INTENSITY®
AIR CONDITIONING

ROOFTOP PACKAGE TYPE

(Convertible) 7.5, 10, 15 and 20 Tons.

IPCC090KF-5, IPCC120KF-5, IPCC180KF-5, IPCC240KF-5.

INSTALLATION & OWNER´S MANUAL

intensity.mx

MAN-I-IPCC/5-0217

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■ **Nomenclature**

CODE	NAME
C/O	Cooling Only
Hor.& Dow.	Horizontal & Downflow Units (Optional)

1. ACCESSORIES

Tab.1-1

Name of accessories	Qty	Shape
Manual	1	
Drain outlet	1	
Snap ring	1	
Drain pipe	1	
Wire controller	1	

2. GENERAL INFORMATION

Warnings and Cautions appear at appropriate locations throughout this manual.

Read these carefully.

WARNING: Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices and where property-damage-only accidents could occur.

CAUTION

- Read this entire manual before beginning installation procedures.
- Bodily injury can result from high voltage electrical components, fast moving fans. For protection from these inherent hazards during installation and servicing, the electrical supply must be disconnected.
- If operating checks must be performed with the unit operating, it is the technicians responsibility to recognize these hazards and proceed safely.

WARNING

- **Ask your dealer for installation of the air conditioner.**
  Incomplete installation performed by yourself may result in a water leakage, electric shock, and fire.
- **Ask your dealer for improvement, repair, and maintenance.**
  Incomplete improvement, repair, and maintenance may result in a water leakage, electric shock, and fire.
- **In order to avoid electric shock, fire or injury, or if you detect any abnormality such as smell of fire, turn off the power supply and call your dealer for instructions.**
- **Never replace a fuse with that of wrong rated current or other wires when a fuse blows out.**
  Use of wire or copper wire may cause the unit to break down or cause a fire.
- **Do not insert fingers, rods or other objects into the air inlet or outlet.**
  When the fan is rotating at high speed, it will cause injury.
- **Never use a flammable spray such as hair spray, lacquer or paint near the unit.** It may cause a fire.
- **Never inspect or service the unit by yourself.**
  Ask a qualified service person to perform this work.
- **Keep far away from high-frequency equipment.**
- **Keep away from the following places:**
  A place where it is full of oil, gas; places where salty air surrounding(near the coast); and a place where is caustic gas(the sulfide in hotspring). Location in above places may cause malfunction or shorten the life span of the manchine.
- **In the cace of extremely strong wind, please prevent the air from flowing backwards into the outdoor unit.**
- **Snow canopy is necessary in sonwfall places on the outdoor unit. Please consult the local dealer for details.**
- **In the frequent thunderstruck place, lightning proof actions should be taken.**
- **To prevent refrigerant leak, contact your dealer.**
  When the system is installed and runs in a small room, it is required to keep the concentration of the refrigerant, if by any chance coming out, below the limit. Otherwise, oxygen in the room may be affected, resulting in a serious accident.
- **The refrigerant in the air conditioner is safe and normally does not leak.**
  If the refrigerant leaks in the room, contact with a fire of a burner, a heater or a cooker may result in a harmful gas.
- **Turn off any combustible heating devices, ventilate the room, and contact the dealer where you purchased the unit.**
  Do not use the air conditioner until a service person confirms that the portion where the refrigerant leaks is repaired.
- **If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.**
- **The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.**
- **The appliance should not be used by children without supervision.**

3. UNIT DIMENSIONS

Units: mm

- 7.5 Tons C/O Units (Hor. & Dow.)

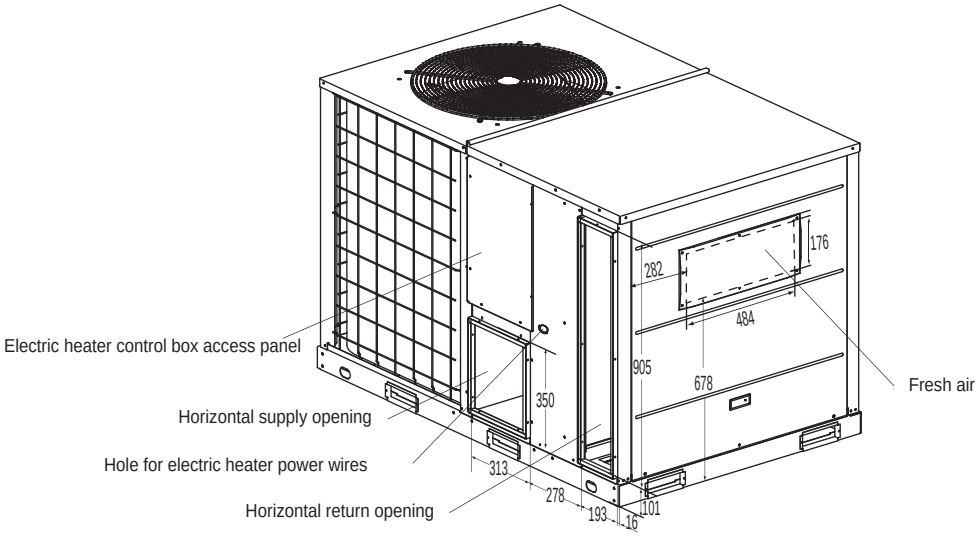


Fig.3-1

- 10 Tons C/O Units (Hor. & Dow.)

Units: mm

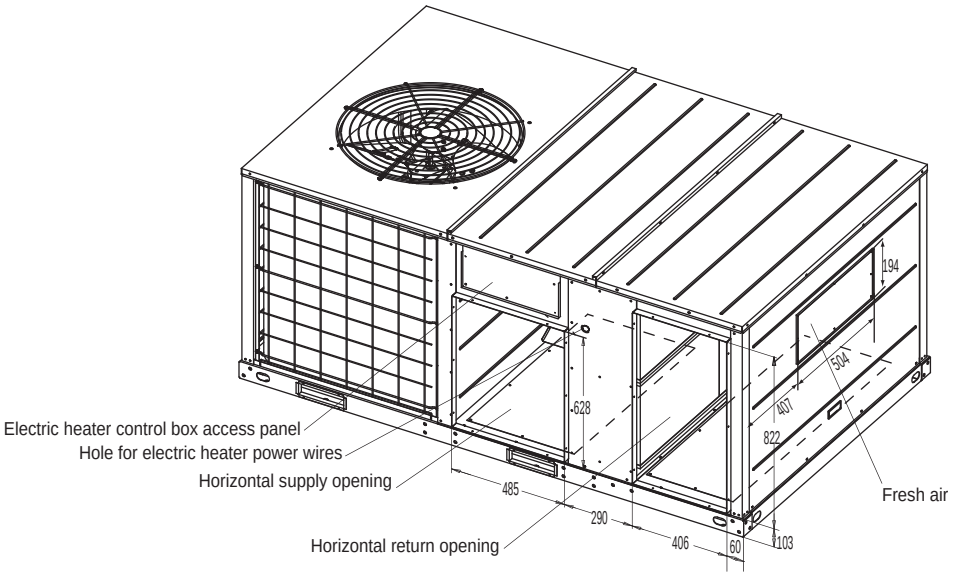


Fig.3-2

■ 15 Tons C/O Units (Hor. & Dow.)

Units: mm

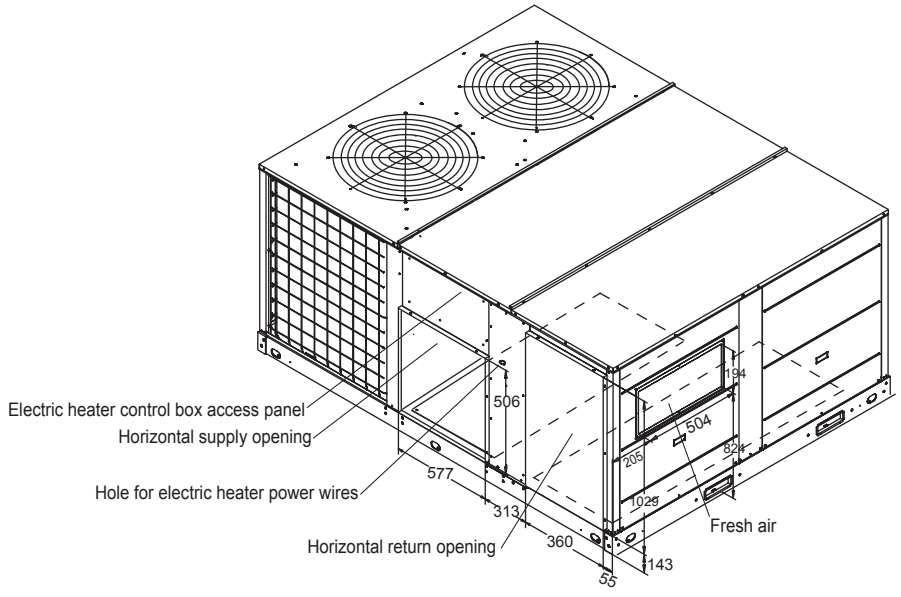


Fig.3-3

■ 20 Tons C/O Units (Hor. & Dow.)

