NŌRDEN®

INSTALLATION MANUAL

R-410A PACKAGE UNIT

MODELS:

PU-036-103
PU-060-103

Refrigerant R-410A

Rev 1.0

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■ **Model Number Nomenclature**

CODE	NAME
C/O	Cooling Only
Hor.	Horizontal Units
H/P	Heat Pump

1. ACCESSORIES

Tab.1-1

Name of accessories	Qty	Shape
Manual	1	
Drain pipe	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.

NOTICE

- 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.

2. GENERAL INFORMATION

WARNING

- 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.
- This appliance 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 appliance.
- That the appliance shall be installed in accordance with national wiring regulations.

3. DIMENSIONAL DATA

- 3Tons C/O Units(Hor.) 4 Tons C/O Units(Hor.) 5 Tons C/O Units(Hor.)
- 3Tons H/P Units(Hor.) 4 Tons H/P Units(Hor.) 5 Tons H/P Units(Hor.)

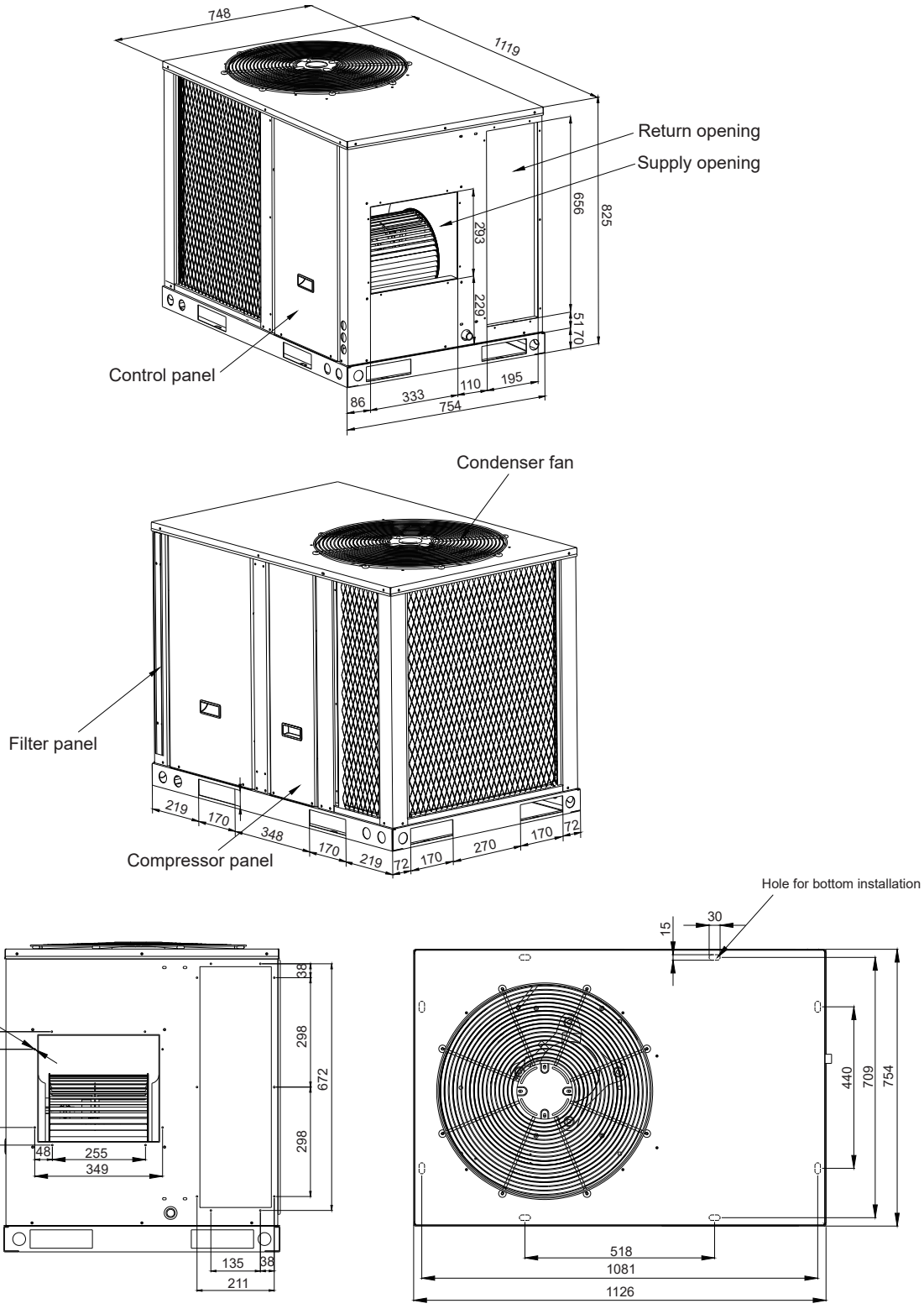


Fig.3-1

4. LOCATIONS AND RECOMMENDATIONS

4.1 Horizotal airflow application

- These units are design 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 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).

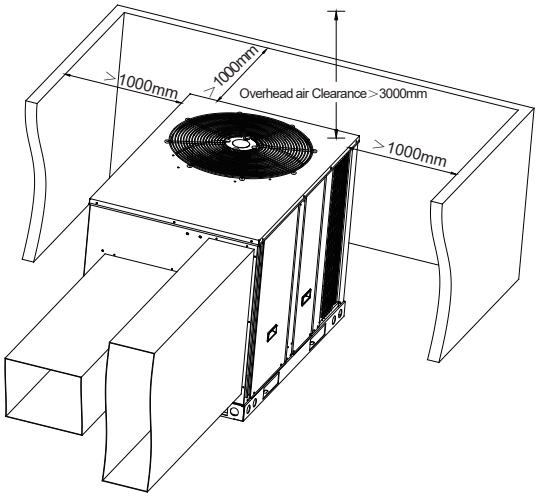


Fig.4-1

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.

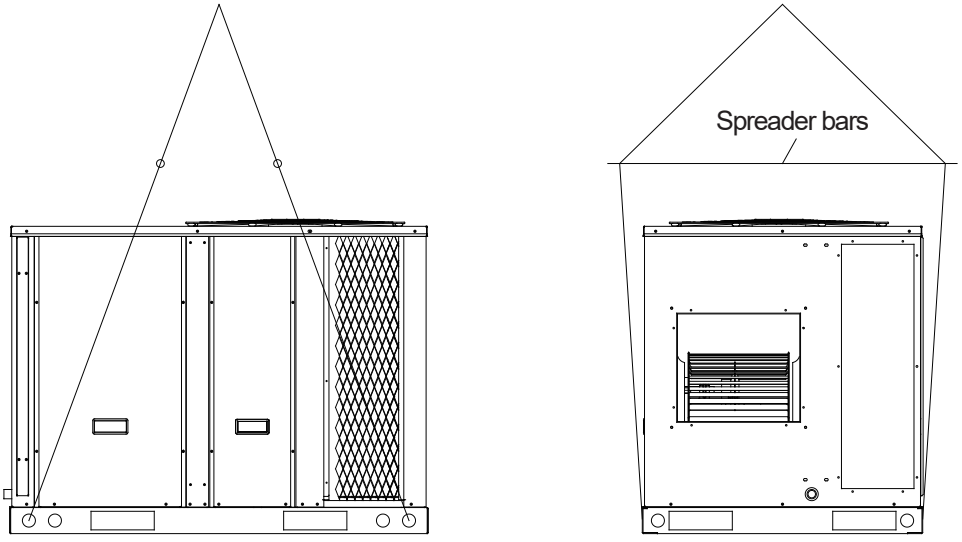


Fig.5-1

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 two (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

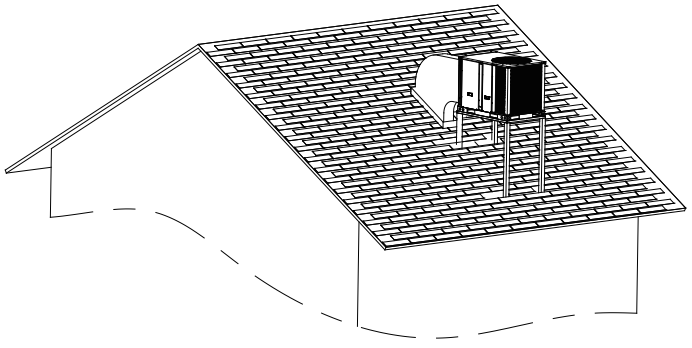


Fig.5-2

5. INSTALLATION

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.

