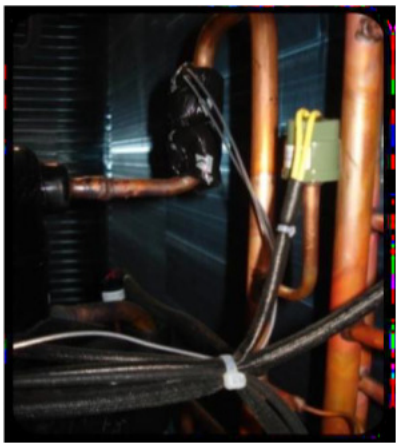
Rooftop Package Units
Technical Manual

Applicable Models:

CSU 26 RTN1
CSU 35 RTN1
CSU 53 RTN1
CSU 70 RTN1
CSU 98 RTN1

1. Features

1. Anti-corrosion features



Reinforced resistance to corrosion has been achieved by using galvanized plate, coated with synthetic paint (which has passed a 1000-hour salt spray test). The result is easy maintenance combined with long-term durability.

2. The adoption of protection systems

2.1 Compressor protection

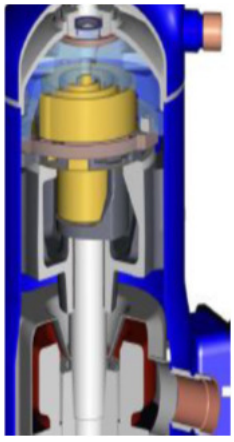
New protection systems ensure high-pressure protection, low-pressure protection and protection against current fluctuations, safeguarding compressor durability. An independent system, (except for protection of sequence and wired controller output) ensures compressor protection. Once a compressor protection is energized, the corresponding compressor will stop, while others continue to operate.

2.2Fan motor

Fan motors for the evaporator have over-heat protection and over-current protection function, while fan motors for the condenser have a temperature controller protection function.

3. Energy saving design

3.1 High-efficiency compressor



Using advanced compressor technology, heat exchanger and optimum connection piping, the compressor can start up under low power input, providing maximum reliability, efficiency and quiet operation. Two refrigerant circuits on larger units (above 12.5ton) provide efficient part load performance. Standard low and high pressure safety switches.

Cutting-edge compressor control

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

3.2 Condenser

Thin walls ensure the condenser has a high-efficiency heat exchanger, minimizing energy wastage..

3.3 Evaporator

High-efficiency, super thin walls and inner grooved copper pipe result in higher capacity evaporators as well as lower noise levels.

3.4 Heat insulation of indoor unit

Effective heat insulation of indoor unit decreases heat loss.

3.5 The control and refrigerant cycle system

There are two independent refrigerant cycle systems. Capacity output is adjusted automatically by different demands, thus saving energy when one control system is running with low capacity output.

4. Optional collocation

4.1 Operation in high temperature

Designed for high temperatures, the airconditioner can operate even when ambient temperatures rise to 52^0C (125^0F).

4.2 Strong air flow

Forced ventilating by the condenser fan results in large air volumes via the air inlet.

4.3 Minimum installation arrangement

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

4.4 Pre-drilled duct flange

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

4.5 Quiet operation

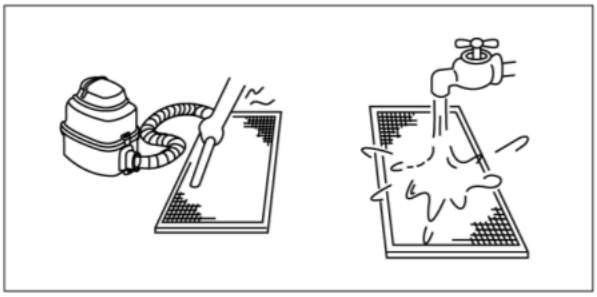
Noise and vibration have been effectively reduced by adopting a new style hermetic compressor. The centrifugal fan and fan casing are optimally shaped for efficient and low noise operation.

5. Cabinet

5.1 Sloped drain pan and drain pipe.

5.2 Cabinets have forklift and lifting holes for easy transportation.

5.3 Cabinets have fresh air function, and the filter is washable.

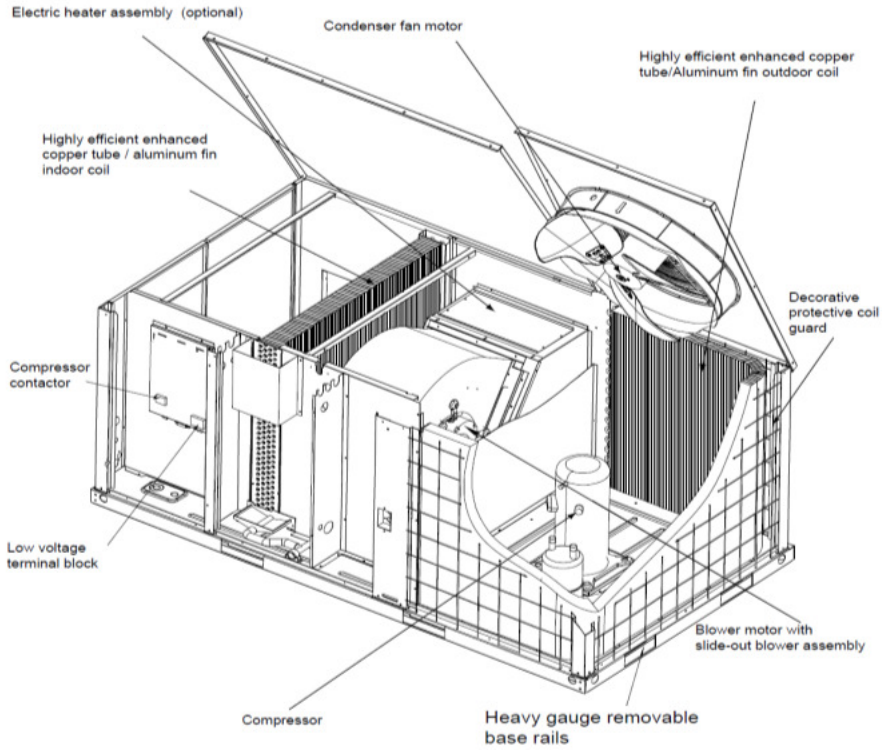


5.4 External pressure gauge ports

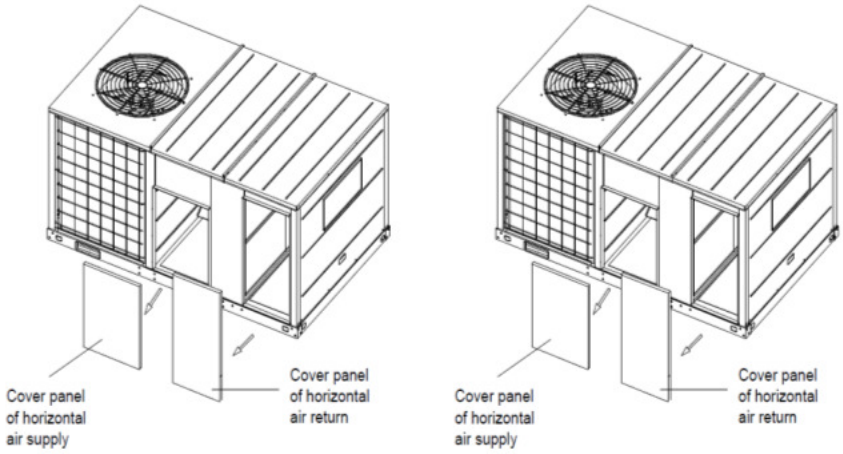
With gauge ports mounted externally, an accurate diagnostic of system operation can be performed quickly and easily without disrupting airflow.

5.5 Durable construction

Weather-resistant construction with capped seams and sloped top panels. G90 galvanized heavy gauge plate conforming to ASTM-A-653; Zinc content of galvanized plate is 275g/m^2.



6. Optimal supply/return airflow design, from side or bottom, allows design flexibility. Rooftop or ground installations are optional.



7. Certificate of compressor

The compressors are CE certified and UL certified.

2. List of Functions

2.1 Standard specifications

A. General

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

B. Unit enclosure

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

C. Compressor

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

D. Air- cooled condensing section

1. The air-cooled condensing section is enclosed within the unit housing and consists of condenser coil, fan(s) electric motor(s) and inherently protected compressor(s). Inner grooved copper tubes with wall thickness of 0.3mm, mechanically bonded to enhanced louvered aluminum fins are standard for all condenser coils. As an option, enhanced coated aluminum fins may be provided. Tube support sheets are galvanized steel, formed to provide structural strength.
2. Fans are propeller type, direct driven, upward discharge and provided with fan grille mounted on the casing.
3. Motors are totally enclosed air-over type with class F insulation. Inherent thermal protection is automatic reset type.

E. Evaporator coil section

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

F. Evaporator fan

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

G. Electronic thermostats

General information: A dedicated electronic thermostat is supplied with unit controls as standard. This thermostat controls one or two stage heating and cooling applications. The thermostat normally displays room temperature and mode of operation.
The temperature can be set by up/down buttons for both cooling and heating cycles. The thermostat also allows you to select continuous fan operation, or have the fan on intermittent operation with the equipment. It also displays the status of unit, thus providing maximum information for the end user.

2.2 Electric auxiliary heater

Electric auxiliary heaters are the resistance open coil type and conform to the requirements of UL 573 or equivalent. Electrical characteristics, kW capacities and number of stages are as indicated. Airflow switches, fusible links and overheat limit thermostats are provided to shut-off power in case of airflow failure/overheating. Electric heater kit is installed as an externally mounted kit at the supply opening.

2.3 Standard features/options/accessories

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

3. Specifications

Nominal ton		**(Ton)**	**7.5**	**10**	**15**	**20**	**30**
Model			**CSU 26 RTN1**	**CSU 35 RTN1**	**CSU 53 RTN1**	**CSU 70 RTN1**	**CSU 98 RTN1**
Cooling	Cooling Capacity (1)	Btu/h	89000	120000	180000	240000	331000
		KW	26	35	53	70	97
	Power Input (1)	KW	9.2	11.8	18.6	23.6	33
	Cooling Capacity (2)	Btu/h	80100	97000	158700	210000	299600
		KW	23.5	31.4	46.5	61.4	87.8
	Power Input (2)	KW	10.7	13.1	21.3	27.7	40.1
Heating	Heating Capacity	Btu/h	102000	126000	191000	256 000	358000
		KW	30	37	56	75	105
	Power Input	KW	8.8	10.9	17.5	23.4	34.8
Capacity steps		%	0/100	0/100	0/50/100	0/50/100	0/50/100
Electrical data	Power supply	V/PH/Hz	380-400/3/50	380-400/3/50	380-400/3/50	380-400/3/50	380-400/3/50
	Max. input consumption (Except EAH)	KW	13	17	27	36	49
	Max. current	A	24	31	45	75	86.5
Performance	Indoor fan air flow (High speed)	CFM	2900	4030	6150	8400	12000
	ESP	Pa	60	75	90	100	250
	EER 1	Btu/h/W	9.7	10.2	9.7	10.1	10
	EER 2	Btu/h/W	7.5	8.2	7.5	7.6	7.5
	COP	Btu/h/W	11.6	11.6	11	11	10.3
Indoor Coil	Number of rows		2	3	3	3	3
	Fin spacing	mm	1.6	1.4	1.4	1.6	1.5
		inch	1/16”	1/18”	1/18”	1/16”	1/16”
	Tube diameter	mm	7.94	7.94	7.94	7.94	7
		inch	5/16”	5/16”	5/16”	5/16”	9/32”
	Coil length X height	mm	880X847	1117X792	1607X880	1882X1012	1882X1428
		inch	34.6X33.3	44X31.2	63.3X346	74.1X39.8	74.1X56.2
	Number of circuits		10	18	10+10	11+12	17+17
Indoor Fan	Type		FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
	Quantity		1	1	1	1	1
	Diameter(Width)	Mm	254	305	383	452	500
		inch	10	12	15	17.8	19.7
	Drive type		Belt	Belt	Belt	Belt	Belt
	Motors quantity	Pieces	1	1	1	1	1
	Motor model		YFD90L-4-1.5	YFD90L-4-1.5	YFD132S-4-5.5	YFD132S-4-5.5	Y(2)132M-4-7.5
	Motor output	KW	1.5	1.5	5.5	5.5	7.5
	Motor rpm	r/min	1400	1400	1440	1440	1440
Compressor	Type		Scroll	Scroll	Scroll	Scroll	Scroll
	Quantity	Pieces	1	1	2	2	2
	Model		SH105A4ALC	SH120A4ALC	SH105A4ALC	SH140A4ALC	SH184A4ALC
	Capacity	Btu/h	91500	119000	91500	119000	152426

	Input	KW	8.472	10.862	8.472	10.862	13.732
	Rated load Amps (RLA)	A	16.7	21.4	16.7	21.4	27.6
	Locked rotor Amps(LRA)	A	142	147	156	147	197
	Refrigerant oil charge	ml	3000	3300	3000	3300	3600
Outdoor Coil	Number of rows		3	3	3	4	4
	Fin spacing	Mm	1.6	1.6	1.6	1.6	1.5
		Inch	1/16”	1/16”	1/.16"	1/16”	1/16”
	Tube diameter	Mm	7.94	7.94	7.94	7.94	7
		Inch	5/16”	5/16”	5/16"		9/32”
	Coil length X height	Mm	1404X968	1748X880	2179X1100	2650X1100	2650X1512
		Inch	55.3X38.1	68.8x34.6	85.8X43.3	104.3X43.3	104.3X59.5
	Number of circuits		21	20	12+12	11+12	12+12
	Quantity		1	1	2	2	2
	Diameter(Width)	Mm	650	700	650	750	750
		Inch	25.6	27.6	25.6	29.5	29.5
	Drive type		Direct	Direct	Direct	Direct	Direct
	Motors quantity	Pieces	1	1	2	2	2
	Motor model		YS600-6P	Y1100-6	YS110-6	YS1500-6	YS1500-6
	Motor output	KW	0.6	1.1	6.5X2	1.5X2	1.5 X 2
	Motor rpm	r/min	930	940	930	910	910
Outdoor sound level (sound pressure level)		dB(A)	70.3	72.2	72.4	74.2	75.4
Refrigerant	Type		R410A	R410A	R410A	R410A	R410A
	Refrigerant volume	Kg	6	7.5	6.5X2	8.8X2	9.4 X 2
	Refrigerant Control		Capillary	Capillary	Capillary	Capillary	Capillary
Controller	Wired controller type		Wired controller	Wired controller	Wired controller	Wired Controller	Wired Controller
Operation temp		^{0}C	17~30	17~30	17~30	17~30	17~30
Outdoor ambient temp	Cooling	^{0}C	18~52	18~52	18~52	18~52	18~52
	Heating	^{0}C	-10~24	-10~24	-10~24	-10~24	-10~24
Dimensions	Net (WxHxD)	mm	1630X1068X1065	2165X1002X1335	2229X1245X1825	2753X1245X2157	2753X1656X2157
		Inch	64.2X41.9X42	85.2X40.2X52.6	87.8X71.8X49	108.4X49X84.9	108.4X65.9X84.8
	Packing (WxHxD)	mm	1700X1110X1160	2220X1140X1415	2236X1300X1855	2755X1300X2180	2755X1690X2180
		inch	66.9X43.7X45.7	87.4X44.9X58.7	88X51.2X73	108.5X51.2X58.8	108.5X66.5X85.8
Weight	Net weight	kg(lbs)	380(837.7)	450(992)	730(1609.3)	940(2072.3)	1130(2491.2)
	Gross weight	kg(lbs)	390(859.8)	463(1020.7)	750(1653.4)	955(2105.4)	1140(2513.2)
Filter	Type		Nylon	Nylon	Nylon	Nylon	Nylon
	Quantity	Pieces	2	2	2	3	3
	Size (WxHxD)	mm	447X885X10	566X814X10	900X815X12.5	640X1008X12.5	1492X640X12.5
		inch	17.6X34.8	22.3X32X0.4	35.4X32X0.5	25.2X39.7X0.5	59X26X0.5

Note:

The data are based on the following conditions:

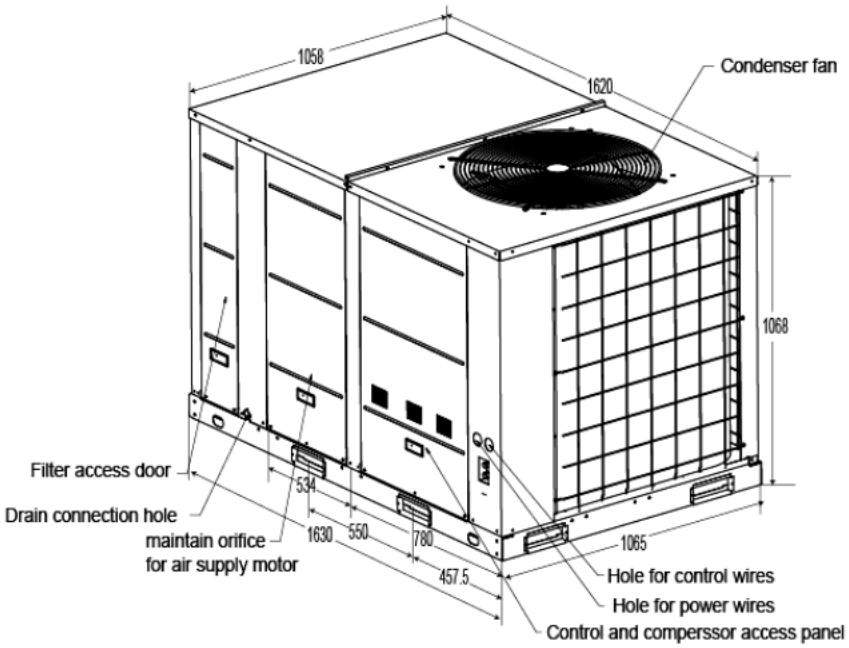
Cooling: (1): Indoor Temperature 26.7°C(80°F) DB / 19.4°C(67°F) WB; - Outdoor Temperature 35°C(95°F) DB.
(2): Indoor Temperature 26.7°C(80°F) DB / 19.4°C(67°F) WB; - Outdoor Temperature 46°C(114°F) DB.

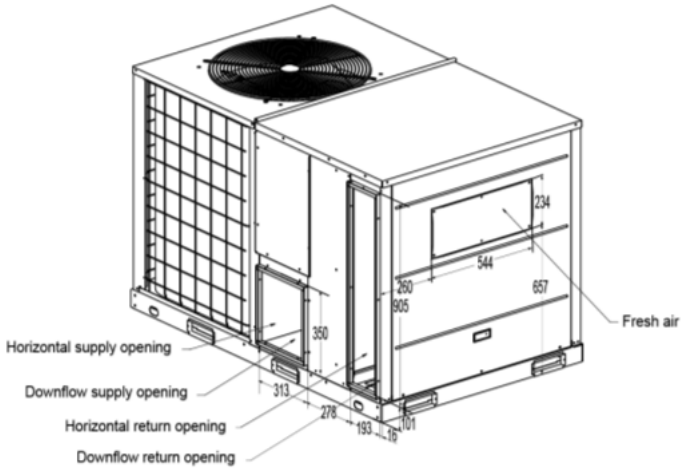
Heating and Power input: Indoor Temperature 20°C (68°F) DB/15°C (59°F) WB; - Outdoor Temperature 7°C (44.6°F) DB/6°C (42.8°F) DB

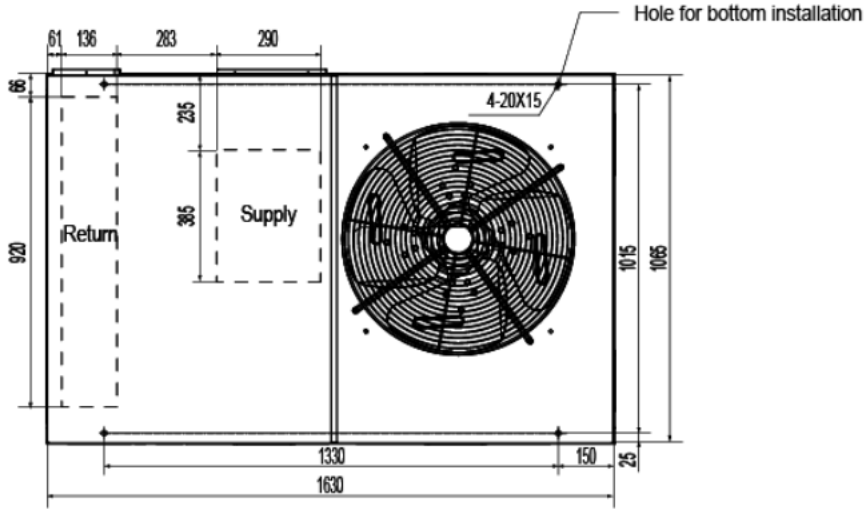
Electrical data: Indoor Temperature 32°C(90°F) DB / 24°C(74°F) WB; - Outdoor Temperature 52°C(125°F) DB

