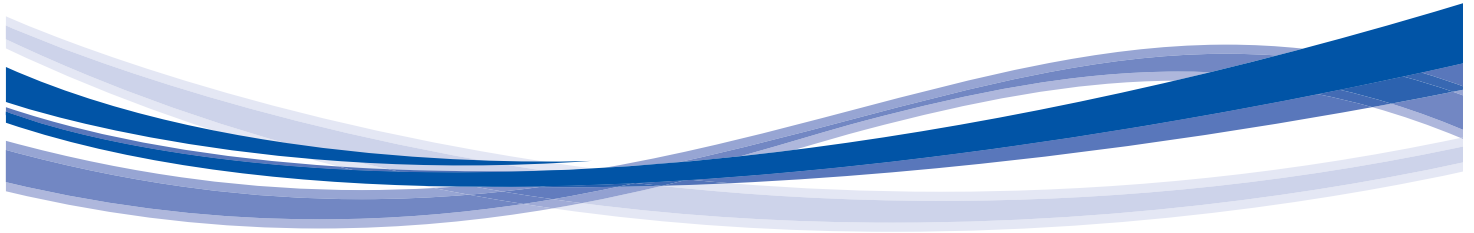




Product Data  
WeatherExpert®  
Packaged Multi Zone VAV  
Rooftops  
12.5 to 23 Nominal Tons



WeatherExpert™



Unit shown with economizer and power exhaust.

50LC\*B Sizes 14 to 26  
Packaged Rooftop Multi Zone VAV (Variable Air Volume)  
Cooling Units with Optional Electric Heat

Carrier’s new Multi Zone – Variable Air Volume (MZ-VAV) Electric Heat / Electric Cooling WeatherExpert® 50LCB 12.5 to 23 ton Package Rooftop models are designed to help provide total low cost of ownership by providing some of the highest cooling efficiencies in the industry with low installation costs, low maintenance costs, and high reliability. These MZ-VAV models not only provide comfort control to multi zone applications, they also provide high IEERs (Integrated Energy Efficiency Ratios) which are a measurement of cooling part load performance and where actual buildings operate nearly all of the time. These high part load values are achieved by using Carrier’s strategically designed compressor staging, indoor fan motor and condenser fan motor speed control. These models are in addition to the 6 to 10 ton MZ-VAV models with IEERs up to 21.0 to provide a full range offering.

### Ultra high efficiency:

With IEERs up to 19.3, these new WeatherExpert MZ-VAV models will exceed the latest efficiency standards for ASHRAE 90.1, and exceeds Consortium for Energy Efficiency (CEE) Advanced Tier performance criteria. These models help to contribute in LEED<sup>1</sup> credits and help qualify for rebates. The high IEER efficiencies are achieved by utilizing a proven staged compressor design on a single refrigerant circuit that provides three stages of cooling capacity control.

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The indoor fan motors are high efficiency belt drive and controlled by a VFD (Variable Frequency Drive) that adjusts speed based on the duct static pressure sensor and also matches cooling capacity stages for optimum comfort and efficient control. Models also have multiple heat capacities.

### Easy to install:

Units are designed for dedicated factory-supplied vertical or horizontal air flow duct configuration. No special field kits are required. Designed to fit on pre-installed curbs by another manufacturer, these units also fit on past designed Carrier installed curbs with an authorized adapter curb. The cabinet design also integrates a large control box that gives you room to work and room to mount Carrier accessory controls.

### Easy to maintain:

Easy access door handles by Carrier provide quick access to all normally serviced components. Our “no-strip” screw system has superior holding power and guides screws into position while preventing the screw from stripping the unit’s metal. Units come with accessible 2-in. filter that have a dedicate access door for easy replacement. Optional hinged panels allow easy access with pull tabs and quarter turn latches. Units come with installed supply-air temperature sensor, return-air temperature sensor, outdoor-air temperature sensor and duct static pressure sensor located in the control box for remote positioning in the field.

### Reliable:

Carrier conducts rigorous testing to ensure your unit will perform as designed. Extensive rain testing is conducted in special designed test areas and under conditions that simulate actual job sites. In addition, units are shake-tested and driven around the country to make sure both the packaging and the unit components within hold up. Condensate pans are made of non corrosive – composite material, motors are permanently lubricated, and compressors use crankcase heaters, all to further strengthen the unit’s reliability.

### Unit Features

- Three stage cooling capacity control with staged scroll compressors design. Each stage is different in capacity output to better match typical building load profiles.
- Single refrigerant circuit design with precision sized multi TXV refrigerant metering devices to provide optimum operation through the entire operating range.
- Single fully activated faced evaporator coil for full surface utilization, even at part load operation. This allows for better dehumidification than split face coils and helps eliminate the need for additional dehumidification packages.
- Integrated economizer in either standard low leak or ultra-low leak versions to properly help supplement compressor unloading in all operating conditions
- Crankcase heater on each compressor designed to cycle off during the on cycle.
- IEER up to 19.3 and EERs up to 12.6.
- High efficiency permanently lubricated belt driven evaporator-fan motor with VFD (Variable Frequency Drive) controller.
- VAV-RTU Open controller provides:
  - Integrated system control to required Carrier i-Vu® VAV zoning controls for single duct and fan terminals using BACnet<sup>2</sup> MS/TP protocol.
  - Unit control of all stages of cooling in order to maintain the

1. LEED is a registered trademark of the U.S. Green Building Council.

2. BACnet is a registered trademark of ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers).

desired supply air temperature setting.

- Supply air temperature control including reset algorithm will calculate a proportional reset value between occupied cooling setpoint and 1°F above the occupied heating setpoint. The amount of reset is user configurable.
- Control for morning warm-up cycle the first time of transition from unoccupied to occupied periods.
- Provide linkage from the RTU to the VAV zones in morning warm up cycle to ensure sufficient airflow while in the heating mode.
- Provide optional selected “occupied” heating which will allow heating whenever required during the occupied period.
- Configurable setpoint differential between heating and cooling to prevent the unit from prematurely entering the opposite mode.
- The ability to utilize outdoor air for maintaining the supply air setpoint by using the outdoor air temperature average zone temperature
- BACnet test points to activate specific test models that can be used to commission the rooftop and the system. Tests shall

include fan test, heat test, cooling test, power exhaust test, and economizer test.

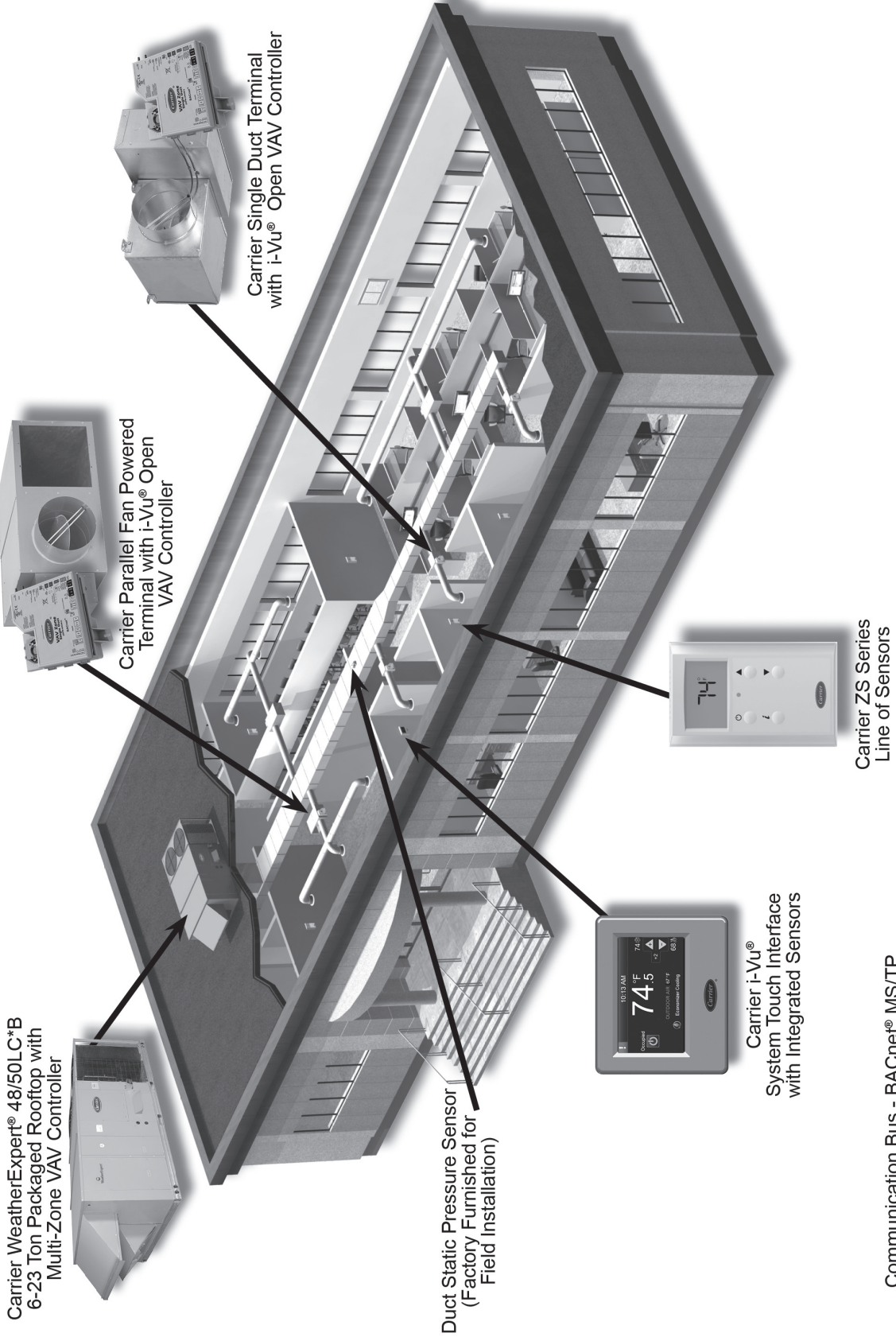
- Linkage to required Carrier i-Vu VAV zoning controls for single duct and fan terminals using BACnet MS/TP protocol.
- Standalone BACnet MS/TP or BAS network capabilities.
- Two economizer minimum position settings to accommodate both minimum and maximum air flow settings.
- Indoor fan motor modulation
- Field and factory wiring connections
- Outdoor fan motor staging
- Crank case heater control
- Sound levels as low as 84 dB.
- Non-corrosive composite condensate pan in accordance with ASHRAE 62 Standard, sloping design; side or bottom drain.
- Single point electrical connections
- Pre-painted exterior panels and primer-coated interior panels tested to 500 hours salt spray protection.
- Fully insulated with foil faced insulation throughout the entire cabinet.
- High ambient cooling operation and ratings up to 125°F (52°C).
- Low ambient mechanical cooling operation down to 45°F (7°C). An economizer shall be the source of

cooling in low ambient conditions. When the outside air temperature is below 45°F (7°C), to improve system reliability, reduce energy usage, and improve system efficiency: mechanical cooling shall not be utilized.

- Access panels with easy grip handles.
- Innovative, easy starting, no-strip screw feature on unit access panels.
- Two-inch disposable return air filters.
- Tool-less filter access door.
- Dedicated vertical and horizontal airflow models available ordered as factory option. No special kits required.
- Provisions for thru-the-bottom power entry capability as standard.
- Full perimeter base rail with built-in rigging adapters and fork truck slots.
- 24-volt control circuit protected with resettable circuit breaker.
- Totally enclosed high efficient ECM outdoor fan motor with permanently lubricated bearings.
- Low-pressure switch and high-pressure switch protection.
- Evaporator coil freeze protection
- High capacity liquid line filter drier.
- Standard Limited Parts Warranty: 5 yr. electric heat, 5 yr. compressor, 1 yr. parts.



## TYPICAL VAV RTU-OPEN SYSTEM LAYOUT AND COMPONENTS



# Model number nomenclature



## MODEL NUMBER NOMENCLATURE

Position:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Example:	5	0	L	C	D	B	2	4	A	1	A	5	-	0	N	0	A	0

### Unit Heat Type

50 - Electric Cooling  
Packaged Rooftop

### Model Series - WeatherExpert®

LC - Ultra High Efficiency

### Heat Options

0 = Standard - No Electric Heat  
D = Low Electric Heat  
E = Medium Electric Heat  
F = High Electric Heat

### Refrig. Systems Options

B = Three stage cooling capacity control with multi-zone VAV operation

### Cooling Tons

14 - 12.5 ton  
17 - 15 ton  
20 - 17.5 ton  
24 - 20 ton  
26 - 23 ton

### Sensor Options

A = None  
B = RA Smoke Detector  
C = SA Smoke Detector  
D = RA + SA Smoke Detector  
E = CO<sub>2</sub>  
F = RA Smoke Detector and CO<sub>2</sub>  
G = SA Smoke Detector and CO<sub>2</sub>  
H = RA + SA Smoke Detector and CO<sub>2</sub>

### Indoor Fan Motor Options

1 = Standard Static / Vertical Supply, Return Air Flow  
2 = Medium Static / Vertical Supply, Return Air Flow  
3 = High Static / Vertical Supply, Return Air Flow  
4 = Ultra High Static / Vertical Supply, Return Air Flow  
5 = Standard Static / Horizontal Supply, Return Air Flow  
6 = Medium Static / Horizontal Supply, Return Air Flow  
7 = High Static / Horizontal Supply, Return Air Flow  
8 = Ultra High Static / Horizontal Supply, Return Air Flow

### Coil Options (Outdoor – Indoor – Hail Guard)

A = Al/Cu – Al/Cu  
B = Precoat Al/Cu – Al/Cu  
C = E-coat Al/Cu – Al/Cu  
D = E-coat Al/Cu – E-coat Al/Cu  
E = Cu/Cu – Al/Cu  
F = Cu/Cu – Cu/Cu  
M = Al/Cu – Al/Cu – Louvered Hail Guard  
N = Precoat Al/Cu – Al/Cu – Louvered Hail Guard  
P = E-coat Al/Cu – Al/Cu – Louvered Hail Guard  
Q = E-coat Al/Cu – E-coat Al/Cu – Louvered Hail Guard  
R = Cu/Cu – Al/Cu – Louvered Hail Guard  
S = Cu/Cu – Cu/Cu – Louvered Hail Guard

### Packaging

0 = Standard  
1 = LTL

### Electrical Options

A = None  
B = HACR Circuit Breaker  
C = Non-Fused Disconnect

### Service Options

0 = None  
1 = Unpowered Convenience Outlet  
2 = Powered Convenience Outlet  
3 = Hinged Panels  
4 = Hinged Panels and Unpowered Convenience Outlet  
5 = Hinged Panels and Powered Convenience Outlet

### Intake / Exhaust Options

B = Temperature Low Leak Economizer with Barometric Relief  
C = Temperature Low Leak Economizer with Centrifugal Power Exhaust - Vertical Only  
E = Enthalpy Low Leak Economizer with Barometric Relief  
F = Enthalpy Low Leak Economizer with Centrifugal Power Exhaust - Vertical Only  
N = Temperature Ultra Low Leak Economizer with Barometric Relief  
P = Temperature Ultra Low Leak Economizer with Centrifugal Power Exhaust - Vertical Only  
R = Enthalpy Ultra Low Leak Economizer with Barometric Relief  
S = Enthalpy Ultra Low Leak Economizer with Centrifugal Power Exhaust - Vertical Only

### Base Unit Controls

1 = VAV-RTU Open controller (required on each model)

### Design Revision

- = Factory Design Revision

### Voltage

1 = 575/3/60  
5 = 208-230/3/60  
6 = 460/3/60

**AHRI COOLING RATING TABLE (208-v)**

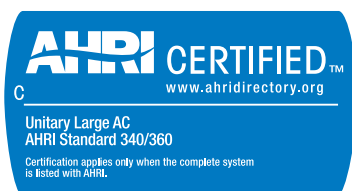
50LC*B SIZE	COOLING STAGES	HEATING OPTION	MOTOR OPTION	NOMINAL CAPACITY (TONS)	NOM COOLING CAPACITY (MBtuh)	CONFIG	TOTAL POWER (kW)	EER	IEER	RATED INDOOR AIRFLOW (CFM)
14	3	None	1, 3, 4	12.5	146.0	VERTICAL	11.6	12.6	19.3	4375
			2	12.5	146.0	VERTICAL	11.7	12.5	19.2	4375
			5, 7, 8	12.5	146.0	HORIZONTAL	12.0	12.2	18.7	4375
			6	12.5	146.0	HORIZONTAL	12.2	12.0	18.5	4375
		Low, Med, High	1, 3, 4	12.5	146.0	VERTICAL	11.7	12.4	19.2	4375
			2	12.5	146.0	VERTICAL	11.8	12.4	19.1	4375
			5, 7, 8	12.5	146.0	HORIZONTAL	12.3	11.9	18.3	4375
			6	12.5	146.0	HORIZONTAL	12.4	11.8	18.2	4375
17	3	All	—	15.0	172.0	VERTICAL	13.7	12.6	18.5	4875
		None	—	15.0	170.0	HORIZONTAL	14.0	12.1	17.7	4875
		Low	—	15.0	170.0	HORIZONTAL	14.0	12.1	17.7	4875
		Med	—	15.0	170.0	HORIZONTAL	14.0	12.1	17.7	4875
		High	—	15.0	170.0	HORIZONTAL	14.3	11.9	17.5	4875
20	3	All	—	17.5	194.0	VERTICAL	15.9	12.2	17.9	5690
		None	—	17.5	192.0	HORIZONTAL	16.7	11.5	17.2	5690
		Low	—	17.5	192.0	HORIZONTAL	16.7	11.5	17.2	5690
		Med	—	17.5	192.0	HORIZONTAL	16.8	11.4	17.1	5690
		High	—	17.5	192.0	HORIZONTAL	17.0	11.3	17.0	5690
24	3	All	—	20.0	232.0	VERTICAL	19.0	12.2	18.2	6500
		None	—	20.0	230.0	HORIZONTAL	20.2	11.4	17.5	6500
		Low	—	20.0	230.0	HORIZONTAL	20.2	11.4	17.5	6500
		Med	—	20.0	230.0	HORIZONTAL	20.2	11.4	17.5	6500
		High	—	20.0	228.0	HORIZONTAL	20.4	11.2	17.4	6500
26	3	All	—	23.0	274.0	VERTICAL	23.6	11.6	18.3	7500
		None	—	23.0	270.0	HORIZONTAL	25.5	10.6	16.8	7500
		Low	—	23.0	270.0	HORIZONTAL	25.5	10.6	16.8	7500
		Med	—	23.0	268.0	HORIZONTAL	25.3	10.6	16.8	7500
		High	—	23.0	268.0	HORIZONTAL	25.8	10.4	16.5	7500

**LEGEND**

- AHRI** — Air-Conditioning, Heating and Refrigeration Institute Test Standard
- ASHRAE** — American Society of Heating, Refrigerating and Air-Conditioning Engineers
- EER** — Energy Efficiency Ratio
- IEER** — Integrated Energy Efficiency Ratio

**NOTES:**

1. Rated in accordance with AHRI 340/360 Standards.
2. Ratings are based on:  
Cooling Standard: 80°F (27°C) db, 67°F (19°C) wb indoor air temp and 95°F (35°C) db outdoor air temp.
3. 50LC\*B units comply with US Energy Policy Act. To evaluate code compliance requirements, refer to state and local codes.



### AHRI COOLING RATING TABLE (230/460/575-v)

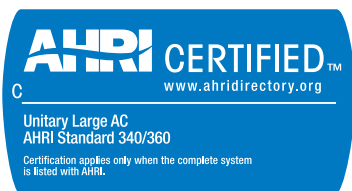
50LC*B SIZE	COOLING STAGES	HEATING OPTION	MOTOR OPTION	NOMINAL CAPACITY (TONS)	NOM COOLING CAPACITY (MBtuh)	CONFIG	TOTAL POWER (kW)	EER	IEER	RATED INDOOR AIRFLOW (CFM)
14	3	None	1,3,4	12.5	146.0	VERTICAL	11.6	12.6	19.3	4375
			2	12.5	146.0	VERTICAL	11.7	12.5	19.2	4375
			5, 7,8	12.5	146.0	HORIZONTAL	12.0	12.2	18.7	4375
			6	12.5	146.0	HORIZONTAL	12.2	12.0	18.5	4375
		Low, Med, High	1, 3,4	12.5	146.0	VERTICAL	11.7	12.4	19.2	4375
			2	12.5	146.0	VERTICAL	11.8	12.4	19.1	4375
			5, 7,8	12.5	146.0	HORIZONTAL	12.3	11.9	18.3	4375
			6	12.5	146.0	HORIZONTAL	12.4	11.8	18.2	4375
17	3	All	—	15.0	174.0	VERTICAL	13.8	12.6	18.5	4875
		None	—	15.0	172.0	HORIZONTAL	14.2	12.1	17.7	4875
		Low	—	15.0	172.0	HORIZONTAL	14.2	12.1	17.7	4875
		Med	—	15.0	172.0	HORIZONTAL	14.2	12.1	17.7	4875
		High	—	15.0	172.0	HORIZONTAL	14.5	11.9	17.5	4875
20	3	All	—	17.5	194.0	VERTICAL	15.9	12.2	17.7	5690
		None	—	17.5	192.0	HORIZONTAL	16.7	11.5	17.0	5690
		Low	—	17.5	192.0	HORIZONTAL	16.7	11.5	17.0	5690
		Med	—	17.5	192.0	HORIZONTAL	16.8	11.4	16.9	5690
		High	—	17.5	192.0	HORIZONTAL	17.0	11.3	16.8	5690
24	3	All	—	20.0	234.0	VERTICAL	19.2	12.2	18.2	6500
		None	—	20.0	232.0	HORIZONTAL	20.4	11.4	17.5	6500
		Low	—	20.0	232.0	HORIZONTAL	20.4	11.4	17.5	6500
		Med	—	20.0	232.0	HORIZONTAL	20.4	11.4	17.5	6500
		High	—	20.0	232.0	HORIZONTAL	20.7	11.2	17.4	6500
26	3	All	—	23.0	274.0	VERTICAL	23.6	11.6	18.3	7500
		None	—	23.0	270.0	HORIZONTAL	25.5	10.6	16.8	7500
		Low	—	23.0	270.0	HORIZONTAL	25.5	10.6	16.8	7500
		Med	—	23.0	268.0	HORIZONTAL	25.3	10.6	16.8	7500
		High	—	23.0	268.0	HORIZONTAL	25.8	10.4	16.5	7500

**LEGEND**

- AHRI** — Air-Conditioning, Heating and Refrigeration Institute Test Standard
- ASHRAE** — American Society of Heating, Refrigerating and Air-Conditioning Engineers
- EER** — Energy Efficiency Ratio
- IEER** — Integrated Energy Efficiency Ratio

**NOTES:**

1. Rated in accordance with AHRI 340/360 Standards.
2. Ratings are based on:  
Cooling Standard: 80°F (27°C) db, 67°F (19°C) wb indoor air temp and 95°F (35°C) db outdoor air temp.
3. 50LC units comply with US Energy Policy Act. To evaluate code compliance requirements, refer to state and local codes.



# AHRI capacity ratings (cont)



## COOLING MINIMUM - MAXIMUM AIRFLOW RATINGS

50LC*B SIZE	COOLING STAGE	MAX CFM	MIN CFM	MAX OD AMBIENT TEMPERATURE °F	MIN OD AMBIENT TEMPERATURE °F
14	Stage 3	6250	3150	125	40
	Stage 2	3750	1900		
	Stage 1	2500	1250		
17	Stage 3	7500	3750	125	40
	Stage 2	4500	2250		
	Stage 1	3000	1500		
20	Stage 3	8750	4400	125	40
	Stage 2	5400	2700		
	Stage 1	4600	2300		
24	Stage 3	10000	5000	125	40
	Stage 2	5700	2850		
	Stage 1	4300	2150		
26	Stage 3	11250	5650	125	40
	Stage 2	8100	4050		
	Stage 1	6750	3400		

NOTE: SystemVu™ controller provides minimum outdoor temperature operation down to 0°F (-18°C).

## HEATING MINIMUM - MAXIMUM CFM

UNIT	MIN AIR FLOW (CFM)	MAX AIR FLOW (CFM)
50LC*B14	3,750	6,250
50LC*B17	4,500	7,500
50LC*B20	5,250	8,750
50LC*B24	6,000	10,000
50LC*B26	6,750	11,250

## SOUND PERFORMANCE

50LC*B	COOLING STAGES	OUTDOOR SOUND (dB) AT 60 Hz									
		A-Weighted	31.5	63	125	250	500	1000	2000	4000	8000
14	3	84	92.6	92.2	83.9	80.4	81.8	78.7	76.5	72.2	65.4
17	3	86	101.3	97.1	88.3	84.4	83.3	80.7	77.4	73.4	67.3
20	3	86	101.3	97.1	88.3	84.4	83.3	80.7	77.4	73.4	67.3
24	3	86	101.3	97.1	88.3	84.4	83.3	80.7	77.4	73.4	67.3
26	3	86	101.3	97.1	88.3	84.4	83.3	80.7	77.4	73.4	67.3

### LEGEND

dB — Decibel

### NOTES:

- Outdoor sound data is measured in accordance with AHRI standard 270.
- Measurements are expressed in terms of sound power. Do not compare these values to sound pressure values because sound pressure depends on specific environmental factors which normally do not match individual applications. Sound power values are independent of the environment and therefore more accurate.
- A-weighted sound ratings filter out very high and very low frequencies, to better approximate the response of the "average" human ear. A-weighted measurements for Carrier units are taken in accordance with AHRI standard 270.



## PHYSICAL DATA (COOLING) 12.5-23 TONS

		50LC*B14	50LC*B17	50LC*B20	50LC*B24	50LC*B26
<b>REFRIGERATION SYSTEM</b>						
# Circuits / # Comp. / Type		1 / 2 / Scroll	1 / 2 / Scroll	1 / 2 / Scroll	1 / 2 / Scroll	1 / 2 / Scroll
RTPF models R-410A charge A/B (lbs-oz)		32-0	33-6	35-6	40-10	43-4
Metering device		TXV	TXV	TXV	TXV	TXV
High-press. Trip / Reset (psig)		630 / 505	630 / 505	630 / 505	630 / 505	630 / 505
Low-press. Trip / Reset (psig)		54 / 117	54 / 117	54/117	54 / 117	54 / 117
Loss of charge Trip/Reset (psig)		N/A	N/A	N/A	N/A	N/A
<b>EVAP. COIL</b>						
Material		Cu / Al	Cu / Al	Cu / Al	Cu / Al	Cu / Al
Coil Type		<sup>5</sup> / <sub>16</sub> -in. RTPF	<sup>5</sup> / <sub>16</sub> -in. RTPF	<sup>5</sup> / <sub>16</sub> -in. RTPF	<sup>5</sup> / <sub>16</sub> -in. RTPF	<sup>5</sup> / <sub>16</sub> -in. RTPF
Coil Length (in.)		72	72	72	72	72
Coil Height (in.)		44	52	52	52	52
Rows / FPI		4 / 15	4 / 15	4 / 15	4 / 15	4 / 15
Total face area (ft <sup>2</sup> )		22.0	26.0	26.0	26.0	26.0
Condensate drain conn. size (in.)		<sup>3</sup> / <sub>4</sub> -in.	<sup>3</sup> / <sub>4</sub> -in.	<sup>3</sup> / <sub>4</sub> -in.	<sup>3</sup> / <sub>4</sub> -in.	<sup>3</sup> / <sub>4</sub> -in.
<b>EVAPORATOR FAN AND MOTOR</b>						
<b>VERTICAL</b>						
<b>Standard Static 3 phase</b>	Motor Qty. / Belt Qty. / Drive Type	1 / 1 Belt	1 / 1 Belt	1 / 1 Belt	1 / 1 Belt	1 / 1 Belt
	Max BHP	2.9	2.9	2.9	7.4	7.4
	RPM range	498-676	498-676	555-753	583-717	651-818
	Motor frame size	56	56	56HZ	184T	184T
	Fan Qty. / Type	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal
	Fan Diameter (in.)	15 x 15 / 15 X 15	15 x 15 / 15 X 15	15 x 15 / 15 X 15	15 x 15 / 15 X 15	15 x 15 / 15 X 15
<b>Medium Static 3 phase</b>	Motor Qty. / Belt Qty. / Drive Type	1 / 1 Belt	1 / 1 Belt	1 / 1 Belt	1 / 1 Belt	1 / 1 Belt
	Max BHP	4.9	7.4	7.4	7.4	9.9
	RPM range	682-861	651-818	707-888	707-888	804-970
	Motor frame size	145TZ	184T	184T	184T	213T
	Fan Qty. / Type	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal
	Fan Diameter (in.)	15 x 15 / 15 X 15	15 x 15 / 15 X 15	15 x 15 / 15 X 15	15 x 15 / 15 X 15	15 x 15 / 15 X 15
<b>High Static 3 phase</b>	Motor Qty. / Belt Qty. / Drive Type	1 / 1 Belt	1 / 1 Belt	1 / 1 Belt	1 / 1 Belt	1 / 2 Belt
	Max BHP	7.4	9.9	9.9	9.9	13.6
	RPM range	782-963	804-970	872-1053	872-1053	948-1190
	Motor frame size	184T	213T	213T	213T	215T
	Fan Qty. / Type	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal
	Fan Diameter (in.)	15 x 15 / 15 X 15	15 x 15 / 15 X 15	15 x 15 / 15 X 15	15 x 15 / 15 X 15	15 x 15 / 15 X 15
<b>Super Static 3 phase</b>	Motor Qty. / Belt Qty. / Drive Type	1 / 1 Belt	1 / 2 Belt	1 / 2 Belt	1 / 2 Belt	N/A
	Max BHP (208/230/460/575v)	9.9	13.6	13.6	13.6	N/A
	RPM range	933-1113	948-1190	948-1190	1049-1291	N/A
	Motor frame size	213T	215T	215T	215T	N/A
	Fan Qty. / Type	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	N/A
	Fan Diameter (in.)	15 x 15 / 15 X 15	15 x 15 / 15 X 15	15 x 15 / 15 X 15	15 x 15 / 15 X 15	N/A

## PHYSICAL DATA (COOLING) 12.5-23 TONS (cont)

EVAPORATOR FAN AND MOTOR (cont)		50LC*B14	50LC*B17	50LC*B20	50LC*B24	50LC*B26
<b>HORIZONTAL</b>						
<b>Standard Static 3 phase</b>	Motor Qty. / Belt Qty. / Drive Type	1 / 1 Belt	1 / 1 Belt	1 / 1 Belt	1 / 1 Belt	1 / 1 Belt
	Max BHP	2.9	2.9	2.9	7.4	7.4
	RPM range	498-676	498-676	555-753	583-717	707-888
	Motor frame size	56	56	56HZ	184T	184T
	Fan Qty. / Type	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal
	Fan Diameter (in.)	18 x 15 / 15 X 11	18 x 15 / 15 X 11	18 x 15 / 15 X 11	18 x 15 / 15 X 11	18 x 15 / 15 X 11
<b>Medium Static 3 phase</b>	Motor Qty. / Belt Qty. / Drive Type	1 / 1 Belt	1 / 1 Belt	1 / 1 Belt	1 / 1 Belt	1 / 1 Belt
	Max BHP	4.9	7.4	7.4	7.4	9.9
	RPM range	644-808	651-818	651-818	707-888	859-1026
	Motor frame size	184T	213T	213T	213T	213T
	Fan Qty. / Type	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal
	Fan Diameter (in.)	18 x 15 / 15 X 11	18 x 15 / 15 X 11	18 x 15 / 15 X 11	18 x 15 / 15 X 11	18 x 15 / 15 X 11
<b>High Static 3 phase</b>	Motor Qty. / Belt Qty. / Drive Type	1 / 1 Belt	1 / 1 Belt	1 / 1 Belt	1 / 1 Belt	1 / 2 Belt
	Max BHP	7.4	9.9	9.9	9.9	13.6
	RPM range	707-888	804-970	804-970	872-1053	948-1190
	Motor frame size	184T	213T	213T	213T	215T
	Fan Qty. / Type	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal
	Fan Diameter (in.)	18 x 15 / 15 X 11	18 x 15 / 15 X 11	18 x 15 / 15 X 11	18 x 15 / 15 X 11	18 x 15 / 15 X 11
<b>Super Static 3 phase</b>	Motor Qty. / Belt Qty. / Drive Type	1 / 1 Belt	1 / 2 Belt	1 / 2 Belt	1 / 2 Belt	N/A
	Max BHP (208/230/460/575v)	9.9	13.6	13.6	13.6	N/A
	RPM range	872-1053	948-1190	948-1190	948-1190	N/A
	Motor frame size	213T	215T	215T	215T	N/A
	Fan Qty. / Type	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	N/A
	Fan Diameter (in.)	18 x 15 / 15 X 11	18 x 15 / 15 X 11	18 x 15 / 15 X 11	18 x 15 / 15 X 11	N/A
<b>COND. COIL 1</b>						
	Material	Cu / Al	Cu / Al	Cu / Al	Cu / Al	Cu / Al
	Coil Type	<sup>5</sup> / <sub>16</sub> -in. RTPF	<sup>5</sup> / <sub>16</sub> -in. RTPF	<sup>5</sup> / <sub>16</sub> -in. RTPF	<sup>5</sup> / <sub>16</sub> -in. RTPF	<sup>5</sup> / <sub>16</sub> -in. RTPF
	Coil Length (in.)	68	82	82	98	98
	Coil Height (in.)	44	52	52	52	52
	Rows / FPI	2/18	2 / 18	2/18	2 / 18	2 / 18
	Total face area (ft <sup>2</sup> )	20.8	29.6	29.6	35.4	35.4
<b>COND. COIL 2</b>						
	Material	Cu / Al	Cu / Al	Cu / Al	Cu / Al	Cu / Al
	Coil Type	<sup>5</sup> / <sub>16</sub> -in. RTPF	<sup>5</sup> / <sub>16</sub> -in. RTPF	<sup>5</sup> / <sub>16</sub> -in. RTPF	<sup>5</sup> / <sub>16</sub> -in. RTPF	<sup>5</sup> / <sub>16</sub> -in. RTPF
	Coil Length (in.)	68	82	82	98	98
	Coil Height (in.)	44	52	52	52	52
	Rows / FPI	2/18	2 / 18	2/18	2 / 18	2 / 18
	Total face area (ft <sup>2</sup> )	20.8	29.6	29.6	35.4	35.4
<b>Cond. Fan / Motor</b>						
	Qty. / Motor Drive Type	3 / direct	4 / direct	4 / direct	6 / direct	6 / Direct
	Motor HP / RPM	1/3 / 1000	1/3 / 1000	1/3 /1000	1/3 / 1000	1/3 /1000
	Fan Diameter (in.)	22	22	22	22	22
<b>Filters</b>						
	RA Filter # / size (in.)	6 / 20 x 25 x 2	9/16x25x2	9/16x25x2	9/16x25x2	9 / 16x25x2
	OA inlet screen # / size (in.)	4 / 16 x 25 x 1	4/16x25x1	4/16x25x1	4/16x25x1	4 / 16x25x1