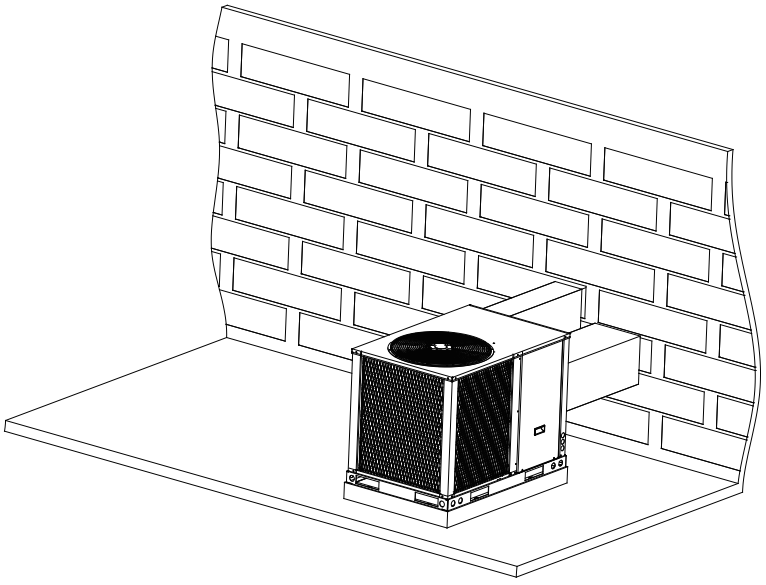


Fig.5-3

5.4 Condensate drain piping

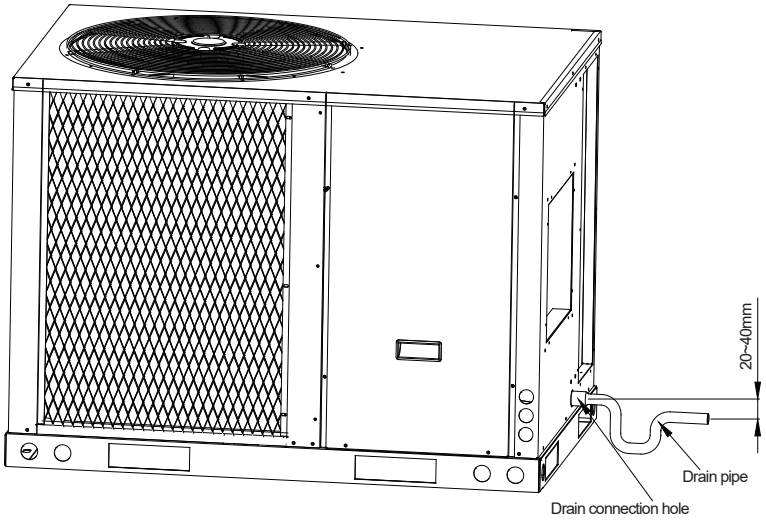


Fig.5-4

5. INSTALLATION

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 two (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.

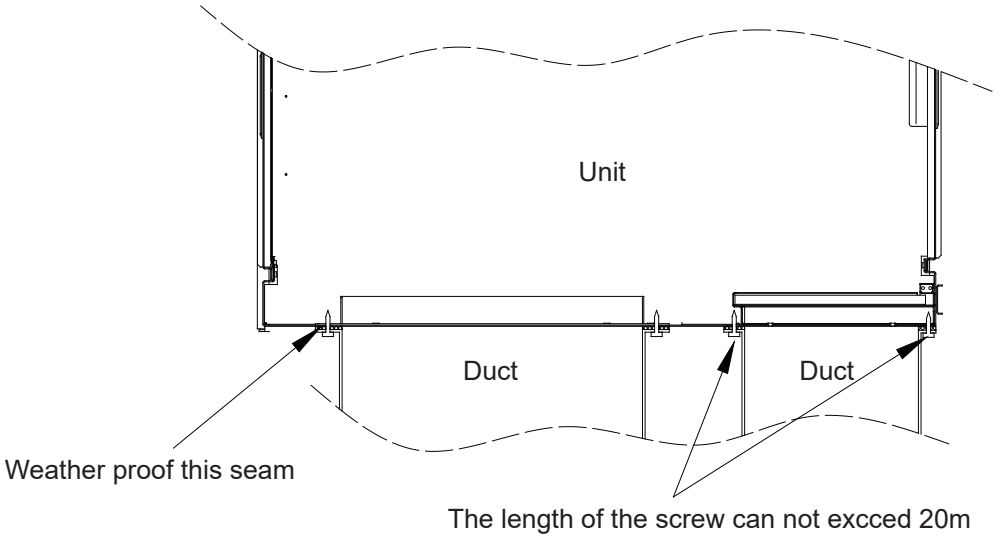


Fig.5-5

6. ELECTRICAL WIRING

6.1 Protections and safety control

- When power to the unit, the unit will be test and lasting for about 3 mintues and then recovery, which is a normal circumstance for the unit. This time include the compressor first start 3 mintues delay.
- Minutes delay for the compressor start-up
- At the beginning of energizing or after the stop of the compressor, 3-minutes delay will be taken to start the compressor.
- When switchover between cooling/heating mode, the compressor stops automatically.
- Compressor discharge gas temperature switch protection
- When compressor discharge gas temperature >248°F,discharge gas temperature switch will be closed. At the same time, the corresponding compressor will be shut off.
- Reverse phase protection relay
- The reverse phase protection relay will make the compressor 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 F9 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
- The ON/OFF of high pressure and low pressure will be installed separately around inlet pipe, and both are connected to Main Control Board. The ON/OFF of high pressure will be off when the pressure is higher than 652Psi. The ON/OFF of low pressure will be off when lower than 7Psi.

6.2 Electrical data

Tab.6-1

Nominal ton		3 Tons		
Model type		C/O	C/O	H/P
Type of flow		Hor.	Hor.	Hor.
Unit main power	VOL	380-415V	220V	380-415V
	Hz	50	60	50
Applicable voltage	Max.	437	253	437
	Min.	342	187	342
Compressor motor	STC	8.3	15.3	8.3
	RNC	6.2	13.6	6.2
	IPT	3.1	2.93	3.1
Evaporator fan motor	RNC	1.79	2.09	1.79
	IPT.	0.39	0.46	0.39
Condenser fan motor	RNC	0.99	1.95	0.99
	IPT.	0.22	0.43	0.22

- VOL: Unit Power Supply Rated Voltage(V) Hz: Frequency(Hz) STC: Starting Current(A) RNC: Running Current (A) IPT: Input(kW)

6. ELECTRICAL WIRING

Tab.6-2

Nominal ton		4 Tons		
Model type		C/O	C/O	H/P
Type of flow		Hor.	Hor.	Hor.
Unit main power	VOL	380-415V	220V	380-415V
	Hz	50	60	50
Applicable voltage	Max.	437	253	437
	Min.	342	187	342
Compressor motor	STC	9.6	20.1	9.6
	RNC	7.5	17.5	7.5
	IPT	3.8	3.98	3.8
Evaporator fan motor	RNC	1.79	2.09	1.79
	IPT.	0.39	0.46	0.39
Condenser fan motor	RNC	1.19	0.95	1.19
	IPT.	0.26	0.43	0.26

