



Service Manual

LS series

Indoor Units	Outdoor Units
LS 085	OU8-33 R22/R407C
LS 090	
LS 105	OU10-38 R22/R407C
LS 125	OU10-50 R22/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.

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

**Photos are not contractual.










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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:

	COOL	Cools, dehumidifies and filters the room air. Maintains desired site temperature.
	HEAT	Heats and filters the air. Maintains desired site temperature.
	AUTO	Automatically switches from COOLING to HEATING or from HEATING to COOLING, maintaining the desired temperature according to the room conditions.
	DRY	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.
	FAN	Recalculates and filters the room air. Maintains constant air movement in the room.
	AUTO FAN	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.
	HOT KEEP	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.
	I FEEL	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.
	TIMER	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.
	SLEEP	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.

	VERTICAL AIR SWING	Not Applicable in Ducted unit.
	AIR DIRECTION POSITIONING	Not Applicable in Ducted unit.
	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 (indoor & outdoor)			LS 085 – OU8-33 R22					
Installation method			Ducted					
Characteristic		Units	Cooling		Heating			
Capacity		Btu/hr	29200		32160			
		W	8560		9425			
Total input		W	3345		3040			
COP		W/W	2.56		3.10			
Power supply (voltage, cycle, No of Phases)			230V/50Hz/1					
Rated current		A	14.2		13.1			
Circuit breaker rating		A	20					
I N D O O R U N I T	Fan type & qty.		Centrifugal x 3					
	Fan speeds	H / M / L	RPM	1580	1480	1380		
	Airflow (std. con.)	H / L	m³/hr	1350		1150		
	Static Pressure	H / M / L	Pa	70/37/20				
	Noise Power**	H / M / L	dBa	61.0	59.4	58.0		
	Noise Pressure*	H / M / L	dBa	54.3	53.3	51.6		
	Dehumidification		l/h	3.0				
	Condensate drain tube I.D		mm	16				
	Dimensions	W	mm	1190				
		D	mm	680				
		H	mm	270				
	Weight		Kg	46				
	Package dimensions		mm	1385 x 728 x 330				
	Units per palet		units	6				
Stacking height		units	6					
O U T D O O R U N I T	Refrigerant control		Capillary tube					
	Compressor type, model		Scroll SQ040PA					
	Fan type & qty.		Axial x 1					
	Fan speeds		RPM			850		
	Airflow (std. conditions)		m³/hr			3110		
	Noise Pressure*/Noise Power (H)		dBa			62/69		
	Dimensions	W	mm	900				
		D	mm	340				
		H	mm	860				
	Weight		Kg	82				
	Package dimensions		mm	903x406x985				
	Stacking height		units	2				
	Units per palet		units	6				
	Refrigerant			R22				
Connection between units	liquid	in.	3/8"					
	suction	in.	5/8"					
	tubing length			30 m				
	height difference			10 m				
Operation control type			LCD Remote control					
Heating elements		W	4000					
Others			Crankcase heater (60 W)					

* Noise Pressure tested at 1m distance from unit.

**Noise Power for ducted units measured at air outlet side.

Model (indoor & outdoor)			LS 085T – OU8-33T R22					
Installation method			Ducted					
Characteristic		Units	Cooling		Heating			
Capacity		Btu/hr	29650		32300			
		W	8690		9465			
Total input		W	3355		3055			
COP		W/W	2.59		3.10			
Power supply (voltage, cycle, No of Phases)			400V/50Hz/3N					
Rated current		A	3x9.3		3X8.7			
Circuit breaker rating		A	3x16					
I N D O O R U N I T	Fan type & qty.		Centrifugal x 3					
	Fan speeds	H / M / L	RPM	1580	1480	1380		
	Airflow (std. con.)	H / L	m³/hr	1350		1150		
	Static Pressure	H / M / L	Pa	70/37/20				
	Noise Power**	H / M / L	dBa	61.0	59.4	58.0		
	Noise Pressure*	H / M / L	dBa	54.3	53.3	51.6		
	Dehumidification		l/h	3.0				
	Condensate drain tube I.D		mm	16				
	Dimensions	W	mm	1190				
		D	mm	680				
		H	mm	270				
	Weight		Kg	46				
	Package dimensions		mm	1385 x 728 x 330				
	Units per palet		units	6				
Stacking height		units	6					
O U T D O O R U N I T	Refrigerant control		Capillary tube					
	Compressor type, model		Scroll SQ040YA					
	Fan type & qty.		Axial x 1					
	Fan speeds		RPM	850				
	Airflow (std. conditions)		m³/hr	3110				
	Noise Pressure*/Noise Power (H)		dBA	62/69				
	Dimensions	W	mm	900				
		D	mm	340				
		H	mm	860				
	Weight		Kg	82				
	Package dimensions		mm	903x406x985				
	Stacking height		units	2				
	Units per palet		units	6				
	Refrigerant			R22				
Connection between units	liquid	in.	3/8"					
	suction	in.	5/8"					
	tubing length		30 m					
	height difference		10 m					
Operation control type		LCD Remote control						
Heating elements		W	4000					
Others		Crankcase heater (60 W) ,3PH Protector						

* Noise Pressure tested at 1m distance from unit.
 **Noise Power for ducted units measured at air outlet side.

Model (indoor & outdoor)				LS 085 – OU8-33 R407C				
Installation method				Ducted				
Characteristic			Units	Cooling		Heating		
Capacity			Btu/hr	28500		33300		
			W	8350		9760		
Total input			W	3465		3365		
COP			W/W	2.41		2.90		
Power supply (voltage, cycle, No of Phases)				230V/50Hz/1				
Rated current			A	15.1		14.4		
Circuit breaker rating			A	20				
I N D O O R U N I T	Fan type & qty.			Centrifugal x 3				
	Fan speeds		H / M / L	RPM	1580	1480	1380	
	Airflow (std. con.)		H / L	m³/hr	1350		1150	
	Static Pressure		H / M / L	Pa	70/37/20			
	Noise Power**		H / M / L	dBa	61.0	59.4	58.0	
	Noise Pressure*		H / M / L	dBa	54.3	53.3	51.6	
	Dehumidification			l/h	2.7			
	Condensate drain tube I.D			mm	16			
	Dimensions		W	mm	1190			
			D	mm	680			
			H	mm	270			
	Weight			Kg	46			
	Package dimensions			mm	1385 x 728 x 330			
	Units per palet			units	6			
	Stacking height			units	6			
O U T D O O R U N I T	Refrigerant control			Capillary tube				
	Compressor type, model			Scroll HQ040PA				
	Fan type & qty.			Axial x 1				
	Fan speeds			RPM	850			
	Airflow (std. conditions)			m³/hr	3110			
	Noise Pressure*/Noise Power (H)			dBa	62/69			
	Dimensions		W	mm	900			
			D	mm	340			
			H	mm	860			
	Weight			Kg	82			
	Package dimensions			mm	903x406x985			
	Stacking height			units	2			
	Units per palet			units	6			
	Refrigerant			R407C				
	Connection between units		liquid	in.	3/8"			
suction			in.	5/8"				
tubing length			30 m					
height difference			10 m					
Operation control type			LCD Remote control					
Heating elements			W	4000				
Others			Crankcase heater (60 W)					

* Noise Pressure tested at 1m distance from unit.
 **Noise Power for ducted units measured at air outlet side.

Model (indoor & outdoor)				LS 085T – OU8-33T R407C				
Installation method				Ducted				
Characteristic			Units	Cooling		Heating		
Capacity			Btu/hr	29000		34000		
			W	8500		9965		
Total input			W	3525		3365		
COP			W/W	2.41		2.96		
Power supply (voltage, cycle, No of Phases)				400V/50Hz/3N				
Rated current			A	3x9.5		3x9.2		
Circuit breaker rating			A	3x16				
I N D O O R U N I T	Fan type & qty.			Centrifugal x 3				
	Fan speeds		H / M / L	RPM	1580	1480	1380	
	Airflow (std. con.)		H / L	m³/hr	1350		1150	
	Static Pressure		H / M / L	Pa	70/37/20			
	Noise Power**		H / M / L	dBa	61.0	59.4	58.0	
	Noise Pressure*		H / M / L	dBa	54.3	53.3	51.6	
	Dehumidification			l/h	2.9			
	Condensate drain tube I.D			mm	16			
	Dimensions		W	mm	1190			
			D	mm	680			
			H	mm	270			
	Weight			Kg	46			
	Package dimensions			mm	1385 x 728 x 330			
	Units per palet			units	6			
	Stacking height			units	6			
O U T D O O R U N I T	Refrigerant control			Capillary tube				
	Compressor type, model			Scroll HQ040YA				
	Fan type & qty.			Axial x 1				
	Fan speeds			RPM			850	
	Airflow (std. conditions)			m³/hr			3110	
	Noise Pressure*/Noise Power (H)			dBa			62/69	
	Dimensions		W	mm	900			
			D	mm	340			
			H	mm	860			
	Weight			Kg	82			
	Package dimensions			mm	903x406x985			
	Stacking height			units	2			
	Units per palet			units	6			
	Refrigerant			R407C				
	Connection between units		liquid	in.	3/8"			
suction			in.	5/8"				
tubing length			30 m					
height difference			10 m					
Operation control type			LCD Remote control					
Heating elements		W	4000					
Others			Crankcase heater (60 W) ,3PH Protector					

* Noise Pressure tested at 1m distance from unit.
 **Noise Power for ducted units measured at air outlet side.

Model (indoor & outdoor)			LS 090 – OU8-33 R22				
Installation method			Ducted				
Characteristic		Units	Cooling		Heating		
Capacity		Btu/hr	31000		32000		
		W	9085		9380		
Total input		W	3245		2930		
COP		W/W	2.80		3.20		
Power supply (voltage, cycle, No of Phases)			230V/50Hz/1				
Rated current		A	13.8		11.7		
Circuit breaker rating		A	20				
I N D O O R U N I T	Fan type & qty.		Centrifugal x 2				
	Fan speeds	H / M / L	RPM	1230	1150	940	
	Airflow (std. con.)	H / L	m³/hr	1535		1175	
	Static Pressure	H / M / L	Pa	70/37			
	Noise Power**	H / M / L	dBa	62.5	60.5	57.0	
	Noise Pressure*	H / M / L	dBa	57.0	54.5	51.5	
	Dehumidification		l/h	2.7			
	Condensate drain tube I.D		mm	16			
	Dimensions	W	mm	930			
		D	mm	485			
		H	mm	300			
	Weight		Kg	37			
	Package dimensions		mm	1115 x 530 x 365			
	Units per palet		units	10			
Stacking height		units	5				
O U T D O O R U N I T	Refrigerant control		Capillary tube				
	Compressor type, model		Scroll SQ040PA				
	Fan type & qty.		Axial x 1				
	Fan speeds		RPM	850			
	Airflow (std. conditions)		m³/hr	3110			
	Noise Pressure*/Noise Power (H)		dBa	62/69			
	Dimensions	W	900	900			
		D	340	340			
		H	860	860			
	Weight		82	82			
	Package dimensions		mm	903x406x985			
	Stacking height		units	2			
	Units per palet		units	6			
	Refrigerant			R22			
Connection between units	liquid	in.	3/8"				
	suction	in.	5/8"				
	tubing length		30 m				
	height difference		10 m				
Operation control type		LCD Remote control					
Heating elements		W	4000				
Others		Crankcase heater (60 W)					

* Noise Pressure tested at 1m distance from unit.

**Noise Power for ducted units measured at air outlet side.

Model (indoor & outdoor)			LS 090T – OU8-33T R22			
Installation method			Ducted			
Characteristic	Units		Cooling		Heating	
Capacity	Btu/hr		31000		32000	
	W		9085		9380	
Total input	W		3340		2930	
COP	W/W		2.72		3.20	
Power supply (voltage, cycle, No of Phases)			400V/50Hz/3N			
Rated current			3x9.2		3x8.2	
Circuit breaker rating			3x16			
I N D O O R U N I T	Fan type & qty.		Centrifugal x 2			
	Fan speeds	H / M / L	RPM	1230	1150	940
	Airflow (std. con.)	H / L	m ³ /hr	1535		1175
	Static Pressure	H / M / L	Pa	70/37		
	Noise Power**	H / M / L	dBa	62.5	60.5	57.0
	Noise Pressure*	H / M / L	dBa	57.0	54.5	51.5
	Dehumidification		l/h	3.0		
	Condensate drain tube I.D		mm	16		
	Dimensions	W	mm	930		
		D	mm	485		
		H	mm	300		
	Weight		Kg	37		
	Package dimensions		mm	1115 x 530 x 365		
	Units per palet		units	10		
Stacking height		units	5			
O U T D O O R U N I T	Refrigerant control		Capillary tube			
	Compressor type, model		Scroll SQ040YA			
	Fan type & qty.		Axial x 1			
	Fan speeds		RPM	850		
	Airflow (std. conditions)		m ³ /hr	3110		
	Noise Pressure*/Noise Power (H)		dBa	62/69		
	Dimensions	W	900	900		
		D	340	340		
		H	860	860		
	Weight		82	82		
	Package dimensions		mm	903x406x985		
	Stacking height		units	2		
	Units per palet		units	6		
	Refrigerant		R22			
Connection between units	liquid	in.	3/8"			
	suction	in.	5/8"			
	tubing length		30 m			
	height difference		10 m			
Operation control type		LCD Remote control				
Heating elements		W	4000			
Others		Crankcase heater (60 W) ,3PH Protector				

* Noise Pressure tested at 1m distance from unit.
 **Noise Power for ducted units measured at air outlet side.

Model (indoor & outdoor)				LS 090 – OU8-33 R407				
Installation method				Ducted				
Characteristic			Units	Cooling		Heating		
Capacity			Btu/hr	30700		31000		
			W	9000		9085		
Total input			W	3435		3030		
COP			W/W	2.62		3.00		
Power supply (voltage, cycle, No of Phases)				230V/50Hz/1				
Rated current			A	15.4		13.1		
Circuit breaker rating			A	20				
I N D O O R U N I T	Fan type & qty.			Centrifugal x 2				
	Fan speeds		H / M / L	RPM	1230	1150	940	
	Airflow (std. con.)		H / L	m³/hr	1535		1175	
	Static Pressure		H / M / L	Pa	70/37			
	Noise Power**		H / M / L	dBa	62.5	60.5	57.0	
	Noise Pressure*		H / M / L	dBa	57.0	54.5	51.5	
	Dehumidification			l/h	2.9			
	Condensate drain tube I.D			mm	16			
	Dimensions		W	mm	930			
			D	mm	485			
			H	mm	300			
	Weight			Kg	37			
	Package dimensions			mm	1115 x 530 x 365			
	Units per palet			units	10			
Stacking height			units	5				
O U T D O O R U N I T	Refrigerant control			Capillary tube				
	Compressor type, model			Scroll HQ040PA				
	Fan type & qty.			Axial x 1				
	Fan speeds			RPM	850			
	Airflow (std. conditions)			m³/hr	3110			
	Noise Pressure*/Noise Power (H)			dBa	62/69			
	Dimensions		W	900	900			
			D	340	340			
			H	860	860			
	Weight			82	82			
	Package dimensions			mm	903x406x985			
	Stacking height			units	2			
	Units per palet			units	6			
	Refrigerant			R407C				
Connection between units		liquid	in.	3/8"				
		suction	in.	5/8"				
		tubing length		30 m				
		height difference		10 m				
Operation control type			LCD Remote control					
Heating elements			W	4000				
Others			Crankcase heater (60 W)					

* Noise Pressure tested at 1m distance from unit.

**Noise Power for ducted units measured at air outlet side.

Model (indoor & outdoor)			LS 090 – OU8-33 -50m R407					
Installation method			Ducted					
Characteristic		Units	Cooling		Heating			
Capacity		Btu/hr	31500		32900			
		W	9230		9640			
Total input		W	3445		3215			
COP		W/W	2.68		3.00			
Power supply (voltage, cycle, No of Phases)			230V/50Hz/1					
Rated current		A	14.8		13.3			
Circuit breaker rating		A	25					
I N D O O R U N I T	Fan type & qty.		Centrifugal x 2					
	Fan speeds	H / M / L	RPM	1230	1150	940		
	Airflow (std. con.)	H / L	m ³ /hr	1535		1175		
	Static Pressure	H / M / L	Pa	70/37				
	Noise Power**	H / M / L	dBa	62.5	60.5	57.0		
	Noise Pressure*	H / M / L	dBa	57.0	54.5	51.5		
	Dehumidification		l/h	2.9				
	Condensate drain tube I.D		mm	16				
	Dimensions	W	mm	930				
		D	mm	485				
		H	mm	300				
	Weight		Kg	37				
	Package dimensions		mm	1115 x 530 x 365				
	Units per palet		units	10				
Stacking height		units	5					
O U T D O O R U N I T	Refrigerant control		Capillary tube					
	Compressor type, model		Scroll HQ040PA					
	Fan type & qty.		Axial x 1					
	Fan speeds		RPM	850				
	Airflow (std. conditions)			m ³ /hr	3110			
	Noise Pressure*/Noise Power (H)			dBa	62/69			
	Dimensions	W		900				
		D		340				
		H		860				
	Weight			82				
	Package dimensions			903x406x985				
	Stacking height			2				
	Units per palet			6				
	Refrigerant			R407C				
Connection between units	liquid	in.	3/8"					
	suction	in.	5/8"					
	tubing length		50 m					
	height difference		25 m					
Operation control type			LCD Remote control					
Heating elements		W	4000					
Others			Crankcase heater (60 W)					

* Noise Pressure tested at 1m distance from unit.
 **Noise Power for ducted units measured at air outlet side.

Model (indoor & outdoor)			LS 090T – OU8-33T R407C			
Installation method			Ducted			
Characteristic		Units	Cooling		Heating	
Capacity		Btu/hr	30700		30530	
		W	9000		8950	
Total input		W	3410		2945	
COP		W/W	2.64		3.04	
Power supply (voltage, cycle, No of Phases)			400V/50Hz/3N			
Rated current		A	3x9.4		3x8.4	
Circuit breaker rating		A	3x16			
I N D O O R U N I T	Fan type & qty.		Centrifugal x 2			
	Fan speeds	H / M / L	RPM	1230	1150	940
	Airflow (std. con.)	H / L	m ³ /hr	1535		1175
	Static Pressure	H / M / L	Pa	70/37		
	Noise Power**	H / M / L	dBa	62.5	60.5	57.0
	Noise Pressure*	H / M / L	dBa	57.0	54.5	51.5
	Dehumidification		l/h	2.9		
	Condensate drain tube I.D		mm	16		
	Dimensions	W	mm	930		
		D	mm	475		
		H	mm	300		
	Weight		Kg	37		
	Package dimensions		mm	1115 x 530 x 365		
	Units per palet		units	10		
Stacking height		units	5			
O U T D O O R U N I T	Refrigerant control		Capillary tube			
	Compressor type, model		Scroll HQ040YA			
	Fan type & qty.		Axial x 1			
	Fan speeds		RPM	850		
	Airflow (std. conditions)		m ³ /hr	3110		
	Noise Pressure*/Noise Power (H)		dBa	62/69		
	Dimensions	W	900	900		
		D	340	340		
		H	860	860		
	Weight		82	82		
	Package dimensions		mm	903x406x985		
	Stacking height		units	2		
	Units per palet		units	6		
	Refrigerant		R407C			
Connection between units	liquid	in.	3/8"			
	suction	in.	5/8"			
	tubing length		30 m			
	height difference		10 m			
Operation control type		LCD Remote control				
Heating elements		W	4000			
Others		Crankcase heater (60 W) ,3PH Protector				

* Noise Pressure tested at 1m distance from unit.
 **Noise Power for ducted units measured at air outlet side.

Model (indoor & outdoor)			LS 105- OU10-38 R22			
Installation method			Ducted			
Characteristic		Units	Cooling		Heating	
Capacity		Btu/hr	36000		37500	
		W	10550		10990	
Total input		W	3730		3490	
COP		W/W	2.83		3.15	
Power supply (voltage, cycle, No of Phases)			230V/50Hz/1			
Rated current		A	16.1		15.1	
Circuit breaker rating		A	25			
INDOOR UNIT	Fan type & qty.		Centrifugal x 2			
	Fan speeds	H / M / L	RPM	1230	1150	940
	Airflow (std. con.)	H / L	m ³ /hr	1535		1175
	Static Pressure	H / M / L	Pa	70/37		
	Noise Power**	H / M / L	dBa	62.5	60.5	57.0
	Noise Pressure*	H / M / L	dBa	57.0	54.5	51.5
	Dehumidification		l/h	4.3		
	Condensate drain tube I.D		mm	16		
	Dimensions	W	mm	930		
		D	mm	485		
		H	mm	300		
	Weight		Kg	38		
	Package dimensions		mm	1115 x 530 x 365		
	Units per palet		units	10		
Stacking height		units	5			
OUTDOOR UNIT	Refrigerant control		Capillary tube			
	Compressor type, model		Scroll ZR47K3-PFJ			
	Fan type & qty.		Axial x 2			
	Fan speeds		RPM	1125		
	Airflow (std. conditions)		m ³ /hr	4150		
	Noise Pressure*/Noise Power (H)		dBa	59/65		
	Dimensions	W	mm	900		
		D	mm	350		
		H	mm	970		
	Weight		Kg	93		
	Package dimensions		mm	985X435X1020		
	Stacking height		units	2		
	Units per palet		units	6		
	Refrigerant			R22		
Connection between units	liquid	in.	3/8"			
	suction	in.	3/4"			
	tubing length		50 m			
	height difference		25 m			
Operation control type			LCD Remote control			
Heating elements		W	6000			
Others			Crankcase heater (60 W)			

* Noise Pressure tested at 1m distance from unit
 **Noise Power for ducted units measured at air outlet side

Model (indoor & outdoor)			LS 105T- OU10-38T R22				
Installation method			Ducted				
Characteristic		Units	Cooling		Heating		
Capacity		Btu/hr	35100		36500		
		W	10290		10700		
Total input		W	3600		3345		
COP		W/W	2.86		3.20		
Power supply (voltage, cycle, No of Phases)			400V/50Hz/3N				
Rated current		A	3x9.7		3x9.0		
Circuit breaker rating		A	3x16				
I N D O O R U N I T	Fan type & qty.		Centrifugal x 2				
	Fan speeds	H / M / L	RPM	1230	1150	940	
	Airflow (std. con.)	H / L	m³/hr	1535		1175	
	Static Pressure	H / M / L	Pa	70/37			
	Noise Power**	H / M / L	dBa	62.5	60.5	57.0	
	Noise Pressure*	H / M / L	dBa	57.0	54.5	51.5	
	Dehumidification		l/h	4.3			
	Condensate drain tube I.D		mm	16			
	Dimensions	W	mm	930			
		D	mm	485			
		H	mm	300			
	Weight		Kg	38			
	Package dimensions		mm	1115 x 530 x 365			
	Units per palet		units	10			
Stacking height		units	5				
O U T D O O R U N I T	Refrigerant control		Capillary tube				
	Compressor type, model		Scroll ZR45KC-TFD				
	Fan type & qty.		Axial x 2				
	Fan speeds		RPM	1125			
	Airflow (std. conditions)		m³/hr	4150			
	Noise Pressure*/Noise Power (H)		dBa	59/65			
	Dimensions	W	mm	900			
		D	mm	350			
		H	mm	970			
	Weight		Kg	93			
	Package dimensions		mm	985X435X1020			
	Stacking height		units	2			
	Units per palet		units	6			
	Refrigerant			R22			
Connection between units	liquid	in.	3/8"				
	suction	in.	3/4"				
	tubing length		50 m				
	height difference		25 m				
Operation control type			LCD Remote control				
Heating elements		W	6000				
Others			Crankcase heater (60 W) ,3PH Protector				

* Noise Pressure tested at 1m distance from unit

**Noise Power for ducted units measured at air outlet side

Model (indoor & outdoor)			LS 105- OU10-38 R407C				
Installation method			Ducted				
Characteristic		Units	Cooling		Heating		
Capacity		Btu/hr	35000		37500		
		W	10260		10990		
Total input		W	3840		3900		
COP		W/W	2.67		2.82		
Power supply (voltage, cycle, No of Phases)			230V/50Hz/1				
Rated current		A	16.4		15.8		
Circuit breaker rating		A	25				
I N D O O R U N I T	Fan type & qty.		Centrifugal x 2				
	Fan speeds		H / M / L	RPM	1230	1150	940
	Airflow (std. con.)		H / L	m ³ /hr	1535		1175
	Static Pressure		H / M / L	Pa	70/37		
	Noise Power**		H / M / L	dBa	62.5	60.5	57.0
	Noise Pressure*		H / M / L	dBa	57.0	54.5	51.5
	Dehumidification			l/h	4.3		
	Condensate drain tube I.D			mm	16		
	Dimensions		W	mm	930		
			D	mm	485		
			H	mm	300		
	Weight			Kg	38		
	Package dimensions			mm	1115 x 530 x 365		
	Units per palet			units	10		
Stacking height			units	5			
O U T D O O R U N I T	Refrigerant control		Capillary tube				
	Compressor type, model		Scroll ZR47K3E-PFJ				
	Fan type & qty.		Axial x 2				
	Fan speeds			RPM		1125	
	Airflow (std. conditions)			m ³ /hr		4150	
	Noise Pressure*/Noise Power (H)			dBa		59/65	
	Dimensions		W	mm	900		
			D	mm	350		
			H	mm	970		
	Weight			Kg	93		
	Package dimensions			mm	985X435X1020		
	Stacking height			units	2		
	Units per palet			units	6		
	Refrigerant				R407C		
Connection between units		liquid	in.	3/8"			
		suction	in.	3/4"			
		tubing length		50 m			
		height difference		25 m			
Operation control type			LCD Remote control				
Heating elements		W	6000				
Others			Crankcase heater (60 W)				

* Noise Pressure tested at 1m distance from unit
 **Noise Power for ducted units measured at air outlet side

Model (indoor & outdoor)			LS 105T- OU10-38T R407C					
Installation method			Ducted					
Characteristic		Units	Cooling		Heating			
Capacity		Btu/hr	35500		37500			
		W	10405		10990			
Total input		W	3785		3910			
COP		W/W	2.75		2.81			
Power supply (voltage, cycle, No of Phases)			400V/50Hz/3N					
Rated current		A	3x10.4		3x10.3			
Circuit breaker rating		A	3x16					
I N D O O R U N I T	Fan type & qty.		Centrifugal x 2					
	Fan speeds	H / M / L	RPM	1230	1150	940		
	Airflow (std. con.)	H / L	m³/hr	1535		1175		
	Static Pressure	H / M / L	Pa	70/37				
	Noise Power**	H / M / L	dBa	62.5	60.5	57.0		
	Noise Pressure*	H / M / L	dBa	57.0	54.5	51.5		
	Dehumidification		l/h	4.3				
	Condensate drain tube I.D		mm	16				
	Dimensions	W	mm	930				
		D	mm	485				
		H	mm	300				
	Weight		Kg	38				
	Package dimensions		mm	1115 x 530 x 365				
	Units per palet		units	10				
Stacking height		units	5					
O U T D O O R U N I T	Refrigerant control		Capillary tube					
	Compressor type, model		Scroll ZR47KCE-TFD					
	Fan type & qty.		Axial x 2					
	Fan speeds		RPM	1125				
	Airflow (std. conditions)		m³/hr	4150				
	Noise Pressure*/Noise Power (H)		dBa	59/65				
	Dimensions	W	mm	900				
		D	mm	350				
		H	mm	970				
	Weight		Kg	93				
	Package dimensions		mm	985X435X1020				
	Stacking height		units	2				
	Units per palet		units	6				
	Refrigerant			R407C				
Connection between units	liquid	in.	3/8"					
	suction	in.	3/4"					
	tubing length			50 m				
	height difference			25 m				
Operation control type			LCD Remote control					
Heating elements		W	6000					
Others			Crankcase heater (60 W) ,3PH Protector					

* Noise Pressure tested at 1m distance from unit

**Noise Power for ducted units measured at air outlet side

Model (indoor & outdoor)				LS 125T- OU10-50T R22			
Installation method				Ducted			
Characteristic			Units	Cooling		Heating	
Capacity			Btu/hr	44000		47000	
			W	12900		13775	
Total input			W	4830		4750	
COP			W/W	2.67		2.90	
Power supply (voltage, cycle, No of Phases)				400V/50Hz/3N			
Rated current			A	3x13.7		3x13.1	
Circuit breaker rating			A	3x16			
I N D O O R U N I T	Fan type & qty.		Centrifugal x 2				
	Fan speeds	H / M / L	RPM	1220	1110	1000	
	Airflow (std. con.)	H / L	m³/hr	1765		1430	
	Static Pressure	H / M / L	Pa	90/50			
	Noise Power**	H / M / L	dBa	64.1	61.3	58.7	
	Noise Pressure*	H / M / L	dBa	57.9	55.6	53.4	
	Dehumidification		l/h	5.2			
	Condensate drain tube I.D		mm	19			
	Dimensions	W	mm	1100			
		D	mm	485			
		H	mm	300			
	Weight		Kg	41			
	Package dimensions		mm	1280 x 530 x 365			
	Units per palet		units	10			
Stacking height		units	5				
O U T D O O R U N I T	Refrigerant control			Capillary tube			
	Compressor type, model			Scroll SR061YAB			
	Fan type & qty.			Axial x 2			
	Fan speeds		RPM	1220			
	Airflow (std. conditions)		m³/hr	4345			
	Noise Pressure*/Noise Power (H)		dBa	62/69			
	Dimensions	W	mm	900			
		D	mm	350			
		H	mm	970			
	Weight		Kg	95			
	Package dimensions		mm	985X435X1020			
	Stacking height		units	2			
	Units per palet		units	6			
	Refrigerant			R22			
Connection between units	liquid	in.	3/8"				
	suction	in.	3/4"				
	tubing length		50 m				
	height difference		25 m				
Operation control type			LCD Remote control				
Heating elements		W	6000				
Others			Crankcase heater (60 W) ,3PH Protector				

* Noise Pressure tested at 1m distance from unit

**Noise Power for ducted units measured at air outlet side

Model (indoor & outdoor)				LS 125T- OU10-50T R407C				
Installation method				Ducted				
Characteristic			Units	Cooling		Heating		
Capacity			Btu/hr	43000		48100		
			W	12600		14100		
Total input			W	5185		5220		
COP			W/W	2.43		2.70		
Power supply (voltage, cycle, No of Phases)				400V/50Hz/3N				
Rated current			A	3x13.8		3x14.5		
Circuit breaker rating			A	3x16				
I N D O O R U N I T	Fan type & qty.			Centrifugal x 2				
	Fan speeds		H / M / L	RPM	1220	1110	1000	
	Airflow (std. con.)		H / L	m ³ /hr	1765		1430	
	Static Pressure		H / M / L	Pa	90/50			
	Noise Power**		H / M / L	dBa	64.1	61.3	58.7	
	Noise Pressure*		H / M / L	dBa	57.9	55.6	53.4	
	Dehumidification			l/h	5.0			
	Condensate drain tube I.D			mm	19			
	Dimensions		W	mm	1100			
			D	mm	485			
			H	mm	300			
	Weight			Kg	41			
	Package dimensions			mm	1280 x 530 x 365			
	Units per palet			units	10			
Stacking height			units	5				
O U T D O O R U N I T	Refrigerant control			Capillary tube				
	Compressor type, model			Scroll HR061YA				
	Fan type & qty.			Axial x 2				
	Fan speeds			RPM	1220			
	Airflow (std. conditions)			m ³ /hr	4345			
	Noise Pressure*/Noise Power (H)			dBa	62/69			
	Dimensions		W	mm	900			
			D	mm	350			
			H	mm	970			
	Weight			Kg	95			
	Package dimensions			mm	985X435X1020			
	Stacking height			units	2			
	Units per palet			units	6			
	Refrigerant				R407C			
Connection between units		liquid	in.	3/8"				
		suction	in.	3/4"				
		tubing length			50 m			
		height difference			25 m			
Operation control type				LCD Remote control				
Heating elements		W		6000/8100				
Others				Crankcase heater (60 W) ,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)

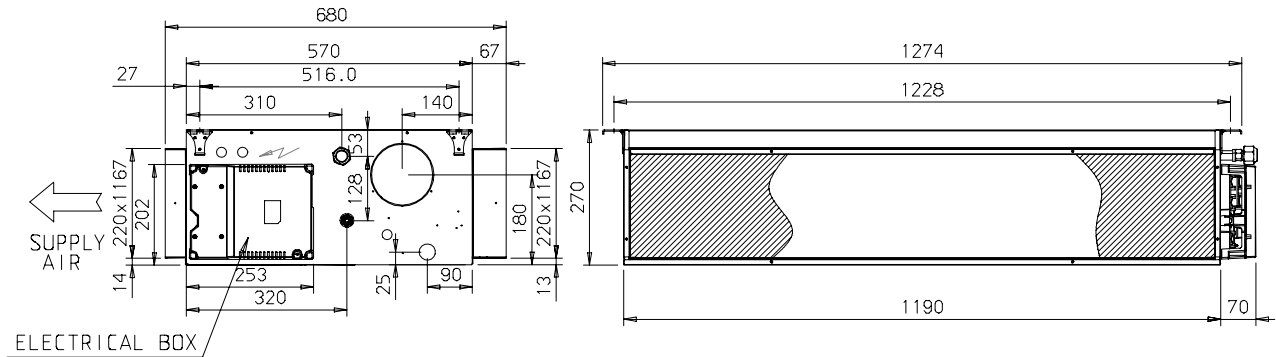
2. Guaranteed operating range:

		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	

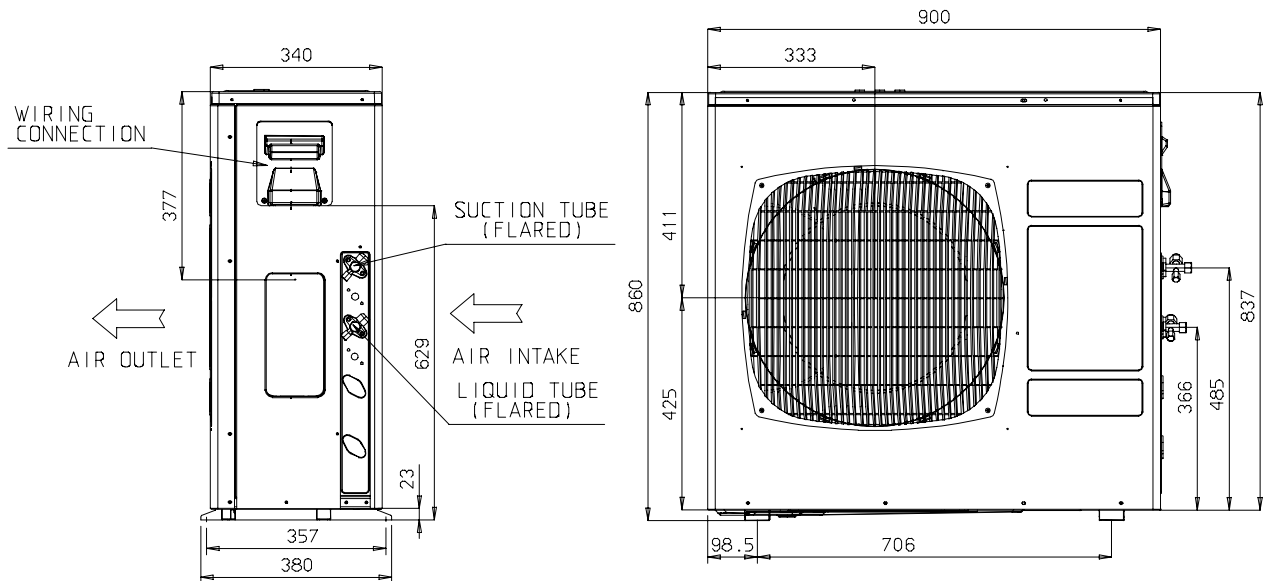
4. OUTLINE DIMENSIONS

4.1 Model: LS 085 R22/R407C

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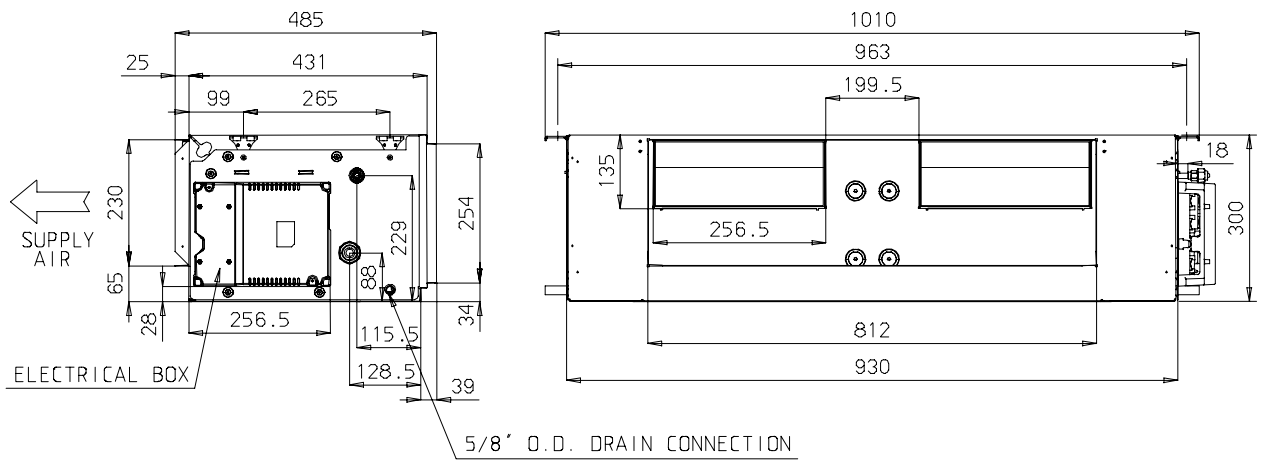


