TC

T-CLASS™ ROOFTOP UNITS
60 HZ

ENGINEERING DATA

Bulletin No. 210395
July 2008
Supersedes August 2007

L Connection NETWORK

ASHRAE 90.1 COMPLIANT

ENERGY STAR

7.5 to 12 Tons
Net Cooling Capacity - 90,000 - 140,000 Btuh
Optional Electric Heat - 7.5 to 60 kW

MODEL NUMBER IDENTIFICATION

T C A 090 H 2 B N 1 Y

Brand/Family
T = T-Class™ Product Line

Unit Type
C = Packaged Cooling

Major Design Sequence
A = 1st Generation
B = 2nd Generation
C = 3rd Generation
E = 4th Generation

Nominal Cooling Capacity - Tons
090 = 7.5 Tons
102 = 8.5 Tons
120 = 10 Tons
150 = 12.5 Tons

Cooling Efficiency
S = Standard Efficiency
H = High Efficiency

Refrigerant Type
2 = R-22

Blower Type
B = Belt Drive

Factory Installed Electric Heat
N = None
C = 7.5 kW
E = 15 kW
G = 22.5 kW
J = 30 kW
K = 45 kW
L = 60 kW

Minor Design Sequence
1 = 1st Revision
2 = 2nd Revision
3 = 3rd Revision

Voltage
Y = 208/230V-3 phase-60hz
G = 460V-3 phase-60hz
J = 575V-3 phase-60hz

FEATURES AND BENEFITS

CONTENTS

APPROVALS

ETL and CSA listed. Components bonded for grounding to meet safety standards for servicing required by UL, CSA and National and Canadian Electrical Codes. Gas efficiency ratings verified by CSA. Cooling performance certified in accordance with the ULE certification program, which is based on ARI Standard 340/360-2000.

ENERGY STAR® certified units are designed to use less energy, help save money on utility bills, and help protect the environment.

The ENERGY STAR® Partner of the Year Award signifies that Lennox has made outstanding contributions to design energy efficient units that will lower energy bills, while meeting industry standards for comfort and indoor air quality. Lennox was the first HVAC manufacturer to win this award and has been a four-time recipient since 2003.

ISO 9001 Registered Manufacturing Quality System.

WARRANTY

Limited five years on compressors. Limited one year all other covered components.

COOLING SYSTEM

Designed to maximize sensible and latent cooling performance at design conditions. Two efficiency levels provide flexibility. System can operate from 30°F to 125°F without any additional controls.

1 Compressors

Resiliently mounted on rubber grommets for quiet operation.

Scroll compressors on all models for high performance, reliability and quiet operation.

2 Thermal Expansion Valves

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

3 Filter/Driers

High capacity filter/driers protect the system from dirt and moisture.

Freezestats

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

4 Coil Construction

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

Evaporator 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.

Outdoor Coil Fan Motors

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

Outdoor Coil Fan

PVC coated fan guard furnished.

REQUIRED SELECTIONS

Cooling Capacity

Specify the nominal cooling capacity of the unit.

Cooling Efficiency

Specify either standard or high efficiency.

OPTIONS/ACCESSORIES

Field Installed

Condensate Drain Trap

Available in copper or PVC.

Compressor Crankcase Heaters

Protects against refrigerant migration that can occur during low ambient operation.

High Pressure Switches

Protects the compressor from overload conditions such as dirty condenser coils, blocked refrigerant flow, or loss of outdoor fan operation. Manual reset.

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 0°F.

5 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. Belt drive motors that meet EPACT efficiency requirements maximize air performance and save energy. Special order high and low static motors provide a higher level of air performance for demanding applications.

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.

REQUIRED SELECTIONS

Supply Air Blower

Specify Blower motor and drive kit (See Blower Data Table for specifications).

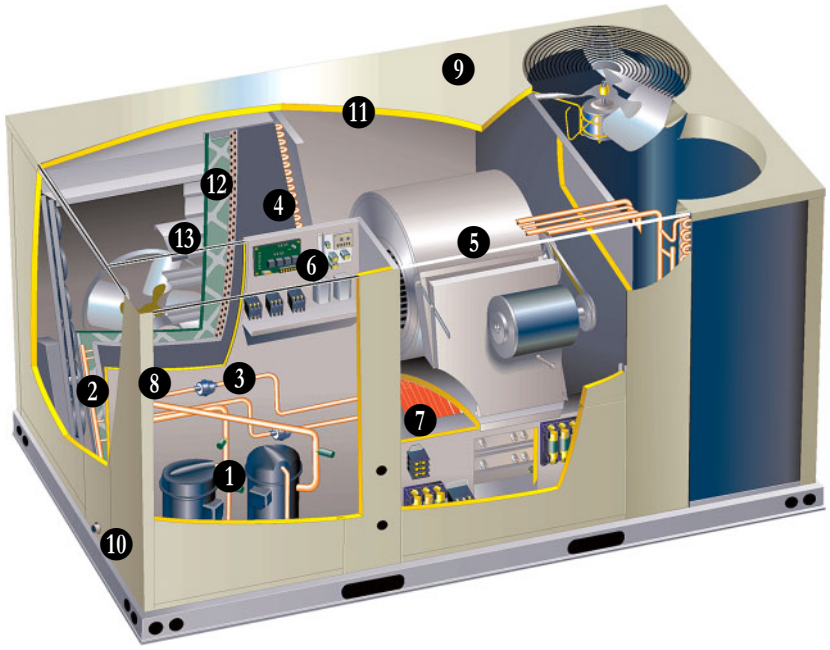
OPTIONS/ACCESSORIES

Factory Installed

High and Low Static Supply Fan

Extends air flow external static range.

FEATURES AND BENEFITS



CONTROLS

6 Unit Controller

Microprocessor-based control board 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 compatible thermostat.

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

OPTIONS/ACCESSORIES

Field Installed

Blower Proving Switch

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

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

Commercial Control Systems

L Connection® Network

Complete building automation control system for single or multi-zone applications. Options include local interface, software for local or remote communication, and hardware for networking other control functions. See L Connection Network Engineering Handbook Bulletin for details.

Thermostats

Control system and thermostat options. Aftermarket unit controller options. See See Page 25.

ELECTRICAL

REQUIRED SELECTIONS

Voltage Choice

Specify 208/230V, 460V or 575V 3-phase-60hz when ordering base unit.

OPTIONS/ACCESSORIES

Factory or Field Installed

7 Electric Heat

Helix wound nichrome elements, individual element limit controls, wiring harness. Unit Fuse Block must be ordered extra. See Electrical/Electric Heat tables for ordering information, Pages 17-23.

GFI Service Outlets (2)

115v ground fault circuit interrupter (GFCI) type, field wired.

Field Installed

8 Circuit Breakers up to 175 Amp

HACR circuit breaker without power distribution lugs. Accessible from outside of unit, spring-loaded weatherproof cover furnished. Main power to the unit is field connected to the circuit breaker which allows all power to be shutoff for service. Circuit breaker is sized to the unit maximum overcurrent protection (MOCP) size.

Disconnect Switch up to 250 Amp

Accessible from outside of unit, spring loaded weatherproof cover furnished. Main power to the unit is field connected to the disconnect which allows all power to be shut off for service.

CABINET

9 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.

10 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.

FEATURES AND BENEFITS

CABINET - CONTINUED

⓫ 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 (vertical).

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, ASTM B117 Standard Method Salt Spray Testing, ASTM 1153 Standard Specification for Methyl Isobutyl Ketone.

Hinged Access Panels

Large access panels are hinged and have quarter-turn latches for quick and easy access to maintenance areas (economizer / filter, compressor / controls, heating / blower).

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 Return Air Panel Kit

Required for horizontal applications with Horizontal Roof Curb, contains panel with return air opening for field replacement of existing unit panel and panel to cover bottom return air opening in unit, see dimension drawings.

INDOOR AIR QUALITY

⓬ Air Filters

Disposable 2 inch filters furnished as standard.

OPTIONS/ACCESSORIES

Field Installed

Indoor Air Quality (CO_2) Sensor

Monitors CO_2 levels.

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.

Thermal Expansion Valves

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

Coil Cleaning

Independently formed condenser coils allow separation for easier cleaning.

Standard Components

A large number of common maintenance parts are standard throughout the entire range of sizes (7.5 - 12.5 tons), 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 ACCESSORIES

Factory or Field Installed

⓭ **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. Economizer modulates dampers to maintain a 55°F discharge air temperature.

Economizer Enthalpy Control

Senses outdoor air enthalpy and enables economizer if the enthalpy is less than the setpoint of the control.

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 Damper Section

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

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

Economizer and Outdoor Air Damper Application Note - Minimum mixed air temperature in heating mode 30°F

Maximum mixed air temperature in cooling mode: 90°F

Power Exhaust Fans

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 4200 cfm at 0 in. wg. 1/3 hp motor. 300 Watts total input.

See Power Exhaust Blower Tables.

Field Installed

Economizer Control

Sensible Temperature Control - Senses outdoor air temperature and enables the economizer if the temperature is less than the set point of the control. Order two kits for differential control.

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

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

Outdoor Air Hood

Required with Economizer, Outdoor Air Damper Sections, cleanable aluminum mesh fresh air filters furnished.

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 furnished.

CEILING DIFFUSERS

OPTIONS/ACCESSORIES

Field Installed

Ceiling Diffusers

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

OPTIONS/ACCESSORIES

Field Installed

Nailer strip furnished, mates to unit, US National Roofing Contractors Approved, shipped knocked down. Available in 8, 14, 18, and 24 inch heights.

Cliplock curbs use interlocking tabs to fasten together. No tools required.

Standard roof curb corners fasten together with furnished hardware.

OPTIONS / ACCESSORIES

Item		Catalog No.	090	102	120	150
COOLING SYSTEM						
Compressor Crankcase Heater	208/230V - TACHK10/15-Y	**76M34**	x	x	x	x
	460V - TACHK10/15-G	**76M35**	x	x	x	x
	575V - TACHK10/15-J	**76M36**	x	x	x	x
Condensate Drain Trap	PVC - LTACDKP09/36	**37K90**	x	x	x	x
	Copper - LTACDKC09/36	**48K14**	x	x	x	x
Corrosion Protection			○	○	○	○
Efficiency		Standard	○	○	○	○
		High	○	○	○	
High Pressure Switch	T1SNSR11B-2	**42W97**	x	x	x	x
Low Ambient Kit	T1SNSR12B-2	**42W98**	x	x	x	x
Refrigerant Type		**R-22**	○	○	○	○
BLOWER - SUPPLY AIR						
Constant Air Volume	2 hp Standard or High Efficiency		○	○	○	
	3 hp Standard Efficiency		○	○	○	○
	3 hp High Efficiency		○	○	○	○
	5 hp Standard or High Efficiency				○	○
CABINET						
Coil Guards	TACGKGC10/15	**69M44**	x	x	x	x
Hail Guards	TAHGKGC10/15	**69M45**	x	x	x	x
Hinged Access Panels			○	○	○	○
Horizontal Discharge Conversion Kit	LTHSDKGC10/15	**56K53**	x	x	x	x
CONTROLS						
Blower Proving Switch	C0SWCH01AE1-	**30K49**	x	x	x	x
Dirty Filter Switch	C0SWCH00AE1-	**30K48**	x	x	x	x
Smoke Detector - Supply	LTSASDK10/36	**70K87**	x	x	x	x
Smoke Detector - Return	LTARSDK10/30	**70K86**	x	x	x	x
ECONOMIZER						
Economizer						
Economizer - Order LAOAH Hood Separately	TAREMD10/15	**94M02**	⊗	⊗	⊗	⊗
Economizer Controls						
Differential Enthalpy (dual)	C1SNSR07AE	**86M33**	x	x	x	x
Sensible (order two kits for Differential)	TASEK10/15	**76M37**	⊗	⊗	⊗	⊗
Single Outdoor Enthalpy	C1SNSR06AE	**86M32**	x	x	x	x
Barometric Relief						
Down-Flow Barometric Relief Dampers - Order Hood Separately	LAGED10/15	**53K03**	⊗	⊗	⊗	⊗
Hood for Down-Flow LAGED	LAGEH09/15	**88K79**	x	x	x	x
Horizontal Barometric Relief Dampers Hood Furnished	LAGEDH03/15	**53K04**	x	x	x	x

NOTE - The catalog and part numbers that appear here are for ordering field installed accessories only.
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○ - Configure to Order (Factory Installed)
X - Field Installed.

OPTIONS / ACCESSORIES

Item		Catalog No.	090	102	120	150
ELECTRICAL						
Voltage 60 hz	208/230V - 3 phase		○	○	○	○
	460V - 3 phase		○	○	○	○
	575V - 3 phase		○	○	○	○
HACR Circuit Breakers	25 to 80 Amp size available		x	x	x	x
Disconnect Switch	See Electrical/Electric Heat Tables for selection		x	x	x	x
GFI Service Outlets	LTAGFIK10/15	**74M70**	⊗	⊗	⊗	⊗
ELECTRIC HEAT						
7.5 kW	EHA102-7.5 - 208/230V-3ph	**99J01**	⊗	⊗		
	460V-3ph	**99J02**	⊗	⊗		
	575V-3ph	**99J03**	⊗	⊗		
15 kW	EHA150-15 - 208/230V-3ph	**99J04**	⊗	⊗	⊗	⊗
	460V-3ph	**99J05**	⊗	⊗	⊗	⊗
	575V-3ph	**99J06**	⊗	⊗	⊗	⊗
22.5 kW	EHA360-22.5 - 208/230V-3ph	**99J28**	⊗	⊗	⊗	⊗
	460V-3ph	**99J29**	⊗	⊗	⊗	⊗
	575V-3ph	**99J30**	⊗	⊗	⊗	⊗
30 kW	EHA150-30 - 208/230V-3ph	**99J07**	⊗	⊗	⊗	⊗
	460V-3ph	**99J08**	⊗	⊗	⊗	⊗
	575V-3ph	**99J09**	⊗	⊗	⊗	⊗
45 kW	EHA150-45 - 208/230V-3ph	**99J10**	⊗	⊗	⊗	⊗
	460V-3ph	**99J11**	⊗	⊗	⊗	⊗
	575V-3ph	**99J12**	⊗	⊗	⊗	⊗
60 kW	EHA150-60 - 208/230V-3ph	**99J13**			⊗	⊗
	460V-3ph	**99J14**			⊗	⊗
	575V-3ph	**99J15**			⊗	⊗
ELECTRIC HEAT ACCESSORIES/OPTIONS - See Electrical/Electric Heat Tables for selection						
LTB2 Terminal Block	LTB2-175	**30K75**	⊗	⊗	⊗	⊗
	LTB2-335	**30K76**	⊗	⊗	⊗	⊗
[1] Electric Heat Control Module	TAEK10/15	**73M79**	⊗	⊗	⊗	⊗
Unit Fuse Block - See Electrical/Electric Heat Tables for selection			⊗	⊗	⊗	⊗
INDOOR AIR QUALITY						
Indoor Air Quality (CO_2) Sensors						
CO_2 Sensor Duct Mounting Kit	C0MISC19AE1-	**85L43**	x	x	x	x
Sensor - white case CO_2 display	C0SNSR50AS1L	**77N39**	x	x	x	x
Sensor - white case no display	C0SNSR52AS1L	**87N53**	x	x	x	x
Sensor - black case CO_2 display	C0SNSR51AS1L	**87N52**	x	x	x	x
Sensor - black case, no display	C0SNSR53AS1L	**87N54**	x	x	x	x
Aspiration Box for duct mounting	C0MISC16AE1-	**90N43**	x	x	x	x
Handheld CO_2 Monitor	LTAIAQSHM03/36	**70N93**	x	x	x	x

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[1] Required for all heat sizes.

