HEAT PUMP OUTDOOR UNITS

TP

T-CLASS™ SPLIT SYSTEM UNITS

R-410A - 50 HZ

PRODUCT SPECIFICATIONS

Bulletin No. 490132
February 2016
Supersedes July 2015

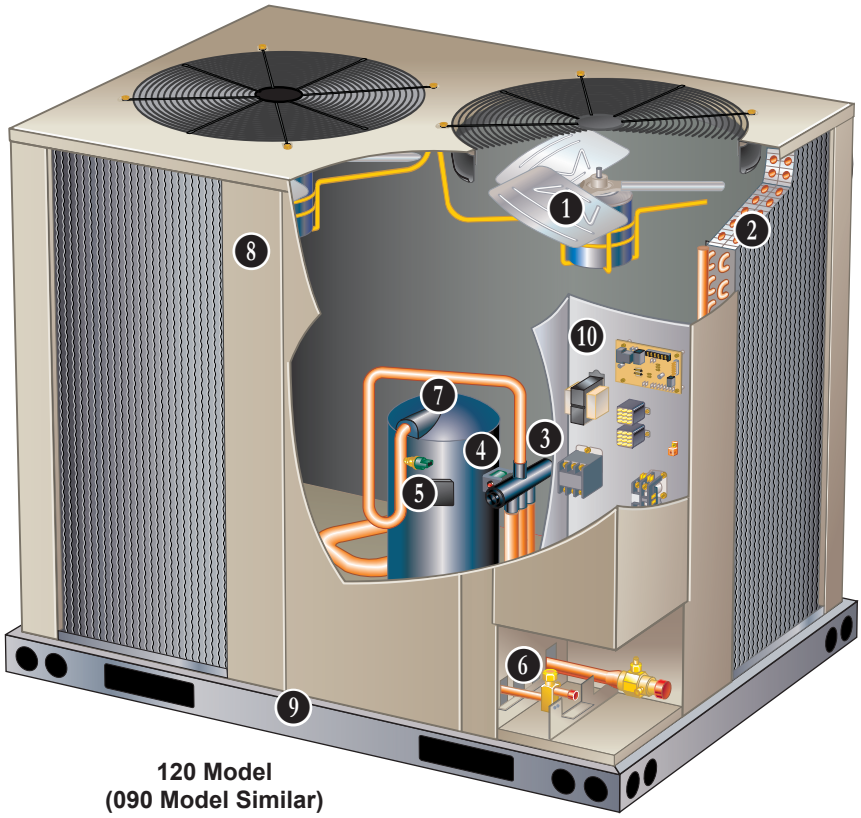
Nominal Capacity – 26.4 and 35.2 kW
Cooling Capacity – 22.7 to 44.8 kW
Heating Capacity – 23.2 to 45.7 kW

MODEL NUMBER IDENTIFICATION

T P A 120 S 4 S N 1 M

- **Brand/Family**
  T = T-Class™ Product Line
- **Unit Type**
  P = Split System Heat Pump
- **Major Design Sequence**
  A = 1st Generation
  B = 2nd Generation
- **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**
  N = Single Stage Compressor
- **Minor Design Sequence**
  1 = 1st Revision
  2 = 2nd Revision
  3 = 3rd Revision
- **Voltage**
  M = 380/420V-3 phase-50hz

FEATURES AND BENEFITS



120 Model
(090 Model Similar)

CONTENTS

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 Ratings tables. See Air Handlers tab sections for data.

Units shipped completely factory assembled, piped, and wired. Each unit is test operated at the factory insuring proper operation.

Installer must set air conditioner, connect refrigerant lines, add refrigerant charge and make electrical connections to complete job.

APPROVALS

All units tested in Lennox' Research Laboratory environmental test room or certified environmental testing facility.

Cooling performance is rated at test conditions included in Air-Conditioning, Heating and Refrigeration Institute (AHRI) Standard 340/360−2007 while operating at rated voltage and air volumes.

Sound tested in Lennox reverberant sound test room in accordance with test conditions included in Air−Conditioning, Heating and Refrigeration Institute (AHRI) Standard 270-95 or 370-2001.

Components bonded for grounding to meet safety standards for servicing required by Underwriters Laboratories (UL) and the International Electrotechnical Commission (IEC).

International Organization for Standardization (ISO) 9001 Registered Manufacturing Quality System.

FEATURES AND BENEFITS

REFRIGERATION SYSTEM

Refrigerant
Units operate with chlorine-free, ozone friendly, R-410A (field furnished).

1 Outdoor Coil Fan(s)
Dual direct drive fan(s) moves large volumes of air uniformly through entire condenser coil(s) for high refrigerant cooling capacity.

Upward discharge of air reduces operating sound levels and prevents damage to lawns, shrubs, and walkways.

Fan motors are totally enclosed, overload protected and equipped with a rain shield.

Fan service access is accomplished by removal of fan guards.

