

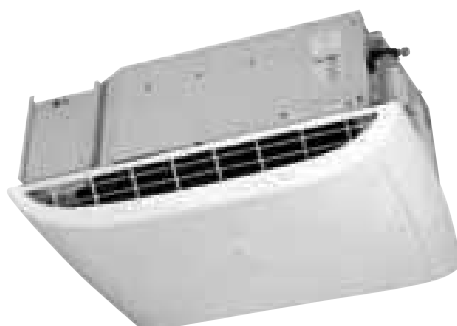


# Service Manual

## DNC series

---

Indoor Units	Outdoor Units
DNC 35 (955)	OU8-33 R22/R407C
DNC 38 (1155)	OU10-38 R22/R407C
DNC 44 (1255)	OU10-44 R22
	OU10-50 R407C



REFRIGERANT	
R22 R407C	HEAT PUMP COOLING ONLY

JULY 2005

**LIST OF EFFECTIVE PAGES**

**Note:** Changes in the pages are indicated by a “Revision#” in the footer of each effected page (when none indicates no changes in the relevant page). All pages in the following list represent effected/ non effected pages divided by chapters.

Dates of issue for original and changed pages are:

Original ..... 0 ..... July 2005

Total number of pages in this publication is 139 consisting of the following:

Page No.	Revision No. #		Page No.	Revision No. #		Page No.	Revision No. #
----------	----------------	--	----------	----------------	--	----------	----------------

Title ..... 0  
 A ..... 0  
 i ..... 0  
 1-1 - 1-2 ..... 0  
 2-1 - 2-10 ..... 0  
 3-1 ..... 0  
 4-1 - 4-2 ..... 0  
 5-1 - 5-41 ..... 0  
 6-1 - 6-3 ..... 0  
 7-1 - 7-5 ..... 0  
 8-1 - 8-34 ..... 0  
 9-1 - 9-2 ..... 0  
 10-1-10-21 ..... 0

- Zero in this column indicates an original pag

\*Due to constant improvements please note that the data on this service manual can be modified with out notice.

\*\*Photos are not contractual.

---










## Table of Contents

1.	FEATURES .....	1-1
2.	PRODUCT DATA SHEET .....	2-1
3.	RATING CONDITIONS .....	3-1
4.	OUTLINE DIMENSIONS .....	4-1
5.	PERFORMANCE DATA & PRESSURE CURVES .....	5-1
6.	REFRIGERATION DIAGRAMS .....	6-1
7.	WIRING DIAGRAMS .....	7-1
8.	CONTROL SYSTEM .....	8-1
9.	TROUBLESHOOTING .....	9-1
10.	EXPLODED VIEWS AND SPARE PARTS LISTS.....	10-1

# 1. FEATURES

## MODES OF OPERATION , FUNCTIONS AND FEATURES

The air conditioner is based on a microcomputer control system with remote wall mounted LCD display and control unit, programmed for the following modes and functions:

	<b>COOL</b>	Cools, dehumidifies and filters the room air. Maintains desired site temperature.
	<b>HEAT</b>	Heats and filters the air. Maintains desired site temperature.
	<b>AUTO</b>	Automatically switches from COOLING to HEATING or from HEATING to COOLING, maintaining the desired temperature according to the room conditions.
	<b>DRY</b>	Dehumidifies and moderately cools the room. In DRY Mode the air conditioner operates at an increased dehumidifying power. This function is recommended to be used when temperature is rather cool but the humidity is high.
	<b>FAN</b>	Recalculates and filters the room air. Maintains constant air movement in the room.
	<b>AUTO FAN</b>	The air conditioner automatically selects the FAN speed in accordance to the room temperature. At the start, the unit operates at high fan speed. As the room air gets closer to the desired temperature, the fan switches on a lower speed for quieter operation.
	<b>HOT KEEP</b>	In HEATING and in AUTO FAN, the fan will be turned off when the compressor is not in operation and will not be restarted, unless the indoor coil reaches adequate temperature. This HOT KEEP feature prevents uncomfortable cold air drafts. AUTO FAN is therefore, recommended to be used when the air conditioner is in HEATING mode.
	<b>I FEEL</b>	Switches the temperature sensing point to the place where the remote control is located (in normal operation the temperature sensor is located behind the intake grille of the air conditioner). This function is designed to provide a personalized environment by transmitting the temperature control information from where the remote control is placed. The communication between the remote control and the central control unit is done by infrared signal. When using this function, the remote control should always be aimed without obstructions at the air conditioner.
	<b>TIMER</b>	Real time control and display, automatically turns the air conditioner ON or OFF according to the time of day setting, ensuring comfort conditions before returning home, without wasting electricity. It turns off the air conditioner automatically when sleeping.
	<b>SLEEP</b>	Designed to automatically reset the temperature setting. In COOLING mode the temperature rises one degree centigrade after each consecutive hour, up to three hours, from the start of the mode. In HEATING mode, the reverse occurs, the air conditioner lowers its temperature one degree every hour. When in SLEEP Mode, the operation will automatically turn off after seven hours. This function saves energy when the air conditioner is operating during off hours.



**ROOM TEMP.** Measures and displays room temperature.



**FILTER INDICATION** Filter indicator on the indoor unit display is turned on when the filter requires cleaning. After cleaning and reinstalling the filter, the system should be reset.

**BUZZER** A soft buzzer will sound from the indoor unit display to indicate that a command sent by the remote control has been accepted and stored in the unit's memory. This feature may be easily canceled by the user from the display panel.

**ON UNIT OPERATION** The air conditioner can be turned ON for COOLING or HEATING or be turned OFF directly from the indoor unit display panel without the use of the remote control.

**3-MIN DELAYED RUN** The compressor is protected by a three minute delayed restart.

**MEMORY** The microprocessor retains the last data entry whether or not the unit is plugged in. Therefore, when the unit restarts after a power disruption or power failure, it will resume operation in the same mode as before the power disruption.



**LOCK** Freezes the last operation setting on the remote control. When LOCK is activated, the remote control will not be able to control the air conditioner.

## 2. PRODUCT DATA SHEET

### 2.1 R22 / R407C

Model		<b>DNC 955 R22</b>			
Installation method		Ceiling Mounted			
Characteristic	Units	Cooling	Heating		
Capacity	Btu/hr	31060	32000		
	W	9100	9380		
Total input	W	3370	2840		
COP	W/W	2.7	3.30		
Power supply (voltage, cycle, No of phases)		230V/50Hz/1			
Rated current		A	14.6	12.3	
Circuit breaker rating		A	20		
<b>I N D O O R  U N I T</b>	Fan type & qty.		Plug Fan x 1		
	Fan speed (HI-M-LO)		RPM	700	550
	Airflow (LO-M-HI)		m <sup>3</sup> /hr	1700	1330
			CFM	1000	780
	Static Pressure		Pa	20-80	
	Noise Power**		dB(A)	57.2	54.8
	Noise Pressure*		dB(A)	51.8	47.5
	Dehumidification		l/h	3.1	
	Condensate drain tube I.D		mm	16	
	Dimensions		W	1025	
			D	760	
			H	300	
	Weight		Kg	43	
	Package dimensions		mm	1125x975x360(Unit)+1180x870x180(Frame)	
Stacking height		units	7		
Units per palet		units	7		
<b>O U T D O O R  U N I T</b>	Refrigerant control		Capillary Tube		
	Compressor type & model		SCROLL LG SQ040PA		
	Fan type & qty.		Axial		
	Fan speeds		RPM	850	
	Airflow (std. conditions)		m <sup>3</sup> /hr	3100	
			CFM	1820	
	Noise Pressure*/ Noise Power		dB(A)	62/69	
	Dimensions		W	900	
			D	340	
			H	860	
	Weight		Kg	82	
	Packing dimensions		mm	903x985x406	
	Stacking height		units	2	
Units per palet		units	6		
Refrigerant		R22			
Charge for 7.5 meter pipes length		Grams	2450		
<b>T U B E S</b>	Condensate drain tube I.D		mm		
			liquid	in.	
			suction	in.	
	Connection between units		height difference	10m	
			tubing length	30m	
<b>A C C.</b>	Operation control type		LCD Remote Control		
	Heating elements		W	2x750	
	Ducts		8", 10", 12"		
	Others		Crankcase heater 60W		

\* Noise pressure tested at 1m distance from unit  
 \*\* Noise power for ducted units measured at air outlet side

Model		DNC 955 3PH				
Installation method		Ceiling Mounted				
Characteristic		Units	Cooling	Heating		
Capacity		Btu/hr	31060	32000		
		W	9100	9380		
Total input		W	3320	2760		
COP		W/W	2.74	3.40		
Power supply (voltage, cycle, No of phases)		400V/50Hz/3				
Rated current		A	3x8.7	3x7.3		
Circuit breaker rating		A	20			
I N D O O R  U N I T	Fan type & qty.		Plug Fan x 1			
	Fan speed (HI-M-LO)		RPM	700	550	500
	Airflow (LO-M-HI)		m <sup>3</sup> /hr	1700	1330	1200
			CFM	1000	780	705
	Static Pressure		Pa	20-80		
	Noise Power**		dB(A)	57.2	54.8	51.3
	Noise Pressure*		dB(A)	51.8	47.5	44.6
	Dehumidification		l/h	3.1		
	Condensate drain tube I.D		mm	16		
	Dimensions		W	mm		1025
			D	mm		760
			H	mm		300
	Weight		Kg	43		
	Package dimensions		mm	1125x975x360(Unit)+1180x870x180(Frame)		
Stacking height		units	7			
Units per palet		units	7			
O U T D O O R  U N I T	Refrigerant control		Capillary Tube			
	Compressor type & model		SCROLL LG SQ040YA			
	Fan type & qty.		Axial			
	Fan speeds		RPM	850		
	Airflow (std. conditions)		m <sup>3</sup> /hr	3100		
			CFM	1820		
	Noise Pressure*/ Noise Power		dB(A)	62/69		
	Dimensions		W	mm		900
			D	mm		340
			H	mm		860
	Weight		Kg	82		
	Packing dimensions		mm	903x985x406		
	Stacking height		units	2		
	Units per palet		units	6		
Refrigerant			R22			
Charge for 7.5 meter pipes length		Grams	2450			
T U B E S	Condensate drain tube I.D		mm	16		
			liquid	in.		3/8"
			suction	in.		5/8"
	Connection between units		height difference	10m		
tubing length			30m			
A C C.	Operation control type		LCD Remote Control			
	Heating elements		W	2x750		
	Ducts		8", 10", 12"			
	Others		Crankcase heater 60W,3PH Protector			

\* Noise pressure tested at 1m distance from unit  
 \*\* Noise power for ducted units measured at air outlet side

Model		<b>DNC 955 R407C</b>			
Installation method		Ceiling Mounted			
Characteristic	Units	Cooling	Heating		
Capacity	Btu/hr	31060	31200		
	W	9100	9140		
Total input	W	3580	3150		
COP	W/W	2.54	2.9		
Power supply (voltage, cycle, No of phases)		230V/50Hz/1			
Rated current		A	15.7	13.7	
Circuit breaker rating		A	20		
<b>I N D O O R  U N I T</b>	Fan type & qty.		Plug Fan x 1		
	Fan speed (HI-M-LO)		RPM	700	550
	Airflow (LO-M-HI)		m <sup>3</sup> /hr	1700	1330
			CFM	1000	780
	Static Pressure		Pa	20-80	
	Noise Power**		dB(A)	57.2	54.8
	Noise Pressure*		dB(A)	51.8	47.5
	Dehumidification		l/h	3.1	
	Condensate drain tube I.D		mm	16	
	Dimensions		W	mm	
			D	mm	
			H	mm	
	Weight		Kg	43	
	Package dimensions		mm	1125x975x360(Unit)+1180x870x180(Frame)	
Stacking height		units	7		
Units per palet		units	7		
<b>O U T D O O R  U N I T</b>	Refrigerant control		Capillary Tube		
	Compressor type & model		SCROLL HQ040PA		
	Fan type & qty.		Axial		
	Fan speeds		RPM	850	
	Airflow (std. conditions)		m <sup>3</sup> /hr	3100	
			CFM	1820	
	Noise Pressure*/ Noise Power		dB(A)	62/69	
	Dimensions		W	mm	
			D	mm	
			H	mm	
	Weight		Kg	82	
	Packing dimensions		mm	903x985x406	
	Stacking height		units	2	
	Units per palet		units	6	
Refrigerant			R 407C		
Charge for 7.5 meter pipes length		Grams	2520		
<b>T U B E S</b>	Condensate drain tube I.D		mm	16	
			liquid	in.	
			suction	in.	
	Connection between units		height difference	10m	
			tubing length	30m	
<b>A C C.</b>	Operation control type		LCD Remote Control		
	Heating elements		W	2x750	
	Ducts		8", 10", 12"		
	Others		Crankcase heater 60W		

\* Noise pressure tested at 1m distance from unit  
 \*\* Noise power for ducted units measured at air outlet side



Model		<b>DNC 955-3PH R407C</b>				
Installation method		Ceiling Mounted				
Characteristic	Units	Cooling		Heating		
Capacity	Btu/hr	30000		30000		
	W	8790		8790		
Total input	W	3370		3030		
COP	W/W	2.61		2.9		
Power supply (voltage, cycle, No of phases)		400V/50Hz/3				
Rated current		A	3x8.9	3x8.0		
Circuit breaker rating		A	3x10			
<b>I N D O O R  U N I T</b>	Fan type & qty.		Plug Fan x 1			
	Fan speed (HI-M-LO)		RPM	700	550	500
	Airflow (LO-M-HI)		m <sup>3</sup> /hr	1700	1330	1200
			CFM	1000	780	705
	Static Pressure		Pa	20-80		
	Noise Power**		dBA	57.2	54.8	51.3
	Noise Pressure*		dBA	51.8	47.5	44.6
	Dehumidification		l/h	3.1		
	Condensate drain tube I.D		mm	16		
	Dimensions	W	mm	1025		
		D	mm	760		
		H	mm	300		
	Weight		Kg	43		
	Package dimensions		mm	1125x975x360(Unit)+1180x870x180(Frame)		
	Stacking height		units	7		
Units per palet		units	7			
<b>O U T D O O R  U N I T</b>	Refrigerant control		Capillary Tube			
	Compressor type & model		SCROLL HQ040Y			
	Fan type & qty.		Axial			
	Fan speeds		RPM	850		
	Airflow (std. conditions)	m <sup>3</sup> /hr		3100		
		CFM		1820		
	Noise Pressure*/ Noise Power		dBA	62/69		
	Dimensions	W	mm	900		
		D	mm	340		
		H	mm	860		
	Weight		Kg	82		
	Packing dimensions		mm	903x985x406		
	Stacking height		units	2		
Units per palet		units	6			
Refrigerant		R 407C				
Charge for 7.5 meter pipes length		Grams	2530			
<b>T U B E S</b>	Condensate drain tube I.D		mm	16		
		liquid	in.	3/8"		
		suction	in.	5/8"		
	Connection between units	height difference		10m		
		tubing length		30m		
<b>A C C. C.</b>	Operation control type		LCD Remote Control			
	Heating elements		W	2x750		
	Ducts		8", 10", 12"			
	Others		Crankcase heater 60W,3PH Protector			

\* Noise pressure tested at 1m distance from unit  
 \*\* Noise power for ducted units measured at air outlet side

Model			<b>DNC 1155 R22</b>			
Installation method			Ceiling Mounted			
Characteristic		Units	Cooling	Heating		
Capacity		Btu/hr	37500	38225		
		W	11000	11200		
Total input		W	4010	3900		
COP		W/W	2.8	3.2		
Power supply (voltage, cycle, No of phases)			230V/50Hz/1			
Rated current		A	17.4	17.0		
Circuit breaker rating		A	25			
<b>I N D O O R  U N I T</b>	Fan type & qty.		Plug Fan x 1			
	Fan speed (HI-M-LO)		RPM	700	550	500
	Airflow (LO-M-HI)		m <sup>3</sup> /hr	1700	1330	1200
			CFM	1000	780	705
	Static Pressure		Pa	20-80		
	Noise Power**		dBa	57.2	56	54.8
	Noise Pressure*		dBa	51.8	49.7	47.5
	Dehumidification		l/h	3.5		
	Condensate drain tube I.D		mm	16		
	Dimensions		W	1025		
			D	760		
			H	300		
	Weight		Kg	44		
	Package dimensions		mm	1125x975x360(Unit)+1180x870x180(Frame)		
Stacking height		units	7			
Units per palet		units	7			
<b>O U T D O O R  U N I T</b>	Refrigerant control		Capillary Tube			
	Compressor type & model		SCROLL ZR47K3-PFJ			
	Fan type & qty.		Axialx2			
	Fan speeds		RPM	1125		
	Airflow (std. conditions)		m <sup>3</sup> /hr	4150		
			CFM	2440		
	Noise Pressure*/ Noise Power		dBa	57/65		
	Dimensions		W	900		
			D	340		
			H	970		
	Weight		Kg	95		
	Packing dimensions		mm	1020x985x406		
Stacking height		units	2			
Units per palet		units	6			
Refrigerant			R22			
Charge for 7.5 meter pipes length		Grams	2650			
<b>T U B E S</b>	Condensate drain tube I.D		mm			
			liquid	in.		
			suction	in.		
	Connection between units		height difference	25m		
			tubing length	50m		
<b>A C C. C.</b>	Operation control type		LCD Remote Control			
	Heating elements		W	2x1500		
	Ducts		8",10",12"			
	Others		Crankcase heater 33W			

\* Noise pressure tested at 1m distance from unit  
 \*\* Noise power for ducted units measured at air outlet side

Model		DNrDNC 1155-3PH R2215hgddffgtdf5-3				
Installation method		Ceiling Mounted				
Characteristic	Units	Cooling	Heating			
Capacity	Btu/hr	37200	37500			
	W	10900	11000			
Total input	W	3900	3440			
COP	W/W	2.74	3.15			
Power supply (voltage, cycle, No of phases)		400V/50Hz/3				
Rated current		3x10.3	3x9.1			
Circuit breaker rating		A	3x16			
I N D O O R  U N I T	Fan type & qty.		Plug Fan x 1			
	Fan speed (HI-M-LO)		RPM	700	550	500
	Airflow (LO-M-HI)		m <sup>3</sup> /hr	1700	1330	1200
			CFM	1000	780	705
	Static Pressure		Pa	20-80		
	Noise Power**		dBA	57.2	56	54.8
	Noise Pressure*		dBA	51.8	49.7	47.5
	Dehumidification		l/h	3.5		
	Condensate drain tube I.D		mm	16		
	Dimensions		W	mm		
			D	mm		
			H	mm		
	Weight		Kg	44		
	Package dimensions		mm	1125x975x360(Unit)+1180x870x180(Frame)		
Stacking height		units	7			
Units per palet		units	7			
O U T D O O R  U N I T	Refrigerant control		Capillary Tube			
	Compressor type & model		SCROLL ZR45KC-TDF			
	Fan type & qty.		Axialx2			
	Fan speeds		RPM	1125		
	Airflow (std. conditions)		m <sup>3</sup> /hr	4150		
			CFM	2440		
	Noise Pressure*/ Noise Power		dBA	57/65		
	Dimensions		W	mm		
			D	mm		
			H	mm		
	Weight		Kg	95		
	Packing dimensions		mm	1020x985x406		
	Stacking height		units	2		
Units per palet		units	6			
Refrigerant			R22			
Charge for 7.5 meter pipes length		Grams	2650			
T U B E S	Condensate drain tube I.D		mm	16		
			liquid	in.		
			suction	in.		
	Connection between units		height difference	25m		
			tubing length	50m		
A C C.	Operation control type		LCD Remote Control			
	Heating elements		W	2x1500		
	Ducts		8",10",12"			
	Others		Crankcase heater 33W,3PH Protector			

\* Noise pressure tested at 1m distance from unit  
 \*\* Noise power for ducted units measured at air outlet side

Model		<b>DNC 1155 R407C</b>				
Installation method		Ceiling Mounted				
Characteristic	Units	Cooling		Heating		
Capacity	Btu/hr	35000		38000		
	W	10300		11100		
Total input	W	3950		3985		
COP	W/W	2.6		2.76		
Power supply (voltage, cycle, No of phases)		230V/50Hz/1				
Rated current	A	17.2		17.3		
Circuit breaker rating		25				
<b>I N D O O R  U N I T</b>	Fan type & qty.		Plug Fan x 1			
	Fan speed (HI-M-LO)		RPM	700	550	500
	Airflow (LO-M-HI)		m³/hr	1700	1330	1200
			CFM	1000	780	705
	Static Pressure		Pa	20-80		
	Noise Power**		dBA	57.2	56	54.8
	Noise Pressure*		dBA	51.8	49.7	47.5
	Dehumidification		l/h	3.5		
	Condensate drain tube I.D		mm	16		
	Dimensions		W	mm		1025
			D	mm		760
			H	mm		300
	Weight		Kg	44		
	Package dimensions		mm	1125x975x360(Unit)+1180x870x180(Frame)		
Stacking height		units	7			
Units per palet		units	7			
<b>O U T D O O R  U N I T</b>	Refrigerant control		Capillary Tube			
	Compressor type & model		SCROLL ZR47KCE-PFJ			
	Fan type & qty.		Axialx2			
	Fan speeds		RPM	1125		
	Airflow (std. conditions)		m³/hr	4150		
			CFM	2440		
	Noise Pressure*/ Noise Power		dBA	57/65		
	Dimensions		W	mm		900
			D	mm		340
			H	mm		970
	Weight		Kg	95		
	Packing dimensions		mm	1020x985x406		
	Stacking height		units	2		
	Units per palet		units	6		
Refrigerant		R 407C				
Charge for 7.5 meter pipes length		Grams	2400			
<b>T U B E S</b>	Condensate drain tube I.D		mm	16		
			liquid	in.	3/8"	
			suction	in.	3/4"	
	Connection between units		height difference		25m	
			tubing length		50m	
<b>A C C.</b>	Operation control type		LCD Remote Control			
	Heating elements		W	2x1500		
	Ducts		8",10",12"			
	Others		Crankcase heater 33W			

\* Noise pressure tested at 1m distance from unit  
 \*\* Noise power for ducted units measured at air outlet side

Model		<b>DNrtDNC 1155-3PH R407C15hgddffgtdf</b>			
Installation method		Ceiling Mounted			
Characteristic	Units	Cooling		Heating	
Capacity	Btu/hr	35500		37900	
	W	10400		11100	
Total input	W	3850		3940	
COP	W/W	2.7		3.82	
Power supply (voltage, cycle, No of phases)		400V/50Hz/3			
Rated current		A	3x10.1	3x10.4	
Circuit breaker rating		A	3x16		
<b>I N D O O R  U N I T</b>	Fan type & qty.		Plug Fan x 1		
	Fan speed (HI-M-LO)		RPM	700	550
	Airflow (LO-M-HI)		m <sup>3</sup> /hr	1700	1330
			CFM	1000	780
	Static Pressure		Pa	20-80	
	Noise Power**		dBa	57.2	56
	Noise Pressure*		dBa	51.8	49.7
	Dehumidification		l/h	3.5	
	Condensate drain tube I.D		mm	16	
	Dimensions		W	1025	
			D	760	
			H	300	
	Weight		Kg	44	
	Package dimensions		mm	1125x975x360(Unit)+1180x870x180(Frame)	
Stacking height		units	7		
Units per palet		units	7		
<b>O U T D O O R  U N I T</b>	Refrigerant control		Capillary Tube		
	Compressor type & model		SCROLL ZR47K3E-TDF		
	Fan type & qty.		Axialx2		
	Fan speeds		RPM	1125	
	Airflow (std. conditions)		m <sup>3</sup> /hr	4150	
			CFM	2440	
	Noise Pressure*/ Noise Power		dBa	57/65	
	Dimensions		W	900	
			D	340	
			H	970	
	Weight		Kg	95	
	Packing dimensions		mm	1020x985x406	
	Stacking height		units	2	
	Units per palet		units	6	
Refrigerant		R 407C			
Charge for 7.5 meter pipes length		Grams	2800		
<b>T U B E S</b>	Condensate drain tube I.D		mm	16	
			liquid	in.	3/8"
			suction	in.	3/4"
	Connection between units		height difference	25m	
			tubing length	50m	
<b>A C C.</b>	Operation control type		LCD Remote Control		
	Heating elements		W	2x1500	
	Ducts		8", 10", 12"		
	Others		Crankcase heater 33W, 3PH Protector		

\* Noise pressure tested at 1m distance from unit  
 \*\* Noise power for ducted units measured at air outlet side

Model		<b>DNC 1255</b>			
Installation method		Ceiling Mounted			
Characteristic	Units	Cooling		Heating	
Capacity	Btu/hr	42500		44700	
	W	12460		13096	
Total input	W	4390		3970	
COP	W/W	2.84		3.3	
Power supply (voltage, cycle, No of phases)		400V/50Hz/3			
Rated current		A	3 x 11.6	3 x 10.4	
Circuit breaker rating		A	3 x 16		
<b>I N D O O R  U N I T</b>	Fan type & qty.		Plug Fan x 1		
	Fan speed (HI-M-LO)		RPM	830	550
	Airflow (HI-M-LO)		m <sup>3</sup> /hr	2000	1350
			CFM	1176	795
	Static Pressure		Pa	20-80	
	Noise Power** (HI-M-LO)		dB(A)	59.3	56
	Noise Pressure* (HI-M-LO)		dB(A)	53.3	49.7
	Dehumidification		l/h	4.7	
	Condensate drain tube I.D		mm	16	
	Dimensions		W	mm	
			D	mm	
			H	mm	
	Weight		Kg	44	
	Package dimensions		mm	1125x975x360(Unit)+1180x870x180(Frame)	
	Stacking height		units	7	
Units per palet		units	7		
<b>O U T D O O R  U N I T</b>	Refrigerant control		Capillary Tube		
	Compressor type & model		SCROLL ZR54		
	Fan type & qty.		Axial x 2		
	Fan speeds		RPM	1125	
	Airflow (std. conditions)		m <sup>3</sup> /hr	4150	
			CFM	2440	
	Noise Pressure*/ Noise Power		dB(A)	57/65	
	Dimensions		W	mm	
			D	mm	
			H	mm	
	Weight		Kg	95	
	Packing dimensions		mm	1020x985x406	
	Stacking height		units	2	
Units per palet		units	6		
Refrigerant			R22		
Charge for 7.5 meter pipes length		Grams	2660		
<b>T U B E S</b>	Condensate drain tube I.D		mm	16	
			liquid	in.	
			suction	in.	
	Connection between units		height difference		25m
			tubing length		50m
<b>A C C.</b>	Operation control type		LCD Remote Control		
	Heating elements		W	2x1500	
	Ducts		8",10",12"		
	Others		Crankcase heater 60W,3PH Protector		

\* Noise pressure tested at 1m distance from unit  
 \*\* Noise power for ducted units measured at air outlet side

Model		<b>DNC 1255-3PH R 407C</b>				
Installation method		Ceiling Mounted				
Characteristic	Units	Cooling	Heating			
Capacity	Btu/hr	43000	49500			
	W	12600	14500			
Total input	W	5185	5180			
COP	W/W	2.43	2.80			
Power supply (voltage, cycle, No of phases)		400V/50Hz/3				
Rated current	A	3 x 13.6	3 x 13.6			
Circuit breaker rating		3 x 16				
<b>I N D O O R  U N I T</b>	Fan type & qty.		Plug Fan x 1			
	Fan speed (HI-M-LO)		RPM	830	550	500
	Airflow (HI-M-LO)		m <sup>3</sup> /hr	2000	1350	1230
			CFM	1176	795	720
	Static Pressure		Pa	20-80		
	Noise Power** (HI-M-LO)		dBa	59.3	56	54.8
	Noise Pressure* (HI-M-LO)		dBa	53.3	49.7	47.5
	Dehumidification		l/h	4.7		
	Condensate drain tube I.D		mm	16		
	Dimensions		W	mm		1025
			D	mm		760
			H	mm		300
	Weight		Kg	44		
	Package dimensions		mm	1125x975x360(Unit)+1180x870x180(Frame)		
Stacking height		units	7			
Units per palet		units	7			
<b>O U T D O O R  U N I T</b>	Refrigerant control		Capillary Tube			
	Compressor type & model		SCROLL HR61YA			
	Fan type & qty.		Axial x 2			
	Fan speeds		RPM	1125		
	Airflow (std. conditions)		m <sup>3</sup> /hr	4150		
			CFM	2440		
	Noise Pressure*/ Noise Power		dBa	62/69		
	Dimensions		W	mm		900
			D	mm		350
			H	mm		970
	Weight		Kg	95		
	Packing dimensions		mm	1020x985x406		
	Stacking height		units	2		
	Units per palet		units	6		
Refrigerant		R 407c				
Charge for 7.5 meter pipes length		Grams	3900			
<b>T U B E S</b>	Condensate drain tube I.D		mm	16		
			liquid	in.		3/8"
			suction	in.		3/4"
	Connection between units		height difference		25m	
			tubing length		50m	
<b>A C C. C.</b>	Operation control type		LCD Remote Control			
	Heating elements		W	2x1500		
	Ducts		8", 10", 12"			
	Others		Crankcase heater 60W,3PH Protector			

\* Noise pressure tested at 1m distance from unit  
 \*\* Noise power for ducted units measured at air outlet side

### 3. RATING CONDITIONS

NOTES:

1. Rating conditions ISO/CD 13253R

Cooling: indoor: 27°C (80°F) DB 19°C (66°F) WB

Outdoor: 35°C (95°F) DB

Heating: indoor: 20°C (68°F) DB

Outdoor: 7°C (45°F) DB 6°C (43°F) WB

Refrigerant tubing length (one way) 7.5m (24.6 ft)

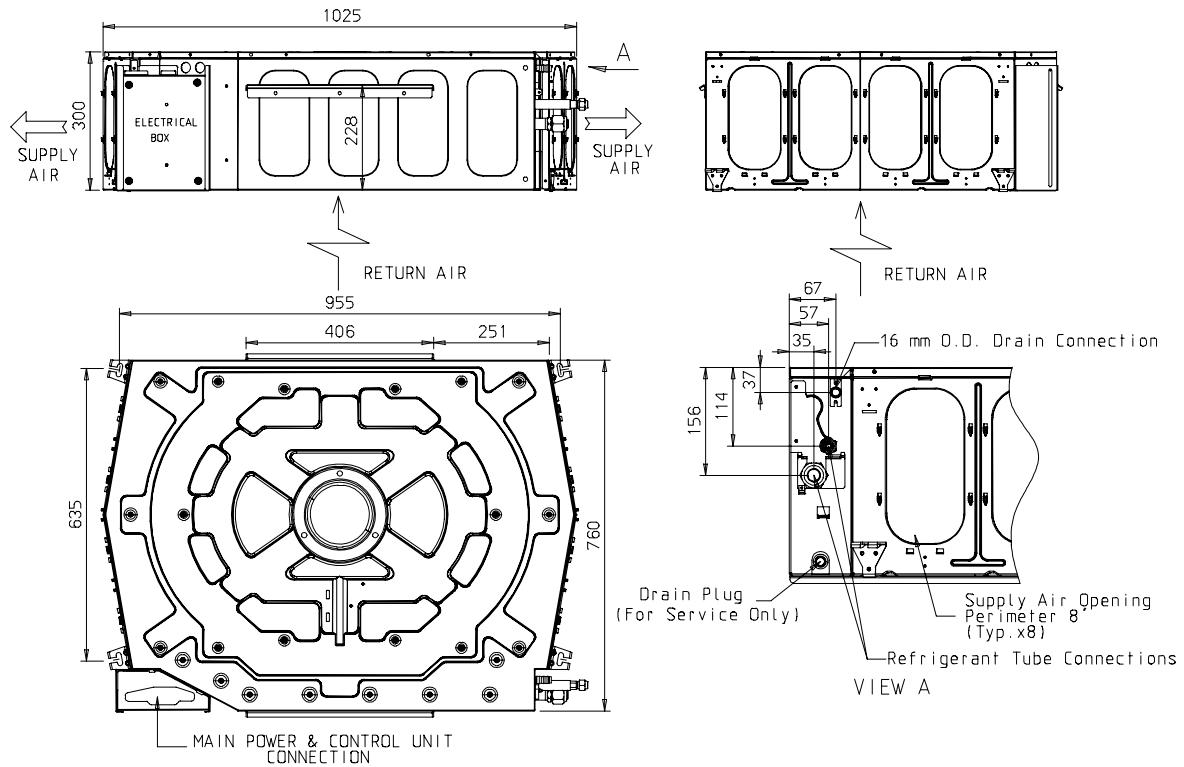
2. Guaranteed operating range:

		Indoor	Outdoor
Cooling	Upper limit	32°C DB, 23°C WB	46°C DB
	Lower limit	21°C DB, 15°C WB	21°C DB
Heating	Upper limit	27°C DB	24°C DB, 18°C WB
	Lower limit	20°C DB	-9°C DB, -10°C WB
Voltage	1 PH	198 – 242 V	
	3 PH	360 – 440 V	

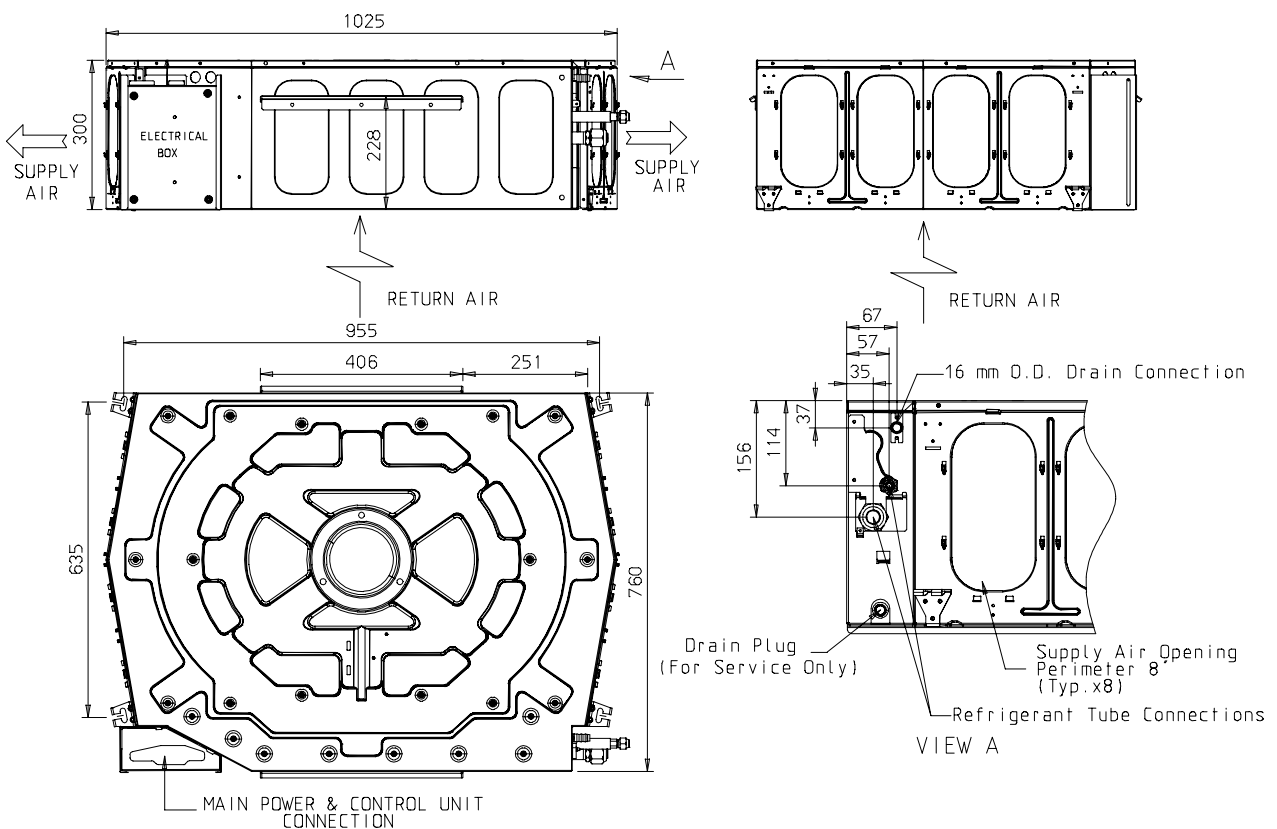


## 4. OUTLINE DIMENSIONS

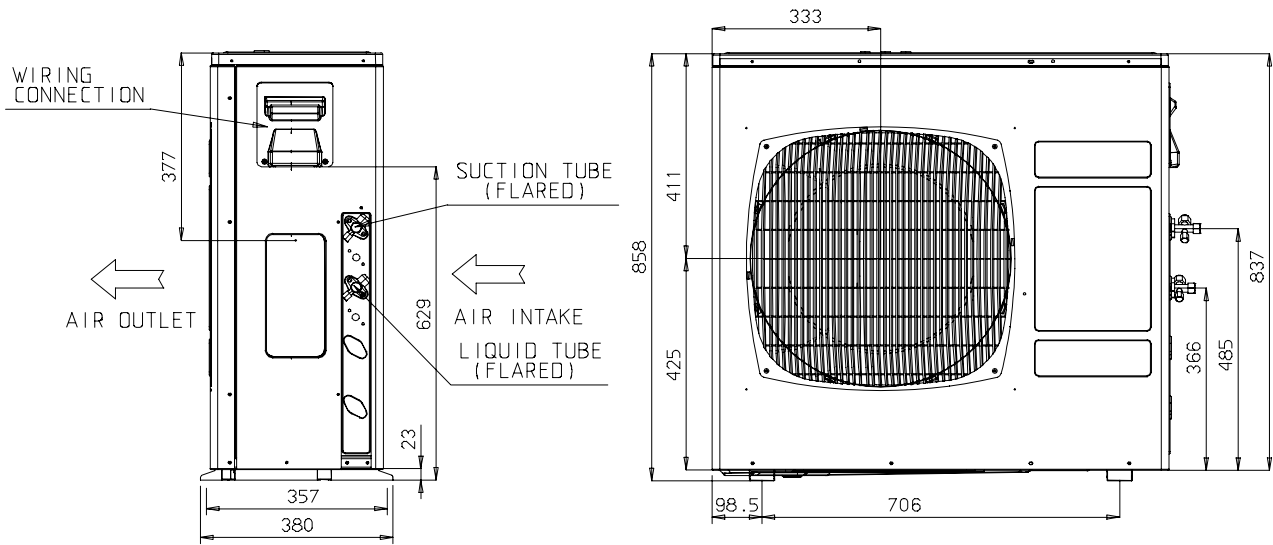
### 4.1 Indoor Unit: DNC 35 (955)



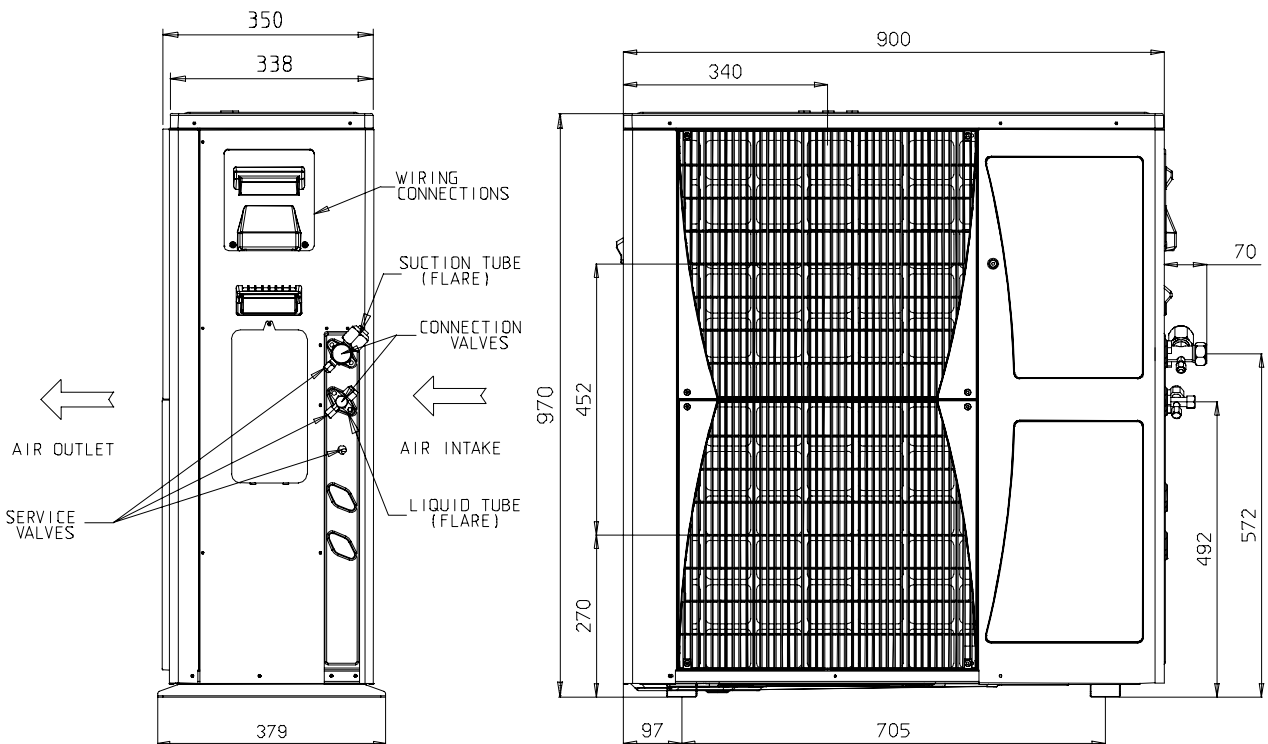
### 4.2 Indoor Unit: DNC 38 (1155), DNC 44 (1255)



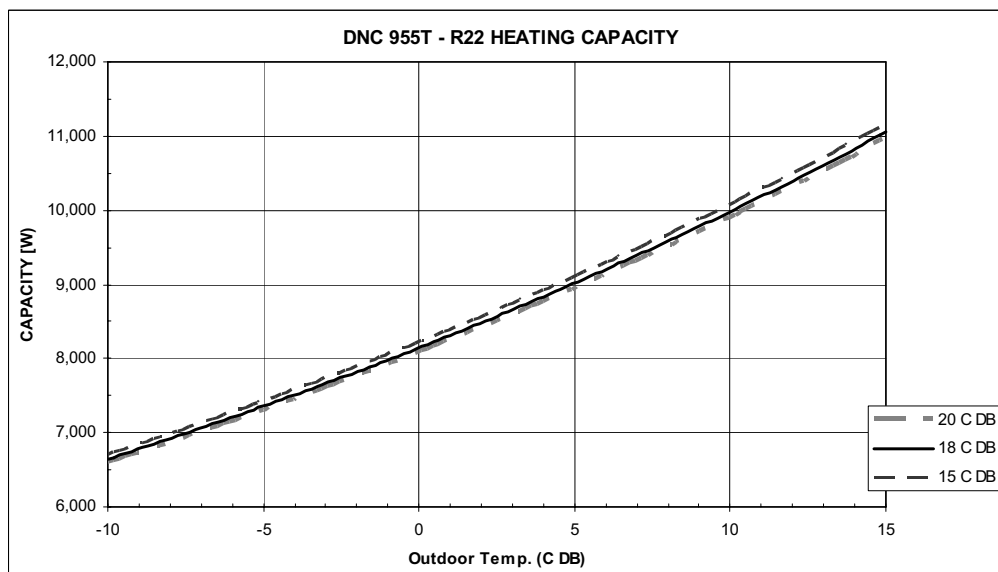
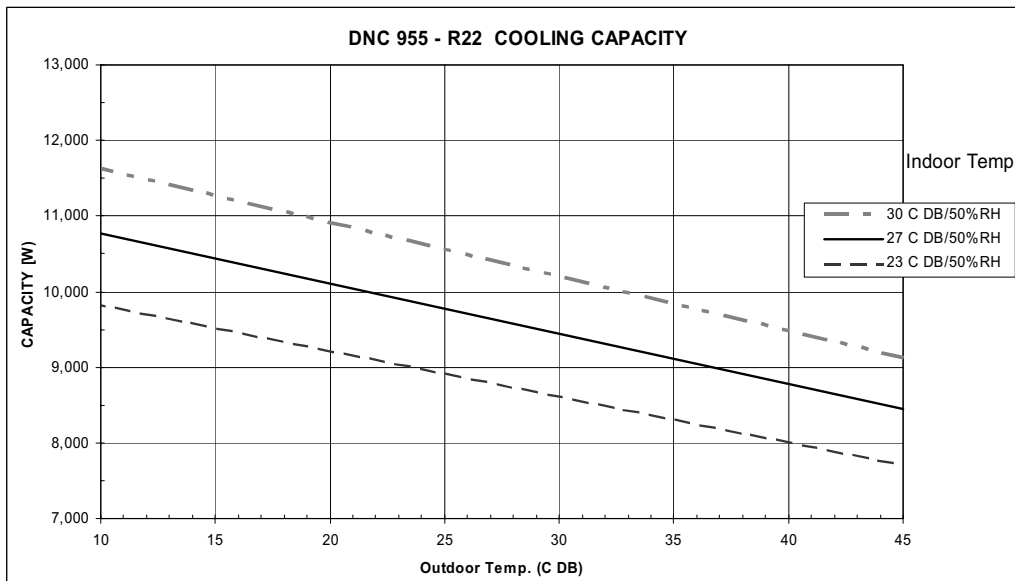
**4.3 Outdoor Unit: OU8-33**

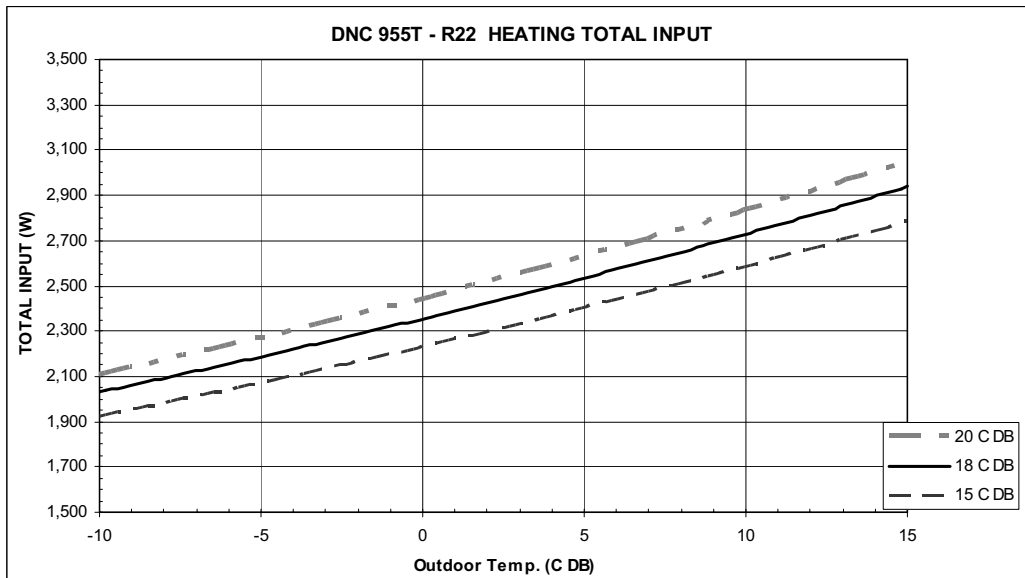
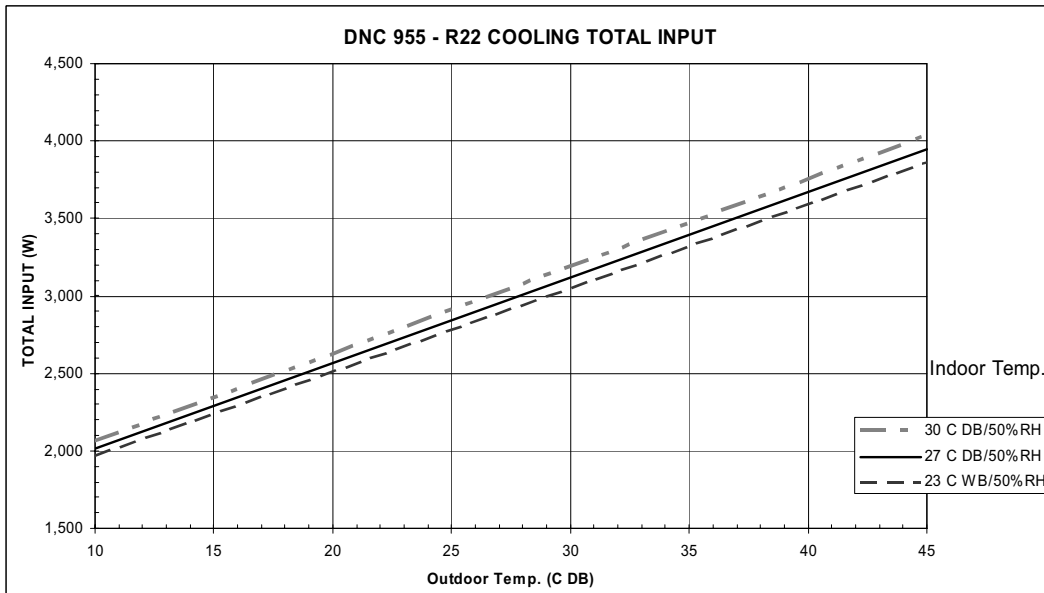


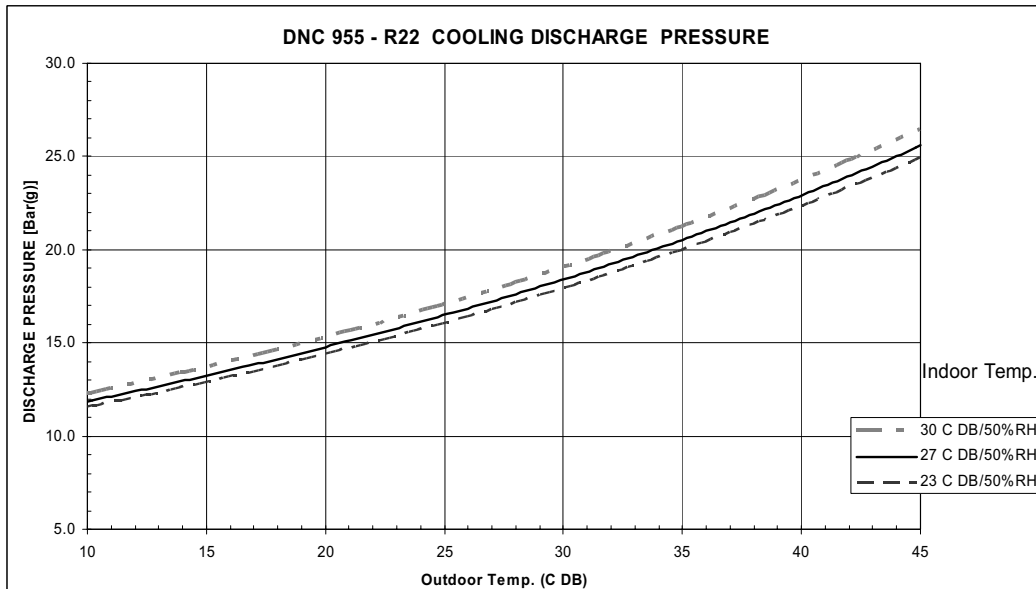
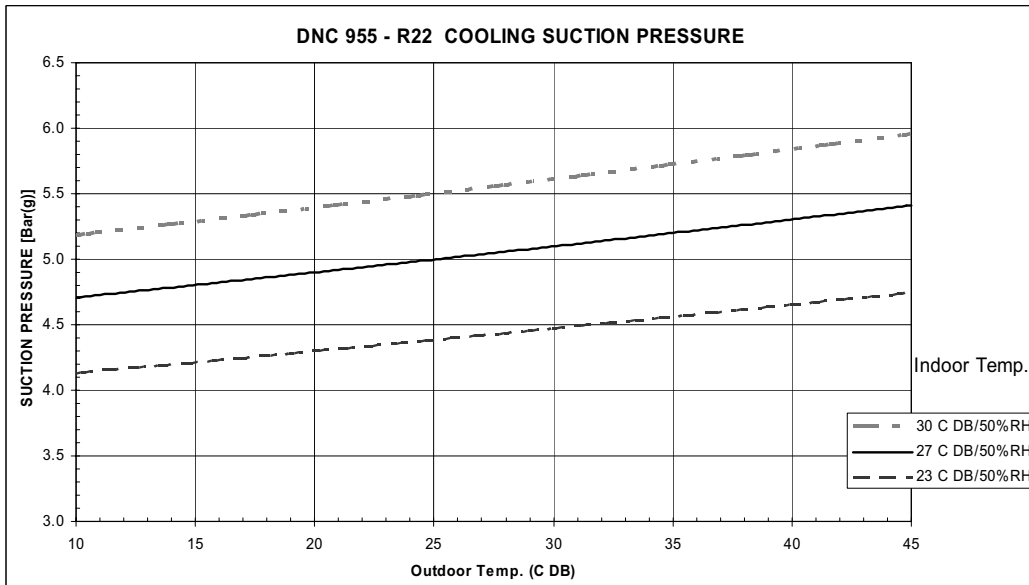
**4.4 Outdoor Unit: OU10-38, OU10-44, OU10-50**

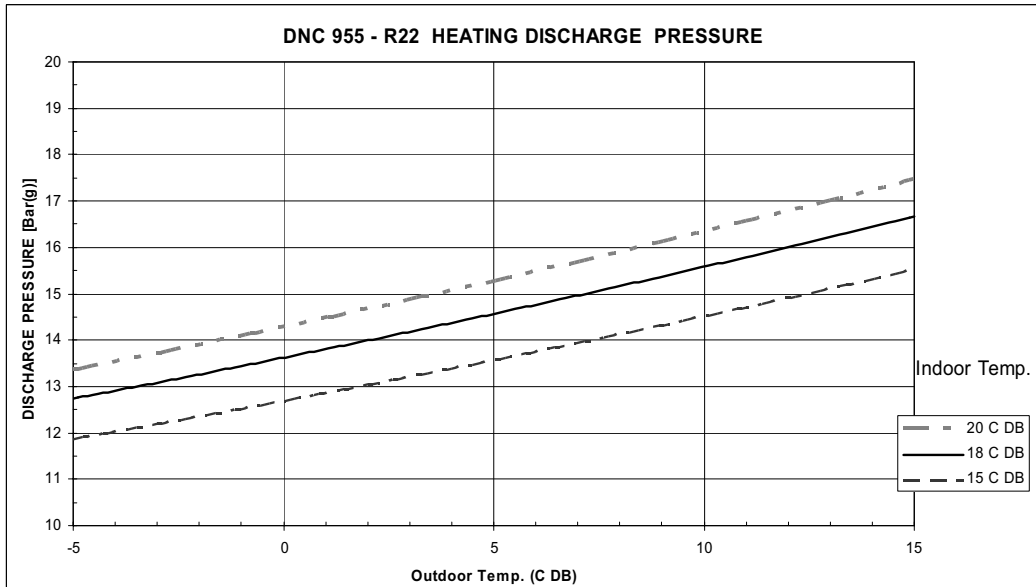
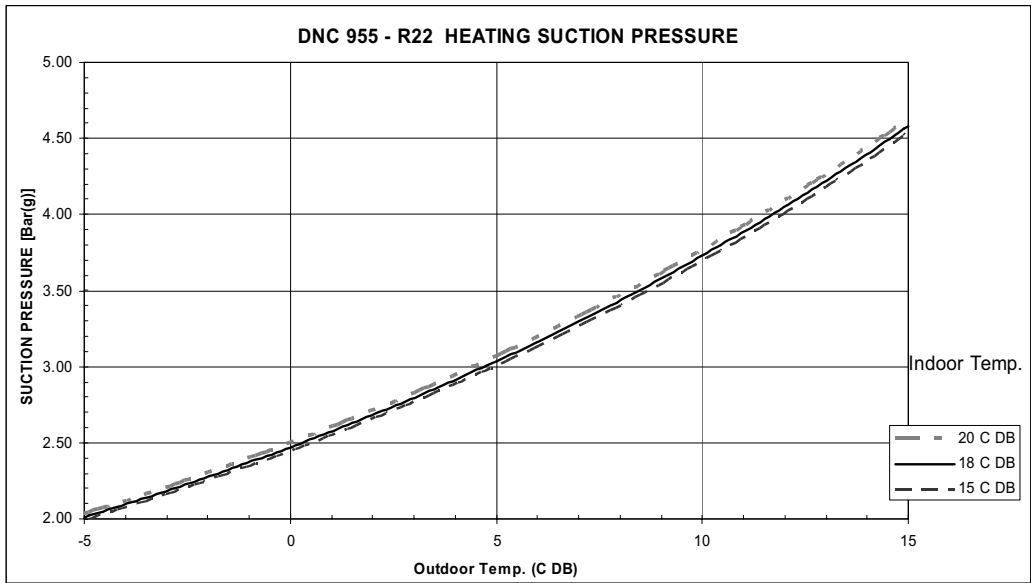


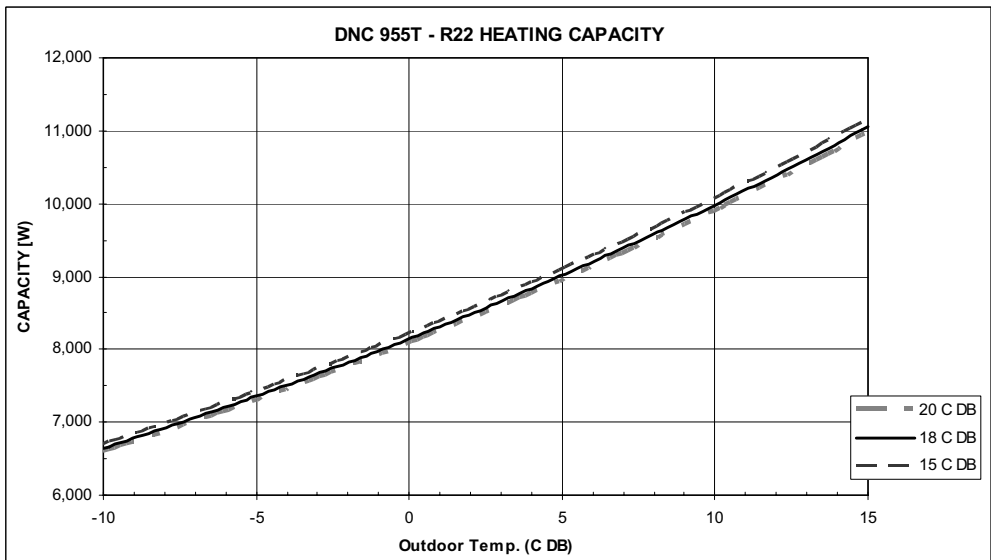
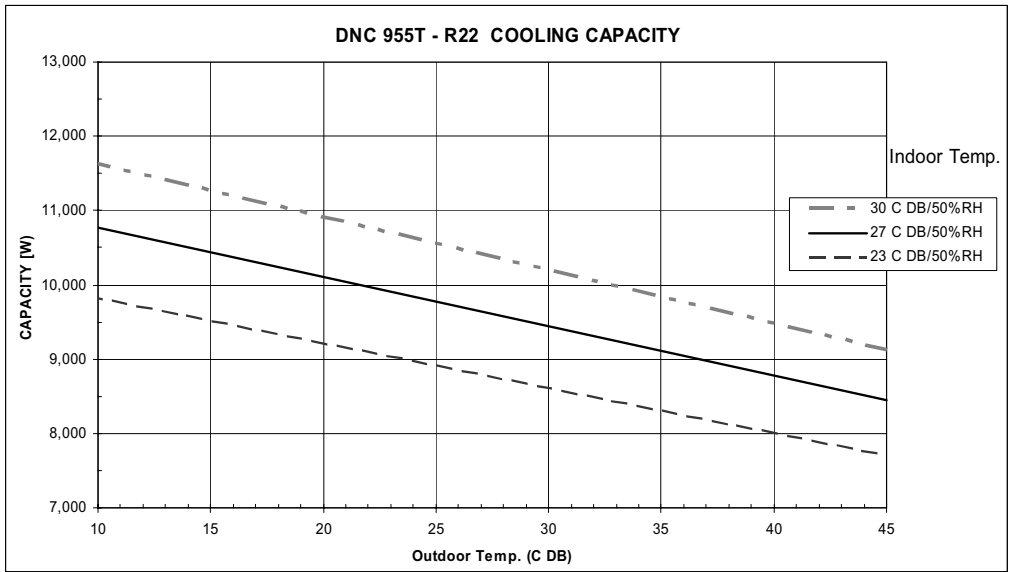
## 5. PERFORMANCE DATA & PRESSURE CURVES

