LENNOX®

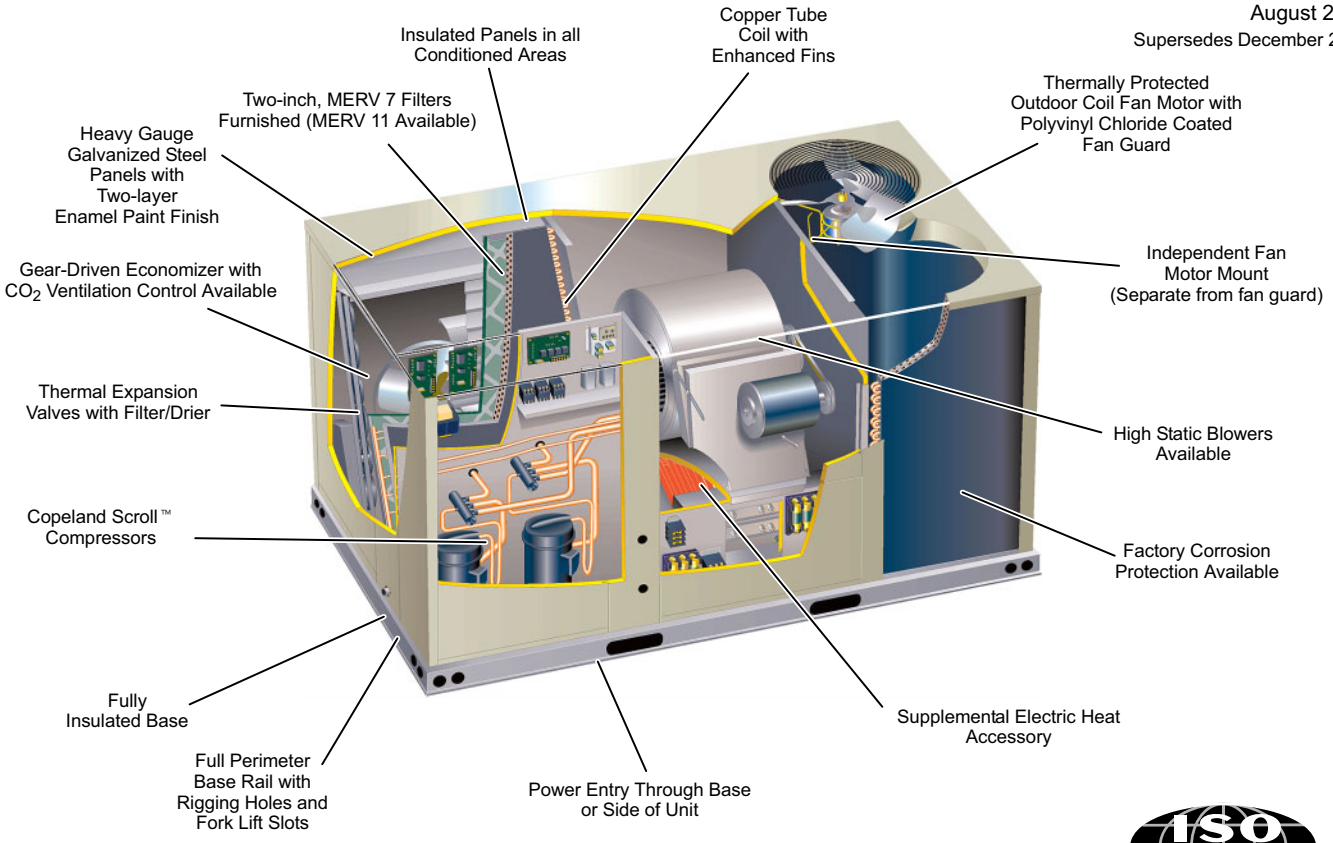
ENGINEERING DATA

TH

T-CLASS™ ROOFTOP UNIT - 50HZ

24.6 to 38.4 kW (84,000 to 131,200 Btuh) Cooling
23.9 to 36.9 kW (84,400 to 126,000 Btuh) Heating

Bulletin No. 490108
August 2005
Supersedes December 2004

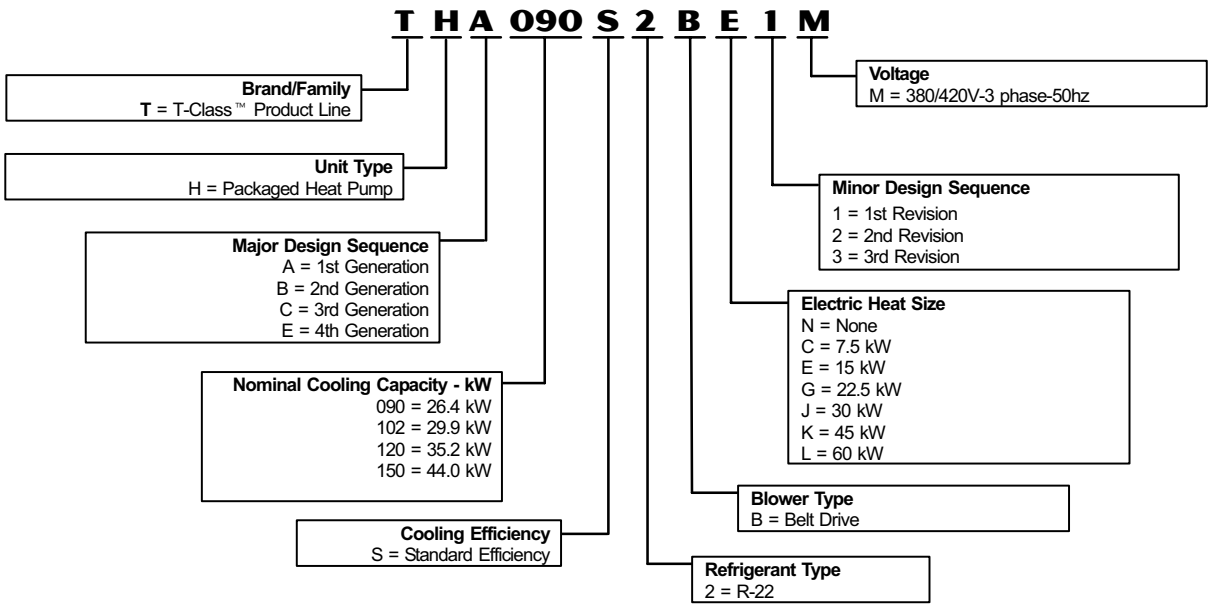


THA120
Shown With Optional Economizer

ISO 9001 REGISTERED QUALITY SYSTEMS

TABLE OF CONTENTS

MODEL NUMBER IDENTIFICATION



FEATURES AND BENEFITS

PERFORMANCE/QUALITY

Components bonded for grounding to meet safety standards for servicing required by Underwriters Laboratories (UL) and the International Electrotechnical Commission (IEC). Cooling performance is rated at test conditions included in Air-Conditioning and Refrigeration Institute (ARI) Standard 340/360-2000 while operating at rated voltage and air volumes.

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

COOLING SYSTEM

Designed to maximize sensible and latent cooling performance at design conditions. System can operate from -1°C (30°F) to 52°C (125°F) without any additional controls.

Compressors

Resiliently mounted on rubber grommets for quiet operation. Copeland Scroll™ compressors on all models for high performance, reliability and quiet operation.

Check/Thermal Expansion Valves

Assures optimal performance throughout the application range. Removable element head.

Freezestats

Protects the evaporator coil from damaging ice build-up due to conditions such as low/no air flow, or low/no refrigerant charge.

Filter/Driers

High capacity filter/drier protects the system from dirt and moisture.

Reversing Valves

4-way interchange reversing valve effects a rapid change in direction of refrigerant flow resulting in quick changeover from cooling to heating and vice versa.

Coil Construction

Copper tube construction, enhanced rippled-edge aluminum fins, flared shoulder tubing connections, silver soldered construction for improved heat transfer. Factory leak tested.

Indoor Coil

Face split with separate circuits. Each circuit has its separate expansion valve, compressor and refrigerant charge. Enhanced aluminum fins and copper tube coils with cross row circuiting optimizes both sensible and latent cooling capacity.

Condenser Coil

Formed type on all models. Ripple-edged, enhanced aluminum fin and copper tube construction maximizes heat transfer capability.

Condensate Drain Pan

Painted, galvanized pan with positive slope. Drain connection extends outside unit.

Defrost Control

Provides a defrost cycle, if needed, every 30 or 60 or 90 minutes (adjustable) of compressor "on" time at outdoor coil temperature below 2°C (35°F).

Pressure switch mounted on outdoor coil vapor line terminates defrost cycle.

Outdoor Coil Fan Motors

Thermal overload protected, totally enclosed, permanently lubricated ball bearings, shaft up, independent motor mount.

Outdoor Coil Fans

Polyvinyl Chloride (PVC) coated fan guard furnished.

REQUIRED SELECTIONS

Cooling Capacity - Specify the nominal cooling capacity of the unit.

ACCESSORIES

Field Installed

High Pressure Switches - Protects the compressor from overload conditions such as dirty condenser coils, blocked refrigerant flow, or loss of outdoor fan operation.

Compressor Crankcase Heaters - Protects against refrigerant migration that can occur during low ambient operation.

Condensate Drain Trap - Available in copper or polyvinyl chloride (PVC).

Low Ambient Kit - Cycles the outdoor fan while allowing compressor operation in the cooling cycle. This intermittent fan operation allows the system to operate without icing the evaporator coil and losing capacity. Designed for use in ambient temperatures no lower than -17.8°C (0°F).

BLOWER

Supply air fan provides a wide range of air flow capability. Special order high and low static motor and drive options are available offering an even wider range of capability.

Supply Air Motor

Overload protected with permanently lubricated ball bearings ensures durable operation.

Supply Air Blower

A double inlet wheel with forward curve blades provide maximum air performance and quiet operation. Dynamically balanced with permanently lubricated ball bearings assure long, reliable operation. Adjustable pulleys allow air to be precisely tuned to the needs of the application.

OPTIONS

Factory Installed

High and Low Static Supply Fan - Extends air flow external static range.

CONTROLS

UNIT CONTROLLER

Solid-state microprocessor-based control board that provides flexible control of cooling functions. All control voltage is provided via a 24V (secondary) transformer with built-in circuit breaker protection. Built-in functions include:

Blower On/Off Delay - Time delay between blower on and off cycles provides a more even supply air temperature during heating.

Built-in Control Parameters - Saves installation time as no programming is required.

Minimum Compressor Run Time - Ensures proper oil return to the compressor.

Night Setback Mode - Saves energy by closing outdoor air dampers and operating supply fan on thermostat demand only.

Heat/Cool Staging - Capable of up to 2 heat / 2 cool staging with a third party DDC control system or thermostat.

Thermostat Bounce Delay - Protects compressor from short cycling when a mechanical thermostat is used.

ACCESSORIES

Field Installed

Blower Proving Switch - Uses a static pressure sensor to monitors blower operation and shuts down unit if blower fails.

Control Systems - See Page 19.

Dirty Filter Switch - Senses static pressure increase indicating dirty filter condition.

Smoke Detector - Photoelectric type, installed in supply air section or return air section or both sections.

FEATURES AND BENEFITS

CABINET

Construction

Heavy-gauge steel panels and full perimeter heavy-gauge galvanized steel base rail provides structural integrity for transportation, handling, and installation. Base rails have rigging holes. Three sides of the base rail have fork slots. Raised edges around duct and power entry openings in the bottom of the unit provide additional protection against water entering the building.

Air-Flow Choice

Units are available in down-flow (vertical) or horizontal air flow configuration with optional field installed Horizontal Conversion Kit.

Duct Flanges

Horizontal supply duct flange is standard on all units.

Power Entry

Electrical lines can be brought through the unit base or through horizontal access knock-outs.

Exterior Panels

Constructed of heavy-gauge, galvanized steel with a two-layer enamel paint finish. Large removable panels provide service access.

Insulation

All panels adjacent to conditioned air are fully insulated with non-hygroscopic fiberglass insulation. Unit base is fully insulated. The insulation also serves as an air seal to the roof curb, eliminating the need to add a seal during installation.

Access Panels

Access panels are provided for the economizer/filter section, blower section, heating section and the compressor/controls section.

REQUIRED SELECTIONS

Air Flow Configuration - Specify horizontal or down-flow.

OPTIONS / ACCESSORIES

Factory Installed

Corrosion Protection - A completely flexible immersed coating with an electrodeposited dry film process. (AST ElectroFin™ E-Coat). Meets Mil-spec MIL-P-53084, American Society for Testing and Materials (ASTM) B117 Standard Method Salt Spray Testing, ASTM 1153 Standard Specification for Methyl Isobutyl Ketone. Shall be available as an option for enhanced corrosion protection.

Field Installed

Coil Guards - Painted, galvanized steel wire guards to protect outdoor coil. Not used with Hail Guards.

Hail Guards - Constructed of heavy gauge steel, painted to match cabinet, helps protect outdoor coils from hail damage. Not used with Coil Guards.

Horizontal Conversion Kit - Two piece duct cover kit blocks off unit down flow supply air opening, horizontal return air opening panel (on unit) is moved to block off down flow return air opening for horizontal applications.

ELECTRICAL

ACCESSORIES

Field Installed

Supplemental Electric Heat - Helix wound nichrome elements, time delay for element staging, individual element limit controls, heaters 22.5 kW and larger can be two-stage controlled. When electric heat is factory installed, all required components are included. The following must be ordered with electric heat: Unit Fuse Block, LBT2 Terminal Block, and control kit. See Electric Heat Accessories tables for ordering information, Pages 15.

AIR FILTERS

Disposable 51 mm (2 inch) pleated MERV 7 filters (Minimum Efficiency Reporting Value based on American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 52.2) meet the requirements for ASHRAE 62 for improved indoor air quality.