Tab.6-3

Nominal ton		5 Tons			
Model type		C/O	C/O	C/O	H/P
Type of flow		Hor.	Hor.	Hor.	Hor.
Unit main power	VOL	380-415V	220V	208-230V-3P	380-415V
	Hz	50	60	60	50
Applicable voltage	Max.	437	253	253	437
	Min.	342	187	187	342
Compressor motor	STC	12	23.7	35	12
	RNC	9.2	21.5	16.2	9.2
	IPT	4.8	4.82	5.16	4.8
Evaporator fan motor	RNC	1.79	2.09	2.09	1.79
	IPT.	0.39	0.46	0.46	0.39
Condenser fan motor	RNC	1.19	1.95	1.95	1.19
	IPT.	0.26	0.43	0.43	0.26

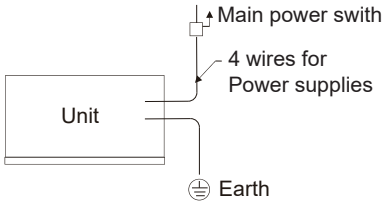
• VOL: Unit Power Supply Rated Voltage(V) Hz: Frequency(Hz) STC: Starting Current(A) RNC: Running Current (A) IPT: Input(kW)

6. ELECTRICAL WIRING

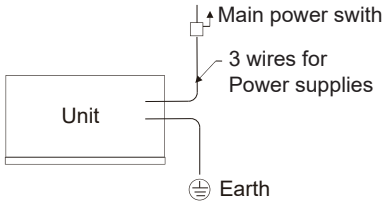
6.3 Installation Example

• Suggestion:Thermostat choose Non-programmed eletrical thermostat series of honeywell,such as TH5220D.

380-415V 3N ～ 50Hz
3/4/5 Tons C/O Units
3/4/5 Tons H/P Units



208-230V 3N ～ 50Hz
5 Tons C/O Units



220V 1N ～ 60Hz
3/4/5 Tons C/O Units
3/4/5 Tons H/P Units

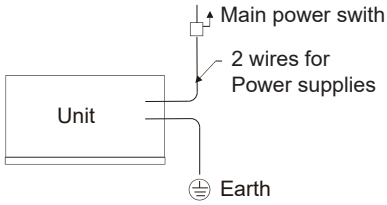


Fig.6-1

6.4 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”).

⚠ 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.

6.5 Main power supply

Tab.6-4

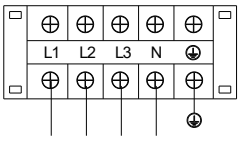
Model type		Unit main power	Main power switch	Fuse	Wires for power supplies	Type of wires
3Tons	C/O H/P	380-415V 3N ～ 50Hz	25A	20A	3×6mm²+2×3mm²	3×UL1015 9AWG 2×UL1015 12AWG
4Tons	C/O H/P	380-415V 3N ～ 50Hz	25A	20A		
5Tons	C/O H/P	380-415V 3N ～ 50Hz	30A	20A		
5Tons	C/O H/P	208-230V 3N~60Hz	35A	30A	4x6mm²	4xUL1015 8AWG
3Tons	C/O H/P	220V 1N ～ 60Hz	50A	40A	3x10mm²	3×UL1015 5AWG
4Tons	C/O H/P	220V 1N ～ 60Hz	50A	40A		
5Tons	C/O H/P	220V 1N ～ 60Hz	63A	50A		

6. ELECTRICAL WIRING

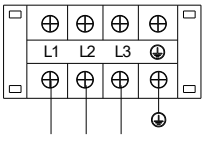
6.6 Block cable connection

• Power supply

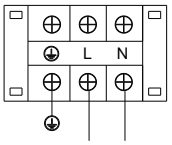
380-415V 3N ～ 50Hz
3/4/5 Tons C/O Units
3/4/5 Tons H/P Units



208-230V 3N~60HZ
5 Tons C/o units



220V 1N ～ 60Hz
3/4/5 Tons C/O Units
3/4/5 Tons H/P Units



380-415V 3N ～ 50Hz
220V 1N ～ 60Hz
3/4/5 Tons C/O Units
3/4/5 Tons H/P Units

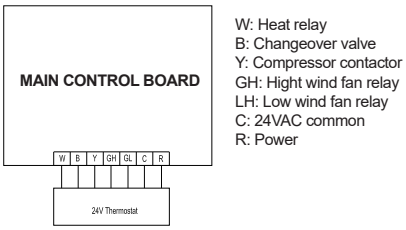


Fig.6-2

• Suggestion:Thermostat choose eletrical thermostat series of honeywell,such as RTH111、RTH2300/RTH221、TH5220D.

6.7 Error code

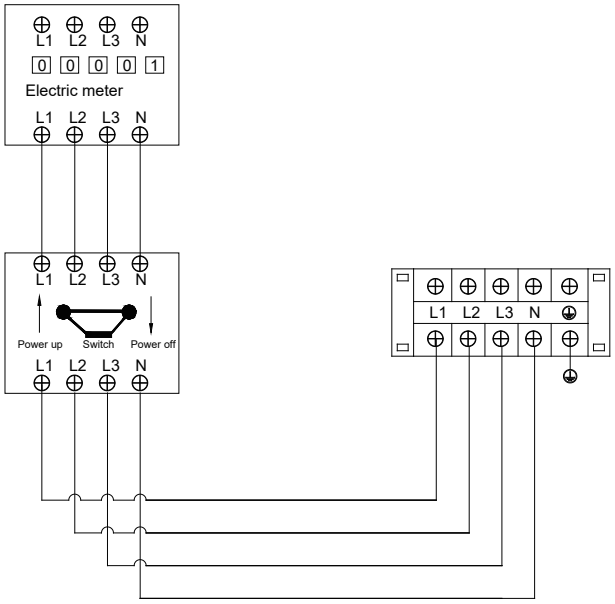
Tab.6-5
Digital display code cross-reference table

Digital display	Fault or protect definition
--	Nnormal standby
rC	Cooling mode
rH	Heating mode
rd	Defrost treatment in heating mode
E0	Communication failure of indoor and outdoor unit (reserved)
E1	Communication failure between indoor unit line controller（reserved）
E2	The failure of indoor temperature sensor T1（reserved）
E3	The failure of evaporator tube temperature sensor T2
E4	
E5	The failure of condenser tube temperature sensor T3
E6	The failure of temperature sensor T4
E8	The failure of exhaust pipe temperature sensor T5
F1	Outdoor fan protection（reserved）
F2	Outdoor protection (reserved)
F3	High voltage protection
F4	Low voltage protection
F5	Water full protection
F7	High current protection for outdoor unit
F8	The protection of excessive exhaust pipe temperature
F9	The failure of three-phase sequence
P0	Low temperature of evaporator protection
P1	High temperature of condenser protection
L0	Three times P0 in 30mins
L1	Three times P1 in 30mins