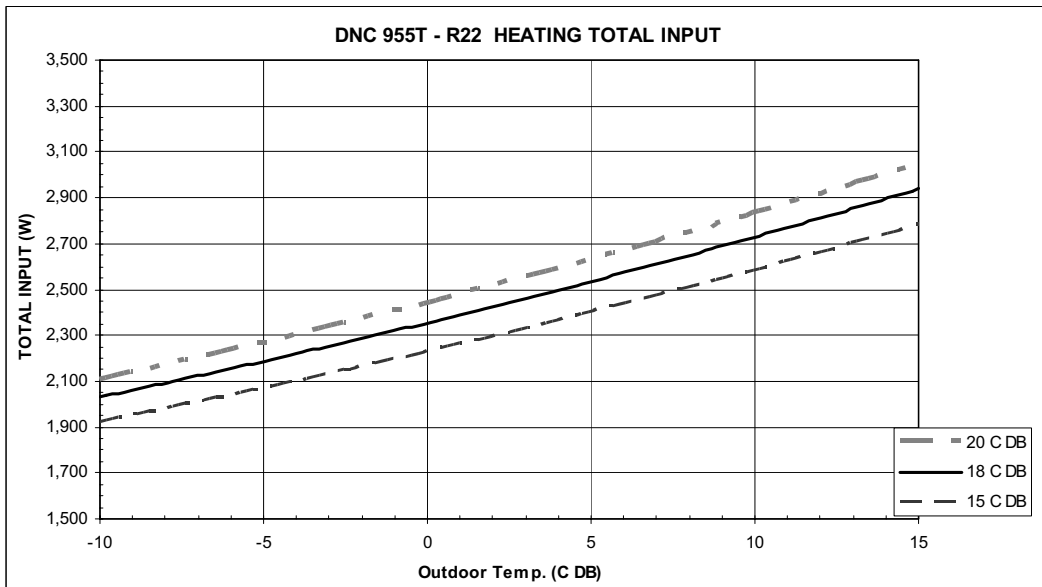
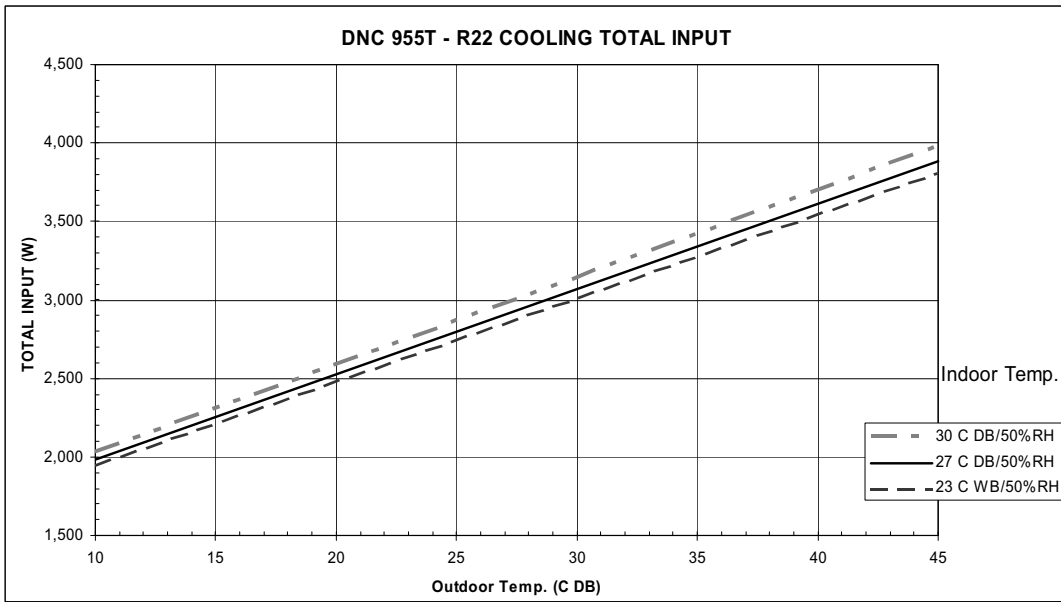




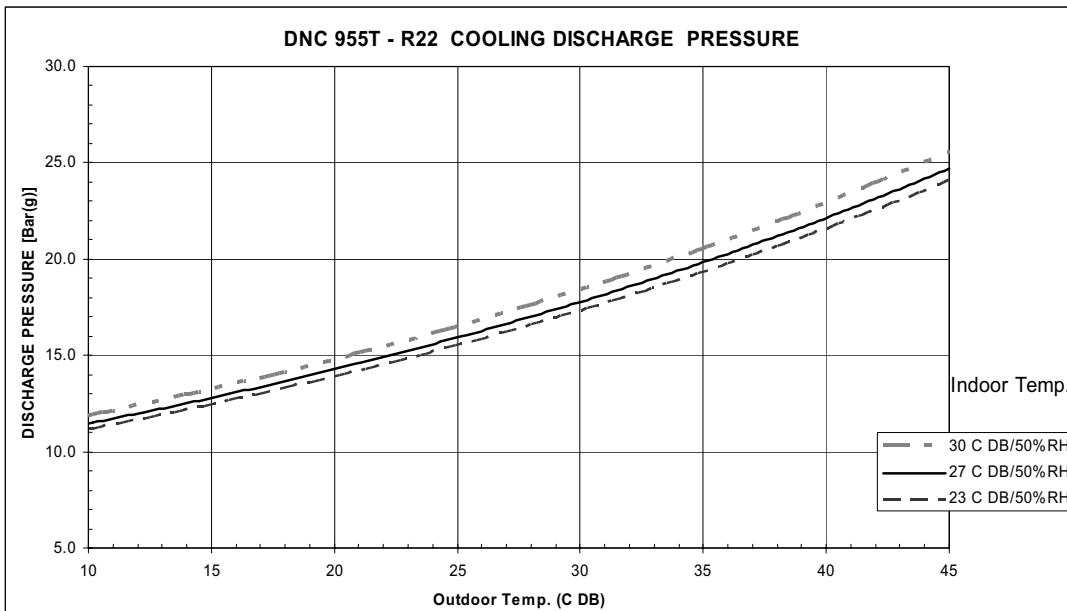
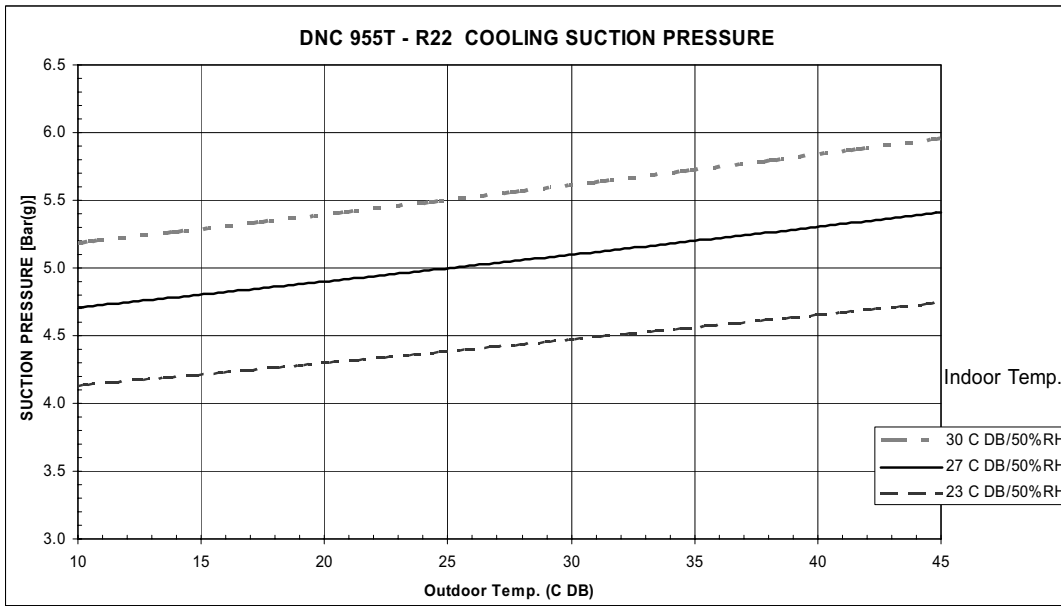


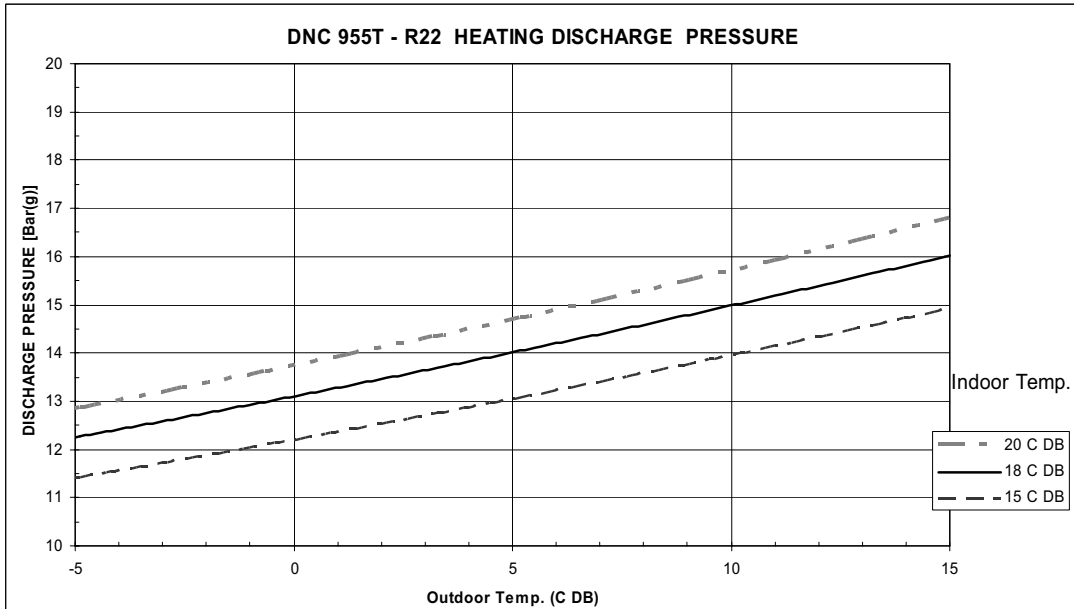
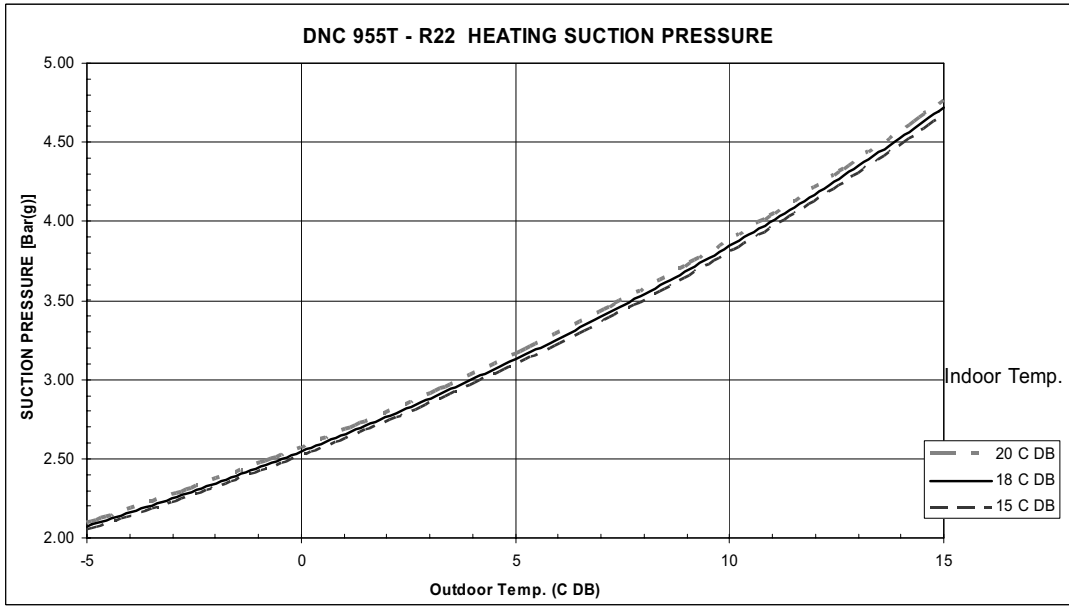


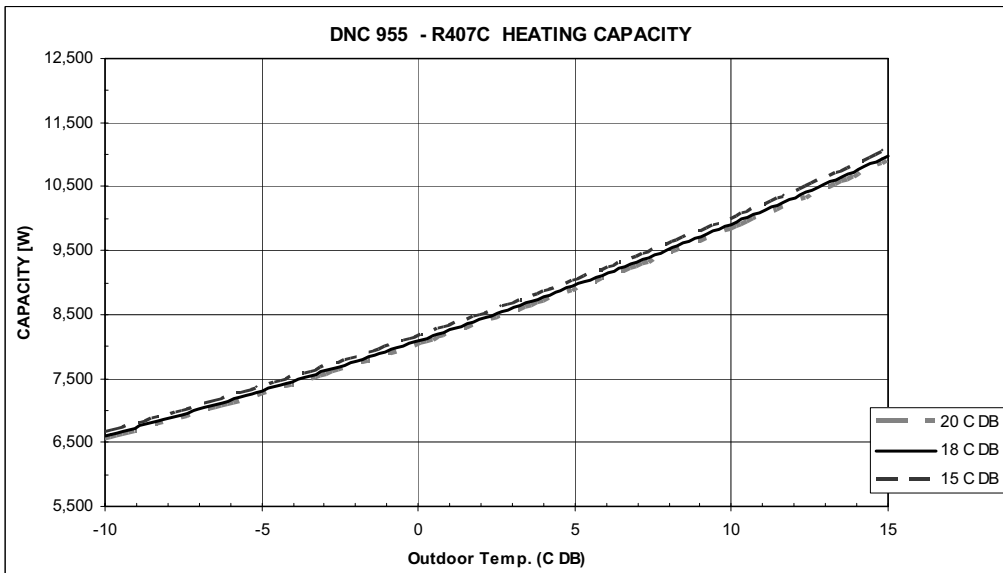
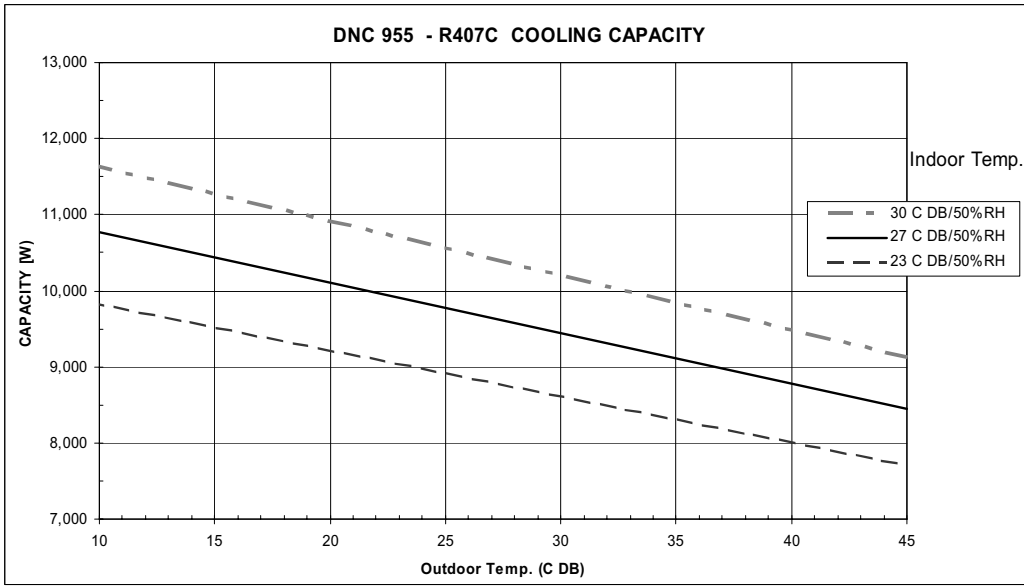


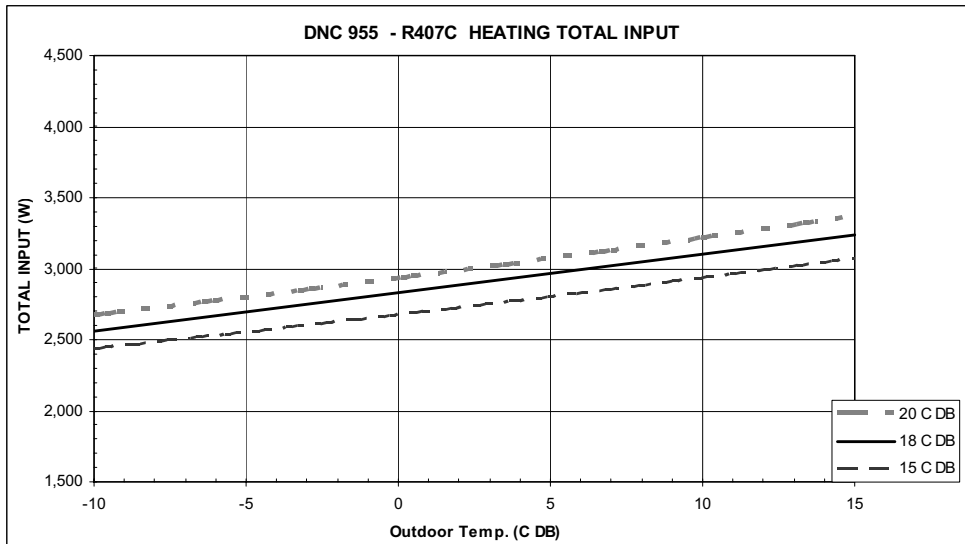
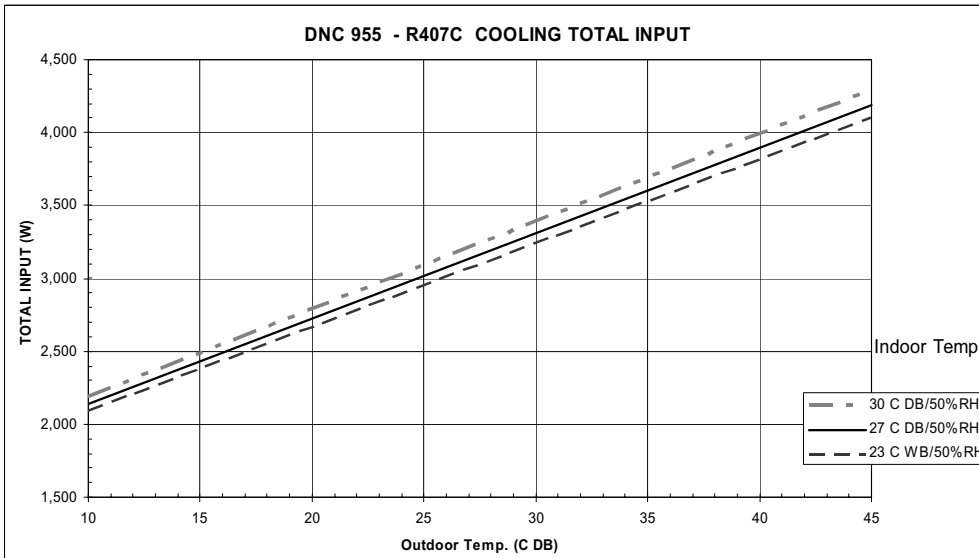


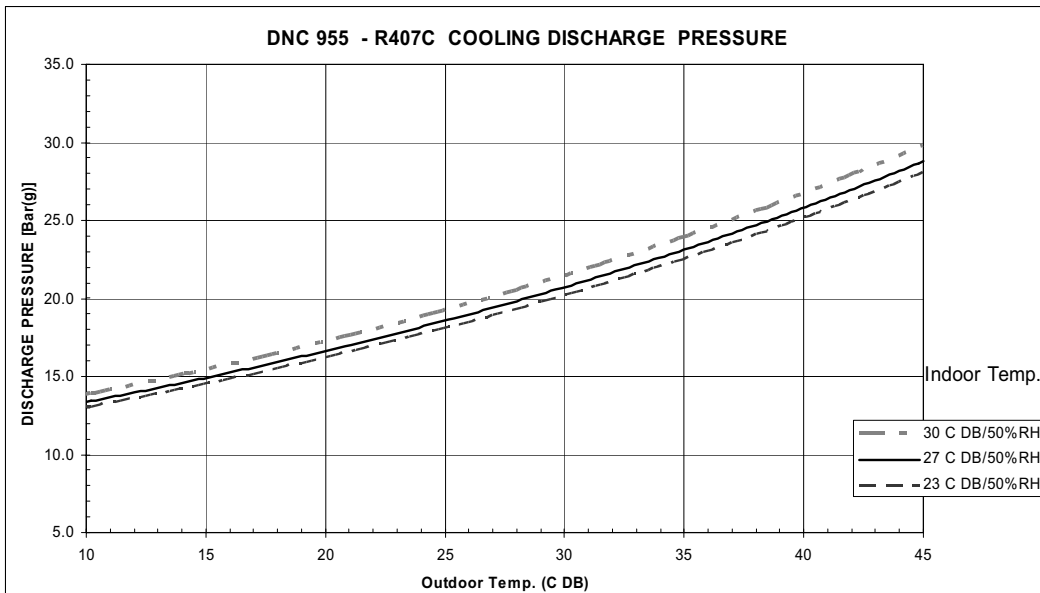
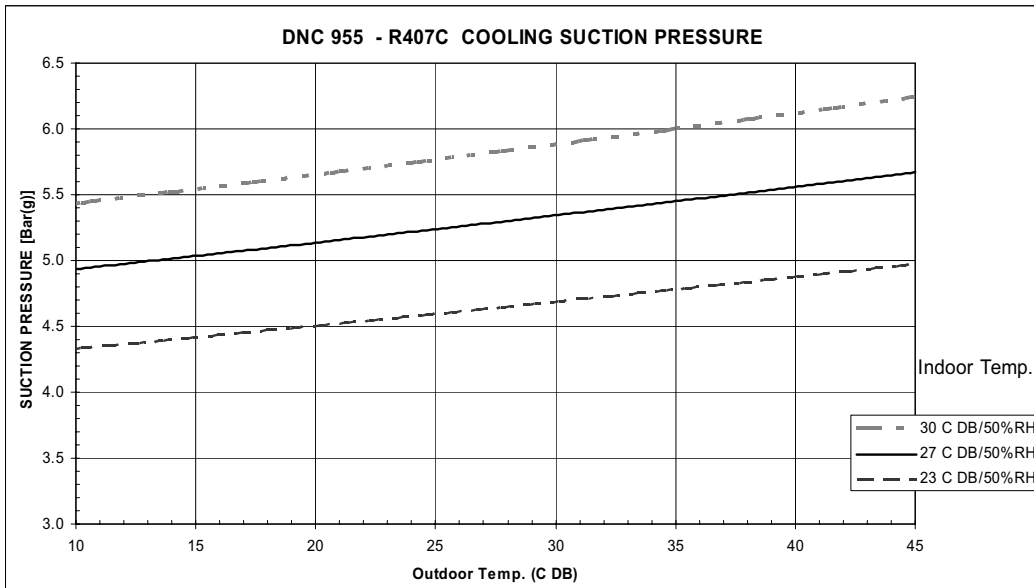


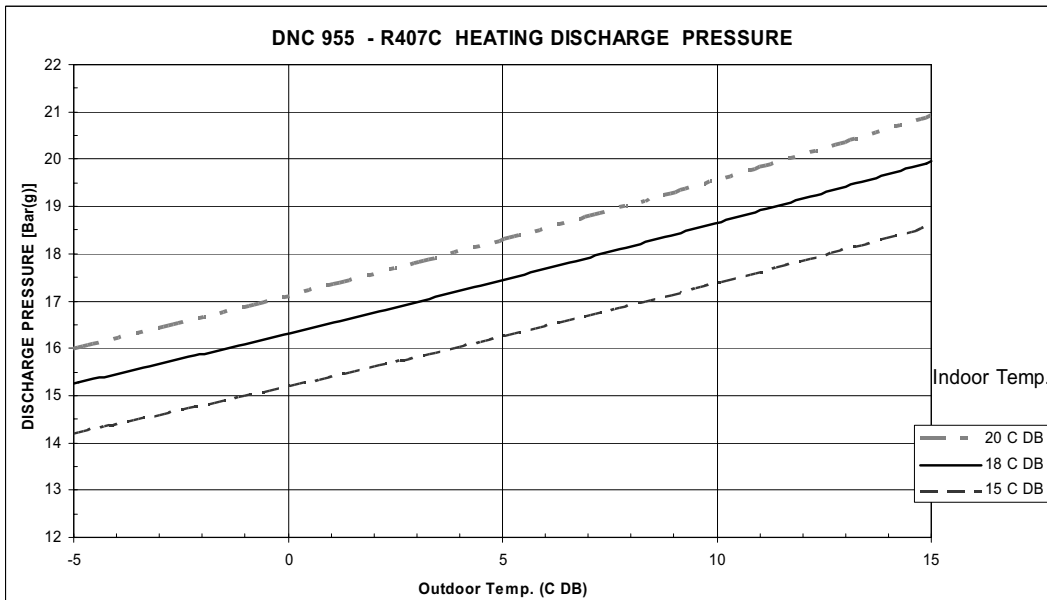
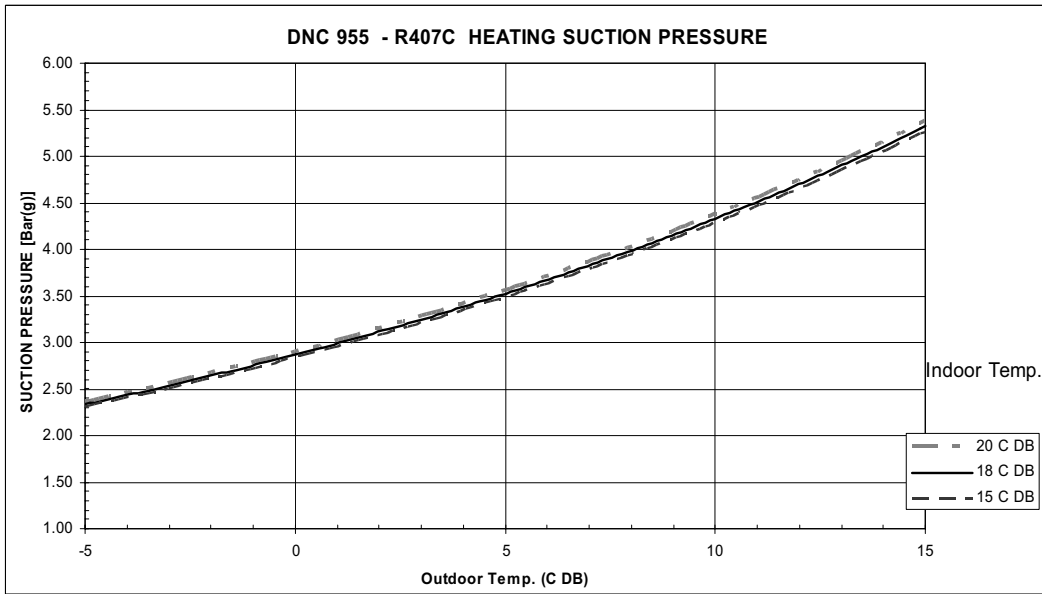


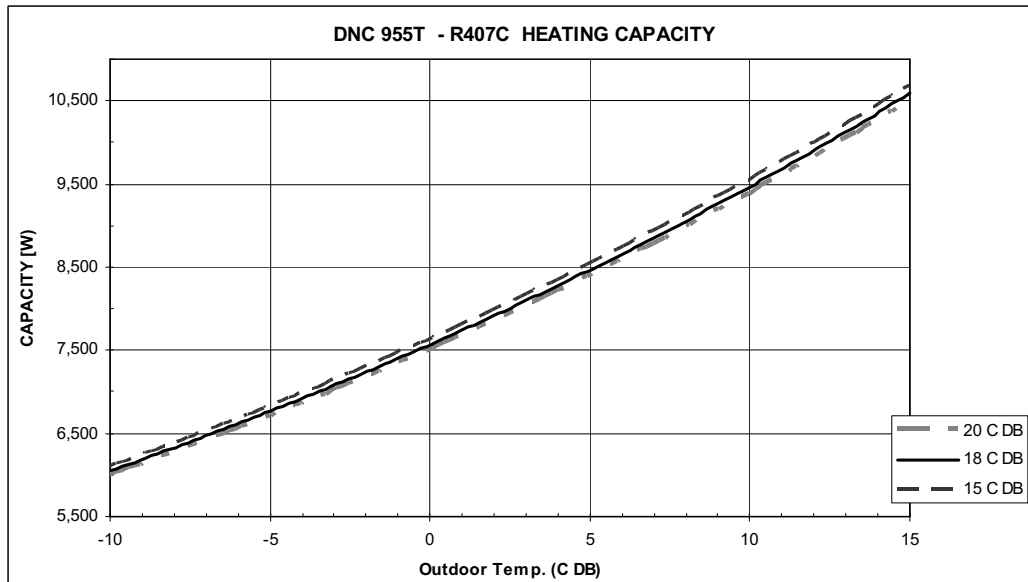
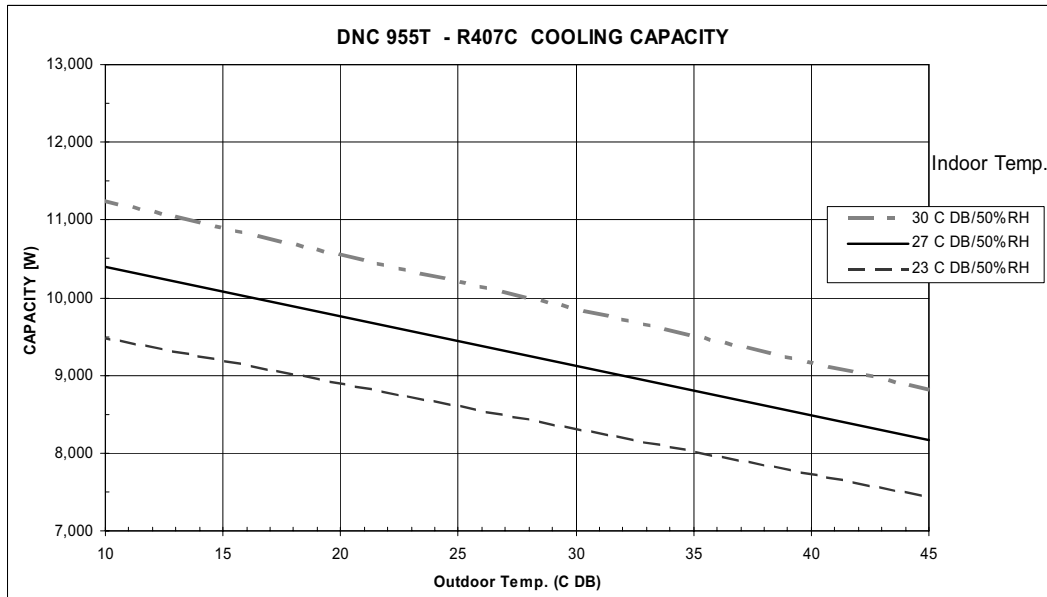


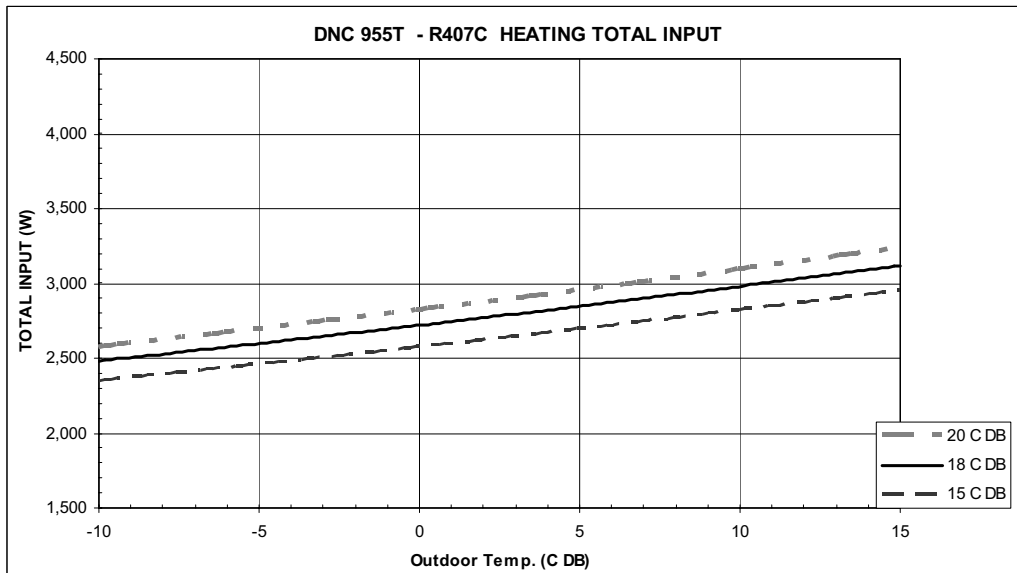
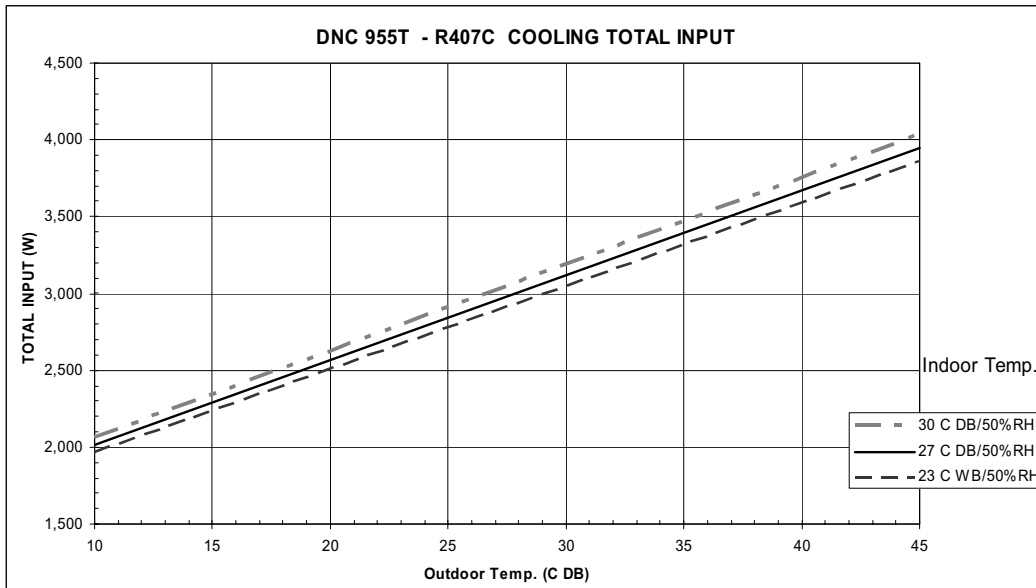




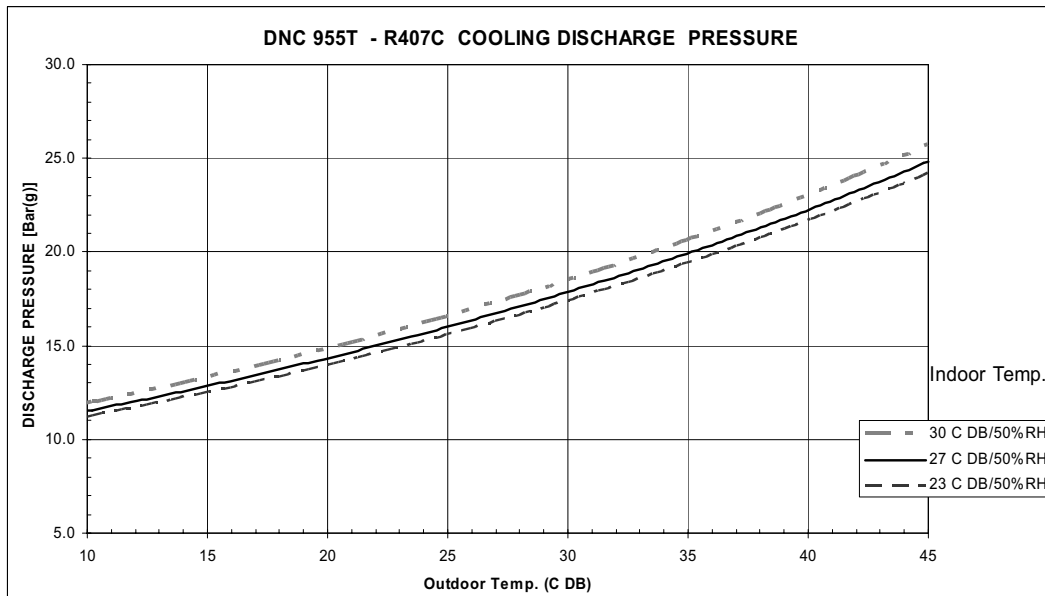
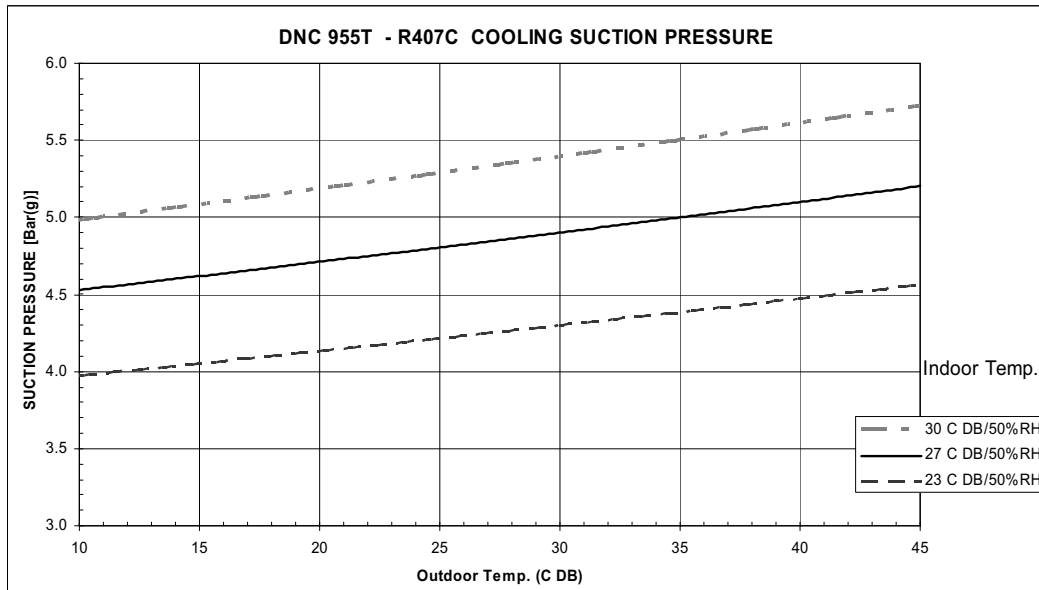


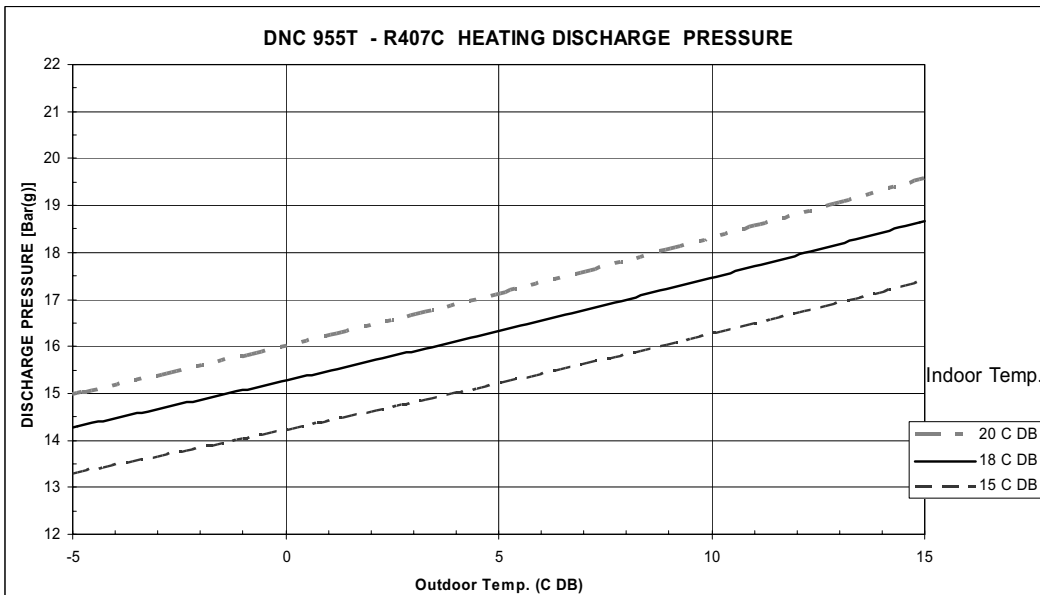
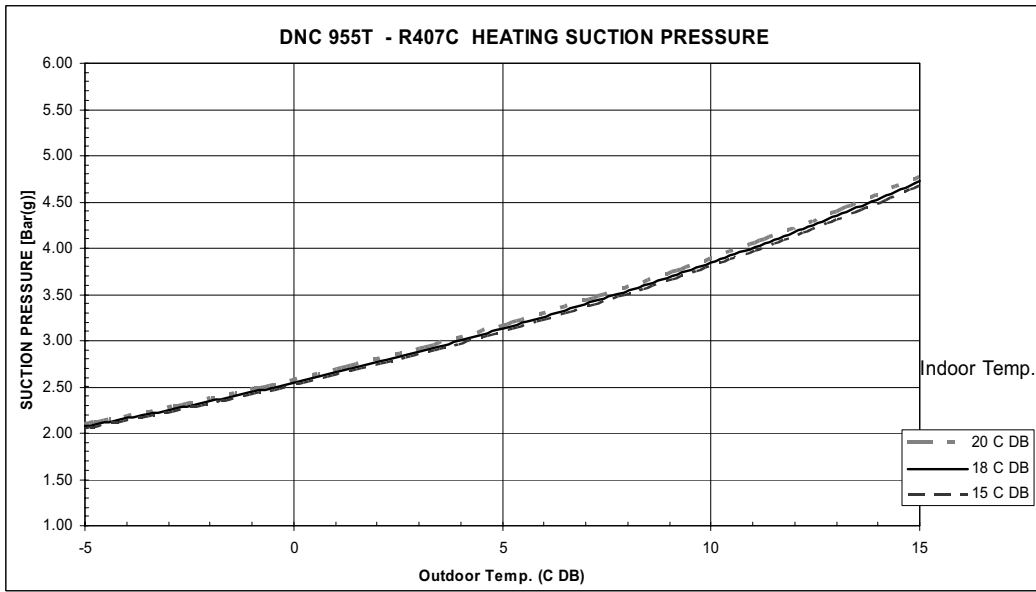


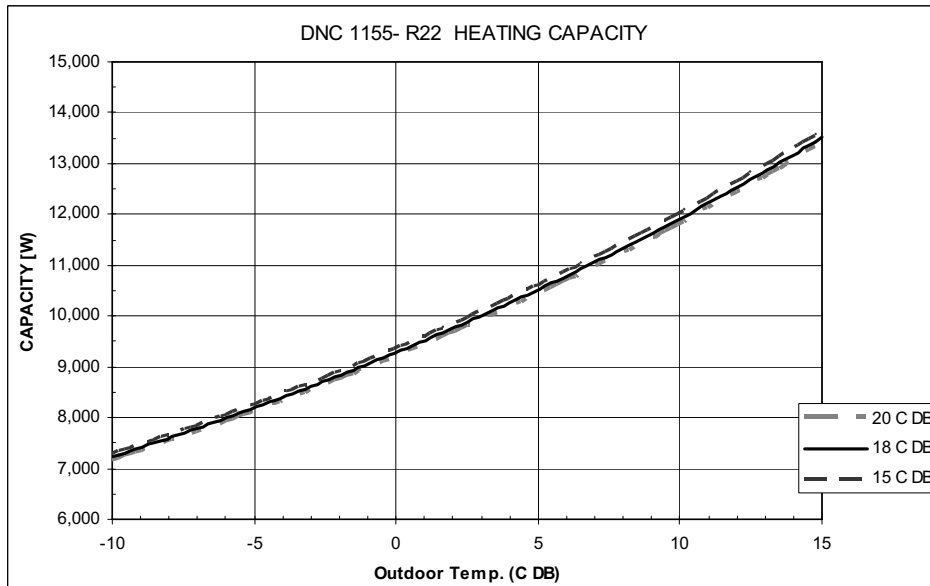
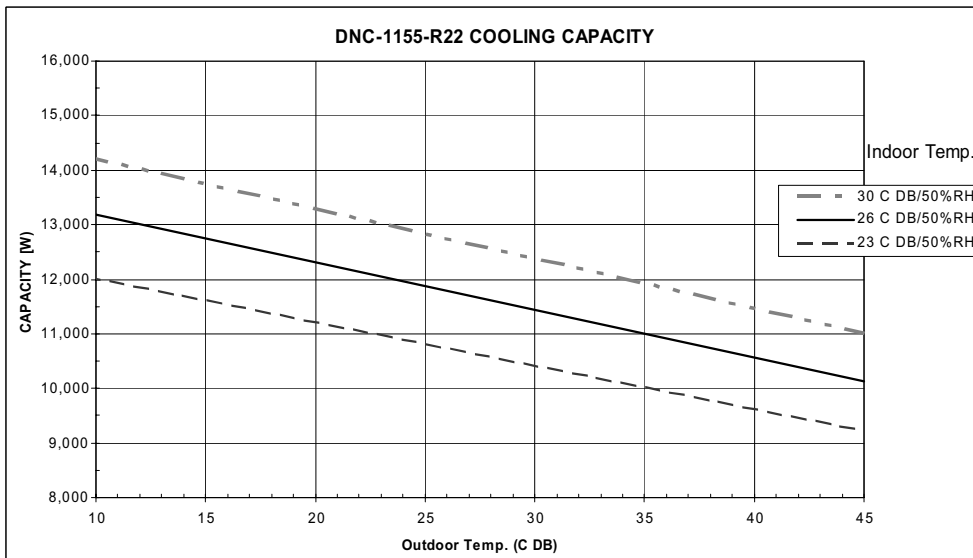


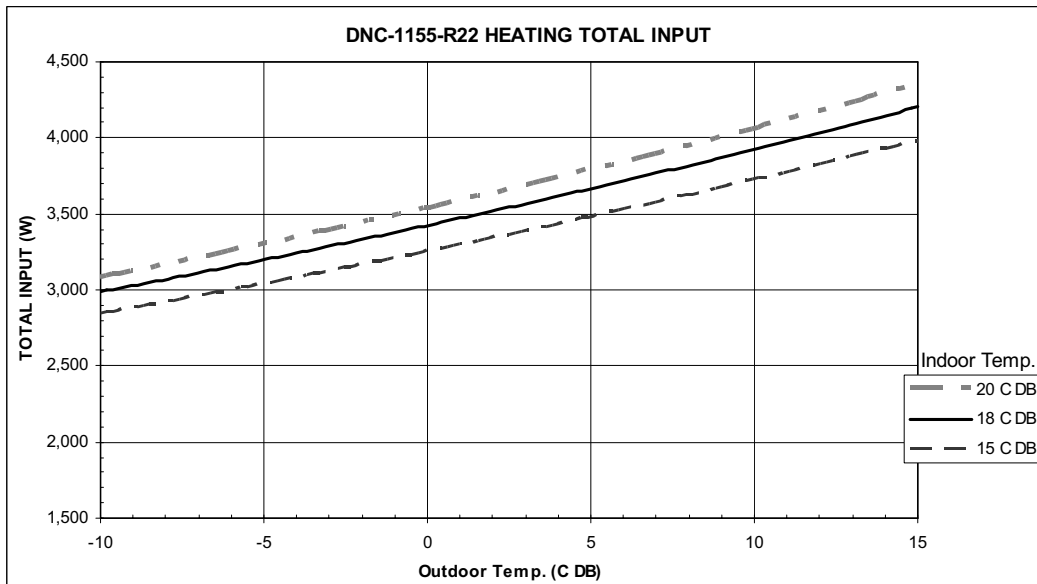
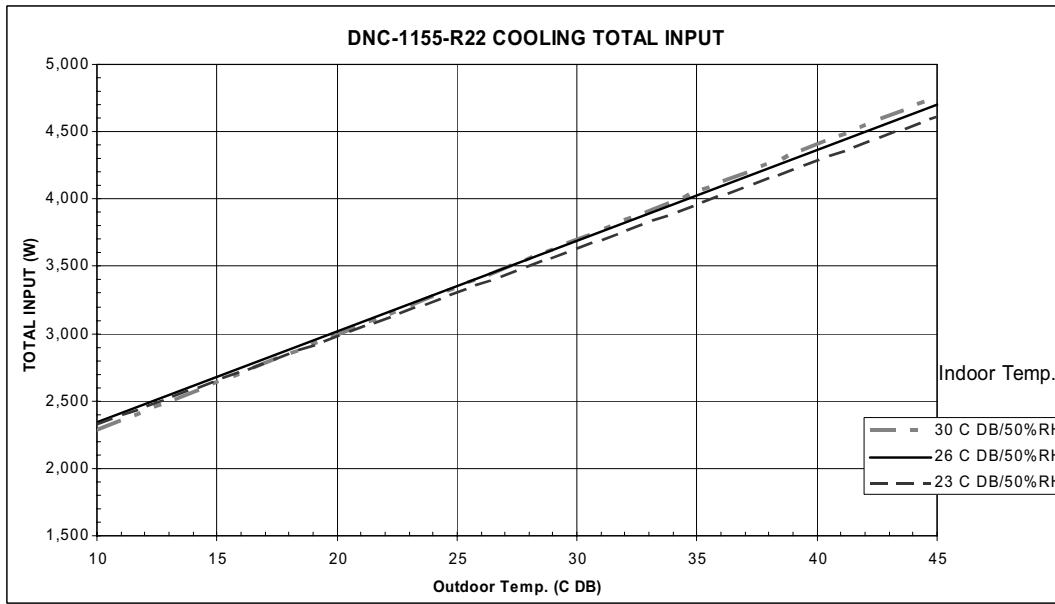


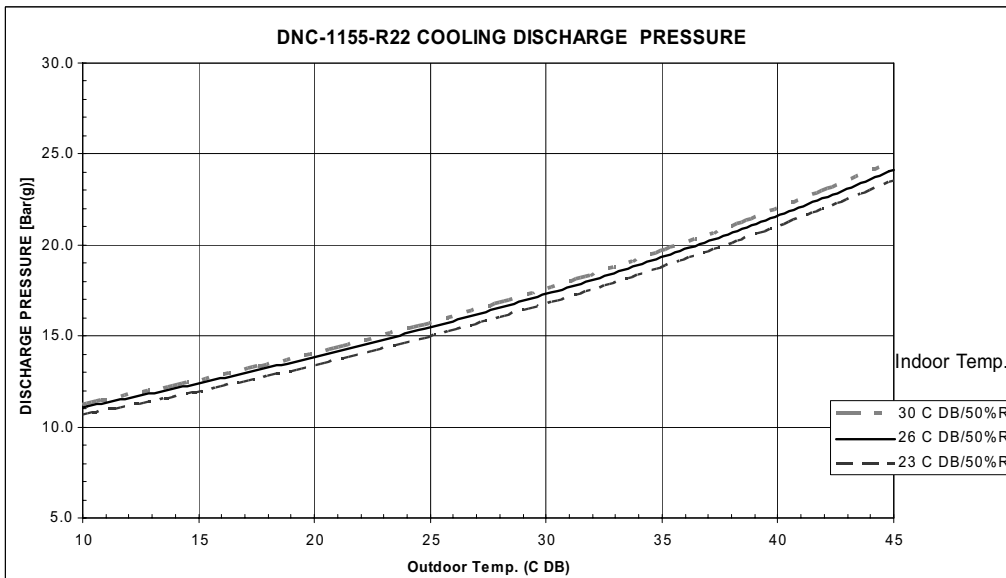
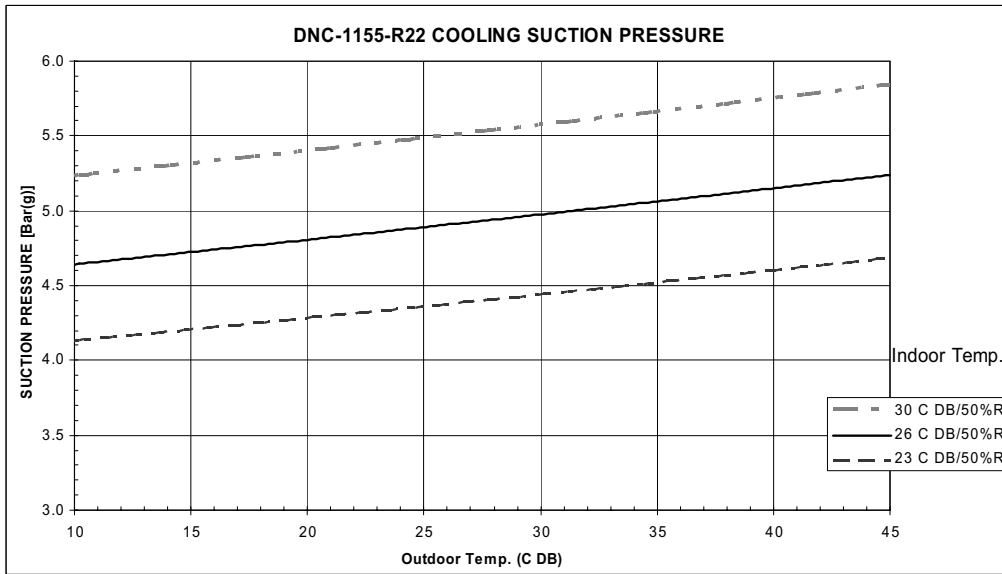


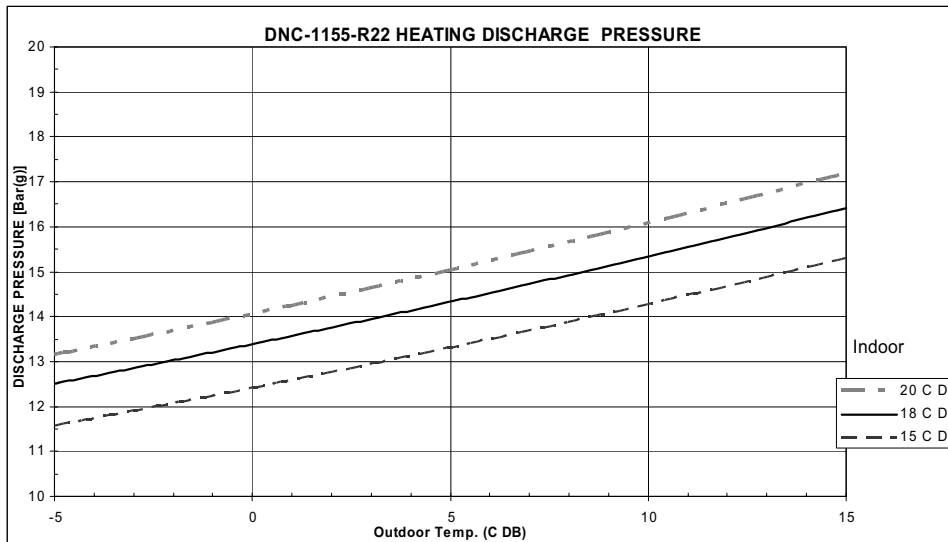
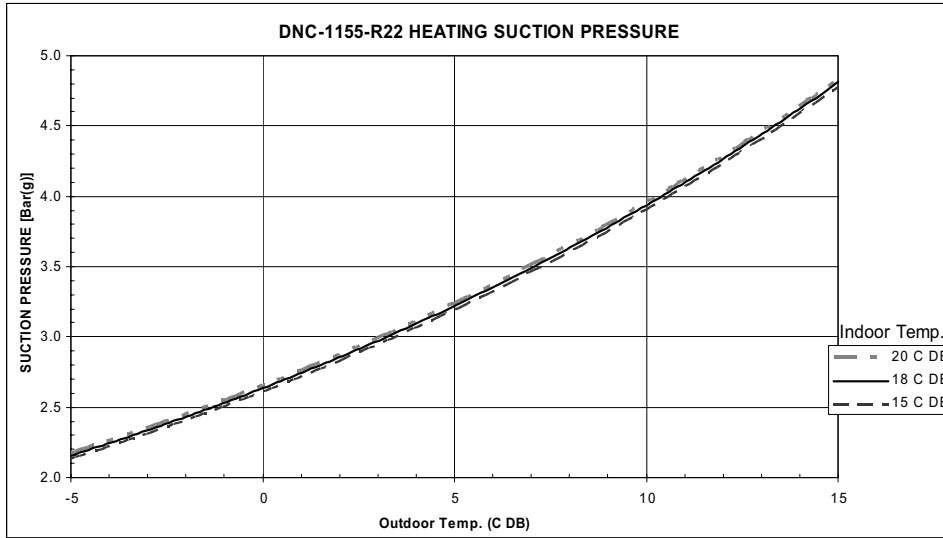