## FACTORY-INSTALLED OPTIONS AND FIELD-INSTALLED ACCESSORIES

CATEGORY	ITEM	FACTORY-INSTALLED OPTION	FIELD-INSTALLED ACCESSORY
<b>Cabinet</b>	Hinged access panels	X	
<b>Coil options</b>	Cu/Cu indoor and/or outdoor coils	X	
	Pre-coated outdoor coils	X	
	Premium, E-coated outdoor coils	X	
<b>Condenser protection</b>	Condenser coil hail guard (louvered design)	X	X
<b>Controls</b>	VAV-RTU Open	Standard	
	Smoke detector (supply and/or return air)	X	
	Time Guard II compressor delay control circuit		X
	Phase Monitor		X
	i-Vu® Equipment Touch; Carrier brand 4.3-in. color touch screen zone sensor and local user interface for a single Open (BACnet MS/TP) equipment controller. Includes built-in temperature and humidity sensor.		X
	i-Vu System Touch; Carrier brand 4.3-in. color touch screen user interface connects to a network of up to 60 Open (BACnet MS/TP) equipment controllers. Includes built-in temperature and humidity sensor.		X
<b>Economizers and outdoor-air dampers</b>	EconoMi\$er 2 for VAV-RTU Open controls, complies with FDD. (Standard and Ultra Low Leak air damper models) <sup>6</sup>	Standard	
	Barometric relief <sup>1</sup>	X	X
	Power exhaust (Prop design)		X
<b>Economizer sensors and IAQ devices</b>	Single dry bulb temperature sensors <sup>2</sup>	X	X
	Differential dry bulb temperature sensors <sup>2</sup>		X
	Single enthalpy sensors <sup>2</sup>	X	X
	Differential enthalpy sensors <sup>2</sup>		X
	CO <sub>2</sub> sensor (wall, duct, or unit mounted) <sup>2</sup>	X	X
<b>Zone air terminal sensors</b>	Full range of Carrier zone air terminal space sensors are available with capabilities of combining: Space temperature, sensors with communication ports, sensors with CO <sub>2</sub> sensing, sensors with LCD display, sensors with local override and indicating light.		X
<b>VAV zone air terminals</b>	A full range of zone air terminals shall be a i-Vu VAV Zone Single Duct and Fan Terminal type for optimum integrated system solution. This includes: <ul style="list-style-type: none"> <li>• 35E – Single Duct Air Terminals</li> <li>• 45J – Series Fan Powered Air Terminals</li> <li>• 45K – Quiet Series Fan Powered Air Terminals</li> <li>• 45M – Parallel Fan Powered Air Terminals</li> <li>• 45N – Quiet Parallel Fan Powered Air Terminals</li> <li>• 45Q – Low Profile Series Fan Powered Air Terminals</li> <li>• 45R – Low Profile Parallel Fan Powered Air Terminals</li> <li>• 35J – Single Duct Retrofit Air Terminals</li> </ul>		X
<b>Electric heat</b>	Electric Resistance Heaters	X	X
	Single Point Kit	X	X
<b>Indoor motor and drive</b>	Multiple motor and drive packages	X	
<b>Power options</b>	Convenience outlet (powered)	X	
	Convenience outlet (unpowered)	X	
	HACR Circuit Breaker <sup>3, 5</sup>	X	
	Non-fused disconnect <sup>4</sup>	X	
<b>Roof curbs</b>	Roof curb 14-in. (356mm)		X
	Roof curb 24-in. (610mm)		X

### NOTES:

1. Included with economizer.
2. Sensors used to optimize economizer performance.
3. On 575V applications, HACR breaker can only be used with WYE power distribution systems. Using on Delta power distribution systems is prohibited.
4. On 208/230-460 units with FLOP Non-Fused Disconnect, and Single Point Box accessory may be required. Refer to Electric Heat-Electrical Data Table for more information.
5. When selecting a factory installed HACR breaker or non-fused disconnect, note they are sized for the unit as ordered from the factory. The sizing of these do not accommodate any field items such as power exhaust devices etc.
6. FDD - (Fault Detection and Diagnostic) capability per California Title 24 section 120.2

## Factory-installed options

### Economizer (Standard on all models)

Economizers save energy, money and improve comfort levels in the conditioned space. They bring in fresh, outside air for ventilation and provide cool outside air to cool your building. This also is the preferred method of low ambient cooling. When integrated with CO<sub>2</sub> sensors, economizers can provide even more savings by coupling the ventilation air to only the amount required based on space occupancy.

Economizers are available, installed and tested by the factory, with either enthalpy or temperature dry-bulb inputs. Additional sensors are available as accessories to optimize the economizer.

Economizers include gravity controlled barometric relief that helps equalize building pressure and ambient air pressures. This can be a cost effective solution to prevent building pressurization. Economizers are available in ultra low leak and standard low leak versions.

### Ultra Low Leak Economizer

This meets low leak requirements for ASHRAE 90.1, IECC, and CA Title 24 standards (3 cfm/ft<sup>2</sup> at 1 in. wg exterior air, 4 cfm/ft<sup>2</sup> at 1 in. wg return air). This option allows 100% outdoor air supply from 0-100% modulating dampers and is standard with barometric relief. It can be paired with powered exhaust for additional building pressure relief.

### Fault Detection and Diagnostics (FDD)

This offering meets the mandatory requirement of CA Title 24 of fully configurable diagnostics allowing fault history and reading fault codes at the unit. This option provides detection of the following faults: air temperature sensor failure/fault and notification of acceptable economizer mode. The FDD system shall be certified by the Energy Commission as meeting the requirements.

### CO<sub>2</sub> Sensor

Improves productivity and saves money by working with the economizer to intake only the correct amount of outside air for ventilation. As occupants fill your building, the CO<sub>2</sub> sensor detects their presence through increasing CO<sub>2</sub> levels, and opens the economizer appropriately.

When the occupants leave, the CO<sub>2</sub> levels decrease, and the sensor appropriately closes the economizer. This intelligent control of the ventilation air, called Demand Controlled Ventilation (DCV), reduces the overall load on the rooftop, saving money.

### Smoke Detectors

Trust the experts. Smoke detectors make your application safer and your job easier. Carrier smoke detectors immediately shut down the rooftop unit when smoke is detected. They are available, installed by the factory, for supply air, return air, or both.

### Louvered Hail Guards

Sleek, louvered panels protect the condenser coil from hail damage, foreign objects, and incidental contact

## Convenience Outlet (powered or un-powered)

Reduce service and/or installation costs by including a convenience outlet in your specification. Carrier will install this service feature at our factory. Provides a convenient, 15 amp, 115v GFCI receptacle with “Wet in Use” cover. The “powered” option allows the installer to power the outlet from the line side of the disconnect or load side as required by code. The “unpowered” option is to be powered from a separate 115/120v power source.

### Non-fused Disconnect

This OSHA-compliant, factory-installed, safety switch allows a service technician to locally secure power to the rooftop.

When selecting a factory installed non-fused disconnect, note they are sized for the unit as ordered from the factory. The sizing of these do not accommodate any field items such as power exhaust devices, etc.

### Power Exhaust

Superior internal building pressure control. This field-installed accessory may eliminate the need for costly, external pressure control fans coordinating with economizer position and supply fan system airflow.

### Hinged Access Panels

Allows access to unit’s major components with specifically designed hinged access panels. Panels are: filter, control box, fan motor, and compressor. Comes with quarter turn latches and lift tabs.

### Alternate Motors and Drives

Some applications need larger horsepower motors, some need more airflow, and some need both. Regardless of the case, your Carrier expert has a factory-installed combination to meet your application. A wide selection of motors and pulleys (drives) are available, factory installed, to handle nearly any application.

### Thru-the-Base Connections

Thru-the-base connections, available as either an accessory or as a factory option, are necessary to ensure proper connection and seal when routing wire and piping through the rooftop’s basepan and curb. These couplings eliminate roof penetration and should be considered for main power lines, as well as control power.

### HACR Breaker

These manual reset devices provide overload and short circuit protection for the unit. They are factory wired and mounted with the units with access cover to help provide environment protection.

When selecting a factory installed non-fused disconnect, note they are sized for the unit as ordered from the factory. The sizing of these do not accommodate any field items such as power exhaust devices etc.

On 575V applications, HACR breaker can only be used with WYE power distribution systems. Use on Delta power distribution systems is prohibited.

## Field-installed accessories

### Time Guard II Control Circuit

This accessory protects your compressor by preventing short-cycling in the event of some other failure, prevents the compressor from restarting for 30 seconds after stopping. Not required if built into the building management system.

### Electric Heaters

Carrier offers a full-line of field-installed accessory heaters. The heaters are very easy to use, install and are all pre-engineered and certified.

### Zone Terminal Sensors

A full range of Carrier zone air terminal space sensors are available with capabilities of combining:

- Space temperature sensing
- Sensors with communication ports
- Sensors with CO<sub>2</sub> sensing
- Sensors with LCD display
- Sensors with local override and indicating light
- Sensors with humidity sensing

Plus compatibility with:

- i-Vu<sup>®</sup> Equipment Touch™; Carrier brand 4.3-in. color touch screen zone sensor and local user interface for a single Open (BACnet MS/TP) equipment controller. Includes built-in temperature and humidity sensor.
- i-Vu System Touch™; Carrier brand 4.3-in. color touch screen user interface connects to a network of up to 60 Open (BACnet MS/TP) equipment controllers. Includes built-in temperature and humidity sensor.

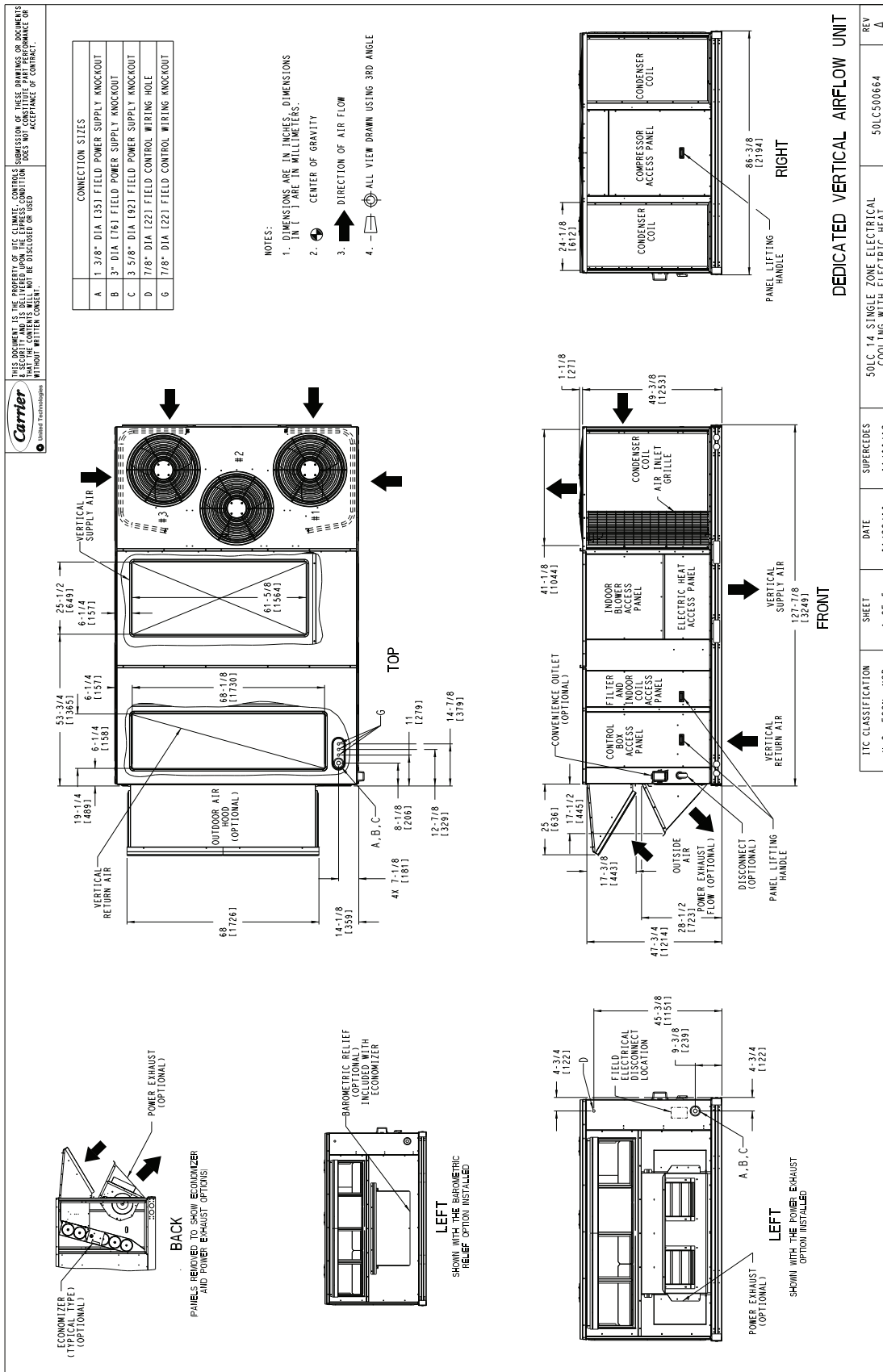
### VAV Zone Air Terminals

A full range of zone air terminals shall be a i-Vu VAV Zone Single Duct and Fan Terminal type for optimum integrated system solution. This includes:

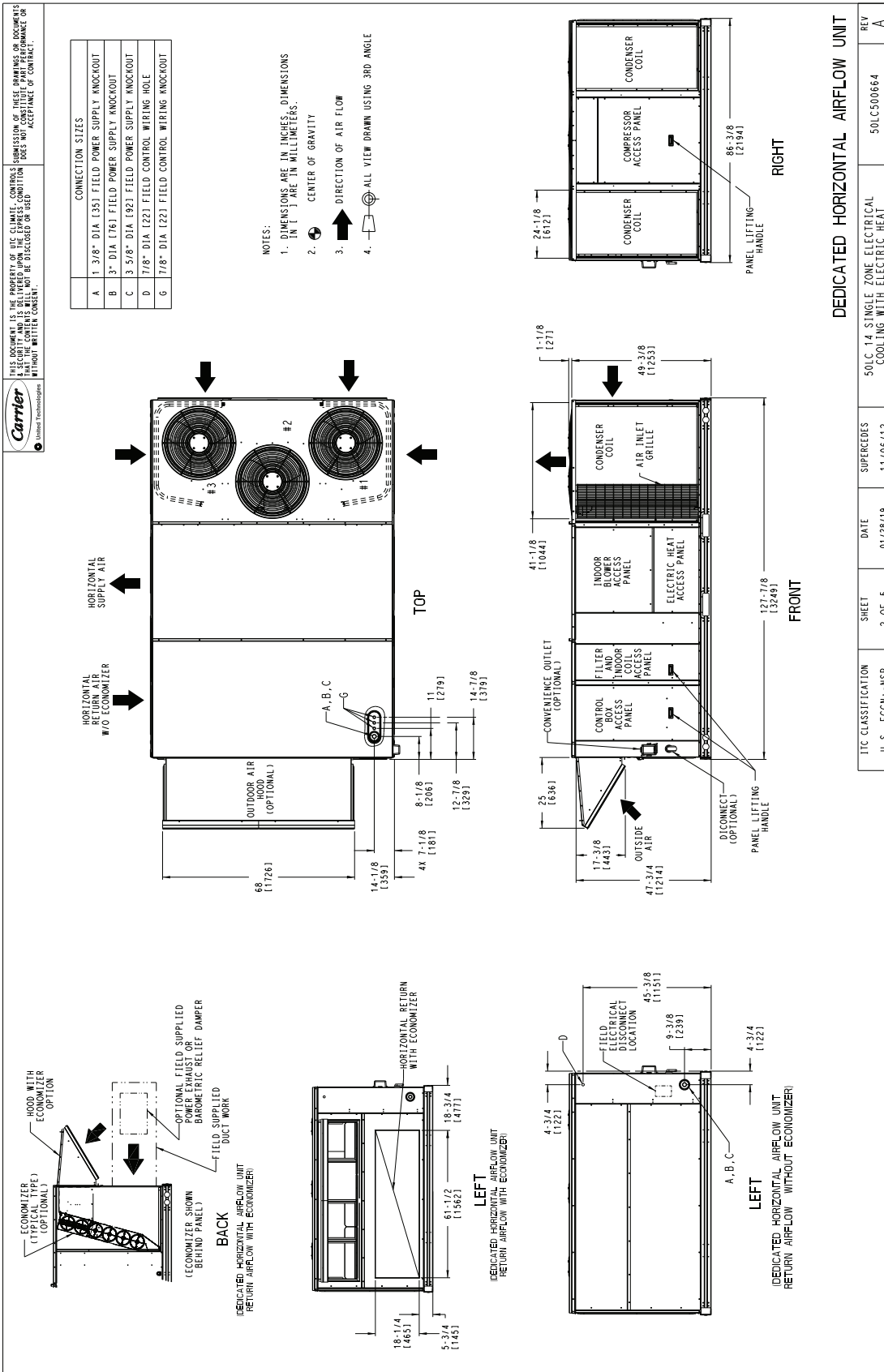
- 35E – Single Duct Air Terminals
- 45J – Series Fan Powered Air Terminals
- 45K – Quiet Series Fan Powered Air Terminals
- 45M – Parallel Fan Powered Air Terminals
- 45N – Quiet Parallel Fan Powered Air Terminals
- 45Q – Low Profile Series Fan Powered Air Terminals
- 45R – Low Profile Parallel Fan Powered Air Terminals
- 35J – Single Duct Retrofit Air Terminals

OPTION/ACCESSORY	WEIGHT IN LBS				
	50LC*B14	50LC*B17	50LC*B20	50LC*B24	50LC*B26
Low Electric Heat	85	85	85	85	85
Medium Electric Heat	100	100	100	100	100
High Electric Heat	100	100	100	100	100
Return Smoke Detector	5	5	5	5	5
Supply Smoke Detector	5	5	5	5	5
RA and SA Smoke Detector	10	10	10	10	10
CO <sub>2</sub> sensor	5	5	5	5	5
RA Smoke Detector and CO <sub>2</sub>	10	10	10	10	10
SA Smoke Detector and CO <sub>2</sub>	10	10	10	10	10
RA and SA Smoke Detector and CO <sub>2</sub>	15	15	15	15	15
Medium Static Option	5	6	6	10	10
High Static Option	11	16	16	20	20
Cu/Cu Cond and Al/Cu Evap	28	34	34	34	34
Cu/Cu Cond and Cu/Cu Evap	53	64	64	64	64
Al/Cu Cond and Al/Cu Evap + Hail Guard	60	150	150	150	150
Precoat Al/Cu Cond and Al/Cu Evap + Hail Guard	60	150	150	150	150
Ecoat Al/Cu Cond and Al/Cu Evap + Hail Guard	60	150	150	150	150
Ecoat Al/Cu Cond and Ecoat Al/Cu Evap + Hail Guard	60	150	150	150	150
Cu/Cu Cond and Al/Cu Evap + Hail Guard	88	184	184	184	184
Cu/Cu Cond and Cu/Cu Evap + Hail Guard	113	214	214	214	214
Temp Ultra Low Leak Econo with Baro Relief	246	246	246	246	246
Temp Ultra Low Leak Econo with PE (cent) Power Exhaust	371	371	371	371	371
Enthalpy Ultra Low Leak Econo with Baro Relief	246	246	246	246	246
Enthalpy Ultra Low Leak Econo with PE (cent) Power Exhaust	371	371	371	371	371
Unpowered Convenience Outlet	5	5	5	5	5
Powered Convenience outlet	35	35	35	35	35
Hinged Panels	5	5	5	5	5
Hinged Panels with Unpowered Convenience Outlet	10	10	10	10	10
Hinged Panels with Powered Convenience Outlet	40	40	40	40	40
HACR Breaker	10	10	10	10	10
Non-Fused Disconnect	15	15	15	15	15

## 50LC\*B14 VERTICAL AIRFLOW



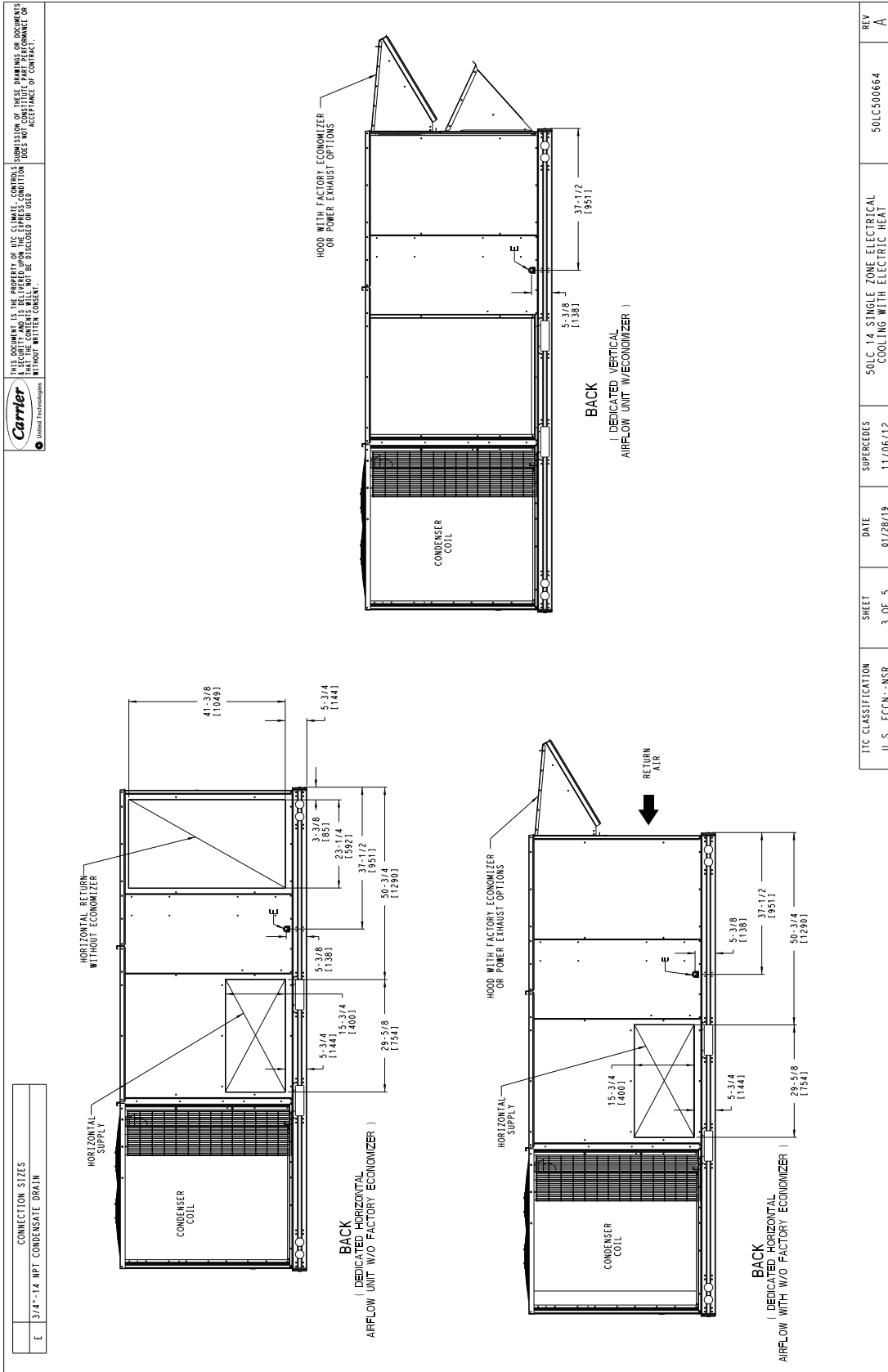
### 50LC<sup>®</sup>B14 HORIZONTAL AIRFLOW



DEDICATED HORIZONTAL AIRFLOW UNIT			
TIC CLASSIFICATION	SHEET	DATE	SUPERSEDES
U.S. ECCN:--NSR	2 OF 5	01/28/19	11/06/12
50LC 14 SINGLE ZONE ELECTRICAL COOLING WITH ELECTRIC HEAT		REV	A

# Base unit dimensions (cont)

## 50LC\*B14 BACK VIEW AND CONDENSATE DRAIN LOCATION



ITC CLASSIFICATION U.S. - ECCN:--NSR	SHEET 3 OF 5	DATE 01/28/19	SUPERCEDES 11/06/12	50LC500664	REV A
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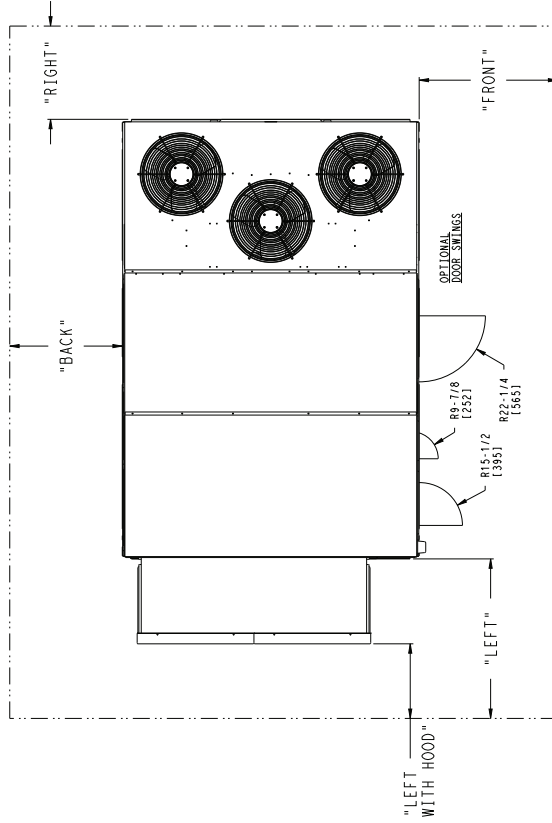
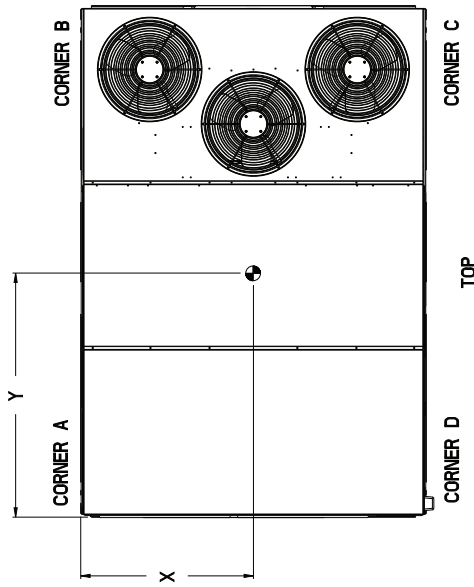
## 50LC\*B14 CORNER WEIGHTS AND CLEARANCES

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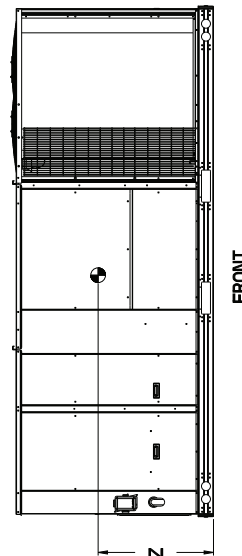
UNIT	CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	
50LC14	797	425	193	495	225	447	203	384	175	66 2/17/32 [1743]	16 1/2 [419]

\* STANDARD UNIT WEIGHT IS WITHOUT ELECTRIC HEAT AND WITHOUT PACKAGING.  
 FOR OTHER OPTIONS AND ACCESSORIES REFER TO THE PRODUCT DATA CATALOG.



**NOTES:**

1. CLEARANCE ABOVE THE UNIT TO BE 72"
2. FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL.

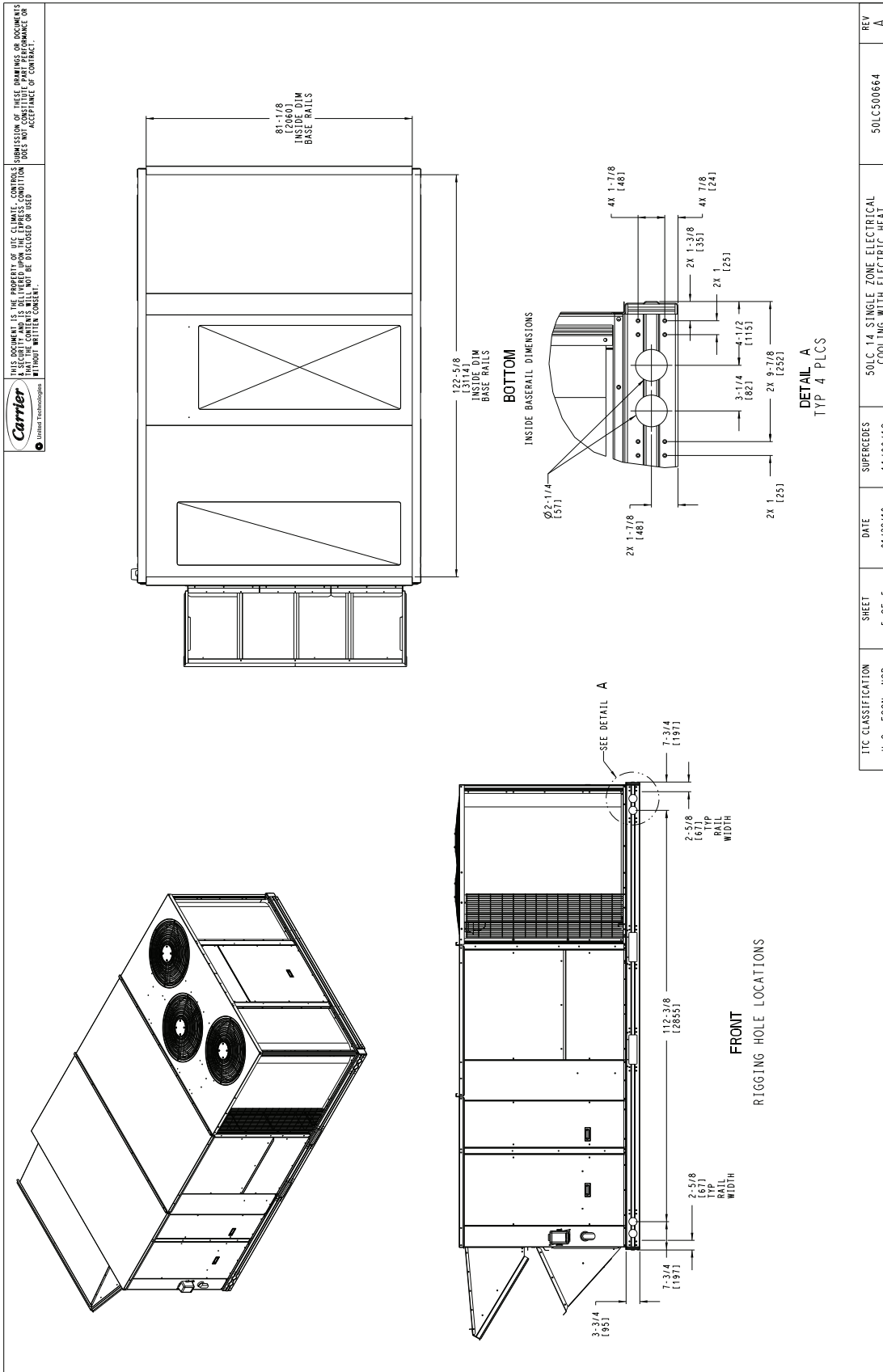


SURFACE	CLEARANCE		OPERATING CLEARANCE	
	SERVICE WITH CONDUCTIVE BARRIER	SERVICE WITH NONCONDUCTIVE BARRIER	SERVICE WITH CONDUCTIVE BARRIER	OPERATING CLEARANCE
FRONT	48 [1219mm]	36 [914mm]	18 [457mm]	18 [457mm]
BACK	48 [1219mm]	42 [1067mm]	18 [457mm]	18 [457mm]
LEFT WITH HOOD	42 [1067mm]	36 [914mm]	18 [457mm]	18 [457mm]
RIGHT	36 [914mm]	36 [914mm]	18 [457mm]	18 [457mm]
TOP	72 [1829mm]	72 [1829mm]	72 [1829mm]	72 [1829mm]

TIC CLASSIFICATION	SHEET	DATE	REV
U.S. ECCN: NSR	4 OF 5	01/28/19	A
SUPERCEDES			50LC50064
50LC 14 SINGLE ZONE ELECTRICAL COOLING WITH ELECTRIC HEAT			