OUTDOOR UNIT (CONDENSER)

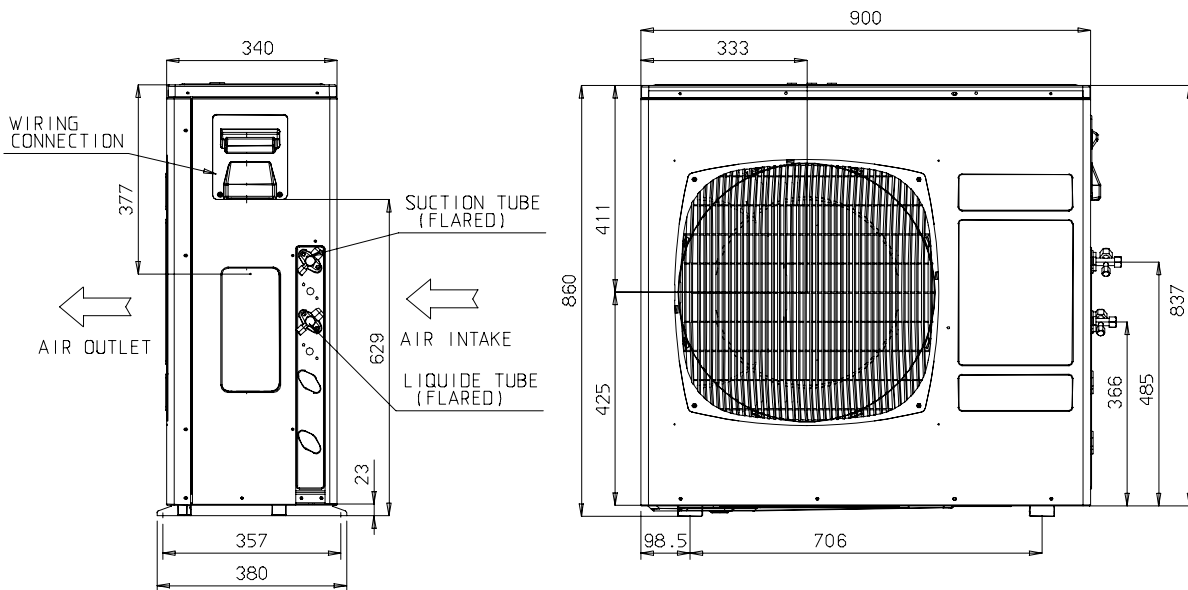


4.2 Model: LS 090 R22/R407C

INDOOR UNIT (EVAPORATOR)

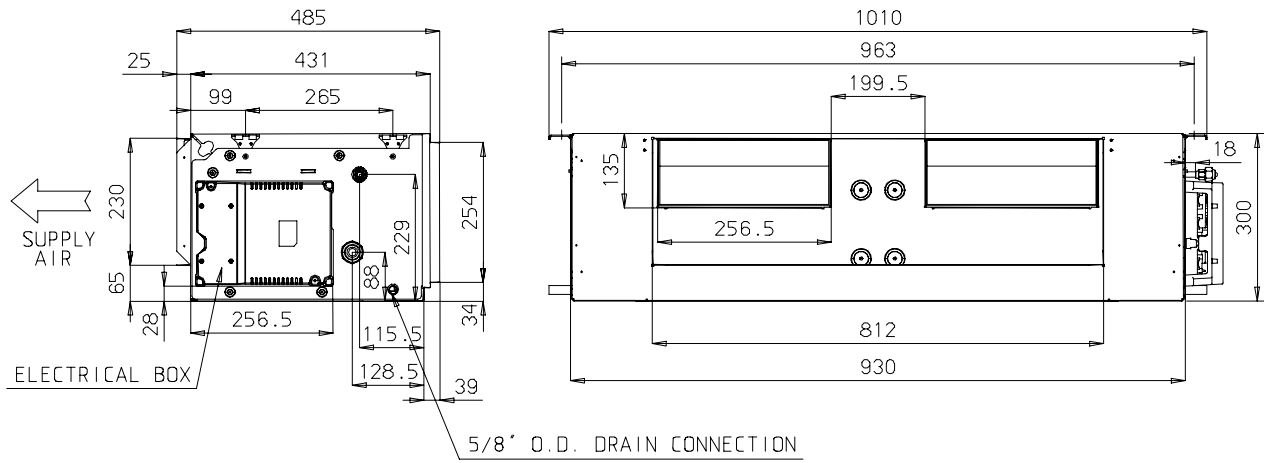


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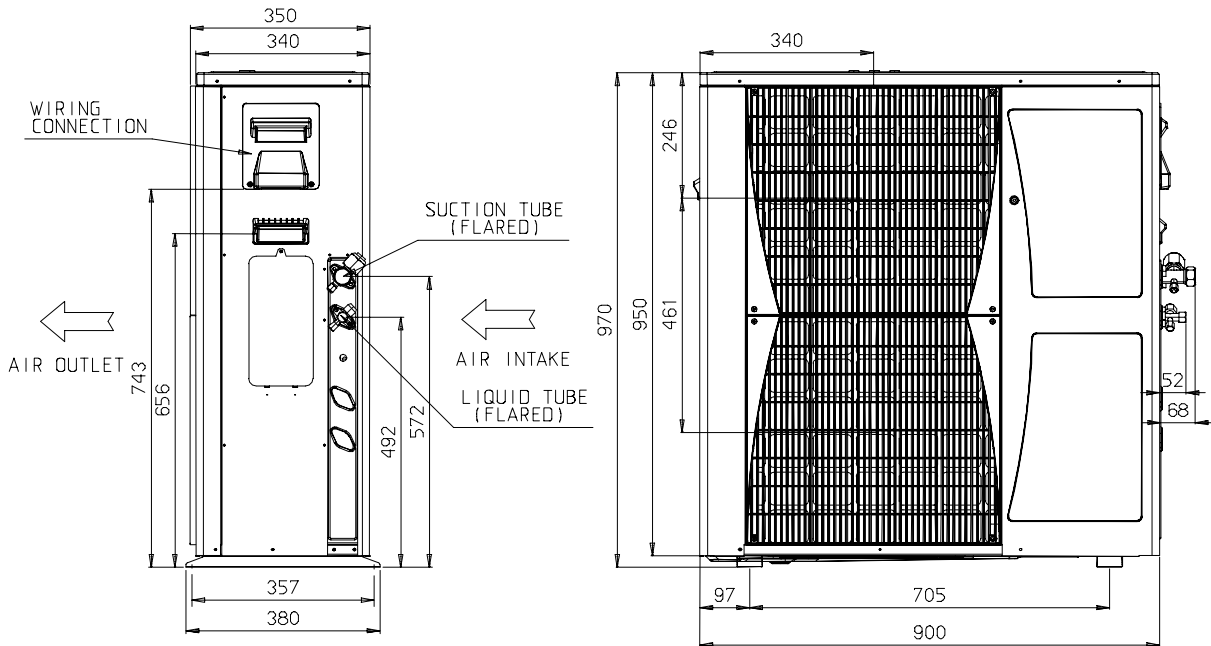


4.3 Model: LS 105 R22/R407C

INDOOR UNIT (EVAPORATOR)

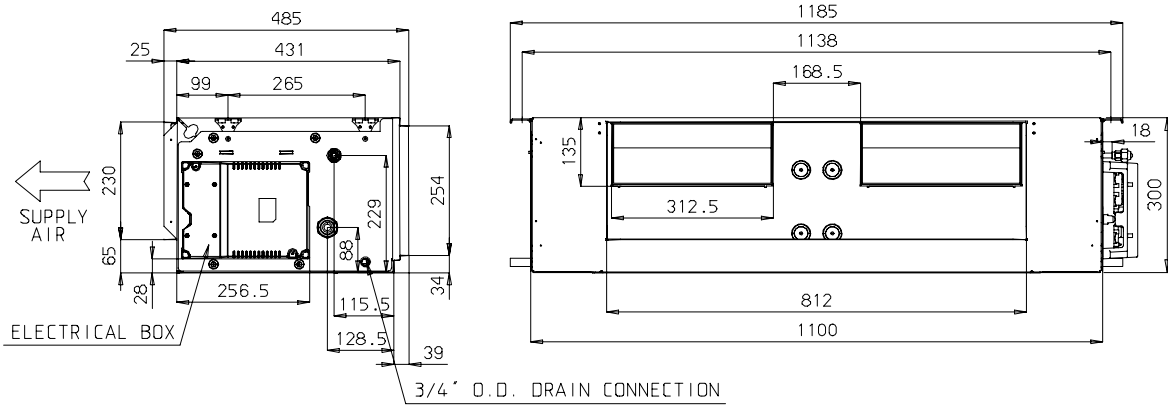


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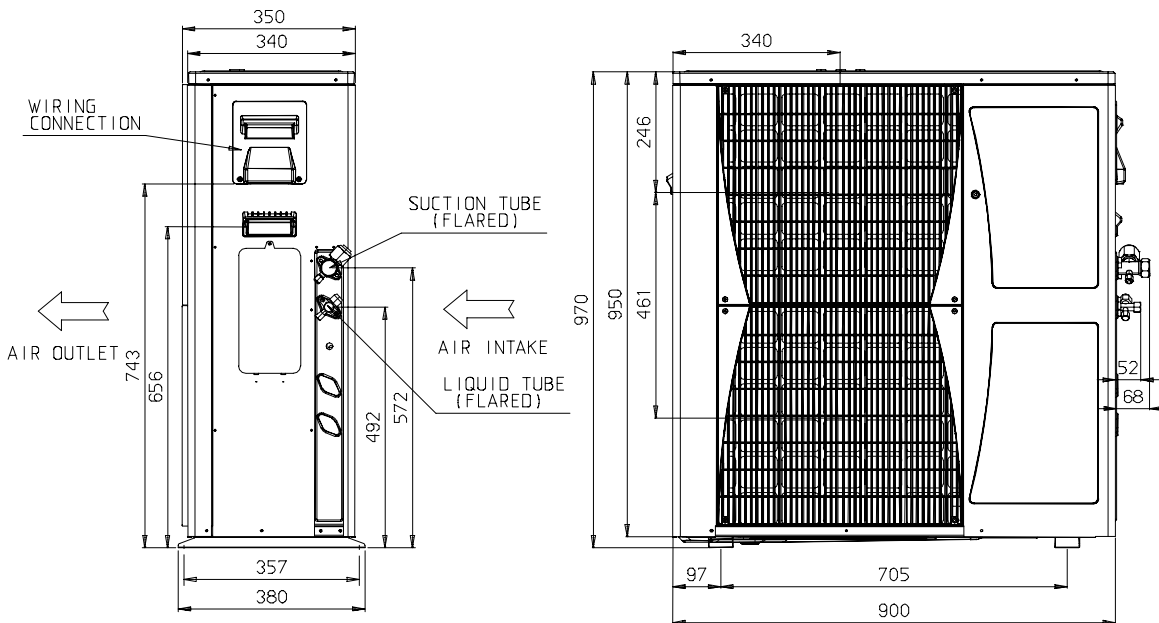


4.4 Model: LS 125 R22/R407C

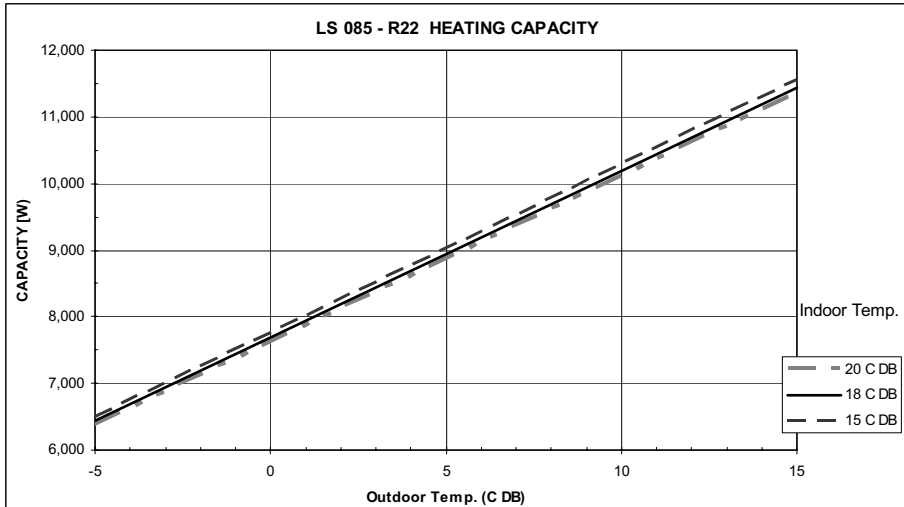
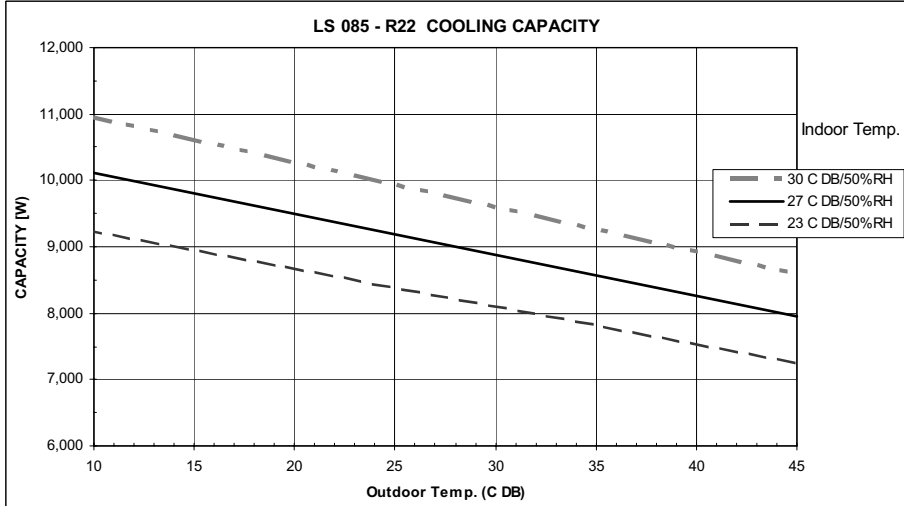
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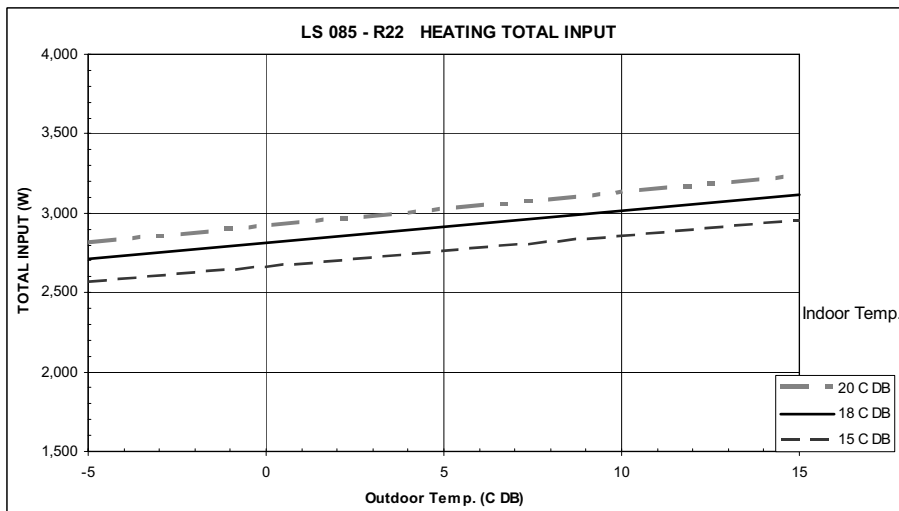
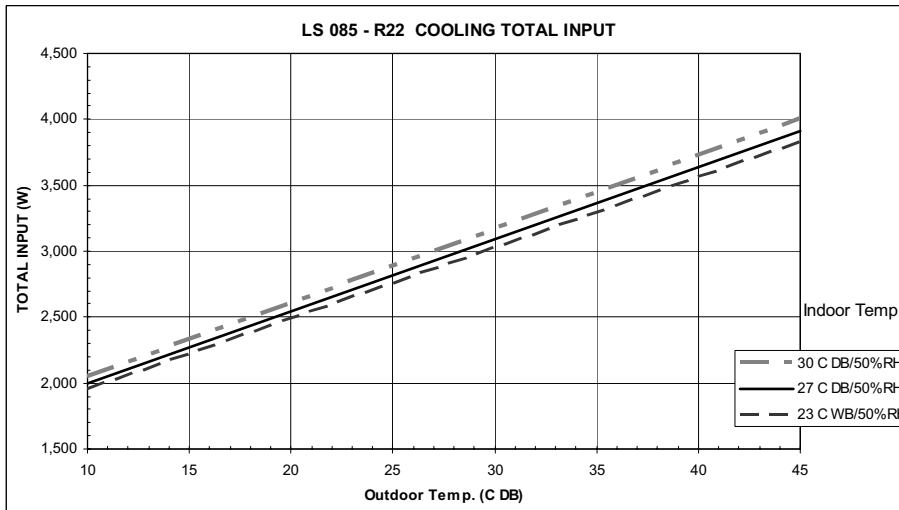


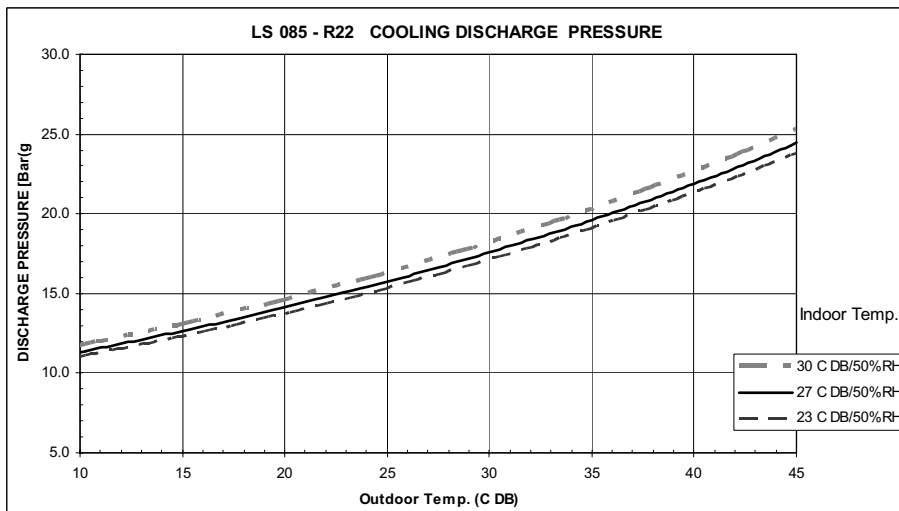
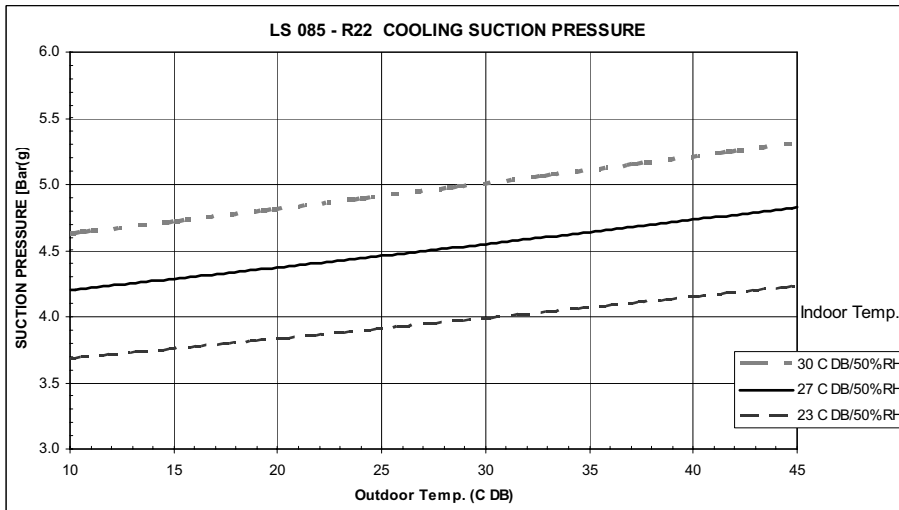
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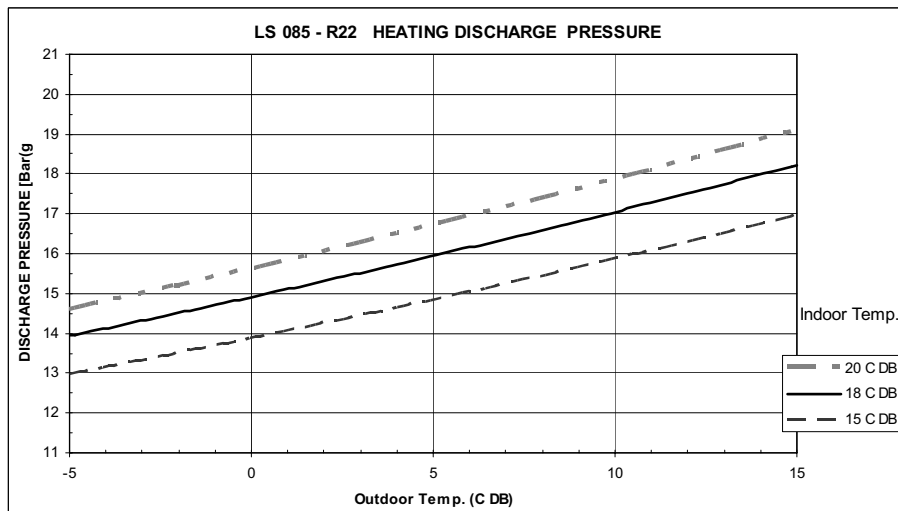
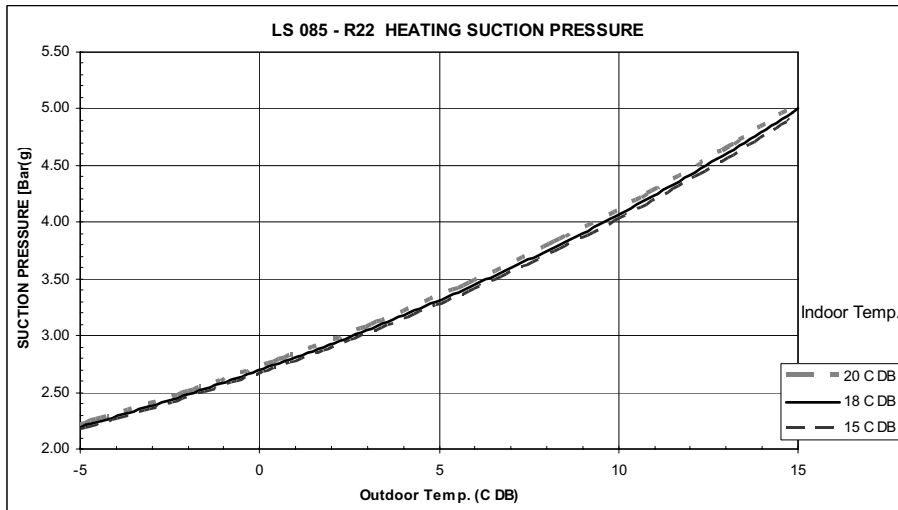


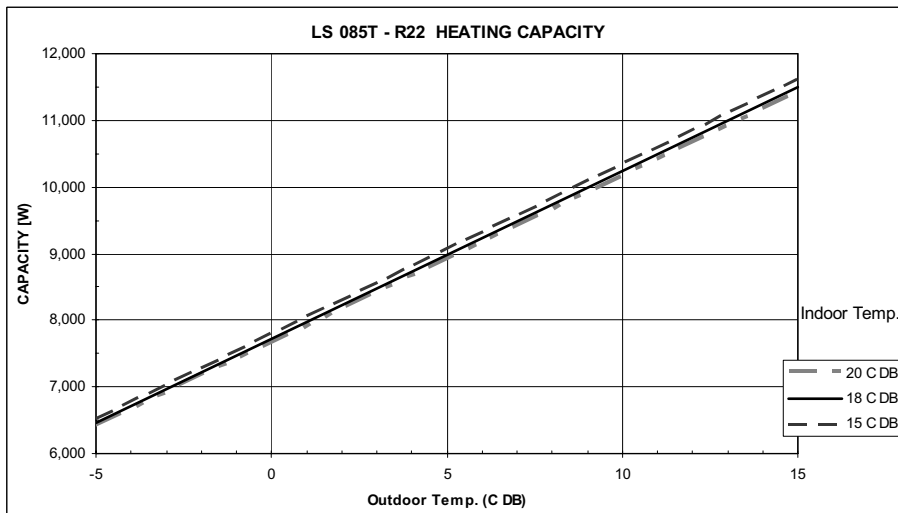
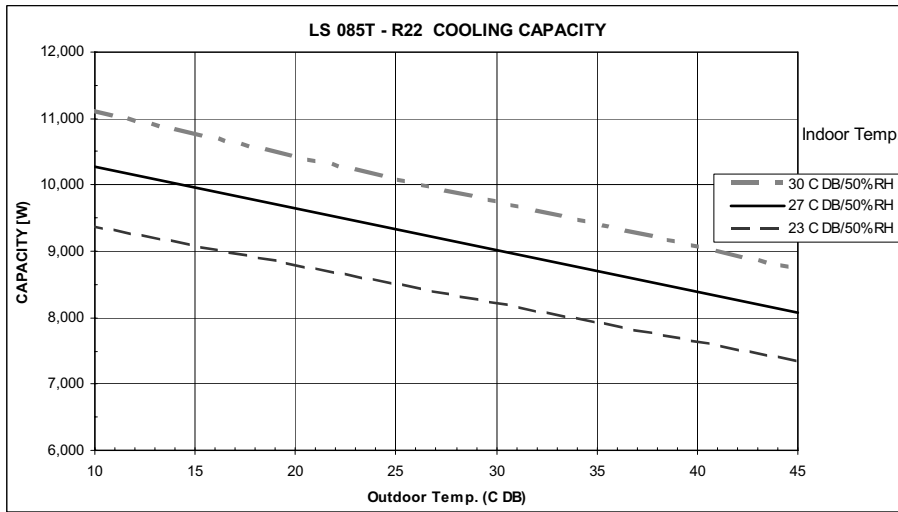
5. PERFORMANCE DATA & PRESSURE CURVES

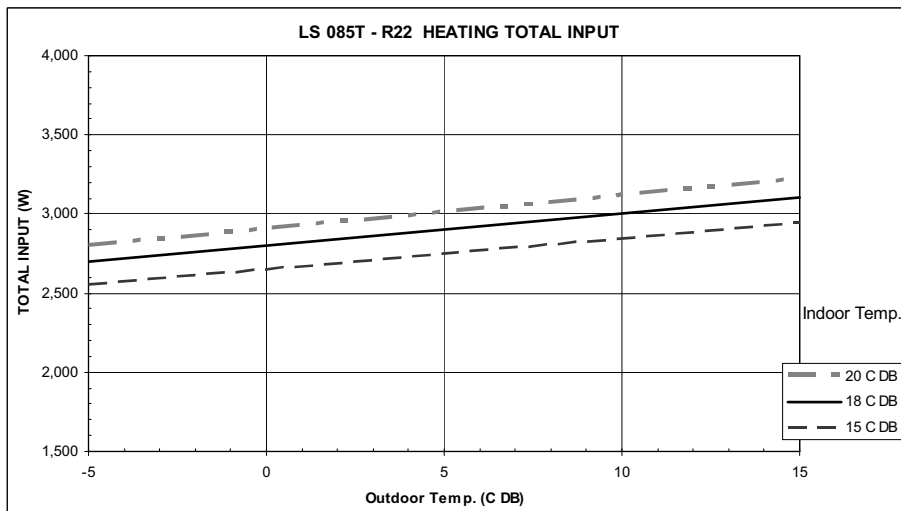
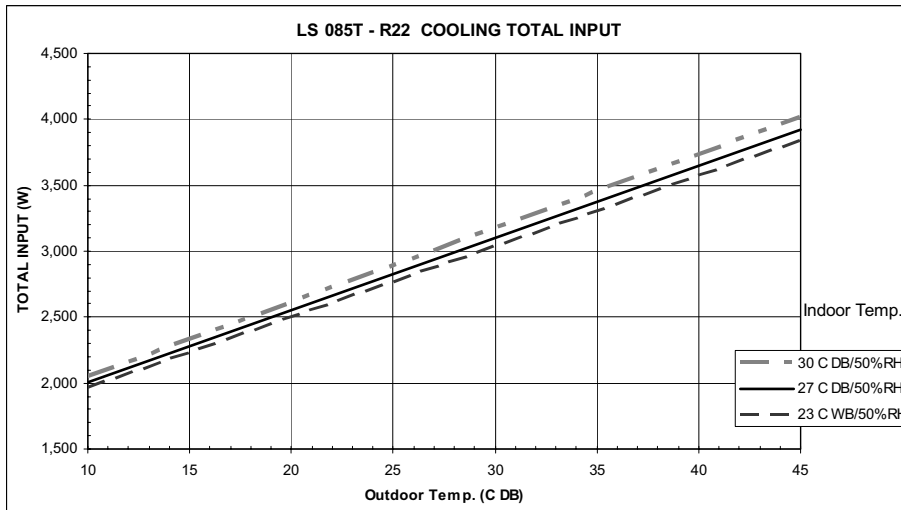


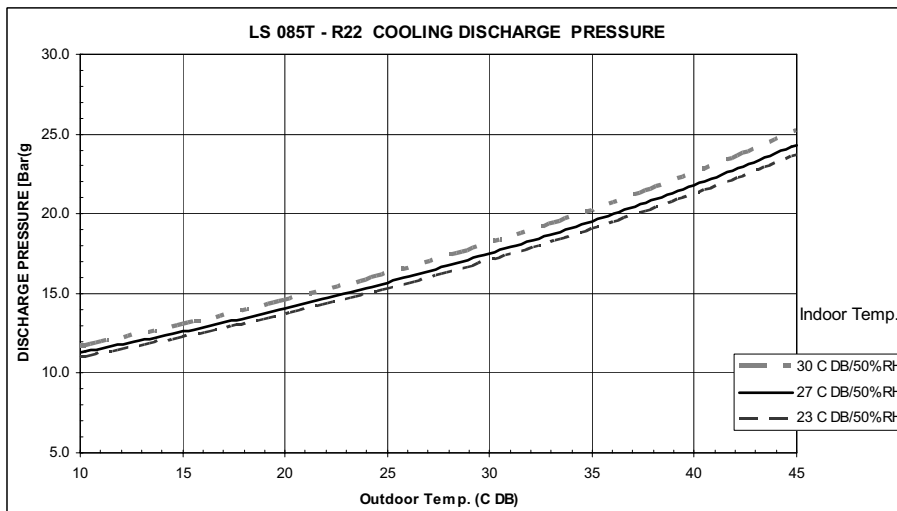
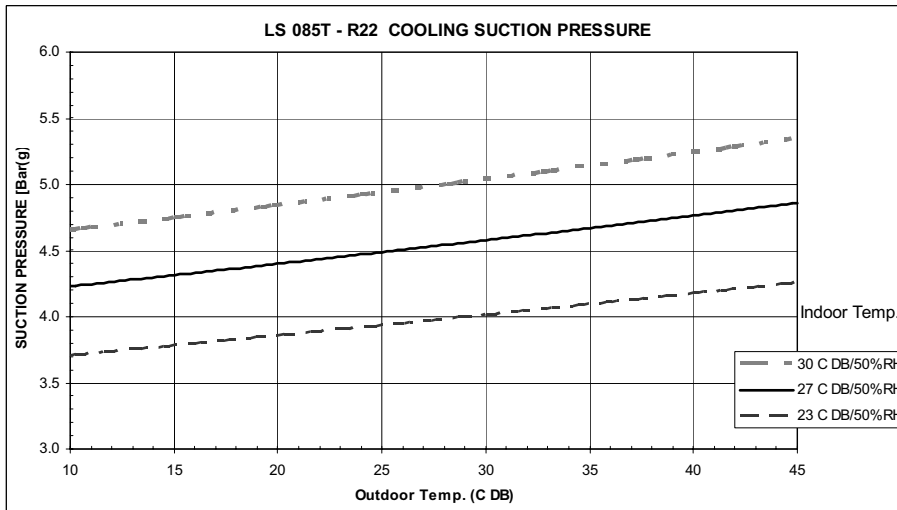


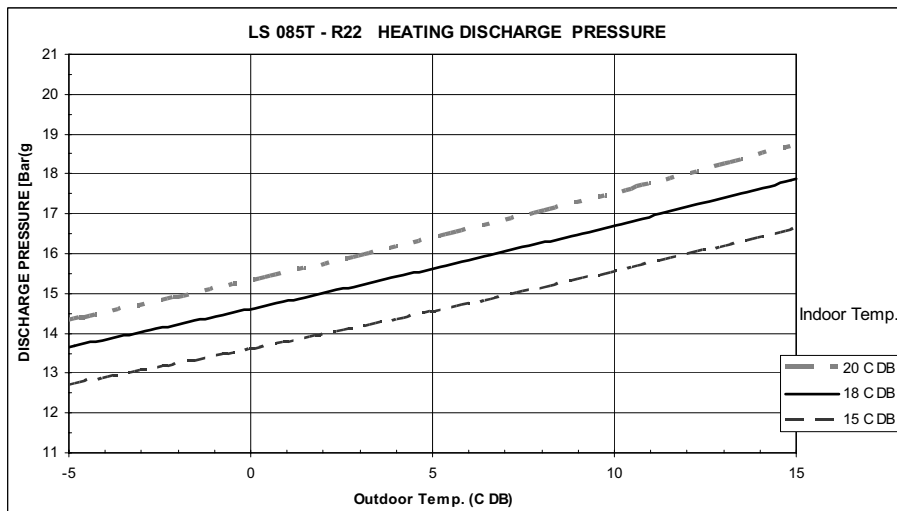
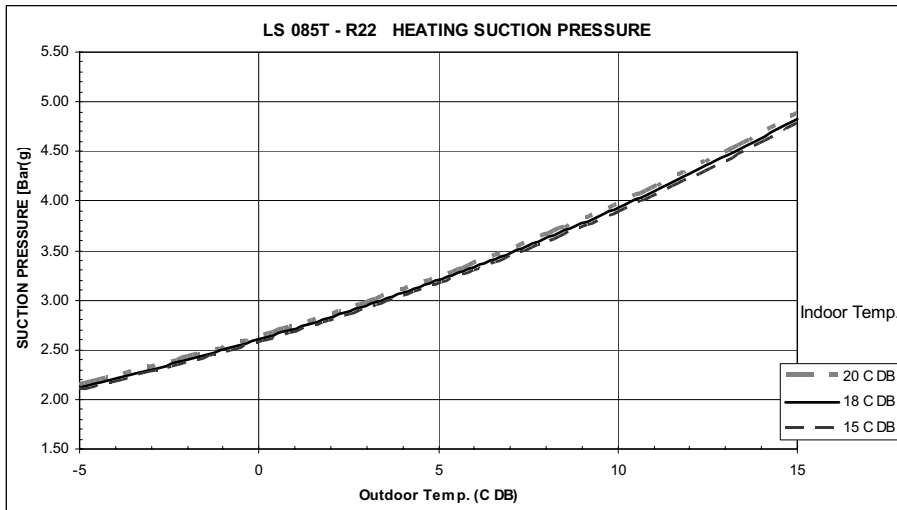