ACCESSORIES

Field Installed

MERV 11 Filters - Disposable 51 mm (2 inch) pleated, high-efficiency MERV 11 filters (Minimum Efficiency Reporting Value based on ASHRAE 52.2).

SERVICEABILITY

Designed to streamline general maintenance and decrease troubleshooting time.

Marked & Color-Coded Wiring

All electrical wiring is color-coded and marked to identify which components it is connecting.

Electrical Plugs

Positive connection electrical plugs are used to connect common accessories or maintenance parts for easy removal or installation.

Access Panels

Large access panels are provided for quick and easy access to maintenance areas.

Blower Access

Blower assembly slides out of the unit for easy access.

TXV Access

Thermal expansion valves are located near the perimeter of the unit for easier access.

Check/Thermal Expansion Valves

Removable element head allows change out of element and bulb without removing the TXV.

Standard Components

A large number of common maintenance parts are standard throughout the entire range of sizes (26 to 44 kW), reducing the need to carry a lot of different parts to the job or in inventory.

Compressor Access

Compressors are located near the perimeter of the unit for easier access.

Compressor Compartment

Compressors are isolated from the condenser air flow allowing system operation checks to be done without changing the air flow across the outdoor coils.

OPTIONS / ACCESSORIES

ECONOMIZER / OUTDOOR AIR / EXHAUST AIR

Factory or Field Installed

Economizer - Parallel, gear-driven action return air and outdoor air dampers, plug-in connections to unit, nylon bearings, neoprene seals, 24 volt, spring return motor, adjustable minimum damper position, damper assembly slides in unit, outdoor air hood must be ordered separately, choice of economizer controls. Three-position economizer opens fully to use outdoor air for free cooling when outdoor air is suitable and opens to minimum position during the occupied time period. Optional Modulating Economizer Sensor Kit may be used to modulate dampers to maintain a 13°C (55°F) discharge air temperature.

Down-Flow Barometric Relief Dampers - Allows relief of excess return air static when economizer is near full open. Aluminum blade dampers prevent blow back and outdoor air infiltration during off cycle. Bird screen furnished.

Outdoor Air Hood - Required with Economizer and Outdoor Air Damper Sections. Two cleanable aluminum mesh fresh air filter furnished. Available factory installed when ordered with a factory installed single enthalpy economizer or field installed with all other economizer and outdoor air damper selections.

Field Installed

Economizer Controls

Single Sensible Control - Senses outdoor air temperature and enables the economizer if the temperature is less than the set point of the control.

Differential Sensible Control - Two temperature sensors allow the control to compare the outdoor air and return air and using setpoints, enables the economizer when the outdoor air is cooler than the return air.

Single Enthalpy Control - Outdoor air enthalpy sensor enables economizer if the outdoor enthalpy is less than the setpoint of the control.

Differential Enthalpy Control - Two solid-state enthalpy sensors allow the control to select between outdoor air or return air, whichever has lower enthalpy.

Economizer Modulating Sensor Kit - Sensor that allows the economizer damper to modulate to maintain 13°C (55°F) discharge air temperature, while in free-cooling.

Outdoor Air Damper Section

25% Motorized Outdoor Air Damper - Parallel blade, gear-driven dampers are automatically adjusted with a two-position damper motor.

25% Manual Outdoor Air Dampers - Parallel blade dampers are manually adjustable to a fixed position.

Economizer and Outdoor Air Damper Application Note

Minimum mixed air temperature in heating mode -1°C (30°F)

Maximum mixed air temperature in cooling mode: 32°C (90°F)

Down-Flow Barometric Relief Damper Hood - Protects exhaust air from recirculating into outdoor air stream.

Horizontal Barometric Relief Dampers - Allows relief of excess air when economizer is near full open. Aluminum blade dampers prevent blow back and outdoor air infiltration during off cycle. Field installed in return air duct. Bird screen and hood furnished. Two dampers per order number.

Power Exhaust Fan - Installs internal to unit for down-flow applications with economizer option. Provides exhaust air pressure relief. Interlocked to run when supply air blower is operating. Fan runs when outdoor air dampers are 50% open (adjustable). Motor is overload protected. Galvanized steel cabinet and hood painted to match unit. Total air volume is 1980 L/s (4200 cfm) at 0 Pa (0 in. wg.). 249 W (1/3 hp) motor. 300 Watts total input.

Indoor Air Quality (CO_2) Sensor - Monitors CO_2 levels opens economizer dampers to setpoint as needed for Demand Control Ventilation.

CEILING DIFFUSERS

Ceiling Diffusers (Flush and Step-Down models) - Aluminum grilles, large center grille, insulated diffuser box with flanges, hanging rings furnished, interior transition (even air flow), internally sealed (prevents recirculation), adapts to T-bar ceiling grids or plaster ceilings.

Transitions (Supply and Return) - Used with diffusers, installs in roof curb, galvanized steel construction, flanges furnished for duct connection to diffusers, fully insulated.

ROOF CURBS

Standard Roof Curb - Nailer strip furnished, mates to unit, US National Roofing Contractors Approved, shipped knocked down. Available in 356 mm (14 inch) and 2610 mm (4 inch) heights.

Cliplock 1000 Roof Curb - Interlocking curb pieces speed assembly. Nailer strip furnished. Supports full perimeter of unit. Shipped knocked down. Available in 356 mm (14 inch), 457 mm (18 inch) and 610 mm (24 inch) heights.

OPTIONS / ACCESSORIES

Item	Size / Model	26 kW 090	30 kW 102	35 kW 120	44 kW 150
Cabinet	Coil Guards	TACGKGC10/15			
	Hail Guards	TAHGKGC10/15			
	Horizontal Discharge Conversion Kit	LTHSDKGC10/15			
Ceiling Diffusers	Step-Down - Net Weight	RTD11-95 40 kg (88 lbs.)	RTD11-135 93 kg (205 lbs.)		RTD11-185 178 kg (392 lbs.)
	Flush - Net Weight	FD11-95 34 kg (75 lbs.)	FD11-135 79 kg (174 lbs.)		FD11-185 131 kg (289 lbs.)
	Transitions (Supply and Return) - Net Weight	LASRT08/10 14 kg (30 lbs.)	LASRT10/12 15 kg (32 lbs.)		LASRT15 16 kg (36 lbs.)
Controls	Blower Proving Switch	LTABPSK			
	Dirty Filter Switch	LTADFSK			
	Smoke Detector - Supply	LTASASDK10/36			
	Smoke Detector - Return	LTRASDK-10/30			
Cooling	PVC Condensate Drain Trap	LTACDKP03/36			
	Compressor Crankcase Heater	**380/420V** - TACHK10/15-M			
	Copper Condensate Drain Trap	LTACDKC03/36			
	High Pressure Switch	TAHPK10/15			
	Low Ambient Kit	TALAK10/15			
Economizer	Economizer - Net Weight	TAREMD10/15 - 21 kg (47 lbs.)			
	Economizer Outdoor Air Hood - Net Weight Number and Size of Filters	LAOAH10/15 - 5 kg (11 lbs.) (2) 406 x 635 x 25 mm (16 x 25 x 1 in.)			
Economizer Controls	Single Sensible (for Differential Sensible control, order two kits)	TASEK03/36			
	Differential Enthalpy	LTADEK03/36			
	Outdoor Enthalpy	LTASEK03/36			
	Economizer Modulating Sensor Kit	TAMEK03/36			
Barometric Relief	Down-Flow Barometric Relief Dampers - Net Weight	LAGED10/15 - 4 kg (8 lbs.)			
	Hood for Down-Flow LAGED	LAGEH09/15			
	Horizontal Barometric Relief Dampers - Net Weight	LAGEDH03/15 - 4 kg (8 lbs.)			
Outdoor Air Dampers	Damper Section (down-flow) - Motorized - Net Weight	TAOADM10/15 - 14 kg (31 lbs.)			
	Damper Section (down-flow) - Manual - Net Weight	LAOAD10/15 - 12 kg (26 lbs.)			
	Outdoor Air Hood (down-flow) Net Weight Number and Size of Filters	LAOAH10/15 - 5 kg (11 lbs.) (2) 406 x 635 x 25 mm (16 x 25 x 1 in.)			
Power Exhaust	Power Exhaust Fan - Net Weight	LAPEF10/15 - 13 kg (28 lbs.)			
Electric Heat	Electric Heat	See Electric Heat Data Tables Page 16-17			
	Electric Heat Control Kit	TAEHK10/15			
	Electric Heat LTB2 Terminal Block	See Optional Electric Heat Accessories Page 15			
	Unit/Electric Heat Fuse Block	See Optional Electric Heat Accessories Page 15			
Filters	MERV 11 High Efficiency	AFK-11 457 x 610 x 52 mm (18 x 24 x 2 in.) specify four per unit)			
Indoor Air Quality (CO_2) Sensors	CO_2 Sensor Duct Mounting Kit	LTIAQSDMK03/36			
	Sensor - white case CO_2 display	LTAIAQSWDK03/36			
	Sensor - white case no display	LTAIAQSWN03/36			
	Sensor - black case CO_2 display	LTAIAQSND03/36			
	Sensor - duct mount, black, no display	LTAIAQSDMBN03/36			
	Aspiration Box for duct mounting	LTIAQABD03/36			
	Handheld CO_2 Monitor	LTAIAQSHM03/36			
Standard Roof Curbs	14 in. (356 mm) height - Net Weight	LARMF10/15-14 - 57 kg (126 lbs.)			
	24 in. (610 mm) height - Net Weight	LARMF10/15-24 - 79 kg (174 lbs.)			
Cliplock 1000 Roof Curbs	356 mm (14 in.) height - Net Weight	LARMF10/15S-14 - 57 kg (126 lbs.)			
	457 mm (18 in.) height - Net Weight	LARMF10/15S-18 - 71 kg (156 lbs.)			
	610 mm (24 in.) height - Net Weight	LARMF10/15S-24 - 79 kg (174 lbs.)			

SPECIFICATIONS

General Data		26 kW	30 kW	35 kW	44 kW
	Model Number	THA090S2B	THA102S2B	THA120S2B	THA150S2B
Cooling Performance	Gross Cooling Capacity - kW (Btuh)	24.6 (84,000)	26.6 (90,700)	33.0 (112,600)	38.4 (131,200)
	[1]Net Cooling Capacity - kW (Btuh)	23.4 (80,000)	25.2 (86,000)	31.6 (108,000)	37.2 (127,000)
	Total Unit Power (kW)	7.9	8.5	10.1	12.3
	[1] Energy Efficiency Ratio (Btuh/Watt)	10.1	10.1	10.7	10.3
	Coefficient of Performance Output/Input)	2.97	2.96	3.13	3.03
	[2] Integrated Part Load Value (Btuh/Watt)	10.2	10.2	11.0	10.2
	Refrigerant Charge Furnished (R-22) Circuit 1	5.4 kg (12 lbs. 0 oz.)	5.0 kg (11 lbs. 0 oz.)	5.7 kg (12 lbs. 8 oz.)	5.4 kg (12 lbs. 0 oz.)
	Refrigerant Charge Furnished (R-22) Circuit 2	4.8 kg (10 lbs. 10 oz.)	5.0 kg (11 lbs. 0 oz.)	5.7 kg (12 lbs. 8 oz.)	5.4 kg (12 lbs. 0 oz.)
[3] Sound Rating Number (dB)		88	88	88	88
Heating Performance	[1] Total High Heating Capacity - kW (Btuh)	23.9 (81,400)	26.8 (91,600)	31.5 (107,600)	36.9 (126,000)
	Total Unit Power (kW)	7.8	8.5	9.8	12.1
	[1] Coefficient of Performance Output/Input)	3.1	3.2	3.2	3.1
	[1] Total Low Heating Capacity - kW (Btuh)	13.8 (47,000)	14.4 (49,000)	18.9 (64,600)	21.1 (72,000)
	Total Unit Power (kW)	6.8	6.8	8.4	8.5
	[1] Coefficient of Performance Output/Input)	2.2	2.1	2.2	2.0
Compressor - Number & Type		(2) Scroll	(2) Scroll	(2) Scroll	(2) Scroll
Outdoor Coil	Net face area - m^2 (sq. ft.)	2.72 (29.3) total	2.72 (29.3) total	2.72 (29.3) total	2.72 (29.3) total
	Tube diameter - mm (in.)	9.5 (3/8)	9.5 (3/8)	9.5 (3/8)	9.5 (3/8)
	Number of rows	2	2	2	2
	Fins per m (inch)	787 (20)	787 (20)	787 (20)	787 (20)
Outdoor Coil Fans	Motor output - (number) Watt (horsepower)	(2) 249 (1/3)	(2) 249 (1/3)	(2) 249 (1/3)	(2) 249 (1/3)
	Motor rev/min	896	896	896	896
	Total Motor watts	535	535	535	535
	Diameter - (number) mm (in.) - number of blades	(2) 24 (610) - 3	(2) 24 (610) - 3	(2) 24 (610) - 3	(2) 24 (610) - 3
	Total air volume - L/s (cfm)	3145 (6665)	3145 (6665)	3145 (6665)	3145 (6665)
Indoor Coil	Net face area - m^2 (sq. ft.)	0.98 (10.5) total	0.98 (10.5) total	0.98 (10.5) total	0.98 (10.5) total
	Tube diameter - mm (in.)	9.5 (3/8)	9.5 (3/8)	9.5 (3/8)	9.5 (3/8)
	Number of rows	3	3	4	4
	Fins per m (inch)	551 (14)	551 (14)	551 (14)	551 (14)
	Drain Connection - number & size	(1) 1 in. NPT coupling	(1) 1 in. NPT coupling	(1) 1 in. NPT coupling	(1) 1 in. NPT coupling
	Expansion device type	Balanced Port Thermostatic Expansion Valve, removeable power head			
Standard Indoor Blower and Drive	Belt Drive - Nominal motor output	1.5 kW (2 hp)	1.5 kW (2 hp)	1.5 kW (2 hp)	1.5 kW (2 hp)
	Drive kit	kit #1 562 - 764 rev/min	kit #1 562 - 764 rev/min	kit #3 739 - 925 rev/min	kit #6 917 - 1152 rev/min
	Wheel nominal diameter x width - mm (in.)	(1) 381 x 381 (15 x 15)	(1) 381 x 381 (15 x 15)	(1) 381 x 381 (15 x 15)	(1) 381 x 381 (15 x 15)
Filters	Type of filter	Disposable, pleated MERV 7 (standard) or MERV 11 (accessory)			
	Number and size - mm (in.)	(4) 457 x 610 x 51 (18 x 24 x 2)	(4) 457 x 610 x 51 (18 x 24 x 2)	(4) 457 x 610 x 51 (18 x 24 x 2)	(4) 457 x 610 x 51 (18 x 24 x 2)
Electrical characteristics		380/420V - 50 hertz - 3 phase with neutral			

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

[1] Rating test conditions are those included in Air-Conditioning and Refrigeration Institute (ARI) 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] Integrated Part Load Value rated at 27°C (80°F) outdoor air temperature, 27°C (80°F) db/19°C (67°F) wb indoor air temperature.