2 Copper Tube/Enhanced Fin Coil(s)
TPA090S has a single “U” shaped coil.

TPA120S have two “L” shaped coils.

Lennox designed and fabricated coils constructed of precisely spaced ripple-edge aluminum fins machine fitted to seamless copper tubes.

Lanced fins provide maximum exposure of fin surface to air stream resulting in excellent heat transfer.

Fins equipped with collars that grip tubing for maximum contact area.

Flared shoulder tubing connections and machine brazed silver soldering provide tight, leakproof joints.

Long life copper tubing is corrosion-resistant and easy to field service.

Thoroughly factory tested under high pressure to ensure leakproof construction.

Completely accessible for cleaning.

3 Reversing Valve
Factory installed 4-way reversing valve provides rapid change in refrigerant flow direction resulting in quick changeover from cooling to heating and vice-versa.

Valve operates on pressure differential between outdoor unit and indoor unit.

4 High Pressure Switch
Shuts off unit if abnormal operating conditions cause discharge pressure to rise above setting.

Protects the compressor from excessive condensing pressure.

Manual reset.

5 Loss of Charge Switch
Provides loss of charge and freeze-up protection.

Hi-Capacity Drier(s)
Drier traps moisture or dirt that could contaminate the refrigerant system.

6 Refrigerant Lines and Service Valves
Sweat connections.

Fully serviceable liquid and suction line service valves provide complete service access to refrigerant system.

Suction valve can be fully shut off, while liquid valve can be front seated to manage refrigerant charge while servicing system.

Refrigerant lines and field wiring inlets are located in one central area of the unit cabinet.

7 COMPRESSORS

Compressor features high efficiency with uniform suction flow, constant discharge flow and high volumetric efficiency and quiet operation.

Compressor consists of two involute spiral scrolls matched together to 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 pocket reaches the center, gas is now 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.

Scroll 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.

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 resilient rubber mounts for vibration free operation.

Crankcase Heater (All Models)
Crankcase heater prevents migration of liquid refrigerant into compressor and ensures proper compressor lubrication at all times.

FEATURES AND BENEFITS

CABINET

8 Heavy-gauge, pre-painted steel cabinet provides superior rust and corrosion protection.

Removable panels allow access for unit servicing.

9 Heavy duty steel base channels raise the unit off of mounting surface away from damaging moisture.

Unit lifting holes and forklift slots furnished in base rails.

See dimension drawings.

10 **Control Box**
Control box located in separate compartment in unit cabinet .

All controls are pre-wired at the factory.

Control box is large enough for field installed DDC or other field supplied control modules.

Options/Accessories

Factory Installed

Corrosion Protection
Polymeric epoxy coating that is deposited by electrical transport (electrophoresis), using a process known as electrocoat (e-coat). Available for enhanced coil corrosion protection. Factory installed on the condenser coil. Painted base pan is provided with this option.

Field Installed

Combination Coil/Hail Guards
Heavy gauge steel frame painted to match cabinet with expanded metal mesh to protect the outdoor coil from damage.

CONTROLS

Defrost Control
Solid-state control furnished as standard.

Provides a defrost cycle, if needed, every 30 or 60 or 90 minutes (adjustable) of compressor on" time at outdoor coil temperature below 35°F. Temperature switch mounted on outdoor coil liquid line terminates defrost cycle.

Conveniently located in control box.

Options/Accessories

Field Installed

Low Ambient Control
Heat pumps will operate satisfactorily in cooling mode down to −1ºC outdoor air temperature without any additional controls.

Low Ambient Control Kit can be field installed, allowing cooling operation down to −18ºC.

Thermostat
Thermostat is not furnished with unit and must be ordered extra.

See individual Thermostat bulletins and Lennox Price Book.

SOUND DATA

[1] Unit Model No.	Octave Band Sound Power Levels dBA, re 10^{-12} Watts Center Frequency - HZ								[1] Sound Rating Number (dB)
	63	125	250	500	1000	2000	4000	8000	
TPA090S4S	60	69	77	80	80	77	73	65	85
TPA120S4S	64	69	77	80	81	78	72	64	86

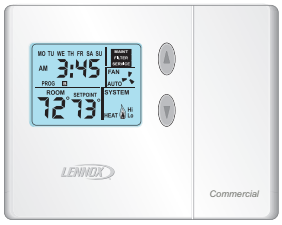
NOTE - the octave sound power data does not include tonal correction.

[1] Tested according to Air-Conditioning, Heating and Refrigeration Institute (AHRI) Standard 270-2008 test conditions.