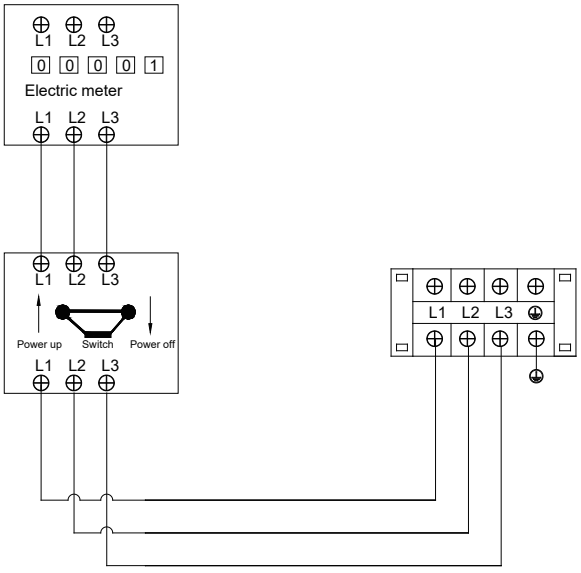
6. ELECTRICAL WIRING

6.8 Power and power-down control

For 380-415V 3N ～ 50Hz
3/4/5 Tons C/O Units
3/4/5 Tons H/P Units



For 208-230V 3N~60HZ
5 Tons C/O Units



For 220V 1N ～ 60Hz
3/4/5 Tons C/O Units
3/4/5 Tons H/P Units

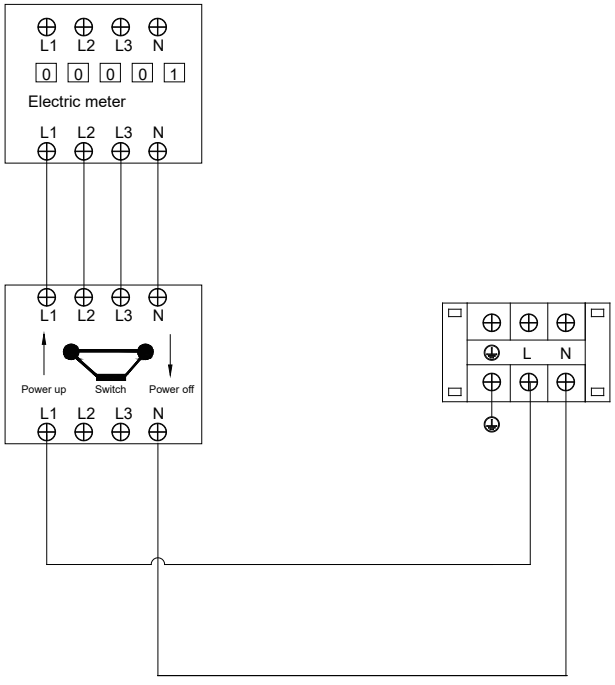


Fig.6-3

7. SPECIFICATION

7.1 Physical Data

Tab.7-1

Nominal ton		3 Tons		
Model type		C/O	C/O	H/P
Unit main power		380-415V 3N/50Hz	220V 1N/60Hz	380-415V 3N/50Hz
Capacity	Cooling capacity (Btu/h)(Ⅰ)	36000	36000	36000
	Heating capacity (Btu/h)(Ⅱ)	——	——	40000
Performance	EER	10.2	10.2	11
Dimensions	Length(mm)	1130	1130	1130
	Width(mm)	754	754	754
	Heigth(mm)	825	825	825
Net weight(kg)		130	130	130
Refrigerant type		R410A	R410A	R410A
Flow control		Capillary	Capillary	Capillary
Compressor	Quantity/Type	1/Rotary	1/Rotary	1/Rotary
Outdoor coil	Rows	2	2	2
	Fins per inch	17	17	17
	Tube diameter(in.)	9/32	9/32	9/32
Indoor coil	Rows	3	3	3
	Fins per inch	17	17	17
	Tube diameter(in.)	9/32	9/32	9/32
Outdoor fan	Quantity used/diameter(mm)	1/560	1/560	1/560
	Type	Propeller	Propeller	Propeller
	Drive type	Direct	Direct	Direct
	Quantity speeds	1	1	1
	Quantity motors/power(kW)	1/0.23	1/0.23	1/0.23
	Motor RPM	920	920	920
	Total nominal CFM	2400	2400	2400
Indoor fan	Quantity used/diameter(mm)	1/10×10	1/10×10	1/10×10
	Type	FC centrifugal	FC centrifugal	FC centrifugal
	Drive type	Direct	Direct	Direct
	Quantity speeds	2	2	2
	Quantity motors/power(kW)	1/0.35	1/0.35	1/0.35
	Motor RPM	995	995	995
	Total nominal CFM	1450	1450	1450
Filters	Quantity size recommended(mm)	677X221X10	677X221X10	677X221X10

NOTE

■(Ⅰ) Cooling capacities are rated at 95°F amblent, 80°F entering dry bulb, 67°F entering wet bulb. Units are suitable for operation to ±20% of nominal CFM.

■(Ⅱ) Heating capacities are based on the following conditions: Indoor temperature 68°F entering dry bulb, 59°F entering dry bulb, outdoor temperature 45°F entering dry bulb, 43°F entering dry bulb.

7. SPECIFICATION

Tab.7-2

Nominal ton		4 Tons		
Model type		C/O	C/O	H/P
Unit main power		380-415V 3N/50Hz	220V 1N/60Hz	380-415V 3N/50Hz
Capacity	Cooling capacity (Btu/h)(Ⅰ)	48000	48000	48000
	Heating capacity (Btu/h)(Ⅱ)	——	——	48000
Performance	EER	10.2	10.2	10
Dimensions	Length(mm)	1130	1130	1130
	Width(mm)	754	754	754
	Heigth(mm)	825	825	825
Net weight(kg)		135	135	140
Refrigerant type		R410A	R410A	R410A
Flow control		Capillary	Capillary	Capillary
Compressor	Quantity/Type	1/Rotary	1/Rotary	1/Rotary
Outdoor coil	Rows	2	2	2
	Fins per inch	17	17	17
	Tube diameter(in.)	9/32	9/32	9/32
Indoor coil	Rows	3	3	3
	Fins per inch	17	17	17
	Tube diameter(in.)	9/32	9/32	9/32
Outdoor fan	Quantity used/diameter(mm)	1/560	1/560	1/560
	Type	Propeller	Propeller	Propeller
	Drive type	Direct	Direct	Direct
	Quantity speeds	1	1	1
	Quantity motors/power(kW)	1/0.23	1/0.23	1/0.23
	Motor RPM	920	920	920
	Total nominal CFM	3300	3300	3300
Indoor fan	Quantity used/diameter(mm)	1/10×10	1/10×10	1/10×10
	Type	FC centrifugal	FC centrifugal	FC centrifugal
	Drive type	Direct	Direct	Direct
	Quantity speeds	2	2	2
	Quantity motors/power(kW)	1/0.35	1/0.35	1/0.35
	Motor RPM	995	995	995
	Total nominal CFM	1450	1450	1450
Filters	Quantity size recommended(mm)	677X221X10	677X221X10	677X221X10

NOTE

■(Ⅰ) Cooling capacities are rated at 95°F amblent, 80°F entering dry bulb, 67°F entering wet bulb. Units are suitable for operation to ±20% of nominal CFM.

■(Ⅱ) Heating capacities are based on the following conditions: Indoor temperature 68°F entering dry bulb, 59°F entering dry bulb, outdoor temperature 45°F entering dry bulb, 43°F entering dry bulb.

7. SPECIFICATION

Tab.7-3

Nominal ton		5 Tons			
Model type		C/O	C/O	C/O	H/P
Unit main power		380-415V 3N/50Hz	220V 1N/60Hz	220V 3N/60Hz	380-415V 3N/50Hz
Capacity	Cooling capacity (Btu/h)(Ⅰ)	55000	55000	55000	55000
	Heating capacity (Btu/h)(Ⅱ)	——	——	——	55000
Performance	EER	10.2	10.2	10	10
Dimensions	Length(mm)	1130	1130	1130	1130
	Width(mm)	754	754	754	754
	Heigth(mm)	825	825	825	825
Net weight(kg)		135	135	135	140
Refrigerant type		R410A	R410A	R410A	R410A
Flow control		Capillary	Capillary	Capillary	Capillary
Compressor	Quantity/Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
Outdoor coil	Rows	3	3	3	3
	Fins per inch	17	17	17	17
	Tube diameter(in.)	9/32	9/32	9/32	9/32
Indoor coil	Rows	4	4	4	4
	Fins per inch	17	17	17	17
	Tube diameter(in.)	9/32	9/32	9/32	9/32
Outdoor fan	Quantity used/diameter(mm)	1/560	1/560	1/560	1/560
	Type	Propeller	Propeller	Propeller	Propeller
	Drive type	Direct	Direct	Direct	Direct
	Quantity speeds	1	1	1	1
	Quantity motors/power(kW)	1/0.23	1/0.23	1/0.23	1/0.23
	Motor RPM	920	920	920	920
	Total nominal CFM	3300	3300	3300	3300
Indoor fan	Quantity used/diameter(mm)	1/10×10	1/10×10	1/10×10	1/10×10
	Type	FC centrifugal	FC centrifugal	FC centrifugal	FC centrifugal
	Drive type	Direct	Direct	Direct	Direct
	Quantity speeds	2	2	2	2
	Quantity motors/power(kW)	1/0.35	1/0.35	1/0.35	1/0.35
	Motor RPM	995	995	995	995
	Total nominal CFM	1450	1450	1450	1450
Filters	Quantity size recommended(mm)	677X221X10	677X221X10	677X221X10	677X221X10

NOTE

■(Ⅰ) Cooling capacities are rated at 95°F amblent, 80°F entering dry bulb, 67°F entering wet bulb. Units are suitable for operation to ±20% of nominal CFM.