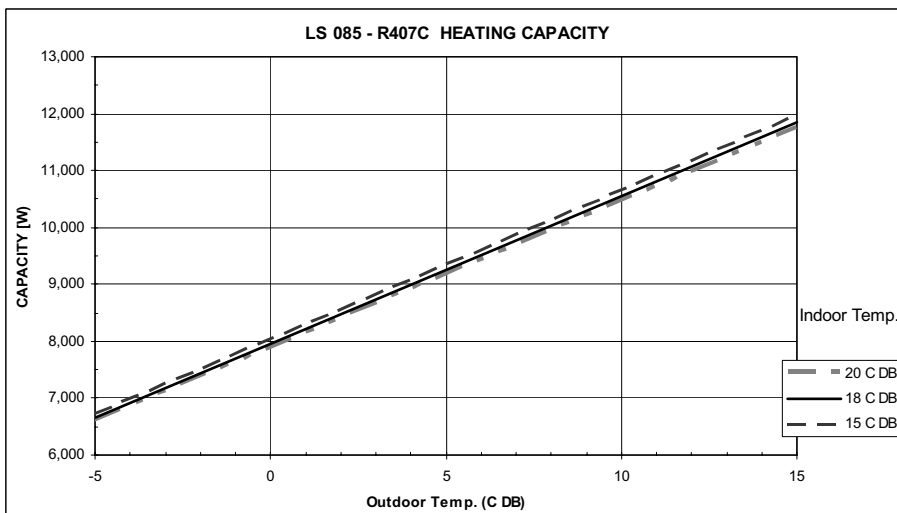
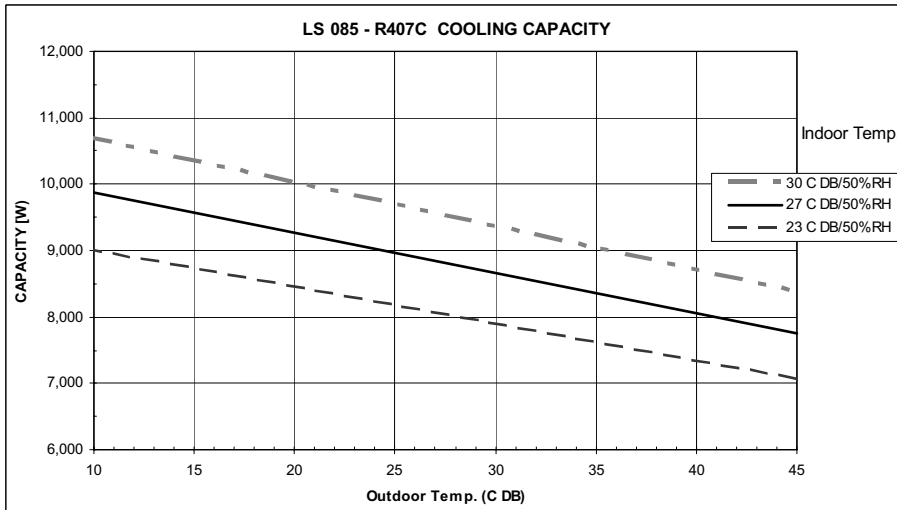


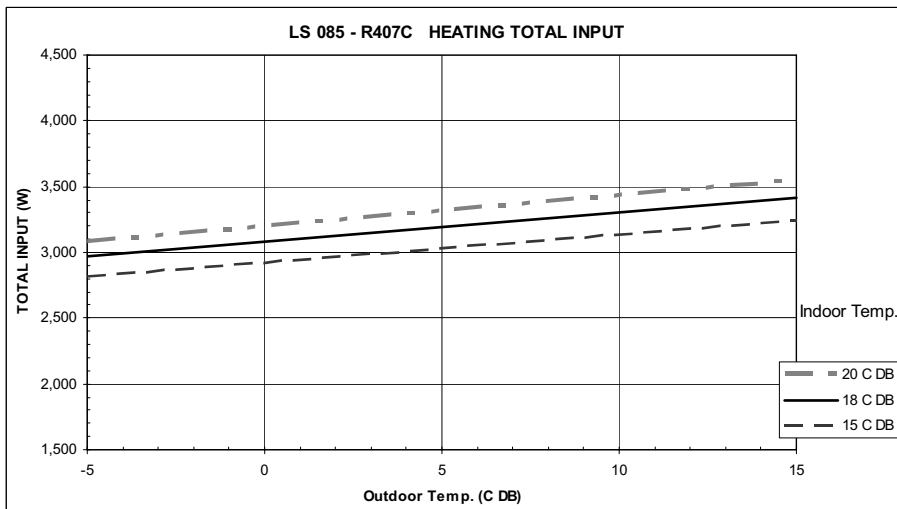
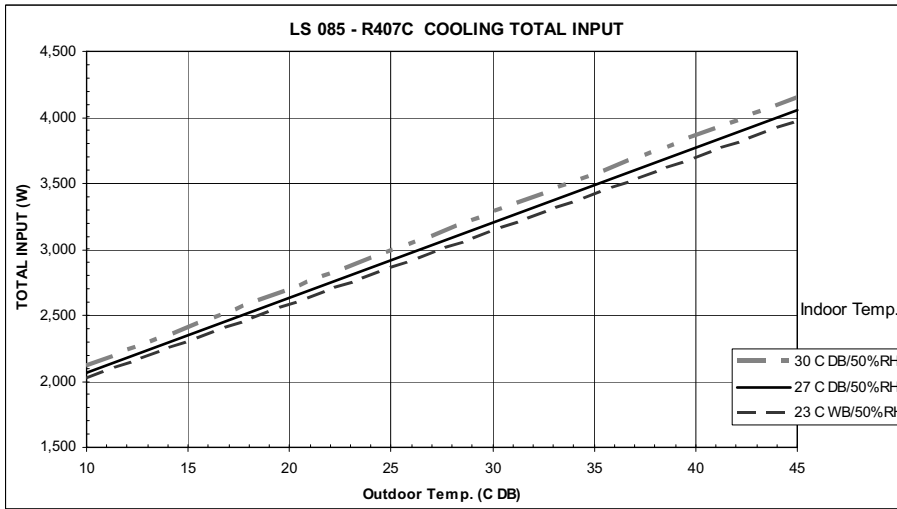


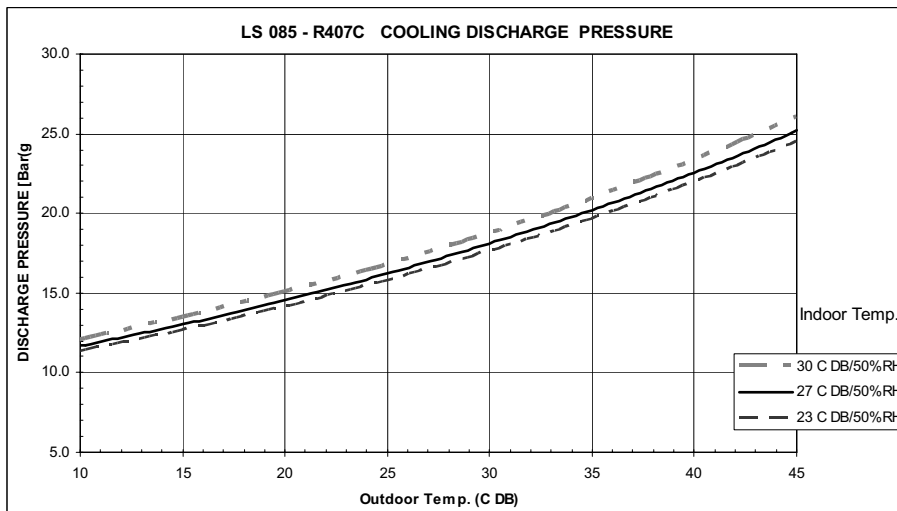
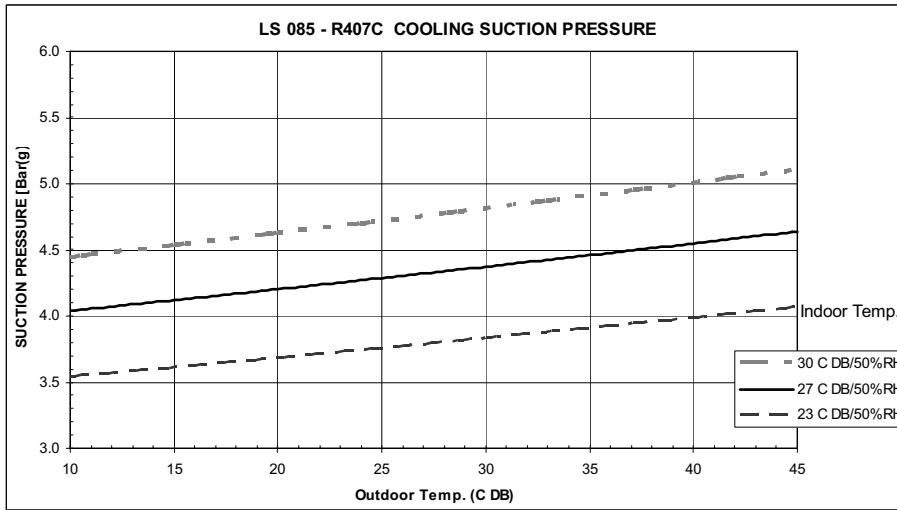


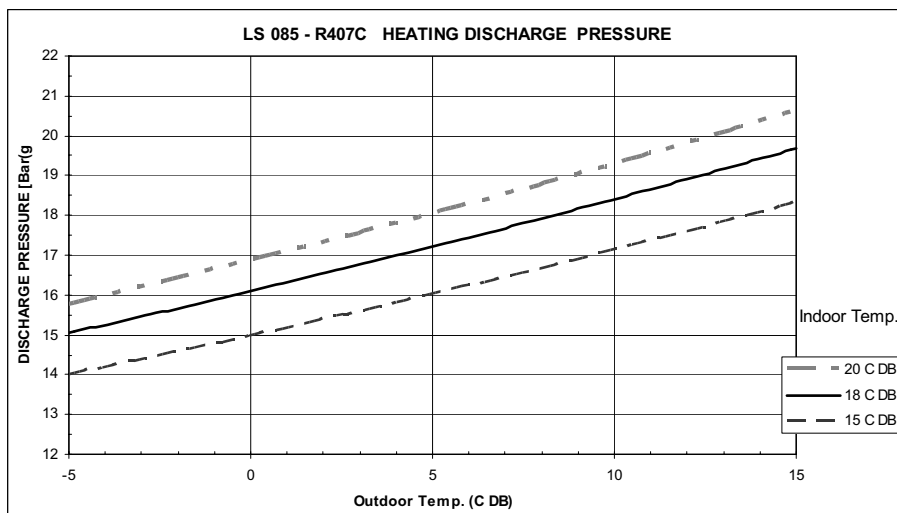
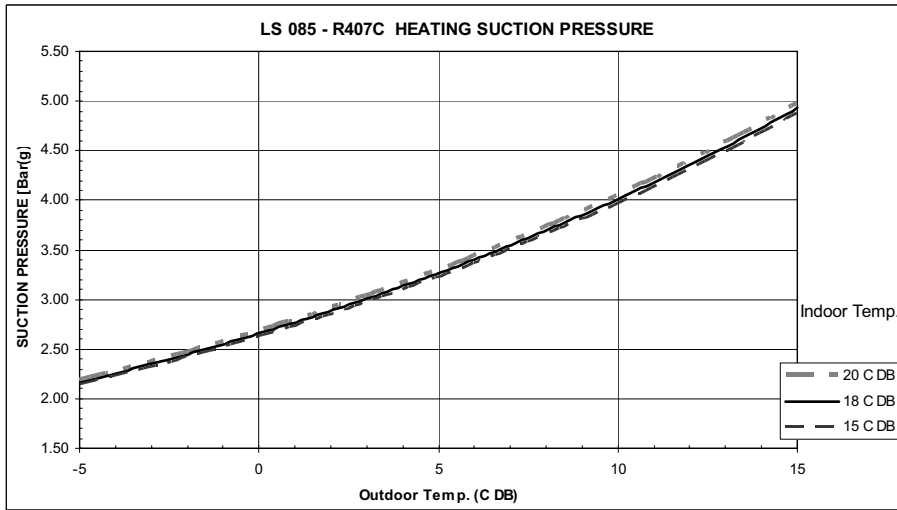


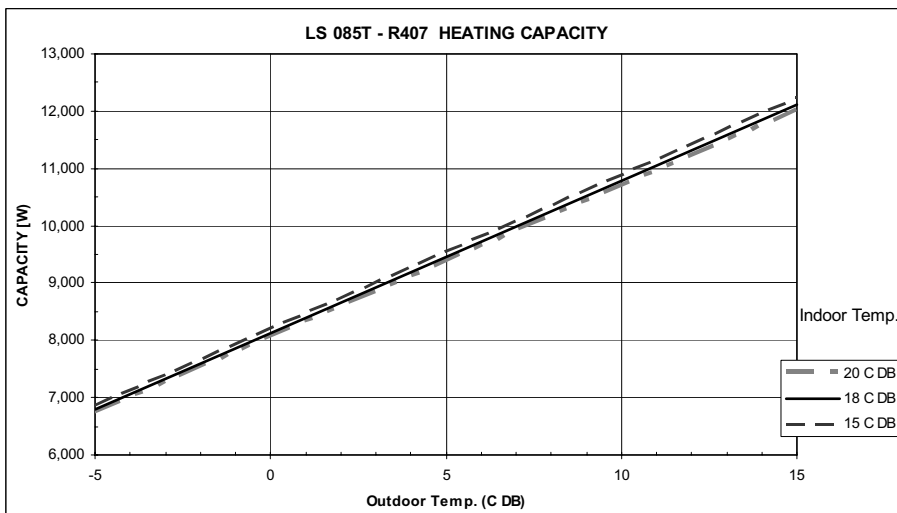
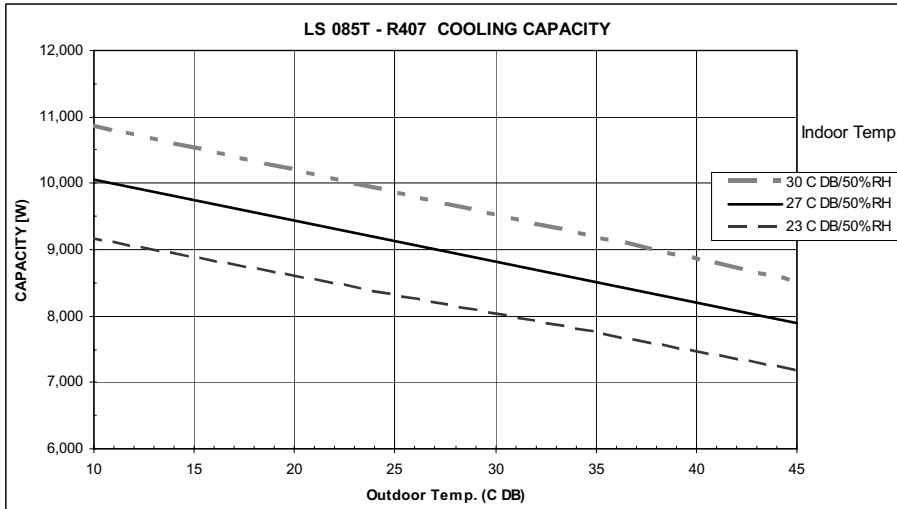


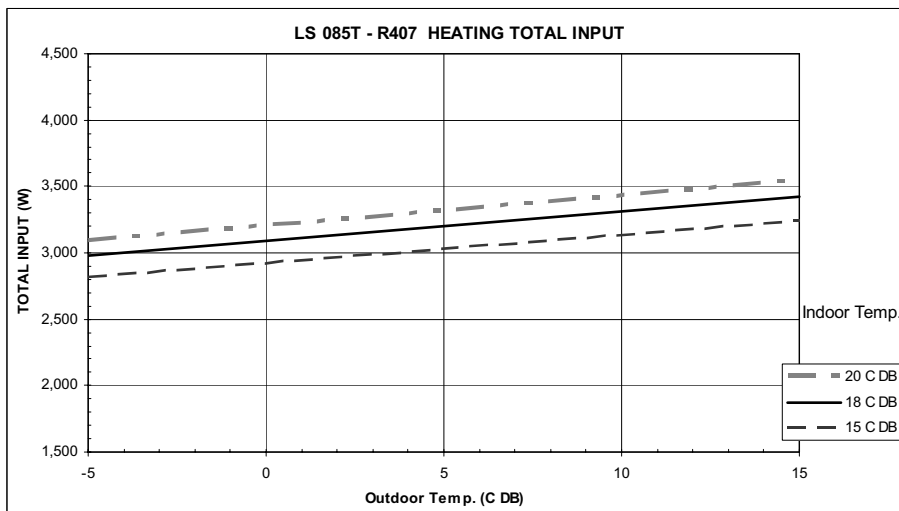
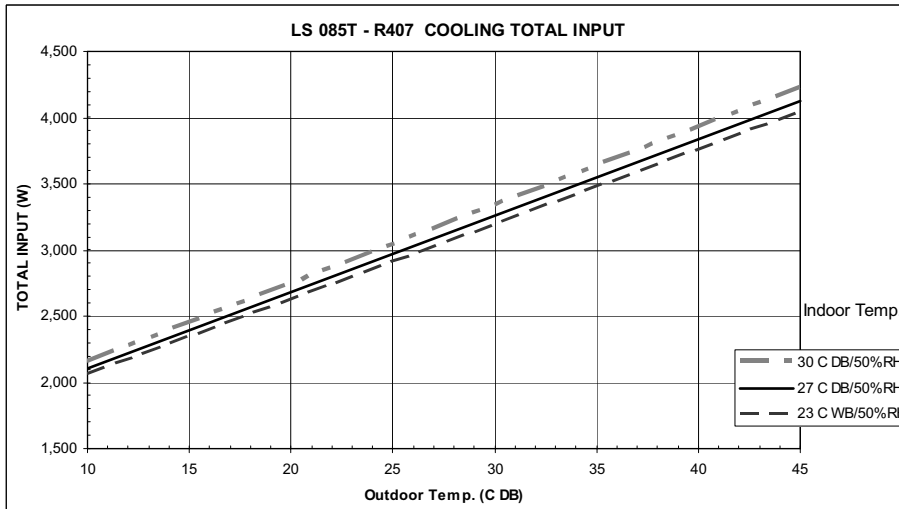


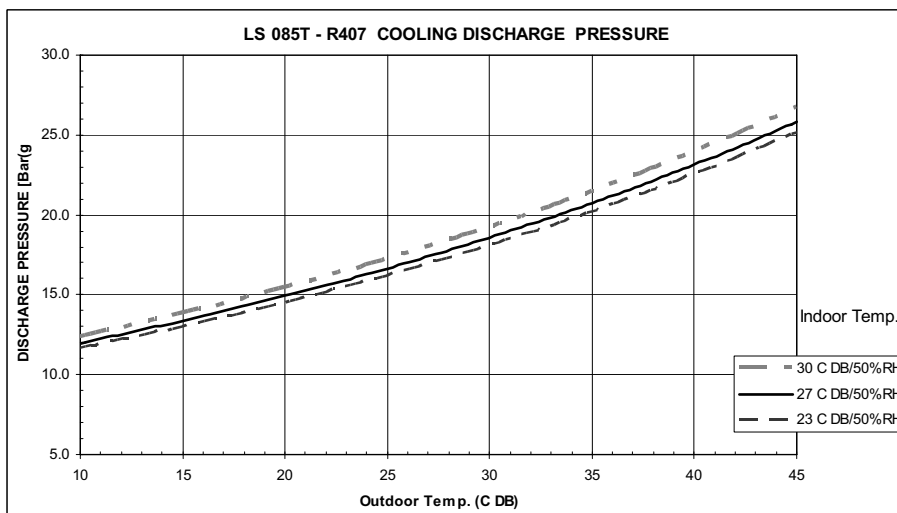
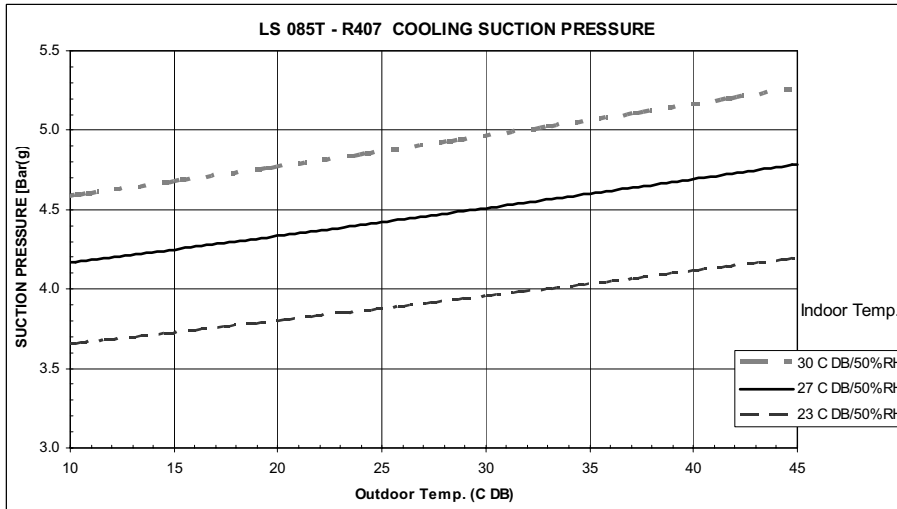


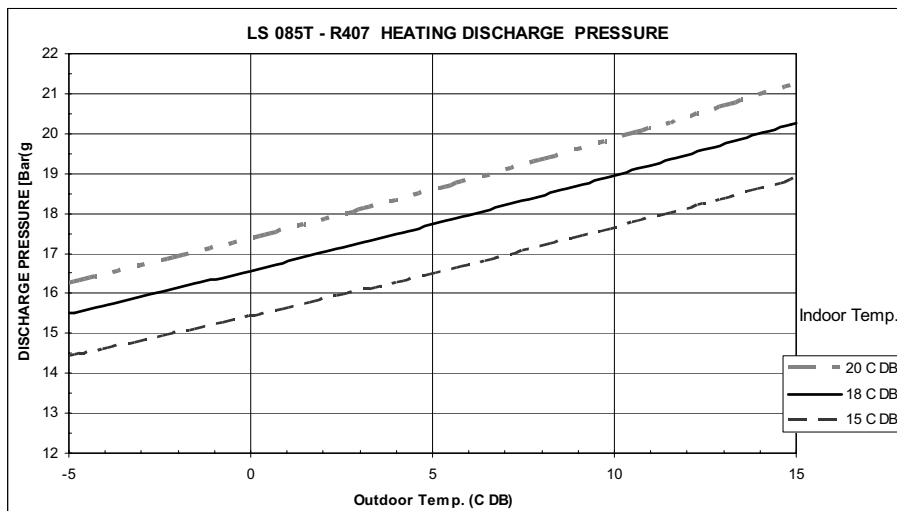
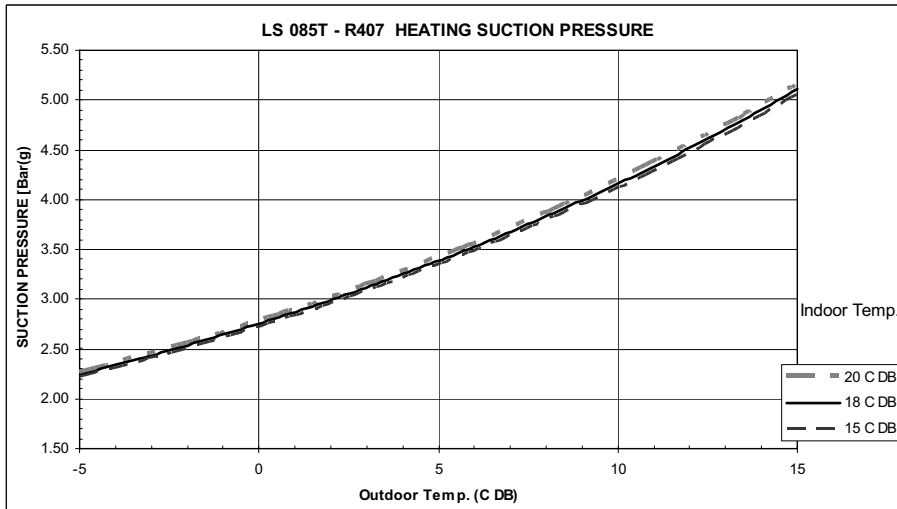


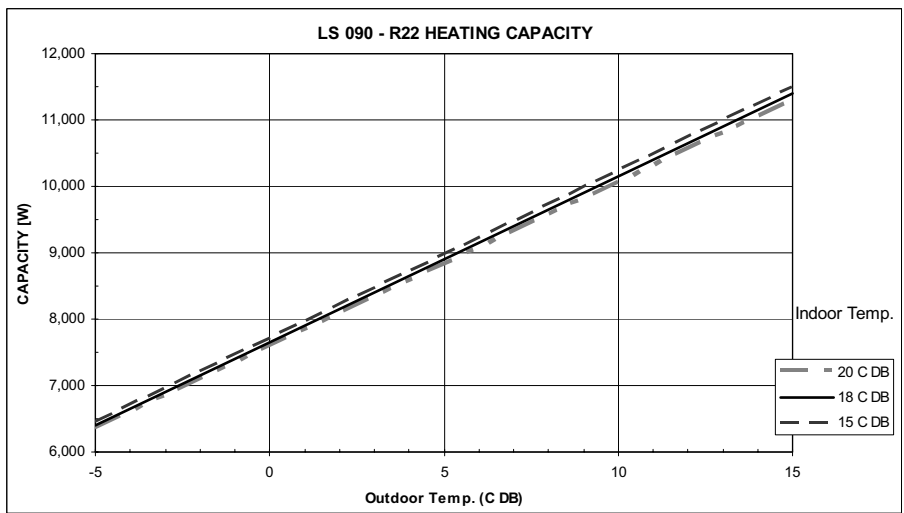
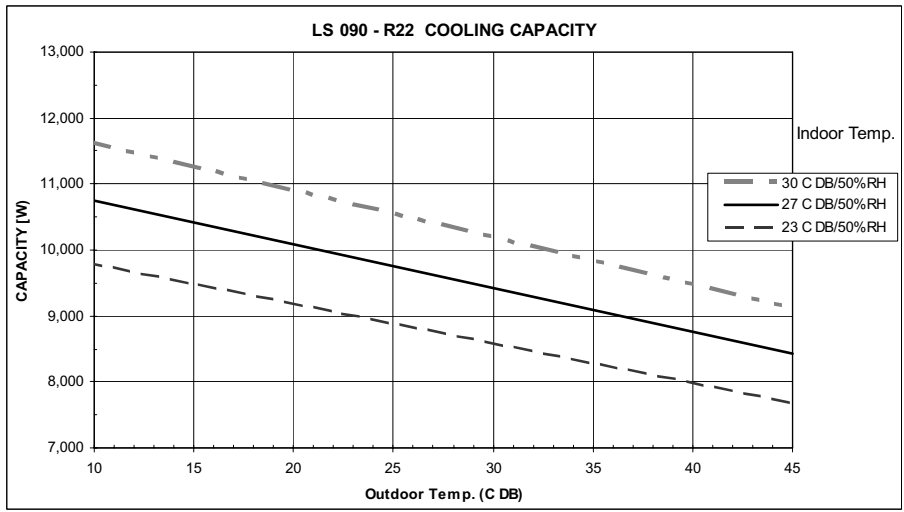


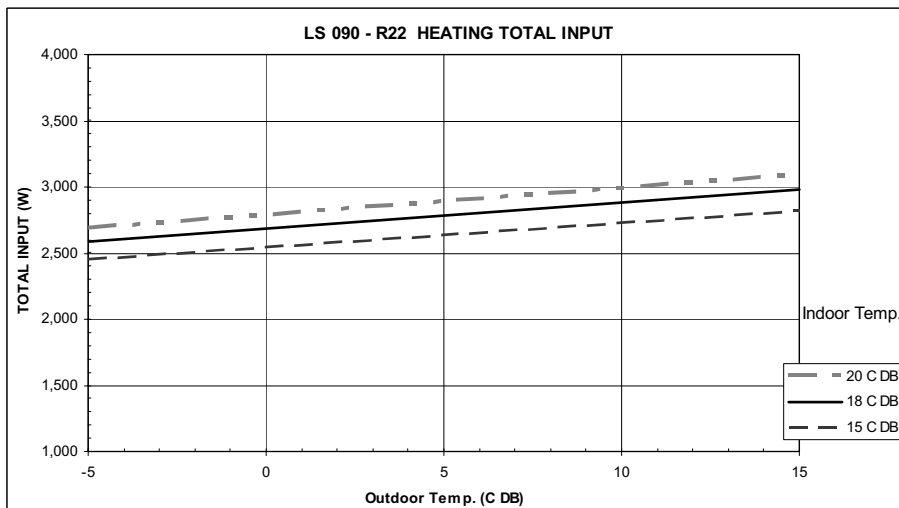
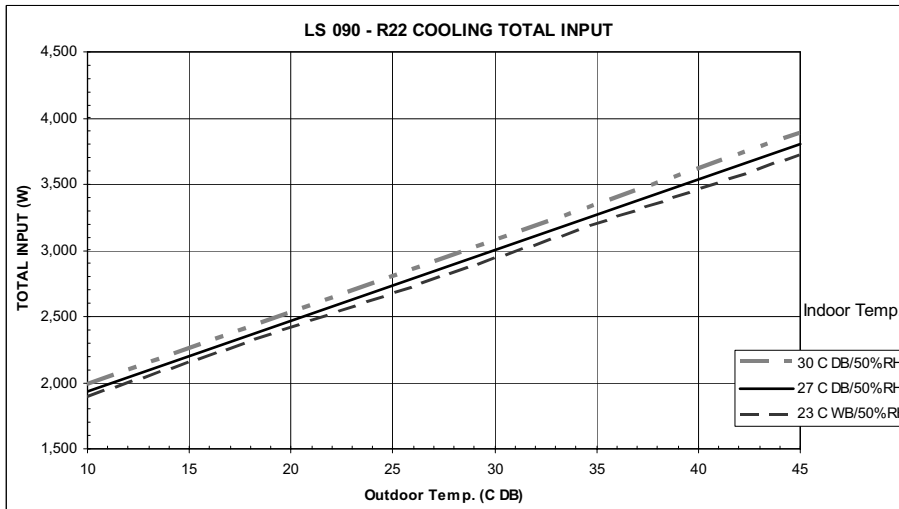


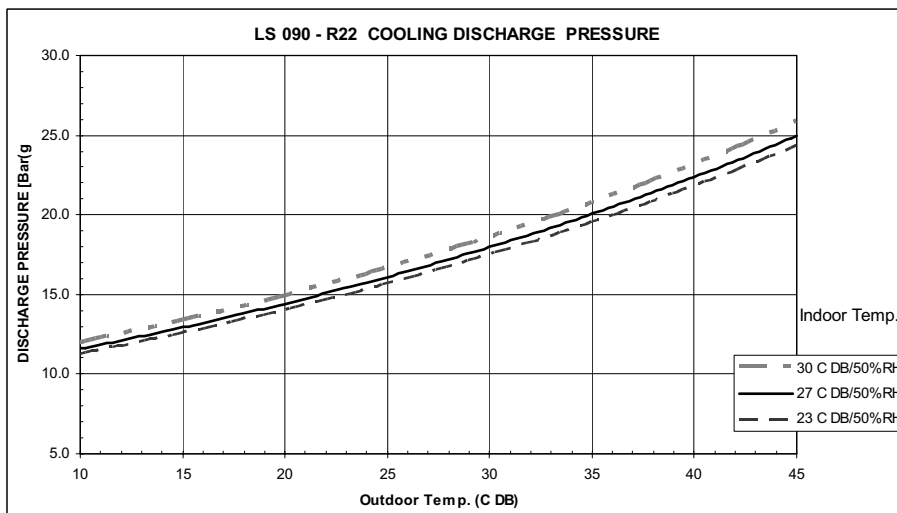
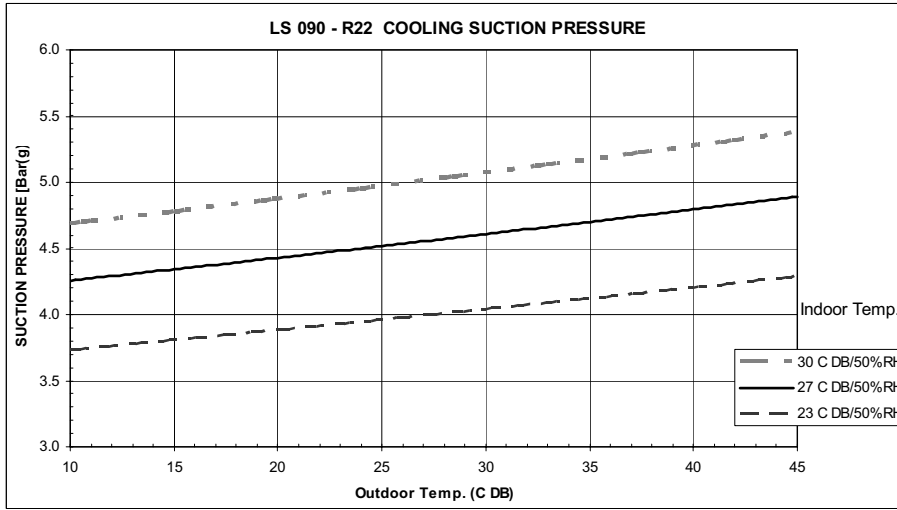


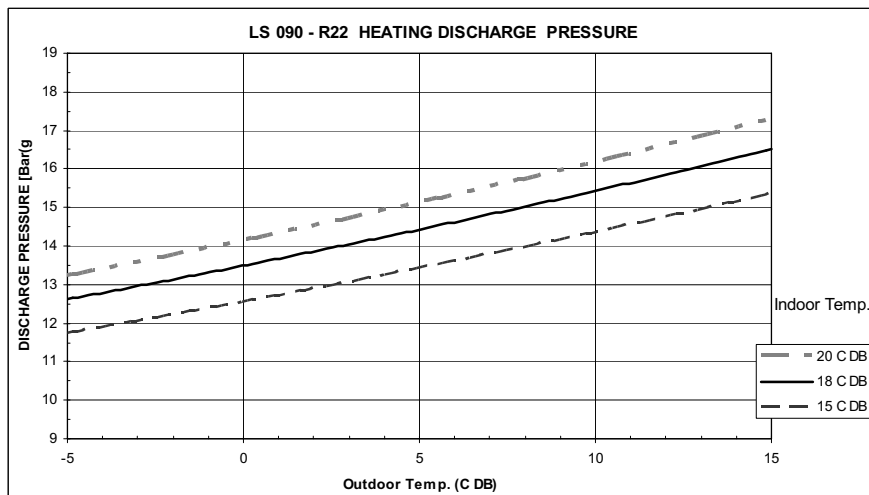
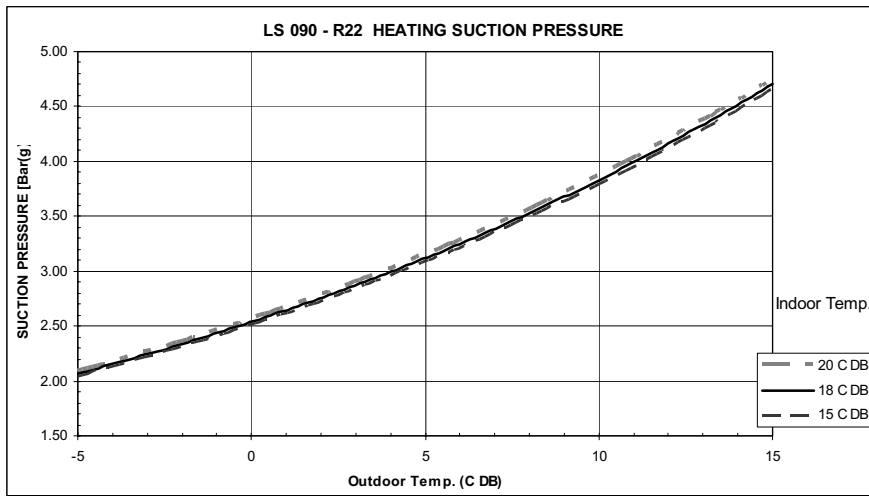


