

Content

1. MODEL LIST	1
2. EXTERNAL APPEARANCE	2
3. MODEL NUMBER NOMENCLATURE	3
4. FEATURE & BENEFITS	4
5. SPECIFICATIONS	5
6. DIMENSIONAL DRAWINGS	16
A) MRA	16
B) MRC	17
7. WIRING DIAGRAMS	18
A) 50HZ (MRA/MRC)	18
8. PERFORMANCE DATA	29
A) 50HZ (MRA/MRC)	29
9. ELECTRICAL DATA	38
A) 50Hz	38
10. REFRIGERANT CYCLE DIAGRAM AND SOUND LEVEL	39
A) COOLING ONLY	39
B) HEAT PUMP	39
11. OPERATION LIMIT	40
A) COOLING ONLY	40
B) HEAT PUMP	40
12. INSTALLATION	41
A) ACCESSORIES	41
B) GENERAL INFORMATION	41
C) DIMENSIONAL DATA	42
D) LOCATIONS AND RECOMMENDATIONS	43
E) INSTALLATION	44
F) ELECTRICAL WIRING	46
G) START-UP	47
H) MAINTENANCE	48
13. SYSTEM OPERATION	50

2. External Appearance

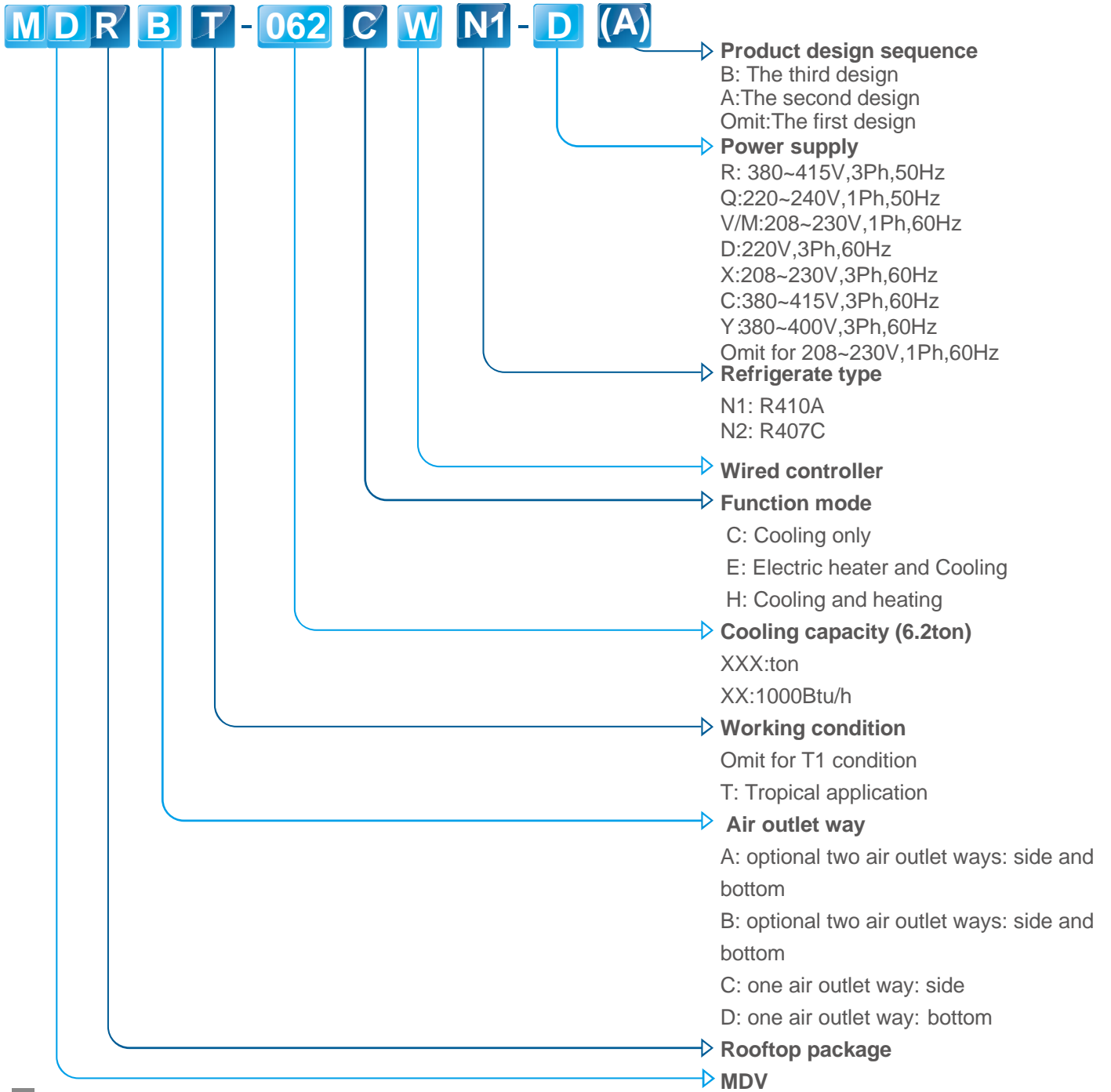
MRA



MRC



3. Model Number Nomenclature



4. Feature & Benefits

4.1. The adoption of anticorrosive-box

The reinforced anticorrosion by using galvanization armor plate and coated with man-composed paint. The appearance is stylish and be easy for maintenance.

(Has been 1000 hours salt spray test)

4.2. The adoption of credible protection system

4.2.1. The protection of compressor

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

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

4.2.2. Fan motor

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

4.3. Energy saving design

4.3.1. High Efficiency Compressor

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

4.3.2. Condenser

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

4.3.3. Evaporator

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

4.3.4. The Heat Insulation of indoor unit

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

4.4. Optional collocation

4.4.1. Strong Air Flow

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

4.4.2. Minimum Installation Arrangement

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

4.4.3. Pre-Drilled Duct Flange

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

4.4.4. Quiet Operation

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

4.5. Cabinet

4.5.1. Sloped drain pan and drain pipe

4.5.2. Cabinets have forklift and lifting holes for easy transportation

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

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

5. Specifications

Table 1

Sale Model		MDRA -24HWN2		MDRA -36HWN2	
Power supply		V-Ph-Hz	220~240-1-50	380~415-3-50	
Cooling	Capacity	Btu/h	24000	36000	
	Input	W	3000	4400	
	Rated current	A	14.5	7.7	
Heating	Capacity	Btu/h	26400	39600	
	Input	W	2700	3700	
	Rated current	A	13.0	6.8	
Max. input consumption		W	4300	5500	
Max. current		A	21.1	9.2	
Starting current		A	30	15	
Compressor	Model		PH440X3CS-4KUS1	C-SB303H8A	
	Type		ROTARY	Scroll	
	Brand		GMCC	SANYO	
	Capacity	Btu/h	25784	39579	
	Input	W	2488	3800	
	Rated current(RLA)	A	11.98	6.8	
	Locked rotor Amp(LRA)	A	55	48	
	Thermal protector		inner	inner	
	Capacitor	uF	60	—	
Refrigerant oil	ml	ATOMOS NM56EP .950	1700		
Indoor fan motor	Model		YDK270-4V	YDK270-4V	
	Type		AC Motor	AC Motor	
	Brand		YongAn	YongAn	
	Input	W	650	650	
	Capacitor	uF	12	12	
	Speed	r/min	1000	1000	
Indoor coil	a.Number of rows		2	3	
	b.Tube pitch(a)x row pitch(b)	mm	25.4X22	25.4X22	
	c.Fin spacing	mm	1.7	1.7	
	d.Fin type (code)		Hydrophilic aluminium	Hydrophilic aluminium	
	e.Tube outside dia.and type		Φ9.53 Inner groove tube	Φ9.53 Inner groove tube	
	f.Coil length x height x width	mm	547X508X44	547X508X66	
	g.Number of circuits		5	5	
Indoor air flow		m ³ /h	1400	1700	
Indoor external static pressure (Hi)		Pa	25	40	
Outdoor fan motor	Model		YDK165-6N	YDK165-6N	
	Brand		YongAn/Welling	YongAn/Welling	
	Input	W	270	270	
	Capacitor	uF	12	12	
	Speed	r/min	850	850	
Outdoor coil	Number of rows		1	2	
	Tube pitch(a)x row pitch(b)	mm	25.4X22	25.4X22	
	Fin spacing	mm	1.7	1.7	
	Fin type (code)		Hydrophilic aluminium	Hydrophilic aluminium	
	Tube outside dia.and type		Φ9.53 Inner groove tube	Φ9.53 Inner groove tube	
	Coil length x height x width	mm	1492X558.8X22	1476X558.8X44	
	Number of circuits		2	2	
Outdoor air flow		m ³ /h	5400	5400	
Unit	Dimension(WXHxD)		mm	1290X630X1030	1290X630X1030
	Packing (WXHxD)		mm	1325X665X1085	1325X665X1085
	Net/Gross weight		Kg	150/152	160/162
Refrigerant type		g	1800	2700	
Throttle type			Eva. orifice	Eva. orifice	
Design pressure		MPa	2.8	2.8	
Connection wiring	Power wiring	mm ²	2.5X3	2.0X5	
	Signal wiring	mm ²	1.0X4/1.0X5	1.0X4/1.0X5	
Controller			Honeywell	Honeywell	
Ambient temp		°C	Cooling: 18~43; Heating: -8~24	Cooling: 18~43; Heating: -8~24	

Notes:

The data is based on the following conditions:

Cooling: Indoor temp.: 26.7°C DB, 19.4°C WB; Outdoor temp: 35°C DB, 23.9°C WB

Heating: Indoor temp.: 20°C DB, 15°C WB; Outdoor temp: 7°C DB, 6°C WB

Table 2

Sale Model			MDRA -48HWN2	MDRA -60HWN2
Power supply		V-Ph-Hz	380~415-3-50	380~415-3-50
Cooling	Capacity	Btu/h	48000	60000
	Input	W	5500	6500
	Rated current	A	9.4	11
Heating	Capacity	Btu/h	52800	66000
	Input	W	4500	5700
	Rated current	A	8.1	9.8
Max. input consumption		W	7000	8200
Max. current		A	12	14.6
Starting current		A	18	20
Compressor	Model		C-SB373H8A	C-SB453H8A
	Type		Scroll	Scroll
	Brand		SANYO	SANYO
	Capacity	Btu/h	49474	60392
	Input	W	4450	5450
	Rated current(RLA)	A	7.2	9.3
	Locked rotor Amp(LRA)	A	52	66
	Thermal protector		inner	inner
	Capacitor	uF	—	—
Refrigerant oil	ml	1700	SAY56T.1700	
Indoor fan motor	Model		YDK350-4V	YDK350-4V
	Type		AC Motor	AC Motor
	Brand		YongAn	YongAn
	Input	W	860	860
	Capacitor	uF	15	15
	Speed	r/min	980	980
Indoor coil	a.Number of rows		3	3
	b.Tube pitch(a)x row pitch(b)		mm	25.4X22
	c.Fin spacing		mm	1.7
	d.Fin type (code)		Hydrophilic aluminium	Hydrophilic aluminium
	e.Tube outside dia.and type		mm	Φ9.53 Inner groove tube
	f.Coil length x height x width		mm	547X711.2X66
	g.Number of circuits			8
Indoor air flow		m ³ /h	2900	2900
Indoor external static pressure		Pa	50	50
Outdoor fan motor	Model		YDK165-6N	YDK180-6A
	Brand		YongAn/Welling	Welling
	Input	W	270	255
	Capacitor	uF	12	12
	Speed	r/min	850	930
Outdoor coil	Number of rows		2	2
	Tube pitch(a)x row pitch(b)		mm	25.4X22
	Fin spacing		mm	1.7
	Fin type (code)		Hydrophilic aluminium	Hydrophilic aluminium
	Tube outside dia.and type		mm	Φ9.53 Inner groove tube
	Coil length x height x width		mm	1476X762X44
	Number of circuits			8
Outdoor air flow		m ³ /h	5400	5700
Unit	Dimension(WXHxD)		mm	1290X830X1030
	Packing (WXHxD)		mm	1325X865X1085
	Net/Gross weight		Kg	197/200
Refrigerant type		g	3300	3600
Throttle type			Eva. orifice	Eva. orifice
Design pressure		MPa	2.8	2.8
Connection wiring	Power wiring	mm ²	2.0X5	2.0X5
	Signal wiring	mm ²	1.0X4/1.0X5	1.0X4/1.0X5
Controller			Honeywell	Honeywell
Ambient temp		℃	Cooling: 18~43; Heating: -8~24	Cooling: 18~43; Heating: -8~24

Notes:

The data is based on the following conditions:

Cooling: Indoor temp.: 26.7℃ DB, 19.4℃ WB; Outdoor temp: 35℃ DB, 23.9℃ WB

Heating: Indoor temp.: 20℃ DB, 15℃ WB; Outdoor temp: 7℃ DB, 6℃ WB

Table 3

Sale Model			MDRC-36HWN2
Power supply		V-Ph-Hz	380~415-3-50
Cooling	Capacity	Btu/h	36000
	Input	W	4140
	Rated current	A	7.2
Heating	Capacity	Btu/h	39600
	Input	W	3455
	Rated current	A	6.3
Max. input consumption		W	5300
Max. current		A	9.2
Starting current		A	42
Compressor	Model		C-SB303H8A
	Type		Scroll
	Brand		SANYO
	Capacity	Btu/h	39579
	Input	W	3800
	Rated current(RLA)	A	6.8
	Locked rotor Amp(LRA)	A	48
	Thermal protector		inner
	Capacitor	uF	—
Refrigerant oil	ml	1700	
Indoor fan motor	Model		YDK250-6X
	Type		Ac Motor
	Brand		YongAn
	Input	W	370
	Capacitor	uF	12
	Speed	r/min	770
Indoor coil	a.Number of rows		3
	b.Tube pitch(a)x row pitch(b)	mm	25.4x22
	c.Fin spacing	mm	1.7
	d.Fin type (code)		Hydrophilic aluminium
	e.Tube outside dia.and type	mm	Φ9.53
	f.Coil length x height x width		Inner groove tube
	g.Number of circuits		420x711.2x66
			8
Indoor air flow		m ³ /h	1972
Indoor external static pressure		Pa	40
Outdoor fan motor	Model		YDK180-6A
	Brand		Welling
	Input	W	246
	Capacitor	uF	12
	Speed	r/min	940
Outdoor coil	Number of rows		1
	Tube pitch(a)x row pitch(b)	mm	25.4
	Fin spacing	mm	1.7
	Fin type (code)		Hydrophilic aluminium
	Tube outside dia.and type	mm	Φ9.53
	Coil length x height x width		Inner groove tube
	Number of circuits		1492x762x22
		4	
Outdoor air flow		m ³ /h	6028
Unit	Dimension(WXHXD)		1116x830x744
	Packing (WXHXD)		1152x855x765
	Net/Gross weight		158/161
Refrigerant type		g	R22: 2600
Throttle type			orifice
Design pressure		MPa	2.8
Connection wiring	Power wiring	mm ²	2.0x 5
	Signal wiring	mm ²	1.0x 4/1.0x 5
Controller			Honeywell
Ambient temp		°C	Cooling: 18~43; Heating: -7~24

Notes:

The data is based on the following conditions:

Cooling: Indoor temp.: 26.7°C DB, 19.4°C WB; Outdoor temp: 35°C DB, 23.9°C WB

Heating: Indoor temp.: 20°C DB, 15°C WB; Outdoor temp: 7°C DB, 6°C WB

Table 4

Sale Model			MDRC-48HWN2	MDRC-60HWN2
Power supply		V-Ph-Hz	380~415-3-50	380~415-3-50
Cooling	Capacity	Btu/h	48000	60000
	Input	W	5460	6715
	Rated current	A	9.2	11.2
Heating	Capacity	Btu/h	52800	66000
	Input	W	4500	5450
	Rated current	A	7.8	9.3
Max. input consumption		W	6380	8435
Max. current		A	11.8	14.6
Starting current		A	48	60
Compressor	Model		C-SB373H8A	C-SB453H8A
	Type		Scroll	Scroll
	Brand		SANYO	SANYO
	Capacity	Btu/h	49474	60392
	Input	W	4450	5450
	Rated current(RLA)	A	7.2	9.3
	Locked rotor Amp(LRA)	A	52	66
	Thermal protector		inner	inner
	Capacitor	uF	—	—
Refrigerant oil		ml	1700	1700
Indoor fan motor	Model		YDK400-4	YDK400-4
	Type		Ac Motor	Ac Motor
	Brand		YongAn	YongAn
	Input	W	990	990
	Capacitor	uF	25	25
	Speed	r/min	970	970
Indoor coil	a.Number of rows		4	4
	b.Tube pitch(a)x row pitch(b)		mm	25.4x22
	c.Fin spacing		mm	1.3
	d.Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	e.Tube outside dia.and type		mm	Φ9.53
			mm	Inner groove tube
	f.Coil length x height x width		mm	420x711.2x88
g.Number of circuits			7	7
Indoor air flow		m ³ /h	2637	2637
Indoor external static pressure		Pa	50	50
Outdoor fan motor	Model		YDK180-6A	YDK180-6A
	Brand		Welling	Welling
	Input	W	246	246
	Capacitor	uF	12	12
	Speed	r/min	940	940
Outdoor coil	Number of rows		2	2
	Tube pitch(a)x row pitch(b)		mm	25.4x22
	Fin spacing		mm	1.7
	Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	Tube outside dia.and type		mm	Φ9.53
			mm	inner groove tube
	Coil length x height x width		mm	(1473+1404)x762x22
Number of circuits			4	4
Outdoor air flow		m ³ /h	5780	5805
Unit	Dimension(WXHxD)		mm	1116x830x744
	Packing (WXHxD)		mm	1152x855x765
	Net/Gross weight		Kg	169/172
Refrigerant type		g	R22: 3400	R22: 3600
Throttle type			orifice	orifice
Design pressure		MPa	2.6	2.6
Connection wiring	Power wiring	mm ²	2.0x 5	2.0x 5
	Signal wiring	mm ²	1.0x 4/1.0x 5	1.0x 4/1.0x 5
Controller			Wired controller	Wired controller
Ambient temp		℃	Cooling: 18~43; Heating: -7~24	Cooling: 18~43; Heating: -7~24

Notes:

The data is based on the following conditions:

Cooling: Indoor temp.: 26.7℃ DB, 19.4℃ WB; Outdoor temp: 35℃ DB, 23.9℃ WB

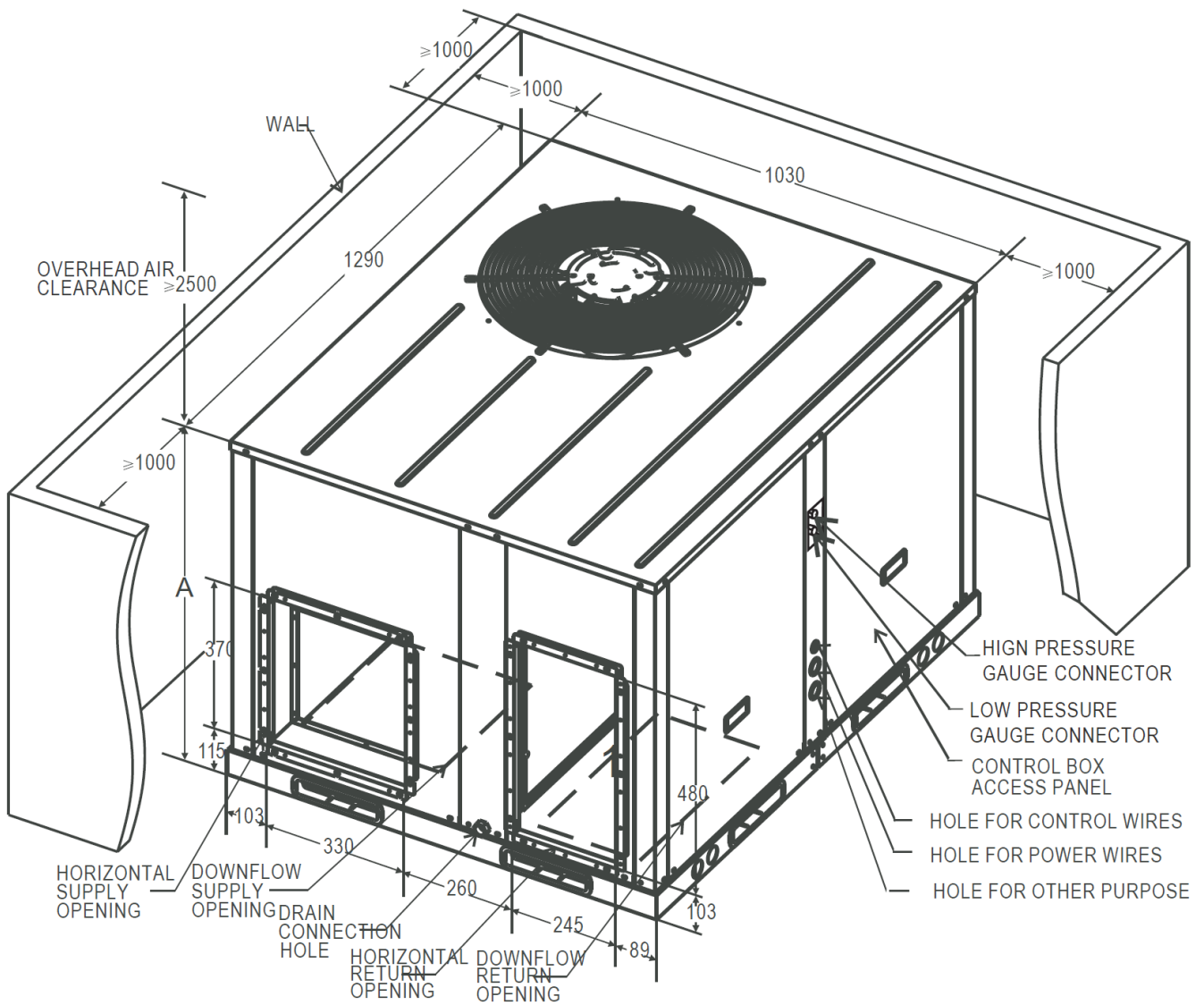
Heating: Indoor temp.: 20℃ DB, 15℃ WB; Outdoor temp: 7℃ DB, 6℃ WB

