HEAT PUMP OUTDOOR UNITS

ELP

ELITE® COMMERCIAL SPLIT SYSTEMS
R-410A - 50 Hz

COMMERCIAL
PRODUCT SPECIFICATIONS

Bulletin No. 490174
November 2019
Supersedes November 2018

ELITE® SERIES

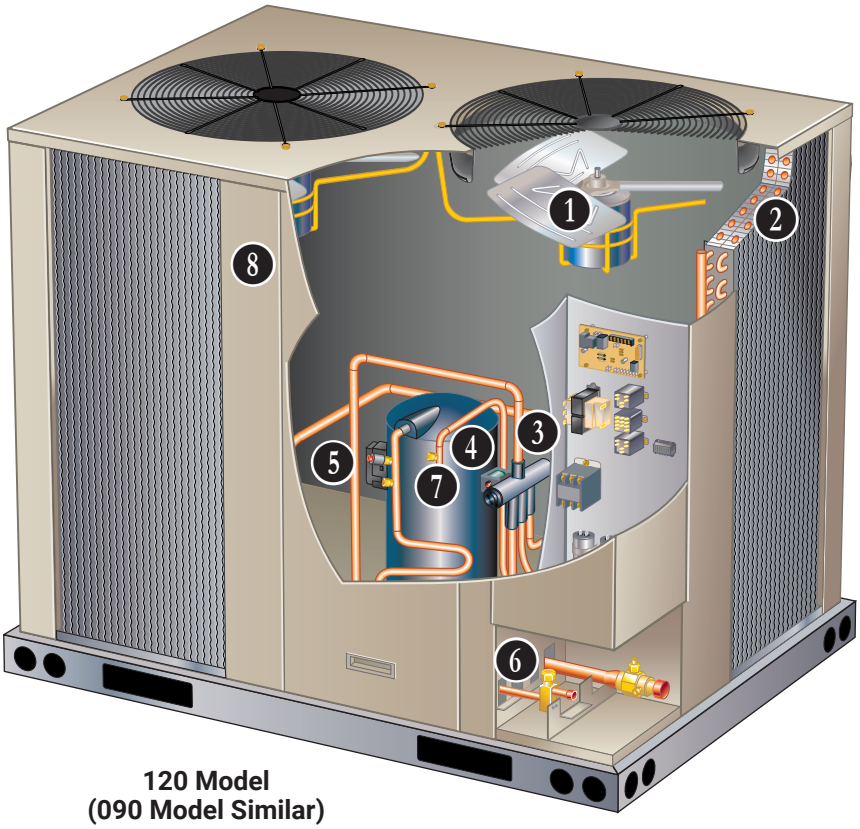
26 to 35 kW
Cooling Capacity - 22.6 to 46.3 kW
Heating Capacity - 23.2 to 43.0 kW

MODEL NUMBER IDENTIFICATION

EL P 120 S 4 S T 1 M

- **Brand/Family**: EL = Elite® Product Line
- **Unit Type**: P = Split System Heat Pump
- **Nominal Cooling Capacity**: 090 = 26.4 kW (7.5 Tons), 120 = 35.2 kW (10 Tons)
- **Cooling Efficiency**: S = Standard Efficiency
- **Refrigerant Type**: 4 = R–410A
- **Refrigerant Circuits**: S = Single Circuit
- **Part Load Capability**: T = Two Stage Compressor
- **Minor Design Sequence**: 1 = 1st Revision, 2 = 2nd Revision, 3 = 3rd Revision
- **Voltage**: M = 380/420V-3 phase-50Hz

FEATURE HIGHLIGHTS



120 Model
(090 Model Similar)

1. Outdoor Coil Fan(s)
2. Copper Tube / Enhanced Fin Coil(s)
3. Four-Way Reversing Valve
4. High Pressure Transducer
5. Loss of Charge Switch
6. Refrigerant Lines and Service Valve
7. Compressor
8. Cabinet
9. Control Box
10. Defrost Control

CONTENTS

APPLICATIONS AND APPROVALS

APPLICATIONS

- Heat pumps are available in 26.4 and 35.2 kW nominal sizes
- Matching air handlers provide a wide range of cooling capacities and applications. See System Matches table
- See Air Handlers sections for air handler data
- Units shipped completely factory assembled, piped, and wired. Each unit is test operated at the factory insuring proper operation
- Installer must set heat pump, connect refrigerant lines, add refrigerant charge and make electrical connections to complete job

APPROVALS

- All units are tested in Lennox' Research Laboratory environmental test room or ETL certified environmental testing facility
- Cooling performance is rated at test conditions included in Air-Conditioning, Heating and Refrigeration Institute (AHRI) Standard 340/360-2015 while operating at rated voltage and air volumes
- Sound tested in Lennox reverberant sound test room in accordance with test conditions included in AHRI Standard 270 or 370
- Components bonded for grounding to meet safety standards for servicing required by Underwriters Laboratories (UL) and the International Electrotechnical Commission (IEC).All units are ETL listed
- International Organization for Standardization (ISO) 9001 Registered Manufacturing Quality System.

FEATURES

REFRIGERATION SYSTEM

R-410A Refrigerant

- Non-chlorine, ozone friendly
- Unit is factory pre-charged

NOTE - Total system refrigerant charge is dependent on outdoor unit size, indoor unit size and refrigerant line length.

NOTE - Refer to the unit-mounted charging sticker to determine correct amount of charge required.

1 Outdoor Coil Fans

- Dual direct drive fans
- Vertical air discharge
- Totally enclosed fan motor
- Overload protected
- Rain Shield

2 Copper Tube/Enhanced Fin Coil(s)

- ELP090S has a single "U" shaped coil
- ELP120S has two "L" shaped coils
- Lennox designed and fabricated coil
- Ripple-edged aluminum fins
- Copper tube construction
- Lanced fins for maximum fin surface exposure
- Fin collars grip tubing for maximum contact area
- Flared shoulder tubing connections
- Silver soldering construction
- Factory tested under high pressure
- Entire coil accessible for cleaning

3 Four-Way Reversing Valve

- Rapid changeover of refrigerant flow direction from cooling to heating and vice versa
- Operates on pressure differential between outdoor unit and indoor coil

Factory installed.