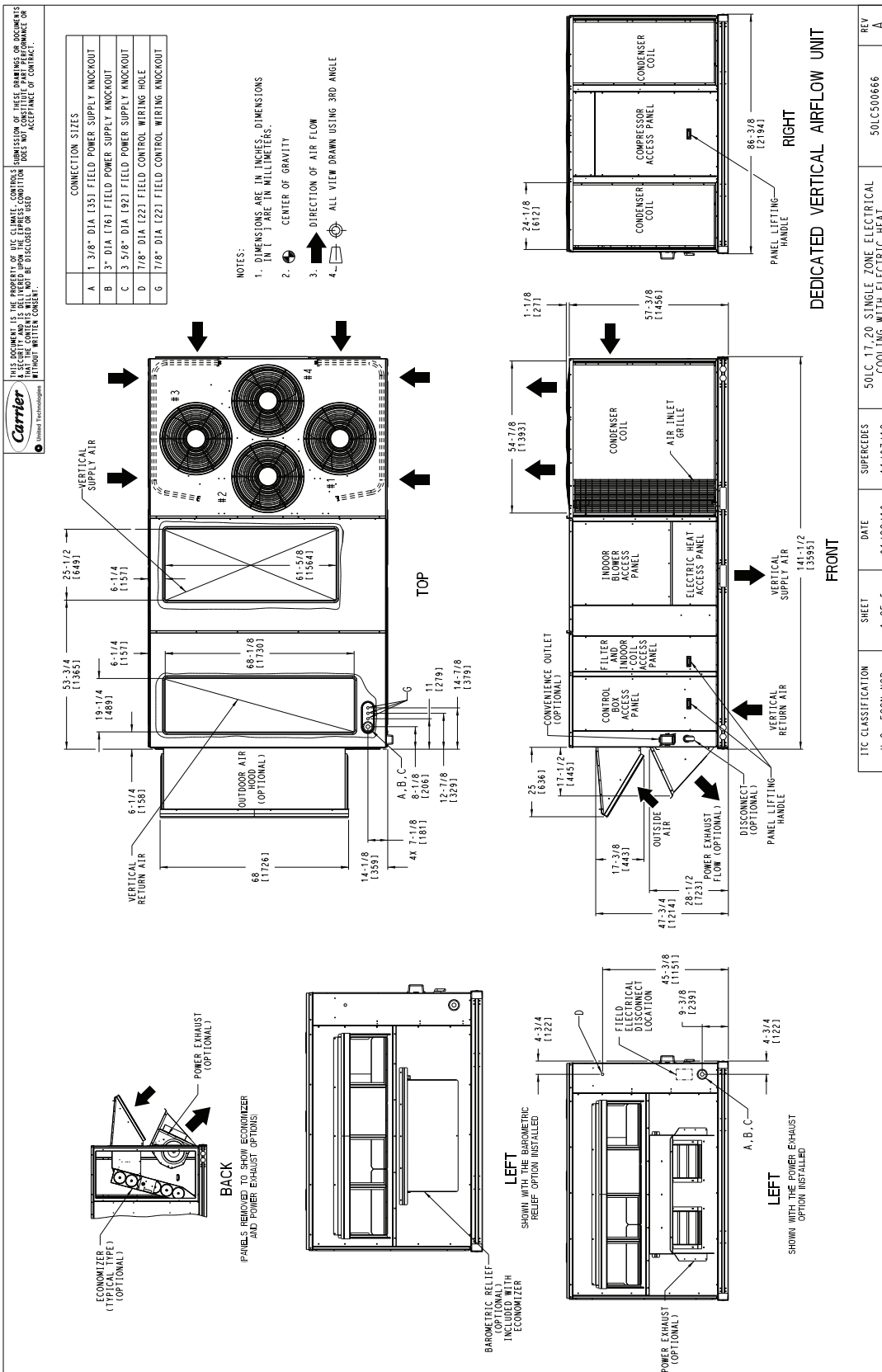
# Base unit dimensions (cont)

## 50LC\*B14 BOTTOM VIEW



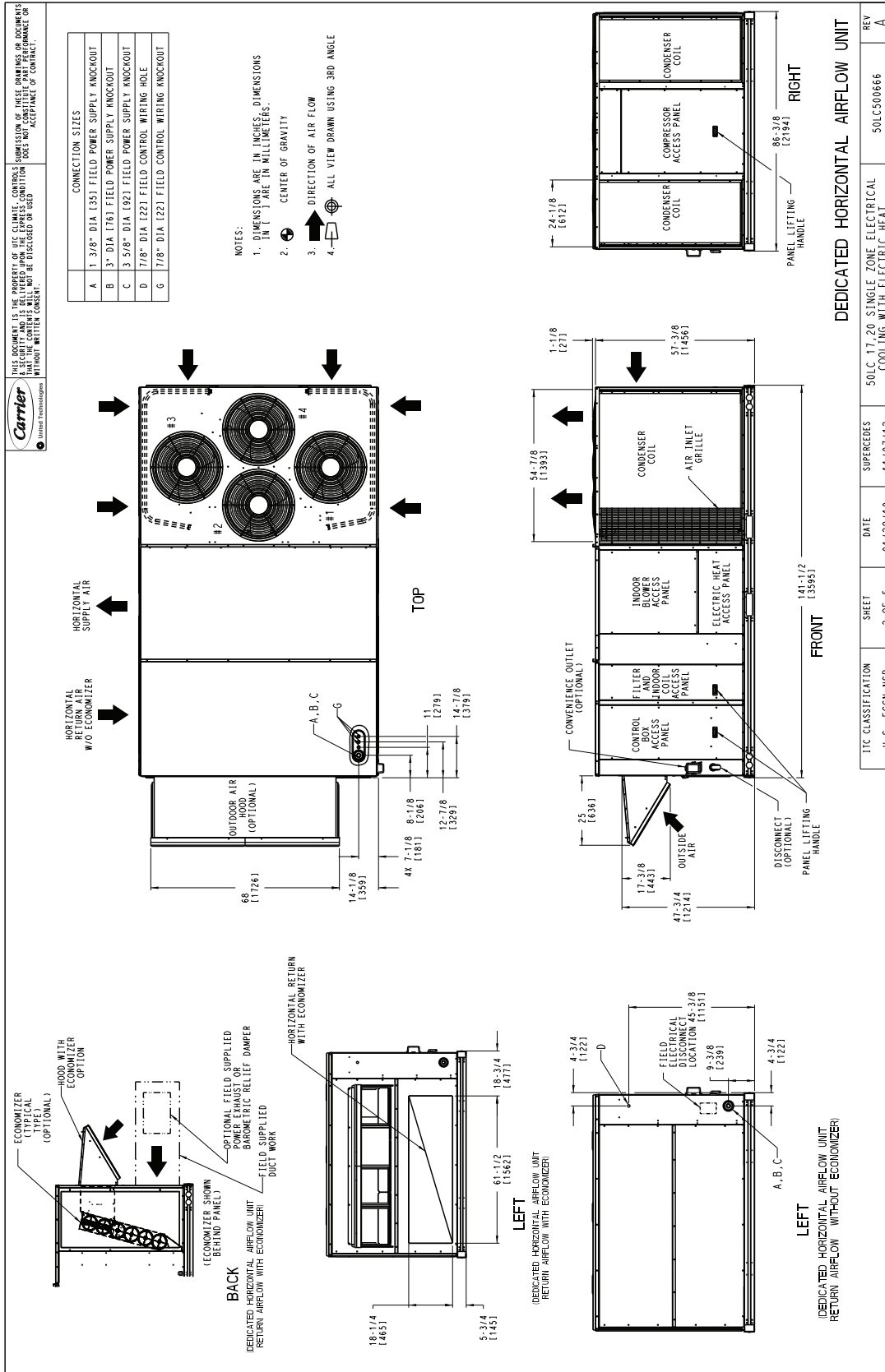
TTC CLASSIFICATION	SHEET	DATE	SUPERCEDES	REV
U.S. ECCN: NSR	5 OF 5	01/28/19	11/06/12	A
50LC 14 SINGLE ZONE ELECTRICAL COOLING WITH ELECTRIC HEAT				50LC500664

### 50LC<sup>®</sup>B17-20 VERTICAL AIRFLOW



# Base unit dimensions (cont)

## 50LC\*B17-20 HORIZONTAL AIRFLOW

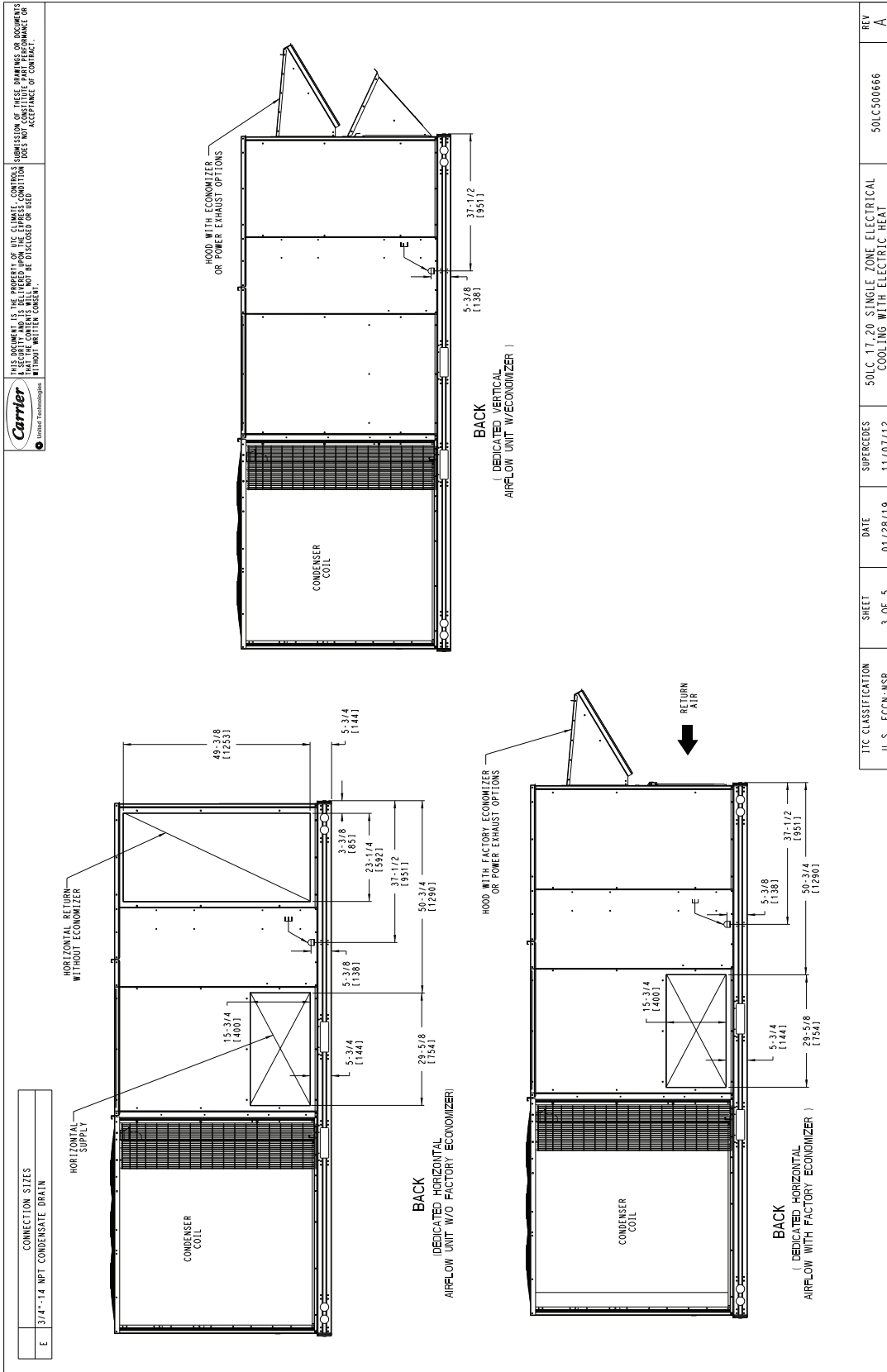


**DEDICATED HORIZONTAL AIRFLOW UNIT**

REV	DATE	SHEET	SUPERCEDES	REV
A	01/28/19	2 OF 5	50LC 17 20 SINGLE ZONE ELECTRICAL COOLING WITH ELECTRIC HEAT	A
	11/07/12			

ITC CLASSIFICATION: U.S. ECCN-NSR

**50LC\*B17-20 BACK VIEW AND CONDENSATE DRAIN LOCATION**



# Base unit dimensions (cont)

## 50LC\*B17-20 CORNER WEIGHTS AND CLEARANCES

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UNIT	CORNER A		CORNER B		CORNER C		CORNER D		C. G.		
	LBS	KG	LBS	KG	LBS	KG	LBS	KG	X	Y	
50LC17	1946	887.3	510.2	231.4	487.5	221.6	419.8	218.1	412.2	187.3	76 [11930.40]
50LC20	2102	953.7	537.4	244.3	625.6	284.4	505.4	229.7	434.1	197.3	76 [11930.40]

\* STANDARD UNIT WEIGHT IS WITHOUT ELECTRIC HEAT AND WITHOUT PACKAGING.  
FOR OTHER OPTIONS AND ACCESSORIES REFER TO THE PRODUCT DATA CATALOG.

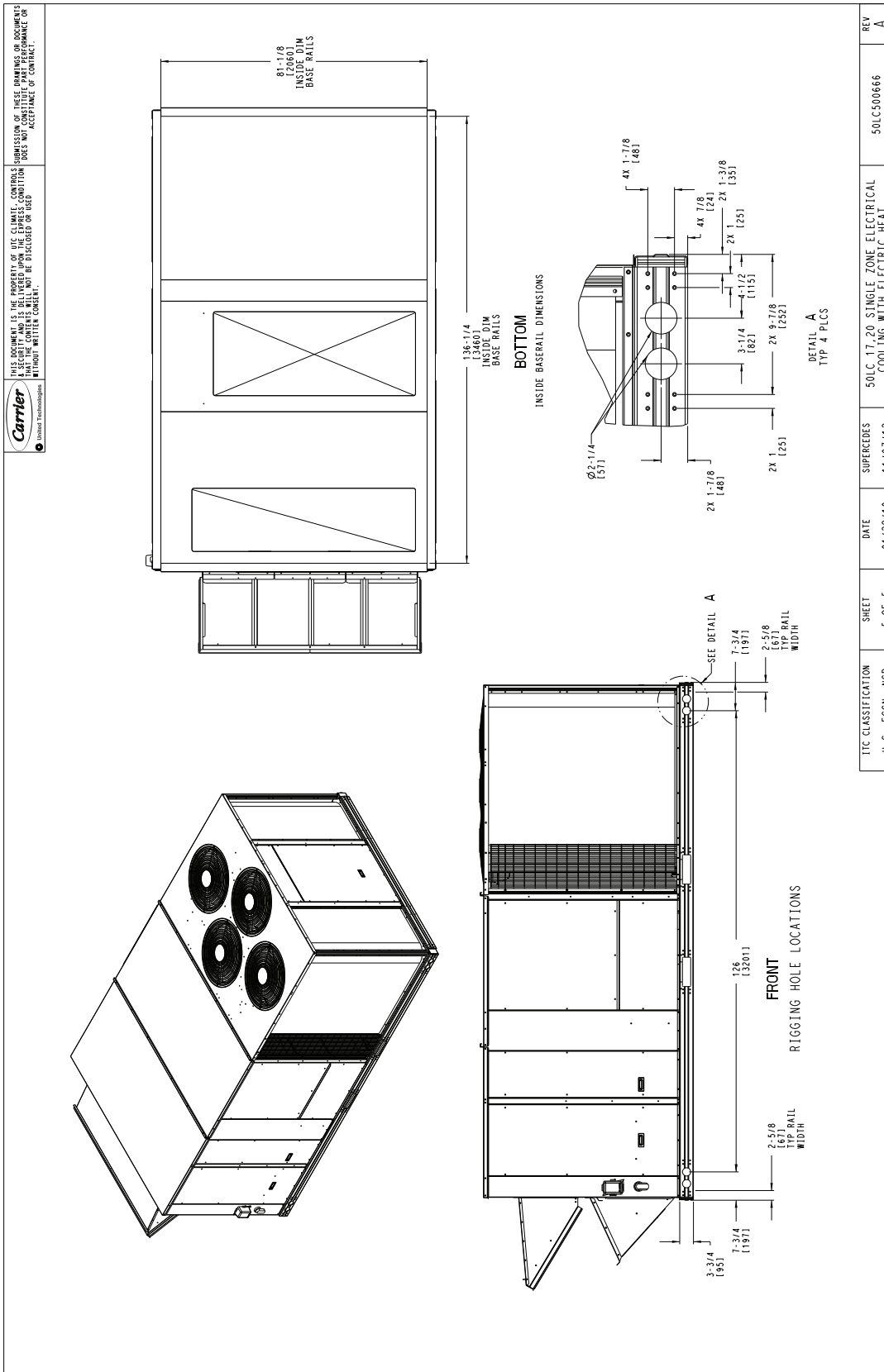
**NOTES:**

- CLEARANCE ABOVE THE UNIT TO BE 72"
- FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL.

SURFACE	CLEARANCE WITH:		OPERATING CLEARANCE
	CONDUCTIVE BARRIER	NONCONDUCTIVE BARRIER	
FRONT	48 [1219mm]	36 [914mm]	18 [457mm]
LEFT	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK	42 [1067mm]	36 [914mm]	18 [457mm]
LEFT WITH HOOD	36 [914mm]	36 [914mm]	18 [457mm]
RIGHT	36 [914mm]	36 [914mm]	18 [457mm]
TOP	72 [1829mm]	72 [1829mm]	72 [1829mm]

ITC CLASSIFICATION	SHEET	DATE	REV
U.S. ECCN:NSR	4 OF 5	01/28/19	50LC500666 A

### 50LC<sup>®</sup>B17-20 BOTTOM VIEW



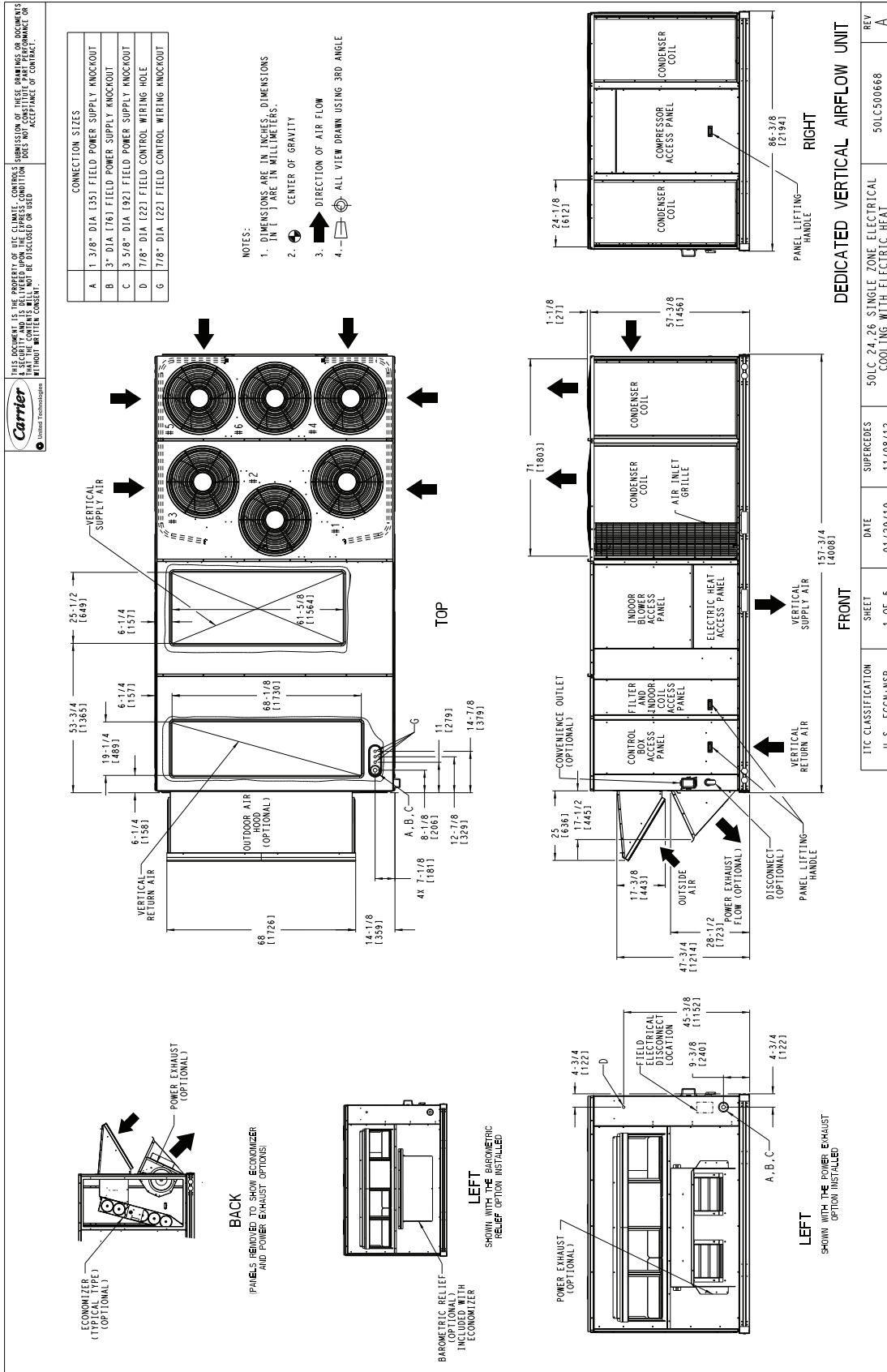
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# Base unit dimensions (cont)

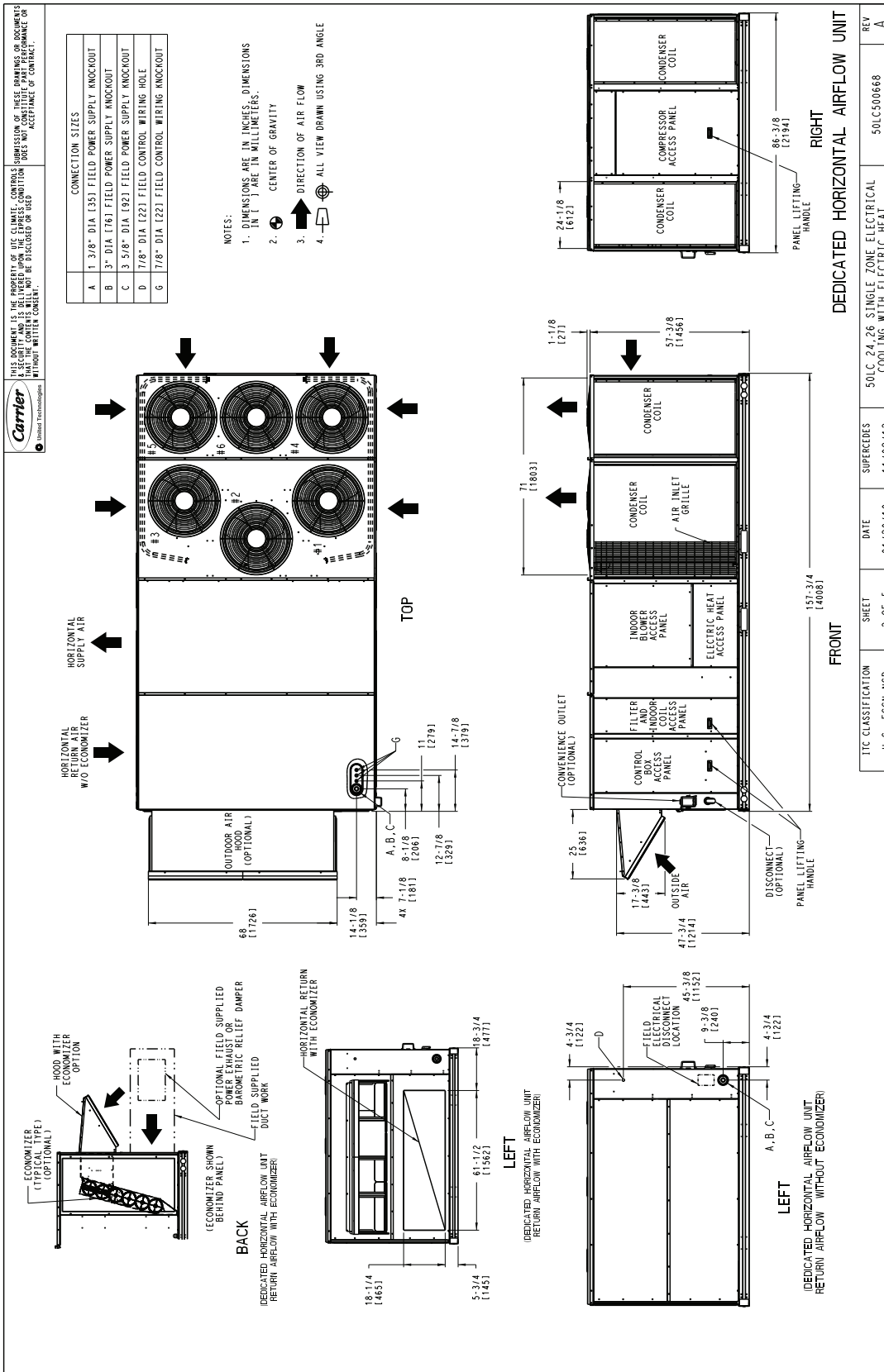


## 50LC<sup>®</sup>B24-26 VERTICAL AIRFLOW





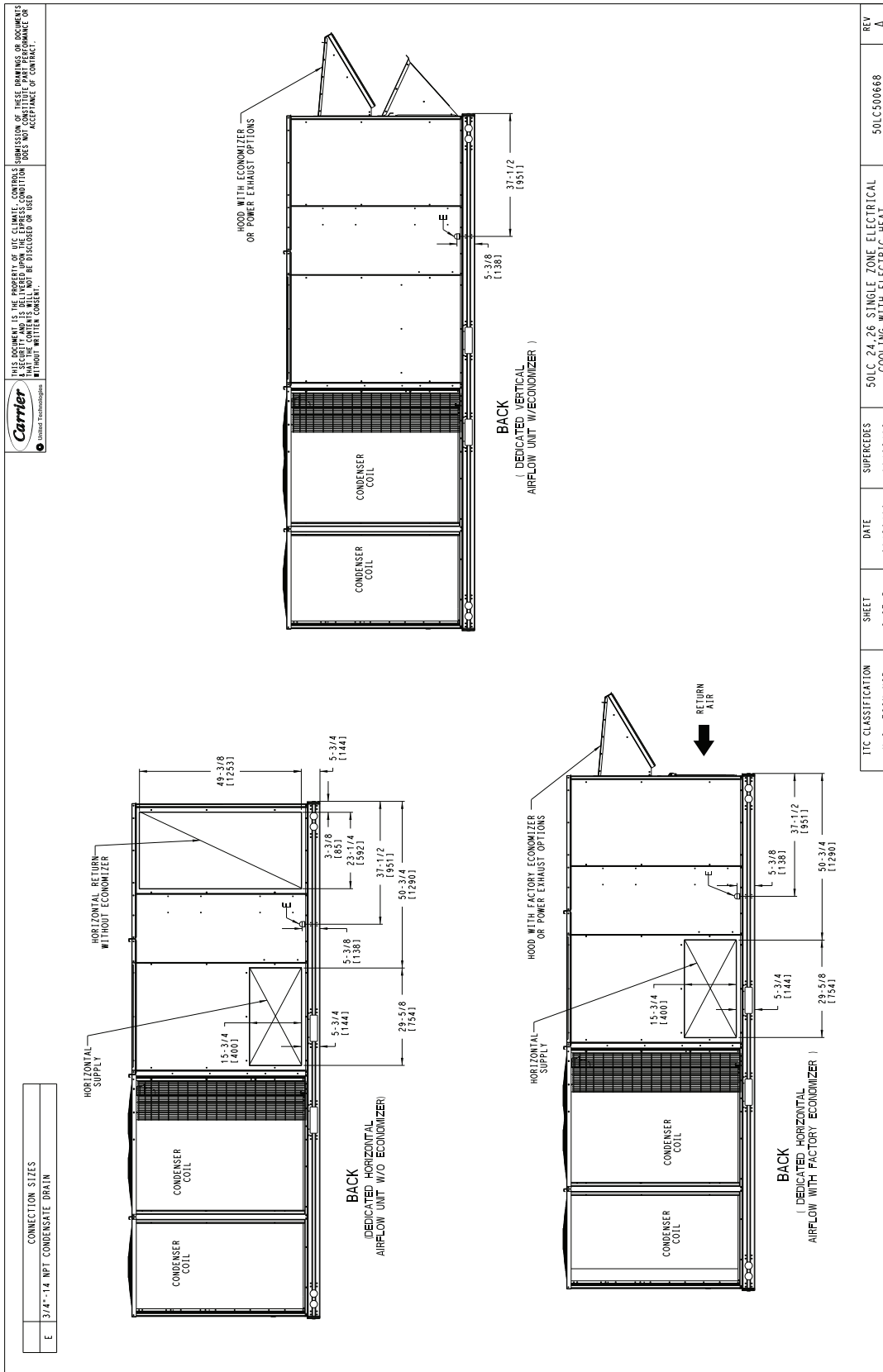
# 50LC\*B24-26 HORIZONTAL AIRFLOW



I/C CLASSIFICATION	U. S. ECCN/NSR	SHEET	2 OF 5	DATE	01/29/19	SUPERCEDES	11/08/12	50LC_24_26 SINGLE ZONE ELECTRICAL COOLING WITH ELECTRIC HEAT	REV	A
50LC500668										

# Base unit dimensions (cont)

## 50LC\*B24-26 BACK VIEW AND CONDENSATE DRAIN LOCATION



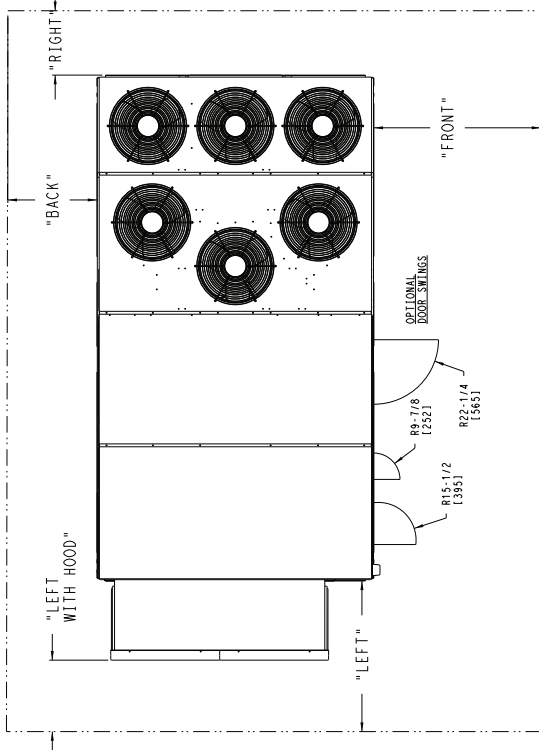
REV	DESCRIPTION	DATE	SHEET	DATE	SUPERCEDES	REV
A	50LC 24-26 SINGLE ZONE ELECTRICAL COOLING WITH ELECTRIC HEAT	01/29/19	3 OF 5	11/08/12	50LC500668	A

## 50LC\*B24-26 CORNER WEIGHTS AND CLEARANCES

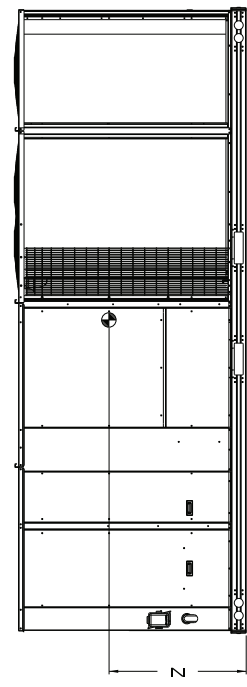
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UNIT	CORNER A		CORNER B		CORNER C		CORNER D		C. G.											
	LBS	KG	LBS	KG	LBS	KG	LBS	KG	X	Y										
50LC24	2248	1022.0	458.3	208.3	537.5	244.3	616.2	307.4	516.5	262.1	48.1	1219.201	85.1	1121.9	701	48.2	1215.9	791	19	482.6
50LC26	2393	1081.6	534.0	242.1	595.1	270.5	866.0	392.7	597.6	271.6	45.1	1155.701	83.1	1133.2	12108.991	48.2	12108.991	791	19	482.6

\* STANDARD UNIT WEIGHT IS WITHOUT ELECTRIC HEAT AND WITHOUT PACKAGING. FOR OTHER OPTIONS AND ACCESSORIES REFER TO THE PRODUCT DATA CATALOG.



- NOTES:
1. CLEARANCE ABOVE THE UNIT TO BE 72"
  2. FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL.