4. External Appearance

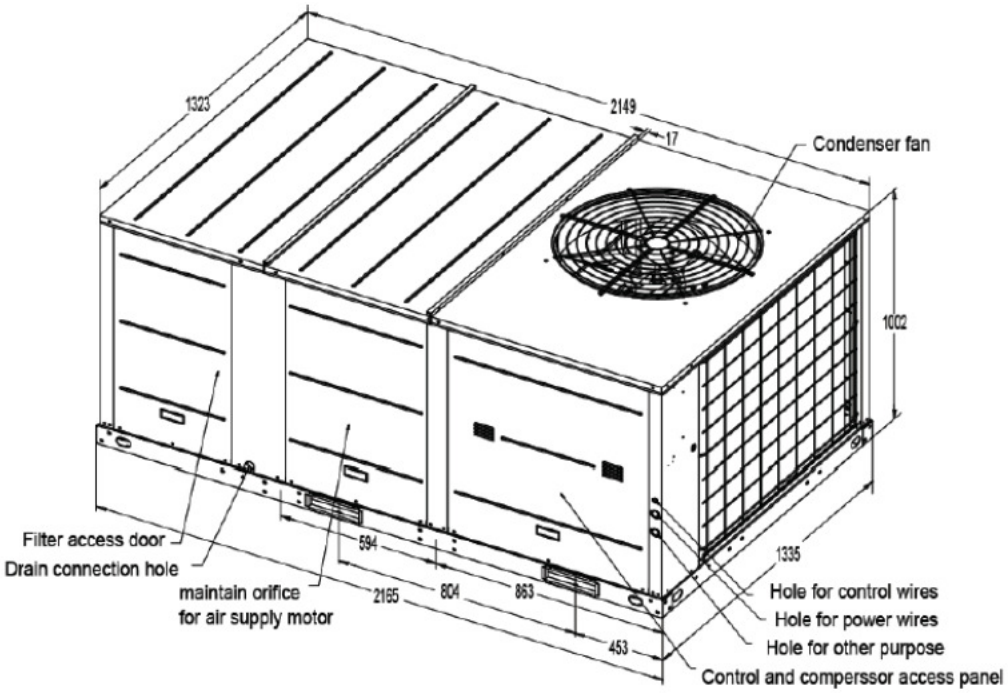
I. CSU 26 RTN1

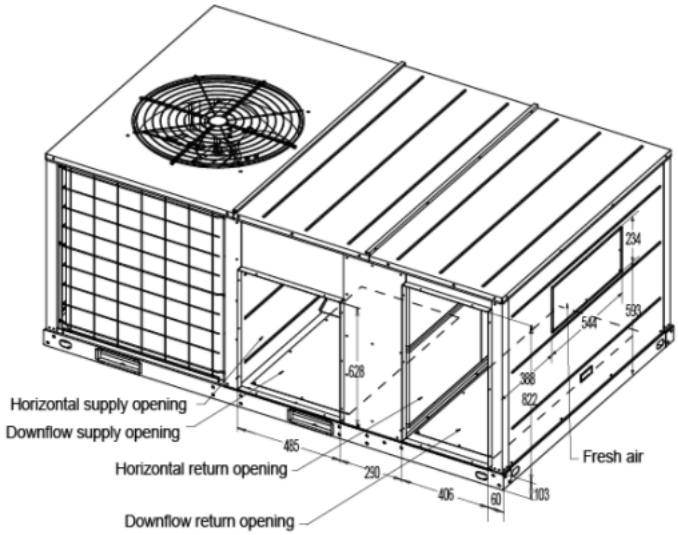


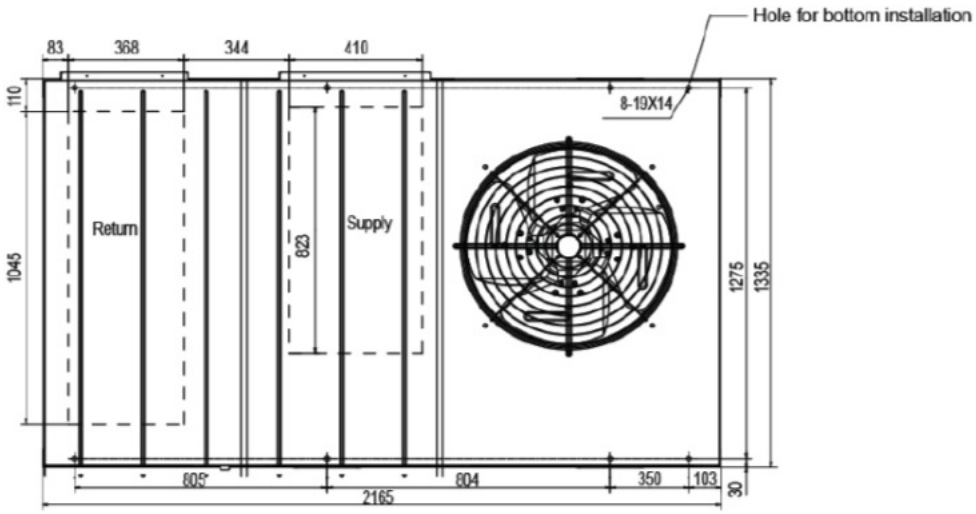




II. CSU 35 TRN1







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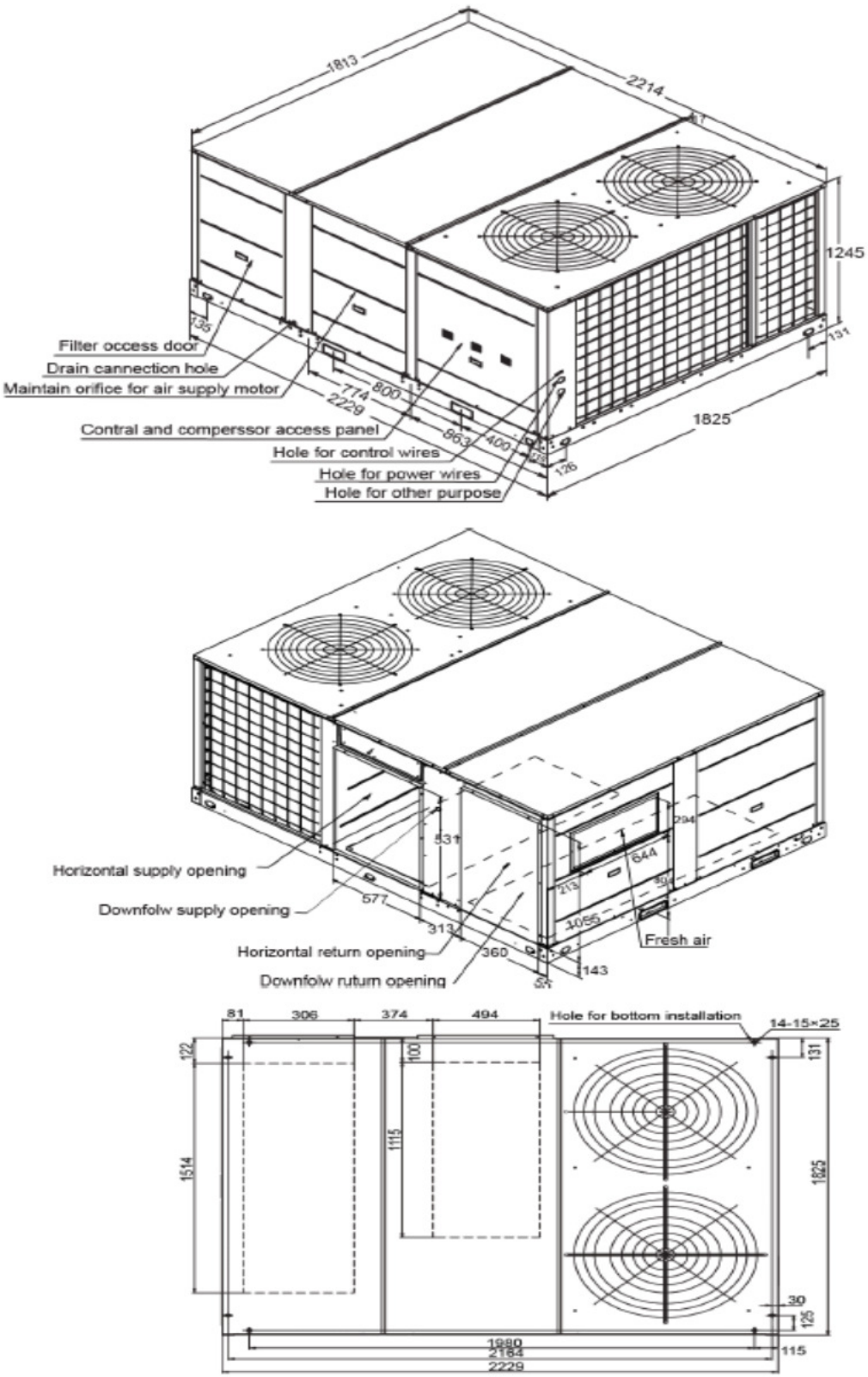
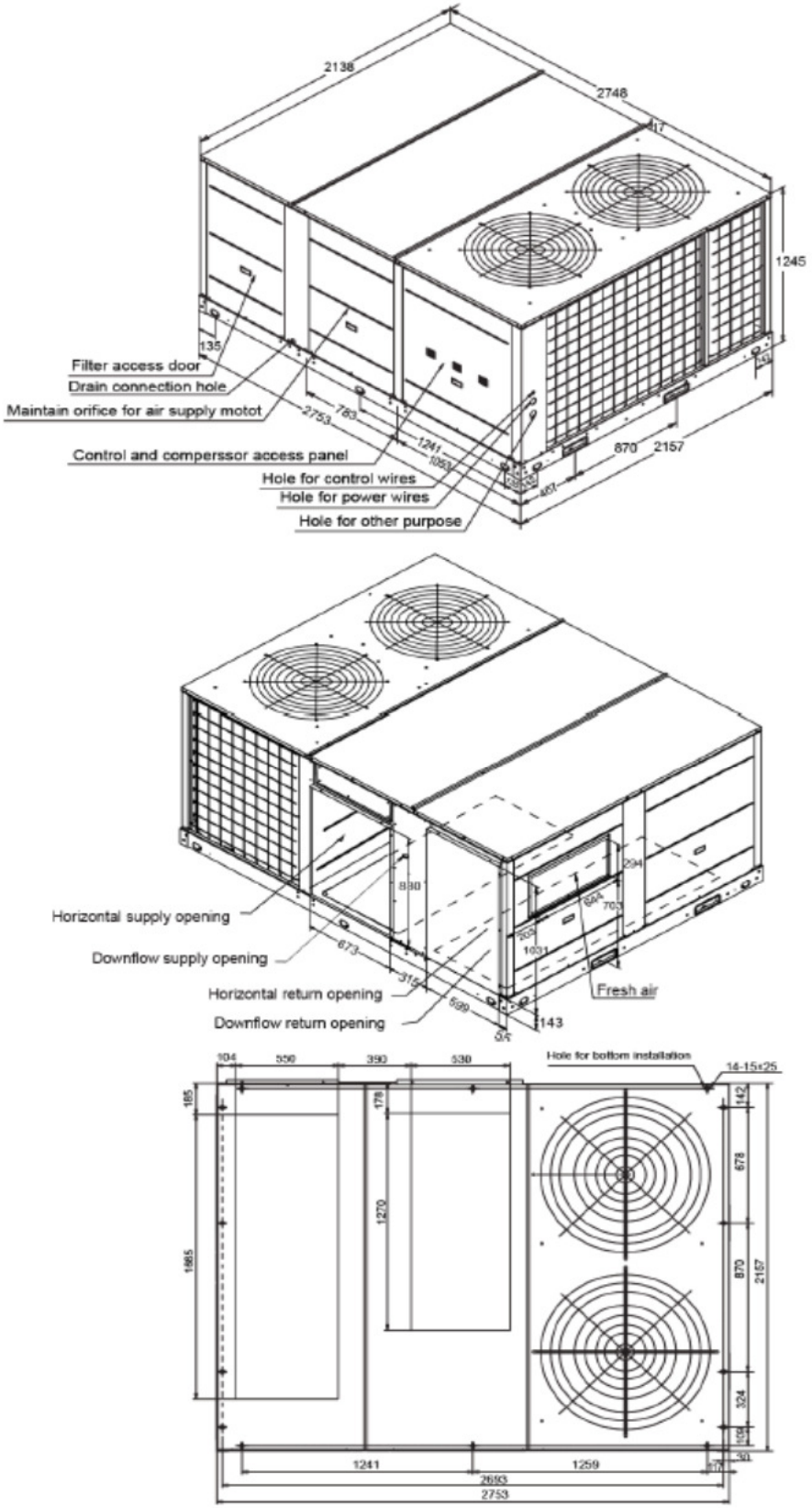
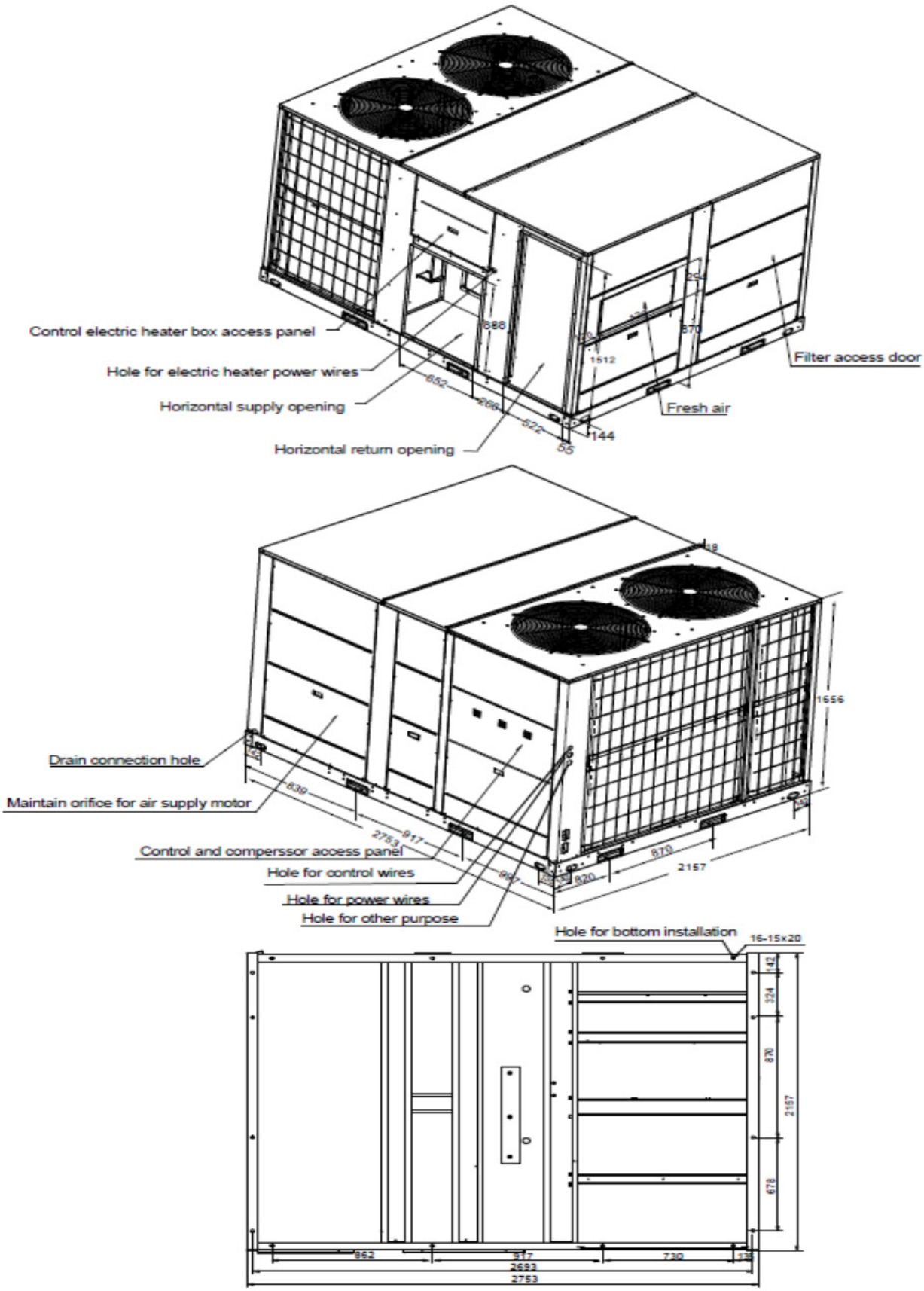


IV. CSU 70 RTN1

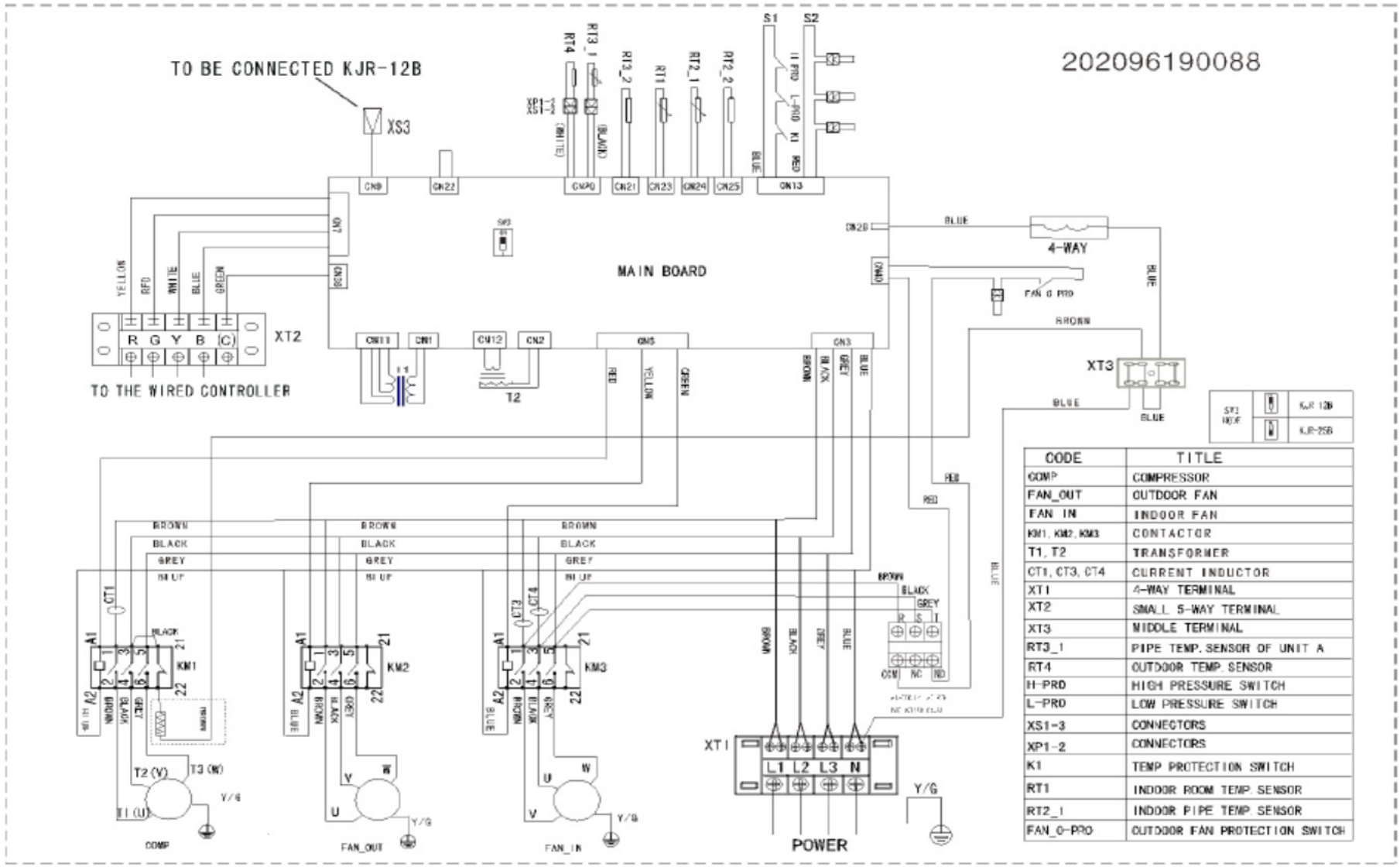


V. CSU 98 TRN1



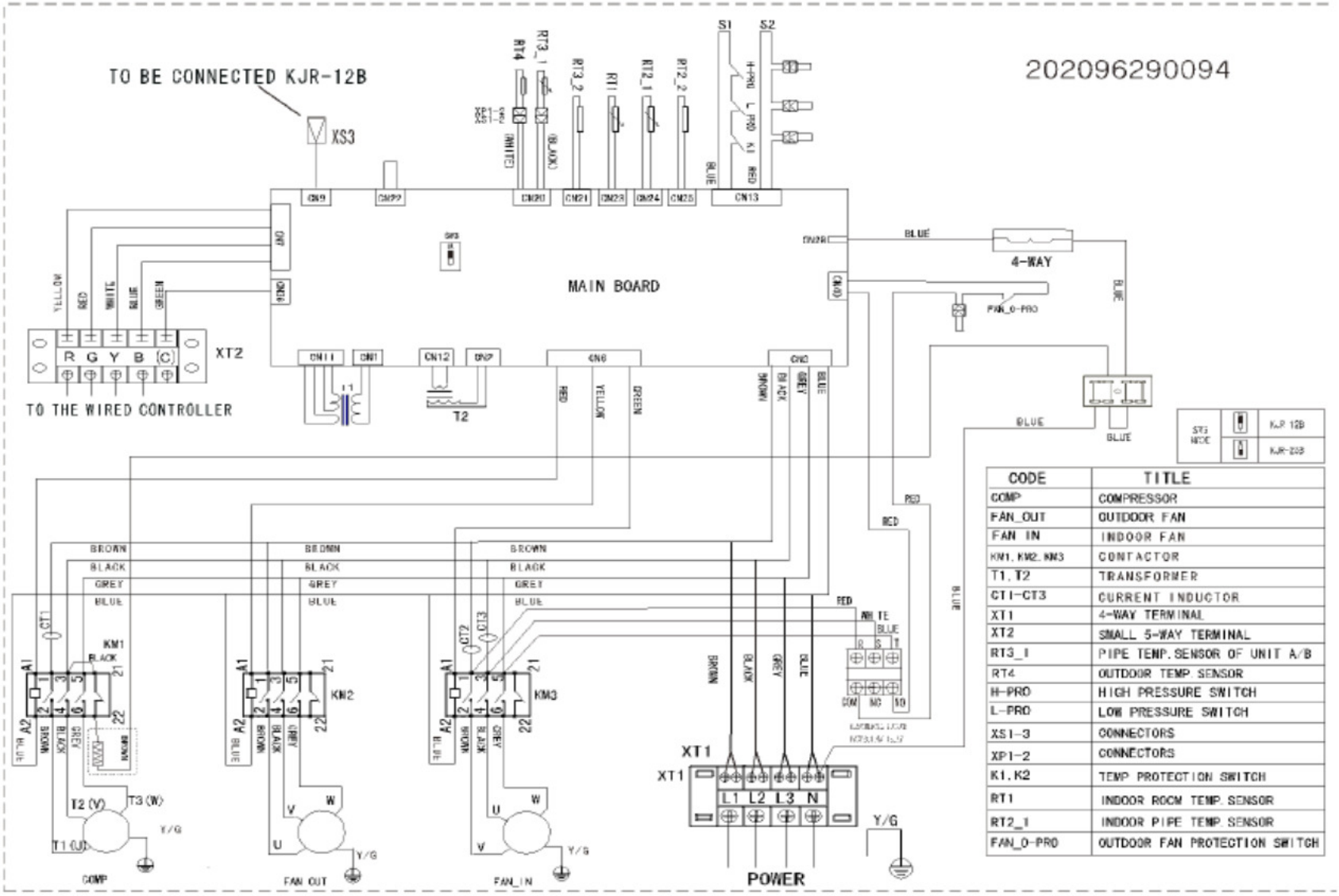
5. Wiring Diagrams

CSU 26 RTN1

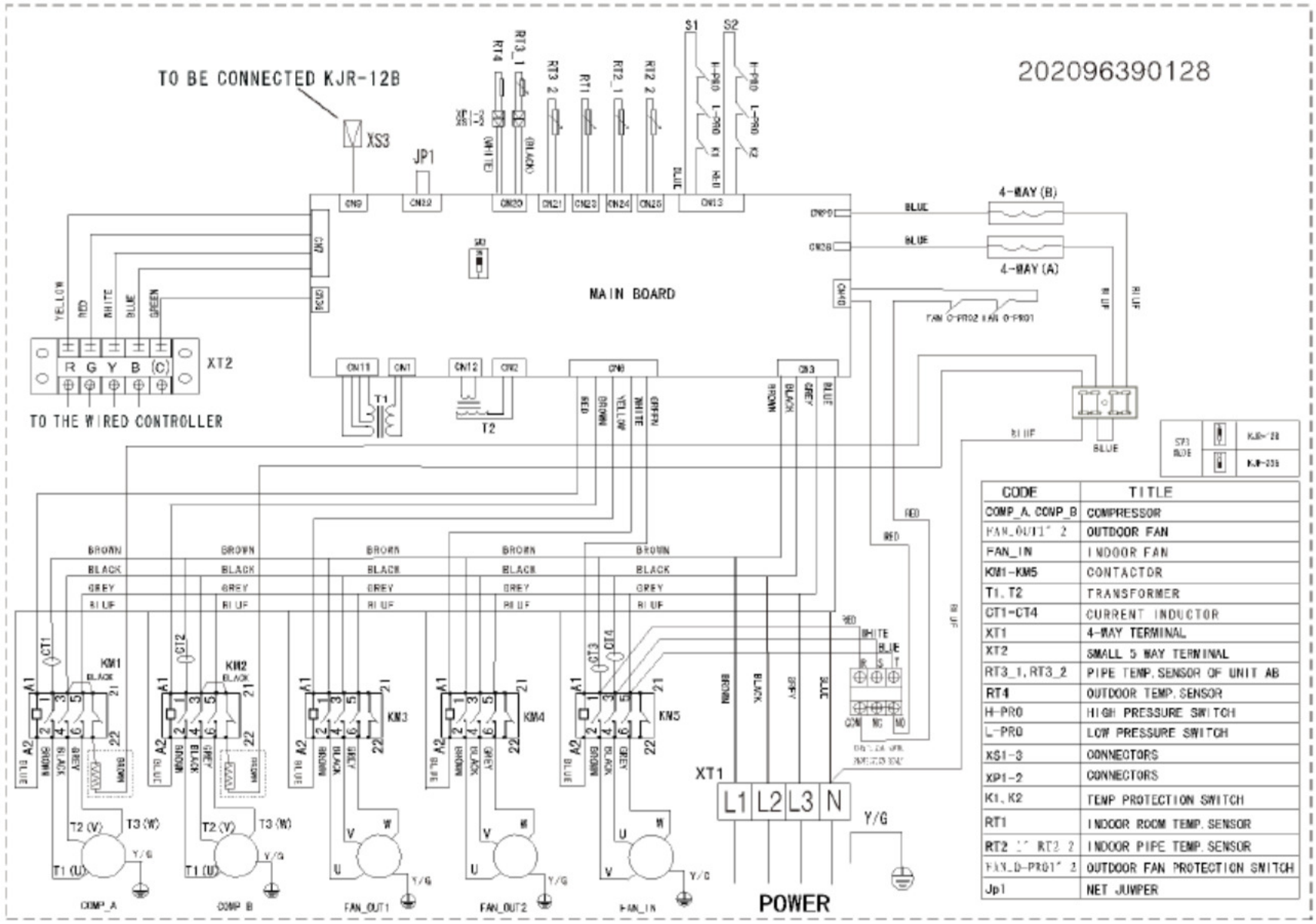


CODE	TITLE
COMP	COMPRESSOR
FAN_OUT	OUTDOOR FAN
FAN_IN	INDOOR FAN
KM1, KM2, KM3	CONTACTOR
T1, T2	TRANSFORMER
CT1, CT3, CT4	CURRENT INDUCTOR
XT1	4-WAY TERMINAL
XT2	SMALL 5-WAY TERMINAL
XT3	MIDDLE TERMINAL
RT3_1	PIPE TEMP. SENSOR OF UNIT A
RT4	OUTDOOR TEMP. SENSOR
H-PRO	HIGH PRESSURE SWITCH
L-PRO	LOW PRESSURE SWITCH
XS1-3	CONNECTORS
XP1-2	CONNECTORS
K1	TEMP PROTECTION SWITCH
RT1	INDOOR ROOM TEMP. SENSOR
RT2_1	INDOOR PIPE TEMP. SENSOR
FAN_O-PRO	OUTDOOR FAN PROTECTION SWITCH