Units: mm

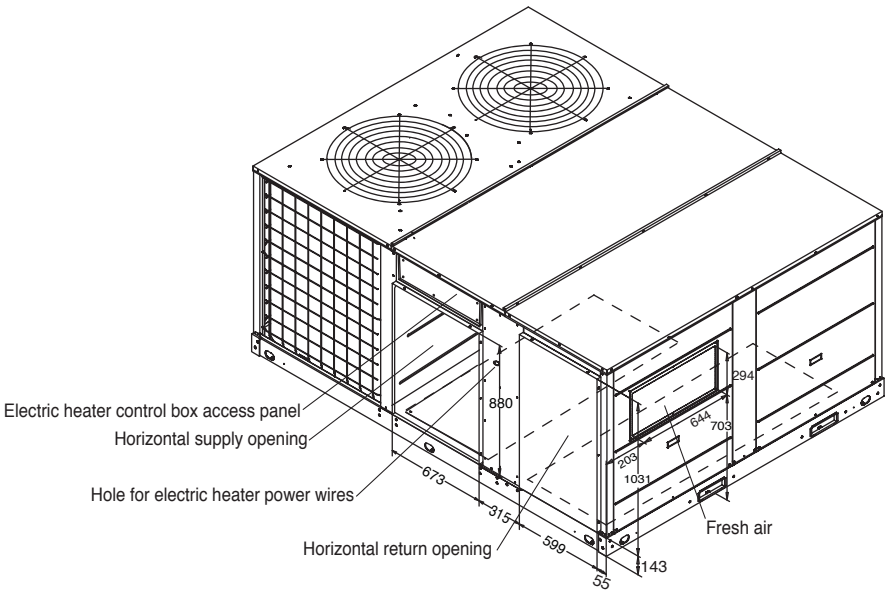


Fig.3-4

4. LOCATIONS AND RECOMMENDATIONS

4.1 Horizontal airflow application

- When choose horizontal air supply mode, please remove horizontal air supply panel and horizontal air return panel firstly. See *Fig.5-2*
- These units are designed and certified for outdoor installations. These units may be installed directly on wood flooring or on Class A, Class B, or Class C roof covering material.
- Location of the unit must allow service clearance around it. Clearance of the unit must be given careful consideration.
- Check the handling facilities to ensure the safety of personnel and the unit(s).
- Caution must be taken at all times to avoid Personal injuries and/or damage to equipment.
- The unit must be mounted level for proper drainage of water through the holes in the base pan.
- The unit must not be exposed to direct roof water runoff.
- Flexible duct connectors must be of a flame retardant material. All duct work outside of the structure must be insulated and weatherproofed in accordance with local codes.
- Holes through exterior walls must be sealed in accordance with local codes.
- All fabricated outdoor ducts should be as short as possible.

4.2 Downflow application-curb mounting(for 7.5-20 tons C/O units.

- When chosse vertical air supply mode (for 10 tons C/O, units and H/P units), please remove horizontal air supply panel and horizontal air return panel firstly; and then unload air down flow panel, horizontal air deflector and air down-return panel; lastly, remount horizontal air supply panel and horizontal air return panel. See *Fig.5-3*.
- When chosse vertical air supply mode (for 7.5, 20 tons C/O units, please remove horizontal air supply panel, unload horizontal air deflector, and remount horizontal air supply panel firstly. See *Fig.5-3*. and then unload air down flow panel, air down-return panel. See *Fig.5-4*.
- The Roof Mounting Curb, or a field fabricated curb must be in place before the unit is hoisted to the roof top.
- The Roof Mounting Curb (frame) must be installed on a flat, level section of the roof and provide a level mounting surface for the unit. In addition, be sure to provide sufficient height above the roof to prevent water from entering the unit.
- Be sure the mounting curb spans structural members (trusses) of the roof, thereby providing sufficient support for the weight of the unit, the curb, the duct(s), and any factory or field installed accessories.
- Be sure the hole in the structure for the ducts is large enough to accommodate the fabricated ducts and the insulation surrounding them.
- These units are design certified for outdoor installation. These units may be installed directly on wood flooring or on Class A,Class B, or Class C roof covering material.
- Location of the unit must allow for service clearance around it. Clearance of the unit must be given careful consideration.
- Check the handling facilities to ensure the safety of personnel
- Caution must be taken at all times to avoid personal injuries and/or damage to the equipment.
- The unit must be mounted level for proper drainage of water through the holes in the base pan.
- The unit must not be exposed to direct roof water runoff.
- Flexible duct connectors must be of a flame retardant material. All duct work outside of the structure must be insulated and weatherproofed in accordance with local codes.
- Roof flashing must be installed to seal the roof curb cavity and must conform to local building codes.
- All fabricated outdoor ducts should be as short as possible.

4.3 Clearances

- The recommended clearances for single-unit installations are illustrated in *Fig.4-1*
  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.
- 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.
- See the unit's nameplate for the absolute minimum clearance between the unit and any combustible surface(s).

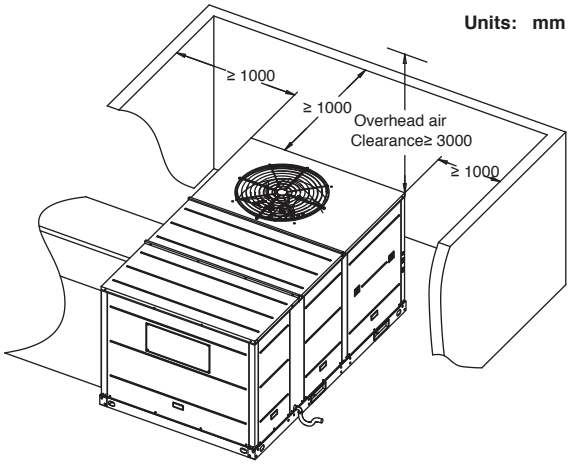


Fig.4-1

5. INSTALLATION

5.1 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 for prevent danger by cable slip because of weight unbalance.
- During lifting, anyone forbidden lingering under the lifting unit.

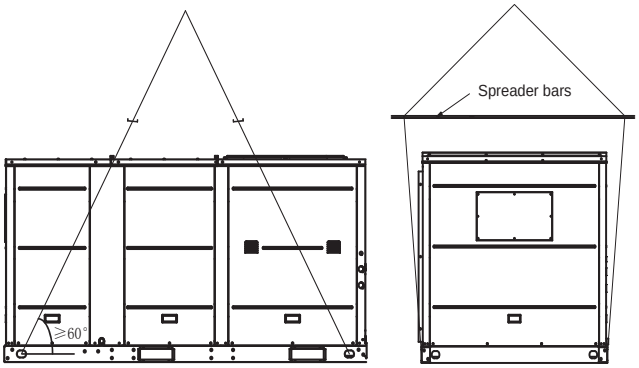
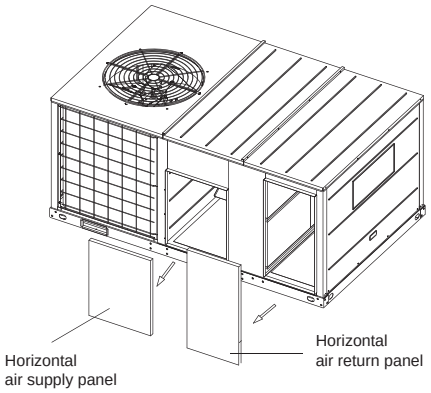


Fig.5-1

5.2 Rooftop-units

- **For roof top applications using a field fabricated frame and ducts, use the following procedure:**
- The frame must be located and secured by bolting or welding to the roof. Flashing is required.
- The hole in the roof must be prepared in advance of installing the unit.
- Secure the ducts to the roof.
- Place the unit on the frame or roof curb.
- Secure the unit to the frame or roof curb.
- Insulate any ductwork outside of the structure with at least 2 inches of insulation and then weatherproof. There must be a weatherproof seal where the duct enters the structure.
- Complete the installation according to the instructions in the following sections of this manual.
- Typical rooftop application with frame