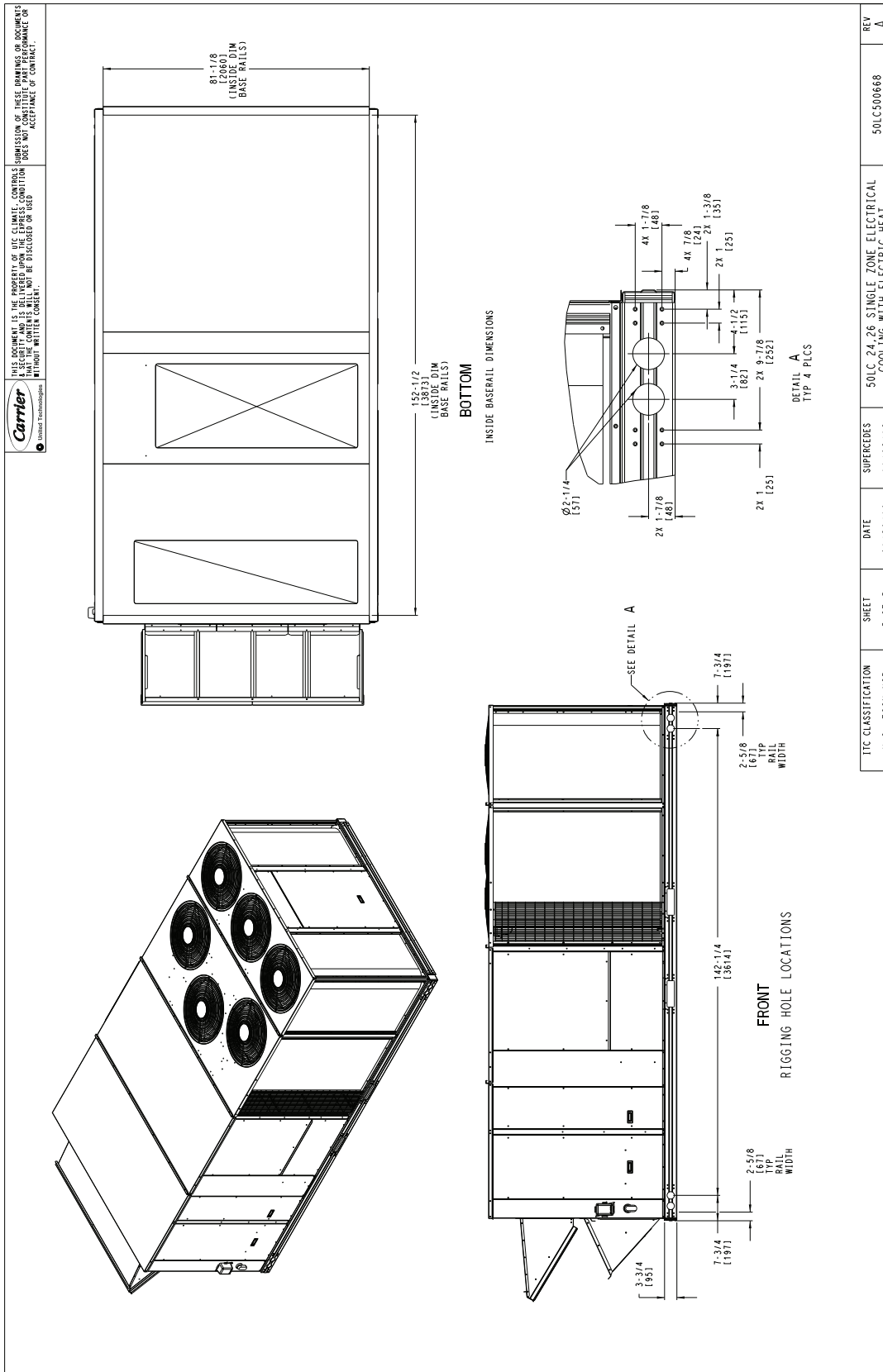


SURFACE	CLEARANCE		OPERATING CLEARANCE
	WITH:	MINIMUM	
FRONT	CONDUCTIVE BARRIER	36 [914mm]	18 [457mm]
	NONCONDUCTIVE BARRIER	18 [457mm]	
BACK	CONDUCTIVE BARRIER	42 [1067mm]	18 [457mm]
	NONCONDUCTIVE BARRIER	18 [457mm]	
LEFT WITH HOOD	CONDUCTIVE BARRIER	36 [914mm]	18 [457mm]
	NONCONDUCTIVE BARRIER	18 [457mm]	
RIGHT WITH HOOD	CONDUCTIVE BARRIER	36 [914mm]	18 [457mm]
	NONCONDUCTIVE BARRIER	18 [457mm]	
TOP	CONDUCTIVE BARRIER	72 [1829mm]	72 [1829mm]
SUPERCEDES	CONDUCTIVE BARRIER	72 [1829mm]	72 [1829mm]
50LC 24-26 SINGLE ZONE ELECTRICAL COOLING WITH ELECTRIC HEAT	CONDUCTIVE BARRIER	72 [1829mm]	72 [1829mm]

ITC CLASSIFICATION	DATE	SHEET	REV
U.S. ECCN:NSR	11/08/12	4 OF 5	A

# Base unit dimensions (cont)

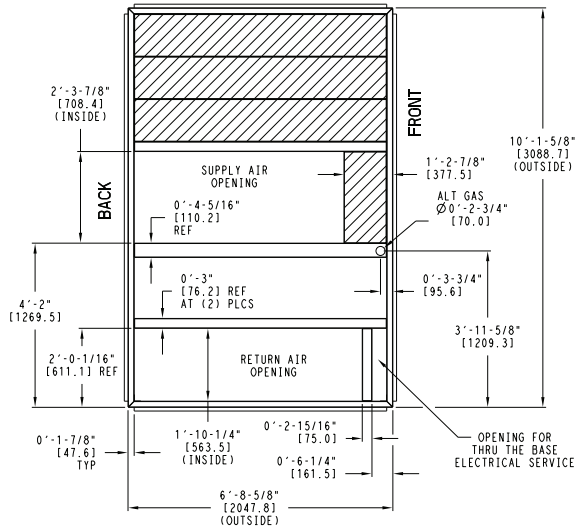
## 50LC<sup>®</sup>B24-26 BOTTOM VIEW



REV	A
50LC500666	
50LC 24-26 SINGLE ZONE ELECTRICAL COOLING WITH ELECTRIC HEAT	
SUPERCEDES	11/08/12
DATE	01/29/19
SHEET	5 OF 5
ITC CLASSIFICATION	U.S. ECCN:NSR

## ROOF CURB DETAILS FOR 50LC<sup>®</sup>B14

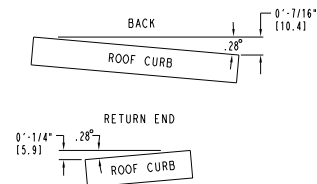
UNIT SIZE	"A"	ROOF CURB ACCESSORY
14	1'-2" [356.0] 2'-0" [610.0]	CRRFCURB045A00 CRRFCURB046A00



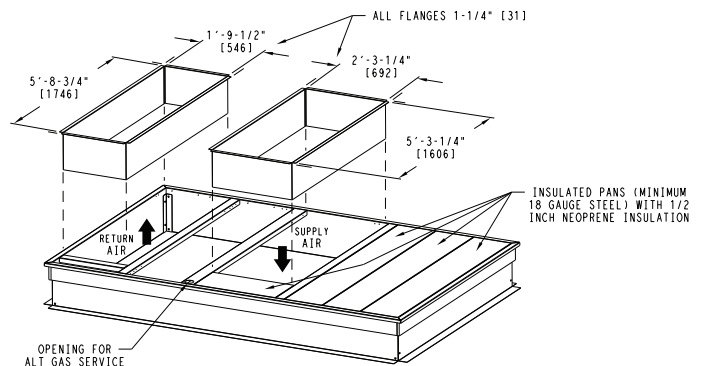
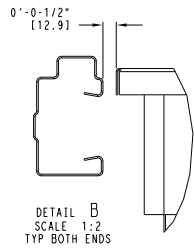
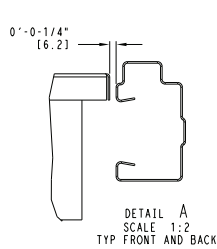
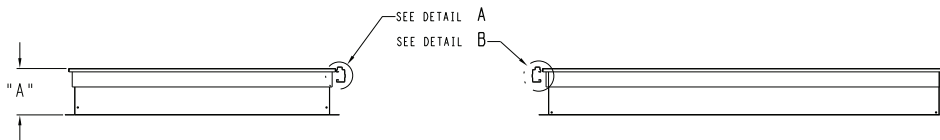
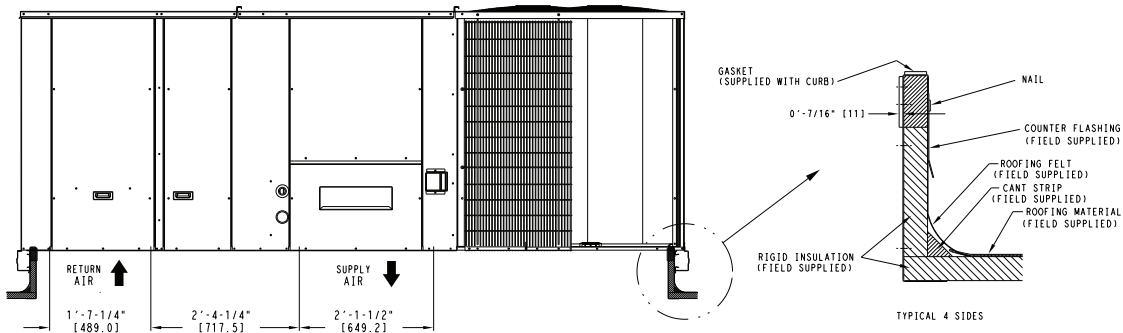
**NOTES:**

- 1 ROOF CURB ACCESSORY IS SHIPPED UNASSEMBLED.
- 2 DIMENSIONS IN [ ] ARE IN MILLIMETERS.
- 3 ROOF CURB GALVANIZED STEEL.
- 4 ATTACH DUCTWORK TO CURB (FLANGES ON DUCT REST ON CURB)
- 5 SERVICE CLEARANCE 4 FT ON EACH SIDE

➔ DIRECTION OF AIR FLOW

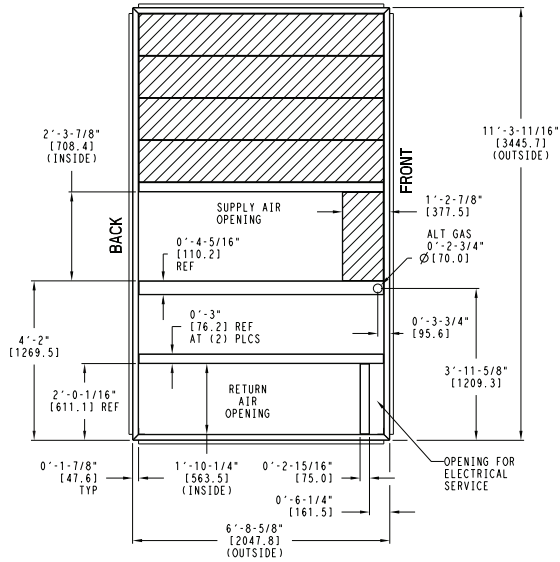


**MAX CURB LEVELING TOLERANCES**



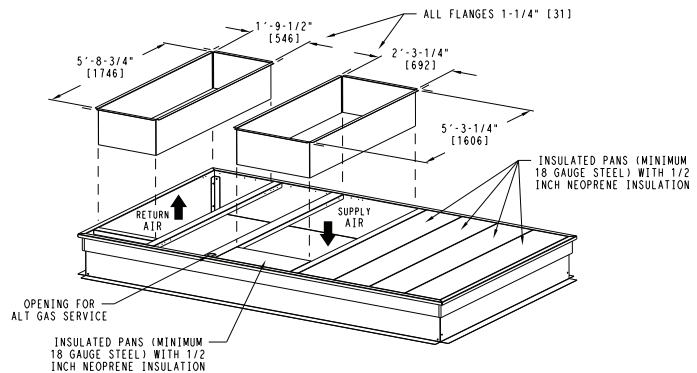
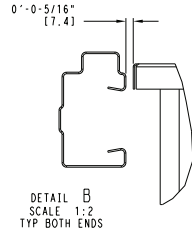
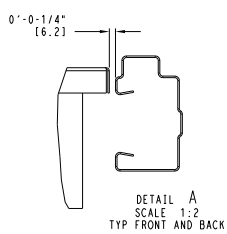
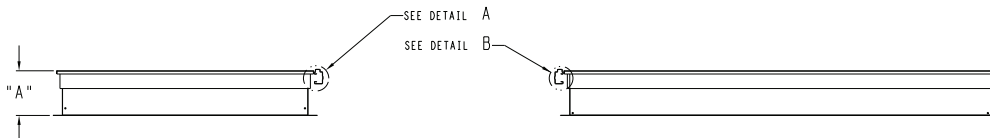
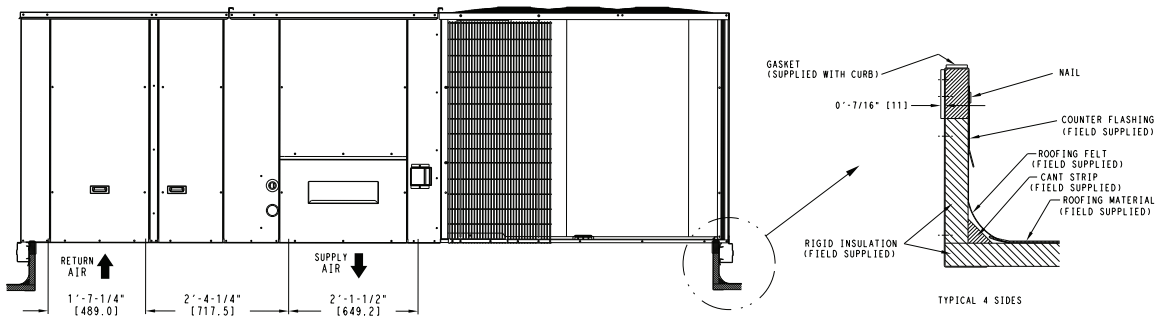
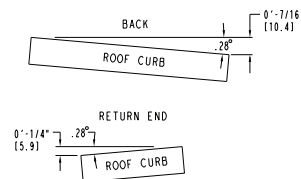
## ROOF CURB DETAILS FOR 50LC\*B17-20

UNIT SIZE	"A"	ROOF CURB ACCESSORY
17, 20	1'-2" [356.0] 2'-0" [610.0]	CRRFCURB047A00 CRRFCURB048A00



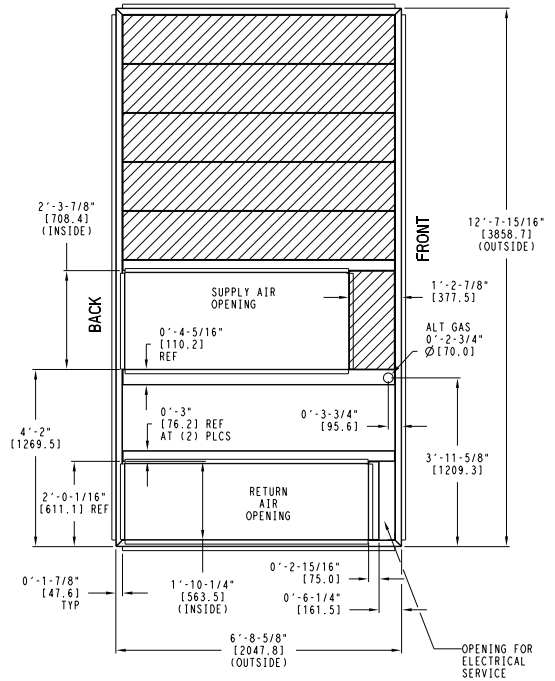
- NOTES:
- 1 ROOF CURB ACCESSORY IS SHIPPED UNASSEMBLED.
  - 2 DIMENSIONS IN [ ] ARE IN MILLIMETERS.
  - 3 ROOF CURB GALVANIZED STEEL.
  - 4 ATTACH DUCTWORK TO CURB (FLANGES ON DUCT REST ON CURB)
  - 5 SERVICE CLEARANCE 4 FT ON EACH SIDE

➔ DIRECTION OF AIR FLOW



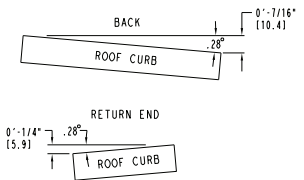
### ROOF CURB DETAILS FOR 50LC\*B24-26

UNIT SIZE	"A"	ROOF CURB ACCESSORY
24, 26	1'-2" [356.0] 2'-0" [610.0]	CRRFCURB049A00 CRRFCURB050A00

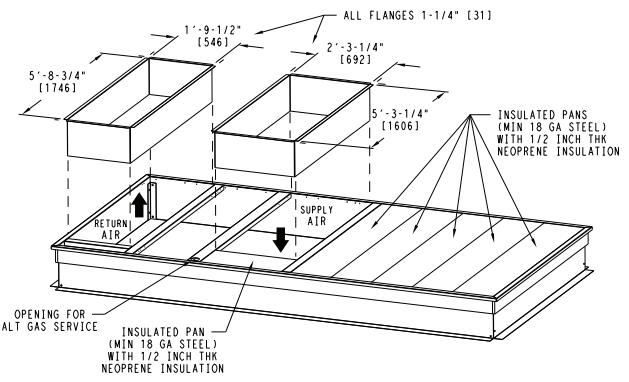
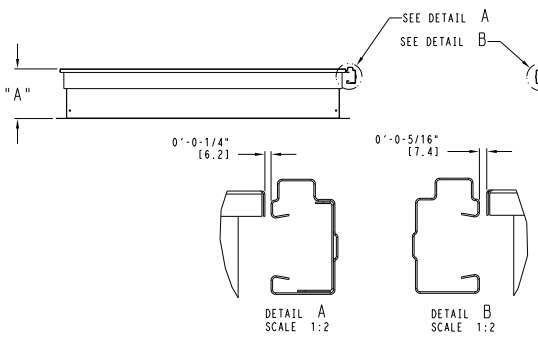
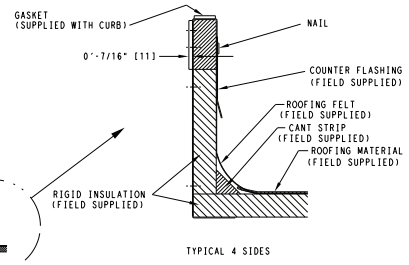
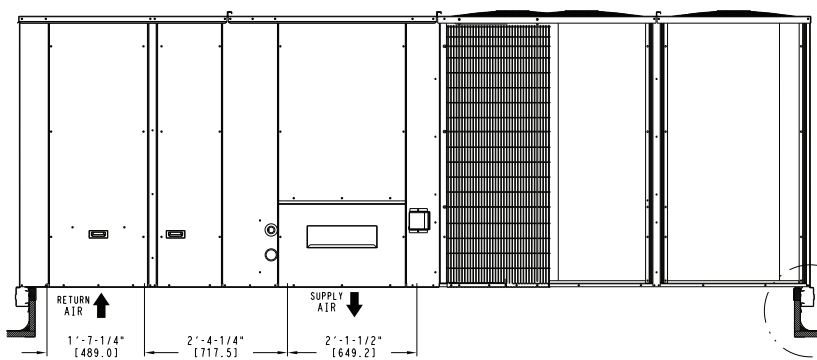


- NOTES:**
- 1 ROOF CURB ACCESSORY IS SHIPPED UNASSEMBLED.
  - 2 BOLT HEADS TO BE ON INSIDE OF FLANGE. CLEARANCE IS [11] 0'-0-7/16" TYP ALL CORNERS.
  - 3 DIMENSIONS IN [ ] ARE IN MILLIMETERS.
  - 4 ROOF CURB GALVANIZED STEEL.
  - 5 ATTACH DUCTWORK TO CURB (FLANGES ON DUCT REST ON CURB)
  - 6 SERVICE CLEARANCE 4 FT ON EACH SIDE
  - 7 GAS SERVICE PLATE IS PART OF A SEPARATELY SHIPPED ACCESSORY PACKAGE.
  - 8 GAS SERVICE PLATE CAN BE USED WITH EITHER ACCESSORY ROOF CURB.

➔ DIRECTION OF AIR FLOW



MAX CURB LEVELING TOLERANCES





COOLING CAPACITIES - FIRST STAGE, PART LOAD (12.5 TONS)

Table with columns for Ambient Temperature (°F) and rows for cooling capacities (1000 CFM, 1350 CFM, 1700 CFM, 2000 CFM, 2350 CFM) and ambient temperatures (65, 75, 85, 95, 105, 115, 125).



**COOLING CAPACITIES - FIRST STAGE, PART LOAD (12.5 TONS) (cont)**

50LC*B SIZE 14			AMBIENT TEMPERATURE (°F)																						
			65			75			85			95			105			115			125				
			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)				
			75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85		
2700 CFM	EA (wb)	58	TC	73.3	73.3	82.8	69.2	69.2	78.4	65.0	65.0	73.9	60.8	60.8	69.3	56.5	56.5	64.5	51.9	51.9	59.6	47.1	47.1	54.4	
		58	SHC	63.8	73.3	82.8	60.0	69.2	78.4	56.2	65.0	73.9	52.3	60.8	69.3	48.3	56.5	64.5	44.1	51.9	59.6	39.8	47.1	54.4	
		62	TC	73.4	73.4	86.1	69.3	69.3	81.6	65.1	65.1	77.0	60.8	60.8	72.2	56.5	56.5	67.4	51.9	51.9	62.3	47.2	47.2	56.9	
		62	SHC	60.6	73.4	86.1	57.0	69.3	81.6	53.3	65.1	77.0	49.5	60.8	72.2	45.6	56.5	67.4	41.5	51.9	62.3	37.3	47.2	56.9	
		67	TC	79.3	79.3	79.3	74.3	74.3	74.7	69.3	69.3	71.8	64.3	64.3	68.7	59.0	59.0	65.6	53.6	53.6	62.4	48.2	48.2	59.1	
		67	SHC	49.7	63.7	77.7	46.8	60.7	74.7	43.8	57.8	71.8	40.9	54.8	68.7	37.8	51.7	65.6	34.7	48.6	62.4	31.5	45.2	59.1	
	72	TC	88.2	88.2	88.2	83.0	83.0	83.0	77.6	77.6	77.6	72.1	72.1	72.1	66.5	66.5	66.5	60.7	60.7	60.7	54.7	54.7	54.7		
	72	SHC	36.8	50.9	64.9	33.8	48.0	62.0	30.9	45.0	59.1	28.0	42.0	56.1	25.0	39.0	53.0	21.9	36.0	50.0	18.9	32.9	46.9		
	76	TC	—	95.8	95.8	—	90.3	90.3	—	84.6	84.6	—	78.8	78.8	—	72.9	72.9	—	66.9	66.9	—	60.5	60.5		
	76	SHC	—	40.4	54.6	—	37.4	51.7	—	34.5	48.7	—	31.6	45.7	—	28.6	42.7	—	25.5	39.7	—	22.4	36.5		
	3050 CFM	EA (wb)	58	TC	76.3	76.3	86.2	72.1	72.1	81.6	67.8	67.8	76.9	63.3	63.3	72.2	58.8	58.8	67.2	54.0	54.0	62.0	49.0	49.0	56.6
			58	SHC	66.4	76.3	86.2	62.5	72.1	81.6	58.6	67.8	76.9	54.5	63.3	72.2	50.3	58.8	67.2	46.0	54.0	62.0	41.5	49.0	56.6
62			TC	76.4	76.4	89.6	72.2	72.2	84.8	67.9	67.9	80.0	63.4	63.4	75.2	58.8	58.8	70.1	54.1	54.1	64.7	49.1	49.1	59.3	
62			SHC	63.2	76.4	89.6	59.4	72.2	84.8	55.6	67.9	80.0	51.7	63.4	75.2	47.6	58.8	70.1	43.4	54.1	64.7	39.0	49.1	59.3	
67			TC	80.7	80.7	83.9	75.8	75.8	80.8	70.6	70.6	77.8	65.4	65.4	74.7	60.2	60.2	71.4	54.8	54.8	68.0	49.4	49.4	63.7	
67			SHC	52.7	68.3	83.9	49.6	65.2	80.8	46.7	62.2	77.8	43.7	59.2	74.7	40.6	56.0	71.4	37.3	52.7	68.0	33.8	48.8	63.7	
72		TC	89.6	89.6	89.6	84.2	84.2	84.2	78.8	78.8	78.8	73.2	73.2	73.2	67.5	67.5	67.5	61.5	61.5	61.5	55.5	55.5	55.5		
72		SHC	38.1	53.8	69.5	35.1	50.9	66.6	32.2	47.9	63.7	29.3	44.9	60.6	26.2	41.8	57.5	23.1	38.8	54.5	20.0	35.7	51.3		
76		TC	—	97.3	97.3	—	91.7	91.7	—	85.9	85.9	—	80.0	80.0	—	73.9	73.9	—	67.7	67.7	—	61.3	61.3		
76		SHC	—	42.0	57.8	—	39.1	54.9	—	36.1	51.9	—	33.2	48.8	—	30.1	45.8	—	27.0	42.7	—	23.9	39.6		
3350 CFM		EA (wb)	58	TC	78.6	78.6	88.6	74.2	74.2	83.9	69.7	69.7	79.1	65.1	65.1	74.2	60.5	60.5	69.0	55.6	55.6	63.8	50.5	50.5	58.3
			58	SHC	68.4	78.6	88.6	64.4	74.2	83.9	60.4	69.7	79.1	56.2	65.1	74.2	51.9	60.5	69.0	47.4	55.6	63.8	42.8	50.5	58.3
	62		TC	78.6	78.6	92.1	74.3	74.3	87.3	69.8	69.8	82.4	65.2	65.2	77.3	60.5	60.5	72.1	55.7	55.7	66.6	50.6	50.6	60.9	
	62		SHC	65.1	78.6	92.1	61.2	74.3	87.3	57.2	69.8	82.4	53.2	65.2	77.3	49.0	60.5	72.1	44.8	55.7	66.6	40.3	50.6	60.9	
	67		TC	81.8	81.8	88.9	76.7	76.7	85.9	71.6	71.6	82.7	66.4	66.4	79.5	61.1	61.1	75.9	55.9	55.9	71.8	50.7	50.7	66.2	
	67		SHC	55.0	72.0	88.9	52.1	68.9	85.9	48.9	65.8	82.7	45.9	62.7	79.5	42.7	59.3	75.9	39.3	55.6	71.8	35.2	50.7	66.2	
	72	TC	90.6	90.6	90.6	85.1	85.1	85.1	79.6	79.6	79.6	73.9	73.9	73.9	68.2	68.2	68.2	62.1	62.1	62.1	56.0	56.0	56.0		
	72	SHC	39.1	56.3	73.4	36.2	53.3	70.4	33.2	50.3	67.4	30.2	47.3	64.4	27.1	44.2	61.2	24.1	41.1	58.1	21.0	37.9	54.9		
	76	TC	—	98.4	98.4	—	92.6	92.6	—	86.8	86.8	—	80.7	80.7	—	74.6	74.6	—	68.3	68.3	—	61.8	61.8		
	76	SHC	—	43.3	60.5	—	40.4	57.6	—	37.3	54.5	—	34.3	51.5	—	31.3	48.4	—	28.2	45.2	—	25.1	42.0		

**LEGEND**

- Do not operate
- CFM — Cubic feet per minute (supply air)
- EAT (db) — Entering air temperature (dry bulb)
- EAT (wb) — Entering air temperature (wet bulb)
- SHC — Sensible heat capacity (1000 Btuh) Gross
- TC — Total capacity (1000 Btuh) Gross



**COOLING CAPACITIES - SECOND STAGE, PART LOAD (12.5 TONS) (cont)**

50LC*B SIZE 14			AMBIENT TEMPERATURE (°F)																						
			65			75			85			95			105			115			125				
			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)				
			75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85		
4500 CFM	EA (wb)	58	TC	106.7	106.7	120.6	98.7	98.7	112.2	90.6	90.6	103.5	82.2	82.2	94.7	73.6	73.6	85.5	64.8	64.8	76.1	55.8	55.8	66.5	
		SHC	92.6	106.7	120.6	85.2	98.7	112.2	77.5	90.6	103.5	69.7	82.2	94.7	61.7	73.6	85.5	53.5	64.8	76.1	45.0	55.8	66.5		
		TC	106.8	106.8	125.5	98.9	98.9	116.9	90.7	90.7	108.0	82.3	82.3	99.0	73.7	73.7	89.6	64.9	64.9	80.0	55.9	55.9	70.1		
		SHC	88.0	106.8	125.5	80.7	98.9	116.9	73.3	90.7	108.0	65.6	82.3	99.0	57.8	73.7	89.6	49.8	64.9	80.0	41.5	55.9	70.1		
		TC	111.7	111.7	120.7	102.8	102.8	114.4	93.6	93.6	107.9	84.2	84.2	101.3	74.8	74.8	94.5	65.3	65.3	87.0	56.2	56.2	76.8		
		SHC	74.3	97.5	120.7	68.2	91.3	114.4	61.8	84.9	107.9	55.4	78.4	101.3	48.9	71.8	94.5	42.1	64.5	87.0	34.4	55.6	76.8		
	72	TC	124.5	124.5	124.5	115.2	115.2	115.2	105.5	105.5	105.5	95.6	95.6	95.6	85.4	85.4	85.4	74.9	74.9	74.9	64.3	64.3	64.3		
	SHC	53.6	76.9	100.3	47.5	70.8	94.2	41.2	64.5	87.9	34.9	58.2	81.5	28.6	51.9	75.2	22.1	45.3	68.6	15.6	38.8	62.0			
	76	TC	—	135.8	135.8	—	126.3	126.3	—	116.2	116.2	—	105.9	105.9	—	95.2	95.2	—	84.2	84.2	—	73.0	73.0		
	SHC	—	60.2	83.7	—	54.1	77.6	—	47.9	71.3	—	41.5	64.9	—	35.2	58.5	—	28.8	52.0	—	22.1	45.3			
	4950 CFM	EA (wb)	58	TC	110.0	110.0	124.3	101.9	101.9	115.7	93.5	93.5	106.9	84.9	84.9	97.7	76.2	76.2	88.3	67.2	67.2	78.8	57.9	57.9	68.8
			SHC	95.6	110.0	124.3	88.0	101.9	115.7	80.2	93.5	106.9	72.2	84.9	97.7	64.1	76.2	88.3	55.7	67.2	78.8	47.0	57.9	68.8	
TC			110.1	110.1	129.2	102.0	102.0	120.5	93.6	93.6	111.4	85.1	85.1	102.1	76.3	76.3	92.5	67.3	67.3	82.7	58.0	58.0	72.5		
SHC			91.0	110.1	129.2	83.6	102.0	120.5	75.9	93.6	111.4	68.1	85.1	102.1	60.1	76.3	92.5	51.9	67.3	82.7	43.4	58.0	72.5		
TC			113.3	113.3	128.4	104.3	104.3	122.0	95.2	95.2	115.3	85.8	85.8	108.4	76.4	76.4	100.8	67.6	67.6	89.9	58.1	58.1	80.0		
SHC			78.1	103.3	128.4	71.8	96.9	122.0	65.4	90.4	115.3	58.9	83.7	108.4	52.1	76.4	100.8	44.1	67.0	89.9	36.3	58.1	80.0		
72		TC	125.9	125.9	125.9	116.5	116.5	116.5	106.7	106.7	106.7	96.6	96.6	96.6	86.3	86.3	86.3	75.8	75.8	75.8	64.9	64.9	67.6		
SHC		55.3	80.7	106.2	49.1	74.6	100.0	42.9	68.3	93.7	36.5	61.9	87.3	30.1	55.5	80.8	23.6	48.9	74.3	17.1	42.3	67.6			
76		TC	—	137.3	137.3	—	127.6	127.6	—	117.4	117.4	—	107.0	107.0	—	96.1	96.1	—	85.1	85.1	—	73.7	73.7		
SHC		—	62.3	87.9	—	56.2	81.7	—	49.9	75.4	—	43.5	69.0	—	37.1	62.5	—	30.5	55.9	—	24.0	49.1			

**LEGEND**

- Do not operate
- CFM — Cubic feet per minute (supply air)
- EAT (db) — Entering air temperature (dry bulb)
- EAT (wb) — Entering air temperature (wet bulb)
- SHC — Sensible heat capacity (1000 Btuh) Gross
- TC — Total capacity (1000 Btuh) Gross



**COOLING CAPACITIES - THIRD STAGE, FULL LOAD (12.5 TONS) (cont)**

50LC*B SIZE 14		AMBIENT TEMPERATURE (°F)																						
		65			75			85			95			105			115			125				
		EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)							
		75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85		
5650 CFM	58	TC	163.8	163.8	185.0	156.3	156.3	176.8	148.5	148.5	168.3	140.3	140.3	159.3	131.9	131.9	150.1	123.0	123.0	140.4	113.9	113.9	130.3	
		SHC	142.6	163.8	185.0	135.8	156.3	176.8	128.8	148.5	168.3	121.4	140.3	159.3	113.7	131.9	150.1	105.8	123.0	140.4	97.4	113.9	130.3	
	62	TC	164.2	164.2	190.9	156.5	156.5	183.9	148.7	148.7	175.1	140.5	140.5	165.8	132.0	132.0	156.3	123.2	123.2	146.3	114.0	114.0	135.9	
		SHC	135.0	163.0	190.9	129.2	156.5	183.9	122.3	148.7	175.1	115.1	140.5	165.8	107.7	132.0	156.3	100.0	123.2	146.3	92.0	114.0	135.9	
	67	TC	177.5	177.5	177.5	168.5	168.5	168.5	159.0	159.0	159.0	149.3	149.3	150.2	139.0	139.0	144.8	128.5	128.5	139.1	117.6	117.6	133.2	
		SHC	108.3	137.1	165.8	103.4	132.0	160.8	98.2	126.9	155.6	92.9	121.6	150.2	87.6	116.1	144.8	82.0	110.6	139.1	76.3	104.8	133.2	
	72	TC	194.7	194.7	194.7	185.3	185.3	185.3	175.2	175.2	175.2	164.8	164.8	164.8	154.1	154.1	154.1	142.7	142.7	142.7	130.9	130.9	130.9	
		SHC	80.5	109.4	138.3	75.7	104.5	133.4	70.6	99.5	128.3	65.5	94.3	123.1	60.3	89.0	117.8	54.8	83.6	112.3	49.2	78.0	106.7	
	76	TC	—	209.3	209.3	—	199.5	199.5	—	189.2	189.2	—	178.3	178.3	—	167.1	167.1	—	155.4	155.4	—	—	—	
		SHC	—	87.0	116.3	—	82.2	111.4	—	77.2	106.5	—	72.2	101.3	—	67.0	96.0	—	61.6	90.7	—	—	—	
	6250 CFM	58	TC	168.9	168.9	190.5	161.2	161.2	182.1	153.1	153.1	173.4	144.7	144.7	164.2	135.9	135.9	154.5	126.8	126.8	144.6	117.3	117.3	134.1
			SHC	147.1	168.9	190.5	140.1	161.2	182.1	132.8	153.1	173.4	125.2	144.7	164.2	117.3	135.9	154.5	109.0	126.8	144.6	100.4	117.3	134.1
62		TC	169.1	169.1	198.0	161.3	161.3	189.4	153.2	153.2	180.3	144.9	144.9	170.9	136.0	136.0	161.0	126.9	126.9	150.6	117.4	117.4	139.8	
		SHC	140.0	169.1	198.0	133.2	161.3	189.4	126.2	153.2	180.3	118.9	144.9	170.9	111.2	136.0	161.0	103.3	126.9	150.6	95.0	117.4	139.8	
67		TC	180.0	180.0	180.0	170.8	170.8	171.0	161.3	161.3	165.8	151.3	151.3	160.3	141.0	141.0	154.6	130.4	130.4	148.8	119.4	119.4	142.5	
		SHC	113.1	144.6	176.1	108.1	139.5	171.0	103.0	134.4	165.8	97.6	129.0	160.3	92.1	123.4	154.6	86.6	117.7	148.8	80.7	111.6	142.5	
72		TC	197.1	197.1	197.1	187.5	187.5	187.5	177.4	177.4	177.4	166.8	166.8	166.8	155.8	155.8	155.8	144.3	144.3	144.3	132.3	132.3	132.3	
		SHC	82.6	114.2	145.9	77.7	109.3	140.9	72.6	104.2	135.8	67.5	99.0	130.6	62.2	93.7	125.2	56.7	88.1	119.6	51.1	82.6	114	
76		TC	—	211.9	211.9	—	201.9	201.9	—	191.4	191.4	—	180.4	180.4	—	169.0	169.0	—	157.1	157.1	—	—	—	
		SHC	—	89.6	121.7	—	84.8	116.8	—	79.9	111.7	—	74.7	106.6	—	69.4	101.3	—	64.1	95.8	—	—	—	