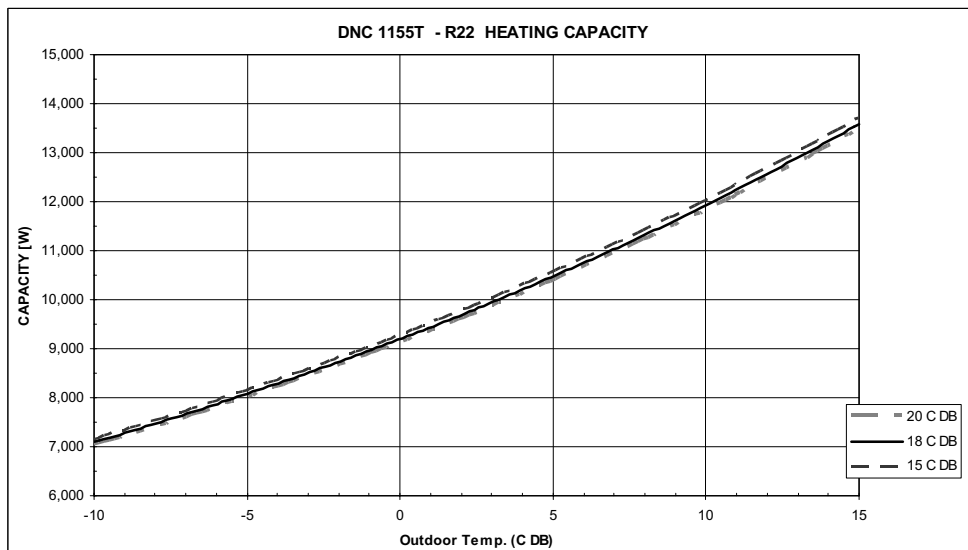
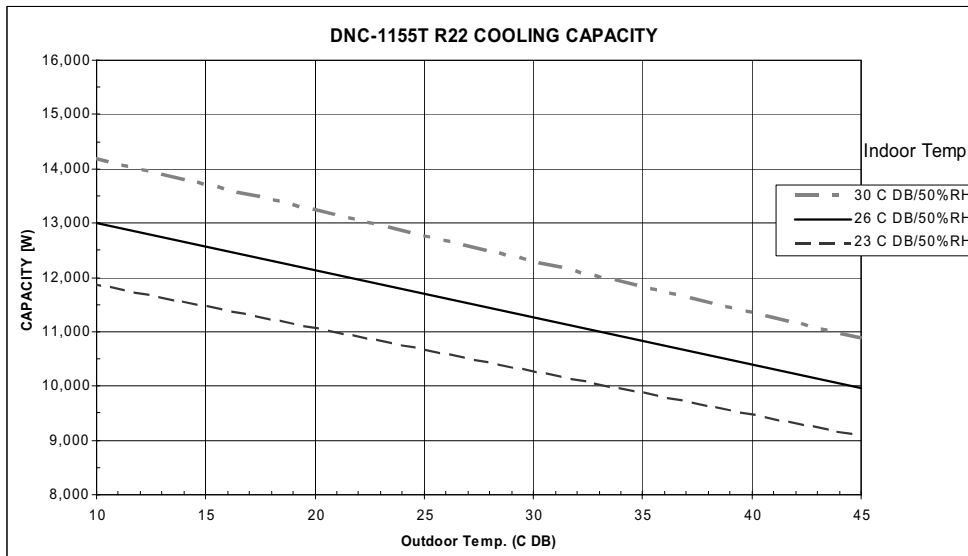


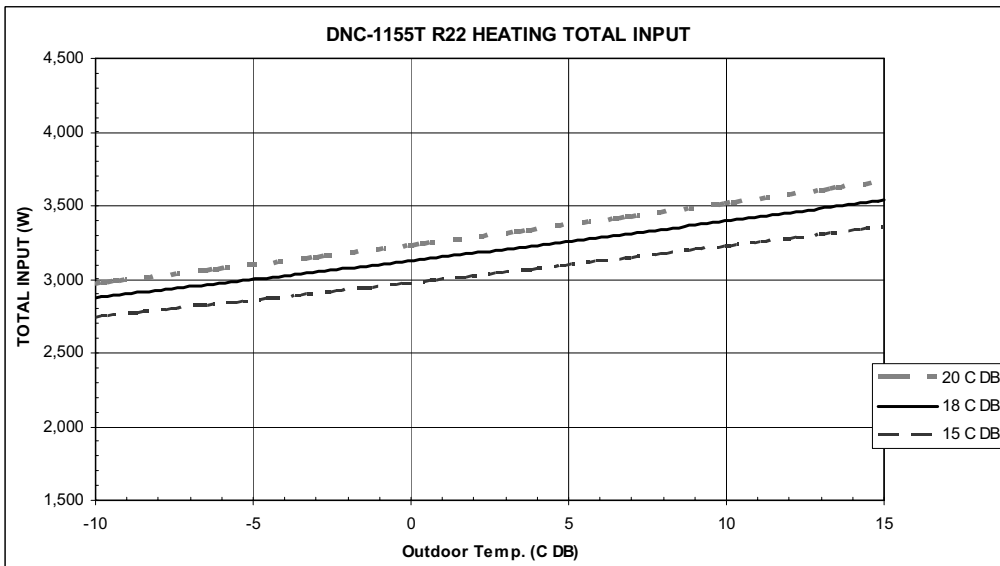
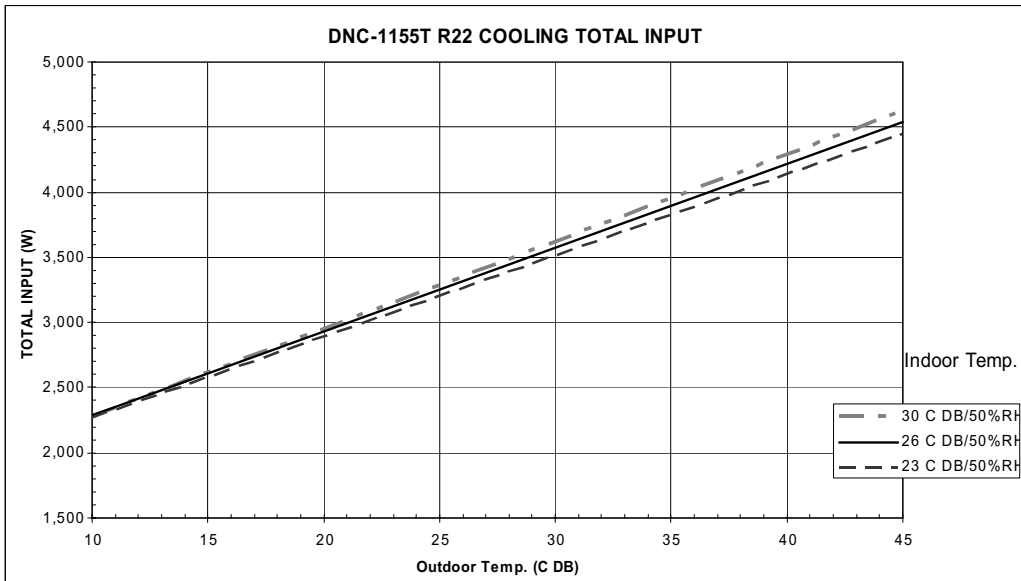




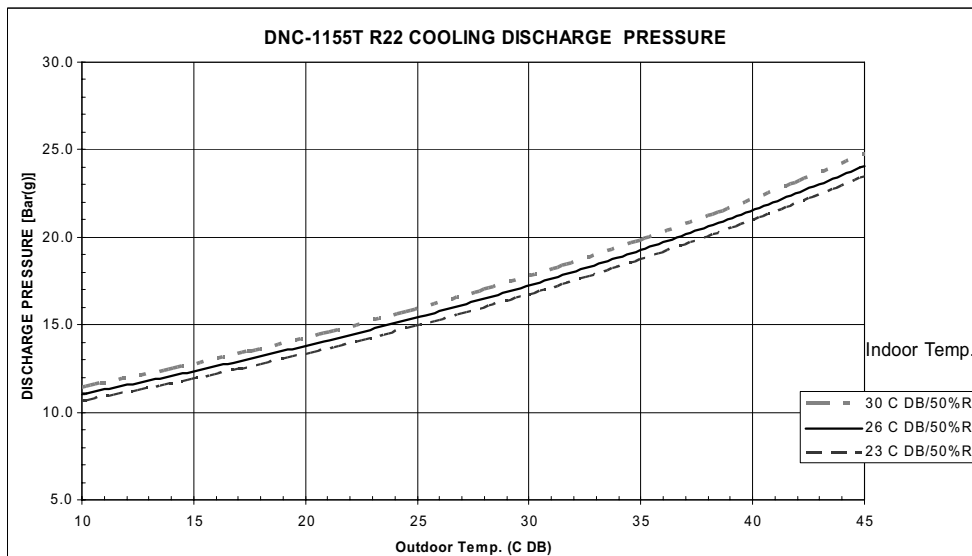
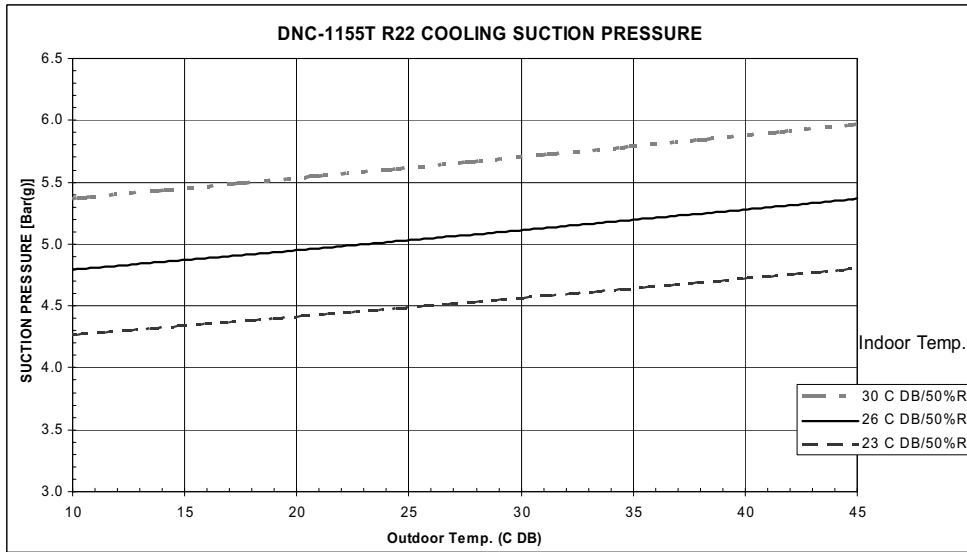


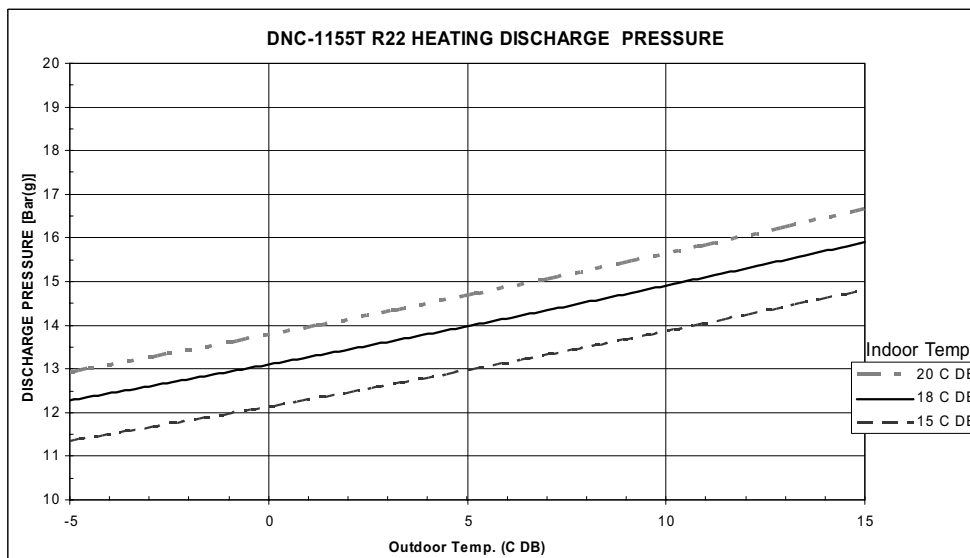
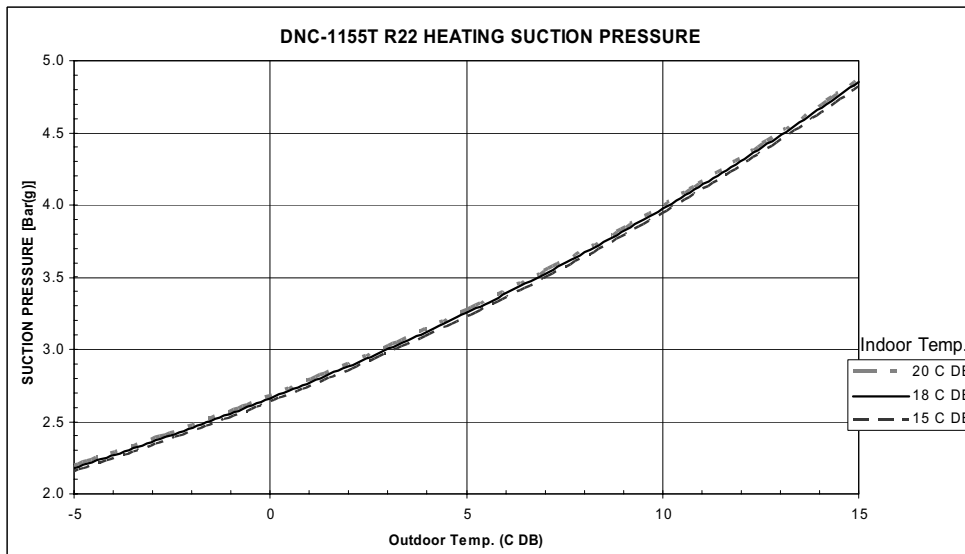


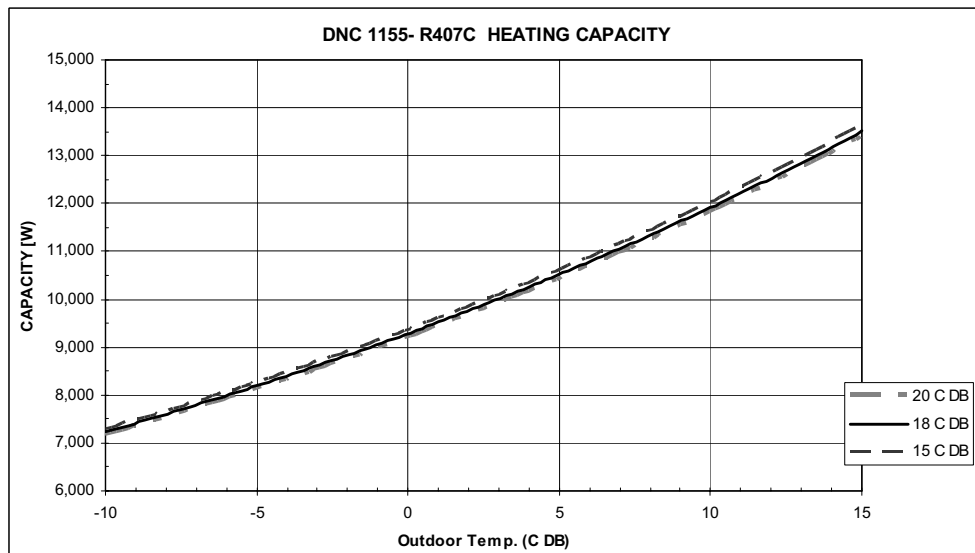
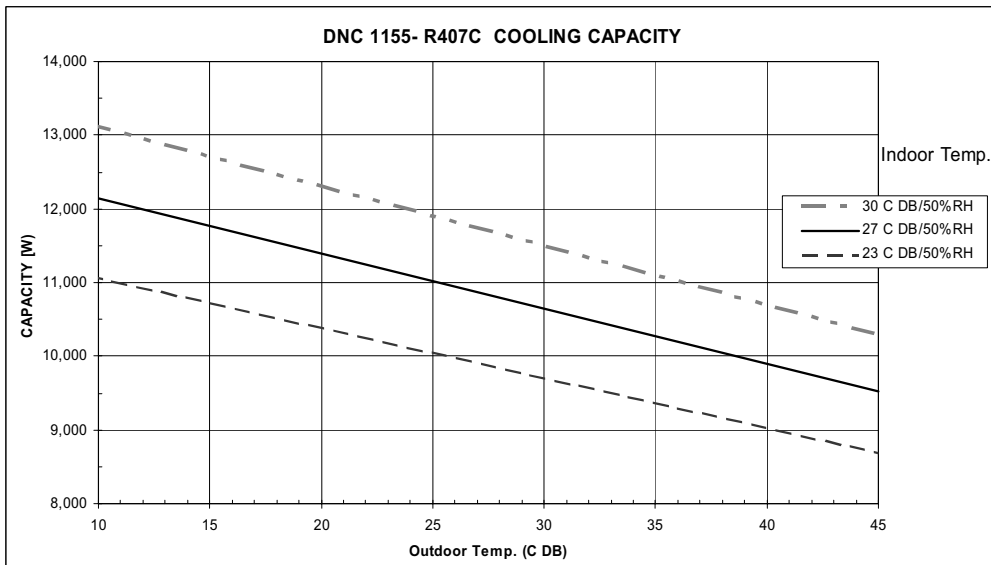


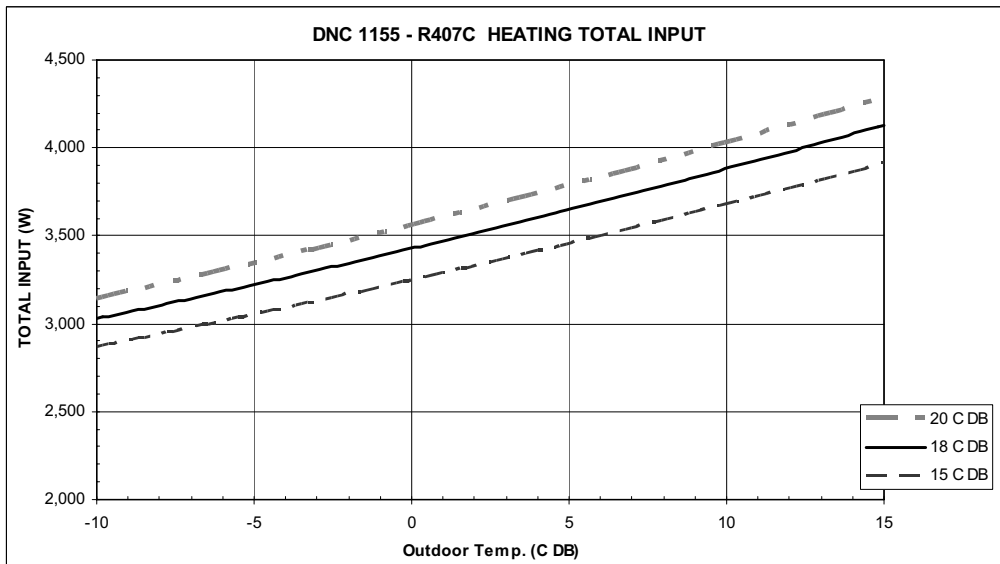
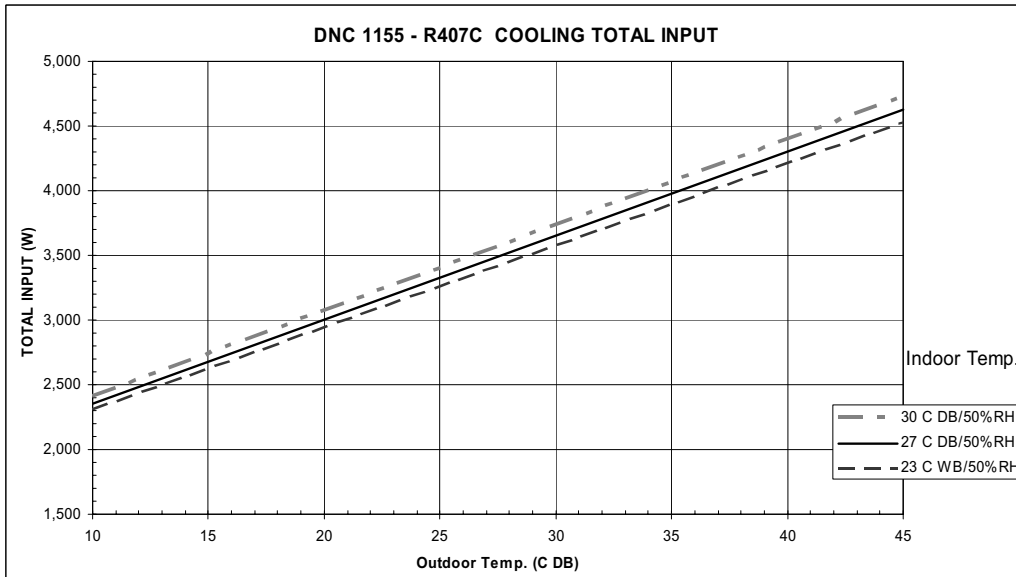


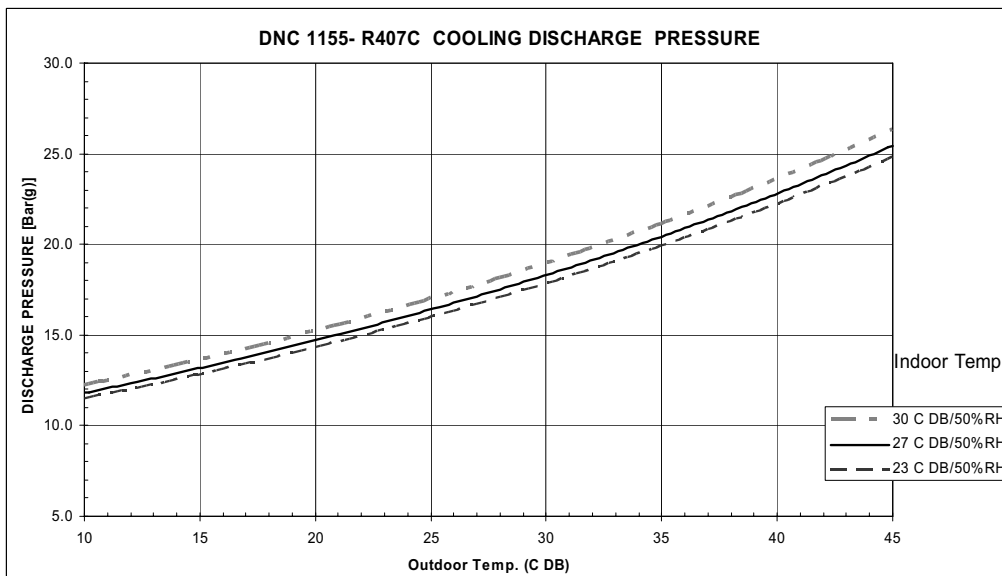
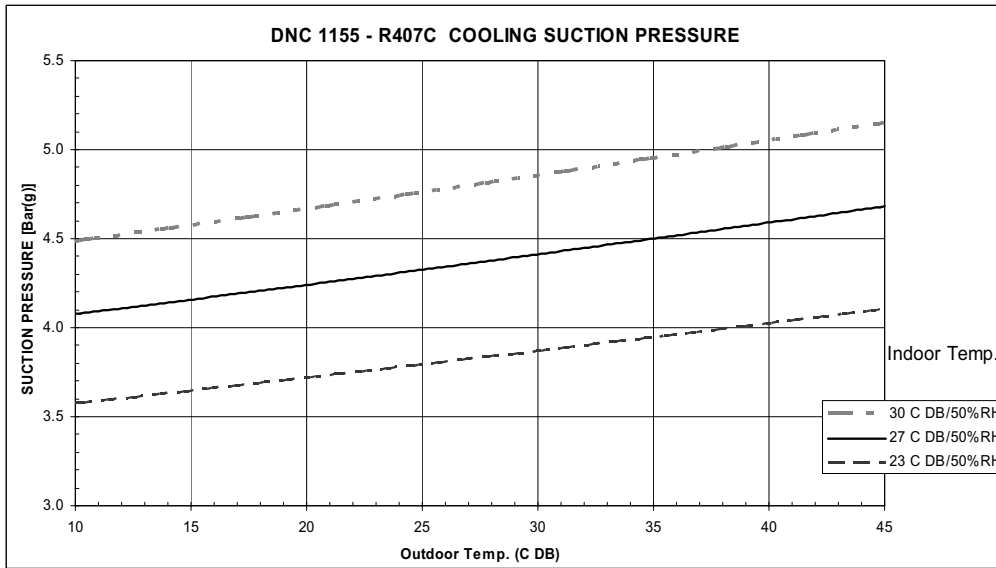


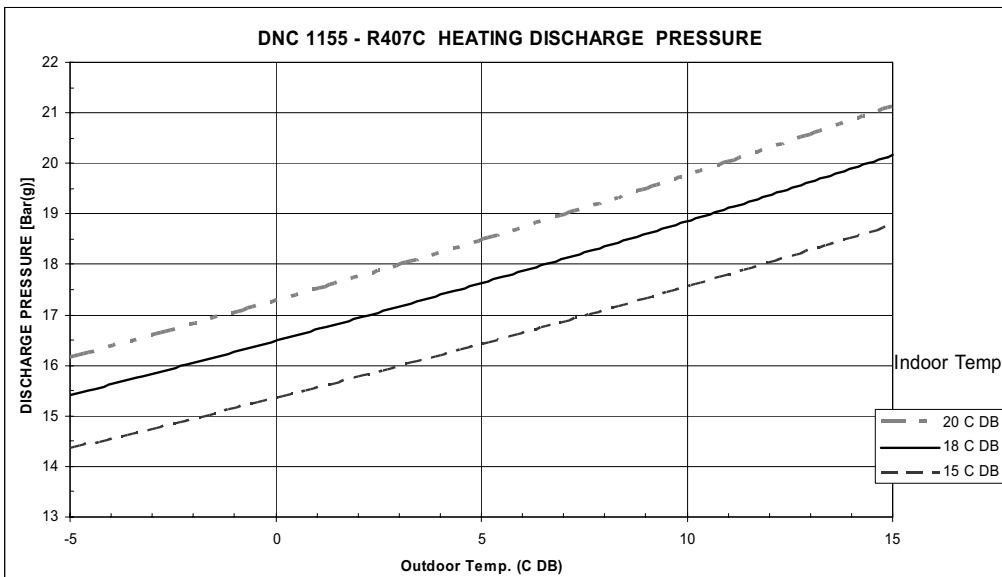
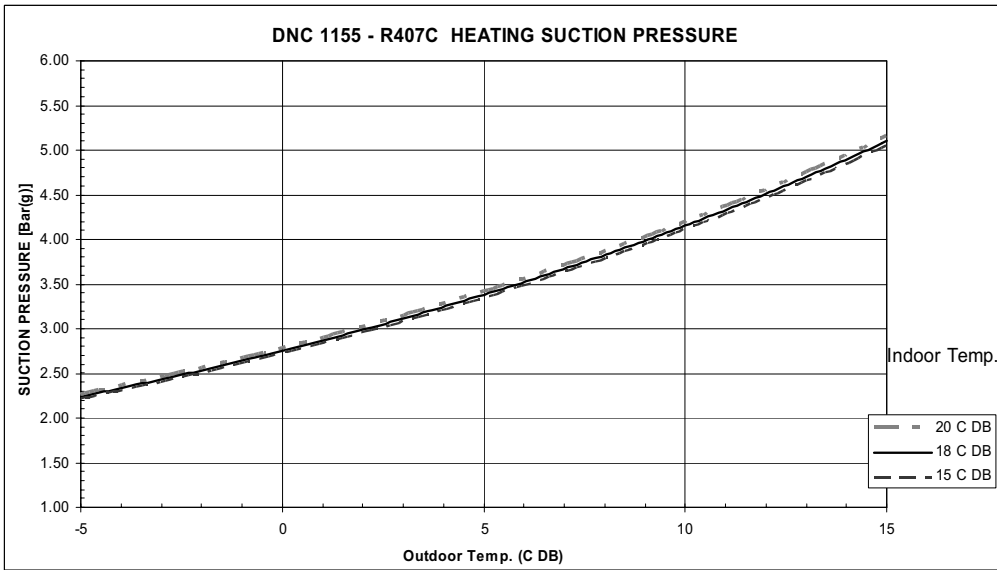


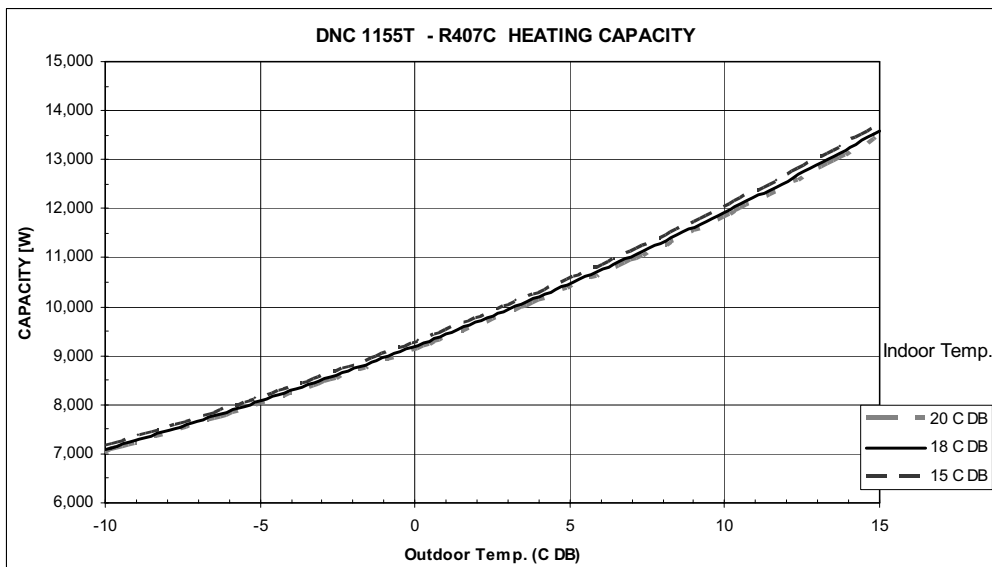
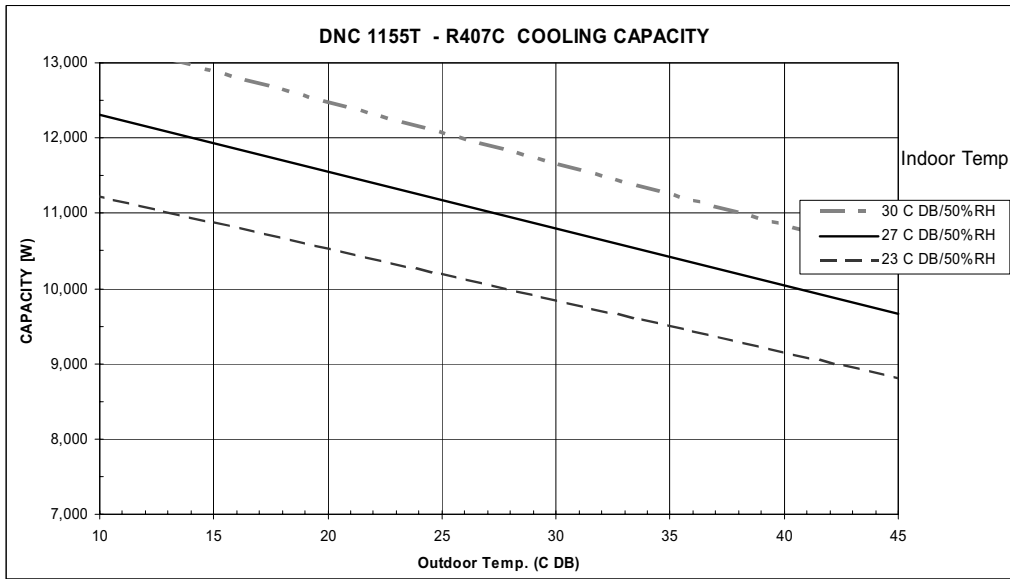


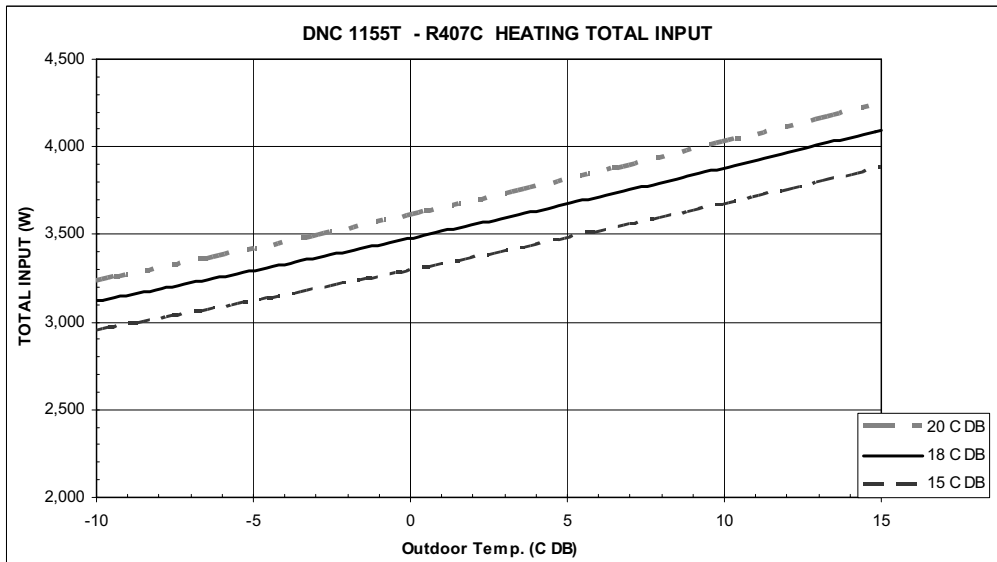
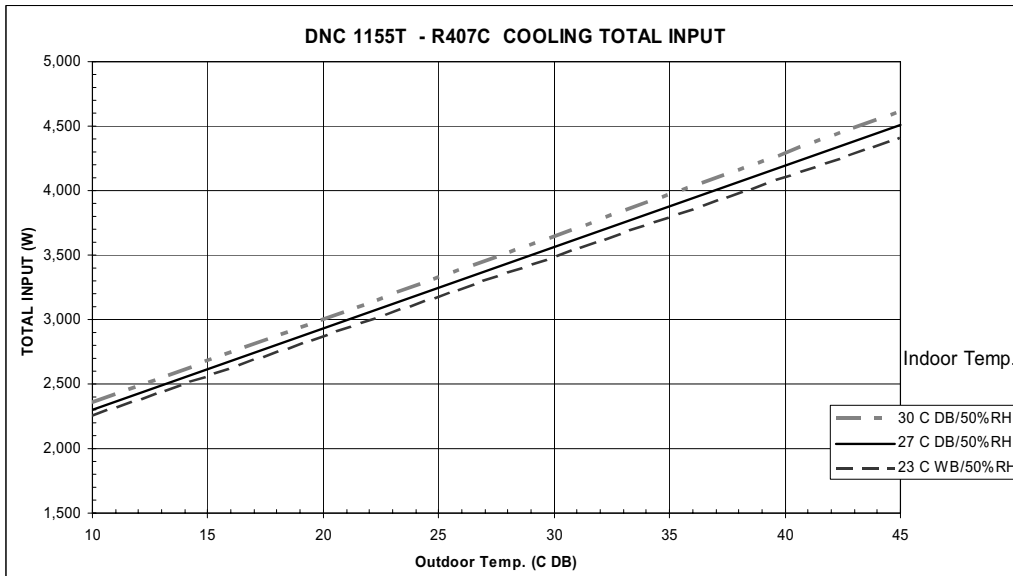




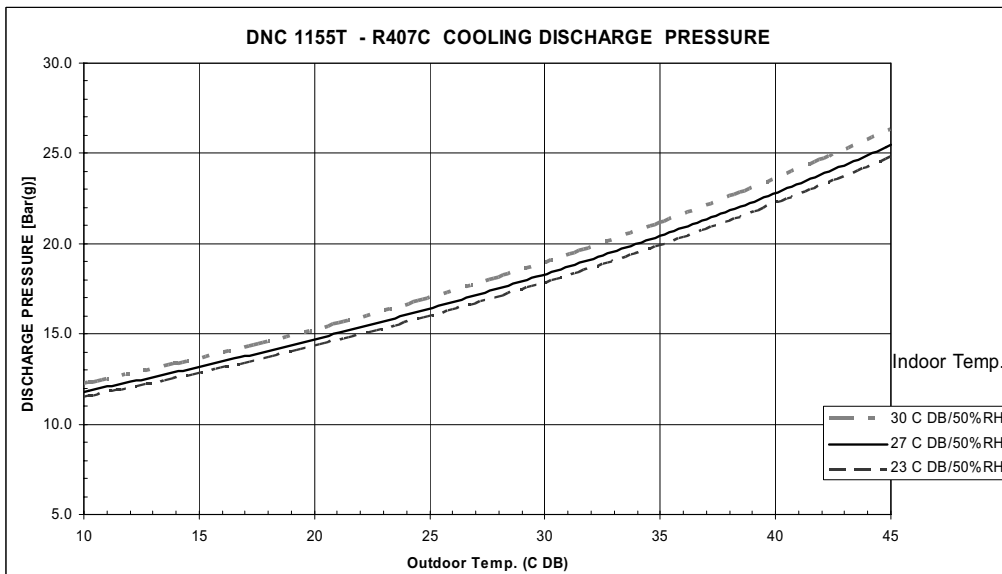
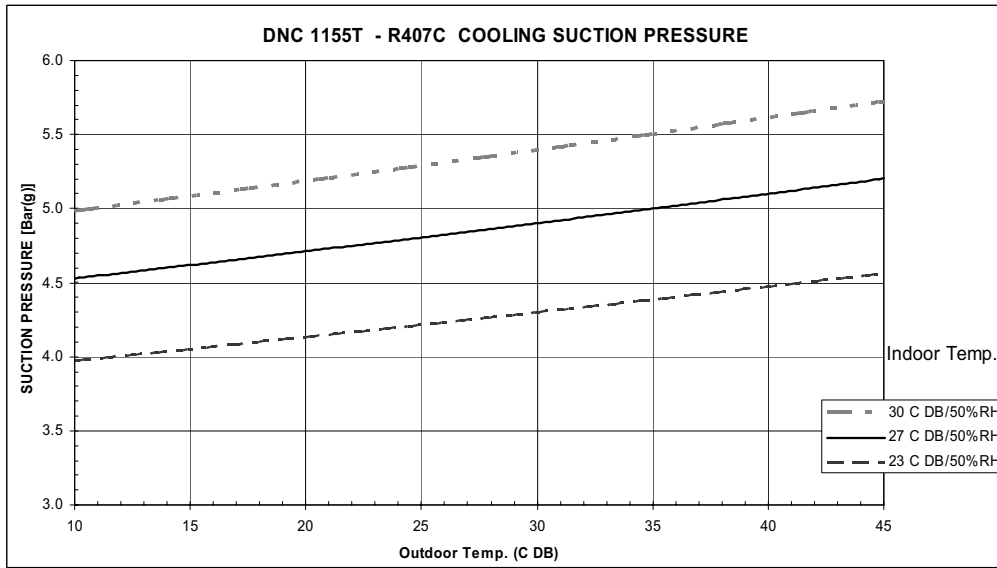


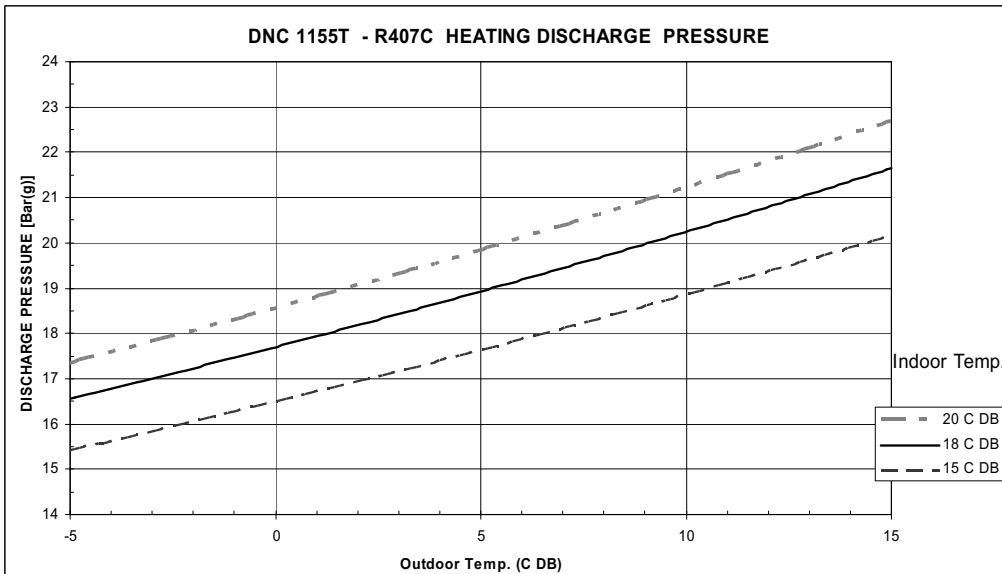
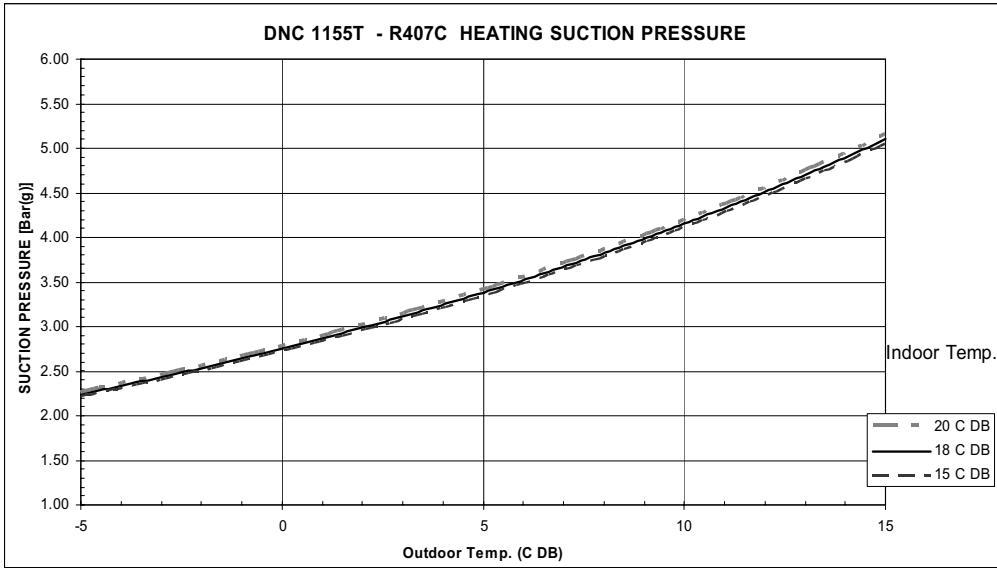


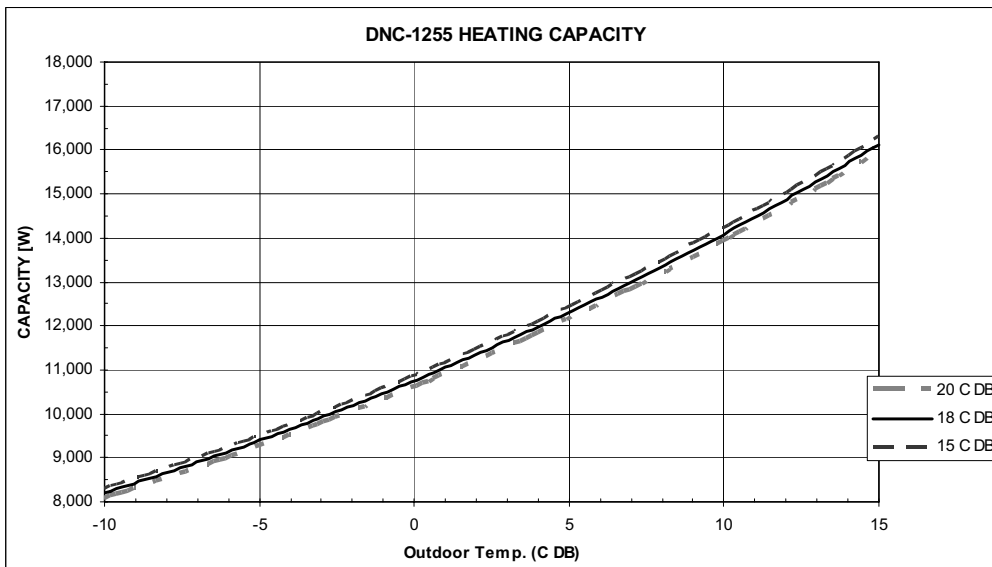
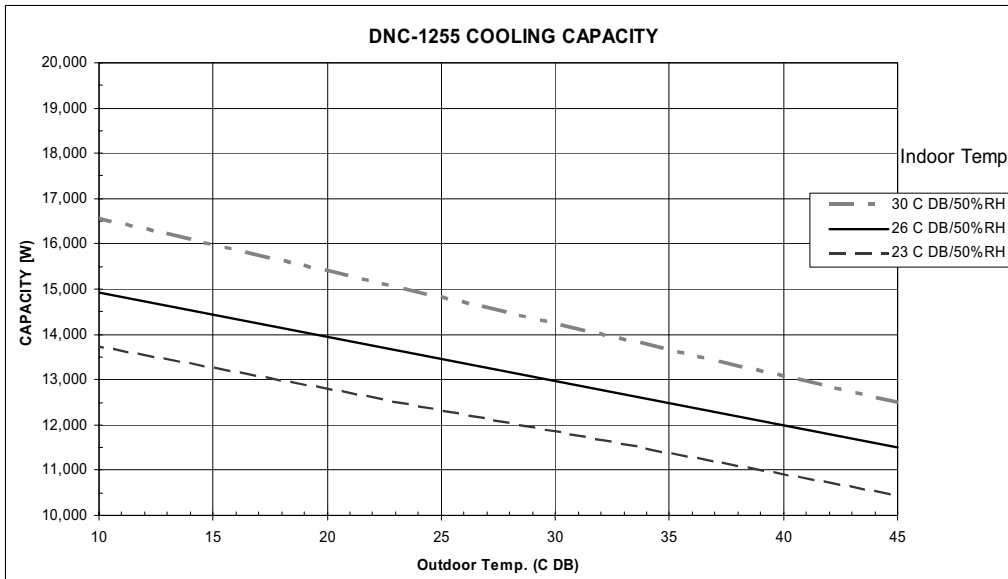


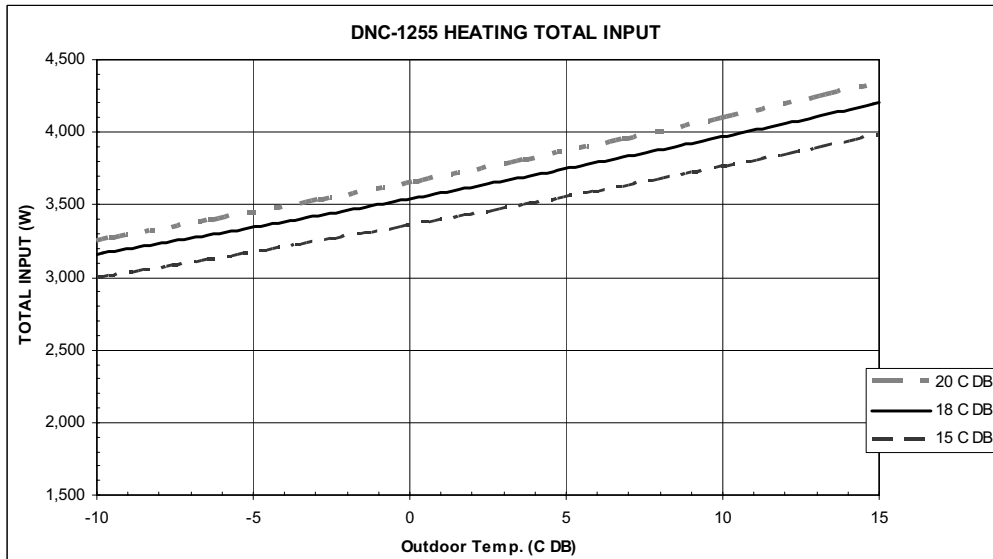
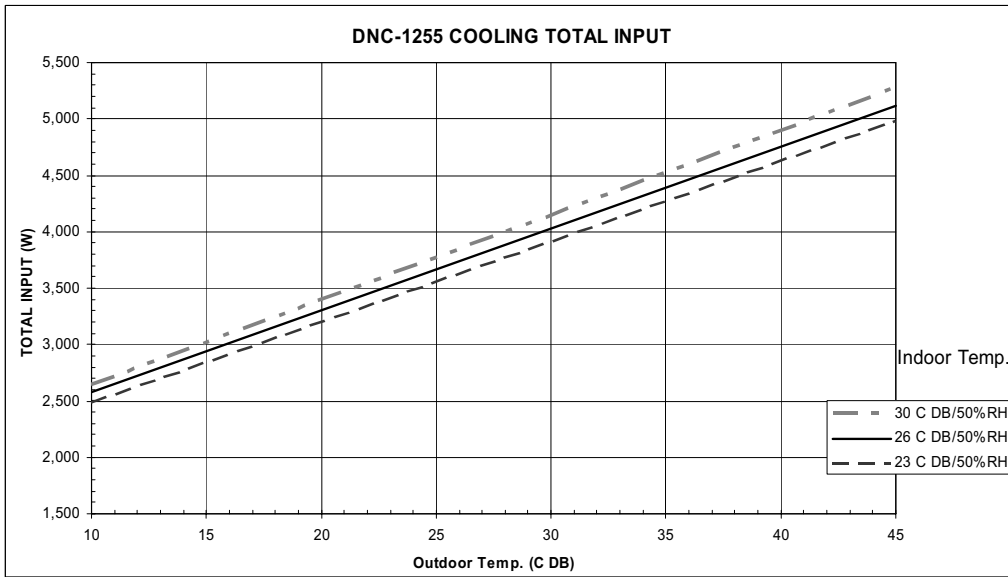


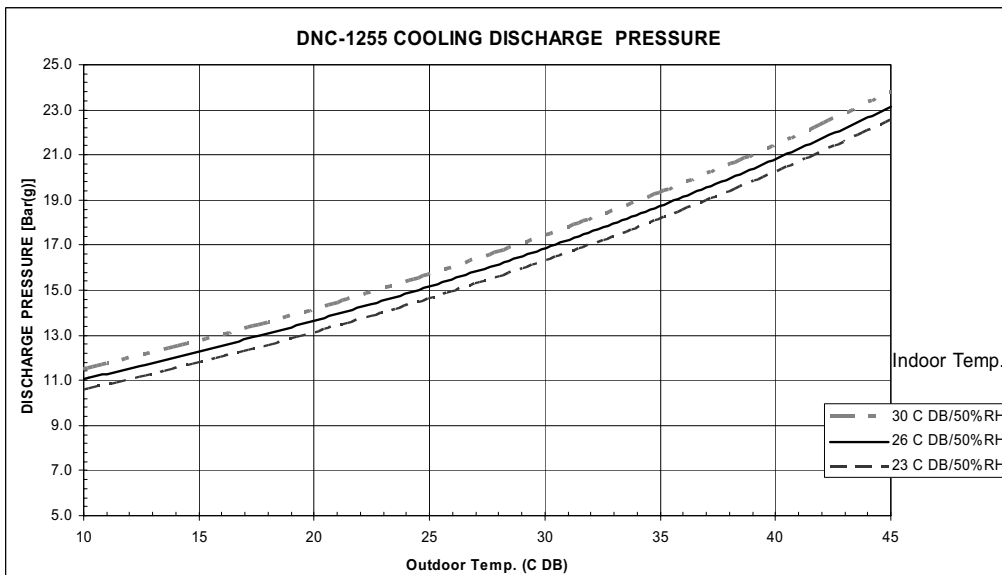
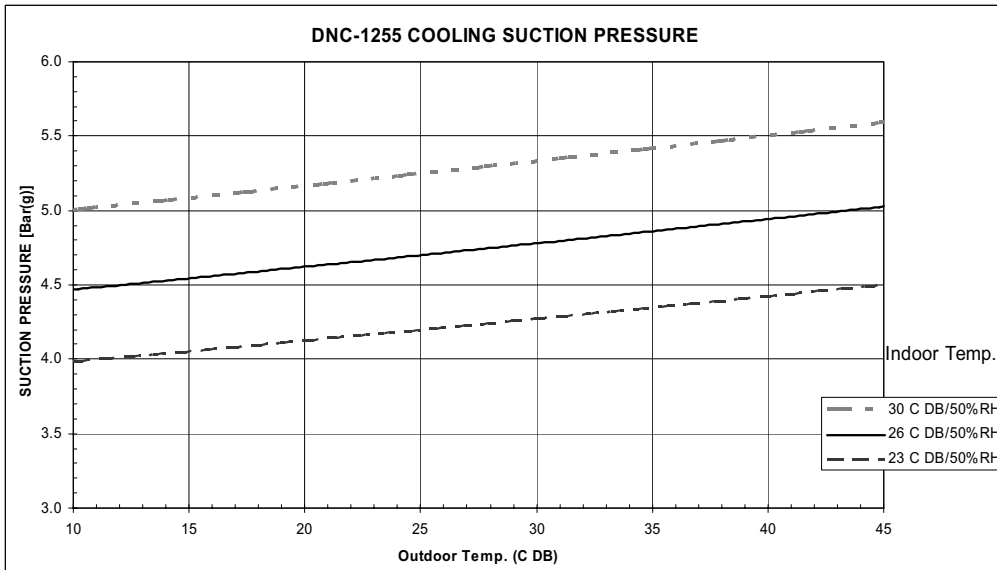


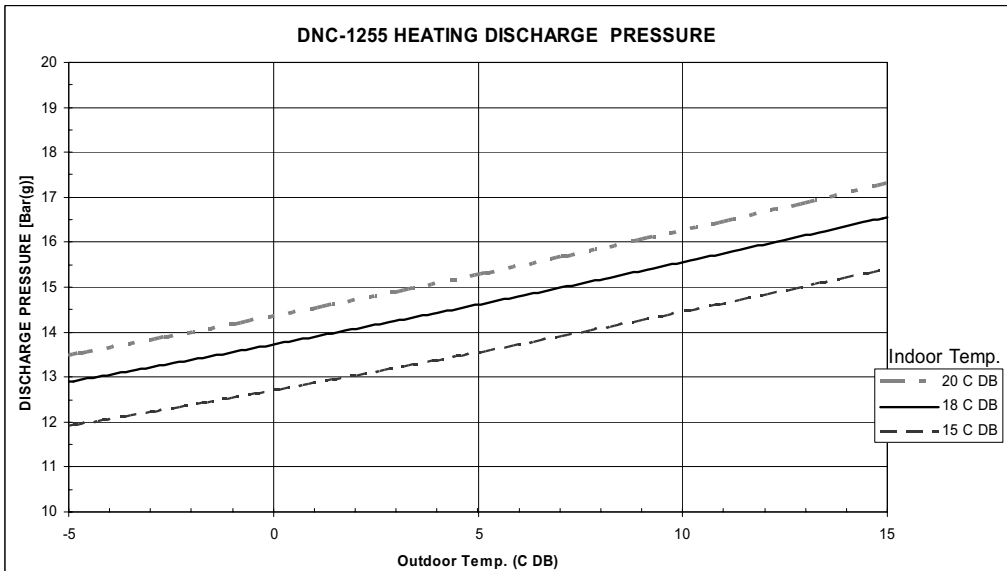
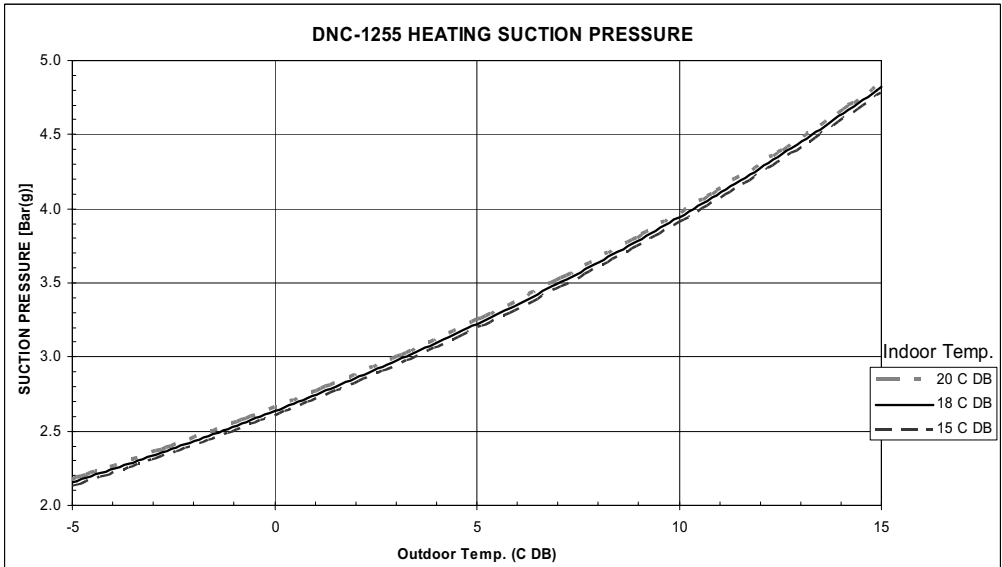