OPTIONS / ACCESSORIES

Item		Catalog No.	090	102	120	150
OUTDOOR AIR						
Outdoor Air Dampers						
Damper Section - Order Hood Separately	Motorized - TAOADM10/15	**73M74**	⊗	⊗	⊗	⊗
	Manual - LAOAD10/15	**66K69**	⊗	⊗	⊗	⊗
Outdoor Air Hoods for Economizers and Outdoor Air Dampers						
Outdoor Air Hood (2 each) 16 x 25 x 1 in.	LAOAH10/15	**53K05**	⊗	⊗	⊗	⊗
POWER EXHAUST FANS						
Standard Static	208/230V - LAPEF10/15	**73M32**	⊗	⊗	⊗	⊗
	460V - LAPEF10/15	**73M33**	⊗	⊗	⊗	⊗
	575V - LAPEF10/15	**73M35**	⊗	⊗	⊗	⊗
CEILING DIFFUSERS						
Step-Down Order one	RTD11-95	**29G04**	**x**			
	RTD11-135	**29G05**		**x**	**x**	
	RTD11-185	**29G06**				**x**
	(Canada Only) RTD11-150/180S	**13K63**				**x**
Flush Order one	FD11-95	**29G08**	**x**			
	FD11-135	**29G09**		**x**	**x**	
	FD11-185	**29G10**				**x**
	(Canada Only) FD11-150/180S	**13K58**				**x**
Transitions (Supply and Return) Order one	LASRT10/12	**49K55**	**x**	**x**	**x**	
	LASRT15	**49K56**				**x**
ROOF CURBS - CLIPLOCK 1000						
Down-Flow						
8 in. height	C1CURB40B	**26W31**	**x**	**x**	**x**	**x**
14 in. height	LARMF10/15S-14	**65K34**	**x**	**x**	**x**	**x**
18 in. height	LARMF10/15S-18	**65K35**	**x**	**x**	**x**	**x**
24 in. height	LARMF10/15S-24	**65K36**	**x**	**x**	**x**	**x**
ROOF CURBS - STANDARD						
Down-Flow						
14 in. height	LARMF10/15-14	**53K50**	**x**	**x**	**x**	**x**
24 in. height	LARMF10/15-24	**49K54**	**x**	**x**	**x**	**x**

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SPECIFICATIONS - STANDARD EFFICIENCY COOLING

General Data		7.5 Ton	8.5 Ton	10 Ton	12.5 Ton
	Nominal Tonnage	7.5 Ton	8.5 Ton	10 Ton	12.5 Ton
	Model No.	TCA090S2B	TCA102S2B	TCA120S2B	TCA150S2B
	Efficiency Type	Standard	Standard	Standard	Standard
Cooling Performance	Gross Cooling Capacity - Btuh	93,000	104,000	126,000	145,000
	[1]Net Cooling Capacity - Btuh	90,000	101,000	120,000	140,000
	ARI Rated Airflow - cfm	3000	3400	3800	4250
	Total Unit Power	8.7	9.7	11.4	14.4
	[1] EER (Btuh/Watt)	10.4	10.4	10.4	9.7
	[2] Integrated Part Load Value (Btuh/Watt)	10.8	10.8	10.8	9.4
	Refrigerant Charge Furnished (R-22) Circuit 1	7 lbs. 0 oz.	7 lbs. 8 oz.	10 lbs. 0 oz.	13 lbs. 0 oz.
	Refrigerant Charge Furnished (R-22) Circuit 2	6 lbs. 8 oz.	7 lbs. 0 oz.	10 lbs. 0 oz.	12 lbs. 0 oz.
[3] Sound Rating Number (dB)		88	88	88	88
Compressor - Number & Type		(2) Scroll	(2) Scroll	(2) Scroll	(2) Scroll
Condenser Coil	Net face area - sq. ft.	29.3 total	29.3 total	29.3 total	29.3 total
	Tube diameter - in.	3/8	3/8	3/8	3/8
	Number of rows	1	1	2	3
	Fins per inch	20	20	20	20
Condenser Fans	Motor horsepower	(2) 1/3	(2) 1/3	(2) 1/3	(2) 1/2
	Motor rpm	1075	1075	1075	1075
	Total Motor watts	700	700	700	1150
	Diameter - in. - no. of blades	(2) 24 - 3	(2) 24 - 3	(2) 24 - 3	(2) 24 - 3
	Total air volume - cfm	8000	8000	8000	9000
Evaporator Coil	Net face area - sq. ft.	10.5 total	10.5 total	10.5 total	10.5 total
	Tube diameter - in.	3/8	3/8	3/8	3/8
	Number of rows	3	3	4	4
	Fins per inch	14	14	14	14
	Drain Connection - no. & size	(1) 1 in. NPT cplg	(1) 1 in. NPT cplg	(1) 1 in. NPT cplg	(1) 1 in. NPT cplg
	Expansion device type	Balanced Port Thermostatic Expansion Valve, removeable power head			
Standard Indoor Blower and Drive	[4] Belt Drive - Nominal motor output	2 hp	2 hp	3 hp	5 hp
	Maximum usable output (US Only)	2.3 hp	2.3 hp	3.45 hp	5.75 hp
	Drive kit	kit #1 680 - 925 rpm	kit #1 680 - 925 rpm	kit #3 895 - 1120 rpm	kit #6 1100 - 1395 rpm
	Wheel nominal diameter x width - in.	(1) 15 x 15	(1) 15 x 15	(1) 15 x 15	(1) 15 x 15
Filters	Type of filter	Disposable			
	Number and size - in.	(4) 18 x 24 x 2	(4) 18 x 24 x 2	(4) 18 x 24 x 2	(4) 18 x 24 x 2
Electrical characteristics		208/230V, 460V or 575V - 60 hertz - 3 phase			

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

[1] Certified in accordance with the ULE certification program, which is based on ARI Standard 340/360, 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator air; minimum external duct static pressure.

[2] Integrated Part Load Value rated at 80°F outdoor air temperature, 80°F db/67°F wb indoor air temperature.

[3] Sound Rating Number rated in accordance with test conditions included in ARI Standard 270.

[4] Maximum usable output of motors furnished by Lennox are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

SPECIFICATIONS - HIGH EFFICIENCY COOLING

General Data		Model No.	**TCA090H2B**	**TCA102H2B**	**TCA120H2B**
		Nominal Tonnage	**7.5 Ton**	**8.5 Ton**	**10 Ton**
Cooling Performance		Gross Cooling Capacity - Btuh	93,000	106,000	126,000
		[1]Net Cooling Capacity - Btuh	90,000	102,000	120,000
		ARI Rated Airflow - cfm	3000	3400	3800
		Total Unit Power	8.0	9.2	10.9
		[1] EER (Btuh/Watt)	11.0	11.0	11.0
		[2] Integrated Part Load Value (Btuh/Watt)	11.4	11.4	11.4
	Refrigerant Charge Furnished (R-22)	Circuit 1	8 lbs. 8 oz.	8 lbs. 8 oz.	10 lbs. 0 oz.
		Circuit 2	8 lbs. 8 oz.	8 lbs. 8 oz.	10 lbs. 0 oz.
[3] Sound Rating Number (dB)			88	88	88
Compressor - Number and Type			(2) Scroll	(2) Scroll	(2) Scroll
Condenser Coil		Net face area - sq. ft.	29.3 total	29.3 total	29.3 total
		Tube diameter - in.	3/8	3/8	3/8
		Number of rows	2	2	2
		Fins per inch	20	20	20
Condenser Fans		Motor horsepower	(2) 1/3	(2) 1/3	(2) 1/3
		Motor rpm	1075	1075	1075
		Total Motor watts	700	700	700
		Diameter - in. - no. of blades	(2) 24 - 3	(2) 24 - 3	(2) 24 - 3
		Total air volume - cfm	8000	8000	8000
Evaporator Coil		Net face area - sq. ft.	10.5 total	10.5 total	10.5 total
		Tube diameter - in.	3/8	3/8	3/8
		Number of rows	3	3	4
		Fins per inch	14	14	14
		Drain Connection - no. & size	(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		[4] Belt Drive - Nominal motor output	2 hp	2 hp	3 hp
		Maximum usable output (US Only)	2.3 hp	2.3 hp	3.45 hp
		Motor - Drive kit	kit #1 - 680 - 925 rpm	kit #1 - 680 - 925 rpm	kit #3 - 895 - 1120 rpm
		Wheel nominal diameter x width - in.	(1) 15 x 15	(1) 15 x 15	(1) 15 x 15
Filters		Type of filter	Disposable		
		Number and size - in.	(4) 18 x 24 x 2	(4) 18 x 24 x 2	(4) 18 x 24 x 2
Electrical characteristics			208/230V, 460V or 575V - 60 hertz - 3 phase		

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

[1] Certified in accordance with the ULE certification program, which is based on ARI Standard 340/360, 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator air; minimum external duct static pressure.

[2] Integrated Part Load Value rated at 80°F outdoor air temperature, 80°F db/67°F wb indoor air temperature.

[3] Sound Rating Number rated in accordance with test conditions included in ARI Standard 270.

[4] Maximum usable output of motors furnished by Lennox are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

COOLING RATINGS

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

7.5 TON STANDARD EFFICIENCY - COOLING CAPACITY - ONE COMPRESSOR OPERATING — TCA090S

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																					
			65°F (18°C)						75°F (24°C)						85°F (29°C)						95°F (35°C)					
			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		
	cfm	L/s	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	2400	1135	48.5	14.2	2.49	.63	.77	.91	47.0	13.8	2.77	.64	.78	.93	45.5	13.3	3.10	.64	.80	.95	43.9	12.9	3.47	.65	.81	.97
	3000	1415	50.3	14.7	2.53	.67	.85	.99	48.8	14.3	2.81	.68	.86	1.00	47.2	13.8	3.13	.70	.88	1.00	45.6	13.4	3.51	.71	.90	1.00
	3600	1700	51.8	15.2	2.55	.73	.92	1.00	50.3	14.7	2.84	.74	.94	1.00	48.6	14.2	3.17	.76	.96	1.00	46.9	13.7	3.54	.77	.97	1.00
67°F (19°C)	2400	1135	51.5	15.1	2.55	.50	.61	.73	50.0	14.7	2.83	.50	.61	.74	48.4	14.2	3.16	.51	.62	.76	46.6	13.7	3.53	.51	.63	.77
	3000	1415	53.2	15.6	2.58	.52	.65	.81	51.6	15.1	2.87	.53	.66	.83	49.8	14.6	3.20	.53	.67	.84	48.1	14.1	3.57	.54	.68	.87
	3600	1700	54.4	15.9	2.61	.54	.70	.88	52.7	15.4	2.90	.55	.72	.90	50.9	14.9	3.22	.56	.73	.92	49.1	14.4	3.60	.57	.75	.94
71°F (22°C)	2400	1135	54.8	16.1	2.62	.38	.48	.58	53.1	15.6	2.90	.38	.49	.59	51.4	15.1	3.23	.38	.49	.60	49.6	14.5	3.61	.38	.50	.61
	3000	1415	56.5	16.6	2.65	.39	.51	.63	54.8	16.1	2.94	.39	.51	.64	52.9	15.5	3.27	.39	.52	.65	51.0	14.9	3.65	.39	.53	.66
	3600	1700	57.7	16.9	2.68	.40	.53	.68	55.8	16.4	2.97	.40	.54	.69	53.9	15.8	3.30	.40	.55	.71	52.0	15.2	3.67	.41	.56	.73

7.5 TON STANDARD EFFICIENCY - COOLING CAPACITY - ALL COMPRESSORS OPERATING — TCA090S

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																					
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			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		
	cfm	L/s	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	2400	1135	88.0	25.8	6.29	.65	.79	.94	84.9	24.9	7.04	.65	.81	.96	81.7	23.9	7.92	.66	.83	.98	78.2	22.9	8.93	.67	.85	.99
	3000	1415	91.3	26.8	6.36	.69	.87	1.00	88.1	25.8	7.13	.71	.89	1.00	84.7	24.8	8.00	.72	.92	1.00	81.2	23.8	9.02	.75	.94	1.00
	3600	1700	94.0	27.5	6.43	.75	.94	1.00	90.7	26.6	7.18	.77	.96	1.00	87.4	25.6	8.07	.79	.98	1.00	83.9	24.6	9.10	.81	1.00	1.00
67°F (19°C)	2400	1135	93.5	27.4	6.41	.51	.62	.75	90.2	26.4	7.17	.51	.63	.77	86.7	25.4	8.06	.52	.64	.79	83.0	24.3	9.07	.53	.65	.81
	3000	1415	96.4	28.3	6.49	.53	.67	.83	93.0	27.3	7.25	.54	.68	.86	89.3	26.2	8.13	.55	.70	.88	85.4	25.0	9.16	.56	.72	.90
	3600	1700	98.5	28.9	6.54	.56	.73	.91	95.0	27.8	7.31	.57	.74	.93	91.2	26.7	8.19	.58	.76	.96	87.2	25.6	9.23	.59	.79	.98
71°F (22°C)	2400	1135	99.4	29.1	6.55	.39	.49	.60	95.9	28.1	7.33	.39	.50	.61	92.2	27.0	8.22	.39	.50	.62	88.3	25.9	9.25	.39	.51	.63
	3000	1415	102.3	30.0	6.63	.39	.52	.65	98.7	28.9	7.41	.40	.53	.66	94.7	27.8	8.30	.40	.54	.67	90.6	26.6	9.33	.40	.55	.69
	3600	1700	104.3	30.6	6.70	.40	.55	.70	100.6	29.5	7.46	.41	.56	.72	96.5	28.3	8.36	.41	.57	.74	92.1	27.0	9.39	.42	.58	.76

7.5 TON HIGH EFFICIENCY - COOLING CAPACITY - ONE COMPRESSOR OPERATING — TCA090H

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																					
			65°F (18°C)						75°F (24°C)						85°F (29°C)						95°F (35°C)					
			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		
	cfm	L/s	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	2400	1135	47.3	13.9	2.01	.71	.84	.95	45.9	13.5	2.29	.72	.85	.96	44.4	13.0	2.60	.72	.86	.98	42.8	12.5	2.95	.73	.87	.99
	3000	1415	49.1	14.4	2.02	.75	.90	1.00	47.7	14.0	2.30	.76	.91	1.00	46.1	13.5	2.61	.77	.93	1.00	44.5	13.0	2.95	.79	.94	1.00
	3600	1700	50.6	14.8	2.03	.80	.95	1.00	49.1	14.4	2.30	.81	.97	1.00	47.6	14.0	2.62	.83	.98	1.00	46.0	13.5	2.96	.84	.99	1.00
67°F (19°C)	2400	1135	50.4	14.8	2.03	.56	.68	.80	48.9	14.3	2.30	.56	.69	.81	47.3	13.9	2.61	.57	.70	.82	45.6	13.4	2.96	.57	.71	.84
	3000	1415	52.0	15.2	2.04	.58	.73	.87	50.4	14.8	2.32	.59	.74	.88	48.8	14.3	2.62	.60	.75	.89	47.0	13.8	2.97	.60	.77	.91
	3600	1700	53.3	15.6	2.05	.61	.78	.93	51.6	15.1	2.32	.62	.79	.94	49.9	14.6	2.63	.63	.80	.96	48.0	14.1	2.98	.64	.82	.97
71°F (22°C)	2400	1135	53.7	15.7	2.05	.42	.54	.66	52.1	15.3	2.32	.42	.54	.66	50.4	14.8	2.63	.43	.55	.67	48.7	14.3	2.98	.43	.55	.68
	3000	1415	55.4	16.2	2.06	.43	.57	.71	53.7	15.7	2.34	.43	.58	.72	51.9	15.2	2.64	.44	.58	.73	50.1	14.7	2.99	.44	.59	.74
	3600	1700	56.6	16.6	2.07	.44	.60	.76	54.8	16.1	2.34	.45	.61	.77	53.0	15.5	2.65	.45	.62	.78	51.0	14.9	3.00	.45	.63	.80

7.5 TON HIGH EFFICIENCY - COOLING CAPACITY - ALL COMPRESSORS OPERATING — TCA090H

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																					
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			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		
	cfm	L/s	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	2400	1135	87.7	25.7	5.46	.67	.82	.96	84.7	24.8	6.20	.68	.84	.98	81.5	23.9	7.03	.69	.85	.99	78.0	22.9	7.97	.71	.88	1.00
	3000	1415	91.2	26.7	5.49	.72	.90	1.00	88.0	25.8	6.21	.74	.92	1.00	84.7	24.8	7.05	.76	.94	1.00	81.2	23.8	7.99	.78	.96	1.00
	3600	1700	94.0	27.5	5.51	.78	.97	1.00	90.9	26.6	6.23	.80	.98	1.00	87.6	25.7	7.07	.82	.99	1.00	84.2	24.7	8.02	.84	1.00	1.00
67°F (19°C)	2400	1135	93.5	27.4	5.49	.53	.65	.78	90.2	26.4	6.23	.53	.66	.80	86.7	25.4	7.07	.54	.67	.82	83.0	24.3	8.02	.55	.68	.84
	3000	1415	96.5	28.3	5.52	.56	.70	.86	93.0	27.3	6.25	.56	.71	.88	89.5	26.2	7.09	.57	.73	.90	85.5	25.1	8.04	.58	.75	.93
	3600	1700	98.7	28.9	5.54	.59	.76	.93	95.1	27.9	6.27	.59	.77	.95	91.4	26.8	7.11	.61	.79	.97	87.4	25.6	8.05	.62	.82	.99
71°F (22°C)	2400	1135	99.7	29.2	5.53	.40	.51	.63	96.3	28.2	6.27	.40	.52	.64	92.6	27.1	7.11	.40	.52	.65	88.7	26.0	8.06	.41	.53	.66
	3000	1415	102.7	30.1	5.56	.41	.54	.68	99.1	29.0	6.30	.41	.55	.69	95.3	27.9	7.14	.41	.56	.70	91.2	26.7	8.08	.42	.57	.72
	3600	1700	104.9	30.7	5.58	.42	.57	.73	101.0	29.6	6.31	.42	.58	.75	97.1	28.5	7.15	.43	.59	.77	92.8	27.2	8.09	.43	.61	.79