1. Dimensional Drawings

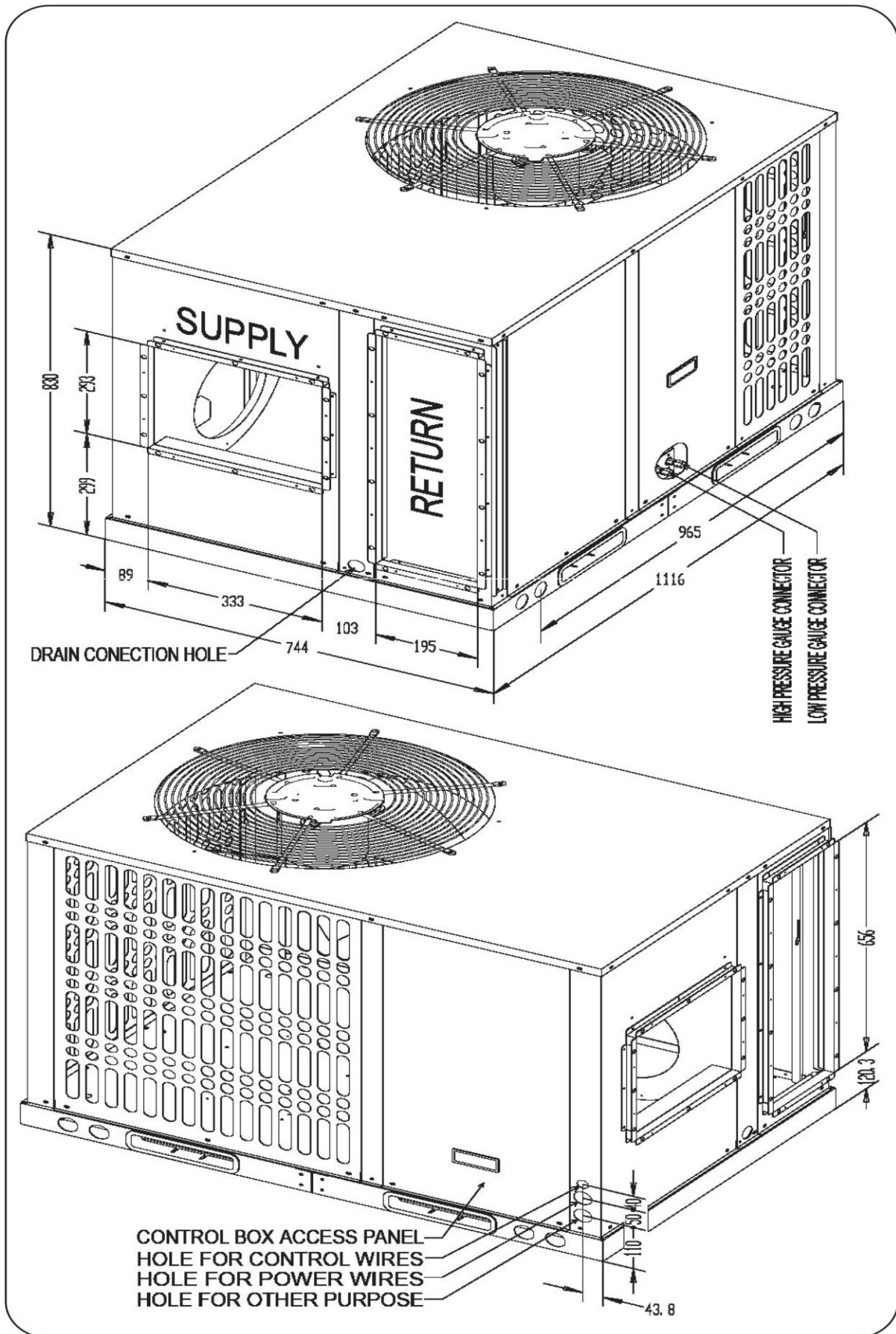
a) MRA

Package net dimensions: Width 1290mm; Depth 1030mm; Height as the following chart:

Capacity(Btu/h)	A(Height)
24000~36000	630 mm
48000~60000	830 mm



b) MRC

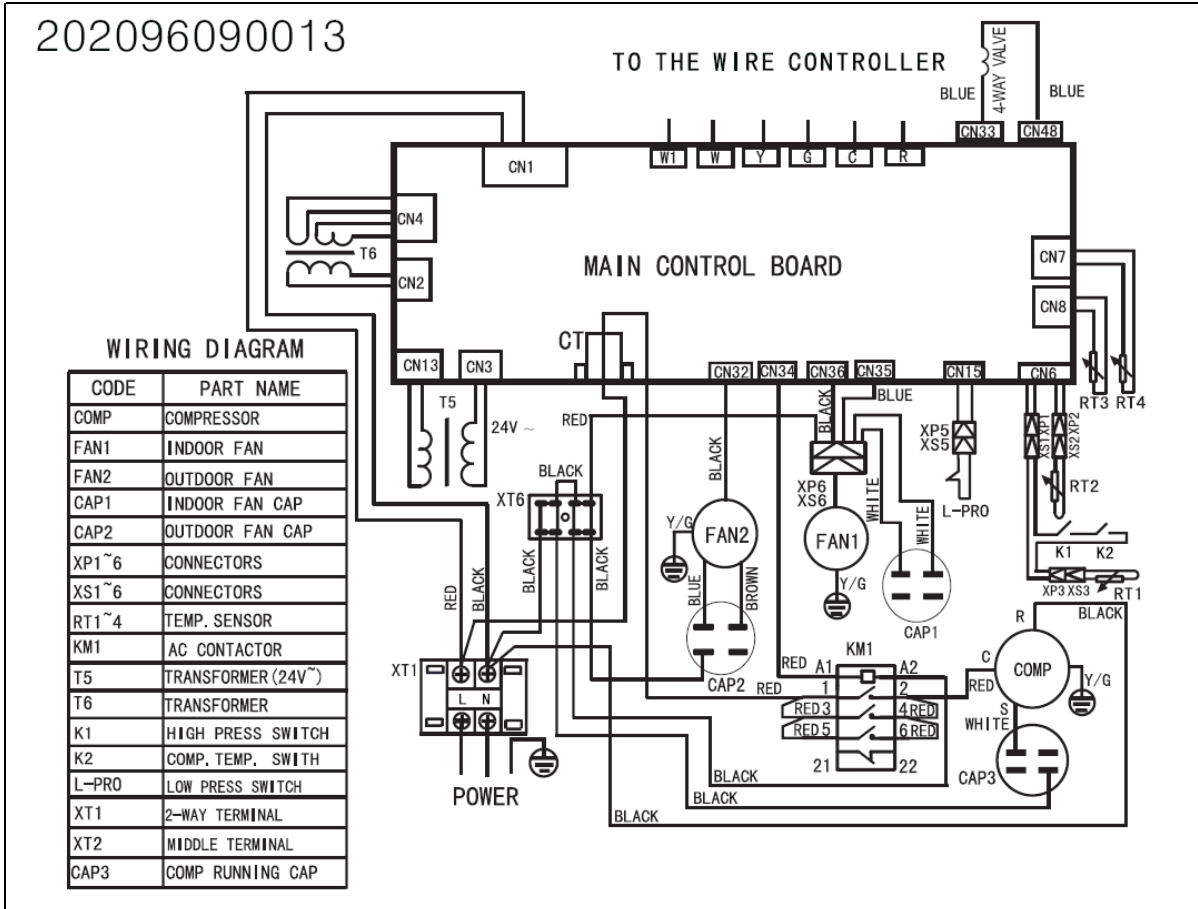


2. Wiring Diagrams

a) 50HZ (MRA/MRC)