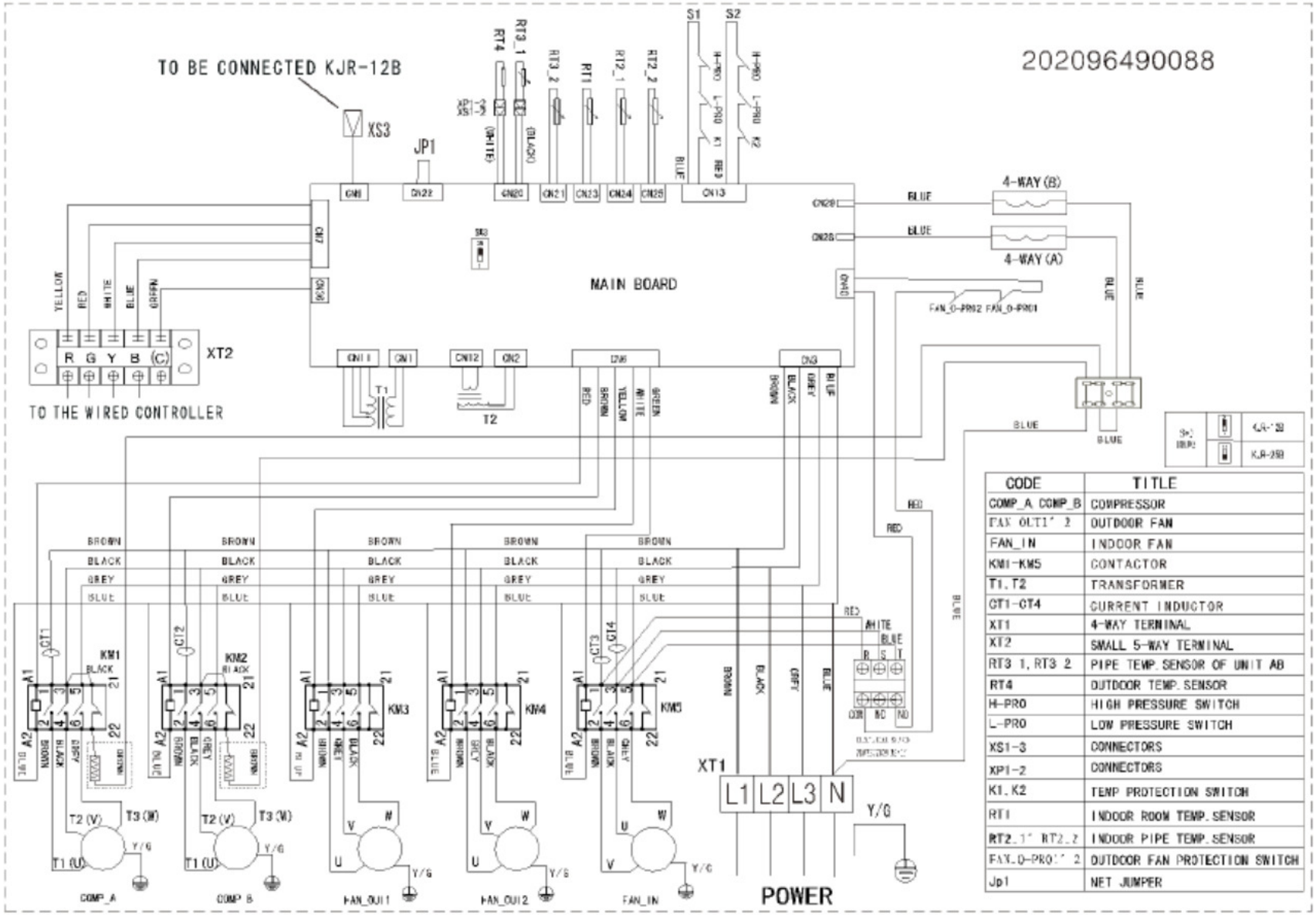
CSU 35 RTN1



CSU 53 RTN1

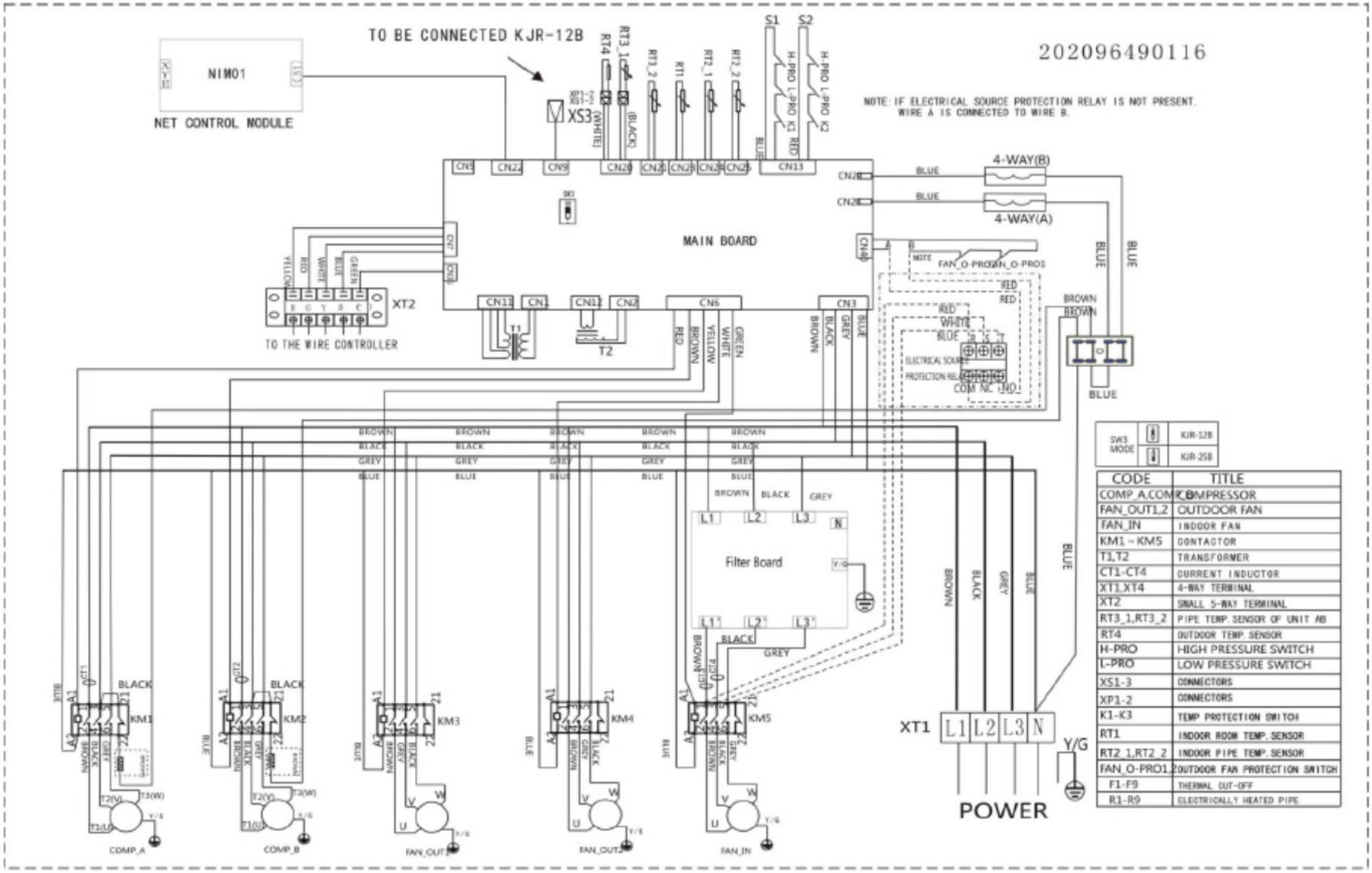


CODE	TITLE
COMP_A, COMP_B	COMPRESSOR
FAN_OUT1, 2	OUTDOOR FAN
FAN_IN	INDOOR FAN
KM1-KM5	CONTACTOR
T1, T2	TRANSFORMER
CT1-CT4	CURRENT INDUCTOR
XT1	4-WAY TERMINAL
XT2	SMALL 5 WAY TERMINAL
RT3_1, RT3_2	PIPE TEMP. SENSOR OF UNIT AB
RT4	OUTDOOR TEMP. SENSOR
H-PRO	HIGH PRESSURE SWITCH
L-PRO	LOW PRESSURE SWITCH
XS1-3	CONNECTORS
XP1-2	CONNECTORS
K1, K2	TEMP PROTECTION SWITCH
RT1	INDOOR ROOM TEMP. SENSOR
RT2_1, RT2_2	INDOOR PIPE TEMP. SENSOR
FAN_D-PRO1, 2	OUTDOOR FAN PROTECTION SWITCH
Jp1	NET JUMPER



CODE	TITLE
COMP_A, COMP_B	COMPRESSOR
FAN_OUT1', 2	OUTDOOR FAN
FAN_IN	INDOOR FAN
KM1-KM5	CONTACTOR
T1, T2	TRANSFORMER
CT1-CT4	CURRENT INDUCTOR
XT1	4-WAY TERMINAL
XT2	SMALL 5-WAY TERMINAL
RT3 1, RT3 2	PIPE TEMP. SENSOR OF UNIT AB
RT4	OUTDOOR TEMP. SENSOR
H-PRO	HIGH PRESSURE SWITCH
L-PRO	LOW PRESSURE SWITCH
XS1-3	CONNECTORS
XP1-2	CONNECTORS
K1, K2	TEMP PROTECTION SWITCH
RT1	INDOOR ROOM TEMP. SENSOR
RT2_1', RT2_2	INDOOR PIPE TEMP. SENSOR
FAN_O-PRO1', 2	OUTDOOR FAN PROTECTION SWITCH
Jp1	NET JUMPER

CSU 98 RTN1



6. Performance Data

6.1 Cooling capacity for CSU 26 RTN1:

		Air Flow		CFM	2800				3000				3200			
		Ent DB		(°F)	75	80	85	90	75	80	85	90	75	80	85	90
Ambient Temperature (°F)	85	Entering Wet Bulb(°F)	61	TGC	82.5	84.2	85.8	87.5	87.3	89	90.8	92.6	89.3	91.1	92.9	94.8
				SHC	72.7	80.4	85.3	87.5	77.4	84.3	88.2	91.1	82	84.5	87.9	92.3
			67	TGC	94.8	96.7	98.6	100.6	95.9	97.8	99.8	101.8	96.7	98.6	100.6	102.6
				SHC	55.6	68.8	81.8	94.3	58	72.6	85.4	96.3	59.5	73.8	83.2	100.1
			73	TGC	98.6	100.6	102.6	104.6	99.2	101.2	103.2	105.2	99.4	101.4	103.4	105.5
				SHC	36.8	51	62	72.4	37.3	50.7	62.3	75.1	37.8	54.8	63.3	75.4
	95		61	TGC	78.6	80.2	81.8	83.4	81	82.6	84.3	86	83.3	85	86.7	88.4
				SHC	69.6	75.6	78	81.4	72.3	78.6	81.2	85.3	75.2	79.3	83.5	86.7
			67	TGC	85.6	87.3	89.1	90.8	87.1	89	96.6	98	91.4	96.2	98.1	99.8
				SHC	53.9	67.7	81.6	86.2	56.3	71.6	86.5	91.3	58.7	75	90.8	92
			73	TGC	97.8	99.8	101.8	103.8	98.3	100.3	102.3	104.3	98.7	100.7	102.7	104.7
				SHC	35.7	50.2	62.3	74.5	36.2	51.2	64.1	77.3	36.8	52	65.6	79.2
	105		61	TGC	72.1	73.5	75	76.5	74.4	75.9	77.4	79	76.5	78	79.6	81.2
				SHC	66.4	68.3	71.3	73.2	71.2	72.4	76.3	78.4	75.3	76.5	77.9	80.4
			67	TGC	84.4	86.1	87.8	89.6	86.3	88	89.8	91.6	87.8	89.6	91.3	93.2
				SHC	51	65	79.2	86.3	53.7	66.2	85	90.3	56.3	73.3	90.6	92.3
			73	TGC	95.3	97.2	99.2	101.1	95.2	97.1	99	101	96.7	98.6	100.6	102.6
				SHC	34.2	48.9	64.2	76.8	34.1	50.4	65.6	78.8	35.4	52.2	67.2	80.9
	115		61	TGC	65.3	66.6	67.9	69.3	67.2	68.5	69.9	71.3	69.8	71.2	72.6	74.1
				SHC	63.2	64.6	66.4	68.6	61.2	64.3	67.6	69.1	67.3	69.1	71	73.2
			67	TGC	76.7	78.2	79.8	81.4	78.5	80.1	81.7	83.3	80.1	817	83.3	85
				SHC	47.8	62.1	75.4	80.2	50.5	66	78.3	82.1	53.1	70.2	82.1	84.6
			73	TGC	90.8	92.6	94.5	96.4	86	87.7	89.5	91.3	92.9	94.8	96.7	98.6
				SHC	32.4	46.3	61.2	76.4	33	48.4	63.5	78.1	33.7	50.4	66.6	82.3
	125		61	TGC	59.9	61.1	62.3	63.6	61.7	62.9	64.1	65.4	64	65.3	66.6	68
				SHC	58	59.3	60.9	62.9	56.1	59	62	63.4	61.7	63.4	65.1	67.2
			67	TGC	70.4	71.8	73.2	74.7	72	73.5	74.9	76.4	73.5	75	76.5	78
				SHC	43.9	57	69.2	73.6	46.3	60.6	71.8	75.3	48.7	64.4	75.3	77.6
			73	TGC	83.3	85	86.7	88.4	78.9	80.5	82.1	83.7	85.2	86.9	88.7	90.4
				SHC	29.7	42.5	56.1	70.1	30.3	44.4	58.3	71.7	30.9	46.2	61.1	75.5

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

Heating capacity for CSU 26 RTN1:

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

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

6.2 Cooling capacity for CSU 35 RTN1:

		Air Flow		CFM	3800				4000				4200			
		Ent DB		(°F)	75	80	85	90	75	80	85	90	75	80	85	90
Ambient Temperature (°F)	85	Entering Wet Bulb(°F)	61	TGC	110.9	113.1	115.4	117.7	113.8	116.1	118.4	120.8	116.5	118.8	121.2	123.6
				SHC	96.8	98.7	100.7	102.7	103.2	105.3	107.4	109.5	109.2	111.4	113.6	115.9
			67	TGC	123.4	125.9	128.4	131	124.6	127.1	129.6	132.2	125.7	128.2	130.8	133.4
				SHC	73.2	92	108.3	124.8	75.6	94.3	112.8	128.5	78	97.3	116.5	130.4
			73	TGC	127.9	130.5	133.1	135.7	128.3	130.9	133.5	136.2	128.6	131	133.8	136.5
				SHC	47.7	64.9	79.6	95.3	48.3	65.8	81.2	96.7	49	72.1	82.4	98.4
	95		61	TGC	102.8	104.9	107	109.1	105.9	108	110.2	112.4	108.9	111.1	113.3	115.6
				SHC	92.7	94.6	96.4	98.4	99.2	101.2	103.2	105.3	105.4	107.5	109.7	111.9
			67	TGC	116.7	117	118.5	121	119.5	121	123.5	126	124	126	128.7	132.3
				SHC	70.8	89.8	108.6	123.4	74.3	94.8	114	124.3	77.4	99.3	120.3	128.4
			73	TGC	126.8	129.3	131.9	134.6	127.1	129.6	132.2	134.9	127.8	130.4	133	135.6
				SHC	46.3	65.4	81.5	97.8	47.2	66.7	84.3	101.9	47.5	67.6	85.8	104.7
	105		61	TGC	94.5	96.4	98.3	100.3	97.8	99.8	101.8	103.8	99.8	101.8	103.8	105.9
				SHC	88.6	90.4	92.2	94	95.2	97.1	99	101	93.4	95.3	97.2	99.1
			67	TGC	110.3	112.5	114.8	117.1	112.9	115.2	117.5	119.8	114.6	116.9	119.2	121.6
				SHC	67.6	86.4	105.9	115.6	71.3	92.1	113.7	117.9	74.2	98.2	115.5	117.6
			73	TGC	123.8	126.3	128.8	131.4	124.6	127.1	129.6	132.2	125.2	127.7	130.3	132.9
				SHC	44.3	63.2	81	98.3	45.2	65.6	85.3	103.7	45.7	67.5	86.9	106.8
	115		61	TGC	86.3	88	89.8	91.6	89.2	91	92.8	94.7	92.3	94.1	96	97.9
				SHC	84.6	86.3	88	89.8	86.2	87.9	89.7	91.5	90.2	92	93.8	95.7
			67	TGC	101.3	103.3	105.4	107.5	103.2	107	107.4	109.5	105.6	107.7	109.9	112.1
				SHC	63.5	83.2	102.1	104.1	67.3	88.2	105.3	107.4	70.8	94.1	107.3	110.5
			73	TGC	119.2	121.6	124	126.5	120.1	122.5	125	127.5	120.8	123.2	125.7	128.2
				SHC	42.2	61.3	80.1	98.7	42.9	64.1	84.3	104.1	43.7	66.8	87.9	109.3
	125		61	TGC	78.5	80	81.6	83.3	81.1	82.7	84.4	86.1	83.9	85.6	87.8	89
				SHC	76.9	78.4	80	81.6	78.4	79.9	81.5	83.2	82	83.6	85.3	87
			67	TGC	92.1	93.9	95.8	97.7	93.8	97.9	98.2	99.6	96	98.1	99.9	101.9
				SHC	57.7	75.6	92.8	94.7	61.2	80.2	95.7	97.6	64.4	85.5	97.7	100.5
			73	TGC	108.4	110.5	112.7	115	109.2	111.4	113.6	115.9	109.8	112	114.3	116.5
				SHC	38.4	55.7	72.8	89.7	39	58.3	76.6	94.6	39.7	60.7	79.9	99.4

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

Heating capacity for CSU 35 RTN1:

Outdoor Temp(°F) 70% RH	Net Capacities(kW)-4000 CFM							
	Peak Net Heating(kW) at indicated Dry Bulb(°F)				Peak Total Power(kW) at Indicated Dry Bulb(°F)			
	59	68	75.2	80.6	59	68	75.2	80.8
5	19.8	18.6	18.2	17.9	9.2	10.1	10.7	11.3
10.4	21.3	20.4	20	19.8	9.4	10.3	10.8	11.5
15.8	22.6	22	21.8	21.8	9.5	10.4	10.9	11.7
21.2	23.7	23	22.8	22.5	9.6	10.5	11.1	11.9
26.6	25.1	24.7	24.5	24.1	9.7	10.6	11.3	12.1
32	27	26.6	26.2	25.9	9.8	10.8	11.5	12.2
37.4	31.1	30.8	30.3	29.9	10	11	11.7	12.4
44.6	37.8	37	36.3	35.7	10.4	10.9	11.9	12.8
48.2	40.7	40.2	39.8	39.4	10.8	12	12.7	13.5
53.6	43.2	44.7	44.5	44.1	11.2	12.5	13.2	14
59	46.6	45.9	45.6	45.1	11.5	12.8	13.5	14.3
64.4	49.4	48.5	48	47.6	11.8	13.1	13.9	14.6
69.8	53	51.9	51.2	50.5	12	13.3	14	14.7
75.2	56	54.5	53.6	53	12.3	13.5	14.5	15

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

6.3 Cooling capacity for CSU 53 RTN1:

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

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

Heating capacity for CSU 53 RTN1:

Outdoor Temp(°F) 70% RH	Net Capacities(kW)-6000 CFM							
	Peak Net Heating(kW) at indicated Dry Bulb(°F)				Peak Total Power(kW) at Indicated Dry Bulb(°F)			
	59	68	75.2	80.6	59	68	75.2	80.8
5	29.7	27.9	27.3	26.9	13.8	15.2	16.1	17.0
10.4	32.0	30.6	30.0	29.7	14.1	15.5	16.2	17.3
15.8	33.9	33	32.7	32.7	14.3	15.6	16.4	17.6
21.2	35.6	34.5	34.2	33.8	14.4	15.8	16.7	17.9
26.6	37.7	37.1	36.8	36.2	14.6	15.9	17	18.2
32	40.5	39.9	39.3	38.9	14.7	16.2	17.3	18.3
37.4	46.7	46.2	45.5	44.9	15	16.5	17.6	18.6
44.6	56.7	56	54.3	53.7	15.6	17.5	18.2	19.2
48.2	61.1	60.3	59.7	59.1	16.2	18	19.1	20.3
53.6	64.8	67.1	66.8	66.2	16.8	18.8	19.8	21
59	69.9	68.9	68.4	67.7	17.3	19.2	20.3	21.5
64.4	74.1	72.8	72	71.4	17.7	19.7	20.9	21.9
69.8	79.5	77.9	76.8	75.8	18	20	21	22.1
75.2	84	81.8	80.4	79.5	18.5	20.3	21.8	22.5