COOLING RATINGS

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

8.5 TON STANDARD EFFICIENCY - COOLING CAPACITY - ONE COMPRESSOR OPERATING — TCA102S

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			65°F (18°C)						75°F (24°C)						85°F (29°C)						95°F (35°C)					
			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		
	cfm	L/s	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	2720	1285	51.6	15.1	2.71	.57	.73	.92	49.9	14.6	3.01	.58	.76	.94	48.2	14.1	3.35	.58	.78	.97	46.4	13.6	3.73	.59	.80	.99
	3400	1605	53.5	15.7	2.75	.61	.84	1.00	51.8	15.2	3.05	.63	.86	1.00	50.0	14.7	3.39	.65	.89	1.00	48.2	14.1	3.77	.67	.91	1.00
	4080	1925	55.1	16.1	2.78	.69	.93	1.00	53.3	15.6	3.08	.70	.95	1.00	51.5	15.1	3.42	.73	.98	1.00	49.7	14.6	3.81	.75	.99	1.00
67°F (19°C)	2720	1285	54.8	16.1	2.78	.45	.55	.69	53.0	15.5	3.07	.45	.56	.70	51.2	15.0	3.41	.46	.56	.72	49.2	14.4	3.80	.46	.57	.75
	3400	1605	56.5	16.6	2.81	.47	.59	.79	54.6	16.0	3.11	.48	.60	.81	52.7	15.4	3.45	.48	.62	.84	50.7	14.9	3.84	.49	.64	.87
	4080	1925	57.7	16.9	2.84	.49	.65	.89	55.8	16.4	3.14	.50	.67	.91	53.8	15.8	3.48	.51	.70	.94	51.7	15.2	3.87	.52	.72	.96
71°F (22°C)	2720	1285	58.3	17.1	2.85	.34	.43	.53	56.4	16.5	3.15	.34	.44	.54	54.5	16.0	3.49	.34	.44	.54	52.4	15.4	3.88	.34	.45	.55
	3400	1605	60.0	17.6	2.88	.35	.46	.57	58.0	17.0	3.18	.35	.46	.58	55.9	16.4	3.53	.35	.47	.59	53.8	15.8	3.92	.35	.48	.61
	4080	1925	61.1	17.9	2.91	.36	.49	.62	59.1	17.3	3.21	.36	.49	.64	57.0	16.7	3.55	.36	.50	.67	54.7	16.0	3.94	.36	.51	.69

8.5 TON STANDARD EFFICIENCY - COOLING CAPACITY - ALL COMPRESSORS OPERATING — TCA102S

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			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		
	cfm	L/s	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	2720	1285	98.8	29.0	6.86	.67	.83	.99	95.2	27.9	7.64	.68	.85	1.00	91.2	26.7	8.56	.69	.87	1.00	87.1	25.5	9.58	.71	.90	1.00
	3400	1605	102.5	30.0	6.94	.72	.92	1.00	98.8	29.0	7.73	.74	.94	1.00	94.7	27.8	8.64	.76	.97	1.00	90.4	26.5	9.68	.78	.99	1.00
	4080	1925	105.6	30.9	7.00	.78	.99	1.00	101.8	29.8	7.80	.81	1.00	1.00	97.9	28.7	8.72	.83	1.00	1.00	93.7	27.5	9.78	.86	1.00	1.00
67°F (19°C)	2720	1285	105.0	30.8	6.99	.52	.64	.78	101.0	29.6	7.78	.53	.66	.80	96.7	28.3	8.69	.54	.67	.83	92.2	27.0	9.74	.54	.68	.86
	3400	1605	108.1	31.7	7.06	.55	.70	.88	104.0	30.5	7.87	.56	.71	.90	99.6	29.2	8.78	.57	.73	.93	94.8	27.8	9.82	.58	.75	.96
	4080	1925	110.4	32.4	7.13	.58	.76	.96	106.1	31.1	7.92	.59	.78	.98	101.6	29.8	8.83	.60	.80	1.00	96.7	28.3	9.88	.61	.83	1.00
71°F (22°C)	2720	1285	111.7	32.7	7.15	.39	.51	.62	107.5	31.5	7.95	.39	.51	.63	103.1	30.2	8.87	.40	.52	.64	98.2	28.8	9.91	.40	.53	.66
	3400	1605	114.8	33.6	7.23	.40	.54	.67	110.4	32.4	8.03	.41	.55	.69	105.8	31.0	8.95	.41	.56	.70	100.6	29.5	9.99	.41	.57	.73
	4080	1925	117.0	34.3	7.28	.41	.57	.73	112.4	32.9	8.08	.42	.58	.75	107.5	31.5	9.00	.42	.59	.78	102.2	30.0	10.05	.43	.61	.81

8.5 TON HIGH EFFICIENCY - COOLING CAPACITY - ONE COMPRESSOR OPERATING — TCA102H

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			65°F (18°C)						75°F (24°C)						85°F (29°C)						95°F (35°C)					
			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		
	cfm	L/s	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	2720	1285	51.6	15.1	2.31	.64	.79	.94	50.1	14.7	2.61	.65	.81	.96	48.5	14.2	2.94	.66	.82	.97	46.8	13.7	3.33	.67	.84	.99
	3400	1605	53.5	15.7	2.34	.69	.88	1.00	51.9	15.2	2.63	.70	.89	1.00	50.2	14.7	2.97	.72	.91	1.00	48.5	14.2	3.35	.74	.93	1.00
	4080	1925	55.1	16.1	2.35	.75	.95	1.00	53.5	15.7	2.65	.76	.96	1.00	51.8	15.2	2.99	.78	.98	1.00	50.1	14.7	3.37	.80	.99	1.00
67°F (19°C)	2720	1285	54.8	16.1	2.35	.51	.62	.75	53.2	15.6	2.65	.51	.63	.77	51.4	15.1	2.98	.51	.64	.78	49.6	14.5	3.37	.52	.64	.80
	3400	1605	56.6	16.6	2.37	.53	.66	.84	54.8	16.1	2.67	.54	.68	.85	52.9	15.5	3.01	.54	.69	.87	51.0	14.9	3.38	.55	.71	.90
	4080	1925	57.8	16.9	2.39	.56	.72	.91	56.0	16.4	2.69	.56	.74	.93	54.1	15.9	3.02	.57	.75	.95	52.1	15.3	3.40	.58	.78	.97
71°F (22°C)	2720	1285	58.4	17.1	2.39	.38	.49	.60	56.6	16.6	2.69	.38	.49	.60	54.8	16.1	3.03	.38	.50	.61	52.8	15.5	3.41	.39	.50	.62
	3400	1605	60.1	17.6	2.41	.39	.52	.64	58.2	17.1	2.71	.39	.52	.65	56.3	16.5	3.05	.39	.53	.67	54.2	15.9	3.43	.40	.54	.68
	4080	1925	61.3	18.0	2.43	.40	.55	.70	59.3	17.4	2.73	.40	.55	.71	57.3	16.8	3.06	.41	.56	.73	55.2	16.2	3.44	.41	.57	.75

8.5 TON HIGH EFFICIENCY - COOLING CAPACITY - ALL COMPRESSORS OPERATING — TCA102H

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			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		
	cfm	L/s	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	2720	1285	100.7	29.5	6.39	.67	.82	.97	97.2	28.5	7.23	.68	.84	.99	93.4	27.4	8.18	.69	.86	1.00	89.4	26.2	9.27	.71	.89	1.00
	3400	1605	104.3	30.6	6.45	.72	.91	1.00	100.7	29.5	7.28	.74	.93	1.00	97.0	28.4	8.22	.76	.95	1.00	92.9	27.2	9.31	.78	.97	1.00
	4080	1925	107.5	31.5	6.49	.78	.97	1.00	104.0	30.5	7.32	.80	.99	1.00	100.2	29.4	8.27	.82	1.00	1.00	96.3	28.2	9.37	.85	1.00	1.00
67°F (19°C)	2720	1285	106.8	31.3	6.48	.53	.65	.78	103.1	30.2	7.31	.53	.66	.80	99.0	29.0	8.26	.54	.67	.82	94.6	27.7	9.35	.55	.69	.85
	3400	1605	110.0	32.2	6.53	.55	.70	.87	106.0	31.1	7.35	.56	.71	.89	101.9	29.9	8.31	.57	.73	.91	97.3	28.5	9.39	.58	.75	.94
	4080	1925	112.4	32.9	6.56	.58	.76	.95	108.3	31.7	7.39	.59	.78	.96	103.9	30.5	8.34	.60	.80	.98	99.2	29.1	9.43	.62	.83	1.00
71°F (22°C)	2720	1285	113.8	33.4	6.58	.39	.51	.63	109.7	32.1	7.41	.40	.52	.64	105.4	30.9	8.37	.40	.52	.65	100.8	29.5	9.44	.40	.53	.66
	3400	1605	116.9	34.3	6.62	.41	.54	.68	112.6	33.0	7.46	.41	.55	.69	108.1	31.7	8.41	.41	.56	.71	103.3	30.3	9.49	.42	.57	.73
	4080	1925	119.1	34.9	6.65	.42	.57	.73	114.7	33.6	7.48	.42	.58	.75	110.0	32.2	8.44	.43	.60	.78	105.1	30.8	9.52	.43	.61	.80

COOLING RATINGS

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

10 TON STANDARD EFFICIENCY - COOLING CAPACITY - ONE COMPRESSOR OPERATING — TCA120S

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil: 65°F (18°C)						75°F (24°C)						85°F (29°C)						95°F (35°C)					
			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		
	cfm	L/s	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	3200	1510	62.7	18.4	3.27	.65	.80	.95	61.2	17.9	3.58	.65	.81	.97	59.3	17.4	3.94	.66	.82	.98	57.2	16.8	4.35	.67	.85	1.00
	4000	1890	65.0	19.0	3.32	.70	.89	1.00	63.5	18.6	3.62	.71	.90	1.00	61.6	18.1	3.98	.72	.92	1.00	59.4	17.4	4.40	.74	.94	1.00
	4800	2265	67.0	19.6	3.35	.76	.96	1.00	65.5	19.2	3.66	.77	.98	1.00	63.6	18.6	4.01	.79	.99	1.00	61.5	18.0	4.44	.81	1.00	1.00
67°F (19°C)	3200	1510	66.4	19.5	3.34	.51	.62	.76	64.8	19.0	3.65	.51	.63	.77	62.8	18.4	4.01	.52	.64	.78	60.6	17.8	4.42	.52	.65	.80
	4000	1890	68.4	20.0	3.39	.54	.67	.85	66.8	19.6	3.68	.54	.68	.86	64.8	19.0	4.04	.55	.69	.88	62.4	18.3	4.46	.55	.71	.91
	4800	2265	69.9	20.5	3.41	.57	.74	.94	68.2	20.0	3.71	.57	.75	.95	66.1	19.4	4.07	.58	.77	.96	63.7	18.7	4.49	.59	.79	.98
71°F (22°C)	3200	1510	70.5	20.7	3.43	.38	.49	.60	68.9	20.2	3.72	.38	.50	.61	66.8	19.6	4.08	.38	.50	.61	64.5	18.9	4.50	.39	.51	.63
	4000	1890	72.4	21.2	3.47	.39	.52	.65	70.8	20.7	3.76	.39	.53	.66	68.7	20.1	4.12	.40	.53	.67	66.2	19.4	4.53	.40	.54	.68
	4800	2265	73.7	21.6	3.49	.40	.56	.71	72.0	21.1	3.79	.41	.56	.73	69.8	20.5	4.14	.41	.57	.74	67.4	19.8	4.56	.41	.58	.76

10 TON STANDARD EFFICIENCY - COOLING CAPACITY - ALL COMPRESSORS OPERATING — TCA120S

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil: 85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			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		
	cfm	L/s	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	3200	1510	120.4	35.3	8.29	.68	.83	.98	116.1	34.0	9.16	.69	.85	.99	111.5	32.7	10.16	.70	.87	1.00	106.7	31.3	11.28	.71	.89	1.00
	4000	1890	125.1	36.7	8.37	.73	.92	1.00	120.6	35.3	9.26	.75	.94	1.00	115.8	33.9	10.25	.77	.96	1.00	111.1	32.6	11.40	.79	.98	1.00
	4800	2265	129.0	37.8	8.44	.80	.99	1.00	124.7	36.5	9.33	.81	1.00	1.00	120.1	35.2	10.35	.84	1.00	1.00	115.5	33.8	11.50	.86	1.00	1.00
67°F (19°C)	3200	1510	127.6	37.4	8.43	.53	.65	.79	123.1	36.1	9.31	.54	.66	.81	118.2	34.6	10.31	.54	.68	.83	113.0	33.1	11.45	.55	.69	.85
	4000	1890	131.6	38.6	8.50	.56	.71	.88	126.8	37.2	9.38	.57	.72	.90	121.7	35.7	10.39	.58	.74	.92	116.3	34.1	11.55	.59	.76	.95
	4800	2265	134.4	39.4	8.56	.59	.77	.96	129.5	38.0	9.45	.60	.79	.98	124.2	36.4	10.45	.61	.81	.99	118.8	34.8	11.61	.63	.84	1.00
71°F (22°C)	3200	1510	135.7	39.8	8.58	.40	.51	.63	131.0	38.4	9.47	.40	.52	.64	125.8	36.9	10.48	.40	.53	.65	120.4	35.3	11.64	.40	.54	.67
	4000	1890	139.6	40.9	8.67	.41	.55	.69	134.6	39.4	9.54	.41	.56	.70	129.1	37.8	10.57	.42	.57	.72	123.5	36.2	11.72	.42	.58	.74
	4800	2265	142.0	41.6	8.71	.42	.58	.75	137.0	40.2	9.60	.42	.59	.77	131.3	38.5	10.62	.43	.61	.79	125.5	36.8	11.77	.44	.62	.81

10 TON HIGH EFFICIENCY - COOLING CAPACITY - ONE COMPRESSOR OPERATING — TCA120H

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil: 65°F (18°C)						75°F (24°C)						85°F (29°C)						95°F (35°C)					
			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		
	cfm	L/s	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	3200	1510	64.1	18.8	2.90	.64	.79	.94	62.3	18.3	3.25	.65	.80	.96	60.3	17.7	3.66	.66	.82	.97	58.1	17.0	4.12	.67	.84	.99
	4000	1890	66.7	19.5	2.92	.69	.87	1.00	64.7	19.0	3.27	.70	.89	1.00	62.6	18.3	3.68	.72	.91	1.00	60.3	17.7	4.15	.73	.93	1.00
	4800	2265	68.7	20.1	2.94	.75	.95	1.00	66.7	19.5	3.29	.77	.97	1.00	64.6	18.9	3.70	.78	.98	1.00	62.3	18.3	4.17	.80	1.00	1.00
67°F (19°C)	3200	1510	68.1	20.0	2.93	.50	.62	.75	66.1	19.4	3.28	.51	.62	.76	63.8	18.7	3.70	.51	.63	.78	61.5	18.0	4.16	.52	.64	.80
	4000	1890	70.3	20.6	2.95	.53	.66	.83	68.2	20.0	3.31	.54	.67	.85	65.9	19.3	3.71	.54	.69	.87	63.4	18.6	4.19	.55	.71	.90
	4800	2265	71.9	21.1	2.97	.56	.73	.92	69.7	20.4	3.32	.57	.74	.94	67.3	19.7	3.73	.57	.76	.96	64.8	19.0	4.20	.58	.78	.98
71°F (22°C)	3200	1510	72.5	21.2	2.97	.38	.49	.59	70.3	20.6	3.32	.38	.49	.60	68.0	19.9	3.74	.38	.50	.61	65.5	19.2	4.21	.39	.50	.62
	4000	1890	74.7	21.9	2.99	.39	.52	.64	72.4	21.2	3.35	.39	.52	.65	69.9	20.5	3.76	.40	.53	.67	67.3	19.7	4.23	.40	.54	.68
	4800	2265	76.1	22.3	3.01	.40	.55	.70	73.8	21.6	3.36	.40	.56	.71	71.2	20.9	3.78	.41	.57	.73	68.5	20.1	4.25	.41	.58	.75

10 TON HIGH EFFICIENCY - COOLING CAPACITY - ALL COMPRESSORS OPERATING — TCA120H

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil: 85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			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		
	cfm	L/s	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	3200	1510	120.5	35.3	7.39	.67	.82	.97	116.1	34.0	8.34	.68	.84	.98	111.6	32.7	9.42	.69	.86	1.00	106.8	31.3	10.66	.70	.88	1.00
	4000	1890	125.1	36.7	7.44	.72	.91	1.00	120.6	35.3	8.39	.74	.93	1.00	115.9	34.0	9.48	.76	.95	1.00	111.0	32.5	10.72	.78	.97	1.00
	4800	2265	129.0	37.8	7.48	.79	.98	1.00	124.5	36.5	8.43	.81	.99	1.00	120.0	35.2	9.53	.83	1.00	1.00	115.3	33.8	10.78	.85	1.00	1.00
67°F (19°C)	3200	1510	127.6	37.4	7.47	.52	.65	.78	123.0	36.0	8.42	.53	.66	.80	118.2	34.6	9.51	.54	.67	.82	113.0	33.1	10.74	.54	.68	.84
	4000	1890	131.7	38.6	7.51	.55	.70	.87	126.8	37.2	8.47	.56	.71	.89	121.7	35.7	9.56	.57	.73	.92	116.3	34.1	10.80	.58	.75	.94
	4800	2265	134.6	39.4	7.54	.59	.76	.95	129.6	38.0	8.50	.60	.78	.97	124.2	36.4	9.60	.61	.80	.99	118.7	34.8	10.85	.62	.83	1.00
71°F (22°C)	3200	1510	135.9	39.8	7.56	.39	.51	.62	131.0	38.4	8.51	.40	.52	.63	125.8	36.9	9.61	.40	.52	.65	120.3	35.3	10.84	.40	.53	.66
	4000	1890	139.7	40.9	7.60	.41	.54	.68	134.6	39.4	8.56	.41	.55	.69	129.1	37.8	9.66	.41	.56	.71	123.3	36.1	10.91	.42	.57	.73
	4800	2265	142.4	41.7	7.64	.42	.58	.74	137.0	40.2	8.59	.42	.59	.76	131.3	38.5	9.70	.43	.60	.78	125.4	36.8	10.93	.43	.61	.81