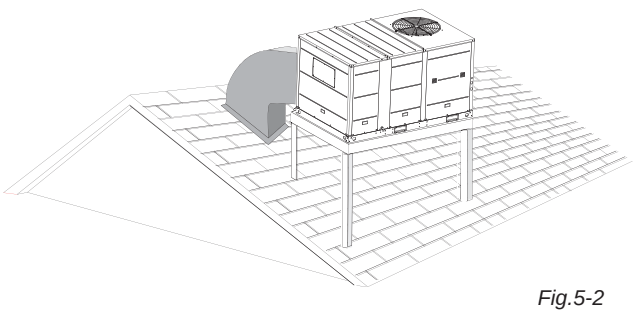
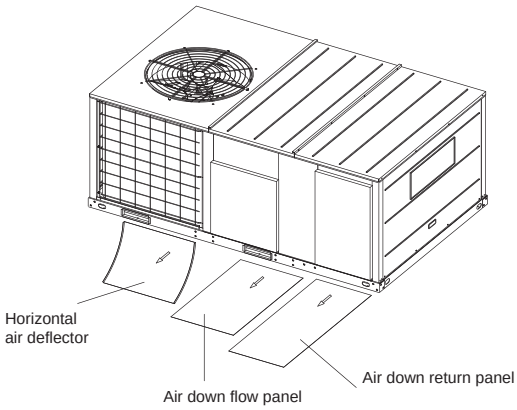


Fig.5-2



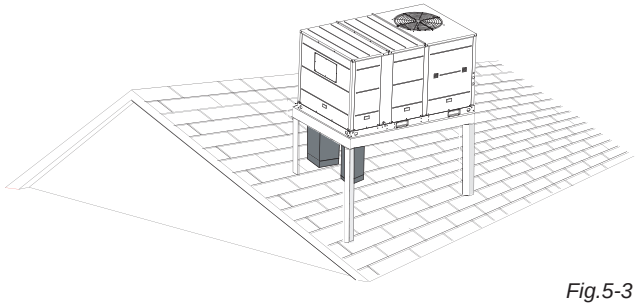
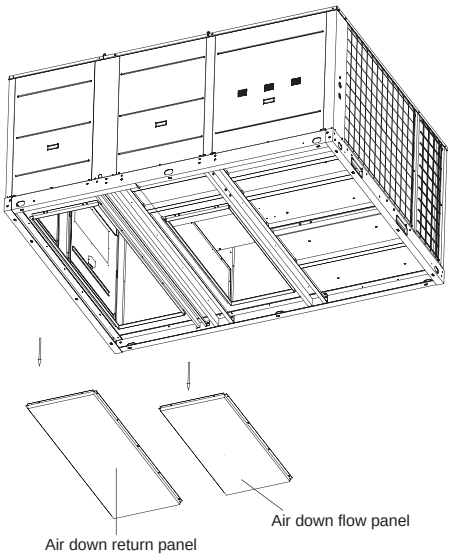


Fig.5-3



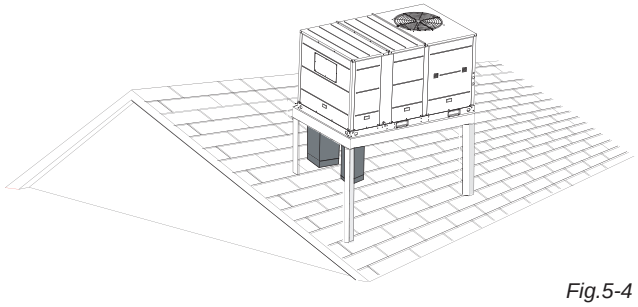


Fig.5-4

5.3 Ground level-horizontal units

■ For ground level installations, the unit should be positioned on a pad in 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.

■ Proceed with the installation as follows:

- Place the unit on the pad.
- Attach the supply and return air ducts to the unit.
- 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.
- Complete the installation according to the instructions in the following sections of this manual.

■ Typical ground level application

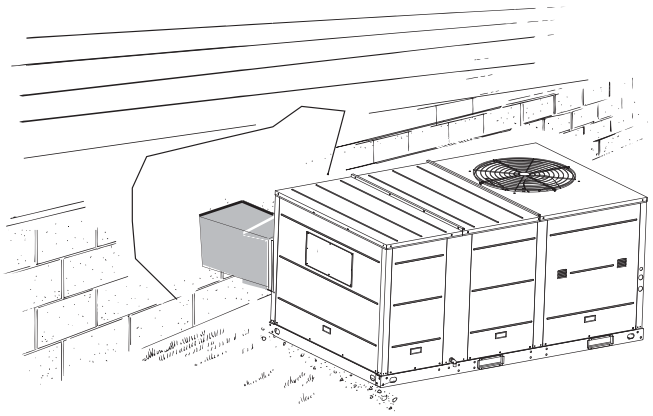
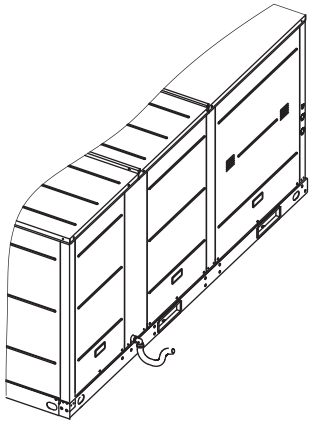
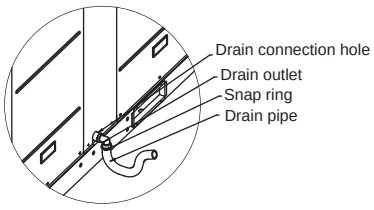
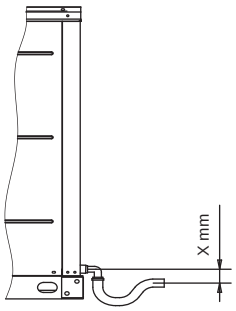


Fig.5-5

5.4 Condensate drain piping







Others 20≤X≤40

Fig.5-6

5.5 Ductwork

■ Attaching horizontal ductwork to unit

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

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.

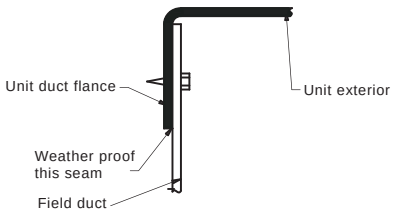


Fig.5-7

■ 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:

Connections to the unit should be made with three-inch canvas connectors to minimize noise and vibration transmission.

Elbows with turning vanes or splitters are recommended to minimize air noise and resistance.

The first elbow in the ductwork leaving the unit should be no closer than 2 feet from the unit, to minimize noise and resistance.

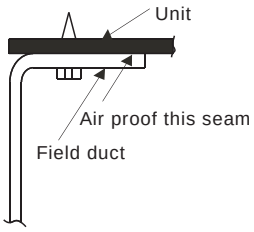


Fig.5-8

6. ELECTRICAL WIRING

WARNING

- An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.
- The appliance shall be installed in accordance with national wiring regulations.
- An all-pole disconnection device which has at least 3mm separation distance in all pole and a residual current device(RCD)with the rating of above 10mA shall be incorporated in the fixed wiring according to the national rule.
- The appliance shall be installed in accordance with national wiring regulations.

6.1 Protections and safety control

- **Minutes delay for the compressor start-up**
  At the beginning of energizing, 3-minutes delay should be taken to start the compressor. while after the stop of the compressor, 7-minutes delay should be taken to re-start the compressor.
- **Compressor discharge temperature protection**
  When discharge temperature ＞257 , the compressor will stop.
- **Reverse phase protection relay**
  - The reverse phase protection relay will make the unit not start, when the power source is incorrectly connected.
  - The checking of phase order is just carried out at the first time of electrifying. If malfunction happens then the checking will be going on until the order of phase is right, and the E0 will be displayed on the board. If there is no problem in the first checking, then it will be omitted.
- **High pressure and low pressure protection**
  When high pressure ⩾638 Psi, and lower pressure ⩽21Psi, the unit will stop.

■ R410A 220V 3Ph~ 60Hz

Tab.6-1

Nominal ton	Model type	Type of flow	Compressor				Evaporator fan motor			Condenser fan motor			Electric heating
			STC (each)	RNC (each)	IPT (each)	Qty.	RNC	IPT	Qty.	RNC (each)	IPT (each)	Qty.	IPT
7.5	C/O	Hor.&Dow.	203	30.7	8.6	1	6	1.87	1	4.1	1.11	1	-
10	C/O	Hor.&Dow.	267	43.6	11.2	1	6.0	1.857	1	4.1	1.11	1	-
15	C/O	Hor.&Dow.	203	30.7	8.57	2	14.0	3.9	1	4.1	1.11	2	-
20	C/O	Hor.&Dow.	267	43.6	11.25	2	18.0	5.4	1	9.0	2.7	2	-

NOTES

- STC: Starting Current (A) RNC: Running Current (A) IPT: Input Power (kW) Qty: Quantity
- These data are based on the following conditions. Evaporator Air Input Temperature 89.6 DB, 73.4 WB. Condenser Air Input Temperature 125.6 DB.