**LEGEND**

- Do not operate
- CFM — Cubic feet per minute (supply air)
- EAT (db) — Entering air temperature (dry bulb)
- EAT (wb) — Entering air temperature (wet bulb)
- SHC — Sensible heat capacity (1000 Btuh) Gross
- TC — Total capacity (1000 Btuh) Gross



**COOLING CAPACITIES - FIRST STAGE, PART LOAD (15 TONS) (cont)**

50LC*B SIZE 17			AMBIENT TEMPERATURE (°F)																						
			65			75			85			95			105			115			125				
			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)				
			75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85		
3800 CFM	EA (wb)	58	TC	93.6	93.6	105.6	90.0	90.0	101.6	86.0	86.0	97.2	81.6	81.6	92.4	76.8	76.8	87.3	71.7	71.7	81.5	66.1	66.1	75.4	
		58	SHC	81.6	93.6	105.6	78.3	90.0	101.6	74.7	86.0	97.2	70.7	81.6	92.4	66.4	76.8	87.3	61.8	71.7	81.5	56.7	66.1	75.4	
		62	TC	93.7	93.7	109.7	90.1	90.1	105.7	86.1	86.1	101.1	81.7	81.7	96.2	76.9	76.9	90.8	71.8	71.8	84.9	66.2	66.2	78.6	
		62	SHC	77.7	93.7	109.7	74.5	90.1	105.7	71.0	86.1	101.1	67.2	81.7	96.2	63.0	76.9	90.8	58.6	71.8	84.9	53.7	66.2	78.6	
		67	TC	97.6	97.6	105.2	93.4	93.4	102.8	88.6	88.6	100.1	83.5	83.5	97.3	78.0	78.0	94.2	72.2	72.2	90.7	66.3	66.3	84.6	
		67	SHC	65.5	85.3	105.2	63.2	83.0	102.8	60.5	80.3	100.1	57.8	77.6	97.3	54.9	74.6	94.2	51.8	71.2	90.7	47.6	66.1	84.6	
	72	TC	107.5	107.5	107.5	103.3	103.3	103.3	98.3	98.3	98.3	92.7	92.7	92.7	86.7	86.7	86.7	80.1	80.1	80.1	73.1	73.1	73.1		
	72	SHC	46.4	66.5	86.5	44.3	64.3	84.3	41.7	61.8	81.8	39.1	59.1	79.2	36.3	56.4	76.3	33.3	53.3	73.3	30.2	50.2	70.2		
	76	TC	—	116.2	116.2	—	112.0	—	107.0	107.0	—	101.2	101.2	—	94.9	94.9	—	87.9	87.9	—	80.5	80.5	—		
	76	SHC	—	51.0	71.3	—	48.9	69.1	—	46.5	66.7	—	43.9	64.1	—	41.1	61.3	—	38.2	58.3	—	35.1	55.3	—	
	4250 CFM	EA (wb)	58	TC	96.6	96.6	108.9	92.9	92.9	104.9	88.7	88.7	100.3	84.2	84.2	95.4	79.3	79.3	90.0	73.9	73.9	84.0	68.2	68.2	77.7
			58	SHC	84.3	96.6	108.9	80.9	92.9	104.9	77.1	88.7	100.3	73.0	84.2	95.4	68.6	79.3	90.0	63.9	73.9	84.0	58.6	68.2	77.7
62			TC	96.7	96.7	113.2	93.0	93.0	109.0	88.8	88.8	104.3	84.3	84.3	99.3	79.4	79.4	93.6	74.0	74.0	87.6	68.3	68.3	81.0	
62			SHC	80.2	96.7	113.2	77.0	93.0	109.0	73.3	88.8	104.3	69.4	84.3	99.3	65.1	79.4	93.6	60.5	74.0	87.6	55.5	68.3	81.0	
67			TC	99.1	99.1	113.0	94.8	94.8	110.6	90.1	90.1	107.7	84.9	84.9	104.6	79.6	79.6	100.7	74.1	74.1	94.4	68.3	68.3	87.5	
67			SHC	69.1	91.1	113.0	66.8	88.6	110.6	64.2	86.0	107.7	61.3	83.0	104.6	58.1	79.5	100.7	53.8	74.1	94.4	49.2	68.3	87.5	
72		TC	108.7	108.7	108.7	104.4	104.4	104.4	99.4	99.4	99.4	93.7	93.7	93.7	87.7	87.7	87.7	81.0	81.0	81.0	73.9	73.9	76.1		
72		SHC	48.0	70.2	92.5	45.7	68.1	90.3	43.3	65.5	87.8	40.7	62.9	85.1	37.8	60.1	82.3	34.8	57.0	79.3	31.7	53.8	76.1		
76		TC	—	117.5	117.5	—	113.3	—	108.1	108.1	—	102.3	102.3	—	95.8	95.8	—	88.8	88.8	—	81.3	81.3	—		
76		SHC	—	53.0	75.5	—	50.9	73.3	—	48.6	70.9	—	45.9	68.3	—	43.1	65.5	—	40.2	62.5	—	37.1	59.4	—	

**LEGEND**

- Do not operate
- CFM** — Cubic feet per minute (supply air)
- EAT (db)** — Entering air temperature (dry bulb)
- EAT (wb)** — Entering air temperature (wet bulb)
- SHC** — Sensible heat capacity (1000 Btuh) Gross
- TC** — Total capacity (1000 Btuh) Gross





**COOLING CAPACITIES - SECOND STAGE, PART LOAD (15 TONS) (cont)**

50LC*B SIZE 17			AMBIENT TEMPERATURE (°F)																						
			65			75			85			95			105			115			125				
			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)							
			75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85		
5550 CFM	EA (wb)	58	TC	138.3	138.3	155.8	131.2	131.2	148.1	124.7	124.7	140.8	118.4	118.4	133.7	112	112.0	126.7	105.6	105.6	119.5	98.8	98.8	111.9	
		SHC	120.6	138.3	155.8	114.5	131.2	148.1	108.6	124.7	140.8	103.0	118.4	133.7	97.4	112.0	126.7	91.7	105.6	119.5	85.6	98.8	111.9		
		TC	138.4	138.4	161.9	131.4	131.4	153.9	124.8	124.8	146.3	118.5	118.5	138.9	112.1	112.1	131.7	105.7	105.7	124.3	98.9	98.9	116.4		
		SHC	114.9	138.4	161.9	108.9	131.4	153.9	103.4	124.8	146.3	97.9	118.5	138.9	92.5	112.1	131.7	87.1	105.7	124.3	81.2	98.9	116.4		
		TC	144.1	144.1	153.0	135.6	135.6	149.0	127.7	127.7	145.2	120.3	120.3	141.4	113.0	113.0	137.5	106.0	106.0	132.8	99.2	99.2	124.5		
		SHC	95.8	124.4	153.0	91.9	120.4	149.0	88.3	116.8	145.2	84.8	113.1	141.4	81.4	109.4	137.5	77.5	105.2	132.8	72.3	98.4	124.5		
	72	TC	158.0	158.0	158.0	148.9	148.9	148.9	140.2	140.2	140.2	131.8	131.8	131.8	123.6	123.6	123.6	115.4	115.4	115.4	107.0	107.0	107.0		
	SHC	67.9	96.6	125.5	64.2	92.9	121.7	60.6	89.4	118.2	57.2	86.0	114.8	54.0	82.7	111.3	50.7	79.4	108.0	47.3	76.0	104.6			
	76	TC	—	170.5	170.5	—	160.8	160.8	—	151.5	151.5	—	142.6	142.6	—	133.9	133.9	—	125.1	125.1	—	116.1	116.1		
	SHC	—	74.1	103.1	—	70.4	99.5	—	67.0	95.8	—	63.6	92.4	—	60.3	89.1	—	56.9	85.8	—	53.6	82.4			
	6150 CFM	EA (wb)	58	TC	142.1	142.1	160.2	134.8	134.8	152.1	128.0	128.0	144.4	121.4	121.4	137.1	114.9	114.9	129.8	108.1	108.1	122.4	101.1	101.1	114.6
			SHC	124.0	142.1	160.2	117.6	134.8	152.1	111.5	128.0	144.4	105.6	121.4	137.1	99.8	114.9	129.8	93.9	108.1	122.4	87.7	101.1	114.6	
TC			142.3	142.3	166.3	134.9	134.9	158.0	128.1	128.1	150.1	121.5	121.5	142.4	115.0	115.0	134.9	108.2	108.2	127.2	101.2	101.2	119.1		
SHC			118.1	142.3	166.3	111.9	134.9	158.0	106.1	128.1	150.1	100.4	121.5	142.4	94.9	115.0	134.9	89.2	108.2	127.2	83.2	101.2	119.1		
TC			146.0	146.0	163.0	137.4	137.4	158.7	129.5	129.5	154.6	122.1	122.1	150.3	115.2	115.2	144.2	108.5	108.5	136.0	101.3	101.3	128.2		
SHC			100.4	131.7	163.0	96.5	127.6	158.7	92.7	123.7	154.6	89.1	119.7	150.3	84.7	114.5	144.2	79.6	107.7	136.0	74.4	101.3	128.2		
72		TC	159.6	159.6	159.6	150.2	150.2	150.2	141.5	141.5	141.5	133.0	133.0	133.0	124.7	124.7	124.7	116.4	116.4	116.4	107.7	107.7	111.9		
SHC		69.8	101.4	133.0	66.0	97.6	129.2	62.5	94.1	125.6	59.1	90.7	122.2	55.8	87.3	118.8	52.5	83.9	115.4	49.1	80.5	111.9			
76		TC	—	172.2	172.2	—	162.3	162.3	—	152.9	152.9	—	143.8	143.8	—	134.9	134.9	—	126.1	126.1	—	116.9	116.9		
SHC		—	76.5	108.4	—	72.9	104.6	—	69.3	101.1	—	66.0	97.6	—	62.7	94.3	—	59.3	90.9	—	56.0	87.5			

**LEGEND**

- Do not operate
- CFM — Cubic feet per minute (supply air)
- EAT (db) — Entering air temperature (dry bulb)
- EAT (wb) — Entering air temperature (wet bulb)
- SHC — Sensible heat capacity (1000 Btuh) Gross
- TC — Total capacity (1000 Btuh) Gross



**COOLING CAPACITIES - THIRD STAGE, FULL LOAD (15 TONS) (cont)**

50LC*B SIZE 17			AMBIENT TEMPERATURE (°F)																						
			65			75			85			95			105			115			125				
			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)							
			75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85		
6750 CFM	EA (wb)	58	TC	201.2	201.2	227.2	192.0	192.0	217.0	182.5	182.5	206.7	172.8	172.8	196.1	162.6	162.6	185.0	152.0	152.0	173.3	140.6	140.6	160.7	
		SHC	175.3	201.2	227.2	166.9	192.0	217.0	158.3	182.5	206.7	149.6	172.8	196.1	140.4	162.6	185.0	130.7	152.0	173.3	120.5	140.6	160.7		
		TC	202.2	202.2	233.0	192.1	192.1	225.5	182.7	182.7	215.1	173.0	173.0	204.1	162.8	162.8	192.7	152.2	152.2	180.5	140.8	140.8	167.6		
		SHC	165.4	199.2	233.0	158.6	192.1	225.5	150.4	182.7	215.1	142.0	173.0	204.1	133.1	162.8	192.7	123.8	152.2	180.5	114.0	140.8	167.6		
		TC	219.4	219.4	219.4	207.9	207.9	207.9	196.4	196.4	196.4	184.5	184.5	184.5	172.3	172.3	176.7	159.4	159.4	169.8	145.8	145.8	162.7		
		SHC	132.9	167.4	202.0	126.7	161.3	195.8	120.5	155.0	189.5	114.2	148.7	183.1	107.8	142.3	176.7	101.2	135.5	169.8	94.3	128.5	162.7		
	72	TC	241.0	241.0	241.0	228.7	228.7	228.7	216.4	216.4	216.4	203.7	203.7	203.7	190.6	190.6	190.6	176.8	176.8	176.8	162.2	162.2	162.2		
	SHC	99.5	134.3	169.0	93.4	128.1	162.8	87.3	122.0	156.6	81.1	115.7	150.3	74.8	109.4	143.9	68.3	102.8	137.3	61.5	96.0	130.5			
	76	TC	—	259.3	259.3	—	246.3	246.3	—	233.3	233.3	—	220.0	220.0	—	206.1	206.1	—	191.7	191.7	—	176.1	176.1		
	SHC	—	107.3	142.5	—	101.2	136.4	—	95.1	130.3	—	88.9	123.9	—	82.7	117.6	—	76.1	111.0	—	69.3	103.9			
	7500 CFM	EA (wb)	58	TC	208.0	208.0	234.7	198.3	198.3	224.1	188.5	188.5	213.3	178.4	178.4	202.4	167.9	167.9	190.8	156.9	156.9	178.6	145.1	145.1	165.7
			SHC	181.3	208.0	234.7	172.5	198.3	224.1	163.6	188.5	213.3	154.5	178.4	202.4	145.1	167.9	190.8	135.1	156.9	178.6	124.5	145.1	165.7	
TC			208.3	208.3	243.9	198.5	198.5	233.0	188.7	188.7	221.9	178.6	178.6	210.6	168.1	168.1	198.7	157.1	157.1	186.1	145.3	145.3	172.8		
SHC			172.5	208.3	243.9	164.1	198.5	233.0	155.5	188.7	221.9	146.7	178.6	210.6	137.6	168.1	198.7	127.9	157.1	186.1	117.8	145.3	172.8		
TC			222.9	222.9	222.9	211.1	211.1	211.1	199.3	199.3	202.5	187.3	187.3	196.0	174.8	174.8	189.2	161.9	161.9	182.2	148.2	148.2	174.7		
SHC			139.0	177.2	215.2	132.8	170.8	208.8	126.6	164.5	202.5	120.2	158.1	196.0	113.7	151.5	189.2	107.0	144.6	182.2	99.8	137.3	174.7		
72		TC	244.4	244.4	244.4	231.9	231.9	231.9	219.2	219.2	219.2	206.3	206.3	206.3	193.0	193.0	193.0	178.9	178.9	178.9	164.1	164.1	164.1		
SHC		102.2	140.4	178.6	96.0	134.2	172.4	89.9	128.0	166.0	83.7	121.7	159.7	77.3	115.2	153.3	70.8	108.6	146.5	64.0	101.8	139.6			
76		TC	—	262.7	262.7	—	249.5	249.5	—	236.1	236.1	—	222.6	222.6	—	208.6	208.6	—	193.8	193.8	—	177.8	177.8		
SHC		—	110.6	149.4	—	104.5	143.1	—	98.4	136.9	—	92.1	130.5	—	85.8	124	—	79.3	117.3	—	72.3	110.2			

**LEGEND**

- Do not operate
- CFM — Cubic feet per minute (supply air)
- EAT (db) — Entering air temperature (dry bulb)
- EAT (wb) — Entering air temperature (wet bulb)
- SHC — Sensible heat capacity (1000 Btuh) Gross
- TC — Total capacity (1000 Btuh) Gross



**COOLING CAPACITIES - FIRST STAGE, PART LOAD (17.5 TONS) (cont)**

50LC*B SIZE 20			AMBIENT TEMPERATURE (°F)																						
			65			75			85			95			105			115			125				
			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)							
			75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85		
4150 CFM	EA (wb)	58	TC	112.2	112.2	126.7	108.8	108.8	122.9	105.0	105.0	118.6	100.7	100.7	113.8	96.1	96.1	108.7	91.3	91.3	103.3	86.0	86.0	97.4	
		SHC	97.9	112.2	126.7	94.9	108.8	122.9	91.5	105.0	118.6	87.7	100.7	113.8	83.7	96.1	108.7	79.3	91.3	103.3	74.7	86.0	97.4		
		62	TC	112.4	112.4	131.5	109.0	109.0	127.6	105.1	105.1	123.1	100.8	100.8	118.3	96.2	96.2	113.0	91.4	91.4	107.3	86.1	86.1	101.3	
		SHC	93.2	112.4	131.5	90.3	109.0	127.6	87.0	105.1	123.1	83.4	100.8	118.3	79.6	96.2	113.0	75.4	91.4	107.3	71.0	86.1	101.3		
		67	TC	119.7	119.7	119.7	115.6	115.6	115.6	111.0	111.0	112.9	105.7	105.7	110.5	100.1	100.1	107.8	94.2	94.2	105.0	87.9	87.9	102.0	
		SHC	75.4	96.2	117.1	73.4	94.3	115.1	71.3	92.1	112.9	68.9	89.7	110.5	66.4	87.2	107.8	63.8	84.3	105.0	60.9	81.4	102.0		
	72	TC	130.9	130.9	130.9	126.8	126.8	126.8	121.8	121.8	121.8	116.2	116.2	116.2	110.2	110.2	110.2	103.7	103.7	103.7	96.8	96.8	96.8		
	SHC	54.6	75.6	96.5	52.8	73.8	94.8	50.8	71.8	92.6	48.6	69.4	90.3	46.1	67.0	87.8	43.6	64.4	85.2	41.0	61.7	82.5			
	76	TC	—	140.8	140.8	—	136.4	136.4	—	131.1	131.1	—	125.2	125.2	—	118.8	118.8	—	111.9	111.9	—	104.6	104.6		
	SHC	—	59.0	80.1	—	57.2	78.4	—	55.2	76.2	—	52.9	73.9	—	50.5	71.5	—	48.0	68.8	—	45.2	66.1			
	4600 CFM	EA (wb)	58	TC	115.4	115.4	130.2	111.9	111.9	126.3	107.9	107.9	121.9	103.5	103.5	117.0	98.8	98.8	111.6	93.7	93.7	106.0	88.3	88.3	99.9
			SHC	100.6	115.4	130.2	97.6	111.9	126.3	94.0	107.9	121.9	90.2	103.5	117.0	85.9	98.8	111.6	81.4	93.7	106.0	76.6	88.3	99.9	
62			TC	115.5	115.5	135.2	112.0	112.0	131.2	108.0	108.0	126.7	103.6	103.6	121.6	98.9	98.9	116.0	93.8	93.8	110.2	88.3	88.3	103.9	
SHC			95.8	115.5	135.2	92.8	112.0	131.2	89.5	108.0	126.7	85.7	103.6	121.6	81.7	98.9	116.0	77.4	93.8	110.2	72.8	88.3	103.9		
67			TC	121.2	121.2	124.3	117.1	117.1	122.3	112.3	120.0	107.1	107.1	117.5	101.4	101.4	114.7	95.5	95.5	111.7	89.2	89.2	108.2		
SHC			78.7	101.5	124.3	76.7	99.5	122.3	74.6	97.3	120.0	72.2	94.9	117.5	69.6	92.1	114.7	66.9	89.3	111.7	63.9	86.1	108.2		
72		TC	132.3	132.3	132.3	128.2	128.2	128.2	123.1	123.1	123.1	117.4	117.4	117.4	111.2	111.2	111.2	104.7	104.7	104.7	97.7	97.7	97.7		
SHC		56.1	78.9	101.8	54.3	77.1	100.0	52.2	75.1	97.9	49.9	72.7	95.6	47.5	70.2	93.0	44.9	67.7	90.4	42.2	64.9	87.6			
76		TC	—	142.3	142.3	—	137.9	137.9	—	132.5	132.5	—	126.5	126.5	—	119.9	119.9	—	112.9	112.9	—	105.5	105.5		
SHC		—	60.7	83.9	—	59.0	82.0	—	56.9	80.0	—	54.6	77.5	—	52.2	75.0	—	49.6	72.3	—	46.9	69.5			

**LEGEND**

- Do not operate
- CFM** — Cubic feet per minute (supply air)
- EAT (db)** — Entering air temperature (dry bulb)
- EAT (wb)** — Entering air temperature (wet bulb)
- SHC** — Sensible heat capacity (1000 Btuh) Gross
- TC** — Total capacity (1000 Btuh) Gross



**COOLING CAPACITIES - SECOND STAGE, PART LOAD (17.5 TONS) (cont)**

50LC*B SIZE 20			AMBIENT TEMPERATURE (°F)																						
			65			75			85			95			105			115			125				
			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)				
			75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85		
4850 CFM	EA (wb)	58	TC	129.1	129.1	145.7	122.4	122.4	138.3	116.1	116.1	131.3	110.0	110.0	124.6	103.9	103.9	117.9	97.7	97.7	111.0	91.1	91.1	103.6	
		SHC	112.5	129.1	145.7	106.6	122.4	138.3	100.9	116.1	131.3	95.5	110.0	124.6	90.0	103.9	117.9	84.4	97.7	111.0	78.6	91.1	103.6		
		TC	129.2	129.2	151.3	122.6	122.6	143.7	116.2	116.2	136.5	110.1	110.1	129.6	104.0	104.0	122.7	97.8	97.8	115.5	91.2	91.2	107.9		
		SHC	107.1	129.2	151.3	101.3	122.6	143.7	95.9	116.2	136.5	90.7	110.1	129.6	85.4	104.0	122.7	80.0	97.8	115.5	74.4	91.2	107.9		
		TC	138.2	138.2	138.2	129.8	129.8	131.3	122.0	122.0	127.4	114.6	114.6	123.6	107.3	107.3	119.8	99.9	99.9	115.9	92.3	92.3	111.6		
		SHC	87.0	111.2	135.4	82.9	107.1	131.3	79.1	103.3	127.4	75.5	99.5	123.6	71.9	95.8	119.8	68.2	92.0	115.9	64.4	87.9	111.6		
	72	TC	152.3	152.3	152.3	143.1	143.1	143.1	134.6	134.6	134.6	126.4	126.4	126.4	118.3	118.3	118.3	110.3	110.3	110.3	101.8	101.8	101.8		
	SHC	63.6	87.8	112.1	59.6	83.9	108.1	55.8	80.0	104.2	52.2	76.3	100.5	48.7	72.7	96.9	45.0	69.2	93.3	41.4	65.4	89.5			
	76	TC	—	164.3	164.3	—	154.4	154.4	—	145.2	145.2	—	136.3	136.3	—	127.7	127.7	—	119.0	119.0	—	110.1	110.1		
	SHC	—	68.9	93.6	—	64.9	89.5	—	61.1	85.5	—	57.4	81.7	—	53.8	78.0	—	50.2	74.3	—	46.5	70.4			
	5400 CFM	EA (wb)	58	TC	133.2	133.2	150.2	126.2	126.2	142.4	119.6	119.6	135.2	113.2	113.2	128.2	107.0	107.0	121.2	100.4	100.4	114.1	93.6	93.6	106.5
			SHC	116.1	133.2	150.2	109.9	126.2	142.4	103.9	119.6	135.2	98.3	113.2	128.2	92.6	107.0	121.2	86.9	100.4	114.1	80.7	93.6	106.5	
TC			133.3	133.3	156.1	126.3	126.3	148.1	119.7	119.7	140.6	113.3	113.3	133.3	107.1	107.1	126.1	100.5	100.5	118.7	93.7	93.7	110.9		
SHC			110.5	133.3	156.1	104.5	126.3	148.1	98.9	119.7	140.6	93.4	113.3	133.3	87.9	107.1	126.1	82.4	100.5	118.7	76.5	93.7	110.9		
TC			140.1	140.1	144.2	131.6	131.6	139.9	123.7	123.7	135.8	116.2	116.2	131.8	108.8	108.8	127.9	101.5	101.5	123.5	94.1	94.1	118.1		
SHC			91.0	117.6	144.2	86.9	113.4	139.9	83.1	109.5	135.8	79.3	105.6	131.8	75.6	101.8	127.9	71.8	97.7	123.5	67.5	92.7	118.1		
72		TC	154.1	154.1	154.1	144.8	144.8	144.8	136.0	136.0	136.0	127.7	127.7	127.7	119.5	119.5	119.5	111.3	111.3	111.3	102.8	102.8	102.8		
SHC		65.2	91.8	118.6	61.2	87.8	114.5	57.4	83.9	110.6	53.7	80.2	106.8	50.2	76.6	103.1	46.6	73.0	99.4	42.9	69.2	95.6			
76		TC	—	166.2	166.2	—	156.2	156.2	—	146.6	146.6	—	137.7	137.7	—	128.9	128.9	—	120.0	120.0	—	111.0	111.0		
SHC		—	71.1	98.0	—	67.0	93.8	—	63.1	89.8	—	59.4	86.0	—	55.8	82.2	—	52.1	78.3	—	48.4	74.4			

**LEGEND**

- — Do not operate
- CFM — Cubic feet per minute (supply air)
- EAT (db) — Entering air temperature (dry bulb)
- EAT (wb) — Entering air temperature (wet bulb)
- SHC — Sensible heat capacity (1000 Btuh) Gross
- TC — Total capacity (1000 Btuh) Gross





**COOLING CAPACITIES - THIRD STAGE, FULL LOAD (17.5 TONS) (cont)**

50LC*B SIZE 20			AMBIENT TEMPERATURE (°F)																					
			65			75			85			95			105			115			125			
			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			
			75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	
7900 CFM	58	TC	222.4	222.4	251.1	212.7	212.7	240.4	202.8	202.8	229.6	192.7	192.7	218.4	181.9	181.9	206.7	170.7	170.7	194.3	158.9	158.9	181.4	
		SHC	193.7	222.4	251.1	185.0	212.7	240.4	176.0	202.8	229.6	166.8	192.7	218.4	157.2	181.9	206.7	147.1	170.7	194.3	136.5	158.9	181.4	
	62	TC	222.9	222.9	258.8	212.9	212.9	250.0	203.1	203.1	238.9	192.9	192.9	227.3	182.1	182.1	215.2	170.8	170.8	202.4	159.0	159.0	189.0	
		SHC	183.2	220.9	258.8	175.8	212.9	250.0	167.2	203.1	238.9	158.3	192.9	227.3	149.1	182.1	215.2	139.3	170.8	202.4	129.1	159.0	189.0	
	67	TC	239.5	239.5	239.5	227.8	227.8	227.8	215.9	215.9	215.9	203.7	203.7	205.4	190.9	190.9	198.7	177.6	177.6	191.6	163.9	163.9	184.2	
		SHC	146.4	185.5	224.5	140.2	179.3	218.3	134.0	173.0	212.0	127.6	166.5	205.4	121.0	159.8	198.7	114.2	152.9	191.6	107.2	145.7	184.2	
	72	TC	261.5	261.5	261.5	249.1	249.1	249.1	236.6	236.6	236.6	223.7	223.7	223.7	209.7	209.7	209.7	195.6	195.6	195.6	181.0	181.0	181.0	
		SHC	108.1	147.3	186.5	102.0	141.2	180.4	95.9	135.0	174.1	89.7	128.7	167.8	83.1	122.1	161.1	76.5	115.4	154.3	69.8	108.6	147.4	
	76	TC	—	280.5	280.5	—	267.5	267.5	—	254.1	254.1	—	240.5	240.5	—	226.3	226.3	—	211.5	211.5	—	196.0	196.0	
		SHC	—	116.6	156.7	—	110.6	150.5	—	104.4	144.3	—	98.2	138.0	—	91.8	131.4	—	85.3	124.7	—	78.5	117.7	
	8750 CFM	58	TC	228.6	228.6	258.1	218.6	218.6	247.1	208.5	208.5	236.0	197.9	197.9	224.3	187.0	187.0	212.3	175.3	175.3	199.4	163.2	163.2	186.1
			SHC	199.3	228.6	258.1	190.2	218.6	247.1	181.1	208.5	236.0	171.5	197.9	224.3	161.7	187.0	212.3	151.1	175.3	199.4	140.3	163.2	186.1
62		TC	228.9	228.9	268.2	218.9	218.9	256.9	208.7	208.7	245.4	198.1	198.1	233.4	187.1	187.1	220.9	175.4	175.4	207.7	163.3	163.3	193.9	
		SHC	189.5	228.9	268.2	180.9	218.9	256.9	172.0	208.7	245.4	162.8	198.1	233.4	153.3	187.1	220.9	143.2	175.4	207.7	132.7	163.3	193.9	
67		TC	242.6	242.6	242.6	230.7	230.7	231.8	218.7	218.7	225.2	206.3	206.3	218.5	193.4	193.4	211.6	180.0	180.0	204.2	166.1	166.1	196.4	
		SHC	152.7	195.4	238.1	146.4	189.1	231.8	140.1	182.7	225.2	133.7	176.1	218.5	126.9	169.3	211.6	120.0	162.0	204.2	112.8	154.5	196.4	
72		TC	264.6	264.6	264.6	252.0	252.0	252.0	239.3	239.3	239.3	226.1	226.1	226.1	212.4	212.4	212.4	197.5	197.5	197.5	182.8	182.8	182.8	
		SHC	110.7	153.6	196.4	104.6	147.4	190.1	98.5	141.2	183.9	92.1	134.8	177.5	85.7	128.3	170.8	79.0	121.4	163.9	72.2	114.6	156.9	
76		TC	—	283.6	283.6	—	270.4	270.4	—	256.9	256.9	—	243.1	243.1	—	228.5	228.5	—	213.5	213.5	—	197.8	197.8	
		SHC	—	119.9	163.6	—	113.9	157.4	—	107.7	151.1	—	101.5	144.7	—	95.0	138.1	—	88.3	131.2	—	81.6	124.1	

**LEGEND**

- Do not operate
- CFM — Cubic feet per minute (supply air)
- EAT (db) — Entering air temperature (dry bulb)
- EAT (wb) — Entering air temperature (wet bulb)
- SHC — Sensible heat capacity (1000 Btuh) Gross
- TC — Total capacity (1000 Btuh) Gross



**COOLING CAPACITIES - FIRST STAGE, PART LOAD (20 TONS) (cont)**

50LC*B SIZE 24			AMBIENT TEMPERATURE (°F)																						
			65			75			85			95			105			115			125				
			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)				
			75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85		
4700 CFM	EA (wb)	58	TC	125.4	125.4	142.1	115.5	115.5	131.6	105.9	105.9	121.3	96.1	96.1	110.9	86.2	86.2	100.3	76.1	76.1	89.5	65.6	65.6	78.3	
		SHC	108.7	125.4	142.1	99.5	115.5	131.6	90.5	105.9	121.3	81.3	96.1	110.9	72.1	86.2	100.3	62.6	76.1	89.5	52.8	65.6	78.3		
		62	TC	125.6	125.6	147.8	115.7	115.7	137.2	106.0	106.0	126.7	96.2	96.2	116.0	86.4	86.4	105.2	76.1	76.1	94.2	65.7	65.7	82.8	
		SHC	103.4	125.6	147.8	94.4	115.7	137.2	85.4	106.0	126.7	76.4	96.2	116.0	67.5	86.4	105.2	58.2	76.1	94.2	48.7	65.7	82.8		
		67	TC	136.6	136.6	136.6	125.2	125.2	125.4	113.8	113.8	117.7	102.5	102.5	110.0	91.1	91.1	102.3	79.4	79.4	94.4	67.5	67.5	86.3	
		SHC	84.7	108.9	133.1	77.0	101.2	125.4	69.4	93.6	117.7	61.8	85.9	110.0	54.2	78.3	102.3	46.5	70.5	94.4	38.7	62.5	86.3		
	72	TC	153.0	153.0	153.0	141.0	141.0	141.0	129.0	129.0	129.0	117.0	117.0	117.0	104.9	104.9	104.9	92.4	92.4	92.4	79.7	79.7	79.7		
	SHC	63.5	87.8	112.1	55.9	80.2	104.5	48.4	72.6	97.0	40.9	65.1	89.4	33.2	57.5	81.8	25.6	49.8	74.1	17.8	42.1	66.4			
	76	TC	—	167.0	167.0	—	154.7	154.7	—	142.4	142.4	—	129.9	129.9	—	117.2	117.2	—	104.2	104.2	—	90.9	90.9		
	SHC	—	70.6	95.3	—	63.1	87.7	—	55.6	80.1	—	48.1	72.6	—	40.6	65.0	—	32.9	57.3	—	25.2	49.5			
	5250 CFM	EA (wb)	58	TC	130.6	130.6	147.8	120.5	120.5	137.0	110.5	110.5	126.3	100.3	100.3	115.5	90.2	90.2	104.7	79.7	79.7	93.5	68.9	68.9	82.0
			SHC	113.4	130.6	147.8	103.9	120.5	137.0	94.6	110.5	126.3	85.1	100.3	115.5	75.7	90.2	104.7	65.9	79.7	93.5	55.9	68.9	82.0	
62			TC	130.7	130.7	153.8	120.6	120.6	142.7	110.6	110.6	131.8	100.5	100.5	120.8	90.3	90.3	109.7	79.9	79.9	98.3	69.0	69.0	86.5	
SHC			107.7	130.7	153.8	98.6	120.6	142.7	89.4	110.6	131.8	80.1	100.5	120.8	70.9	90.3	109.7	61.3	79.9	98.3	51.6	69.0	86.5		
67			TC	139.2	139.2	142.9	127.5	127.5	135.1	115.9	115.9	127.3	104.5	104.5	119.4	92.9	92.9	111.4	81.2	81.2	103.2	69.7	69.7	93.6	
SHC			89.5	116.2	142.9	81.8	108.4	135.1	74.1	100.7	127.3	66.4	92.9	119.4	58.7	85.0	111.4	50.7	76.9	103.2	42.4	68.0	93.6		
72		TC	155.4	155.4	155.4	143.2	143.2	143.2	131.0	131.0	131.0	118.9	118.9	118.9	106.5	106.5	106.5	93.9	93.9	93.9	80.8	80.8	80.8		
SHC		65.7	92.6	119.5	58.1	85.0	111.8	50.5	77.3	104.2	42.9	69.7	96.5	35.2	62.1	88.9	27.5	54.3	81.1	19.7	46.5	73.2			
76		TC	—	169.6	169.6	—	157.1	157.1	—	144.4	144.4	—	131.7	131.7	—	118.9	118.9	—	105.7	105.7	—	92.1	92.1		
SHC		—	73.4	100.6	—	65.8	93.0	—	58.2	85.3	—	50.7	77.7	—	43.0	70.1	—	35.3	62.3	—	27.5	54.5			