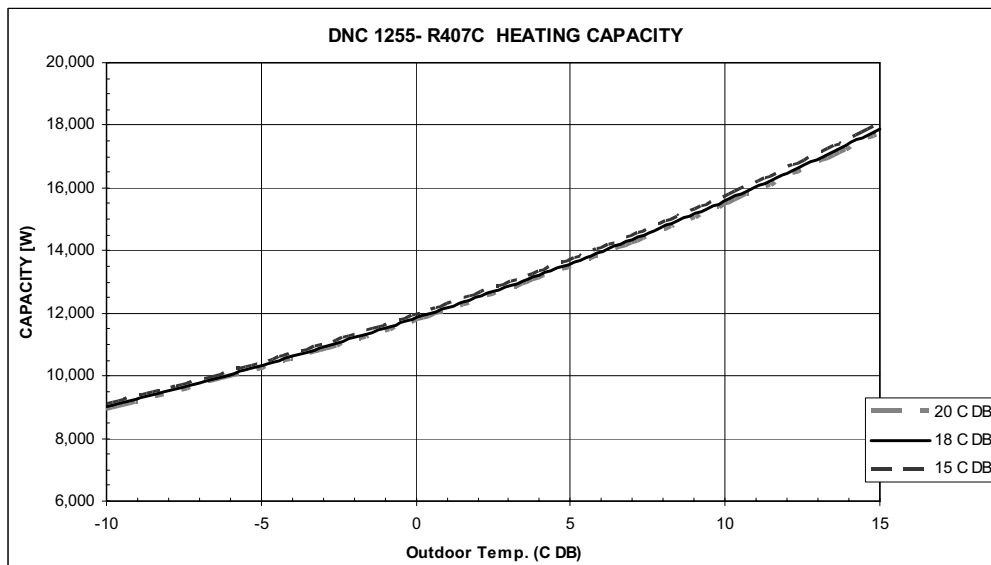
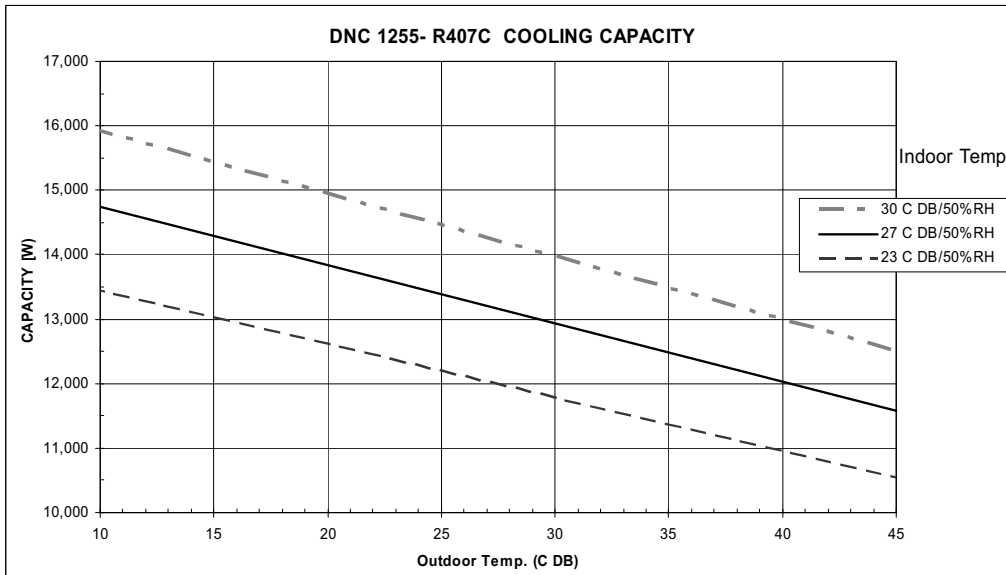


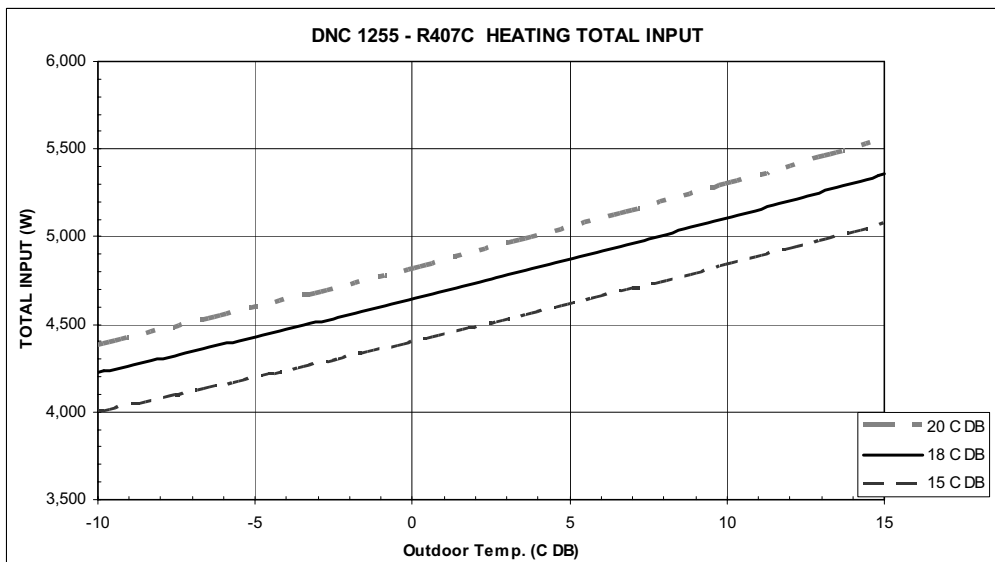
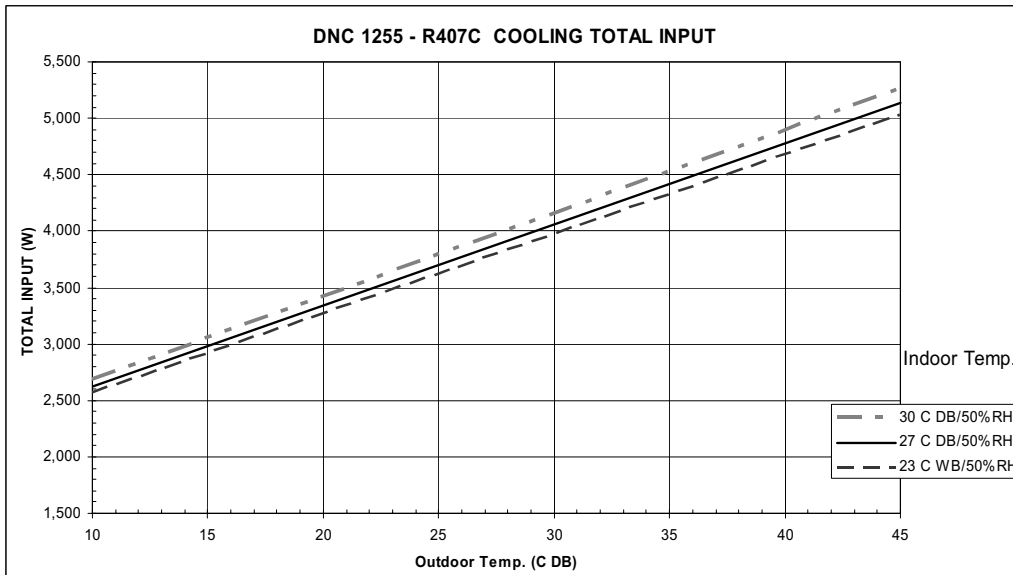




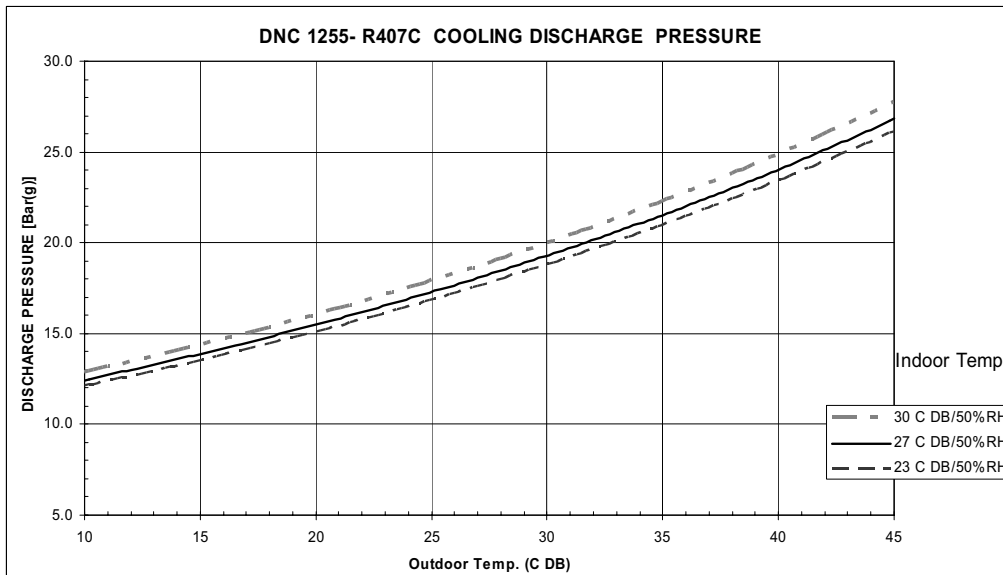
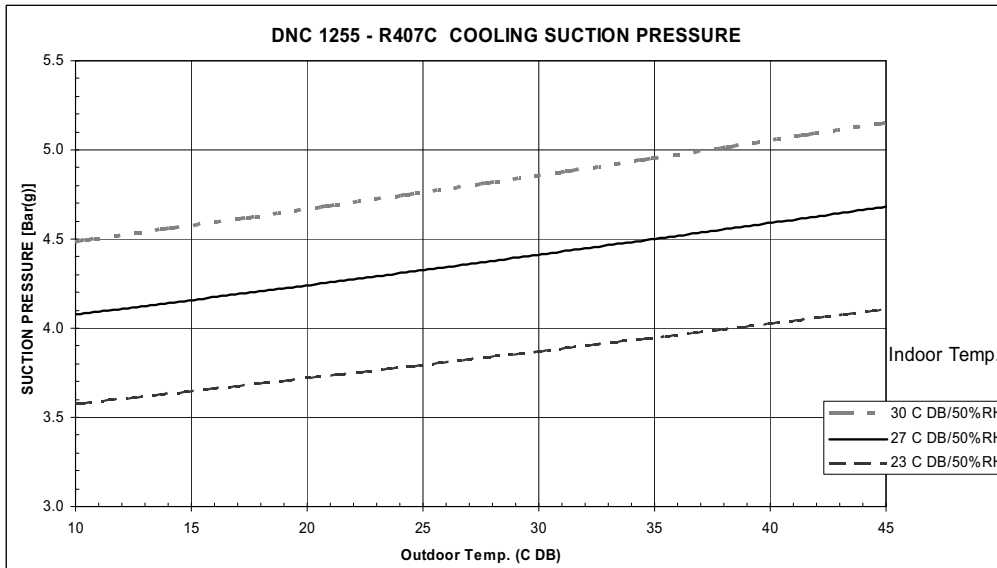


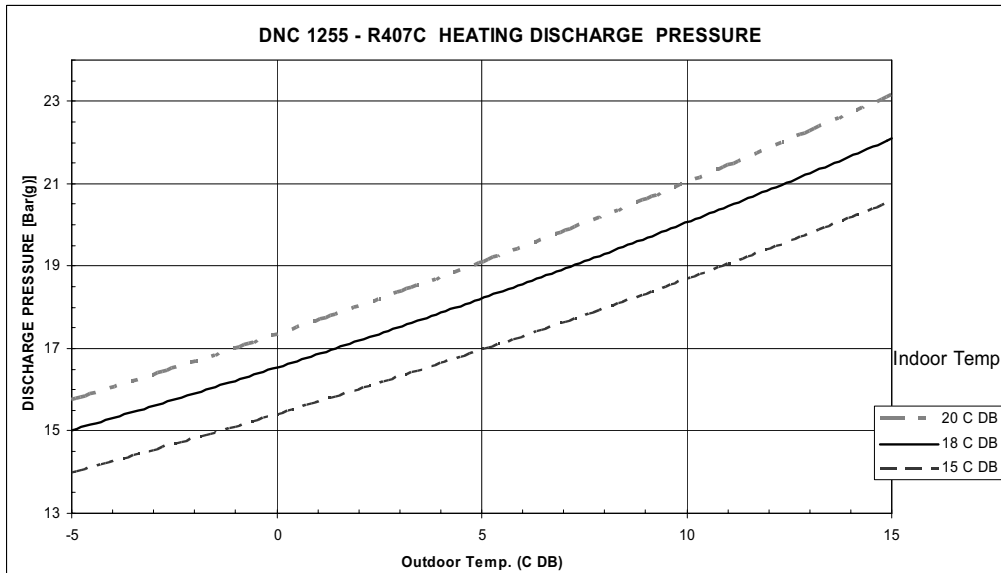
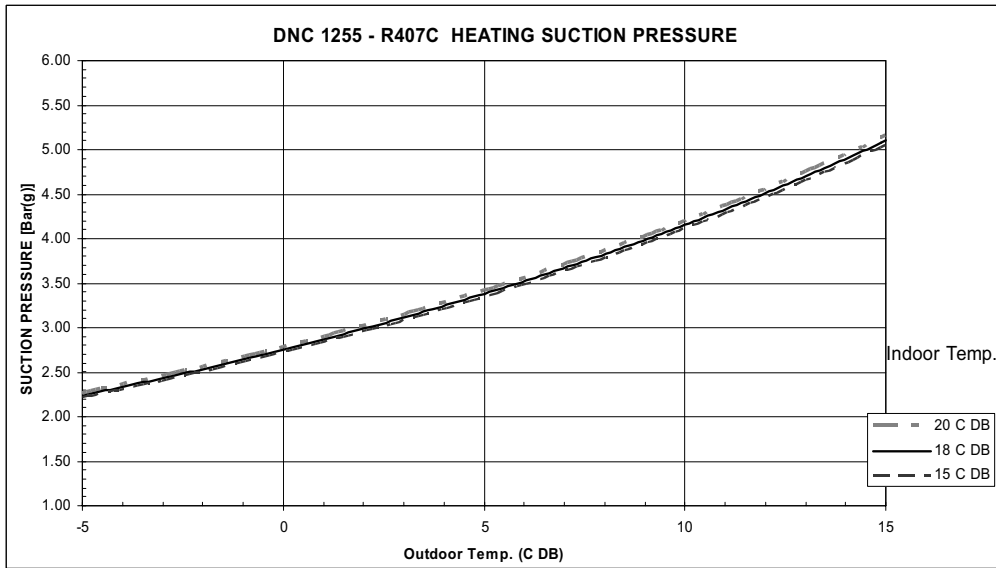


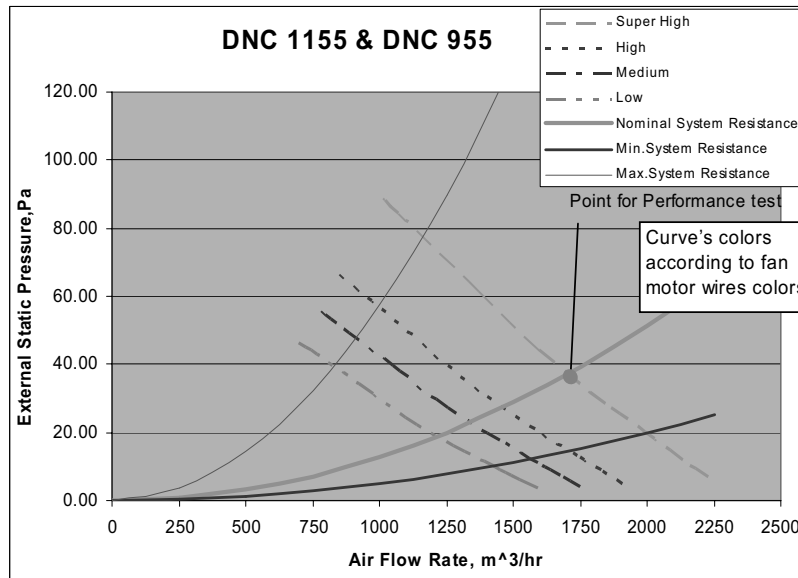
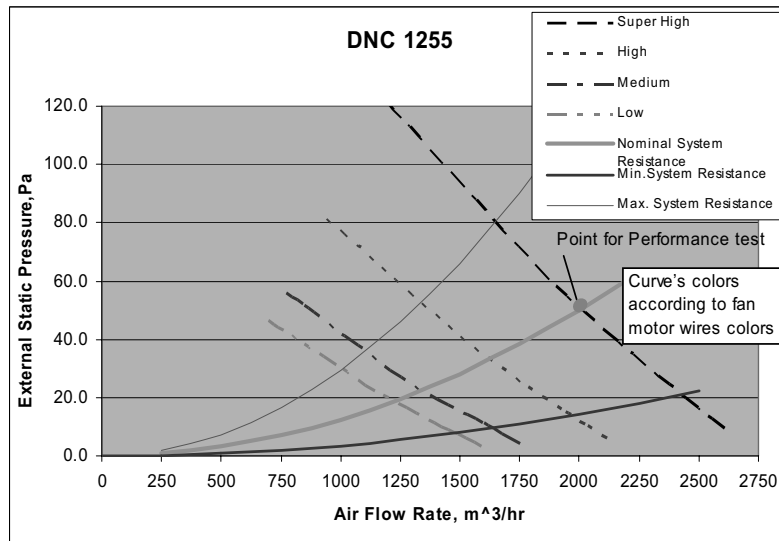








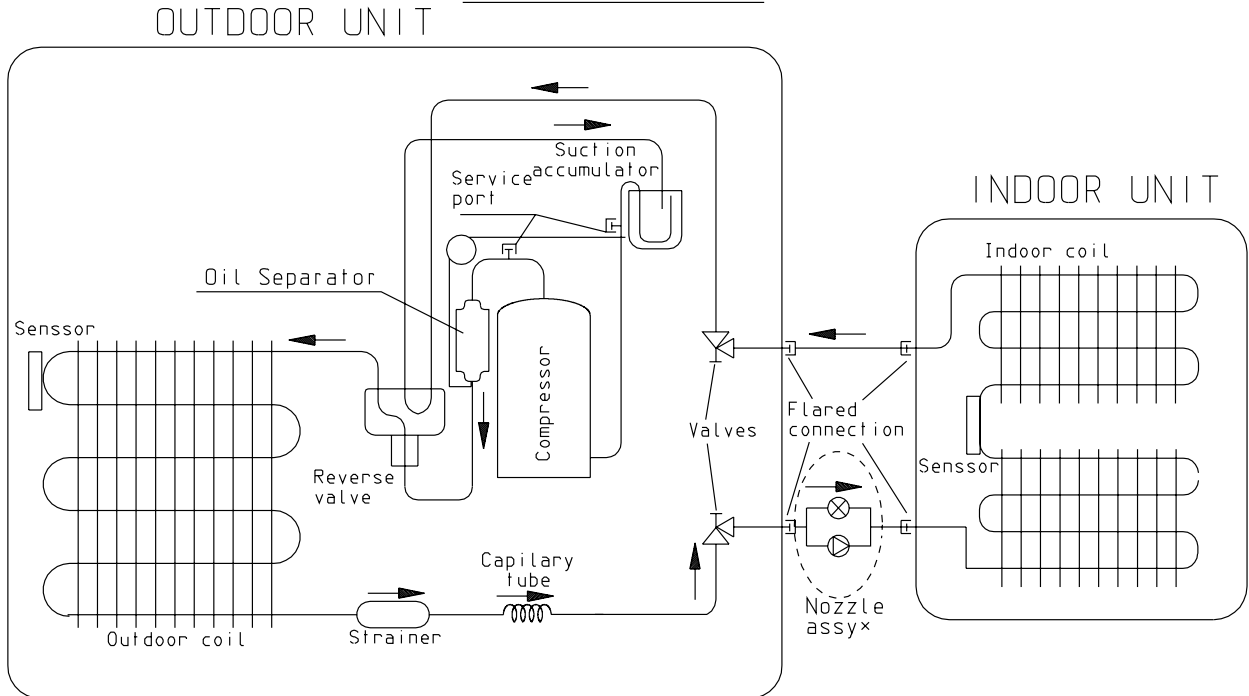




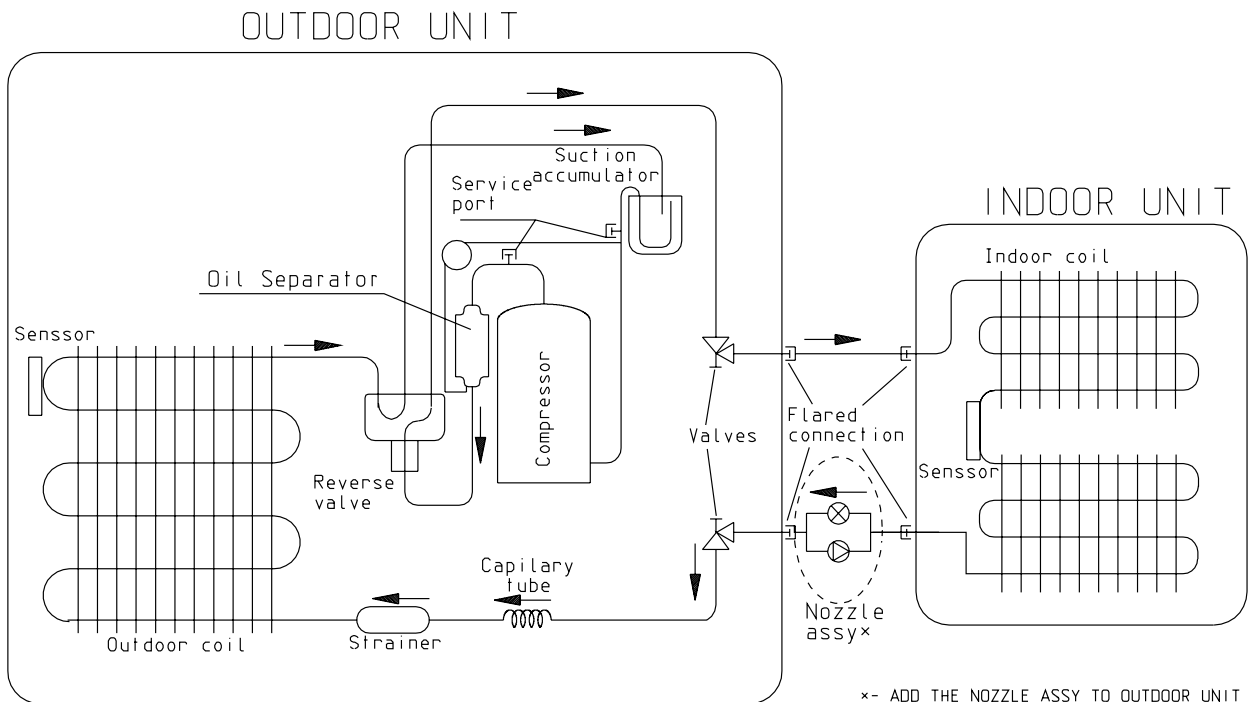
## 6. REFRIGERATION DIAGRAMS

### 6.1 Heat Pump Models

#### 6.1.1 DNC 35 R22/R407C

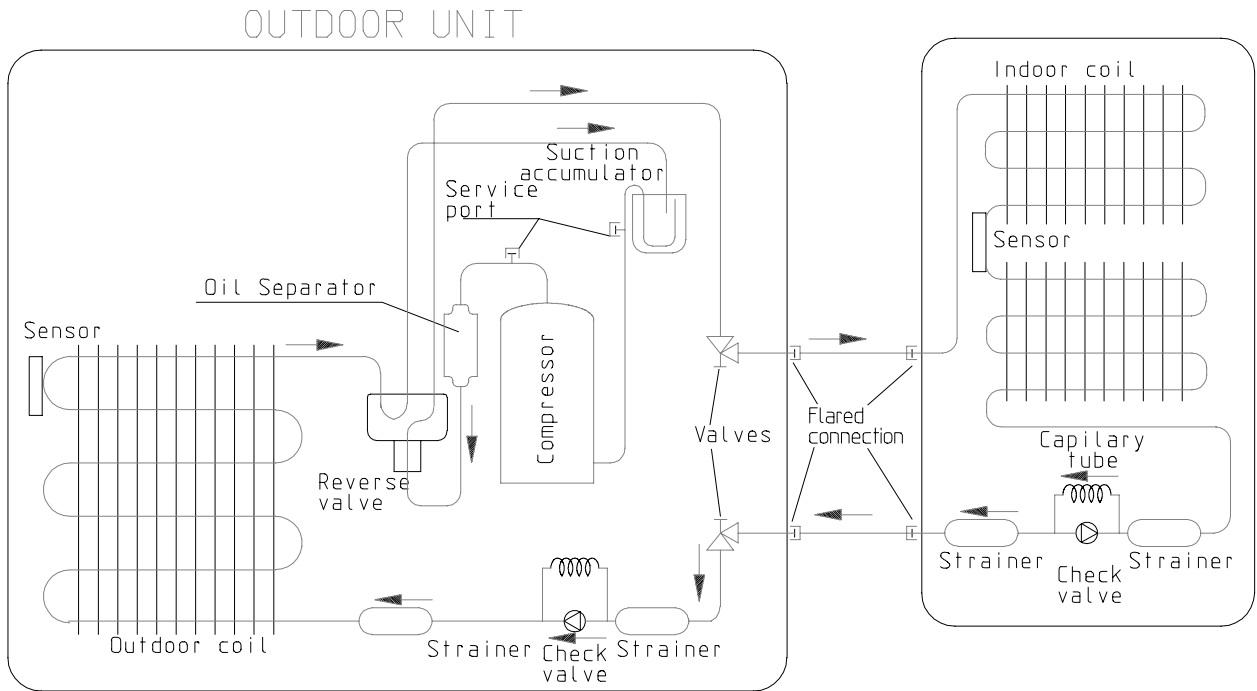
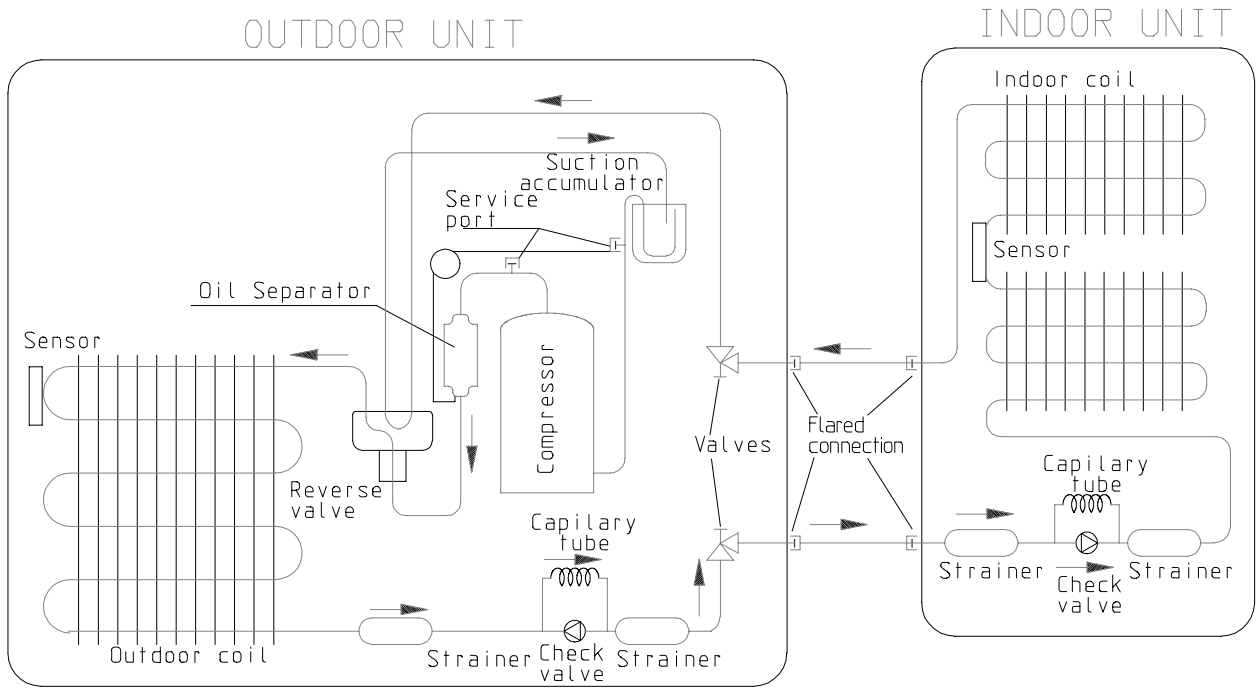


### HEATING MODE



**6.2 Heat Pump Models**

**6.2.1 DNC 38, 44 R22/R407C**



/dd/mult ty/gas\_schem/dnc

**6.3.1 ADDITIONAL REFRIGERANT CHARGE (R22)**

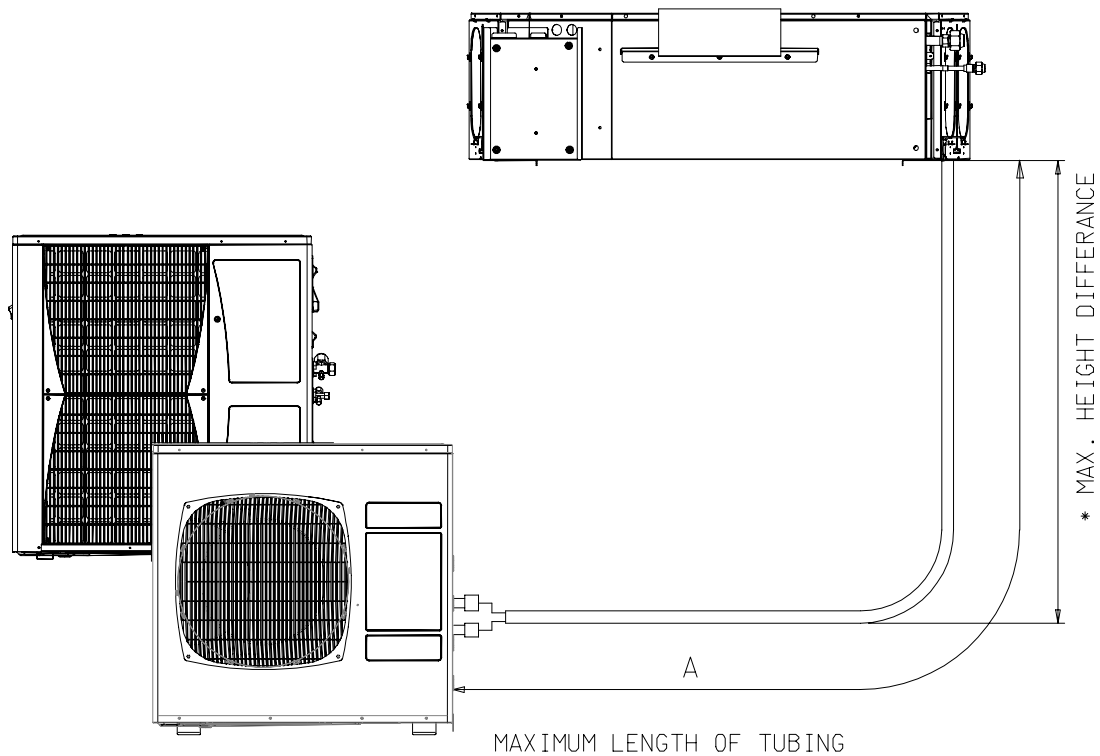
ADDITIONAL REFRIGERANT CHARGE (R-22)

HEAT PUMP UNITS

MODEL	REFRIGERANT TUBING LENGTH (ONE WAY)				
	10M	12M	16M	30M	50M
DNC 1255 1ph	75	135	255	675	1275
DNC 1155 3ph	75	135	255	675	1275
DNC 1155 1ph	75	135	255	675	1275
DNC 955 1ph	62	112	212	562	1250

MAXIMUM REFRIGERANT TUBING LENGTH AND HEIGHT DIFFERENCE

MODEL	LENGTH (m) (A)	HEIGHT DIFFERENCE (m)
DNC 1255 1ph	50	25
DNC 1155 3ph	50	25
DNC 1155 1ph	50	25
DNC 955 1ph	30	10

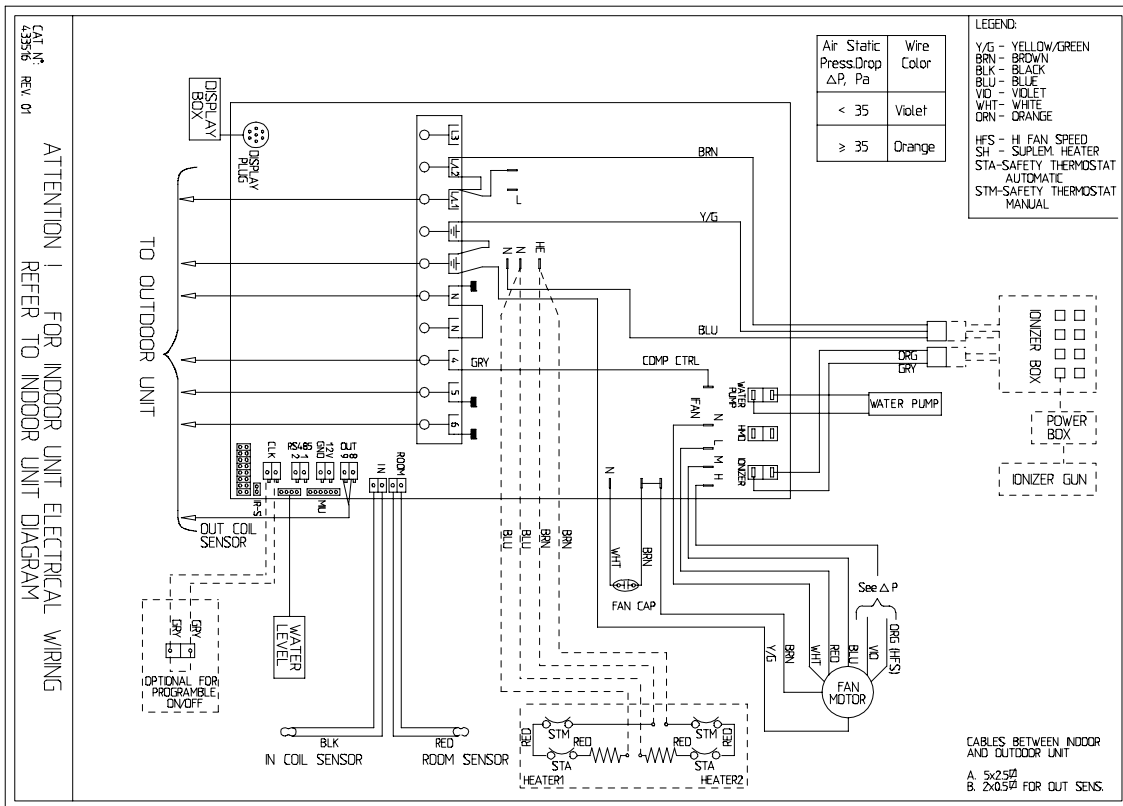


\* THE INDOOR UNIT CAN BE ABOVE OR BELOW THE OUTDOOR UNIT.

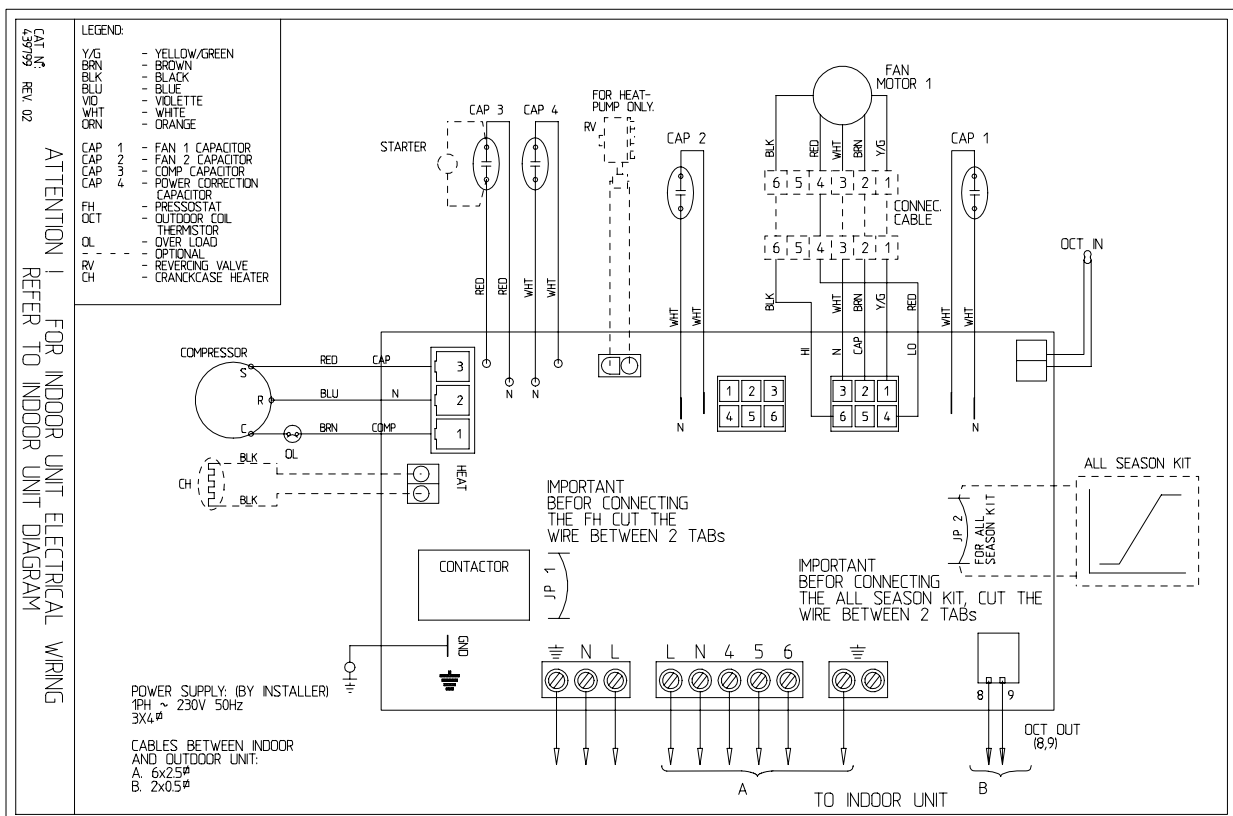
# 7. WIRING DIAGRAMS

## 7.1 Model: DNC 35 1PH

### 7.1.1 Indoor Unit

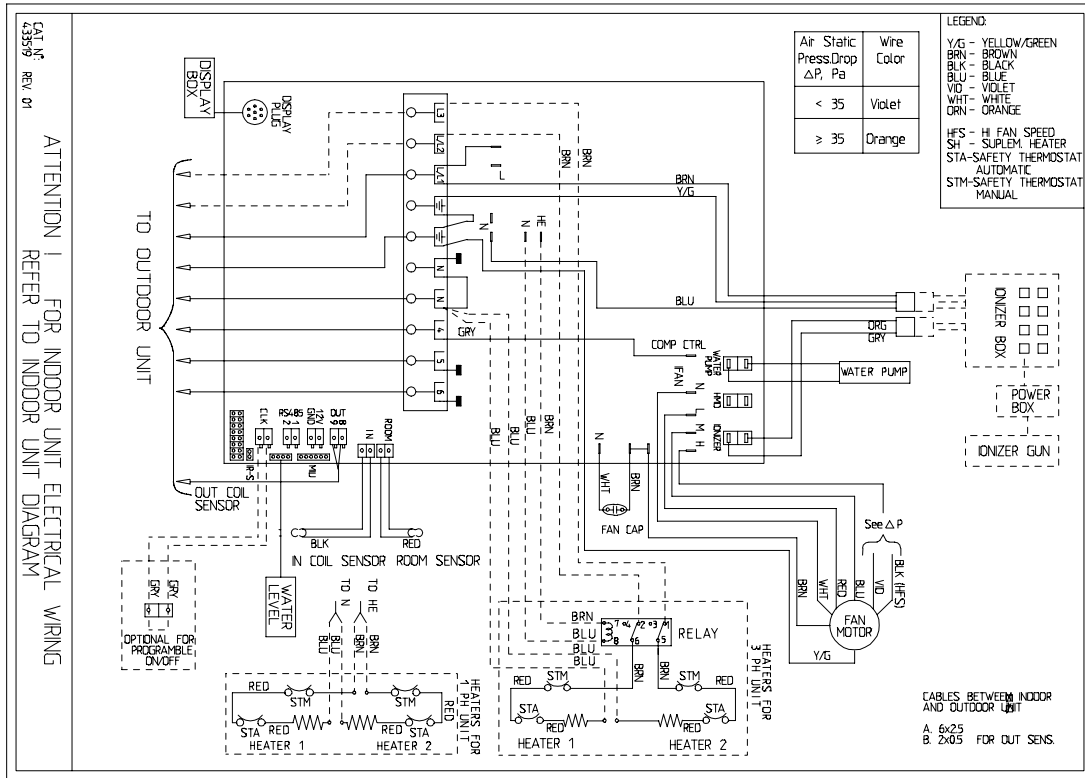


### 7.1.2 Outdoor Unit

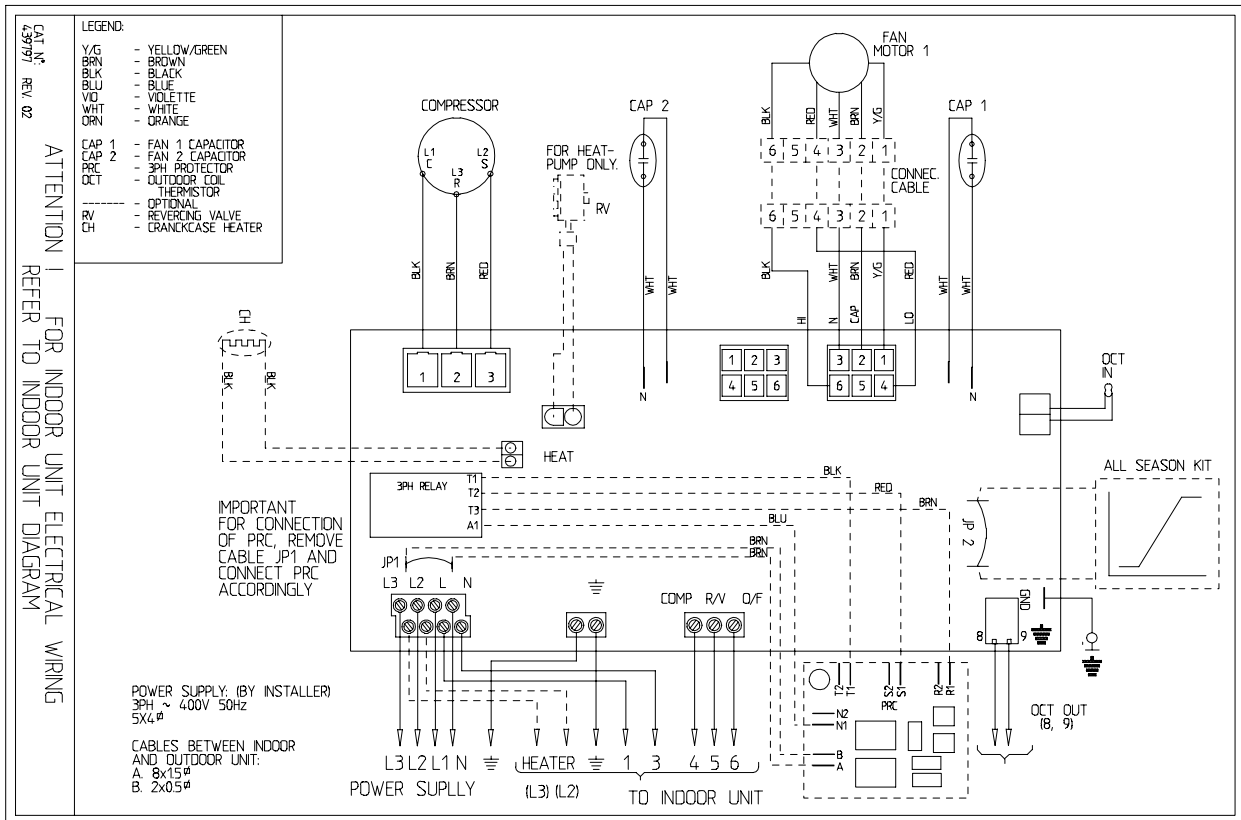


## 7.2 Model: DNC 35 3PH7

### 7.2.1 Indoor Unit



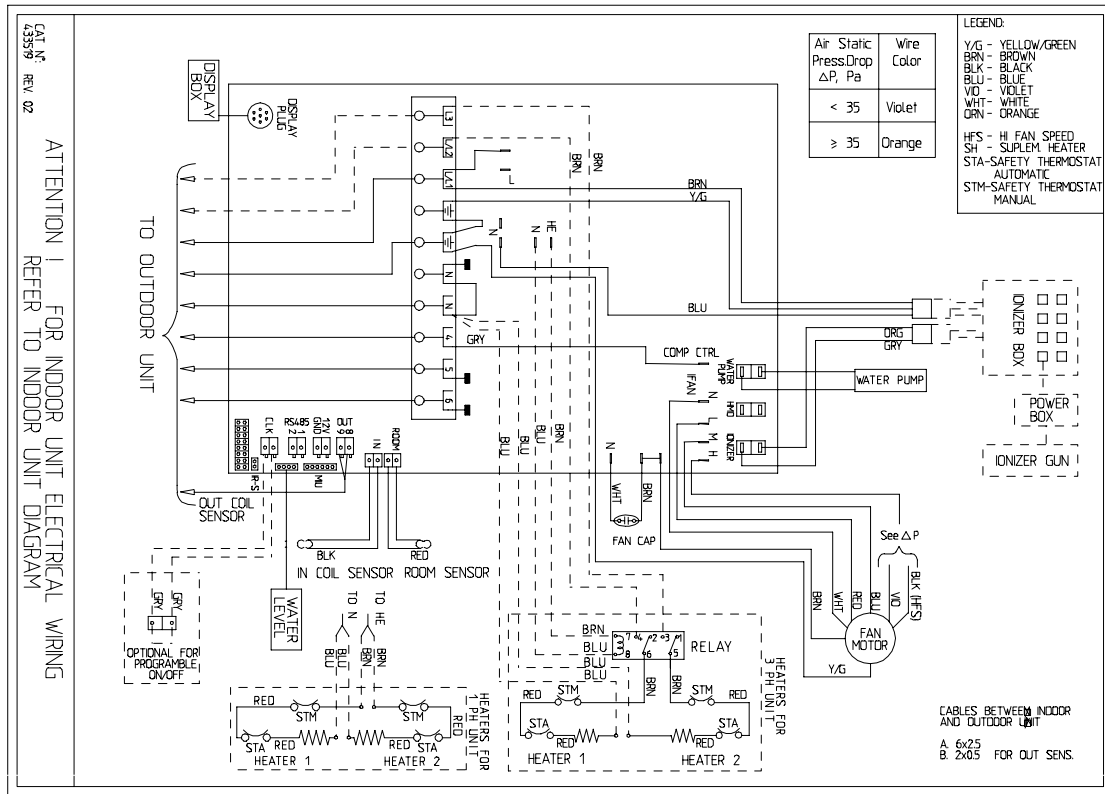
### 7.2.2 Outdoor Unit



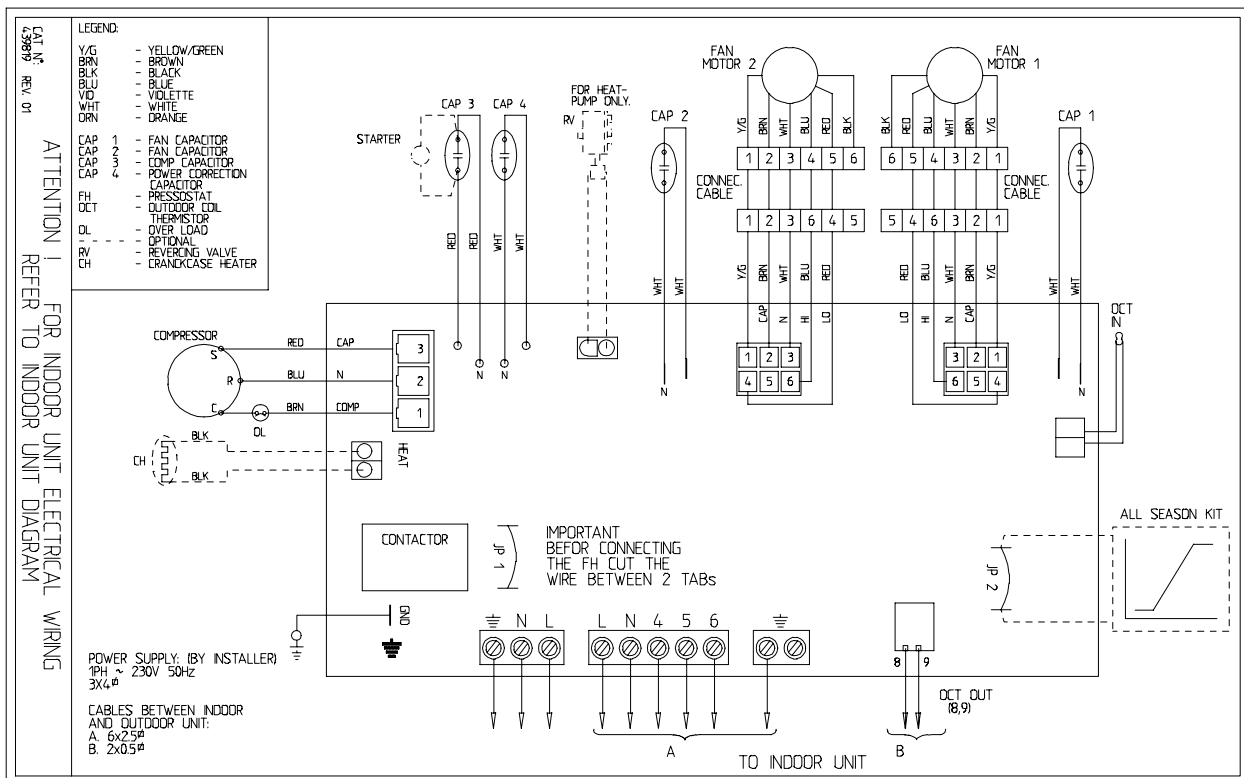


### 7.3 Model: DNC 38 1PH

#### 7.3.1 Indoor Unit

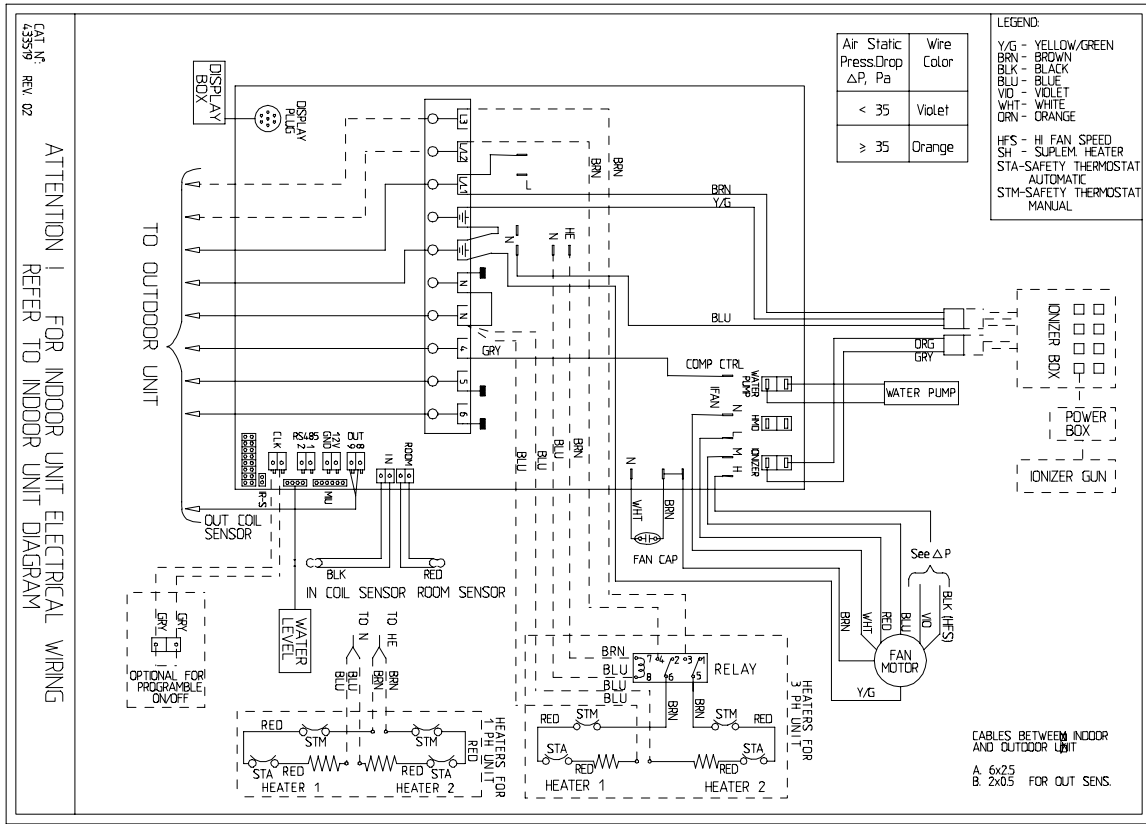


#### 7.3.2 Outdoor Unit:

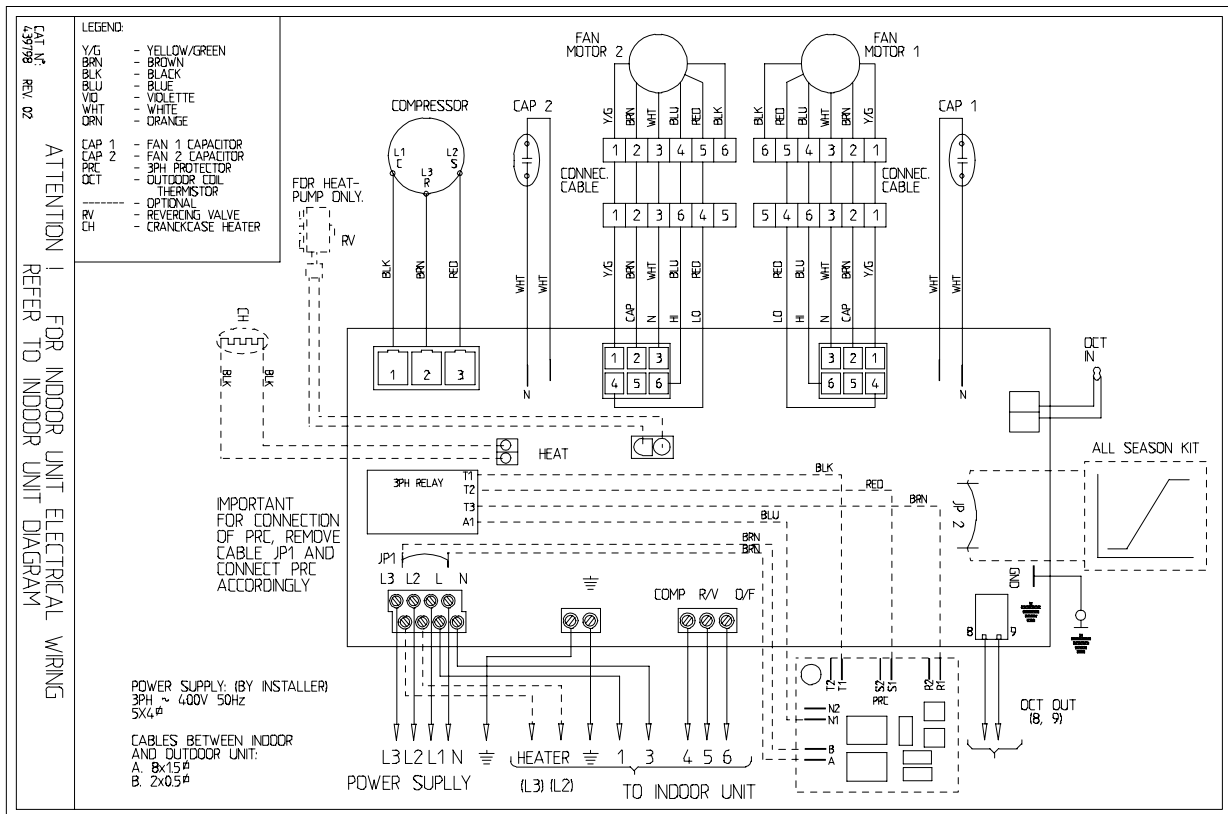


## 7.4 Model: DNC 38 3PH

### 7.4.1 Indoor Unit

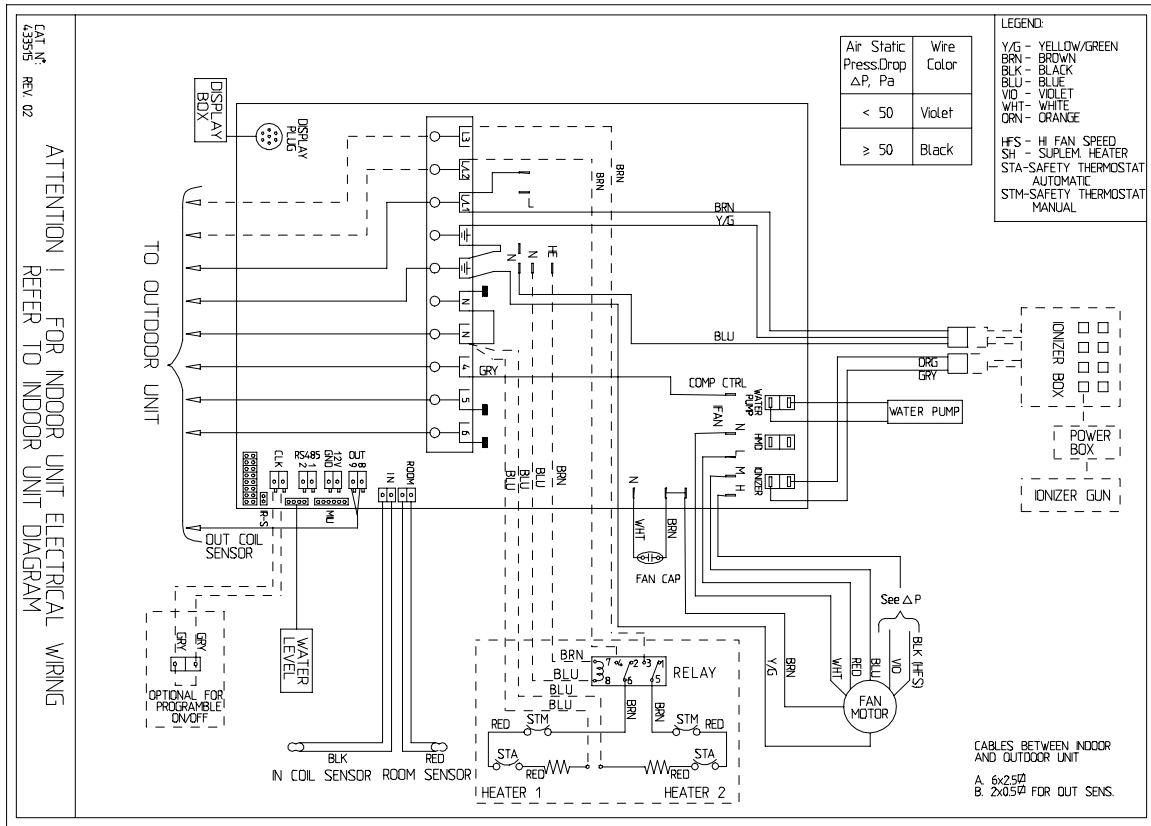


### 7.4.2 Outdoor Unit: OU8-30 3PH

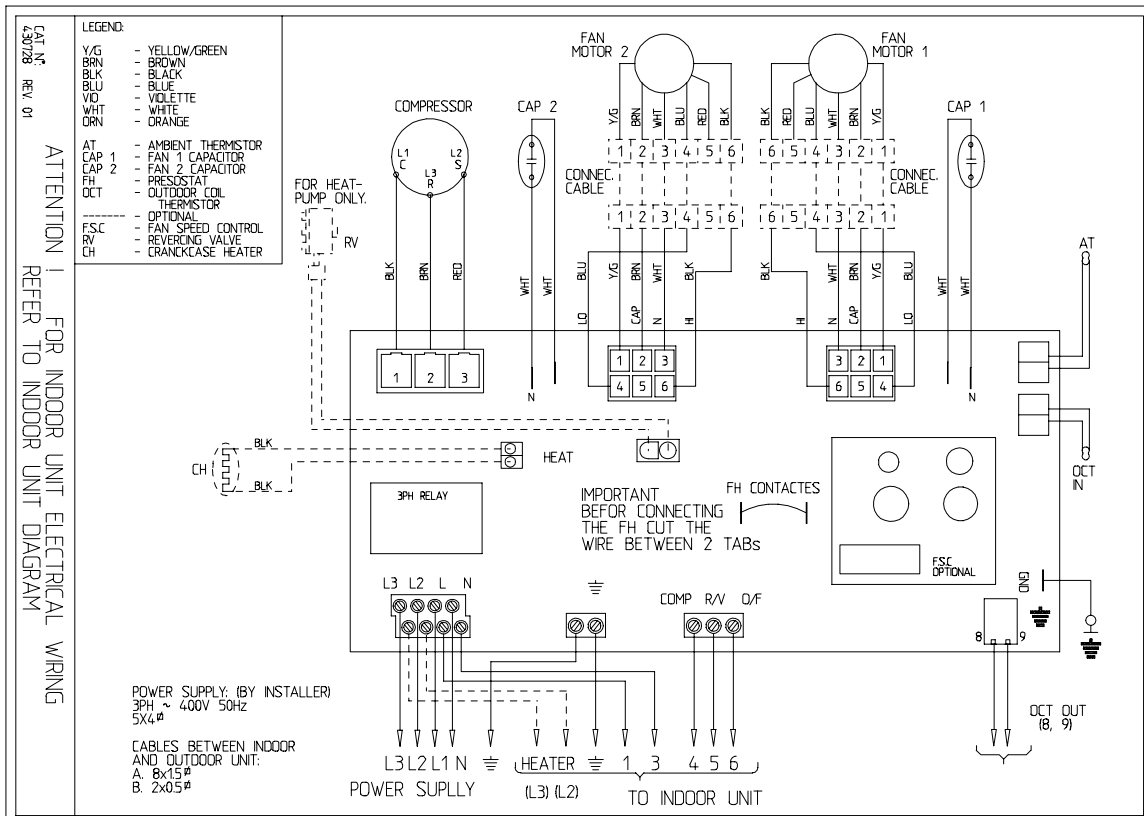


## 7.5 Model: DNC 44 3PH

### 7.5.1 Indoor Unit



### 7.5.2 Outdoor Unit



## 8. CONTROL SYSTEM

### Instructions for Electronic Control Service Package

#### INTRODUCTON

The electronic control package is designated for service and is common for the following group of air-conditioners.