COOLING RATINGS

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

12.5 TON STANDARD EFFICIENCY - COOLING CAPACITY - ONE COMPRESSOR OPERATING — TCA150S

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil: 65°F (18°C)						75°F (24°C)						85°F (29°C)						95°F (35°C)					
			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		
	cfm	L/s	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	3800	1795	71.7	21.0	3.91	.60	.76	.92	69.5	20.4	4.40	.61	.77	.94	67.3	19.7	4.93	.61	.79	.95	65.0	19.0	5.51	.63	.81	.97
	4400	2075	73.5	21.5	3.93	.63	.81	.98	71.2	20.9	4.44	.64	.83	.99	68.9	20.2	4.97	.66	.85	1.00	66.6	19.5	5.55	.67	.87	1.00
	5000	2360	75.1	22.0	3.96	.67	.87	1.00	72.8	21.3	4.46	.68	.89	1.00	70.4	20.6	4.99	.70	.91	1.00	68.0	19.9	5.58	.71	.93	1.00
67°F (19°C)	3800	1795	76.1	22.3	3.97	.47	.58	.71	73.7	21.6	4.47	.48	.58	.73	71.3	20.9	5.01	.48	.59	.74	68.8	20.2	5.59	.49	.60	.76
	4400	2075	77.8	22.8	3.99	.49	.60	.77	75.3	22.1	4.50	.49	.61	.79	72.8	21.3	5.04	.50	.63	.81	70.2	20.6	5.63	.50	.64	.83
	5000	2360	79.1	23.2	4.01	.50	.64	.82	76.6	22.4	4.52	.51	.65	.84	74.0	21.7	5.06	.51	.67	.87	71.3	20.9	5.66	.52	.69	.89
71°F (22°C)	3800	1795	81.0	23.7	4.04	.36	.46	.56	78.5	23.0	4.56	.36	.46	.56	75.9	22.2	5.10	.36	.47	.57	73.2	21.5	5.69	.36	.47	.58
	4400	2075	82.7	24.2	4.06	.36	.47	.58	80.0	23.4	4.58	.37	.48	.59	77.3	22.7	5.13	.37	.48	.60	74.5	21.8	5.73	.37	.49	.61
	5000	2360	84.0	24.6	4.08	.37	.49	.61	81.2	23.8	4.60	.37	.50	.63	78.5	23.0	5.15	.37	.50	.64	75.6	22.2	5.76	.38	.51	.66

12.5 TON STANDARD EFFICIENCY - COOLING CAPACITY - ALL COMPRESSORS OPERATING — TCA150S

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil: 85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			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		
	cfm	L/s	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	3800	1795	139.4	40.9	9.95	.66	.81	.95	134.8	39.5	11.12	.67	.83	.97	129.7	38.0	12.43	.68	.85	.99	124.3	36.4	13.92	.70	.87	1.00
	4400	2075	142.8	41.9	10.02	.70	.87	.99	138.1	40.5	11.20	.71	.88	1.00	132.9	38.9	12.51	.72	.90	1.00	127.5	37.4	13.99	.74	.93	1.00
	5000	2360	145.9	42.8	10.08	.73	.91	1.00	141.0	41.3	11.26	.75	.93	1.00	135.9	39.8	12.58	.77	.95	1.00	130.2	38.2	14.07	.79	.97	1.00
67°F (19°C)	3800	1795	147.8	43.3	10.11	.52	.64	.77	142.7	41.8	11.29	.53	.65	.79	137.3	40.2	12.62	.53	.66	.81	131.5	38.5	14.12	.54	.67	.83
	4400	2075	150.9	44.2	10.17	.54	.67	.83	145.7	42.7	11.36	.55	.68	.85	140.0	41.0	12.69	.55	.70	.87	134.0	39.3	14.20	.56	.72	.89
	5000	2360	153.4	45.0	10.22	.56	.71	.88	148.0	43.4	11.42	.56	.72	.90	142.3	41.7	12.75	.57	.74	.92	136.2	39.9	14.24	.58	.76	.94
71°F (22°C)	3800	1795	157.3	46.1	10.29	.39	.51	.62	151.9	44.5	11.49	.40	.51	.63	146.1	42.8	12.84	.40	.52	.64	139.9	41.0	14.35	.40	.53	.65
	4400	2075	160.3	47.0	10.36	.40	.53	.65	154.6	45.3	11.56	.40	.53	.66	148.7	43.6	12.90	.40	.54	.67	142.3	41.7	14.42	.41	.55	.69
	5000	2360	162.7	47.7	10.40	.41	.55	.68	156.9	46.0	11.62	.41	.55	.70	150.7	44.2	12.96	.41	.56	.72	144.2	42.3	14.47	.42	.57	.74

OUTDOOR SOUND DATA

Unit Model No.	Octave Band Sound Power Levels dBA, re 10^{-12} Watts Center Frequency - HZ							[1]Sound Rating Number (dB)
	125	250	500	1000	2000	4000	8000	
090, 102, and 120S	76	79	84	83	79	73	66	88
120H and 150	77	80	85	84	79	74	66	88

Note - The octave sound power data does not include tonal corrections.
[1] Tested according to ARI Standard 270-95 test conditions.

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 below for wet coil and option/accessory air resistance data.

MINIMUM AIR VOLUME REQUIRED FOR USE WITH OPTIONAL ELECTRIC HEAT

3000 cfm minimum air with electric heat for TCA090/102 models.
4000 cfm minimum air with electric heat for TCA120/150 models.

BOLD INDICATES FIELD FURNISHED DRIVE.

Air Volume cfm	.20		.40		.60		.80		1.00		1.20		1.40		1.60		1.80		2.00		2.20		2.40		2.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
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
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
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
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
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
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
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
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
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
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
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
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	---	---	---	---
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	---	---	---	---	---	---
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	---	---	---	---	---	---	---	---
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	---	---	---	---	---	---	---	---	---	---
6000	885	3.35	940	3.70	995	4.10	1045	4.45	1095	4.85	1145	5.25	1190	5.65	---	---	---	---	---	---	---	---	---	---	---	---

FACTORY INSTALLED DRIVE KIT SPECIFICATIONS

Motor Outputs		RPM Range				
Nominal hp	Maximum hp	Drive 1	Drive 3	Drive 4	Drive 5	Drive 6
2	2.3	680 - 925	895 - 1120	- - -	- - -	- - -
3	3.45	680 - 925	895 - 1120	- - -	1110 - 1395	- - -
5	5.75	- - -	- - -	895 - 1120	- - -	1110 - 1395

NOTE - Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors is shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

OPTIONS / ACCESSORY AIR RESISTANCE - in. w.g.

Air Volume cfm	Wet Indoor Coil		Electric Heat	Economizer
	090, 102	120S, 120H,150S		
2250	.06	.10	.01	.035
2500	.08	.12	.01	.04
2750	.09	.14	.01	.045
3000	.10	.16	.02	.05
3250	.11	.19	.02	.06
3500	.13	.21	.03	.07
3750	.14	.23	.03	.075
4000	.16	.26	.04	.08
4250	.17	.28	.04	.09
4500	.18	.31	.05	.10
4750	.20	.33	.05	.11
5000	.22	.36	.06	.12
5250	.24	.39	.06	.13
5500	.26	.42	.07	.14
5750	.28	.45	.07	.15
6000	.30	.48	.08	.16

BLOWER DATA

AIR RESISTANCE - CEILING DIFFUSERS - in. w.g.

Unit Size	Air Volume - cfm	RTD11 Step-Down Diffuser			FD11 Flush Diffuser
		2 Ends Open	1 Side, 2 Ends Open	All Ends & Sides Open	
090 Models	2400	0.21	0.18	0.15	0.14
	2600	0.24	0.21	0.18	0.17
	2800	0.27	0.24	0.21	0.20
	3000	0.32	0.29	0.25	0.25
	3200	0.41	0.37	0.32	0.31
	3400	0.50	0.45	0.39	0.37
	3600	0.61	0.54	0.48	0.44
	3800	0.73	0.63	0.57	0.51
102 & 120 Models	3600	0.36	0.28	0.23	0.15
	3800	0.40	0.32	0.26	0.18
	4000	0.44	0.36	0.29	0.21
	4200	0.49	0.40	0.33	0.24
	4400	0.54	0.44	0.37	0.27
	4600	0.60	0.49	0.42	0.31
	4800	0.65	0.53	0.46	0.35
	5000	0.69	0.58	0.50	0.39
	5200	0.75	0.62	0.54	0.43
150 Models	4200	0.22	0.19	0.16	0.10
	4400	0.28	0.24	0.20	0.12
	4600	0.34	0.29	0.24	0.15
	4800	0.40	0.34	0.29	0.19
	5000	0.46	0.39	0.34	0.23
	5200	0.52	0.44	0.39	0.27
	5400	0.58	0.49	0.43	0.31
	5600	0.64	0.54	0.47	0.35
	5800	0.70	0.59	0.51	0.39

CEILING DIFFUSER AIR THROW DATA - feet

Model No.	Air Volume	[1]Effective Throw Range	
		RTD11 Step-Down	FD11 Flush
090	2600	24 - 29	19 - 24
	2800	25 - 30	20 - 28
	3000	27 - 33	21 - 29
	3200	28 - 35	22 - 29
	3400	30 - 37	22 - 30
102 120	3600	25 - 33	22 - 29
	3800	27 - 35	22 - 30
	4000	29 - 37	24 - 33
	4200	32 - 40	26 - 35
	4400	34 - 42	28 - 37
150	5600	39 - 49	28 - 37
	5800	42 - 51	29 - 38
	6000	44 - 54	40 - 50
	6200	45 - 55	42 - 51
	6400	46 - 55	43 - 52
	6600	47 - 56	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 50 ft. per minute. Four sides open.

POWER EXHAUST FANS PERFORMANCE

Return Air System Static Pressure - in.w.g.	Air Volume Exhausted - cfm
0	4200
0.05	3970
0.10	3750
0.15	3520
0.20	3300
0.25	3080
0.30	2860
0.35	2640

ELECTRIC HEAT CAPACITIES

Volts Input	7.5 kW			15 kW			22.5 kW			30 kW			45 kW			60 kW		
	kW Input	Btuh Output	No. of Steps	kW Input	Btuh Output	No. of Steps	kW Input	Btuh Output	No. of Steps	kW Input	Btuh Output	No. of Steps	kW Input	Btuh Output	No. of Steps	kW Input	Btuh Output	No. of Steps
208	5.6	19,100	1	11.3	38,600	1	16.9	57,700	2	22.5	76,800	1	33.8	115,300	2	45.0	153,600	2
220	6.3	21,500	1	12.6	43,000	1	18.9	64,500	2	25.2	86,000	1	37.8	129,000	2	50.4	172,000	2
230	6.9	23,600	1	13.8	47,100	1	20.7	70,700	2	27.5	93,900	1	41.3	141,000	2	55.1	188,000	2
240	7.5	25,600	1	15.0	51,200	1	22.5	76,800	2	30.0	102,400	1	45.0	153,600	2	60.0	204,800	2
440	6.9	21,500	1	12.6	43,000	1	18.9	64,500	2	25.2	86,000	1	37.8	129,000	2	50.4	172,000	2
460	6.9	23,600	1	13.8	47,100	1	20.7	70,700	2	27.5	93,900	1	41.3	141,000	2	55.1	188,000	2
480	7.5	25,600	1	15.0	51,200	1	22.5	76,800	2	30.0	102,400	1	45.0	153,600	2	60.0	204,800	2
550	6.3	21,500	1	12.6	43,000	1	18.9	64,500	2	25.2	86,000	1	37.8	129,000	2	50.4	172,000	2
575	6.9	23,600	1	13.8	47,100	1	20.7	70,700	2	27.5	93,900	1	41.3	141,000	2	55.1	188,000	2
600	7.5	25,600	1	15.0	51,200	1	22.5	76,800	2	30.0	102,400	1	45.0	153,600	2	60.0	204,800	2

ELECTRICAL / ELECTRIC HEAT DATA

7.5 TON STANDARD EFFICIENCY — TCA090S

Model No.			TCA090S					
Line voltage data - 60 Hz - 3 phase			208/230V		460V		575V	
Compressors (2)	Rated load amps - each (total)		12.8 (25.6)		6.4 (12.8)		5.1 (10.2)	
	Locked rotor amps - each (total)		91 (182)		46 (92)		37 (74)	
Condenser Fan Motors (2)	Full load amps - each (total)		2.4 (4.8)		1.3 (2.6)		1.0 (2.0)	
	Locked rotor amps - each (total)		4.7 (9.4)		2.4 (4.8)		1.9 (3.8)	
Optional Power Exhaust Fan	(Number) Horsepower		(1) 1/3		(1) 1/3		(1) 1/3	
	Full load amps		2.4		1.3		1.0	
	Locked rotor amps		4.7		2.4		1.9	
Service Outlet (2) 115 volt GFCI (amp rating)			15		15		15	
Evaporator Blower Motor	Horsepower		**2**	**3**	**2**	**3**	**2**	**3**
	Full load amps		7.5	10.6	3.4	4.8	2.7	3.9
	Locked rotor amps		46.9	66	20.4	26.8	16.2	23.4
[1] Maximum Overcurrent Protection (amps)	Unit Only		50	50	25	25	20	20
	With Exhaust Fan and Electric Heat	**0 kW**	50	50	25	25	20	20
		7.5 kW	50	50	25	25	20	20
		15 kW	60	70	30	35	25	30
		22.5 kW	90	90	45	45	35	35
		30 kW	110	110	60	60	45	45
		45 kW	150	175	80	80	60	70
[2] Minimum Circuit Ampacity	Unit Only		42	45	21	22	17	18
	With Exhaust Fan and Electric Heat	**0 kW**	44	47	22	24	18	19
		7.5 kW	44	47	22	24	18	19
		15 kW	58	62	29	31	23	25
		22.5 kW	80	84	40	42	32	34
		30 kW	103	107	51	53	41	43
		45 kW	148	152	74	76	59	61
Unit Fuse Block	Unit Only		**56K93**	**56K93**	**56K52**	**56K52**	**56K51**	**56K51**
	With Power Exhaust		**56K93**	**56K93**	**56K52**	**56K52**	**56K51**	**56K51**
Disconnect	**0 - 22.5 kW**		**80M00**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**
	30 kW		**80M01**	**80M01**	**80M00**	**80M00**	**80M00**	**80M00**
	45 kW		**80M01**	**80M01**	**80M00**	**80M00**	**80M00**	**80M00**
Terminal Block			**30K75**		**30K75**		**30K75**	

NOTE - Extremes of operating range are plus and minus 10 % of line voltage.

1 HACR type breaker or fuse.

2 Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

3 Required with 45 kW electric heat.

ELECTRICAL / ELECTRIC HEAT DATA

7.5 TON HIGH EFFICIENCY **TCA090H**

Model No.			TCA090H					
Line voltage data - 60 Hz - 3 phase			208/230V		460V		575V	
Compressors (2)	Rated load amps - each (total)		12.4 (24.9)		6.4 (12.8)		4.8 (9.6)	
	Locked rotor amps - each (total)		88 (176)		44 (88)		34 (68)	
Condenser Fan Motors (2)	Full load amps - each (total)		2.4 (4.8)		1.3 (2.6)		1.0 (2.0)	
	Locked rotor amps - each (total)		4.7 (9.4)		2.4 (4.8)		1.9 (3.8)	
Optional Power Exhaust Fan	(Number) Horsepower		(1) 1/3		(1) 1/3		(1) 1/3	
	Full load amps		2.4		1.3		1.0	
	Locked rotor amps		4.7		2.4		1.9	
Service Outlet (2) 115 volt GFCI (amp rating)			15		15		15	
Evaporator Blower Motor	Horsepower		**2**	**3**	**2**	**3**	**2**	**3**
	Full load amps		7.5	10.6	3.4	4.8	2.7	3.9
	Locked rotor amps		46.9	66	20.4	26.8	16.2	23.4
[1] Maximum Overcurrent Protection (amps)	Unit Only		50	50	25	25	20	20
	With Exhaust Fan and Electric Heat	**0 kW**	50	50	25	25	20	20
		7.5 kW	50	50	25	25	20	20
		15 kW	60	70	30	35	25	30
		22.5 kW	90	90	45	45	35	35
		30 kW	110	110	60	60	45	45
		45 kW	150	175	80	80	60	70
[2] Minimum Circuit Ampacity	Unit Only		41	44	21	22	16	17
	With Exhaust Fan and Electric Heat	**0 kW**	43	46	22	24	17	18
		7.5 kW	43	46	22	24	17	18
		15 kW	58	62	29	31	23	25
		22.5 kW	80	84	40	42	32	34
		30 kW	103	107	51	53	41	43
		45 kW	148	152	74	76	59	61
Unit Fuse Block	Unit Only		**56K93**	**56K93**	**56K52**	**56K52**	**56K51**	**56K51**
	With Power Exhaust		**56K93**	**56K93**	**56K52**	**56K52**	**56K51**	**56K51**
Disconnect		**0 - 22.5 kW**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**
		30 kW	**80M01**	**80M01**	**80M00**	**80M00**	**80M00**	**80M00**
		45 kW	**80M01**	**80M01**	**80M00**	**80M00**	**80M00**	**80M00**
Terminal Block			**30K75**		**30K75**		**30K75**	

NOTE - Extremes of operating range are plus and minus 10 % of line voltage.