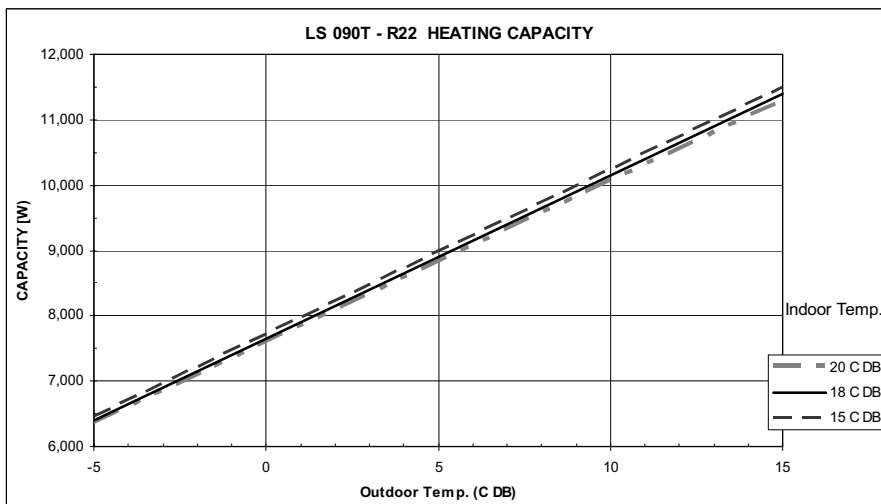
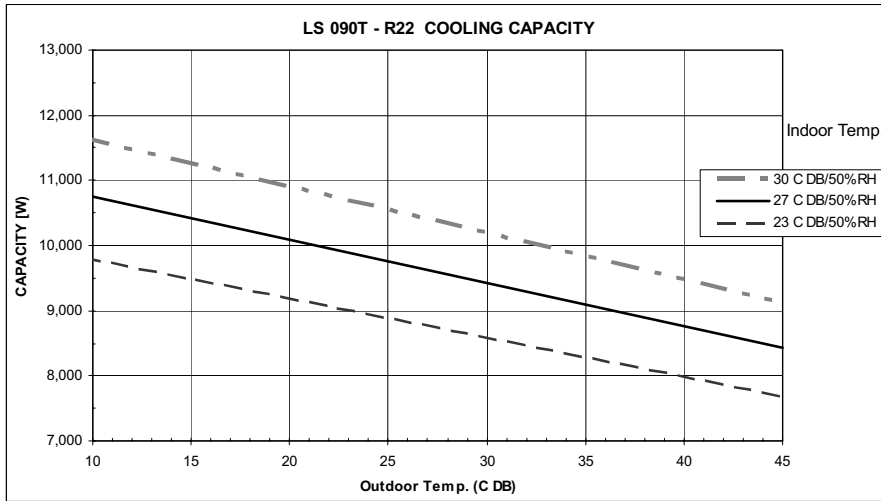


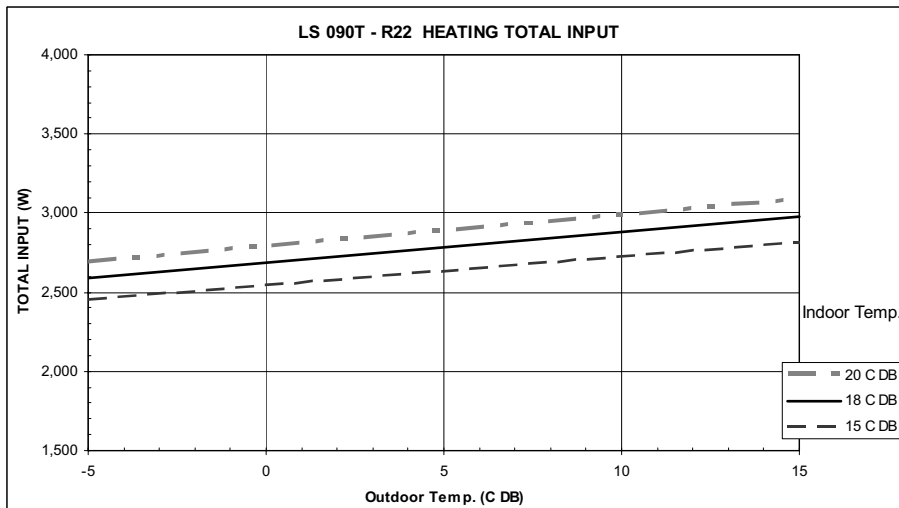
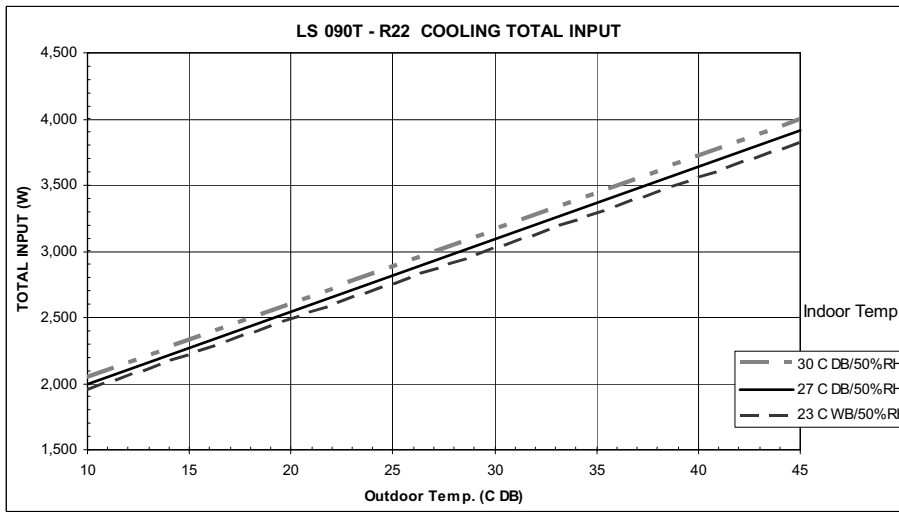


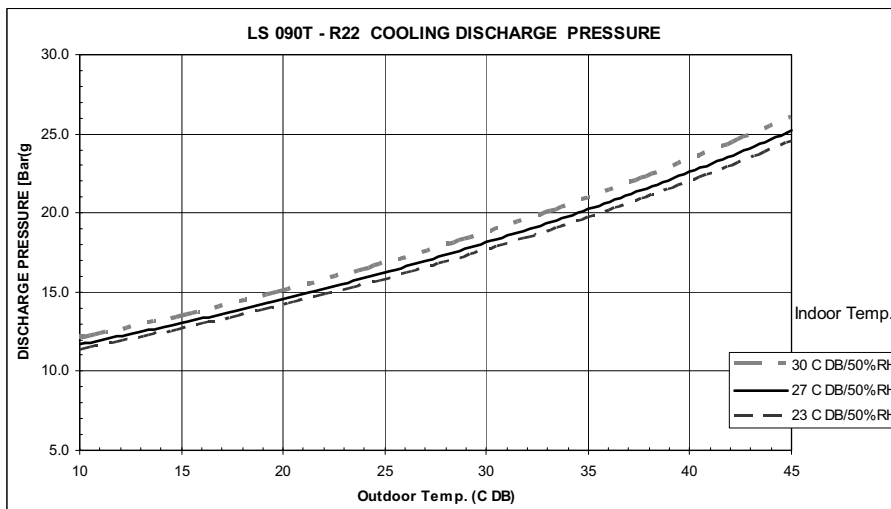
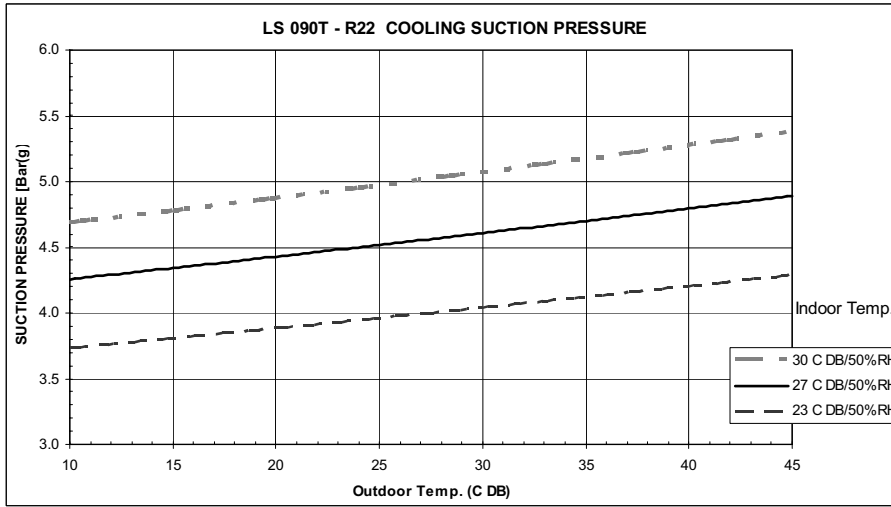


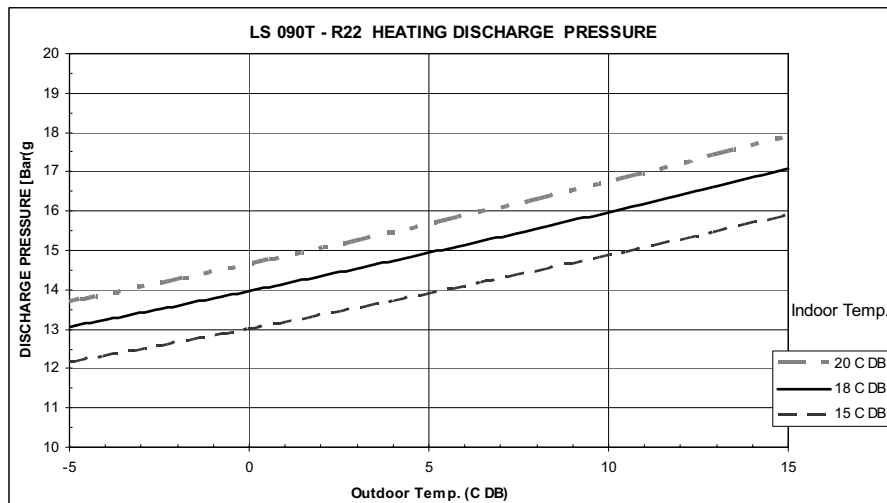
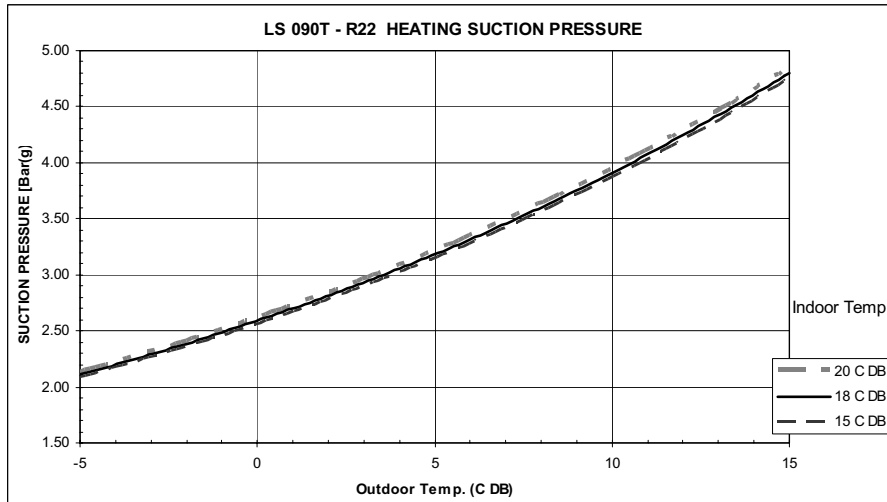


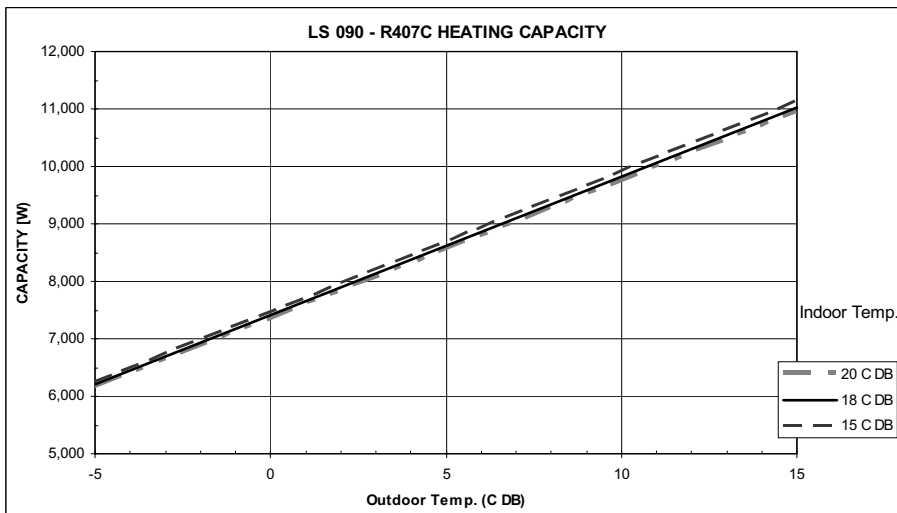
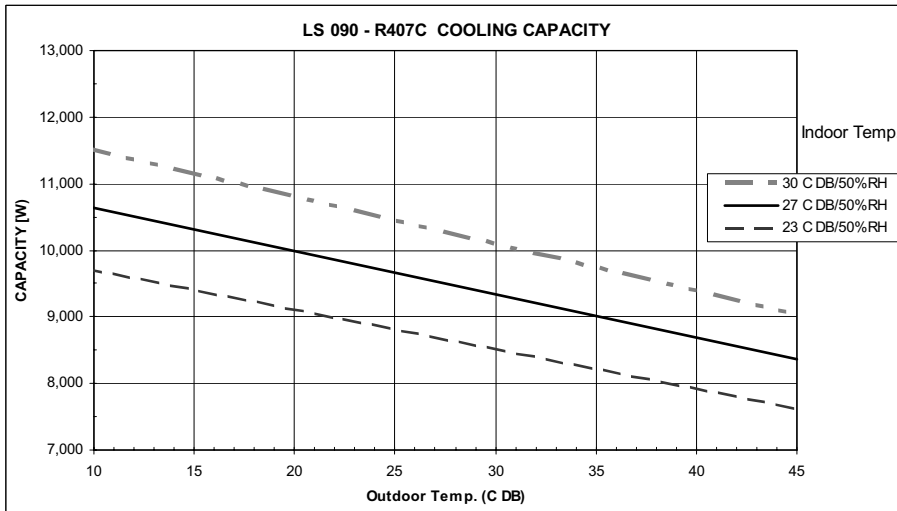


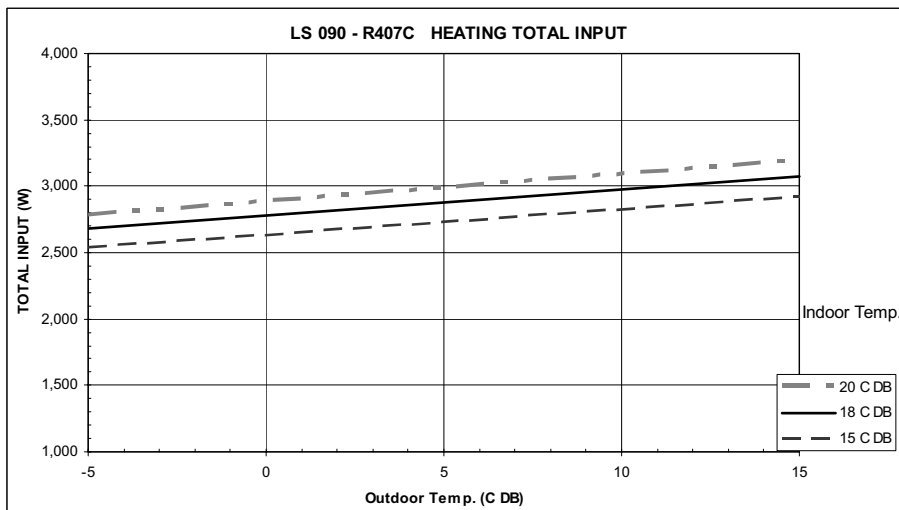
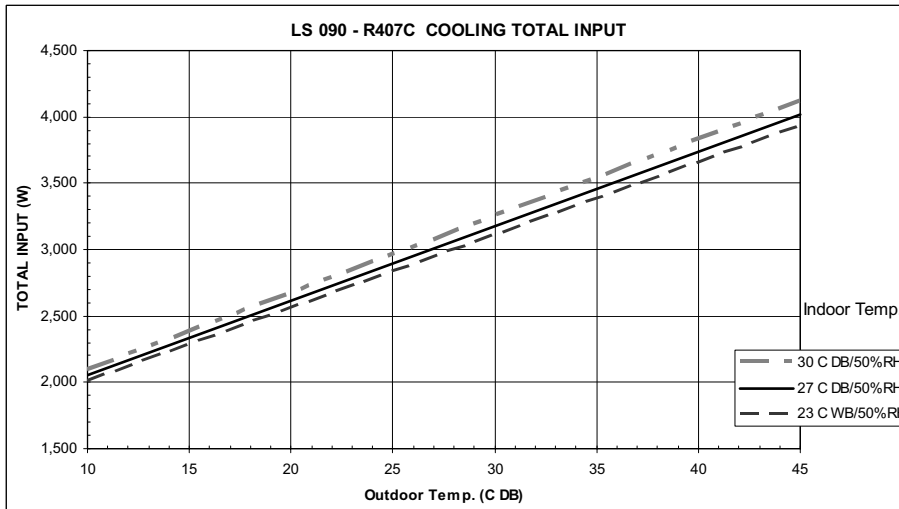


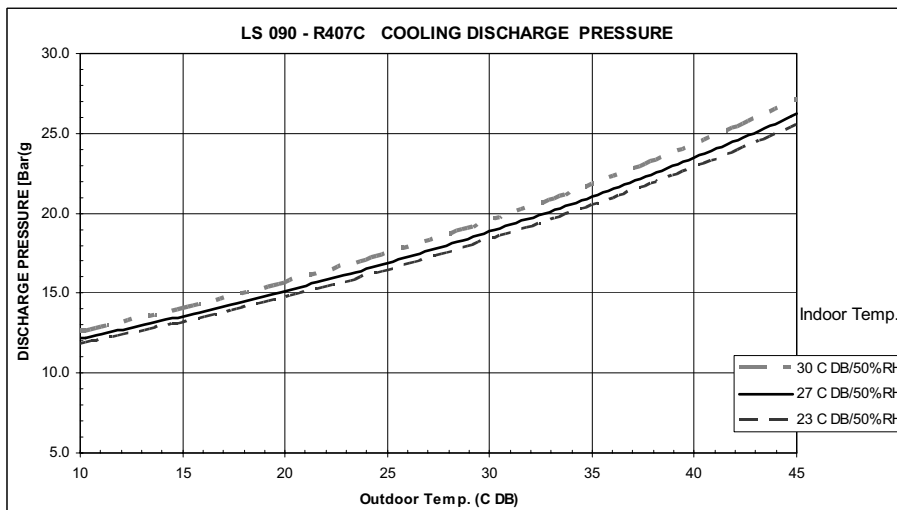
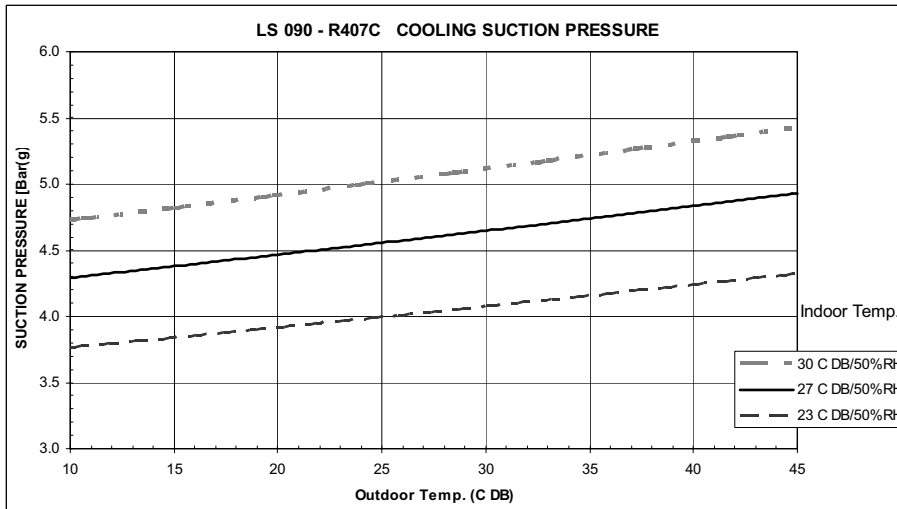


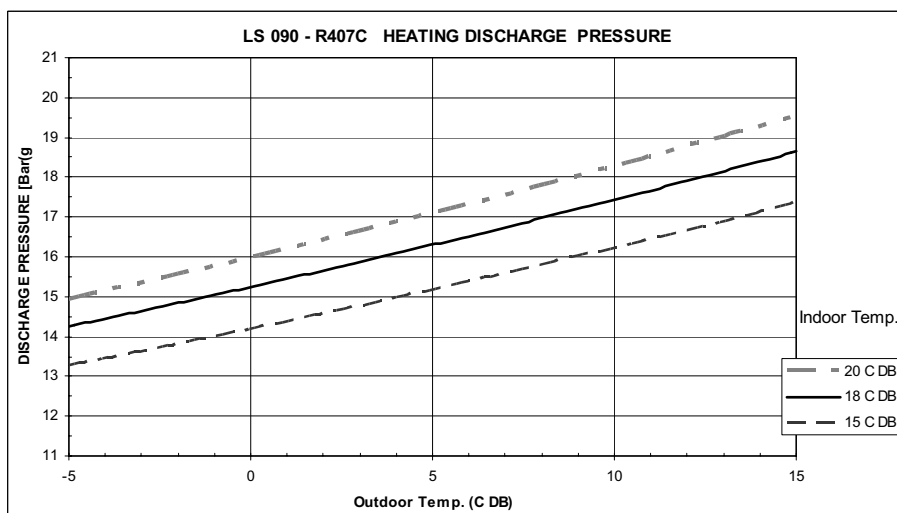
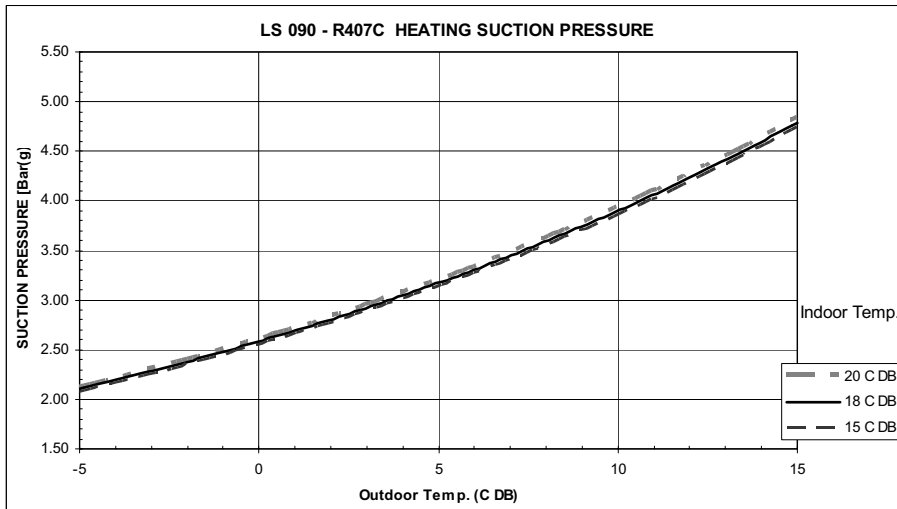


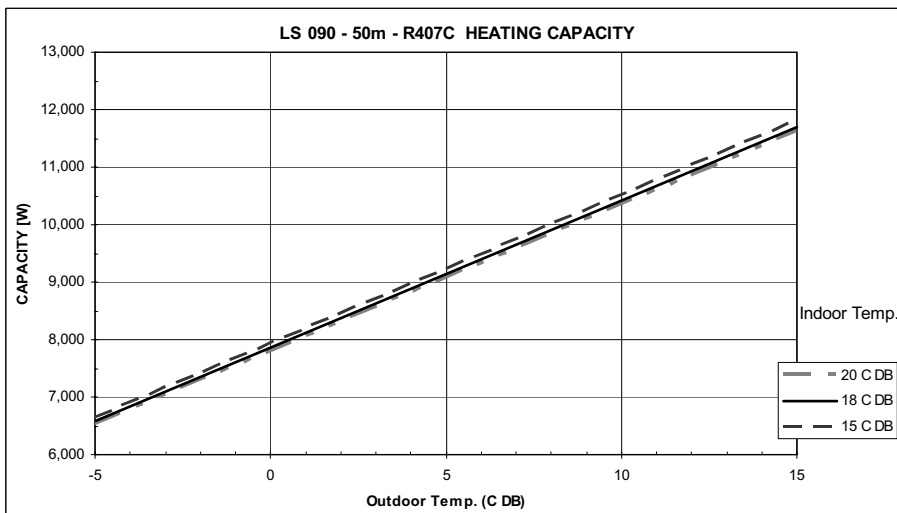
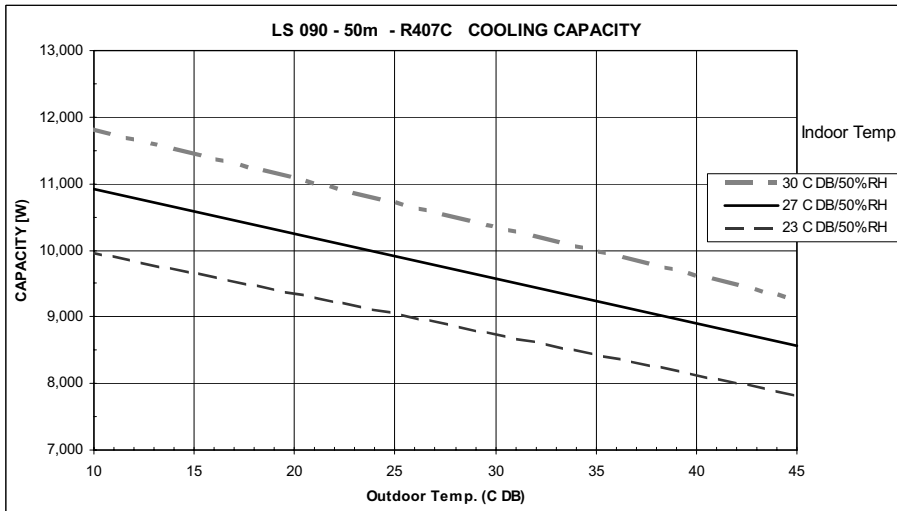


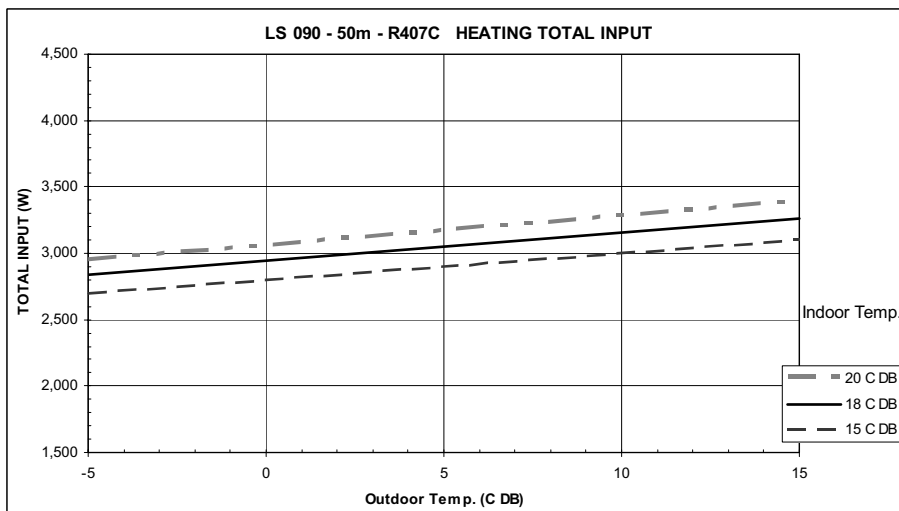
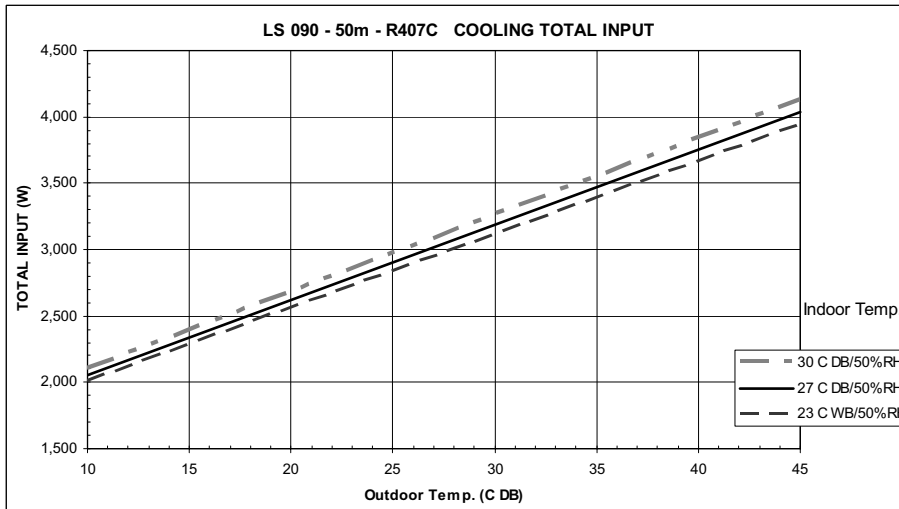


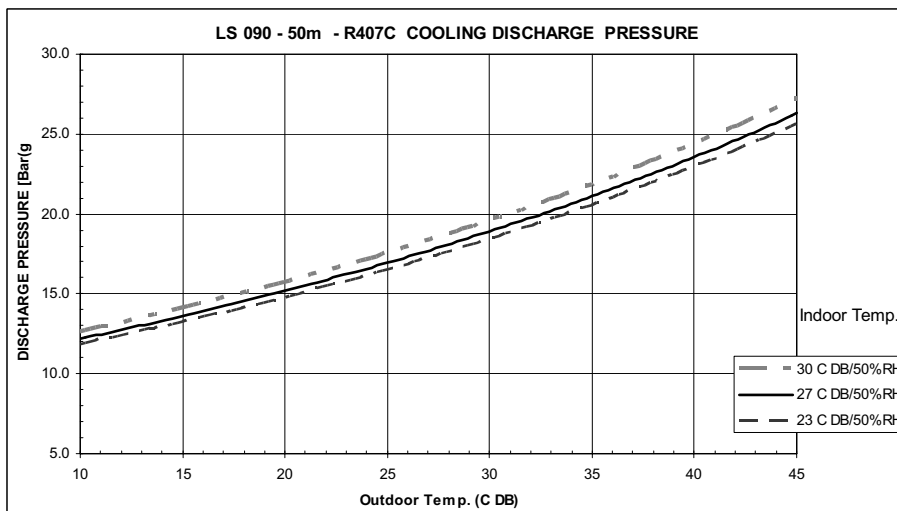
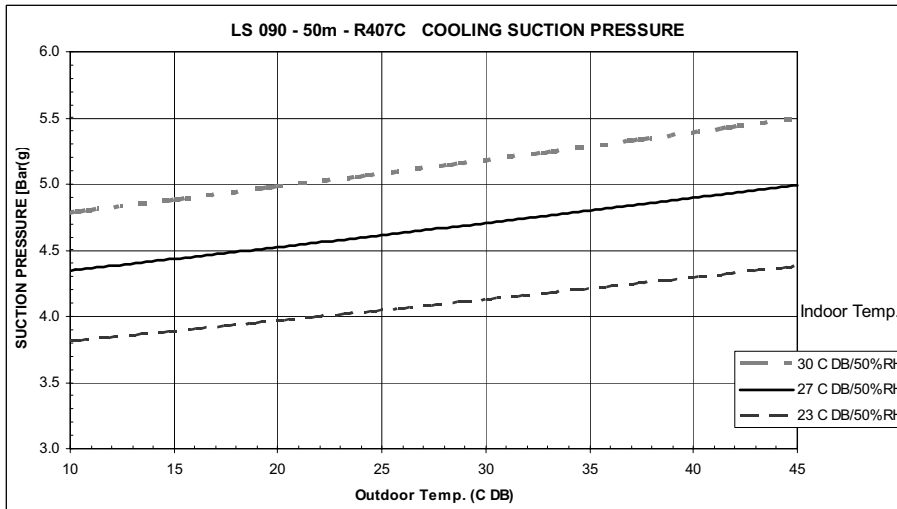


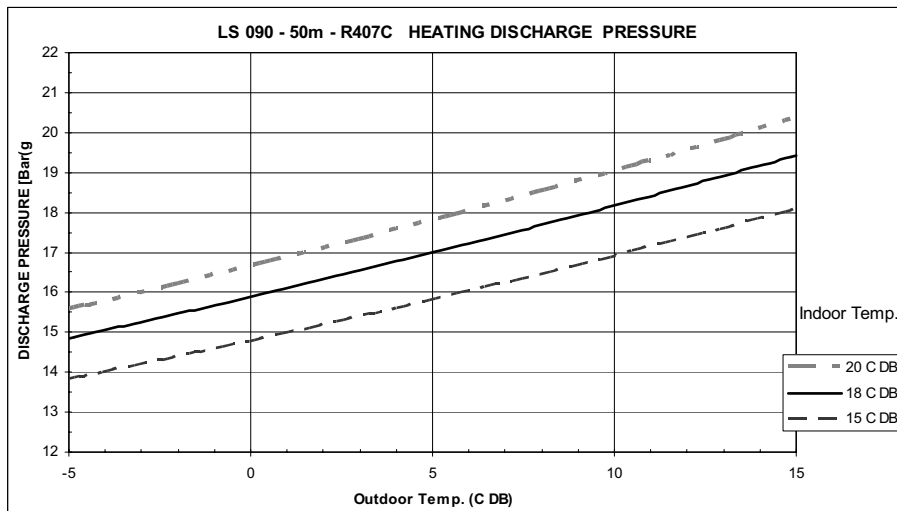
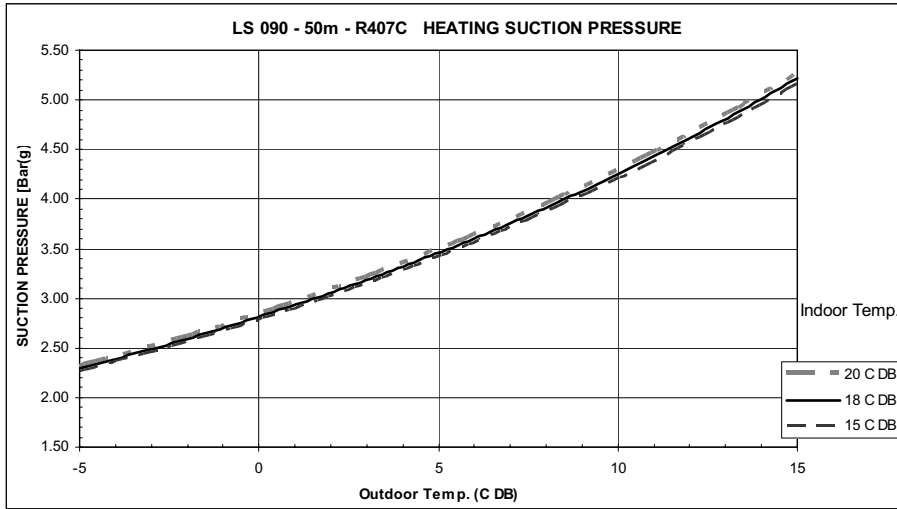