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

6.4 Cooling Capacity for CSU 70 RTN1:

		Air Flow		CFM	7700				8400				9000			
		Ent DB		(^{O}F)	75	80	85	90	75	80	85	90	75	80	85	90
Ambient Temperature (^{O}F)	85	Entering Wet Bulb(^{O}F)	61	TGC	216.1	218.7	228.5	241.3	222	226.7	236.4	249.3	224.4	230.1	244.6	255.8
				SHC	173.7	205.9	221.6	234.1	183.3	218.7	229.3	241.8	193.1	223.2	237.2	248.1
			67	TGC	242.1	245.1	247.8	251.2	249.3	251.1	252.5	254.2	252.4	254.3	255.8	257.7
				SHC	138.3	168.8	197.9	228.5	144.5	175.3	207.5	238.1	146.9	180.2	214	247.8
			73	TGC	255.8	260.7	263.9	267.2	258.7	262.3	267.2	270.2	262	265.5	268.6	271.9
				SHC	95	127.9	154.5	180.2	97.2	130.8	158	183.1	99	132	160.7	189.8
	95		61	TGC	202.6	207.5	217.3	231.7	205.2	214	226.9	239.7	212.4	217.3	233.4	246.2
				SHC	165.6	197.9	210.7	224.8	175.3	205.5	217.8	230.1	185.1	210.7	226.3	238.8
			67	TGC	226.9	230.1	233.4	238.1	236.4	240	241.3	242.9	244.6	246.4	248	249.3
				SHC	132	162.5	193.1	223.6	137.5	170.5	202.8	236.4	142.8	185.5	212.4	246.2
			73	TGC	249.4	252.5	255.6	259	251.3	254	257.9	262.3	253.5	256.8	260	261.6
				SHC	91.2	123	151.6	178.6	93.1	127.2	155.7	185.1	94.9	129.4	159.4	189.8
	105		61	TGC	188.5	193.4	203.1	219.4	195	199.9	216.1	225.9	198.3	206.4	224.3	238.9
				SHC	158	187.6	197	212.8	169	193.9	209.6	219.1	178.8	200.2	217.5	231.7
			67	TGC	216.1	219.4	224.3	225.9	217.8	222.6	229.1	232.4	229.1	232.4	235.6	238.9
				SHC	125	156	186.7	218.9	144	164.1	197.9	209.1	135.5	172.1	207.5	238.9
			73	TGC	245.4	247	248.6	250.3	248.6	250.3	251.9	255.1	251.9	253.5	255.1	256.8
				SHC	86.6	117.8	147.6	175.5	88.6	122	152.6	183.5	90.2	125.9	156.7	188.2
	115		61	TGC	172.3	178.8	192	211.3	177.1	186.9	203.1	219.4	182	193.4	211.3	227.5
				SHC	151.3	173.4	189.2	204.9	160.7	181.3	197	212.8	169	187.6	204.9	220.7
			67	TGC	203.1	206.4	208	211.3	204.8	209.6	212.9	216.1	216.1	219.4	224.3	227.5
				SHC	130	149.8	180.4	211.3	136.5	158.4	191.8	216.1	143	165.8	199.9	227.5
			73	TGC	229.1	232.4	235.6	237.3	235.6	238.9	240.5	242.1	240.5	242.1	243.8	245.4
				SHC	82.1	113.1	143.8	173.9	83.9	118.6	149.5	180.4	8708	121.9	156	190.1
	125		61	TGC	162.5	168.6	184	199.3	167.1	176.3	191.6	207	171.6	182.4	199.3	214.6
				SHC	147.2	163.6	178.4	193.3	151.6	171	185.9	200.7	159.4	177	193.3	208.2
			67	TGC	191.6	194.7	196.2	210.3	193.2	197.8	200.8	203.9	203.9	207	211.6	214.6
				SHC	122.6	141.3	170.2	189.3	128.8	149.5	180.9	199.8	134.9	156.4	188.6	210.3
			73	TGC	216.2	219.2	222.3	223.8	222.3	225.4	226.9	228.4	226.9	228.4	230	231.5
				SHC	77.4	106.7	135.7	164	79.1	111.9	141	170.2	82.8	115	147.2	179.4

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

Heating capacity for CSU 70 RTN1:

Net Capacities(kW)-8400 CFM								
Outdoor Temp(°F) 70% RH	Peak Net Heating(kW) at indicated Dry Bulb(°F)				Peak Total Power(kW) at Indicated Dry Bulb(°F)			
	59	68	75.2	80.6	59	68	75.2	80.8
5	39.6	37.2	36.4	35.8	18.4	20.2	21.4	22.6
10.4	42.6	40.8	40	39.6	18.8	20.6	21.6	23
15.8	45.2	44	43.6	43.6	19	20.8	21.8	23.4
21.2	47.4	46	45.6	45	19.2	21	22.2	23.8
26.6	50.2	49.4	49	48.2	19.4	21.2	22.6	24.2
32	54	53.2	52.4	51.8	19.6	21.6	23	24.4
37.4	62.2	61.6	60.6	59.8	20	22	23.4	24.8
44.6	75.8	75	74.2	73.6	20.8	23.4	24.2	25.6
48.2	81.4	80.4	79.6	78.8	21.6	24	25.4	27
53.6	86.4	89.4	89	88.2	22.4	25	26.4	28
59	93.2	91.8	91.2	90.2	23	25.6	27	28.6
64.4	98.8	97	96	95.2	23.6	26.2	27.8	29.2
69.8	106	103.8	102.4	101	24	26.6	28	29.4
75.2	112	109	107.2	106	24.6	27	29	30

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

6.5 Cooling Capacity for CSU 98 RTN1:

		Air Flow		CFM	11000				12000				13000			
		Ent DB		(^{O}F)	75	80	85	90	75	80	85	90	75	80	85	90
Ambient Temperature (^{O}F)	85	Entering Wet Bulb(^{O}F)	61	TGC	289	292.9	307	326	297.5	304.5	318.8	337.6	301.2	301.2	330.6	347
				SHC	231.3	278.2	298	315.9	245.2	297.2	312.7	324.8	259.5	259.5	320.6	336.4
			67	TGC	327.1	331.4	335.4	340.5	337.6	340.1	342.2	344.7	342	342	347	349.9
				SHC	179.4	224.1	266.6	311.3	188.3	233.6	280.8	325.4	192	192	290.2	319.7
			73	TGC	347	354.2	359	363.7	351.3	356.5	363.7	368.1	356.1	356.1	365.8	370.6
				SHC	116.6	164.2	203.2	240.7	119.3	168.4	208.3	245	121.8	121.8	212.1	254.8
	95		61	TGC	269.3	276.5	290.8	311.8	273	313.2	304.7	323.4	283.6	283.6	314.2	332.9
				SHC	219.3	266.6	285.4	305.9	233.6	276	299.1	317.3	247.9	247.9	308.2	326.6
			67	TGC	315	319.8	324.5	331.4	329.1	331	336.3	338.6	340.9	340.9	345.9	347.9
				SHC	170.2	214.8	259.5	304.1	230.3	278.4	301.8	313.1	233	233	293.9	319.2
			73	TGC	337.8	342.2	346.8	351.9	340.5	344.3	350.1	356.5	343.7	343.7	353.2	355.5
				SHC	110.4	157	199	238.4	113.3	163.2	204.8	247.9	115.8	115.8	210.4	254.8
	105		61	TGC	248.6	255.8	270.1	293.9	258.1	265.3	289	303.3	262.9	262.9	300.8	322.3
				SHC	208.3	248.7	262.4	285.2	224.3	257.7	280.6	294.3	238.6	238.6	295.3	311.9
			67	TGC	289	293.9	300.8	303.3	291.4	298.5	308	312.8	308	308	317.6	322.3
				SHC	159.9	205.4	250.2	297.4	187.8	217.1	266.6	306.9	175.4	175.4	280.8	316.1
			73	TGC	331.8	334.3	336.6	338.9	336.6	338.9	341.4	346.1	341.4	341.4	346.1	348
				SHC	103.9	149.5	193	233.8	106.6	155.5	200.3	245.6	109.1	109.1	206.3	252.3
	115		61	TGC	234.8	244.3	268.1	291.9	242	256.3	280.1	303.9	249.2	249.2	274.5	315.7
				SHC	198.4	230.7	253.9	276.9	212.1	239.6	262.4	285.2	224.3	224.3	251	289.9
			67	TGC	290.1	294.7	297	301.9	292.4	299.6	302.2	309	309	309	320.8	329.1
				SHC	192.9	221.9	266.5	291	202.3	234.4	283.2	287	216.8	216.8	290.1	294
			73	TGC	308	312.8	317.6	320	317.6	322.3	324.6	327.1	324.6	324.6	329.4	331.8
				SHC	97.1	142.5	187.6	231.5	102.8	150.6	195.9	240.9	105.4	105.4	205.4	255.2
	125		61	TGC	215.2	224.3	247.1	266.8	221.9	235.7	258.5	281.5	228.9	228.9	270.1	292.9
				SHC	189.9	201	223.2	242.2	203.2	232	254.3	276.5	214.8	214.8	255.3	285.5
			67	TGC	258.5	263.1	265.4	270.1	260.8	267.8	272.2	276.9	276.9	276.9	288.3	295.8
				SHC	146.4	187.8	230.9	254.4	168.4	199.9	246.9	262.1	178.3	178.3	258.3	286.4
			73	TGC	295.2	299.7	304.3	306.6	304.3	308.9	311.1	313.4	311.1	311.1	315.7	318
				SHC	92.4	136.1	179.4	221.6	95	143.9	187.4	230.9	100.6	100.6	196.5	244.6

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

Heating capacity for CSU 98 RTN1:

Outdoor Temp(°F) 70% RH	Net Capacities(kW)-12000 CFM							
	Peak Net Heating(kW) at indicated Dry Bulb(°F)				Peak Total Power(kW) at Indicated Dry Bulb(°F)			
	59	68	75.2	80.6	59	68	75.2	80.8
5	59.4	55.8	54.6	53.8	27.6	30.4	32.2	34
10.4	64	61.2	60	59.4	28.2	31	32.4	34.6
15.8	67.8	66	65.4	65.4	28.6	31.2	32.8	35.2
21.2	71.2	69	68.4	67.6	28.8	31.6	33.4	35.8
26.6	75.4	74.2	73.6	72.4	29.2	31.8	34	36.4
32	81	79.8	78.6	77.8	29.4	32.4	34.6	36.6
37.4	93.4	92.4	91	89.8	30	33	35.2	37.2
44.6	107.4	105	104.8	104.2	31.2	34.8	36.4	38.4
48.2	122.2	120.6	119.4	118.2	32.4	36	38.2	40.6
53.6	129.6	134.2	133.6	132.4	33.6	37.6	39.6	42
59	139.8	137.8	136.8	135.4	34.6	38.4	40.6	43
64.4	148.2	145.6	144	142.8	35.4	39.4	41.8	43.8
69.8	159	155.8	153.6	151.6	36	40	42	44.2
75.2	168	163.6	160.8	159	37	40.6	43.6	45

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

7. Electrical Data

Model	Power Supply			Compressor				Evaporator fan Motor			Condenser fan motor		
	MCA	TOCA	MFA	STC	RNC	IPT	Qty	RNC	IPT	Qty	RNC	IPT	Qty
CSU 26 RTN1	26	32	42	142	16.4	8.47	1	3.7	1.9	1	1.7	0.85	1
CSU 35 RTN1	33	40	55	147	29.5	10.8	1	3.7	1.9	1	2.7	1.3	1
CSU 53 RTN1	56	67	89	110	32.8	16.8	2	9.2	4.65	1	1.7	0.85	2
CSU 70 RTN1	72	85	115	140	42.8	21.6	2	11.8	5.5	1	3.3	1.7	2
CSU 98 RTN1	91	109	146	197	55.2	27.4	2	13	7.0	1	6.5	3.4	2

MCA: Min. Current Amps. (A)
TOCA: Total Over-Current Amps. (A)
MFA: Max Fuse Amps. (A)
STC: Starting Current (A)
RNC: Running Current (A)
IPT: Input (kW)

Note:

1. **The starting current is indicated for each compressor motor.**
2. **The maximum currents of the compressor can be estimated as follows:**

	One Compressor unit	Two Compressor unit
Max. current	(RNC x Max. IPT)/IPT	(RNC x Max. IPT)/IPT
Max. instantaneous current	STC	(STC+RNC x 0.5 x MAX.IPT)/IPT

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

STC, IPT, RNC: Compressor data from the above table
The data in the compressor motor column shall indicate the respective values of the refrigeration cycle.

Voltage imbalance between phases to be less than 2%.

8. Motor Protection Class

Model	Compressor	Indoor fan motor		Indoor coil	Outdoor fan motor		Outdoor coil
	Motor protection	Insulation class	Safe class	Pressure	Insulation class	Safe class	Pressure
CSU 26 RTN1	IOP	F	IP54	250psi	F	IP54	450psi
CSU 35 RTN1	IOP	F	IP54	250psi	F	IP54	450psi
CSU 53 RTN1	IOP	F	IP54	250psi	F	IP54	450psi
CSU 70 RTN1	IOP	F	IP54	250psi	F	IP54	450psi
CSU 98 RTN1	IOP	F	IP54	250psi	F	IP54	450psi

IOP: Internal Overload Protection

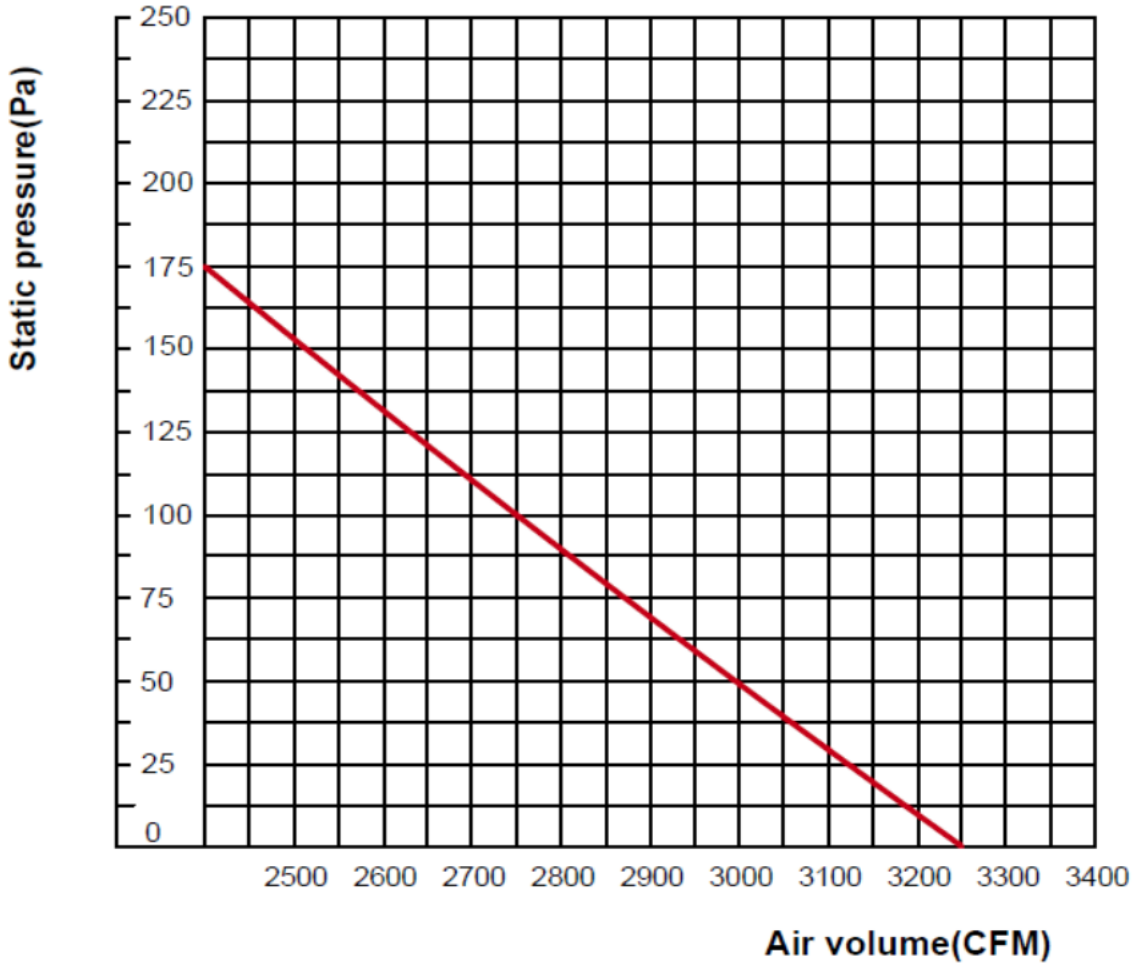
9. Parameter and Pressure Chart for Air Flow

9.1 Model: CSU 26 TRN1

Parameter table for indoor unit air volume:

Static pressure (Pa)	0	20	50	60	75	100	125	150	175
Air flow (CFM)	3240	3149	2996	2941	2886	2782	2664	2540	2411
Brake power (kW)	1.83	1.78	1.70	1.66	1.63	1.58	1.53	1.47	1.41
Fan speed(rpm)	1260	1265	1268	1271	1274	1277	1281	1285	1287

Curve diagram of static pressure, air flow volume



Parameter table for outdoor unit air volume:

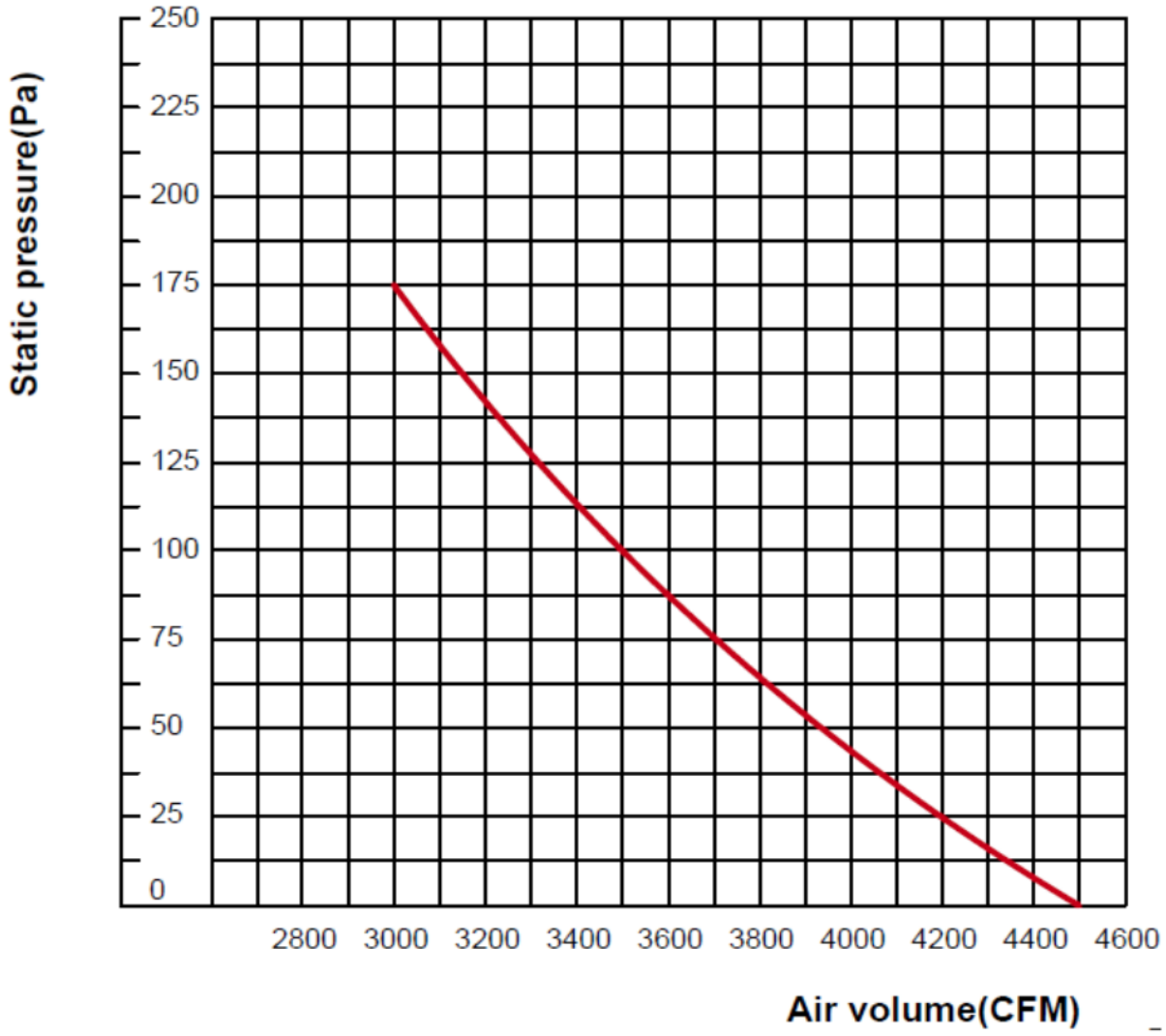
Model	Static (Pa)	Air Flow (CFM)	Brake Power (kW)	Fan speed (rpm)
CSU 26 RTN1	0	5880	0.78	900
	10	5647	0.79	889
	20	5411	0.80	875

9.2 Model: CSU 35 RTN1

Parameter table for indoor unit air volume:

Static pressure (Pa)	0	20	50	75	100	125	150	175
Air flow (CFM)	4298	4156	3929	3756	3579	3382	3218	30201
Brake power (kW)	2.18	2.1	2.02	1.96	1.86	1.79	1.71	1.62
Fan speed(rpm)	1000	1004	1006	1011	1014	1016	1020	1021

Curve diagram of static pressure, air flow volume



Parameter table for outdoor unit air volume:

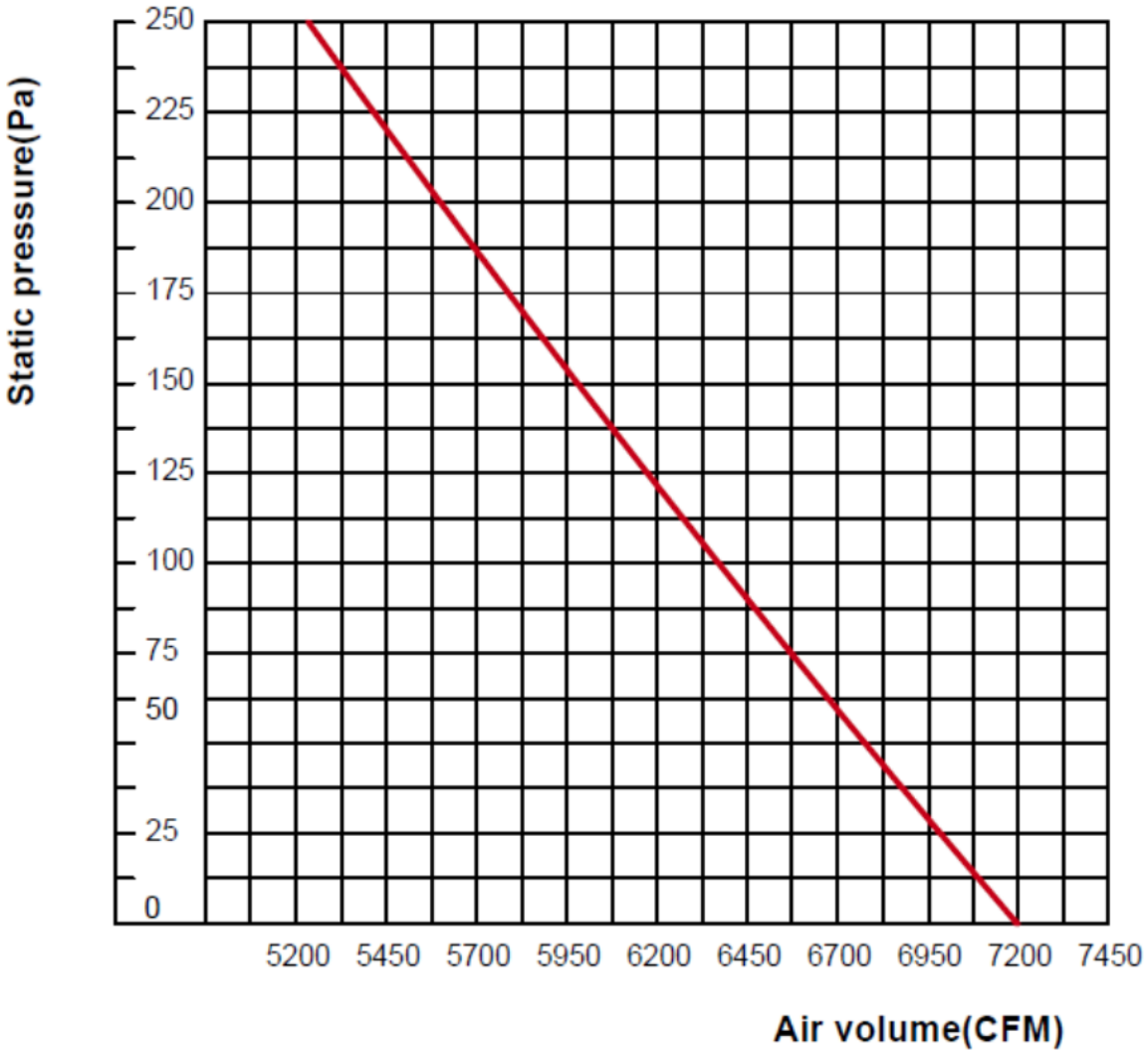
Model	Static (Pa)	Air Flow (CFM)	Brake Power (kW)	Fan speed (rpm)
CSU 35 RTN1	0	7060	0.78	935
	10	6765	0.79	926
	20	6471	0.80	918