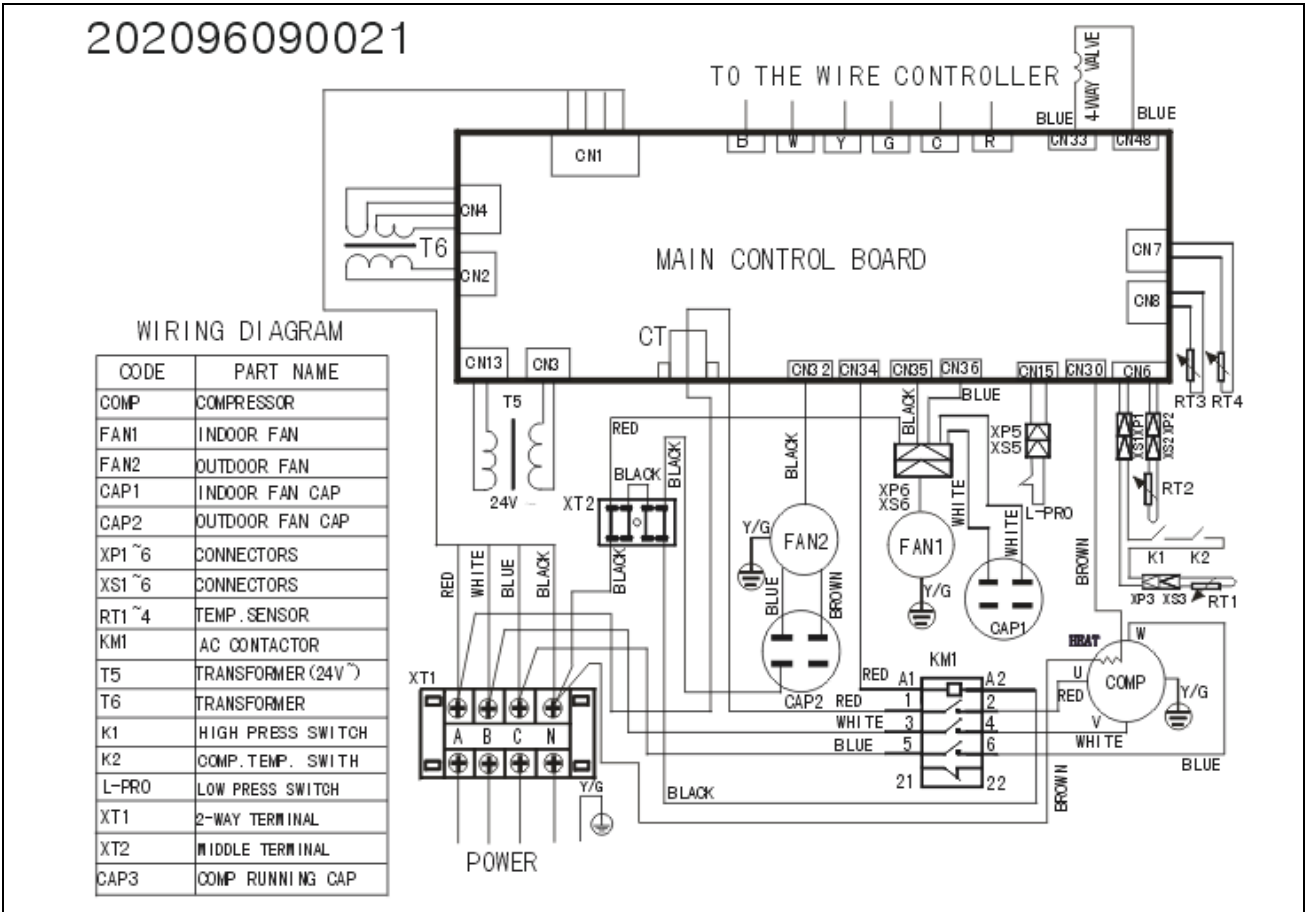
MDRA-24HWN2

202096090013



MDRA-36HWN2

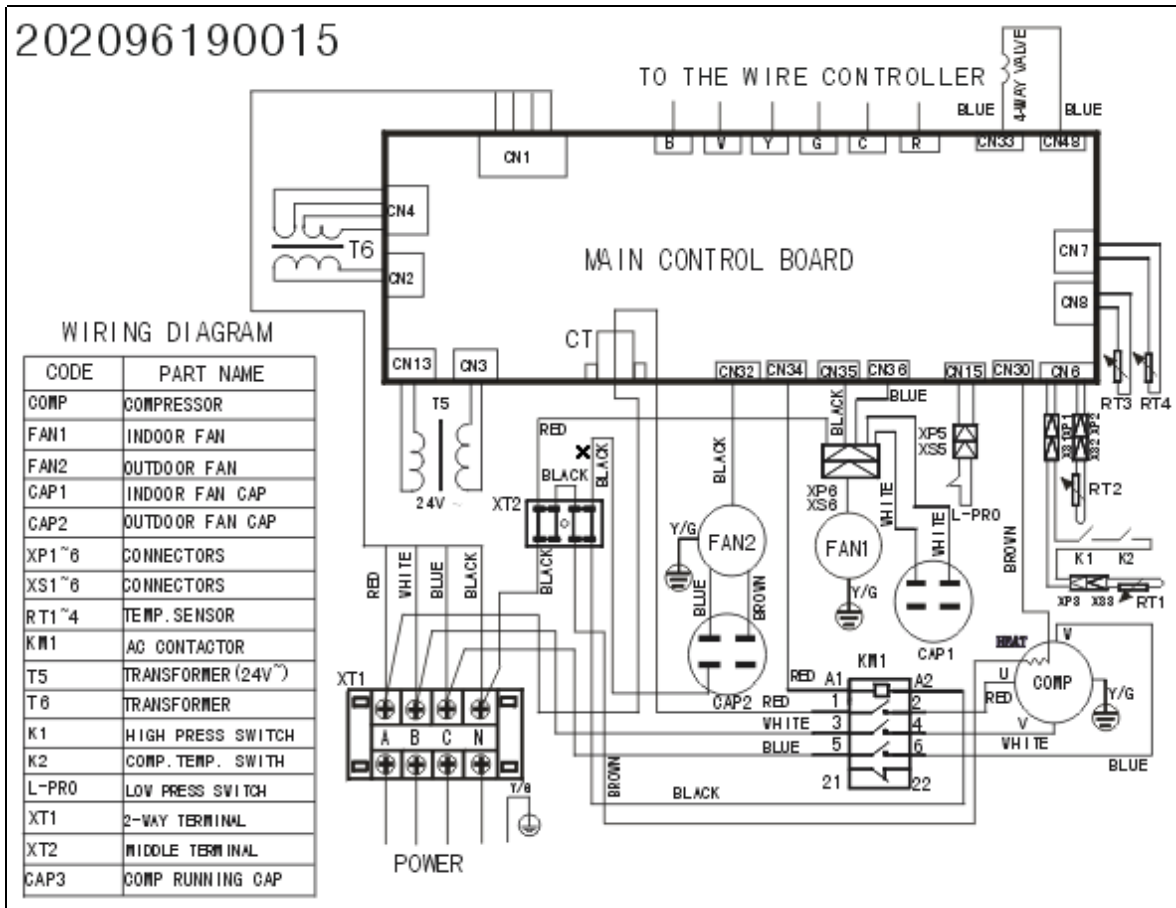
202096090021



MDRA-48HWN2

MDRA-60HWN2

202096190015



3. Performance Data

a) 50HZ (MRA/MRC)

MDRA -24HWN2

Cooling

Indoor air entering Temp		Outdoor air entering Temp(DB)				
		70 °F/21°C	82 °F/28°C	95 °F/35°C	109 °F/43°C	115 °F/46°C
70 °F/21°C DB	Tcc(kW)	7.31	6.96	6.60	6.32	6.11
	Scck(kW)	5.41	5.36	5.28	5.31	5.19
59 °F/15°C WB	S/T	0.74	0.77	0.80	0.84	0.85
	PW(kW)	2.49	2.70	2.82	2.91	3.03
75 °F/24°C DB	Tcc(kW)	7.53	7.17	6.82	6.39	6.25
	Scck(kW)	5.64	5.59	5.52	5.37	5.31
63 °F/17°C WB	S/T	0.75	0.78	0.81	0.84	0.85
	PW(kW)	2.64	2.82	2.94	3.09	3.21
80 °F/27°C DB	Tcc(kW)	7.67	7.31	7.10	6.60	6.46
	Scck(kW)	5.67	5.63	5.54	5.41	5.36
66 °F/19°C WB	S/T	0.74	0.77	0.78	0.82	0.83
	PW(kW)	2.70	2.85	3.00	3.15	3.27
84 °F/29°C DB	Tcc(kW)	7.74	7.38	7.24	6.67	6.50
	Scck(kW)	6.50	6.28	6.23	6.07	6.11
66 °F/19°C WB	S/T	0.84	0.85	0.86	0.91	0.94
	PW(kW)	2.76	2.91	3.03	3.21	3.39
90 °F/32°C DB	Tcc(kW)	7.81	7.53	7.38	6.82	6.60
	Scck(kW)	6.64	6.55	6.50	6.34	6.34
73 °F/23°C WB	S/T	0.85	0.87	0.88	0.93	0.96
	PW(kW)	2.82	2.94	3.15	3.27	3.45

Heating

Outdoor DB (°C)	24		7		2		-5		-7	
outdoor WB (°C)	18		6		1		-6		-8	
Evap. Entering Air DB (°C)	TC	KW	TC	KW	TC	KW	TC	KW	TC	KW
	Capacity (kW)									
15	10.05	2.80	8.12	2.41	6.65	2.07	6.03	1.94	5.64	1.84
20	9.74	3.06	7.73	2.59	6.26	2.28	5.87	2.10	5.41	1.97
27	9.12	3.24	7.27	2.80	5.87	2.46	5.72	2.28	5.10	2.12

MDRA-36HWN2

Cooling

Indoor air entering Temp		Outdoor air entering Temp(DB)				
		70 °F/21°C	82 °F/28°C	95 °F/35°C	109 °F/43°C	115 °F/46°C
70 °F/21°C DB	Tcc(kW)	10.82	10.29	9.77	9.35	9.03
	Scck(kW)	8.00	7.92	7.81	7.85	7.68
59 °F/15°C WB	S/T	0.74	0.77	0.80	0.84	0.85
	PW(kW)	3.65	3.96	4.14	4.27	4.44
75 °F/24°C DB	Tcc(kW)	11.13	10.61	10.08	9.45	9.24
	Scck(kW)	8.35	8.27	8.16	7.94	7.85
63 °F/17°C WB	S/T	0.75	0.78	0.81	0.84	0.85
	PW(kW)	3.87	4.14	4.31	4.53	4.71
80 °F/27°C DB	Tcc(kW)	11.34	10.82	10.50	9.77	9.56
	Scck(kW)	8.39	8.33	8.19	8.01	7.93
66 °F/19°C WB	S/T	0.74	0.77	0.78	0.82	0.83
	PW(kW)	3.96	4.18	4.40	4.62	4.80
84 °F/29°C DB	Tcc(kW)	11.45	10.92	10.71	9.87	9.61
	Scck(kW)	9.61	9.28	9.21	8.98	9.03
66 °F/19°C WB	S/T	0.84	0.85	0.86	0.91	0.94
	PW(kW)	4.05	4.27	4.44	4.71	4.97
90 °F/32°C DB	Tcc(kW)	11.55	11.13	10.92	10.08	9.77
	Scck(kW)	9.82	9.68	9.61	9.37	9.37
73 °F/23°C WB	S/T	0.85	0.87	0.88	0.93	0.96
	PW(kW)	4.14	4.31	4.62	4.80	5.06

Heating

Outdoor DB (°C)	24		7		2		-5		-7	
outdoor WB (°C)	18		6		1		-6		-8	
Evap. Entering Air DB (°C)	TC	KW	TC	KW	TC	KW	TC	KW	TC	KW
	Capacity (kW)									
15	15.08	4.00	12.18	3.44	9.98	2.96	9.05	2.78	8.47	2.63
20	14.62	4.37	11.60	3.70	9.40	3.26	8.82	3.00	8.12	2.81
27	13.69	4.63	10.90	4.00	8.82	3.52	8.58	3.26	7.66	3.03