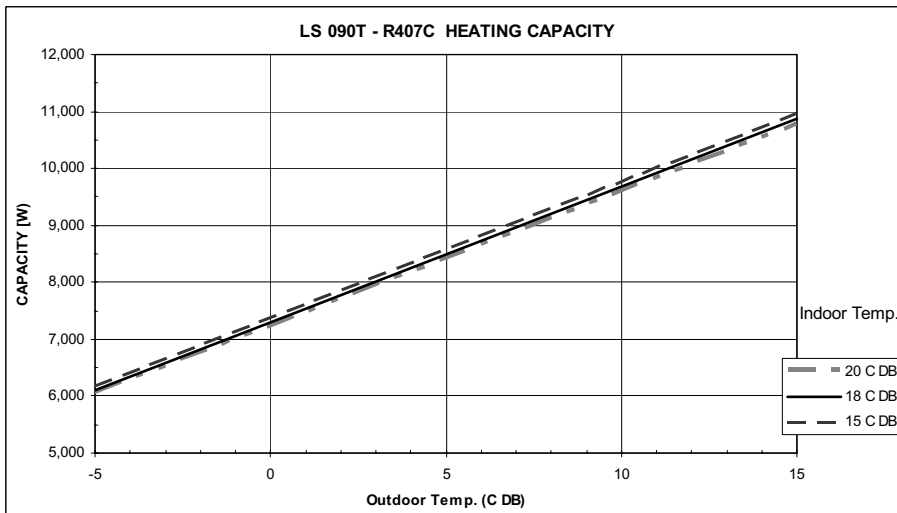
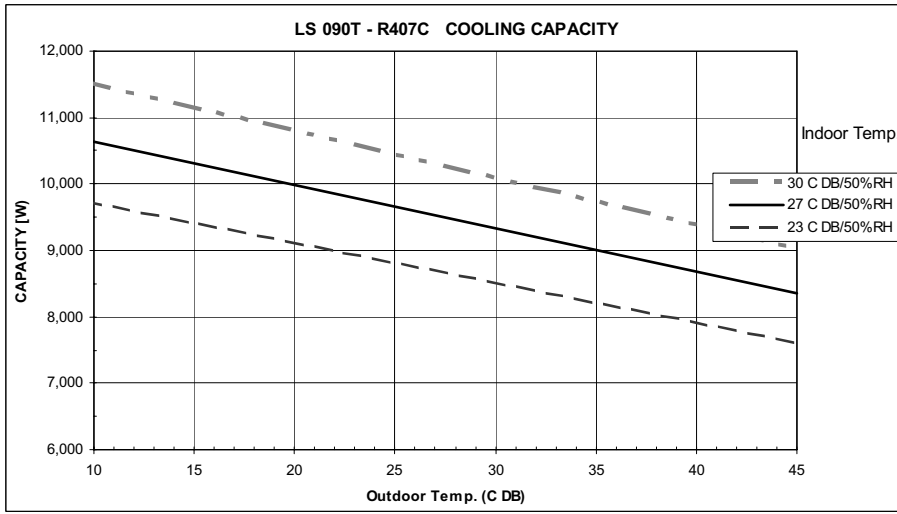


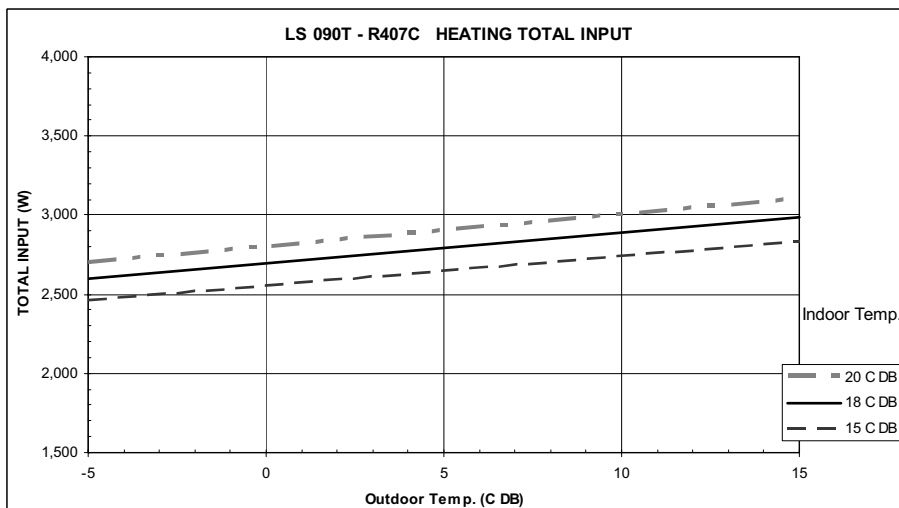
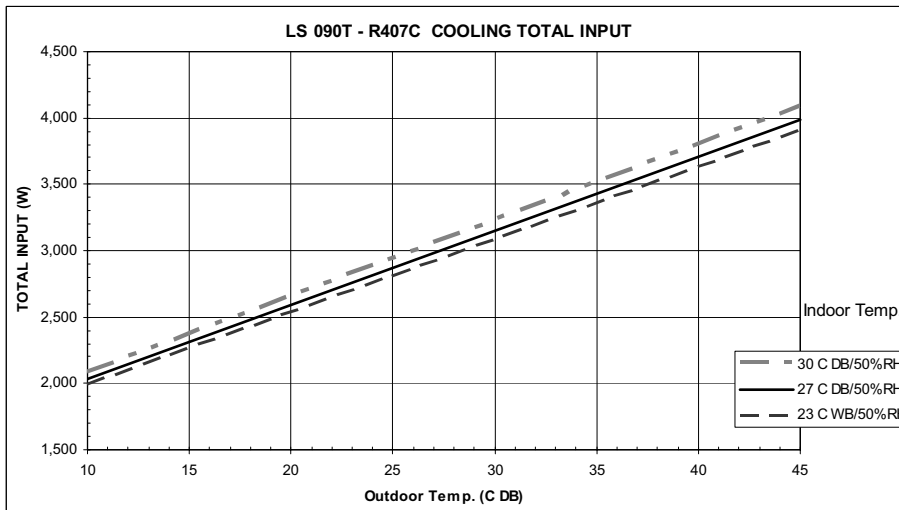


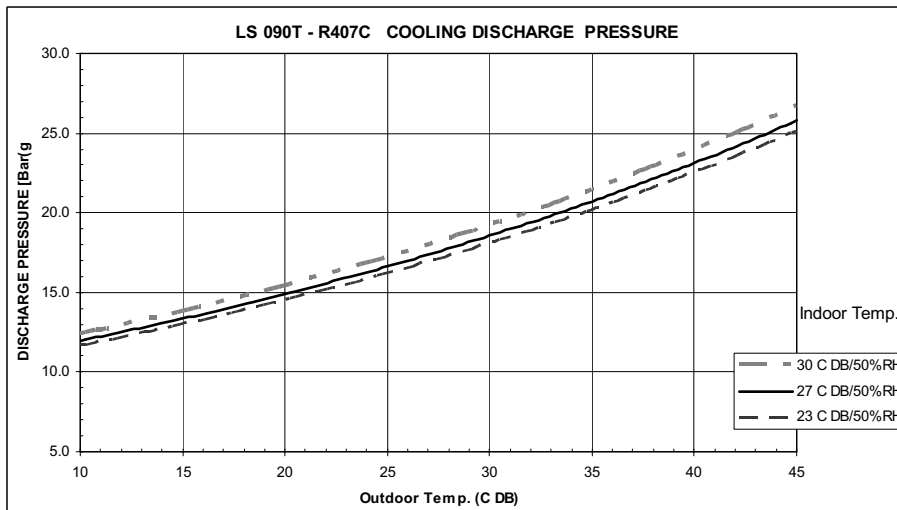
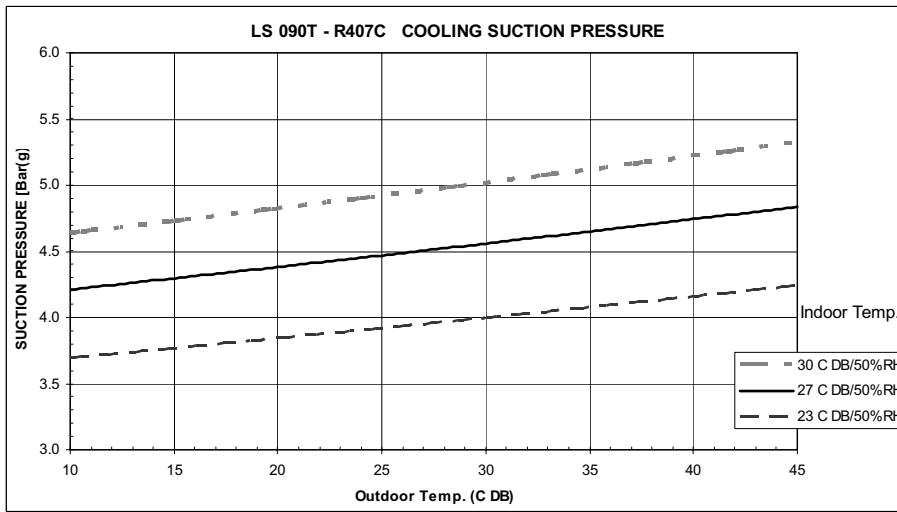


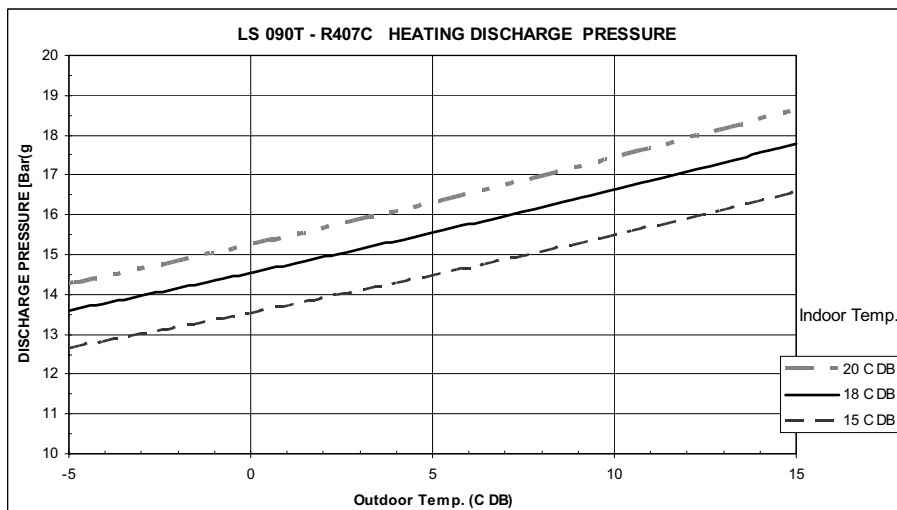
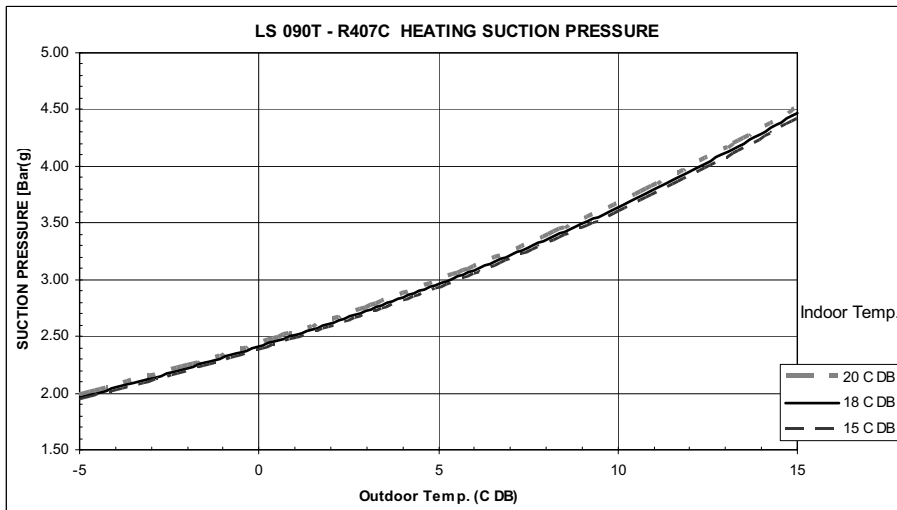


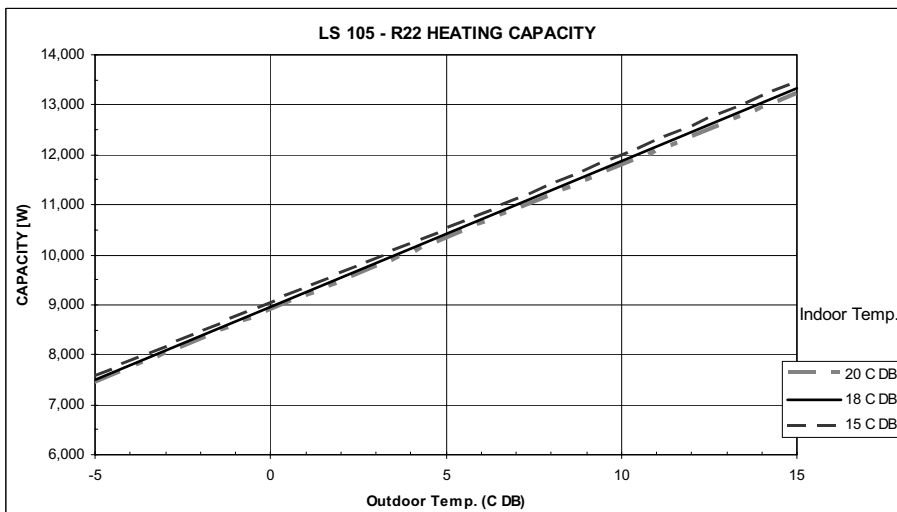
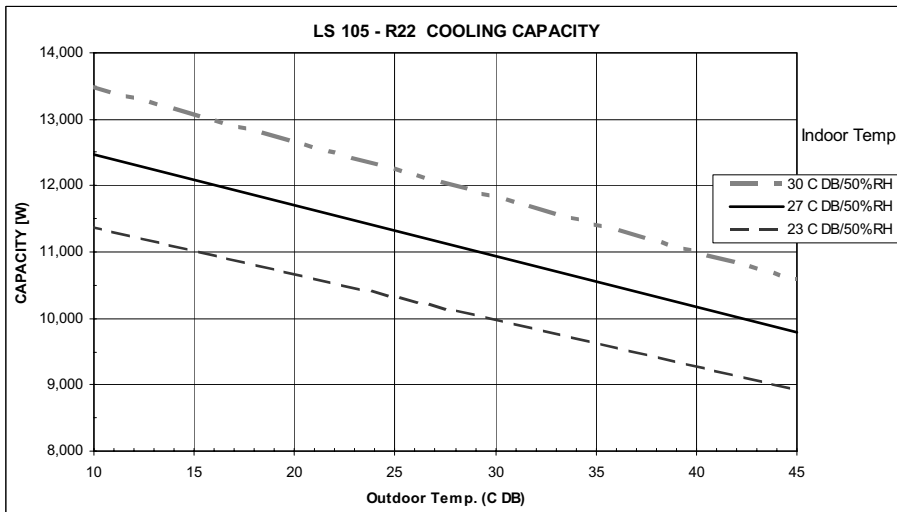


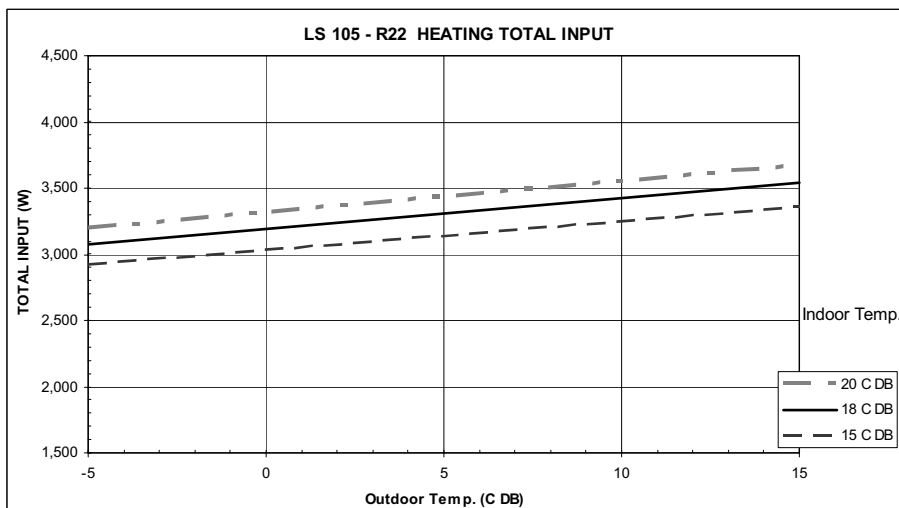
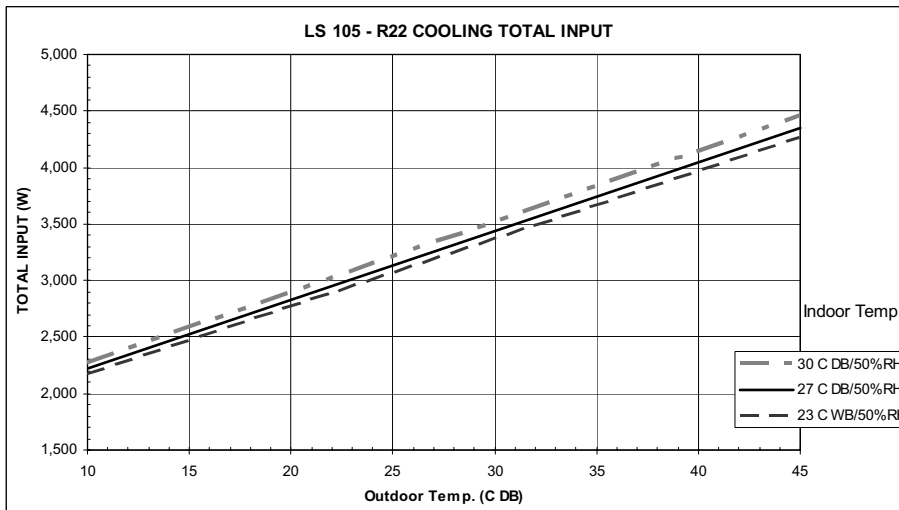


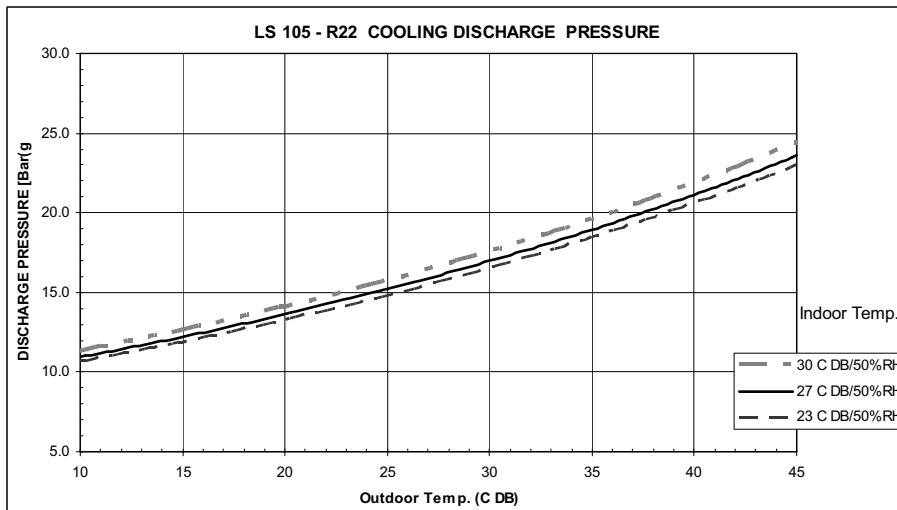
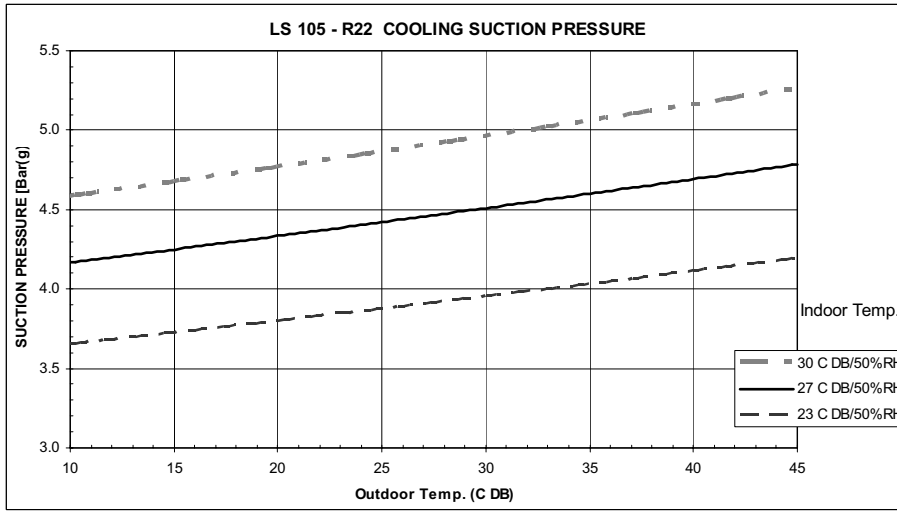


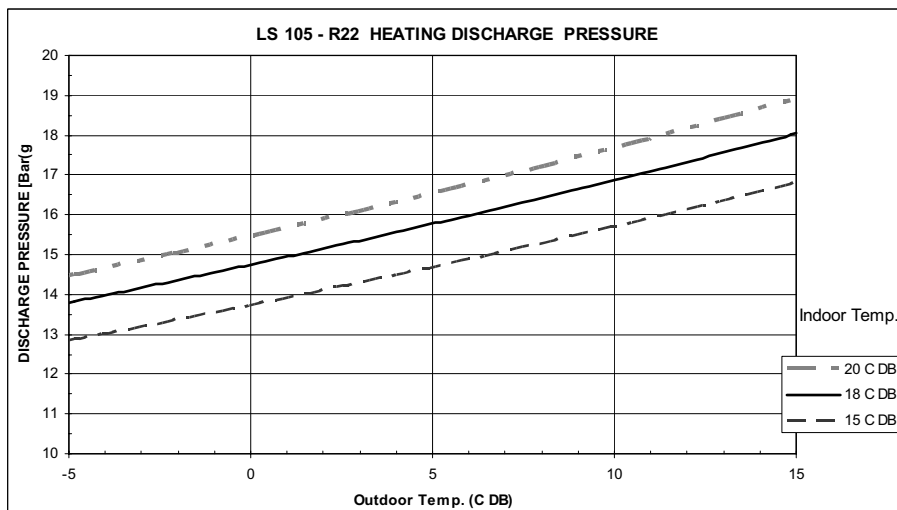
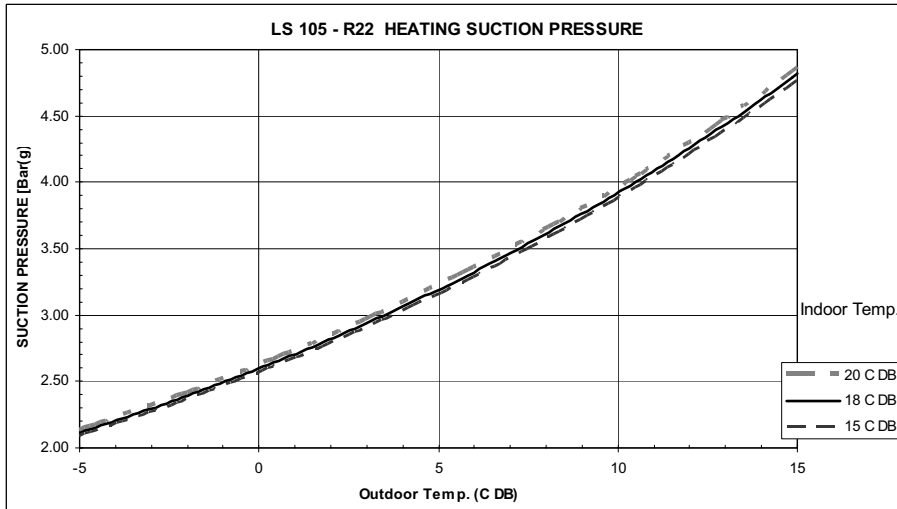


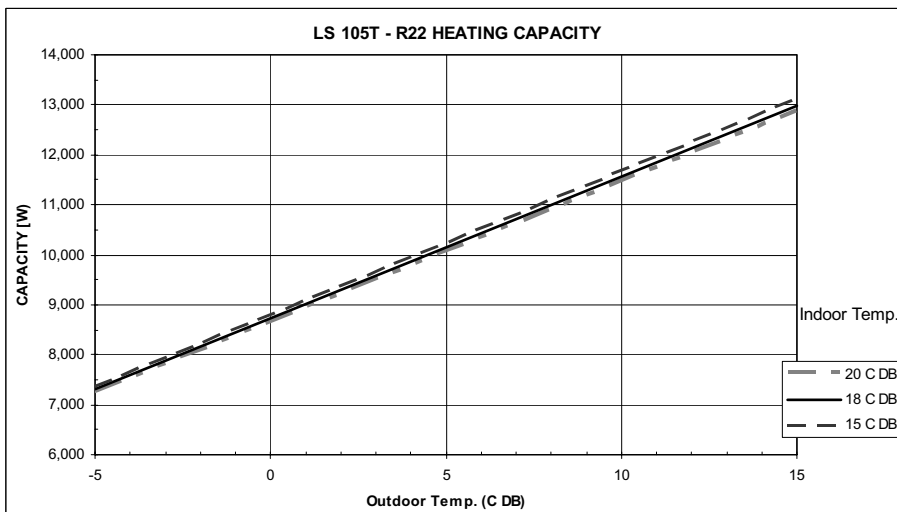
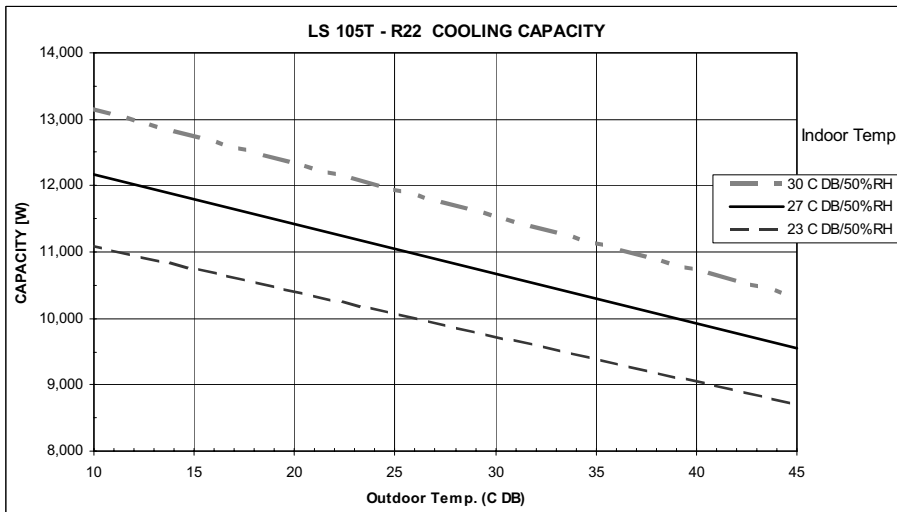


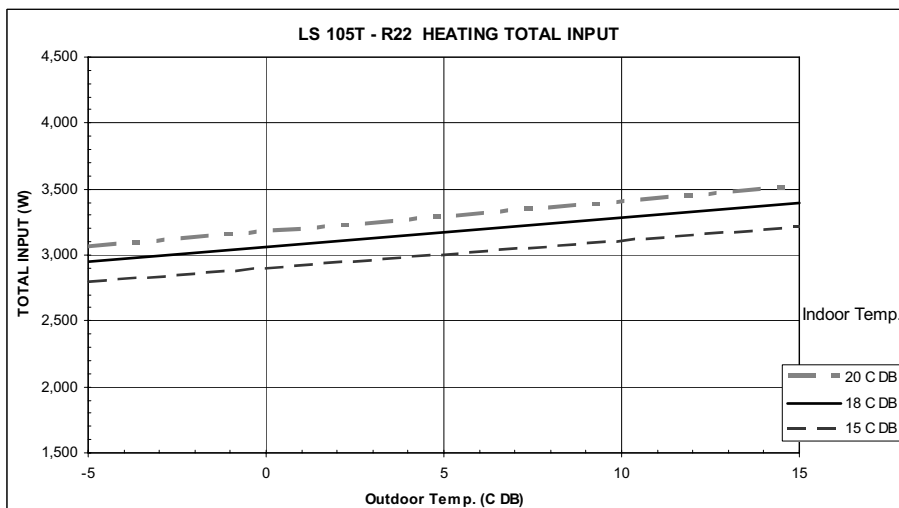
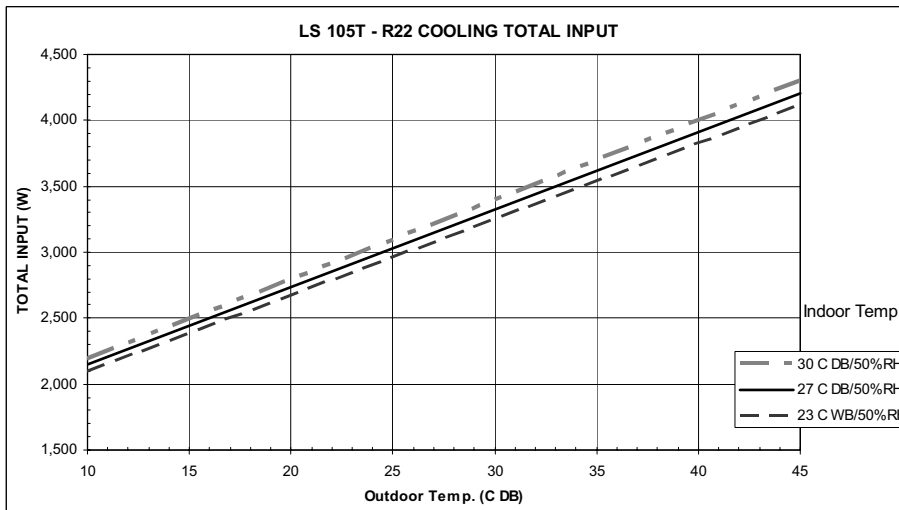


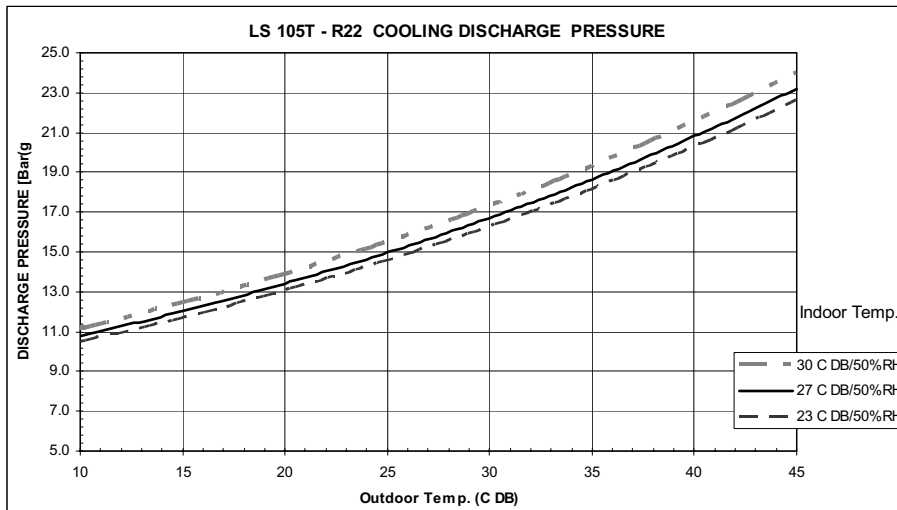
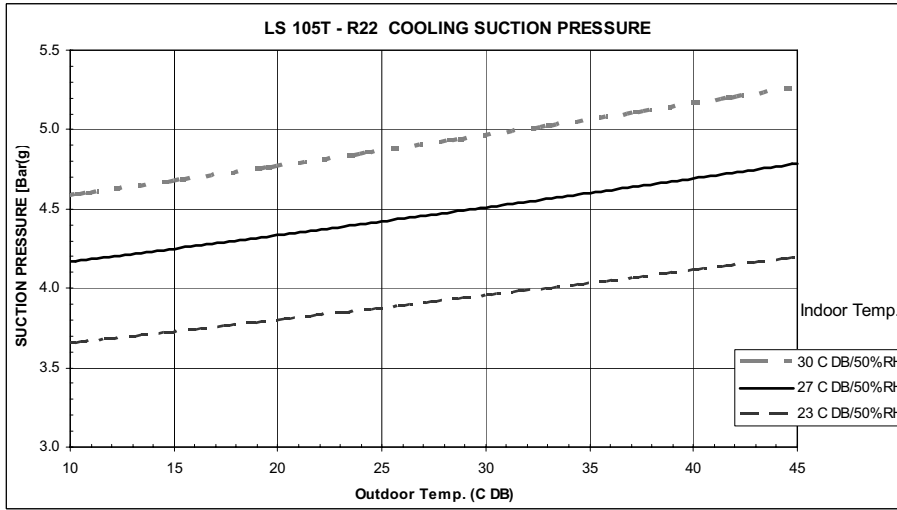


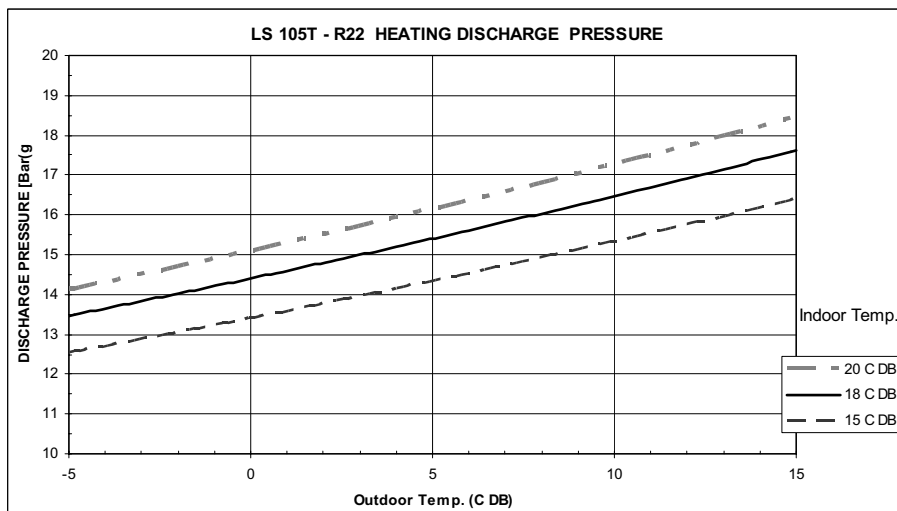
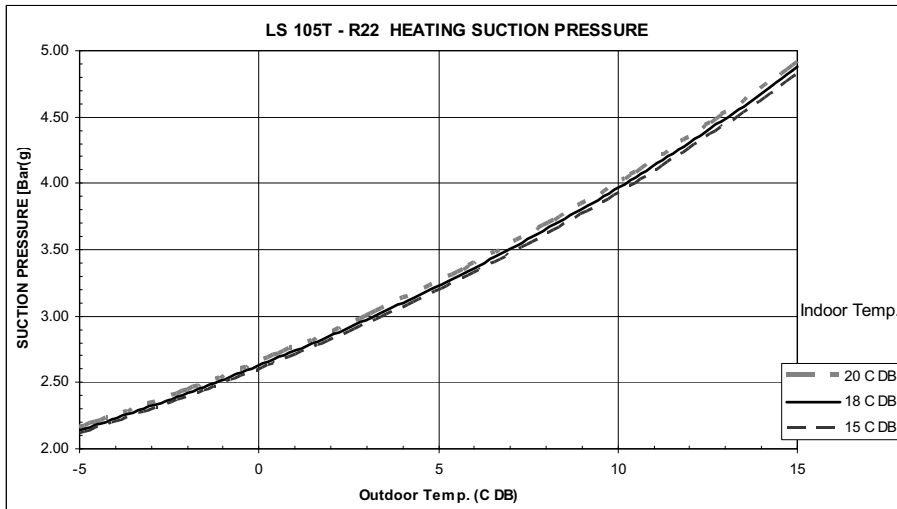


