- units

For roof top applications using a field fabricated frame and ducts, according to the following procedure:

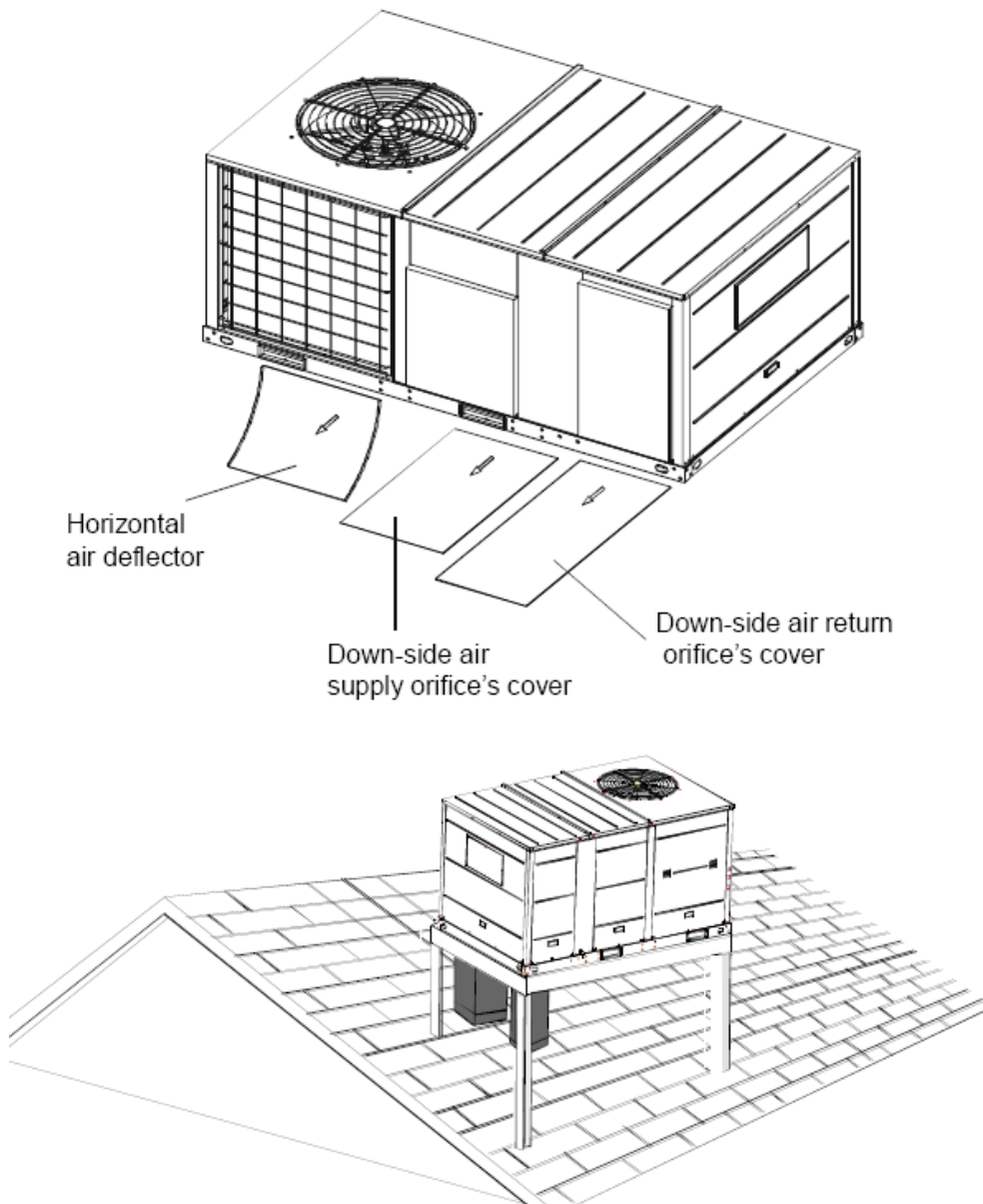
- 1) The frame must be located and secured by bolting or welding to the roof. Flashing is required.
- 2) The hole in the roof must be prepared in advance of installing the unit.
- 3) Secure the ducts to the roof.
- 4) Place the unit on the frame or roof curb.
- 5) Secure the unit to the frame or roof curb.
- 6) Insulate any ductwork outside of the structure with at least two (2) inches of insulation and then weatherproof. There must be a weatherproof seal where the duct enters the structure.
- 7) Complete the installation according to the instructions.