MDRA-48HWN2

Cooling

Indoor air entering Temp		Outdoor air entering Temp(DB)				
		70 °F/21°C	82 °F/28°C	95 °F/35°C	109 °F/43°C	115 °F/46°C
70 °F/21°C DB	Tcc(kW)	14.42	13.72	13.02	12.46	12.04
	Scck(kW)	10.67	10.56	10.42	10.47	10.23
59 °F/15°C WB	S/T	0.74	0.77	0.80	0.84	0.85
	PW(kW)	4.57	4.95	5.17	5.34	5.56
75 °F/24°C DB	Tcc(kW)	14.84	14.14	13.44	12.60	12.32
	Scck(kW)	11.13	11.03	10.89	10.58	10.47
63 °F/17°C WB	S/T	0.75	0.78	0.81	0.84	0.85
	PW(kW)	4.84	5.17	5.39	5.67	5.89
80 °F/27°C DB	Tcc(kW)	15.12	14.42	14.00	13.02	12.74
	Scck(kW)	11.19	11.10	10.92	10.68	10.57
66 °F/19°C WB	S/T	0.74	0.77	0.78	0.82	0.83
	PW(kW)	4.95	5.23	5.50	5.78	6.00
84 °F/29°C DB	Tcc(kW)	15.26	14.56	14.28	13.16	12.81
	Scck(kW)	12.82	12.38	12.28	11.98	12.04
66 °F/19°C WB	S/T	0.84	0.85	0.86	0.91	0.94
	PW(kW)	5.06	5.34	5.56	5.89	6.22
90 °F/32°C DB	Tcc(kW)	15.40	14.84	14.56	13.44	13.02
	Scck(kW)	13.09	12.91	12.81	12.50	12.50
73 °F/23°C WB	S/T	0.85	0.87	0.88	0.93	0.96
	PW(kW)	5.17	5.39	5.78	6.00	6.33

Heating

Outdoor DB (°C)	24		7		2		-5		-7	
outdoor WB (°C)	18		6		1		-6		-8	
Evap. Entering Air DB (°C)	TC	KW	TC	KW	TC	KW	TC	KW	TC	KW
	Capacity (kW)									
15	20.11	4.86	16.24	4.19	13.30	3.60	12.07	3.38	11.29	3.20
20	19.49	5.31	15.47	4.50	12.53	3.96	11.76	3.65	10.83	3.42
27	18.25	5.63	14.54	4.86	11.76	4.28	11.45	3.96	10.21	3.69

MDRA-60HWN2

Cooling

Indoor air entering Temp		Outdoor air entering Temp(DB)				
		70 °F/21°C	82 °F/28°C	95 °F/35°C	109 °F/43°C	115 °F/46°C
70 °F/21°C DB	Tcc(kW)	16.48	15.68	14.88	14.24	13.76
	Scs(kW)	12.20	12.07	11.90	11.96	11.70
59 °F/15°C WB	S/T	0.74	0.77	0.80	0.84	0.85
	PW(kW)	5.40	5.85	6.11	6.31	6.57
75 °F/24°C DB	Tcc(kW)	16.96	16.16	15.36	14.40	14.08
63 °F/17°C WB	Scs(kW)	12.72	12.60	12.44	12.10	11.97
	S/T	0.75	0.78	0.81	0.84	0.85
	PW(kW)	5.72	6.11	6.37	6.70	6.96
80 °F/27°C DB	Tcc(kW)	17.28	16.48	16.00	14.88	14.56
	Scs(kW)	12.79	12.69	12.48	12.20	12.08
66 °F/19°C WB	S/T	0.74	0.77	0.78	0.82	0.83
	PW(kW)	5.85	6.18	6.50	6.83	7.09
	Tcc(kW)	17.44	16.64	16.32	15.04	14.64
84 °F/29°C DB	Scs(kW)	14.65	14.14	14.04	13.69	13.76
	S/T	0.84	0.85	0.86	0.91	0.94
66 °F/19°C WB	PW(kW)	5.98	6.31	6.57	6.96	7.35
	Tcc(kW)	17.60	16.96	16.64	15.36	14.88
90 °F/32°C DB	Scs(kW)	14.96	14.76	14.64	14.28	14.28
	S/T	0.85	0.87	0.88	0.93	0.96
73 °F/23°C WB	PW(kW)	6.11	6.37	6.83	7.09	7.48

Heating

Outdoor DB (°C)	24		7		2		-5		-7	
Outdoor WB (°C)	18		6		1		-6		-8	
Evap. Entering Air DB (°C)	TC	KW	TC	KW	TC	KW	TC	KW	TC	KW
	Capacity (kW)									
15	21.33	6.16	17.23	5.30	14.11	4.56	12.80	4.28	11.98	4.05
20	20.68	6.73	16.41	5.70	13.29	5.02	12.47	4.62	11.49	4.33
27	19.36	7.13	15.43	6.16	12.47	5.42	12.14	5.02	10.83	4.67

MDRC -36HWN2

Cooling

			OUTDOOR TEMPERATURE DRY						
			21°C	25°C	30°C	35°C	40°C	45°C	50°C
Indoor Conditions	21°C D 15°C W	Total capacity [kW]	9.52	9.11	8.77	8.28	7.95	7.70	7.45
		Sensitive capacity [kW]	7.62	7.28	7.02	6.62	6.36	6.16	5.96
		Input [kW]	2.61	2.98	3.35	3.73	4.10	4.47	4.84
	24°C D 17°C W	Total capacity [kW]	10.43	9.97	9.61	9.07	8.70	8.43	8.16
		Sensitive capacity [kW]	8.34	7.98	7.69	7.25	6.96	6.75	6.53
		Input [kW]	2.75	3.15	3.54	3.93	4.33	4.72	5.11
	27°C D 19°C W	Total capacity [kW]	11.33	10.84	10.45	9.86	9.46	9.17	8.87
		Sensitive capacity [kW]	9.07	8.67	8.36	7.88	7.57	7.33	7.10
		Input [kW]	2.90	3.31	3.73	4.14	4.56	4.97	5.38
	32°C D 23°C W	Total capacity [kW]	13.03	12.47	12.01	11.33	10.88	10.54	10.20
		Sensitive capacity [kW]	10.43	9.97	9.61	9.07	8.70	8.43	8.16
		Input [kW]	3.33	3.81	4.29	4.76	5.24	5.71	6.19

Heating

			OUTDOOR CONDITIONS						
			24°C D	12°C D	7°C D	4°C D	0°C D	-5°C D	-7°C D
			18°C W	11°C W	6°C W	3°C W	-1°C W	-6°C W	-8°C W
Indoor Conditions	15°C	Capacity [kW]	11.54	9.23	7.69	6.92	6.54	5.77	5.38
		Input [kW]	4.14	3.32	2.76	2.63	2.49	2.35	2.21
	18°C	Capacity [kW]	12.98	10.39	8.65	7.79	7.36	6.49	6.06
		Input [kW]	4.66	3.73	3.11	2.95	2.80	2.64	2.49
	20°C	Capacity [kW]	14.42	11.54	9.62	8.65	8.17	7.21	6.73
		Input [kW]	5.18	4.14	3.45	3.28	3.11	2.94	2.76
	22°C	Capacity [kW]	15.87	12.69	10.58	9.52	8.99	7.93	7.40
		Input [kW]	5.70	4.56	3.80	3.61	3.42	3.23	3.04
	27°C	Capacity [kW]	18.75	15.00	12.50	11.25	10.63	9.38	8.75
		Input [kW]	6.74	5.39	4.49	4.27	4.04	3.82	3.59

MDRC-48HWN2

Cooling

			OUTDOOR TEMPERATURE DRY						
			21°C	25°C	30°C	35°C	40°C	45°C	50°C
Indoor Conditions	21°C D 15°C W	Total capacity [kW]	11.54	11.04	10.63	10.03	9.63	9.33	9.03
		Sensitive capacity [kW]	9.23	8.83	8.51	8.03	7.70	7.46	7.22
		Input [kW]	3.41	3.89	4.38	4.87	5.35	5.84	6.33
	24°C D 17°C W	Total capacity [kW]	12.64	12.09	11.65	10.99	10.55	10.22	9.89
		Sensitive capacity [kW]	10.11	9.67	9.32	8.79	8.44	8.17	7.91
		Input [kW]	3.59	4.11	4.62	5.14	5.65	6.16	6.68
	27°C D 19°C W	Total capacity [kW]	13.73	13.14	12.66	11.94	11.47	11.11	10.75
		Sensitive capacity [kW]	10.99	10.51	10.13	9.55	9.17	8.89	8.60
		Input [kW]	3.78	4.32	4.87	5.41	5.95	6.49	7.03
	32°C D 23°C W	Total capacity [kW]	15.79	15.11	14.56	13.73	13.19	12.77	12.36
		Sensitive capacity [kW]	12.64	12.09	11.65	10.99	10.55	10.22	9.89
		Input [kW]	4.35	4.97	5.60	6.22	6.84	7.46	8.08

Heating

			OUTDOOR CONDITIONS						
			24°C D	12°C D	7°C D	4°C D	0°C D	-5°C D	-7°C D
			18°C W	11°C W	6°C W	3°C W	-1°C W	-6°C W	-8°C W
Indoor Conditions	15°C	Capacity [kW]	15.69	12.56	10.46	9.42	8.89	7.85	7.32
		Input [kW]	5.53	4.42	3.69	3.50	3.32	3.13	2.95
	18°C	Capacity [kW]	17.66	14.13	11.77	10.59	10.01	8.83	8.24
		Input [kW]	6.22	4.98	4.15	3.94	3.73	3.53	3.32
	20°C	Capacity [kW]	19.62	15.69	13.08	11.77	11.12	9.81	9.16
		Input [kW]	6.91	5.53	4.61	4.38	4.15	3.92	3.69
	22°C	Capacity [kW]	21.58	17.26	14.39	12.95	12.23	10.79	10.07
		Input [kW]	7.60	6.08	5.07	4.82	4.56	4.31	4.06
	27°C	Capacity [kW]	25.50	20.40	17.00	15.30	14.45	12.75	11.90
		Input [kW]	8.99	7.19	5.99	5.69	5.39	5.09	4.79

MDRC -60HWN2

Cooling

			OUTDOOR TEMPERATURE DRY						
			21°C	25°C	30°C	35°C	40°C	45°C	50°C
Indoor Conditions	21°C D 15°C W	Total capacity [kW]	12.93	12.36	11.92	11.24	10.79	10.45	10.12
		Sensitive capacity [kW]	10.34	9.89	9.53	8.99	8.63	8.36	8.09
		Input [kW]	4.23	4.84	5.44	6.05	6.65	7.25	7.86
	24°C D 17°C W	Total capacity [kW]	14.16	13.54	13.05	12.31	11.82	11.45	11.08
		Sensitive capacity [kW]	11.33	10.83	10.44	9.85	9.46	9.16	8.86
		Input [kW]	4.47	5.10	5.74	6.38	7.02	7.66	8.30
	27°C D 19°C W	Total capacity [kW]	15.39	14.72	14.18	13.38	12.85	12.45	12.04
		Sensitive capacity [kW]	12.31	11.78	11.35	10.71	10.28	9.96	9.64
		Input [kW]	4.70	5.37	6.05	6.72	7.39	8.06	8.73
	32°C D 23°C W	Total capacity [kW]	17.70	16.93	16.31	15.39	14.77	14.31	13.85
		Sensitive capacity [kW]	14.16	13.54	13.05	12.31	11.82	11.45	11.08
		Input [kW]	5.41	6.18	6.95	7.72	8.50	9.27	10.04