1. **ST/RC** group - Cooling only / Cooling and Heating by heat pump.
2. **SH** group - Cooling and Heating by heat pump and supplementary heater.
3. **RH** group - Cooling and Heating by heaters only.

**Before installation , be sure that you select and set for the right group .**

#### PACKAGE CONTENT

The following should be included in the electronic control service package:

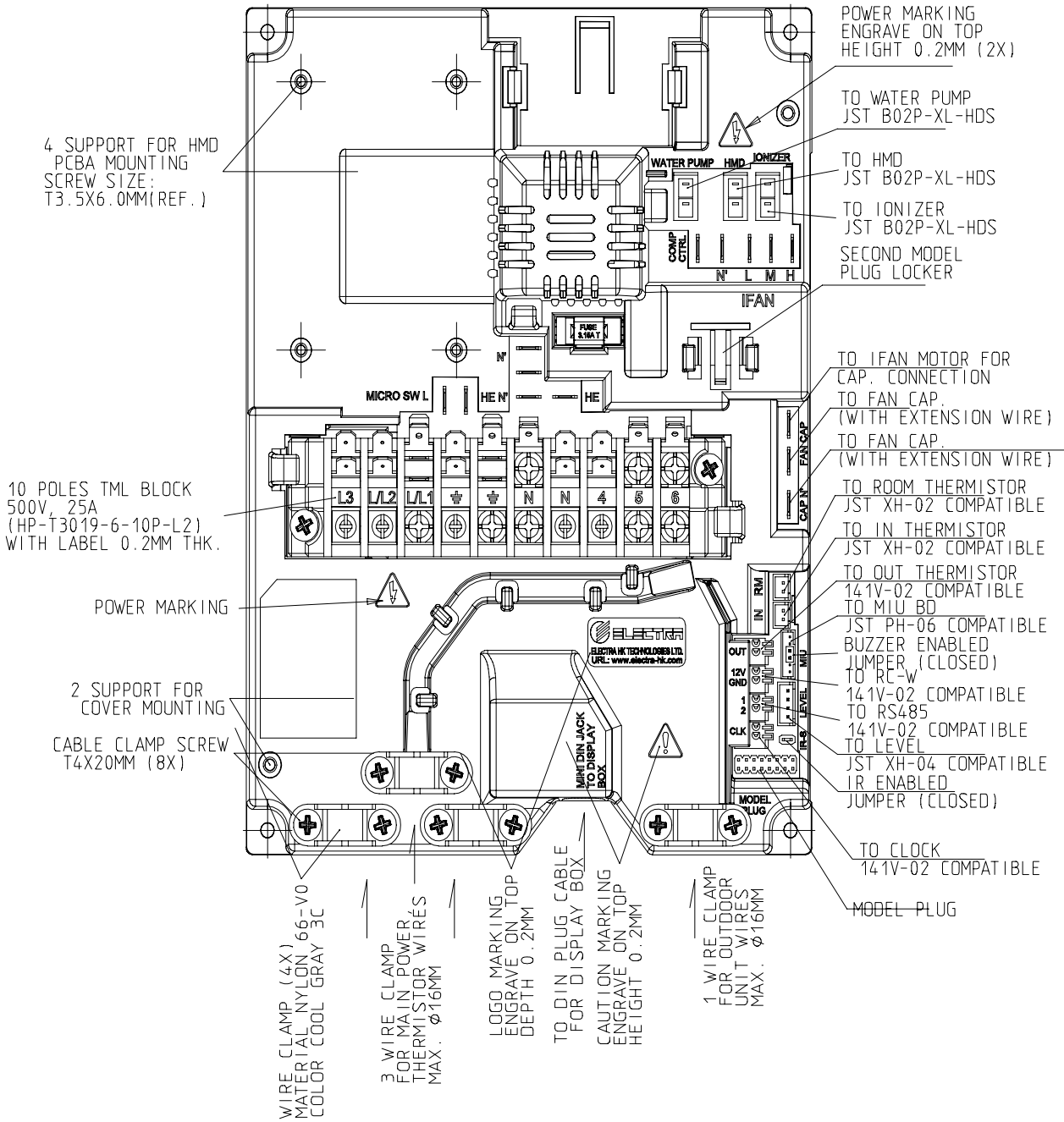
- Controller designated for service
- Model plug

#### MODEL PLUG SETTINGS

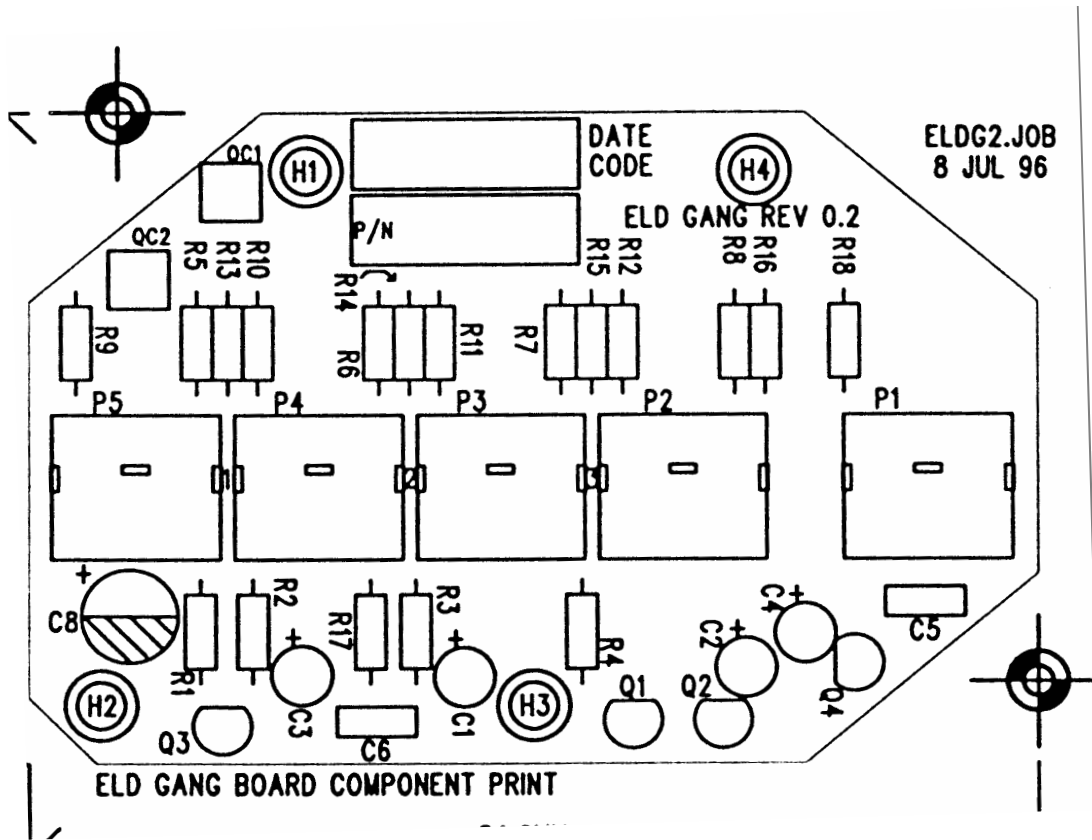
Before installation, make sure to set the model plug to conform with the suitable group.

<b>GROUP</b>	<b>J6 Setting</b>	<b>J2 Setting</b>
ST / RC	open	open
SH	closed	open
RH	closed	closed

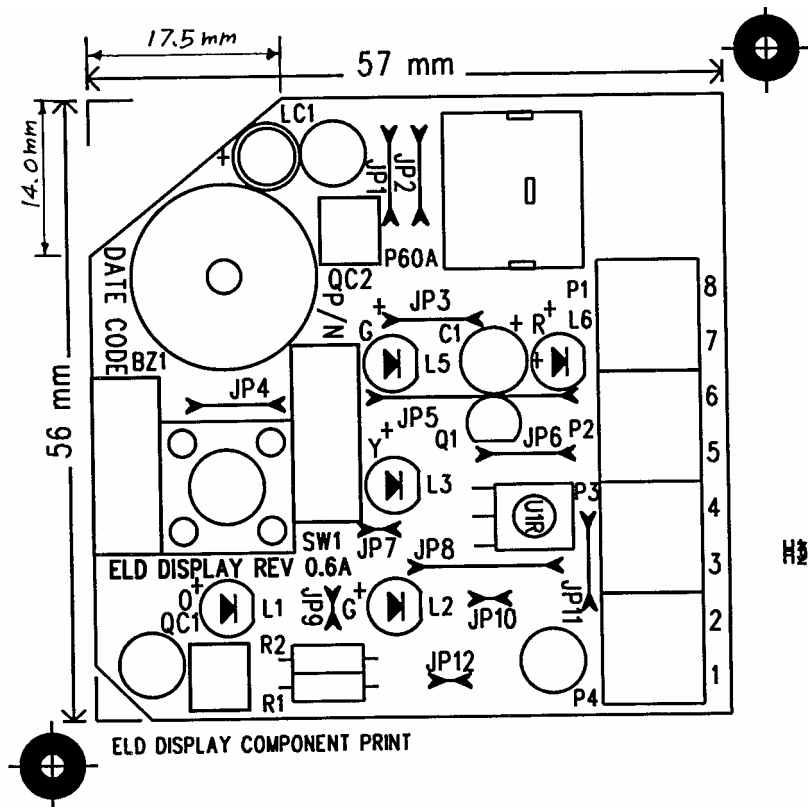
**POWER CONTROLLER**



GANG BOARD



DISPLAY BOARD



## CONFIGURATION OF THE APPLIANCE

### REMOTE CONTROL DIP SWITCH SETTING

SETTING SWITCH STATUS				DEFINITION	
SW. NO. 1	SW. NO. 2	SW. NO. 3	SW. NO.4	RC3	RC4
OFF	OFF	-	-	RC-ALL MODES OF OPERATION	
ON	OFF	-	-	STD-COOL, FAN, DRY, ACTIVE	
OFF	ON	-	-	HEAT-COOL, FAN, DRY, ACTIVE	
ON	ON	-	-	AUTO FAN (AF)	
-	-	OFF	-	TEMP. DISPLAY IN °C DEGREES	VERTICAL SWING ONLY
-	-	ON	-	TEMP. DISPLAY IN °F DEGREES	HORIZONTAL & VERTICAL SWING FUNCTIONS TOGETHER
-	-	-	OFF	TIMER & CLOCK 12 H AM, PM	DISABLE LCD & KEY ILLUMINATION
-	-	-	ON	TIMER & CLOCK 24 H	ENABLE LCD & KEY ILLUMINATION

**RESET OPERATION** - Press at the same time the 4 buttons :“CLEAR “, “SET” , “HR +”, “HR -” for 5 seconds

**LEGEND:**

SW1, SW2 - SELECTION OF RC/ST

SW3 - SELECTION OF TEMP. DISPLAY °C or °F IN RC3 OR SWING FUNCTION IN RC4.

SW4 - SELECTION OF TIME DISPLAY 12H AM/PM or 24H IN RC3 OR ILLUMINATION FUNCTION IN RC4.

OFF = 0

ON =1

**NOTE:** After setting the dip switches perform reset operation..



## 01. Legend

### 1.1. Abbreviations

AC	- Alternate Current
A/C	- Air-Conditioner
ANY	- ON or OFF status
CLOCK	- ON/OFF Operation Input, (dry contact)
COMP	- Compressor
CPU	- Central Processing Unit
ELUM Jumper)	- Extended Louver Upward Movement (Software)
HE	- Heating Element
HPC	- High Pressure Control
H/W	- Hardware
ICP	- Indoor Condensation Pump
ICT	- Indoor Coil Temperature (RT2) sensor
IF, IFAN	- Indoor Fan
IR	- Infra Red
LEVEL1	- Normal Water Level
LEVEL2/3	- Medium/High Water Level
LEVEL4	- Overflow Level
Max	- Maximum
Min	- Minimum
min	- Minute (time)
NA	- Not Applicable
OCP	- Outdoor Condensation Pump
OCT	- Outdoor Coil Temperature (RT3) sensor
OF, OFAN	- Outdoor Fan
OPER	- Operate
Para.	- Paragraph
RAT	- Return Air Temperature (RT1) sensor
RC	- Reverse Cycle (Heat Pump)
R/C	- Remote Control
RCT	- Remote Control Temperature
RH	- Resistance Heater
RT otherwise)	- Room Temperature (i.e. RCT in IFEEL mode, RAT)
RV	- Reversing Valve
SB, STBY	- Stand-By
sec	- Second (time)
Sect	- Section
SH	- Supplementary Heater
SPT	- Set Point Temperature
ST	- Standard (a Model with Cooling Only)
S/W	- Software
TEMP	- Temperature
W/O	- Without
$\Delta T$	- The difference between SPT and RT. in Heat Mode: $\Delta T =$ SPT-RT Cool/Dry/Fan Mode: $\Delta T =$ RT-SPT



**2. General functions for all models**

**2.1. COMP operation**

- 2.1.1. For each Mode including POWER OFF & SB, a Min time delay of 3 min before COMP restarting, excluding DEICING Mode (see 7.2.1).
- 2.1.2. The Min operation time of COMP under different operating conditions is

Operation Mode	Min operation time of COMP
Heat, Cool or Auto Modes	3 min.
Fan, Dry, Overflow, Protection modes, or mode change	ignored

**2.2. IFAN operation**

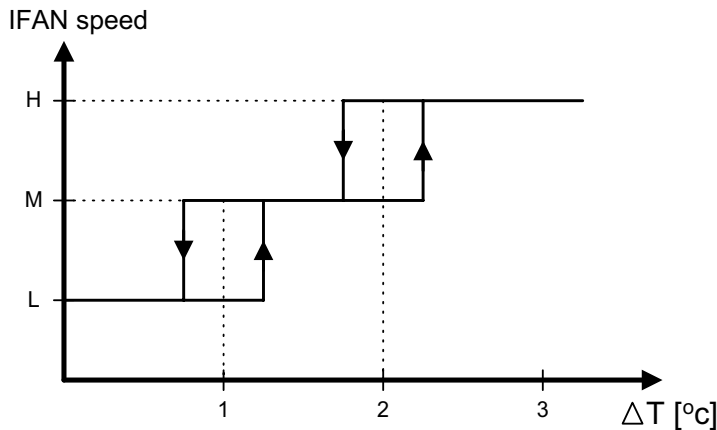
- 2.2.1 Whenever the IFAN starts from OFF to ON it will start in Low speed for 25 sec and then will go to ANY speed.
- 2.2.2 Min time interval between IFAN speed change in AUTOFAN Mode, is 30 sec.
- 2.2.3 Min time interval between IFAN speed change in H/M/L Mode is 1 sec.
- 2.2.4 IFAN speed in Heat/Cool Autofan Mode is determined according to the following table:

$\Delta T$	IFAN Speed
$\Delta T \geq 2$	HIGH
$2 \geq \Delta T \geq 1$	MED
$1 \geq \Delta T$	LOW

where in Heat Mode:  $\Delta T = SPT - RT$   
 in Cool Mode:  $\Delta T = RT - SPT$

Note:

1. In Heat Mode, the rules in section 4.0.3 have the higher priority.
2. The table above can be represent by a hysteresis curve which will minimize the switching of the IFAN relay and will minimize the change in IFAN speed:



**2.4. OFAN operation**

- 2.4.1 Min time interval between OFAN ON/OFF state change is 30 sec.

## 2.4.2

**2.5. HE operation**

- 2.5.1 Minimum Heaters ON or OFF time is 30 sec.
- 2.5.2 Heaters can be activated only if IFAN is on.
- 2.5.3 In RH group, HE-1 and HE-2 will be activated only when COMP (or WVL) is not operating, except in Dry Mode.

**2.6. Protections**

- 2.6.1 High pressure protection is applicable to all operating modes.
- 2.6.2 Deicing control is valid in Heat and Auto Heat Mode only.
- 2.6.3 Defrosting control is valid in Dry, Cool, Heat and Auto Modes.
- 2.6.4 No reset after protection modes.

**2.7. Thermistors operation**

- 2.7.1 Return air Temp. is detected by RAT (RT1) in normal Mode, or by RCT (R/C sensor) in I-FEEL Mode.
- 2.7.2 Indoor Coil Temp. is detected by ICT (RT2).
- 2.7.3 Outdoor Coil Temp. is detected by OCT (RT3).

Similarly, in the Indoor Units of a WMQ/T system, 4.7k Ohm (5%) resistors must be connected to the OCT ports to disable the "Thermistor Temp reading doesn't change" error checking.

**2.7.4 Definition of thermistor faults:**

- a. Thermistor is disconnected -  
The thermistor reading is below  $-30^{\circ}\text{C}$ .
- b. Thermistor is shorted -  
The thermistor reading is over  $75^{\circ}\text{C}$ .
- c. Thermistor Temp reading doesn't change (irrelevant for RT1)  
-
  - (i) This test is performed only once after a unit is switched from OFF/STBY to operation. At the first occurrence of 10 min continuous COMP operation, the current ICT & OCT are compared with those when the COMP was switched from OFF to ON 10 min before. If the  $\Delta T$  is less than  $3^{\circ}\text{C}$ , the thermistor is regarded as defective.
  - (ii) The ICT and OCT no-change error can be disabled together by connecting a 4.7 k or 3.9 k ohm resistor (5%) to the OCT connector. These resistors are equivalent to a thermistor at  $43\pm 1^{\circ}\text{C}$  and  $48\pm 1^{\circ}\text{C}$  respectively.

**2.7.5 Cases for disabling thermistor short/disconnected detection**

- i. The detection of thermistor faults (a) and (b) above, are disabled when Deicer Protection is started. The detection will be enabled again only after (1) the deicing is completed, and (2) COMP has been restarted and operated for 30 sec.
- ii. When all the following conditions are fulfilled:
  - a. 4.7K Ohm resistor is connected on the OCT
  - b. IFAN is OFF
  - c. Compressor is ON

d. ICT < -30 (disconnected)

## 2.8. General features

2.8.1 Allowed (control target) range for RAT is SPT +/- 1°C.

2.8.2 Whenever the unit is changed from Cool/Dry/STBY mode to Heat mode or vice versa, the procedures below are followed:

Stop COMP for 3 min → Change RV state → Start COMP if necessary.

## 3.1. Cooling

Mode: Cool, Auto (at Cooling)

Temp: Selected desired temperature.

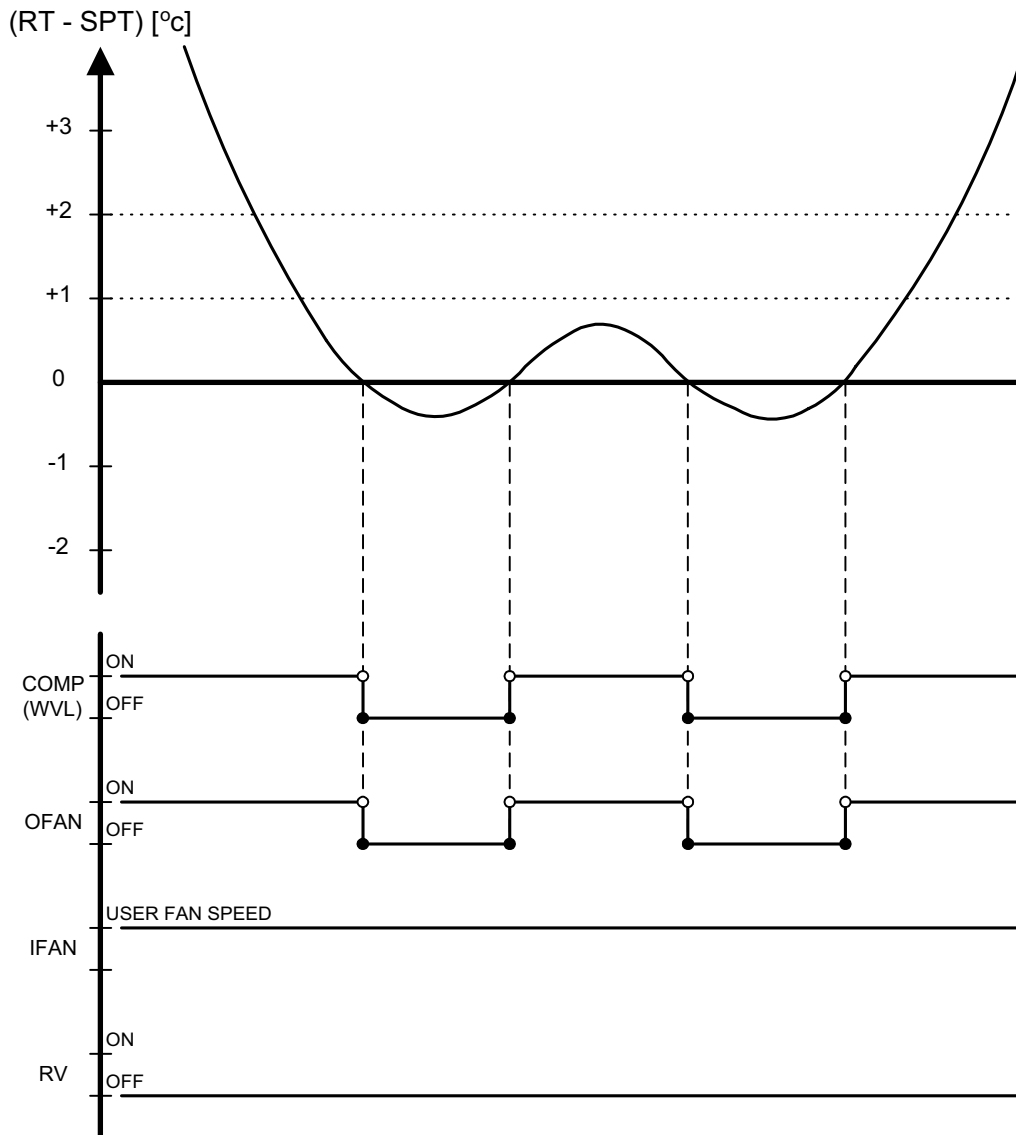
Fan: HIGH, MED, LOW

Timer: Any

I Feel: On or Off

### Control function

Maintains room temp at desired level by comparing RT and SPT.



Note:

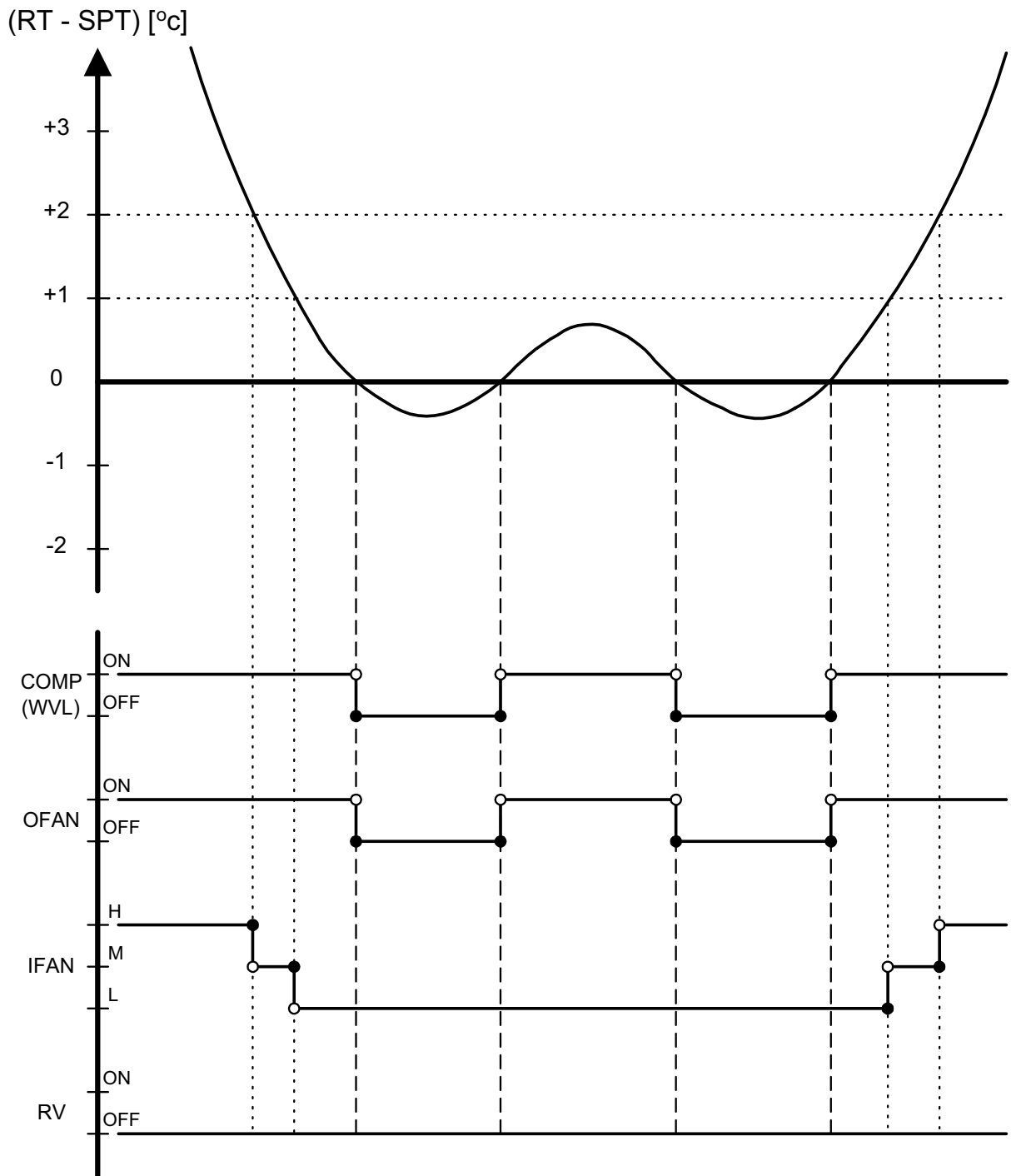
- 1) IFAN is always running at High, Medium or Low speed selected by user.
- 2) In IFEEL mode, the Room Temperature (RT) is the RCT from a R/C. Otherwise, the RT is the RAT from the Room Thermistor.

### 3.2. Cooling with Autofan

Mode: Cool, Auto (at cooling)  
 Temp: Selected desired temperature  
 Fan: Auto  
 Timer: Any  
 I Feel: On or Off

#### Control function

Maintains room temp at desired level and controls the IFAN speed for optimal comfort.



Note: Refer to Sect 2.3 for IFAN operations in Autofan mode.

## 4. Heating Mode

### 4.0. Heating Mode - General

4.0.1 In heating Mode, temp. compensation schedule will be activated for wall mounted and ducted models (i.e. FCD/RWK, ELD, ECC, WAX, WMF and WMN/WHX) according to the following table:

SPT [°c]	Add to SPT	
	I-FEEL ON	I-FEEL OFF
$18 \leq SPT \leq 27$	0 °c	+2 °c
$27 < SPT \leq 30$	0 °c	+3 °c

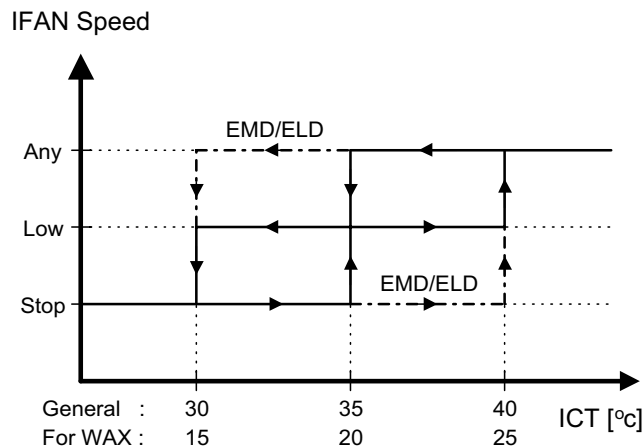
#### 4.0.3 IF operating rules

(a) As a general rule for **RC and SH groups**, when **COMP is ON**, excluding protection modes, IFAN will be switched ON if

- $ICT > 35^{\circ}c$  (or  $40^{\circ}c$  for EMD/ELD,  $20^{\circ}c$  for WAX), or
- at the IFTC second <sup>(4)</sup> after the COMP is switched ON. In this case, the IFAN will be started at low speed <sup>(5)</sup>.

The default IFTC values are

- 0 sec for EMD/ELD models
- 15 sec for WMN4/RWK(FCX) models
- 600 sec for WV (including IFC) models
- 30 sec for all other models



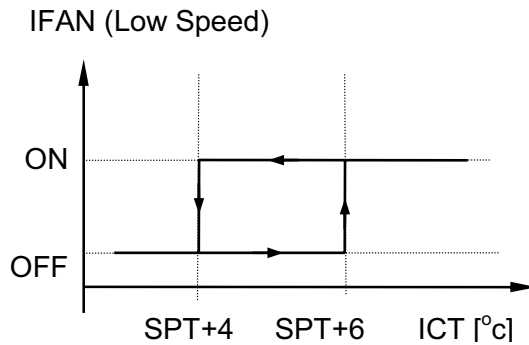
Notes :

- 1) In EMD/ELD models, the IFAN will start if  $ICT \geq 40^{\circ}c$  at any IFAN speed, and will stop if  $ICT < 30^{\circ}c$ .
- 2) In **SH or RC group**, if HE is set to OFF due to low ICT, IFAN will be switched to LOW and will be turned OFF after 30 sec.
- 3) An exception to this rule (4.0.3.a) is the Back-up mode for SH group. (Cf.: Sect 4.0.4.e)
- 4) If the IFAN is turned ON by the IFTC operation, its minimum operation time before stopping due to low ICT temperature is 60 sec.

- (b) In **RC and SH groups**, whenever **COMP & HE are both OFF**, excluding protection modes, IFAN operation will be according to the following:

In **WAX, flour mounted or mobile models**, IFAN switches to LOW for 30 sec and then stops.

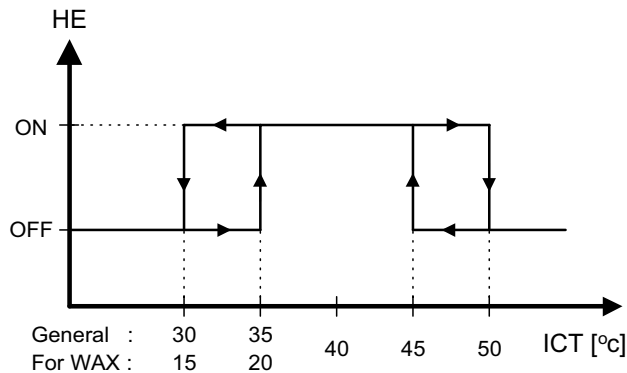
In **other models** IFAN will operate in low speed for 30 sec and then stop. If COMP is OFF for more than 3 minutes and IFEEL Mode is inactive, IFAN will operate in low speed according to the following graph:



- (c) In **RH group**, IFAN starts when HE starts. When HE switches to OFF, IFAN switches to LOW for 30 sec and then stops.

4.0.4 HE operation

- (a) For **all Groups**, HE can be ON only when IFAN is ON.
- (b) For **all Groups**, HE switches to OFF when  $ICT > 50\text{ }^{\circ}\text{C}$ , and is activated again when  $ICT \leq 45\text{ }^{\circ}\text{C}$ .
- (c) In **RH group**, HE operation is according to the difference between RAT and SPT (see Sect 4.3, 4.4).
- (d) In **SH or RC group**, HE operation is limited by the following graph:



Note: Other limitations can be found in Sect [2.5](#)

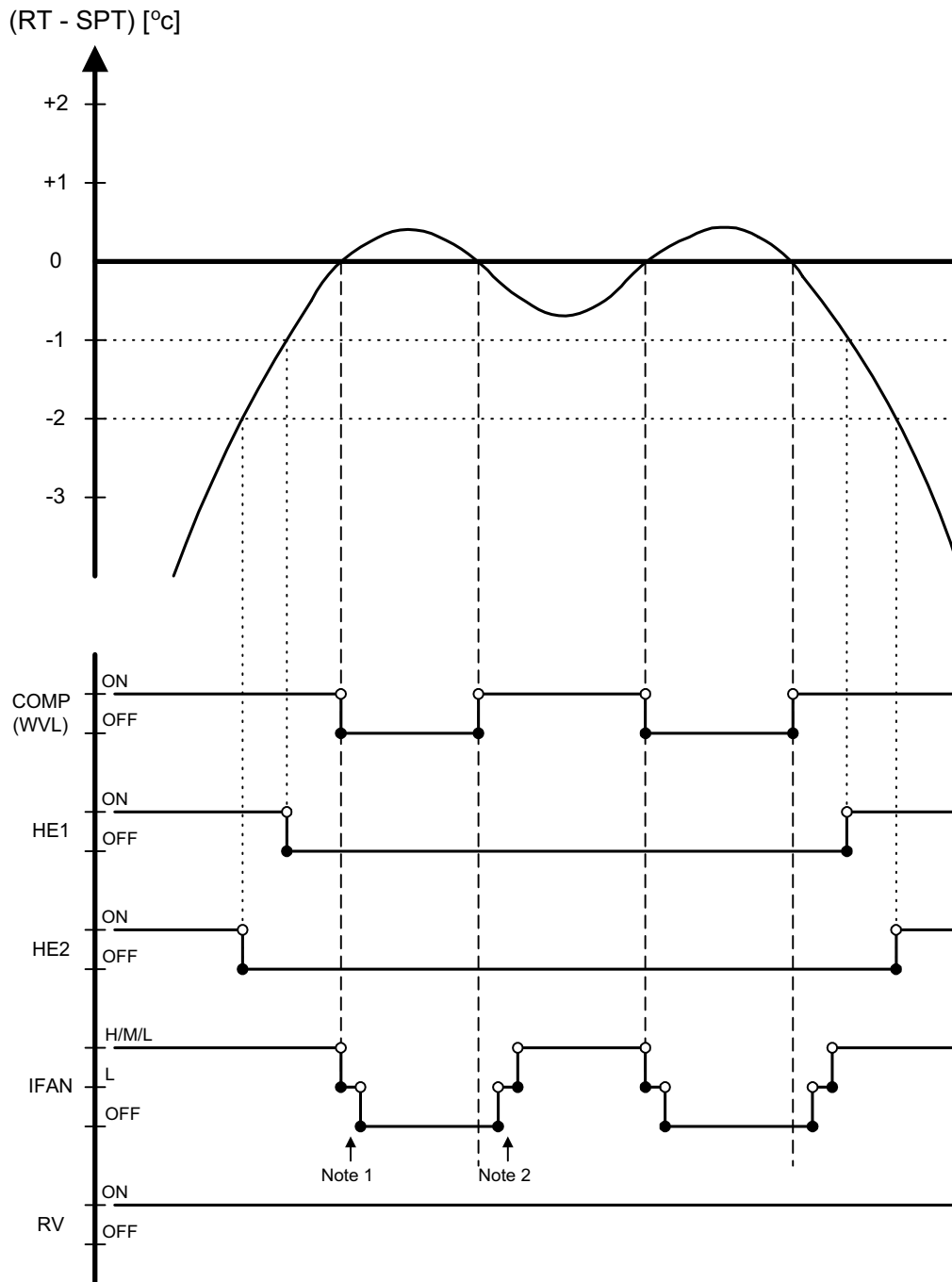
- (f) Back-up mode for **SH group**  
 After COMP (or WVVL) has been working for 5 minutes, HE & IFAN are activated even if the ICT is still below 35°C. This situation is called Back-up Mode. Both HE & IFAN will work in Back-up Mode until the ICT reaches 35°C. Then, the operation goes on in the usual mode (IFAN as in 4.0.3.a, and HE as in 4.0.4.d).

**4.1. Heating, RC or SH Group**

Mode: Heat, Auto (at heating)  
 Temp: Selected desired temperature  
 Fan: HIGH, MED, LOW  
 Timer: Any  
 I Feel: On or Off

Control function

Maintains room temp. at desired level by comparing RAT or RCT to SPT.



Note :

- 1) Refer to Sect 4.0.3.b for IFAN operations when COMP is OFF.



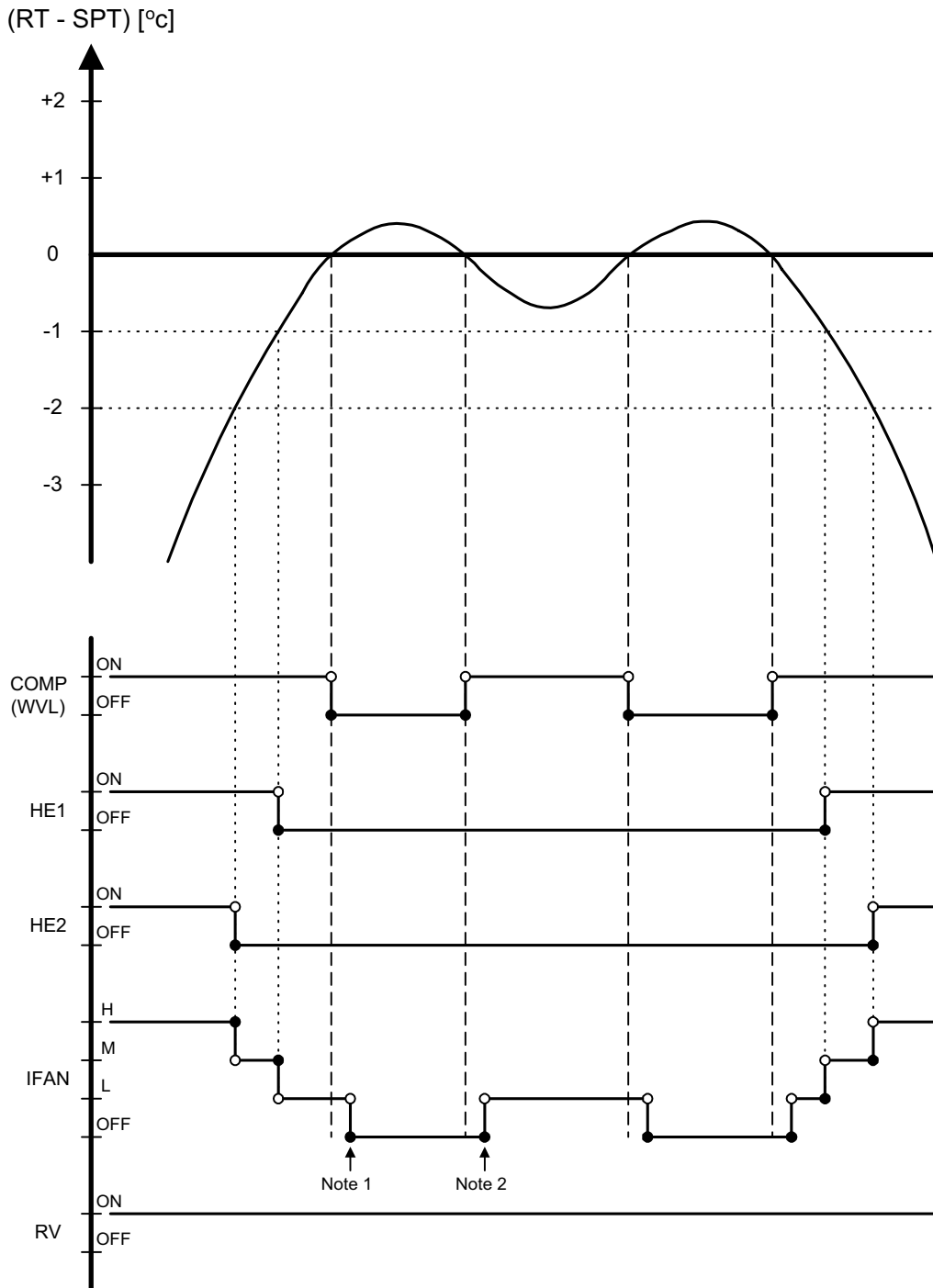
- 2) Refer to Sect 4.0.3.a for IFAN operations when COMP is ON.
- 3) For OFAN operation, see Note 4 of Sect 4.2.

**4.2. Heating, RC or SH Group with Autofan**

Mode: Heat, Auto (at heating)  
 Temp: Selected desired temperature  
 Fan: Auto  
 Timer: Any  
 I Feel: On or Off

Control function

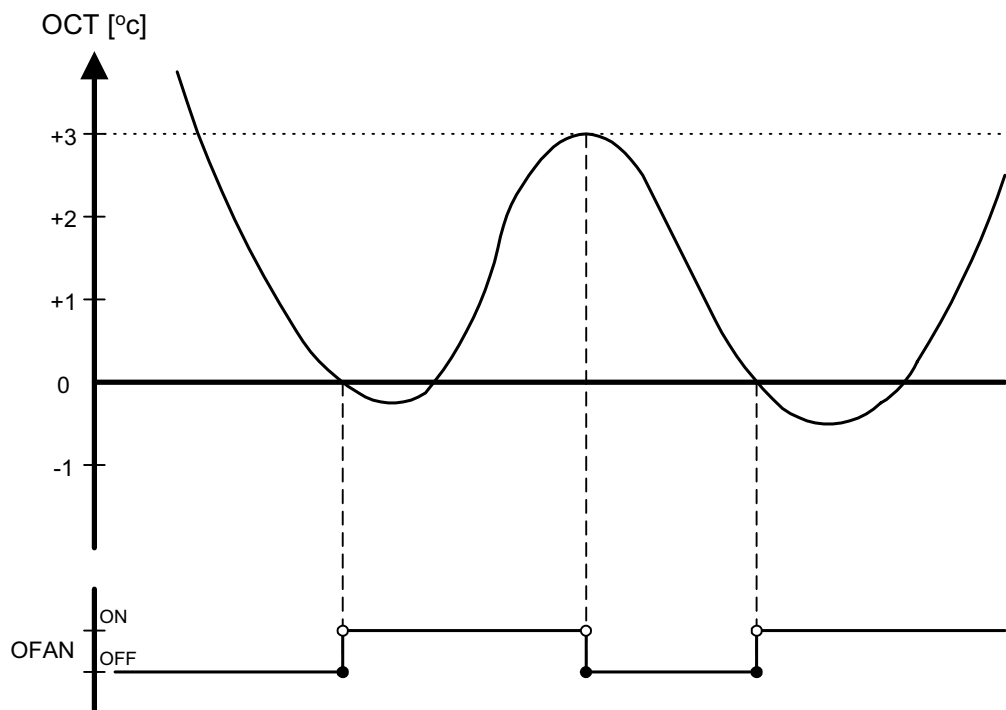
Maintains room temp at desired level by controlling COMP, IFAN and OFAN.



Notes:

1. Refer to Sect 4.0.3.b for IFAN operations when COMP is OFF.
2. Refer to Sect 4.0.3.a for IFAN operations when COMP is ON.
3. Refer to Sect 2.3 for IFAN speed change.
4. OFAN operation is controlled by the graph below when
  - ⌘ (RAT  $\geq$  SPT - 2°C), AND
  - ⊃ (ICT  $\geq$  45°C), AND
  - λ (COMP is ON)

Otherwise, OFAN runs together with COMP.



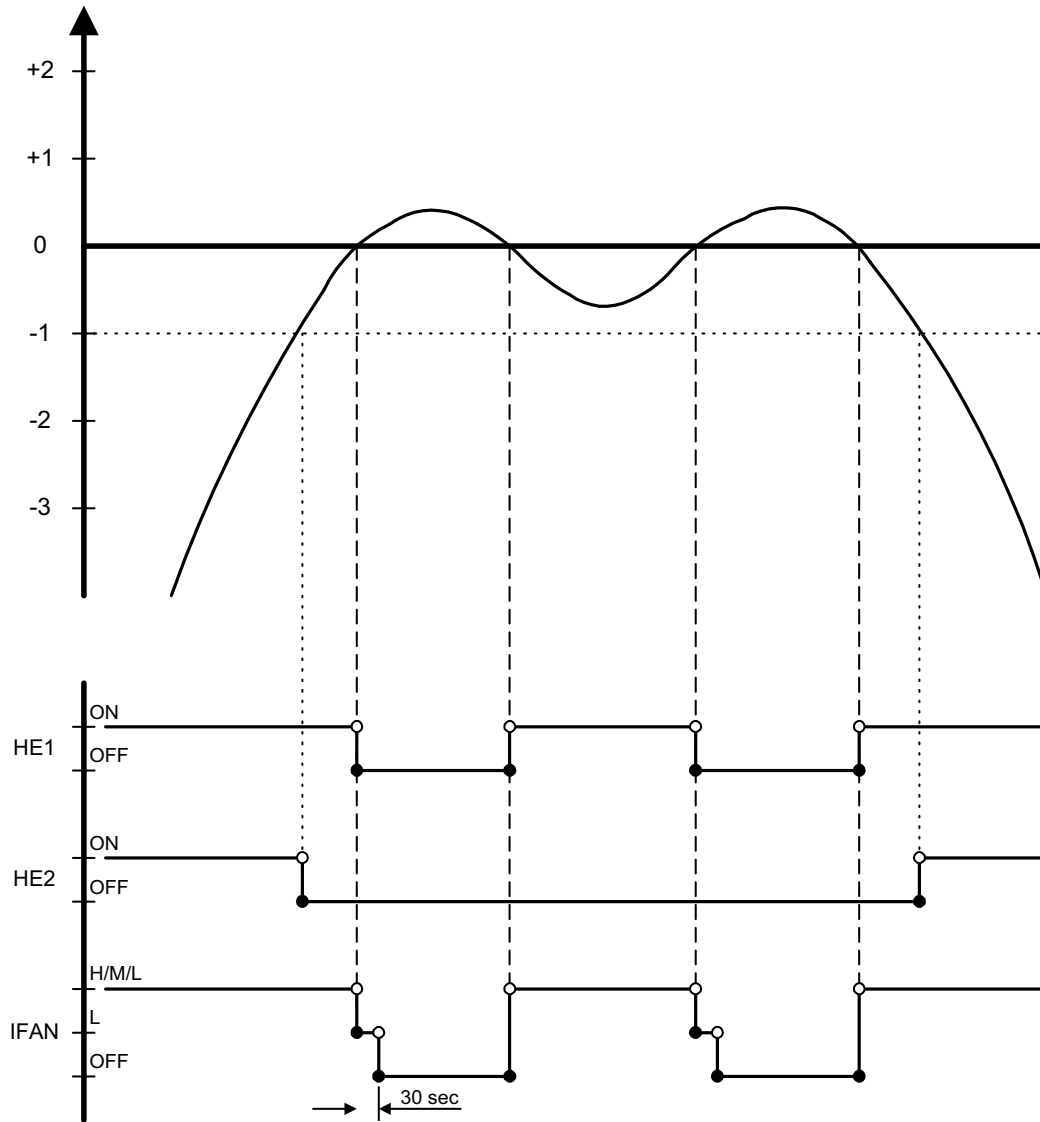
**4.3. Heating, RH Group**

- Mode: Heat, Auto (at Heating)
- Temp: Selected desired temperature
- Fan: HIGH, MED, LOW
- Timer: Any
- I Feel: On or Off

Control Function

Maintains room temp. at desired level by controlling Heating Elements : HE1 or HE2.

(RT - SPT) in °C



Notes:

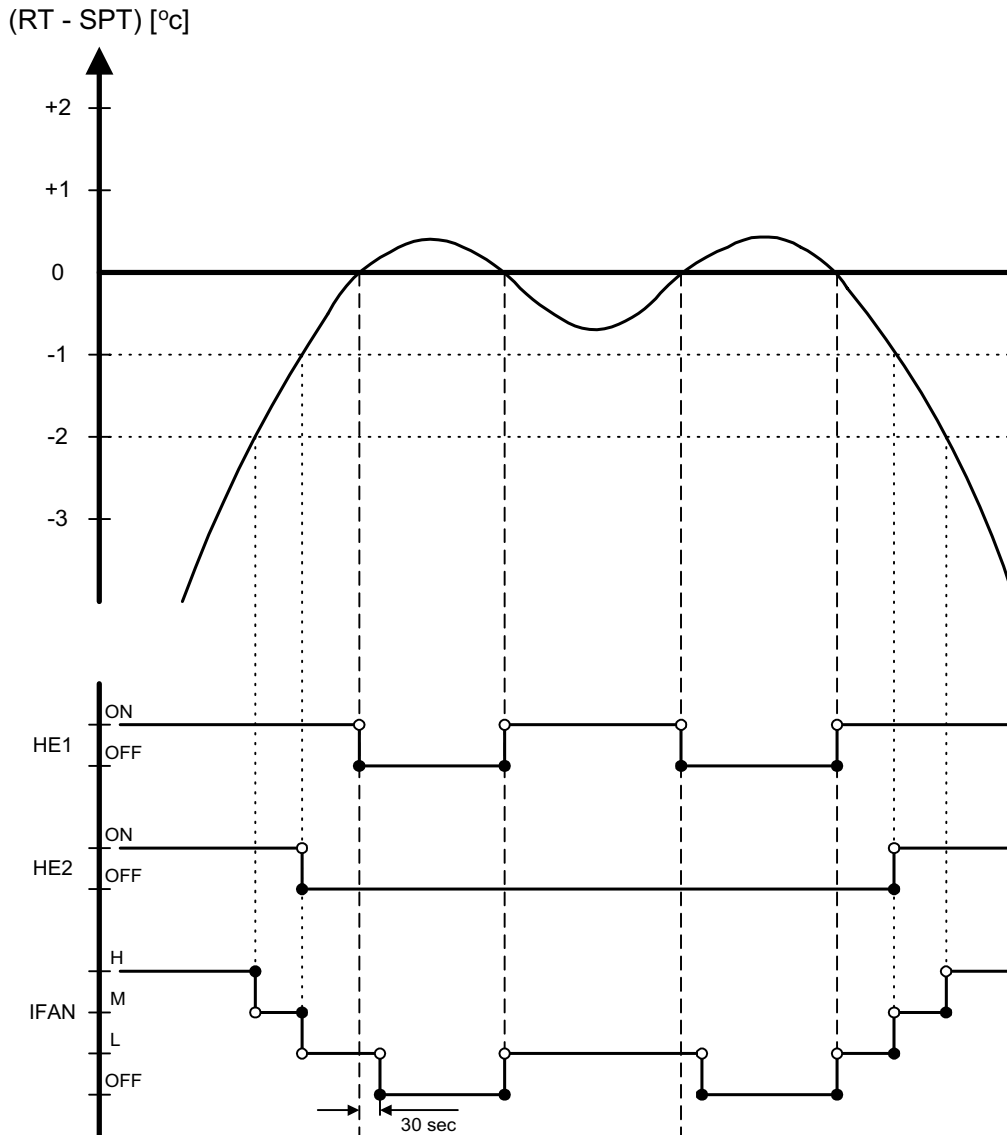
- 1) COMP (or WV), OFAN and RV are always OFF.
- 2) Refer to Sect 4.0.3.c for IFAN operations.

**4.4. Heating, RH Group, with Autofan**

Mode: Heat, Auto (at Heating)  
 Temp: Selected desired temperature  
 Fan: Auto  
 Timer: Any  
 I Feel: On or Off

Control function

Maintains room temp at desired level by controlling the 2-Stage Electric Heaters.



**Notes:**

- 1) COMP (or WVH), OFAN and RV are always OFF.
- 2) Refer to Sect 2.3 and 4.0.3.c for IFAN operations.

## 5. Automatic Cooling or Heating

### 5.0. Automatic Cooling or Heating - General

The Auto Mode is for model with compressor and the WVH-RH only. The WVH-ST, RC and SH units do not work in Auto Mode.

5.0.1 Switching-temperature between Cooling and Heating is SPT ± 3°C.

5.0.2 Autofan in Automatic Cooling and Heating Mode will activate “Cooling with Autofan Mode” and “Heating with Autofan Mode” respectively.

- For Cooling with Autofan, refer to Sect. 3.2.
- For Heating with Autofan (RC and SH Group), refer to Sect. 4.2.
- For Heating with Autofan (RH Group), refer to Sect. 4.4.

5.0.3 When the Auto Mode is started with SPT +/-0°C, the unit will not select Auto Heat or Auto Cool mode immediately. Instead, the unit will be in a temporary Fan Mode with IFAN operating at low speed. The proper Auto Heat mode or Auto Cool will be started whenever the RT reaches SPT-1°C or SPT+1°C respectively.

5.0.4 For RC & SH units, Mode change between Auto Heat & Auto Cool Modes are possible only after the COMP has been OFF during the last T minutes.

Mode Change	time, T
Auto Cool to Auto Heat	3 min
Auto Heat to Auto Cool	4 min

5.0.5 For RH units, Mode change between Auto Heat & Auto Cool Modes are possible after the COMP/HEs has been OFF during the last T minutes.

Mode Change	time, T
Auto Cool to Auto Heat	COMP off for 3 min
Auto Heat to Auto Cool	HEs off for 3 min

5.0.6 When unit is changed form Cool/Dry mode to Auto Mode, the unit will continue to operate at (Auto) Cool Mode until the conditions for switching from Auto Cool to Auto Heat are satisfied.

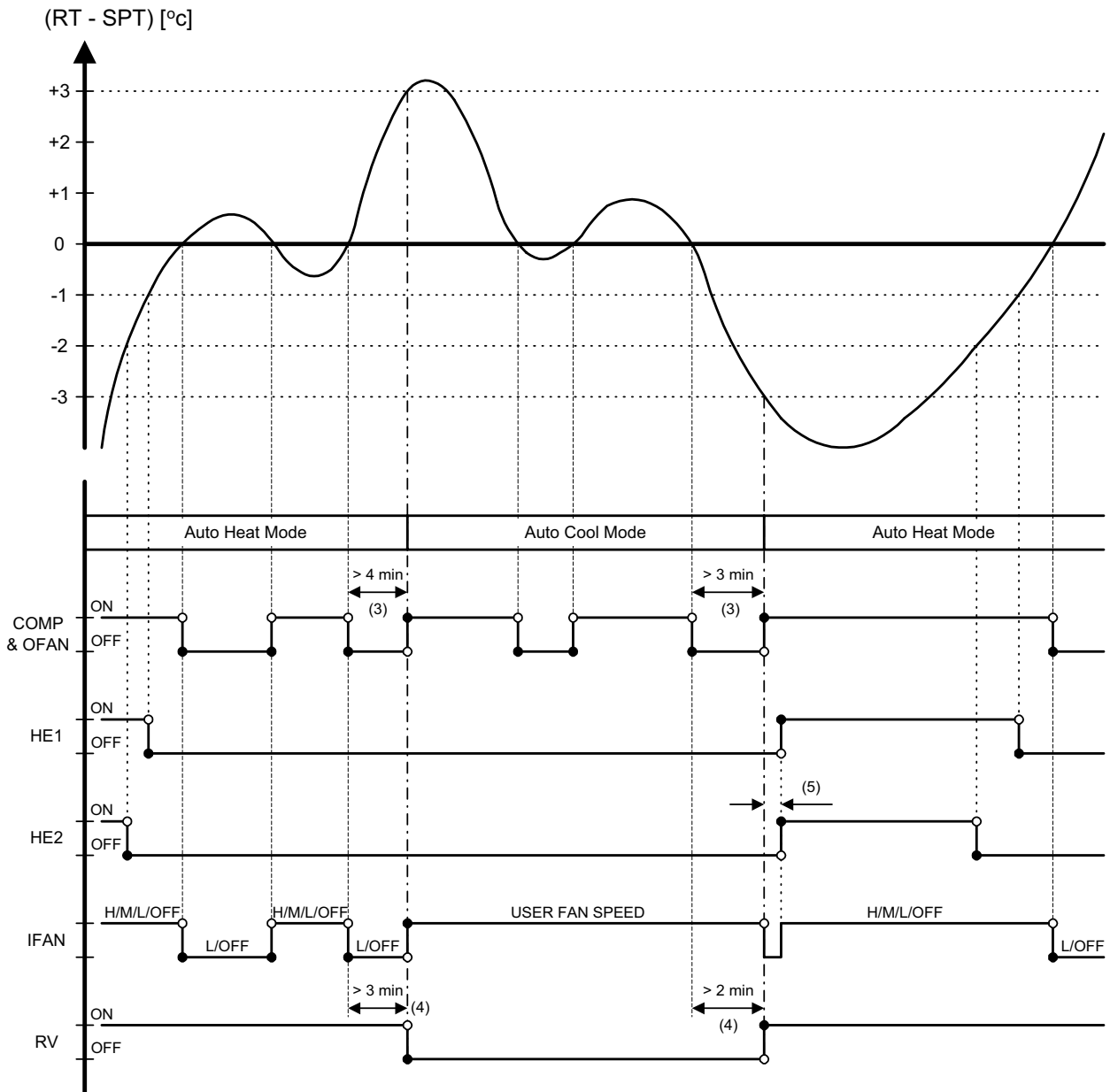
Similarly, when unit is changed from Heat Mode to Auto Mode, the unit will continue to operate at (Auto) Heat Mode until the conditions for switching from Auto Heat to Auto Cool are satisfied.