[1] HACR type breaker or fuse.

[2] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL / ELECTRIC HEAT DATA

8.5 TON STANDARD EFFICIENCY — TCA102S

Model No.			TCA102S					
Line voltage data - 60 Hz - 3 phase			208/230V		460V		575V	
Compressors (2)	Rated load amps - each (total)		14.7 (29.4)		7.1 (14.2)		5.8 (11.6)	
	Locked rotor amps - each (total)		91 (182)		50 (100)		37 (74)	
Condenser Fan Motors (2)	Full load amps - each (total)		2.4 (4.8)		1.3 (2.6)		1.0 (2.0)	
	Locked rotor amps - each (total)		4.7 (9.4)		2.4 (4.8)		1.9 (3.8)	
Optional Power Exhaust Fan	(Number) Horsepower		(1) 1/3		(1) 1/3		(1) 1/3	
	Full load amps		2.4		1.3		1.0	
	Locked rotor amps		4.7		2.4		1.9	
Service Outlet (2) 115 volt GFCI (amp rating)			15		15		15	
Evaporator Blower Motor	Horsepower		**2**	**3**	**2**	**3**	**2**	**3**
	Full load amps		7.5	10.6	3.4	4.8	2.7	3.9
	Locked rotor amps		46.9	66	20.4	26.8	16.2	23.4
[1] Maximum Overcurrent Protection (amps)	Unit Only		60	60	25	30	20	20
	With Exhaust Fan and Electric Heat	**0 kW**	60	60	30	30	20	25
		7.5 kW	60	60	30	30	20	25
		15 kW	60	70	30	35	25	30
		22.5 kW	90	90	45	45	35	35
		30 kW	110	110	60	60	45	45
		45 kW	150	175	80	80	60	70
[2] Minimum Circuit Ampacity	Unit Only		46	49	22	27	18	19
	With Exhaust Fan and Electric Heat	**0 kW**	48	51	24	25	19	20
		7.5 kW	48	51	24	25	19	20
		15 kW	58	62	29	31	23	25
		22.5 kW	80	84	40	42	32	34
		30 kW	103	107	51	53	41	43
		45 kW	148	152	74	76	59	61
Unit Fuse Block	Unit Only		**56K94**	**56K94**	**56K52**	**25K08**	**56K51**	**56K51**
	With Power Exhaust		**56K94**	**56K94**	**25K08**	**25K08**	**56K51**	**56K52**
Disconnect		**0 - 22.5 kW**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**
		30 kW	**80M01**	**80M01**	**80M00**	**80M00**	**80M00**	**80M00**
		45 kW	**80M01**	**80M01**	**80M00**	**80M00**	**80M00**	**80M00**
Terminal Block			**30K75**		**30K75**		**30K75**	

NOTE - Extremes of operating range are plus and minus 10 % of line voltage.

[1] HACR type breaker or fuse.

[2] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL / ELECTRIC HEAT DATA

8.5 TON HIGH EFFICIENCY **TCA102H**

Model No.			TCA102H					
Line voltage data - 60 Hz - 3 phase			208/230V		460V		575V	
Compressors (2)	Rated load amps - each (total)		14.7 (29.4)		7.1 (14.2)		5.1 (10.2)	
	Locked rotor amps - each (total)		91 (182)		46 (92)		37 (74)	
Condenser Fan Motors (2)	Full load amps - each (total)		2.4 (4.8)		1.3 (2.6)		1.0 (2.0)	
	Locked rotor amps - each (total)		4.7 (9.4)		2.4 (4.8)		1.9 (3.8)	
Optional Power Exhaust Fan	(Number) Horsepower		(1) 1/3		(1) 1/3		(1) 1/3	
	Full load amps		2.4		1.3		1.0	
	Locked rotor amps		4.7		2.4		1.9	
Service Outlet (2) 115 volt GFCI (amp rating)			15		15		15	
Evaporator Blower Motor	Horsepower		**2**	**3**	**2**	**3**	**2**	**3**
	Full load amps		7.5	10.6	3.4	4.8	2.7	3.9
	Locked rotor amps		46.9	66	20.4	26.8	16.2	23.4
[1] **Maximum Overcurrent Protection (amps)**	Unit Only		60	60	25	30	20	20
	With Exhaust Fan and Electric Heat	**0 kW**	60	60	30	30	20	20
		7.5 kW	60	60	30	30	20	20
		15 kW	60	70	30	35	25	30
		22.5 kW	90	90	45	45	35	35
		30 kW	110	110	60	60	45	45
		45 kW	150	175	80	80	60	70
[2] **Minimum Circuit Ampacity**	Unit Only		46	49	22	24	17	18
	With Exhaust Fan and Electric Heat	**0 kW**	48	51	24	25	18	19
		7.5 kW	48	51	24	25	18	19
		15 kW	58	62	29	31	23	25
		22.5 kW	80	84	40	42	32	34
		30 kW	103	107	51	53	41	43
		45 kW	148	152	74	76	59	61
Unit Fuse Block	Unit Only		**56K94**	**56K94**	**56K52**	**25K08**	**56K51**	**56K51**
	With Power Exhaust		**56K94**	**56K94**	**25K08**	**25K08**	**56K51**	**56K51**
Disconnect		**0 - 22.5 kW**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**
		30 kW	**80M01**	**80M01**	**80M00**	**80M00**	**80M00**	**80M00**
		45 kW	**80M01**	**80M01**	**80M00**	**80M00**	**80M00**	**80M00**
Terminal Block			**30K75**		**30K75**		**30K75**	

NOTE - Extremes of operating range are plus and minus 10 % of line voltage.

[1] HACR type breaker or fuse.

[2] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL / ELECTRIC HEAT DATA

10 TON STANDARD EFFICIENCY **TCA120S**

Model No.			TCA120S								
Line voltage data - 60 Hz - 3 phase			208/230V			460V			575V		
Compressors (2)	Rated load amps - each (total)		15.4 (30.8)			7.4 (14.8)			5.9 (11.8)		
	Locked rotor amps - each (total)		124 (248)			59.6 (119.2)			49.4 (98.8)		
Condenser Fan Motors (2)	Full load amps - each (total)		2.4 (4.8)			1.3 (2.6)			1.0 (2.0)		
	Locked rotor amps - each (total)		4.7 (9.4)			2.4 (4.8)			1.9 (3.8)		
Optional Power Exhaust Fan	(Number) Horsepower		(1) 1/3			(1) 1/3			(1) 1/3		
	Full load amps		2.4			1.3			1.0		
	Locked rotor amps		4.7			2.4			1.9		
Service Outlet (2) 115 volt GFCI (amp rating)			15			15			15		
Evaporator Blower Motor	Horsepower		**2**	**3**	**5**	**2**	**3**	**5**	**2**	**3**	**5**
	Full load amps		7.5	10.6	16.7	3.4	4.8	7.6	2.7	3.9	6.1
	Locked rotor amps		46.9	66	105	20.4	26.8	45.6	16.2	23.4	36.6
[1] **Maximum Overcurrent Protection (amps)**	Unit Only		60	60	70	30	30	30	20	25	25
	With Exhaust Fan and Electric Heat	**0 kW**	60	60	70	30	30	35	20	25	25
		15 kW	70	60	70	35	30	35	25	30	30
		22.5 kW	90	90	100	45	45	50	35	35	40
		30 kW	110	110	125	60	60	60	45	45	50
		45 kW	150	175	175	80	80	80	60	70	70
		60 kW	175	175	175	80	90	90	70	70	70
[2] **Minimum Circuit Ampacity**	Unit Only		47	51	57	23	25	27	18	20	22
	With Exhaust Fan and Electric Heat	**0 kW**	50	53	59	24	26	29	19	21	23
		15 kW	58	62	69	29	31	34	23	25	27
		22.5 kW	80	84	92	40	42	45	32	34	36
		30 kW	103	107	115	51	53	57	41	43	45
		45 kW	148	152	160	74	76	79	59	61	63
		60 kW	157	161	169	79	80	84	63	64	67
Unit Fuse Block	Unit Only		**56K94**	**56K94**	**56K95**	**25K08**	**25K08**	**25K08**	**56K51**	**56K52**	**56K52**
	With Power Exhaust		**56K94**	**56K94**	**56K95**	**25K08**	**25K08**	**25K09**	**56K51**	**56K52**	**56K52**
Disconnect	**0 - 15 kW**		**80M00**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**
	22.5 kW		**80M01**	**80M01**	**80M01**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**
	30 - 45 kW		**80M01**	**80M01**	**80M01**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**
	60 kW		**80M02**	**80M02**	**80M02**	**80M01**	**80M01**	**80M01**	**80M00**	**80M00**	**80M00**
Terminal Block	**0-45 kW**			**30K75**			**30K75**			**30K75**	
	60 kW			**30K75**			**30K75**			**30K75**	

NOTE - Extremes of operating range are plus and minus 10 % of line voltage.

[1] HACR type breaker or fuse.

[2] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL / ELECTRIC HEAT DATA

10 TON HIGH EFFICIENCY **TCA120H**

Model No.			TCA120H								
Line voltage data - 60 Hz - 3 phase			208/230V			460V			575V		
Compressors (2)	Rated load amps - each (total)		17.3 (34.6)			9.0 (18.0)			7.1 (14.2)		
	Locked rotor amps - each (total)		123 (246)			62 (124)			50 (100)		
Condenser Fan Motors (2)	Full load amps - each (total)		2.4 (4.8)			1.3 (2.6)			1.0 (2.0)		
	Locked rotor amps - each (total)		4.7 (9.4)			2.4 (4.8)			1.9 (3.8)		
Optional Power Exhaust Fan	(Number) Horsepower		(1) 1/3			(1) 1/3			(1) 1/3		
	Full load amps		2.4			1.3			1.0		
	Locked rotor amps		4.7			2.4			1.9		
Service Outlet (2) 115 volt GFCI (amp rating)			15			15			15		
Evaporator Blower Motor	Horsepower		**2**	**3**	**5**	**2**	**3**	**5**	**2**	**3**	**5**
	Full load amps		7.5	10.6	16.7	3.4	4.8	7.6	2.7	3.9	6.1
	Locked rotor amps		46.9	66	105	20.4	26.8	45.6	16.2	23.4	36.6
[1] Maximum Overcurrent Protection (amps)	Unit Only		60	70	70	35	35	35	25	25	30
	With Exhaust Fan and Electric Heat	**0 kW**	70	70	80	35	35	40	25	30	30
		15 kW	70	70	70	35	35	40	25	30	30
		22.5 kW	90	90	100	45	45	50	35	35	40
		30 kW	110	110	125	60	60	60	45	45	50
		45 kW	150	175	175	80	80	80	60	70	70
		60 kW	175	175	175	80	90	90	70	70	70
[2] Minimum Circuit Ampacity	Unit Only		52	55	61	27	28	31	21	22	25
	With Exhaust Fan and Electric Heat	**0 kW**	54	57	63	28	29	32	22	23	26
		15 kW	58	62	69	29	31	34	23	25	27
		22.5 kW	80	84	92	40	42	45	32	34	36
		30 kW	103	107	115	51	53	57	41	43	45
		45 kW	148	152	160	74	76	79	59	61	63
		60 kW	157	161	169	79	80	84	63	64	67
Unit Fuse Block	Unit Only		**56K94**	**56K95**	**56K95**	**25K09**	**25K09**	**25K09**	**56K52**	**56K52**	**25K08**
	With Power Exhaust		**56K95**	**56K95**	**56K96**	**25K09**	**25K09**	**25K10**	**56K52**	**56K52**	**25K08**
Disconnect		**0 - 15 kW**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**
		30 kW	**80M00**	**80M00**	**80M01**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**
		30 - 45 kW	**80M01**	**80M01**	**80M01**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**
		60 kW	**80M02**	**80M02**	**80M02**	**80M01**	**80M01**	**80M01**	**80M00**	**80M00**	**80M00**
Terminal Block		**0-45 kW**		**30K75**			**30K75**			**30K75**	
		60 kW		**30K75**			**30K75**			**30K75**	

NOTE - Extremes of operating range are plus and minus 10 % of line voltage.

[1] HACR type breaker or fuse.

[2] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL / ELECTRIC HEAT DATA

12.5 TON STANDARD EFFICIENCY **TCA150S**

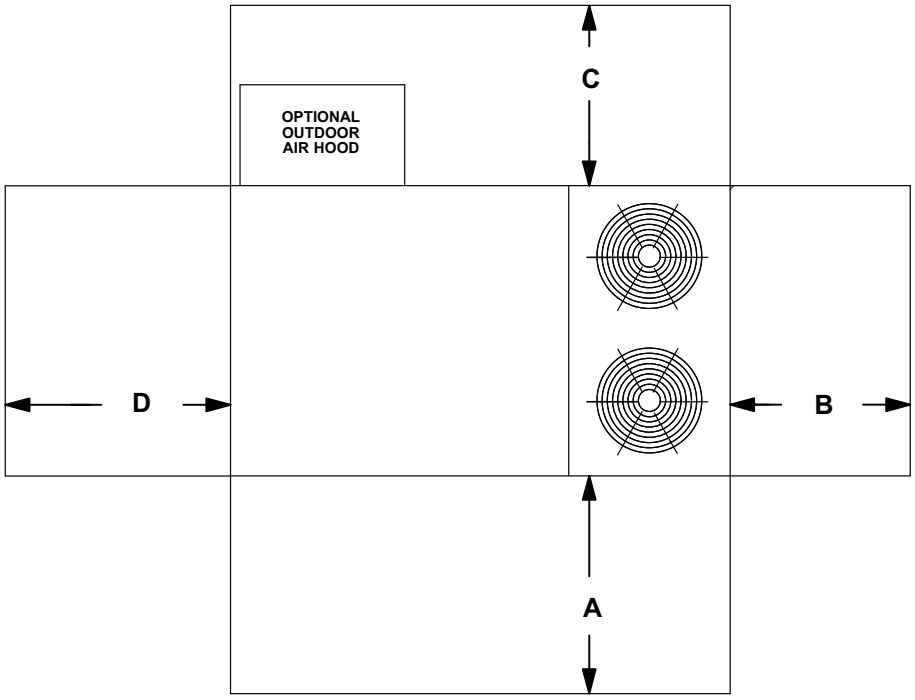
Model No.			TCA150S					
Line voltage data - 60 Hz - 3 phase			208/230V		460V		575V	
Compressors (2)	Rated load amps - each (total)		18.6 (37.2)		9 (18)		7.4 (14.8)	
	Locked rotor amps - each (total)		156 (312)		75 (150)		54 (108)	
Condenser Fan Motors (2)	Full load amps - each (total)		3.0 (6.0)		1.5 (3.0)		1.2 (2.4)	
	Locked rotor amps - each (total)		6.0 (12.0)		3.0 (6.0)		2.9 (5.8)	
Optional Power Exhaust Fan	(Number) Horsepower		(1) 1/3		(1) 1/3		(1) 1/3	
	Full load amps		2.4		1.3		1.0	
	Locked rotor amps		4.7		2.4		1.9	
Service Outlet (2) 115 volt GFCI (amp rating)			15		15		15	
Evaporator Blower Motor	Horsepower		**3**	**5**	**3**	**5**	**3**	**5**
	Full load amps		10.6	16.7	4.8	7.6	3.9	6.1
	Locked rotor amps		66	105	26.8	45.6	23.4	36.6
[1] Maximum Overcurrent Protection (amps)	Unit Only		70	80	35	35	30	30
	With Exhaust Fan and Electric Heat	**0 kW**	70	80	35	40	30	30
		15 kW	70	80	35	40	30	30
		22.5 kW	90	100	45	50	35	40
		30 kW	110	125	60	60	45	50
		45 kW	175	175	80	80	70	70
		60 kW	175	175	90	90	70	70
[2] Minimum Circuit Ampacity	Unit Only		59	65	29	31	23	26
	With Exhaust Fan and Electric Heat	**0 kW**	61	67	30	33	24	27
		15 kW	62	69	31	34	25	27
		22.5 kW	84	92	42	45	34	36
		30 kW	107	115	53	57	43	45
		45 kW	152	160	76	79	61	63
		60 kW	161	169	80	84	64	67
Unit Fuse Block	Unit Only		**56K95**	**56K96**	**25K09**	**25K09**	**25K08**	**25K08**
	With Power Exhaust		**56K95**	**56K96**	**25K09**	**25K10**	**25K08**	**25K08**
Disconnect		**0 - 15 kW**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**	**80M00**
		22.5 kW	**80M00**	**80M01**	**80M00**	**80M00**	**80M00**	**80M00**
		30 - 45 kW	**80M01**	**80M01**	**80M00**	**80M00**	**80M00**	**80M00**
		60 kW	**80M02**	**80M02**	**80M01**	**80M01**	**80M00**	**80M00**
Terminal Block		**0-45 kW**	**30K75**		**30K75**		**30K75**	
		60 kW	**30K75**		**30K75**		**30K75**	

NOTE - Extremes of operating range are plus and minus 10 % of line voltage.