Heating

			OUTDOOR CONDITIONS							
			24°C D	12°C D	7°C D	4°C D	0°C D	-5°C D	-7°C D	
Indoor Conditions	15°C	Capacity [kW]	18°C W	11°C W	6°C W	3°C W	-1°C W	-6°C W	-8°C W	
		Input [kW]	17.25	13.80	11.50	10.35	9.77	8.62	8.05	
	18°C	Capacity [kW]	6.54	5.23	4.36	4.14	3.92	3.70	3.49	
		Input [kW]	19.40	15.52	12.94	11.64	11.00	9.70	9.05	
	20°C	Capacity [kW]	7.35	5.88	4.90	4.66	4.41	4.17	3.92	
		Input [kW]	21.56	17.25	14.37	12.94	12.22	10.78	10.06	
	22°C	Capacity [kW]	8.17	6.54	5.45	5.18	4.90	4.63	4.36	
		Input [kW]	23.72	18.97	15.81	14.23	13.44	11.86	11.07	
	27°C	Capacity [kW]	8.99	7.19	5.99	5.69	5.39	5.09	4.79	
		Input [kW]	28.03	22.42	18.68	16.82	15.88	14.01	13.08	
			10.62	8.50	7.08	6.73	6.37	6.02	5.67	

4. Electrical Data

a) 50Hz

Model	Power Supply			Compressor				Evaporator fan motor			Condenser fan motor		
	MCA	TOCA	MFA	MSC	RLA	IPT	Qty	FLA	IPT	Qty	FLA	IPT	Qty
MDRA-24HWN2	18	15	40	55	12.0	2.45	1	2.8	0.65	1	1.2	0.24	1
MDRA-36HWN2	10	8	25	48	6.8	3.8	1	2.8	0.65	1	1.2	0.24	1
MDRA-48HWN2	11	9	30	52	7.2	4.45	1	3.8	0.86	1	1.2	0.24	1
MDRA-60HW	14	11	40	66	9.3	5.45	1	3.8	0.86	1	1.2	0.26	1
MDRC-36HWN2	9	10	15	6.9	45	3.8	1	15.	0.33	1	1.2	0.25	1
MDRC-48HWN2	12	13	18	8.2	55	4.45	1	3.6	0.76	1	1.2	0.25	1
MDRC-60HWN2	14	15	20	9.7	69	5.45	1	3.6	0.76	1	1.2	0.25	1

Notes:

MCA: Min. Current Amps. (A)

TOCA: Total Over-current Amps. (A)

MFA: Max. Fuse Amps. (A)

MSC: Max Starting Current (A)

RLA: Rated Locked Amps. (A)

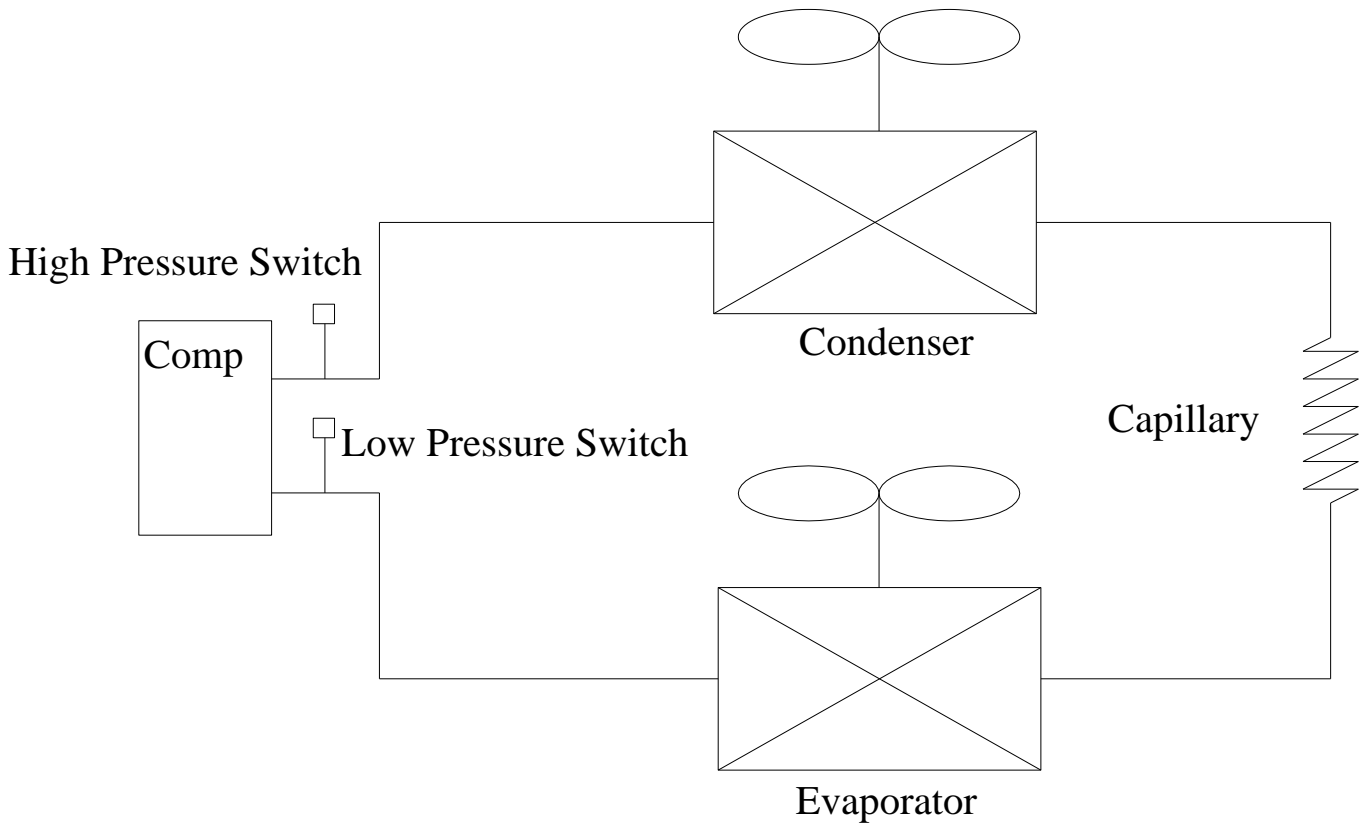
IPT: Input power(kW)

FLA: Full Load Amps. (A)

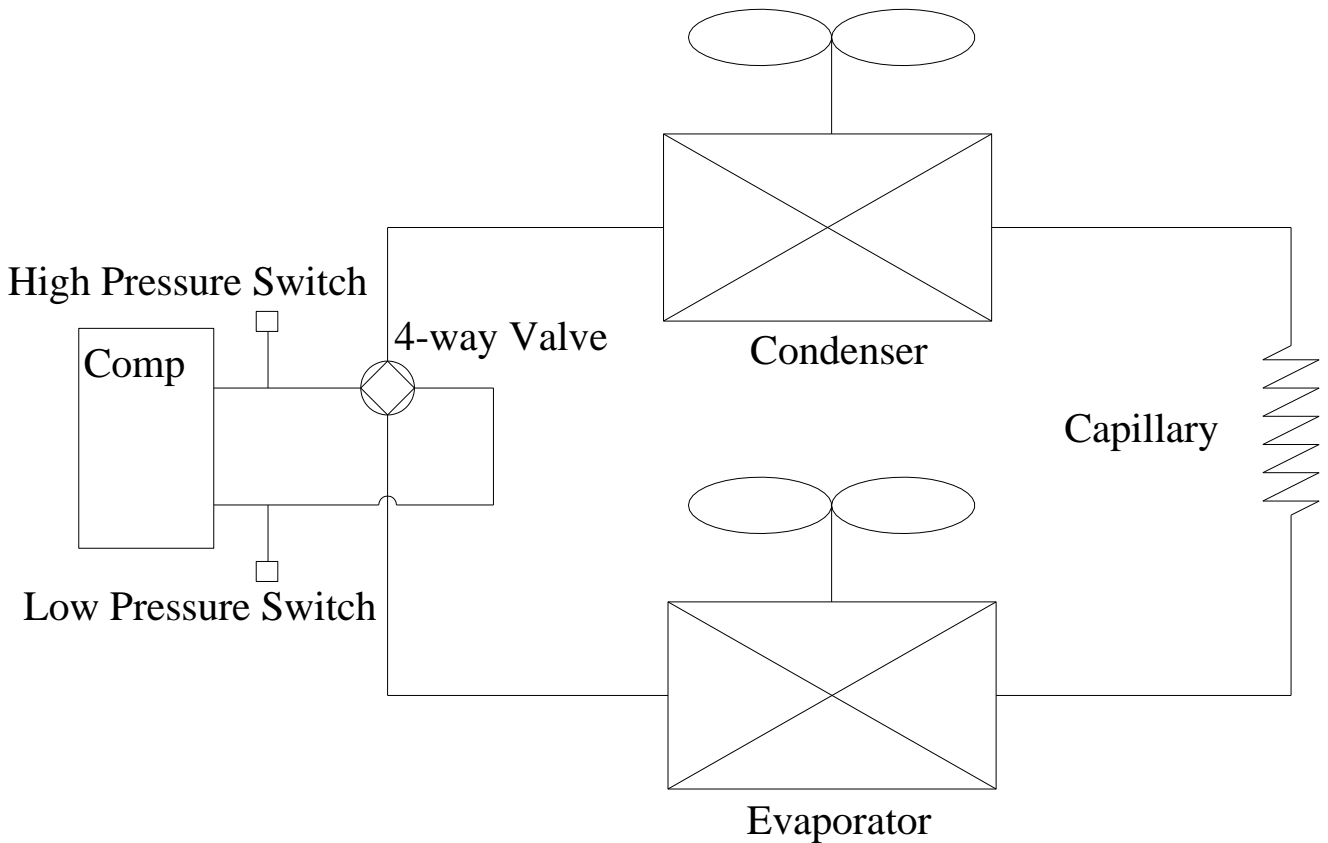
Voltage imbalance between phases to be <2%

5. Refrigerant Cycle Diagram

a) Cooling Only






b) Heat Pump



7. Installation

a) Accessories

Standard accessories:

Name of accessories	Quantity	Outline
Manual	1	---
Drain outlet	1	
Snap ring	1	
Drain pipe	1	

b) General Information

Important: read this entire manual before beginning installation procedures.

Caution:

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 is connected.

If operating checks must be performed with the unit operating, it is the technician's responsibility to recognize these hazards and proceed safely.