[3] Sound Rating Number rated in accordance with test conditions included in Air-Conditioning and Refrigeration Institute (ARI) Standard 270.

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

26 KW STANDARD EFFICIENCY - THA090S - COOLING CAPACITY - ONE COMPRESSOR OPERATING

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																									
			18°C (65°F)						24°C (75°F)						29°C (85°F)						35°C (95°F)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
	m^3/s	cfm	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F
17°C (63°F)	1.13	2400	12.6	43.1	1.85	.70	.85	.99	12.3	41.9	2.09	.70	.87	1.00	11.9	40.5	2.36	.72	.88	1.00	11.5	39.1	2.67	.73	.90	1.00
	1.41	3000	13.1	44.8	1.86	.75	.94	1.00	12.7	43.5	2.10	.77	.95	1.00	12.3	42.1	2.37	.78	.97	1.00	11.9	40.7	2.68	.80	.98	1.00
	1.70	3600	13.6	46.3	1.87	.82	.99	1.00	13.2	45.0	2.11	.83	1.00	1.00	12.8	43.7	2.38	.85	1.00	1.00	12.4	42.3	2.69	.87	1.00	1.00
19°C (67°F)	1.13	2400	13.4	45.8	1.87	.54	.67	.81	13.0	44.5	2.11	.55	.68	.83	12.6	43.0	2.38	.55	.69	.84	12.2	41.5	2.68	.56	.70	.86
	1.41	3000	13.8	47.2	1.87	.58	.73	.90	13.4	45.8	2.11	.58	.74	.92	13.0	44.3	2.38	.59	.75	.94	12.5	42.7	2.69	.60	.77	.96
	1.70	3600	14.2	48.3	1.88	.61	.79	.97	13.7	46.8	2.12	.61	.81	.98	13.2	45.2	2.39	.62	.83	1.00	12.8	43.6	2.70	.64	.84	1.00
22°C (71°F)	1.13	2400	14.3	48.9	1.88	.40	.53	.65	13.9	47.4	2.12	.41	.53	.66	13.5	45.9	2.39	.41	.54	.67	13.0	44.3	2.70	.41	.54	.68
	1.41	3000	14.7	50.2	1.89	.42	.56	.71	14.3	48.7	2.13	.42	.57	.72	13.8	47.1	2.40	.42	.58	.73	13.3	45.4	2.71	.43	.59	.75
	1.70	3600	15.0	51.2	1.90	.43	.60	.77	14.5	49.6	2.13	.43	.61	.78	14.0	47.9	2.40	.44	.62	.80	13.5	46.2	2.71	.44	.63	.82

26 KW STANDARD EFFICIENCY - THA090S - COOLING CAPACITY - ALL COMPRESSORS OPERATING

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																									
			27°C (80°F)						35°C (95°F)						43°C (110°F)						52°C (125°F)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
	m^3/s	cfm	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F
17°C (63°F)	1.13	2400	23.8	81.1	5.19	.72	.87	1.00	22.5	76.9	6.24	.74	.90	1.00	21.2	72.4	7.50	.76	.93	1.00	19.8	67.4	9.01	.79	.97	1.00
	1.41	3000	24.7	84.2	5.21	.78	.95	1.00	23.4	80.0	6.26	.80	.98	1.00	22.2	75.6	7.52	.83	1.00	1.00	20.8	70.9	9.04	.87	1.00	1.00
	1.70	3600	25.6	87.2	5.23	.84	1.00	1.00	24.4	83.1	6.28	.87	1.00	1.00	23.1	78.7	7.54	.90	1.00	1.00	21.6	73.8	9.06	.94	1.00	1.00
19°C (67°F)	1.13	2400	25.3	86.2	5.23	.56	.70	.84	23.9	81.7	6.28	.57	.71	.86	22.5	76.7	7.53	.58	.74	.89	20.9	71.4	9.05	.60	.76	.93
	1.41	3000	26.0	88.8	5.25	.59	.75	.92	24.6	84.0	6.29	.61	.78	.95	23.1	78.9	7.56	.62	.81	.98	21.5	73.3	9.07	.64	.84	1.00
	1.70	3600	26.6	90.6	5.26	.63	.82	.98	25.1	85.8	6.30	.64	.84	1.00	23.6	80.6	7.57	.66	.88	1.00	22.0	74.9	9.08	.69	.92	1.00
22°C (71°F)	1.13	2400	26.9	91.9	5.27	.42	.54	.67	25.6	87.2	6.31	.42	.55	.69	24.0	82.0	7.57	.42	.57	.71	22.3	76.2	9.10	.43	.59	.74
	1.41	3000	27.6	94.3	5.28	.43	.58	.73	26.2	89.4	6.32	.43	.60	.75	24.6	84.0	7.59	.44	.61	.78	22.9	78.0	9.11	.45	.63	.82
	1.70	3600	28.2	96.1	5.29	.44	.62	.79	26.7	91.0	6.34	.45	.63	.82	25.0	85.4	7.60	.46	.66	.86	23.2	79.3	9.12	.47	.68	.89

26 KW STANDARD EFFICIENCY - THA090S - HEATING CAPACITY

Indoor Coil Air Volume 21°C db (70°F db)		Air Temperature Entering Outdoor Coil															
		18°C (65°F)			7°C (45°F)			minus 4°C (25°F)			minus 15°C (5°F)			minus 28°C (minus 15°F)		
		Total Heating Capacity		Comp. Motor kW Input	Total Heating Capacity		Comp. Motor kW Input	Total Heating Capacity		Comp. Motor kW Input	Total Heating Capacity		Comp. Motor kW Input	Total Heating Capacity		Comp. Motor kW Input
m^3/s	cfm	kW	kBtuh		kW	kBtuh		kW	kBtuh		kW	kBtuh		kW	kBtuh	
1.14	2400	29.5	100.6	7.46	22.4	76.3	6.62	15.0	51.2	5.75	9.8	33.4	4.94	5.0	16.9	3.81
1.42	3000	29.9	102.0	6.91	22.8	77.7	6.06	15.4	52.6	5.19	10.2	34.8	4.38	5.4	18.3	3.25
1.70	3600	30.3	103.4	6.63	23.2	79.1	5.78	15.8	54.0	4.91	10.6	36.2	4.10	5.8	19.7	2.97

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

30 KW STANDARD EFFICIENCY - THA102S - COOLING CAPACITY - ONE COMPRESSOR OPERATING

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																									
			18°C (65°F)						24°C (75°F)						29°C (85°F)						35°C (95°F)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
	m^3/s	cfm	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F
17°C (63°F)	1.28	2720	13.8	47.2	2.45	.67	.84	.99	13.4	45.8	2.76	.68	.85	1.00	13.0	44.2	3.11	.69	.88	1.00	12.5	42.6	3.51	.70	.90	1.00
	1.60	3400	14.3	48.9	2.48	.72	.93	1.00	13.9	47.4	2.79	.74	.95	1.00	13.5	45.9	3.14	.76	.97	1.00	13.0	44.3	3.54	.78	.99	1.00
	1.92	4080	14.8	50.6	2.50	.80	.99	1.00	14.4	49.0	2.81	.81	1.00	1.00	13.9	47.5	3.16	.84	1.00	1.00	13.5	45.9	3.57	.86	1.00	1.00
19°C (67°F)	1.28	2720	14.7	50.0	2.49	.52	.65	.79	14.2	48.4	2.81	.53	.66	.81	13.7	46.8	3.15	.53	.67	.83	13.2	45.0	3.55	.54	.68	.86
	1.60	3400	15.1	51.5	2.51	.55	.70	.89	14.6	49.8	2.82	.56	.71	.92	14.1	48.0	3.18	.57	.73	.94	13.5	46.2	3.58	.58	.75	.96
	1.92	4080	15.4	52.5	2.53	.58	.77	.97	14.9	50.8	2.84	.59	.79	.99	14.4	49.0	3.19	.60	.81	1.00	13.8	47.1	3.59	.61	.84	1.00
22°C (71°F)	1.28	2720	15.6	53.2	2.53	.39	.51	.63	15.1	51.5	2.85	.39	.51	.64	14.6	49.7	3.20	.39	.52	.65	14.0	47.9	3.60	.39	.53	.66
	1.60	3400	16.0	54.6	2.55	.40	.54	.68	15.5	52.8	2.87	.40	.55	.69	14.9	50.9	3.22	.40	.56	.71	14.4	49.0	3.62	.41	.57	.73
	1.92	4080	16.3	55.6	2.57	.41	.57	.75	15.7	53.7	2.88	.42	.58	.76	15.2	51.7	3.24	.42	.60	.79	14.6	49.7	3.63	.42	.61	.81

30 KW STANDARD EFFICIENCY - THA102S - COOLING CAPACITY - ALL COMPRESSORS OPERATING

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																									
			27°C (80°F)						35°C (95°F)						43°C (110°F)						52°C (125°F)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
	m^3/s	cfm	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F
17°C (63°F)	1.28	2720	25.9	88.4	5.47	.71	.88	1.00	24.5	83.6	6.55	.73	.90	1.00	22.9	78.3	7.89	.76	.94	1.00	21.2	72.5	9.51	.79	.98	1.00
	1.60	3400	26.9	91.7	5.52	.77	.96	1.00	25.4	86.8	6.60	.80	.98	1.00	23.9	81.7	7.93	.83	1.00	1.00	22.3	76.1	9.56	.88	1.00	1.00
	1.92	4080	27.8	94.7	5.56	.84	1.00	1.00	26.3	89.9	6.66	.87	1.00	1.00	24.8	84.7	7.98	.91	1.00	1.00	23.1	78.9	9.61	.95	1.00	1.00
19°C (67°F)	1.28	2720	27.4	93.5	5.55	.56	.69	.84	25.9	88.3	6.63	.57	.71	.87	24.2	82.5	7.96	.58	.74	.91	22.3	76.2	9.59	.60	.76	.95
	1.60	3400	28.2	96.1	5.58	.59	.75	.93	26.6	90.7	6.68	.60	.77	.96	24.8	84.7	8.00	.62	.81	.99	22.9	78.0	9.61	.64	.86	1.00
	1.92	4080	28.7	98.0	5.62	.62	.81	.99	27.1	92.4	6.70	.64	.85	1.00	25.3	86.3	8.02	.66	.89	1.00	23.3	79.6	9.65	.69	.93	1.00
22°C (71°F)	1.28	2720	29.1	99.4	5.64	.41	.54	.67	27.5	94.0	6.72	.41	.55	.69	25.7	87.8	8.04	.42	.57	.71	23.7	80.9	9.67	.43	.59	.74
	1.60	3400	29.9	102.0	5.67	.42	.58	.73	28.2	96.1	6.75	.43	.59	.75	26.3	89.7	8.08	.44	.61	.79	24.2	82.6	9.69	.45	.64	.83
	1.92	4080	30.4	103.6	5.70	.44	.62	.79	28.6	97.6	6.78	.44	.63	.82	26.7	91.1	8.10	.45	.66	.87	24.5	83.7	9.71	.47	.69	.91

30 KW STANDARD EFFICIENCY - THA102S - HEATING CAPACITY

Indoor Coil Air Volume 21°C db (70°F db)		Air Temperature Entering Outdoor Coil															
		18°C (65°F)			7°C (45°F)			minus 4°C (25°F)			minus 15°C (5°F)			minus 28°C (minus 15°F)		
		Total Heating Capacity		Comp. Motor kW Input	Total Heating Capacity		Comp. Motor kW Input	Total Heating Capacity		Comp. Motor kW Input	Total Heating Capacity		Comp. Motor kW Input	Total Heating Capacity		Comp. Motor kW Input
m^3/s	cfm	kW	kBtuh		kW	kBtuh		kW	kBtuh		kW	kBtuh		kW	kBtuh	
1.29	2720	33.9	115.7	6.34	25.1	85.8	5.13	16.1	54.9	3.86	9.8	33.5	3.03	5.0	17.2	1.95
1.61	3400	34.3	117.2	7.68	25.6	87.3	6.47	16.5	56.4	5.20	10.3	35.0	4.37	5.5	18.7	3.29
1.93	4080	35.1	119.7	9.01	26.3	89.8	7.80	17.3	58.9	6.53	11.0	37.5	5.70	6.2	21.2	4.62