OPTIONAL CONVENTIONAL TEMPERATURE CONTROL SYSTEMS

Item	Model No.	Catalog No.
COMFORTSENSE® 7500 COMMERCIAL 7-DAY PROGRAMMABLE THERMOSTAT		
		
• Four-Stage Heating / Two-Stage Cooling Universal Multi-Stage	C0STAT06FF1L	**13H15**
• Intuitive Touchscreen Interface		
• Remote Indoor Temperature Sensing with Averaging		
• Outside or Discharge Air Temperature Display		
• Full Seven-Day Programming		
• Four Time Periods Per Day		
• Occupancy Scheduling with Economizer Relay Control		
• 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		
Optional Accessories		
[1] Remote non-adjustable wall mount 20k temperature sensor	C0SNZN01AE2-	**47W36**
[1] Remote non-adjustable wall mount 10k temperature sensor	C0SNZN73AE1-	**47W37**
Remote non-adjustable discharge air (duct mount) temperature sensor	C0SNDC00AE1-	**19L22**
Outdoor temperature sensor	C0SNSR03AE1-	**X2658**
Locking cover (clear)	C0MISC15AE1-	**39P21**

[1] Remote 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		
		
• Two-Stage Heating / Two-Stage Cooling Conventional Systems	C0STAT05FF1L	**11Y05**
• 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 Accessories		
Remote non-adjustable wall mount 10k averaging temperature sensor	C0SNZN73AE1-	**47W37**
Optional wall mounting plate	C0MISC17AE1-	**X2659**
DIGITAL NON-PROGRAMMABLE THERMOSTAT		
		
• One-Stage Heating / Cooling Conventional Systems	C0STAT12AE1L	**51M32**
• Intuitive Interface		
• Automatic Changeover		
• Backlit Display		
• Simple Up and Down Temperature Control.		
Optional Accessories		
Outdoor temperature sensor	C0SNSR04AE1-	**X2658**
Optional wall mounting plate	C0MISC17AE1-	**X2659**

SPECIFICATIONS

General Data	**Model No.**	**TPA090S4S**	**TPA120S4S**
	Nominal Size - kW	**26.4**	**35.2**
Connections (sweat)	Liquid line - mm (in.) (o.d)	15.9 (5/8)	15.9 (5/8)
	Vapor line - mm (in.) (o.d)	34.9 (1-3/8)	34.9 (1-3/8)
Refrigerant (R-410A)		Factory installed holding charge	
	[1] Field provided charge with 7.6 m (25 ft.) line set	7.7 kg (17 lbs. 0 oz.)	10.4 kg (23 lbs. 0 oz.)
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.) & no. of rows	9.5 (3/8) - 2	9.5 (3/8) - 2
	Fins per meter (Fins per inch)	787 (20)	787 (20)
Outdoor Coil Fan(s)	Diameter - mm (in.) & no. of blades	(2) 24 - 3	(2) 24 - 4
	Nominal Motor Watts (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)	30	40
	[3] Minimum circuit ampacity	18	24
Compressor (1)	Rated load amps	12.2	16.7
	Locked rotor amps	100.0	114.0
Outdoor Coil Fan Motor (2) (1 phase)	Full load amps (total)	1.3 (2.6)	1.5 (3.0)
	Locked rotor amps (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 charge at various line set lengths.

[2] Heating Air Conditioning Refrigeration type breaker or fuse.

[3] Refer to local electrical codes manual to determine wire, fuse and disconnect size requirements.

OPTIONS / ACCESSORIES

Item		Catalog No.	090S4S	120S4S
CABINET				
Combined Coil/Hail Guards	T2GARD51M11	**13T30**	X	
	T2GARD51M21	**13T32**		X
Corrosion Protection		Factory	O	O
CONTROLS				
Low Ambient Control −18°C (0ºF)	T2CWKT04M-1-	**60W35**	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

RATINGS

Gross Cooling		Net Cooling		High Temp. Heating		Low Temp. Heating		Cooling		Heating		Indoor Unit	Expansion Device
								Coefficient of Performance (Output/ Input)	Energy Efficiency Rating (Btuh/Watt)	Coefficient of Performance (Output/ Input)			
kW	Btuh	kW	Btuh	kW	Btuh	kW	Btuh			High	Low		
TPA090S4S 26.4 kW													
Air Handlers													
23.4	80 000	22.7	77 500	23.2	79 200	15.6	53 400	3.3	11.2	3.5	2.5	TAA090S4D (Upflow . Horizontal)	Factory TXV
23.9	81 500	23.0	78 500	23.4	80 000	13.2	45 000	3.3	11.4	3.6	2.3	TAA120S4D (Upflow / Horizontal)	Factory TXV
(2) TPA090S4S (2) 26.4 kW													
Air Handlers													
47.1	161 000	44.8	153 000	45.7	156 000	26.4	90 000	3.2	10.4	3.2	2.1	TAA240S4D (Upflow . Horizontal)	[1] **50W73**
TPA120S4S 35.2 kW													
Air Handlers													
29.8	101 700	28.7	98 000	30.1	102 800	19.9	68 000	3.3	11.3	3.4	2.5	TAA120S4D (Upflow / Horizontal)	Factory TXV

NOTE - Net capacity includes indoor blower motor heat deduction. Gross capacity does not include indoor blower motor heat deduction.

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.

[1] Factory installed expansion valve on TAA240S4D air handlers must be replaced with Heat Pump Check Valve Kit **50W73** for proper heat pump operation.