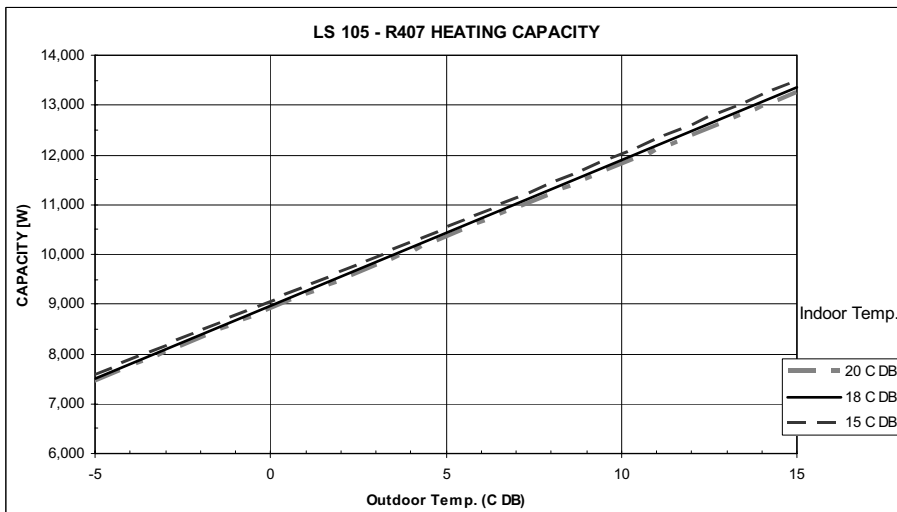
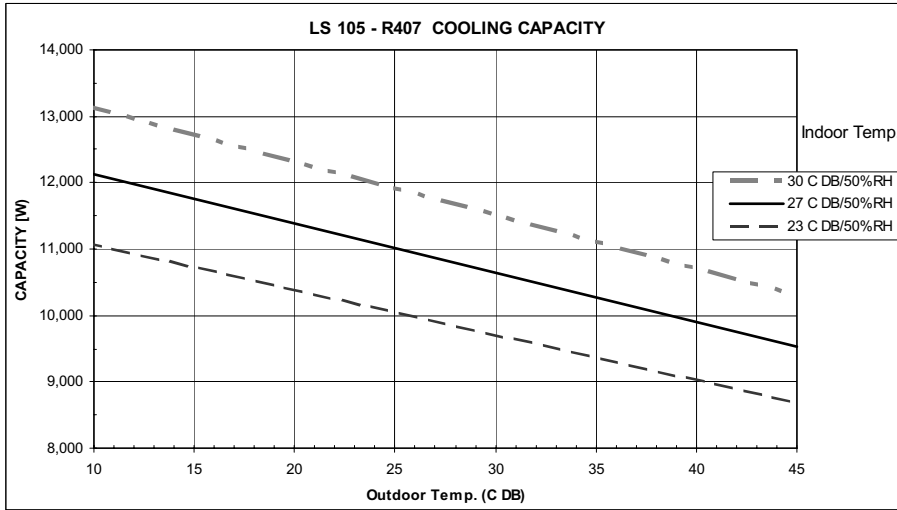


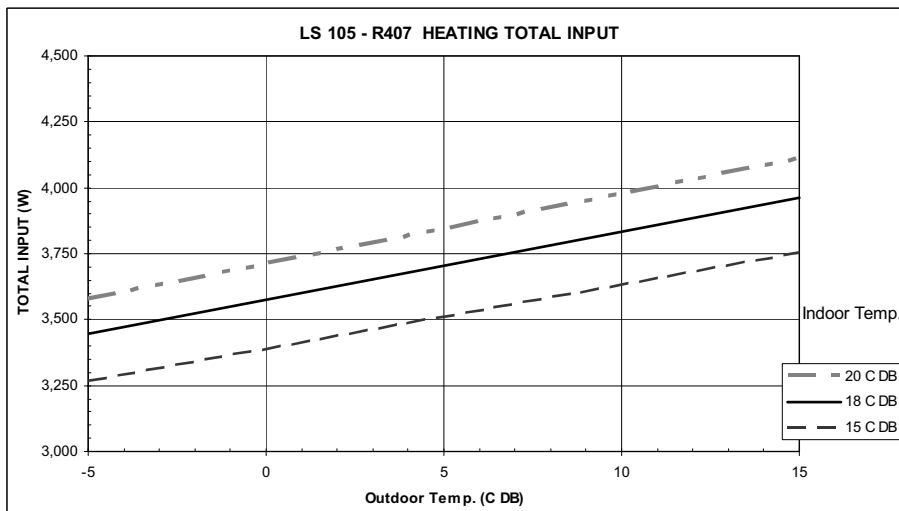
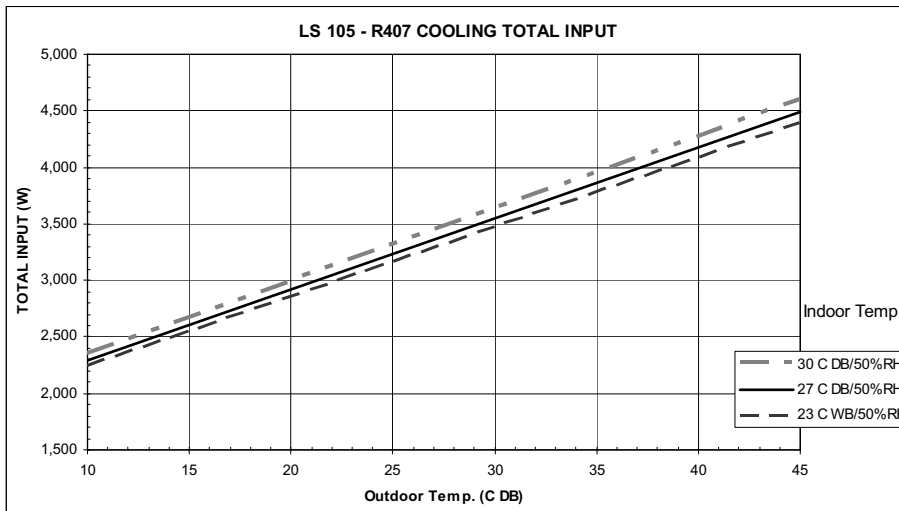


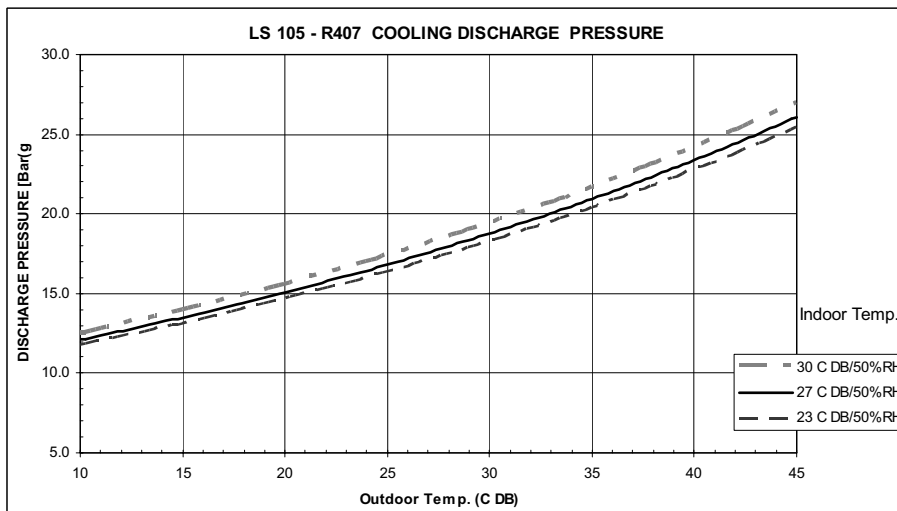
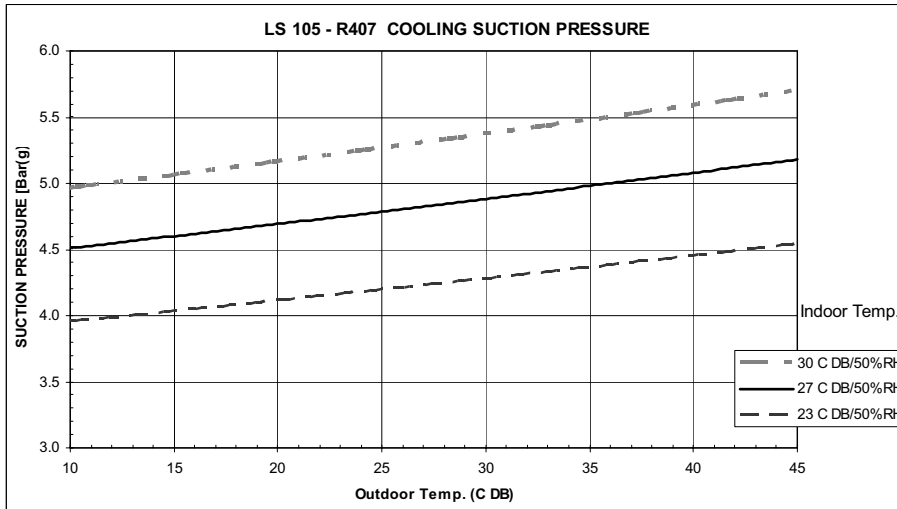


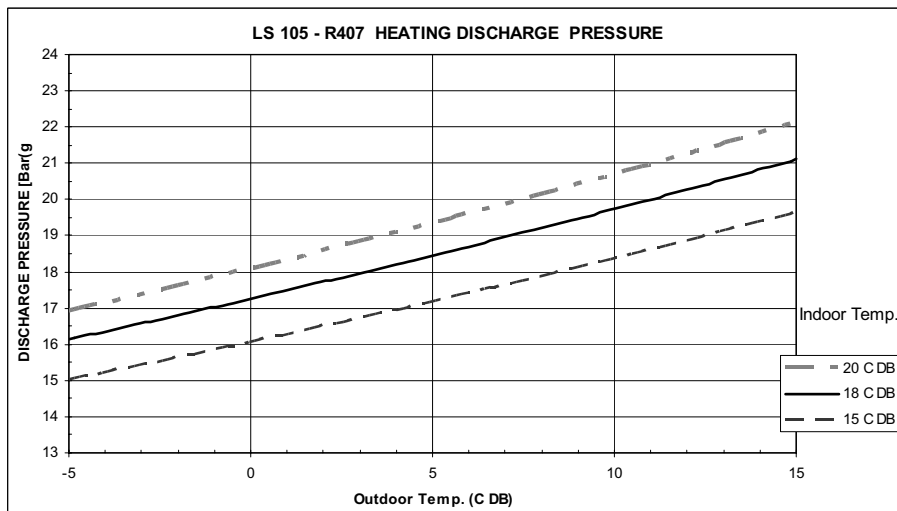
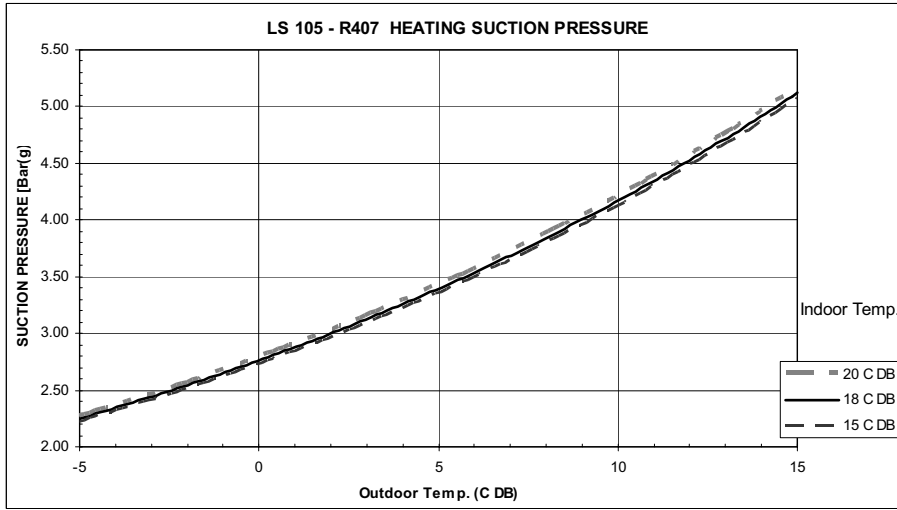


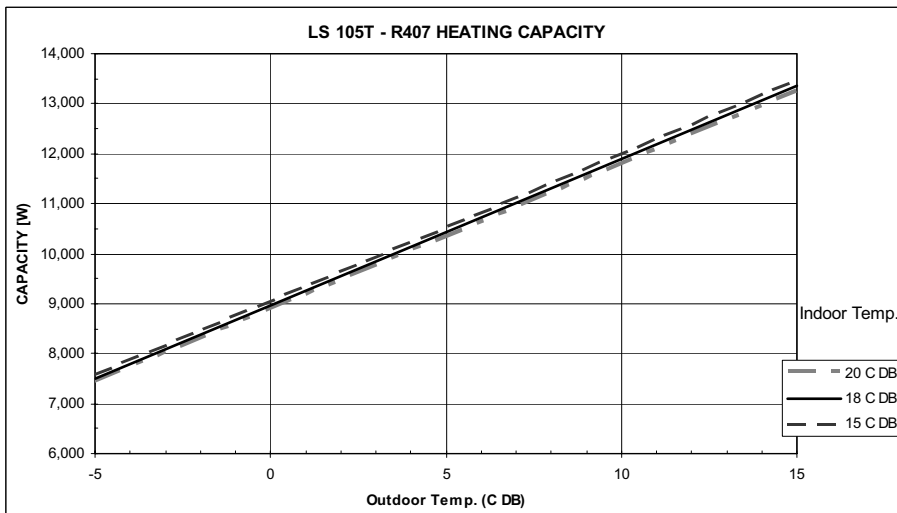
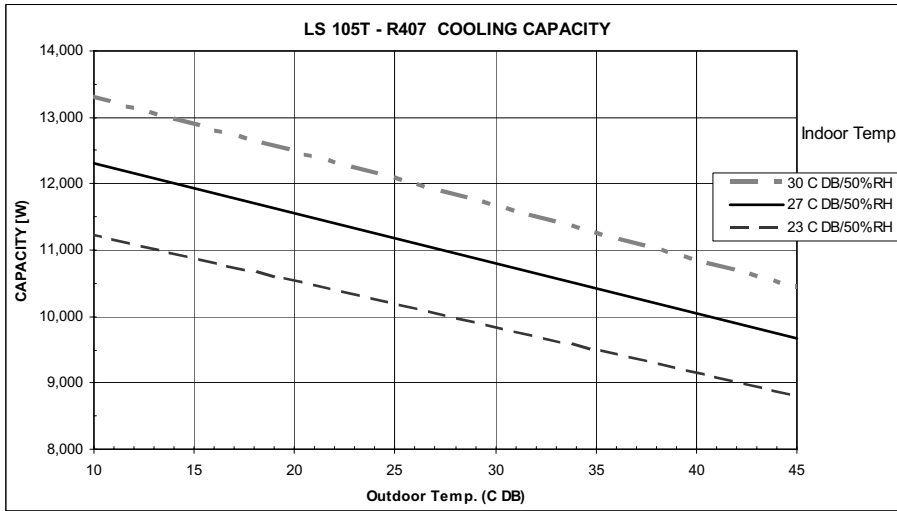


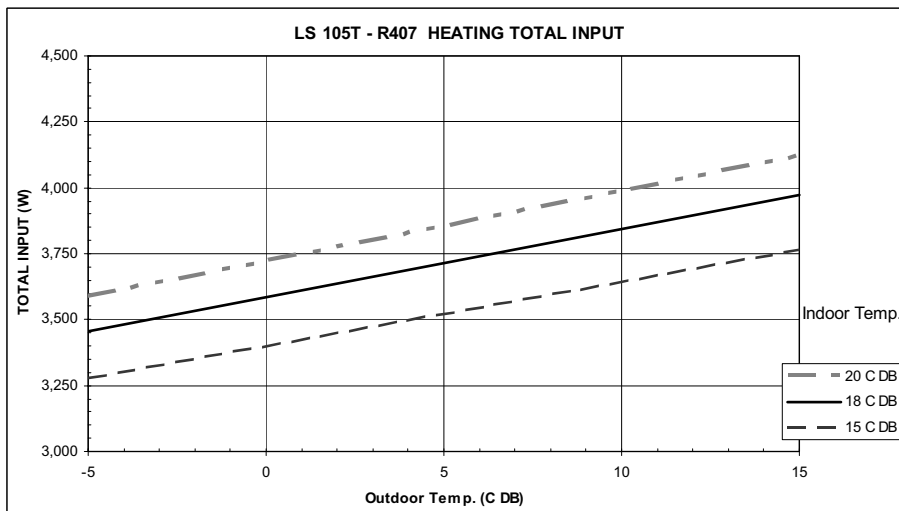
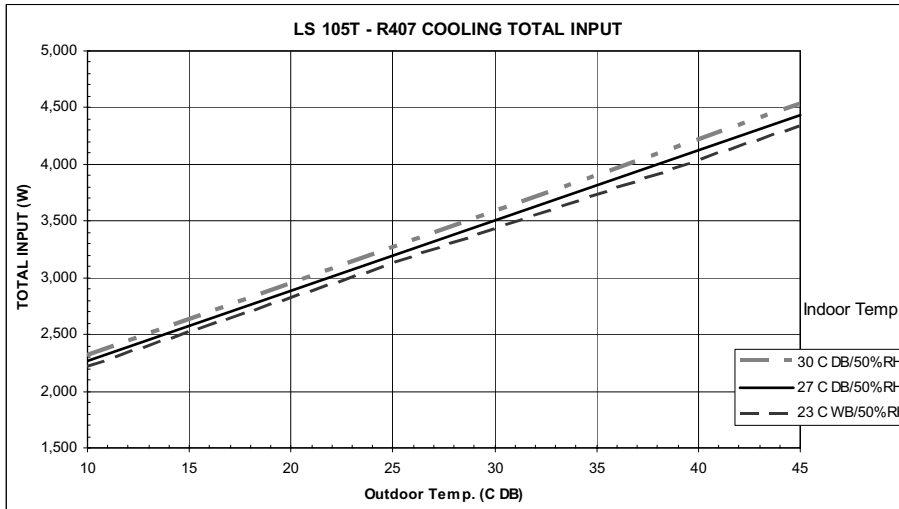


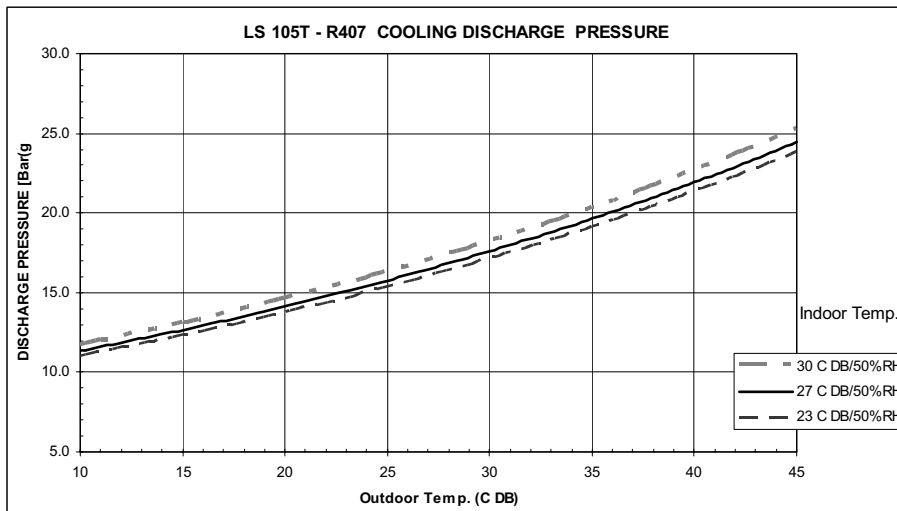
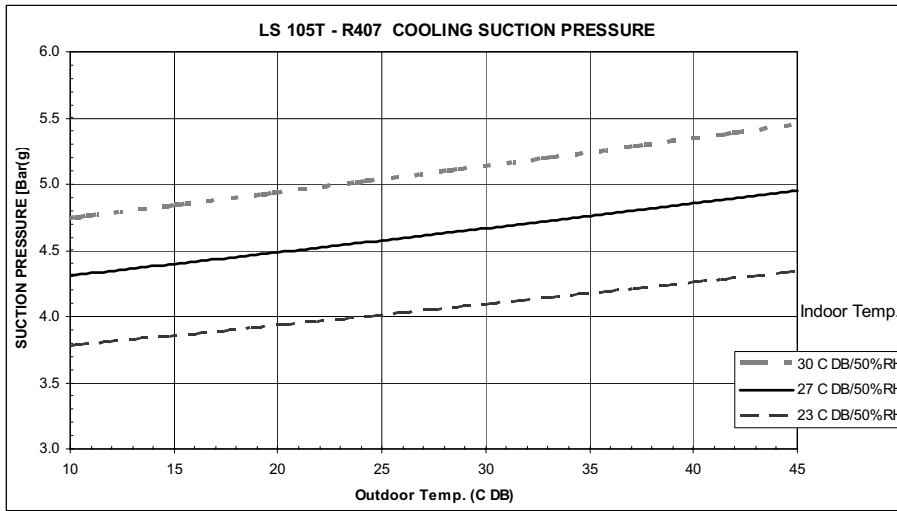


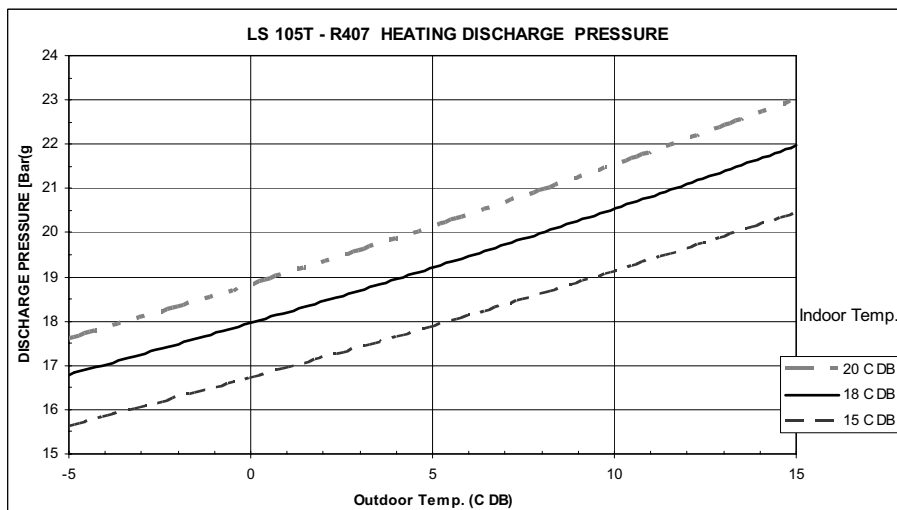
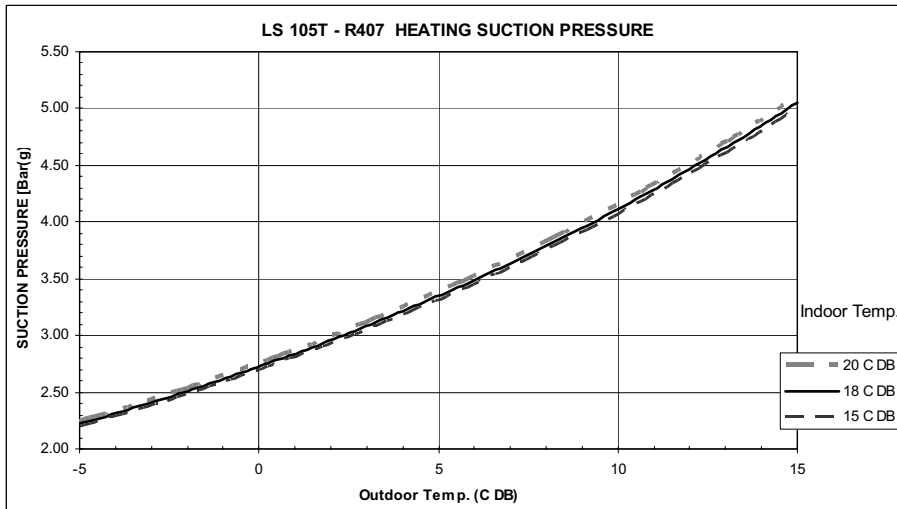


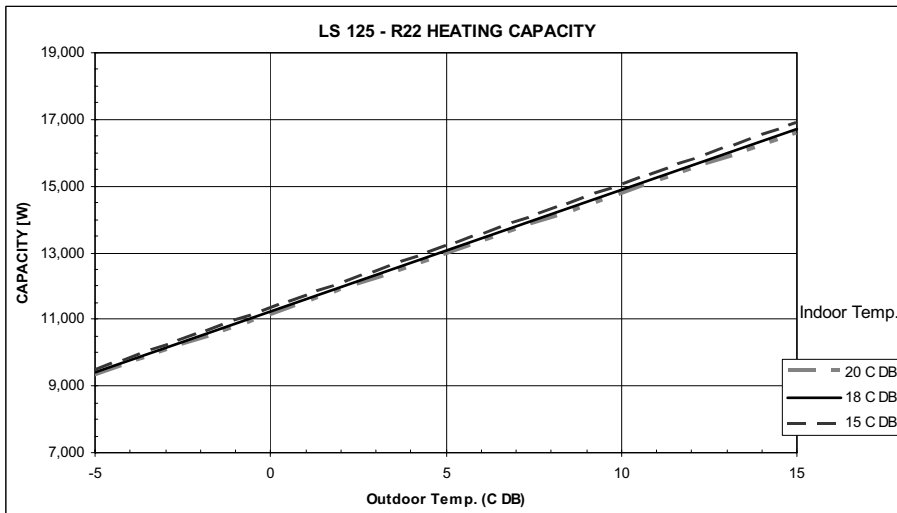
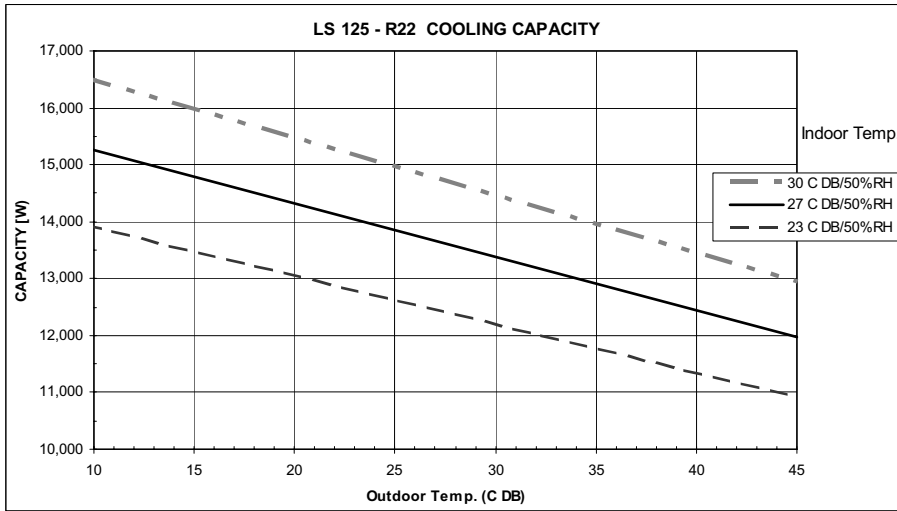


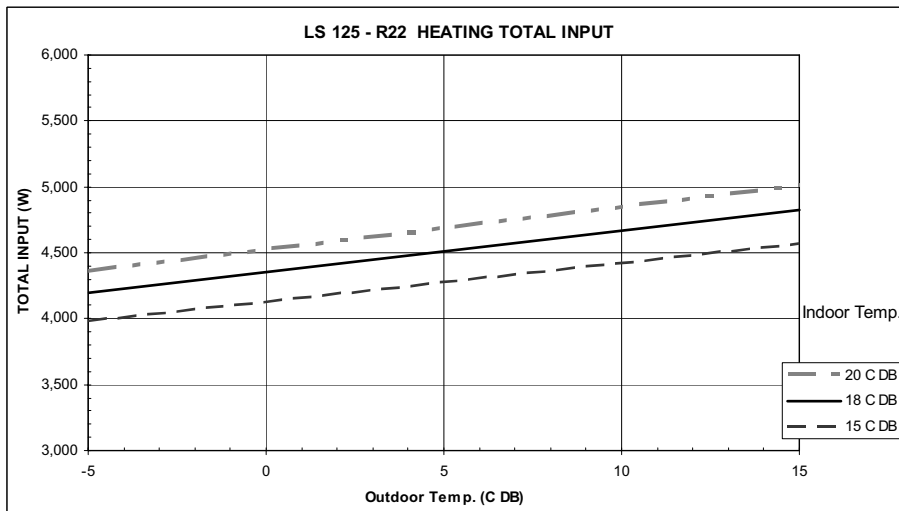
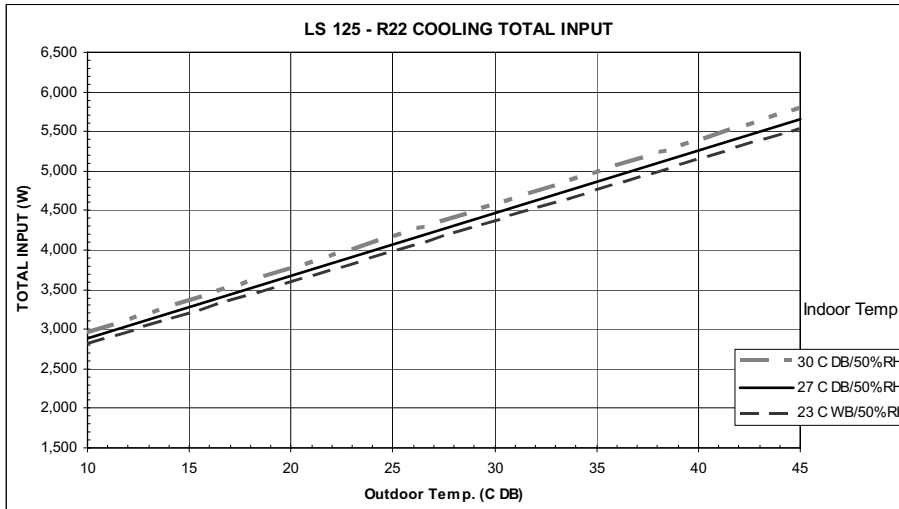


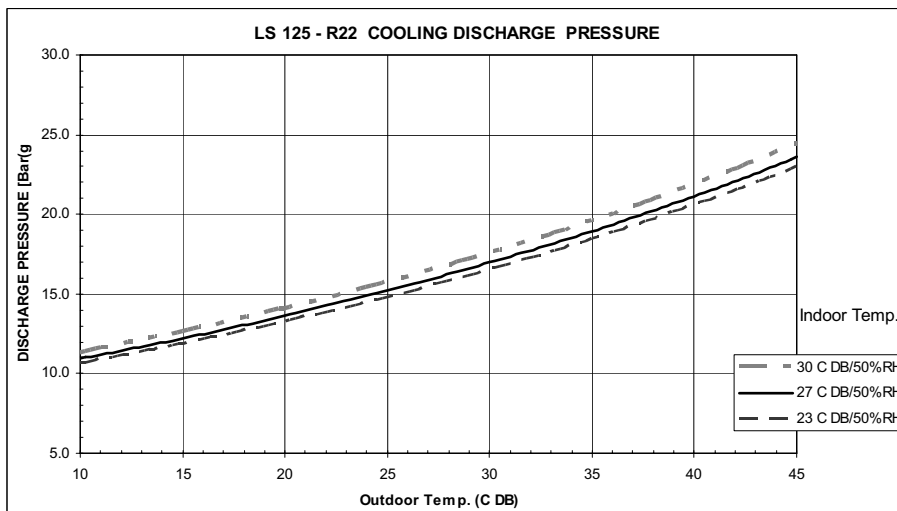
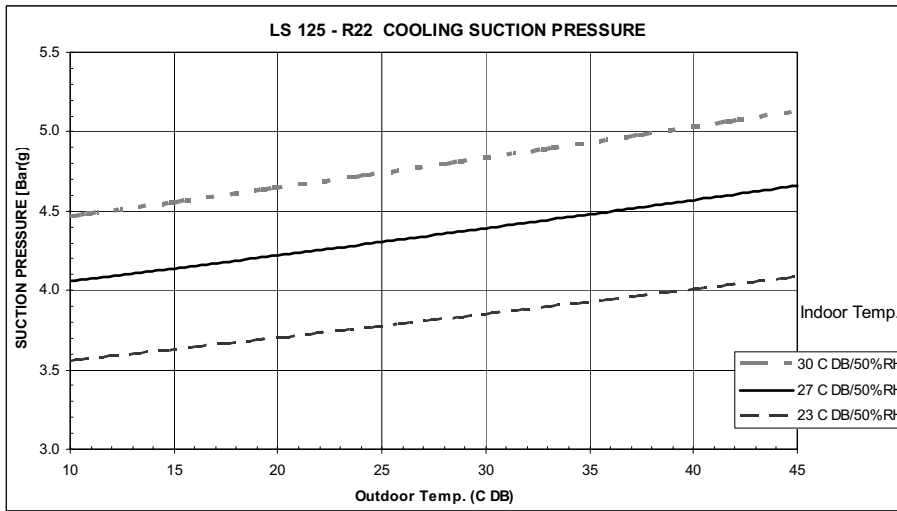


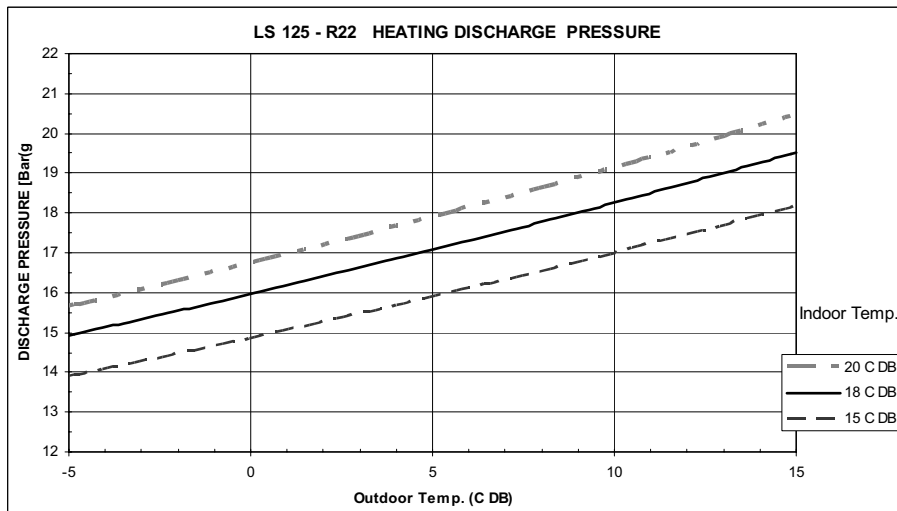
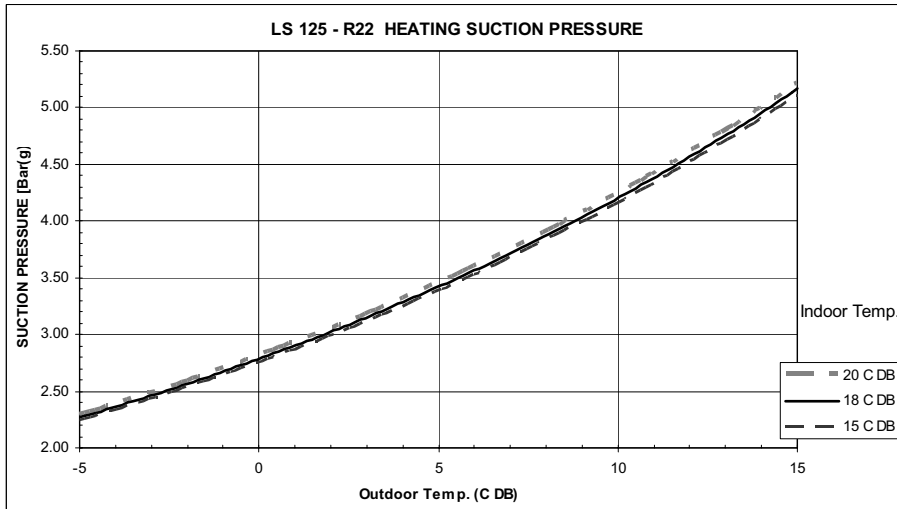