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

35 KW STANDARD EFFICIENCY - THA120S - COOLING CAPACITY - ONE COMPRESSOR OPERATING

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			18°C (65°F)						24°C (75°F)						29°C (85°F)						35°C (95°F)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
	m^3/s	cfm	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F
17°C (63°F)	1.51	3200	17.0	58.0	2.81	.69	.85	1.00	16.5	56.3	3.16	.70	.87	1.00	16.0	54.5	3.56	.71	.89	1.00	15.4	52.5	4.02	.72	.91	1.00
	1.89	4000	17.7	60.3	2.84	.75	.95	1.00	17.1	58.5	3.18	.76	.97	1.00	16.6	56.7	3.58	.78	.98	1.00	16.0	54.7	4.05	.80	.99	1.00
	2.26	4800	18.3	62.5	2.86	.82	1.00	1.00	17.8	60.8	3.20	.84	1.00	1.00	17.3	58.9	3.61	.86	1.00	1.00	16.7	57.0	4.07	.88	1.00	1.00
19°C (67°F)	1.51	3200	18.0	61.5	2.85	.54	.67	.81	17.5	59.7	3.19	.54	.67	.83	16.9	57.7	3.59	.55	.69	.85	16.3	55.5	4.06	.56	.70	.87
	1.89	4000	18.6	63.4	2.87	.57	.72	.91	18.0	61.4	3.21	.58	.74	.93	17.4	59.3	3.62	.58	.75	.95	16.7	57.1	4.08	.60	.77	.97
	2.26	4800	19.0	64.8	2.88	.60	.79	.98	18.4	62.8	3.23	.61	.81	1.00	17.8	60.6	3.63	.62	.83	1.00	17.1	58.2	4.09	.63	.86	1.00
22°C (71°F)	1.51	3200	19.2	65.6	2.89	.40	.52	.64	18.6	63.6	3.24	.40	.53	.65	18.0	61.4	3.64	.40	.53	.66	17.3	59.1	4.10	.40	.54	.68
	1.89	4000	19.8	67.4	2.90	.41	.56	.70	19.1	65.2	3.26	.41	.57	.71	18.5	63.0	3.66	.42	.57	.73	17.7	60.5	4.12	.42	.59	.75
	2.26	4800	20.1	68.6	2.92	.42	.60	.77	19.5	66.4	3.27	.43	.61	.79	18.8	64.0	3.67	.43	.62	.81	18.0	61.5	4.14	.44	.63	.83

35 KW STANDARD EFFICIENCY - THA120S - COOLING CAPACITY - ALL COMPRESSORS OPERATING

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			27°C (80°F)						35°C (95°F)						43°C (110°F)						52°C (125°F)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
	m^3/s	cfm	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F
17°C (63°F)	1.51	3200	32.0	109.2	6.63	.72	.88	1.00	30.3	103.4	7.96	.74	.91	1.00	28.5	97.1	9.58	.76	.94	1.00	26.5	90.5	11.55	.79	.98	1.00
	1.89	4000	33.3	113.5	6.68	.78	.96	1.00	31.5	107.6	8.01	.80	.99	1.00	29.8	101.6	9.64	.84	1.00	1.00	27.9	95.3	11.62	.88	1.00	1.00
	2.26	4800	34.5	117.7	6.73	.85	1.00	1.00	32.8	112.0	8.06	.88	1.00	1.00	31.0	105.8	9.70	.91	1.00	1.00	29.0	99.1	11.67	.95	1.00	1.00
19°C (67°F)	1.51	3200	33.9	115.7	6.71	.56	.69	.84	32.1	109.4	8.04	.57	.71	.87	30.0	102.5	9.67	.58	.74	.90	27.9	95.3	11.63	.60	.76	.94
	1.89	4000	34.9	119.2	6.75	.59	.76	.93	33.0	112.6	8.08	.61	.78	.96	30.9	105.4	9.71	.62	.81	.99	28.7	97.9	11.67	.65	.85	1.00
	2.26	4800	35.7	121.7	6.78	.63	.82	.99	33.6	114.8	8.11	.65	.85	1.00	31.5	107.6	9.74	.67	.89	1.00	29.3	100.1	11.71	.69	.93	1.00
22°C (71°F)	1.51	3200	36.1	123.2	6.79	.41	.54	.67	34.1	116.5	8.12	.42	.55	.69	32.0	109.2	9.76	.42	.57	.71	29.7	101.5	11.73	.43	.59	.74
	1.89	4000	37.1	126.5	6.83	.43	.58	.74	35.0	119.4	8.17	.43	.60	.76	32.8	111.8	9.81	.44	.62	.79	30.4	103.7	11.77	.45	.64	.83
	2.26	4800	37.7	128.7	6.86	.44	.62	.80	35.6	121.4	8.20	.45	.64	.83	33.3	113.6	9.83	.46	.66	.87	30.9	105.3	11.81	.47	.69	.91

35 KW STANDARD EFFICIENCY - THA120S - HEATING CAPACITY

Indoor Coil Air Volume 21°C db (70°F db)		Air Temperature Entering Outdoor Coil															
		18°C (65°F)			7°C (45°F)			minus 4°C (25°F)			minus 15°C (5°F)			minus 28°C (minus 15°F)		
		Total Heating Capacity		Comp. Motor kW Input	Total Heating Capacity		Comp. Motor kW Input	Total Heating Capacity		Comp. Motor kW Input	Total Heating Capacity		Comp. Motor kW Input	Total Heating Capacity		Comp. Motor kW Input
m^3/s	cfm	kW	kBtuh		kW	kBtuh		kW	kBtuh		kW	kBtuh		kW	kBtuh	
1.51	3200	38.5	131.3	9.42	29.5	100.5	8.50	20.0	68.4	7.58	13.6	46.5	6.44	6.7	23.0	4.97
1.89	4000	39.1	133.5	8.63	30.1	102.7	7.70	20.7	70.6	6.79	14.3	48.7	5.65	7.4	25.2	4.18
2.27	4800	39.8	135.7	8.31	30.7	104.9	7.39	21.3	72.8	6.47	14.9	50.9	5.33	8.0	27.4	3.86

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

44 KW STANDARD EFFICIENCY - THA150S - COOLING CAPACITY - ONE COMPRESSOR OPERATING

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			18°C (65°F)						24°C (75°F)						29°C (85°F)						35°C (95°F)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
	m^3/s	cfm	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F
17°C (63°F)	1.79	3800	19.8	67.6	3.74	.66	.83	.98	19.2	65.5	4.20	.67	.84	.99	18.6	63.3	4.69	.68	.86	1.00	17.9	61.1	5.23	.69	.88	1.00
	2.07	4400	20.3	69.3	3.77	.69	.88	1.00	19.7	67.1	4.23	.71	.90	1.00	19.0	64.9	4.72	.72	.92	1.00	18.3	62.6	5.27	.74	.94	1.00
	2.36	5000	20.7	70.8	3.79	.74	.94	1.00	20.1	68.5	4.25	.76	.96	1.00	19.4	66.3	4.75	.77	.97	1.00	18.8	64.0	5.30	.79	.99	1.00
19°C (67°F)	1.79	3800	21.0	71.5	3.80	.52	.64	.78	20.3	69.2	4.27	.52	.65	.80	19.6	66.9	4.77	.53	.66	.82	18.9	64.4	5.32	.53	.67	.84
	2.07	4400	21.4	73.0	3.83	.53	.67	.85	20.7	70.6	4.30	.54	.68	.87	20.0	68.1	4.79	.55	.70	.89	19.2	65.6	5.35	.56	.72	.91
	2.36	5000	21.7	74.1	3.85	.55	.71	.90	21.0	71.7	4.32	.56	.73	.92	20.3	69.2	4.82	.57	.75	.94	19.5	66.6	5.38	.58	.77	.96
22°C (71°F)	1.79	3800	22.3	76.0	3.88	.38	.50	.62	21.6	73.6	4.35	.39	.51	.63	20.8	71.1	4.86	.39	.51	.64	20.0	68.4	5.43	.39	.52	.65
	2.07	4400	22.7	77.4	3.90	.39	.52	.65	21.9	74.8	4.38	.39	.53	.66	21.2	72.2	4.90	.40	.54	.67	20.4	69.5	5.45	.40	.55	.69
	2.36	5000	23.0	78.5	3.93	.40	.54	.69	22.2	75.8	4.41	.40	.55	.70	21.5	73.2	4.91	.41	.56	.72	20.6	70.4	5.48	.41	.57	.74

44 KW STANDARD EFFICIENCY - THA150S - COOLING CAPACITY - ALL COMPRESSORS OPERATING

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			27°C (80°F)						35°C (95°F)						43°C (110°F)						52°C (125°F)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
	m^3/s	cfm	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F
17°C (63°F)	1.79	3800	37.7	128.6	9.05	.71	.87	1.00	35.8	122.0	10.67	.73	.89	1.00	33.6	114.7	12.63	.75	.92	1.00	31.1	106.1	15.04	.78	.97	1.00
	2.07	4400	38.6	131.8	9.12	.74	.92	1.00	36.7	125.1	10.75	.77	.95	1.00	34.5	117.6	12.72	.80	.98	1.00	32.0	109.2	15.13	.83	1.00	1.00
	2.36	5000	39.4	134.6	9.17	.79	.97	1.00	37.5	127.8	10.82	.81	.99	1.00	35.3	120.5	12.81	.84	1.00	1.00	32.9	112.2	15.24	.89	1.00	1.00
19°C (67°F)	1.79	3800	39.9	136.1	9.20	.55	.69	.83	37.7	128.8	10.85	.56	.70	.86	35.4	120.9	12.83	.58	.72	.89	32.7	111.6	15.24	.59	.75	.93
	2.07	4400	40.6	138.6	9.28	.57	.72	.89	38.5	131.2	10.92	.59	.74	.92	36.1	123.1	12.90	.60	.77	.95	33.3	113.5	15.32	.62	.81	.99
	2.36	5000	41.3	140.8	9.32	.60	.76	.94	39.1	133.3	10.98	.61	.79	.97	36.6	124.8	12.97	.63	.82	.99	33.7	115.1	15.39	.65	.86	1.00
22°C (71°F)	1.79	3800	42.3	144.5	9.40	.41	.54	.66	40.1	136.8	11.08	.42	.55	.68	37.6	128.3	13.08	.42	.56	.70	34.7	118.4	15.51	.43	.58	.73
	2.07	4400	43.1	147.0	9.46	.42	.56	.70	40.8	139.1	11.14	.42	.57	.72	38.2	130.3	13.15	.43	.59	.75	35.2	120.1	15.58	.44	.61	.79
	2.36	5000	43.7	149.0	9.50	.43	.59	.74	41.3	140.9	11.20	.43	.60	.77	38.6	131.8	13.19	.44	.62	.80	35.6	121.5	15.62	.45	.64	.84

44 KW STANDARD EFFICIENCY - THA150S - HEATING CAPACITY

Indoor Coil Air Volume 21°C db (70°F db)		Air Temperature Entering Outdoor Coil															
		18°C (65°F)			7°C (45°F)			minus 4°C (25°F)			minus 15°C (5°F)			minus 28°C (minus 15°F)		
		Total Heating Capacity		Comp. Motor kW Input	Total Heating Capacity		Comp. Motor kW Input	Total Heating Capacity		Comp. Motor kW Input	Total Heating Capacity		Comp. Motor kW Input	Total Heating Capacity		Comp. Motor kW Input
m^3/s	cfm	kW	kBtuh		kW	kBtuh		kW	kBtuh		kW	kBtuh		kW	kBtuh	
1.80	3800	45.9	156.6	11.26	34.7	118.5	9.45	23.2	79.0	7.55	15.0	51.3	6.28	7.6	26.1	4.70
2.08	4400	46.4	158.4	11.40	35.3	120.3	9.59	23.7	80.8	7.69	15.6	53.1	6.42	8.2	27.9	4.84
2.36	5000	46.8	159.8	11.51	35.7	121.7	9.70	24.1	82.2	7.80	16.0	54.5	6.53	8.6	29.3	4.95

BLOWER DATA

BELT DRIVE BLOWER - BASE UNIT

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY (NO HEAT SECTION) WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE. FOR ALL UNITS ADD:

1 - Wet indoor coil air resistance of selected unit.
2 - Any factory installed options air resistance (heat section, economizer, etc.)
3 - Any field installed accessories air resistance (duct resistance, diffuser, etc.)

Then determine from blower table blower motor output and drive required.
See below for blower motors and drives. See page 13 for wet coil and option/accessory air resistance data.

BOLD INDICATES FIELD FURNISHED DRIVE.