9.3 Model: CSU 53 RTN1

Parameter table for indoor unit air volume:

Static pressure (Pa)	0	50	75	90	125	150	200	250
Air flow (CFM)	7209	6675	6575	6400	6150	6044	5639	5227
Brake power (kW)	5.11	4.85	4.71	4.65	4.45	4.32	4.08	3.82
Fan speed(rpm)	1029	1029	1030	1031	1031	1032	1033	1034

Curve diagram of static pressure, air flow volume



Parameter table for outdoor unit air volume:

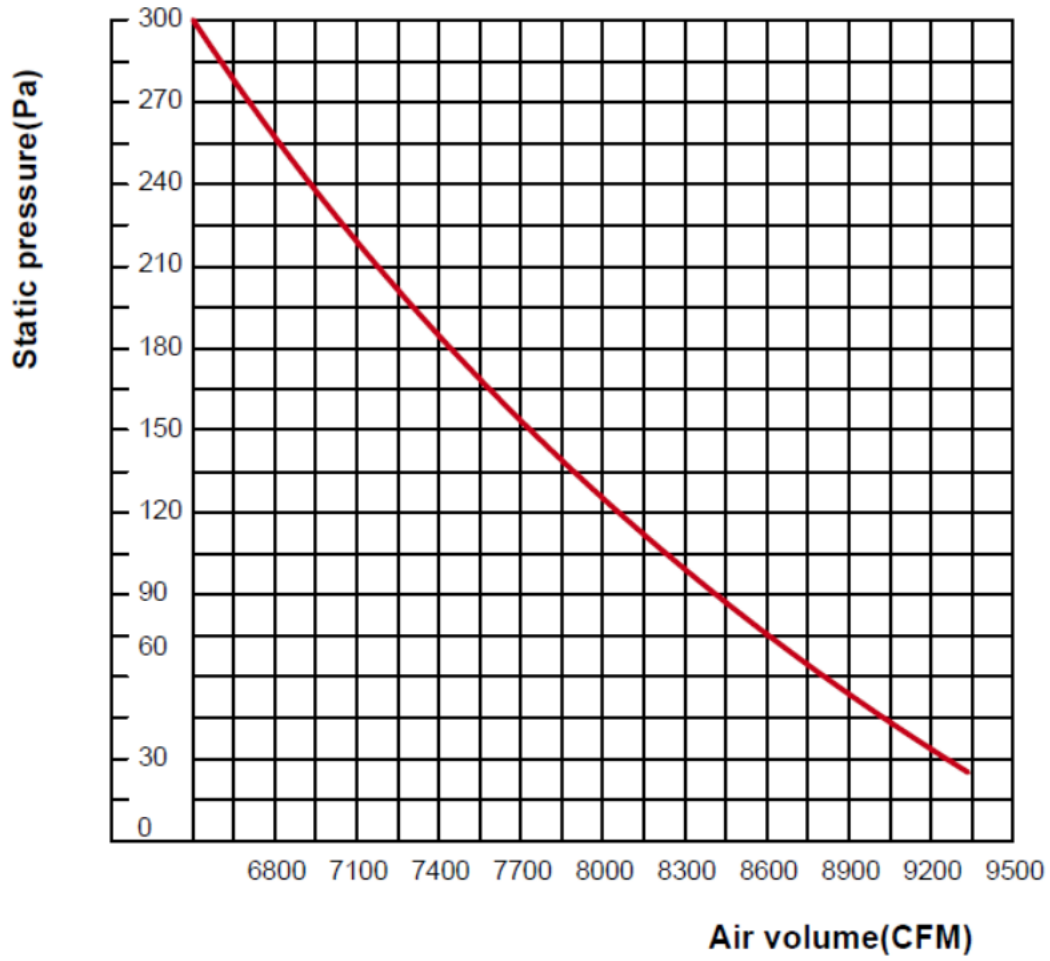
Model	Static (Pa)	Air Flow (CFM)	Brake Power (kW)	Fan speed (rpm)
CSU 53 RTN1	0	11000	0.78 x2	935
	10	9800	0.79 x2	926
	20	9600	0.80x2	918

9.4 Model: CSU 70 RTN1

Parameter table for indoor unit air volume:

Static pressure (Pa)	25	50	75	100	125	150	200	250	300
Air flow (CFM)	9296	8782	8452	8289	8179	7826	7388	6955	6555
Brake power (kW)	5.86	5.73	5.59	5.44	5.50	5.27	4.98	4.66	4.32
Fan speed(rpm)	818	819	819	820	820	821	822	823	825

Curve diagram of static pressure, air flow volume:



Parameter table for outdoor unit air volume:

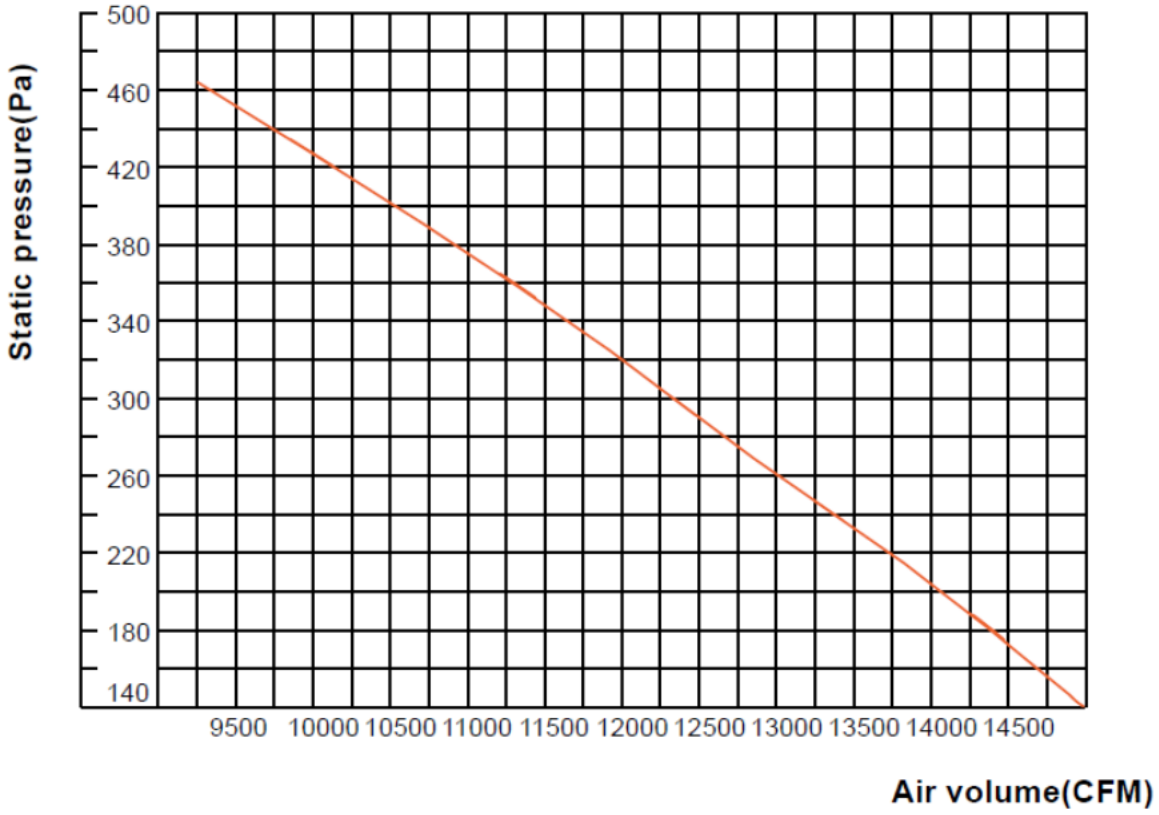
Model	Static (Pa)	Air Flow (CFM)	Brake Power (kW)	Fan speed (rpm)
CSU 70 RTN1	0	14000	1.3 x 2	940
	10	13500	1.4 x 2	938
	20	13100	1.5 x 2	930

9.5 Model: CSU 98 RTN1

Parameter table for indoor unit air volume:

Static pressure (Pa)	150	175	200	225	250	275	300	325	350
Air flow (CFM)	14664	14464	14119	13743	13230	12729	12365	11957	11489
Brake power (kW)	8.91	8.59	8.3	8.01	7.71	7.40	7.07	6.74	6.39
Fan speed(rpm)	775	775	776	777	778	779	780	782	782

Curve diagram of static pressure, air flow volume:



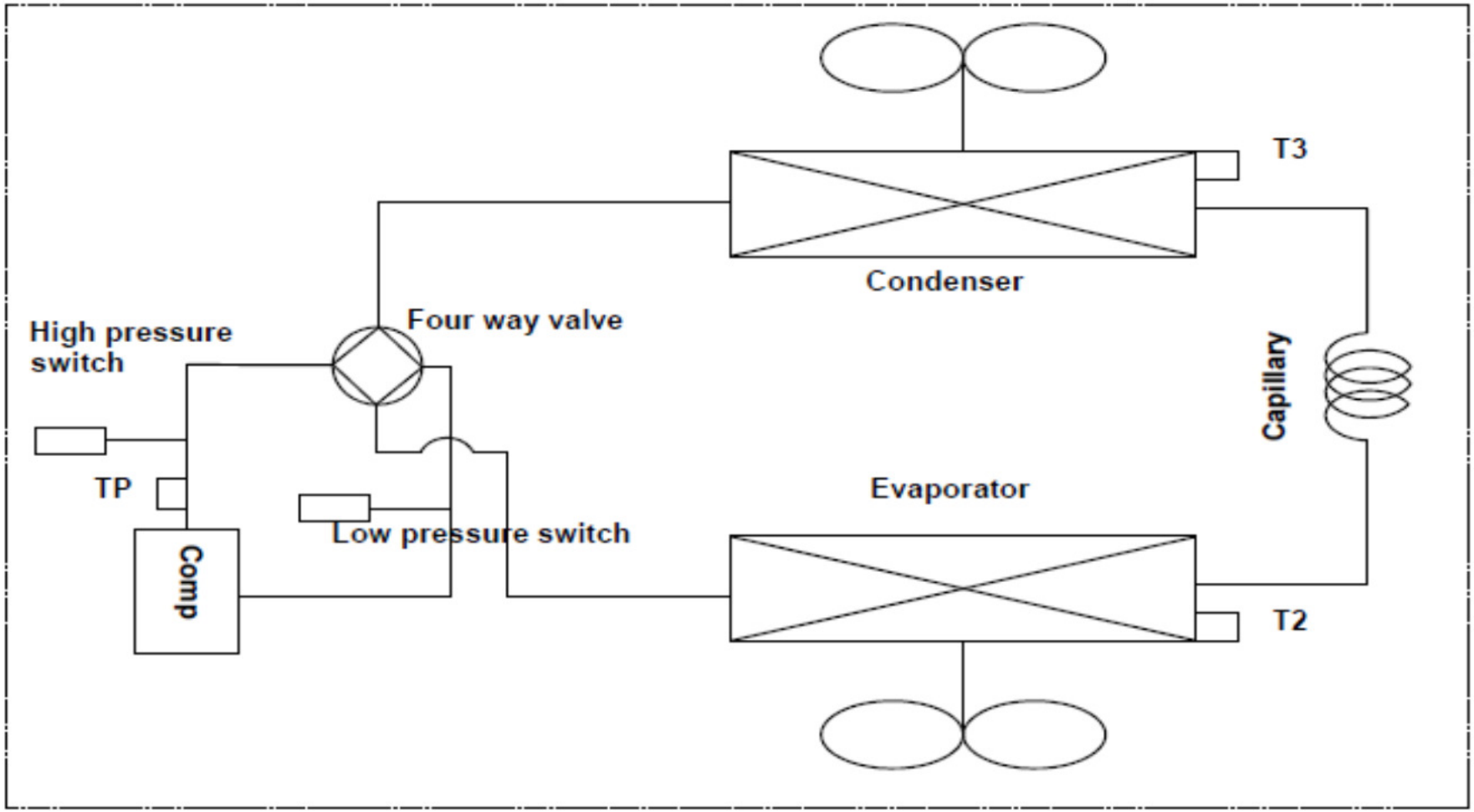
Parameter table for outdoor unit air volume:

Model	Static (Pa)	Air Flow (CFM)	Brake Power (kW)	Fan speed (rpm)
CSU 98 RTN1	0	14000	1.3 x 2	940
	10	13500	1.4 x 2	938
	20	13100	1.5 x 2	930

10.Refrigerant Cycle Diagram

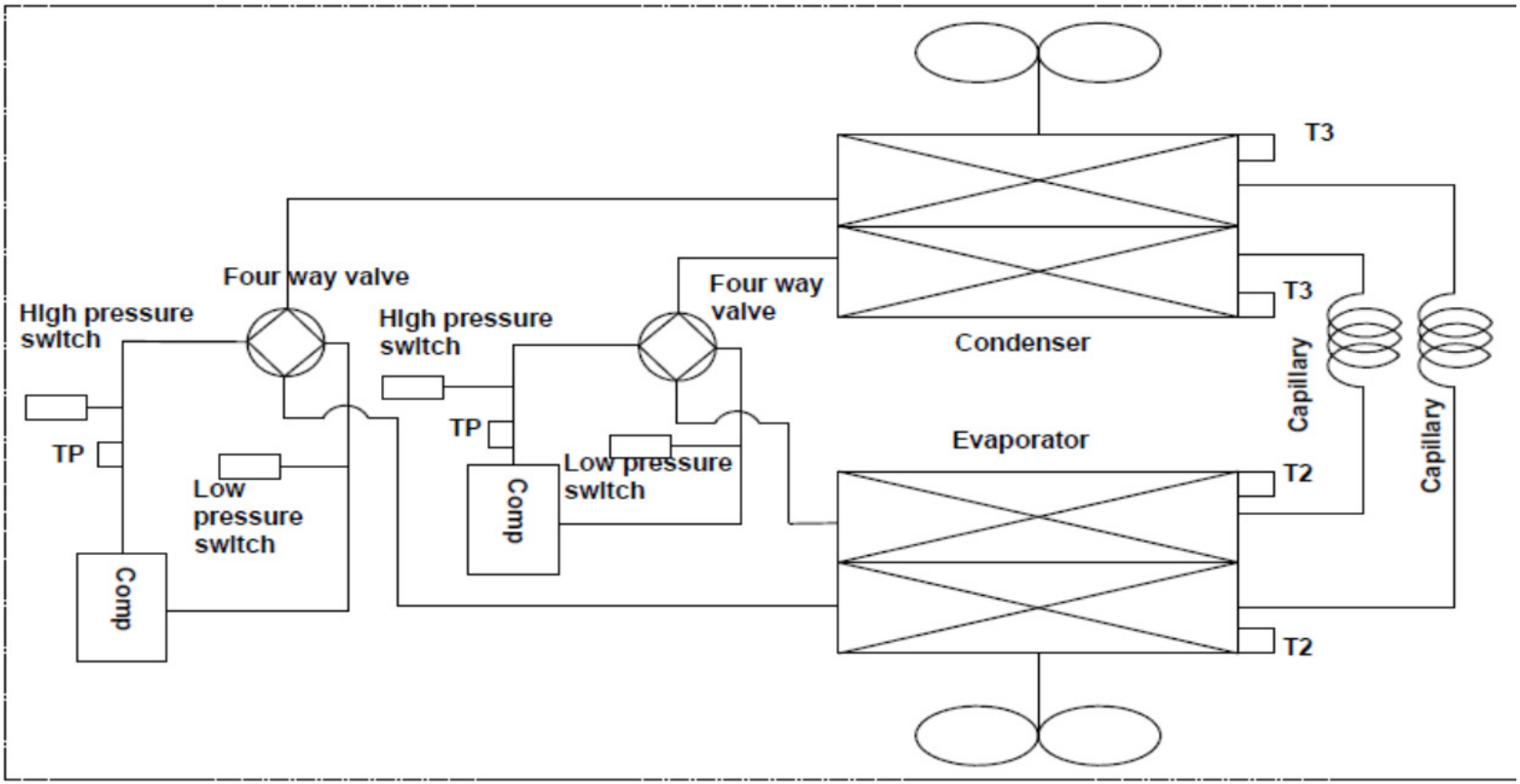
10. 1. CSU 26 RTN1 & CSU 35 RTN1:

Cooling and Heating type:



10. 2. CSU 53 RTN1; CSU 70 RTN1; CSU 98 RTN1:

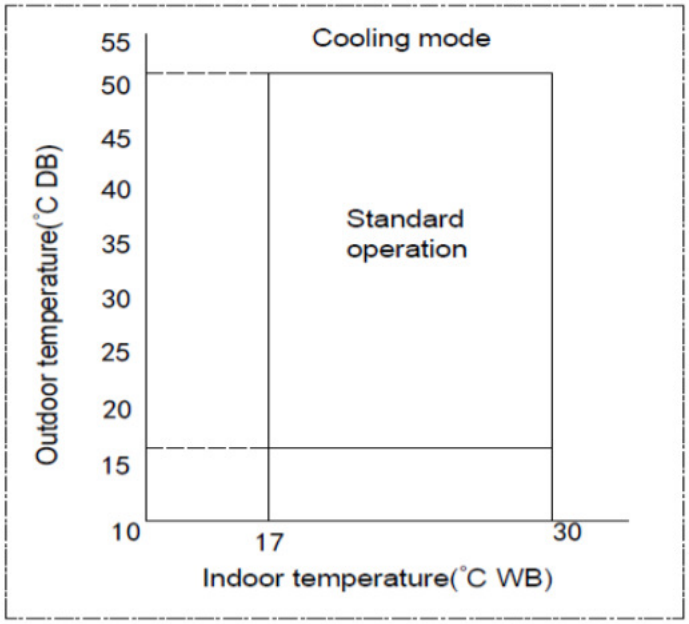
Cooling and Heating type:



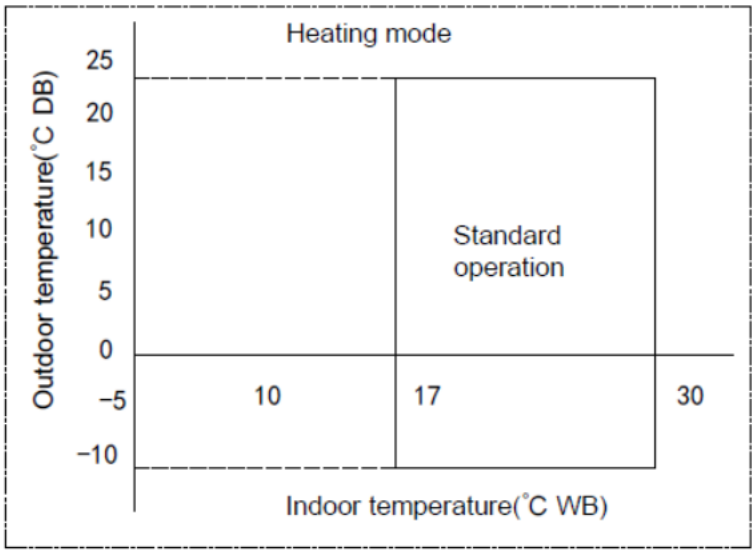
TP: Compressor discharge temperature sensor in system A and B
T2: Indoor coil temperature sensor in system A and B
T3: Outdoor coil temperature sensor in system A and B

11.Operation Limit

11.1 Cooling and heating



Mode \ Temperature	Outdoor temperature	Indoor temperature
Cooling mode	18℃～52℃	17℃～30℃

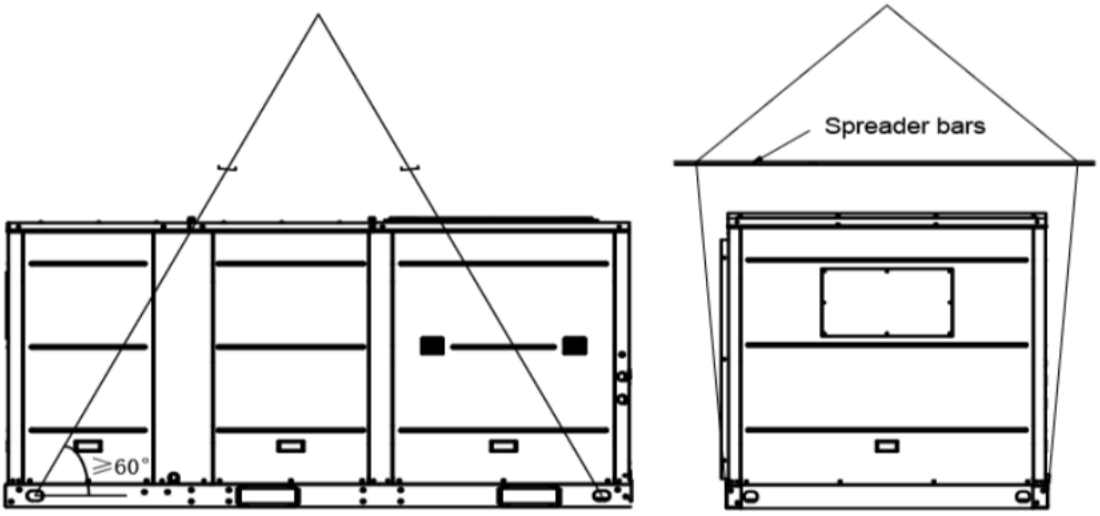


Mode \ Temperature	Outdoor temperature	Indoor temperature
Heating mode	-10℃～24℃	17℃～30℃

12.Installation

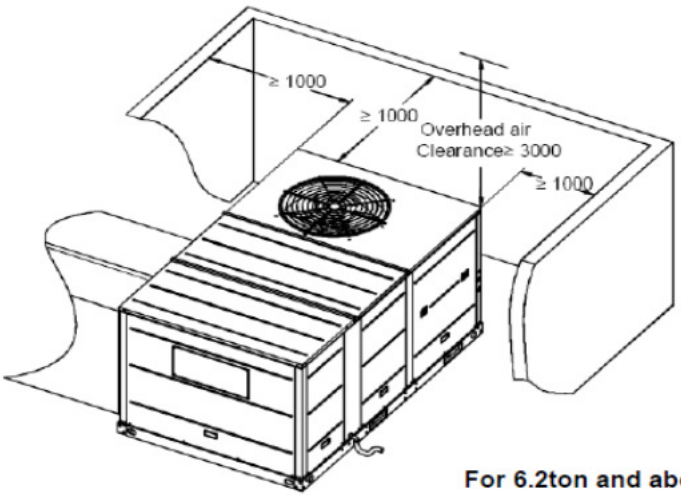
12.1 Lifting

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 around at the hook to prevent danger by cable slip because of weight unbalance.
During lifting, no-one is to stand under the unit.