■(Ⅱ) Heating capacities are based on the following conditions: Indoor temperature 68°F entering dry bulb, 59°F entering dry bulb, outdoor temperature 45°F entering dry bulb, 43°F entering dry bulb.

7. SPECIFICATION

7.2 Parameter For Air Volume

Tab.7-4

For 380-415V 3N ～ 50Hz
3/4/5 Tons C/O Units
3/4/5 Tons H/P Units

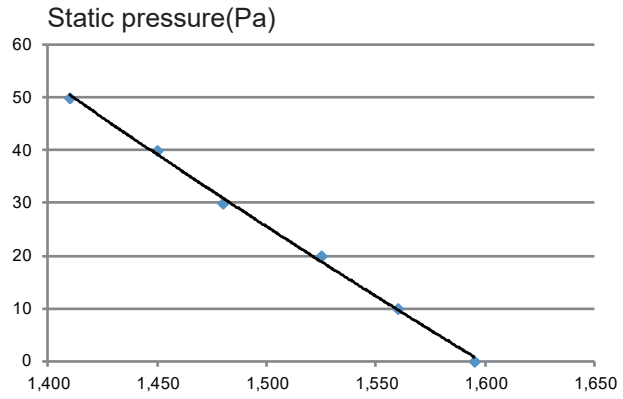
Static pressure (Pa)	Air flow (CFM)	Brake power (kW)	Fan speed (rpm)
0	1595	430	930
10	1560	421	945
20	1525	415	960
30	1480	407	975
40	1450	400	985
50	1410	395	995

For 220V 1N/3N ～ 60Hz
3/4/5 Tons C/O Units
3/4/5 Tons H/P Units

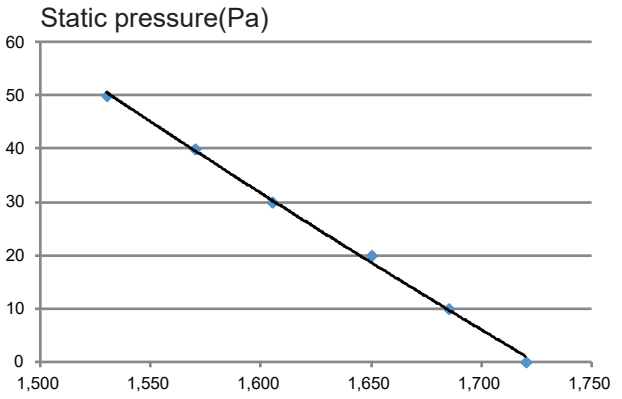
Static pressure (Pa)	Air flow (CFM)	Brake power (kW)	Fan speed (rpm)
0	1720	515	1040
10	1685	507	1055
20	1650	501	1070
30	1605	473	1085
40	1570	466	1095
50	1530	460	1105

• Curve diagram of static pressure, air flow volumn

For 380-415V 3N ～ 50Hz
3/4/5 Tons C/O Units
3/4/5 Tons H/P Units



For 220V 1N/3N ～ 60Hz
3/4/5 Tons C/O Units
3/4/5 Tons H/P Units



• Parameter table for outdoor unit air volume.

NOTE

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

7.3 Operating conditions

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

Tab.7-5

Cooling operation	Outdoor temperature: 63°F to 118°F
	Room temperature: 63°F to 86°F
	Caution Room relative humidity less than 80%.If the unit operates in excess of this figure, the surface of theunit may attract condensation.
Heating operation	Outdoor temperature: 23°F to 76°F
	Room temperature: 32°F to 86°F

7. SPECIFICATION

Tab.7-6

Cooling capacity — For 3 tons (380-415V 3N ～ 50Hz)

Ambient Temperature		Air Flow	CFM	1294				1410			
		Ent DB	(F)	75	80	85	90	75	80	85	90
85	61		MBH	24.2	25.8	27.4	29.1	24.4	26.0	27.6	29.3
			SHC	21.1	24.5	27.2	29.1	20.7	23.9	26.2	28.7
	67		MBH	29.4	31.0	32.6	34.3	29.6	31.2	32.8	34.5
			SHC	16.5	22.0	26.7	32.2	16.6	22.2	26.9	32.4
	73		MBH	32.6	34.2	35.8	37.5	32.8	34.4	36.0	37.7
			SHC	11.1	16.4	20.8	25.5	11.5	16.9	22.0	26.8
95	61		MBH	22.0	23.4	24.8	26.2	22.2	23.6	25.0	26.4
			SHC	19.4	22.0	23.6	25.4	19.8	22.2	23.8	25.6
	67		MBH	27.0	28.6	30.2	31.9	27.2	28.8	30.4	32.1
			SHC	16.5	21.7	27.2	30.3	16.9	22.2	27.7	30.8
	73		MBH	32.0	33.6	35.2	36.9	32.2	33.8	35.4	37.1
			SHC	10.2	15.8	21.1	25.5	10.6	16.2	21.6	26.3
105	61		MBH	19.8	21.4	23.0	24.7	20.0	21.6	23.2	24.9
			SHC	18.2	19.8	21.7	23.5	18.4	20.0	21.9	23.7
	67		MBH	24.8	26.4	28.0	29.7	25.0	26.6	28.2	29.9
			SHC	14.4	19.5	25.2	28.2	14.5	19.7	25.4	28.4
	73		MBH	29.8	31.4	33.0	34.7	30.0	31.6	33.2	34.9
			SHC	9.5	15.1	20.8	26.0	9.3	14.9	20.6	25.5
115	61		MBH	17.6	19.2	20.8	22.5	17.8	19.4	21.0	22.7
			SHC	15.1	16.7	18.3	20.0	15.3	16.9	18.5	20.2
	67		MBH	22.6	24.2	25.8	27.5	22.8	24.4	26.0	27.7
			SHC	12.0	17.2	22.2	25.0	12.1	17.3	22.4	25.2
	73		MBH	27.6	29.2	30.8	32.5	27.8	29.4	31.0	32.7
			SHC	7.7	12.6	18.5	23.7	8.1	12.9	18.9	24.2

Tab.7-7

Cooling capacity — For 3 tons (220V 1N ～ 60Hz)

Ambient Temperature		Air Flow	CFM	1410				1530			
		Ent DB	(F)	75	80	85	90	75	80	85	90
85	61		MBH	22.8	24.4	26.0	27.7	23.0	24.6	26.2	27.9
			SHC	19.8	23.2	25.8	27.7	19.6	22.6	24.9	27.3
	67		MBH	28.0	29.6	31.2	32.9	28.2	29.8	31.4	33.1
			SHC	15.7	21.0	25.6	30.9	15.8	21.2	25.7	31.1
	73		MBH	31.2	32.8	34.4	36.1	31.4	33.0	34.6	36.3
			SHC	10.6	15.7	20.0	24.5	11.0	16.2	21.1	25.8
95	61		MBH	20.6	22.0	23.4	24.8	20.8	22.2	23.6	25.0
			SHC	18.1	20.7	22.2	24.1	18.5	20.9	22.4	24.3
	67		MBH	25.6	27.2	28.8	30.5	25.8	27.4	29.0	30.7
			SHC	15.6	20.7	25.9	29.0	16.0	21.1	26.4	29.5
	73		MBH	30.6	32.2	33.8	35.5	30.8	32.4	34.0	35.7
			SHC	9.8	15.1	20.3	24.5	10.2	15.6	20.7	25.3
105	61		MBH	18.4	20.0	21.6	23.3	18.6	20.2	21.8	23.5
			SHC	16.9	18.5	20.4	22.2	17.1	18.7	20.6	22.3
	67		MBH	23.4	25.0	26.6	28.3	23.6	25.2	26.8	28.5
			SHC	13.6	18.5	23.9	26.9	13.7	18.6	24.1	27.1
	73		MBH	28.4	30.0	31.6	33.3	28.6	30.2	31.8	33.5
			SHC	9.1	14.4	19.9	25.0	8.9	14.2	19.7	24.5
115	61		MBH	16.2	17.8	19.4	21.1	16.4	18.0	19.6	21.3
			SHC	13.9	15.5	17.1	18.8	14.1	15.7	17.2	19.0
	67		MBH	21.2	22.8	24.4	26.1	21.4	23.0	24.6	26.3
			SHC	11.2	16.2	21.0	23.8	11.3	16.3	21.2	23.9
	73		MBH	26.2	27.8	29.4	31.1	26.4	28.0	29.6	31.3
			SHC	7.3	12.0	17.6	22.7	7.7	12.3	18.1	23.2