Air Volume cfm (L/s)	Total Static Pressure - in. w.g. (Pa)																			
	.20 (50)		.40 (100)		.60 (150)		.80 (200)		1.00 (250)		1.20 (300)		1.40 (350)		1.60 (400)		1.80 (450)		2.00 (495)		2.20 (545)		2.40 (595)		2.60 (645)	
	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)
2250	**455**	**0.30**	**555**	**0.45**	**640**	**0.60**	720	0.80	790	1.00	855	1.20	915	1.40	975	1.60	1030	1.85	1080	2.05	1130	2.30	1175	2.55	1220	2.80
(1060)		**(0.22)**		**(0.34)**		**(0.45)**		(0.60)		(0.75)		(0.90)		(1.04)		(1.19)		(1.38)		(1.53)		(1.72)		(1.90)		(2.09)
2500	**475**	**0.40**	**575**	**0.55**	**660**	**0.70**	735	0.90	805	1.10	870	1.30	930	1.55	985	1.75	1040	2.00	1090	2.25	1140	2.50	1185	2.75	1230	3.00
(1180)		**(0.30)**		**(0.41)**		**(0.52)**		(0.67)		(0.82)		(0.97)		(1.16)		(1.31)		(1.49)		(1.68)		(1.87)		(2.05)		(2.24)
2750	**495**	**0.45**	**595**	**0.65**	**675**	**0.85**	750	1.05	820	1.25	885	1.45	940	1.70	995	1.90	1050	2.20	1100	2.45	1145	2.65	1195	2.95	1240	3.25
(1300)		**(0.34)**		**(0.48)**		**(0.63)**		(0.78)		(0.93)		(1.08)		(1.27)		(1.42)		(1.64)		(1.83)		(1.98)		(2.20)		(2.42)
3000	**525**	**0.55**	**615**	**0.75**	695	0.95	770	1.20	835	1.40	895	1.60	955	1.85	1010	2.10	1060	2.35	1110	2.65	1160	2.90	1205	3.20	1250	3.45
(1415)		**(0.41)**		**(0.56)**		(0.71)		(0.90)		(1.04)		(1.19)		(1.38)		(1.57)		(1.75)		(1.98)		(2.16)		(2.39)		(2.57)
3250	**550**	**0.65**	**640**	**0.90**	715	1.10	790	1.35	855	1.60	915	1.80	970	2.05	1025	2.35	1075	2.60	1125	2.85	1170	3.15	1215	3.40	1260	3.70
(1535)		**(0.48)**		**(0.67)**		(0.82)		(1.01)		(1.19)		(1.34)		(1.53)		(1.75)		(1.94)		(2.13)		(2.35)		(2.54)		(2.76)
3500	**580**	**0.80**	**665**	**1.05**	740	1.25	810	1.50	870	1.75	930	2.00	985	2.25	1040	2.55	1090	2.85	1135	3.10	1185	3.40	1230	3.70	1270	4.00
(1650)		**(0.60)**		**(0.78)**		(0.93)		(1.12)		(1.31)		(1.49)		(1.68)		(1.90)		(2.13)		(2.31)		(2.54)		(2.76)		(2.98)
3750	**605**	**0.95**	690	1.20	760	1.45	830	1.70	890	1.95	950	2.25	1005	2.50	1055	2.80	1105	3.10	1150	3.35	1195	3.65	1240	3.95	1285	4.30
(1770)		**(0.71)**		(0.90)		(1.08)		(1.27)		(1.45)		(1.68)		(1.87)		(2.09)		(2.31)		(2.50)		(2.72)		(2.95)		(3.21)
4000	**635**	**1.10**	715	1.40	785	1.65	850	1.90	910	2.20	965	2.45	1020	2.75	1070	3.05	1120	3.35	1165	3.65	1210	3.95	1255	4.30	1295	4.60
(1890)		**(0.82)**		(1.04)		(1.23)		(1.42)		(1.64)		(1.83)		(2.05)		(2.28)		(2.50)		(2.72)		(2.95)		(3.21)		(3.43)
4250	**665**	**1.30**	740	1.60	810	1.85	870	2.15	930	2.45	985	2.75	1040	3.05	1090	3.35	1135	3.65	1185	4.00	1225	4.30	1270	4.65	1310	4.95
(2005)		**(0.97)**		(1.19)		(1.38)		(1.60)		(1.83)		(2.05)		(2.28)		(2.50)		(2.72)		(2.98)		(3.21)		(3.47)		(3.69)
4500	695	1.50	770	1.80	835	2.10	895	2.40	955	2.70	1005	3.00	1060	3.35	1105	3.65	1155	4.00	1200	4.30	1245	4.65	1285	5.00	1325	5.30
(2125)		(1.12)		(1.34)		(1.57)		(1.79)		(2.01)		(2.24)		(2.50)		(2.72)		(2.98)		(3.21)		(3.47)		(3.73)		(3.95)
4750	725	1.75	795	2.05	860	2.40	920	2.70	975	3.00	1030	3.35	1080	3.65	1125	3.95	1175	4.35	1215	4.65	1260	5.00	1300	5.35	1340	5.70
(2240)		(1.31)		(1.53)		(1.79)		(2.01)		(2.24)		(2.50)		(2.72)		(2.95)		(3.25)		(3.47)		(3.73)		(3.99)		(4.25)
5000	760	2.05	825	2.35	885	2.65	945	3.00	1000	3.35	1050	3.65	1100	4.00	1145	4.35	1190	4.70	1235	5.05	1280	5.45	- - -		- - -	
(2360)		(1.53)		(1.75)		(1.98)		(2.24)		(2.50)		(2.72)		(2.98)		(3.25)		(3.51)		(3.77)		(4.07)				
5250	790	2.30	855	2.65	910	2.95	970	3.35	1020	3.65	1070	4.00	1120	4.35	1165	4.70	1210	5.10	1255	5.45	- - -		- - -		- - -	
(2475)		(1.72)		(1.98)		(2.20)		(2.50)		(2.72)		(2.98)		(3.25)		(3.51)		(3.80)		(4.07)						
5500	820	2.60	880	2.95	940	3.30	995	3.70	1045	4.05	1095	4.40	1145	4.80	1190	5.15	1230	5.50	- - -		- - -		- - -		- - -	
(2595)		(1.94)		(2.20)		(2.46)		(2.76)		(3.02)		(3.28)		(3.58)		(3.84)		(4.10)								
5750	850	2.95	910	3.30	965	3.70	1020	4.05	1070	4.45	1120	4.80	1165	5.20	1210	5.60	- - -		- - -		- - -		- - -		- - -	
(2715)		(2.20)		(2.46)		(2.76)		(3.02)		(3.32)		(3.58)		(3.88)		(4.18)										
6000	885	3.35	940	3.70	995	4.10	1045	4.45	1095	4.85	1145	5.25	1190	5.65	- - -		- - -		- - -		- - -		- - -		- - -	
(2830)		(2.50)		(2.76)		(3.06)		(3.32)		(3.62)		(3.92)		(4.21)												

FACTORY INSTALLED DRIVE KIT SPECIFICATIONS

Motor Outputs Nominal kW	Motor Outputs Nominal hp	REV/MIN Range					
		Drive 1	Drive 2	Drive 3	Drive 4	Drive 5	Drive 6
1.5	2	562 - 764	- - -	739 - 925	- - -	917 - 1152	- - -
2.2	3	- - -	561 - 776	- - -	750 - 938	- - -	930 - 1169
3.7	5	- - -	- - -	- - -	739 - 925	- - -	917 - 1152

NOTE - Using total air volume and system static pressure requirements determine from blower performance tables rev/min and motor output required.

BLOWER DATA

ACCESSORY AIR RESISTANCE

Air Volume		Wet Indoor Coil				Electric Heat		Economizer		MERV 11 Filter	
		090, 102		120, 150							
L/s	cfm	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.
1060	2250	15	.06	25	.10	2	.01	9	.035	2	.01
1180	2500	20	.08	30	.12	2	.01	10	.04	2	.01
1325	2750	22	.09	35	.14	2	.01	11	.045	5	.02
1420	3000	25	.10	40	.16	5	.02	12	.05	5	.02
1535	3250	27	.11	47	.19	5	.02	15	.06	5	.02
1650	3500	32	.13	52	.21	7	.03	17	.07	7	.03
1770	3750	35	.14	57	.23	7	.03	19	.075	7	.03
1890	4000	40	.16	65	.26	10	.04	20	.08	10	.04
2005	4250	42	.17	70	.28	10	.04	22	.09	10	.04
2125	4500	45	.18	77	.31	12	.05	25	.10	10	.04
2240	4750	50	.20	82	.33	12	.05	27	.11	12	.05
2360	5000	55	.22	90	.36	15	.06	30	.12	15	.06
2475	5250	60	.24	97	.39	15	.06	32	.13	15	.06
2595	5500	65	.26	104	.42	17	.07	35	.14	17	.07
2715	5750	70	.28	112	.45	17	.07	37	.15	17	.07
2830	6000	75	.30	119	.48	20	.08	40	.16	20	.08

AIR RESISTANCE - CEILING DIFFUSERS

Unit Size	Air Volume		RTD11 Step-Down Diffuser						FD11 Flush Diffuser	
			2 Ends Open		1 Side, 2 Ends Open		All Ends & Sides Open			
	L/s	cfm	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.
090 Models	1135	2400	52	0.21	45	0.18	37	0.15	35	0.14
	1225	2600	60	0.24	52	0.21	45	0.18	42	0.17
	1320	2800	67	0.27	60	0.24	52	0.21	50	0.20
	1415	3000	80	0.32	72	0.29	62	0.25	62	0.25
	1510	3200	102	0.41	92	0.37	80	0.32	77	0.31
	1605	3400	124	0.50	112	0.45	97	0.39	92	0.37
	1700	3600	152	0.61	134	0.54	119	0.48	109	0.44
	1795	3800	182	0.73	157	0.63	142	0.57	127	0.51
102 & 120 Models	1700	3600	90	0.36	70	0.28	57	0.23	37	0.15
	1795	3800	99	0.40	80	0.32	65	0.26	45	0.18
	1890	4000	109	0.44	90	0.36	72	0.29	52	0.21
	1980	4200	122	0.49	99	0.40	82	0.33	60	0.24
	2075	4400	134	0.54	109	0.44	92	0.37	67	0.27
	2170	4600	149	0.60	122	0.49	104	0.42	77	0.31
	2265	4800	162	0.65	132	0.53	114	0.46	87	0.35
	2360	5000	172	0.69	144	0.58	124	0.50	97	0.39
	2455	5200	186	0.75	154	0.62	134	0.54	107	0.43
150 Models	1980	4200	55	0.22	47	0.19	40	0.16	25	0.10
	2075	4400	70	0.28	60	0.24	50	0.20	30	0.12
	2170	4600	85	0.34	72	0.29	60	0.24	37	0.15
	2265	4800	99	0.40	85	0.34	72	0.29	47	0.19
	2360	5000	114	0.46	97	0.39	85	0.34	57	0.23
	2455	5200	129	0.52	109	0.44	97	0.39	67	0.27
	2550	5400	144	0.58	122	0.49	107	0.43	77	0.31
	2645	5600	159	0.64	134	0.54	117	0.47	87	0.35
	2735	5800	174	0.70	147	0.59	127	0.51	97	0.39

BLOWER DATA

CEILING DIFFUSER AIR THROW DATA

Model Number	Air Volume		[1]Effective Throw Range			
			RTD11 Step-Down		FD11 Flush	
	L/s	cfm	m	ft.	m	ft.
090	1225	2600	7 - 9	24 - 29	6 - 7	19 - 24
	1320	2800	8 - 9	25 - 30	6 - 9	20 - 28
	1415	3000	8 - 10	27 - 33	6 - 9	21 - 29
	1510	3200	9 - 11	28 - 35	7 - 9	22 - 29
	1605	3400	9 - 11	30 - 37	7 - 9	22 - 30
102 120	1700	3600	8 - 10	25 - 33	7 - 9	22 - 29
	1795	3800	8 - 11	27 - 35	7 - 9	22 - 30
	1885	4000	9 - 11	29- 37	7 - 10	24 - 33
	1980	4200	10 - 12	32 - 40	8 - 11	26 - 35
	2075	4400	10 - 13	34 - 42	9 - 11	28 - 37
150	2645	5600	12 - 15	39 - 49	9 - 11	28 - 37
	2740	5800	13 - 16	42 - 51	9 - 12	29 - 38
	2830	6000	13 - 17	44 - 54	12 - 15	40 - 50
	2925	6200	14 - 17	45 - 55	13 - 16	42 - 51
	3020	6400	14 - 17	46 - 55	13 - 16	43 - 52
	3115	6600	14 - 17	47 - 56	14 - 17	45 - 56

[1] Throw is the horizontal or vertical distance an air stream travels on leaving the outlet or diffuser before the maximum velocity is reduced to 15 m (50 ft) per minute. Four sides open.

POWER EXHAUST FANS PERFORMANCE

Return Air System Static Pressure		Air Volume Exhausted	
Pa	in. w.g.	L/s	cfm
0	0	1980	4200
12	0.05	1875	3970
25	0.10	1770	3750
37	0.15	1660	3520
50	0.20	1560	3300
62	0.25	1455	3080
75	0.30	1350	2860
87	0.35	1245	2640

OUTDOOR SOUND DATA

Unit Model No.	Octave Band Sound Power Levels dB, re 10^{-12} Watts Center Frequency - HZ							[1]Sound Rating Number (dB)
	125	250	500	1000	2000	4000	8000	
090, 102, and 120	92	88	87	83	78	72	67	88
150	93	89	88	84	78	73	67	88

[1] Tested according to ARI Standard 270-95 test conditions and ANSI Standard S1.32-1981.

ELECTRICAL DATA

26 KW / 30 KW STANDARD EFFICIENCY

Model No.		THA090S		THA102S	
Line voltage data - 50 Hz - 3 phase		380/420V		380/420V	
Compressors (2)	Rated load amps - each (total)	6.4 (12.8)		7.1 (14.2)	
	Locked rotor amps - each (total)	46 (92)		50 (100)	
Condenser Fan Motor (2)	Full load amps - each (total)	1.3 (2.6)		1.3 (2.6)	
	Locked rotor amps - each (total)	2.4 (4.8)		2.4 (4.8)	
Evaporator Blower Motor	Motor Output - kW	1.5	2.2	1.5	2.2
	hp	2	3	2	3
	Full load amps	3.5	5	3.5	5
	Locked rotor amps	22.1	27	22.1	27
[1] Maximum Overcurrent Protection (amps)	With Exhaust Fan	25	25	30	30
	Less Exhaust Fan	25	25	25	30
[2] Minimum Circuit Ampacity	With Exhaust Fan	22	24	24	25
	Less Exhaust Fan	21	22	23	24
Optional Power Exhaust Fan	(Number) W (hp)	(1) 249 (1/3)		(1) 249 (1/3)	
	Full load amps	1.3		1.3	
	Locked rotor amps	2.4		2.4	

35 KW / 44 KW STANDARD EFFICIENCY

Model No.		THA120S			THA150S	
Line voltage data - 50 Hz - 3 phase		380/420V			380/420V	
Compressors (2)	Rated load amps - each (total)	7.4 (14.8)			9 (18)	
	Locked rotor amps - each (total)	59.6 (119.2)			75 (150)	
Condenser Fan Motors (2)	Full load amps - each (total)	1.3 (2.6)			1.5 (3.0)	
	Locked rotor amps - each (total)	2.4 (4.8)			3.0 (6.0)	
Evaporator Blower Motor	kW	1.5	2.2	3.7	2.2	3.7
	Motor Output - hp	2	3	5	3	5
	Full load amps	3.5	5	7.8	5	7.8
	Locked rotor amps	22.1	27	41	27	41
[1] Maximum Overcurrent Protection (amps)	With Exhaust Fan	35	35	40	35	40
	Less Exhaust Fan	35	35	35	35	35
[2] Minimum Circuit Ampacity	With Exhaust Fan	28	30	32	30	32
	Less Exhaust Fan	27	28	31	28	31
Optional Power Exhaust Fan	(Number) W (hp)	(1) 249 (1/3)			(1) 249 (1/3)	
	Full load amps	1.3			1.3	
	Locked rotor amps	2.4			2.4	

NOTE - Extremes of operating range are plus and minus 10 % of line voltage.
1 HACR type breaker or fuse.
2 Refer to local codes to determine wire, fuse and disconnect size requirements.