Typical rooftop application with frame:



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### Typical rooftop application with frame:



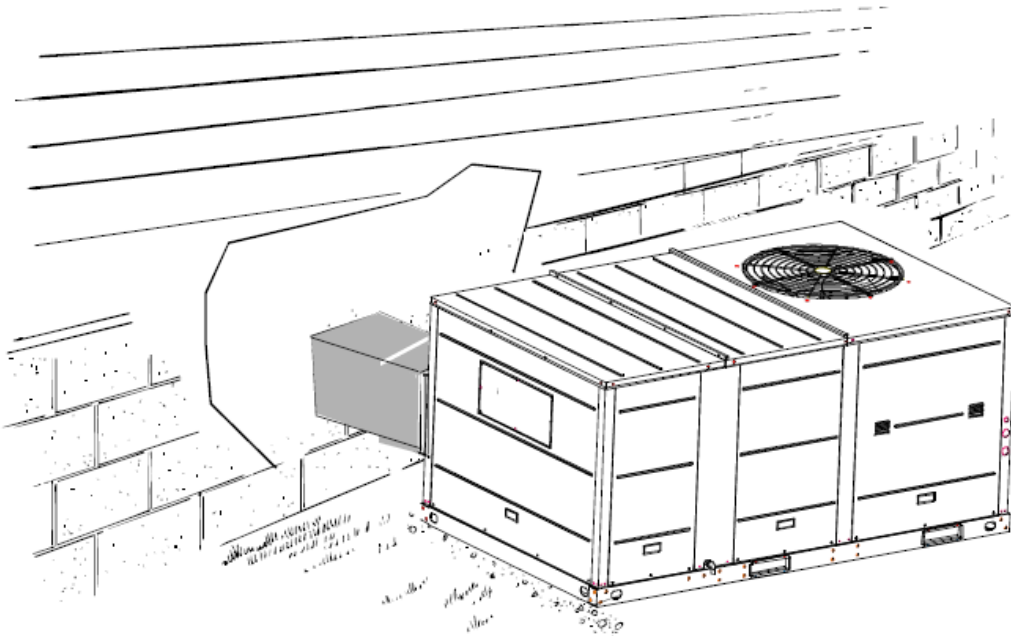
### 14.3 Ground Level -- Horizontal Units

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.