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:1000Btu/h)
3.SHC=Sensible Heat Capacity.(Unit:1000Btu/h)

7. SPECIFICATION

Tab.7-8

Cooling capacity — For 4 tons (380-415V 3N ～ 50Hz)

Ambient Temperature		Air Ent	Flow DB	CFM (F)	1294				1410			
					75	80	85	90	75	80	85	90
	85	61		MBH	32.0	33.6	35.2	36.9	32.2	33.8	35.4	37.1
				SHC	27.8	31.9	35.0	36.9	27.4	31.1	33.6	36.4
		67		MBH	37.2	38.8	40.4	42.1	37.4	39.0	40.6	42.3
				SHC	20.8	27.5	33.1	39.6	20.9	27.7	33.3	39.8
		73		MBH	40.4	42.0	43.6	45.3	40.6	42.2	43.8	45.5
				SHC	13.7	20.2	25.3	30.8	14.2	20.7	26.7	32.3
	95	61		MBH	29.8	31.2	32.6	34.0	30.0	31.4	32.8	34.2
				SHC	26.2	29.3	31.0	33.0	26.7	29.6	31.2	33.2
		67		MBH	34.8	36.4	38.0	39.7	35.0	36.6	38.2	39.9
				SHC	21.2	27.7	34.2	37.7	21.7	28.2	34.8	38.3
		73		MBH	39.8	41.4	43.0	44.7	40.0	41.6	43.2	44.9
				SHC	12.7	19.5	25.8	30.8	13.2	20.0	26.4	31.9
	105	61		MBH	27.6	29.2	30.8	32.5	27.8	29.4	31.0	32.7
				SHC	25.4	27.0	29.0	31.0	25.6	27.2	29.2	31.1
		67		MBH	32.6	34.2	35.8	37.5	32.8	34.4	36.0	37.7
				SHC	18.9	25.3	32.2	35.6	19.0	25.5	32.4	35.8
		73		MBH	37.6	39.2	40.8	42.5	37.8	39.4	41.0	42.7
				SHC	12.0	18.8	25.7	31.9	11.7	18.5	25.4	31.2
	115	61		MBH	25.4	27.0	28.6	30.3	25.6	27.2	28.8	30.5
				SHC	21.8	23.5	25.2	27.0	22.0	23.7	25.3	27.1
		67		MBH	30.4	32.0	33.6	35.3	30.6	32.2	33.8	35.5
				SHC	16.1	22.7	28.9	32.1	16.2	22.9	29.1	32.3
		73		MBH	35.4	37.0	38.6	40.3	35.6	37.2	38.8	40.5
				SHC	9.9	15.9	23.2	29.4	10.3	16.4	23.7	30.0

Tab.7-9

Cooling capacity — For 4 tons (220V 1N ～ 60Hz)

Ambient Temperature		Air Ent	Flow DB	CFM (F)	1410				1530			
					75	80	85	90	75	80	85	90
	85	61		MBH	31.2	32.8	34.4	36.1	31.4	33.0	34.6	36.3
				SHC	27.1	31.2	34.2	36.1	26.7	30.4	32.9	35.6
		67		MBH	36.4	38.0	39.6	41.3	36.6	38.2	39.8	41.5
				SHC	20.4	27.0	32.5	38.8	20.5	27.1	32.6	39.0
		73		MBH	39.6	41.2	42.8	44.5	39.8	41.4	43.0	44.7
				SHC	13.5	19.8	24.8	30.3	13.9	20.3	26.2	31.7
	95	61		MBH	29.0	30.4	31.8	33.2	29.2	30.6	32.0	33.4
				SHC	25.5	28.6	30.2	32.2	26.0	28.8	30.4	32.4
		67		MBH	34.0	35.6	37.2	38.9	34.2	35.8	37.4	39.1
				SHC	20.7	27.1	33.5	37.0	21.2	27.6	34.0	37.5
		73		MBH	39.0	40.6	42.2	43.9	39.2	40.8	42.4	44.1
				SHC	12.5	19.1	25.3	30.3	12.9	19.6	25.9	31.3
	105	61		MBH	26.8	28.4	30.0	31.7	27.0	28.6	30.2	31.9
				SHC	24.7	26.2	28.3	30.2	24.8	26.4	28.5	30.3
		67		MBH	31.8	33.4	35.0	36.7	32.0	33.6	35.2	36.9
				SHC	18.4	24.7	31.5	34.9	18.6	24.9	31.7	35.1
		73		MBH	36.8	38.4	40.0	41.7	37.0	38.6	40.2	41.9
				SHC	11.8	18.4	25.2	31.3	11.5	18.1	24.9	30.6
	115	61		MBH	24.6	26.2	27.8	29.5	24.8	26.4	28.0	29.7
				SHC	21.2	22.8	24.5	26.3	21.3	23.0	24.6	26.4
		67		MBH	29.6	31.2	32.8	34.5	29.8	31.4	33.0	34.7
				SHC	15.7	22.2	28.2	31.4	15.8	22.3	28.4	31.6
		73		MBH	34.6	36.2	37.8	39.5	34.8	36.4	38.0	39.7
				SHC	9.7	15.6	22.7	28.8	10.1	16.0	23.2	29.4

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:1000Btu/h)
3.SHC=Sensible Heat Capacity.(Unit:1000Btu/h)

7. SPECIFICATION

Tab.7-10

Cooling capacity — For 5 tons 380-415V 3N ～ 50Hz

Ambient Temperature		Air Ent	Flow DB	CFM (F)	1294				1410			
					75	80	85	90	75	80	85	90
85		61		MBH	32.0	33.6	35.2	36.9	32.2	33.8	35.4	37.1
				SHC	27.8	31.9	35.0	36.9	27.4	31.1	33.6	36.4
		67		MBH	37.2	38.8	40.4	42.1	37.4	39.0	40.6	42.3
				SHC	20.8	27.5	33.1	39.6	20.9	27.7	33.3	39.8
		73		MBH	40.4	42.0	43.6	45.3	40.6	42.2	43.8	45.5
				SHC	13.7	20.2	25.3	30.8	14.2	20.7	26.7	32.3
95		61		MBH	29.8	31.2	32.6	34.0	30.0	31.4	32.8	34.2
				SHC	26.2	29.3	31.0	33.0	26.7	29.6	31.2	33.2
		67		MBH	34.8	36.4	38.0	39.7	35.0	36.6	38.2	39.9
				SHC	21.2	27.7	34.2	37.7	21.7	28.2	34.8	38.3
		73		MBH	39.8	41.4	43.0	44.7	40.0	41.6	43.2	44.9
				SHC	12.7	19.5	25.8	30.8	13.2	20.0	26.4	31.9
105		61		MBH	27.6	29.2	30.8	32.5	27.8	29.4	31.0	32.7
				SHC	25.4	27.0	29.0	31.0	25.6	27.2	29.2	31.1
		67		MBH	32.6	34.2	35.8	37.5	32.8	34.4	36.0	37.7
				SHC	18.9	25.3	32.2	35.6	19.0	25.5	32.4	35.8
		73		MBH	37.6	39.2	40.8	42.5	37.8	39.4	41.0	42.7
				SHC	12.0	18.8	25.7	31.9	11.7	18.5	25.4	31.2
115		61		MBH	25.4	27.0	28.6	30.3	25.6	27.2	28.8	30.5
				SHC	21.8	23.5	25.2	27.0	22.0	23.7	25.3	27.1
		67		MBH	30.4	32.0	33.6	35.3	30.6	32.2	33.8	35.5
				SHC	16.1	22.7	28.9	32.1	16.2	22.9	29.1	32.3
		73		MBH	35.4	37.0	38.6	40.3	35.6	37.2	38.8	40.5
				SHC	9.9	15.9	23.2	29.4	10.3	16.4	23.7	30.0