WEIGHT DATA

Model No.	Net		Shipping	
	kg	lbs.	kg	lbs.
090	197	435	209	460
120	233	515	245	540

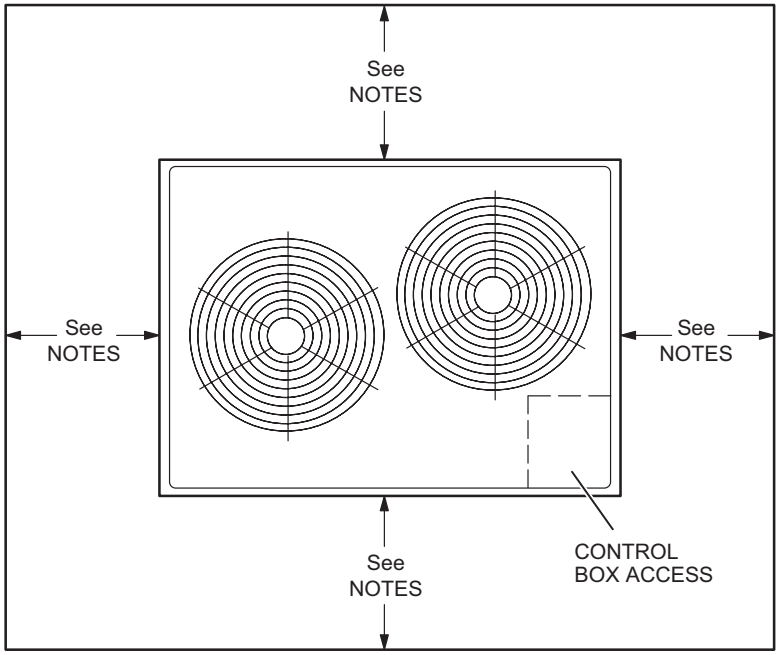
OPTIONS / ACCESSORIES

COMBINED COIL/HAIL GUARDS

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

UNIT CLEARANCES - MM (INCHES)

TPA090 AND TPA120



NOTES:

Service clearance of 762 mm (30 in.) must be maintained on one of the sides adjacent to the control box.

Clearance to one of the other three sides must be 914 mm (36 in.).

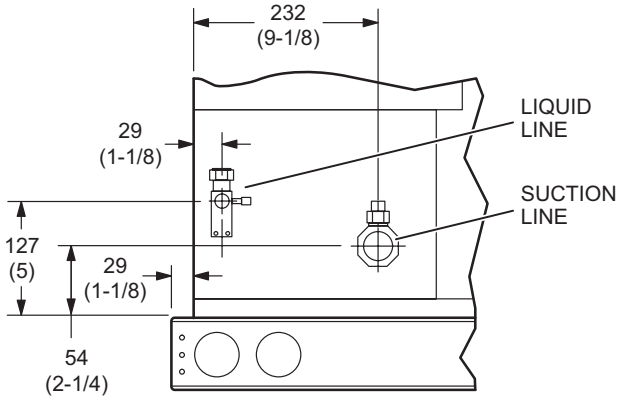
Clearance to one of the remaining two sides may be 305 mm (12 in.) and the final side may be 152 mm (6 in.).

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

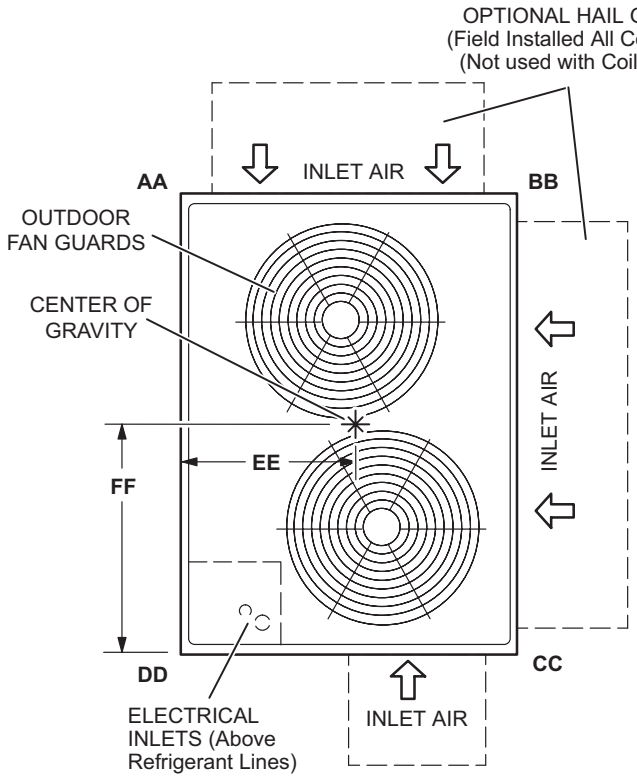
1219 mm (48 in.) clearance required on top of unit.