6.3 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 fuses, conduit coupling, and field supplied room thermostat.
- **Wire and fuse size selection for main power source**
  Wire and fuse sizes should be selected in accordance with national and 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.

Tab.6-3

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

NOTE

- Before connecting the device to the public low-voltage supply systems the permission of the electricity supplier is forcefully necessary.

6.4 Error code

Tab.6-2

Type	Content	Code	Remarks
Normal	Standby	——	
Normal	Constraint cool	on	
Normal	Run	10.	
Error	Compressor phase sequence error or phase default	E0	
Error	Outdoor coil sensor in sys. A error	E1	
Error	Outdoor coil sensor in sys. B error	E2	
Error	Overcurrent protection of system A are active 3 times within one hour	E3	Unit shall be power off to recovery
Error	Overcurrent protection of system B are active 3 times within one hour	E4	Unit shall be power off to recovery
Error	Indoor coil sensor in sys. A error	E5	
Error	Indoor coil sensor in sys. B error	E6	
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 sensor error	E9	
Error	Outdoor ambient sensor error	EA	
Error	Wire controller output error	Eb	
Protection	Overcurrent protection in sys.A	P0	
Protection	Overcurrent protection in sys.B	P1	
Protection	Overcurrent protection for indoor fan	P2	
Protection	Comprehensive protection for outdoor fan	P3	
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	
Protection	Hi-pressure protection initiated in T2 evaporator stops the outdoor unit fan and compressor	P7	
Protection	Protection for condenser Hi-temp. in sys.A	P8	
Protection	Protection for condenser Hi-temp. in sys.B	P9	
Protection	Anti-freezing protection for evaporator in sys. A	Pc	
Protection	Anti-freezing protection for evaporator in sys. B	Pd	
Protection	Defrosting	dF	

7. SPECIFICATION

7.1 Physical Data

■ **R410A 220V 3Ph～60Hz**

Tab.7-1

Nominal ton		7.5 Tons
Model type		C/O
Type of flow		Hor. & Dow.
Capacity	Cooling capacity(net) (Btu/h)(Ⅰ)	89000
	Heating capacity (Btu/h)	——
Performance	EER	9.7
Dimensions	Length(mm)	1630
	Width(mm)	1065
	Heigth(mm)	1068
Net weight(kg)		315
Refrigerant type		R410A
Flow control		Capillary
Compressor	Quantity/Type	1/Scroll
Outdoor coil	Rows	3
	Fins per inch	16
	Tube diameter(in.)	5/16
Indoor coil	Rows	2
	Fins per inch	16
	Tube diameter(in.)	5/16
Outdoor fan	Quantity used/diameter(mm)	1/650
	Type	Propeller
	Drive type	Direct
	Quantity speeds	1
	Quantity motors/power(kW)	1/1.11
	Motor RPM	1120±30
	Nomial total CFM	5880
Indoor fan	Quantity used/model	1/10×10
	Type	FC centrifugal
	Drive type	Belt
	Quantity speeds	Variable sheave
	Quantity motors/power(kW)	1/1.9
	Motor RPM	1680
	Nominal total CFM(Ⅱ)	3000
Filters	Quantity Size recommended(mm)	(2) 447X890X10

NOTES

■ (Ⅰ) Cooling capacities are rated at 95 ambient DB, 80 entering DB, 67 entering WB.

■ (Ⅱ) Units are suitable for operation to ±20% of nominal CFM.

■ R410A 220V 3Ph～60Hz

Tab.7-2

Nominal ton		10 Tons
Model type		C/O
Type of flow		Hor. & Dow.
Capacity	Cooling capacity(net) (Btu/h)(I)	120000
	Heating capacity (Btu/h)	——
Performance	EER	10.5
Dimensions	Length(mm)	2165
	Width(mm)	1335
	Heigth(mm)	1002
Net weight(kg)		445
Refrigerant type		R410A
Flow control		Capillary
Compressor	Quantity/Type	1/Scroll
Outdoor coil	Rows	3.5
	Fins per inch	16
	Tube diameter(in.)	5/16
Indoor coil	Rows	3
	Fins per inch	18
	Tube diameter(in.)	5/16
Outdoor fan	Quantity used/diameter(mm)	1/650
	Type	Propeller
	Drive type	Direct
	Quantity speeds	1
	Quantity motors/power(kW)	1/1.11
	Motor RPM	1120±30
	Nomial total CFM	7060
Indoor fan	Quantity used/model	1/12×12
	Type	FC centrifugal
	Drive type	Belt
	Quantity speeds	Variable sheave
	Quantity motors/power(kW)	1/1.8
	Motor RPM	1680
	Nominal total CFM(II)	3800
Filters	Quantity Size recommended(mm)	(2) 566X814X10

NOTES

■ (I) Cooling capacities are rated at 95 ambient DB, 80 entering DB, 67 entering WB.

■ (II) Units are suitable for operation to ±20% of nominal CFM.

■ R410A 220V 3Ph～ 60Hz

Tab.7-3

Nominal ton		15 Tons
Model type		C/O
Type of flow		Hor. & Dow.
Capacity	Cooling capacity(net) (Btu/h)(I)	180000
	Heating capacity (Btu/h)	——
Performance	EER	10
Dimensions	Length(mm)	2229
	Width(mm)	1825
	Heigth(mm)	1245
Net weight(kg)		710
Refrigerant type		R410A
Flow control		Capillary
Compressor	Quantity/Type	2/Scroll
Outdoor coil	Rows	3
	Fins per inch	16
	Tube diameter(in.)	5/16
Indoor coil	Rows	3
	Fins per inch	18
	Tube diameter(in.)	5/16
Outdoor fan	Quantity used/diameter(mm)	2/650
	Type	Propeller
	Drive type	Direct
	Quantity speeds	1
	Quantity motors/power(kW)	2/1.11
	Motor RPM	1120±30
	Nomial total CFM	11000
Indoor fan	Quantity used/model	1/15×15
	Type	FC centrifugal
	Drive type	Belt
	Quantity speeds	Variable sheave
	Quantity motors/power(kW)	1/3.9
	Motor RPM	1730
	Nominal total CFM(II)	6600
Filters	Quantity Size recommended(mm)	(2) 900X815X12.5

NOTES

■ (I) Cooling capacities are rated at 95 ambient DB, 80 entering DB, 67 entering WB.

■ (II) Units are suitable for operation to ±20% of nominal CFM.

■ R410A 220V 3Ph～60Hz

Tab.7-4

Nominal ton		20 Tons
Model type		C/O
Type of flow		Hor. & Dow.
Capacity	Cooling capacity(net) (Btu/h)(I)	240000
	Heating capacity (Btu/h)	—
Performance	EER	10.1
Dimensions	Length(mm)	2753
	Width(mm)	2157
	Heigth(mm)	1245
Net weight(kg)		925
Refrigerant type		R410A
Flow control		Capillary
Compressor	Quantity/Type	2/Scroll
Outdoor coil	Rows	4
	Fins per inch	16
	Tube diameter(in.)	5/16
Indoor coil	Rows	3
	Fins per inch	16
	Tube diameter(in.)	5/16
Outdoor fan	Quantity used/diameter(mm)	2/750
	Type	Propeller
	Drive type	Direct
	Quantity speeds	1
	Quantity motors/power(kW)	2/2.7
	Motor RPM	910±35
	Nomial total CFM	14000
Indoor fan	Quantity used/model	1/18×18
	Type	FC centrifugal
	Drive type	Belt
	Quantity speeds	Variable sheave
	Quantity motors/power(kW)	1/5.5
	Motor RPM	1730
	Nominal total CFM(II)	8400
Filters	Quantity Size recommended(mm)	(3) 640X1008X12.5

NOTES

■ (I) Cooling capacities are rated at 95 ambient DB, 80 entering DB, 67 entering WB.

■ (II) Units are suitable for operation to ±20% of nominal CFM.