**5.1. Auto Cooling or Heating, RC or SH Groups**

- Mode: Auto
- Temp: Selected desired temperature
- Fan: Any
- Timer: Any
- I Feel: On or Off

Control function

Maintains room temp at desired level by selecting between cooling and heating modes.



**Notes:**

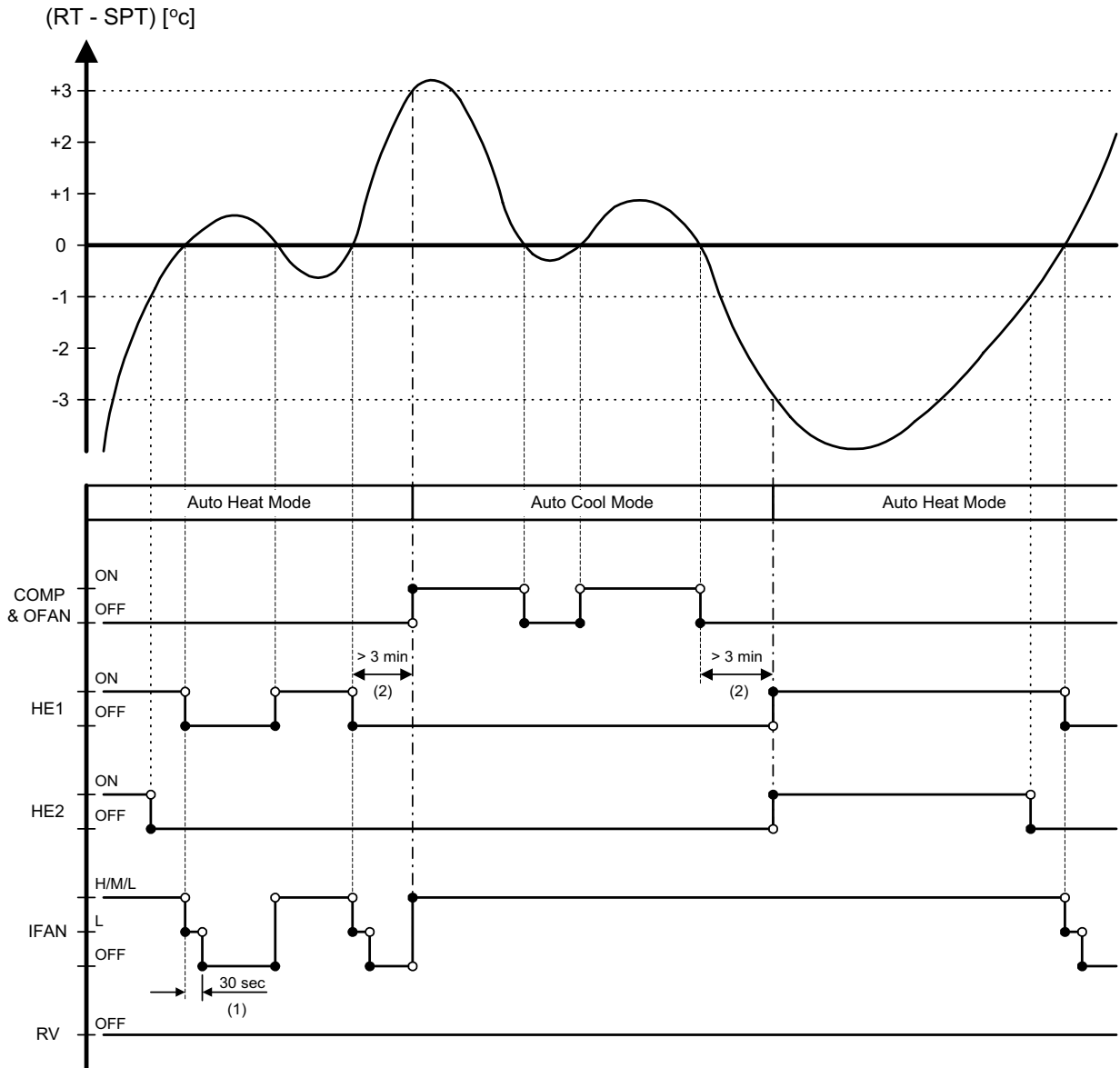
- 1) Refer to Sect 4.1 and 4.2 for the heating operations (i.e. when RV is ON)
- 2) Refer to Sect 3.1 and 3.2 for the cooling operations (i.e. when RV is OFF)
- 3) Refer to Sect 5.0.4 for the minimum mode-change delay from COMP OFF.
- 4) 3 min delay from COMP-OFF to RV change state. (Cf.: Sect 2.8.8).
- 5) Because of the low ICT, IFAN is turned OFF while changing from Auto Cool to Auto Heat mode. (Cf.: Sect 4.0.3). In addition, HEs will not operate until IFAN is ON (Cf.: Sect 4.0.4).

### Auto Cooling or Heating RH Group

Mode: Auto  
 Temp: Selected desired temperature  
 Fan: Any  
 Timer: Any  
 I Feel: On or Off

Control function

Maintains room temp at desired level by selecting between Cooling or Heating Modes.



Notes:

- 1) Refer to Sect. 4.0.3.c for the details of IFAN operation.
- 2) Refer to Sect 5.0.5 for the minimum mode-change delay from COMP/HEs OFF.

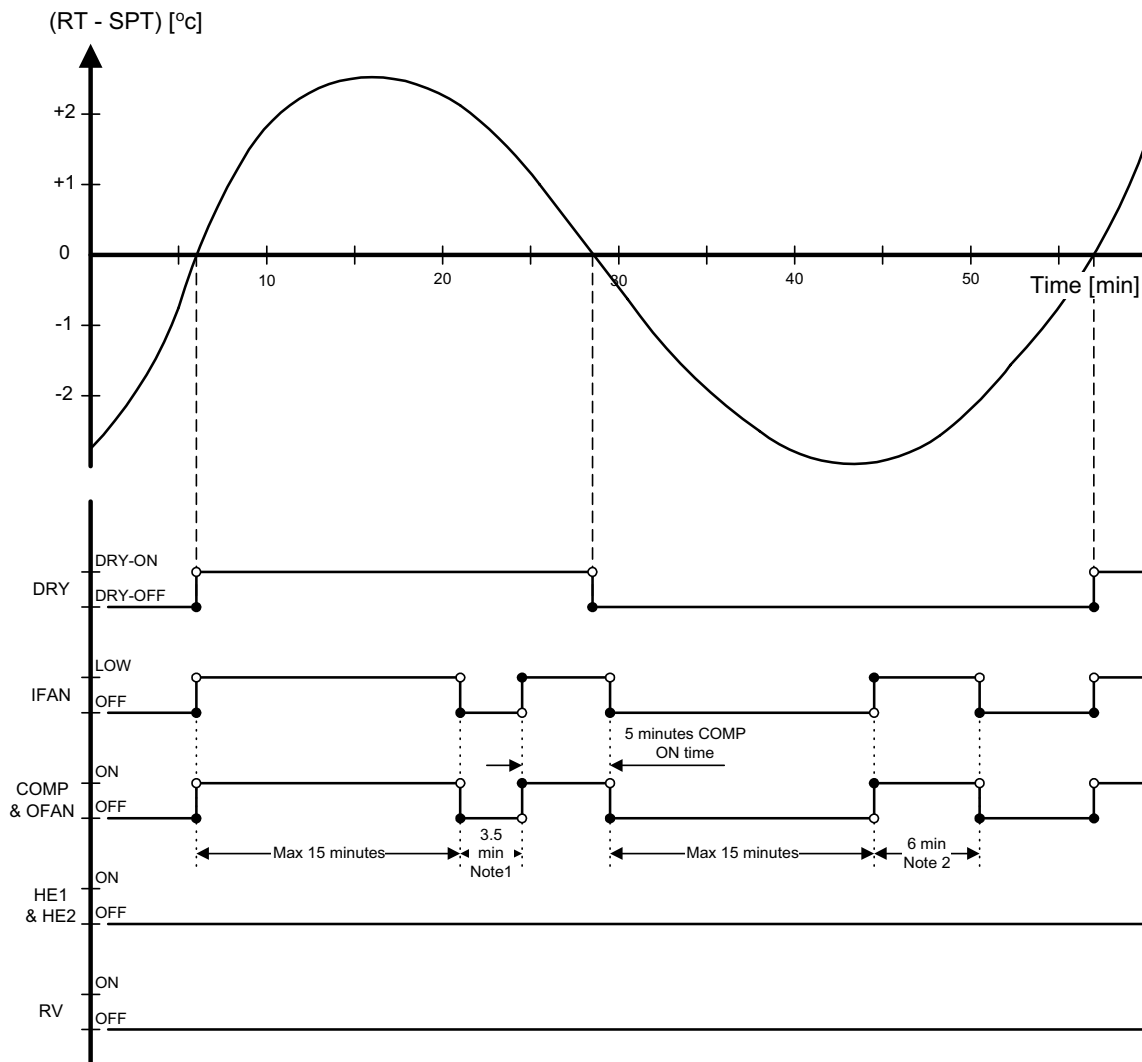
## 6. Dry Mode

### 6.1. Dry, ST or RC group or P2000 model with any group settings

Mode: Dry  
 Temp: Selected desired temp  
 Fan: Low (automatically selected by software)  
 Timer: Any  
 I FEEL: Any

Control function

Reduce room humidity with minimum temp. fluctuations by operating in Cool Mode with low speed IFAN.



Notes :

1. When Dry is ON, the COMP is forced OFF for 3.5 min (longer than the 3 min Min COMP-Off time) after every 15 min of continuous COMP operation.
2. When Dry is OFF, the COMP is forced ON for 6 min (longer than the 3 min Min COMP-On time) after every 15 min of continuous COMP OFF time.
3. When Dry is changed from ON to OFF or vice versa, the limits mentioned in (1) & (2) are ignored. The COMP operation is



only controlled by the 3 min Min OFF time and 1 min Min ON time.

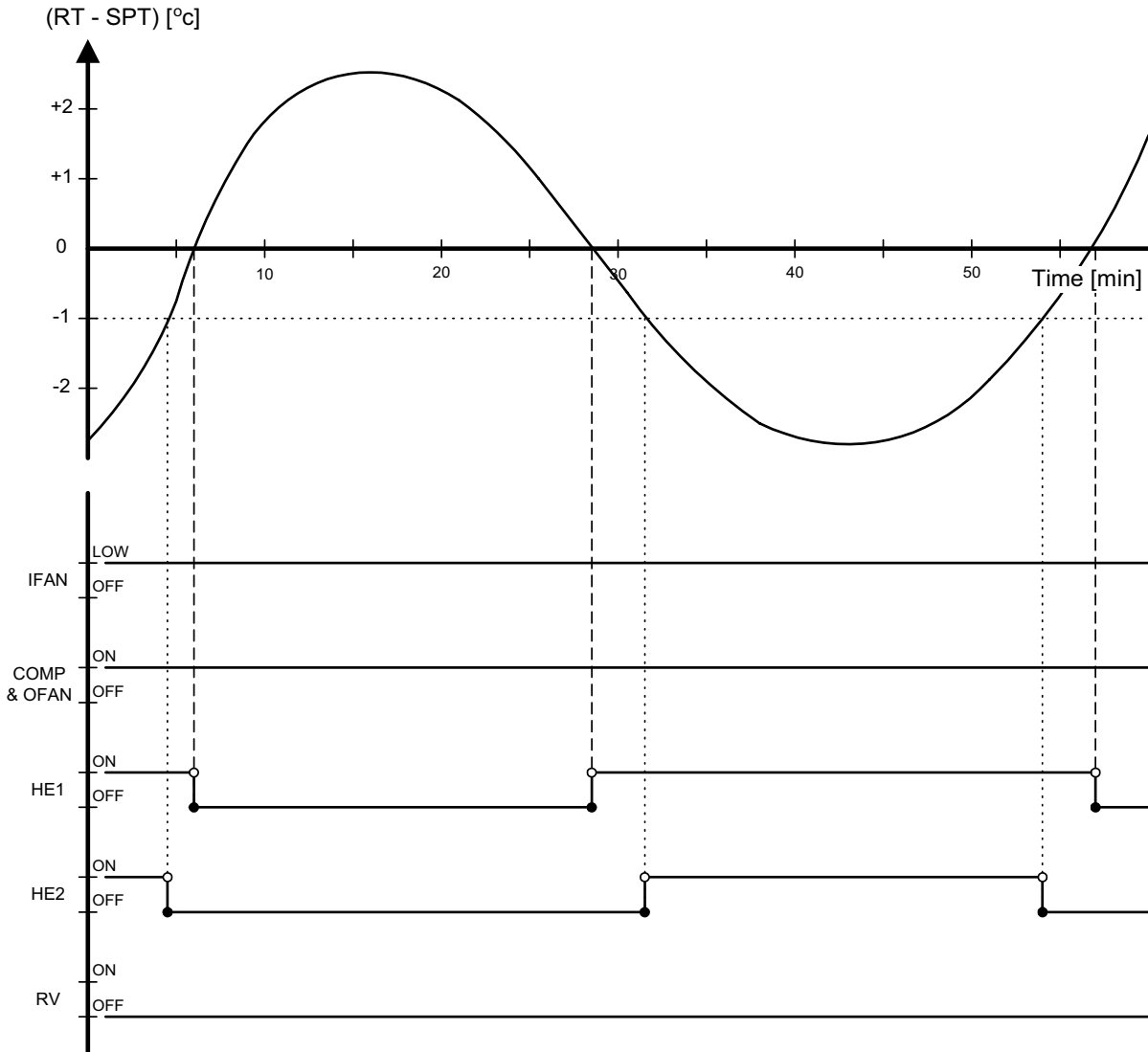
4. In Dry Mode, IFAN is LOW when COMP is ON, and is OFF when COMP is OFF.
5. Pumps are operating as indicated in Sect. 7.3, 7.4, and 7.5.
6. HEs are always OFF in Dry Mode.

**6.2. Dry, SH or RH group excluding P2000 model**

Mode: Dry  
 Temp: Selected desired temp.  
 Fan: Low (automatically selected by software)  
 Timer: Any  
 I FEEL: Any

Control function

Reduce room humidity with minimum Temp. fluctuations by operating in Cool Mode with low speed IFAN and HE.



Notes :

- 1) HP and Defrost protections are the same as in Cool Mode.

- 2) HEs are operated according to the room temp., in the same way as in Heating for RH group (Sect 4.3).
- 3) IFAN is operating continuously at low speed.
- 4) Pumps operation is described in Sect 7.3 and 7.4.
- 4) For MBX model, HE1 and HE2 will be activated simultaneously as the HE1 above.

## 7. Protection

### 7.1. Cooling Mode Protections

#### 7.1.1. Indoor Coil Defrost

Mode: Cooling, Dry, Auto

Temp: Selected desired temp.

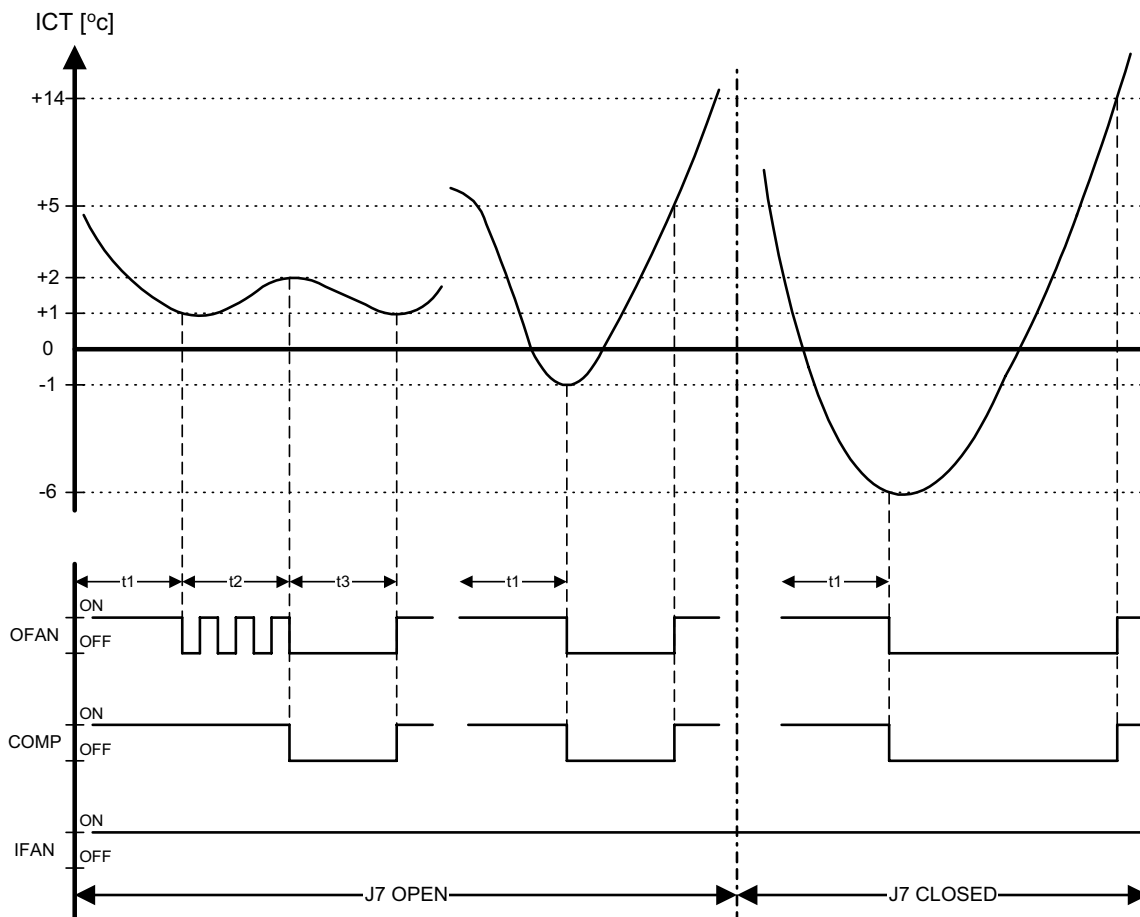
Fan: Any

Timer: Any

I Feel: On or Off

#### Control Function

Protect the indoor coil from ice formation at low ambient temperature.



- t1 = 5 min minimum for each COMP starting
- t2 = OFAN cycling (alternate between ON and OFF every 30 sec) for 20 min maximum
- t3 = COMP and OFAN stop for 10 min minimum

**Notes:**

1. When J7 is closed (connected), OFAN cycling is cancelled and the set temperature for COMP & OFAN cut-out and cut-in are

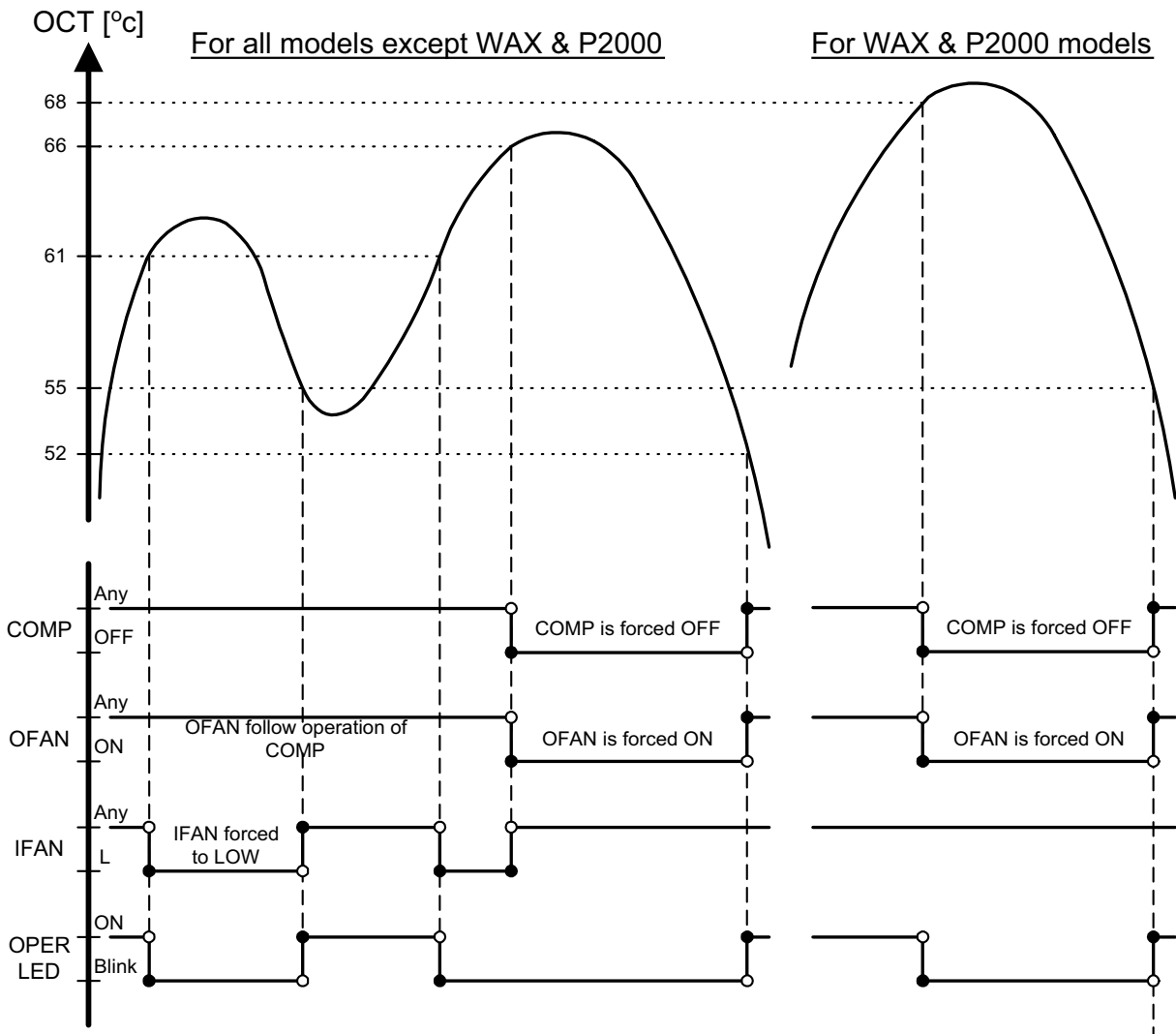
- changed. COMP & OFAN are forced OFF when  $ICT \leq -6^{\circ}C$ , and are kept OFF until  $ICT > 14^{\circ}C$ .
- For WAX model, the defrost processes is simpler. When J7 is open, COMP & OFAN are forced OFF when  $ICT \leq -1^{\circ}C$ , and are kept OFF until  $ICT > 5^{\circ}C$ . When J7 is closed, the WAX defrosting process is the same as that of the other models (R.H.S. of the graph above). In both cases, the ICT checking in t2 and t3 are not applied.

### 7.1.2. High Pressure Protection

Mode: (Auto) Cooling or Dry  
 Temp: Selected desired temp.  
 Fan: Any  
 Timer: Any  
 I Feel: On or Off

#### Control Function

To protect the COMP from the high pressure built-up in the outdoor coil during normal cooling operation, by switching OFF the IFAN and COMP.



1. The ICT is also monitored during Cool and Dry mode, in case the RV control circuit is faulty. Whenever ICT reaches 70°C, which indicates a high pressure in the indoor coil, the COMP will be forced off automatically. The COMP can be turned on again only after the ICT is under 70°C again and after the 3 min COMP ON delay time. The OPER LED will not blink in this case.

## 7.2. Heating Mode Protections

### 7.2.1. Outdoor coil Deicing (excluding RH Group)

Mode: Heating, Auto (at heating)

Temp: Selected desired Temp

Fan: Any

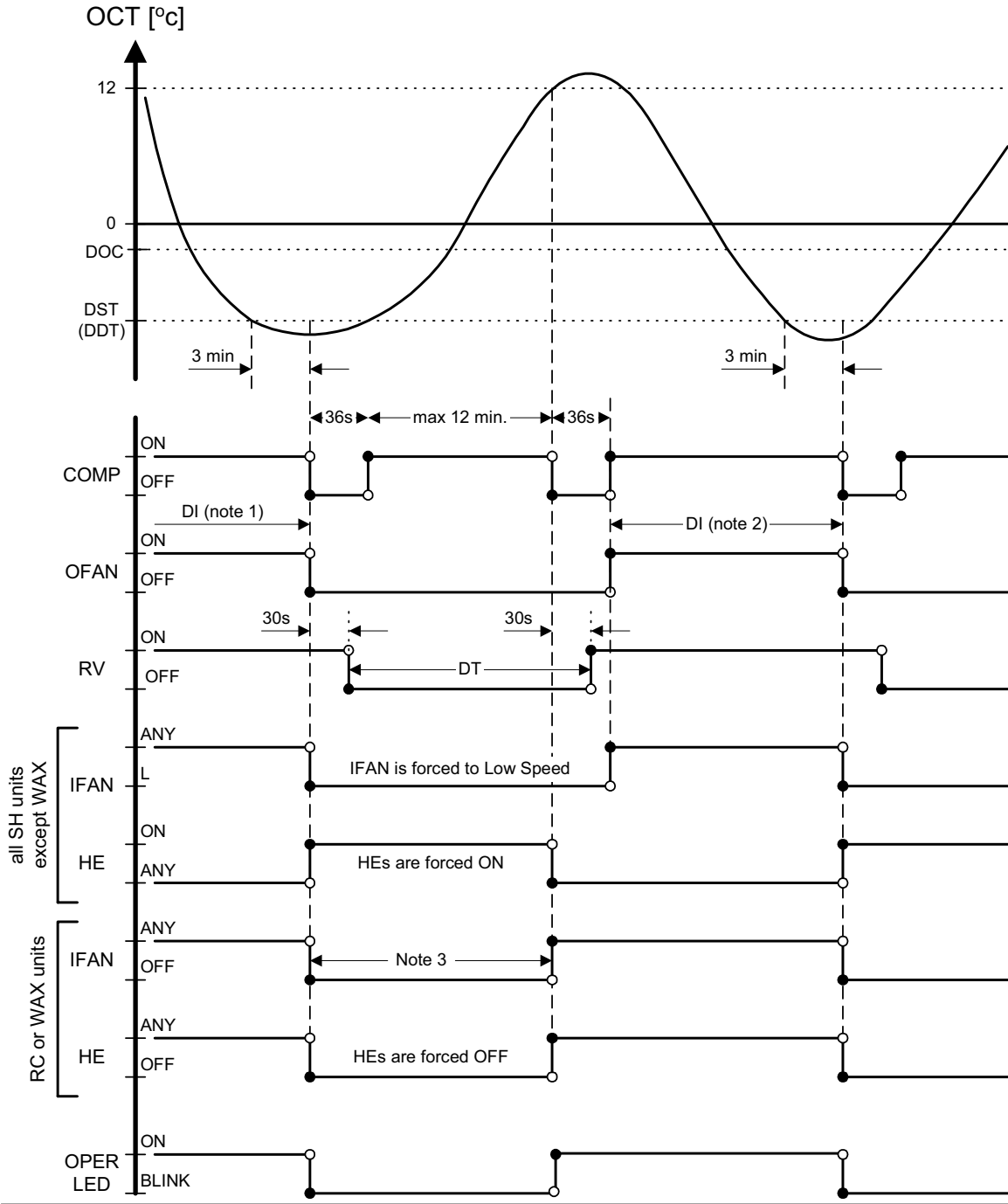
Timer: Any

I FEEL: Any

#### Control function

Protects the Outdoor coil from ice formation by controlling COMP & RV operation.

#### 7.2.1.2 Deicing procedure



**Notes :**

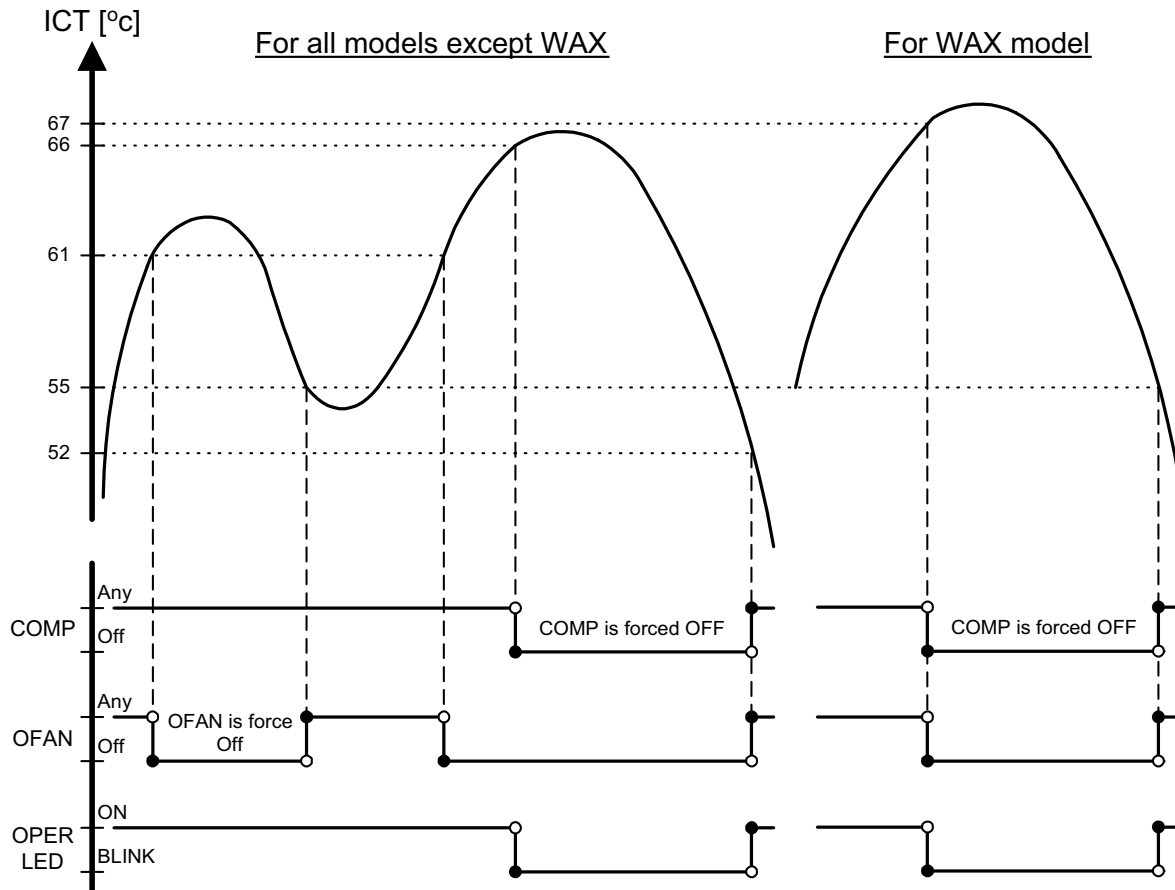
1. At the first COMP activation after SB or OFF, if (OCT < 0°C), then DI = 10 min, else DI = 40 min.
2. In the following Deicing cycles, the time interval between two Deicing cycles activation is between 30 to 80 min (refer to the flow chart).
2. For RC group, HEs are forced OFF. IFAN operation is as in Heat Mode, Sect 4.0.3.a, i.e. IFAN will be set to OFF when ICT<30°C.  
For WAX, the IFAN is simply forced OFF.
4. For SH group, HEs are forced ON and IFAN is forced to operate in Low speed, regardless of the ICT and difference between RAT & SPT.

### 7.2.2. High pressure protection (excluding RH Group)

Mode: (Auto) Heating  
 Fan: Any  
 Timer: Any  
 I Feel: On or Off

#### Control Function

Protect the Compressor from high pressure by switching OFF the OFAN and COMP.



#### Notes:

1. IFAN, HE1 and HE2 will be activated according to the relevant Heating Mode Sect.
2. In case of any malfunction in the relay control circuit, the OCT is also monitored during Heating mode. Whenever OCT reaches 70°C, which indicates a high pressure in the outdoor coil, the COMP will be forced off automatically. The COMP can be turned on again only after the 3 min COMP ON delay and the OCT is under 70°C. The OPER LED will not blink in this case.

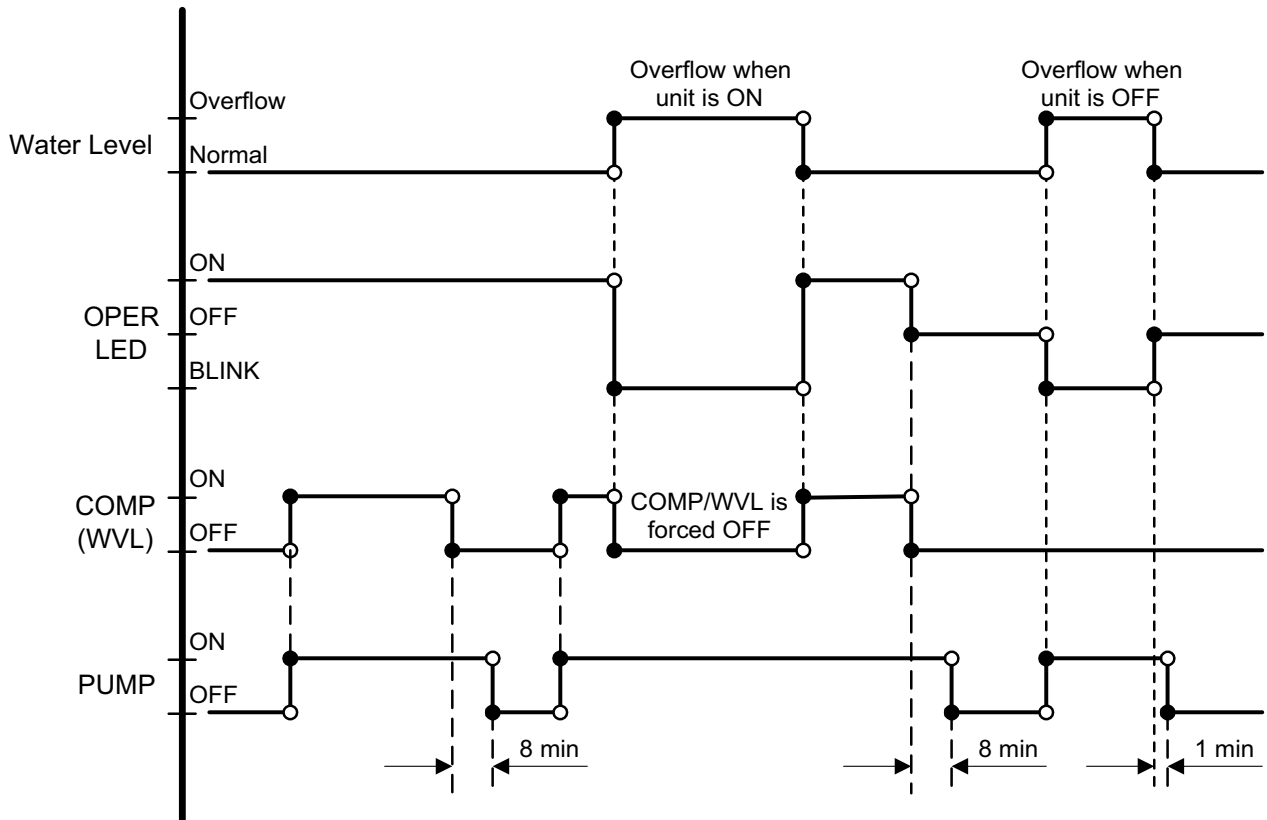
### 7.5. Condensation Pump (DNC model only)

Mode: Cool, Dry, Auto  
 Temp: Selected desired temperature  
 Fan: Any

Timer: Any  
 I FEEL: Any

Control function:

Prevent Condensed water from Overflowing.



Notes:

1. The switch used for water level detection is closed under normal condition, and is open when water overflow.
3. The "Over Flow" & "Normal" condition are indicated by logic "1" & "0" at the LEVEL4 input pin respectively.
4. The "Overflow" condition can activate the water pump in SB and operating modes.

## **SELF TEST for General Controller**

STEP 1: TURNING ON THE POWER .

Turn ON the power, make sure that the unit is in operation.

STEP 2 : ENABLE SELF TEST MODE

1. Use the Remote control to send the first settings to display / indoor unit  
Heat mode, High IFAN, set temperature 16 °C , no I FEEL Sleep or any Timer settings needed.
2. Cover the IR transmitter components in the head of the remote control so that it will not transmit the signals to the indoor unit display.
3. Use the Remote control to send the second settings to display / indoor unit  
Cool mode, Low IFAN, no I FEEL Sleep or any Timer settings.
4. Uncover the remote control IR transmitter and change the temperature settings.

If the display/indoor unit receive the settings properly the following steps will start:

STEP 3 : MODEL SETTING CONFIRMATION

1.The STAND-BY and COOL LEDS will indicate the operation mode as following:

OPERATION MODE	STAND-BY LED	COOL LED
ST	ON	OFF
RC	OFF	OFF
SH	OFF	ON
RH	ON	ON

2. Testing the Model configuration. selected by the COMP, STAND-BY, TIMER LEDS and FILTER will indicate the model configuration as follows:

MODEL	COMP	OPERATE LED	TIMER LED	FILTER LED
WNG	ON	OFF	OFF	OFF
MBX	ON	OFF	OFF	ON
WNX	ON	OFF	ON	OFF
PRX	ON	ON	OFF	OFF
WMN1	ON	ON	OFF	ON
EMD/LS	ON	ON	ON	OFF
ECC-K / DNC	ON	ON	ON	ON
WMN 4	OFF	OFF	ON	OFF
PXD	OFF	OFF	ON	ON
WMN 2/WHX	OFF	ON	OFF	ON
WMN 3	OFF	ON	ON	ON

In this term the step motor will turn to HOME POSITION.



### STEP 3 :AUTO LED WALK TEST.

- 1) All the LEDS will turn OFF.
- 2) All the LEDS will turn ON for 1 second one by one in the following sequence :  
STAND-BY ⇨ OPERATE ⇨ TIMER ⇨ FILTER ⇨ COOL ⇨ HEAT.
- 3) In PRX all the LEDS will turn ON for 1 second one by one in the following sequence : 18 °c ⇨ 20 °c ⇨ 22 °c ⇨ 24 °c ⇨ 26 °c ⇨ 28 °c ⇨ 30 °c ⇨ High IFAN ⇨ Auto IFAN ⇨ Med IFAN ⇨ Low IFAN ⇨ STAND-BY⇨ TIMER ⇨ FILTER ⇨COOL⇨ HEAT.

### STEP 4: AUTO REALY WALK TEST:

All relays will turn ON one by one in the following sequence :  
COMPRESSOR ⇨ OUTDOOR FAN⇨R. V. ⇨ HEATER 1 ⇨ HEATER 2 ⇨ INDOOR WATER PUMP ⇨ SWING or OUTDOOR WATER PUMP ⇨ INDOOR FAN: ⇨ LOW ⇨ MID ⇨ HIGH.

When the relay walk test is completed, the next test will start automatically.

### STEP 5: FREQUENCY TESTING:

If the frequency measuring process fails the COOL LED will turn ON.

In order to move to the next step press ON/OFF button on the remote control.

### STEP 6 : INPUT TEST.

This stage is testing the analog real time indicators (thermistors, LEVEL and clock) according the table below.

LED indicator	Condition for LED to be ON
STBY LED	Room thermistor $\neq$ 25 °c
OPER LED	Indoor coil thermistor $\neq$ 25 °c
TIMER LED	Outdoor coil thermistor $\neq$ 25 °c
FILTER LED	Clock
COOL LED	LEVEL 2&3
HEAT LED	LEVEL 4

### STEP 7 : TIMING RESET TEST (WATCH DOG).

The test purpose is to find out the CPU rise time after power failure is between 1 to 3 sec, test results are indicated on the LEDS : STAND-BY,OPER, TIMER AND FILTER are turning ON one by one.

The results of the test are coded as follow:

pass condition

- 1 sec - STAND-BY and OPER are turn ON
- 2 sec - STAND-BY ,OPER and TIMER are turn ON

Fail condition

- 0 sec - STAND-BY is turn ON
- 3 sec - STAND-BY ,OPER , TIMER and FILTER are turn ON

When the timing reset test is completed, the next test will start automatically.

**STEP 8 : MEMORY TEST (EEPROM)**

The test purpose is to check if the memory is functioning correctly.  
The test result is reported by using the STAND-BY and FILTER LEDS:

LED indicator	Condition for LED to be ON
STAND-BY LED	Test passed
FILTER LED	Test failed

AT THIS POINT THE SELF-TEST IS COMPLETED.

In order to terminate self-test mode the User can change the unit setting from "Cool Mode, Low FAN" to "Cool Mode, Med FAN" or to wait without using the Remote control for 60 sec.

**STEP 8 : MEMORY TEST (EEPROM)**

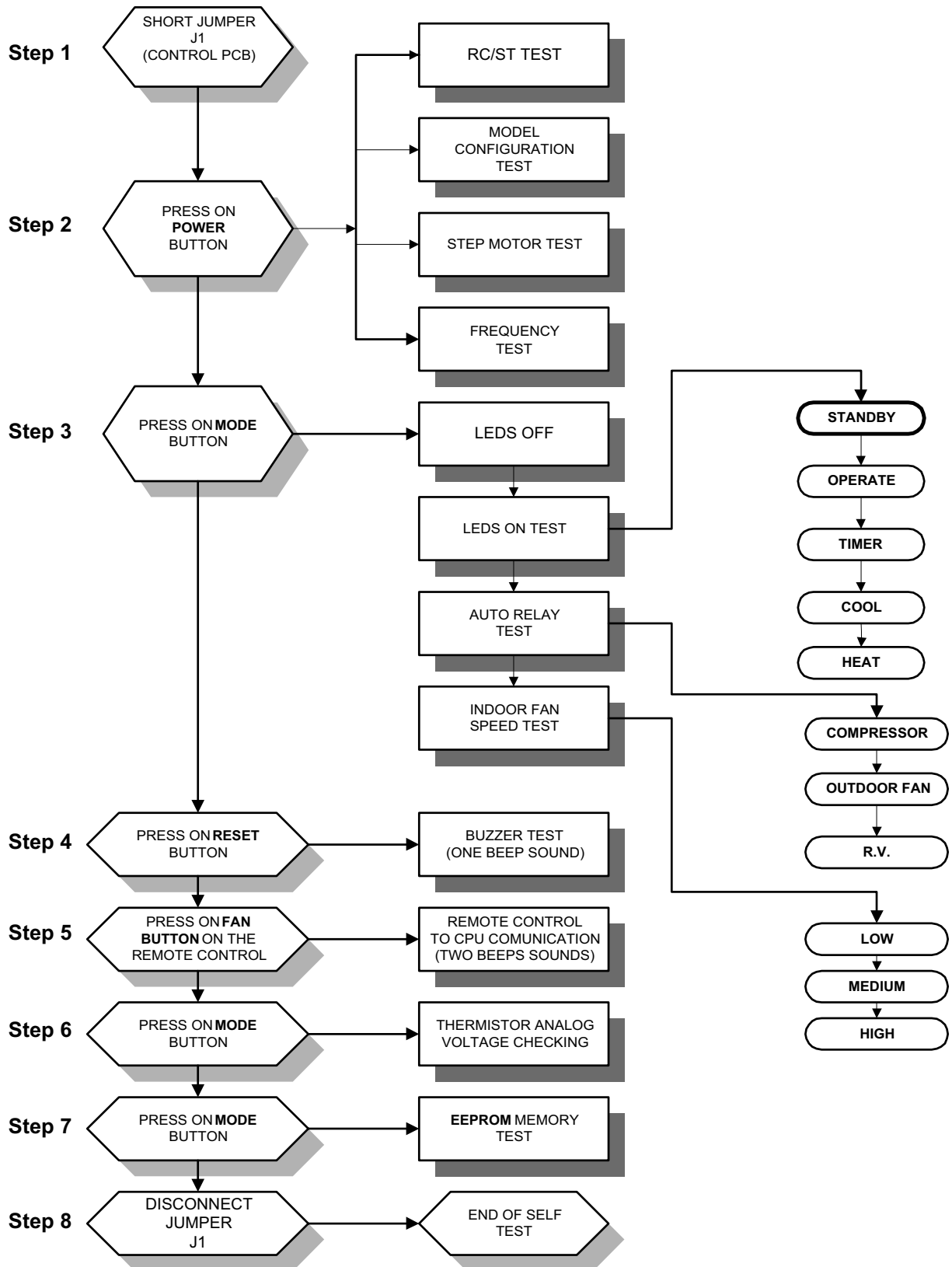
The test purpose is to check if the memory is functioning correctly.  
The test result is reported by using the STAND-BY and FILTER LEDS:

LED indicator	Condition for LED to be ON
STAND-BY LED	Test passed
FILTER LED	Test failed

AT THIS POINT THE SELF-TEST IS COMPLETED.

In order to terminate self-test mode the User can change the unit setting from "Cool Mode, Low FAN" to "Cool Mode, Med FAN" or to wait without using the Remote control for 60 sec.

**SELF TEST DIAGRAM**  
FOR CONTROLLER (VERSION 4V5 OR HIGHER)



## System diagnostics

Pressing Mode button for 5-10 seconds in SB or any other operation mode will activate diagnostic mode by the acknowledgment of 3 short beeps and lighting of COOL and HEAT LEDs.

In diagnostic mode, system problems will be indicated by blinking of Heat & Cool LEDs.

The coding method will be as follow:

Heat led will blink 5 times in 5 seconds, and then will be shut off for the next 5 seconds. Cool led will blink during the same 5 seconds according to the following table:

No	Problem	1	2	3	4	5
1	RT1 is disconnected	○	●	●	●	●
2	RT1 is shorted	○	●	●	●	○
3	RV Fault	○	●	●	○	●
4	RT2 is disconnected	●	○	●	●	●
5	RT2 is shorted	●	○	●	●	○
6	(Reserved)	●	○	●	○	●
7	RT2 temp reading doesn't change	●	○	●	○	○
8	RT3 is disconnected	●	●	○	●	●
9	RT3 is shorted	●	●	○	●	○
10	(Reserved)	●	●	○	○	●
11	RT3 temp reading doesn't change	●	●	○	○	○
12	RT2 & RT3 temp reading doesn't change	●	○	○	○	○

○ - ON,      ● - OFF

### Notes:

1. If faults occur in more than one thermistor (except case number 12 on the table above), only one fault will be indicated according to the following order: RT3, RT2, RT1.
2. A/C will jump out to normal mode if sending a command by the R/C in the system diagnostics mode. If this command from the R/C contain a Group ID, this ID will become the new Group ID of the ELCON unit.

## 9. TROUBLESHOOTING

### ELECTRICAL & CONTROL TROUBLESHOOTING

ATTENTION: check for broken or loose cable lugs first.

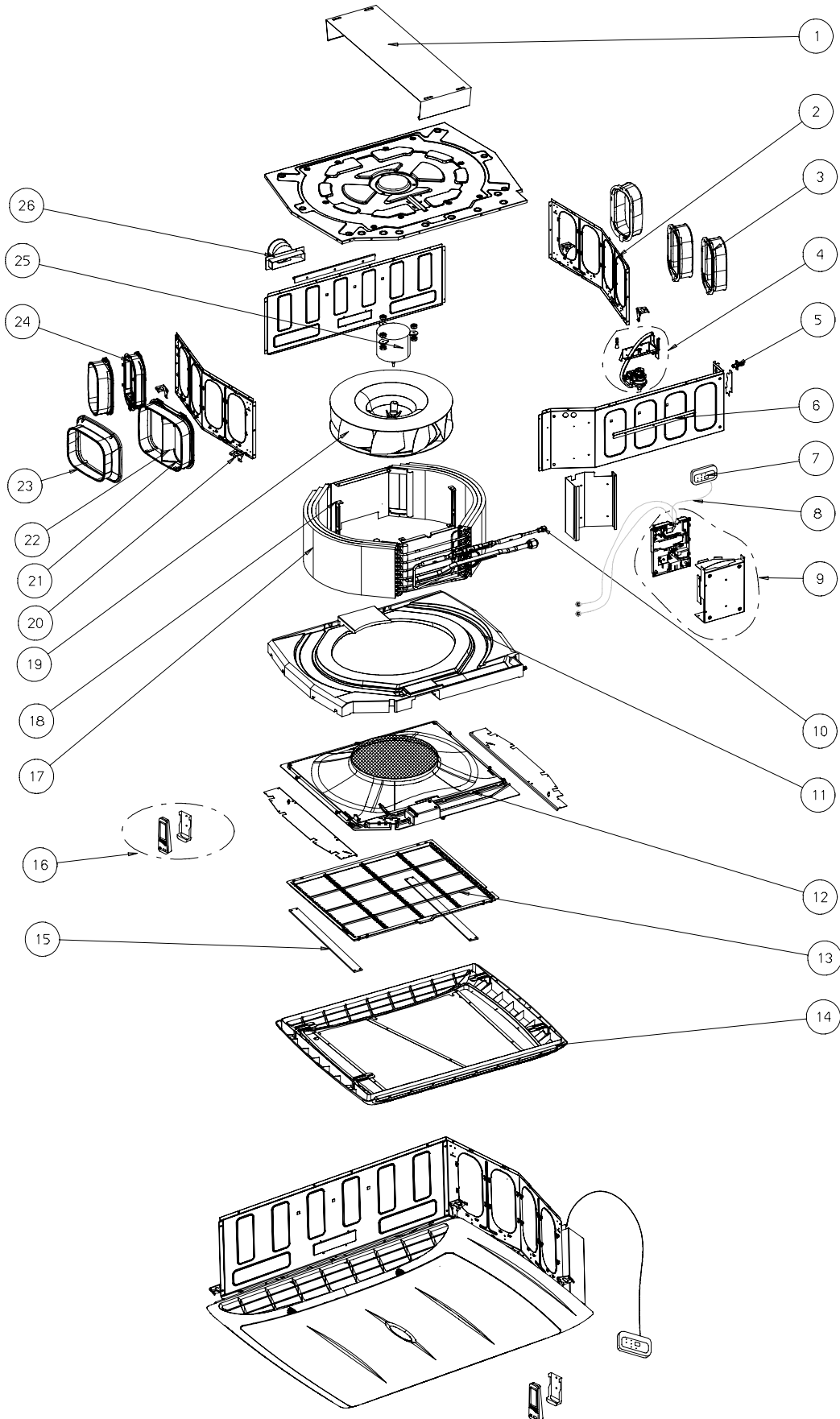
NO	SYMPTON	PROBABLE CAUSE	CORRECTIVE ACTION
1.	The stand-by indicator (red led) on the central control display panel doesn't light up.	There is no correct voltage between the line and neutral terminals on main P.C.B.	-If the voltage is low repair power supply.  -If there is no voltage repair general wiring.  -If there is correct voltage replace main or display P.C.B'S
2.	The operation indicator (green led) on the central control display panel does not light up.	The remote control batteries are discharged	-Replace batteries of the remote control
3.	The operation indicator (green led) does not light up when starting from unit.	Check main P.C.B and display P.C.B.	-Replace P.C.B if necessary.
4.	The indoor fan does not function correctly.	Check the voltage between indoor fan terminals on the main P.C.B.	- If there is voltage replace capacitor or motor.
5.	The outdoor fan does not function correctly.	Check the voltage between outdoor fan terminals on the main P.C.B.  There is voltage between outdoor fan terminals on the outdoor unit.  There is no voltage between outdoor fan terminals on the outdoor unit.	- If there is no voltage replace main P.C.B  - Replace capacitor or motor.  - Check and repair electrical wiring between indoor and outdoor units.
6.	The compressor does not start up.	Check voltage on compressor terminals on the outdoor unit. (with ammeter)  Check if there is correct voltage between compressor terminals on the outdoor unit.	-If no voltage replace main P.C.B.  - If low voltage repair power supply.  -If the voltage correct replace capacitor or compressor.  -If there is no voltage repair electrical wiring between indoor and outdoor units.
7.	The refrigeration system does not function correctly.	Check for leaks or restrictions, with ammeter, pressure gauge or surface thermometer.	- Repair refrigeration system and charge refrigerant if necessary.
8.	No cooling or heating only indoor fan works.	Outdoor fan motor faulty or other fault caused, compressor overload protection cut out.	-Replace P.C.B.  - Outdoor fan blocked remove obstructions.

ATTENTION : check for broken or loose cable lugs first

NO	SYMPTON	PROBABLE CAUSE	CORRECTIVE ACTION
9.	Only indoor fan and compressor working.	Outdoor fan blocked.	- Remove obstructions.
10.	Only indoor fan working.	-Run capacitor of outdoor fan motor faulty.  -Windings of outdoor fan are shorted.	- Replace capacitor.  -Replace motor.
11.	No cooling or heating takes place, indoor and outdoor fans working.	- Overload safety device on compressor is cut out (low voltage or high temperature)  - Compressor run capacitor faulty.  - Compressor windings are shorted.	- Check for proper voltage, switch off power and try again after one hour.  - Replace compressor capacitor.  - Replace compressor.
12.	No air supply at indoor unit, compressor operates.	-Indoor fan motor is blocked or turns slowly. -indoor fan run capacitor faulty. - motor windings are shorted.	- Check voltage, repair wiring if necessary.  -Check fan wheel if it is tight enough on motor shaft, tighten if necessary.  -Replace indoor fan motor.
13.	Partial, limited air supply at indoor unit.	Lack of refrigerant (will accompanied by whistling noise) cause ice formation on indoor unit coil in cooling mode.	-Charge the unit after localizing leak.
14.	Water accumulates and overflow from indoor unit section.	Drain tube or spout of drain pan clogged.	-Disassemble plastic drain tube from spout of indoor unit drain pan.
15.	Water dripping from outdoor unit base. (in heating mode)	Water drain outlet is clogged.	-Open outdoor unit cover clean out water outlet clean the base inside throughly.
16.	Freeze-up of outdoor coil in heating mode, poor heating effect in room, indoor fan operates.	-Faulty outdoor thermistor.  -Faulty control cable.  - Outdoor temperature is too low (below -2°C)  -Outdoor unit air outlet is blocked.	-Replace thermistor.  - Repair control cable.  - Shut unit off, outdoor temp. is below design conditions and cannot function properly.  -Remove obstructions.