4 High Pressure Switch

- Protects the system from high pressure conditions
- Automatic reset

5 Loss of Charge Switch

- Provides loss of charge and freeze-up protection

High Capacity Liquid Line Drier

- Factory installed in the liquid line
- Drier traps moisture or dirt
- 100% molecular-sieve, bead type, bi-flow drier

6 Refrigerant Lines and Service Valves

- Refrigerant lines are shipped refrigeration clean
- Lines are cleaned, dried, pressurized and sealed at factory
- Suction line fully insulated
- Lines are stubbed at both ends

FEATURES

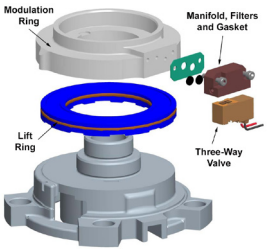
REFRIGERATION SYSTEM (continued)

7 Two-Stage Scroll Compressor

- High volumetric efficiency
- Uniform suction flow
- Constant discharge flow
- Quiet operation

Compressor Operation

- Two involute spiral scrolls matched together generate a series of crescent shaped gas pockets between them
- During compression, one scroll remains stationary while the other scroll orbits around it
- Gas is drawn into the outer pocket, the pocket is sealed as the scroll rotates
- As the spiral movement continues, gas pockets are pushed to the center of the scrolls
- Volume between the pockets is simultaneously reduced
- When the pocket reaches the center, gas is now at high pressure and is forced out of a port located in the center of the fixed scrolls
- During compression, several pockets are compressed simultaneously resulting in a smooth continuous compression cycle
- Continuous flank contact, maintained by centrifugal force, minimizes gas leakage and maximizes efficiency
- Compressor is tolerant to the effects of slugging and contaminants
- If this occurs, scrolls separate, allowing liquid or contaminants to be worked toward the center and discharged
- During the compression process, there are several pockets in the scroll that are compressing gas
- Modulation is achieved by venting a portion of the gas in the first suction pocket back to the low side of the compressor thereby reducing the effective displacement of the compressor
- A 24-volt DC solenoid valve inside the compressor controls staging
- When the 3-way solenoid is energized it moves the lift ring assembly to block the ports and the compressor operates at full-load or 100% capacity



- When the solenoid is de-energized the lift ring assembly moves to unblock the compressor ports and the compressor operates at part-load or approximately 67% of its full-load capacity
- The “loading” and “unloading” of the two stage scroll is done “on the fly” without shutting off the single-speed compressor motor between stages
- Low gas pulses during compression reduces operational sound levels
- Compressor motor is internally protected from excessive current and temperature
- Compressor is installed in the unit on specially formulated, resilient rubber mounts for better sound dampening and vibration free operation

Crankcase Heater (All Models)

- Crankcase heater prevents migration of liquid refrigerant into compressor and ensures proper compressor lubrication

CABINET

8

- Heavy gauge steel construction
- Five station metal wash process
- Powder paint finish
- Louvered heavy gauge steel panels
- Corner patch plate allows compressor access
- Drainage holes provided in base section

9 Control Box

- Located in separate compartment in unit cabinet
- All controls are pre-wired at the factory
- Field installed DDC or other field supplied control modules

Options/Accessories

Factory Installed

Corrosion Protection

- Completely flexible immersed coating
- Electrodeposited dry film process
- AST ElectroFin E-Coat
- Meets Mil Spec MIL-P-53084, ASTM B117 Standard Method Salt Spray Testing
- Outdoor Corrosion Protection:
- Coated coil
- Painted base pan

Field Installed

Combination Coil/Hail Guards

- Heavy gauge steel frame
- Painted to match cabinet
- Expanded metal mesh protects coil

FEATURES

CONTROLS

Defrost Control

- Includes the combined functions of a time/temperature defrost control, defrost relay, time delay, two diagnostic LEDs (green/red) as an aid in troubleshooting, and a terminal strip for field wiring connections
- Provides a defrost cycle, if needed, every 30, 60 or 90 minutes (adjustable) of compressor "on" time at outdoor coil temperature below 42°F
- Defrost thermostat mounted on outdoor coil liquid line determines defrost cycle
- Built-in adjustable compressor delay can be set to allow compressor to cycle off for 30 seconds before and after a defrost cycle
- Five minute timed-off delay short-cycle protection

Options/Accessories

Field Installed

Low Ambient Control

- Heat pumps will operate satisfactorily in cooling mode down to 7°C outdoor air temperature without any additional controls
- Low Ambient Control Kit can be field installed, allowing unit operation down to –17.7°C using pressure-regulated fan speed control

Indoor Air Quality (CO_2) Sensors

- Monitors CO_2 levels, reports which adjusts economizer dampers as needed

Thermostats

- Control system and thermostat options, see page 6

Aftermarket Unit Controller Options

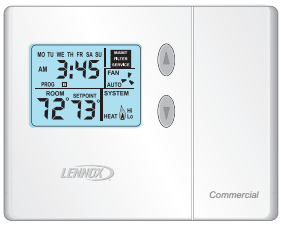
- See Options/Accessories table for selection

OPTIONAL CONVENTIONAL TEMPERATURE CONTROL SYSTEMS

ComfortSense® 7500 Commercial 7-Day Programmable Thermostat

- Four-Stage Heating / Two-Stage Cooling
- Universal Multi-Stage
- Intuitive Touchscreen Interface
- Automatic Changeover between Heating and Cooling
- Full Seven-Day Programming
- Four Time Periods Per Day
- Temperature and Humidity Control
- One-Touch Away Mode
- Holiday Scheduling
- Smooth Setback Recovery (SSR)
- Performance Reports
- Notifications/Reminders
- Dehumidification/Humiditrol® Control for Split Systems and Rooftop Units
- Economizer Relay Control
- Backlit Display
- Wallplate Furnished
- FDD, ASHRAE and IECC Compliant