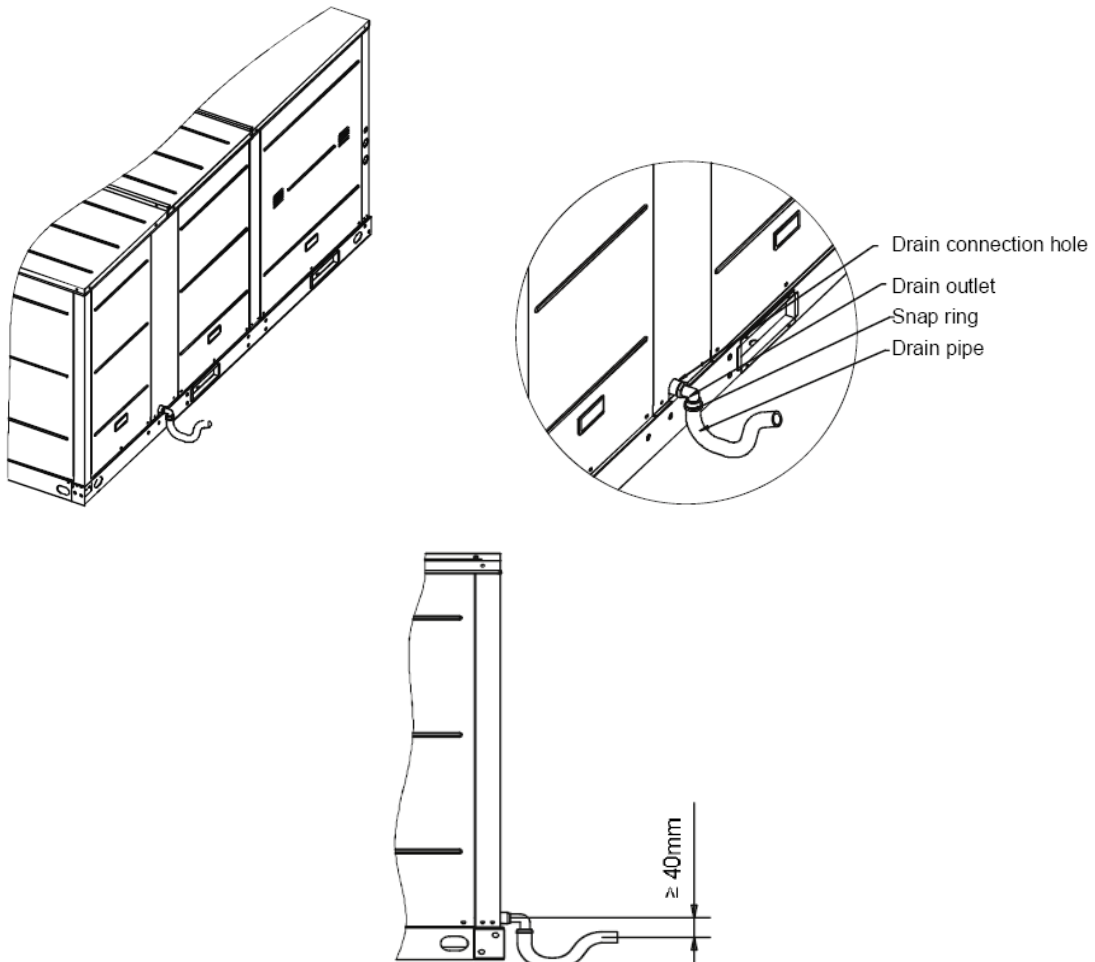
Installation according to the following procedure:

- 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:**



**14.4 Installation of condensate drain piping**



**14.5 Ductwork**

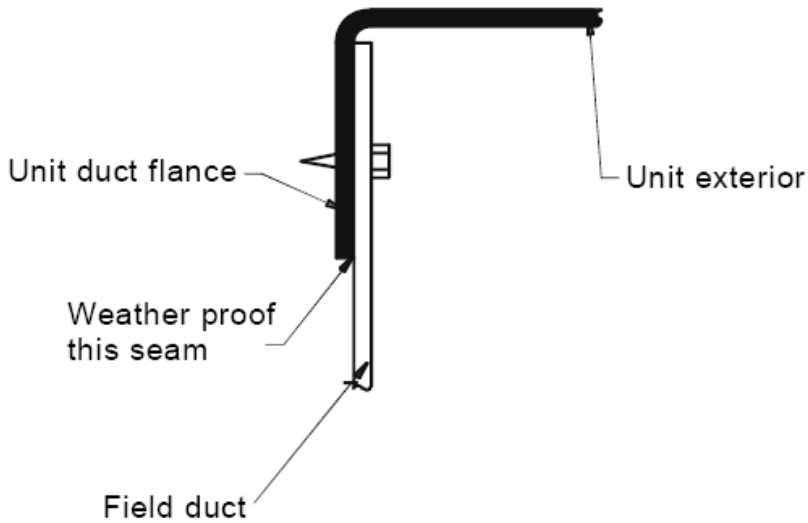
**1. Attaching horizontal ductwork to unit**

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.