[1] HACR type breaker or fuse.

[2] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

UNIT CLEARANCES - INCHES (MM)



[1] Unit Clearance	A		B		C		D		Top Clearance
	in.	mm	in.	mm	in.	mm	in.	mm	
Service Clearance	60	1524	36	914	36	914	36	914	**Unobstructed**
Minimum Operation Clearance	36	914	36	914	36	914	36	914	

NOTE - Entire perimeter of unit base requires support when elevated above the mounting surface.

1 **Service Clearance** - Required for removal of serviceable parts.
Minimum Operation Clearance - Required clearance for proper unit operation.

OPTIONAL CONVENTIONAL TEMPERATURE CONTROL SYSTEMS - FIELD INSTALLED

COMMERCIAL TOUCHSCREEN THERMOSTAT

Intuitive Touchscreen Interface - **Two Stage Heating / Two Stage Cooling Conventional or Heat Pump** - Seven Day Programmable - Four Time Periods/Day - Economizer Output - Title 24 Compliant - ENERGY STAR® Qualified - Backlit Display - Automatic Changeover — C0STAT02AE1L

Sensors For Touchscreen Thermostat

[1] Remote non-adjustable wall mount 20k temperature sensor C0SNZN01AE1-

[1] Remote non-adjustable wall mount 10k averaging temperature sensor C0SNZN73AE1-

[1] Remote non-adjustable duct mount temperature sensor C0SNDC00AE1-

Outdoor temperature sensor C0SNSR03AE1-

Accessories For Touchscreen Thermostat

Locking cover (clear) C0MISC15AE1-

[1] Remote sensors for C0STAT02AE1L can be applied in the following combinations: (1) C0SNZN01AE1-, (2) C0SNZN73AE1-, (2) C0SNZN01AE1- and (1) C0SNZN73AE1-, (4) C0SNZN01AE1-, (3) C0SNZN01AE1- and (2) C0SNZN73AE1.

DIGITAL NON-PROGRAMMABLE THERMOSTATS

Intuitive Interface - Automatic Changeover - Simple Up and Down Temperature Control

Two-stage heating / cooling conventional systems C0STAT10AE1L

Sensor For Digital Non-Programmable Thermostats Above

Remote wall mounted temperature sensor C0SNZN00AE1-

Intuitive Interface - Automatic Changeover - Backlit Display - Simple Up and Down Temperature Control

One-stage heating / cooling conventional systems C0STAT12AE1L

Sensor For Digital Non-Programmable Thermostats Above

Outdoor temperature sensor C0SNSR04AE1-

Accessories For Digital Non-Programmable Thermostats Above

Optional wall mounting plate C0MISC17AE1-

WEIGHT DATA

Model Number	Net		Shipping	
	lbs.	kg	lbs.	kg
090/102 Base Unit	1220	553	1305	592
090/102 Max. Unit	1450	658	1335	696
120 Base Unit	1275	578	1360	617
120 Max. Unit	1495	678	1580	717
150 Base Unit	1310	594	1395	633
150 Max. Unit	1530	694	1615	733

OPTIONS / ACCESSORIES

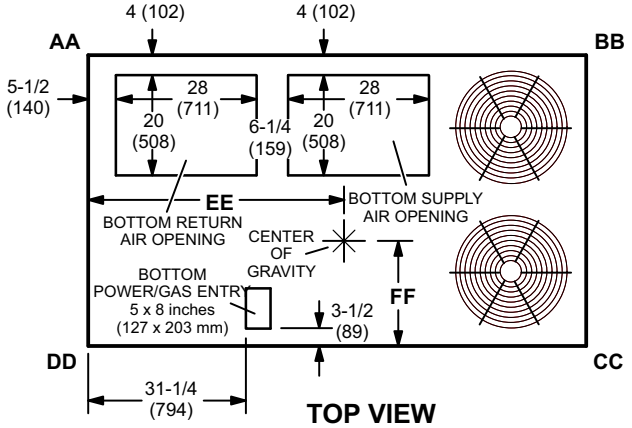
		Weight	
		lbs.	kg.
CEILING DIFFUSERS			
Step-Down	RTD11-95	88	40
	RTD11-135	205	93
	RTD11-185	392	178
Flush	FD11-95	75	34
	FD11-135	174	79
	FD11-185	289	131
Transitions	LASRT08/10	30	14
	LASRT10/12	32	15
	LASRT15	36	16
ECONOMIZER / OUTDOOR AIR / EXHAUST			
Economizer	LAREMD10/15	47	21
Barometric Relief			
Down-Flow Barometric Relief Dampers	LAGED10/15	8	4
Horizontal Barometric Relief Dampers	LAGEDH18/24	20	9
Outdoor Air Dampers			
Damper Section (down-flow) - Automatic	LAOADM10/15	31	14
Damper Section (down-flow) - Manual	LAOAD10/15	26	12
Outdoor Air Hood (down-flow)	LAOAH10/15	11	5
Power Exhaust	LAPEF10/15	28	13
PACKAGING			
LTL Packaging (less than truck load)		105	48
ROOF CURBS - CLIPLOCK 1000			
Down-Flow			
14 in. height	LARMF10/15S-14	115	52
18 in. height	LARMF10/15S-28	156	71
24 in. height	LARMF10/15S-24	189	86
ROOF CURBS - STANDARD			
Down-Flow			
14 in. height	LARMF10/15-14	126	57
24 in. height	LARMF10/15-24	174	79
ELECTRIC HEAT			
7.5 to 15 kW		31	14
22.5 to 30 kW		38	17
45 kW		42	19
60 kW		49	22

Base Unit - The unit with low fire heat exchanger NO OPTIONS.
Max. Unit - The unit with ALL OPTIONS Installed. (High Input Heat Exchanger, Economizer, Power Exhaust Fans, Controls)

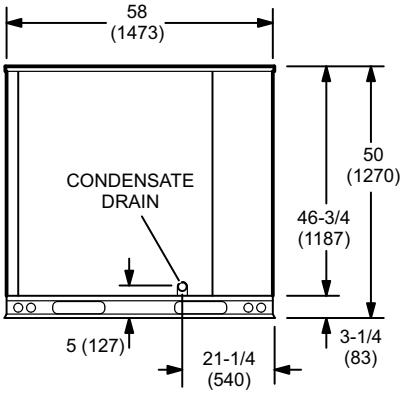
DIMENSIONS - INCHES (MM)

Model Number	CORNER WEIGHTS AA		BB		CC		DD		CENTER OF GRAVITY EE		FF	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	inch	mm	inch	mm
090/102 Base Unit	295	134	271	123	308	140	346	160	47	1194	21-1/2	546
090/102 Max. Unit	364	165	320	145	352	160	413	187	45-1/2	1156	23-1/2	597
120 Base Unit	308	140	283	128	322	146	361	164	47	1194	21-1/2	546
120 Max. Unit	375	170	330	150	363	165	426	193	45-1/2	1156	23-1/2	597
150 Base Unit	314	142	299	136	337	153	359	163	48-1/2	1232	22-1/2	572
150 Max. Unit	382	173	344	156	377	171	427	194	46-1/2	1181	24	610

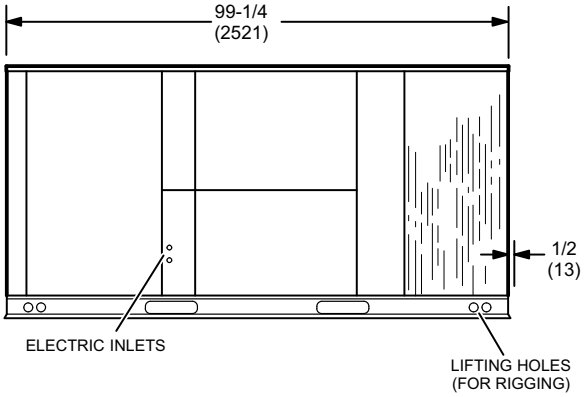
Base Unit - Unit with NO OPTIONS.
Max. Unit - Unit with ALL OPTIONS Installed. (Economizer, Power Exhaust Fans and Controls)



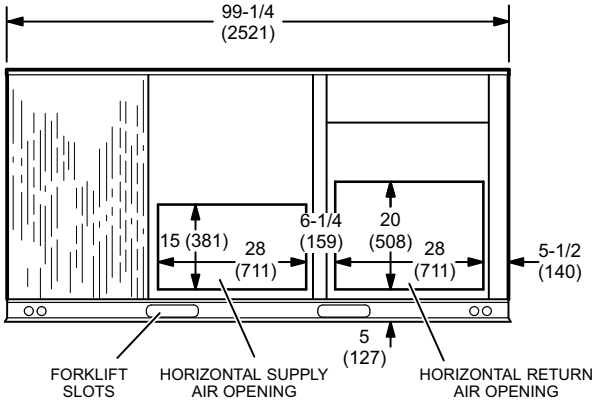
TOP VIEW
Base Section



END VIEW



SIDE VIEW

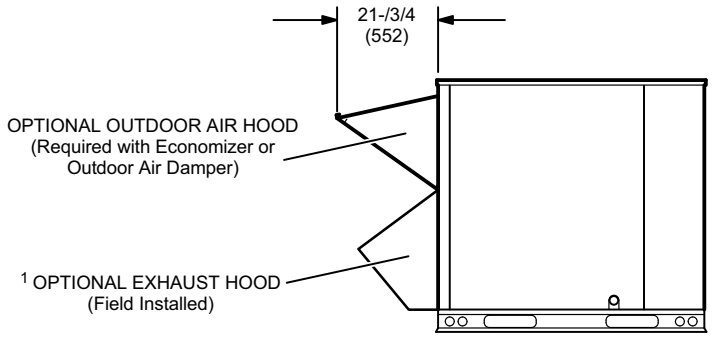


SIDE VIEW
(Horizontal Openings)

0

ACCESSORY DIMENSIONS - INCHES (MM)

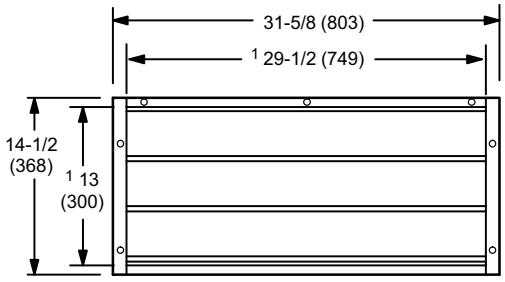
OPTIONAL OUTDOOR AIR HOOD DETAIL



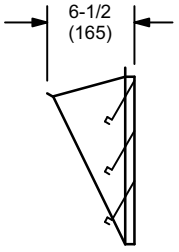
[1] NOTE — Field Installed in Return Air Duct for Horizontal Applications.

HORIZONTAL BAROMETRIC RELIEF DAMPERS

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



FRONT VIEW

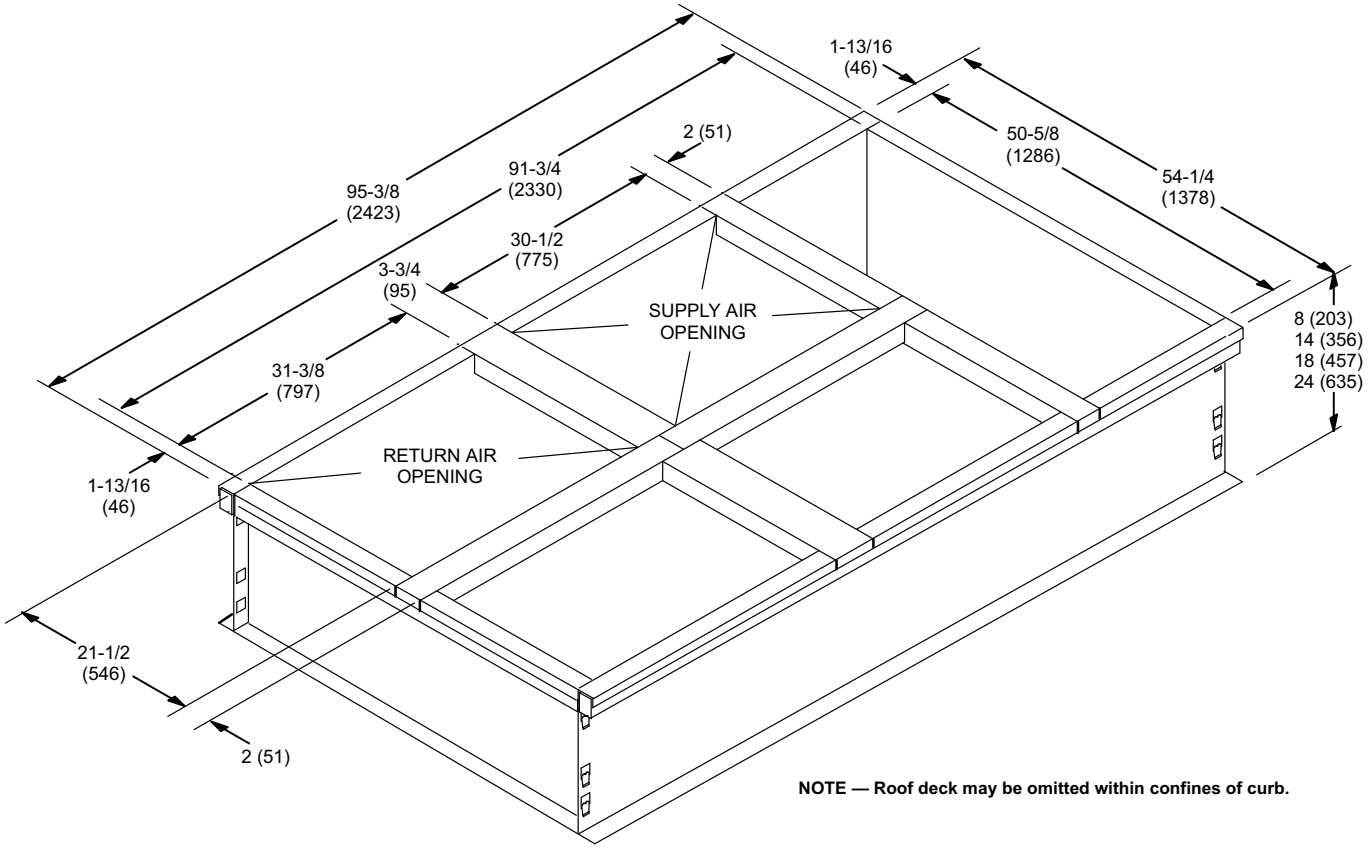


SIDE VIEW

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

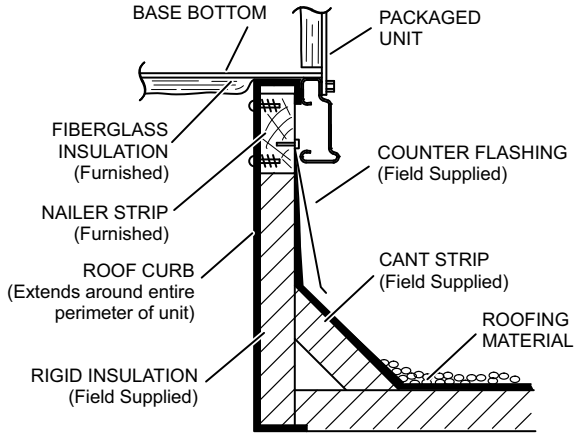
ACCESSORY DIMENSIONS - INCHES (MM)

CLIPLOCK 1000 ROOF CURBS - DOUBLE DUCT OPENING

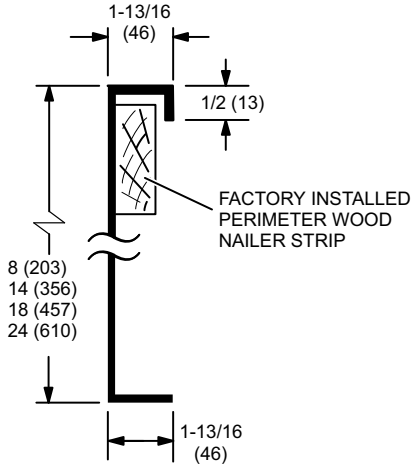


NOTE — Roof deck may be omitted within confines of curb.