Read this manual carefully before attempting to install, operate, or perform maintenance on this unit. Installation and maintenance should be performed by qualified service technicians only.

Inspection

1. Check for damage after the unit is unloaded. Report promptly, to the carrier, any damage found to the unit. Do not drop the unit.
2. Check the unit's nameplate to determine if the unit is correct for the intended application. The power supply must be adequate for both the unit and all accessories.

Important:

Reconnect all grounding devices. All parts of this product capable of conducting electrical current are grounded. If grounding wires, screws, straps, clips nuts or washers used to complete a path to ground are removed for service, they must be returned to their original position and properly fastened.

Notice:

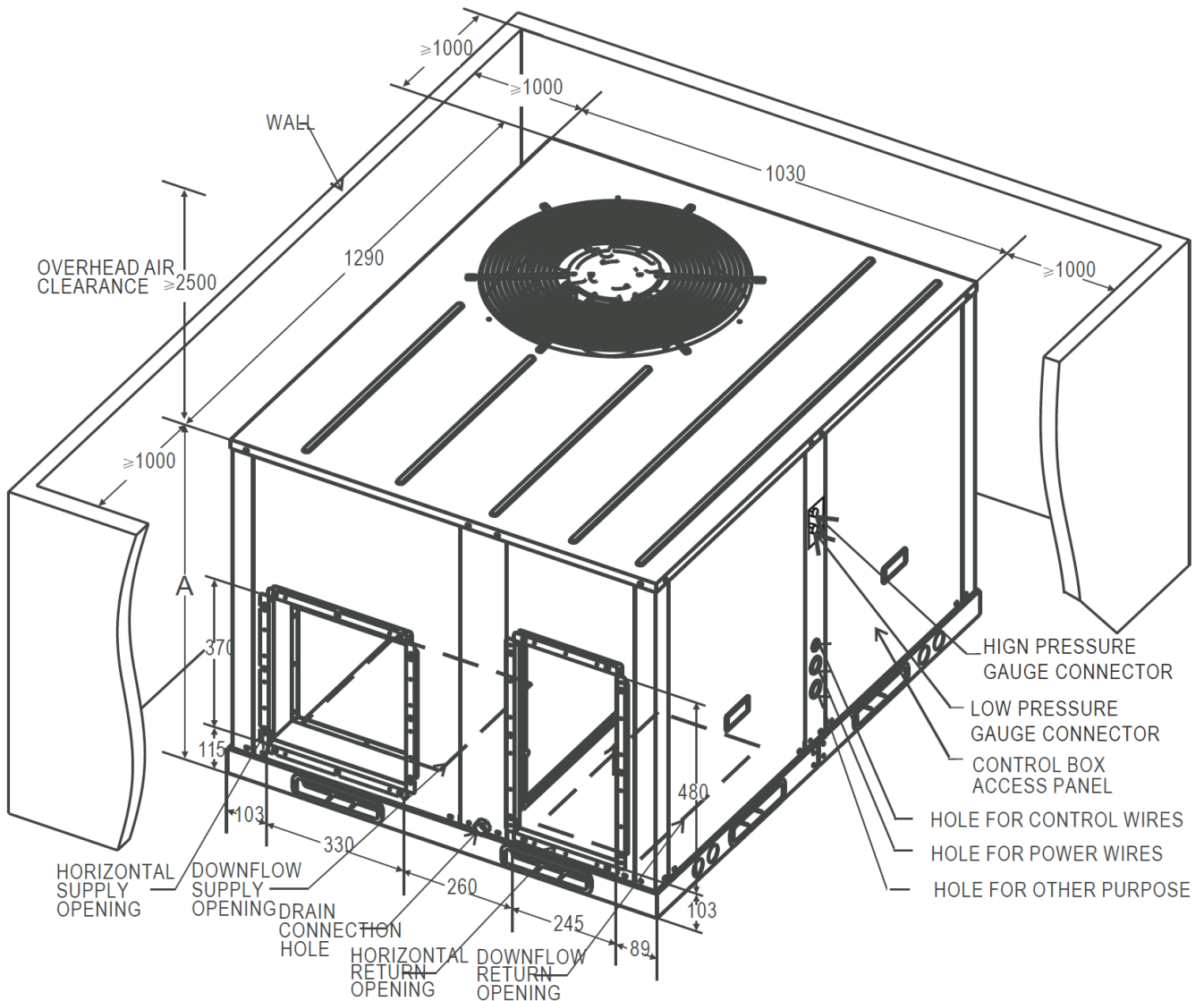
Warnings and cautions appear at appropriate locations throughout this manual. Read these carefully.

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.

c) Dimensional Data

Capacity(Btu/h)	A (Height)
24000~36000	630 mm
48000~60000	830 mm



d) Locations and Recommendations

i. Horizontal Airflow Application

These units are designed 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.

ii. Downflow Application -- Curb Mounting

The Roof Mounting Curb, or a field fabricated curb must be in place before the unit is hoisted to the roof top.

The Roof Mounting Curb (frame) must be installed on a flat, level section of the roof and provide a level mounting surface for the unit. In addition, be sure to provide sufficient height above the roof to prevent water from entering the unit. Remove covers from the downflow supply and return air openings and place them over the horizontal supply return air openings and secure with sheet metal screws.

Be sure the mounting curb spans structural members (trusses) of the roof, thereby providing sufficient support for the weight of the unit, the curb, the duct(s), and any factory or field installed accessories.

Be sure the hole in the structure for the ducts is large enough to accommodate the fabricated ducts and the insulation surrounding them.

These units are designed certified for outdoor installation. These units may be installed directly on wood flooring or on Class A, Class B, or Class C roof covering material.

Location of the unit must allow for service clearance around it. Clearance of the unit must be given careful consideration.

Check the handling facilities to ensure the safety of personnel and the unit(s).

Caution must be taken at all times to avoid personal injuries and/or damage to the equipment.

The unit must be mounted level for proper drainage of water through the holes in the base pan.

The unit must not be exposed to direct roof water runoff.

Flexible duct connectors must be of a flame retardant material. All duct work outside of the structure must be insulated and weatherproofed in accordance with local codes.

Roof flashing must be installed to seal the roof curb cavity and must conform to local building codes.

All fabricated outdoor ducts should be as short as possible.

iii. Clearances

The recommended clearances for single-unit installations are illustrated in Figure 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).

e) Installation

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.

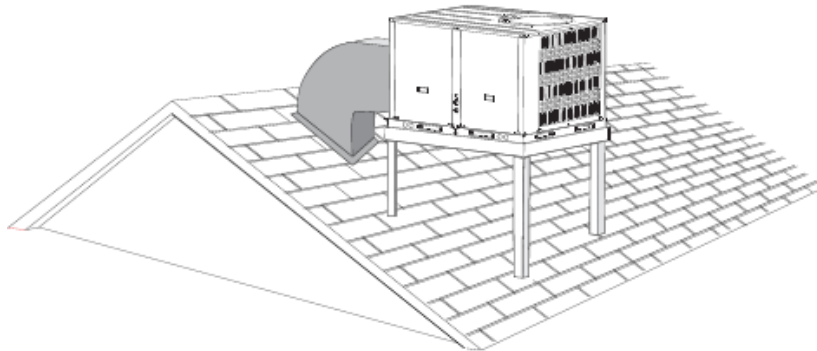


Figure 2 Typical rooftop application with frame

Typical rooftop application with frame:

Remove covers from the downflow supply and return air openings and place them over the horizontal supply return air openings and secure with sheet metal screws.

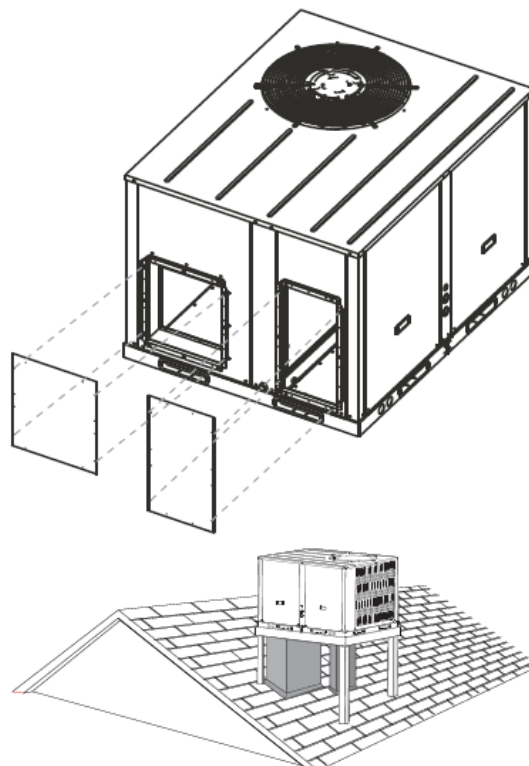


Figure 3 Typical rooftop application with frame

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.

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.

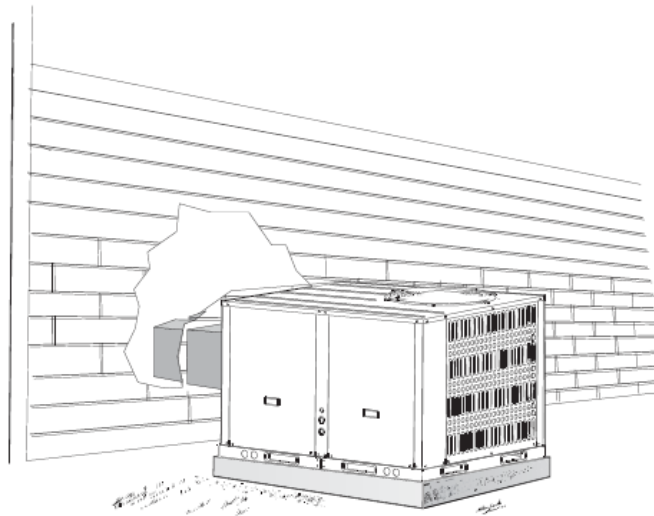


Figure 4 Typical ground level application

Condensate Drain Piping

Twist drain outlet into drain connection hole, sheathe drain pipe, lock in the snap ring.