Tab.7-11

Cooling capacity — For 5 tons (220V 1N ～ 60Hz)

Ambient Temperature		Air Ent	Flow DB	CFM (F)	1410				1530			
					75	80	85	90	75	80	85	90
85		61		MBH	36.8	38.4	40.0	41.7	37.0	38.6	40.2	41.9
				SHC	32.0	36.5	39.8	41.7	31.5	35.5	38.2	41.1
		67		MBH	42.0	43.6	45.2	46.9	42.2	43.8	45.4	47.1
				SHC	23.5	31.0	37.1	44.1	23.6	31.1	37.2	44.3
		73		MBH	45.2	46.8	48.4	50.1	45.4	47.0	48.6	50.3
				SHC	15.4	22.5	28.1	34.1	15.9	23.0	29.6	35.7
95		61		MBH	34.6	36.0	37.4	38.8	34.8	36.2	37.6	39.0
				SHC	30.4	33.8	35.5	37.6	31.0	34.1	35.8	37.8
		67		MBH	39.6	41.2	42.8	44.5	39.8	41.4	43.0	44.7
				SHC	24.2	31.3	38.5	42.3	24.7	31.9	39.1	42.9
		73		MBH	44.6	46.2	47.8	49.5	44.8	46.4	48.0	49.7
				SHC	14.3	21.7	28.7	34.2	14.8	22.3	29.3	35.3
105		61		MBH	32.4	34.0	35.6	37.3	32.6	34.2	35.8	37.5
				SHC	29.8	31.4	33.6	35.5	30.0	31.6	33.8	35.6
		67		MBH	37.4	39.0	40.6	42.3	37.6	39.2	40.8	42.5
				SHC	21.7	28.9	36.5	40.2	21.8	29.0	36.7	40.4
		73		MBH	42.4	44.0	45.6	47.3	42.6	44.2	45.8	47.5
				SHC	13.6	21.1	28.7	35.5	13.2	20.8	28.4	34.7
115		61		MBH	30.2	31.8	33.4	35.1	30.4	32.0	33.6	35.3
				SHC	26.0	27.7	29.4	31.2	26.1	27.8	29.6	31.4
		67		MBH	35.2	36.8	38.4	40.1	35.4	37.0	38.6	40.3
				SHC	18.7	26.1	33.0	36.5	18.8	26.3	33.2	36.7
		73		MBH	40.2	41.8	43.4	45.1	40.4	42.0	43.6	45.3
				SHC	11.3	18.0	26.0	32.9	11.7	18.5	26.6	33.5

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:1000Btu/h)
3.SHC=Sensible Heat Capacity.(Unit:1000Btu/h)

7. SPECIFICATION

Tab.7-12

Cooling capacity — For 5 tons (220V 3N ～ 60Hz)

Ambient Temperature		Air Ent	Flow DB	CFM (F)	1294				1410			
					75	80	85	90	75	80	85	90
	85	61		MBH	27.2	28.8	30.4	32.1	27.4	29.0	30.6	32.3
				SHC	23.7	27.4	30.2	32.1	23.3	26.7	29.1	31.7
		67		MBH	32.4	34.0	35.6	37.3	32.6	34.2	35.8	37.5
				SHC	18.1	24.1	29.2	35.1	18.3	24.3	29.4	35.3
		73		MBH	35.6	37.2	38.8	40.5	35.8	37.4	39.0	40.7
				SHC	12.1	17.9	22.5	27.5	12.5	18.3	23.8	28.9
	95	61		MBH	25.0	26.4	27.8	29.2	25.2	26.6	28.0	29.4
				SHC	22.0	24.8	26.4	28.3	22.4	25.1	26.6	28.5
		67		MBH	30.0	31.6	33.2	34.9	30.2	31.8	33.4	35.1
				SHC	18.3	24.0	29.9	33.2	18.7	24.5	30.4	33.7
		73		MBH	35.0	36.6	38.2	39.9	35.2	36.8	38.4	40.1
				SHC	11.2	17.2	22.9	27.5	11.6	17.7	23.4	28.5
	105	61		MBH	22.8	24.4	26.0	27.7	23.0	24.6	26.2	27.9
				SHC	21.0	22.5	24.5	26.4	21.2	22.7	24.7	26.5
		67		MBH	27.8	29.4	31.0	32.7	28.0	29.6	31.2	32.9
				SHC	16.1	21.8	27.9	31.1	16.2	21.9	28.1	31.3
		73		MBH	32.8	34.4	36.0	37.7	33.0	34.6	36.2	37.9
				SHC	10.5	16.5	22.7	28.3	10.2	16.3	22.4	27.7
	115	61		MBH	20.6	22.2	23.8	25.5	20.8	22.4	24.0	25.7
				SHC	17.7	19.3	20.9	22.7	17.9	19.5	21.1	22.9
		67		MBH	25.6	27.2	28.8	30.5	25.8	27.4	29.0	30.7
				SHC	13.6	19.3	24.8	27.8	13.7	19.5	24.9	27.9
		73		MBH	30.6	32.2	33.8	35.5	30.8	32.4	34.0	35.7
				SHC	8.6	13.8	20.3	25.9	8.9	14.3	20.7	26.4

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:1000Btu/h)
3.SHC=Sensible Heat Capacity.(Unit:1000Btu/h)

Tab.7-13

Heating capacity — For 3tons (380-415V 3N ～ 50Hz)

Outdoor Temp（℃） 70% RH	Net Capacities（kW）-1415CFM							
	Peak Net Heating(kW) at Indicated Dry Bulb（℃）				Peak Total Power(kW) at Indicated Dry Bulb（℃）			
	15	21	24	27	15	21	24	27
-15	2.1	1.5	1.3	0.8	1.4	1.7	1.9	2.1
-12	2.2	1.6	1.8	1.3	1.5	1.8	2.0	2.2
-9	3.6	3.0	2.4	1.9	1.8	2.1	2.3	2.5
-6	4.8	4.2	3.6	3.1	2.0	2.3	2.5	2.7
-3	6.1	5.5	4.9	4.4	2.1	2.4	2.6	2.8
0	7.4	6.8	6.2	5.7	2.2	2.5	2.7	2.9
3	8.7	8.1	7.5	7.0	2.3	2.6	2.8	3.0
6	11.0	10.4	9.9	9.5	2.9	3.2	3.4	3.6
9	11.5	10.9	10.4	10.0	3.1	3.4	3.5	3.7
12	12.0	11.4	10.9	10.5	3.2	3.5	3.6	3.8
15	12.5	11.9	11.4	11.0	3.3	3.6	3.7	3.9
18	13.0	12.4	11.9	11.5	3.5	3.8	3.9	4.1
21	13.6	13.0	12.5	12.1	3.6	3.9	4.0	4.2
24	18.4	17.8	17.3	16.9	3.8	4.1	4.2	4.4

Notes: 1.For other air volume, the heating capacity will be changed accordingly.
2.Heating capacities and power are integrated to include the effects of defrost in the frost region.