TYPICAL FLASHING DETAIL FOR ROOF CURB

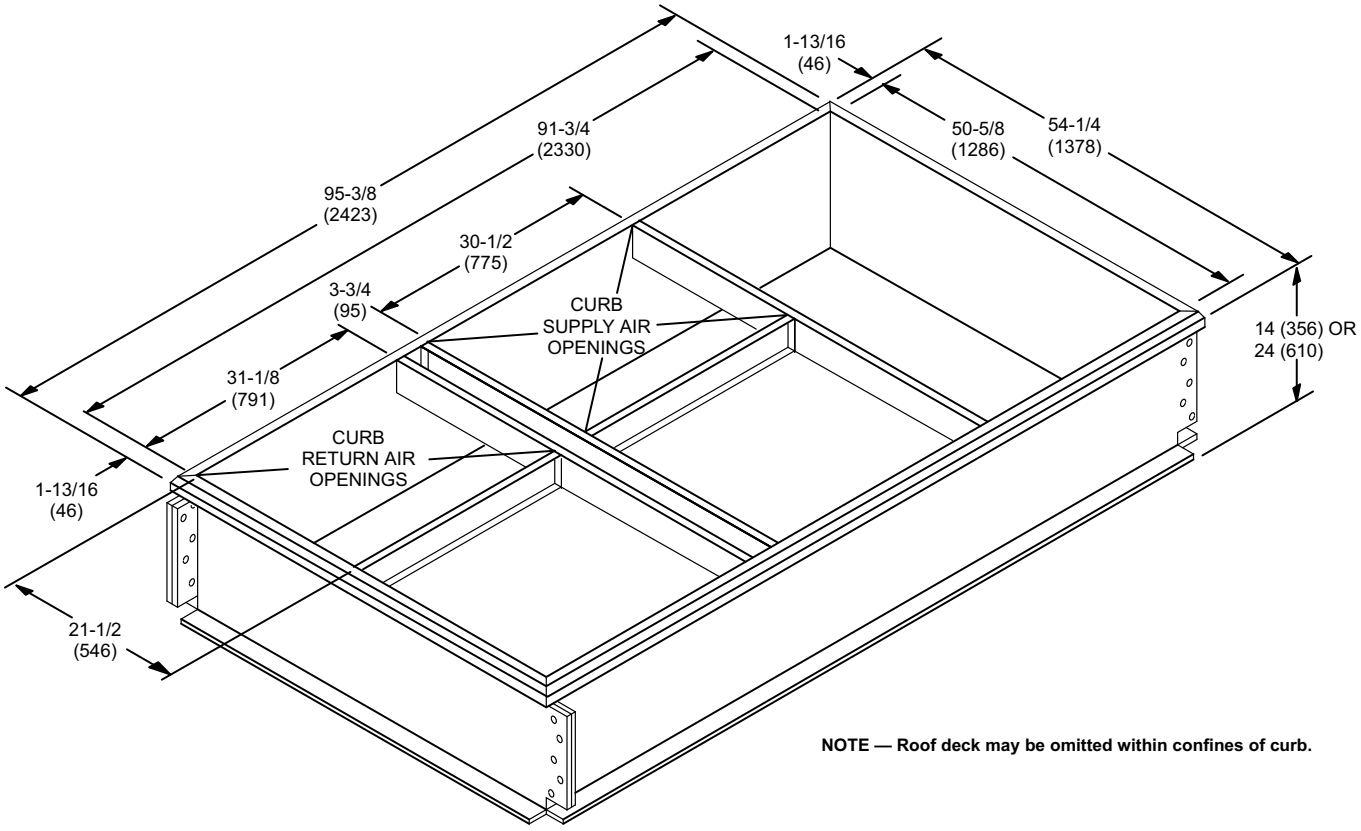


DETAIL ROOF CURB



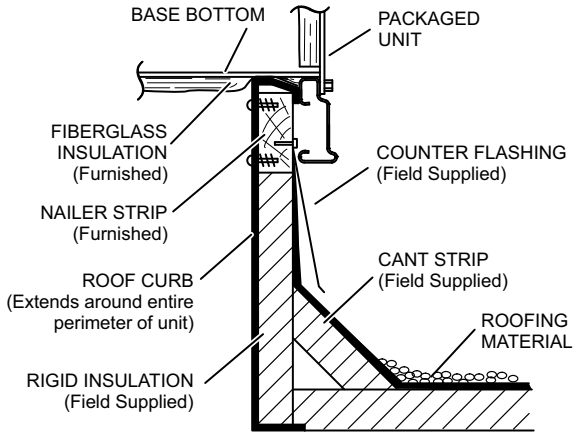
ACCESSORY DIMENSIONS - INCHES (MM)

STANDARD ROOF CURBS - DOUBLE DUCT OPENING

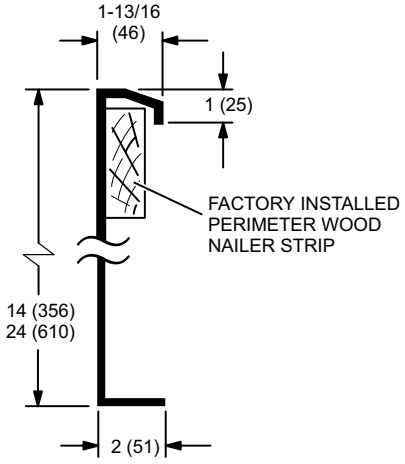


NOTE — Roof deck may be omitted within confines of curb.

TYPICAL FLASHING DETAIL FOR ROOF CURB

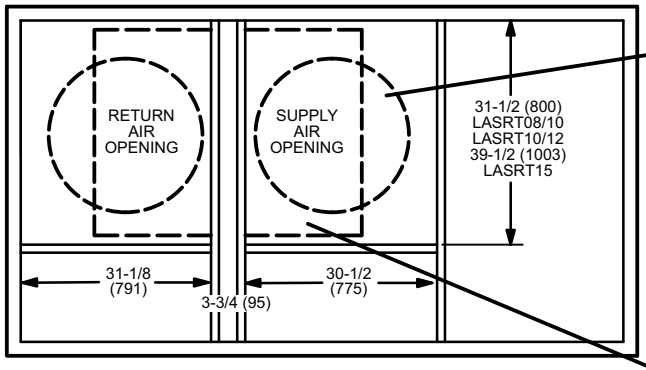


DETAIL ROOF CURB



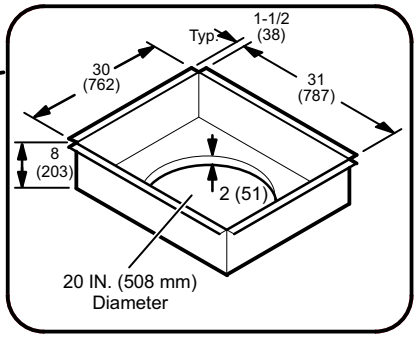
ACCESSORY DIMENSIONS - INCHES (MM)

ROOF CURBS WITH SUPPLY & RETURN AIR TRANSITIONS FOR CEILING DIFFUSERS

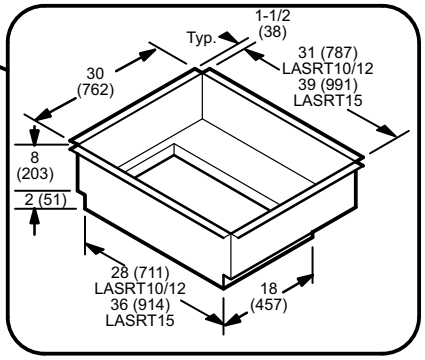


TOP VIEW

LASRT08/10 ROUND TRANSITIONS
(for 090 models with FD11-95, RTD11-95 Diffusers)



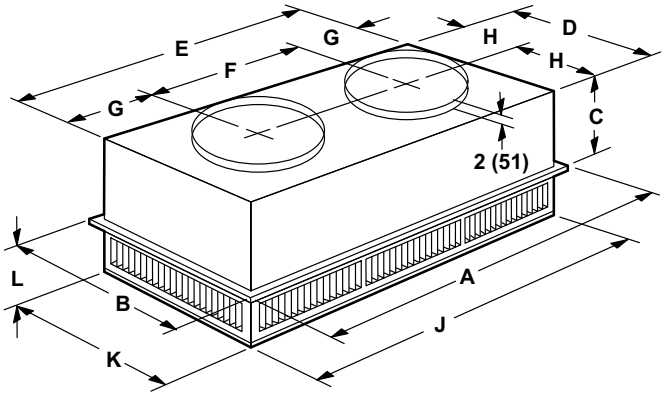
LASRT10/12 & LASRT15 RECTANGULAR TRANSITIONS
(for 102 thru 150 models with FD11-135-185, RTD11-135-185 Diffusers)



ACCESSORY DIMENSIONS - INCHES (MM)

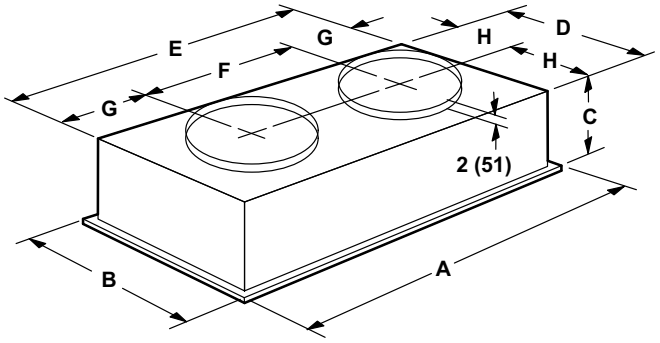
COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

STEP-DOWN CEILING DIFFUSER



Model Number		RTD11-95
A	in.	47-5/8
	mm	1159
B	in.	29-5/8
	mm	752
C	in.	14-3/8
	mm	365
D	in.	27-1/2
	mm	699
E	in.	45-1/2
	mm	1158
F	in.	22-1/2
	mm	572
G	in.	11-1/2
	mm	292
H	in.	13-3/4
	mm	349
J	in.	45-1/2
	mm	1156
K	in.	27-1/2
	mm	699
L	in.	8-1/8
	mm	206
Duct Size	in.	20 round
	mm	508 round

FLUSH CEILING DIFFUSER

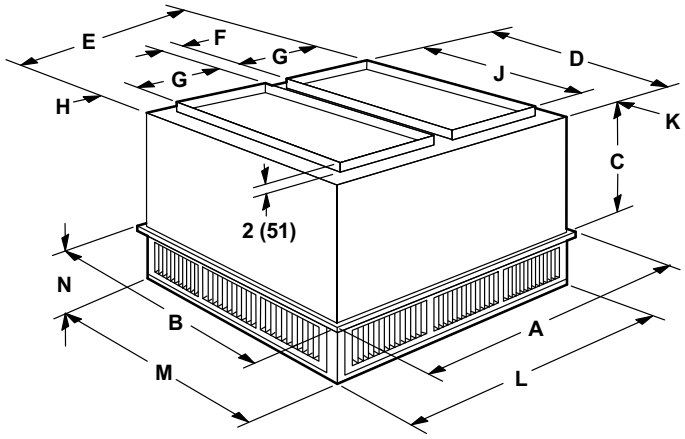


Model Number		FD11-95
A	in.	47-5/8
	mm	1159
B	in.	29-5/8
	mm	752
C	in.	16-5/8
	mm	422
D	in.	27
	mm	686
E	in.	45
	mm	1143
F	in.	22-1/2
	mm	572
G	in.	11-1/4
	mm	286
H	in.	13-1/2
	mm	343
Duct Size	in.	20 round
	mm	508 round

ACCESSORY DIMENSIONS - INCHES (MM)

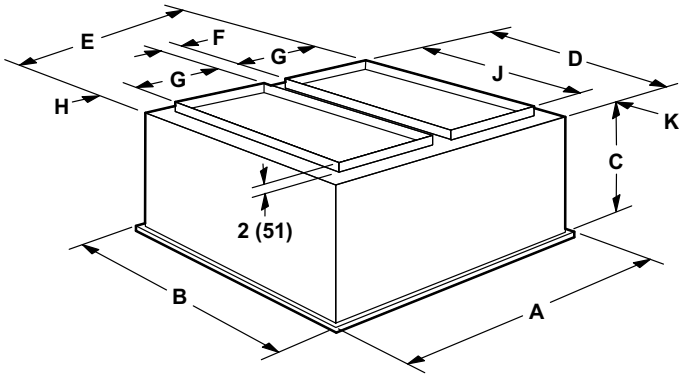
COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

STEP-DOWN CEILING DIFFUSER



Model Number		RTD11-135	RTD11-185
A	in.	47-5/8	47-5/8
	mm	1210	1210
B	in.	35-5/8	47-5/8
	mm	905	1210
C	in.	20-5/8	24-5/8
	mm	524	625
D	in.	33-1/2	45-1/2
	mm	851	1156
E	in.	45-1/2	45-1/2
	mm	1156	1156
F	in.	4-1/2	4-1/2
	mm	114	114
G	in.	18	18
	mm	457	457
H	in.	2-1/2	2-1/2
	mm	64	64
J	in.	28	36
	mm	711	914
K	in.	2-3/4	4-3/4
	mm	70	121
L	in.	45-1/2	45-1/2
	mm	1156	1156
M	in.	33-1/2	45-1/2
	mm	851	1156
N	in.	9-1/8	10-1/8
	mm	232	257
Duct Size	in.	18 x 28	18 x 36
	mm	457 x 711	457 x 914

FLUSH CEILING DIFFUSER



Model Number		FD11-135	FD11-185
A	in.	47-5/8	47-5/8
	mm	1210	1210
B	in.	35-5/8	47-5/8
	mm	905	1210
C	in.	23-1/4	29-1/4
	mm	591	743
D	in.	33	45
	mm	838	1143
E	in.	45	45
	mm	1143	1143
F	in.	4-1/2	4-1/2
	mm	114	114
G	in.	18	18
	mm	457	457
H	in.	2-1/4	2-1/4
	mm	57	57
J	in.	28	36
	mm	711	914
K	in.	2-1/2	4-1/2
	mm	64	114
Duct Size	in.	18 x 28	18 x 36
	mm	457 x 711	457 x 914

SECTION 15730

UNITARY AIR CONDITIONING EQUIPMENT

PART 1 GENERAL

PART 1.01 SUMMARY

A. Section Includes: Packaged rooftop units and commercial packaged, gas/electric, electric/electric and electric/heat pumps.

Specifier Note: Revise paragraph below to suit project requirements. Add section numbers and titles per CSI *MasterFormat* and specifier's practice.

B. Related Sections:

Specifier Note: Article below may be omitted when specifying manufacturer's proprietary products and recommended installation. Retain Reference Article when specifying products and installation by an industry reference standard. If retained, list standard(s) referenced in this section. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced. Conditions of the Contract or Division 1 References Section may establish the edition date of standards. This article does not require compliance with standard, but is merely a listing of references used. Article below should list only those industry standards referenced in this section. Retain only those reference standards to be used within the text of this Section. Add and delete as required for specific project.

PART 1.02 REFERENCES

A. Agency Listings:
   1. Intertek ETL.
   2. Canadian Standards Association (CSA).

B. Safety Standards:
   1. Underwriters Laboratories (UL).
   2. Underwriters Laboratories of Canada (ULC).
   3. National Electric Code (NEC).
   4. Canadian Electric Code (CEC).

C. Air-Conditioning and Refrigerating Institute (ARI):
   1. ARI 340/360 Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment.
   2. ARI 370 Sound Rating of Large Outdoor Refrigerating and Air Conditioning Equipment.
   3. ARI 210/240 Performance Rating of Unitary Air Conditioning and Air-Source Heat Pump Equipment.

D. American Society for Testing and Materials (ASTM):
   1. ASTM B117 – Standard Practice for Operating Salt Spray.
   2. ASTM 1153 – Standard Method for Methyl Isobutyl Ketone.

E. ISO 9001, Quality Management Systems.

F. Meet Military Specification MIL-P-53084

Specifier Note: Article below should be restricted to statements describing design or performance requirements and functional (not dimensional) tolerances of a complete system. Limit descriptions to composite and operational properties required to link components of a system together and to interface with other systems.

PART 1.03 SYSTEM DESCRIPTION

A. Performance Requirements:

Specifier Note: Article below should be restricted to T-Class (TH), heat pumps packaged roof top units only.

1. [2, 2.5, 3, 4, 5, 6, 7.5, 8.5, 10, 12.5, 15 and 20 ton capacity.]

Specifier Note: Article below should be restricted to T-Class (TG) gas/electric packaged roof top units or T-Class (TC) electric/electric packaged roof top units.

2. [2, 2.5, 3, 4, 5, 6, 7.5, 8.5, 10, 12.5, 15, 17.5, 20 and 25 ton capacity.]

3. Electrical Characteristics:
   a. 60 Hz

Specifier Note: 208/230 volt 1 phase is only available on 2, 2.5, 3, 4 and 5 ton standard efficiency models. All other voltages are available on 3-25 ton T-Class RTU's.

b. [208/230 v – 1 Phase] [208/230 v – 3 Phase] [460 v – 3 Phase] [575 v – 3 Phase]

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Conditions of the Contract and Division 1 Submittal Procedures Section.