7.2 Parameter For Air Volume

■ Parameter table for indoor unit air volume

Tab.7-5
7.5 Tons (60Hz)

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

Tab.7-6
10 Tons (60Hz)

Static pressure (Pa)	Air flow (CFM)	Brake power (KW)	Fan speed (rpm)
0	4325	2.18	1000
25	4156	2.10	1004
50	3929	2.02	1006
75	3756	1.96	1011
100	3579	1.86	1014
125	3382	1.79	1016
150	3218	1.71	1020
175	3020	1.62	1021

Tab.7-7
15 Tons (60Hz)

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

Tab.7-8
20 Tons (60Hz)

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

■ Curve diagr ram, air flow volumn.

7.5 Tons (60Hz)

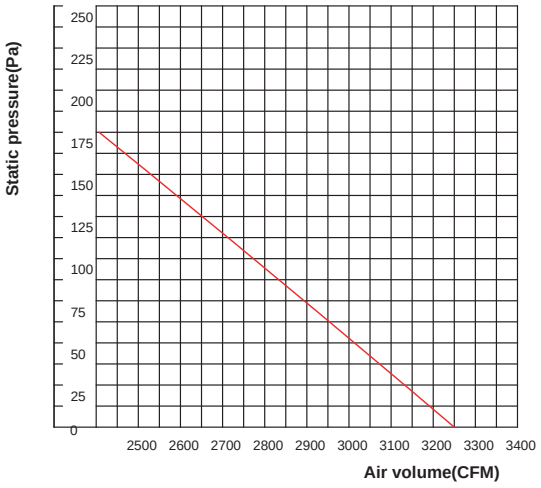


Fig.7-1

10 Tons (60Hz)

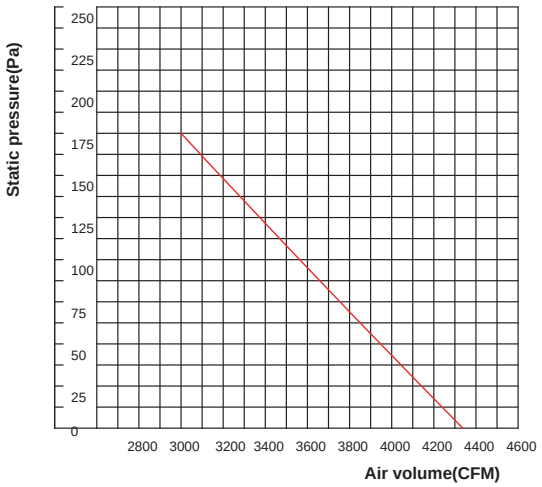


Fig.7-2

15 Tons (60Hz)

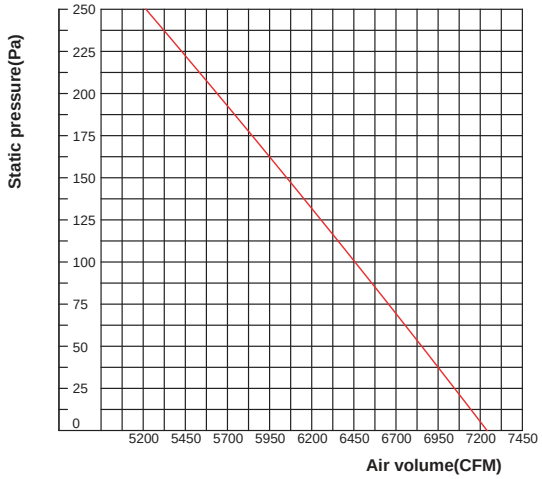


Fig.7-3

20 Tons (60Hz)

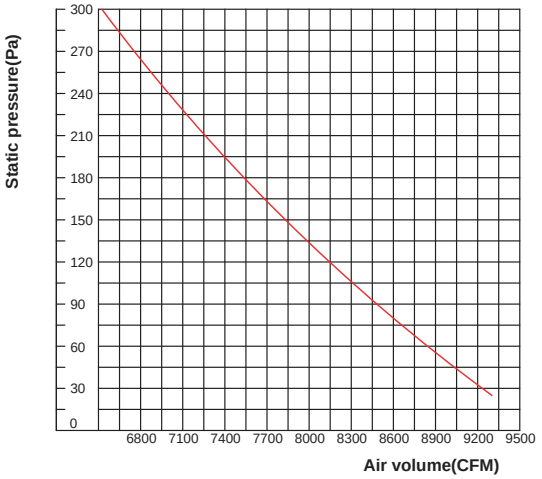


Fig.7-4

■ Parameter table for outdoor unit air volume

NOTE

Shield parts in below tables are standard working conditions for the unit.

Tab.7-9

7.5 Tons

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

Tab.7-10

10 Tons

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

Tab.7-11

15 Tons

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

Tab.7-34

Tab.7-12

20 Tons

Static pressure (Pa)	Air flow (CFM)	Brake power (kW)	Fan speed (rpm)
0	14000	1.3×2	940
10	13500	1.4×2	938
20	13100	1.5×2	930

7.3 Operating conditions

For proper performance, run the unit under the following temperature conditions:

Tab.7-13

Cooling operation	Outdoor temperature: 64°F to 125°F
	Room temperature: 62°F to 90°F
	Caution Room relative humidity less than 80%. If the unit operates in excess of this figure, the surface of the unit may attract condensation.

■ Cooling capacity — 7.5 Tons

Tab.7-14

Ambient Temperature		Air Flow(CFM)		2600				2800				3000				3200			
		Ent DB	(F)	75	80	85	90	75	80	85	90	75	80	85	90	75	80	85	90
85	61		TC	82.5	84.2	85.8	87.5	87.3	89.0	90.8	92.6	89.3	91.1	92.9	94.8	91.0	92.8	94.7	96.6
			SC	72.7	80.4	85.3	87.5	77.4	84.3	88.2	91.1	82.0	84.5	87.9	92.3	86.2	90.3	93.5	95.2
	67		TC	94.8	96.7	98.6	100.6	95.9	97.8	99.8	101.8	96.7	98.6	100.6	102.6	97.3	99.2	101.2	103.3
			SC	55.6	68.8	81.8	94.3	58.0	72.6	85.4	96.3	59.5	73.8	88.2	100.1	60.8	75.8	90.7	100.8
	73		TC	98.6	100.6	102.6	104.6	99.2	101.2	103.2	105.2	99.4	101.4	103.4	105.5	99.7	101.7	103.7	105.8
			SC	36.8	51.0	62.0	72.4	37.3	50.7	62.3	75.1	37.8	54.8	63.3	75.4	38.3	56.7	64.2	76.8
95	61		TC	78.6	80.2	81.8	83.4	81.0	82.6	84.3	86.0	83.3	85.0	86.7	88.4	85.3	87.0	88.7	90.5
			SC	69.6	75.6	78.0	81.4	72.3	78.6	81.2	85.3	75.2	79.3	83.5	86.7	83.8	85.1	87.2	89.3
	67		TC	85.6	87.3	89.1	90.8	87.1	94.0	96.6	98.0	91.4	96.2	98.1	99.8	93.2	98.1	100.9	101.9
			SC	53.9	67.7	81.6	86.2	56.3	71.6	86.5	91.3	58.7	75.0	90.8	92.0	61.1	78.1	94.5	95.9
	73		TC	97.8	99.8	101.8	103.8	98.3	100.3	102.3	104.3	98.7	100.7	102.7	104.7	98.6	100.6	102.6	104.6
			SC	35.7	50.2	62.3	74.5	36.2	51.2	64.1	77.3	36.8	52.0	65.6	79.2	37.3	55.6	66.9	81.1
105	61		TC	72.1	73.5	75.0	76.5	74.4	75.9	77.4	79.0	76.5	78.0	79.6	81.2	78.4	80.0	81.6	83.2
			SC	66.4	68.3	71.3	73.2	71.2	72.4	76.3	78.4	75.3	76.5	77.9	80.4	76.1	78.6	80.3	82.5
	67		TC	84.4	86.1	87.8	89.6	86.3	88.0	89.8	91.6	87.8	89.6	91.3	93.2	89.1	90.9	92.7	94.6
			SC	51.0	65.0	79.2	86.3	53.7	66.2	85.0	90.3	56.3	73.3	90.6	92.3	58.8	77.2	90.1	92.4
	73		TC	95.3	97.2	99.2	101.1	95.2	97.1	99.0	101.0	96.7	98.6	100.6	102.6	97.1	99.0	101.0	103.0
			SC	34.2	48.9	64.2	76.8	34.1	50.4	65.6	78.8	35.4	52.2	67.2	80.9	35.9	53.4	68.9	83.5
115	61		TC	65.3	66.6	67.9	69.3	67.2	68.5	69.9	71.3	69.8	71.2	72.6	74.1	72.1	73.5	75.0	76.5
			SC	63.2	64.6	66.4	68.6	61.2	64.3	67.6	69.1	67.3	69.1	71.0	73.2	70.3	71.2	73.6	75.8
	67		TC	76.7	78.2	79.8	81.4	78.5	80.1	81.7	83.3	80.1	81.7	83.3	85.0	81.5	83.1	84.8	86.5
			SC	47.8	62.1	75.4	80.2	50.5	66.0	78.3	82.1	53.1	70.2	82.1	84.6	55.7	74.4	82.1	85.6
	73		TC	90.8	92.6	94.5	96.4	86.0	87.7	89.5	91.3	92.9	94.8	96.7	98.6	93.6	95.5	97.4	99.3
			SC	32.4	46.3	61.2	76.4	33.0	48.4	63.5	78.1	33.7	50.4	66.6	82.3	34.3	52.5	69.4	85.9
125	61		TC	59.9	61.1	62.3	63.6	61.7	62.9	64.1	65.4	64.0	65.3	66.6	68.0	66.1	67.5	68.8	70.2
			SC	58.0	59.3	60.9	62.9	56.1	59.0	62.0	63.4	61.7	63.4	65.1	67.2	64.5	65.3	67.5	69.5
	67		TC	70.4	71.8	73.2	74.7	72.0	73.5	74.9	76.4	73.5	75.0	76.5	78.0	74.8	76.3	77.8	79.3
			SC	43.9	57.0	69.2	73.6	46.3	60.6	71.8	75.3	48.7	64.4	75.3	77.6	51.1	68.3	75.3	78.5
	73		TC	83.3	85.0	86.7	88.4	78.9	80.5	82.1	83.7	85.2	86.9	88.7	90.4	85.9	87.6	89.3	91.1
			SC	29.7	42.5	56.1	70.1	30.3	44.4	58.3	71.7	30.9	46.2	61.1	75.5	31.5	48.2	63.7	78.8