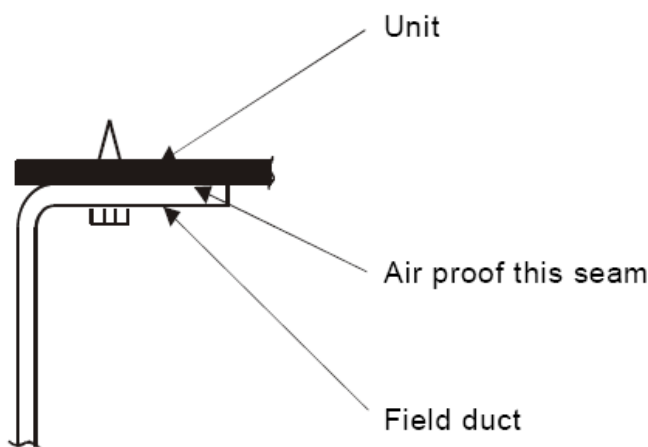


**2. Attaching downflow ductwork to roof curb**

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.





## 15. Wired Controller

### 1. Standard unit with Midea's wired controller: KJR-12B/DP (T)-E



KJR-12B/DP (T)-E

### 2. Optional well-known brand thermostat controller:

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

KJR-25B: For Cooling and heating

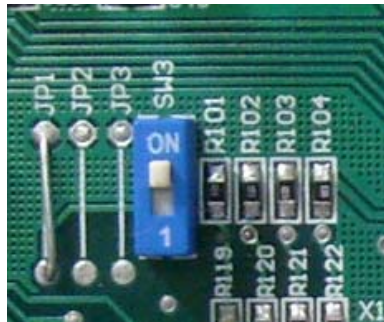
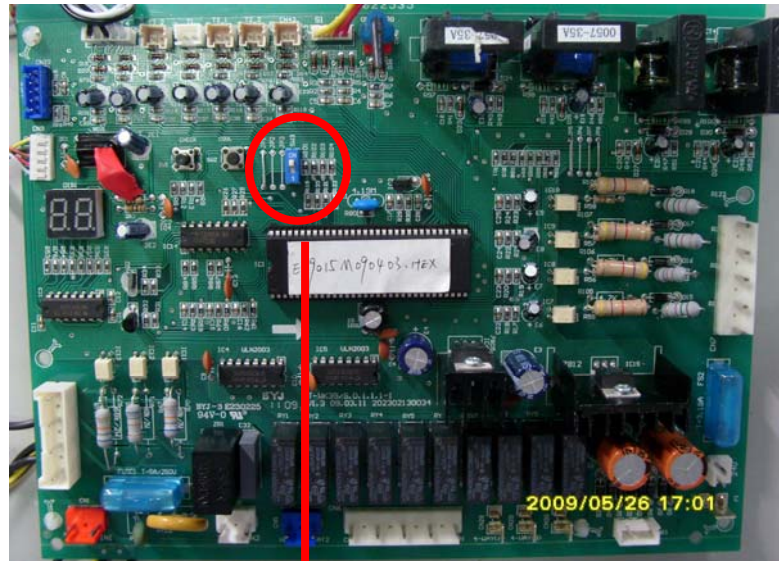


KJR-23B



KJR-25B

**Note:** When select KJR-12B wire controller, please make sure SW3 have been set at “ON” , otherwise it should be set at “1”.



## 16. Error Code

### 16.1 Error Code for 5ton and below





No.	Code	LED1(Red)	LED2(Yellow)	LED3(Green)
1	Standby	OFF	OFF	ON
2	Function	ON	ON	ON
3	Phase-missing	Flash	Flash	Flash
	Phase-error			
4	Indoor Ambient Temp. Sensor T1 Failure	Flash	Flash	OFF
	High Pressure Protection			
	Vent Protection			
5	Indoor Coil Temp. Sensor T2 Failure	Flash	OFF	Flash
6	Outdoor Coil Temp. Sensor T3 Failure	OFF	Flash	Flash
7	Outdoor Ambient Temp. Sensor T4 Failure	ON	Flash	Flash
8	T2 Evaporator Low Temp. Protection	OFF	Flash	OFF
9	T2 Evaporator High Temp. Protection	Flash	ON	ON
10	T3 Condenser High Temp. Protection	Flash	OFF	OFF
11	Wire Controller Input Failure	Flash	Flash	ON
12	Compressor Overcurrent Protection	OFF	OFF	Flash
13	Compressor-inner Low Pressure Protection	Flash	ON	Flash
14	Defrosting	ON	Flash	Flash