ComfortSense® 3000 Commercial 5-2 Day Programmable Thermostat



- Two-Stage Heating / Two-Stage Cooling
- Conventional Systems
- Intuitive Interface
- 5-2 Day Programming
- Program Hold
- Remote Indoor Temperature Sensing
- Smooth Setback Recovery (SSR)
- Economizer Relay Control
- Maintenance/Filter/Service Reminders
- Backlit Display
- Wallplate Furnished
- Simple Up and Down Temperature Control

OPTIONAL CONVENTIONAL TEMPERATURE CONTROL SYSTEMS

Description		Catalog No.
ComfortSense® 7500 Commercial 7-Day Programmable Thermostat		
		17G74
Sensors/Accessories	[2] Remote non-adjustable wall-mount 20k	**47W36**
	[2] Remote non-adjustable wall-mount 10k	**47W37**
	Remote non-adjustable discharge air (duct mount)	**19L22**
	Outdoor temperature sensor	**X2658**
	Universal thermostat locking guard (clear)	**39P21**

[2] Remote wall-mount sensors can be applied in any of the following combinations:
One Sensor - (1) 47W36
Two Sensors - (2) 47W37
Three Sensors - (2) 47W36 and (1) 47W37
Four Sensors - (4) 47W36
Five Sensors - (3) 47W36 and (2) 47W37

ComfortSense® 3000 Commercial 5-2 Day Programmable Thermostat		
		11Y05
Sensors/Accessories	Remote non-adjustable wall mount 10k averaging	**47W37**
	Thermostat wall mounting plate	**X2659**
ComfortSense® Non-Programmable Thermostat		
		51M32

SPECIFICATIONS

General Data	**Model Number**	**ELP090S4S**	**ELP120S4S**
	Nominal Size - kW	**26.4**	**35.2**
Connections (sweat)	Liquid line - in. (o.d)	5/8	5/8
	Vapor line - in. (o.d)	1-1/8	1-1/8
Refrigerant (R-410A)	Factory Charge	R-410A holding charge - 0.9 kg (2 lbs.) per circuit)	
	No. of Circuits	1	1
	[1] Field charge - 7.6 m (25 ft.) line set	10.5 kg (23 lbs. 4 oz.) (includes holding charge)	14.7 kg (32 lbs. 8 oz.) (includes holding charge)
Compressor		(1) Two Stage Scroll	(1) Two Stage Scroll
Outdoor Coil	Net face area - m2 (sq. ft.) Outer coil	2.7 (29.3)	3.2 (34.2)
	Inner coil	2.6 (28.4)	3.1 (33.3)
	Tube diameter - mm (in.) & number of rows	9.5 (3/8) - 2	9.5 (3/8) - 2
	Fins per m (inch)	787 (20)	787 (20)
Outdoor Coil Fan(s)	Diameter - mm (in.) & number of blades	(2) 24 - 3	(2) 24 - 4
	Nominal Motor W (hp)	(2) 249 (1/3)	(2) 373 (1/2)
	Total air volume - L/s (cfm)	3270 (6930)	4060 (8600)
	Rev/min	900	900
	Motor Input - Watts	630	860

ELECTRICAL DATA

General Data	Line voltage data - 50 Hz - 3 phase	**380/420V**	**380/420V**
	[2] Maximum Overcurrent Protection (amps)	25	35
	[3] Minimum circuit ampacity	17	21
Compressor (1)	Rated load amps	12	14.8
	Locked rotor amps	94	130
Outdoor Coil Fan Motor (2) (1 phase)	Full load amps each (total)	0.8 (1.6)	1.5 (3)
	Locked rotor amps each (total)	2.4 (4.8)	3 (6)

NOTE - Extremes of operating range are plus and minus 10% of line voltage.
[1] Refer to the Lennox Refrigerant Piping Manual to determine refrigerant charge required with longer length refrigerant lines.
[2] Heating Air Conditioning Refrigeration type breaker or fuse.
[3] Refer to local electrical codes manual to determine wire, fuse and disconnect size requirements.

SOUND DATA

[1] Unit Model No.	Octave Band Linear Sound Power Levels dB, re 10^{-12} Watts Center Frequency - HZ							[1] Sound Rating Number (dB)
	125	250	500	1000	2000	4000	8000	
ELP090S4S	69	77	80	80	77	73	65	85
ELP120S4S	69	77	80	81	78	72	64	86

NOTE - the octave sound power data does not include tonal correction.
[1] Tested according to AHRI Standard 270 test conditions.

OPTIONS / ACCESSORIES

Item		Catalog Number	ELP090S4S	ELP120S4S
CABINET				
Combined Coil/Hail Guards	T2GARD51M11	**13T30**	X	
	T2GARD51M21	**13T32**		X
Corrosion Protection		Factory	O	O
CONTROLS				
BACnet® Module		**17A08**	X	X
BACnet® Sensor with Display	K0SNSR01FF1	**97W23**	X	X
BACnet® Sensor without Display	K0SNSR00FF1	**97W24**	X	X
Low Ambient Control 17.7°C (0°F)	A2CWKT04M-1-	**16F26**	X	X
INDOOR AIR QUALITY				
Sensor - Wall-mount, off-white plastic cover with LCD display	C0SNSR50AE1L	**77N39**	X	X
Sensor - Wall-mount, off-white plastic cover, no display	C0SNSR52AE1L	**87N53**	X	X
Sensor - Black plastic case with LCD display, rated for plenum mounting	C0SNSR51AE1L	**87N52**	X	X
Sensor - Wall-mount, black plastic case, no display, rated for plenum mounting	C0SNSR53AE1L	**87N54**	X	X
CO_2 Sensor Duct Mounting Kit	C0MISC19AE1-	**85L43**	X	X
Aspiration Box - for duct mounting non-plenum rated CO_2 sensor (77N39)	C0MISC16AE1-	**90N43**	X	X

NOTE - The catalog and model numbers that appear here are for ordering field installed accessories only.