Notes:

1. All capacities are net and have considered indoor fan heat.
2. TC=Total Capacity. (Unit: 1000Btu/h)
3. SC=SensibleCapacity. (Unit: 1000Btu/h)
4. different air volume in the above table,need to adjust in the field.

■ Cooling capacity — 10 Tons

Tab.7-15

Ambient Temperature		Air Flow(CFM)			3000				3400				3800				4200			
		Ent	DB	(F)	75	80	85	90	75	80	85	90	75	80	85	90	75	80	85	90
	85	61		TC	110.9	113.1	115.4	117.7	113.8	116.1	118.4	120.8	116.5	118.8	121.2	123.6	118.6	121.0	123.4	125.9
				SC	96.8	98.7	100.7	102.7	103.2	105.3	107.4	109.5	109.2	111.4	113.6	115.9	114.7	117.0	119.3	121.7
		67		TC	123.4	125.9	128.4	131.0	124.6	127.1	129.6	132.2	125.7	128.2	130.8	133.4	126.3	130.0	131.4	134.0
				SC	73.2	92.0	108.3	124.8	75.6	94.3	112.8	128.5	78.0	97.3	116.5	130.4	79.6	99.7	119.4	131.2
		73		TC	127.9	130.5	133.1	135.7	128.3	130.9	133.5	136.2	128.6	131.2	133.8	136.5	129.8	132.4	135.0	137.7
				SC	47.7	64.9	79.6	95.3	48.3	65.8	81.2	96.7	49.0	72.1	82.4	98.4	49.7	75.6	84.2	101.3
	95	61		TC	102.8	104.9	107.0	109.1	105.9	108.0	110.2	112.4	108.9	111.1	113.3	115.6	111.1	113.1	115.6	117.9
				SC	92.7	94.6	96.4	98.4	99.2	101.2	103.2	105.3	105.4	107.5	109.7	111.9	100.5	102.5	104.6	106.7
		67		TC	118.7	121.1	123.5	126.0	122.5	127.0	128.5	130.1	123.8	128.0	128.7	132.3	125.1	129.4	130.0	133.3
				SC	70.8	89.8	108.6	123.4	74.3	94.8	114.0	124.3	77.4	99.3	120.3	128.4	80.2	103.2	125.7	128.2
		73		TC	126.8	129.3	131.9	134.6	127.1	129.6	132.2	134.9	127.8	130.4	133.0	135.6	128.1	130.7	133.3	135.9
				SC	46.3	65.4	81.5	97.8	47.2	66.7	84.3	101.9	47.5	67.6	85.8	104.7	48.4	68.7	87.9	106.8
	105	61		TC	94.5	96.4	98.3	100.3	97.8	99.8	101.8	103.8	99.8	101.8	103.8	105.9	103.5	105.6	107.7	109.8
				SC	88.6	90.4	92.2	94.0	95.2	97.1	99.0	101.0	93.4	95.3	97.2	99.1	101.2	103.2	105.3	107.4
		67		TC	110.3	112.5	114.8	117.1	112.9	115.2	117.5	119.8	114.6	116.9	119.2	121.6	116.3	118.6	121.0	123.4
				SC	67.6	86.4	105.9	115.6	71.3	92.1	113.7	117.9	74.2	98.3	115.5	117.6	77.8	102.8	115.6	121.3
		73		TC	123.8	126.3	128.8	131.4	124.6	127.1	129.6	132.2	125.2	127.7	130.3	132.9	125.8	128.3	130.9	133.5
				SC	44.3	63.2	81.0	98.3	45.2	65.6	85.3	103.7	45.7	67.5	86.9	106.8	46.3	69.7	91.2	110.4
	115	61		TC	86.3	88.0	89.8	91.6	89.2	91.0	92.8	94.7	92.3	94.1	96.0	97.9	95.8	97.7	99.7	101.7
				SC	84.6	86.3	88.0	89.8	86.2	87.9	89.7	91.5	90.2	92.0	93.8	95.7	94.3	96.2	98.1	100.1
		67		TC	101.3	103.3	105.4	107.5	103.2	107.0	107.4	109.5	105.6	107.7	109.9	112.1	108.2	110.4	112.6	114.8
				SC	63.5	83.2	102.1	104.1	67.3	88.2	105.3	107.4	70.8	94.1	107.3	110.5	74.1	99.6	110.3	112.5
		73		TC	119.2	121.6	124.0	126.5	120.1	122.5	125.0	127.5	120.8	123.2	125.7	128.2	121.1	123.5	126.0	128.5
				SC	42.2	61.3	80.1	98.7	42.9	64.1	84.3	104.1	43.7	66.8	87.9	109.3	44.3	69.1	91.2	112.7
	125	61		TC	78.5	80.0	81.6	83.3	81.1	82.7	84.4	86.1	83.9	85.6	87.8	89.0	87.1	88.8	90.6	92.4
				SC	76.9	78.4	80.0	81.6	78.4	79.9	81.5	83.2	82.0	83.6	85.3	87.0	85.7	87.4	89.2	91.0
		67		TC	92.1	93.9	95.8	97.7	93.8	97.9	98.2	99.6	96.0	98.1	99.9	101.9	98.4	100.3	102.3	104.4
				SC	57.7	75.6	92.8	94.7	61.2	80.2	95.7	97.6	64.4	85.5	97.5	100.5	67.4	90.5	100.3	102.3
		73		TC	108.4	110.5	112.7	115.0	109.2	111.4	113.6	115.9	109.8	112.0	114.3	116.5	110.1	112.3	114.5	116.8
				SC	38.4	55.7	72.8	89.7	39.0	58.3	76.6	94.6	39.7	60.7	79.9	99.4	40.3	62.8	82.9	102.5

Notes:

1. All capacities are net and have considered indoor fan heat.
2. TC=Total Capacity. (Unit: 1000Btu/h)
3. SC=SensibleCapacity. (Unit: 1000Btu/h)
4. different air volume in the above table,need to adjust in the field.