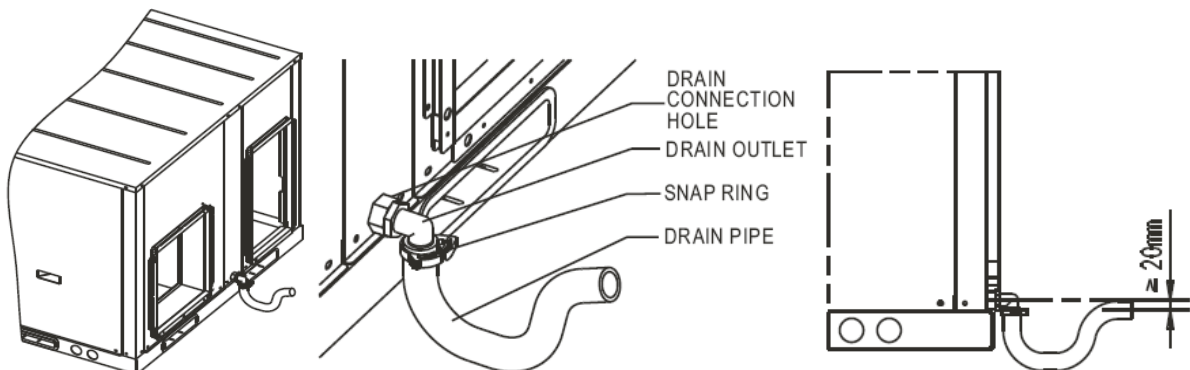


Figure 5 Condensate drain piping

Ductwork

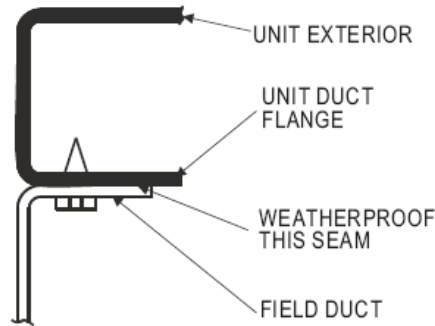
1. Attaching Horizontal Ductwork to Unit

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.



2. Attaching Downflow Ductwork to Roof Curb

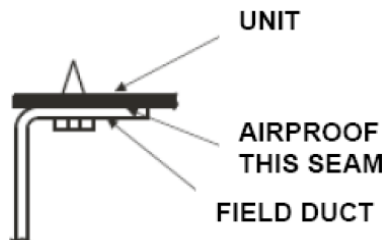
Supply and return air flanges are provided on the roof curb for easy duct installation. All ductwork must be run and attached to the curb before the unit is set into place.

Follow these guidelines for ductwork construction:

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

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

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



f) Electrical Wiring

Electrical Power

It is important that proper electrical power be available for the unit. Voltage variation should remain within the limits stamped on the unit nameplate.

Disconnect Switch

Provide an approved weatherproof disconnect either on the side of the unit or within close proximity and within sight of the unit.

Over Current Protection

The branch circuit feeding the unit must be protected as shown on the unit rating plate.

Power Wiring

The power supply lines must be run in weather tight conduit to the disconnect and into the bottom of the unit control box.

Provide strain relief for all conduits with suitable connectors.

Provide flexible conduit supports whenever vibration transmission may cause a noise problem within the building structure. Be sure all connections are made tight.

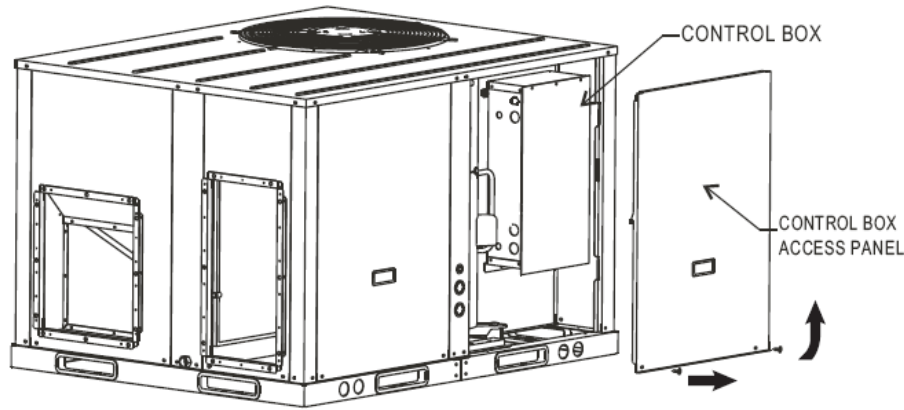
Control Wiring (Class II)

Low voltage control wiring should not be run in conduit with power wiring unless Class 1 wire of proper voltage rating is used.

Make connections as shown on the unit wiring diagram.

Do not short thermostat wires since this will damage the control transformer.

Important: Upon completion of wiring check all electrical connections, including factory wiring within the unit, make sure all connections are tight. Replace and secure all electrical box covers and access doors before leaving the unit or turning on the power to the unit.



Note

Knock down the control box access panel, first twist off screws and then up it, the control box access panel is getting out.

g) Start-Up

Packaging 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

Caution:

Before starting the system on the cooling cycle, turn the thermostat switch to OFF and close the unit disconnect switch. This procedure energizes the compressor crankcase heater, vaporizing any liquid refrigerant in the crankcase. This is a precaution against foaming at startup which could damage the compressor bearings.

Allow the heater to operate a minimum of eight (8) hours.

To start the unit in the cooling mode, set the thermostat system switch to COOL and move the thermostat COOL indicator to a setting below room temperature. The condenser (outdoor) fan motor compressor and evaporator (indoor) fan motor will operate automatically.

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.

h) Maintenance

Routine Maintenance by Owner

You can do some of the periodic maintenance functions for your unit yourself; this includes cleaning the permanent air filters, cleaning the unit cabinet, cleaning the condenser coil, and conducting a general unit inspection on a regular basis

Cleaning the Air Filter

1. Dismantle the air filter.
 - Twist of screws and up the plate that is gets out.
 - Make the Clasp of air filter from horizontal to vertical.
 - The air filter turns 30 degree to out.

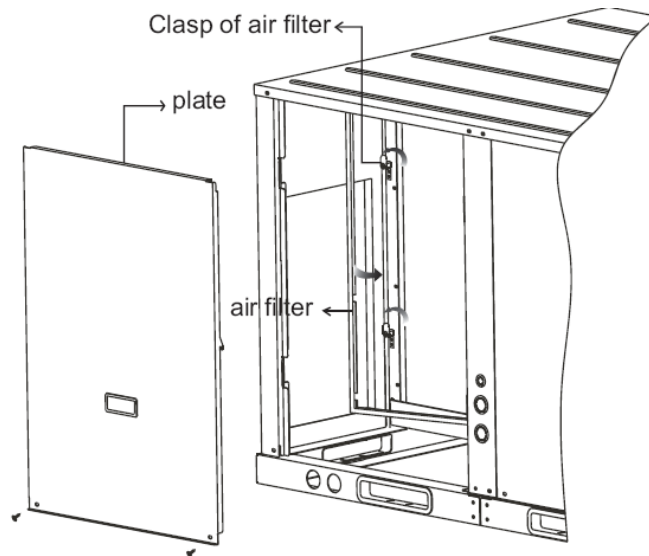


Figure 9

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).

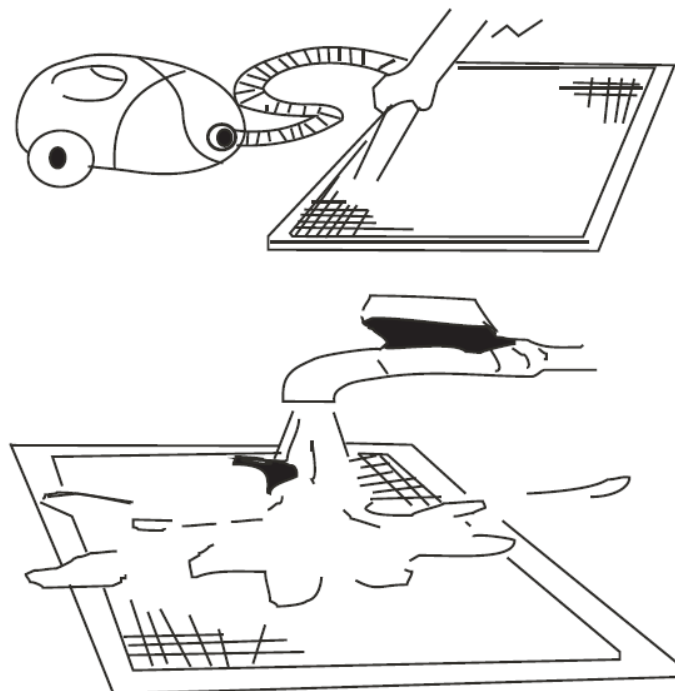


Figure 10

- 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.

3. 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--COOLING SEASON

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 procedures on the fan. Operating the unit without the access panel properly installed may result in severe personal injury or death.

8. System Operation

a) LED Display

The control would display any fault code that is currently active using the LED. The control will display the fault code, when the LEDs are flashing quickly; there is something wrong with the system. Refer to below table for detail fault code.

Function:

1. the compressor and indoor fan will start when the system is energized, outdoor fan starts with compressor
2. When the system is de-energized, the outdoor fan and compressor would close soon, but the indoor fan would close later.

b) Operational Codes:

No.	Code	LED1(Red)	LED2(Yellow)	LED3(Green)
1	Standby	OFF	OFF	ON
2	Function	ON	ON	ON
3	Lack of phase	Flash	Flash	Flash
	Phase-error			
4	T1 sensor failure	Flash	Flash	Flash
	High pressure protection			
	Vent protection			
5	T2 sensor failure	Flash	OFF	Flash
6	T3 sensor failure	OFF	Flash	Flash
7	T4 sensor failure	ON	Flash	Flash
8	T2 Evaporator low temp, protection	OFF	Flash	OFF
9	T2 Evaporator high temp, protection	Flash	ON	ON
10	T3 Condenser high temp, protection	Flash	OFF	OFF
11	Wired controller input failure	Flash	Flash	ON
12	Compressor current protection	OFF	OFF	Flash
13	Compressor-inhaling low pressure protection	Flash	ON	Flash
14	Defrost	ON	Flash	Flash

c) Low pressure switch

The control will detect the status of low pressure switch, which is normally close. If the low pressure switch is open during the first time of power supply, the control will de-energized the compressor. If low pressure switch protection appears 3 times in 20 minutes, the control should be restored by switch off the power supply. The control will ignore the low pressure switch input during the following conditions: defrost operation, 4 minutes following the completion of a defrost cycle, first5minuteofcompressor operation during the heat mode.

d) High pressure switch

The Unit is equipped with a high-pressure switch that is connected to the mainboard, If the high-pressure switch opens for more than 40 milliseconds, the control will de-energize the compressor and store and display the appropriate fault code. If the pressure switch closes and a thermostat call for compressor operation is present, the control will apply the three-minute anti-short cycle delay timer and start the compressor when the timer expires.

e) Temperature sensor

The unit has two temperature sensors, which are called T3 and T4, T3 means pipe temperature sensor, T4 means outdoor unit circumstance temperature sensor. When the temperature sensor was damaged, the system would close and the LED would flash.

f) Indications of proper operation

When the LEDs in lighting states, no matter which one, it is means the system runs properly.