OPTIONAL ELECTRIC HEAT ACCESSORIES - MUST BE ORDERED EXTRA

Unit Size	Line Voltage	Electric Heat	Terminal Block	Fuse Blocks With Electric Heat					
				with Power Exhaust			without Power Exhaust		
				1.5 kW	2.2 kW	3.7 kW	1.5 kW	2.2 kW	3.7 kW
090	380/420V-3ph	EHA102-7.5	**30K75**	**56K52**	**56K52**	**25K08**	**56K52**	**56K52**	**25K08**
		EHA150-15							
		EHA360-22.5							
		EHA150-30							
		EHA150-45							
102	380/420V-3ph	EHA102-7.5	**30K75**	**25K08**	**25K08**	**25K09**	**56K52**	**25K08**	**25K08**
		EHA150-15							
		EHA360-22.5							
		EHA150-30							
		EHA150-45							
120	380/420V-3ph	EHA150-15	**30K75**	**25K09**	**25K09**	**25K10**	**25K09**	**25K09**	**25K09**
		EHA360-22.5							
		EHA150-30							
		EHA150-45							
		EHA150-60							
150	380/420V-3ph	EHA150-15	**30K75**	**25K09**	**25K09**	**25K10**	**25K09**	**25K09**	**25K09**
		EHA360-22.5							
		EHA150-30							
		EHA150-45							
		EHA150-60							

OPTIONAL ELECTRIC HEAT DATA

[1] REQUIRES UNIT FUSE BLOCK, TERMINAL BLOCK AND HEATER CONTROL MODULE

[1] Electric Heat Model Number and Net Weight	Number of Steps	Volts Input	kW Input	Btuh Output	[2] Minimum Circuit Ampacity Total Unit + Electric Heat (with Power Exhaust Fan)			[3] Maximum Overcurrent Protection Total Unit + Electric Heat (with Power Exhaust Fans)		
					1.5 kW (2 hp)	2.2 kW (3 hp)	3.7 kW (5 hp)	1.5 kW (2 hp)	2.2 kW (3 hp)	3.7 kW (5 hp)
26 KW STANDARD EFFICIENCY - THA090										
7.5 kW EHA102-7.5	1	380	4.7	16,000						
380/420V	1	400	5.2	17,800	32	34	36	35	35	40
99J02	1	420	5.7	19,600						
14 kg (31 lbs.)										
15 kW EHA150-15	1	380	9.4	32,100						
380/420V	1	400	10.4	35,600	42	44	46	45	45	50
99J05	1	420	11.5	39,200						
14 kg (31 lbs.)										
22.5 kW EHA360-22.5	[4] 2	380	14.1	48,100						
380/420V	[4] 2	400	15.6	53,200	52	53	56	60	60	60
99J29	[4] 2	420	17.2	57,700						
17 kg (38 lbs.)										
30 kW EHA150-30	[4] 2	380	18.8	64,200						
380/420V	[4] 2	400	20.8	71,100	62	63	66	70	70	70
99J08	[4] 2	420	23.0	78,400						
17 kg (38 lbs.)										
45 kW EHA150-45	[4] 2	380	28.2	96,300						
380/420V	[4] 2	400	31.2	106,700	82	83	86	90	90	90
99J11	[4] 2	420	34.4	117,600						
19 kg (42 lbs.)										
30 KW STANDARD EFFICIENCY - THA102										
7.5 kW EHA102-7.5	1	380	4.7	16,000						
380/420V	1	400	5.2	17,800	34	35	38	35	35	40
99J02	1	420	5.7	19,600						
14 kg (31 lbs.)										
15 kW EHA150-15	1	380	9.4	32,100						
380/420V	1	400	10.4	35,600	44	45	48	45	45	50
99J05	1	420	11.5	39,200						
14 kg (31 lbs.)										
22.5 kW EHA360-22.5	[4] 2	380	14.1	48,100						
380/420V	[4] 2	400	15.6	53,200	53	55	58	60	60	60
99J29	[4] 2	420	17.2	57,700						
17 kg (38 lbs.)										
30 kW EHA150-30	[4] 2	380	18.8	64,200						
380/420V	[4] 2	400	20.8	71,100	63	65	68	70	70	70
99J08	[4] 2	420	23.0	78,400						
17 kg (38 lbs.)										
45 kW EHA150-45	[4] 2	380	28.2	96,300						
380/420V	[4] 2	400	31.2	106,700	83	85	87	90	90	90
99J11	[4] 2	420	34.4	117,600						
19 kg (42 lbs.)										

NOTE - Nominal kW heat capacity based on 480 volt input. See table for output at other voltages·

[1] Fuse block must be ordered extra. Fuse block must be installed in field installed heaters. Also requires LTB2 Terminal Block. See Optional Electric Heat Accessories tables.

[2] Refer to local electrical codes to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).

[3] HACR type breaker or fuse.

[4] Can be used with two stage control.

OPTIONAL ELECTRIC HEAT DATA

[1] REQUIRES UNIT FUSE BLOCK, TERMINAL BLOCK AND HEATER CONTROL MODULE

[1] Electric Heat Model Number & Net Weight	Number of Steps	Volts Input	kW Input	Btuh Output	[2] Minimum Circuit Ampacity Total Unit + Electric Heat (with Power Exhaust Fan)			[3] Maximum Overcurrent Protection Total Unit + Electric Heat (with Power Exhaust Fans)		
					1.5 kW (2 hp)	2.2 kW (3 hp)	3.7 kW (5 hp)	1.5 kW (2 hp)	2.2 kW (3 hp)	3.7 kW (5 hp)
35 KW STANDARD EFFICIENCY - THA120										
15 kW EHA150-15	1	380	9.4	32,100						
380/420V	1	400	10.4	35,600	48	49	52	50	50	60
99J05	1	420	11.5	39,200						
14 kg (31 lbs.)										
22.5 kW EHA360-22.5	[4] 2	380	14.1	48,100						
380/420V	[4] 2	400	15.6	53,200	58	59	62	60	60	70
99J29	[4] 2	420	17.2	57,700						
17 kg (38 lbs.)										
30 kW EHA150-30	[4] 2	380	18.8	64,200						
380/420V	[4] 2	400	20.8	71,100	68	69	72	70	70	80
99J08	[4] 2	420	23.0	78,400						
17 kg (38 lbs.)										
45 kW EHA150-45	[4] 2	380	28.2	96,300						
380/420V	[4] 2	400	31.2	106,700	87	89	92	90	90	100
99J11	[4] 2	420	34.4	117,600						
19 kg (42 lbs.)										
60 kW EHA150-60	[4] 2	380	37.6	128,400						
380/420V	[4] 2	400	41.6	142,200	91	93	96	100	100	100
99J14	[4] 2	420	45.9	156,800						
49 lbs. (22 kg)										
44 KW STANDARD EFFICIENCY - THA150										
15 kW EHA150-15	1	380	9.4	32,100						
380/420V	1	400	10.4	35,600	48	49	52	50	50	60
99J05	1	420	11.5	39,200						
14 kg (31 lbs.)										
22.5 kW EHA360-22.5	[4] 2	380	14.1	48,100						
380/420V	[4] 2	400	15.6	53,200	58	59	62	60	60	70
99J29	[4] 2	420	17.2	57,700						
17 kg (38 lbs.)										
30 kW EHA150-30	[4] 2	380	18.8	64,200						
380/420V	[4] 2	400	20.8	71,100	68	69	72	70	70	80
99J08	[4] 2	420	23.0	78,400						
17 kg (38 lbs.)										
45 kW EHA150-45	[4] 2	380	28.2	96,300						
380/420V	[4] 2	400	31.2	106,700	87	89	92	90	90	100
99J11	[4] 2	420	34.4	117,600						
19 kg (42 lbs.)										
60 kW EHA150-60	[4] 2	380	37.6	128,400						
380/420V	[4] 2	400	41.6	142,200	91	93	96	100	100	100
99J14	[4] 2	420	45.9	156,800						
49 lbs. (22 kg)										

NOTE - Nominal kW heat capacity based on 480 volt input. See table for output at other voltages.

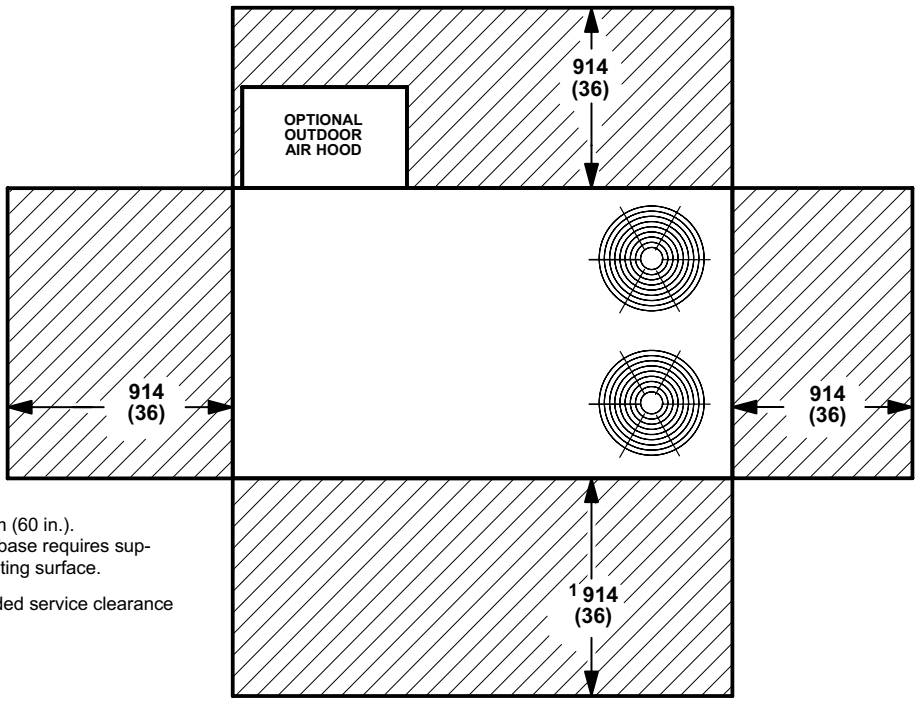
[1] Fuse block must be ordered extra. Fuse block must be installed in field installed heaters. Also requires LTB2 Terminal Block. See Optional Electric Heat Accessories tables.

[2] Refer to local electrical codes to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).

[3] HACR type breaker or fuse.

[4] Can be used with two stage control.

INSTALLATION CLEARANCES - MM (INCHES)

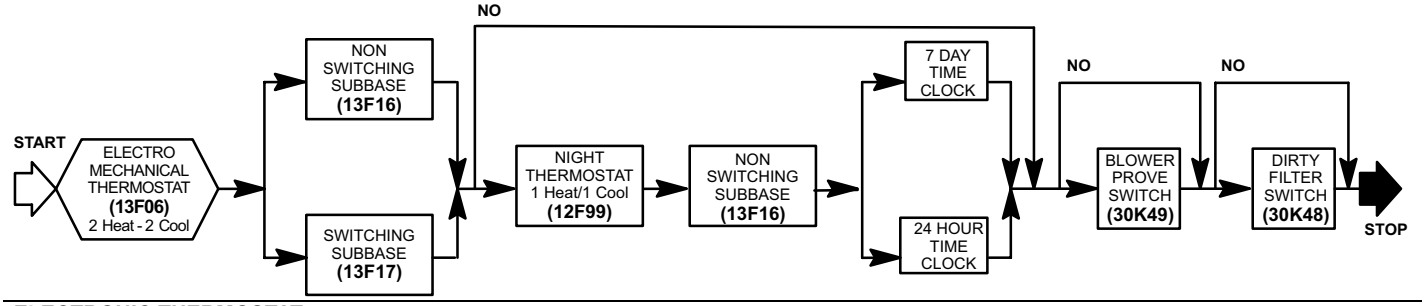


NOTE - Top Clearance 1524 mm (60 in.).
NOTE - Entire perimeter of unit base requires support when elevated above mounting surface.