7. SPECIFICATION

Tab.7-14

Heating capacity — For 4 tons (380-415V 3N ～ 50Hz)

Outdoor Temp（℃） 70% RH	Net Capacities（kW）-1415CFM							
	Peak Net Heating(kW) at Indicated Dry Bulb（℃）				Peak Total Power(kW) at Indicated Dry Bulb（℃）			
	15	21	24	27	15	21	24	27
-15	2.9	2.3	1.7	1.4	2.0	2.3	2.5	2.7
-12	3.7	3.1	2.5	2.0	2.1	2.4	2.6	2.8
-9	5.1	4.5	3.9	3.4	2.4	2.7	2.9	3.1
-6	6.3	5.7	5.1	4.6	2.6	2.9	3.1	3.3
-3	7.6	7.0	6.4	5.9	2.7	3.0	3.2	3.4
0	8.9	8.3	7.7	7.2	2.8	3.1	3.3	3.5
3	10.2	9.6	9.0	8.5	2.9	3.2	3.4	3.6
6	12.5	11.9	11.4	11.0	3.5	3.8	4.0	4.2
9	13.0	12.4	11.9	11.5	3.7	4.0	4.1	4.3
12	13.5	12.9	12.4	12.0	3.8	4.1	4.2	4.4
15	14.0	13.4	12.9	12.5	3.9	4.2	4.3	4.5
18	14.5	13.9	13.4	13.0	4.1	4.4	4.5	4.7
21	15.1	14.5	14.0	13.6	4.2	4.5	4.6	4.8
24	18.4	17.8	17.3	16.9	4.5	4.8	4.9	5.1

Notes: 1.For other air volume, the heating capacity will be changed accordingly.
2.Heating capacities and power are integrated to include the effects of defrost in the frost region.

Tab.7-15

Heating capacity — For 5 tons (380-415V 3N ～ 50Hz)

Outdoor Temp（℃） 70% RH	Net Capacities（kW）-1415CFM							
	Peak Net Heating(kW) at Indicated Dry Bulb（℃）				Peak Total Power(kW) at Indicated Dry Bulb（℃）			
	15	21	24	27	15	21	24	27
-15	5.1	4.5	3.9	3.4	3.1	3.4	3.6	3.8
-12	6.4	5.8	5.2	4.7	3.2	3.5	3.7	3.9
-9	7.8	7.2	6.6	6.1	3.5	3.8	4.0	4.2
-6	9.0	8.4	7.8	7.3	3.7	4.0	4.2	4.4
-3	10.3	9.7	9.1	8.6	3.8	4.1	4.3	4.5
0	11.6	11.0	10.4	9.9	3.9	4.2	4.4	4.6
3	12.9	12.3	11.7	11.2	4.0	4.3	4.5	4.7
6	15.2	14.6	14.1	13.7	4.6	4.9	5.1	5.3
9	15.7	15.1	14.6	14.2	4.8	5.1	5.2	5.4
12	16.2	15.6	15.1	14.7	4.9	5.2	5.3	5.5
15	16.7	16.1	15.6	15.2	5.0	5.3	5.4	5.6
18	17.2	16.6	16.1	15.7	5.2	5.5	5.6	5.8
21	17.8	17.2	16.7	16.3	5.3	5.6	5.7	5.9
24	18.4	17.8	17.3	16.9	5.4	5.7	5.8	6.0

Notes: 1.For other air volume, the heating capacity will be changed accordingly.
2.Heating capacities and power are integrated to include the effects of defrost in the frost region.

8. START-UP

■ Packging and components

- 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 turn free without rubbing, and are they tight on the shafts?
- Has the indoor blower speed been determined and the proper speed been set? See the Unit Wiring Diagram.
- 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 compressor operating, check the line voltage at 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. Power is required to keep the heat pump compressor warm and boil off refrigerant in the compressor.

9. 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.

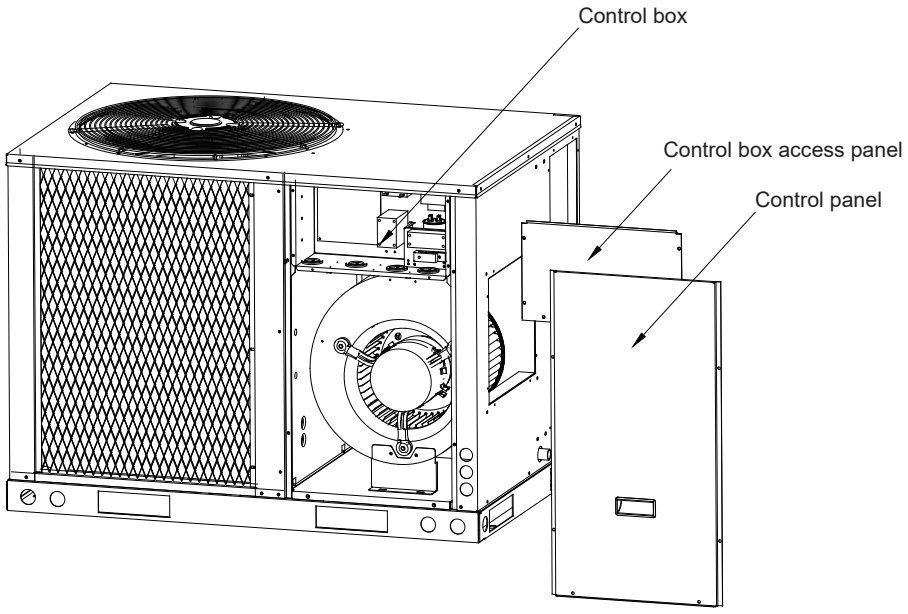


Fig.9-1

⚠ WARNING

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

9. MAINTENANCE AND UPKEEP

■ 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.

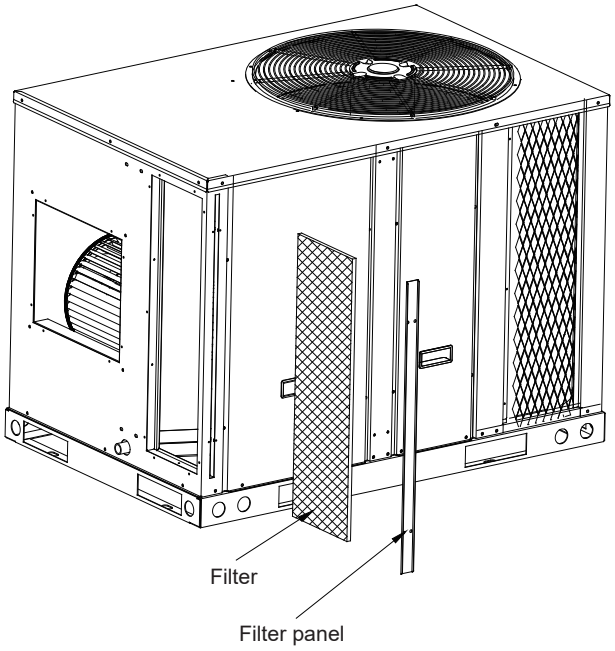


Fig.9-2

• 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) .

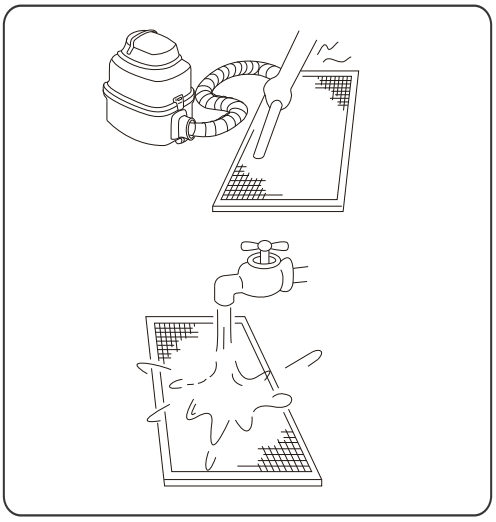


Fig.9-3

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

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

• Re-install the air filter

9. MAINTENANCE AND UPKEEP

⚠ CAUTION

• Do not dry out the air filter under direct sunshine or with fire.

⚠ CAUTION

• 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.

■ 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.

NOTE - Due to Nörden's ongoing commitment to quality, specifications, ratings, and dimensions are subject to change without notice and without incurring liability.