**LEGEND**

- Do not operate
- CFM** — Cubic feet per minute (supply air)
- EAT (db)** — Entering air temperature (dry bulb)
- EAT (wb)** — Entering air temperature (wet bulb)
- SHC** — Sensible heat capacity (1000 Btuh) Gross
- TC** — Total capacity (1000 Btuh) Gross



**COOLING CAPACITIES - SECOND STAGE, PART LOAD (20 TONS) (cont)**

50LC*B SIZE 24			AMBIENT TEMPERATURE (°F)																						
			65			75			85			95			105			115			125				
			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)				
			75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85		
5800 CFM	EA (wb)	58	TC	163.5	163.5	184.6	156.6	156.6	177.2	149.2	149.2	169.1	141.1	141.1	160.2	132.3	132.3	150.6	122.8	122.8	140.2	112.5	112.5	129.0	
		SHC	142.4	163.5	184.6	136.0	156.6	177.2	129.2	149.2	169.1	121.9	141.1	160.2	113.9	132.3	150.6	105.3	122.8	140.2	96.1	112.5	129.0		
		TC	163.7	163.7	191.9	156.8	156.8	184.3	149.3	149.3	175.9	141.2	141.2	166.8	132.4	132.4	157.0	122.9	122.9	146.3	112.7	112.7	134.6		
		SHC	135.4	163.7	191.9	129.3	156.8	184.3	122.7	149.3	175.9	115.5	141.2	166.8	107.9	132.4	157.0	99.6	122.9	146.3	90.7	112.7	134.6		
		TC	176.5	176.5	176.5	168.4	168.4	168.4	159.4	159.4	159.4	149.8	149.8	152.9	139.2	139.2	147.1	127.9	127.9	141.0	115.8	115.8	134.5		
		SHC	109.0	138.5	168.2	104.2	133.8	163.4	99.2	128.7	158.2	93.8	123.3	152.9	88.1	117.6	147.1	82.2	111.6	141.0	75.9	105.2	134.5		
	72	TC	194.2	194.2	194.2	185.7	185.7	185.7	176.3	176.3	176.3	165.9	165.9	165.9	154.8	154.8	154.8	142.7	142.7	142.7	129.8	129.8	129.8		
	SHC	80.6	110.4	140.1	76.0	105.7	135.4	71.0	100.7	130.5	65.7	95.5	125.2	60.3	89.9	119.6	54.4	84.0	113.7	48.3	77.9	107.5			
	76	TC	—	209.1	209.1	—	200.4	200.4	—	190.6	190.6	—	179.9	179.9	—	168.3	168.3	—	155.8	155.8	—	142.3	142.3		
	SHC	—	87.5	117.6	—	82.9	112.9	—	77.9	108.0	—	72.7	102.8	—	67.3	97.3	—	61.6	91.6	—	55.6	85.4			
	6450 CFM	EA (wb)	58	TC	168.9	168.9	190.6	161.9	161.9	183.0	154.1	154.1	174.6	145.8	145.8	165.6	136.7	136.7	155.6	126.9	126.9	144.9	116.3	116.3	133.2
			SHC	147.1	168.9	190.6	140.7	161.9	183.0	133.7	154.1	174.6	126.1	145.8	165.6	117.9	136.7	155.6	109.0	126.9	144.9	99.5	116.3	133.2	
TC			169.1	169.1	198.1	161.9	161.9	190.2	154.3	154.3	181.6	146.0	146.0	172.3	136.9	136.9	162.1	127.0	127.0	151.0	116.5	116.5	139.0		
SHC			140.0	169.1	198.1	133.7	161.9	190.2	126.9	154.3	181.6	119.5	146.0	172.3	111.6	136.9	162.1	103.2	127.0	151.0	93.9	116.5	139.0		
TC			179.2	179.2	179.3	170.9	170.9	174.4	161.9	161.9	169.3	152.0	152.0	163.7	141.5	141.5	157.9	130.1	130.1	151.4	117.9	117.9	144.4		
SHC			114.2	146.7	179.3	109.4	141.9	174.4	104.3	136.8	169.3	98.9	131.3	163.7	93.2	125.5	157.9	87.2	119.3	151.4	80.6	112.5	144.4		
72		TC	196.8	196.8	196.8	188.1	188.1	188.1	178.5	178.5	178.5	168.0	168.0	168.0	156.7	156.7	156.7	144.4	144.4	144.4	131.1	131.1	131.1		
SHC		82.9	115.6	148.3	78.2	110.9	143.6	73.2	105.9	138.5	67.9	100.5	133.2	62.3	95.0	127.6	56.5	89.1	121.7	50.3	82.9	115.4			
76		TC	—	211.7	211.7	—	202.8	202.8	—	192.9	192.9	—	182.0	182.0	—	170.2	170.2	—	157.5	157.5	—	143.8	143.8		
SHC		—	90.2	123.3	—	85.6	118.7	—	80.7	113.7	—	75.5	108.5	—	70.0	103.0	—	64.3	97.1	—	58.2	91.1			

**LEGEND**

- Do not operate
- CFM — Cubic feet per minute (supply air)
- EAT (db) — Entering air temperature (dry bulb)
- EAT (wb) — Entering air temperature (wet bulb)
- SHC — Sensible heat capacity (1000 Btuh) Gross
- TC — Total capacity (1000 Btuh) Gross



**COOLING CAPACITIES - THIRD STAGE, FULL LOAD (20 TONS) (cont)**

50LC*B SIZE 24			AMBIENT TEMPERATURE (°F)																						
			65			75			85			95			105			115			125				
			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)				
			75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85		
9000 CFM	EA (wb)	58	TC	266.9	266.9	300.9	257.5	257.5	290.6	247.4	247.4	279.2	236.7	236.7	267.4	225.3	225.3	254.8	213.0	213.0	241.1	199.9	199.9	226.4	
		SHC	232.7	266.9	300.9	224.4	257.5	290.6	215.4	247.4	279.2	206.0	236.7	267.4	195.9	225.3	254.8	185.1	213.0	241.1	173.4	199.9	226.4		
		TC	268.9	268.9	304.0	258.7	258.7	297.3	247.7	247.7	290.4	236.9	236.9	278.0	225.5	225.5	264.8	213.2	213.2	250.7	200.1	200.1	235.5		
		SHC	217.4	260.7	304.0	211.3	254.3	297.3	205.0	247.7	290.4	195.9	236.9	278.0	186.2	225.5	264.8	175.8	213.2	250.7	164.7	200.1	235.5		
		TC	289.9	289.9	289.9	278.4	278.4	278.4	266.1	266.1	266.1	252.2	252.2	252.2	238.3	238.3	239.0	223.3	223.3	232.0	207.2	207.2	224.3		
		SHC	174.5	218.9	263.2	169.1	213.3	257.6	163.4	207.6	251.8	157.1	201.2	245.4	150.6	194.8	239.0	143.9	187.9	232.0	136.7	180.5	224.3		
	72	TC	316.7	316.7	316.7	304.4	304.4	304.4	291.1	291.1	291.1	277.0	277.0	277.0	261.8	261.8	261.8	245.4	245.4	245.4	228.1	228.1	228.1		
	SHC	130.6	175.2	219.8	125.3	169.8	214.3	119.6	164.1	208.7	113.7	158.1	202.6	107.3	151.8	196.2	100.7	145.1	189.3	93.8	138.1	182.3			
	76	TC	—	339.7	339.7	—	326.8	326.8	—	313.0	313.0	—	298.1	298.1	—	281.9	281.9	—	264.6	264.6	—	246.3	246.3		
	SHC	—	139.8	185.4	—	134.6	180.2	—	129.0	174.4	—	123.1	168.5	—	116.9	162.1	—	110.4	155.4	—	103.5	148.4			
	10,000 CFM	EA (wb)	58	TC	274.7	274.7	309.7	265.0	265.0	299.0	254.8	254.8	287.6	243.4	243.4	275.0	231.6	231.6	261.8	218.8	218.8	247.6	205.1	205.1	232.2
			SHC	239.7	274.7	309.7	231.1	265.0	299.0	222.0	254.8	287.6	211.9	243.4	275.0	201.4	231.6	261.8	190.1	218.8	247.6	177.9	205.1	232.2	
TC			274.7	274.7	321.5	265.3	265.3	310.7	255.1	255.1	298.9	243.6	243.6	285.8	231.8	231.8	272.1	219.0	219.0	257.4	205.2	205.2	241.5		
SHC			228.0	274.7	321.5	220.0	265.3	310.7	211.2	255.1	298.9	201.4	243.6	285.8	191.5	231.8	272.1	180.7	219.0	257.4	169.1	205.2	241.5		
TC			294.0	294.0	294.0	282.3	282.3	282.3	269.3	269.3	269.3	255.9	255.9	261.1	241.5	241.5	254.3	226.2	226.2	247.0	210.1	210.1	239.0		
SHC			181.9	230.5	279.0	176.5	224.9	273.5	170.4	218.9	267.3	164.3	212.7	261.1	157.8	206.0	254.3	150.8	198.9	247.0	143.4	191.2	239.0		
72		TC	320.9	320.9	320.9	308.3	308.3	308.3	294.7	294.7	294.7	280.4	280.4	280.4	264.8	264.8	264.8	248.0	248.0	248.0	230.4	230.4	230.4		
SHC		133.8	182.5	231.4	128.3	177.2	225.9	122.7	171.4	220.2	116.7	165.4	214.0	110.4	158.9	207.6	103.6	152.2	200.8	96.7	145.1	193.5			
76		TC	—	344.1	344.1	—	330.9	330.9	—	316.8	316.8	—	301.5	301.5	—	285.1	285.1	—	267.4	267.4	—	248.7	248.7		
SHC		—	143.8	193.7	—	138.5	188.4	—	133.0	182.6	—	127.0	176.6	—	120.8	170.1	—	114.2	163.4	—	107.3	156.3			

**LEGEND**

- Do not operate
- CFM** — Cubic feet per minute (supply air)
- EAT (db)** — Entering air temperature (dry bulb)
- EAT (wb)** — Entering air temperature (wet bulb)
- SHC** — Sensible heat capacity (1000 Btuh) Gross
- TC** — Total capacity (1000 Btuh) Gross





**COOLING CAPACITIES - FIRST STAGE, PART LOAD (23 TONS) (cont)**

50LC*B SIZE 26			AMBIENT TEMPERATURE (°F)																					
			65			75			85			95			105			115			125			
			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			
			75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	
6100 CFM	58	TC	146.0	146.0	164.8	142.5	142.5	160.7	138.9	138.9	156.5	135.0	135.0	151.9	130.7	130.7	146.9	126.1	126.1	141.5	120.7	120.7	135.3	
		SHC	127.2	146.0	164.8	124.4	142.5	160.7	121.4	138.9	156.5	118.2	135.0	151.9	114.6	130.7	146.9	110.7	126.1	141.5	106.2	120.7	135.3	
	62	TC	146.2	146.2	171.2	142.6	142.6	166.9	139.0	139.0	162.4	135.1	135.1	157.7	130.8	130.8	152.5	126.1	126.1	146.7	120.8	120.8	140.3	
		SHC	121.0	146.2	171.2	118.4	142.6	166.9	115.5	139.0	162.4	112.6	135.1	157.7	109.2	130.8	152.5	105.5	126.1	146.7	101.3	120.8	140.3	
	67	TC	153.0	153.0	155.4	148.4	148.4	154.2	143.7	143.7	153.1	138.7	138.7	151.6	133.5	133.5	150.1	127.7	127.7	148.0	121.6	121.6	145.4	
		SHC	98.1	126.8	155.4	97.1	125.7	154.2	95.9	124.5	153.1	94.8	123.2	151.6	93.4	121.7	150.1	91.7	119.8	148.0	89.7	117.6	145.4	
	72	TC	167.1	167.1	167.1	161.9	161.9	161.9	156.6	156.6	156.6	150.8	150.8	150.8	144.8	144.8	144.8	138.3	138.3	138.3	131.0	131.0	131.0	
		SHC	69.0	97.8	126.6	68.1	96.8	125.5	67.1	95.6	124.3	65.9	94.5	123.1	64.6	93.2	121.7	63.2	91.7	120.1	61.6	90.0	118.4	
	76	TC	—	179.3	179.3	—	173.6	173.6	—	167.8	167.8	—	161.6	161.6	—	154.9	154.9	—	147.8	147.8	—	139.9	139.9	
		SHC	—	74.5	103.7	—	73.5	102.7	—	72.4	101.5	—	71.3	100.2	—	70.0	98.9	—	68.5	97.3	—	66.9	95.4	
	6750 CFM	58	TC	149.4	149.4	168.6	145.8	145.8	164.4	142.0	142.0	159.9	137.9	137.9	155.1	133.4	133.4	150.0	128.4	128.4	144.2	122.9	122.9	137.8
			SHC	130.2	149.4	168.6	127.1	145.8	164.4	124.0	142.0	159.9	120.6	137.9	155.1	116.9	133.4	150.0	112.7	128.4	144.2	108.0	122.9	137.8
62		TC	149.5	149.5	175.2	145.9	145.9	170.7	142.1	142.1	166.0	138.0	138.0	161.0	133.5	133.5	155.6	128.5	128.5	149.6	122.9	122.9	142.8	
		SHC	123.8	149.5	175.2	121.0	145.9	170.7	118.1	142.1	166.0	114.9	138.0	161.0	111.3	133.5	155.6	107.4	128.5	149.6	103.1	122.9	142.8	
67		TC	154.6	154.6	164.3	150.1	150.1	163.0	145.2	145.2	161.6	140.2	140.2	160.0	134.8	134.8	158.0	129.2	129.2	155.5	123.1	123.1	151.9	
		SHC	102.1	133.2	164.3	101.0	132.0	163.0	99.8	130.7	161.6	98.5	129.3	160.0	97.0	127.5	158.0	95.2	125.4	155.5	92.7	122.4	151.9	
72		TC	168.7	168.7	168.7	163.4	163.4	163.4	157.9	157.9	157.9	152.1	152.1	152.1	145.9	145.9	145.9	139.1	139.1	139.1	131.8	131.8	131.8	
		SHC	70.6	101.8	133.0	69.6	100.7	131.9	68.5	99.6	130.7	67.4	98.4	129.4	66.1	97.0	127.9	64.6	95.5	126.4	63.0	93.8	124.5	
76		TC	—	181.0	181.0	—	175.2	175.2	—	169.2	169.2	—	162.7	162.7	—	156.0	156.0	—	148.7	148.7	—	140.7	140.7	
		SHC	—	76.5	108.2	—	75.5	107.1	—	74.4	105.9	—	73.2	104.6	—	71.9	103.2	—	70.4	101.5	—	68.7	99.5	

**LEGEND**

- Do not operate
- CFM — Cubic feet per minute (supply air)
- EAT (db) — Entering air temperature (dry bulb)
- EAT (wb) — Entering air temperature (wet bulb)
- SHC — Sensible heat capacity (1000 Btuh) Gross
- TC — Total capacity (1000 Btuh) Gross



**COOLING CAPACITIES - SECOND STAGE, PART LOAD (23 TONS) (cont)**

50LC*B SIZE 26			AMBIENT TEMPERATURE (°F)																						
			65			75			85			95			105			115			125				
			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)				
			75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85		
7300 CFM	EA (wb)	58	TC	198.1	198.1	223.5	189.4	189.4	214.0	180.5	180.5	204.3	171.0	171.0	193.8	161.2	161.2	183.0	150.7	150.7	171.6	139.5	139.5	159.2	
		SHC	172.7	198.1	223.5	164.8	189.4	214.0	156.8	180.5	204.3	148.2	171.0	193.8	139.3	161.2	183.0	130.0	150.7	171.6	119.9	139.5	159.2		
		TC	199.1	199.1	227.8	189.3	189.3	222.2	180.7	180.7	212.4	171.2	171.2	201.6	161.4	161.4	190.5	150.9	150.9	178.7	139.6	139.6	165.8		
		SHC	162.1	195.0	227.8	156.6	189.3	222.2	148.9	180.7	212.4	140.7	171.2	201.6	132.2	161.4	190.5	123.1	150.9	178.7	113.4	139.6	165.8		
		TC	215.2	215.2	215.2	204.3	204.3	204.3	193.2	193.2	193.2	181.7	181.7	181.7	170.0	170.0	173.7	157.4	157.4	167.4	144.1	144.1	160.4		
		SHC	130.6	164.2	197.9	124.7	158.4	192.1	119.0	152.6	186.2	112.9	146.5	180.2	106.8	140.2	173.7	100.4	134.0	167.4	93.7	127.0	160.4		
	72	TC	236.0	236.0	236.0	224.4	224.4	224.4	212.6	212.6	212.6	200.3	200.3	200.3	187.4	187.4	187.4	173.8	173.8	173.8	159.4	159.4	159.4		
	SHC	97.8	131.7	165.7	92.0	126.0	159.9	86.3	120.2	154.1	80.4	114.3	148.0	74.3	108.1	141.9	68.1	101.8	135.4	61.5	95.2	128.8			
	76	TC	—	253.6	253.6	—	241.4	241.4	—	228.9	228.9	—	216.1	216.1	—	202.5	202.5	—	187.8	187.8	—	172.7	172.7		
	SHC	—	105.4	140.3	—	99.7	134.6	—	94.0	128.7	—	88.1	122.8	—	82.1	116.6	—	75.8	110.1	—	69.3	103.5			
	8100 CFM	EA (wb)	58	TC	204.0	204.0	230.1	194.9	194.9	220.2	185.6	185.6	209.9	175.8	175.8	199.2	165.7	165.7	188.0	154.8	154.8	176.1	143.2	143.2	163.3
			SHC	177.9	204.0	230.1	169.7	194.9	220.2	161.3	185.6	209.9	152.4	175.8	199.2	143.3	165.7	188.0	133.6	154.8	176.1	123.1	143.2	163.3	
TC			204.1	204.1	238.9	195.1	195.1	228.7	185.8	185.8	218.3	176.0	176.0	207.2	165.8	165.8	195.7	154.9	154.9	183.4	143.3	143.3	170.1		
SHC			169.2	204.1	238.9	161.4	195.1	228.7	153.3	185.8	218.3	144.7	176.0	207.2	135.9	165.8	195.7	126.6	154.9	183.4	116.5	143.3	170.1		
TC			218.1	218.1	218.1	207.1	207.1	207.1	195.9	195.9	197.6	184.3	184.3	191.3	172.2	172.2	185.0	159.5	159.5	178.1	146.2	146.2	170.6		
SHC			135.9	172.6	209.3	130.1	166.8	203.6	124.2	160.9	197.6	118.1	154.7	191.3	111.9	148.5	185.0	105.4	141.8	178.1	98.6	134.6	170.6		
72		TC	239.1	239.1	239.1	227.4	227.4	227.4	215.2	215.2	215.2	202.6	202.6	202.6	189.5	189.5	189.5	175.7	175.7	175.7	161.0	161.0	161.0		
SHC		100.1	137.1	174.0	94.4	131.3	168.2	88.6	125.5	162.3	82.7	119.4	156.2	76.5	113.3	150.1	70.2	106.9	143.5	63.6	100.2	136.8			
76		TC	—	256.7	256.7	—	244.3	244.3	—	231.7	231.7	—	218.5	218.5	—	204.7	204.7	—	189.7	189.7	—	174.4	174.4		
SHC		—	108.3	146.3	—	102.7	140.4	—	96.9	134.6	—	91.0	128.6	—	84.9	122.4	—	78.5	115.8	—	72.0	109.2			

**LEGEND**

- — Do not operate
- CFM — Cubic feet per minute (supply air)
- EAT (db) — Entering air temperature (dry bulb)
- EAT (wb) — Entering air temperature (wet bulb)
- SHC — Sensible heat capacity (1000 Btuh) Gross
- TC — Total capacity (1000 Btuh) Gross



**COOLING CAPACITIES - THIRD STAGE, FULL LOAD (23 TONS) (cont)**

50LC*B SIZE 26			AMBIENT TEMPERATURE (°F)																					
			65			75			85			95			105			115			125			
			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			EA (db)			
			75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	75	80	85	
10,150 CFM	58	TC	295.3	295.3	333.4	282.8	282.8	319.5	270.4	270.4	306.0	257.3	257.3	291.6	243.4	243.4	276.4	228.5	228.5	260.0	212.6	212.6	242.4	
		SHC	257.4	295.3	333.4	246.0	282.8	319.5	234.8	270.4	306.0	223.0	257.3	291.6	210.4	243.4	276.4	197.0	228.5	260.0	182.6	212.6	242.4	
	62	TC	301.0	301.0	326.6	286.7	286.7	317.2	272.9	272.9	307.7	258.6	258.6	297.6	243.4	243.4	287.3	228.8	228.8	270.9	212.7	212.7	252.6	
		SHC	235.9	281.2	326.6	226.9	272.0	317.2	218.1	263.0	307.7	208.8	253.2	297.6	199.4	243.4	287.3	186.7	228.8	270.9	172.9	212.7	252.6	
	67	TC	327.1	327.1	327.1	312.2	312.2	312.2	296.7	296.7	296.7	280.3	280.3	280.3	263.0	263.0	263.0	244.5	244.5	244.5	225.1	225.1	229.2	
		SHC	191.6	237.5	283.4	183.4	229.3	275.1	175.0	220.8	266.7	166.3	212.1	257.9	157.3	203.0	248.7	147.8	193.5	239.3	138.1	183.6	229.2	
	72	TC	358.8	358.8	358.8	342.9	342.9	342.9	326.3	326.3	326.3	308.8	308.8	308.8	290.2	290.2	290.2	270.4	270.4	270.4	249.5	249.5	249.5	
		SHC	147.0	193.4	239.9	138.9	185.3	231.8	130.7	177.0	223.3	122.1	168.3	214.5	113.1	159.2	205.3	103.8	149.9	195.9	94.2	140.1	185.9	
	76	TC	—	385.6	385.6	—	368.8	368.8	—	351.3	351.3	—	332.7	332.7	—	313.0	313.0	—	292.1	292.1	—	270.0	270.0	
		SHC	—	157.9	206.8	—	149.8	198.5	—	141.5	189.9	—	132.9	181.2	—	123.9	172.0	—	114.8	162.5	—	105.1	152.6	
	11,250 CFM	58	TC	304.2	304.2	343.2	291.1	291.1	328.9	278.5	278.5	314.9	264.8	264.8	300.1	250.5	250.5	284.3	235.1	235.1	267.3	218.6	218.6	249.1
			SHC	265.2	304.2	343.2	253.4	291.1	328.9	241.9	278.5	314.9	229.6	264.8	300.1	216.6	250.5	284.3	202.8	235.1	267.3	188.0	218.6	249.1
62		TC	307.2	307.2	344.3	293.7	293.7	334.6	278.4	278.4	327.1	264.9	264.9	311.9	250.8	250.8	295.9	235.4	235.4	278.4	218.8	218.8	259.5	
		SHC	246.6	295.4	344.3	237.7	286.2	334.6	229.6	278.4	327.1	217.9	264.9	311.9	205.5	250.8	295.9	192.3	235.4	278.4	177.9	218.8	259.5	
67		TC	332.2	332.2	332.2	316.9	316.9	316.9	301.0	301.0	301.0	284.3	284.3	284.3	266.6	266.6	266.6	248.0	248.0	254.0	228.2	228.2	243.8	
		SHC	199.0	248.9	298.8	190.7	240.5	290.5	182.2	232.1	281.8	173.5	223.2	272.9	164.3	214.0	263.7	154.8	204.5	254.0	144.9	194.3	243.8	
72		TC	364.2	364.2	364.2	347.9	347.9	347.9	330.8	330.8	330.8	313.0	313.0	313.0	293.9	293.9	293.9	273.8	273.8	273.8	252.4	252.4	252.4	
		SHC	150.4	200.9	251.3	142.4	192.7	243.0	133.9	184.2	234.4	125.3	175.4	225.5	116.2	166.2	216.3	106.9	156.8	206.7	97.1	146.9	196.7	
76		TC	—	391.1	391.1	—	373.9	373.9	—	356.0	356.0	—	337.0	337.0	—	316.8	316.8	—	295.5	295.5	—	273.0	273.0	
		SHC	—	162.0	214.8	—	154.0	206.5	—	145.6	197.9	—	136.9	189.1	—	127.9	179.8	—	118.6	170.2	—	108.8	160.3	

**LEGEND**

- Do not operate
- CFM** — Cubic feet per minute (supply air)
- EAT (db)** — Entering air temperature (dry bulb)
- EAT (wb)** — Entering air temperature (wet bulb)
- SHC** — Sensible heat capacity (1000 Btuh) Gross
- TC** — Total capacity (1000 Btuh) Gross

# Performance data (cont)



## PRESSURE DROP FOR ELECTRIC HEAT - ALL VOLTAGES

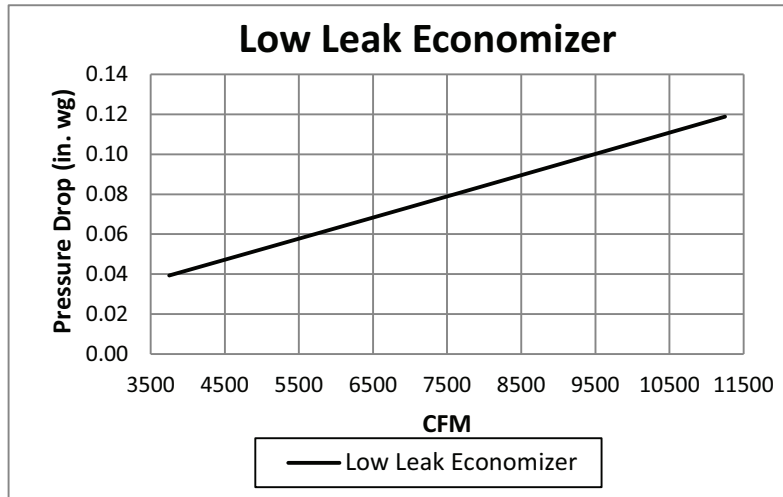
CFM	3750	4250	4750	5250	5750	6250	6750	7250
25kW	0.00	0.01	0.01	0.01	0.02	0.02	0.03	0.03
50kW	0.01	0.01	0.02	0.03	0.03	0.04	0.05	0.06
75kW	0.01	0.02	0.03	0.04	0.05	0.06	0.08	0.09

CFM	7750	8250	8750	9250	9750	10250	10750	11250
25kW	0.04	0.04	0.05	0.05	0.06	0.07	0.08	0.08
50kW	0.07	0.08	0.10	0.11	0.12	0.14	0.15	0.17
75kW	0.11	0.13	0.14	0.16	0.18	0.21	0.23	0.25

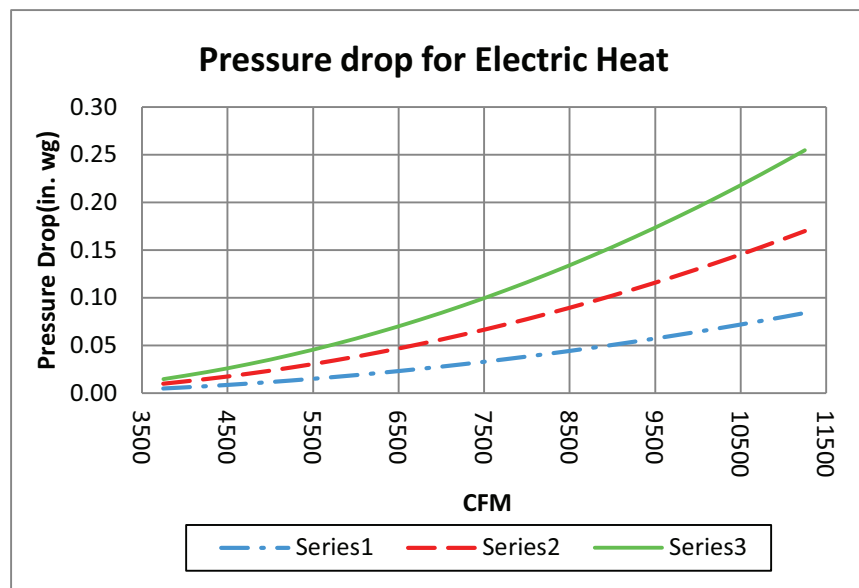
**ECONOMIZER, BAROMETRIC RELIEF, AND POWER EXHAUST PERFORMANCE**  
**LOW LEAK ECONOMIZER PRESSURE DROP**

<b>CFM</b>	<b>3750</b>	<b>4250</b>	<b>4750</b>	<b>5250</b>	<b>5750</b>	<b>6250</b>	<b>6750</b>	<b>7250</b>
<b>Pressure drop (in. wg)</b>	0.04	0.04	0.05	0.06	0.06	0.07	0.07	0.08
<b>CFM</b>	<b>7750</b>	<b>8250</b>	<b>8750</b>	<b>9250</b>	<b>9750</b>	<b>10250</b>	<b>10750</b>	<b>11250</b>
<b>Pressure drop (in. wg)</b>	0.08	0.09	0.09	0.10	0.10	0.11	0.11	0.12

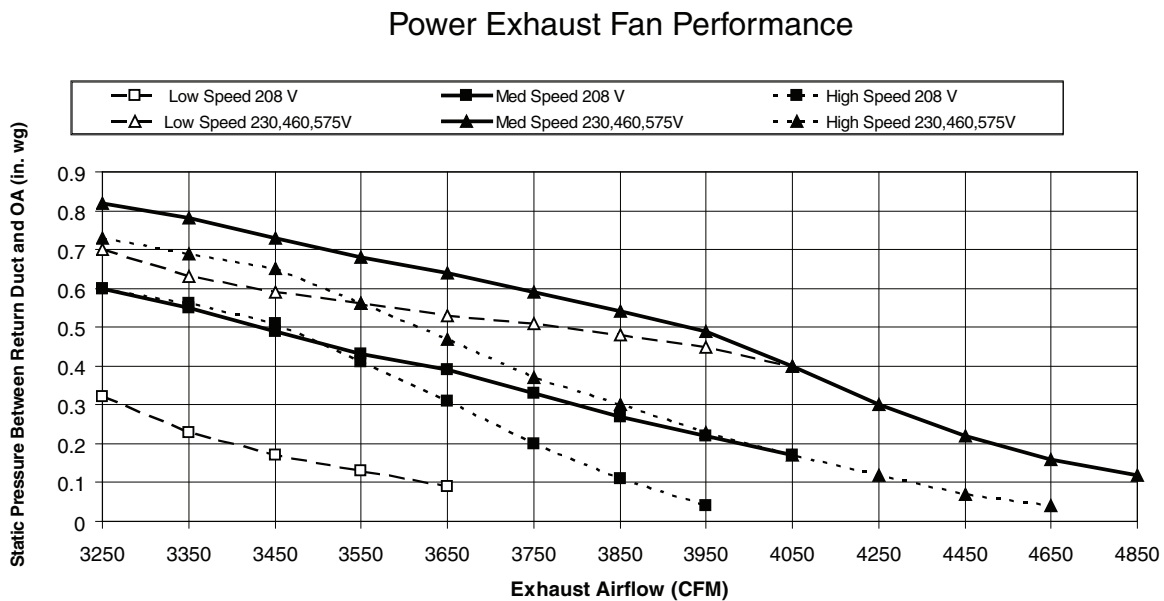
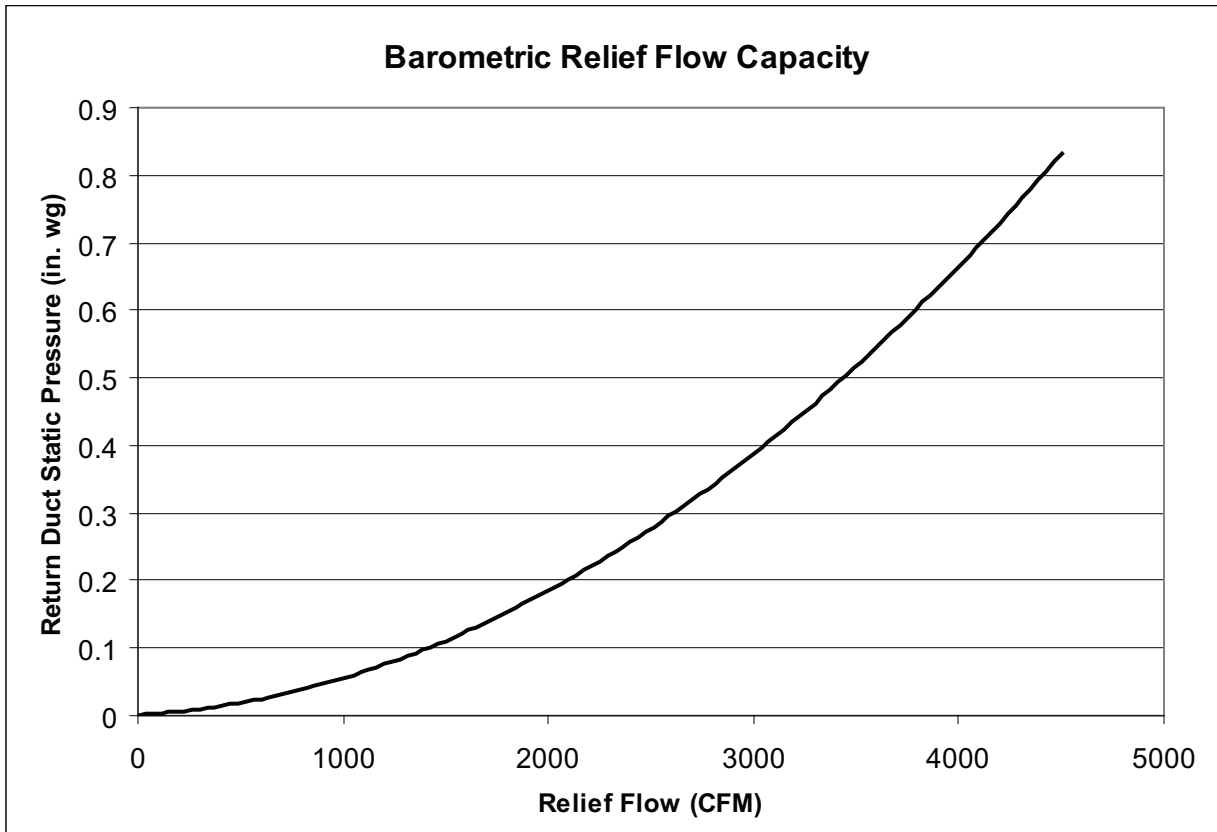


**ELECTRIC HEAT PRESSURE DROP FOR 50LC\*B14-26, ALL VOLTAGES**

CFM	3750	4250	4750	5250	5750	6250	6750	7250	7750	8250	8750	9250	9750	10250	10750	11250
<b>25kW</b>	0.00	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.07	0.08	0.08
<b>50kW</b>	0.01	0.01	0.02	0.03	0.03	0.04	0.05	0.06	0.07	0.08	0.10	0.11	0.12	0.14	0.15	0.17
<b>75kW</b>	0.01	0.02	0.03	0.04	0.05	0.06	0.08	0.09	0.11	0.13	0.14	0.16	0.18	0.21	0.23	0.25



## ECONOMIZER, BAROMETRIC RELIEF, AND POWER EXHAUST PERFORMANCE (cont)





## General Fan Performance Notes

1. Interpolation is permissible. Do not extrapolate.
2. External static pressure is the static pressure difference between the return duct and the supply duct plus the static pressure caused by any FIOPs or accessories.
3. Tabular data accounts for pressure loss due to clean filters, unit casing, and wet coils. Factory options and accessories may add static pressure losses. Selection software is available, through your salesperson, to help you select the best motor/drive combination for your application.
4. The fan performance tables offer motor/drive recommendations. In cases when two motor/drive combinations would work, Carrier recommends the lower horsepower option.
5. For information on the electrical properties of Carrier motors, please see the electrical information section of this book.
6. For more information on the performance limits of Carrier motors, see the application data section of this book.
7. The EPACT (Energy Policy Act) regulates energy requirements for specific types of indoor fan motors. Motors regulated by EPACT include any general purpose, T-frame (three-digit, 143 and larger), single-speed, foot mounted, polyphase, squirrel cage induction motors of NEMA (National Electrical Manufacturers Association) design A and B, manufactured for use in the United States. Ranging from 1 to 200 Hp, these continuous-duty motors operate on 230 and 460 volt, 60 Hz power. If a motor does not fit into these specifications, the motor does not have to be replaced by an EPACT compliant energy-efficient motor. Variable-speed motors are exempt from EPACT compliance requirements.