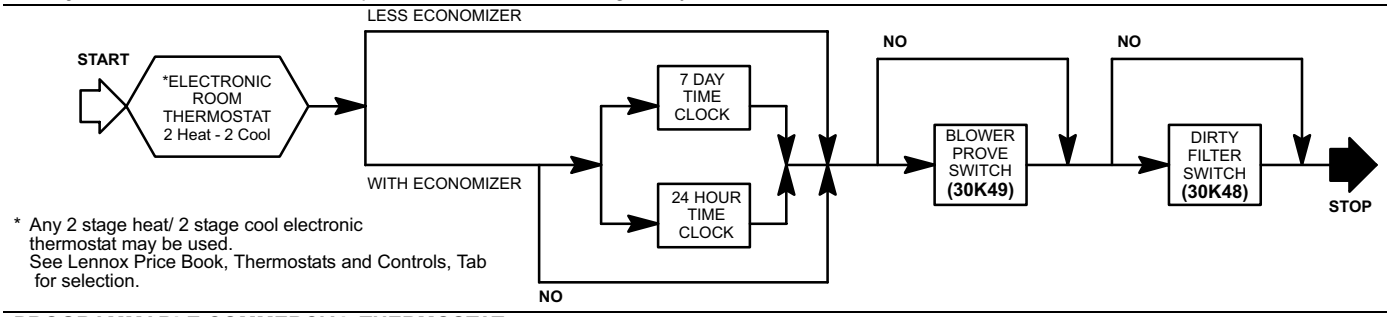
[1] 1524 mm (60 in.) recommended service clearance for blower deck removal

OPTIONAL CONVENTIONAL TEMPERATURE CONTROL SYSTEMS - FIELD INSTALLED

System and Component Description	Field Installed Catalog No.
ELECTRO-MECHANICAL THERMOSTAT	
Thermostat - Two stage heat & two stage cool with dual temperature levers, subbase choice	**13F06**
Subbase - Manual system switch (Off-Heat-Auto-Cool), fan switch (Auto-On)	**13F17**
Subbase - Non-switching	**13F16**
Night Setback Operation - Order components below	
Heating Thermostat - Single stage heat / Single stage cool	**12F99**
Subbase - Non-switching	**13F16**
Time Clock - 7 day operation, indicates day and night periods, 2 hour increments, battery back-up	**See Price Book**
Time Clock - 24 hour night setback operation, 15 minute increments, battery back-up	**See Price Book**
Blower Proving Switch - Monitors blower operation, locks out unit in case of blower failure	**30K49**
Dirty Filter Switch - Senses static pressure increase indicating a dirty filter condition	**30K48**

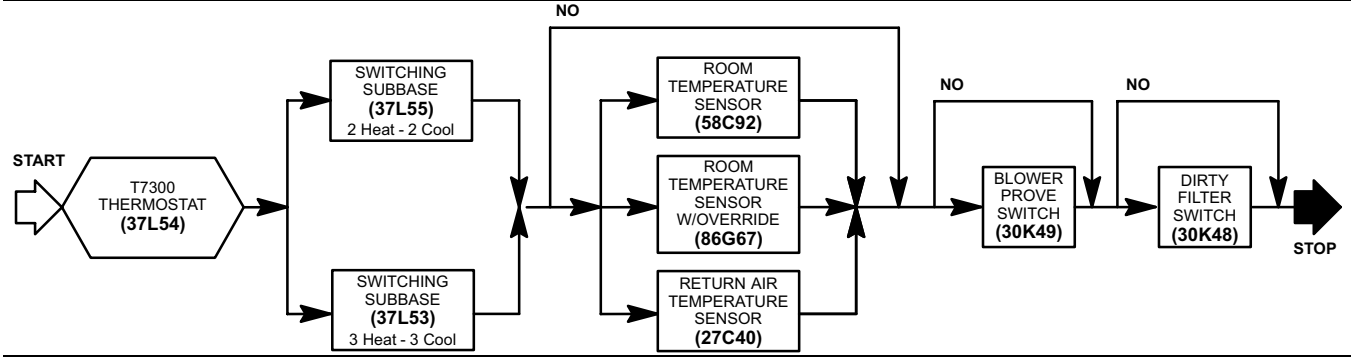


ELECTRONIC THERMOSTAT	
Electronic Thermostat - Any two stage heat/ two stage cool electronic thermostat may be used.	**See Price Book**
Time Clock - 7 day operation, indicates day and night periods, 2 hour increments, battery back-up	**See Price Book**
Time Clock - 24 hour night setback operation, 15 minute increments, battery back-up	**See Price Book**
Blower Proving Switch - Monitors blower operation, locks out unit in case of blower failure	**30K49**
Dirty Filter Switch - Senses static pressure increase indicating a dirty filter condition	**30K48**



* Any 2 stage heat/ 2 stage cool electronic thermostat may be used. See Lennox Price Book, Thermostats and Controls, Tab for selection.

PROGRAMMABLE COMMERCIAL THERMOSTAT	
Thermostat - Programmable, internal or optional remote temperature sensing (sensor required), touch sensitive keyboard, automatic switching, °F or °C readout, no anticipator, droop/no droop selection, indicator LED's, hour/day programming, override capabilities, time and operational mode readout, stage status indicators, battery back-up, subbase choice, manual system switch (Heat-Off-Auto-Cool), fan switch (Auto-On)	**59N27**
Subbase - Selectable staging, indicator LED's, auxiliary relay output for economizer operation	
2 Heat / 2 Cool	**37L55**
3 Heat / 3 Cool	**37L53**
Sensor - Room temperature	**58C92**
Sensor - Room temperature with 3 hour override and setpoint adjustment	**86G67**
Sensor - Return air temperature	**27C40**
Blower Proving Switch - Monitors blower operation, locks out unit in case of blower failure	**30K49**
Dirty Filter Switch - Senses static pressure increase indicating a dirty filter condition	**30K48**



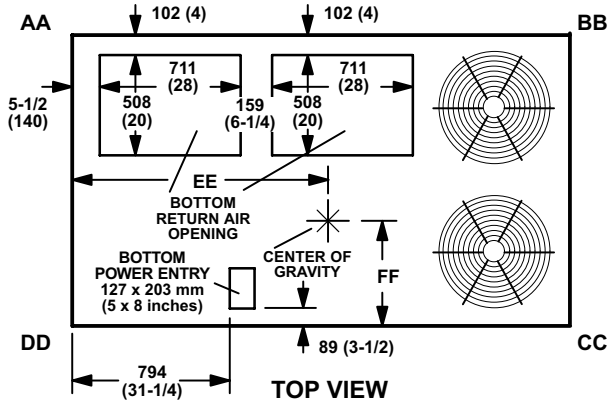
DIMENSIONS AND WEIGHTS - MM (INCHES)

Model Number	WEIGHTS				CORNER WEIGHTS								CENTER OF GRAVITY			
	Net		Shipping		AA		BB		CC		DD		EE		FF	
	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	mm	inch	mm	inch
090/102 Base Unit	567	1250	606	1335	137	302	126	278	143	316	161	354	1194	47	546	21-1/2
090/102 Max. Unit	671	1480	710	1565	162	358	149	329	170	374	190	419	1194	47	546	21-1/2
120 Base Unit	593	1305	630	1390	145	319	130	286	147	324	171	376	1168	46	546	21-1/2
120 Max. Unit	692	1525	730	1610	169	373	152	334	172	379	199	439	1168	46	546	21-1/2
150 Base Unit	608	1340	633	1395	142	314	136	299	153	337	163	359	1232	48-1/2	572	22-1/2
150 Max. Unit	708	1560	733	1615	173	382	156	344	171	377	194	427	1181	46-1/2	610	24

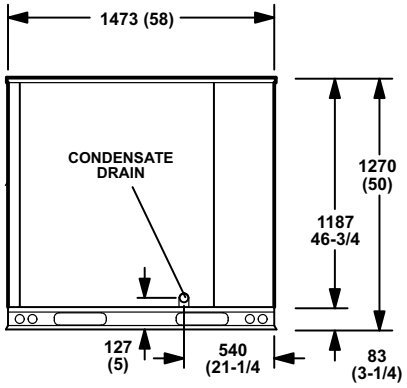
ACCESSORY SHIPPING WEIGHTS (add to base unit weight)

Electric Heat	See Electric Heat Rating Tables	
Economizer + Hood	26 kg	58 lbs.
Outdoor Air Damper + Hood	19 kg	42 lbs.
Power Exhaust	13 kg	28 lbs.
Less than container load	48 kg	105 lbs.

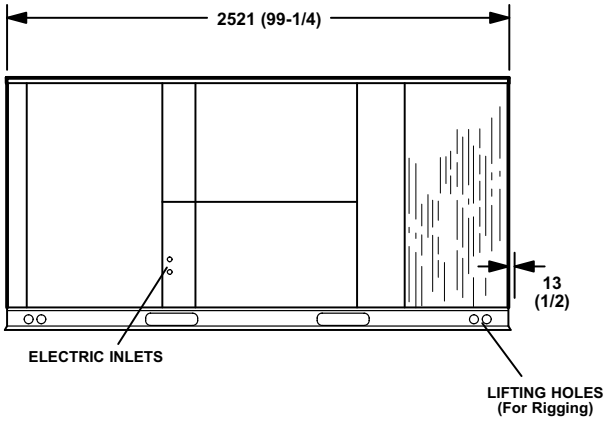
Base Unit - Unit with NO OPTIONS.
Max. Unit - Unit with ALL OPTIONS Installed. (Economizer, Power Exhaust Fans and Controls)



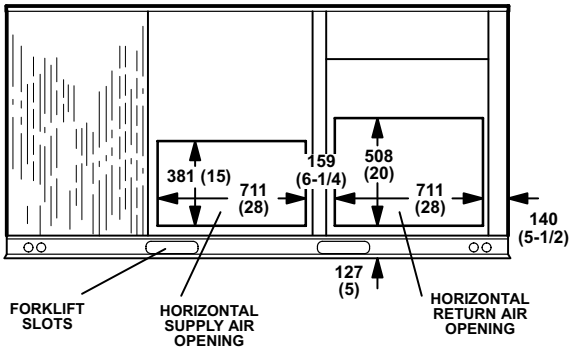
TOP VIEW



END VIEW



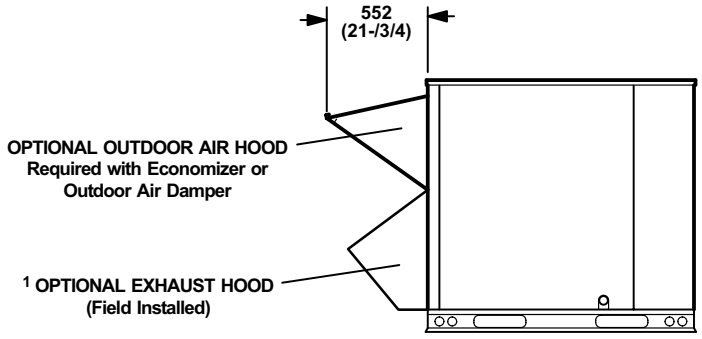
SIDE VIEW
(Compressor/Electric Heat Section)



SIDE VIEW
(Horizontal Openings)

ACCESSORY DIMENSIONS - MM (INCHES)

OPTIONAL OUTDOOR AIR HOOD DETAIL



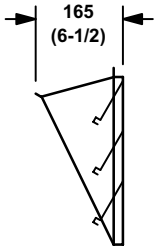
[1] NOTE — Field Installed in Return Air Duct for Horizontal Applications.

HORIZONTAL BAROMETRIC RELIEF DAMPERS

(Field installed in horizontal return air duct adjacent to unit)

FRONT VIEW

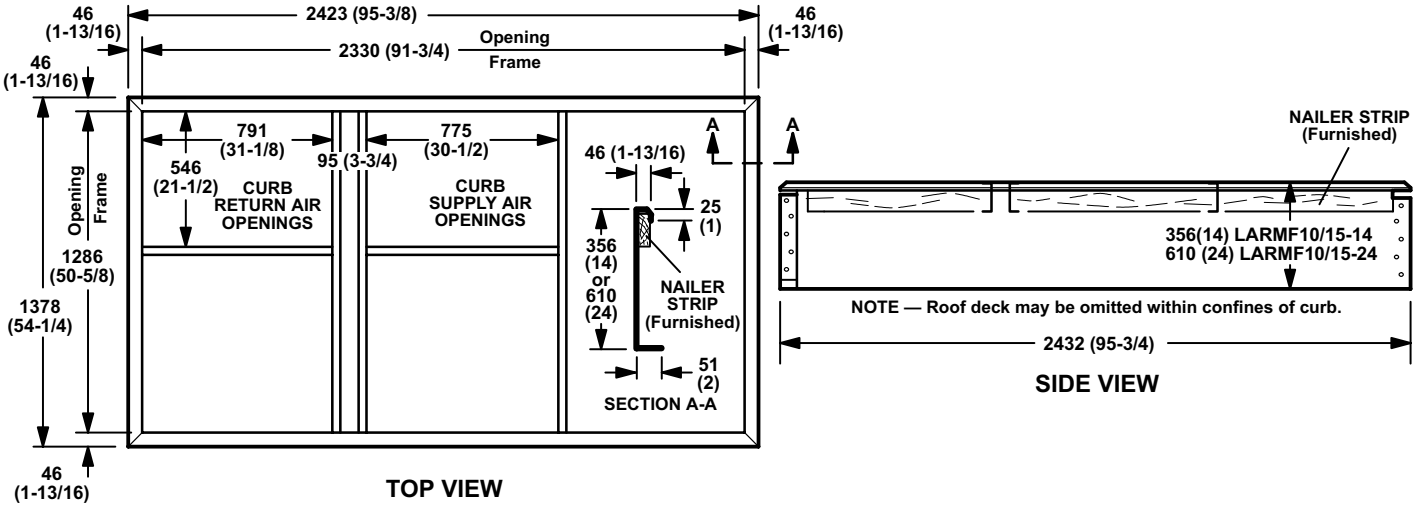
[1] NOTE - Opening size required in return air duct.