**10. EXPLODED VIEWS AND SPARE PARTS LISTS**

**10.1 Indoor Unit: DNC 35, 38, 44**





## 10.2 Indoor Unit: DNC 44

Draw. No.	Part No.	Name	Qty.	Rev.
1	433477	Mounting Plate	1	1
2	SP000000095	Insulated side wall	2	1
3	433320	Adapter 8"	3	1
4	SP000000096	Drain pump assembly	1	1
5	433326	Nipple	1	1
6	433478	Hanging track	2	1
7	402713	Wire display box	1	1
8	402730	Cable 8 wires 7m with connectors	1	1
9	SP000000097	Electrical box assembly	1	1
10	433462	Capillary assembly	1	2
11	SP000000098	Drain pool assembly	1	1
12	SP000000099	Air inlet assembly	1	1
13	433315	Filter	1	1
14	433324	Return air grill assembly	1	1
15	433397	Carbon filter	2	1
16	438600	Remote control RC RC3	1	1
17	SP000000102	Coil assembly	1	1
18	433318	Coil support	2	1
19	433306	Fan	1	1
20	433316	Bracket	4	1
21	433322	Adapter 12"	1	1
22	433335	Adapter 12" cover	1	1
23	433321	Adapter 10"	1	1
24	433386	Manual damper	1	2
25	433416	Motor	1	1
26	433314	Air connector	1	1

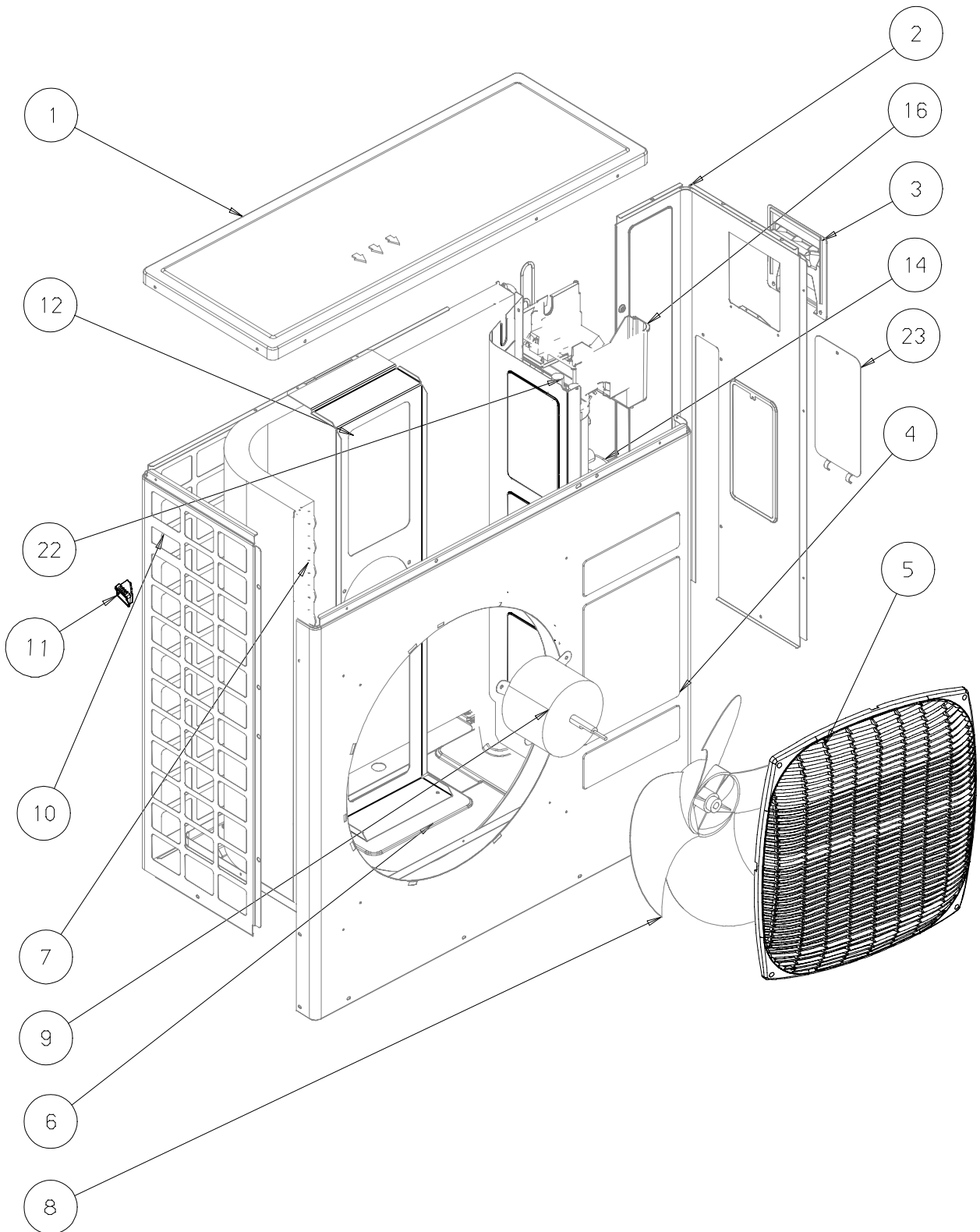
### 10.3 Indoor Unit: DNC 38, 38T

Draw. No.	Part No.	Name	Qty.	Rev.
1	433477	Mounting Plate	1	1
2	SP000000095	Insulated side wall	2	1
3	433320	Adapter 8"	3	1
4	SP000000096	Drain pump assembly	1	1
5	433326	Nipple	1	1
6	433478	Hanging track	2	1
7	402713	Wire display box	1	1
8	402730	Cable 8 wires 7m with connectors	1	1
9	SP000000097	Electrical box assembly	1	1
10	433328	Capillary assembly for R22	1	3
	433265	Capillary assembly for R407C	1	1
11	SP000000098	Drain pool assembly	1	1
12	SP000000099	Air inlet assembly	1	1
13	433315	Filter	1	1
14	433324	Return air grill assembly	1	1
15	433397	Carbon filter	2	1
16	438600	Remote control RC RC3	1	1
17	SP000000100	Coil assembly	1	1
18	433318	Coil support	2	1
19	433306	Fan	1	1
20	433316	Bracket	4	1
21	433322	Adapter 12"	1	1
22	433335	Adapter 12" cover	1	1
23	433321	Adapter 10"	1	1
24	433430	Manual damper	1	2
25	433417	Motor	1	2
26	433314	Air connector	1	1

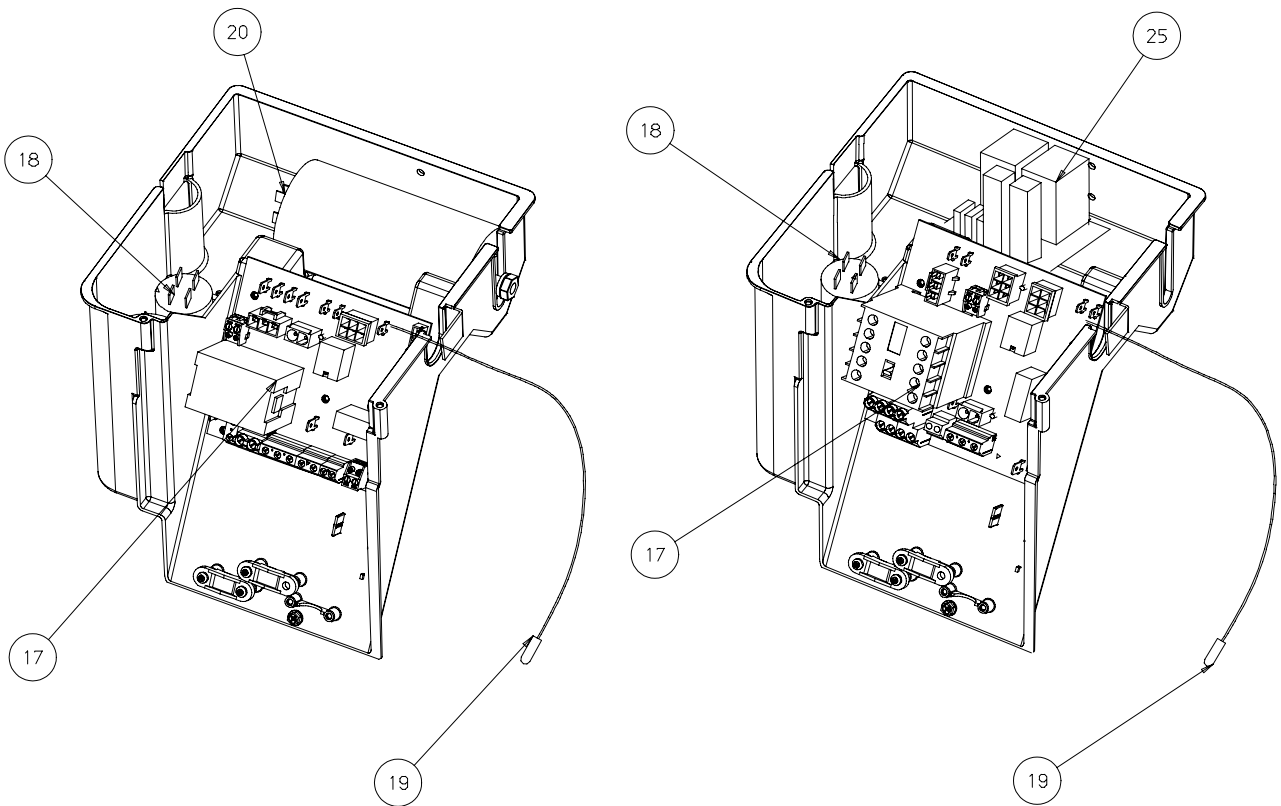
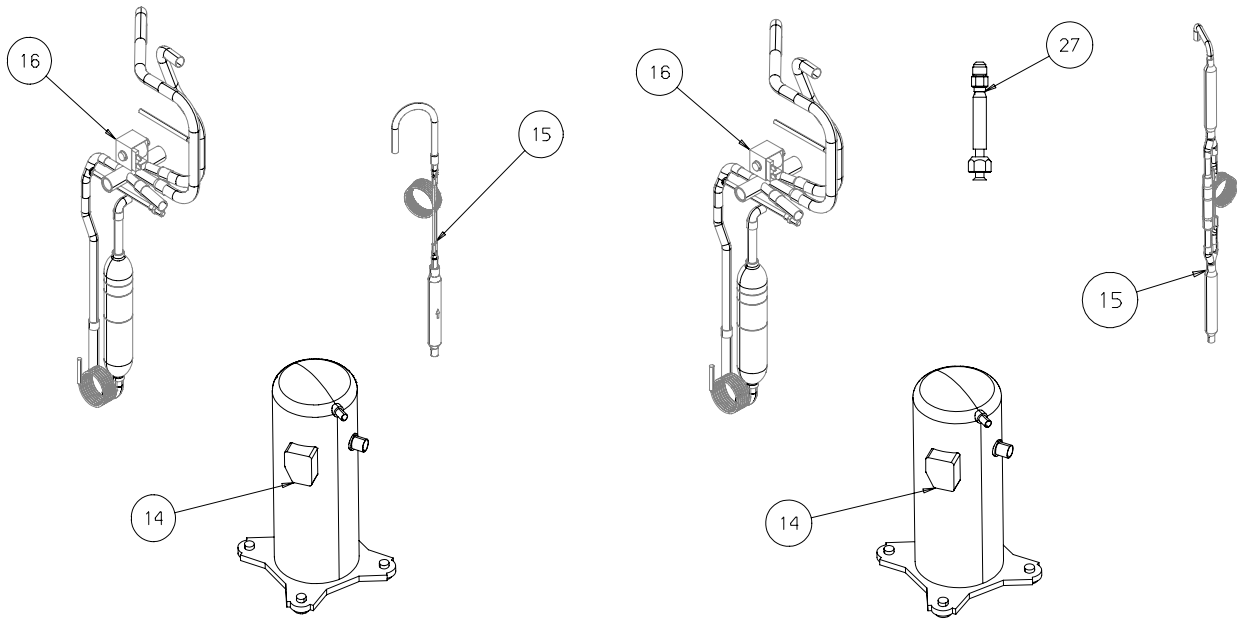
## 10.4 Indoor Unit: DNC 35, 35T

Draw. No.	Part No.	Name	Qty.	Rev.
1	433477	Mounting Plate	1	1
2	SP000000095	Insulated side wall	2	1
3	433320	Adapter 8"	3	1
4	SP000000096	Drain pump assembly	1	1
5	433326	Nipple	1	1
6	433478	Hanging track	2	1
7	402713	Wire display box	1	1
8	402730	Cable 8 wires 7m with connectors	1	1
9	SP000000097	Electrical box assembly	1	1
11	SP000000098	Drain pool assembly	1	1
12	SP000000099	Air inlet assembly	1	1
13	433315	Filter	1	1
14	433324	Return air grill assembly	1	1
15	433397	Carbon filter	2	1
16	438600	Remote control RC RC3	1	1
17	SP000000101	Coil assembly		1
18	433318	Coil support	2	1
19	433306	Fan	1	1
20	433316	Bracket	4	1
21	433322	Adapter 12"	1	1
22	433335	Adapter 12" cover	1	1
23	433321	Adapter 10"	1	1
24	433386	Manual damper	1	2
25	433417	Motor	1	2
26	433314	Air connector	1	1

### 10.5 Outdoor Unit: OU8-33, OU8-33T



### 10.6 Outdoor Unit: OU8-33, OU8-33T



**10.7 Outdoor Unit: OU8-33 RC => R22**

Draw.No.	Part No.	Name	Qty.	Rev.
1	437045	LARGE UPPER COVER OU	1	4
2	402930	SIDE PANEL OU8-33	1	1
3	436357	SMALL ELECTRICAL COVER OU	1	3
4	402928	FRONT PANEL OU8-33	1	1
5	437091	OU SQUARE FAN GUARD	1	2
6	434802	BASE ASS.OU12-60T/180T	1	4
7	402944	COIL OU8-33 HDR	1	1
8	402937	AXIAL FAN D490*143.5	1	1
9	402936	MOTOR 89W,2S,OU8-33	1	1
10	402929	NET SIDE PANEL OU8-33	1	1
11	436358	OU LEADING HANDLE	1	2
12	439775	MOTOR SUPPORT OU8-33	1	1
14	439774	COMPRESSOR SQ040PAB	1	1
15	439785	CAPILLARY ASSY OU8-33 R22	1	1
16	439791	TUBING ASSY OU8	1	1
17	402495	BOARD TPNH 5B	1	1
18	442371	CAPACITOR 400V 6mF	1	2
19	434716	THERMISTOR+CAP WTH CONNECTOR L1050	1	1
20	442001	CAPACITOR 400V 60mF	1	1
21	442457	VALVE COIL SANHUA MOLEX	1	1
22	402012	SUCTION ACCUMULATOR 3*5/8 3.5Lb	1	2
23	439656	SIDE COVER OU10	1	2
26	430376	COMPRESSOR WIRING WTH PLUG+CONNECTOR	1	1
28	190441	HEATER CRANKCASE OU8 LG	1	1

## 10.8 Outdoor Unit: OU8-33T RC => R22

Draw.No.	Part No.	Name	Qty.	Rev.
1	437045	LARGE UPPER COVER OU	1	4
2	402930	SIDE PANEL OU8-33	1	1
3	436357	SMALL ELECTRICAL COVER OU	1	3
4	402928	FRONT PANEL OU8-33	1	1
5	437091	OU SQUARE FAN GUARD	1	2
6	439833	NEW BASE ASSY OU	1	1
7	402944	COIL OU8-33 HDR	1	1
8	402937	AXIAL FAN D490*143.5	1	1
9	402936	MOTOR 89W,2S,OU8-33	1	1
10	402929	NET SIDE PANEL OU8-33	1	1
11	436358	OU LEADING HANDLE	1	2
12	439775	MOTOR SUPPORT OU8-33	1	1
14	439776	COMPRESSOR SQ040YAA LG	1	1
15	439785	CAPILLARY ASSY OU8-33 R22	1	1
16	439791	TUBING ASSY OU8	1	1
17	402494	BOARD TPHN 3C	1	1
18	442371	CAPACITOR 400V 6mF	1	2
19	434716	THERMISTOR+CAP WTH CONNECTOR L1050	1	1
21	442457	VALVE COIL SANHUA MOLEX	1	1
22	402012	SUCTION ACCUMULATOR 3*5/8 3.5Lb	1	2
23	439656	SIDE COVER OU10	1	2
25	439795	BOARD 3PH PROTECTOR	1	1
26	435545	COMPRESSOR WIRING WTH PLUG L1200 3PH LG	1	1
28	190441	HEATER CRANKCASE OU8 LG	1	1

## 10.9 Outdoor Unit: OU8-33 RC => R407C

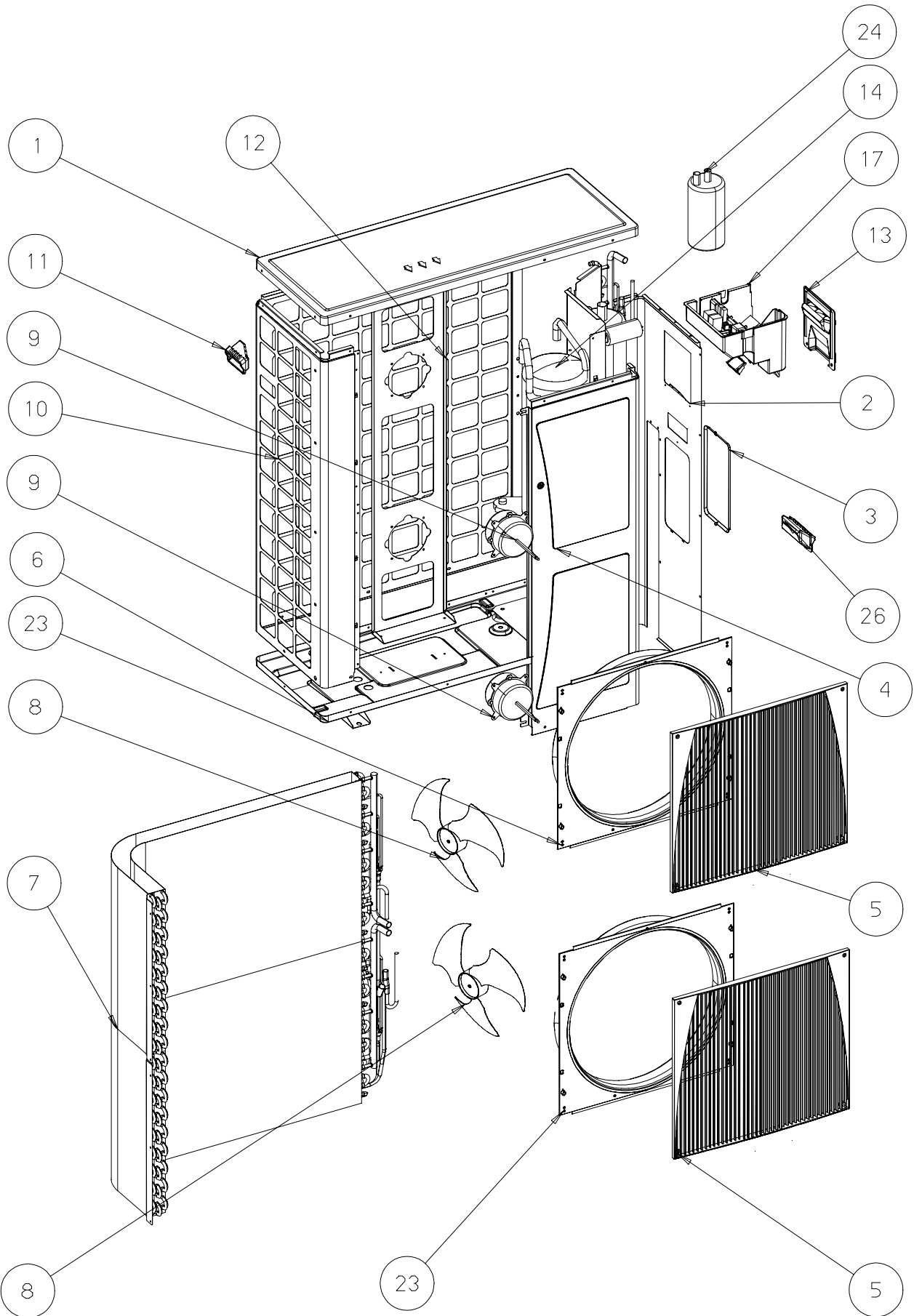
Draw.No.	Part No.	Name	Qty.	Rev.
1	437045	LARGE UPPER COVER OU	1	4
2	402930	SIDE PANEL OU8-33	1	1
3	436357	SMALL ELECTRICAL COVER OU	1	3
4	402928	FRONT PANEL OU8-33	1	1
5	437091	OU SQUARE FAN GUARD	1	2
6	439833	NEW BASE ASSY OU	1	1
7	402932	COIL OU8-33 R407C	1	1
8	402937	AXIAL FAN D490*143.5	1	1
9	402936	MOTOR 89W,2S,OU8-33	1	1
10	402929	NET SIDE PANEL OU8-33	1	1
11	436358	OU LEADING HANDLE	1	2
12	439775	MOTOR SUPPORT OU8-33	1	1
14	439780	COMPRESSOR HQ040PAA R407C LG	1	1
15	439786	CAPILLARY ASSY OU8 R407C	1	1
16	439791	TUBING ASSY OU8	1	1
17	402495	BOARD TPHN 5B	1	1
18	442371	CAPACITOR 400V 6mF	1	2
19	434716	THERMISTOR+CAP WTH CONNECTOR L1050	1	1
20	442001	CAPACITOR 400V 60mF	1	1
21	442457	VALVE COIL SANHUA MOLEX	1	1
22	402012	SUCTION ACCUMULATOR 3*5/8 3.5Lb	1	2
23	439656	SIDE COVER OU10	1	2
26	430376	COMPRESSOR WIRING WTH PLUG+CONNECTOR	1	1
28	190441	HEATER CRANKCASE OU8 LG	1	1



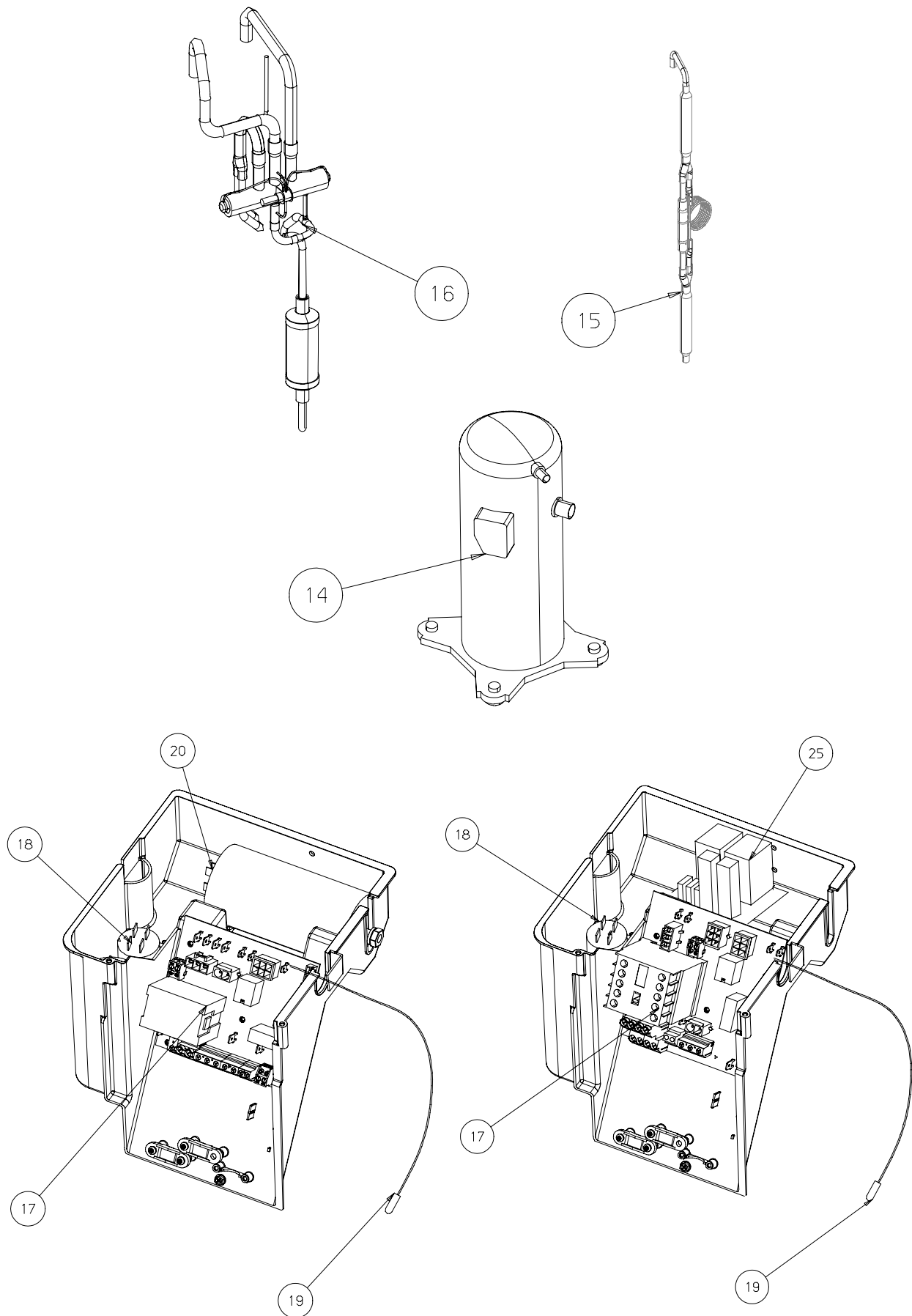
## 10.10 Outdoor Unit: OU8-33T RC => R407C

Draw.No.	Part No.	Name	Qty.	Rev.
1	437045	LARGE UPPER COVER OU	1	4
2	402930	SIDE PANEL OU8-33	1	1
3	436357	SMALL ELECTRICAL COVER OU	1	3
4	402928	FRONT PANEL OU8-33	1	1
5	437091	OU SQUARE FAN GUARD	1	2
6	439833	NEW BASE ASSY OU	1	1
7	402932	COIL OU8-33 R407C	1	1
8	402937	AXIAL FAN D490*143.5	1	1
9	402936	MOTOR 89W,2S,OU8-33	1	1
10	402929	NET SIDE PANEL OU8-33	1	1
11	436358	OU LEADING HANDLE	1	2
12	439775	MOTOR SUPPORT OU8-33	1	1
14	439766	COMPRESSOR HQ040YAA LG	1	1
15	439786	CAPILLARY ASSY OU8 R407C	1	1
16	439791	TUBING ASSY OU8	1	1
17	402494	BOARD TPHN 3C	1	1
18	442371	CAPACITOR 400V 6mF	1	2
19	434716	THERMISTOR+CAP WTH CONNECTOR L1050	1	1
21	442457	VALVE COIL SANHUA MOLEX	1	1
22	402012	SUCTION ACCUMULATOR 3*5/8 3.5Lb	1	2
23	439656	SIDE COVER OU10	1	2
25	439795	BOARD 3PH PROTECTOR	1	1
26	435545	COMPRESSOR WIRING WTH PLUG L1200 3PH LG	1	1
28	190441	HEATER CRANKCASE OU8 LG	1	1

**10.11 Outdoor Unit: OU10-38, OU10-50**



### 10.12 Outdoor Unit: OU10-38, OU10-50



**10.13 Outdoor Unit: OU10-38 RC => R22**

Draw.No.	Part No.	Name	Qty.	Rev.
1	437045	LARGE UPPER COVER OU	1	4
2	439655	SIDE PANEL OU10	1	3
3	439656	SIDE COVER OU10	1	2
4	439653	FRONT PANEL OU10	1	3
5	439662	GRILLE OU10	2	1
6	439833	NEW BASE ASSY OU	1	1
7	439755	COIL OU10-38	1	1
8	439650	AXIAL FAN D400*112	2	1
9	439651	MOTOR 70W,3S,OU10	2	2
10	439654	NET SIDE PANEL OU10	1	3
11	436358	OU LEADING HANDLE	1	1
12	439657	MOTOR SUPPORT OU10	1	2
13	436357	SMALL ELECTRICAL COVER OU	1	3
14	402792	COMPRESSOR ZR47K3-PFJ-601	1	1
15	439754	CAPILLARY ASSY OU10-38	1	1
16	439695	TUBING ASSY OU10-38	1	1
17	402495	BOARD TPHN 5B	1	1
18	442378	CAPACITOR 400V 3mF	2	2
19	434716	THERMISTOR+CAP WTH CONNECTOR L1050	1	1
20	442001	CAPACITOR 400V 60mF	1	1
21	442462	VALVE COIL L700 4-WAY MOLEX	1	1
22	435875	COMPRESSOR WIRING WTH PLUG L1100	1	1
23	439661	CONES OU10	2	1
24	402189	SUCTION ACCUMULATOR 5" x 3/4" 7Lb	1	1
26	436352	RAISING HANDLE OU10	1	1
28	190441	HEATER CRANKCASE OU8 LG	1	1

## 10.14 Outdoor Unit: OUU10-38T RC => R22

Draw.No.	Part No.	Name	Qty.	Rev.
1	437045	LARGE UPPER COVER OU	1	4
2	439655	SIDE PANEL OU10	1	3
3	439656	SIDE COVER OU10	1	2
4	439653	FRONT PANEL OU10	1	3
5	439662	GRILLE OU10	2	1
6	439833	NEW BASE ASSY OU	1	1
7	439755	COIL OU10-38	1	1
8	439650	AXIAL FAN D400*112	2	1
9	439651	MOTOR 70W,3S,OU10	2	2
10	439654	NET SIDE PANEL OU10	1	3
11	436358	OU LEADING HANDLE	1	1
12	439657	MOTOR SUPPORT OU10	1	2
13	436357	SMALL ELECTRICAL COVER OU	1	3
14	430459	COMPRESSOR ZR45KC-TFD 601	1	1
15	439754	CAPILLARY ASSY OU10-38	1	1
16	439695	TUBING ASSY OU10-38	1	1
17	402494	BOARD TPHN 3C	1	1
18	442378	CAPACITOR 400V 3mF	2	2
19	434716	THERMISTOR+CAP WTH CONNECTOR L1050	1	1
21	442462	VALVE COIL L700 4-WAY MOLEX	1	1
22	435967	COMPRESSOR WIRING WTH PLUG L1100 3	1	1
23	439661	CONES OU10	2	1
24	402189	SUCTION ACCUMULATOR 5" x 3/4" 7Lb	1	1
25	439795	BOARD 3PH PROTECTOR	1	1
26	436352	RAISING HANDLE OU10	1	1
28	190441	HEATER CRANKCASE OU8 LG	1	1

**10.15 Outdoor Unit: OU10-38 RC => R407C**

Draw.No.	Part No.	Name	Qty.	Rev.
1	437045	LARGE UPPER COVER OU	1	4
2	439655	SIDE PANEL OU10	1	3
3	439656	SIDE COVER OU10	1	2
4	439653	FRONT PANEL OU10	1	3
5	439662	GRILLE OU10	2	1
6	439833	NEW BASE ASSY OU	1	1
7	439769	COIL OU10-38 GR HDR R407C	1	1
8	439650	AXIAL FAN D400*112	2	1
9	439651	MOTOR 70W,3S,OU10	2	2
10	439654	NET SIDE PANEL OU10	1	3
11	436358	OU LEADING HANDLE	1	1
12	439657	MOTOR SUPPORT OU10	1	2
13	436357	SMALL ELECTRICAL COVER OU	1	3
14	402978	COMPRESSOR ZR47K3E-PFJ	1	1
15	439823	CAPILLARY ASSY OU10-38 R407C	1	1
16	439778	TUBING ASSY OU10-38 R407C	1	1
17	402495	BOARD TPHN 5B	1	1
18	442378	CAPACITOR 400V 3mF	2	2
19	434716	THERMISTOR+CAP WTH CONNECTOR L1050	1	1
20	442001	CAPACITOR 400V 60mF	1	1
21	442462	VALVE COIL L700 4-WAY MOLEX	1	1
22	435875	COMPRESSOR WIRING WTH PLUG L1100	1	1
23	439661	CONES OU10	2	1
24	402189	SUCTION ACCUMULATOR 5" x 3/4" 7Lb	1	1
26	436352	RAISING HANDLE OU10	1	1
28	190441	HEATER CRANKCASE OU8 LG	1	1

## 10.16 Outdoor Unit: OU10-38 RC => R407C

Draw.No.	Part No.	Name	Qty.	Rev.
1	437045	LARGE UPPER COVER OU	1	4
2	439655	SIDE PANEL OU10	1	3
3	439656	SIDE COVER OU10	1	2
4	439653	FRONT PANEL OU10	1	3
5	439662	GRILLE OU10	2	1
6	439833	NEW BASE ASSY OU	1	1
7	439769	COIL OU10-38 R407C	1	1
8	439650	AXIAL FAN D400*112	2	1
9	439651	MOTOR 70W,3S,OU10	2	2
10	439654	NET SIDE PANEL OU10	1	3
11	436358	OU LEADING HANDLE	1	1
12	439657	MOTOR SUPPORT OU10	1	2
13	436357	SMALL ELECTRICAL COVER OU	1	3
14	402943	COMPRESSOR ZR47KCE-TFD	1	1
15	439823	CAPILLARY ASSY OU10-38 R407C	1	1
16	439778	TUBING ASSY OU10-38 R407C	1	1
17	402494	BOARD TPHN 3C	1	1
18	442378	CAPACITOR 400V 3mF	2	2
19	434716	THERMISTOR+CAP WTH CONNECTOR L1050	1	1
21	442462	VALVE COIL L700 4-WAY MOLEX	1	1
22	435967	COMPRESSOR WIRING WTH PLUG L1100 3	1	1
23	439661	CONES OU10	2	1
24	402189	SUCTION ACCUMULATOR 5" x 3/4" 7Lb	1	1
25	439795	BOARD 3PH PROTECTOR	1	1
26	436352	RAISING HANDLE OU10	1	1
28	190441	HEATER CRANKCASE OU8 LG	1	1

**10.17 Outdoor Unit: OU10-38 ST => R407C**

Draw.No.	Part No.	Name	Qty.	Rev.
1	437045	LARGE UPPER COVER OU	1	4
2	439655	SIDE PANEL OU10	1	3
3	439656	SIDE COVER OU10	1	2
4	439653	FRONT PANEL OU10	1	3
5	439662	GRILLE OU10	2	1
6	439841	NEW BASE ASSY OU EL	1	1
7	430915	COILGR OU10-38 ST R407C	1	1
8	439650	AXIAL FAN D400*112	2	1
9	439651	MOTOR 70W,3S,OU10	2	2
10	439654	NET SIDE PANEL OU10	1	3
11	436358	OU LEADING HANDLE	1	1
12	439657	MOTOR SUPPORT OU10	1	2
13	436357	SMALL ELECTRICAL COVER OU	1	3
14	402978	COMPRESSOR ZR47K3E-PFJ	1	1
15	439823	CAPILLARY ASSY OU10-38 R407C	1	1
17	402495	BOARD TPHN 5B	1	1
18	442378	CAPACITOR 400V 3mF	2	2
19	434716	THERMISTOR+CAP WTH CONNECTOR L1050	1	1
20	442001	CAPACITOR 400V 60mF	1	1
22	435875	COMPRESSOR WIRING WTH PLUG L1100	1	1
23	439661	CONES OU10	2	1
24	402189	SUCTION ACCUMULATOR 5" x 3/4" 7Lb	1	1
26	436352	RAISING HANDLE OU10	1	1
28	190441	HEATER CRANKCASE OU8 LG	1	1



## 10.18 Outdoor Unit: OU10-38T ST => R407C

Draw.No.	Part No.	Name	Qty.	Rev.
1	437045	LARGE UPPER COVER OU	1	4
2	439655	SIDE PANEL OU10	1	3
3	439656	SIDE COVER OU10	1	2
4	439653	FRONT PANEL OU10	1	3
5	439662	GRILLE OU10	2	1
6	439841	NEW BASE ASSY OU EL	1	1
7	430915	COILGR OU10-38 ST R407C	1	1
8	439650	AXIAL FAN D400*112	2	1
9	439651	MOTOR 70W,3S,OU10	2	2
10	439654	NET SIDE PANEL OU10	1	3
11	436358	OU LEADING HANDLE	1	1
12	439657	MOTOR SUPPORT OU10	1	2
13	436357	SMALL ELECTRICAL COVER OU	1	3
14	402943	COMPRESSOR ZR47KCE-TFD	1	1
15	402249	CAPILLARY ASSY OU10-38 ST	1	1
17	402494	BOARD TPHN 3C	1	1
18	442378	CAPACITOR 400V 3mF	2	2
19	434716	THERMISTOR+CAP WTH CONNECTOR L1050	1	1
22	435967	COMPRESSOR WIRING WTH PLUG L1100 3	1	1
23	439661	CONES OU10	2	1
24	402189	SUCTION ACCUMULATOR 5" x 3/4" 7Lb	1	1
25	439795	BOARD 3PH PROTECTOR	1	1
26	436352	RAISING HANDLE OU10	1	1
28	190441	HEATER CRANKCASE OU8 LG	1	1

**10.19 Outdoor Unit: OU10-50 RC => R22**

Draw.No.	Part No.	Name	Qty.	Rev.
1	437045	LARGE UPPER COVER OU	1	4
2	439655	SIDE PANEL OU10	1	3
3	439656	SIDE COVER OU10	1	2
4	439653	FRONT PANEL OU10	1	3
5	439662	GRILLE OU10	2	1
6	439833	NEW BASE ASSY OU	1	1
7	439744	COIL GR/HDR OU10-50	1	1
8	439650	AXIAL FAN D400*112	2	1
9	439651	MOTOR 70W,3S,OU10	2	2
10	439654	NET SIDE PANEL OU10	1	3
11	436358	OU LEADING HANDLE	1	1
12	439657	MOTOR SUPPORT OU10	1	2
13	436357	SMALL ELECTRICAL COVER OU	1	3
14	439666	COMPRESSOR SR061YAB LG	1	1
15	439691	CAPILLARY ASSY OU10-44	1	1
16	439749	TUBING ASSY OU10-50	1	1
17	402453	BOARD TPHN 3B	1	1
18	442378	CAPACITOR 400V 3mF	2	2
19	434716	THERMISTOR+CAP WTH CONNECTOR L1050	1	1
21	442462	VALVE COIL L700 4-WAY MOLEX	1	1
22	435545	COMPRESSOR WIRING WTH PLUG L1200 3PH LG	1	1
23	439661	CONES OU10	2	1
24	402189	SUCTION ACCUMULATOR 5" x 3/4" 7Lb	1	1
25	439795	BOARD 3PH PROTECTOR	1	1
26	436352	RAISING HANDLE OU10	1	1
27	402741	THERMISTOR WTH CONNECTOR L1250	1	1
28	190442	HEATER CRANKCASE OU10 LG	1	1

## 10.20 Outdoor Unit: OU10-50 RC => R407C

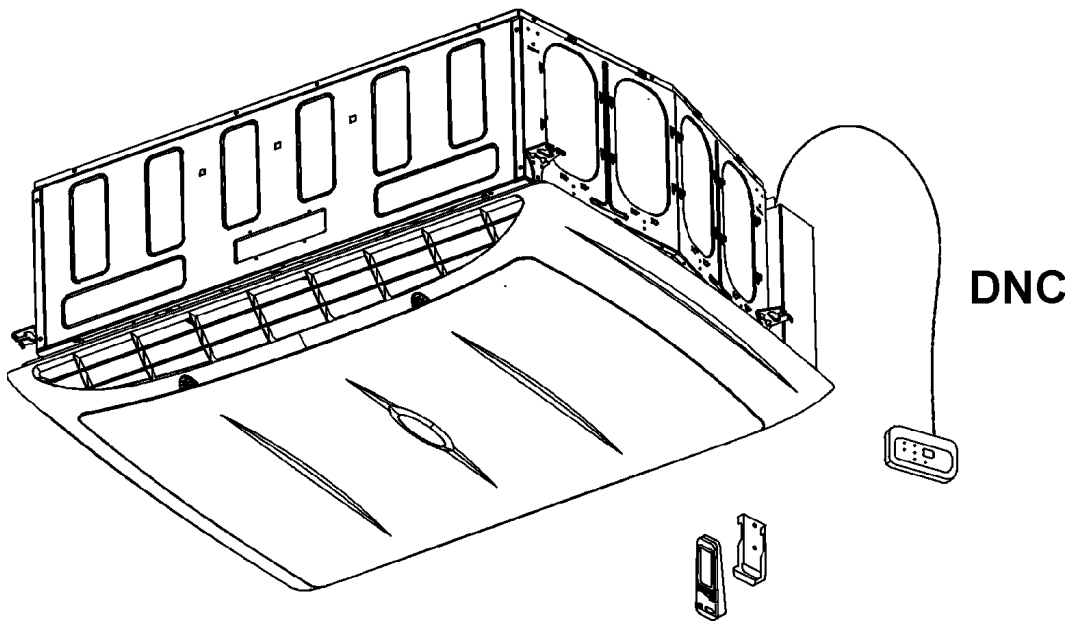
Draw.No.	Part No.	Name	Qty.	Rev.
1	437045	LARGE UPPER COVER OU	1	4
2	439655	SIDE PANEL OU10	1	3
3	439656	SIDE COVER OU10	1	2
4	439653	FRONT PANEL OU10	1	3
5	439662	GRILLE OU10	2	1
6	439833	NEW BASE ASSY OU	1	1
7	439744	COIL GR/HDR OU10-50	1	1
8	439650	AXIAL FAN D400*112	2	1
9	439651	MOTOR 70W,3S,OU10	2	2
10	439654	NET SIDE PANEL OU10	1	3
11	436358	OU LEADING HANDLE	1	1
12	439657	MOTOR SUPPORT OU10	1	2
13	436357	SMALL ELECTRICAL COVER OU	1	3
14	439767	COMPRESSOR HR061YAA LG	1	1
15	439828	CAPILLARY ASSY OU10-50 R407C	1	1
16	439829	TUBING ASSY OU10-50 R407C	1	1
17	402453	BOARD TPHN 3B	1	1
18	442378	CAPACITOR 400V 3mF	2	2
19	434716	THERMISTOR+CAP WTH CONNECTOR L1050	1	1
21	442462	VALVE COIL L700 4-WAY MOLEX	1	1
22	435545	COMPRESSOR WIRING WTH PLUG L1200 3PH LG	1	1
23	439661	CONES OU10	2	1
24	402189	SUCTION ACCUMULATOR 5" x 3/4" 7Lb	1	1
25	439795	BOARD 3PH PROTECTOR	1	1
26	436352	RAISING HANDLE OU10	1	1
27	402741	THERMISTOR WTH CONNECTOR L1250	1	1
28	190442	HEATER CRANKCASE OU10 LG	1	1

**10.21 Outdoor Unit: OU10-50 ST => R407C**

Draw.No.	Part No.	Name	Qty.	Rev.
1	437045	LARGE UPPER COVER OU	1	4
2	439655	SIDE PANEL OU10	1	3
3	439656	SIDE COVER OU10	1	2
4	439653	FRONT PANEL OU10	1	3
5	439662	GRILLE OU10	2	1
6	439841	NEW BASE ASSY OU EL	1	1
7	439744	COIL GR/HDR OU10-50	1	1
8	439650	AXIAL FAN D400*112	2	1
9	439651	MOTOR 70W,3S,OU10	2	2
10	439654	NET SIDE PANEL OU10	1	3
11	436358	OU LEADING HANDLE	1	1
12	439657	MOTOR SUPPORT OU10	1	2
13	436357	SMALL ELECTRICAL COVER OU	1	3
14	439767	COMPRESSOR HR061YAA LG	1	1
15	402250	CAPILLARY ASSY OU10-50 ST	1	1
17	402453	BOARD TPHN 3B	1	1
18	442378	CAPACITOR 400V 3mF	2	2
19	434716	THERMISTOR+CAP WTH CONNECTOR L1050	1	1
22	435545	COMPRESSOR WIRING WTH PLUG L1200 3PH LG	1	1
23	439661	CONES OU10	2	1
24	402189	SUCTION ACCUMULATOR 5" x 3/4" 7Lb	1	1
25	439795	BOARD 3PH PROTECTOR	1	1
26	436352	RAISING HANDLE OU10	1	1
27	402741	THERMISTOR WTH CONNECTOR L1250	1	1
28	190442	HEATER CRANKCASE OU10 LG	1	1

# CENTRAL AIR CONDITIONER SPLIT SYSTEM

WITH ELECTRONIC CONTROL  
SERIES DNC


















## INSTALLATION INSTRUCTIONS

## **Table of Contents**

1. List of accessories provided with the air-conditioner .....	1
2. General.....	2
2.1 Indoor unit dimensions DNC - all types .....	3
2.2 Outdoor unit dimensions DNC 955, DNC 955 3PH .....	4
2.3 Outdoor unit dimensions: DNC 1155, DNC 1255 .....	5
3. Considerations for choosing installation location.....	6
3.1 Relative positioning between units .....	6
3.2 Considerations in selecting location for installing the outdoor unit .....	6
3.3 Considerations in selecting location for installing the indoor unit .....	7
4. Installation of the indoor unit.....	8
4.1 Hanging the indoor unit.....	9
4.2 Installing DNC return air panel.....	11
4.3 Fresh air supply (optional) .....	12
4.4 Connecting the drainage tube.....	13
5. Installation of flexible ducts.....	14
5.1 Installation instructions .....	14
6. Installation of the outdoor unit.....	16
6.1 Installation on a concrete slab .....	16
6.2 Installation on the wall .....	16
7. Installation of interconnecting tubing between indoor and outdoor units.....	17
7.1 General.....	17
7.2 Gas tubes .....	17
7.3 Relative positioning of the indoor and outdoor units.....	18
7.4 Insulating the gas tubes.....	20
7.5 Preparing the flare and connecting the tubes between units.....	20
8. Preparing the air-conditioner for operation .....	21
8.1 Performing vacuum in the indoor unit and in tubes .....	21
8.2 Tightening nuts .....	23
9. Electrical and tubes installation .....	24
9.1 1PH units .....	25
9.2 3PH units .....	25
10. Remote control .....	26
11. Tests upon completing installation.....	26

1. List of accessories provided with the air-conditioner

Description	Amount	Name	Use
	1	Technician's installation manual	Installation instructions
		Instruction manual for remote control	Operation instructions for remote control
	1	Instruction manual for the user	Operation instructions
	1	Remote control including batteries	Operating the air-conditioner
	1	Remote control bracket	Hanging the remote control on the wall
	1	Central control display	Operating and main working regime display
	2	Carbon filter	Air cleaning
	4	Rubber mounting pads	Padding of the outdoor unit
	4	Tie - Wraps	Tightening the indoor and the outdoor units electrical cables
	4	Washer for hanging the indoor unit	Securing the location of the pole in the ear on which the unit is hanging
	1	Mounting plate	Hanging the unit
	2	Hanging tracks	Hanging the unit
	6	Machine screws for hanging tracks	Installing hanging tracks
	6	Spring washer for hanging tracks	Installing hanging tracks
	6	Screws for installing adapters	Securing installment of adapters
	4	10" adapter screws	Installing 10" adapters
	4 4 4	Dibbles Screws Washers	Installing bracket for remote control and central control display
	4	8" adapter	Mounting a flexible 8" diameter duct
	1	12" adapter	Mounting a flexible 12" diameter duct
	1	10" adapter	Mounting a flexible 10" diameter duct

### **2. General**

Only a professional technician, who went through an appropriate training by the company, may install the air-conditioner. Installation must comply with the Company's specs, according to the law of electricity, while using the Company's standard components such as tubes, ducts, electric power cables and other necessary accessories.

Installation instructions relate to DNC air-conditioners that are comprised of two components: the indoor unit and the outdoor unit. The two units are interconnected between them by two refrigerant tubes, electric power cable and a control cable.

Hereby are recommendations to perform a correct installation of DNC air-conditioners:

- Thermal load assessment for the structure must be carried - out.
- Short refrigerant tubes with minimal bending.
- Capacity loss of 0.3% for each meter of tubing - beyond the first 7 meters, must take into account.
- Ensure free flow of return air from the air-conditioned area into the return air grille, as well as from the return air grille to the inlet of the indoor unit. This route must be free of obstruction and must not pass through non air-conditioned areas.
- Use only the supplied distribution flaps and return air grilles of correct sizes, according to the Company's recommendations.
- In systems with connecting ducts:
  - Use deep adapters only (220 mm - at least) to connect air supply grilles and flaps.

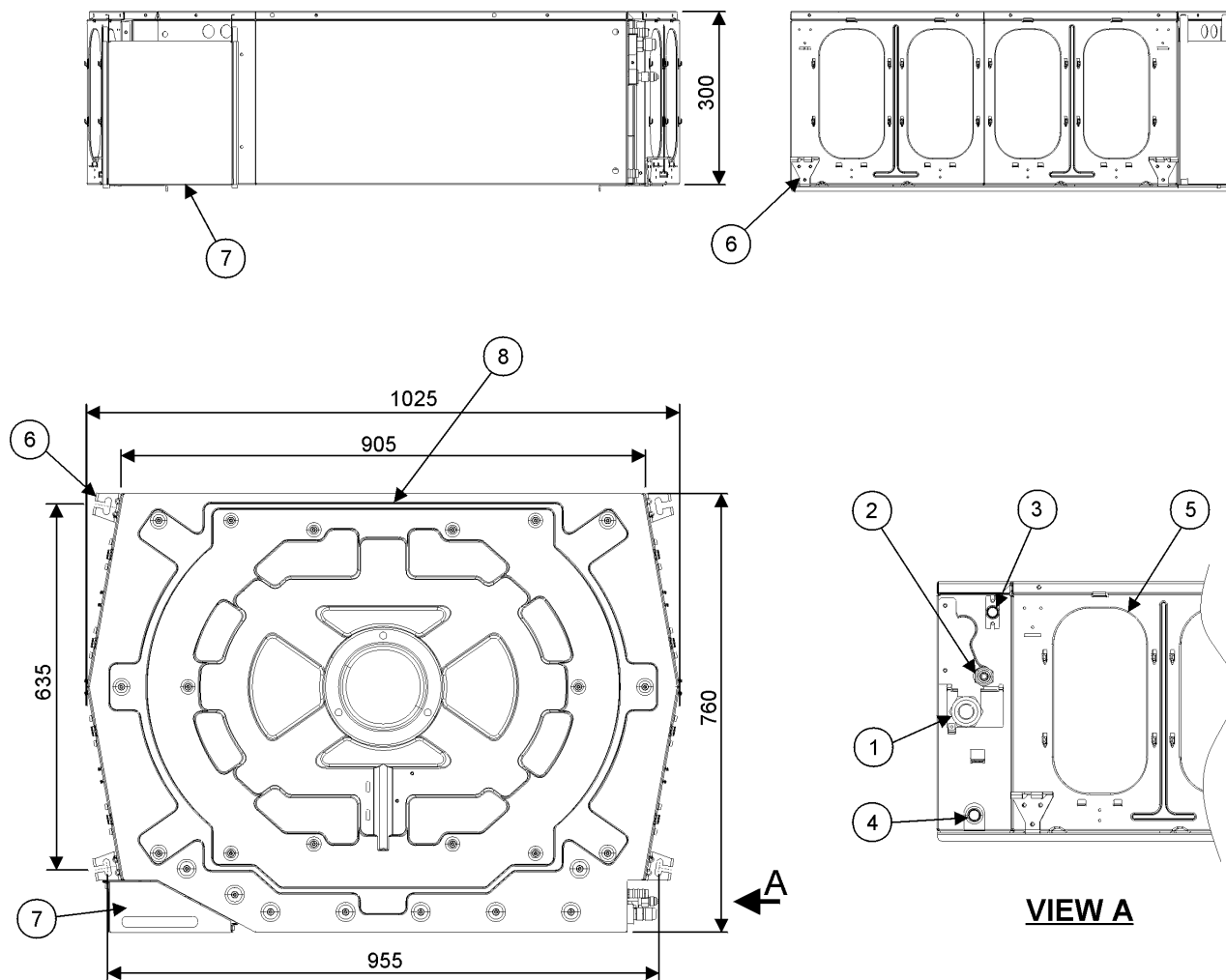
### **Attention!**

Below are listed frequent installation problems. It is highly recommended to relate to them before planning and performing the installation, in order to prevent them.

- A. Lack of appropriate openings for returning air. Returning air via an open door is a bad solution!
- B. Openings and passages to non-air-conditioned floors, or even to places open outdoor air.
- C. Incorrect allocation of air quantities among rooms.
- D. Using incorrect air supply grilles - there is no possibility to direct the distribution of air as required.
- E. De-icing of the thermostat is inactive - no telephone line was installed between the outdoor and the indoor units.
- F. Lack of fresh air in a public place.



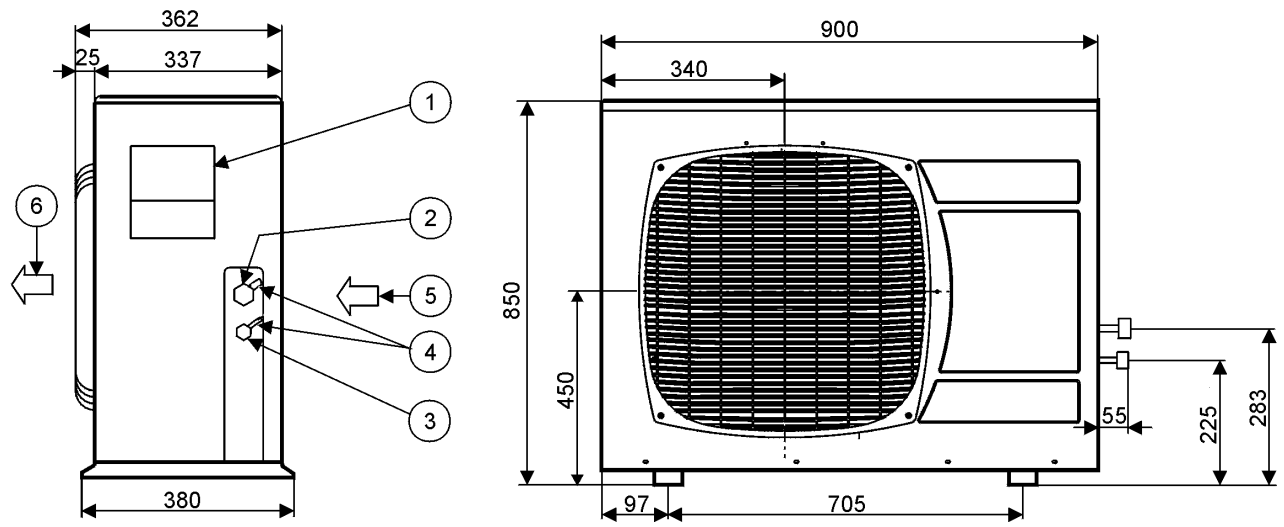
2.1 Indoor unit dimensions DNC - all types



- 1. Suction tube connector (flared)
- 2. Liquid tube connector (flared)
- 3. Pump outlet  $\varnothing$  16 mm
- 4. Drain pool plug (for servicing purposes only)
- 5. 8" air supply opening
- 6. Hanging bracket
- 7. Electrical box
- 8. Fresh air opening

Fig. 1. General dimensions of DNC indoor unit

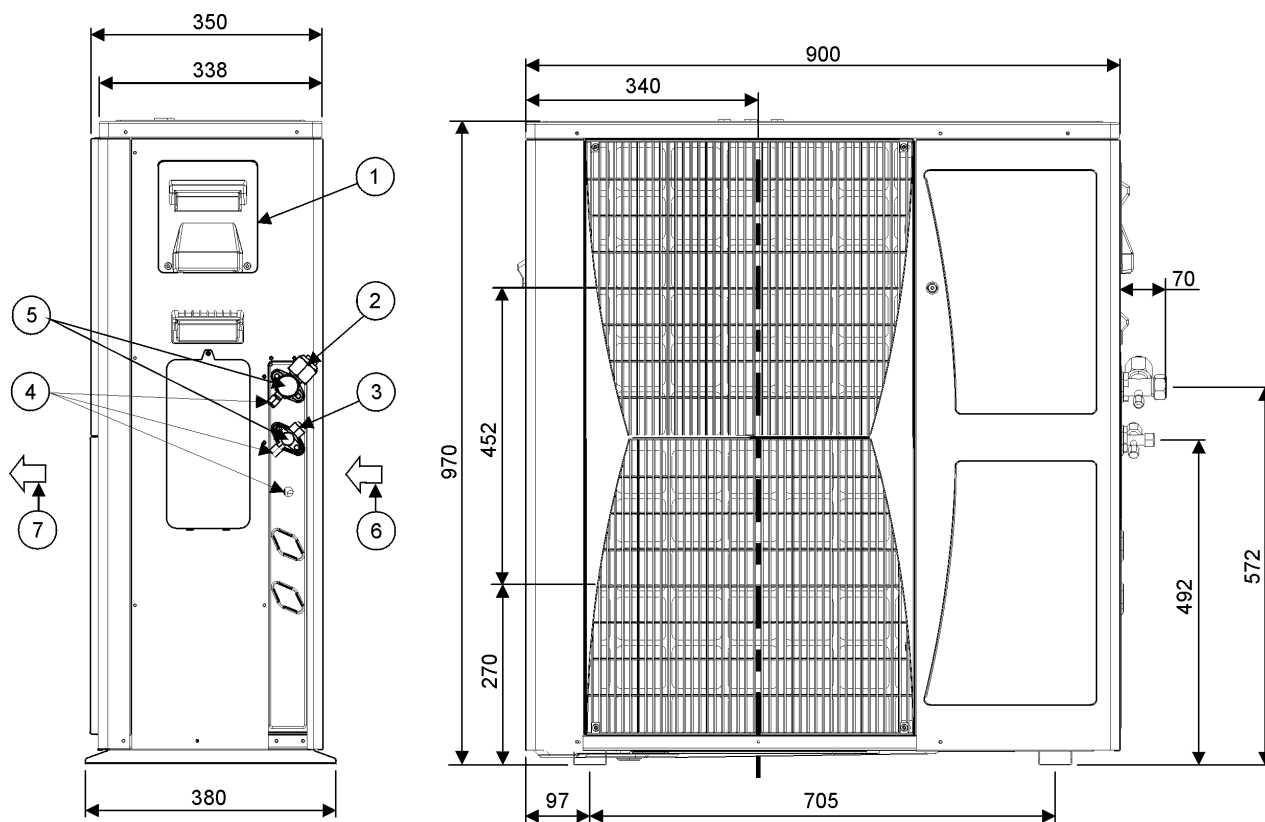
2.2 Outdoor unit dimensions DNC 955, DNC 955 3PH



- 1. Wiring connections
- 2. Suction tube connector (flared)
- 3. Liquid tube connector (flared)
- 4. Service valve
- 5. Air inlet
- 6. Air outlet

Fig. 2. General dimensions of DNC 955 outdoor unit

2.3 Outdoor unit dimensions DNC 1155, DNC 1255



- 1. Wiring connections
- 2. Suction tube connector (flared)
- 3. Liquid tube connector (flared)
- 4. Service valves
- 5. Service taps
- 6. Air inlet
- 7. Air outlet

Fig. 3. General dimensions of DNC 1155, DNC 1255 outdoor units

### **3. Considerations for choosing installation location**

#### **3.1 Relative positioning between units**

The outdoor unit must be installed as close as possible to the indoor unit, in order not to harm capacity. For determining the maximal distance allowed between them, see table No. 1 in paragraph 7.2. In case where there is a necessity to exceed that distance over described in table 1 - the Company's representative must be consulted.

#### **3.2 Considerations in selecting location for installing the outdoor unit**

- Convenient access option for service technician for handling the outdoor unit, as well as free airflow.
- Preventing direct sun radiation on the coil.
- Outdoor unit location will not disturb neighbors and the user.
- The outdoor unit will be located at the distance of at least 200 mm from the wall.
- In installation in enclosed space (porch, laundry room etc.), make sure there are sufficient ventilation openings ensuring release of hot air outside and preventing its return into the outdoor unit.
- In case of installing the outdoor units in a group, make sure that the hot air exiting from one outdoor unit will not flow into another.
- The outdoor unit must be installed on the wall by means of a special suspension that was hot - galvanized, or to put it on the floor or a platform, best installed at a height of not less than 100 mm.
- Make sure that the wall, on which the outdoor unit is installed, has a thickness of at least 200 mm, and has the capacity to carry the unit's weight. Abstain from mounting on a flimsy structure that might be subject to rattles and resonance.
- When the outdoor unit is installed on a level lower than the indoor unit, make sure the height difference between the units is according to the explanation that appears in table No. 1, paragraph 7.
- When the outdoor unit is installed above the level of the indoor unit, an oil trap must be incorporated into the suction line, every 5 meters of elevation.
- When installing the outdoor unit on a second floor, on a porch, or on a higher floor, make sure that the level of the outdoor unit upper casing is at the height of the railing. Still, if the outdoor unit was installed lower - take care that it is installed in such way to enable easy access and the possibility to remove the outdoor unit cover, during service operation.
- When the outdoor unit is installed in a place that has no free access - longer than regular tubes must be installed. These longer tubes must include a number of loops that will enable moving the unit during service operation.
- Consider the possibility of water dripping, during heating operation; if this dripping may disturb the neighbors, one must take care of drainage.
- Abstain from hanging the outdoor unit on bedroom walls.
- Outdoor unit must not be installed in places, to which access requires stepping on light roofs such as shingles and asbestos. No service shall ever be provided to outdoor units installed in such a manner.

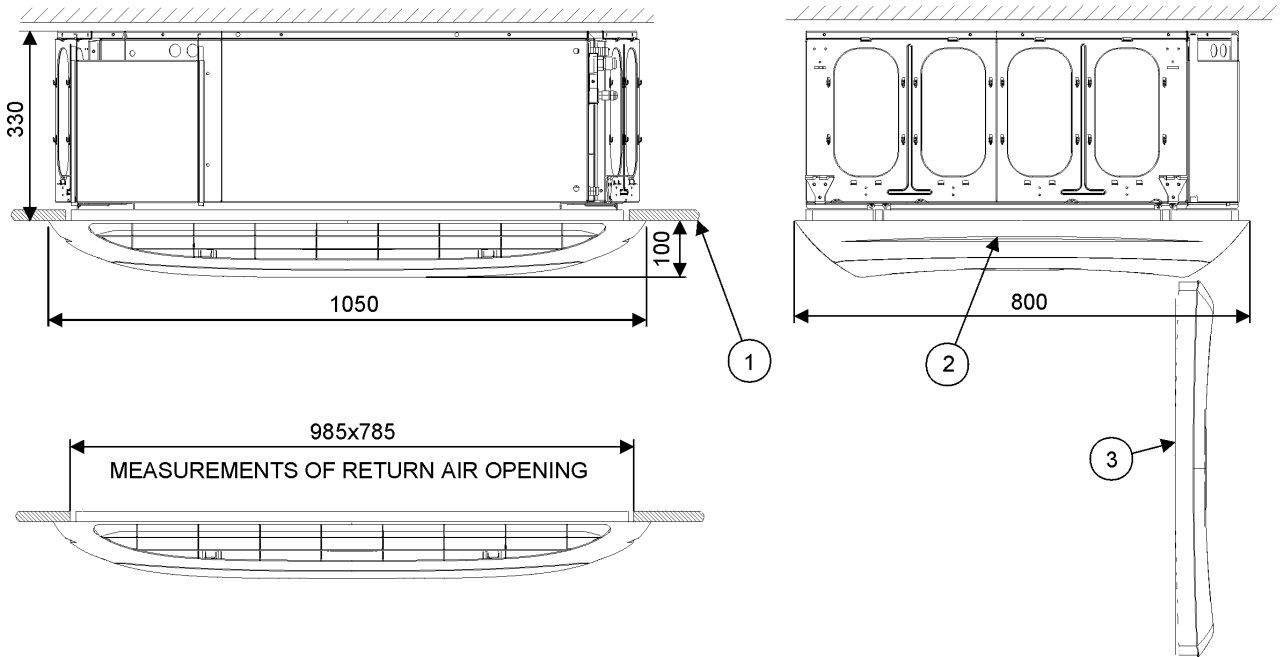
### **3.3 Considerations in selecting location for installing the indoor unit**

- Enable maximal air dispersion, to the largest possible distance, within space that must be air - conditioned.
- Enable free passage for the return air.
- Ensure appropriate drainage of condensing water, which may be created within the unit.
- Make sure that the roof is strong enough to carry the weight of the unit.
- The unit must not be installed in an environment exposed to oil vapors or to other flammable materials.
- Either, the unit, and the remote control, must be installed at a distance of at least 3 m from any source of electromagnetic field.
- To ensure good performance in heating operation - the indoor unit must not be installed with its lower surface higher than 4 meters from the floor.
- In case of too high ceilings, the Company must be consulted.