DIMENSIONS - MM (INCHES)

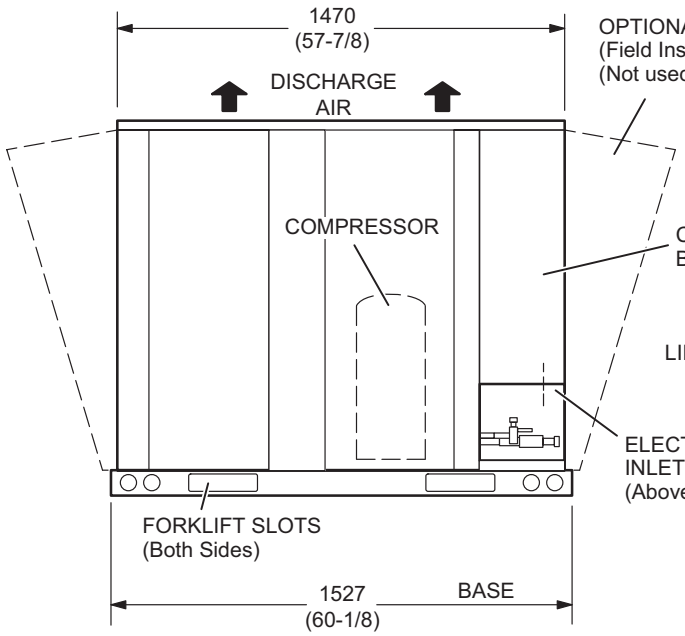
Model No.	CORNER WEIGHTS								CENTER OF GRAVITY			
	A		B		C		D		EE		FF	
	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	mm	in.	mm	in.
TPA090S4S	48	105	48	105	51	112	51	112	552	21-3/4	737	29
TPA120S4S	59	129	50	110	56	123	66	145	508	20	718	25-1/4



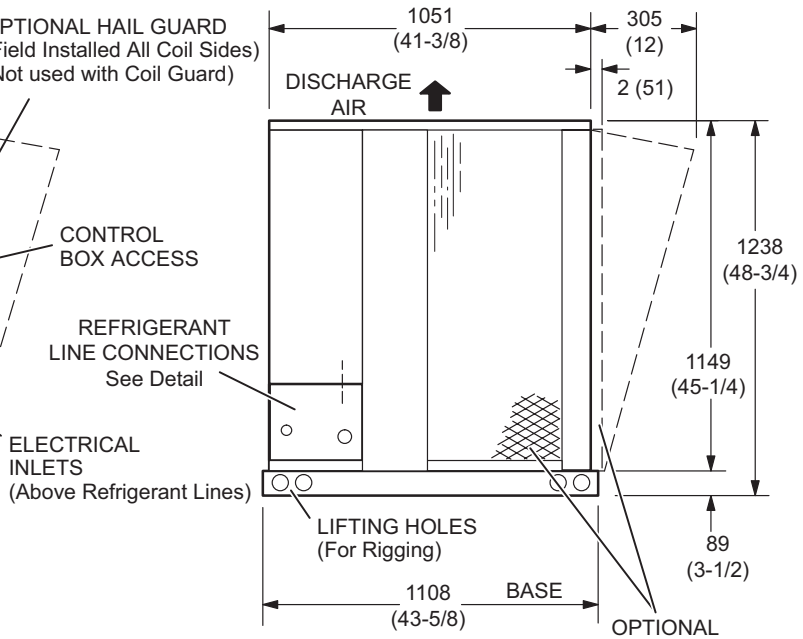
REFRIGERANT LINE CONNECTIONS DETAIL



TOP VIEW



FRONT VIEW



SIDE VIEW

RATINGS

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

TPA090S4S - TAA090S4D COOLING CAPACITY

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		26.7°C					35°C					43.3°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			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	1133	23.0	4.38	0.71	0.87	1.00	21.5	5.13	0.74	0.92	1.00	19.8	6.03	0.76	0.96	1.00	17.8	7.15	0.81	1.00	1.00
	1416	24.0	4.43	0.77	0.97	1.00	22.4	5.17	0.80	1.00	1.00	20.8	6.09	0.85	1.00	1.00	18.9	7.21	0.92	1.00	1.00
	1699	25.0	4.48	0.84	1.00	1.00	23.4	5.23	0.88	1.00	1.00	21.7	6.14	0.94	1.00	1.00	19.8	7.26	1.00	1.00	1.00
19.4°C	1133	24.4	4.45	0.56	0.69	0.84	22.7	5.19	0.58	0.72	0.88	20.9	6.09	0.59	0.75	0.93	18.8	7.20	0.62	0.79	0.99
	1416	25.3	4.50	0.60	0.75	0.94	23.6	5.23	0.61	0.78	0.98	21.7	6.13	0.63	0.83	1.00	19.4	7.24	0.67	0.89	1.00
	1699	26.0	4.54	0.63	0.82	1.00	24.1	5.27	0.65	0.85	1.00	22.2	6.16	0.68	0.92	1.00	19.9	7.27	0.71	0.98	1.00
21.7°C	1133	25.7	4.52	0.43	0.54	0.67	24.0	5.26	0.43	0.56	0.69	22.1	6.16	0.43	0.58	0.72	19.9	7.27	0.44	0.61	0.76
	1416	26.7	4.57	0.43	0.59	0.73	24.9	5.30	0.44	0.60	0.75	22.9	6.20	0.45	0.63	0.80	20.6	7.30	0.46	0.66	0.87
	1699	27.4	4.61	0.44	0.62	0.79	25.5	5.34	0.46	0.65	0.83	23.4	6.24	0.47	0.67	0.89	20.9	7.33	0.49	0.71	0.96