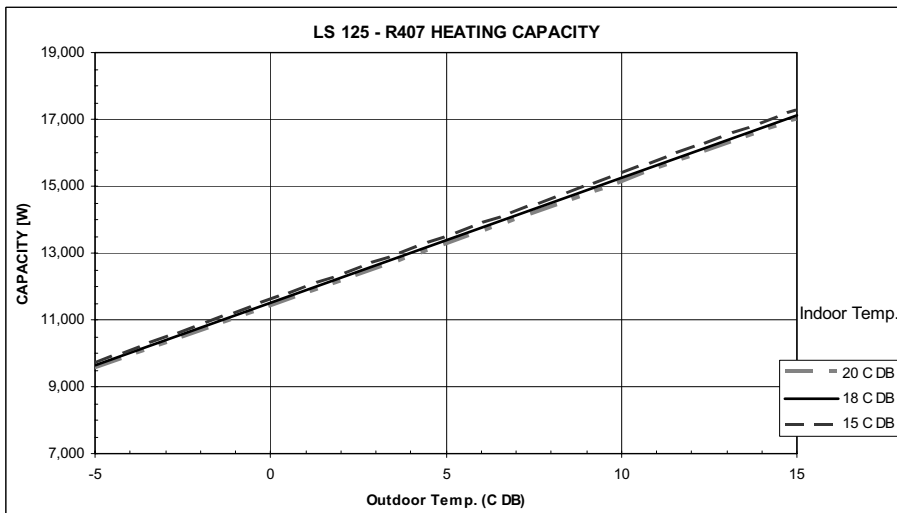
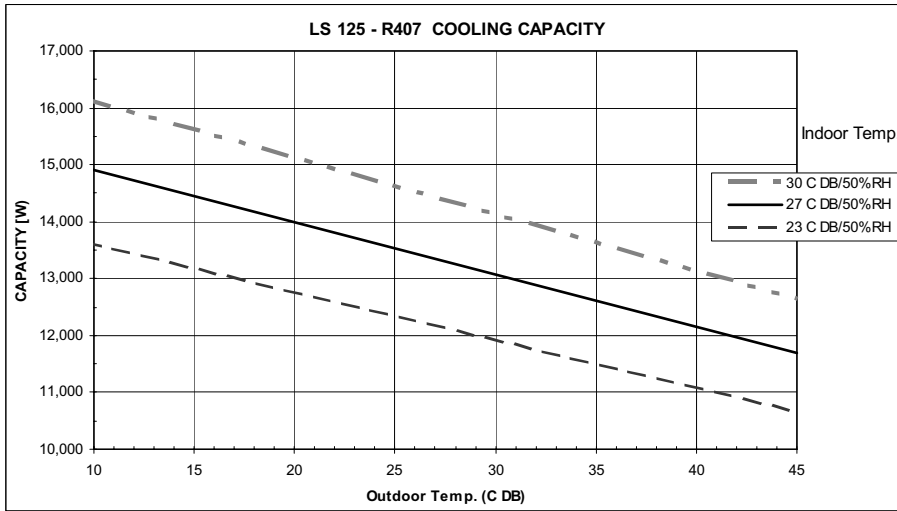


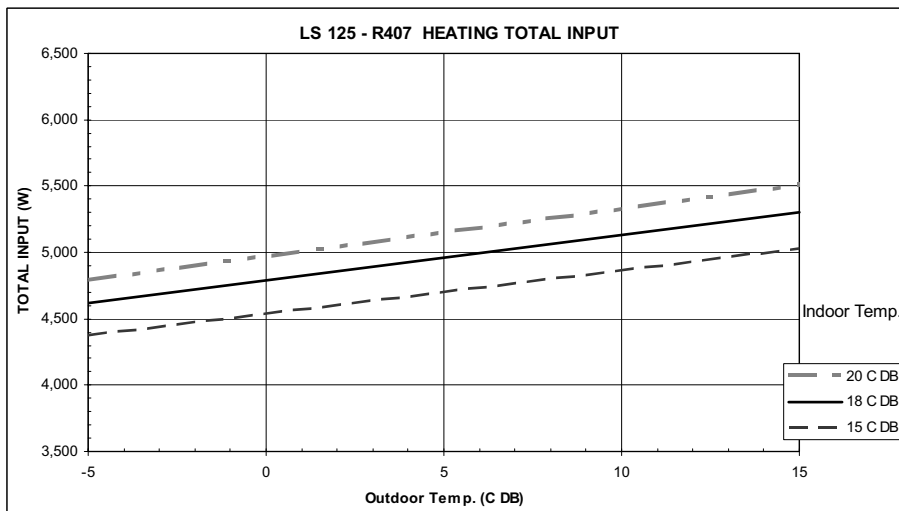
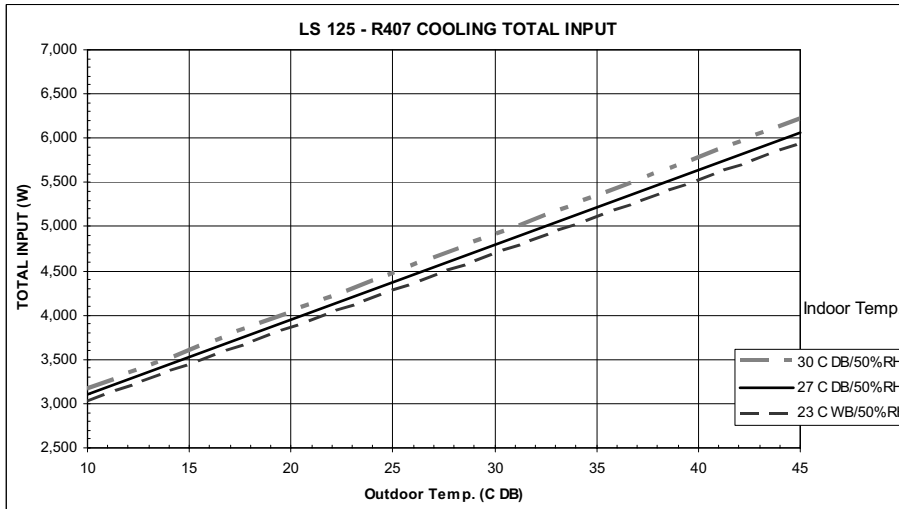


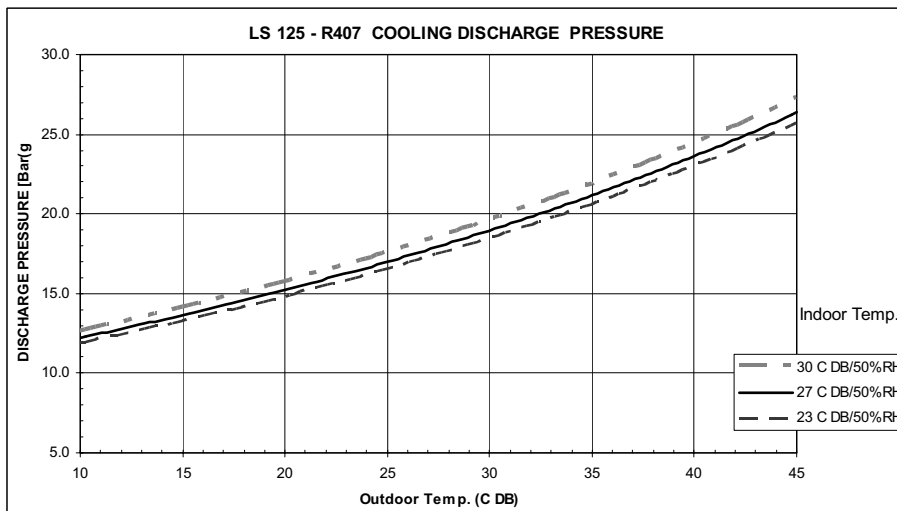
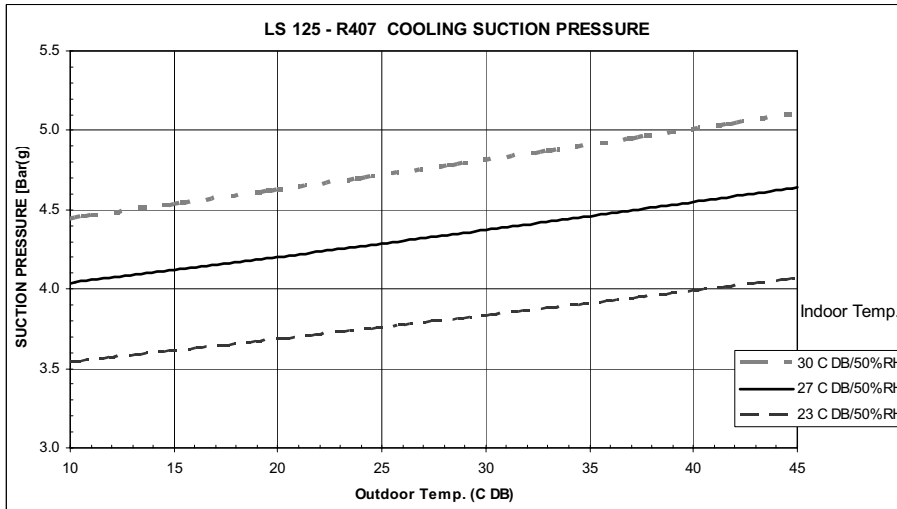


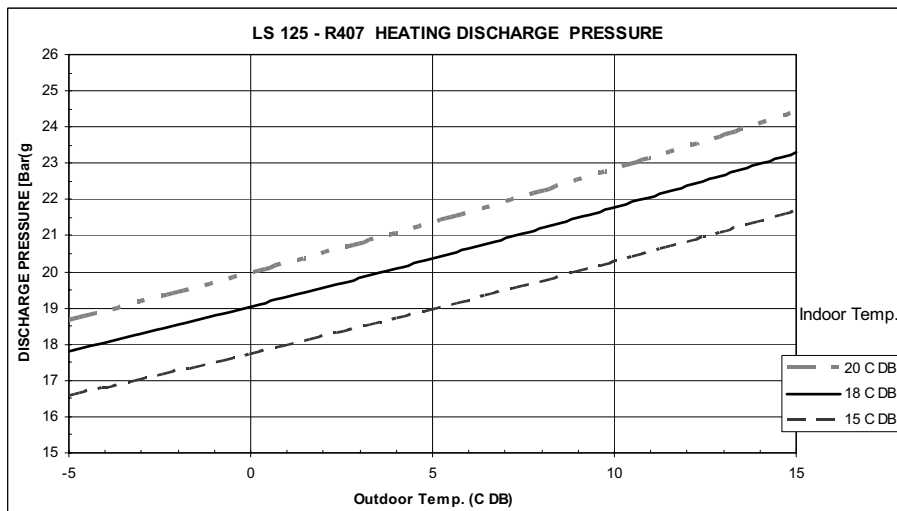
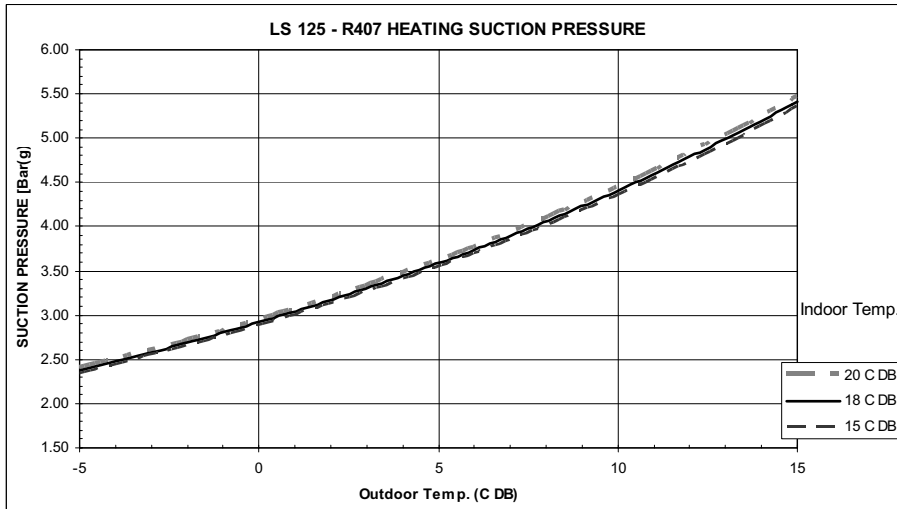


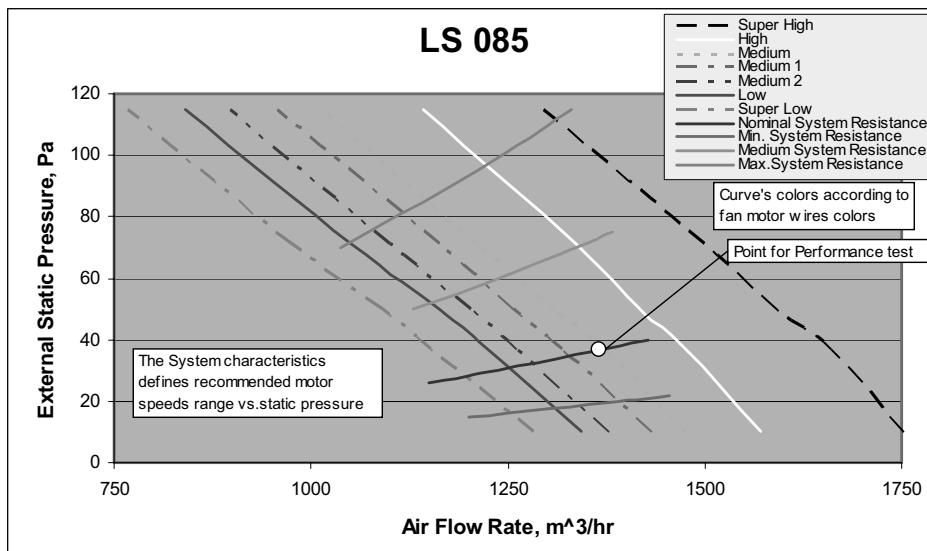
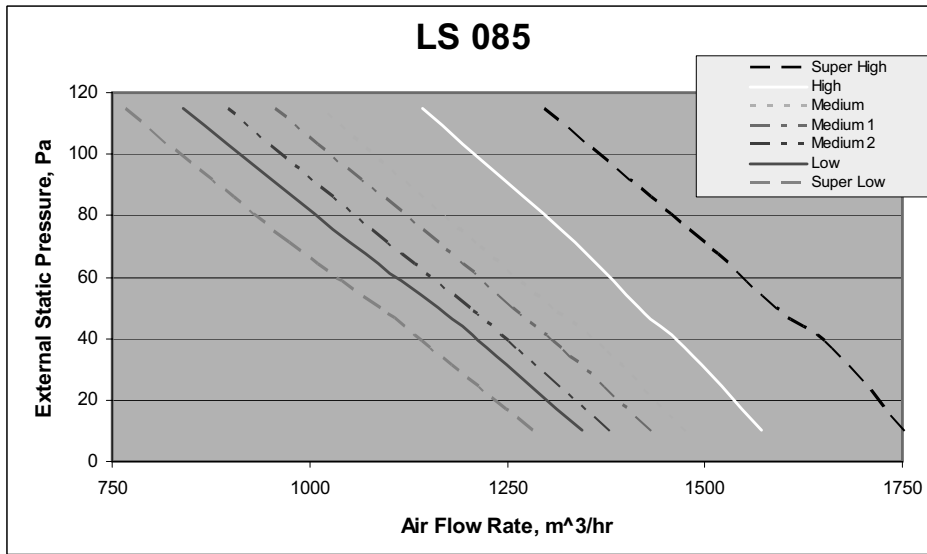


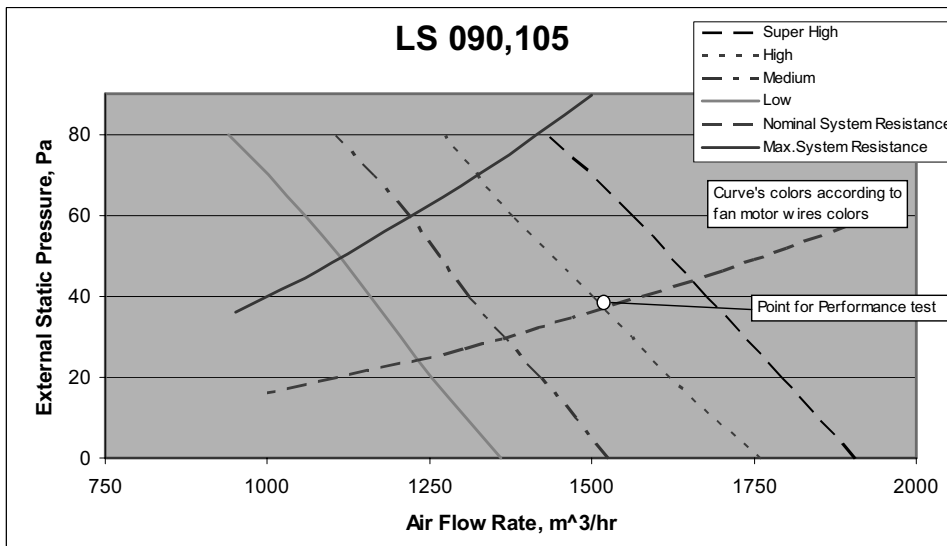
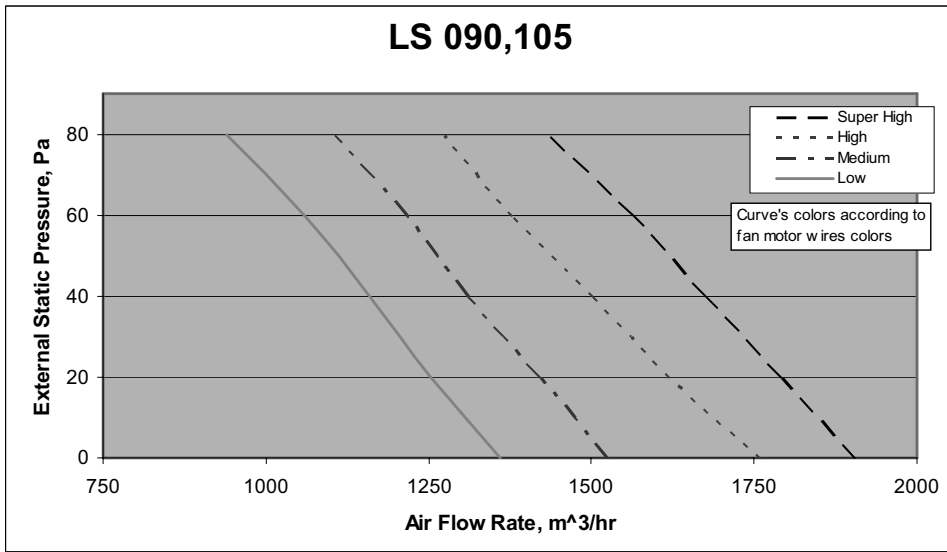


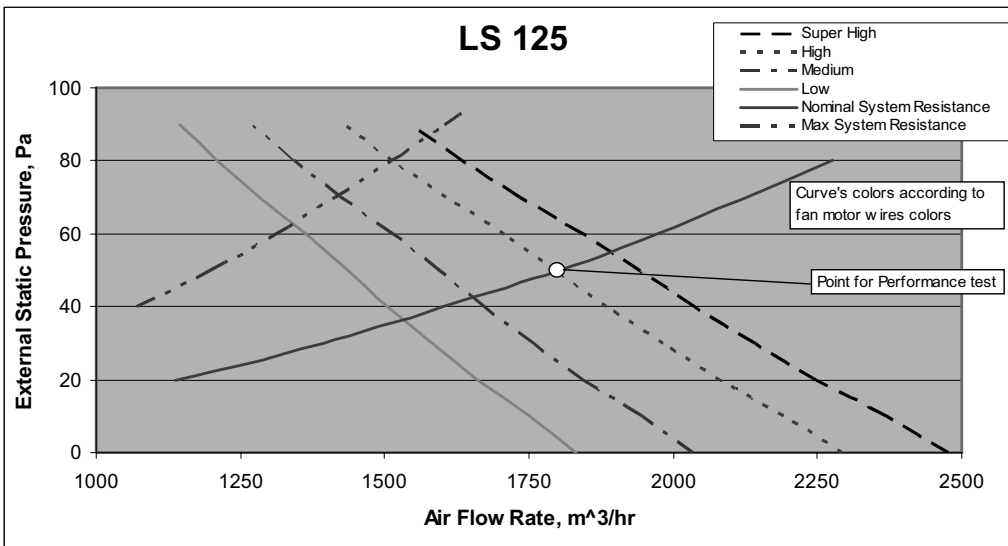
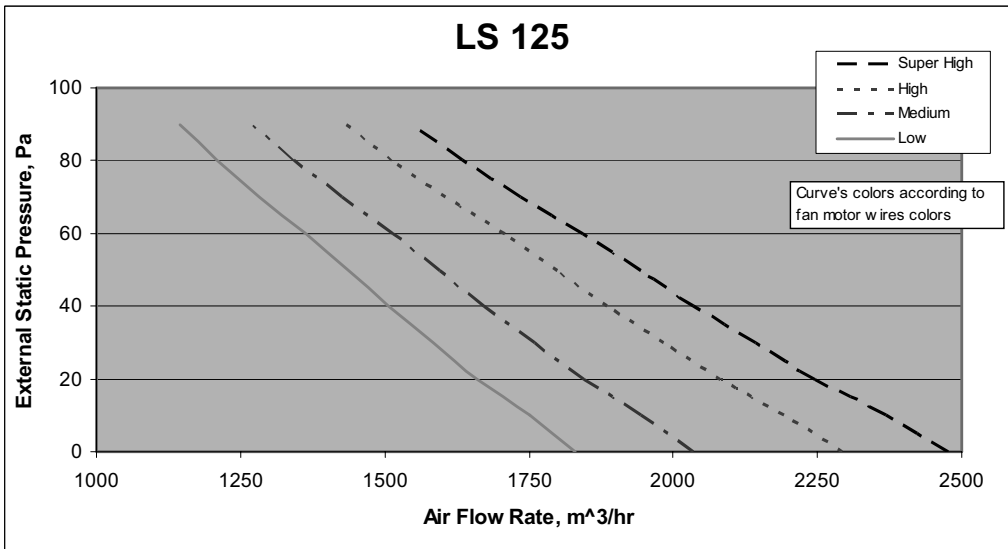








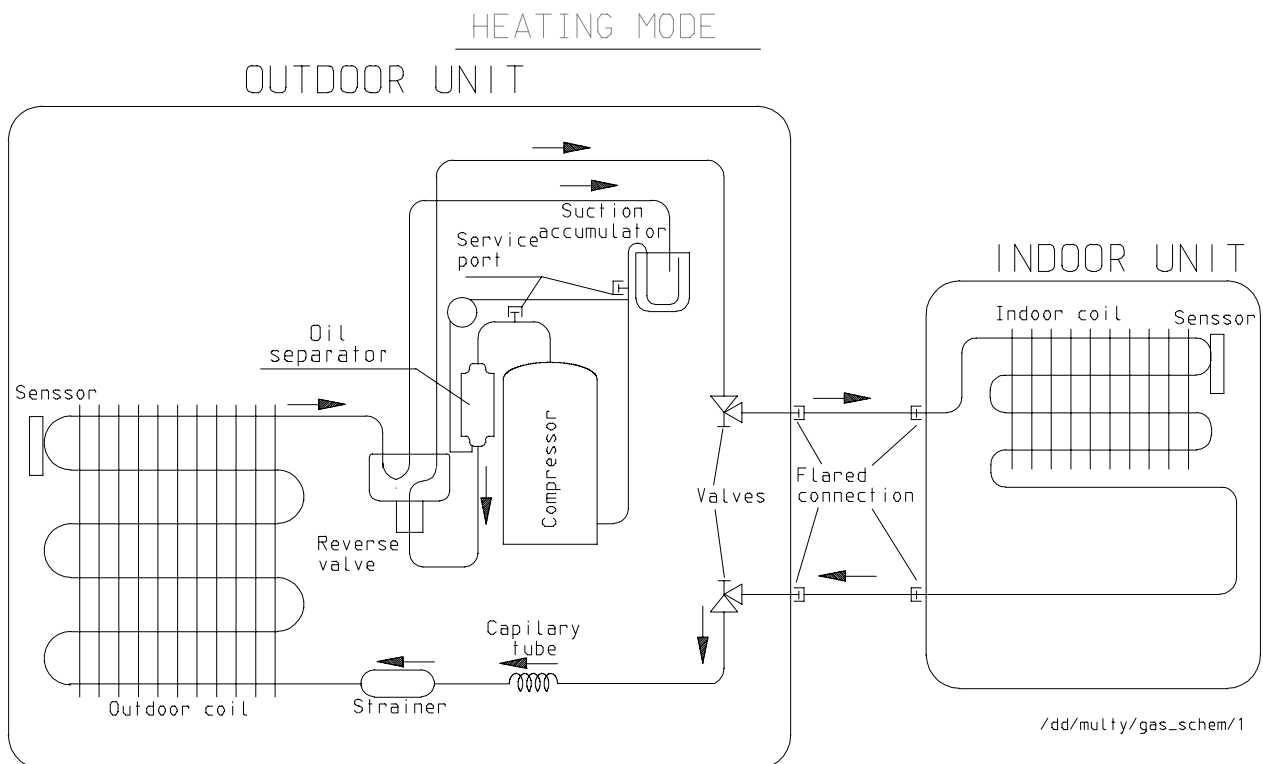
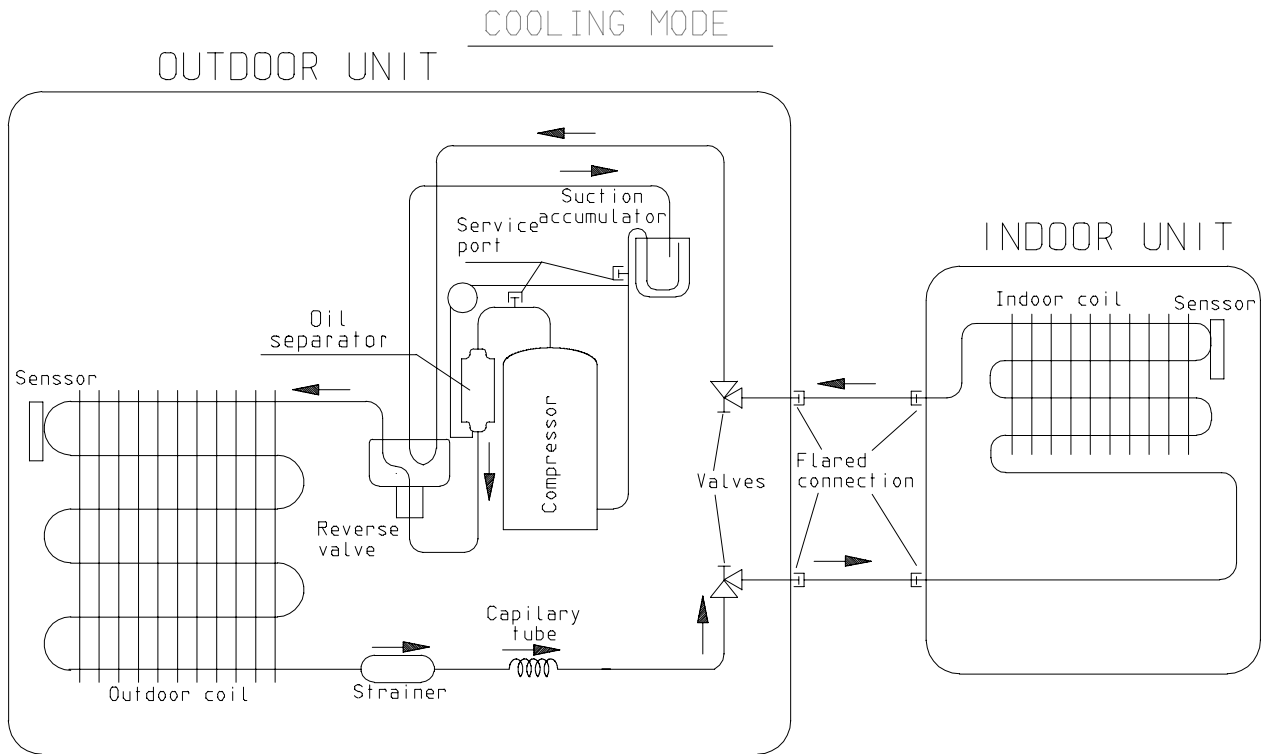




6. REFRIGERATION DIAGRAMS

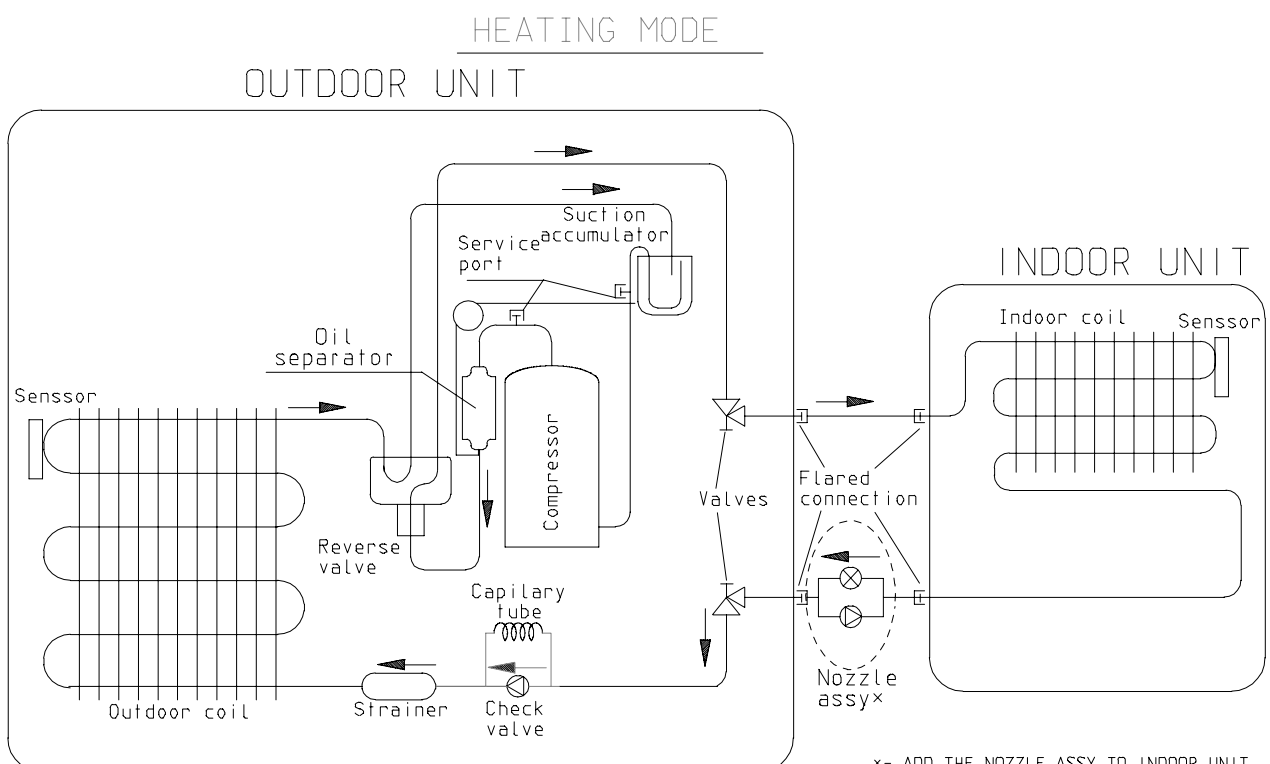
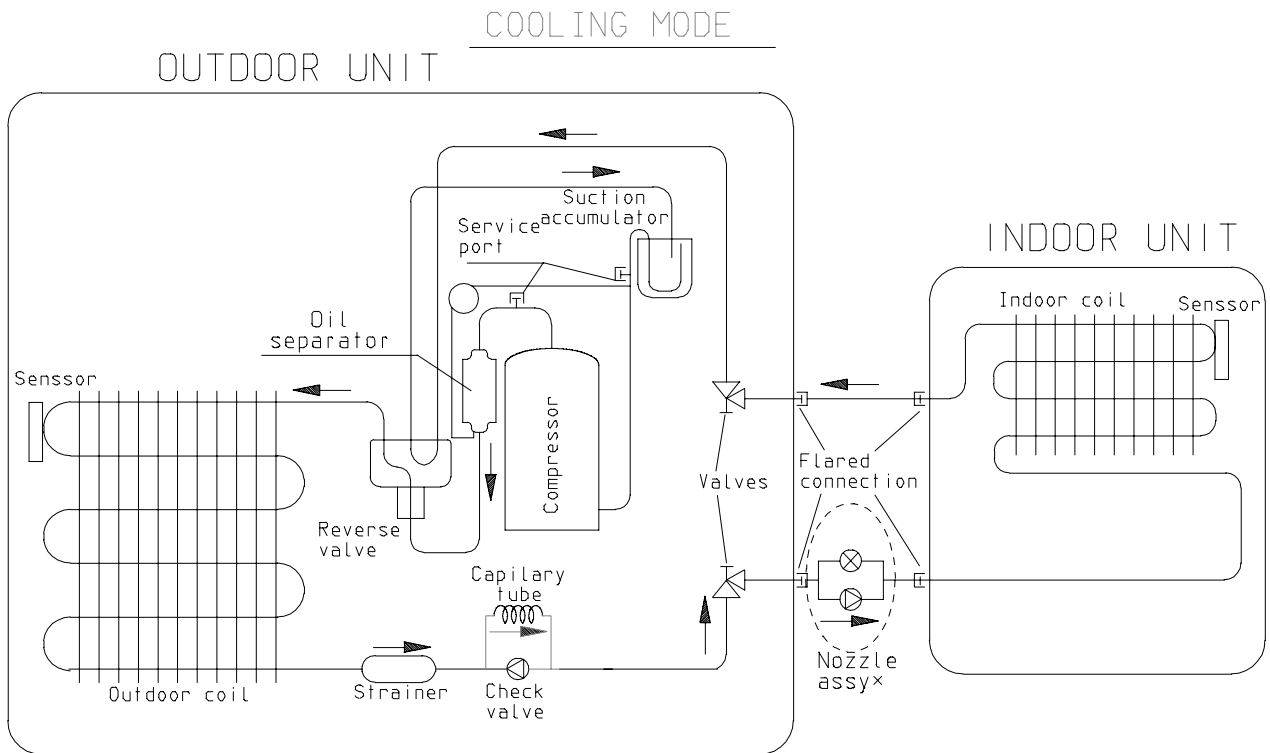
6.1 Heat Pump Models