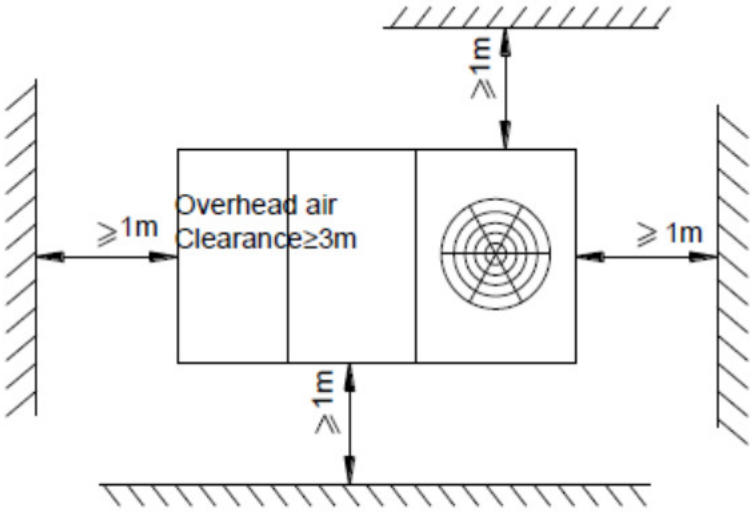


12.2 Service Space

1. The recommended clearances for single-unit installations are illustrated in following *Fig.*
These minimum requirements are not only an important consideration when determining unit placement, but they are also essential to ensure adequate serviceability, maximum capacity, and peak operating efficiency. 2. Any reduction of the unit clearances indicated in these illustrations may result in condenser coil starvation or the recirculation of warm condenser air. Actual clearances which appear to be inadequate should be reviewed with a local engineer.



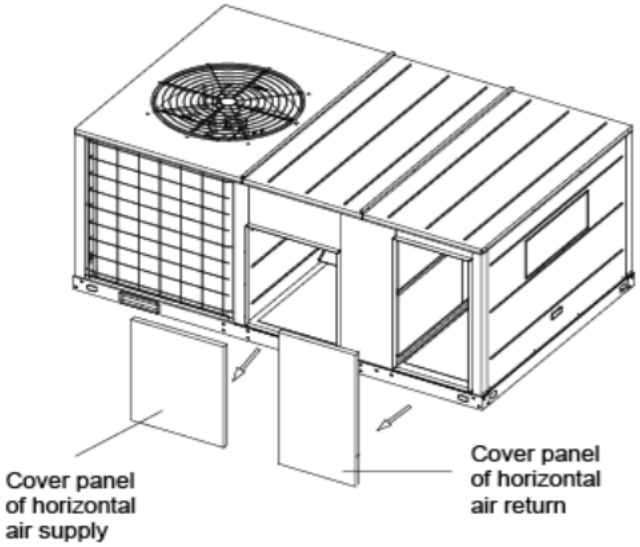
For 6.2ton and above

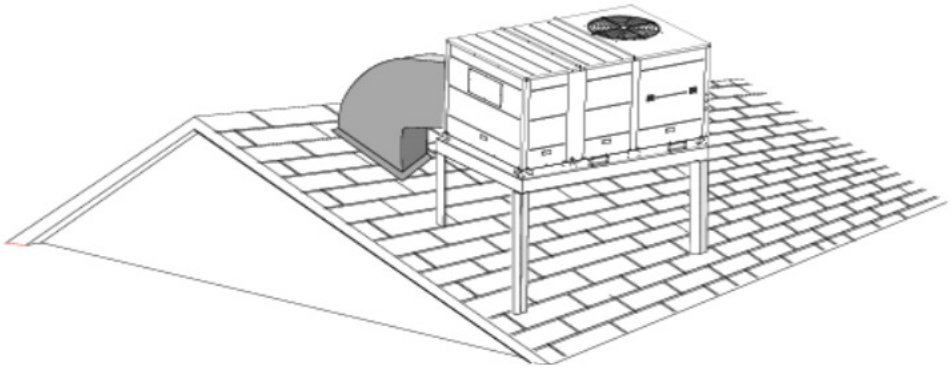


12.3 Rooftop -- units

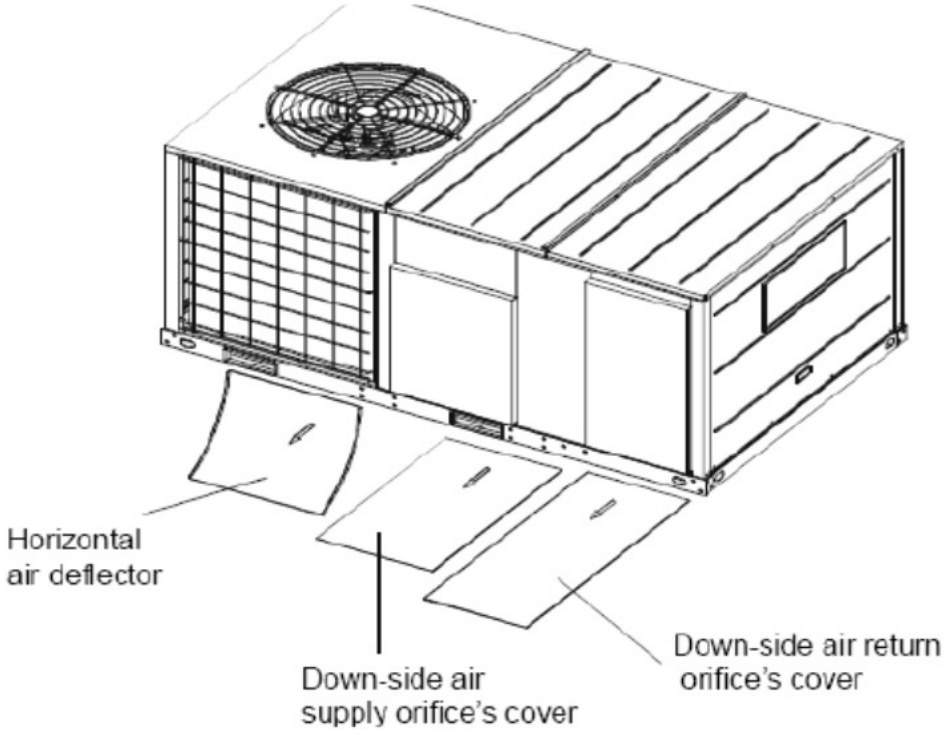
For roof top applications using a field fabricated frame and ducts, according to the following procedure:
1) The frame must be located and secured by bolting or welding to the roof. Flashing is required.
2) The hole in the roof must be prepared in advance of installing the unit.
3) Secure the ducts to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

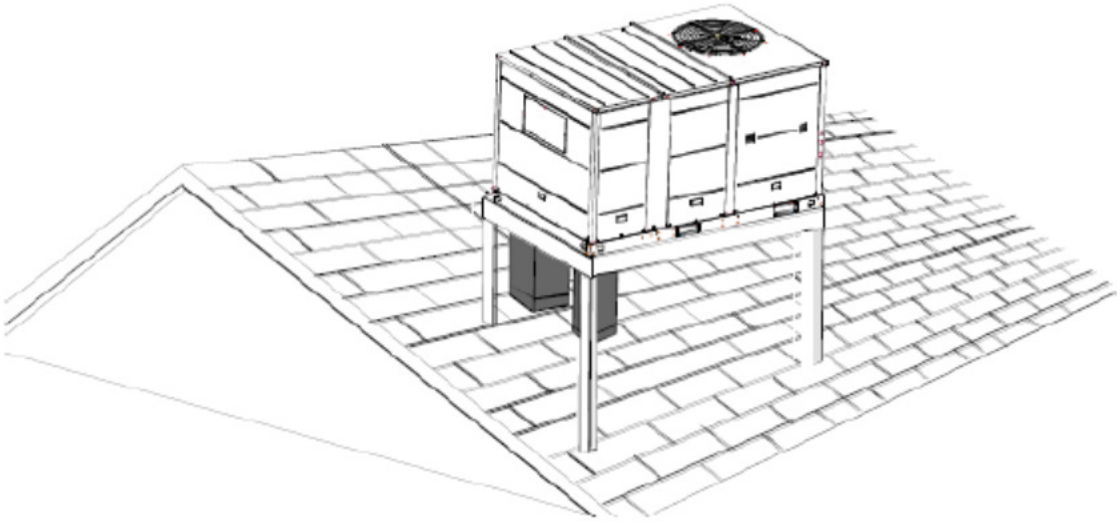
Typical rooftop application with frame:

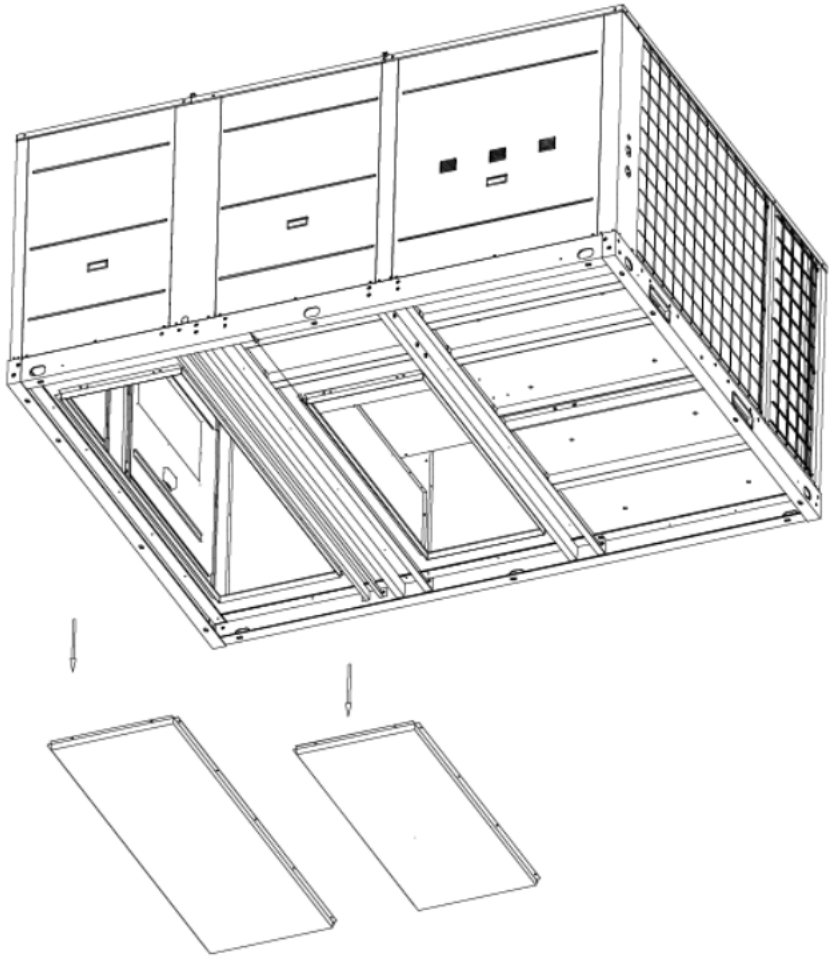


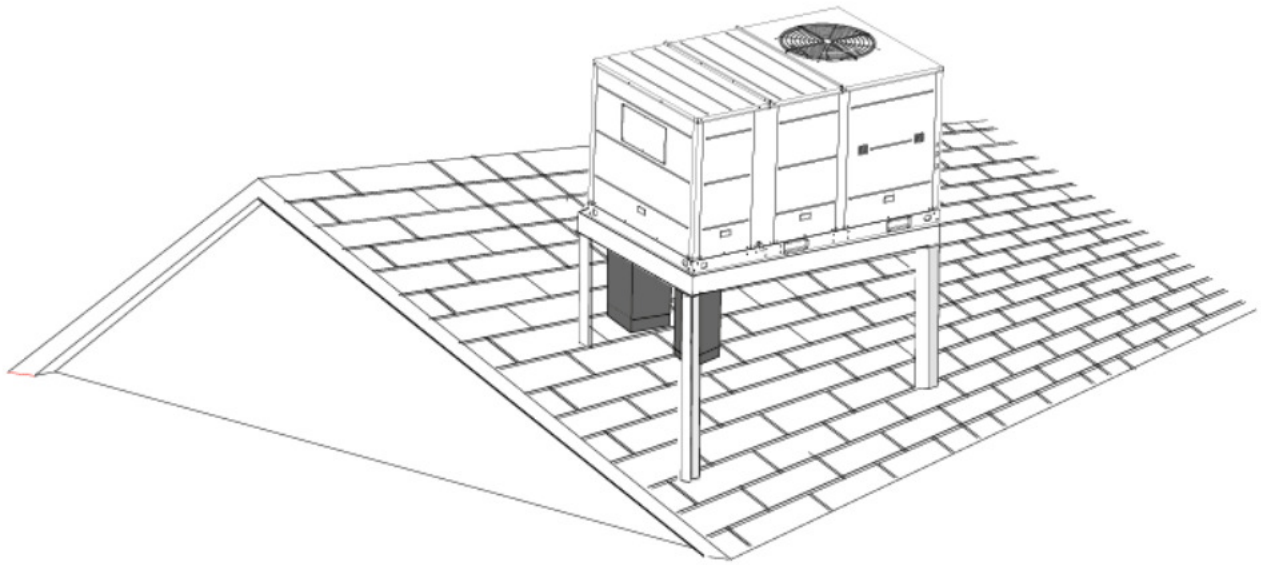


Typical rooftop application with frame:





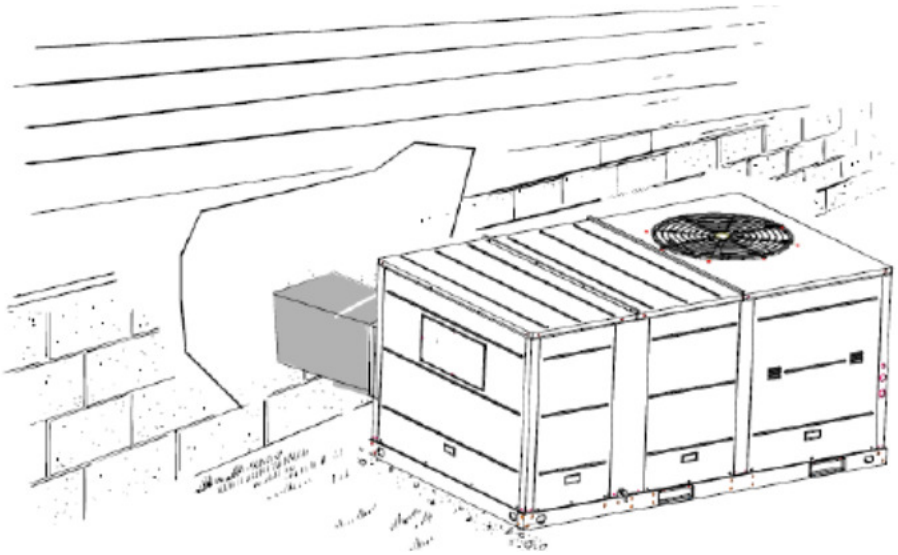




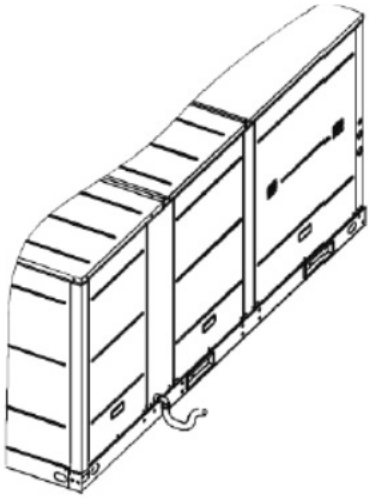
12.4 Ground Level -- Horizontal Units

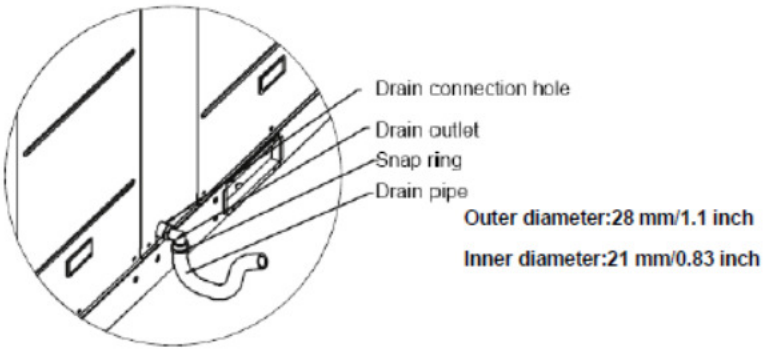
For ground level installations, the unit should be positioned on a pad the size of the unit or larger. The unit must be level on the pad. The pad must not come in contact with the structure. Be sure the outdoor portion of the supply and return air ducts are as short as possible.
Installation according to the following procedure:
1) Place the unit on the pad.
2) Attach the supply and return air ducts to the unit.
3) Insulate any ductwork outside of the structure with at least 2 inches of insulation and weatherproofing. There must be a weatherproof seal where the duct enters the structure.
4) Complete the installation according to the instructions.

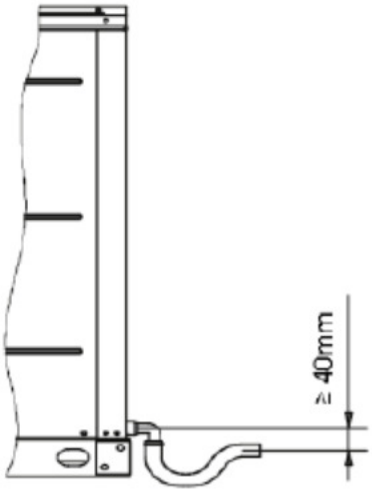
Typical ground level application:



12.5 Installation of condensate drain piping



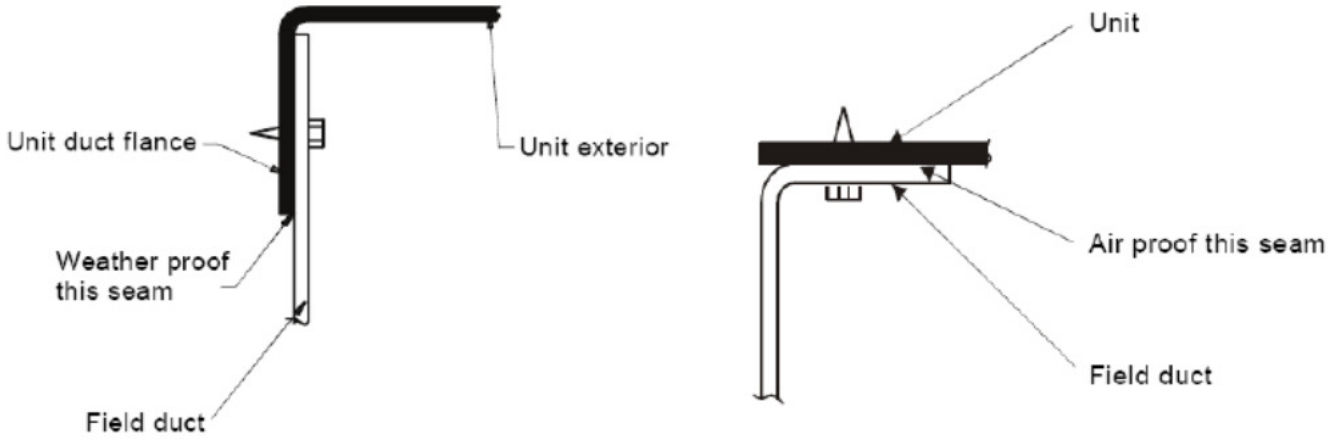




12.6 Ductwork

1. Attaching horizontal ductwork to unit

1) All conditioned air ductwork should be insulated to minimize heating and cooling duct losses. Use a minimum of two (2) inches of insulation with a vapor barrier. The outside ductwork must be weatherproofed between the unit and the building.
2) When attaching ductwork to a horizontal unit, provide a flexible watertight connection to prevent noise transmission from the unit to the ducts. The flexible connection must be indoors and made out of heavy canvas.
Note:
Do not draw the canvas taut between the solid ducts.

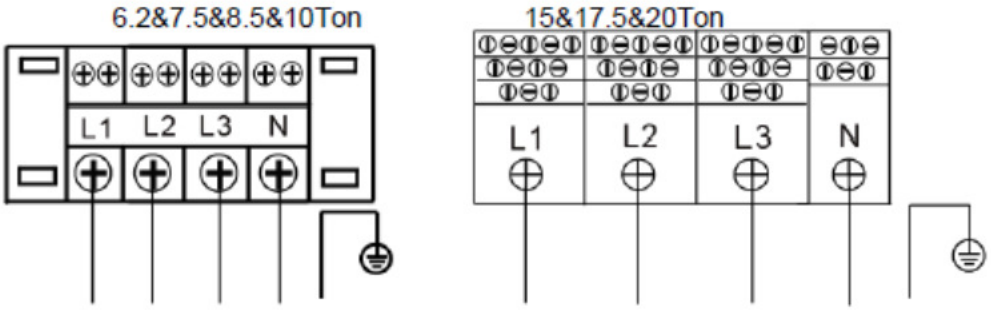


2. Attaching down flow ductwork to roof curb

Supply and return air flanges are provided on the roof curb for easy duct installation. All ductwork must be run and attached to the curb before the unit is set into place.
Follow these guidelines for ductwork construction:
1) Connections to the unit should be made with three-inch canvas connectors to minimize noise and vibration transmission.
2) Elbows with turning vanes or splitters are recommended to minimize air noise and resistance.
3) The first elbow in the ductwork leaving the unit should be no closer than two feet from the unit, to minimize noise and resistance.

12.7 Wiring provision

Field wiring
The units are internally wired at the factory according to generally accepted electrical technology.
Required field wiring
Main power wiring to the unit control wiring between the control center and the unit, and earth wiring are required in the field.



Required components

The following components are required: main power fuse, conduit coupling, and field supplied room thermostat.
Wire and fuse size selection for main power source.
Wire and fuse size should be selected in accordance with national standard, taking the designed maximum current shall be the total of the compressor maximum current, condenser fan motor current and evaporator fan motor current (refer to “electrical data”).
Wire size between room thermostat and unit.
The wire size between the room thermostat and the unit should be determined according to the following table, because the 24V power source is applied to the control circuit.

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

13.Wired Controllers

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

1. SAFETY PRECAUTIONS

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

Identifier description

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

■ Icon description

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

Warning

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

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

2. SUMMARIZE

Usage condition:

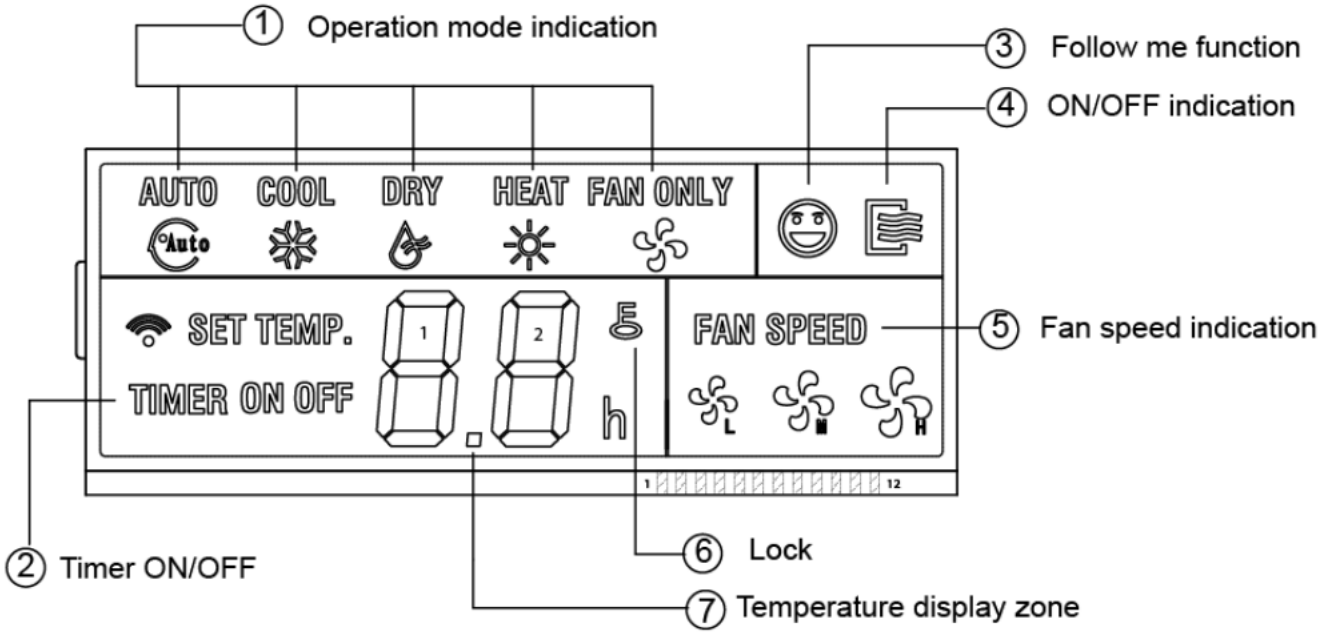
- Power supply: 5V DC.
- Operation temperature: -15□-+43□.
- Operation humidity: 40%-90%, RH.