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil									
		48°C					50°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		
	L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C
17.2°C	1133	18.7	6.62	0.79	1.00	1.00	18.3	6.90	0.80	1.00	1.00
	1416	19.8	6.69	0.89	1.00	1.00	19.3	6.97	0.90	1.00	1.00
	1699	20.7	6.74	0.97	1.00	1.00	20.2	7.01	0.99	1.00	1.00
19.4°C	1133	19.8	6.69	0.60	0.76	0.96	19.3	6.96	0.61	0.78	0.98
	1416	20.4	6.72	0.65	0.86	1.00	19.9	7.00	0.66	0.88	1.00
	1699	21.0	6.75	0.69	0.95	1.00	20.4	7.03	0.70	0.97	1.00
21.7°C	1133	20.9	6.75	0.44	0.59	0.74	20.4	7.03	0.44	0.60	0.75
	1416	21.5	6.79	0.46	0.64	0.83	21.0	7.06	0.46	0.65	0.85
	1699	22.0	6.82	0.48	0.69	0.93	21.4	7.09	0.48	0.70	0.94

TPA090S4S - TAA090S4D 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
1133	27.50	5.67	22.40	5.34	17.30	5.01	12.00	4.49	5.80	3.34
1416	28.00	5.38	22.90	5.05	17.80	4.72	12.50	4.20	6.30	3.05
1699	28.40	5.20	23.30	4.87	18.20	4.54	12.90	4.02	6.70	2.87

RATINGS

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

TPA090S4S - TAA120S4D COOLING CAPACITY

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		26.7°C					35°C					43.3°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			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	1133	23.5	4.40	0.72	0.88	1.00	21.9	5.15	0.75	0.92	1.00	20.1	6.08	0.77	0.97	1.00	18.2	7.22	0.83	1.00	1.00
	1416	24.5	4.45	0.78	0.97	1.00	22.8	5.20	0.81	1.00	1.00	21.1	6.13	0.86	1.00	1.00	19.2	7.28	0.92	1.00	1.00
	1699	25.3	4.49	0.85	1.00	1.00	23.7	5.25	0.89	1.00	1.00	22.0	6.18	0.93	1.00	1.00	20.0	7.32	0.99	1.00	1.00
19.4°C	1133	24.8	4.46	0.57	0.70	0.84	23.2	5.22	0.58	0.72	0.88	21.2	6.13	0.60	0.75	0.93	19.1	7.27	0.63	0.80	0.99
	1416	25.7	4.51	0.60	0.76	0.94	24.0	5.26	0.62	0.78	0.98	22.0	6.17	0.64	0.83	1.00	19.7	7.30	0.67	0.90	1.00
	1699	26.4	4.54	0.64	0.82	1.00	24.6	5.29	0.66	0.86	1.00	22.5	6.20	0.69	0.91	1.00	20.1	7.32	0.72	0.98	1.00
21.7°C	1133	26.1	4.53	0.43	0.55	0.68	24.4	5.28	0.43	0.57	0.70	22.4	6.19	0.44	0.59	0.73	20.2	7.33	0.45	0.61	0.78
	1416	27.1	4.58	0.44	0.59	0.74	25.2	5.32	0.45	0.61	0.76	23.2	6.24	0.46	0.63	0.81	20.8	7.36	0.47	0.67	0.87
	1699	27.8	4.61	0.46	0.63	0.80	25.8	5.36	0.47	0.65	0.84	23.7	6.27	0.48	0.68	0.89	21.2	7.38	0.49	0.72	0.96

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil									
		48°C					50°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		
	L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C
17.2°C	1133	19.0	6.69	0.80	1.00	1.00	18.6	6.97	0.82	1.00	1.00
	1416	20.1	6.74	0.89	1.00	1.00	19.6	7.03	0.91	1.00	1.00
	1699	20.9	6.79	0.97	1.00	1.00	20.4	7.07	0.98	1.00	1.00
19.4°C	1133	20.1	6.74	0.61	0.78	0.97	19.6	7.03	0.62	0.79	0.98
	1416	20.8	6.78	0.66	0.87	1.00	20.2	7.06	0.67	0.88	1.00
	1699	21.2	6.80	0.70	0.95	1.00	20.6	7.08	0.71	0.97	1.00
21.7°C	1133	21.2	6.81	0.44	0.60	0.75	20.7	7.09	0.45	0.61	0.77
	1416	21.9	6.84	0.46	0.65	0.84	21.4	7.12	0.47	0.66	0.86
	1699	22.4	6.87	0.49	0.70	0.93	21.7	7.14	0.49	0.71	0.95