O - Factory Installed with extended lead time.

X - Field Installed

SYSTEM MATCHES

[1] Net Cooling		High Temperature Heating		Low Temperature Heating		Cooling			Heating		Air Handler	Expansion Device
						[1] Coefficient of Performance	[1] Energy Efficiency Ratio at 35°C	[2] Energy Efficiency Ratio at 46°C	[1] Coefficient of Performance (Output/Input)			
kW	Btuh	kW	Btuh	kW	Btuh	(Output/Input)	(Btuh/Watt)	(Btuh/Watt)	High	Low		
ELP090S4S												
22.60	77 100	23.24	79 300	14.80	50 500	3.40	11.5	8.3	3.50	2.50	ELA090S4D	Factory
ELP120S4S												
30.77	105 000	28.72	98 000	17.94	61 200	3.40	11.7	8.6	3.40	2.50	ELA120S4D	Factory
(2) ELP090S4S												
46.31	158 000	43.08	147 000	25.20	86 000	3.30	11.2	8.1	3.30	2.10	ELA240S4D	Factory

NOTES − Net capacity includes indoor blower motor heat deduction. Gross capacity does not include indoor blower motor heat deduction.

[1] Rating test conditions are those included in Air-Conditioning, Heating and Refrigeration Institute (AHRI) Standard 340/360 while operating at rated voltage and air volumes:

Cooling Ratings - 35°C (95°F) outdoor air temperature and 27°C (80°F) db/19°C (67°F) wb entering indoor coil air.

High Temperature Heating Ratings - 8°C (47°F) db/6°C (43°F) wb outdoor air temperature and 21°C (70°F) entering indoor coil air.

Low Temperature Heating Ratings - –8°C (17°F) db/–9°C (15°F) wb outdoor air temperature and 21°C (70°F) entering indoor coil air.

[2] Rated at 46°C (115°F) outdoor air temperature and 27°C (80°F) db/19°C (67°F) wb entering indoor coil air (T3 Conditions).

WEIGHT DATA

Model No.	Net		Shipping	
	kg	lbs.	kg	lbs.
090S4S	193	425	204	450
120S4S	228	502	239	527

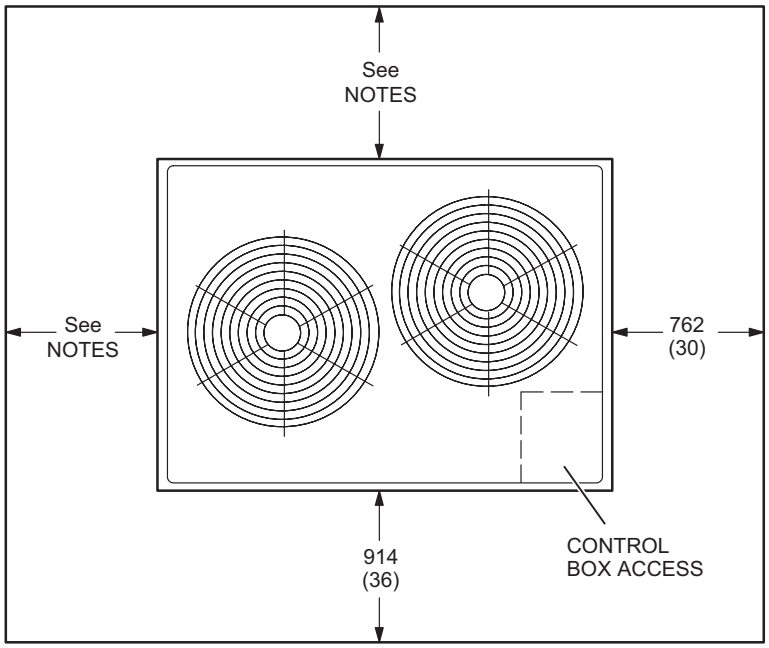
OPTIONS / ACCESSORIES

COMBINED COIL/HAIL GUARDS

T2GARD20M-1-	18	40	20	45
T2GARD21M-1-	20	45	23	50

INSTALLATION CLEARANCES

ELP090 AND ELP120



NOTES:

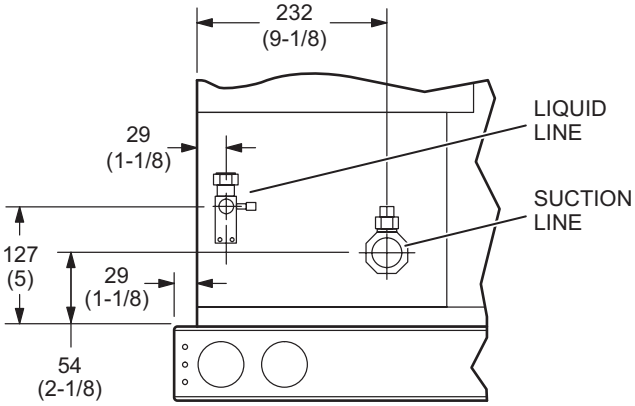
Clearance to one of the remaining two sides may be 305 mm (12 in.) and the final side may be 152 mm (6 in.).

A clearance of 610 mm (24 in.) must be maintained between two units.