### 50LC\*B14 — 12.5 TON HORIZONTAL SUPPLY

CFM	Available External Static Pressure (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
3750	426	0.62	513	1.01	584	1.43	645	1.88	700	2.36
4063	445	0.72	530	1.13	600	1.58	661	2.05	715	2.55
4375	465	0.83	547	1.27	617	1.74	677	2.24	731	2.75
4688	485	0.95	565	1.41	633	1.91	693	2.43	747	2.97
5000	506	1.09	584	1.58	650	2.09	709	2.64	762	3.21
5313	527	1.25	602	1.75	668	2.29	726	2.86	779	3.45
5625	549	1.42	622	1.95	686	2.51	743	3.10	795	3.72
5938	571	1.61	641	2.16	704	2.74	760	3.36	812	4.00
6250	593	1.82	661	2.39	722	3.00	778	3.64	829	4.30

CFM	Available External Static Pressure (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
3750	749	2.85	794	3.36	836	3.88	875	4.42	913	4.98
4063	764	3.06	809	3.60	851	4.15	891	4.71	928	5.29
4375	780	3.29	825	3.85	867	4.42	906	5.01	944	5.62
4688	795	3.54	840	4.12	882	4.71	922	5.33	959	5.95
5000	811	3.79	856	4.40	898	5.02	937	5.65	974	6.31
5313	827	4.06	871	4.69	913	5.34	953	6.00	990	6.67
5625	843	4.35	887	5.00	929	5.67	968	6.36	1005	7.06
5938	859	4.66	903	5.33	945	6.03	984	6.73	1021	7.46
6250	876	4.98	919	5.68	961	6.40	1000	7.13	1037	7.87

**Boldface** indicates field-supplied drive is required (Standard motor, motor pulley P/N KR11HY163, blower pulley P/N KR51BM415, belt P/N KR29AF049) for the 368-509 rpm range.

- STD Static (498-676 rpm) 2.9 Max BHP
- MID Static (644-808 rpm) 4.9 Max BHP
- HIGH Static (707-888 rpm) 7.4 Max BHP
- ULTRA HIGH Static (872-1053 rpm) 9.9 Max BHP

## 50LC\*B14 — 12.5 TON VERTICAL SUPPLY

CFM	Available External Static Pressure (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
3750	413	0.41	514	0.61	600	0.82	673	1.03	738	1.25
4063	429	0.49	526	0.70	610	0.93	684	1.15	749	1.39
4375	447	0.57	539	0.80	621	1.04	694	1.28	759	1.53
4688	466	0.67	553	0.91	633	1.16	705	1.42	769	1.69
5000	485	0.78	568	1.03	645	1.30	716	1.57	779	1.85
5313	505	0.90	584	1.16	659	1.44	727	1.74	790	2.03
5625	525	1.04	600	1.31	672	1.61	739	1.91	801	2.22
5938	546	1.20	618	1.48	687	1.78	752	2.10	813	2.42
6250	568	1.37	636	1.66	702	1.97	765	2.30	825	2.64

CFM	Available External Static Pressure (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
3750	797	1.46	851	1.68	901	1.90	948	2.12	992	2.34
4063	807	1.62	861	1.85	912	2.09	958	2.32	1003	2.56
4375	818	1.78	872	2.03	922	2.28	969	2.53	1013	2.79
4688	828	1.95	882	2.22	932	2.49	979	2.76	1024	3.03
5000	838	2.14	892	2.42	942	2.70	990	2.99	1034	3.28
5313	848	2.33	902	2.63	952	2.93	1000	3.23	1045	3.54
5625	859	2.54	912	2.85	963	3.17	1010	3.49	1055	3.81
5938	870	2.75	923	3.09	973	3.42	1020	3.76	1065	4.10
6250	881	2.99	934	3.34	983	3.69	1030	4.04	1075	4.39

**Boldface** indicates field-supplied drive is required (Standard motor, motor pulley P/N KR11HY163, blower pulley P/N KR51BM415, belt P/N KR29AF049) for the 368-509 rpm range.

- STD Static (498-676 rpm) 2.9 Max BHP
- MID Static (682-861 rpm) 4.9 Max BHP
- HIGH Static (782-963 rpm) 7.4 Max BHP
- ULTRA HIGH Static (933-1113 rpm) 9.9 Max BHP

### 50LC\*B17 — 15 TON HORIZONTAL SUPPLY

CFM	Available External Static Pressure (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
<b>4500</b>	<b>466</b>	<b>1.00</b>	546	1.48	615	2.01	677	2.59	732	3.21
<b>4875</b>	<b>491</b>	<b>1.19</b>	567	1.69	634	2.25	695	2.86	749	3.50
<b>5250</b>	517	1.40	589	1.93	654	2.51	713	3.14	767	3.81
<b>5625</b>	543	1.65	612	2.20	674	2.80	732	3.46	785	4.15
<b>6000</b>	570	1.93	635	2.50	696	3.13	752	3.81	804	4.53
<b>6375</b>	598	2.24	660	2.83	718	3.49	772	4.19	823	4.93
<b>6750</b>	626	2.59	685	3.20	740	3.88	793	4.60	843	5.37
<b>7125</b>	654	2.98	710	3.62	764	4.31	815	5.06	863	5.85
<b>7500</b>	683	3.41	736	4.07	788	4.78	837	5.55	884	6.37

CFM	Available External Static Pressure (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
<b>4500</b>	783	3.85	829	4.52	873	5.22	914	5.94	953	6.68
<b>4875</b>	799	4.17	846	4.87	889	5.59	930	6.34	969	7.11
<b>5250</b>	817	4.51	863	5.24	906	5.99	947	6.77	986	7.56
<b>5625</b>	834	4.88	880	5.63	923	6.42	964	7.22	1002	8.05
<b>6000</b>	852	5.28	897	6.06	940	6.87	980	7.70	1019	8.55
<b>6375</b>	870	5.71	915	6.52	957	7.35	998	8.21	1036	9.09
<b>6750</b>	889	6.17	933	7.01	975	7.87	1015	8.75	1053	9.66
<b>7125</b>	909	6.67	952	7.53	993	8.42	1033	9.33	1070	10.27
<b>7500</b>	929	7.22	971	8.10	1012	9.01	1051	9.95	1088	10.91

**Boldface** indicates field-supplied drive is required (Standard motor (HD58FE654), motor pulley P/N KR11HY216, blower pulley P/N KR51BN615, belt P/N KR29BF052) for the 403-529 rpm range.

- STD Static (498-676 rpm) 2.9 Max BHP
- MID Static (651-818 rpm) 7.4 Max BHP
- HIGH Static (804-970 rpm) 9.9 Max BHP
- ULTRA HIGH Static (948-1190 rpm) 13.6 Max BHP

## 50LC\*B17 — 15 TON VERTICAL SUPPLY

CFM	Available External Static Pressure (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
4500	420	0.55	535	0.88	620	1.19	689	1.48	751	1.79
4875	439	0.65	547	0.99	634	1.34	703	1.66	764	1.99
5250	460	0.77	557	1.11	647	1.50	717	1.86	778	2.20
5625	483	0.91	568	1.24	659	1.67	731	2.06	793	2.44
6000	508	1.08	580	1.38	670	1.84	745	2.27	807	2.68
6375	534	1.26	595	1.55	681	2.01	757	2.49	821	2.94
6750	560	1.47	613	1.74	691	2.20	769	2.72	834	3.21
7125	587	1.71	633	1.97	702	2.40	779	2.95	847	3.48
7500	615	1.97	655	2.22	716	2.63	790	3.19	858	3.76

CFM	Available External Static Pressure (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
4500	809	2.10	864	2.43	917	2.78	968	3.14	1018	3.53
4875	821	2.32	874	2.66	925	3.01	975	3.38	1023	3.77
5250	834	2.55	886	2.91	936	3.28	983	3.66	1030	4.05
5625	848	2.81	899	3.18	948	3.56	994	3.96	1039	4.36
6000	862	3.08	913	3.47	961	3.87	1006	4.28	1050	4.70
6375	877	3.37	927	3.79	975	4.21	1019	4.63	1062	5.07
6750	891	3.67	942	4.12	989	4.56	1033	5.01	1076	5.46
7125	904	3.98	956	4.46	1003	4.94	1047	5.41	1090	5.88
7500	917	4.31	970	4.83	1017	5.33	1062	5.83	1104	6.32

**Boldface** indicates field-supplied drive is required (Standard motor (HD58FE654), motor pulley P/N KR11HY216, blower pulley P/N KR51BN615, belt P/N KR29BF052) for the 403-529 rpm range.

- STD Static (498-676 rpm) 2.9 Max BHP
- MID Static (651-818 rpm) 7.4 Max BHP
- HIGH Static (804-970 rpm) 9.9 Max BHP
- ULTRA HIGH Static (948-1190 rpm) 13.6 Max BHP

### 50LC\*B20 — 17.5 TON HORIZONTAL SUPPLY

CFM	Available External Static Pressure (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
<b>5250</b>	<b>517</b>	<b>1.40</b>	589	1.93	654	2.51	713	3.14	767	3.81
<b>5688</b>	<b>548</b>	<b>1.70</b>	615	2.24	678	2.86	735	3.52	788	4.21
<b>6125</b>	580	2.03	643	2.61	703	3.24	758	3.93	810	4.66
<b>6563</b>	612	2.41	672	3.01	729	3.68	783	4.39	833	5.15
<b>7000</b>	645	2.85	702	3.47	756	4.16	807	4.90	856	5.68
<b>7438</b>	678	3.34	732	3.99	784	4.70	833	5.47	881	6.28
<b>7875</b>	712	3.88	763	4.56	812	5.30	860	6.09	906	6.93
<b>8313</b>	746	4.49	794	5.19	841	5.96	887	6.78	931	7.64
<b>8750</b>	780	5.16	826	5.89	871	6.68	915	7.53	958	8.41

CFM	Available External Static Pressure (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
<b>5250</b>	817	4.51	863	5.24	906	5.99	947	6.77	986	7.56
<b>5688</b>	837	4.94	883	5.70	926	6.49	966	7.30	1005	8.13
<b>6125</b>	858	5.42	903	6.21	946	7.02	986	7.87	1024	8.73
<b>6563</b>	880	5.94	924	6.76	966	7.60	1006	8.48	1044	9.37
<b>7000</b>	902	6.50	946	7.35	987	8.23	1027	9.14	1064	10.06
<b>7438</b>	925	7.12	968	8.00	1009	8.91	1048	9.84	1085	10.80
<b>7875</b>	949	7.80	991	8.71	1031	9.64	1069	10.61	—	—
<b>8313</b>	974	8.54	1015	9.47	1054	10.44	1092	11.43	—	—
<b>8750</b>	999	9.34	1039	10.30	1077	11.29	—	—	—	—

**Boldface** indicates field-supplied drive is required (Standard motor (HD60FE656), motor pulley P/N KR11HY216, blower pulley P/N KR51BM415, belt P/N KR29BF050) for the 435-570 rpm range.

- STD Static (555-753 rpm) 2.9 Max BHP
- MID Static (651-818 rpm) 7.4 Max BHP
- HIGH Static (804-970 rpm) 9.9 Max BHP
- ULTRA HIGH Static (948-1190 rpm) 13.6 Max BHP

## 50LC\*B20 — 17.5 TON VERTICAL SUPPLY

CFM	Available External Static Pressure (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
5250	460	0.77	557	1.11	647	1.50	717	1.86	778	2.20
5688	487	0.94	569	1.26	661	1.69	734	2.09	795	2.47
6125	517	1.14	584	1.43	674	1.89	749	2.34	812	2.76
6563	547	1.37	603	1.64	686	2.11	763	2.60	828	3.07
7000	578	1.63	626	1.89	698	2.33	776	2.87	842	3.39
7438	610	1.93	651	2.18	713	2.59	788	3.15	856	3.72
7875	642	2.26	678	2.51	731	2.89	800	3.44	869	4.05
8313	675	2.64	707	2.88	752	3.24	814	3.77	881	4.40
8750	707	3.06	737	3.30	776	3.64	830	4.13	893	4.77

CFM	Available External Static Pressure (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
5250	834	2.55	886	2.91	936	3.27	983	3.66	1030	4.05
5688	850	2.85	901	3.23	950	3.61	996	4.01	1041	4.41
6125	867	3.17	918	3.58	965	3.98	1011	4.40	1054	4.82
6563	884	3.52	934	3.95	982	4.38	1026	4.82	1069	5.26
7000	900	3.88	951	4.35	998	4.81	1043	5.27	1085	5.74
7438	915	4.25	967	4.76	1015	5.26	1059	5.75	1101	6.25
7875	929	4.64	983	5.20	1031	5.74	1076	6.26	1118	6.78
8313	943	5.03	998	5.64	1047	6.23	1092	6.79	1135	7.35
8750	955	5.44	1011	6.10	1062	6.73	1108	7.34	1151	7.94

**Boldface** indicates field-supplied drive is required (Standard motor (HD60FE656), motor pulley P/N KR11HY216, blower pulley P/N KR51BM415, belt P/N KR29BF050) for the 435-570 rpm range.

- STD Static (555-753 rpm) 2.9 Max BHP
- MID Static (707-888 rpm) 7.4 Max BHP
- HIGH Static (872-1053 rpm) 9.9 Max BHP
- ULTRA HIGH Static (948-1190 rpm) 13.6 Max BHP

### 50LC\*B24 — 20 TON HORIZONTAL SUPPLY

CFM	Available External Static Pressure (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
6000	<b>570</b>	<b>1.93</b>	635	2.50	696	3.13	752	3.81	804	4.53
6500	607	2.36	668	2.95	725	3.61	779	4.32	829	5.07
7000	645	2.85	702	3.47	756	4.16	807	4.90	856	5.68
7500	683	3.41	736	4.07	788	4.78	837	5.55	884	6.37
8000	721	4.05	772	4.74	821	5.48	868	6.28	913	7.12
8500	760	4.77	808	5.48	854	6.26	899	7.09	943	7.96
9000	799	5.57	844	6.32	889	7.13	932	7.98	974	8.88
9500	839	6.46	882	7.25	924	8.08	965	8.97	1005	9.90
10000	879	7.45	919	8.27	960	9.14	999	10.05	1038	11.01

CFM	Available External Static Pressure (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
6000	852	5.28	897	6.06	940	6.87	980	7.70	1019	8.55
6500	877	5.86	921	6.68	963	7.52	1003	8.39	1041	9.28
7000	902	6.50	946	7.35	987	8.23	1027	9.14	1064	10.06
7500	929	7.22	971	8.10	1012	9.01	1051	9.95	1088	10.91
8000	956	8.00	998	8.92	1037	9.86	1076	10.84	1112	11.83
8500	<b>985</b>	<b>8.87</b>	1025	9.82	1064	10.80	1101	11.80	1137	12.83
9000	1014	9.83	1053	10.80	1091	11.81	1128	12.85	—	—
9500	1044	10.87	1082	11.88	1119	12.91	—	—	—	—
10000	1075	12.01	1112	13.05	—	—	—	—	—	—

**Boldface** indicates field-supplied drive is required (Standard motor (HD60FK657), motor pulley P/N KR11HY229, blower pulley P/N KR51BQ415, belt P/N KR29BF056) for the 493-605 rpm range.

- STD Static (583-717 rpm) 7.4 Max BHP
- MID Static (707-888 rpm) 7.4 Max BHP
- HIGH Static (872-1053 rpm) 9.9 Max BHP
- ULTRA HIGH Static (948-1190 rpm) 13.6 Max BHP

## 50LC\*B24 — 20 TON VERTICAL SUPPLY

CFM	Available External Static Pressure (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
6000	<b>508</b>	<b>1.08</b>	<b>580</b>	<b>1.38</b>	670	1.84	745	2.27	807	2.68
6500	<b>543</b>	<b>1.33</b>	600	1.61	684	2.07	761	2.57	825	3.03
7000	<b>578</b>	<b>1.63</b>	626	1.89	698	2.33	776	2.87	842	3.39
7500	615	1.97	655	2.22	716	2.63	790	3.19	858	3.76
8000	651	2.37	686	2.61	737	2.99	804	3.53	872	4.15
8500	689	2.81	720	3.05	762	3.41	820	3.92	886	4.55
9000	726	3.32	754	3.56	791	3.89	840	4.37	900	4.99
9500	764	3.87	789	4.12	822	4.44	864	4.88	917	5.47
10000	802	4.50	825	4.74	854	5.05	891	5.47	937	6.03

CFM	Available External Static Pressure (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
6000	862	3.08	913	3.47	961	3.87	1006	4.28	1050	4.70
6500	881	3.47	932	3.90	979	4.33	1024	4.76	1067	5.19
7000	900	3.88	951	4.35	998	4.81	1043	5.27	1085	5.74
7500	917	4.31	970	4.83	1017	5.33	1062	5.83	1104	6.32
8000	933	4.75	987	5.32	1036	5.88	1081	6.41	1123	6.94
8500	948	5.21	1004	5.84	1054	6.44	1099	7.03	1142	7.60
9000	962	5.68	1019	6.37	1070	7.03	1117	7.67	1160	8.29
9500	976	6.18	1033	6.91	1086	7.63	1134	8.33	1178	9.00
10000	991	6.71	1047	7.48	1100	8.25	1149	9.00	1195	9.73

**Boldface** indicates field-supplied drive is required (Standard motor (HD60FK657), motor pulley P/N KR11HY229, blower pulley P/N KR51BQ415, belt P/N KR29BF056) for the 493-605 rpm range.

- STD Static (583-717 rpm) 7.4 Max BHP
- MID Static (707-888 rpm) 7.4 Max BHP
- HIGH Static (872-1053 rpm) 9.9 Max BHP
- ULTRA HIGH Static (1049-1291 rpm) 13.6 Max BHP



### 50LC\*B26 — 23 TON HORIZONTAL SUPPLY

CFM	Available External Static Pressure (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
6750	<b>626</b>	<b>2.59</b>	<b>685</b>	<b>3.20</b>	740	3.88	793	4.60	843	5.37
7313	<b>668</b>	<b>3.19</b>	723	3.84	776	4.54	826	5.30	873	6.10
7875	712	3.88	763	4.56	812	5.30	860	6.09	906	6.93
8438	755	4.67	803	5.39	850	6.16	895	6.98	939	7.85
9000	799	5.57	844	6.32	889	7.13	932	7.98	974	8.88
9563	844	6.58	886	7.37	928	8.21	969	9.10	1009	10.03
10125	889	7.72	929	8.54	969	9.42	1008	10.34	1046	11.30
10688	933	8.98	972	9.84	1010	10.75	1047	11.71	1083	12.71
11250	979	10.38	1015	11.28	1051	12.22	1087	13.21	—	—

CFM	Available External Static Pressure (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
6750	889	6.17	933	7.01	975	7.87	1015	8.75	1053	9.66
7313	919	6.94	962	7.81	1003	8.71	1042	9.64	1079	10.59
7875	949	7.80	991	8.71	1031	9.64	1069	10.61	1106	11.60
8438	981	8.76	1021	9.70	1060	10.67	1098	11.68	1134	12.70
9000	1014	9.83	1053	10.80	1091	11.81	1128	12.85	—	—
9563	1048	11.01	1086	12.02	1123	13.06	—	—	—	—
10125	1083	12.31	1120	13.35	—	—	—	—	—	—
10688	—	—	—	—	—	—	—	—	—	—
11250	—	—	—	—	—	—	—	—	—	—

**Boldface** indicates field-supplied drive is required (Standard motor (HD60FK657), motor pulley P/N KR11HY232, blower pulley P/N KR51BQ415, belt P/N KR29BF059) for the 583-717 rpm range.

- STD Static (707-888 rpm) 7.4 Max BHP
- MID Static (859-1026 rpm) 9.9 Max BHP
- HIGH Static (948-1190 rpm) 13.6 Max BHP

## 50LC\*B26 — 23 TON HORIZONTAL SUPPLY

CFM	Available External Static Pressure (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
<b>6750</b>	<b>560</b>	<b>1.47</b>	<b>613</b>	<b>1.74</b>	691	2.20	769	2.72	834	3.21
<b>7313</b>	<b>601</b>	<b>1.84</b>	<b>644</b>	<b>2.09</b>	709	2.52	785	3.07	852	3.62
<b>7875</b>	<b>642</b>	<b>2.27</b>	<b>678</b>	<b>2.51</b>	731	2.89	800	3.45	869	4.05
<b>8438</b>	684	2.76	715	3.00	759	3.35	818	3.87	884	4.50
<b>9000</b>	726	3.32	754	3.56	791	3.89	840	4.37	900	4.99
<b>9563</b>	769	3.95	794	4.19	826	4.51	867	4.95	919	5.54
<b>10125</b>	811	4.66	834	4.91	862	5.22	898	5.63	942	6.18
<b>10688</b>	854	5.46	875	5.71	900	6.01	931	6.41	969	6.92
<b>11250</b>	897	6.34	917	6.59	939	6.90	967	7.28	1000	7.76

CFM	Available External Static Pressure (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
<b>6750</b>	891	3.67	942	4.12	989	4.56	1033	5.01	1076	5.46
<b>7313</b>	911	4.14	963	4.64	1010	5.13	1055	5.61	1097	6.10
<b>7875</b>	930	4.64	983	5.20	1031	5.74	1076	6.26	1118	6.79
<b>8438</b>	947	5.15	1002	5.77	1052	6.37	1097	6.95	1140	7.52
<b>9000</b>	962	5.68	1019	6.37	1070	7.03	1117	7.67	1160	8.29
<b>9563</b>	978	6.24	1035	6.98	1088	7.71	1136	8.41	1180	9.09
<b>10125</b>	995	6.86	1050	7.62	1104	8.41	1153	9.18	1199	9.92
<b>10688</b>	1015	7.56	1067	8.31	1119	9.13	1169	9.96	1216	10.77
<b>11250</b>	1039	8.36	1085	9.08	1135	9.90	1185	10.77	1232	11.64

**Boldface** indicates field-supplied drive is required (Standard motor (HD60FK657), motor pulley P/N KR11HY194, blower pulley P/N KR51BQ415, belt P/N KR29BF057) for the 527-661 rpm range.

*Italics* indicate field-supplied drive is required (High Static motor, motor pulley P/N KR12HY118, blower pulley P/N KR52BH615, belts P/N KR29BF034) in the 1049-1291rpm range.

- STD Static (651-818 rpm) 7.4 Max BHP
- MID Static (804-970 rpm) 9.9 Max BHP
- HIGH Static (948-1190 rpm) 13.6 Max BHP

**PULLEY ADJUSTMENT (VERTICAL) - FAN RPM AT MOTOR PULLEY SETTINGS**

50LC*B UNIT		MOTOR/DRIVE COMBO	MOTOR PULLEY TURNS OPEN (RPM)												
			0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
14	3 phase	Standard Static	N/A	N/A	676	658	640	623	605	587	569	551	534	516	498
		Medium Static	N/A	N/A	861	843	825	807	789	772	754	736	718	700	682
		High Static	963	948	933	918	903	888	873	857	842	827	812	797	782
		Super Static	1113	1098	1083	1068	1053	1038	1023	1008	993	978	963	948	933
17	3 phase	Standard Static	N/A	N/A	676	658	640	623	605	587	569	551	534	516	498
		Medium Static	818	804	790	776	762	748	735	721	707	693	679	665	651
		High Static	970	956	942	929	915	901	887	873	859	846	832	818	804
		Super Static	1190	1170	1150	1130	1109	1089	1069	1049	1029	1009	988	968	948
20	3 phase	Standard Static	N/A	N/A	753	733	713	694	674	654	634	614	595	575	555
		Medium Static	888	873	858	843	828	813	798	782	767	752	737	722	707
		High Static	1053	1038	1023	1008	993	978	963	947	932	917	902	887	872
		Super Static	1190	1170	1150	1130	1109	1089	1069	1049	1029	1009	988	968	948
24	3 phase	Standard Static	717	706	695	684	672	661	650	639	628	617	605	594	583
		Medium Static	888	873	858	843	828	813	798	782	767	752	737	722	707
		High Static	1053	1038	1023	1008	993	978	963	947	932	917	902	887	872
		Super Static	1291	1271	1251	1231	1210	1190	1170	1150	1130	1110	1089	1069	1049
26	3 phase	Standard Static	818	804	790	776	762	748	735	721	707	693	679	665	651
		Medium Static	970	956	942	929	915	901	887	873	859	846	832	818	804
		High Static	1190	1170	1150	1130	1109	1089	1069	1049	1029	1009	988	968	948

Factory setting

**PULLEY ADJUSTMENT (HORIZONTAL) - FAN RPM AT MOTOR PULLEY SETTINGS**

50LC*B UNIT		MOTOR/DRIVE COMBO	MOTOR PULLEY TURNS OPEN (RPM)												
			0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
14	3 phase	Standard Static	N/A	N/A	676	658	640	623	605	587	569	551	534	516	498
		Medium Static	808	794	781	767	753	740	726	712	699	685	671	658	644
		High Static	888	873	858	843	828	813	798	782	767	752	737	722	707
		Super Static	1053	1038	1023	1008	993	978	963	947	932	917	902	887	872
17	3 phase	Standard Static	N/A	N/A	676	658	640	623	605	587	569	551	534	516	498
		Medium Static	818	804	790	776	762	748	735	721	707	693	679	665	651
		High Static	970	956	942	929	915	901	887	873	859	846	832	818	804
		Super Static	1190	1170	1150	1130	1109	1089	1069	1049	1029	1009	988	968	948
20	3 phase	Standard Static	N/A	N/A	753	733	713	694	674	654	634	614	595	575	555
		Medium Static	818	804	790	776	762	748	735	721	707	693	679	665	651
		High Static	970	956	942	929	915	901	887	873	859	846	832	818	804
		Super Static	1190	1170	1150	1130	1109	1089	1069	1049	1029	1009	988	968	948
24	3 phase	Standard Static	717	706	695	684	672	661	650	639	628	617	605	594	583
		Medium Static	888	873	858	843	828	813	798	782	767	752	737	722	707
		High Static	1053	1038	1023	1008	993	978	963	947	932	917	902	887	872
		Super Static	1190	1170	1150	1130	1109	1089	1069	1049	1029	1009	988	968	948
26	3 phase	Standard Static	888	873	858	843	828	813	798	782	767	752	737	722	707
		Medium Static	1026	1012	998	984	970	956	943	929	915	901	887	873	859
		High Static	1190	1170	1150	1130	1109	1089	1069	1049	1029	1009	988	968	948

Factory setting

## LEGEND AND NOTES

### LEGEND

<b>BRKR</b>	—	Circuit breaker
<b>C.O.</b>	—	Convenience outlet
<b>DISC</b>	—	Disconnect
<b>FLA</b>	—	Full load amps
<b>IFM</b>	—	Indoor fan motor
<b>LRA</b>	—	Locked rotor amps
<b>MCA</b>	—	Minimum circuit amps
<b>P.E.</b>	—	Power exhaust
<b>pwrd fr/ unit</b>	—	Powered from unit
<b>PWRD C.O.</b>	—	Powered convenience outlet
<b>UNPWR C.O.</b>	—	Unpowered convenience outlet

### NOTES:

1. In compliance with NEC requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the over-current protective device for the unit shall be fuse or HACR breaker. Canadian units may be fuse or circuit breaker.
2. For 208/230 v units, where one value is shown it is the same for either 208 or 230 volts.
3. **Unbalanced 3-Phase Supply Voltage**  
Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the percentage of voltage imbalance.

% Voltage Imbalance:

$$= 100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$

Example: Supply voltage is 230-3-60



AB = 224 v  
BC = 231 v  
AC = 226 v

$$\text{Average Voltage} = \frac{(224 + 231 + 226)}{3} = \frac{681}{3} = 227$$

Determine maximum deviation from average voltage.

$$(AB) 227-224 = 3 \text{ v}$$

$$(BC) 231-227 = 4 \text{ v}$$

$$(AC) 227-226 = 1 \text{ v}$$

Maximum deviation is 4 v.

Determine percent of voltage imbalance.

$$\% \text{ Voltage Imbalance} = 100 \times \frac{4}{227} = 1.78\%$$

This amount of phase imbalance is satisfactory as it is below the maximum allowable 2%.

**IMPORTANT:** If the supply voltage phase imbalance is more than 2%, contact your local electric utility company immediately.

NOTE: Check all factory and field electrical connections for tightness.