TPA090S4S - TAA120S4D 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
1133	29.2	5.65	22	5.05	14.5	4.41	9.2	3.91	4.6	2.96
1416	29.7	5.37	22.5	4.77	15	4.14	9.8	3.63	5.2	2.68
1699	30.1	5.19	22.9	4.59	15.4	3.96	10.2	3.45	5.6	2.5

RATINGS

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

(2) TPA090S4S - (1) TAA240S4D (1st Stage) COOLING CAPACITY

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	2265	26.8	3.98	0.68	0.83	1.00	25.8	4.41	0.69	0.85	1.00	24.7	4.88	0.71	0.88	1.00	23.6	5.42	0.72	0.91	1.00
	2832	27.9	4.04	0.73	0.93	1.00	26.9	4.46	0.74	0.96	1.00	25.7	4.93	0.76	0.99	1.00	24.6	5.47	0.79	1.00	1.00
	3398	28.8	4.08	0.79	1.00	1.00	27.9	4.51	0.81	1.00	1.00	26.8	4.99	0.84	1.00	1.00	25.7	5.53	0.88	1.00	1.00
19.4°C	2265	28.3	4.06	0.53	0.66	0.78	27.3	4.48	0.54	0.67	0.81	26.2	4.95	0.55	0.68	0.83	24.9	5.49	0.56	0.70	0.86
	2832	29.5	4.11	0.57	0.71	0.89	28.4	4.54	0.58	0.73	0.92	27.2	5.01	0.59	0.74	0.95	25.9	5.54	0.59	0.76	0.98
	3398	30.3	4.16	0.60	0.77	0.99	29.1	4.57	0.61	0.78	1.00	27.9	5.04	0.62	0.82	1.00	26.6	5.57	0.64	0.85	1.00
21.7°C	2265	29.8	4.13	0.41	0.52	0.63	28.8	4.56	0.41	0.53	0.65	27.5	5.03	0.42	0.54	0.66	26.3	5.56	0.42	0.55	0.68
	2832	31.0	4.19	0.42	0.56	0.69	29.9	4.61	0.42	0.57	0.71	28.7	5.08	0.43	0.58	0.72	27.3	5.62	0.43	0.59	0.74
	3398	31.9	4.24	0.44	0.59	0.75	30.7	4.65	0.44	0.60	0.76	29.4	5.12	0.44	0.61	0.79	28.0	5.65	0.45	0.63	0.82

(2) TPA090S4S - (1) TAA240S4D (2nd Stage) COOLING CAPACITY

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		26.7°C					35°C					43.3°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			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	50.8	9.29	0.69	0.86	1.00	47.2	10.85	0.71	0.91	1.00	43.4	12.78	0.74	0.97	1.00	39.3	15.17	0.79	1.00	1.00
	2832	52.7	9.39	0.75	0.97	1.00	49.2	10.96	0.79	1.00	1.00	45.7	12.90	0.84	1.00	1.00	41.6	15.29	0.91	1.00	1.00
	3398	54.9	9.49	0.82	1.00	1.00	51.5	11.07	0.87	1.00	1.00	47.8	13.01	0.93	1.00	1.00	43.4	15.39	1.00	1.00	1.00
19.4°C	2265	53.7	9.43	0.55	0.67	0.82	49.9	10.99	0.56	0.69	0.86	46.0	12.92	0.58	0.72	0.92	41.3	15.27	0.59	0.76	0.99
	2832	55.7	9.53	0.58	0.73	0.93	51.9	11.09	0.59	0.75	0.98	47.6	13.00	0.62	0.81	1.00	42.6	15.35	0.64	0.88	1.00
	3398	57.3	9.61	0.61	0.79	1.00	53.2	11.16	0.63	0.85	1.00	48.7	13.06	0.65	0.91	1.00	43.6	15.40	0.69	0.99	1.00
21.7°C	2265	56.6	9.58	0.41	0.53	0.65	52.8	11.13	0.41	0.54	0.67	48.6	13.05	0.42	0.56	0.70	43.8	15.40	0.43	0.58	0.74
	2832	58.8	9.69	0.42	0.57	0.71	54.8	11.24	0.43	0.58	0.74	50.3	13.15	0.44	0.61	0.78	45.1	15.48	0.45	0.64	0.86
	3398	60.2	9.77	0.44	0.60	0.76	56.2	11.32	0.45	0.63	0.82	51.3	13.20	0.46	0.64	0.89	46.1	15.55	0.48	0.69	0.96