3. FUNCTION SUMMARY

Main function:

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

4. NAME AND FUNCTION OF INDICATORS ON THE CONTROLLER



- **Operation mode indication:**

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

- **Timer :**

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

- **Follow me function:**

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

- **ON/OFF indication :**

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

- **Fan speed indication :**

There are four fan modes: low, middle, high, and auto. Some models have no middle fan, and then the middle fan is seen as high speed.

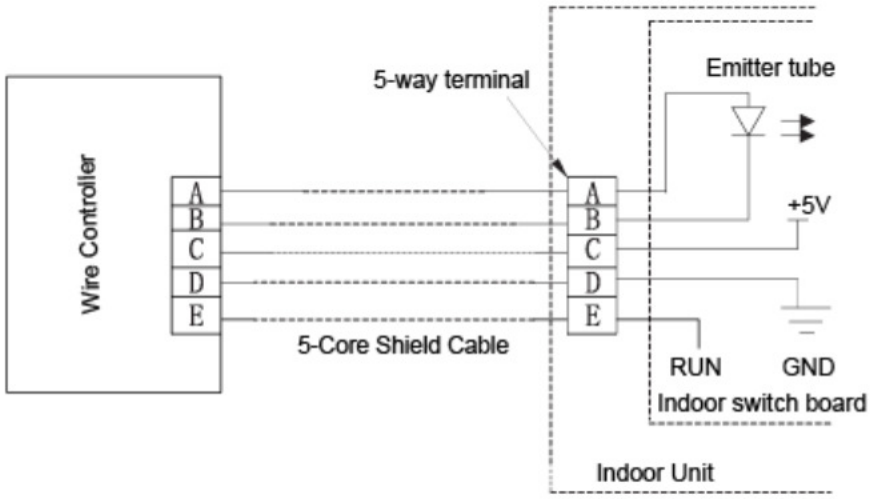
- **Lock:**

When the “LOCK " button is pressed, the icon appears and other buttons are disabled. When pressed again, the icon disappears.

- **Temperature display zone:**

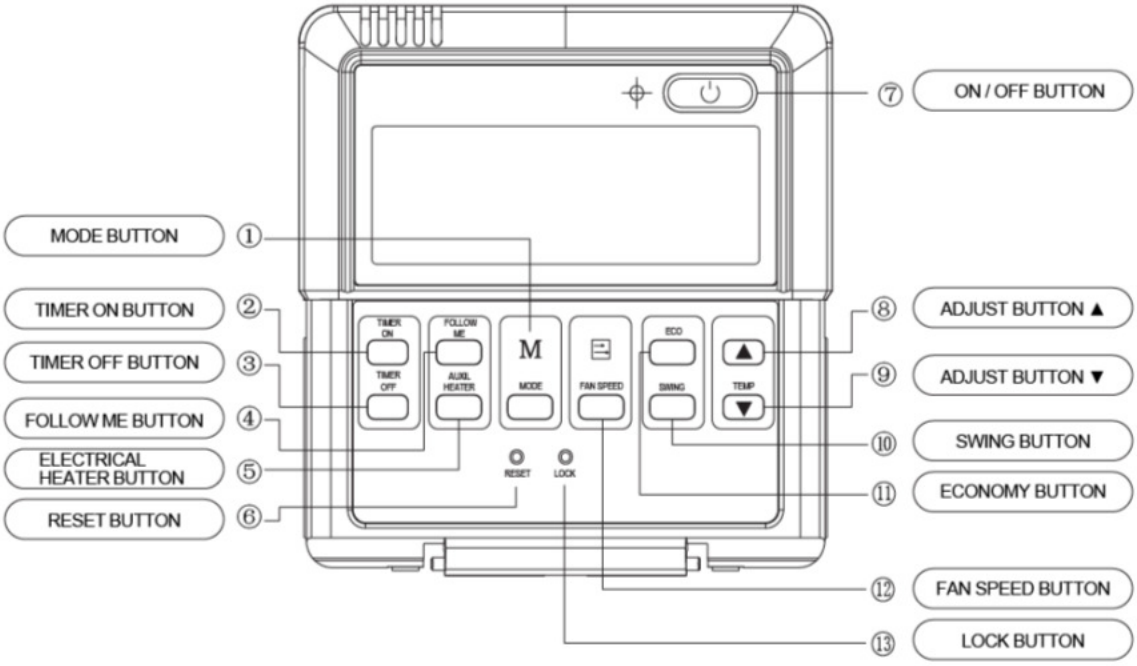
Generally it displays setting temperature; it can be adjusted by press temperature button ▲ and ▼. But in fan mode, there is no display.

5. INSTALLATION METHOD



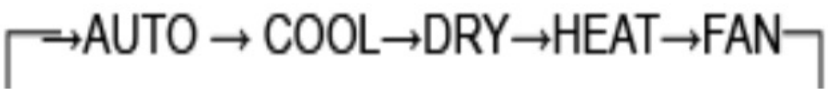
When a wired controller is needed, a small 5-way terminal should be added. Fix an infrared emitter with near the receiver on the switch board. Connect its anode and cathode to A and B, and +5V, GND, RUN to C, D, E on the switch board.

6. NAME AND OPERATION OF THE BUTTON ON THE WIRE CONTROLLER



- **Mode button:**

When pressing this button, the operation mode changes in the following sequence:



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

- **Timer on button :**

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

- **Timer off button:**

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

- **Follow me button:**

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

- **Electrical heater button :**

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

- **Reset button(hidden):**

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

- **ON/OFF button:**

When in off state, press this button, the indicator is on, the wire controller enters into on state, and sends setting information to indoor PCB. When in on state, press this button, the indicator is off, and sends instruction. If timer on or timer off has been set, it cancels this setting then sends instruction to stop the machine.

- **Adjust button ▲:**

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

- **Adjust button ▼ :**

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

- **Swing button:**

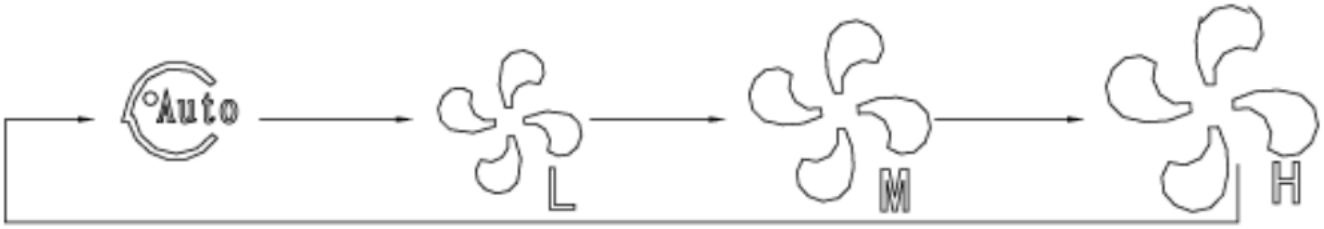
First pressing: start swing function; second pressing: stop swing. (Match to some model with swing function).

- **Economy operation button:**

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

- **Fan speed button:**

Press this button consecutively; the fan speed will cycle as follows:



- **Lock button (hidden):**

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

7. USING METHOD

AUTOMATIC OPERATION

Connect to power, indoor operation lamp flashes.

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

COOL/HEAT/FAN MODE OPERATION

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

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

DRY OPERATION

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

TIMER SETTING

Timer on only:

- Press “TIME ON” button, it displays "SET" on LCD, and displays " H " and "ON" , awaiting timer on setting.
- Press “timer" on button repeatedly to adjust time setting.
- If press this button and hold down, the time will increase at 0.5h, after 10h, it increases at 1h.
- After setting 0.5 second, the wire controller sends timer on information, it is finished.

Timer off only:

- Press "TIME OFF " button, it displays "SET" on LCD, and display " H " and ON, awaiting timer on setting.
- If press this button and hold down, the time will increase at 0.5h, after 10h, it increases at 1h.
- After setting 0.5 second, the wire controller sends timer off information, it is finished.

TIMER ON AND TIMER OFF BOTH

- Set timer on time as the corresponding step 1 and 2.
- Set timer off time as the corresponding step 1 and 2.
- Timer off time must be longer than timer on time.
- 0.5 second after setting, the wire controller sends information, the setting is finished.

CHANGE TIMER

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

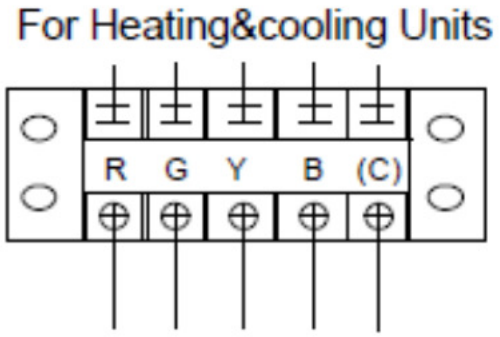
NOTE: The timer time is relative time, that is delay after setting time (i.e: setting time is 8:05 A,M). So when timer is set, the standard time cannot be adjusted

14. TECHNICAL INDICATION AND REQUIREMENT

EMC and EMI comply with the CE certification requirements.

16.2 Field wiring

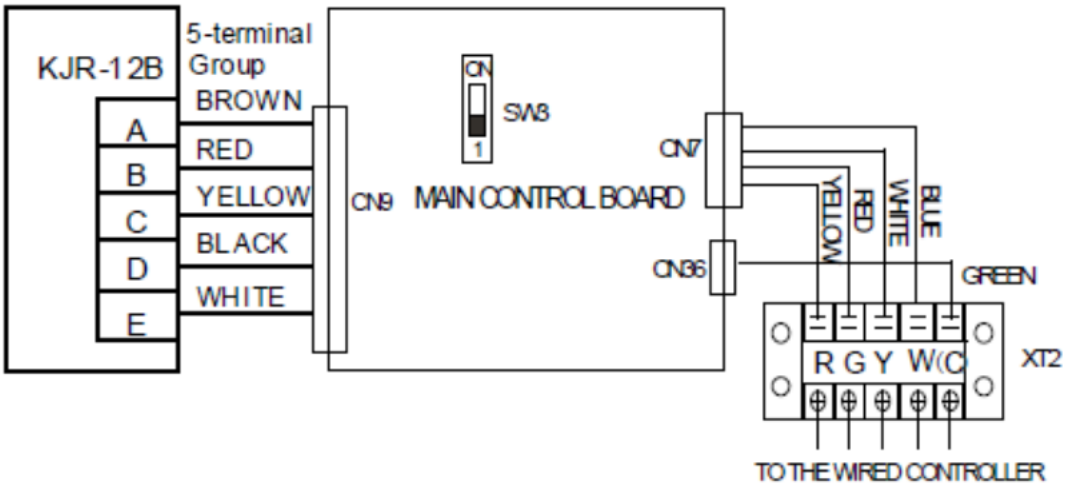
To connect wired controller



Dial code setting

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

For Heating& Cooling Units



Remark:
Two stage capacity output controlling is optional

15.Error Code

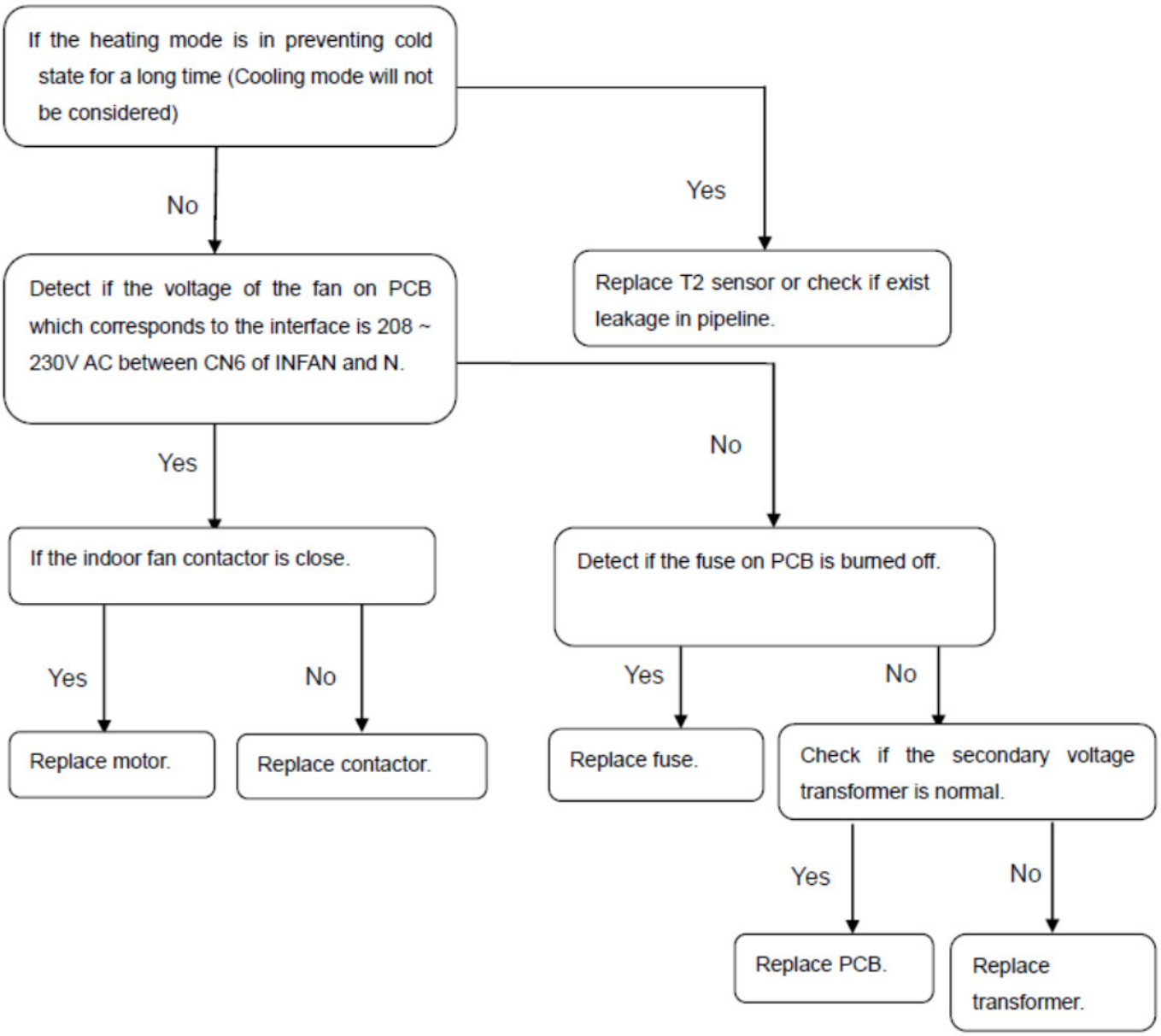
Type	Content	Code	Remarks
Normal	Standby	**--**	
Normal	Constraint cool	**On**	
Normal	Run	**10.**	Manual reset
Error	Compressor phase sequence error or phase default	**E0**	Manual reset
Error	Outdoor coil temp. sensor in sys. A error	**E1**	Manual reset
Error	Outdoor coil temp. sensor in sys. B error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

16. Troubleshooting

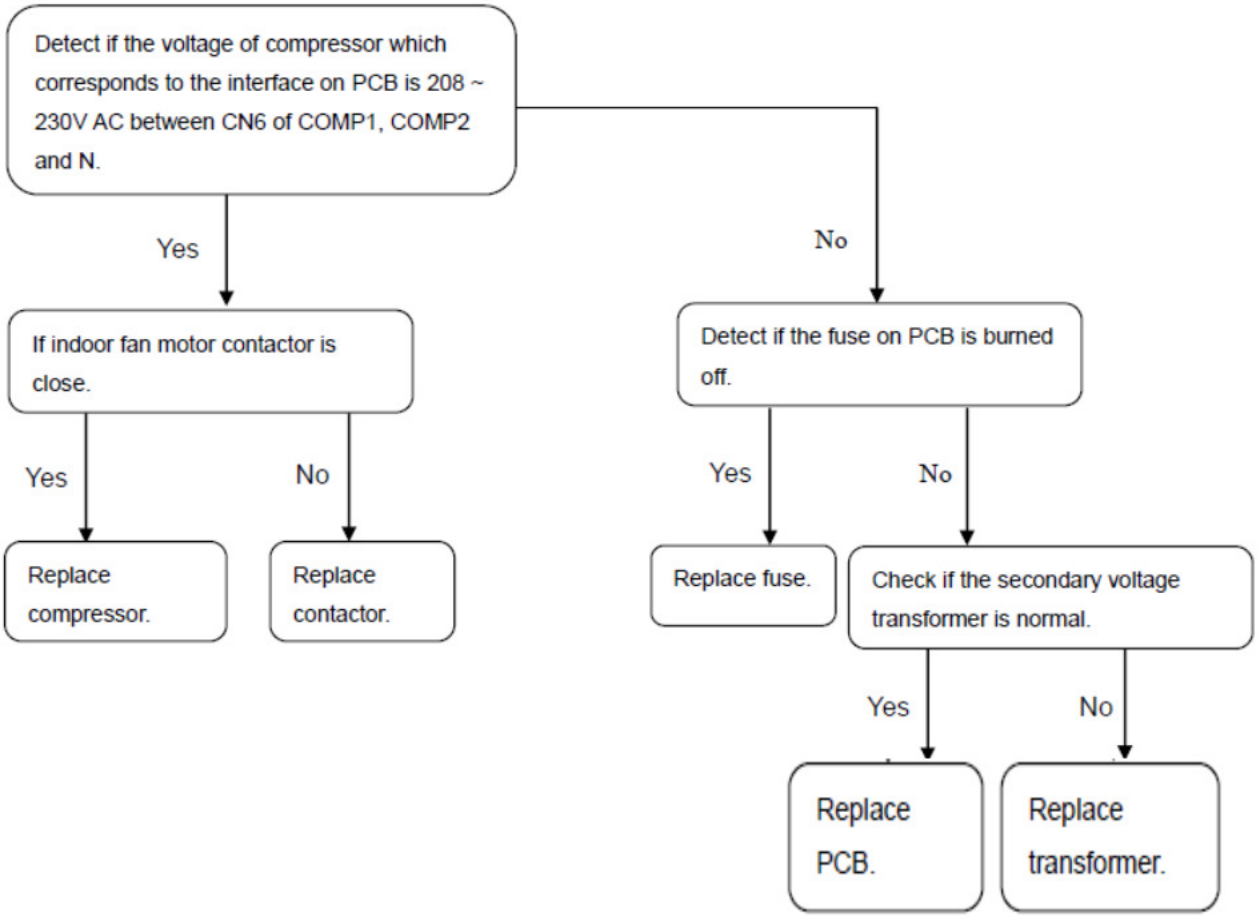
Item	Content	Error code
1	Indoor fan motor didn't run.	--
2	Compressor didn't run.	--
3	T3 temp sensor error.	EA
4	Check if the low pressure protection is normal.	--
5	Outdoor fan motor didn't run.	--
6	Four ways valve didn't work.	--
7	Condenser high temp protection.	P8,P9

1. Indoor fan motor doesn't run.

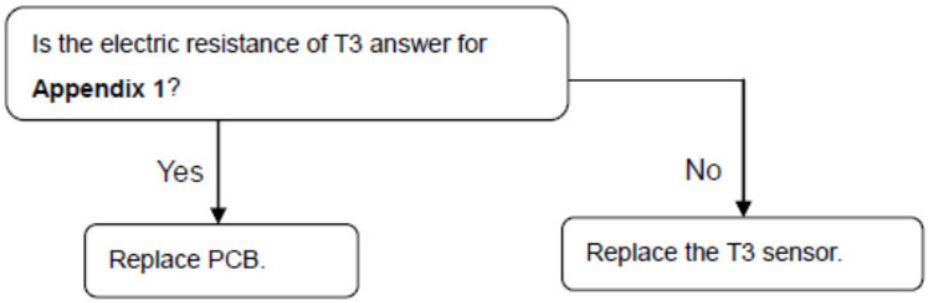
First check if the power supply is normal or if wire connection terminal is loose. If the wired controller set and wire connection are correct, operating as flow process below:.