■ Cooling capacity — 15 Tons

Tab.7-16

Ambient Temperature		Air Flow(CFM)			5400				6000				6600				7200			
		Ent	DB	(F)	75	80	85	90	75	80	85	90	75	80	85	90	75	80	85	90
	85	61		TC	163.6	165.6	172.9	182.7	168.0	171.6	179.0	188.7	169.9	174.2	185.1	193.6	176.6	179.0	188.8	196.1
				SC	131.5	155.8	166.0	175.3	138.7	165.6	173.6	183.0	146.1	167.2	177.7	185.9	152.3	171.8	181.3	188.2
		67		TC	183.3	185.5	187.6	190.2	188.7	190.0	191.1	192.4	191.0	192.5	193.6	195.1	192.5	193.6	196.1	197.3
				SC	104.7	127.8	149.8	172.9	109.3	132.7	157.1	180.2	111.2	136.4	162.0	187.6	113.7	140.1	166.8	193.6
		73		TC	193.6	197.3	199.8	202.2	195.8	198.5	202.2	204.5	198.3	201.0	203.3	205.8	201.0	204.2	206.6	209.1
				SC	72.2	96.8	117.0	136.4	73.6	99.0	119.6	138.6	74.9	99.9	121.6	143.7	76.1	101.0	123.1	147.6
	95	61		TC	153.4	157.1	164.5	175.4	155.3	162.0	171.7	181.4	160.8	164.5	176.6	186.3	164.5	170.5	181.4	190.0
				SC	125.3	149.8	159.5	170.1	132.7	157.1	166.6	176.0	140.1	159.5	171.3	180.8	146.1	165.4	176.0	184.3
		67		TC	171.7	174.2	176.6	180.2	179.0	180.0	182.7	183.9	185.1	186.5	187.7	188.7	185.7	188.2	189.8	197.9
				SC	99.9	123.0	146.1	169.2	104.1	129.0	153.5	179.0	108.1	132.8	160.8	186.3	111.1	138.9	166.8	188.9
		73		TC	188.8	191.1	193.5	196.1	190.2	192.2	195.2	198.5	191.9	194.3	196.8	198.0	195.6	199.3	201.7	204.2
				SC	69.0	93.1	114.8	135.2	70.5	96.3	117.8	140.1	71.8	97.9	120.7	143.7	73.2	99.5	123.0	147.4
	105	61		TC	142.7	146.4	153.8	166.1	147.6	151.3	163.6	171.0	150.1	156.2	169.7	180.8	153.8	162.4	174.7	184.5
				SC	119.6	140.5	147.6	159.4	127.9	145.2	157.0	164.1	135.3	151.5	164.6	173.2	140.1	157.5	169.4	179.0
		67		TC	163.6	166.1	169.7	171.0	164.8	168.5	173.4	175.9	173.4	175.9	178.4	180.8	177.1	179.6	182.0	186.5
				SC	94.6	118.1	141.3	165.7	109.0	124.2	149.8	170.6	102.6	130.3	157.1	175.4	106.3	135.2	164.5	184.5
		73		TC	185.7	187.0	188.2	189.4	188.2	189.4	190.7	193.1	190.7	191.9	193.1	194.3	191.9	193.1	194.3	196.8
				SC	65.6	89.2	111.7	132.8	67.0	92.3	115.5	138.9	68.3	95.3	118.6	142.4	69.6	96.6	121.5	148.8
	115	61		TC	130.4	135.3	147.6	159.9	134.1	141.5	153.8	166.1	137.8	140.4	150.9	172.2	141.5	151.3	164.8	175.9
				SC	114.5	131.2	143.2	155.1	121.6	135.8	147.6	159.4	127.9	136.2	146.9	167.0	127.3	146.8	159.9	170.6
		67		TC	153.8	156.2	157.4	159.9	155.0	158.7	161.1	163.6	163.6	166.1	169.7	174.0	167.3	169.7	172.2	175.9
				SC	98.4	113.4	136.5	159.9	103.3	119.9	145.1	163.6	108.2	125.5	151.3	168.8	101.8	131.6	161.1	172.4
		73		TC	173.4	175.9	178.4	179.6	178.4	180.8	182.0	183.3	182.0	183.3	184.5	185.7	183.3	184.5	185.7	187.0
				SC	62.1	85.6	108.9	131.6	63.5	89.8	113.2	136.5	66.4	92.3	118.1	143.9	66.4	95.9	120.5	146.4
	125	61		TC	125.4	130.1	141.9	152.1	128.9	136.0	147.8	159.7	132.5	140.7	153.8	165.6	136.0	145.5	158.5	169.1
				SC	110.1	126.2	137.7	147.5	117.0	131.9	143.4	154.9	123.0	136.5	149.1	160.6	122.4	139.7	152.1	162.4
		67		TC	147.8	150.2	151.4	153.8	149.0	152.6	154.9	157.3	157.3	159.7	163.2	167.1	160.8	163.2	165.6	171.1
				SC	87.6	109.0	131.3	153.8	99.0	115.3	139.6	152.6	104.1	120.6	145.5	162.1	97.9	126.5	154.9	166.0
		73		TC	166.8	169.1	171.5	172.7	171.5	173.9	175.0	176.2	175.0	176.2	177.4	178.6	176.2	177.4	178.6	179.8
				SC	59.7	82.3	104.7	126.5	61.0	86.3	108.8	131.3	63.9	88.7	113.5	138.4	63.9	92.3	115.9	140.7

Notes:

1. All capacities are net and have considered indoor fan heat.
2. TC=Total Capacity. (Unit: 1000Btu/h)
3. SC=SensibleCapacity. (Unit: 1000Btu/h)
4. different air volume in the above table,need to adjust in the field.

■ Cooling capacity — 20 Tons

Tab.7-17

Ambient Temperature	Air Flow(CFM)			6800				7600				8400				9200		
	Ent	DB	(F)	75	80	85	90	75	80	85	90	75	80	85	90	75	80	85
85	61		TC	216.1	218.7	228.5	241.3	222.0	226.7	236.4	249.3	224.4	230.1	244.6	255.8	233.4	236.4	249.4
			SC	173.7	205.9	221.6	234.1	183.3	218.7	229.3	241.8	193.1	223.2	237.2	248.1	201.2	229.3	242.0
	67		TC	242.1	245.1	247.8	251.2	249.3	251.1	252.5	254.2	252.4	254.3	255.8	257.7	254.3	255.8	259.0
			SC	138.3	168.8	197.9	228.5	144.5	175.3	207.5	238.1	146.9	180.2	214.0	247.8	150.2	185.1	220.4
	73		TC	255.8	260.7	263.9	267.2	258.7	262.3	267.2	270.2	262.0	265.5	268.6	271.9	265.5	269.8	273.0
			SC	95.4	127.9	154.5	180.2	97.2	130.8	158.0	183.1	99.0	132.0	160.7	189.8	100.6	133.4	162.7
95	61		TC	202.6	207.5	217.3	231.7	205.2	214.0	226.9	239.7	212.4	217.3	233.4	246.2	217.3	225.2	239.7
			SC	165.6	197.9	210.7	224.8	175.3	205.5	217.8	230.1	185.1	210.7	226.3	238.8	193.1	218.5	232.5
	67		TC	226.9	230.1	233.4	238.1	236.4	240.0	241.3	242.9	244.6	246.4	248.0	249.3	245.4	248.6	250.7
			SC	132.0	162.5	193.1	223.6	137.5	170.5	202.8	236.4	142.8	175.5	212.4	246.2	146.7	183.5	220.4
	73		TC	249.4	252.5	255.6	259.0	251.2	254.0	257.9	262.3	253.5	256.8	260.0	261.6	258.4	263.3	266.5
			SC	91.2	123.0	151.6	178.6	93.1	127.2	155.7	185.1	94.9	129.4	159.4	189.8	96.7	131.5	162.5
105	61		TC	188.5	193.4	203.1	219.4	195.0	199.9	216.1	225.9	198.3	206.4	224.3	238.9	203.1	214.5	230.8
			SC	158.0	187.6	197.0	212.8	169.0	193.9	209.6	219.1	178.8	200.2	217.5	231.7	185.1	208.1	223.8
	67		TC	216.1	219.4	224.3	225.9	217.8	222.6	229.1	232.4	229.1	232.4	235.6	238.9	234.0	237.3	240.5
			SC	125.0	156.0	186.7	218.9	144.0	164.1	197.9	209.1	135.5	172.1	207.5	238.9	140.4	178.6	217.3
	73		TC	245.4	247.0	248.6	250.3	248.6	250.3	251.9	255.1	251.9	253.5	255.1	256.8	253.5	255.1	256.8
			SC	86.6	117.8	147.6	175.5	88.6	122.0	152.6	183.5	90.2	125.9	156.7	188.2	92.0	127.6	160.6
115	61		TC	172.3	178.8	195.0	211.3	177.1	186.9	203.1	219.4	182.0	193.4	211.3	227.5	186.9	199.9	217.8
			SC	151.3	173.4	189.2	204.9	160.7	181.3	197.0	212.8	169.0	187.6	204.9	220.7	180.9	193.9	211.2
	67		TC	203.1	206.4	208.0	211.3	204.8	209.6	212.9	216.1	216.1	219.4	224.3	227.5	221.0	224.3	227.5
			SC	130.0	149.8	180.4	211.3	136.5	158.4	191.8	216.1	143.0	165.8	199.9	227.5	134.6	173.9	212.9
	73		TC	229.1	232.4	235.6	237.3	235.6	238.9	240.5	242.1	240.5	242.1	243.8	245.4	242.1	243.8	245.4
			SC	82.1	113.1	143.8	173.9	83.9	118.6	149.5	180.4	87.8	121.9	156.0	190.1	87.8	126.8	159.3
125	61		TC	162.5	168.6	184.0	199.3	167.1	176.3	191.6	207.0	171.6	182.4	199.3	214.6	176.3	188.6	205.4
			SC	147.2	163.6	178.4	193.3	151.6	171.0	185.9	200.7	159.4	177.0	193.3	208.2	170.3	182.9	199.3
	67		TC	191.6	194.7	196.2	210.3	193.2	197.8	200.8	203.9	203.9	207.0	211.6	214.6	208.5	211.6	214.6
			SC	122.6	141.3	170.2	189.3	128.8	149.5	180.9	199.8	134.9	156.4	188.6	210.3	126.9	164.0	200.8
	73		TC	216.2	219.2	222.3	223.8	222.3	225.4	226.9	228.4	226.9	228.4	230.0	231.5	228.4	230.0	231.5
			SC	77.4	106.7	135.7	164.0	79.1	111.9	141.0	170.2	82.8	115.0	147.2	179.4	82.8	119.6	150.2