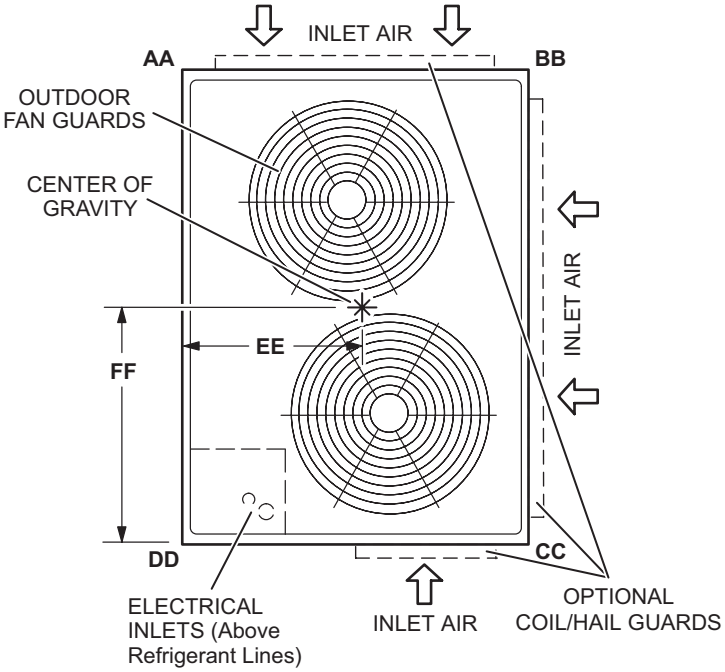
1219 mm (48 in.) clearance required on top of unit.

DIMENSIONS - MM (INCHES)

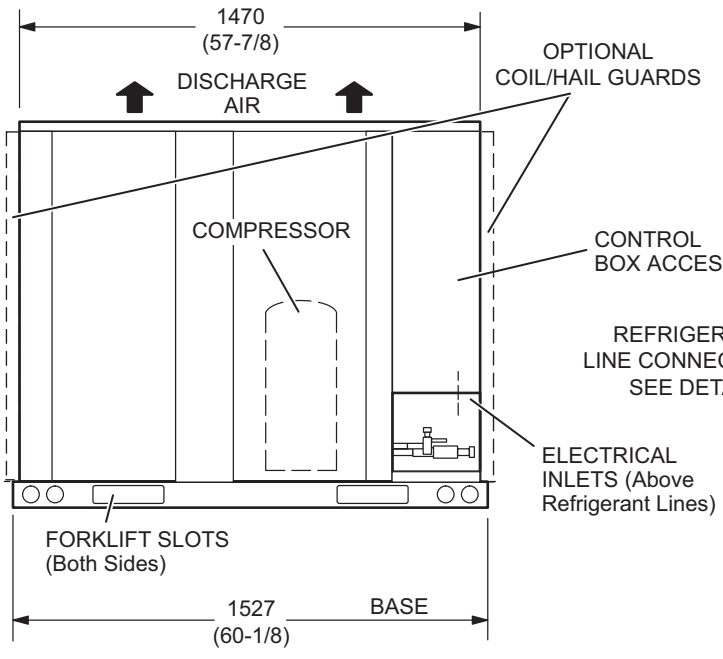
Model No.	CORNER WEIGHTS								CENTER OF GRAVITY			
	AA		BB		CC		DD		EE		FF	
	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	mm	in.	mm	in.
ELP090S4S	49	108	49	108	52	114	52	114	552	21-3/4	737	29
ELP120S4S	54	120	52	114	63	139	68	149	508	20	641	25-1/4



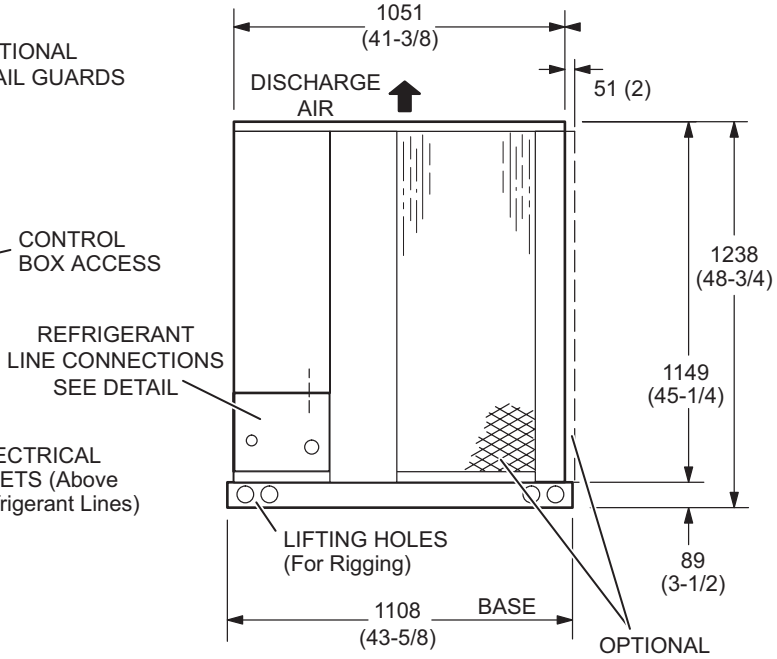
REFRIGERANT LINE CONNECTIONS DETAIL



TOP VIEW



FRONT VIEW



SIDE VIEW

RATINGS (ONE OUTDOOR UNIT + ONE INDOOR UNIT)

NOTE - For Temperatures and Capacities not shown in tables, see bulletin - Cooling Unit Rating Table Correction Factor Data in Miscellaneous Engineering Data section.