**4. Installation of the indoor unit**

There are two typical indoor unit installations:

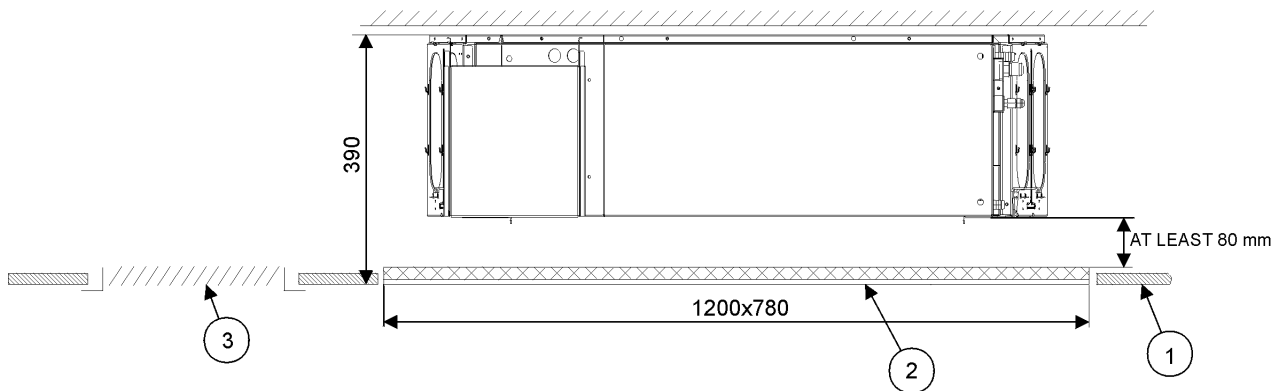
**A. Installing the unit with DNC return air panel, and lowering the ceiling to the unit's height.**



- 1. Lowered ceiling
- 2. Return air panel frame
- 3. Filter access panel

Fig. 4. Installing the unit with DNC return air panel

**B. Installing the unit with service panel and conventional return air grille and lowering the ceiling to the distance of 80 mm, at least, below the unit.**



- 1. Lowered ceiling
- 2. Service panel including acoustic isolation
- 3. Conventional return air grille

Fig. 5. Installing the unit with service panel and conventional return air grille

#### 4.1 Hanging the indoor unit

There are two options to hang the indoor unit:

- A. By means of a mounting plate.
- B. By means of mounting brackets.

##### 4.1.1. Hanging the indoor unit by means of a mounting plate

- A. Select the location for the indoor unit while adhering to the instructions provided in paragraph 3.3.
- B. Install two hanging tracks on the unit by means of 3 screws each one (see Fig. 6).
- C. Mark the location for anchors on the ceiling.
- D. Drill holes for the anchors.
- E. Install the mounting plate on the ceiling and tighten the anchors.
- F. Raise the unit and slide it onto the mounting plate (see Fig. 6).

**Note:**

One must level the unit.

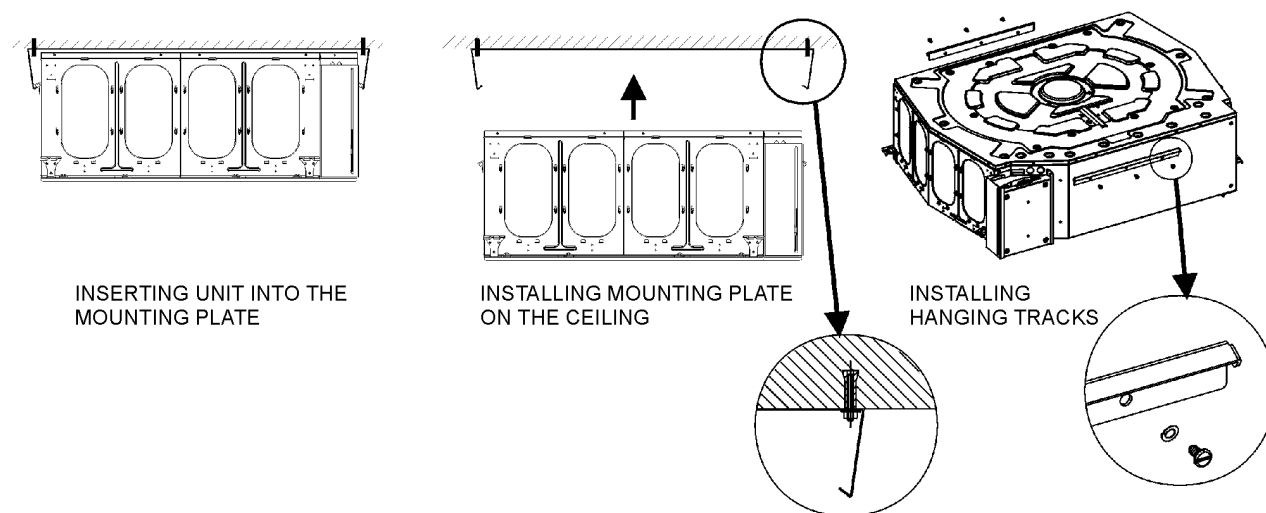


Fig. 6. Hanging the indoor unit on a mounting plate

**Note:**

Hanging the indoor unit on a mounting plate enables moving the unit in order to access tubing connections via the opening of return air panel (while servicing the unit). This option is useful when the ceilings cannot be taken apart (such as cement board ceilings, etc.). In order to facilitate moving the unit, the gas tubing must be prepared in an “S” form (see Fig. 7).

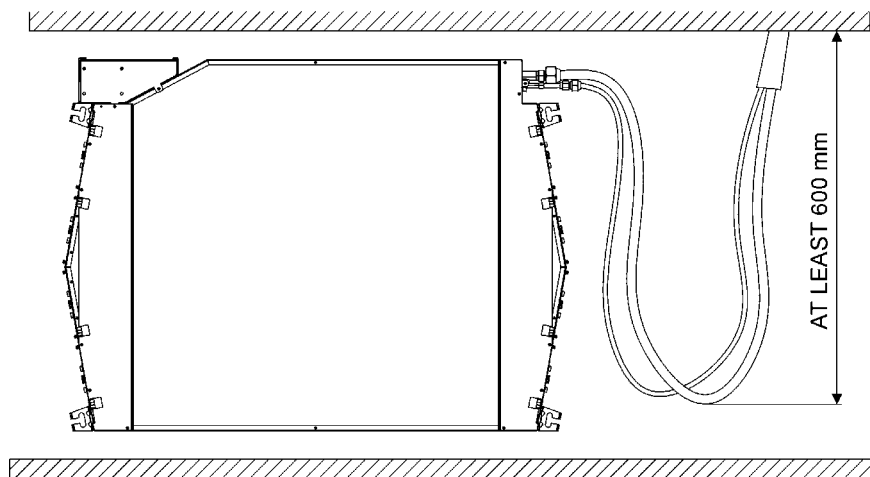


Fig. 7. Preparing gas tubing while using the mounting plate

**4.1.2. Hanging the indoor unit by means of mounting brackets**

- A. Select location for the indoor unit while adhering to instructions provided in paragraph 3.3.
- B. Select location for the unit's mounting brackets.
- C. Mark the position of the hanging rods.
- D. Drill the required holes for mounting flanges and install hanging rods.
- E. Lift the unit carefully at all four corners.
- F. Install the unit on the hanging rods by tightening the screws while making sure to keep the unit in a perfectly horizontal position.

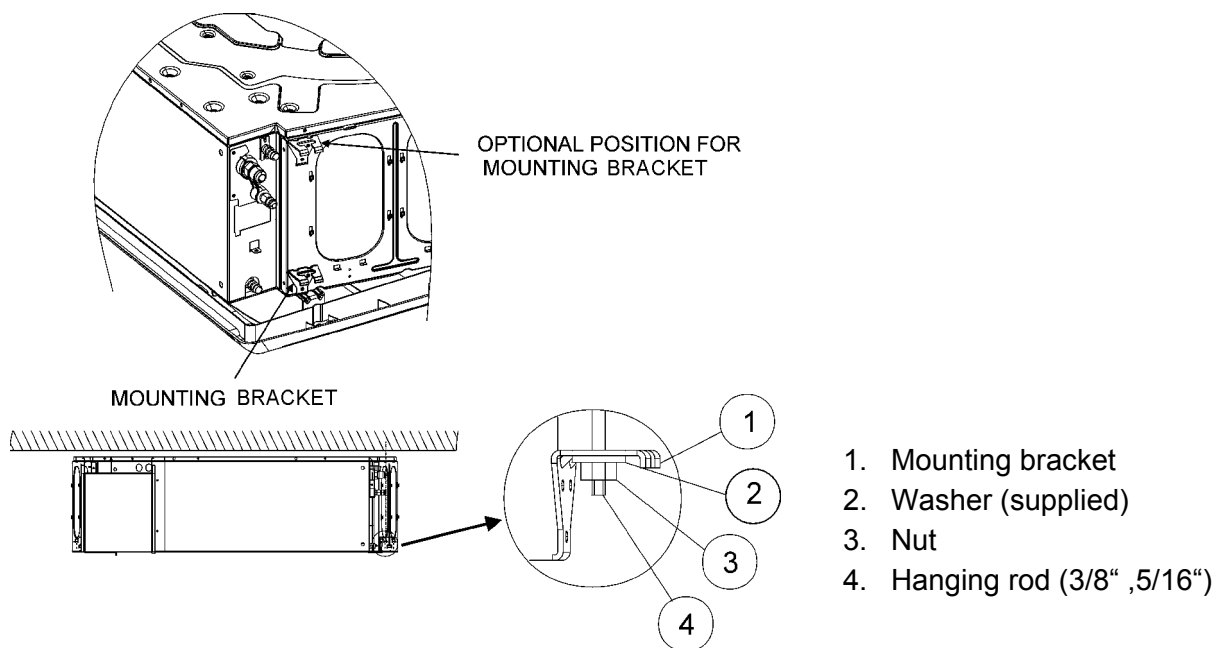
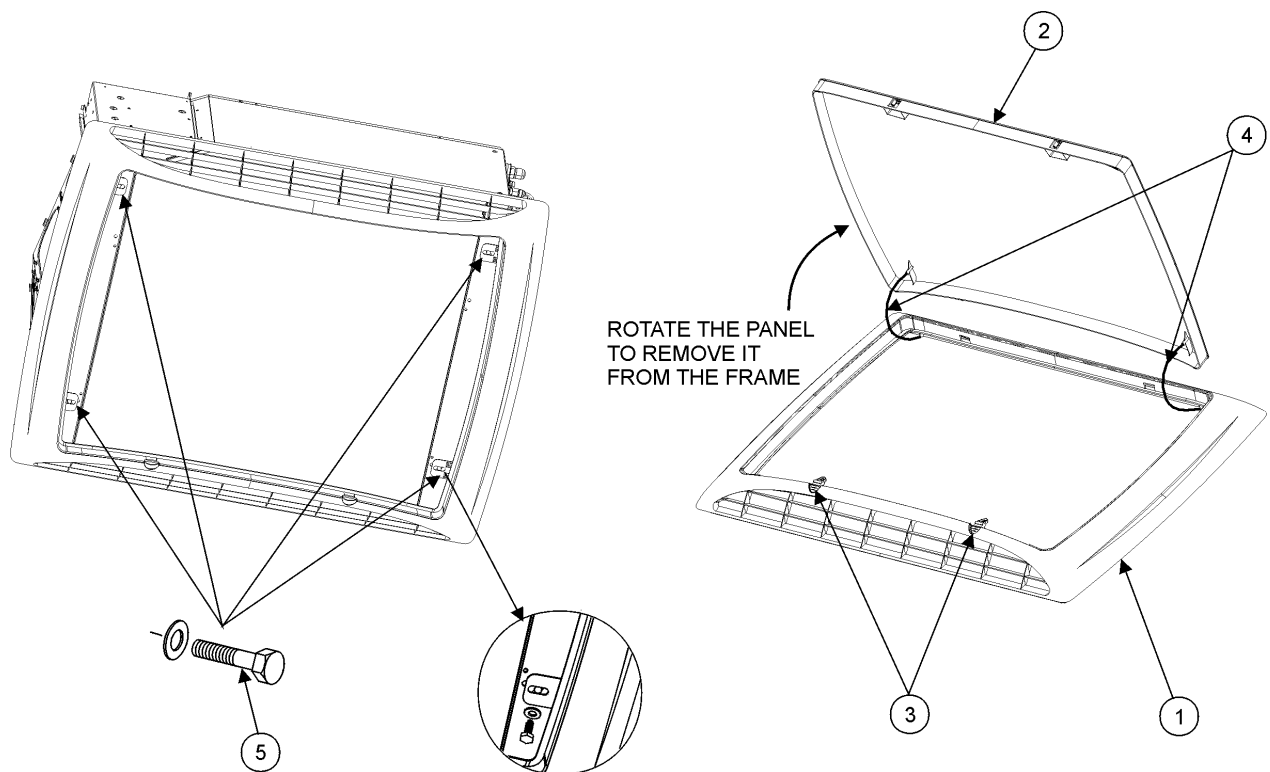


Fig. 8. Hanging the indoor unit on mounting brackets



#### 4.2 Installing DNC return air panel

- A. Carefully remove the entire return air panel from the packing.
- B. Dismantle the filter access panel by pressing the two buttons in a circular motion and releasing the hanging wires (see Fig. 9).
- C. Connect the frame to the unit using four screws and washers. After lowering the ceiling, the return air panel can be straightened according to ceiling lines or walls by releasing screws, moving frame and tightening the screws.
- D. Insert the access panel into the frame and lock it by pressing.



Mounting the frame without the panel

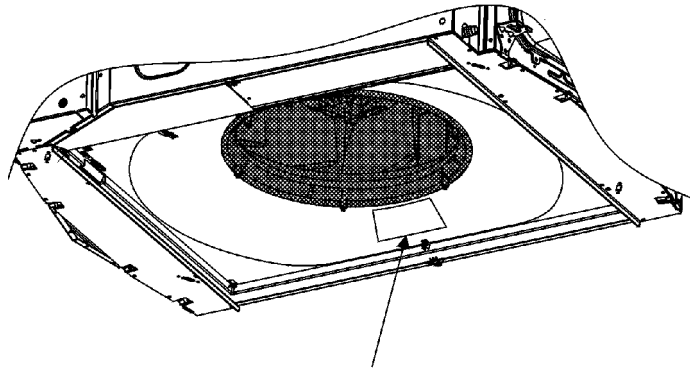
Removing the panel from the frame

- 1. Frame
- 2. Panel
- 3. Buttons
- 4. Hanging wires
- 5. Screws and washers

Fig. 9. Installing return air panel

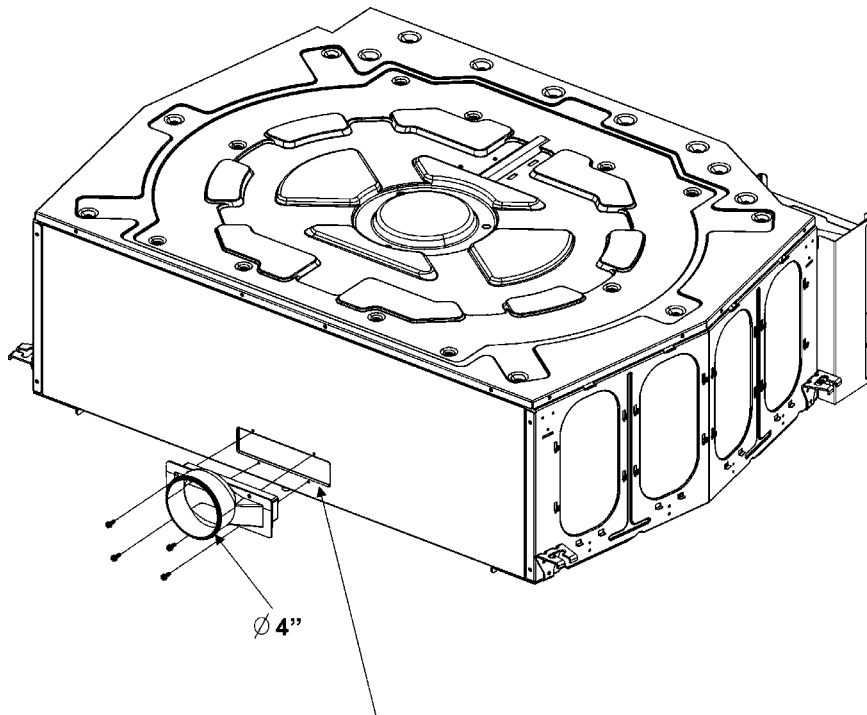
### 4.3 Fresh air supply (optional)

- A. Using a knife cut an opening in the plastic air inlet (see Fig. 10).
- B. Using a knife cut open the insulation in the fresh air opening connection (see Fig. 11).
- C. Install special adapter and tighten it with four screws. Fresh air adapter can be purchased through Company service centers.
- D. Connect fresh air duct with a 4-inch diameter.



CUT AN OPENING IN THE PLASTIC AIR INLET

Fig. 10. Opening plastic air inlet for fresh air



FRESH AIR OPENING

Fig. 11. Installing fresh air adapter

**4.4 Connecting the drainage tube**

- A. It is recommended to prepare a drainage point with hard PVC  $\varnothing$  32 mm tube by a professional plumber, close to the indoor unit.
- B. To enable proper drainage of the condensation water, the passage of the drainage must be planned in advance with a down slope of at least 1%, without creating any bottleneck and without upwards bends (see Fig. 12). Take care to integrate a siphon at a minimum of 50 mm height, in order to prevent penetration of unpleasant smells into the room.

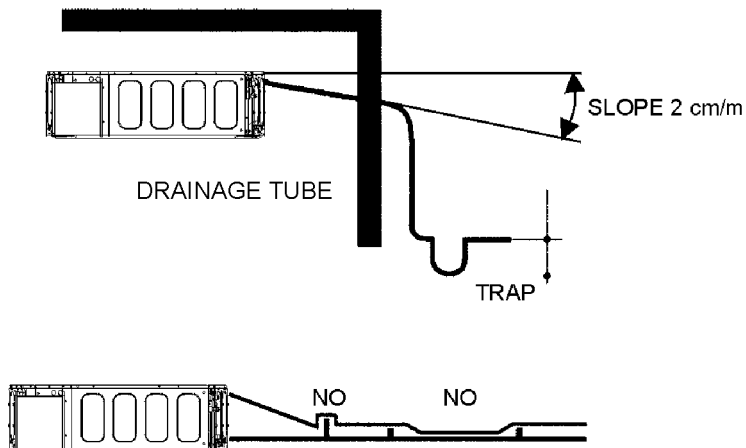


Fig. 12. Drainage tube connection

- C. The DNC unit includes a drainage pump with level control, which can elevate condensation water to a level of up to 60 cm from the unit’s lower level. The drainage tube is connected to the upper drainage nozzle (see Fig. 13).
- D. Lower drainage nozzle is intended to empty the drainage pool before servicing.
- E. To check the system, fill the condense tray with water and verify its free flow through the drain line.
- F. Install insulation of the Arma-flex type of 5-10 mm thickness for the condensation water line.

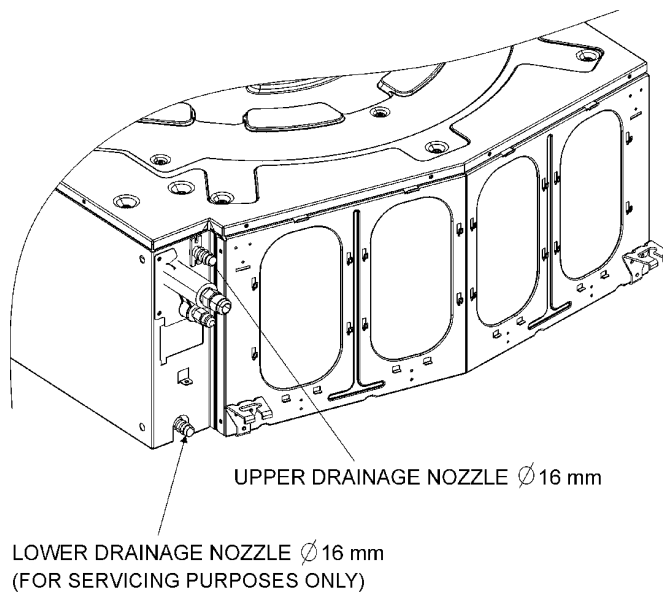


Fig. 13. Drainage connectors  $\varnothing$  16 mm

## 5. Installation of flexible ducts

The air-conditioner indoor unit has eight 8" air supply openings - 4 supply openings in each direction. Do not open more than a total of 6 openings. The amount of openings is intended for maximum flexibility of installation when in one side of the unit there are four rooms.

The air-conditioner is delivered with 2 open openings (one for each side). Additional openings can be easily opened by means of a cutting knife. Furthermore, the package includes a set of adapters for flexible ducts that include:

- 8" adapter - 4 units (in DNC 955 model - 3 units)
- 12" adapter - one unit
- 12" to 10" adapter - one unit

### 5.1 Installation instructions

- Select the necessary air openings and open them.
- Install the adapters and secure them with the locking screw (see Fig. 14). For the installing convenience, the adapter can be mounted on the unit after it is connected to the flexible duct, before mounting the adapter to the unit.
- Upon finishing the ducts installation and before closing the lower ceiling, check the air distribution. Installing a manual damper can regulate air distribution between the air - conditioned spaces. The damper can be regulated by turning the hexagon into the required direction. The damper can be installed in every air supply opening of the unit and the adapter is installed over it. After regulating - the locking screw must be tightened (see Fig. 15).

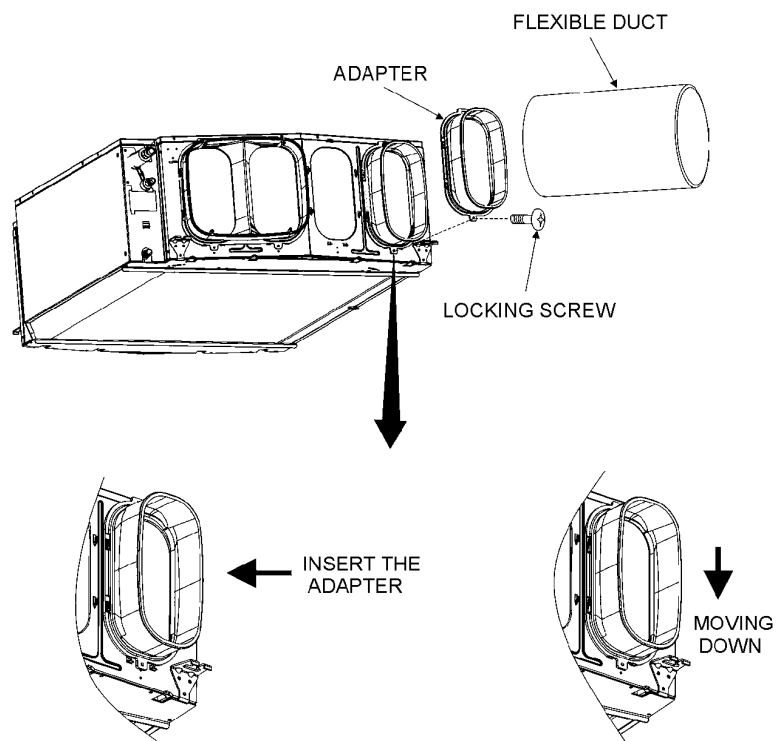
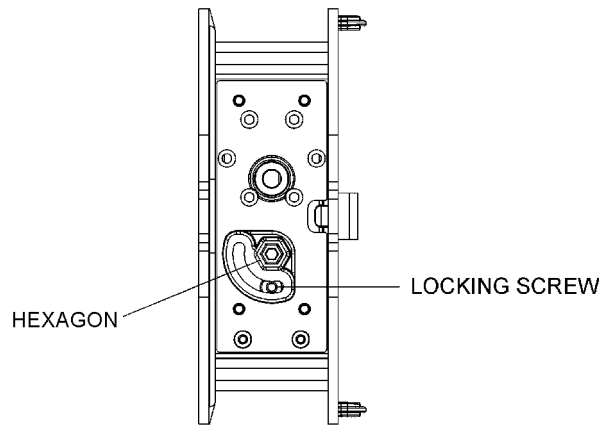
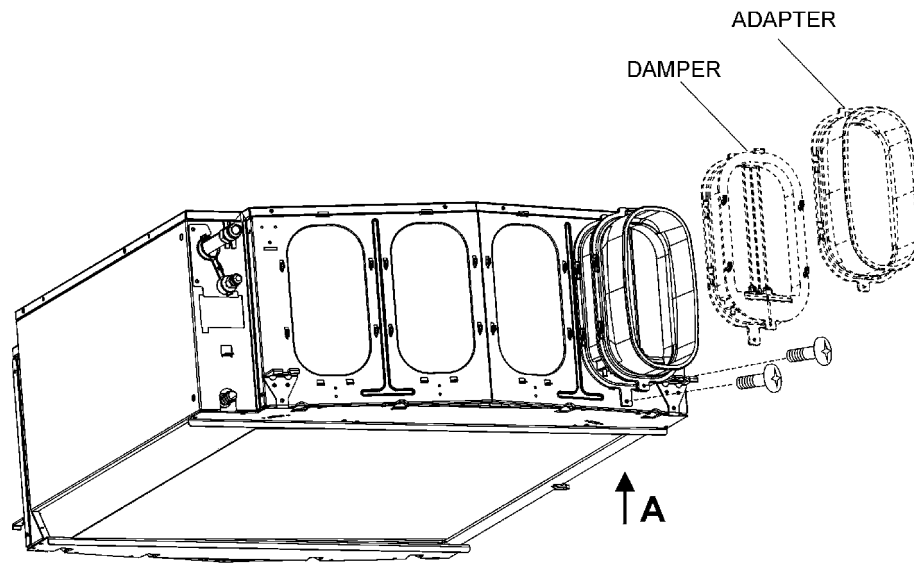


Fig. 14. Installing adapters and flexible ducts



VIEW A

Fig. 15. Installing the manual damper

**6. Installation of the outdoor unit**

The outdoor unit must be installed on a raised and leveled concrete slab, or on a metal rack, with a height above ground of 100 mm.

**Note:**

Make sure slotted rubber pads are installed under the outdoor unit supports, otherwise vibrations might occur, and might be transmitted, with noise, into the building.

**6.1 Installation on a concrete slab**

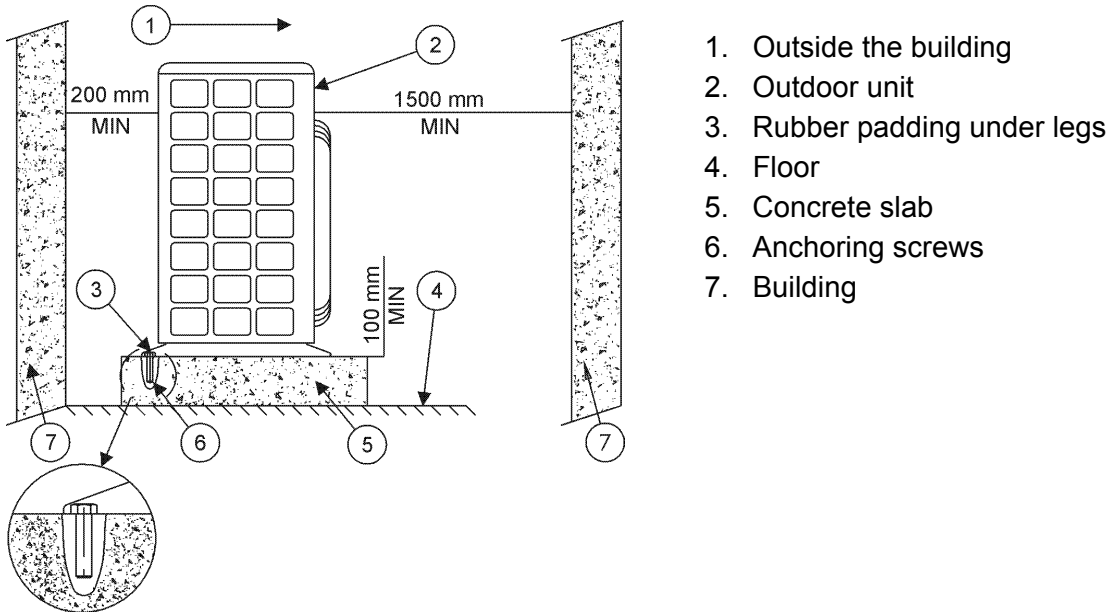


Fig. 16. Installing the outdoor unit on a concrete slab

**6.2 Installation on the wall**

- Anchor the rack to the wall by means of 1/2" diameter bolt - on studs with washers on the wall's inner side.
- Make sure that the rack is level.
- Use only racks that were hot galvanized and are of appropriate strength, to carry the unit's weight - according to the Israeli standard, part 4.
- Position the outdoor unit on ribbed rubber pads supplied with the unit.

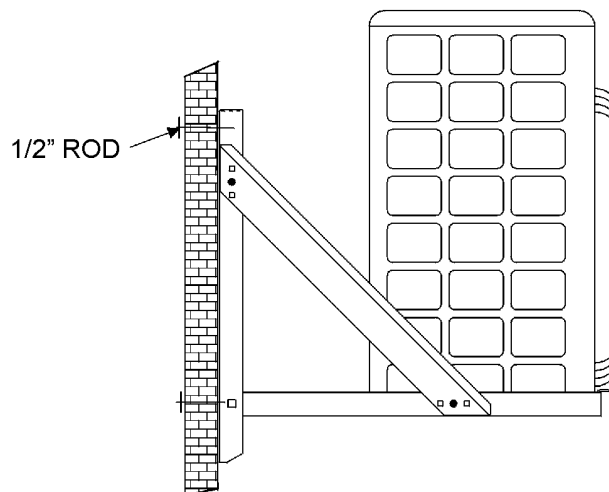


Fig. 17. Installing the outdoor unit on a rack frame

## 7. Installation of interconnecting tubing between indoor and outdoor units

### 7.1 General

For routing the interconnecting tubing between the indoor and the outdoor units, prepare passage for a 60 mm PVC tube (see Fig. 18).

Make sure the following:

- The passage tube must have a 10 degrees slant towards the outside, to prevent water from penetrating into the building.
- The seal of the space between the refrigerant tubes and the outer shell of the PVC tube should be done by an insulating material. The openings (both indoor and outdoor) must be sealed-off using the appropriate sealing material, to prevent water penetration.

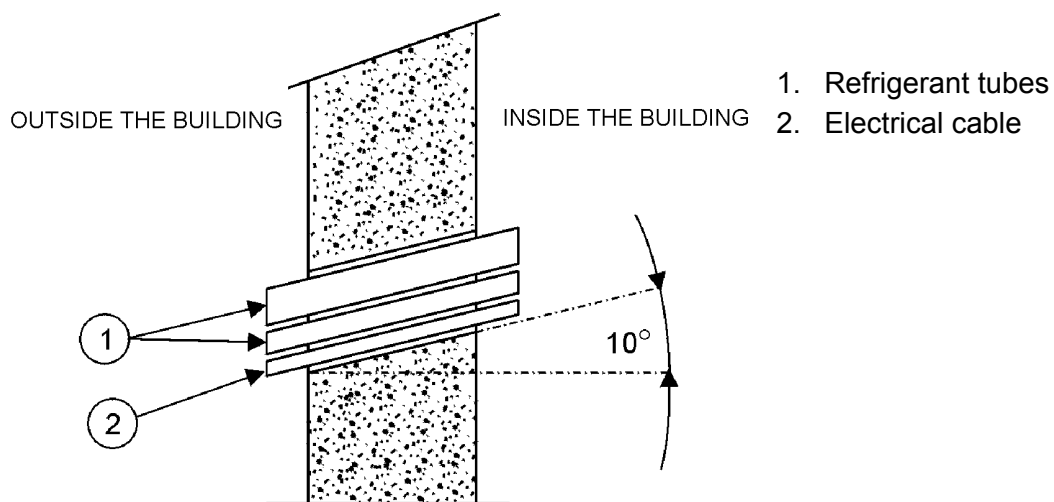


Fig. 18. Interconnecting tubing and cable between units

### 7.2 Gas tubes

During gas tubes (copper) installation, Abstain, as much as possible, from unnecessary bending of tubes. If bending is required, it must be performed using a professional tube - bending tool (never by hands). Take care to perfectly insulate the tubes throughout their entire length, including the tubes terminations and connectors, to prevent the tubes from sweating and water leakage in the area the tubes pass through.

Make sure that you direct the tubes route in straight lines as much as possible.

The copper part must be of the L type, to be whole and to be thermally insulated throughout its entire length.

The diameter of the tubes connecting the indoor and the outdoor units will be determined according to table No. 1. In tubes whose diameters differ from the diameter of connectors supplied with the unit - the technician must prepare a suitable transition, by soldering, that will connect between the unit connectors and the tubes.

#### **Note:**

Make sure the tubes are clean of dirt and moisture. If necessary, rinse and cleanse the tubes with Freon before performing vacuum.

Table 1. Recommended diameter for the connecting tubes (outer diameter in inches)

Model	Line Type	Length of Tubes up to (meter)					Maximal Height Difference
		10	15	20	25	30	
DNC 955	Suction Liquid	5/8"	5/8"	3/4"	3/4"	3/4"	10
		3/8"	3/8"	3/8"	3/8"	3/8"	
DNC 1155	Suction Liquid	3/4"	3/4"	3/4"	3/4"	3/4"	15
		3/8"	3/8"	3/8"	3/8"	3/8"	
DNC 1255	Suction Liquid	3/4"	3/4"	3/4"	3/4"	7/8"	15
		3/8"	3/8"	3/8"	3/8"	3/8"	

### 7.3 Relative positioning of the indoor and outdoor units

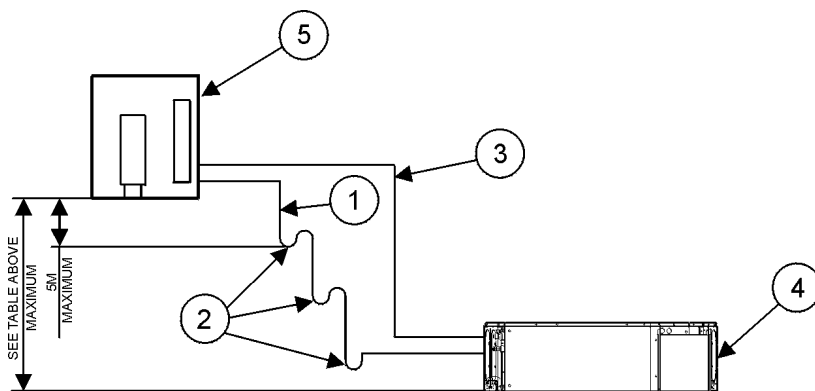
The options to position the outdoor unit in relation to position of the indoor unit are described schematically in Fig. 19, 20, 21 and 22.

- The outdoor unit is installed above the indoor unit (see Fig. 19). This type of installation requires an oil trap in the suction line. The oil trap will be positioned at that point where the vertical section of the tube starting to bend, and to continue horizontally from that point. The radius of the bend in the oil trap position must be the smallest possible (see Fig. 20). The suction tube, which is located in a horizontal position, shall have a 0.5% slope towards the outdoor unit.
- The liquid line should be parallel to the suction line (except for trap). In case the insulation must be partially removed for installation purposes, it is imperative that all the tubes be fully insulated with Arma-flex, including the connectors in the indoor unit, after installation has been completed.
- The outdoor unit is installed below the indoor unit according to table No. 1 (see Fig. 21). No oil traps are required in this type of installation. Refer to instructions described in previous paragraph.
- The outdoor and the indoor units are installed at the same level (see Fig. 22). No oil traps are required in this type of installation. Refer to instructions described in previous paragraph.

#### **Pay attention!**

The maximal distance of the tubes, which connects the outdoor unit with the indoor unit, must not be longer than the lengths listed in the table. For installations, which require longer tubes routing between the units, one must consult the Company's authorized representative.





- 1. Suction tube
- 2. Oil trap every 5 m
- 3. Liquid tube
- 4. Indoor unit
- 5. Outdoor unit

Fig. 19. Outdoor unit installed above the indoor unit

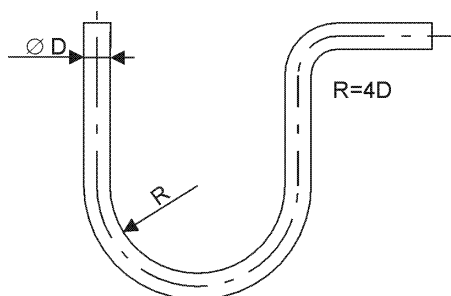
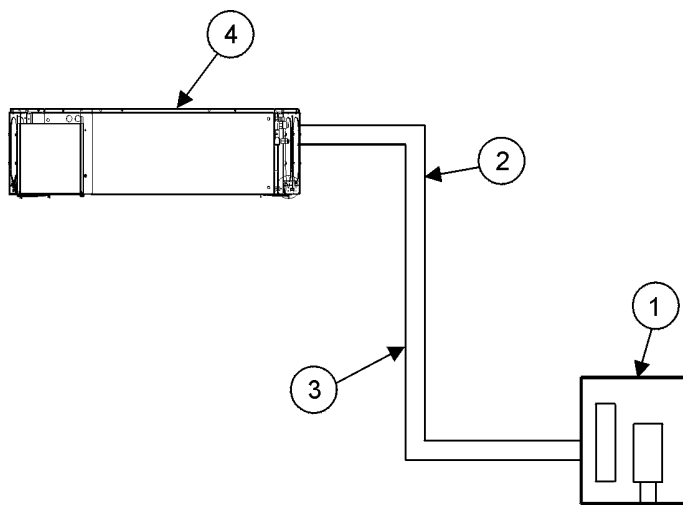
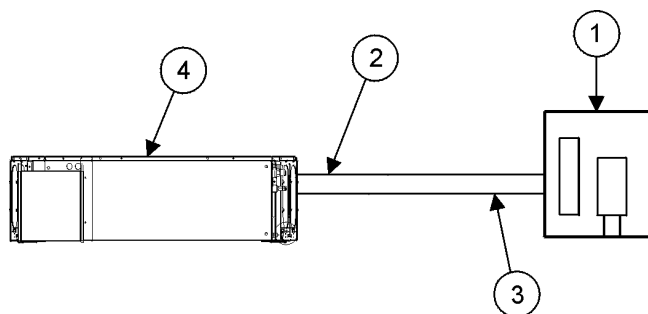


Fig. 20. The radius of curve in oil trap



- 1. Outdoor unit
- 2. Liquid tube
- 3. Suction tube
- 4. Indoor unit

Fig. 21. Outdoor unit installed below the indoor unit



- 1. Outdoor unit
- 2. Suction tube
- 3. Liquid tube
- 4. Indoor unit

Fig. 22. Outdoor and indoor units are installed at the same level

**7.4 Insulating the gas tubes**

- A. Insulate each tube separately, using 6 mm thick insulation for the 3/8"-5/8" diameter tubes, and 9 mm thick insulation for the 3/4" tubes.
- B. Wrap the refrigerant tubes and wiring cables with a white PVC tape (ultraviolet protected). Alternatively, the entire tubes assembly can be pass through a duct.
- C. After testing the operation of the air-conditioning system, and making sure there is no leakage from the connectors, insulate the connectors.

**7.5 Preparing the flare and connecting the tubes between units**

- A. Cut the tube on which the flare must be performed with a tube cutter; make sure that the cut is perpendicular to the tube axis and is clean off debris (see Fig. 23).

**Note:**

Before processing tube endings by means of the flaring tool, slide the flaring nuts; use only flaring nuts supplied with the unit. In order to facilitate the connection it is advisable to use several drops of cooling oil.

- B. Set the tube within the flaring tool (see Fig. 24). The height "A" of the tube protrusion will be determined by the tube outer diameter. See table No. 2.
- C. Flare the cones on the tube endings that are connected to the indoor and outdoor units.

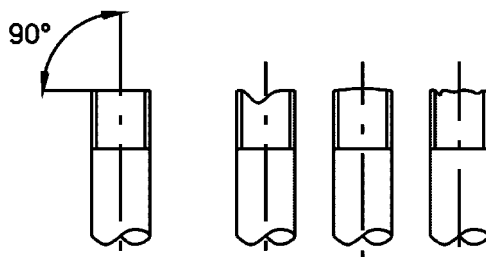


Fig. 23. Cutting the tube

- 1. Copper tube
- 2. Flaring tool

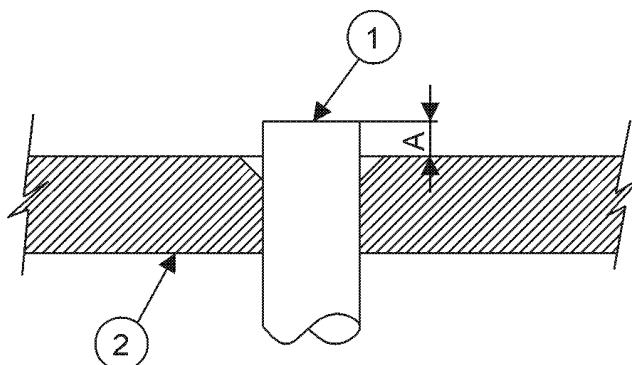


Fig. 24. Setting the tube in the flaring tool

Table 2. Setting the height "A" of the tube protrusion (outer tube diameter in inches)

A (mm)	Outer tube diameter (inch)
1.3	3/8"
1.6	1/2"
1.9	5/8"
2.1	3/4"

## 8. Preparing the air-conditioner for operation

The advanced steps to prepare the air-conditioner for operation are critical in guaranteeing the appropriate operation of the air-conditioner for a long time; adhere meticulously to the following steps:

- Make sure that the connecting tubes are clean of dirt and moisture. If necessary, rinse and clean with ammonia before connecting the units.
- Release the nuts in the indoor unit only when you are ready to connect the tubes! (The indoor unit contains a small amount of gas and is under pressure).
- In order to prevent possible breakage of the tubes, and to receive maximal diameter the tubes must be bent by means of a special bending tool specifically designed for bending copper tubes.

### 8.1 Performing vacuum in the indoor unit and in tubes

- A. Connect the flare nuts to the suitable connectors in the units (see Fig. 25).
- B. Connect two charging tubes with the ends without locking pins to the pressure gage connection in the manifold. Connect the other two ends of the tubes, with locking pins, to the service opening on the suction tap and the liquid tap (see Fig. 25).

**Note:**

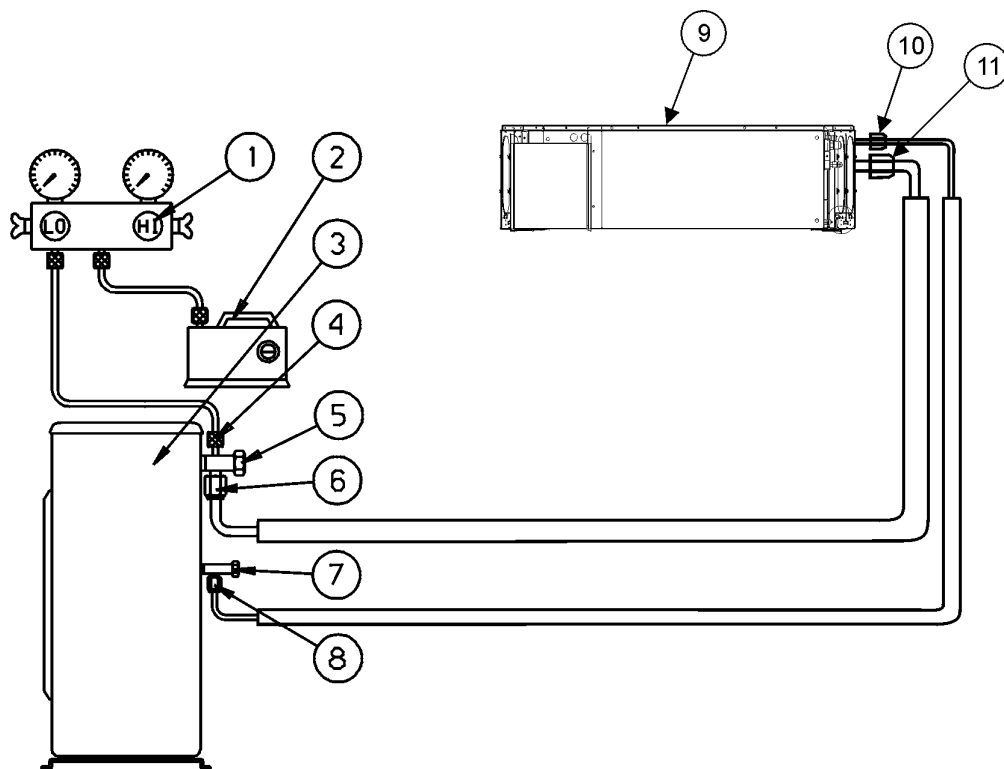
In units, where there is no service valve in the liquid tap, connect the tube to the suction tap only (the service valve in the liquid tap is supplied only in certain units).

- C. Connect the charging tube from the middle connection of the manifold to the vacuum pump.
- D. Activate the vacuum pump (service taps are closed); make sure that the suction pressure gage moves between 0 cm-Hg to 76 cm-Hg, and enable the system to perform the vacuum operation for 10 minutes.

**Warning:**

If the pressure gage does not show movement from 0 cm-Hg to 76 cm-Hg, it testifies that the system is not sealed off. The following action must be taken: tighten all connections. If the leakage was corrected after tightening the connectors, continue working according to the following steps. If leakage was not corrected after tightening the connectors, find the location of the leakage (by means of soapsuds) and correct as necessary. Continue the process according to the following steps only after correcting all signs of leakage.

- E. Close the two service taps of the manifold, on suction side and on the compression side, and stop the operation of the vacuum pump. Make sure that at this stage the pressure gage remains stationary and stable, and does not change its reading for the next 5 minutes.
- F. Disconnect charging tubes from the pump and from the two service taps.
- G. Close and tighten the two protective caps of the service taps. Take care to use torque wrench, set to the appropriate torque value (see table No. 3 for the appropriate torque values for tightening the connectors).



- 1. Service manifold
- 2. Vacuum pump
- 3. Outdoor unit
- 4. Service valve
- 5. Cap
- 6. Suction tap
- 7. Service valve (optional)
- 8. Liquid tap
- 9. Indoor unit
- 10. Flared connection - suction side
- 11. Flared connection - liquid side

Fig. 25. Tube connections for performing vacuum test

8.2 Tightening nuts

**Warning:**

While opening or closing gas taps, as described in the following steps, you must not expose your face to the service openings and / or any other openings when you try to insert the Allen key; remember that the system is under pressure.

- A. Remove the caps from the two taps using Allen key; open the two caps to their fully open position. Finally, close back the two caps.
- B. Check the connectors using a leakage-detecting device, or by solution of water and soap in order to make sure that there is absolutely no leakage in all the connection sites.
- C. The outdoor unit is delivered with some amounts of gas and oil - sufficient for tubes with the length specified in the nameplate located on the side of the unit. If adding gas is required, only an authorized technician must do it, and only by means of a gas charging measuring tube, or an electronic scale - all that after performing vacuum.

Table 3. Torque values for tightening the connectors

Tube diameter (inch) Torque (N.m)	1/4	3/8	1/2	5/8	3/4
Flare nut	11-13	40-45	60-65	70-75	80-85
Protective cap	13-20	13-20	18-25	18-25	40-50
Service valve	11-13	11-13	11-13	11-13	11-13

- 1. Tap cap
- 2. Crevice for inserting Allen key
- 3. Protective cap
- 4. Tap
- 5. Service valve
- 6. Flare nut
- 7. Unit back
- 8. Tubes

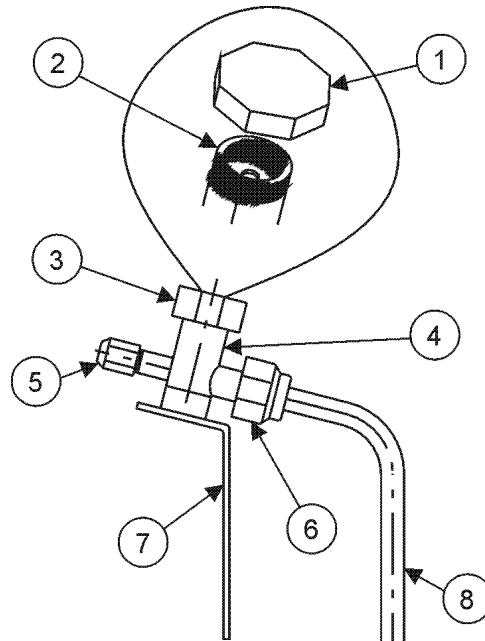


Fig. 26. Service tap for the cooling system

## 9. Electrical and tubes installation

Make sure that the electrical cable connecting between the indoor and the outdoor units is of the NYY type (triple insulation). Make sure and check that the cable is continuous and contains grounding wires. The electrical connection to the outdoor unit will be made by means of a quick connector provided with the unit. When installing the cable under the floor, it must be good protective and isolated from any possible contact with water. It is obligatory to connect the feeding cable through an automatic circuit breaker (Type C), with a time-delay, and with a ground-leakage detection circuit breaker. The allowed voltage swing is 10%.

### **Note:**

When there is a case of a duct system with large pressure losses, the high - speed connection of the indoor unit motor must be modified, refer to wiring diagram.

- Appropriate length of wires must be provided, to enable the lowering of electrical power box.
- In order to install a connecting cable and a communication cable between the units, the electrical power box must be lowered.
- The stages of lowering the electrical power box are:
  1. Release two screws at the bottom of the box (see Fig. 27).
  2. Lower the box (see Fig. 28).
  3. If necessary, take the box out off the rail by removing the screw (see Fig. 29).

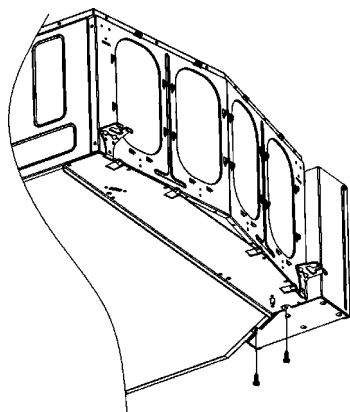


Fig. 27. Releasing screws at the bottom of the box

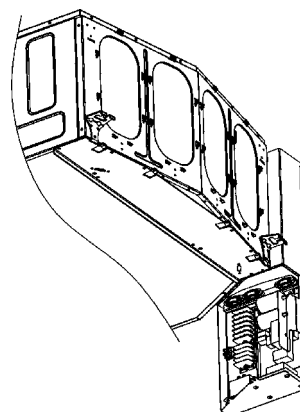


Fig. 28. Lowering the box

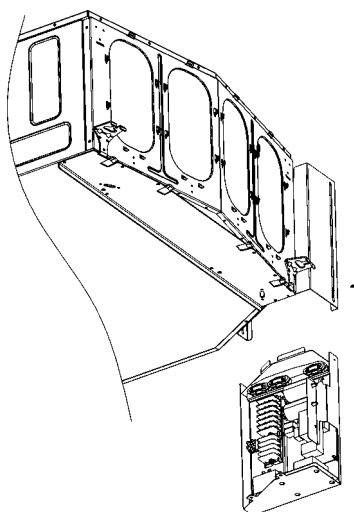


Fig. 29. Taking the box off the rail

**9.1 1PH units**

Customer is required to provide an appropriate main power supply, which must include:

- A time-delayed, C type, single-phase automatic circuit breaker, to be installed at the beginning of the main supply line, on the main connection panel. The capacity of the automatic circuit breaker can be determined according to the nameplate.
- An electrical cable suitable to the capacity of the automatic circuit breaker.
- Main power supply will be terminated with a standard circuit breaker that has a minimal contacts gap of 3 mm installed nearly from outdoor unit.

**9.2 3PH units**

Technician is required to provide an appropriate main power supply, which must include:

- A time-delayed, C type, triple-phase automatic circuit breaker, to be installed at the beginning of the main supply line, on the main connection panel. The capacity of the automatic circuit breaker can be determined according to the nameplate.
- An electrical cable suitable to the capacity of the automatic circuit breaker.
- The main supply line will be terminated close to the outdoor unit, either with a safety switch water proof, or with a water-proof socket.

1. Outdoor unit
2. Terminal block
3. Connecting cable between units
4. Indoor unit
5. Control display
6. Wireless remote control
7. Wired remote control (optional)
8. Power supply
9. Two - wire control cable
10. Safety switch in outdoor unit, water protected (installed by an electrician)
11. Safety switch in indoor unit, 16A

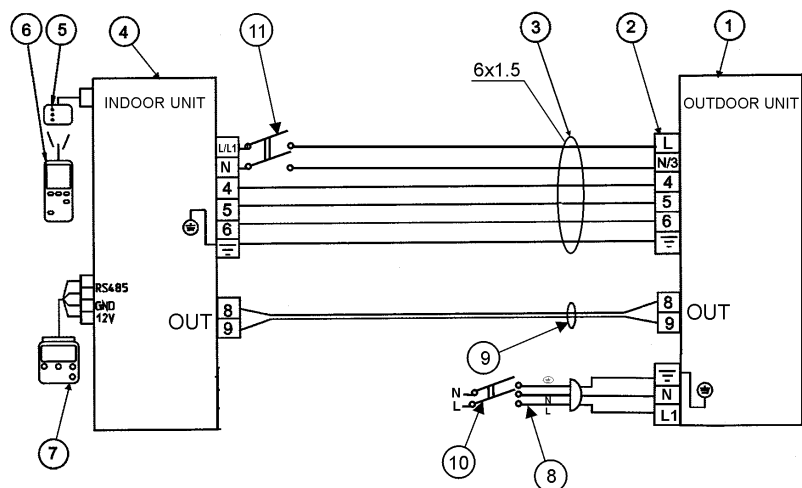


Fig. 30. Electrical wiring diagram - one-phase units (power supply to outdoor unit)

1. Outdoor unit
2. Terminal block
3. Connecting cable between units
4. Indoor unit
5. Control display
6. Wireless remote control
7. Wired remote control (optional)
8. Power supply
9. Two - wire control cable
10. Safety switch in outdoor unit, water protected (installed by an electrician)
11. Safety switch in indoor unit 10A

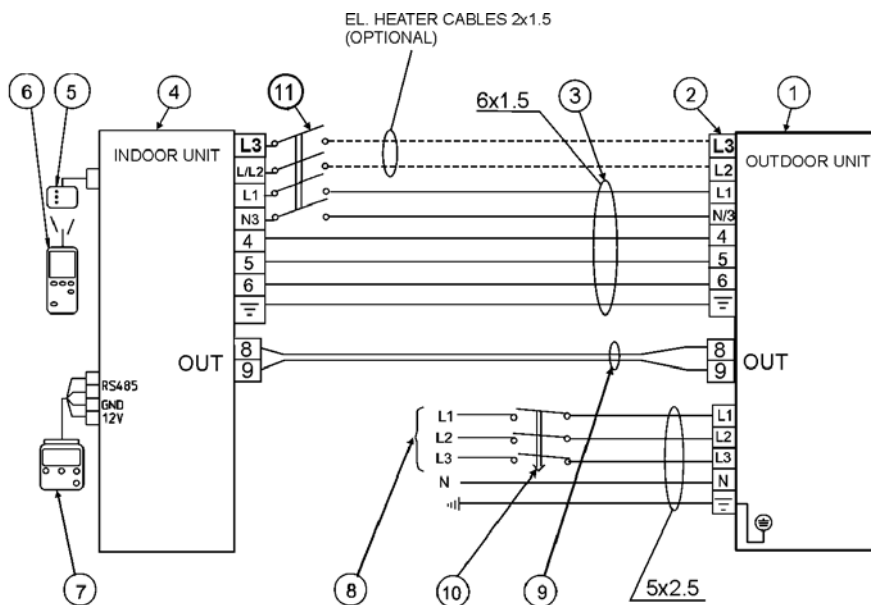


Fig. 31. Electrical wiring diagram - three-phase unit

### 10. Remote control

- Installation instructions for the remote control are supplied with the remote control.
- In case of wireless remote control, locate it so that it will be in line sight with the control display (at less than 10 m).
- In each case when the user wants to operate the air-conditioner, by using the remote control sensor (in operation modes of LOCAL, I FEEL), the remote control unit must be positioned in a place that will reflect the average temperature in the air-conditioned area or in the user's proximity. In no case the remote control must be positioned within the direct airflow that exits from the grilles.

### 11. Tests upon completing installation

- A. Return all caps and covers to their places and make sure that they are tightly closed.
- B. Seal off all cracks and crevices on the tube sides and bore holes.
- C. Connect the electrical wires and the tubes to the walls, by means of the brackets. See instructions in paragraph 9.
- D. Check the air-conditioner for all aspects and modes of operation. If necessary, consult the user manual.



1) **Testing the indoor unit**

- All remote control commands are received in the air-conditioner control panel.
- The lights on the control panel operate correctly.
- The air-conditioner performs all commands of the remote control.

2) **Testing the outdoor unit**

- There is no exceptional noise or vibrations during the air-conditioner operation.
- Noise, drainage of condensed water or airflow are not disturbing the neighbors.
- Unusual noise from the compressor, in the three-phase unit. In case of noise, make sure that the phases are connected correctly.

3) **Activate the air-conditioner for cooling and heating**

Following are a number of operation instructions that must be conveyed to customer:

- How to remove the filter, to clean it, and return it to its place.
- How to turn on and off the air-conditioner.
- How to choose between cooling and heating modes and setting the desirable temperature.
- How to set the turn-on and turn-off times by means of the timer.
- How to operate the air-conditioner from the control panel.
- Give the customer the installation and operation brochures.
- Help the customer to fill-in the warranty form.