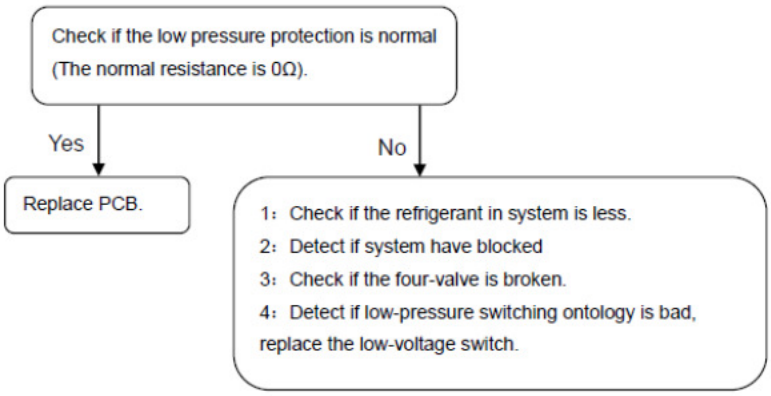
2. **Compressor doesn't run (All wires connection are correct and reliable, if power supply is in required range. If compressor doesn't run, you can proceed as following :)**



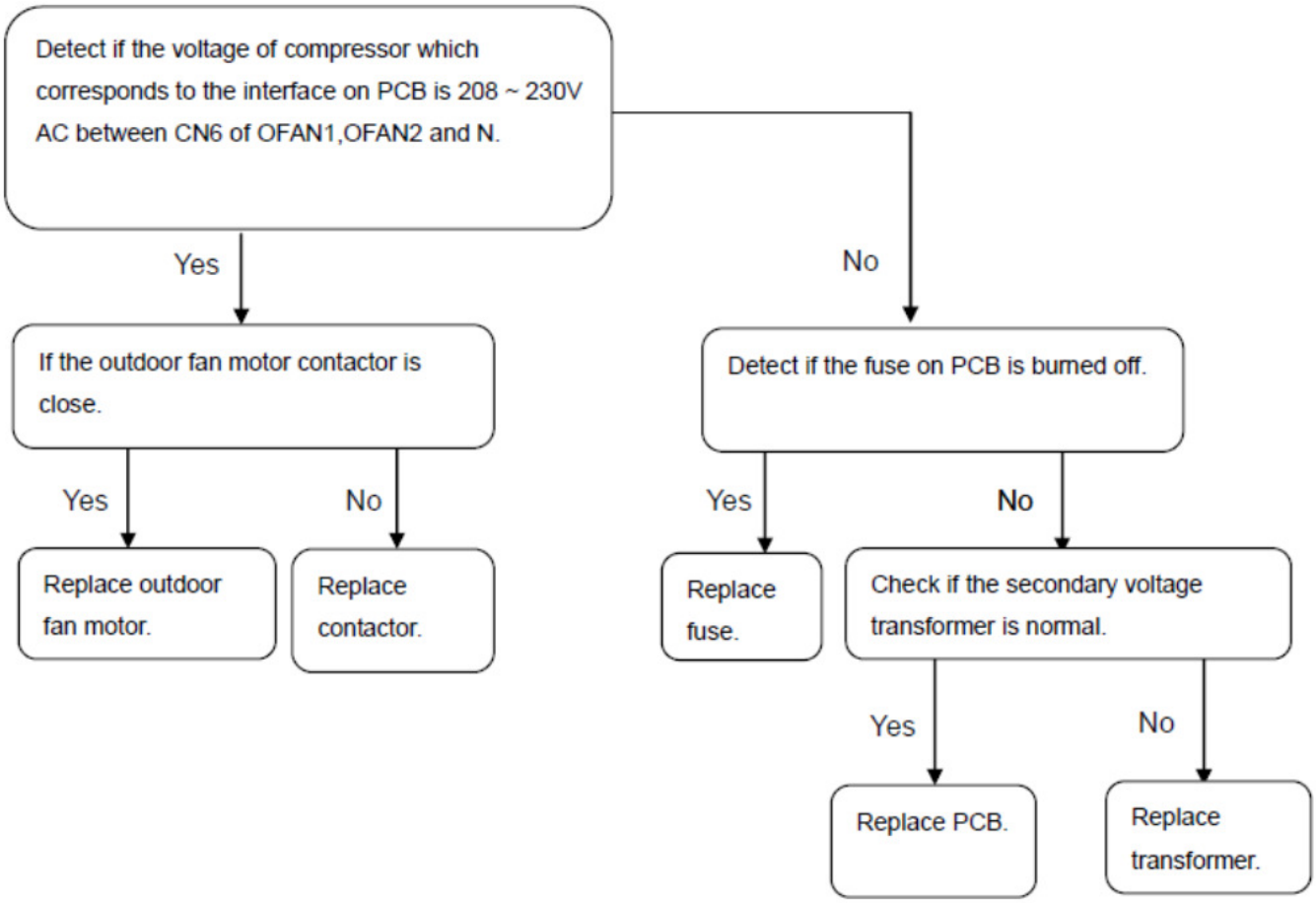
3. **T3 temp sensor error.**



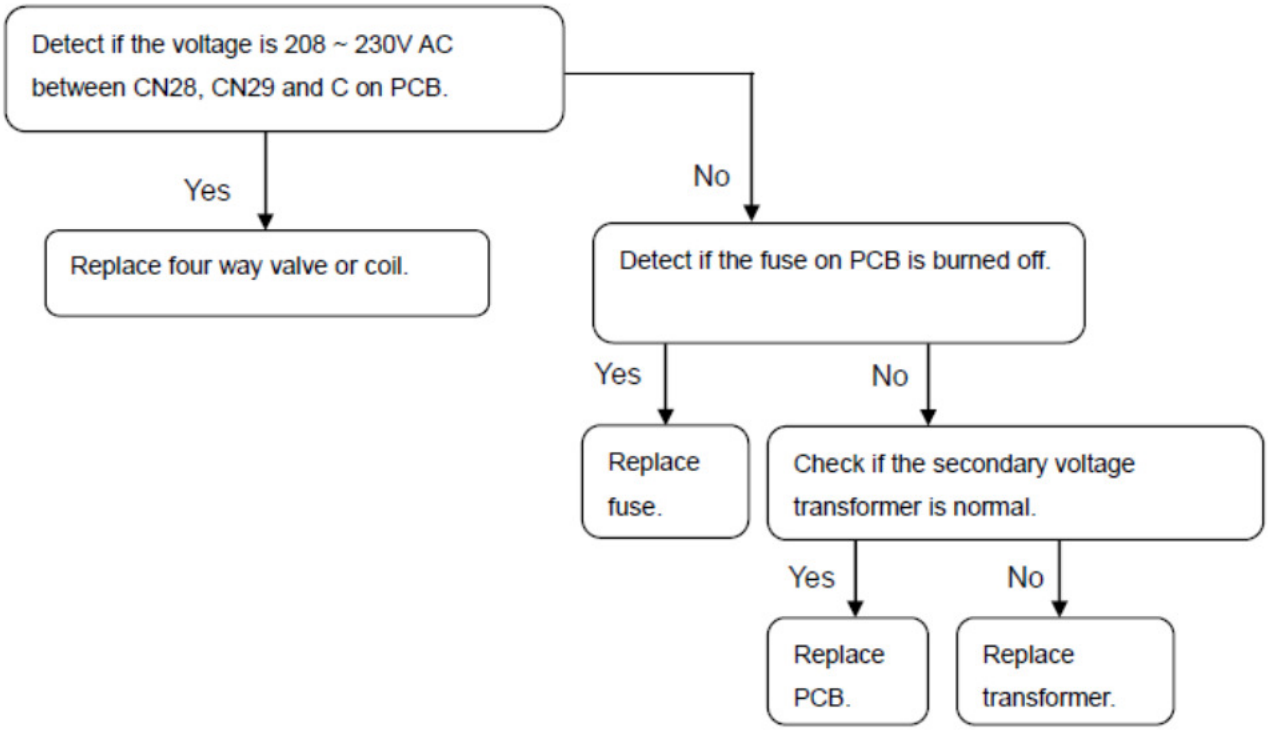
4. Check if the low pressure protection is normal.



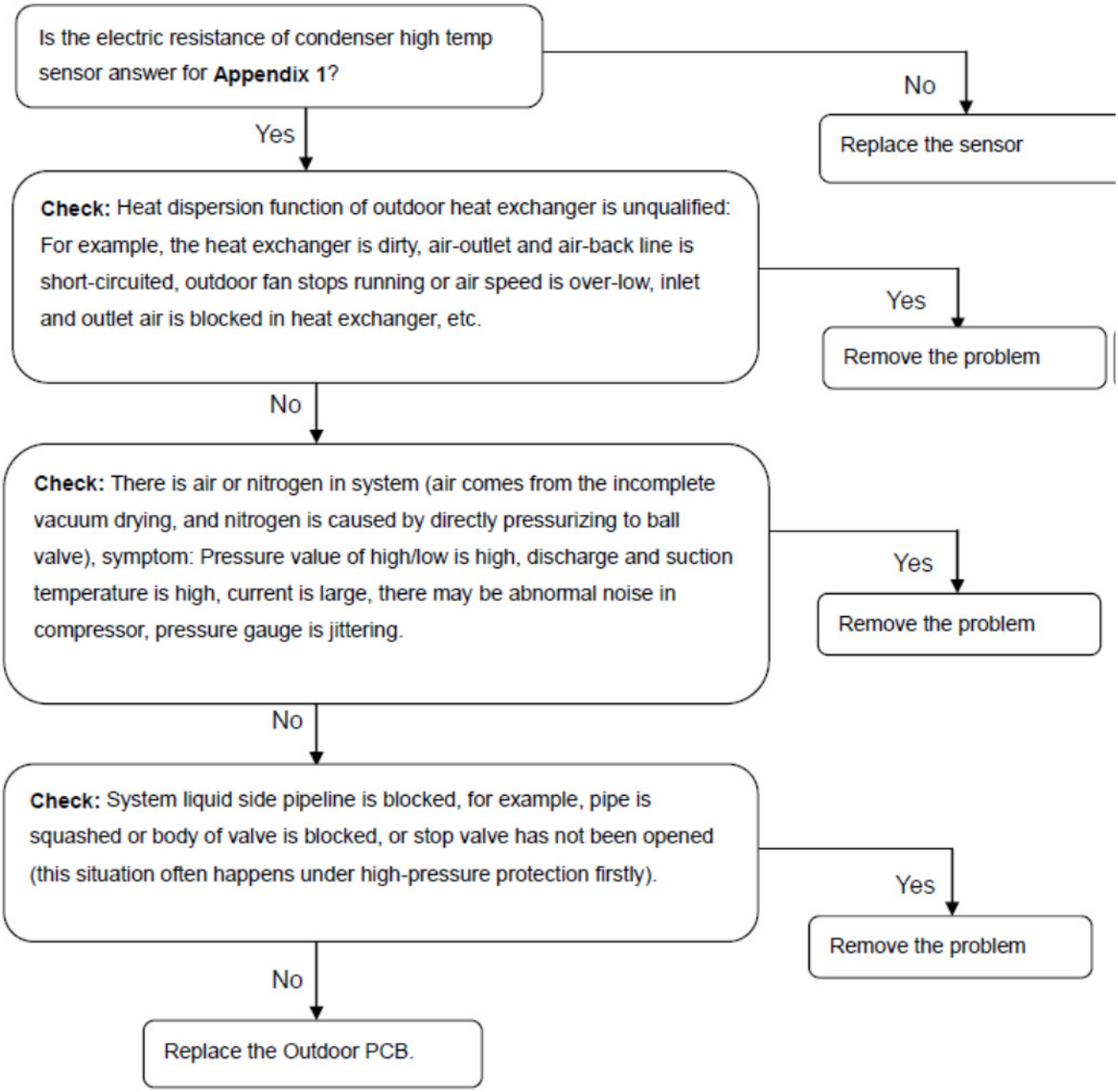
5. Outdoor fan motor doesn't run.



6. Four ways valve don't work.



7. Condenser high temperature protection



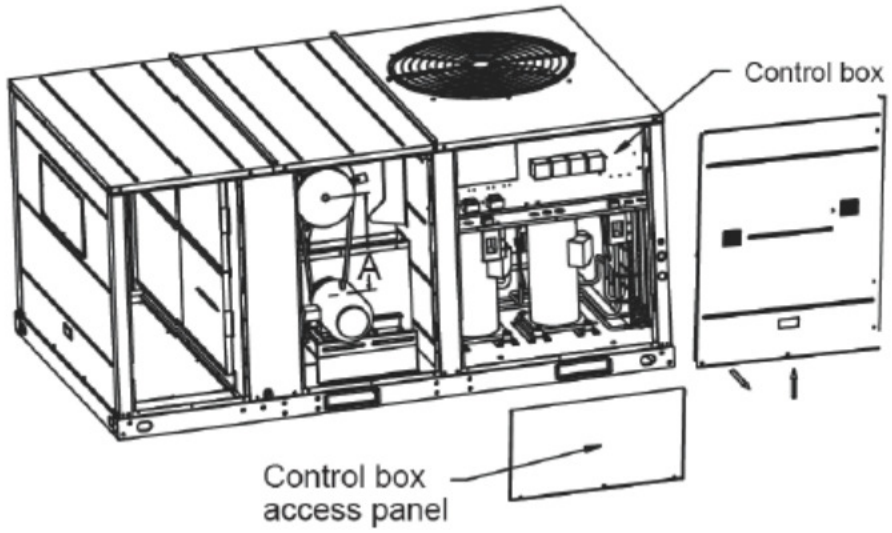
17.Accessories

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

18.Maintenance and Upkeep

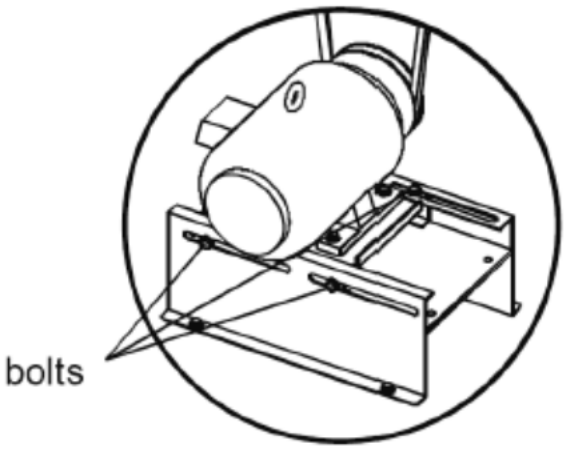
Regular maintenance and upkeep

Regular maintenance and upkeep that can be carried out by user, includes: changing the one-time dust filter, clean casing, wash condenser and replace a new belt, as well as doing some testing of the equipment.

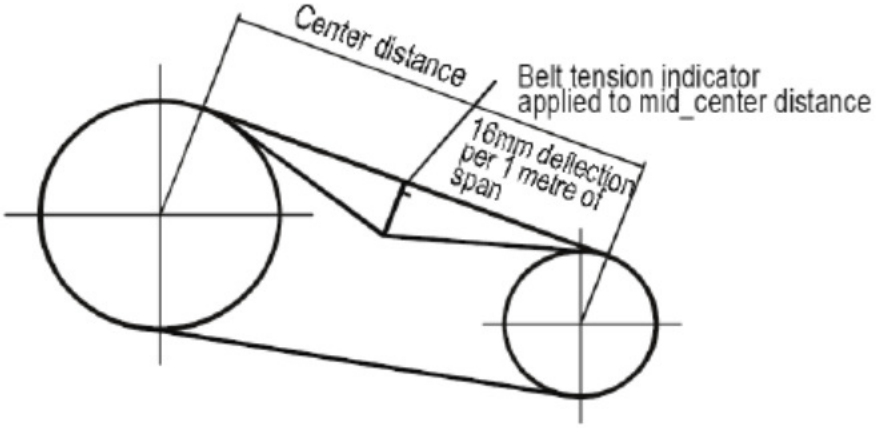


Model	A
CSU 26 RTN1	328mm
CSU 35 RTN1	395mm
CSU 53 RTN1	576mm
CSU 70 RTN1	525mm
CSU 98 RTN1	925mm

Note: At least 1m flame resistant layer must be laid at the end of the air duct internal surface.
Regulating belt of rate of tension, inner fan Refer to the following *Fig.* fixed bolt of electric motor's supporting slide was loosened, following electric motor was moved, causing belt rate of tension to change.



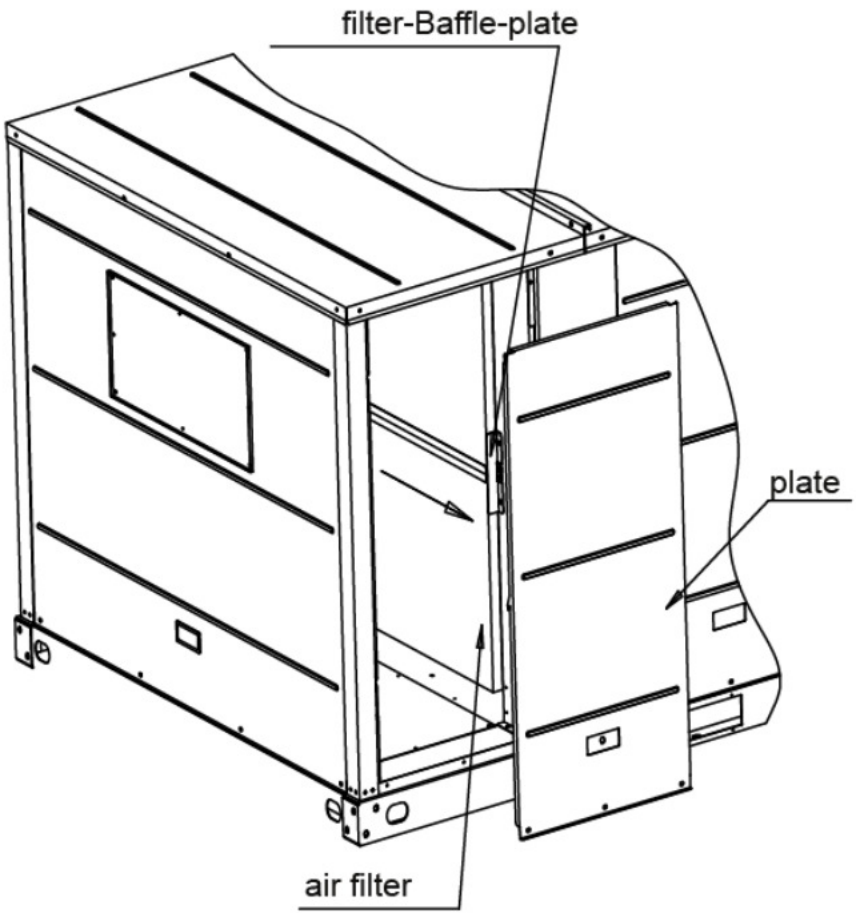
Method of belt tensioning using belt tension indicator
Calculate the deflection in mm on a basis of 16mm per meter of center distance
Center distance (m) ×16=deflection (mm).



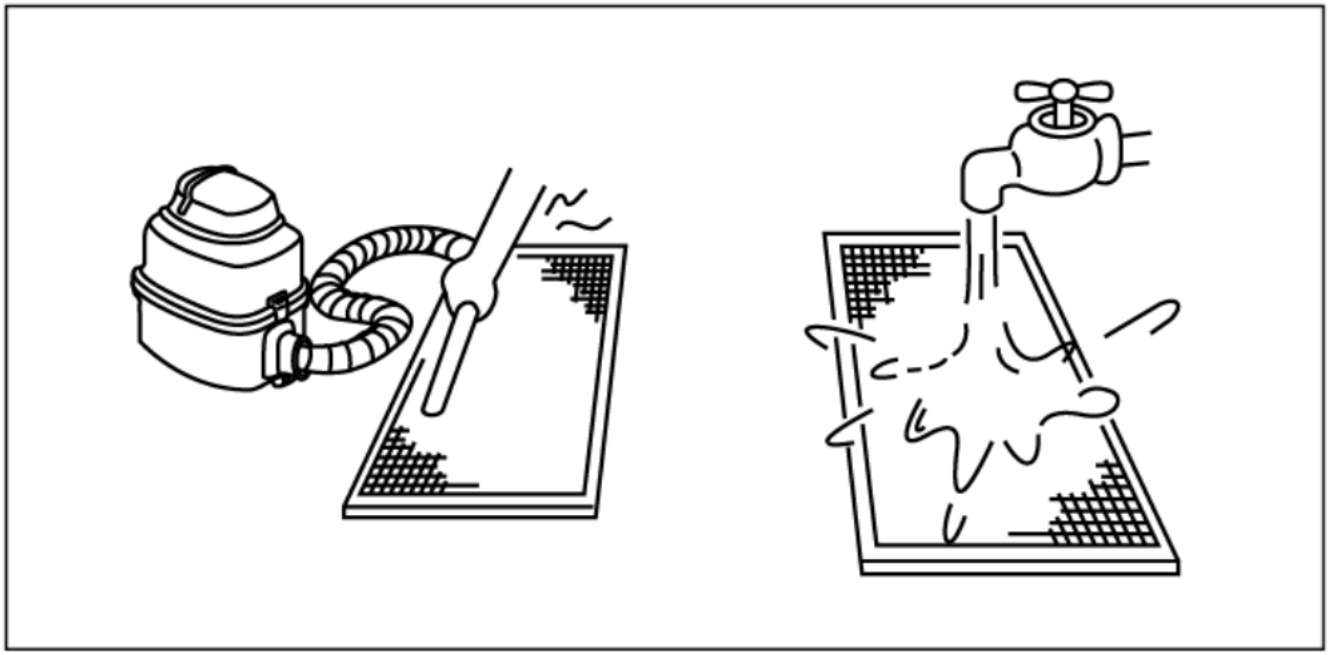
Belt section	For required to deflection belt 16 mm per meter of span		
	Small pulley diameter (mm)	Newton (N)	Kilogram-force (kgf)
SPA	80 to132	25 to 35	2.5 to 3.6
SPB	140 to 224	45 to 65	4.6 to 6.6

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

Dismantle the air filter.
Twist off screws and remove the plate to access filter.
Upon loosening the filter baffle-plate, the filter can be pulled out along the supporting slot.



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



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

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

Re-install the air filter

Condenser coil
Unfiltered air circulates through the unit's condenser coil and can cause the coil's surface to become clogged with dust, dirt, etc. To clean the coil, vertically (i.e., with the fins) stroke the coil surface with a soft-bristled brush. Be sure to keep all vegetation away from the condenser coil area.
Maintenance performed by serviceman.
To keep your unit operating safely and efficiently, the manufacturer recommends that a qualified serviceman check the entire system at least once each year and any other time that you feel it is needed. Your serviceman should examine these areas of your unit:
Filters
Motors and drive system components
Economizer gaskets (for possible replacement)
Safety controls (for mechanical cleaning)
Electrical components and wiring (for possible replacement and connection tightness)
Condensate drain (for cleaning)
Unit duct connections (to see that they are physically sound and sealed to the unit casing)
Unit mounting support (for structural integrity)
The unit (for obvious unit deterioration)

CAUTION:

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

Appendix:

1. Indoor Temp. and Pipe Temp. Sensor Resistance Value Table (6.2ton and above)

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

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

Temp	Resistance（KΩ）			Resist.tol (%)		Temp.tol(℃)	
（℃）	Rmax	R（t）Normal	Rmin	MAX(+)	MIN(-)	MAX(+)	MIN(-)
-20	116.539	106.732	96.920	9.19	9.19	1.59	1.59
-19	110.231	100.552	91.451	9.63	9.05	1.57	1.57
-18	103.743	94.769	86.328	9.47	8.91	1.56	1.55
-17	97.673	89.353	81.525	9.31	8.76	1.54	1.54
-16	91.990	84.278	77.017	9.15	8.62	1.53	1.52
-15	86.669	79.521	72.788	8.99	8.47	1.51	1.50
-14	81.684	75.059	68.815	8.83	8.32	1.49	1.48
-13	77.013	70.873	65.083	8.66	8.17	1.47	1.47
-12	72.632	66.943	61.574	8.50	8.02	1.45	1.45
-11	68.523	63.252	58.274	8.33	7.87	1.44	1.43
-10	64.668	59.784	55.169	8.17	7.72	1.42	1.41
-9	61.048	56.524	52.246	8.00	7.57	1.40	1.39
-8	57.649	53.458	49.492	7.84	7.42	1.38	1.37
-7	54.456	50.575	46.899	7.67	7.27	1.35	1.35
-6	51.456	47.862	44.455	7.51	7.12	1.33	1.32
-5	48.636	45.308	42.150	7.35	6.97	1.31	1.30
-4	45.984	42.903	39.977	7.18	6.82	1.29	1.28
-3	43.490	40.638	37.927	7.02	6.67	1.27	1.26
-2	41.144	38.504	35.992	6.86	6.52	1.25	1.24
-1	38.935	36.492	34.165	6.70	6.38	1.23	1.21
0	36.857	34.596	32.440	6.53	6.23	1.21	1.19
1	34.898	32.807	30.810	6.38	6.09	1.18	1.17
2	33.055	31.120	29.271	6.22	5.94	1.16	1.15
3	31.317	29.528	27.815	6.06	5.80	1.14	1.12
4	29.681	28.026	26.440	5.90	5.66	1.12	1.10
5	28.138	26.608	25.140	5.75	5.52	1.10	1.08
6	26.682	25.268	23.909	5.60	5.38	1.07	1.06
7	25.310	24.003	22.745	5.45	5.24	1.05	1.03
8	24.016	22.808	21.644	5.30	5.10	1.03	1.01
9	22.794	21.678	20.601	5.15	4.97	1.01	0.99
10	21.641	20.610	19.614	5.00	4.83	0.99	0.97
11	20.553	19.601	18.680	4.86	4.70	0.96	0.94
12	19.525	18.646	17.794	4.71	4.57	0.94	0.92
13	18.554	17.743	16.955	4.57	4.44	0.92	0.90
14	17.636	16.888	16.160	4.43	4.31	0.90	0.88
15	16.769	16.079	15.406	4.29	4.19	0.88	0.85
16	15.949	15.313	14.691	4.15	4.06	0.86	0.83
17	15.174	14.588	14.014	4.02	3.94	0.84	0.81
18	14.442	13.902	13.372	3.89	3.81	0.81	0.79
19	13.748	13.251	12.762	3.75	3.69	0.79	0.76
20	13.093	12.635	12.183	3.62	3.57	0.77	0.74
21	12.471	12.050	11.634	3.50	3.46	0.75	0.72
22	11.883	11.496	11.112	3.37	3.34	0.73	0.70
23	11.327	10.971	10.617	3.25	3.23	0.71	0.68
24	10.800	10.473	10.147	3.12	3.11	0.69	0.66
25	10.300	10.000	9.700	3.00	3.00	0.67	0.63
26	9.848	9.551	9.255	3.11	3.10	0.69	0.66
27	9.418	9.125	8.834	3.21	3.19	0.72	0.69
28	9.010	8.721	8.434	3.31	3.29	0.75	0.71
29	8.621	8.337	8.055	3.41	3.38	0.77	0.74
30	8.252	7.972	7.695	3.51	3.47	0.80	
31	7.900	7.625	7.353	3.61	3.57	0.83	0.79

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