ELP090S4S - ELA090S4D COOLING CAPACITY (1ST STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		18.3 °C					23.9°C					29.4°C					35°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb		
	L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C
17.2°C	755	17.2	2.05	0.74	0.88	1	16.4	2.42	0.76	0.91	1	15.4	2.83	0.78	0.93	1	14.4	3.29	0.8	0.97	1
	945	18.1	2.04	0.79	0.95	1	17.2	2.41	0.82	0.98	1	16.2	2.82	0.84	1	1	15.4	3.28	0.87	1	1
	1135	19	2.03	0.84	1	1	18.1	2.39	0.87	1	1	17.2	2.8	0.9	1	1	16.3	3.26	0.94	1	1
19.4°C	755	18.5	2.03	0.58	0.71	0.84	17.6	2.4	0.59	0.73	0.86	16.6	2.81	0.6	0.75	0.89	15.5	3.27	0.62	0.77	0.92
	945	19.5	2.02	0.61	0.76	0.91	18.5	2.39	0.62	0.79	0.94	17.4	2.8	0.64	0.81	0.97	16.3	3.26	0.66	0.84	1
	1135	20.2	2.01	0.64	0.82	0.98	19.1	2.38	0.66	0.84	1	18	2.8	0.68	0.87	1	16.8	3.26	0.7	0.91	1
21.7°C	755	19.8	2.02	0.44	0.56	0.69	18.8	2.38	0.44	0.57	0.7	17.8	2.8	0.45	0.58	0.72	16.7	3.26	0.45	0.6	0.74
	945	20.8	2	0.45	0.6	0.74	19.8	2.37	0.46	0.61	0.76	18.7	2.78	0.47	0.63	0.78	17.5	3.25	0.47	0.64	0.81
	1135	21.5	1.99	0.47	0.63	0.79	20.5	2.36	0.47	0.64	0.81	19.3	2.78	0.48	0.67	0.84	18.1	3.24	0.49	0.68	0.88

ELP090S4S - ELA090S4D COOLING CAPACITY (2ND STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		26.7°C					35°C					43.3°C					46°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb		
	L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C
17.2°C	1135	23.1	4.61	0.77	0.92	1.00	21.2	5.37	0.81	0.97	1.00	19.1	6.26	0.85	1.00	1.00	18.5	6.58	0.87	1.00	1.00
	1415	24.3	4.68	0.83	0.99	1.00	22.5	5.45	0.87	1.00	1.00	20.5	6.36	0.93	1.00	1.00	19.8	6.68	0.95	1.00	1.00
	1700	25.6	4.75	0.89	1.00	1.00	23.7	5.53	0.94	1.00	1.00	21.6	6.44	0.99	1.00	1.00	20.8	6.76	1.00	1.00	1.00
19.4°C	1135	24.8	4.70	0.60	0.75	0.89	22.7	5.47	0.62	0.78	0.93	20.4	6.36	0.64	0.82	0.98	19.6	6.66	0.65	0.84	1.00
	1415	25.9	4.77	0.64	0.80	0.96	23.7	5.54	0.66	0.85	1.00	21.2	6.42	0.69	0.90	1.00	20.4	6.72	0.71	0.92	1.00
	1700	26.8	4.82	0.67	0.87	1.00	24.4	5.59	0.70	0.91	1.00	21.9	6.46	0.74	0.97	1.00	21.0	6.77	0.76	0.98	1.00
21.7°C	1135	26.5	4.80	0.45	0.58	0.72	24.3	5.58	0.45	0.60	0.75	21.9	6.47	0.47	0.63	0.79	21.1	6.78	0.47	0.64	0.81
	1415	27.6	4.87	0.46	0.62	0.78	25.4	5.65	0.47	0.65	0.82	22.8	6.53	0.49	0.68	0.87	22.0	6.84	0.49	0.69	0.89
	1700	28.5	4.93	0.48	0.66	0.84	26.1	5.70	0.49	0.69	0.88	23.5	6.58	0.51	0.73	0.94	22.6	6.89	0.51	0.74	0.96

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil														
		48°C					50°C					51.7°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb		
	L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C
17.2°C	1135	18.0	6.82	0.88	1.00	1.00	17.5	7.08	0.90	1.00	1.00	17.1	7.30	0.91	1.00	1.00
	1415	19.3	6.93	0.96	1.00	1.00	18.8	7.18	0.98	1.00	1.00	18.3	7.41	0.99	1.00	1.00
	1700	20.3	7.01	1.00	1.00	1.00	19.7	7.26	1.00	1.00	1.00	19.2	7.48	1.00	1.00	1.00
19.4°C	1135	19.0	6.90	0.66	0.85	1.00	18.4	7.15	0.67	0.87	1.00	17.8	7.37	0.68	0.88	1.00
	1415	19.7	6.96	0.72	0.93	1.00	19.1	7.21	0.73	0.95	1.00	18.5	7.43	0.74	0.97	1.00
	1700	20.3	7.01	0.77	0.99	1.00	19.7	7.26	0.78	1.00	1.00	19.2	7.49	0.80	1.00	1.00
21.7°C	1135	20.4	7.02	0.47	0.65	0.82	19.8	7.27	0.48	0.66	0.84	19.2	7.49	0.48	0.67	0.85
	1415	21.3	7.08	0.50	0.70	0.91	20.6	7.33	0.50	0.72	0.92	19.9	7.55	0.51	0.73	0.94
	1700	21.8	7.13	0.52	0.76	0.97	21.1	7.38	0.53	0.77	0.99	20.4	7.59	0.53	0.79	1.00

ELP090S4S - ELA090S4D HEATING CAPACITY

Indoor Coil Air Volume 21°C Dry Bulb	Air Temperature Entering Outdoor Coil									
	18°C		7°C		-4°C		-15°C		-28°C	
	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input
L/s	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
1135	28.4	5.23	22.7	4.88	17	4.54	11.3	4.03	5.5	3
1415	28.9	4.98	23.2	4.64	17.5	4.29	11.8	3.78	6	2.75
1700	29.3	4.83	23.7	4.48	17.9	4.14	12.3	3.63	6.5	2.6

RATINGS (ONE OUTDOOR UNIT + ONE INDOOR UNIT)

NOTE - For Temperatures and Capacities not shown in tables, see bulletin - Cooling Unit Rating Table Correction Factor Data in Miscellaneous Engineering Data section.