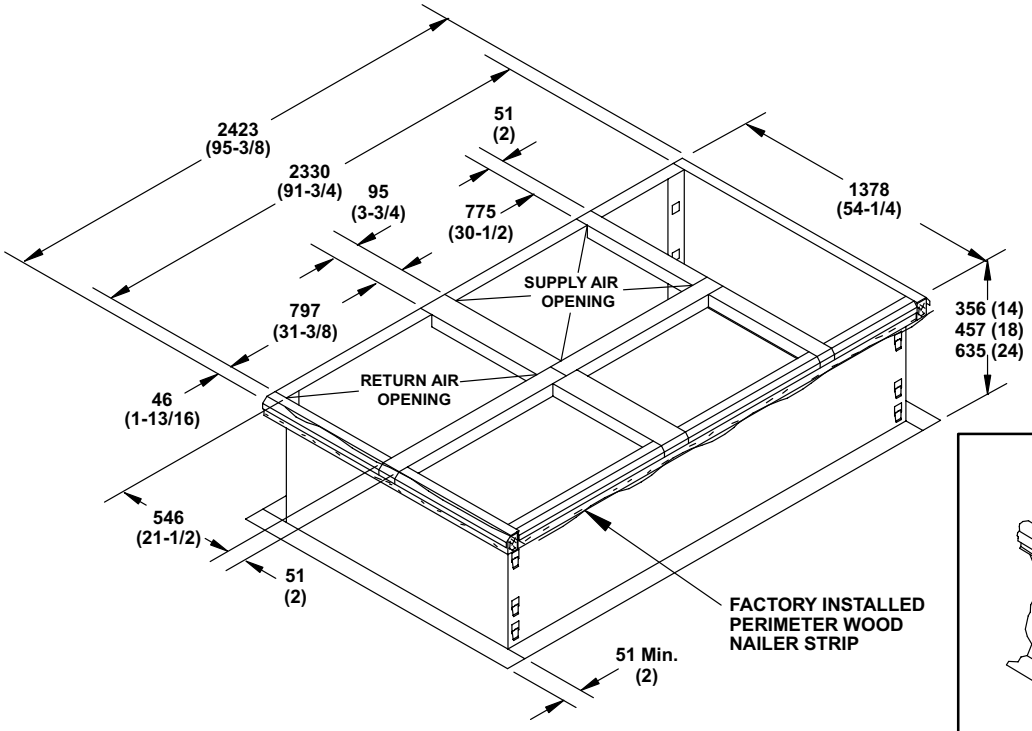
SIDE VIEW

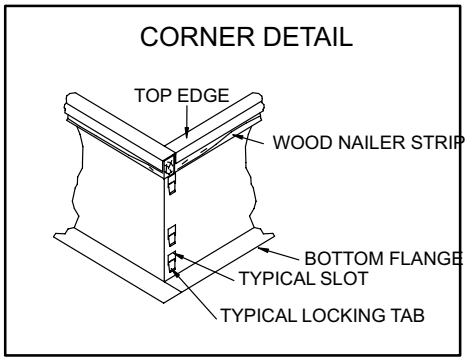
ACCESSORY DIMENSIONS - MM (INCHES)

STANDARD ROOF CURBS - DOUBLE DUCT OPENING

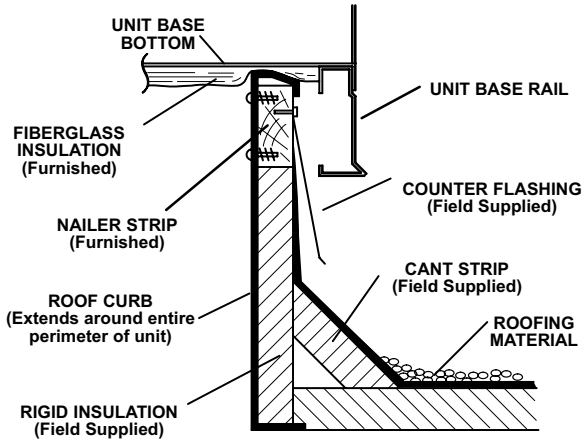


CLIPLOCK 1000 ROOF CURBS - DOUBLE DUCT OPENING





TYPICAL FLASHING DETAIL FOR ROOF CURB



ROOF CURB SPECIFICATIONS

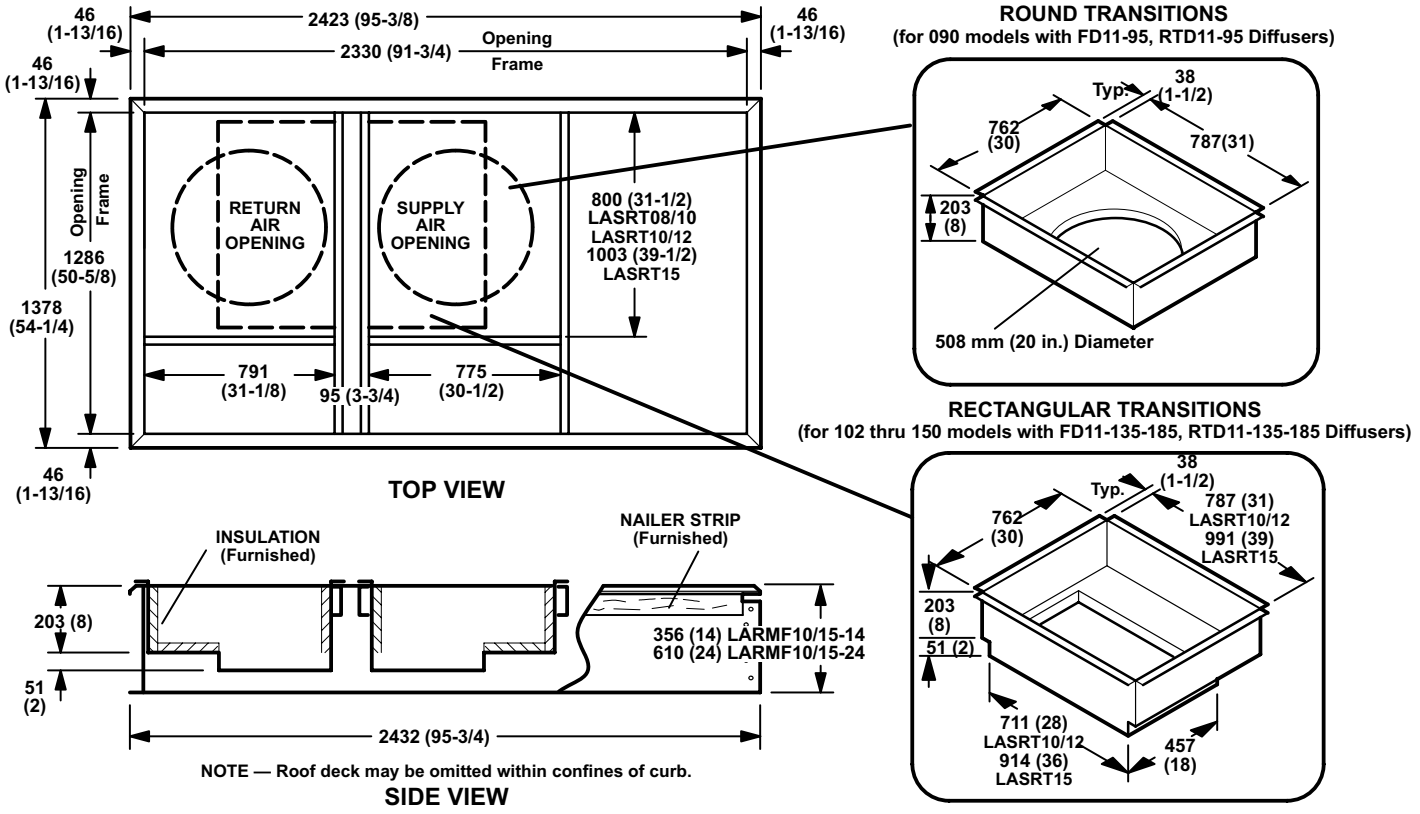
Roof Curb is rigid enough to be spanned over its entire length or cantilevered if supported on both sides of center of gravity.

Roof Curb	LARMF10/15-14	LARMF10/15-24
[1] Moment of inertia (I) (cm^4) ($in.^4$)	1634 (39)	6639 (160)
[1]Section modulus $\frac{I}{C}$ (cm^3) (in^3)	90 (5.5)	512 (13.1)
Curb weight. (kg/m) (lb/ft.) of length	8.2 (5.5)	12.7 (8.5)
Design strength (kPa) (psi)	137,900 (20,000)	137,900 (20,000)

[1] Includes both sides of curb.

ACCESSORY DIMENSIONS - MM (INCHES)

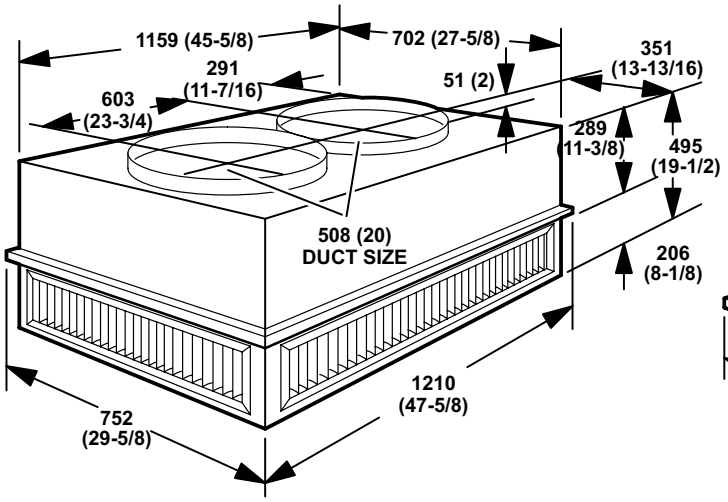
STANDARD ROOF CURBS WITH SUPPLY & RETURN AIR TRANSITIONS FOR CEILING DIFFUSERS



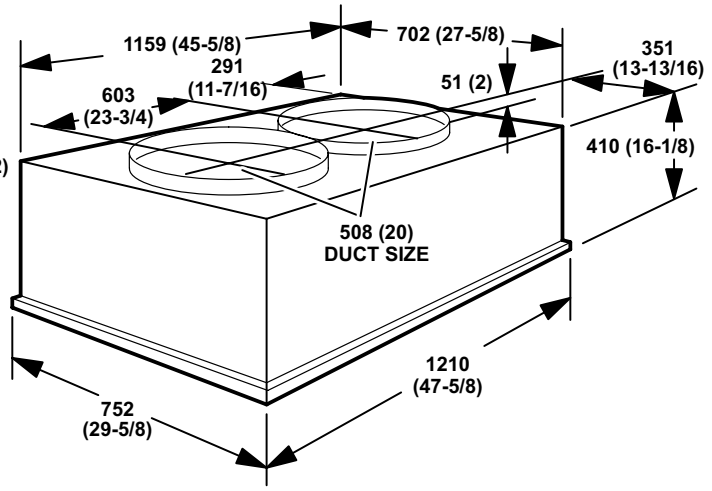
ACCESSORY DIMENSIONS - MM (INCHES)

COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

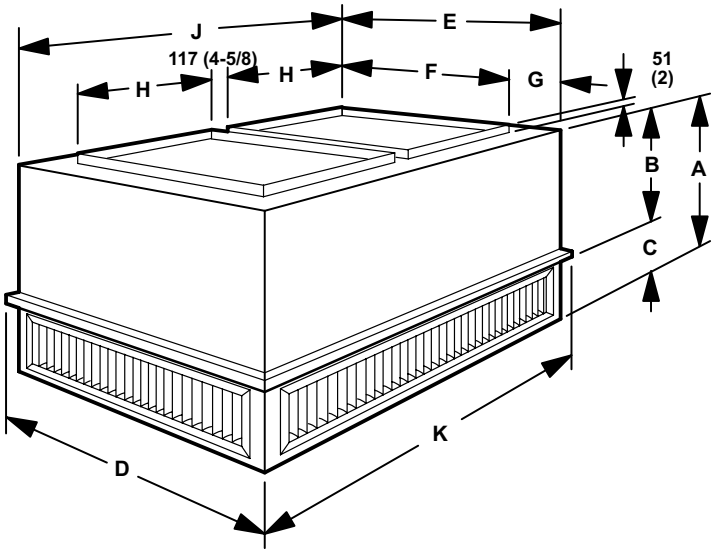
RTD11-95 STEP-DOWN CEILING DIFFUSER



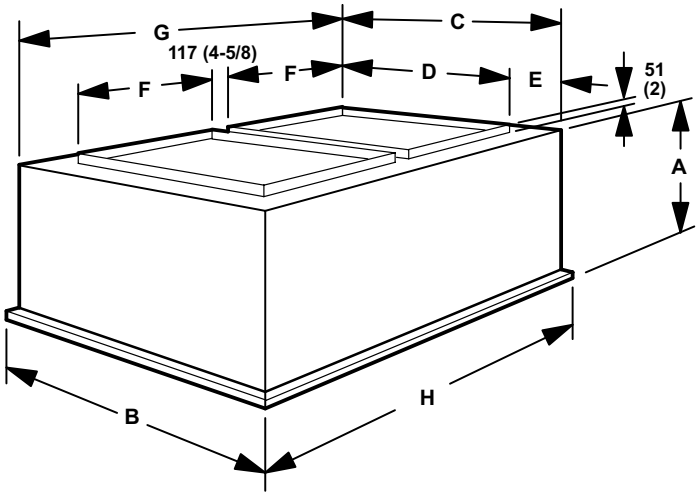
FD11-95 FLUSH CEILING DIFFUSER



RTD11-135 & RTD11-185 STEP-DOWN CEILING DIFFUSER



FD11-135 & FD11-185 FLUSH CEILING DIFFUSER



Model Number	A		B		C		D		E	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
RTD11-135	711	28	479	18-7/8	232	9-1/8	905	35-5/8	854	33-5/8
RTD11-185	864	34	606	23-7/8	257	10-1/8	1210	47-5/8	1159	45-5/8

Model Number	F		G		H		J		K	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
RTD11-135	711	28	71	2-13/16	457	18	1159	45-5/8	1210	47-5/8
RTD11-185	914	36	122	4-13/16	457	18	1159	45-5/8	1210	47-5/8

Model Number	A		B		C		D	
	mm	inch	mm	inch	mm	inch	mm	inch
FD11-135	613	24-1/8	905	35-5/8	854	33-5/8	711	28
FD11-185	613	30-1/8	1210	47-5/8	1159	45-5/8	914	36

Model Number	E		F		G		H	
	mm	inch	mm	inch	mm	inch	mm	inch
FD11-135	71	2-13/16	457	18	1159	45-5/8	1210	47-5/8
FD11-185	122	4-13/16	457	18	1159	45-5/8	1210	47-5/8

LENNOX®

COMMERCIAL COMFORT SYSTEMS

- Lennox Industries Inc.
- 2100 Lake Park Boulevard
- Richardson , Texas, U.S. A. 75080-2254
- Phone 972-497-5000
- Visit us at www.lennox.com