### 16.2 Error Code for 6.2ton and above

Type	Content	Code	Remarks
Normal	Standby	--	
Normal	Constraint cool	On	
Normal	Run	10.	
Error	Compressor phase sequence error or phase default	E0	Manual reset
Error	Outdoor coil temp. sensor in sys. A error	E1	Manual reset
Error	Outdoor coil temp. sensor in sys. B error	E2	Manual reset
Error	Indoor coil temp. sensor in sys. A error	E5	Manual reset
Error	Indoor coil temp. sensor in sys. B error	E6	Manual reset
Error	Indoor temp. sensor error	E9	Manual reset
Error	Outdoor ambient temp. sensor error	EA	Manual reset
Error	Wire controller output error	Eb	Manual reset
Protection	Overcurrent protection in sys. A	P0	Auto reset
Protection	Overcurrent protection in sys. B	P1	Auto reset
Protection	Overcurrent protection for indoor fan	P2	Auto reset
Protection	Comprehensive protection for outdoor fan	P3	Auto reset
Protection	Protection for Hi./Lo. Pressure or exhaust temp. in sys. A	P4	Comprehensive protection in sys. A
Protection	Protection for Hi./Lo. Pressure or exhaust temp. in sys. B	P5	Comprehensive protection in sys. B
Protection	Hi-pressure protection initiated in T2 evaporator stops the outdoor unit fan	P6	Auto reset
Protection	Hi-pressure protection initiated in T2 evaporator stops the 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	<b>P9</b>	Auto reset
Protection	Anti-freezing protection for evaporator in sys. A	<b>Pc</b>	Auto reset
Protection	Anti-freezing protection for evaporator in sys. B	<b>Pd</b>	Auto reset
Protection	Defrosting	<b>dF</b>	Auto reset