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil									
		48°C					50°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		
	L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C
17.2°C	2265	41.0	14.04	0.77	1.00	1.00	40.0	14.63	0.78	1.00	1.00
	2832	43.5	14.18	0.88	1.00	1.00	42.5	14.78	0.90	1.00	1.00
	3398	45.2	14.28	0.97	1.00	1.00	44.3	14.86	0.99	1.00	1.00
19.4°C	2265	43.5	14.18	0.59	0.74	0.96	42.3	14.76	0.59	0.75	0.98
	2832	44.9	14.25	0.64	0.84	1.00	43.7	14.83	0.63	0.87	1.00
	3398	45.8	14.30	0.67	0.94	1.00	44.8	14.89	0.68	0.97	1.00
21.7°C	2265	46.0	14.31	0.43	0.57	0.72	44.8	14.89	0.42	0.58	0.73
	2832	47.5	14.40	0.45	0.63	0.81	46.2	14.98	0.45	0.64	0.84
	3398	48.6	14.46	0.47	0.67	0.93	47.1	15.02	0.47	0.68	0.94

(2) TPA090S4S - (1) TAA240S4D (2nd Stage) 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	56.3	11.87	42.6	10.87	28.3	9.89	18.9	8.55	9.3	6.44
2832	57.4	11.24	43.7	10.25	29.4	9.26	20.0	7.92	10.4	5.81
3398	58.3	10.82	44.6	9.82	30.2	8.84	20.9	7.5	11.3	5.39

RATINGS

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

TPA120S4S - TAA120S4D COOLING CAPACITY

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		26.7°C					35°C					43.3°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			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	29.6	5.42	0.74	0.91	1.00	27.6	6.42	0.77	0.95	1.00	25.3	7.61	0.80	1.00	1.00	22.9	9.11	0.86	1.00	1.00
	1888	30.9	5.49	0.80	1.00	1.00	29.0	6.48	0.84	1.00	1.00	26.8	7.69	0.89	1.00	1.00	24.2	9.17	0.96	1.00	1.00
	2265	32.3	5.56	0.87	1.00	1.00	30.3	6.55	0.92	1.00	1.00	27.9	7.74	0.98	1.00	1.00	25.1	9.22	1.00	1.00	1.00
19.4°C	1510	31.4	5.51	0.58	0.72	0.87	29.2	6.49	0.60	0.75	0.91	26.7	7.68	0.62	0.78	0.97	23.8	9.15	0.65	0.83	1.00
	1888	32.6	5.57	0.62	0.78	0.97	30.2	6.54	0.64	0.82	1.00	27.6	7.73	0.66	0.87	1.00	24.5	9.18	0.70	0.94	1.00
	2265	33.5	5.62	0.66	0.85	1.00	30.9	6.58	0.68	0.90	1.00	28.2	7.76	0.71	0.96	1.00	25.2	9.22	0.76	1.00	1.00
21.7°C	1510	33.2	5.60	0.43	0.56	0.70	30.9	6.58	0.44	0.58	0.72	28.3	7.76	0.45	0.60	0.76	25.2	9.22	0.46	0.64	0.81
	1888	34.4	5.67	0.45	0.61	0.76	32.0	6.64	0.46	0.63	0.79	29.1	7.81	0.47	0.65	0.84	26.0	9.25	0.49	0.70	0.92
	2265	35.3	5.72	0.46	0.65	0.83	32.7	6.68	0.47	0.67	0.87	29.8	7.85	0.49	0.71	0.93	26.4	9.29	0.51	0.76	1.00

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil									
		48°C					50°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		
	L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C
17.2°C	1510	23.9	8.40	0.83	1.00	1.00	23.4	8.78	0.84	1.00	1.00
	1888	25.4	8.48	0.93	1.00	1.00	24.8	8.84	0.95	1.00	1.00
	2265	26.5	8.53	1.00	1.00	1.00	25.7	8.89	1.00	1.00	1.00
19.4°C	1510	25.1	8.46	0.63	0.80	1.00	24.4	8.82	0.64	0.82	1.00
	1888	26.0	8.50	0.68	0.90	1.00	25.2	8.87	0.69	0.92	1.00
	2265	26.6	8.53	0.74	0.99	1.00	25.8	8.90	0.75	1.00	1.00
21.7°C	1510	26.6	8.53	0.45	0.62	0.78	25.9	8.90	0.45	0.63	0.79
	1888	27.4	8.57	0.47	0.67	0.88	26.6	8.94	0.48	0.69	0.90
	2265	28.0	8.61	0.50	0.73	0.97	27.2	8.97	0.50	0.75	0.99

TPA120S4S - TAA120S4D 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	7.38	29.1	6.89	22.1	6.39	15.1	5.68	7.4	4.25
1888	36.7	6.97	29.7	6.47	22.6	5.98	15.6	5.27	7.9	3.84
2265	37.1	6.71	30.1	6.22	23	5.72	16.1	5.01	8.4	3.58

REVISIONS

Section	Description
Conventional Control Systems	Added new CS7500 Commercial Thermostat. Added new CS3000 Commercial Thermostat. Added new Digital Non-Programmable Thermostat.

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