PART 1.04 SUBMITTALS

A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures.

B. Product Data: Submit product data for specified products.

C. Shop Drawings:
   1. Submit shop drawings in accordance with Section 01330 - Submittal Procedures.
   2. Indicate:
      a. Equipment, piping and connections, together with valves, strainers, control assemblies, thermostatic controls, auxiliaries and hardware, and recommended ancillaries which are mounted, wired and piped ready for final connection to building system, its size and recommended bypass connections.
      b. Piping, valves and fittings shipped loose showing final location in assembly.
      c. Control equipment shipped loose, showing final location in assembly.
      d. Dimensions, internal and external construction details, recommended method of installation with proposed structural steel support, mounting curb details, sizes and location of mounting bolt holes; include mass distribution drawings showing point loads.
      e. Detailed composite wiring diagrams for control systems showing factory installed wiring and equipment on packaged equipment or required for controlling devices or ancillaries, accessories and controllers.
      f. Fan performance curves.
      g. Details of vibration isolation.
      h. Estimate of sound levels to be expected across individual octave bands in dB.
      i. Type of refrigerant used.
      j. Plan view, front view end view, back view and curb detail with dimensions.

D. Quality Assurance:
   1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
   2. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
   3. Manufacturer's Instructions: Manufacturer's installation instructions.

Specifier Note: Coordinate paragraph below with Part 3 Field Quality Requirements Article herein. Retain or delete as applicable.

E. Manufacturer's Field Reports: Manufacturer's field reports specified.

F. Closeout Submittals: Submit following:
   1. Warranty: Warranty documents specified.
   2. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operation Data) Section. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance. Include names and addresses of spare part suppliers.
   3. Provide brief description of unit, with details of function, operation, control and component service.
   4. Provide equipment inspection report and equipment operation test report.
   5. Commissioning Report: Submit commissioning reports, report forms and schematics in accordance with Section 01810 - Commissioning.

PART 1.05 QUALITY ASSURANCE

A. Qualifications:
   1. Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.

PART 1.06 DELIVERY, STORAGE & HANDLING

A. General: Comply with Division 1 Product Requirements.

B. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

C. Packing, Shipping, Handling and Delivery:
   1. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
   2. Ship, handle and unload units according to manufacturer's instructions.

D. Storage and Protection:
   1. Store materials protected from exposure to harmful weather conditions.
   2. Factory shipping covers to remain in place until installation.

PART 1.07 PROJECT CONDITIONS

A. Installation Location: **[Confirm design conditions and temperature.].**

Specifier Note: Coordinate article below with Conditions of the Contract and with Division 1 Closeout Submittals (Warranty).

PART 1.08 WARRANTY

A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.

B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

Specifier Note: "Aluminized Heat Exchanger" and "Stainless steel Heat Exchanger" limited warranty is only available on T-Class (TG) Gas/Electric models. "Compressor" and "Other System Components" are covered on all T-Class units.

C. Warranty: Commencing on Date of Installation.
   1. Compressors: 5 years (limited).
   2. Other Covered System Components: 1 year (limited).
   3. [Aluminized Heat Exchangers: 10 years (limited).] [Stainless Steel Heat Exchangers: 15 years (limited).]

PART 2 PRODUCTS

Specifier Note: Retain article below for proprietary method specification. Add product attributes, performance characteristics, material standards and descriptions as applicable. Use of such phrases as "or equal" or "or approved equal" or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining "or equal" products.

PART 2.01 ROOFTOP UNITS

A. Manufacturer: Lennox Industries.
   1. Contact: 2100 Lake Park Blvd., Richardson, TX 75080; Telephone: (800) 453-6669; website: www.lennox.com.

B. Proprietary Products/Systems: Lennox T-Class Packaged Rooftop Units, including the following equipment:
   1. Cabinet:
      a. Heavy gauge steel panels.
      b. Pre-painted steel panels.
      c. Heavy Gauge galvanized steel base rail.
      d. Rigging holes on all four corners.
      e. Forklift slots (on three sides, not directly below condenser coil) on base rail.
      f. Raised or flanged edges around duct and power entry openings.

Specifier Note: "Down Flow" is the standard configuration that all T-Class units are shipped as.

Specifier Note: "Horizontal Flow" is an option for all T-Class models. T-Class TH, TG and TC models of tonnages2, 2.5, 3, 4, 5 and 6 can be converted, in the field, to horizontal flow without the need of a conversion kit. If applied horizontally with an economizer, a conversion kit is required.

Specifier Note: "Horizontal Flow" is an option for all T-Class models. T-Class TH, TG and TC models of tonnages 7.5, 8.5, 10 and 12.5 can be converted, in the field, with a separate to Horizontal Conversion Kit.

Specifier Note: "Horizontal Flow" is an option for all T-Class models. T-Class TH, TG and TC models of tonnages 15, 17.5, 20 and 25 require a roof curb that allows for horizontal air Flow. A Horizontal Air Panel Kit is also required if converting a down-flow configured unit to horizontal air flow.

g. [Down-Flow] [Horizontal] Air Flow configuration

Specifier Note: add the "and gas lines" only if using a T-Class (TG) gas/electric model.

h. Electrical lines **[and gas lines]** can be brought through the base of the unit or through horizontal knockouts.
i. Insulation:
   1) All panels adjacent to conditioned air are fully insulated with non-hygroscopic fiberglass insulation.
   2) Unit base is fully insulated.
   3) Unit bas insulation also serves as a roof curb seal.
j. Access Panels:
   1) Provided for economizer/filter section.
   2) Provided for Heating/blower section.
k. Condensate Drain Pan.

Specifier Note: "Factory Installed Options" are options that can be selected for the T-Class roof top units. The "Factory Installed Options" are installed at the Lennox manufacturing facility.

l. [Factory Installed Options:]
   1) [Corrosion Protection, meets standards:
      a) Military Specification MIL-P-53084.
      b) ASTM B117
      c) ASTM 1153]
   2) [Hinged Access panels]
   3) [GFI Service Outlets (field wired)]

Specifier Note: "Field Installed Accessories" are options that can be selected for the T-Class roof top units. The "Field Installed Accessories" are shipped separately and installed in the field.

m. [Field Installed Accessories:]

Specifier Note: Of the selections below, [Coil Guards] [Hail Guards], only one can be selected.

1) [Coil Guards] [Hail Guards].

2) [Horizontal Return Air Panel Kit].

Specifier Note: "Circuit Breakers(up to 175 amps)" is not available on 2-6 ton models.

3) [Circuit Breakers (up to 175 amps)]

4) [Disconnect Switch (up to 250 amps)]

5) [Condensate drain trap]

2. Cooling System:
   a. Capable of operating from 30 - 125 degrees F (-1 - 52 degrees C) without installation of additional controls.
   b. Compressors:

Specifier Note: The TG/TC036B unit uses a reciprocating compressor instead of a scroll type.

1) Scroll Type.
2) Resiliently mounted on rubber mounts for vibration isolation.
3) Overload Protected
4) Internal excessive current and temperature protection.
5) Isolated from condenser fan air stream.
6) Refrigerant cooled.

   c. TXV
   d. Freezestat
   e. High capacity filter driers

Specifier Note: Include following 2 articles for T-Class (TH) packaged heat pumps models.

   f. Reversing Valves: Four-way interchange reversing valve.
   g. Defrost Control.

Specifier Note: 2-2.5 ton models are only available in Standard efficiency, 3-6 ton models are available in Basic or Standard efficiencies only, and 7.5-20 ton models are available in Standard or High efficiencies only.

Specifier Note: The 12.5 ton model is available in standard efficiency only.

   h. Efficiency: **[Basic] [and]/[or] [Standard] [and]/[or] [High].**

i. [Low ambient kit: Field installed]

Specifier Note: High pressure switch is available to be field installed on all units except the T-Class model TH on tonnages 15-20.

j. [High pressure switch: Field installed]

Specifier Note: Crankcase heater is available to be field installed on all units except the T-Class model TH on tonnages 2-6 and 15-20.

k. [Crankcase heater: field installed]

3. Coil Construction:
   a. Condensing/evaporator coil general construction:
      1) Aluminum Rippled and Lanced fins.
      2) Copper tube construction.
      3) Aluminum fins mechanically bonded to copper tubes.
      4) All coils are high pressure leak tested at manufacturing facility.
   b. Evaporator Coils:
      1) With balanced port thermal expansion valves, freeze protection on each compressor circuit, pressure and leak tested to 500 psi, and maximum 14 fins per inch.
      2) Each compressor circuit on coil divided across face of coil and active through full depth of coil.
      3) [With flexible immersed coating electrodeposited by dry film process].
   c. Condenser Coils:
      1) [With flexible immersed coating electrodeposited by dry film process] on corrosion hardened units only.

4. Wiring:
    a. Color coded and continuously marked to identify point-to-point component connections.
    b. Not in contact with hot-gas refrigerant lines or sharp metal edges.
5. Cooling Controls:
    a. Provide minimum compressor on time of 4 minutes.

Specifier Note: "4 Stages of cooling from thermostat" is only available for models that have 4 independent refrigerant circuits. 2-6 ton models have 1 circuit, 7.5-12.5 ton models have 2 circuits, and 15-25 ton models have several models with 4 circuits.

    b. Support up to 4 stages of cooling from thermostat or external DDC controller. (4 independent refrigerant circuits required.)

Specifier Note: T-Class units with Gas Heating Systems are TG models.

6. Gas Heating System:
    a. Induced draft
    b. Natural gas fired system with direct spark ignition
    c. Electronic flame sensors
    d. Flame rollout switches
    e. High heat limit switches
    f. Induced draft failure switch and capable of operating to altitude of 2000 feet (610 m) with no derate to manifold pressure.
    g. Service access for controls, burners and heat exchanger.
    h. Heat Exchanger:
        1) Tubular Design
        2) [Aluminized steel] [Stainless steel].
    i. Gas piping system tight and free of leaks when pressurized to maximum supply pressure.
    j. Gas Valve: Two-stage, redundant type gas heat valve with manual shutoff.

Specifier Note: One Stage Gas valve only available on 2-6 ton models.

    k. Gas Valve: Single-stage.
    l. Gas Burners: Aluminized steel inshot-type gas burners.
    m. Direct spark pilot ignition.
    n. Fan and Limit Controls.
    o. Safety Switches.
    p. Gas piping system tight and free of leaks when.

Specifier Note: "Cold Weather Kit" is only available for field mounting on the T-Class (TG) Gas/Electric models of tonnages 15 – 25 or factory mounting on the T-Class (TG) Gas/Electric models of tonnages 7.5 – 12.

    q. [Cold Weather Kit:] [field] [factory]

Specifier Note: "Field Installed Accessories" are options that can be selected for the T-Class TG Gas/Electric models. The "Field Installed Accessories" are shipped separately and installed in the field.

    r. [Field Installed Accessories:]
        1) [Combustion Air Intake Extensions].
        2) [Vertical Vent Extension Kit].
        3) [LPG/Propane Kit].

Specifier Note: "Low Temperature Vestibule Heater" is only available for the T-Class (TG) Gas/Electric models of tonnages 2, 2.5, 3, 4, 5 and 6.

        4) [Low Temperature Vestibule Heater].

Specifier Note: The "Electric Heating System" is an option for T-Class (TH), heat pump, and T-Class (TC), electric/electric models only. The "Electric Heating System" can be either factory or field installed.

7. Electric Heating System:
    a. Electrical resistance heater.
    b. [Factory] [Field] installed.
    c. [Factory] [Field] installed Fuse Block.
    d. Reset thermal limit protection.
    e. Single point power supply.
    f. Heater Element:
        1) Nickel chromium wire.
        2) Individually fused.

g. Electric heater slides out of unit for service.

8. Heating Controls:

Specifier Note: 2 stages of heating control are only available on T-Class (TG) gas/electric models of tonnages 4-6, on two stage units.

a. Support 2 stages of heating control from thermostat or DDC.
b. With delay time of 30 seconds between low and high heat stages.

9. Supply Air Fan Motor and Drives:
   a. Permanently lubricated ball bearings (for belt drive motors).
   b. Thermal overload protected motors with automatic reset.

Specifier Note: Slide out accessibility is only available on T-Class models of tonnages 7.5-25.

   c. Adjustable sheaves on belt drive motors for blower speed adjustment.
   d. Optional low and high static motor/drive combinations and optional drive kits.

10. Supply Air Fan:
    a. Double inlet type, G90 (Z275) galvanized steel with forward curved blades.
    b. Statically and dynamically balanced.
    c. Slide-out accessibility unit for servicing and belt tension adjustment.
    d. Continuous or automatic control for occupied periods.

11. Supply Air Filters:
    a. Disposable 2 inch.

Specifier Note: Permanent metal frame filters with 2 inch polyester replaceable media are only available on T-Class models of tonnages 15-25 tons.

    b. [Permanent metal frame filters with 2 inch polyester replaceable media].

12. Condenser Fan Motor:

Specifier Note: T-Class 2-4 ton models have sleeve bearings.

    a. Direct drive with permanently lubricated ball bearings.
    b. Watertight with thermal overload protection and automatic reset.
    c. Motor mount isolated from fan safety guard.

13. Condenser Fans:
    a. Corrosion resistant propeller type with vertical discharge and finger safety guard.

14. Microprocessor Based Unit Controller System:
    a. Solid state, microprocessor based control board to control unit cooling operations.
    b. Green blinking LED to indicate normal operation.
    c. Pushbutton reset.
    d. Four-position DIP switch to select unit operating mode/unit type.
    e. Test mode for quick operation checks.
    f. Up to 2-stage heat/4-stage cool thermostat or DDC capable thermostat operation.
    g. Digital Inputs:
        1) Low cool demand
        2) High cool demand
        3) Low heat demand
        4) Supply fan demand
        5) Primary heat limit (2)
        6) Flame rollout switch (2)
        7) Induced draft motor switch (2)
        8) Gas valve sense switch (2)

Specifier Note: T-Class models of tonnages 15-25 have four Freeze protection switches. 7.5 - 12 ton models have two. 2-6 ton models have one.

        9) Freeze protection switch (2), (4).

    h. Digital Outputs:
        1) Supply air fan motor
        2) compressor 1
        3) compressor 2
        4) condenser fans
        5) inducer fan motor 1

Specifier Note: T-Class 7.5 - 25 ton models only.

6) heat 1

7) critical diagnostic fault code occurrence.

i. [Control Options:]

1) [Single Enthalpy Control] : [Field] [Factory]

2) [Differential Enthalpy Control : Field]

Specifier Note: The factory mounted CO2 sensor is only available T-Class models of tonnages 15 - 25. All other models can be field mounted only.

3) [CO2 Sensor:] [Field] [Factory]

Specifier Note: Economizer Control: Field is only available for T-Class models of tonnages 7.5 - 25.

4) [Economizer Control: Field]

15. [Accessories:]

a. [Economizer]: [Field] [Factory]

Specifier Note: Motorized outdoor air damper is only available in a field mounted version for the T-Class models of tonnages 2, 2.5, 3, 4, 5 and 6. All other models can be factory or field.

b. [Motorized outdoor air damper]: [Field] [Factory]

Specifier Note: Manual outdoor air damper is only available in a field mounted version for the T-Class models of tonnages 2, 2.5, 3, 4, 5 and 6. All other models can be factory or field.

c. [Manual outdoor air damper]: [Field] [Factory]

Specifier Note: Barometric relief damper is included with factory or field installed economizer on 2-6 ton models. All other models can be factory or field installed separately.

d. [Barometric relief damper]: [Field] [Factory]

Specifier Note: The factory mounted Power Exhaust Fan is only available on the versions of T-Class models of tonnages 15-25. All other models can be field mounted.

e. [Power exhaust fan]: [Field] [Factory]

f. [Dirty filter switch: Field]

Specifier Note: The field mounted Blower Proving Switch is only available on T-Class models of tonnages 7.5-25.

g. [Blower proving switch]: [Field] [Factory]

h. [Smoke detectors: Field]

i. [Roof curb: Field]

j. [Outdoor air hood: Field]

k. [Barometric relief damper hood: Field]

Specifier Note: Edit article below to suit project requirements. If substitutions are permitted, edit text below. Add text to refer to Division 1 Project Requirements (Product Substitutions Procedures) Section.

PART 2.02 PRODUCT SUBSTITUTIONS

A. Substitutions: No substitutions permitted.

PART 3 EXECUTION

PART 3.01 MANUFACTURER'S INSTRUCTIONS

Specifier Note: Revise article below to suit project requirements and specifier's practice.

A. Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions and manufacturer's SPEC-DATA® sheets.

PART 3.02 EXAMINATION

A. Site Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions

PART 3.03 INSTALLATION

A. Install **[Packaged rooftop units] [And] [Commercial packaged, gas/electric, electric/electric and electric/heat pumps]** in accordance with manufacturer's instructions **[On roof curbs provided by manufacturer] [As indicated]**.

END OF SECTION

REVISIONS

Sections	Description of Change
Dimensions	Updated Diffuser dimension drawings.
Optional Accessories	Updated Information - Economizer, High Pressure Switch, Low Ambient Kit.
Sound Data	Octave Band Sound Power Levels updated.

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