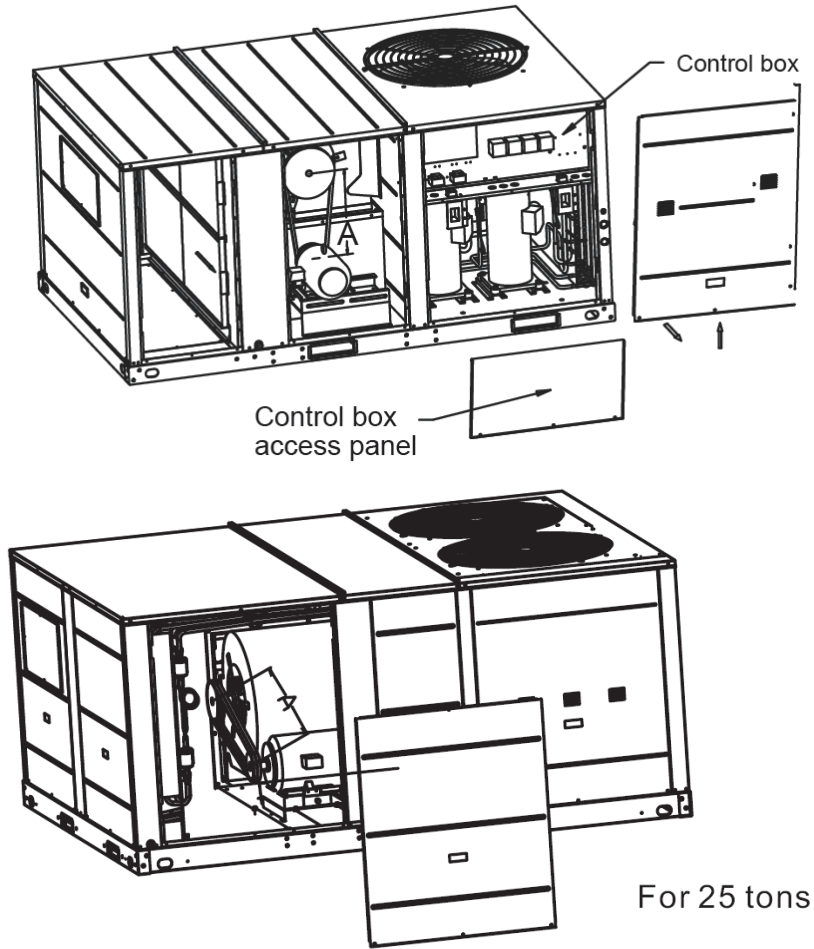
## 17. Accessories

Name	Quantity	Shape
Manual	1	
Drain outlet	1	
Snap ring	1	
Drain pipe	1	

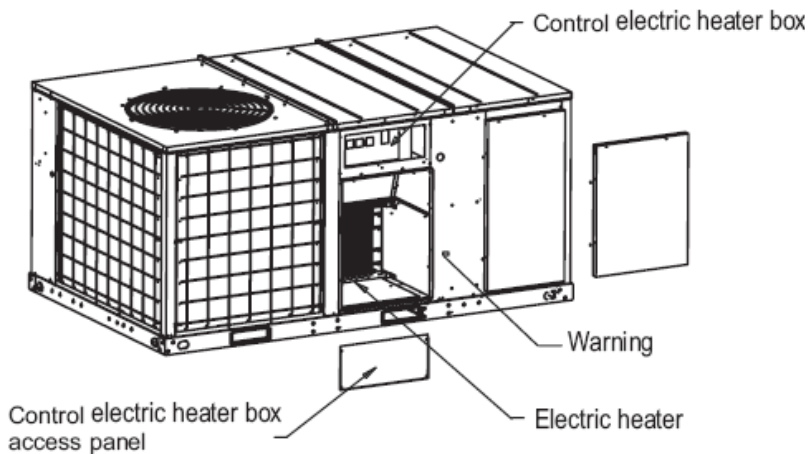
# 18. Maintenance and Upkeep

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.

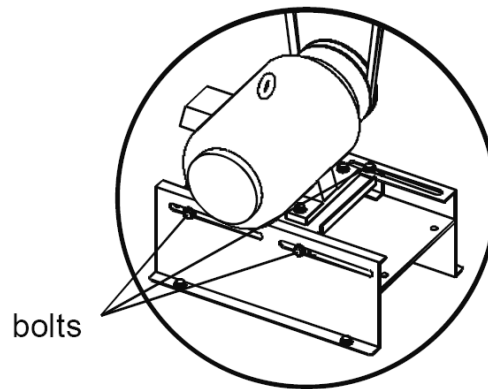


Model	A	Model	A
6.2 Ton	328mm	8.5 Ton	395mm
7.5 Ton		10 Ton	
12.5 Ton	555mm	17.5 Ton	525mm
15 Ton		20 Ton	
25 Ton	695mm		



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

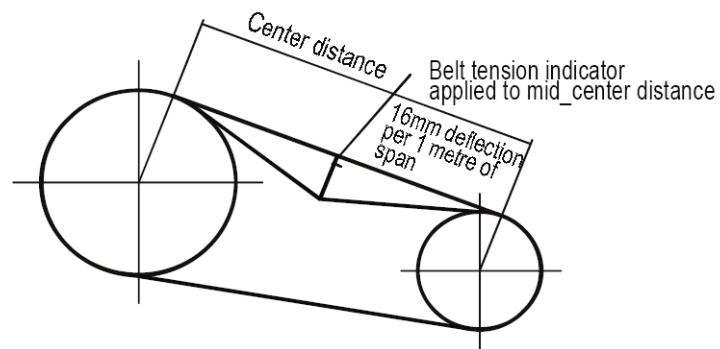
Regulating belt of rate of tension, inner fan Refer to the following Fig. fixed bolt of electric motor's supporting slide was loosened, following electric motor was droved, belt of rate of tension will begin change.



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) × 16 = 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.

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

°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	10.0000	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