6.1.1 LS 085/090 R22/R407C



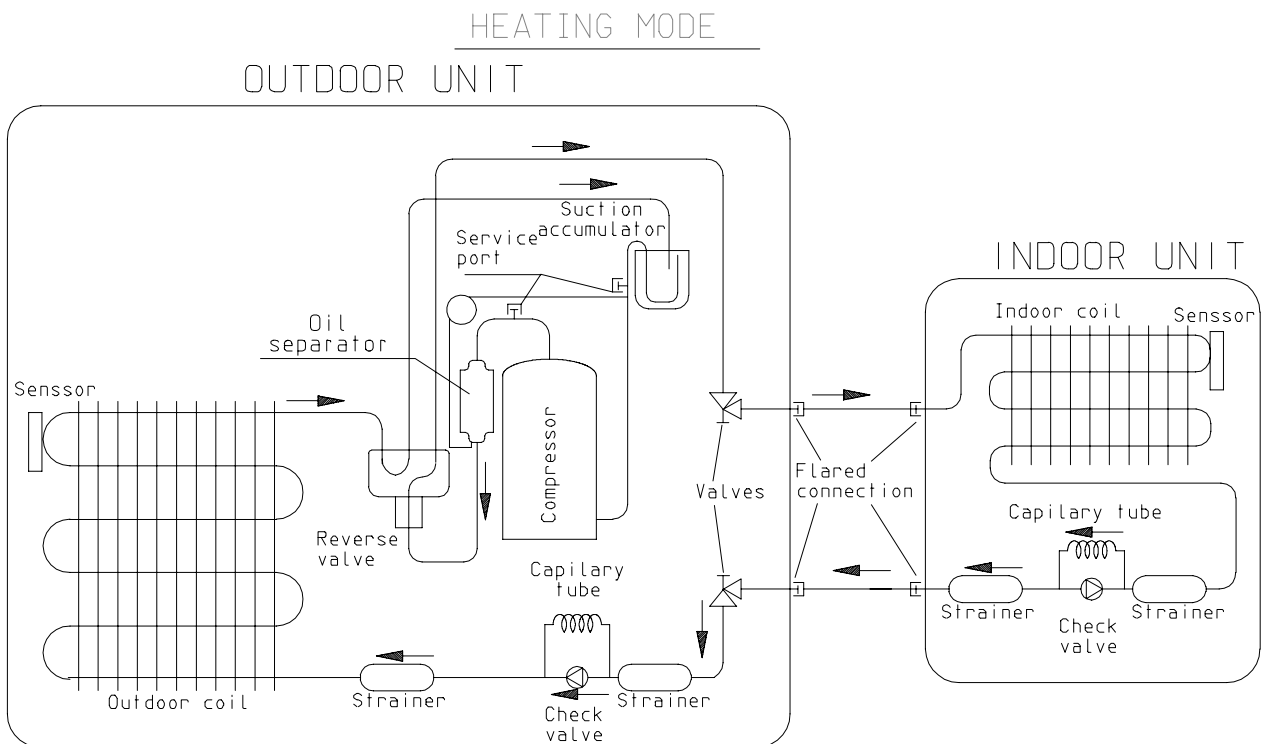
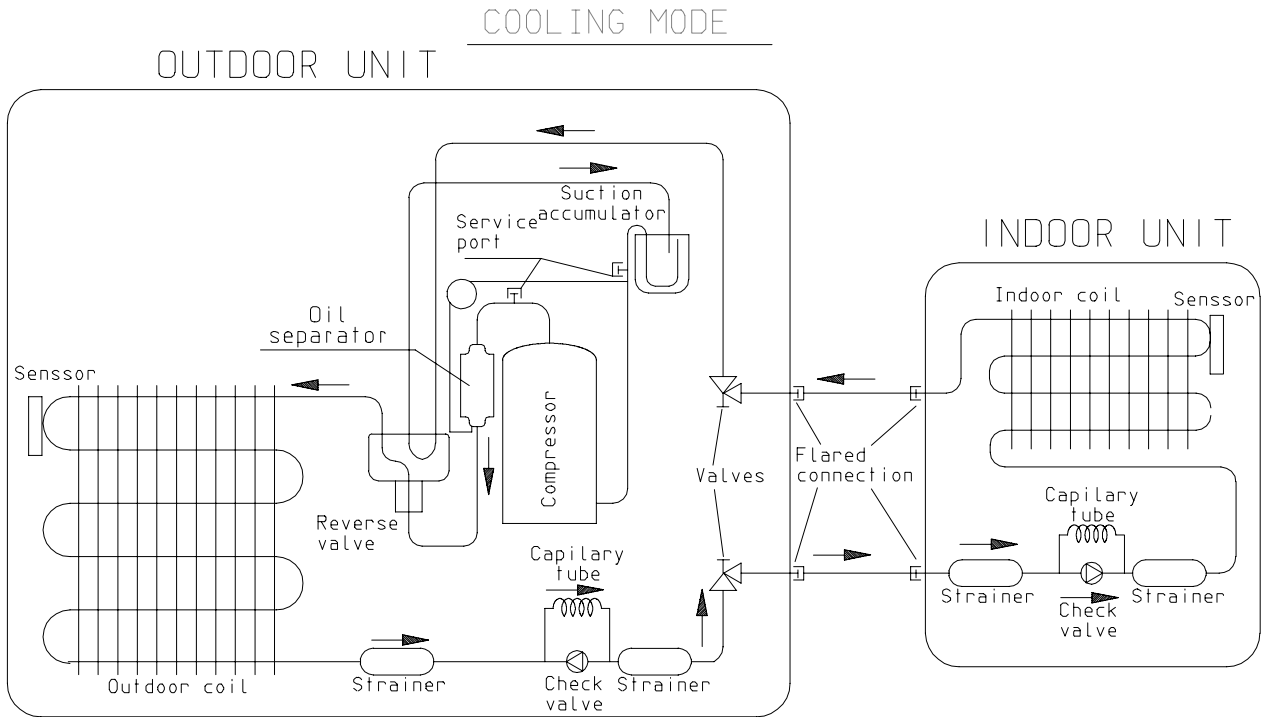
6.2 Heat Pump Models

6.2.1 LS 90 => 50m R407C



6.3 Heat Pump Models

6.3.1 LS 105, 125 R22/R407C



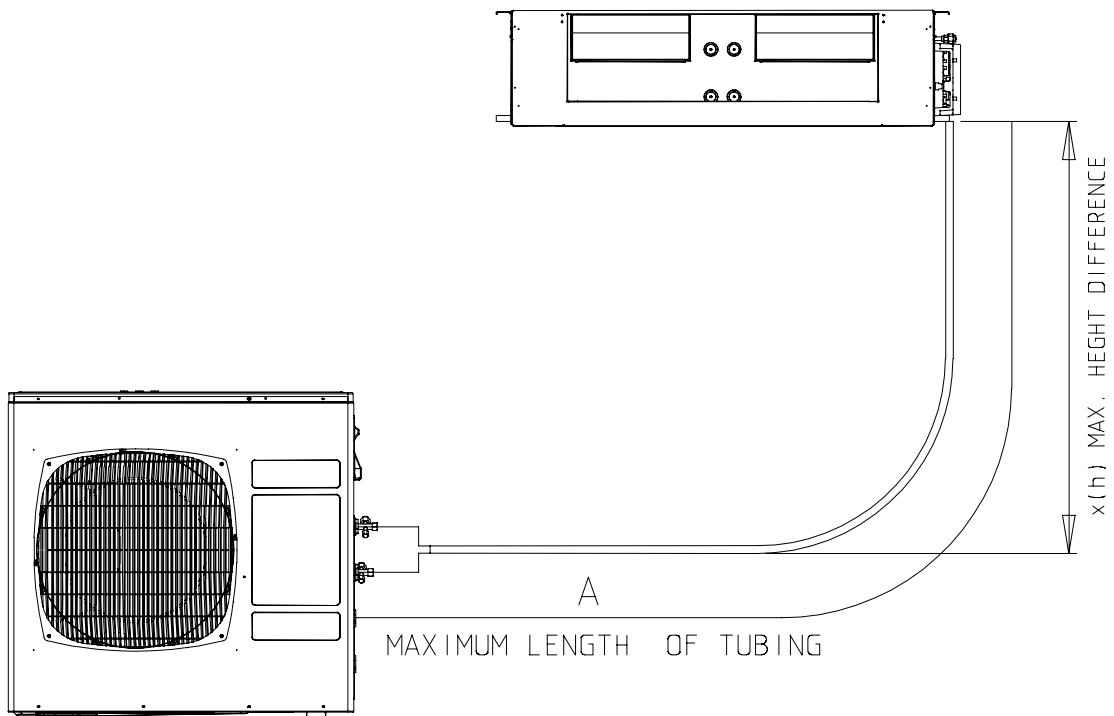
6.4 ADDITIONAL REFRIGERANT CHARGE (R22, r407C gr)

HEAT PUMP UNITS

MODEL	REFRIGERANT TUBING LENGTH (ONE WAY)				
	10m	12m	16m	30m	50m
LS 085	62	112	212	562	-
LS 090	62	112	212	562	1062
LS 105	75	135	255	675	1275
LS 125	75	135	255	675	1275

MAXIMUM REFRIGERANT TUBING LENGTH AND HEIGHT DIFFERENCE

MODEL	LENGTH (m) (A)	HEIGHT DIFFERENCE (m)
LS 085	30	10
LS 090	30/50	10/25
LS 105	50	25
LS 125	50	25

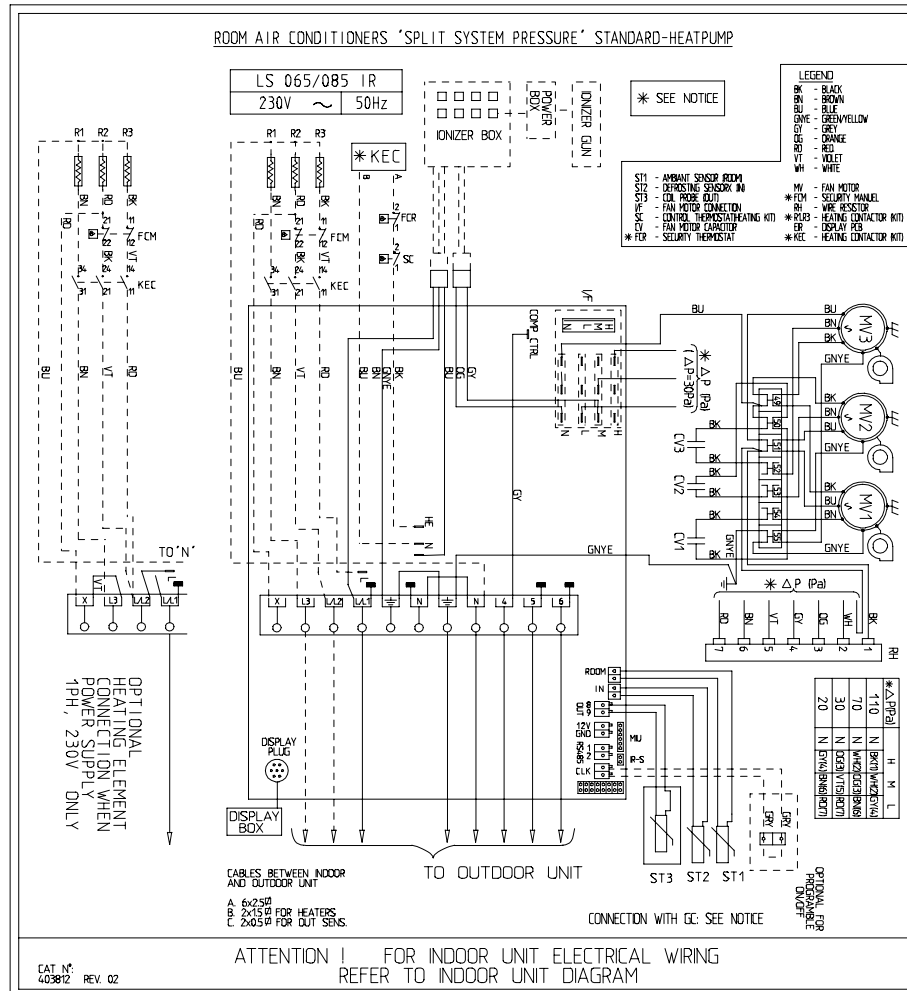


* THE INDOOR UNIT CAN BE ABOVE OR BELOW THE OUTDOOR UNIT.

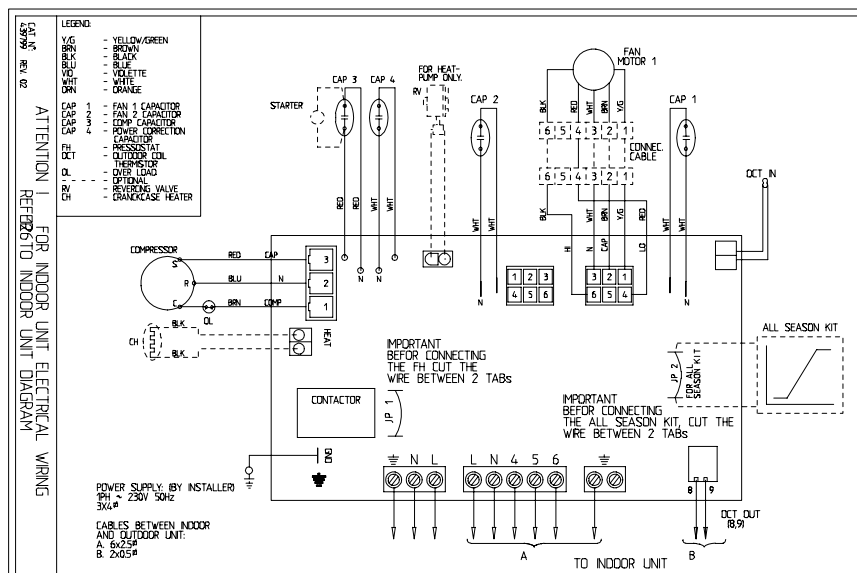
7. WIRING DIAGRAMS

7.1 Model: LS 085 1PH

INDOOR

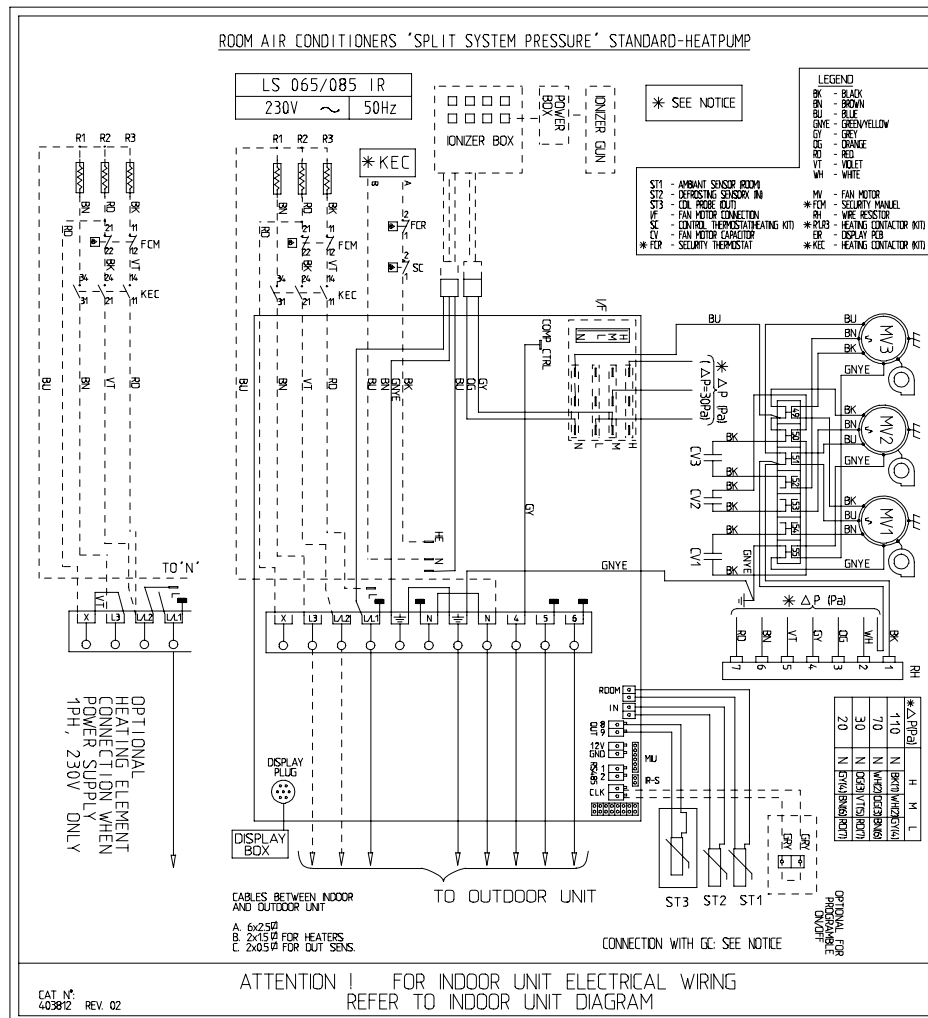


OUTDOOR

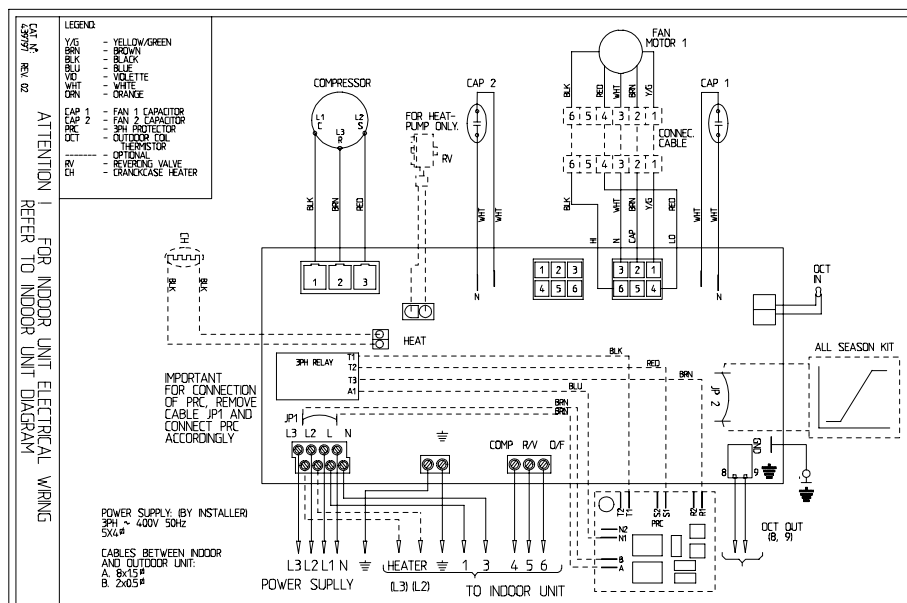


7.2 Model: LS 085 3PH

INDOOR

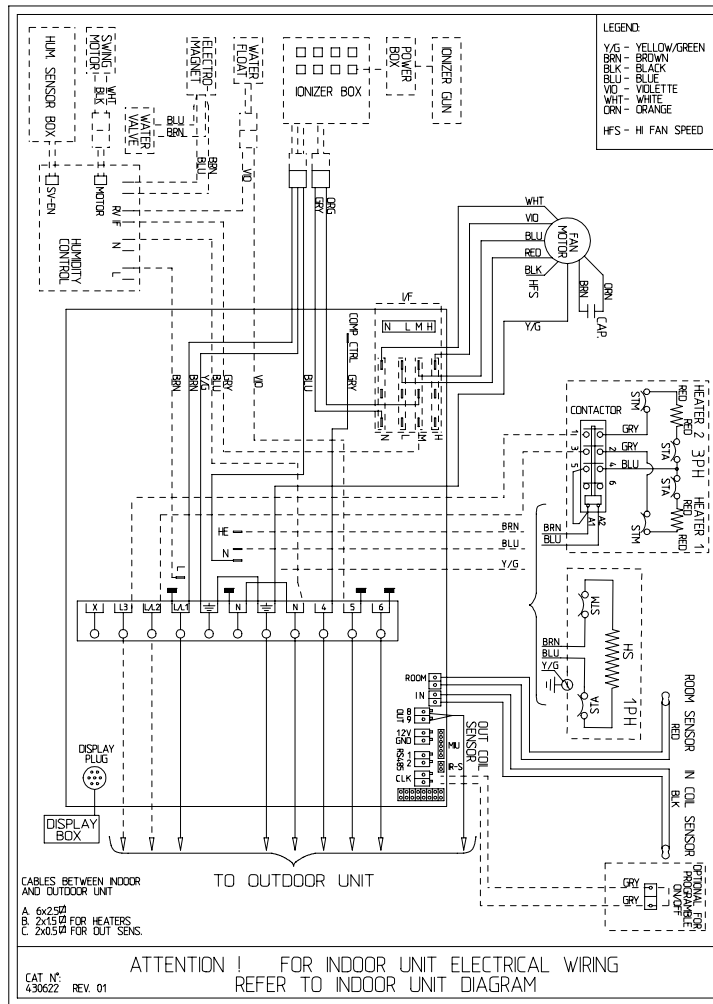


OUTDOOR

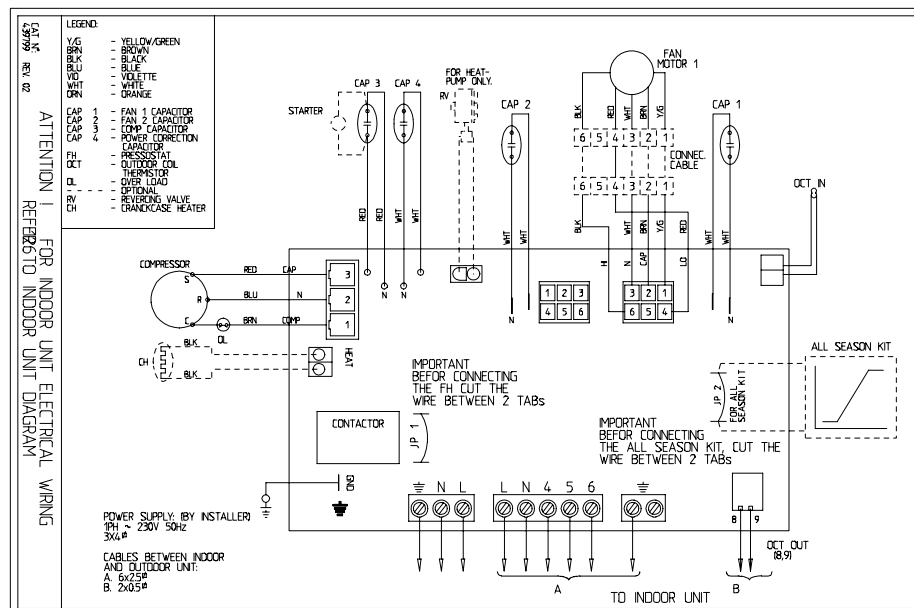


7.3 Model: LS 090 1PH

INDOOR

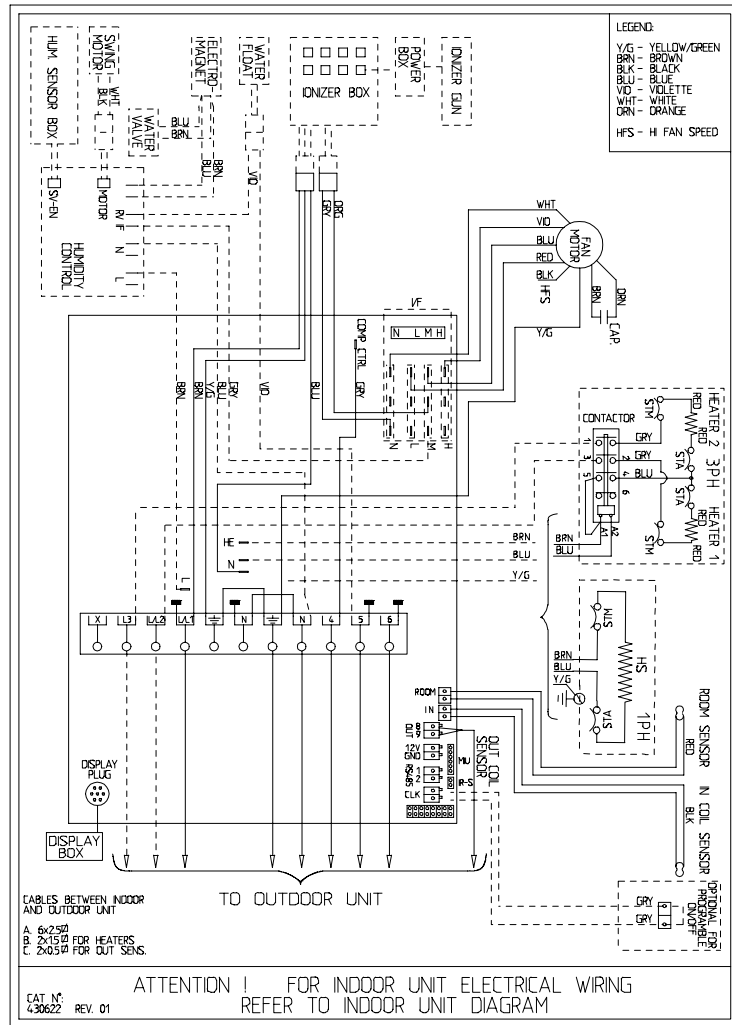


OUTDOOR

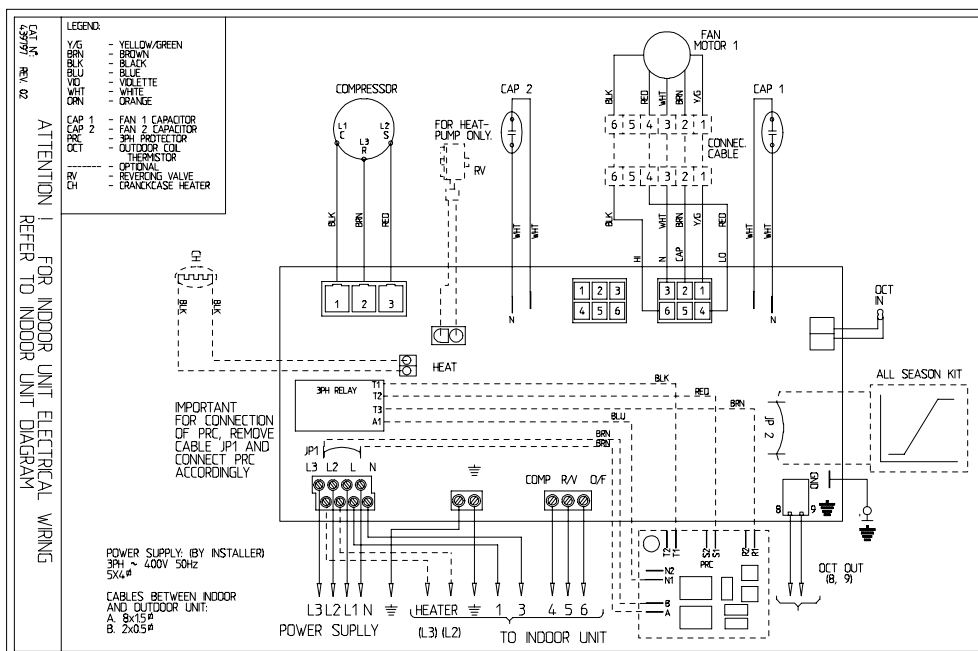


7.4 Model: LS 090 3PH

INDOOR

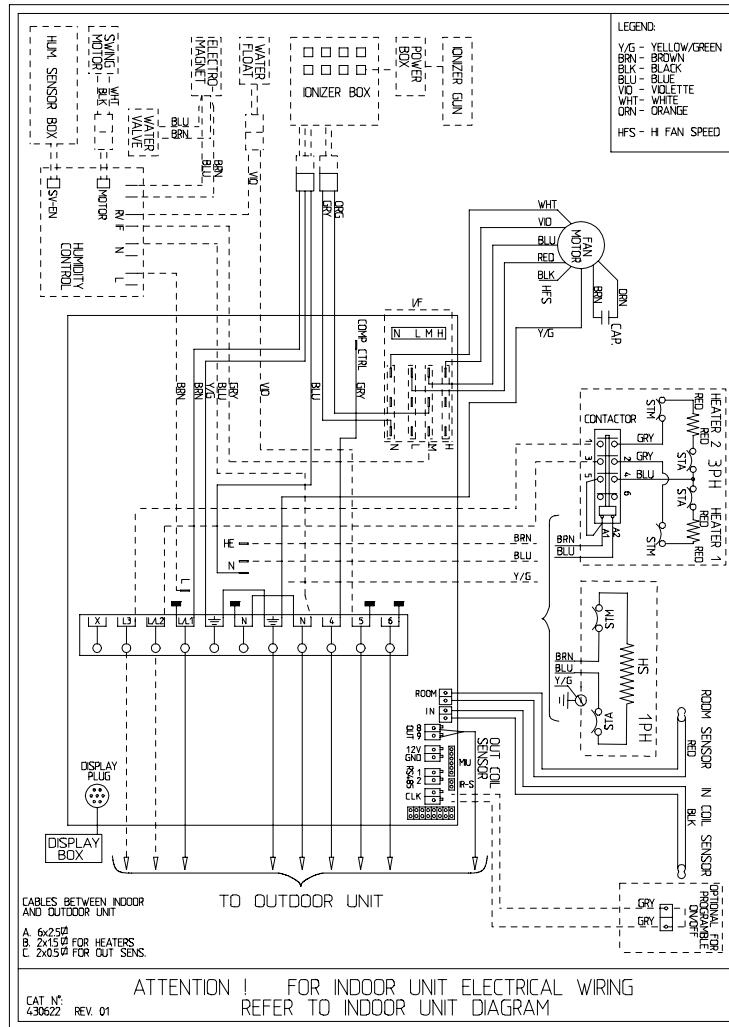


OUTDOOR

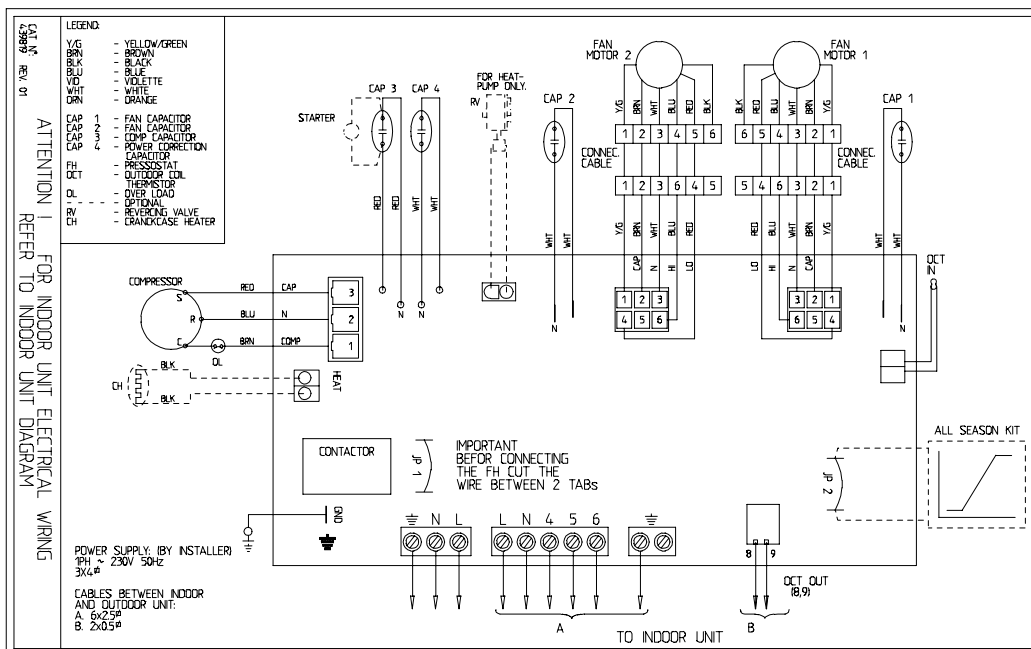


7.5 Model: LS 105 1PH

INDOOR

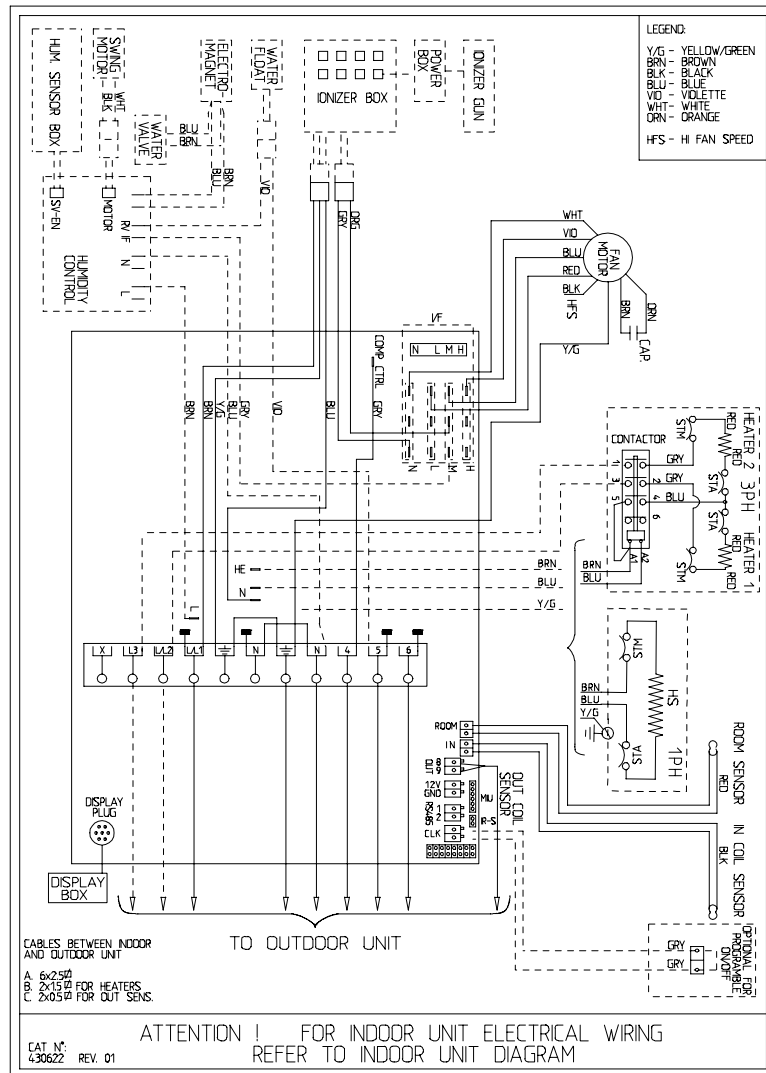


OUTDOOR

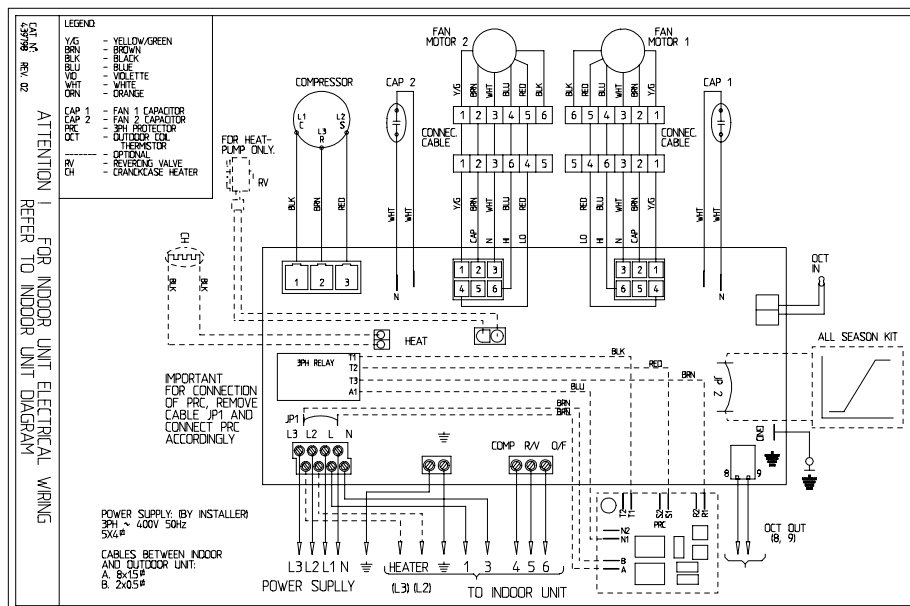


7.6 Model: LS 105 3PH

INDOOR

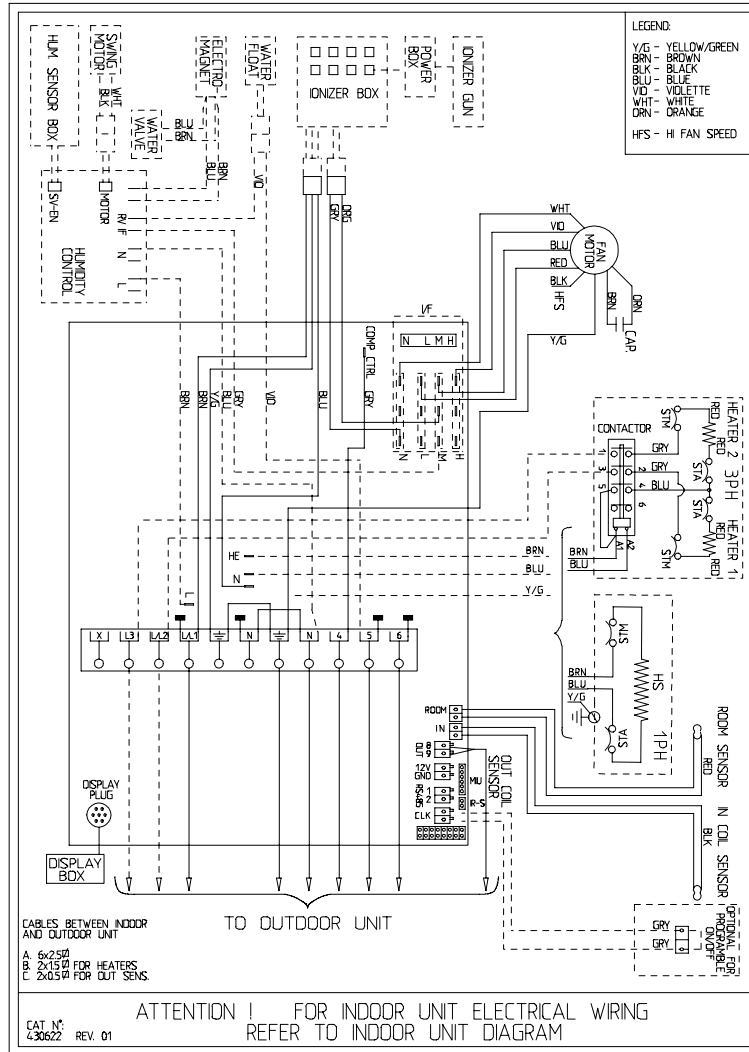


OUTDOOR



7.4 Model: LS 125 3PH

INDOOR



OUTDOOR