ELP120S4S - ELA120S4D COOLING CAPACITY (1ST STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		18.3 °C					23.9°C					29.4°C					35°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb		
	L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C
17.2°C	1055	22.7	2.64	0.76	0.9	1	21.8	3.14	0.77	0.92	1	20.5	3.72	0.8	0.95	1	19	4.36	0.82	0.99	1
	1320	23.7	2.61	0.82	0.98	1	22.9	3.11	0.83	1	1	21.8	3.67	0.86	1	1	20.5	4.31	0.9	1	1
	1585	24.8	2.58	0.88	1	1	24.1	3.07	0.89	1	1	23	3.63	0.92	1	1	21.6	4.27	0.96	1	1
19.4°C	1055	24.1	2.6	0.6	0.74	0.87	23.3	3.09	0.6	0.75	0.89	22	3.66	0.61	0.77	0.92	20.5	4.31	0.63	0.79	0.95
	1320	25	2.58	0.63	0.8	0.96	24.3	3.06	0.64	0.8	0.97	23	3.62	0.65	0.83	0.99	21.4	4.28	0.67	0.86	1
	1585	25.7	2.56	0.67	0.86	1	25	3.04	0.68	0.87	1	23.8	3.6	0.7	0.9	1	22.1	4.25	0.72	0.94	1
21.7°C	1055	25.4	2.57	0.45	0.58	0.71	24.8	3.05	0.45	0.59	0.72	23.6	3.61	0.45	0.6	0.74	22.1	4.26	0.46	0.61	0.76
	1320	26.3	2.55	0.46	0.62	0.78	25.8	3.02	0.46	0.62	0.78	24.6	3.58	0.47	0.64	0.81	23	4.22	0.48	0.66	0.84
	1585	27.1	2.54	0.48	0.66	0.84	26.6	3	0.48	0.67	0.85	25.3	3.55	0.48	0.68	0.87	23.7	4.2	0.49	0.7	0.91

ELP120S4S - ELA120S4D COOLING CAPACITY (2ND STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		26.7°C					35°C					43.3°C					46°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb		
	L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C
17.2°C	1510	30.8	5.62	0.76	0.91	1.00	28.8	6.63	0.79	0.95	1.00	26.2	7.83	0.83	0.99	1.00	25.4	8.47	0.85	1.00	1.00
	1890	32.1	5.67	0.83	0.99	1.00	30.3	6.68	0.86	1.00	1.00	27.9	7.90	0.90	1.00	1.00	27.1	8.53	0.92	1.00	1.00
	2265	33.6	5.72	0.88	1.00	1.00	31.8	6.74	0.92	1.00	1.00	29.3	7.96	0.97	1.00	1.00	28.4	8.58	0.99	1.00	1.00
19.4°C	1510	32.7	5.70	0.60	0.74	0.88	30.7	6.69	0.61	0.76	0.91	27.9	7.91	0.63	0.80	0.96	27.0	8.53	0.65	0.82	0.98
	1890	34.2	5.74	0.63	0.80	0.96	32.0	6.74	0.65	0.83	0.99	29.0	7.95	0.68	0.87	1.00	27.9	8.56	0.69	0.90	1.00
	2265	35.1	5.78	0.67	0.86	1.00	32.8	6.77	0.69	0.89	1.00	29.8	7.98	0.72	0.94	1.00	28.8	8.61	0.74	0.97	1.00
21.7°C	1510	34.7	5.76	0.45	0.58	0.72	32.6	6.76	0.45	0.59	0.74	29.8	7.98	0.46	0.62	0.77	28.8	8.60	0.47	0.63	0.79
	1890	36.3	5.82	0.46	0.63	0.78	34.0	6.82	0.47	0.64	0.81	31.0	8.03	0.48	0.67	0.85	29.9	8.64	0.49	0.68	0.87
	2265	37.2	5.85	0.48	0.66	0.84	35.0	6.86	0.48	0.68	0.87	31.7	8.06	0.50	0.71	0.92	30.6	8.68	0.51	0.73	0.95

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil														
		48°C					50°C					51.7°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb		
	L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C
17.2°C	1510	24.8	8.82	0.86	1.00	1.00	24.1	9.20	0.87	1.00	1.00	23.5	9.34	0.88	1.00	1.00
	1890	26.4	8.89	0.94	1.00	1.00	25.8	9.28	0.96	1.00	1.00	25.1	9.41	0.96	1.00	1.00
	2265	27.7	8.93	1.00	1.00	1.00	26.9	9.33	1.00	1.00	1.00	26.3	9.44	1.00	1.00	1.00
19.4°C	1510	26.2	8.89	0.65	0.83	0.99	25.4	9.26	0.66	0.85	1.00	24.6	9.38	0.66	0.85	1.00
	1890	27.1	8.91	0.71	0.91	1.00	26.3	9.29	0.72	0.93	1.00	25.6	9.42	0.72	0.94	1.00
	2265	27.9	8.95	0.76	0.98	1.00	27.0	9.33	0.77	1.00	1.00	26.2	9.45	0.77	1.00	1.00
21.7°C	1510	28.0	8.96	0.47	0.64	0.81	27.1	9.34	0.47	0.65	0.82	26.4	9.45	0.47	0.65	0.82
	1890	29.0	9.00	0.49	0.69	0.89	28.1	9.38	0.50	0.70	0.90	27.3	9.49	0.50	0.71	0.91
	2265	29.8	9.03	0.51	0.75	0.96	28.8	9.41	0.52	0.76	0.98	28.0	9.52	0.52	0.76	0.98

ELP120S4S - ELA120S4D HEATING CAPACITY

Indoor Coil Air Volume 21°C Dry Bulb	Air Temperature Entering Outdoor Coil									
	18°C		7°C		-4°C		-15°C		-28°C	
	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input
L/s	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
1510	36.2	6.57	28.8	6.01	21.6	5.46	14	4.72	6.9	3.54
1890	36.7	6.26	29.4	5.7	22.1	5.16	14.5	4.41	7.4	3.24
2265	37.2	6.08	29.8	5.52	22.6	4.98	15	4.23	7.9	3.06

RATINGS (TWO OUTDOOR UNITS + ONE INDOOR UNIT)

NOTE - For Temperatures and Capacities not shown in tables, see bulletin - Cooling Unit Rating Table Correction Factor Data in Miscellaneous Engineering Data section.