Notes:

1. All capacities are net and have considered indoor fan heat.
2. TC=Total Capacity. (Unit: 1000Btu/h)
3. SC=SensibleCapacity. (Unit: 1000Btu/h)
4. different air volume in the above table,need to adjust in the field.

8. START-UP

■ **Before starting unit**

- Is the unit properly located and level with the proper clearance?
- Is the duct work correctly sized, run, taped, insulated, and weatherproofed with proper unit arrangement? See Ductwork Installation section.
- Is the wiring properly sized and run according to the unit wiring diagram?
- Are all the wiring connections, including those in the unit, tight?
- Has the unit been properly grounded and fused with the recommended fuse size? See Wiring Data.
- Have the air conditioning systems been checked at the service ports for charge and leak tested if necessary?
- Does the condenser fan and indoor blower fan free without rubbing, and are they tight on the shafts?
- Are all covers and access panels in place to prevent air loss and safety hazards?

■ Starting the unit in the cooling mode

■ **Voltage**
With the unit operating, check the line voltage of the unit. The voltage should be within the range shown on the unit nameplate.
If low voltage is encountered, check the size and length of the supply line from the main disconnect to the unit. The line may be undersized for the length of the run.

■ **Cooling shut down**
Place the system selector in the OFF position or reset thermostat at a setting above room temperature.
Do not de-energize the main power disconnect except when unit is to be serviced.

9. MAINTENANCE

■ Regular maintenance
Some regular maintenance 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.

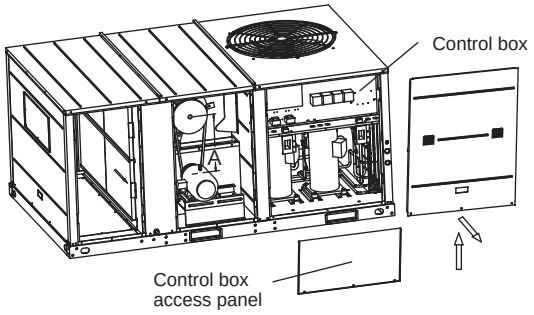


Fig.9-1

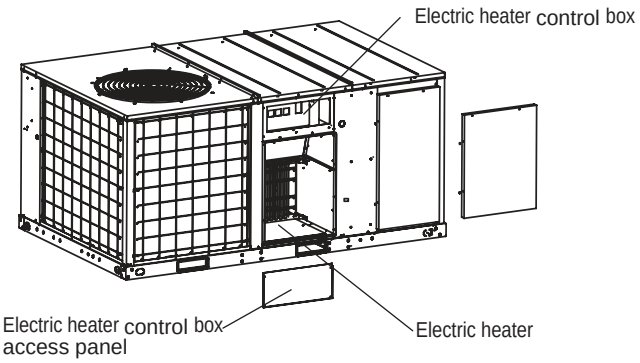
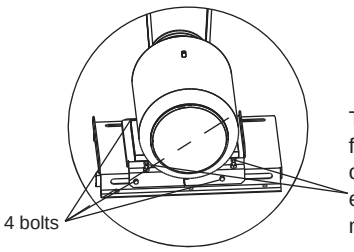


Fig.9-2

WARNING

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

■ Regulating belt of tension
Refer to *Fig.9-3*, loose 4 bolts, and move the electric motor to adjust belt tension.



The two bolts are used for factory precision adjustment only,that shall not be adjusted except professional maintenance staff.

Fig.9-3

■ Belt tension is measured by belt tension indicator
- Calculate the deflection, deflection=A/64.
- Measure the belt deflection force, the force shuold be between the values shown in Tab.9-2

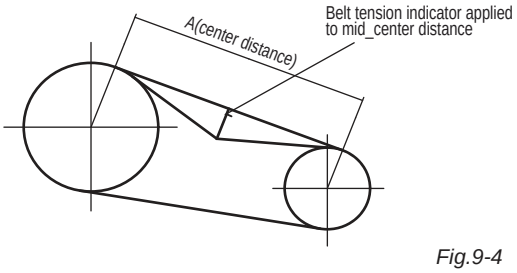


Fig.9-4

Tab.9-1

Range (Ton)	A (mm)
7.5	328
10	418
15	576
20	525

Tab.9-2

Belt section	For required to deflection		
	Small pulley diameter (mm)	Newton(N)	Kilogram-force(kgf)
SPA	80 to132	25 to 35	2.5 to 3.6

NOTE

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

■ Replace the air filter.

- Loose filter access panel's screws and remove it.
- Loose the knurled screw, and pull out the filter along the supporting slot.
- For 20 tons, see Fig.9-5.

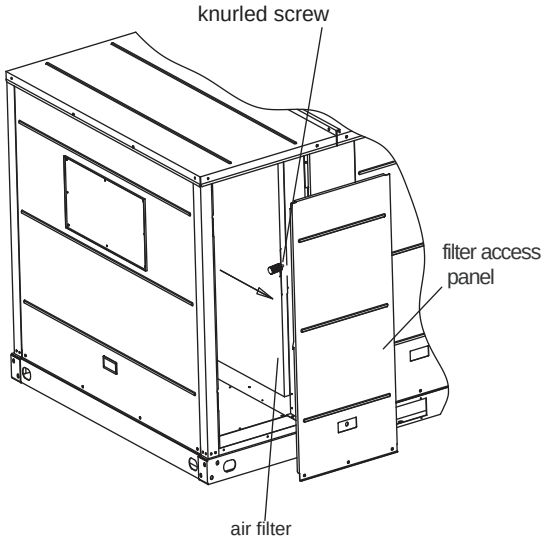


Fig.9-5

■ Clean the air filter (Vacuum cleaner or fresh water may be used to clean the air filter. If the dust accumulated too much, please use soft brush and mild detergent to clean and dry out in cool place) .

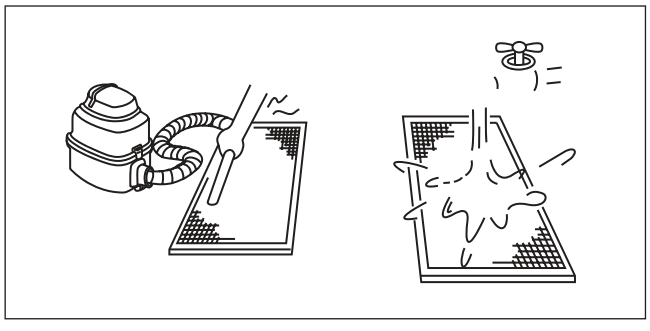


Fig.9-7

- 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 heat.

- Re-install the air filter

■ Condenser coil
Unfiltered air circulates through the unit's condenser coil can cause the coil's surface to become clogged with dust, etc. Clean the coil, vertically (i.e., with the fins), and stroke the coil surface with a soft 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.

■ This unit is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
Children should be supervised to ensure that they do not play with the unit.

■ Disconnect the power supply before cleaning and maintenance.

■ The unit shall be installed in accordance with national wiring regulations.

DISPOSAL: Do not dispose this product as unsorted municipal waste. Collection of such waste separately for special treatment is necessary.

■ Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities.

■ Contact you local government for information regarding the collection systems available.

■ If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being.