(2) ELP090S4S - (1) ELA240S4D COOLING CAPACITY (1ST STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		18.3 °C					23.9°C					29.4°C					35°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb		
	L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C
17.2°C	1510	34.1	4.2	0.73	0.87	1	32.6	4.95	0.75	0.9	1	30.9	5.8	0.76	0.93	1	29.1	6.74	0.78	0.96	1
	1890	35.9	4.17	0.79	0.96	1	34.3	4.92	0.8	0.98	1	32.5	5.77	0.82	1	1	30.9	6.71	0.85	1	1
	2265	37.5	4.14	0.84	1	1	36	4.9	0.86	1	1	34.4	5.74	0.89	1	1	32.7	6.67	0.92	1	1
19.4°C	1510	36.6	4.16	0.58	0.71	0.83	35	4.91	0.58	0.72	0.86	33.2	5.76	0.59	0.73	0.88	31.4	6.7	0.6	0.76	0.91
	1890	38.6	4.13	0.6	0.76	0.91	36.8	4.89	0.62	0.78	0.94	34.8	5.73	0.63	0.8	0.97	32.7	6.67	0.64	0.82	1
	2265	40	4.11	0.63	0.81	0.99	38	4.87	0.65	0.83	1	36	5.71	0.67	0.86	1	33.7	6.66	0.68	0.9	1
21.7°C	1510	39.2	4.12	0.43	0.56	0.68	37.4	4.88	0.44	0.57	0.69	35.5	5.72	0.44	0.57	0.71	33.6	6.66	0.44	0.59	0.73
	1890	41.3	4.09	0.45	0.59	0.73	39.3	4.85	0.45	0.6	0.75	37.3	5.7	0.46	0.62	0.77	35.1	6.64	0.46	0.63	0.79
	2265	42.8	4.07	0.46	0.62	0.78	40.8	4.83	0.46	0.64	0.8	38.6	5.68	0.47	0.65	0.83	36.2	6.62	0.48	0.67	0.87

(2) ELP090S4S - (1) ELA240S4D COOLING CAPACITY (2ND STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		26.7°C					35°C					43.3°C					46°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb		
	L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C
17.2°C	2265	47.4	9.08	0.76	0.91	1	43.8	10.55	0.79	0.96	1	39.8	12.25	0.82	1	1	38.6	12.86	0.85	1	1
	2830	49.6	9.22	0.81	0.99	1	46.2	10.73	0.85	1	1	42.5	12.48	0.91	1	1	41.1	13.09	0.93	1	1
	3400	52	9.39	0.88	1	1	48.5	10.9	0.93	1	1	44.6	12.66	0.98	1	1	43.2	13.26	1	1	1
19.4°C	2265	50.7	9.29	0.59	0.73	0.87	46.8	10.78	0.6	0.76	0.92	42.5	12.47	0.63	0.8	0.97	41.0	13.07	0.64	0.82	0.99
	2830	52.8	9.44	0.62	0.79	0.96	48.8	10.92	0.64	0.83	1	44.2	12.62	0.67	0.88	1	42.5	13.19	0.69	0.91	1
	3400	54.4	9.55	0.66	0.85	1	50.1	11.01	0.68	0.9	1	45.2	12.71	0.72	0.96	1	43.6	13.29	0.74	0.98	1
21.7°C	2265	53.9	9.51	0.43	0.57	0.7	50	11.01	0.45	0.59	0.73	45.4	12.72	0.45	0.61	0.77	43.8	13.31	0.46	0.63	0.79
	2830	56.2	9.67	0.46	0.61	0.76	52	11.15	0.46	0.63	0.8	47.2	12.87	0.47	0.66	0.85	45.4	13.46	0.48	0.68	0.88
	3400	58	9.78	0.46	0.65	0.83	53.4	11.26	0.47	0.67	0.87	48.4	12.97	0.49	0.71	0.93	46.6	13.56	0.50	0.74	0.95

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil														
		48°C					50°C					51.7°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb		
	L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C
17.2°C	2265	37.7	13.34	0.86	1	1	36.7	13.82	0.88	1	1	35.8	14.26	0.88	1	1
	2830	40.2	13.56	0.95	1	1	39.2	14.05	0.96	1	1	38.2	14.49	0.98	1	1
	3400	42.2	13.73	1	1	1	41.0	14.21	1	1	1	39.9	14.65	1	1	1
19.4°C	2265	39.7	13.53	0.65	0.84	1	38.5	14.00	0.66	0.85	1	37.5	14.42	0.66	0.86	1
	2830	41.2	13.65	0.70	0.92	1	40.0	14.12	0.71	0.94	1	38.8	14.54	0.72	0.95	1
	3400	42.3	13.75	0.75	0.99	1	41.0	14.22	0.77	1	1	39.9	14.65	0.77	1	1
21.7°C	2265	42.6	13.78	0.46	0.64	0.81	41.4	14.25	0.47	0.65	0.82	40.2	14.69	0.47	0.65	0.82
	2830	44.0	13.90	0.48	0.69	0.89	42.8	14.40	0.49	0.70	0.91	41.6	14.81	0.49	0.71	0.92
	3400	45.2	14.01	0.51	0.74	0.97	43.8	14.47	0.51	0.76	0.99	42.4	14.89	0.51	0.76	1

(2) ELP090S4S - (1) ELA240S4D HEATING CAPACITY

Indoor Coil Air Volume 21°C Dry Bulb	Air Temperature Entering Outdoor Coil									
	18°C		7°C		-4°C		-15°C		-28°C	
	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input
L/s	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
2265	51.7	10.62	39.8	9.87	27.8	9.1	17.1	8.13	8.6	6.06
2830	52.4	10.13	40.4	9.38	28.4	8.61	17.7	7.65	9.3	5.57
3400	52.8	9.78	40.9	9.04	28.8	8.26	18.1	7.3	9.7	5.23

REVISIONS

Sections	Description of Change
Dimensions - Unit	Updated combined coil/hail guards on unit dimension drawings.