**50LC\*B014-026 ELECTRICAL DATA**

UNIT	V-Ph-Hz	VOLTAGE RANGE		COMP 1		COMP 2		OFM (ea)		IFM		
		MIN	MAX	RLA	LRA	RLA	LRA	WATTS	FLA	TYPE	EFF at Full Load	FLA
14	208-3-60	187	253	17.6	123	23.2	164	185	1.8	STD	85.0%	8.6
										MED	83.6%	13.6
										HIGH	89.5%	21.2
										SUPER	91.7%	28.0
	230-3-60	187	253	17.6	123	23.2	164	185	1.8	STD	85.0%	7.8
										MED	83.6%	12.7
										HIGH	89.5%	21.2
										SUPER	91.7%	28.0
	460-3-60	414	506	9.6	62	11.2	75	185	1.3	STD	85.0%	3.8
										MED	83.6%	6.4
										HIGH	89.5%	9.7
										SUPER	91.7%	13.7
575-3-60	518	633	6.1	40	7.9	54	185	1.3	STD	81.1%	4.5	
									MED	83.6%	6.2	
									HIGH	89.5%	7.2	
									SUPER	91.7%	8.9	
17	208-3-60	187	253	19.1	123	27.6	191	185	1.8	STD	85.0%	8.6
										MED	89.5%	21.2
										HIGH	91.7%	28.0
										SUPER	91.7%	37.3
	230-3-60	187	253	19.1	123	27.6	191	185	1.8	STD	85.0%	7.8
										MED	89.5%	21.2
										HIGH	91.7%	28.0
										SUPER	91.7%	37.3
	460-3-60	414	506	9.8	62	12.8	100	185	1.3	STD	85.0%	3.8
										MED	89.5%	9.7
										HIGH	91.7%	13.7
										SUPER	91.7%	16.9
575-3-60	518	633	7.5	50	10.2	78	185	1.3	STD	81.1%	4.5	
									MED	89.5%	7.2	
									HIGH	91.7%	8.9	
									SUPER	91.7%	12.6	
20	208-3-60	187	253	25.0	164	27.6	191	185	1.8	STD	85.0%	8.6
										MED	89.5%	21.2
										HIGH	91.7%	28.0
										SUPER	91.7%	37.3
	230-3-60	187	253	25.0	164	27.6	191	185	1.8	STD	85.0%	7.8
										MED	89.5%	21.2
										HIGH	91.7%	28.0
										SUPER	91.7%	37.3
	460-3-60	414	506	12.2	100	12.8	100	185	1.3	STD	85.0%	3.8
										MED	89.5%	9.7
										HIGH	91.7%	13.7
										SUPER	91.7%	16.9
575-3-60	518	633	9.3	78	10.2	78	185	1.3	STD	81.1%	4.5	
									MED	89.5%	7.2	
									HIGH	91.7%	8.9	
									SUPER	91.7%	12.6	

# Electrical data (cont)



## 50LC\*B014-026 ELECTRICAL DATA (cont)

UNIT	V-Ph-Hz	VOLTAGE RANGE		COMP 1		COMP 2		OFM (ea)		IFM		
		MIN	MAX	RLA	LRA	RLA	LRA	WATTS	FLA	TYPE	EFF at Full Load	FLA
24	208-3-60	187	253	29.5	195	33.3	239	190	1.8	STD	89.5%	21.2
										MED	89.5%	21.2
										HIGH	91.7%	28.0
										SUPER	91.7%	37.3
	230-3-60	187	253	29.5	195	33.3	239	190	1.8	STD	89.5%	21.2
										MED	89.5%	21.2
										HIGH	91.7%	28.0
										SUPER	91.7%	37.3
	460-3-60	414	506	14.8	95	18.0	125	190	1.6	STD	89.5%	9.7
										MED	89.5%	9.7
										HIGH	91.7%	13.7
										SUPER	91.7%	16.9
575-3-60	518	633	12.2	80	12.8	80	190	1.6	STD	89.5%	7.2	
									MED	89.5%	7.2	
									HIGH	91.7%	8.9	
									SUPER	91.7%	12.6	
26	208-3-60	187	253	30.1	225	51.2	300	190	1.8	STD	89.5%	21.2
										MED	91.7%	28.0
										HIGH	91.7%	37.3
	230-3-60	187	253	30.1	225	51.2	300	190	1.8	STD	89.5%	21.2
										MED	91.7%	28.0
										HIGH	91.7%	37.3
	460-3-60	414	506	16.7	114	23.1	150	190	1.6	STD	89.5%	9.7
										MED	91.7%	13.7
										HIGH	91.7%	16.9
	575-3-60	518	633	12.2	80	19.9	109	190	1.6	STD	89.5%	7.2
										MED	91.7%	8.9
										HIGH	91.7%	12.6

**ELECTRIC HEATERS 50LC\*B14-26**

UNIT	NOM. V-Ph-Hz	IFM TYPE	ELECTRIC HEATER PART NUMBER	NOMINAL (kW)	APPLICATION (kW)	APPLICATION OUTPUT (MBH)	SINGLE POINT OR JUNCTION KIT PART NUMBER			
							NO C.O. or UNPWR C.O.		with PWRD C.O.	
							NO P.E.	with P.E. (pwrd fr/unit)	NO P.E.	with P.E. (pwrd fr/unit)
50LC*B 14	208/230-3-60	STD	CRHEATER302A00	15.0	11.3/13.8	38.4/47.0	—	—	—	—
			CRHEATER279A00	25.0	18.8/23.0	64.1/78.3	—	—	—	—
			CRHEATER309A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
		MED	CRHEATER302A00	15.0	11.3/13.8	38.4/47.0	—	—	—	—
			CRHEATER279A00	25.0	18.8/23.0	64.1/78.3	—	—	—	—
			CRHEATER309A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
		HIGH	CRHEATER302A00	15.0	11.3/13.8	38.4/47.0	—	—	—	—
			CRHEATER279A00	25.0	18.8/23.0	64.1/78.3	—	—	—	—
			CRHEATER309A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
		SUPER	CRHEATER302A00	15.0	11.3/13.8	38.4/47.0	—	—	—	—
			CRHEATER279A00	25.0	18.8/23.0	64.1/78.3	—	—	—	056
			CRHEATER309A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
	460-3-60	STD	CRHEATER303A00	15.0	13.8	47.0	—	—	—	—
			CRHEATER282A00	25.0	23.0	78.3	—	—	—	—
			CRHEATER310A00	50.0	45.9	156.7	—	057	057	057
		MED	CRHEATER303A00	15.0	13.8	47.0	—	—	—	—
			CRHEATER282A00	25.0	23.0	78.3	—	—	—	—
			CRHEATER310A00	50.0	45.9	156.7	057	057	057	057
		HIGH	CRHEATER303A00	15.0	13.8	47.0	—	—	—	—
			CRHEATER282A00	25.0	23.0	78.3	—	—	—	—
			CRHEATER310A00	50.0	45.9	156.7	057	057	057	057
		SUPER	CRHEATER303A00	15.0	13.8	47.0	—	—	—	—
			CRHEATER282A00	25.0	23.0	78.3	—	—	—	—
			CRHEATER310A00	50.0	45.9	156.7	057	057	057	057
575-36-60	STD	CRHEATER304A00	15.0	13.8	47.0	—	—	—	—	
		CRHEATER285A00	24.8	22.8	77.7	—	—	—	—	
		CRHEATER311A00	49.6	45.6	155.4	—	057	—	057	
	MED	CRHEATER304A00	15.0	13.8	47.0	—	—	—	—	
		CRHEATER285A00	24.8	22.8	77.7	—	—	—	—	
		CRHEATER311A00	49.6	45.6	155.4	—	057	—	057	
	HIGH	CRHEATER304A00	15.0	13.8	47.0	—	—	—	—	
		CRHEATER285A00	24.8	22.8	77.7	—	—	—	—	
		CRHEATER311A00	49.6	45.6	155.4	—	057	057	057	
	SUPER	CRHEATER304A00	15.0	13.8	47.0	—	—	—	—	
		CRHEATER285A00	24.8	22.8	77.7	—	—	—	—	
		CRHEATER311A00	49.6	45.6	155.4	057	057	057	057	

# Electrical data (cont)



## ELECTRIC HEATERS 50LC\*B14-26 (cont)

UNIT	NOM. V-Ph-Hz	IFM TYPE	ELECTRIC HEATER PART NUMBER	NOMINAL (kW)	APPLICATION (kW)	APPLICATION OUTPUT (MBH)	SINGLE POINT OR JUNCTION KIT PART NUMBER			
							NO C.O. or UNPWR C.O.		with PWRD C.O.	
							NO P.E.	with P.E. (pwrd fr/unit)	NO P.E.	with P.E. (pwrd fr/unit)
50LC*B17	208/230-3-60	STD	CRHEATER279A00	25.0	18.8/23.0	64.1/78.3	—	—	—	—
			CRHEATER280A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
			CRHEATER281A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
		MED	CRHEATER279A00	25.0	18.8/23.0	64.1/78.3	—	—	—	—
			CRHEATER280A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
			CRHEATER281A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
		HIGH	CRHEATER279A00	25.0	18.8/23.0	64.1/78.3	—	—	—	056
			CRHEATER280A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
			CRHEATER281A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
		SUPER	CRHEATER279A00	25.0	18.8/23.0	64.1/78.3	—	056	056	056
			CRHEATER280A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
			CRHEATER281A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
	460-3-60	STD	CRHEATER282A00	25.0	23.0	78.3	—	—	—	—
			CRHEATER283A00	50.0	45.9	156.7	—	057	057	057
			CRHEATER284A00	75.0	68.9	235.0	057	057	057	057
		MED	CRHEATER282A00	25.0	23.0	78.3	—	—	—	—
			CRHEATER283A00	50.0	45.9	156.7	057	057	057	057
			CRHEATER284A00	75.0	68.9	235.0	057	057	057	057
		HIGH	CRHEATER282A00	25.0	23.0	78.3	—	—	—	—
			CRHEATER283A00	50.0	45.9	156.7	057	057	057	057
			CRHEATER284A00	75.0	68.9	235.0	057	057	057	057
		SUPER	CRHEATER282A00	25.0	23.0	78.3	—	—	—	—
			CRHEATER283A00	50.0	45.9	156.7	057	057	057	057
			CRHEATER284A00	75.0	68.9	235.0	057	057	057	057
575-3-60	STD	CRHEATER285A00	24.8	22.8	77.7	—	—	—	—	
		CRHEATER286A00	49.6	45.6	155.4	—	057	—	057	
		CRHEATER287A00	74.4	68.3	233.1	057	057	057	057	
	MED	CRHEATER285A00	24.8	22.8	77.7	—	—	—	—	
		CRHEATER286A00	49.6	45.6	155.4	—	057	057	057	
		CRHEATER287A00	74.4	68.3	233.1	057	057	057	057	
	HIGH	CRHEATER285A00	24.8	22.8	77.7	—	—	—	—	
		CRHEATER286A00	49.6	45.6	155.4	057	057	057	057	
		CRHEATER287A00	74.4	68.3	233.1	057	057	057	057	
	SUPER	CRHEATER285A00	24.8	22.8	77.7	—	—	—	—	
		CRHEATER286A00	49.6	45.6	155.4	057	057	057	057	
		CRHEATER287A00	74.4	68.3	233.1	057	057	057	057	



**ELECTRIC HEATERS 50LC\*B14-26 (cont)**

UNIT	NOM. V-Ph-Hz	IFM TYPE	ELECTRIC HEATER PART NUMBER	NOMINAL (kW)	APPLICATION (kW)	APPLICATION OUTPUT (MBH)	SINGLE POINT OR JUNCTION KIT PART NUMBER			
							NO C.O. or UNPWR C.O.		with PWRD C.O.	
							NO P.E.	with P.E. (pwrd fr/unit)	NO P.E.	with P.E. (pwrd fr/unit)
50LC*B20	208/230-3-60	STD	CRHEATER279A00	25.0	18.8/23.0	64.1/78.3	—	—	—	—
			CRHEATER280A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
			CRHEATER281A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
		MED	CRHEATER279A00	25.0	18.8/23.0	64.1/78.3	—	—	—	—
			CRHEATER280A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
			CRHEATER281A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
		HIGH	CRHEATER279A00	25.0	18.8/23.0	64.1/78.3	—	—	—	056
			CRHEATER280A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
			CRHEATER281A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
		SUPER	CRHEATER279A00	25.0	18.8/23.0	64.1/78.3	—	056	056	056
			CRHEATER280A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
			CRHEATER281A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
	460-3-60	STD	CRHEATER282A00	25.0	23.0	78.3	—	—	—	—
			CRHEATER283A00	50.0	45.9	156.7	—	057	057	057
			CRHEATER284A00	75.0	68.9	235.0	057	057	057	057
		MED	CRHEATER282A00	25.0	23.0	78.3	—	—	—	—
			CRHEATER283A00	50.0	45.9	156.7	057	057	057	057
			CRHEATER284A00	75.0	68.9	235.0	057	057	057	057
		HIGH	CRHEATER282A00	25.0	23.0	78.3	—	—	—	—
			CRHEATER283A00	50.0	45.9	156.7	057	057	057	057
			CRHEATER284A00	75.0	68.9	235.0	057	057	057	057
		SUPER	CRHEATER282A00	25.0	23.0	78.3	—	—	—	—
			CRHEATER283A00	50.0	45.9	156.7	057	057	057	057
			CRHEATER284A00	75.0	68.9	235.0	057	057	057	057
	575-3-60	STD	CRHEATER285A00	24.8	22.8	77.7	—	—	—	—
			CRHEATER286A00	49.6	45.6	155.4	—	057	—	057
			CRHEATER287A00	74.4	68.3	233.1	057	057	057	057
MED		CRHEATER285A00	24.8	22.8	77.7	—	—	—	—	
		CRHEATER286A00	49.6	45.6	155.4	—	057	057	057	
		CRHEATER287A00	74.4	68.3	233.1	057	057	057	057	
HIGH		CRHEATER285A00	24.8	22.8	77.7	—	—	—	—	
		CRHEATER286A00	49.6	45.6	155.4	057	057	057	057	
		CRHEATER287A00	74.4	68.3	233.1	057	057	057	057	
SUPER		CRHEATER285A00	24.8	22.8	77.7	—	—	—	—	
		CRHEATER286A00	49.6	45.6	155.4	057	057	057	057	
		CRHEATER287A00	74.4	68.3	233.1	057	057	057	057	

# Electrical data (cont)



## ELECTRIC HEATERS 50LC\*B14-26 (cont)

UNIT	NOM. V-Ph-Hz	IFM TYPE	ELECTRIC HEATER PART NUMBER	NOMINAL (kW)	APPLICATION (kW)	APPLICATION OUTPUT (MBH)	SINGLE POINT OR JUNCTION KIT PART NUMBER			
							NO C.O. or UNPWR C.O.		with PWRD C.O.	
							NO P.E.	with P.E. (pwrd fr/unit)	NO P.E.	with P.E. (pwrd fr/unit)
50LC*B24	208/230-3-60	STD	CRHEATER279A00	25.0	18.8/23.0	64.1/78.3	—	—	—	056
			CRHEATER280A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
			CRHEATER281A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
		MED	CRHEATER279A00	25.0	18.8/23.0	64.1/78.3	—	—	—	056
			CRHEATER280A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
			CRHEATER281A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
		HIGH	CRHEATER279A00	25.0	18.8/23.0	64.1/78.3	—	056	—	056
			CRHEATER280A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
			CRHEATER281A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
		SUPER	CRHEATER279A00	25.0	18.8/23.0	64.1/78.3	056	056	056	056
			CRHEATER280A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
			CRHEATER281A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
	460-3-60	STD	CRHEATER282A00	25.0	23.0	78.3	—	057	—	057
			CRHEATER283A00	50.0	45.9	156.7	057	057	057	057
			CRHEATER284A00	75.0	68.9	235.0	057	057	057	057
		MED	CRHEATER282A00	25.0	23.0	78.3	—	057	—	057
			CRHEATER283A00	50.0	45.9	156.7	057	057	057	057
			CRHEATER284A00	75.0	68.9	235.0	057	057	057	057
		HIGH	CRHEATER282A00	25.0	23.0	78.3	—	057	057	057
			CRHEATER283A00	50.0	45.9	156.7	057	057	057	057
			CRHEATER284A00	75.0	68.9	235.0	057	057	057	057
		SUPER	CRHEATER282A00	25.0	23.0	78.3	057	057	057	057
			CRHEATER283A00	50.0	45.9	156.7	057	057	057	057
			CRHEATER284A00	75.0	68.9	235.0	057	057	057	057
575-3-60	STD	CRHEATER285A00	24.8	22.8	77.7	—	—	—	—	
		CRHEATER286A00	49.6	45.6	155.4	—	057	057	057	
		CRHEATER287A00	74.4	68.3	233.1	057	057	057	057	
	MED	CRHEATER285A00	24.8	22.8	77.7	—	—	—	—	
		CRHEATER286A00	49.6	45.6	155.4	—	057	057	057	
		CRHEATER287A00	74.4	68.3	233.1	057	057	057	057	
	HIGH	CRHEATER285A00	24.8	22.8	77.7	—	—	—	—	
		CRHEATER286A00	49.6	45.6	155.4	057	057	057	057	
		CRHEATER287A00	74.4	68.3	233.1	057	057	057	057	
	SUPER	CRHEATER285A00	24.8	22.8	77.7	—	—	—	—	
		CRHEATER286A00	49.6	45.6	155.4	057	057	057	057	
		CRHEATER287A00	74.4	68.3	233.1	057	057	057	057	

**ELECTRIC HEATERS 50LC\*B14-26 (cont)**

UNIT	NOM. V-Ph-Hz	IFM TYPE	ELECTRIC HEATER PART NUMBER	NOMINAL (kW)	APPLICATION (kW)	APPLICATION OUTPUT (MBH)	SINGLE POINT OR JUNCTION KIT PART NUMBER			
							NO C.O. or UNPWR C.O.		with PWRD C.O.	
							NO P.E.	with P.E. (pwrd fr/unit)	NO P.E.	with P.E. (pwrd fr/unit)
50LC*B26	208/230-3-60	STD	CRHEATER279A00	25.0	18.8/23.0	64.1/78.3	056	056	056	056
			CRHEATER280A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
			CRHEATER281A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
		MED	CRHEATER279A00	25.0	18.8/23.0	64.1/78.3	056	056	056	056
			CRHEATER280A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
			CRHEATER281A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
		HIGH	CRHEATER279A00	25.0	18.8/23.0	64.1/78.3	056	056	056	056
			CRHEATER280A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
			CRHEATER281A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
	460-3-60	STD	CRHEATER282A00	25.0	23.0	78.3	057	057	057	057
			CRHEATER283A00	50.0	45.9	156.7	057	057	057	057
			CRHEATER284A00	75.0	68.9	235.0	057	057	057	057
		MED	CRHEATER282A00	25.0	23.0	78.3	057	057	057	057
			CRHEATER283A00	50.0	45.9	156.7	057	057	057	057
			CRHEATER284A00	75.0	68.9	235.0	057	057	057	057
		HIGH	CRHEATER282A00	25.0	23.0	78.3	057	057	057	057
			CRHEATER283A00	50.0	45.9	156.7	057	057	057	057
			CRHEATER284A00	75.0	68.9	235.0	057	057	057	057
	575-3-60	STD	CRHEATER285A00	24.8	22.8	77.7	—	—	—	057
			CRHEATER286A00	49.6	45.6	155.4	—	057	057	057
			CRHEATER287A00	74.4	68.3	233.1	057	057	057	057
		MED	CRHEATER285A00	24.8	22.8	77.7	—	057	—	057
			CRHEATER286A00	49.6	45.6	155.4	057	057	057	057
			CRHEATER287A00	74.4	68.3	233.1	057	057	057	057
		HIGH	CRHEATER285A00	24.8	22.8	77.7	—	057	057	057
			CRHEATER286A00	49.6	45.6	155.4	057	057	057	057
			CRHEATER287A00	74.4	68.3	233.1	057	057	057	057

# Electrical data (cont)



## UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA (12.5 TONS, NO C.O.)

UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	ELECTRIC HEATER			NO C.O. or UNPWR C.O.							
			Part Number	Nom (kW)	FLA	NO P.E.				with P.E. (pwrd fr/unit)			
						MCA	FUSE or HACR BRKR	DISC. SIZE		MCA	FUSE or HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
50LC*B14	208/230-3-60	STD	NONE	—	—	60.6/59.8	80/80	63/62	346	72.4/71.6	90/90	77/76	366
			CRHEATER302A00	11.3/15.0	31.3/36.1	60.6/59.8	80/80	63/62	346/346	72.4/71.6	90/90	77/76	366/366
			CRHEATER279A00	18.8/25.0	52.1/60.1	75.9/84.9	80/90	70/78	346/346	90.6/99.6	100/100	83/92	366/366
			CRHEATER309A00	37.6/50.0	104.2/120.3	141.0/130.1	150/150	130/147	346/346	155.8/144.8	175/150	143/161	366/366
		MED	NONE	—	—	65.6/64.7	80/80	69/68	381	77.4/76.5	100/90	82/81	401
			CRHEATER302A00	11.3/15.0	31.3/36.1	65.6/64.7	80/80	69/68	381/381	77.4/76.5	100/90	82/81	401/401
			CRHEATER279A00	18.8/25.0	52.1/60.1	82.1/91.0	90/100	76/84	381/381	96.9/105.8	100/110	89/97	401/401
			CRHEATER309A00	37.6/50.0	104.2/120.3	147.3/136.2	150/150	135/153	381/381	162.0/150.9	175/175	149/167	401/401
		HIGH	NONE	—	—	73.2	90	78	385	85.0	100	91	405
			CRHEATER302A00	11.3/15.0	31.3/36.1	73.2/73.2	90/90	78/78	385/385	85.0/86.4	100/100	91/91	405/405
			CRHEATER279A00	18.8/25.0	52.1/60.1	91.6/101.6	100/110	84/93	385/385	106.4/116.4	110/125	98/107	405/405
			CRHEATER309A00	37.6/50.0	104.2/120.3	156.8/146.8	175/175	144/163	385/385	171.5/161.6	175/175	158/176	405/405
		SUPER	NONE	—	—	81.2	100	85	459	93.0	110	99	479
			CRHEATER302A00	11.3/15.0	31.3/36.1	81.2/81.2	100/100	85/85	459/459	93.0/94.9	110/110	99/99	479/479
			CRHEATER279A00	18.8/25.0	52.1/60.1	100.1/110.1	110/125	92/101	459/459	114.9/124.9	125/125	106/115	479/479
			CRHEATER309A00	37.6/50.0	104.2/120.3	165.3/155.3	175/175	152/171	459/459	180.0/170.1	200/175	166/184	479/479
	460-3-60	STD	NONE	—	—	31.3	40	33	167	37.5	45	40	179
			CRHEATER303A00	15.0	18.0	31.3	40	33	167	37.5	45	40	179
			CRHEATER282A00	25.0	30.1	42.4	45	39	167	50.1	60	46	179
			CRHEATER310A00	50.0	60.1	64.9	70	73	167	72.6	80	81	179
		MED	NONE	—	—	33.9	45	36	184	40.1	50	43	196
			CRHEATER303A00	15.0	18.0	33.9	45	36	184	40.1	50	43	196
			CRHEATER282A00	25.0	30.1	45.6	50	42	184	53.4	60	49	196
			CRHEATER310A00	50.0	60.1	68.1	80	76	184	75.9	80	84	196
		HIGH	NONE	—	—	37.2	45	40	186	43.4	50	47	198
			CRHEATER303A00	15.0	18.0	37.2	45	40	186	43.4	50	47	198
			CRHEATER282A00	25.0	30.1	49.8	50	46	186	57.5	60	53	198
			CRHEATER310A00	50.0	60.1	72.2	80	80	186	80.0	90	87	198
SUPER	NONE	—	—	41.8	50	44	223	48.0	60	51	235		
	CRHEATER303A00	15.0	18.0	41.8	50	44	223	48.0	60	51	235		
	CRHEATER282A00	25.0	30.1	54.8	60	50	223	62.5	70	58	235		
	CRHEATER310A00	50.0	60.1	77.2	90	85	223	85.0	90	92	235		
575-3-60	STD	NONE	—	—	24.4	30	26	119	29.2	35	31	127	
		CRHEATER304A00	15.0	14.4	24.4	30	26	119	29.6	35	31	127	
		CRHEATER285A00	24.8	23.9	35.5	40	33	119	41.5	45	38	127	
		CRHEATER311A00	49.6	47.7	65.3	70	60	119	71.3	80	66	127	
	MED	NONE	—	—	26.1	30	28	133	30.9	35	33	141	
		CRHEATER304A00	15.0	14.4	26.1	30	28	133	31.8	35	33	141	
		CRHEATER285A00	24.8	23.9	37.6	40	35	133	43.6	45	40	141	
		CRHEATER311A00	49.6	47.7	67.4	70	62	133	73.4	80	68	141	
	HIGH	NONE	—	—	27.1	30	29	131	31.9	35	34	139	
		CRHEATER304A00	15.0	14.4	27.1	30	29	131	33.0	35	34	139	
		CRHEATER285A00	24.8	23.9	38.9	40	36	131	44.9	45	41	139	
		CRHEATER311A00	49.6	47.7	68.6	70	63	131	74.6	80	69	139	
SUPER	NONE	—	—	29.0	35	31	158	33.8	40	36	166		
	CRHEATER304A00	15.0	14.4	29.1	35	31	158	35.1	40	36	166		
	CRHEATER285A00	24.8	23.9	41.0	45	38	158	47.0	50	43	166		
	CRHEATER311A00	49.6	47.7	70.8	80	65	158	76.8	80	71	166		

See Legend and Notes on page 76.

**UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA (12.5 TONS, with POWERED C.O.)**

UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	ELECTRIC HEATER			WITH PWRD C.O.							
			Part Number	Nom (kW)	FLA	NO P.E.				with P.E. (pwrd fr/unit)			
						MCA	FUSE or HACR BRKR	DISC. SIZE		MCA	FUSE or HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
50LC*B14	208/230-3-60	STD	NONE	—	—	65.4/64.6	80/80	69/68	351	77.2/76.4	100/90	82/81	371
			CRHEATER302A00	11.3/15.0	31.3/36.1	65.4/64.6	80/80	69/68	351/351	77.2/76.4	100/90	82/81	371/371
			CRHEATER279A00	18.8/25.0	52.1/60.1	81.9/90.9	90/100	75/84	351/351	96.6/105.6	100/110	89/97	371/371
			CRHEATER309A00	37.6/50.0	104.2/120.3	147.0/136.1	150/150	135/153	351/351	161.8/150.8	175/175	149/166	371/371
		MED	NONE	—	—	70.4/69.5	90/90	74/73	386	82.2/81.3	100/100	88/87	406
			CRHEATER302A00	11.3/15.0	31.3/36.1	70.4/69.5	90/90	74/73	386/386	82.2/81.8	100/100	88/87	406/406
			CRHEATER279A00	18.8/25.0	52.1/60.1	88.1/97.0	90/100	81/89	386/386	102.9/111.8	110/125	95/103	406/406
			CRHEATER309A00	37.6/50.0	104.2/120.3	153.3/142.2	175/175	141/158	386/386	168.0/156.9	175/175	155/172	406/406
		HIGH	NONE	—	—	78.0	100	83	390	89.8	100	97	410
			CRHEATER302A00	11.3/15.0	31.3/36.1	78.0/78.0	100/100	83/83	390/390	89.8/92.4	100/100	97/97	410/410
			CRHEATER279A00	18.8/25.0	52.1/60.1	97.6/107.6	100/110	90/99	390/390	112.4/122.4	125/125	103/113	410/410
			CRHEATER309A00	37.6/50.0	104.2/120.3	162.8/152.8	175/175	150/168	390/390	177.5/167.6	200/175	163/182	410/410
		SUPER	NONE	—	—	86.0	100	91	464	97.8	125	104	484
			CRHEATER302A00	11.3/15.0	31.3/36.1	86.0/86.1	100/100	91/91	464/464	97.8/100.9	125/125	104/104	484/484
			CRHEATER279A00	18.8/25.0	52.1/60.1	106.1/116.1	110/125	98/107	464/464	120.9/130.9	125/150	111/120	484/484
			CRHEATER309A00	37.6/50.0	104.2/120.3	171.3/161.3	175/175	158/176	464/464	186.0/176.1	200/200	171/190	484/484
	460-3-60	STD	NONE	—	—	33.5	40	35	169	39.7	50	42	181
			CRHEATER303A00	15.0	18.0	33.5	40	35	169	39.7	50	42	181
			CRHEATER282A00	25.0	30.1	45.1	50	42	169	52.9	60	49	181
			CRHEATER310A00	50.0	60.1	67.6	80	76	169	75.4	80	83	181
		MED	NONE	—	—	36.1	45	38	186	42.3	50	45	198
			CRHEATER303A00	15.0	18.0	36.1	45	38	186	42.3	50	45	198
			CRHEATER282A00	25.0	30.1	48.4	50	45	186	56.1	60	52	198
			CRHEATER310A00	50.0	60.1	70.9	80	79	186	78.6	80	86	198
		HIGH	NONE	—	—	39.4	50	42	188	45.6	50	49	200
			CRHEATER303A00	15.0	18.0	39.4	50	42	188	45.6	50	49	200
			CRHEATER282A00	25.0	30.1	52.5	60	48	188	60.3	70	55	200
			CRHEATER310A00	50.0	60.1	75.0	80	83	188	82.7	90	90	200
SUPER	NONE	—	—	44.0	50	47	225	50.2	60	54	237		
	CRHEATER303A00	15.0	18.0	44.0	50	47	225	50.2	60	54	237		
	CRHEATER282A00	25.0	30.1	57.5	60	53	225	65.3	70	60	237		
	CRHEATER310A00	50.0	60.1	80.0	90	87	225	87.7	90	95	237		
575-3-60	STD	NONE	—	—	26.1	30	28	121	30.9	35	33	129	
		CRHEATER304A00	15.0	14.4	26.1	30	28	121	31.8	35	33	129	
		CRHEATER285A00	24.8	23.9	37.6	40	35	121	43.6	45	40	129	
		CRHEATER311A00	49.6	47.7	67.4	70	62	121	73.4	80	68	129	
	MED	NONE	—	—	27.8	30	30	135	32.6	40	35	143	
		CRHEATER304A00	15.0	14.4	27.9	30	30	135	33.9	40	35	143	
		CRHEATER285A00	24.8	23.9	39.8	40	37	135	45.8	50	42	143	
		CRHEATER311A00	49.6	47.7	69.5	70	64	135	75.5	80	69	143	
	HIGH	NONE	—	—	28.8	35	31	133	33.6	40	36	141	
		CRHEATER304A00	15.0	14.4	29.1	35	31	133	35.1	40	36	141	
		CRHEATER285A00	24.8	23.9	41.0	45	38	133	47.0	50	43	141	
		CRHEATER311A00	49.6	47.7	70.8	80	65	133	76.8	80	71	141	
	SUPER	NONE	—	—	30.7	35	33	160	35.5	40	38	168	
		CRHEATER304A00	15.0	14.4	31.3	35	33	160	37.3	40	38	168	
		CRHEATER285A00	24.8	23.9	43.1	45	40	160	49.1	50	45	168	
		CRHEATER311A00	49.6	47.7	72.9	80	67	160	78.9	80	73	168	

See Legend and Notes on page 76.

## UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA (15 TONS, NO C.O.)

UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	ELECTRIC HEATER			NO C.O. or UNPWR C.O.							
			Part Number	Nom (kW)	FLA	NO P.E.				with P.E. (pwrd fr/unit)			
						MCA	FUSE or HACR BRKR	DISC. SIZE		MCA	FUSE or HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
50LC*B17	208/230-3-60	STD	NONE	—	—	69.4/68.6	90/90	72/71	375	81.2/80.4	100/100	85/85	395
			CRHEATER279A00	18.8/25.0	52.1/60.1	75.9/84.9	90/90	72/78	375/375	90.6/99.6	100/100	85/92	395/395
			CRHEATER280A00	37.6/50.0	104.2/120.3	141.0/130.1	150/150	130/147	375/375	155.8/144.8	175/150	143/161	395/395
			CRHEATER281A00	56.3/75.0	156.4/180.4	167.2/190.2	200/200	190/216	375/375	181.9/204.9	200/225	203/230	395/395
		MED	NONE	—	—	82.0	100	86	414	93.8	110	100	434
			CRHEATER279A00	18.8/25.0	52.1/60.1	91.6/101.6	100/110	86/93	414/414	106.4/116.4	110/125	100/107	434/434
			CRHEATER280A00	37.6/50.0	104.2/120.3	156.8/146.8	175/175	144/163	414/414	171.5/161.6	175/175	158/176	434/434
			CRHEATER281A00	56.3/75.0	156.4/180.4	182.9/206.9	200/250	204/232	414/414	197.7/221.7	225/250	218/245	434/434
		HIGH	NONE	—	—	88.9	100	94	488	100.7	125	108	508
			CRHEATER279A00	18.8/25.0	52.1/60.1	100.1/110.1	110/125	94/101	488/488	114.9/124.9	125/125	108/115	508/508
			CRHEATER280A00	37.6/50.0	104.2/120.3	165.3/155.3	175/175	152/171	488/488	180.0/170.1	200/175	166/184	508/508
			CRHEATER281A00	56.3/75.0	156.4/180.4	191.4/215.4	200/250	212/240	488/488	206.2/230.2	225/250	226/253	508/508
	SUPER	NONE	—	—	100.5	125	105	528	112.3	125	118	548	
		CRHEATER279A00	18.8/25.0	52.1/60.1	111.8/121.8	125/125	105/112	528/528	126.5/136.5	150/150	118/126	548/548	
		CRHEATER280A00	37.6/50.0	104.2/120.3	176.9/166.9	200/200	163/181	528/528	191.6/181.7	200/200	176/195	548/548	
		CRHEATER281A00	56.3/75.0	156.4/180.4	203.0/227.0	225/250	223/250	528/528	217.8/241.8	250/250	236/264	548/548	
	460-3-60	STD	NONE	—	—	34.8	45	36	193	41.0	50	43	205
			CRHEATER282A00	25.0	30.1	42.4	45	39	193	50.1	60	46	205
			CRHEATER283A00	50.0	60.1	64.9	70	73	193	72.6	80	81	205
			CRHEATER284A00	75.0	90.2	95.0	100	108	193	102.7	110	115	205
		MED	NONE	—	—	40.7	50	43	212	46.9	60	50	224
			CRHEATER282A00	25.0	30.1	49.8	50	46	212	57.5	60	53	224
			CRHEATER283A00	50.0	60.1	72.2	80	80	212	80.0	90	87	224
			CRHEATER284A00	75.0	90.2	102.3	125	115	212	110.1	125	122	224
HIGH		NONE	—	—	44.9	50	48	249	51.1	60	55	261	
		CRHEATER282A00	25.0	30.1	54.8	60	50	249	62.5	70	58	261	
		CRHEATER283A00	50.0	60.1	77.2	90	85	249	85.0	90	92	261	
		CRHEATER284A00	75.0	90.2	107.3	125	119	249	115.1	125	127	261	
SUPER	NONE	—	—	48.9	60	51	269	55.1	60	59	281		
	CRHEATER282A00	25.0	30.1	58.8	60	54	269	66.5	70	61	281		
	CRHEATER283A00	50.0	60.1	81.2	90	89	269	89.0	100	96	281		
	CRHEATER284A00	75.0	90.2	111.3	125	123	269	119.1	125	130	281		
575-3-60	STD	NONE	—	—	30.0	40	32	154	34.8	40	37	162	
		CRHEATER285A00	24.8	23.9	35.5	40	33	154	41.5	45	38	162	
		CRHEATER286A00	49.6	47.7	65.3	70	60	154	71.3	80	66	162	
		CRHEATER287A00	74.4	71.6	77.2	90	88	154	83.2	90	93	162	
	MED	NONE	—	—	32.7	40	35	166	37.5	45	40	174	
		CRHEATER285A00	24.8	23.9	38.9	40	36	166	44.9	45	41	174	
		CRHEATER286A00	49.6	47.7	68.6	70	63	166	74.6	80	69	174	
		CRHEATER287A00	74.4	71.6	80.6	90	91	166	86.6	90	96	174	
	HIGH	NONE	—	—	34.4	40	37	193	39.2	45	42	201	
		CRHEATER285A00	24.8	23.9	41.0	45	38	193	47.0	50	43	201	
		CRHEATER286A00	49.6	47.7	70.8	80	65	193	76.8	80	71	201	
		CRHEATER287A00	74.4	71.6	82.7	90	93	193	88.7	90	98	201	
SUPER	NONE	—	—	38.7	50	41	204	43.5	50	46	212		
	CRHEATER285A00	24.8	23.9	45.6	50	42	204	51.6	60	47	212		
	CRHEATER286A00	49.6	47.7	75.4	80	69	204	81.4	90	75	212		
	CRHEATER287A00	74.4	71.6	87.4	100	97	204	93.4	100	102	212		

See Legend and Notes on page 76.

**UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA (15 TONS, with POWERED C.O.)**

UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	ELECTRIC HEATER			WITH PWRD C.O.							
			Part Number	Nom (kW)	FLA	NO P.E.			with P.E. (pwrd fr/unit)				
						MCA	FUSE or HACR BRKR	DISC. SIZE		MCA	FUSE or HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
50LC*B17	208/230-3-60	STD	NONE	—	—	74.2/73.4	100/100	77/76	380	86.0/85.2	100/100	91/90	400
			CRHEATER279A00	18.8/25.0	52.1/60.1	81.9/90.9	100/100	77/84	380/380	96.6/105.6	100/110	91/97	400/400
			CRHEATER280A00	37.6/50.0	104.2/120.3	147.0/136.1	150/150	135/153	380/380	161.8/150.8	175/175	149/166	400/400
			CRHEATER281A00	56.3/75.0	156.4/180.4	173.2/196.2	200/225	195/222	380/380	187.9/210.9	200/225	209/236	400/400
		MED	NONE	—	—	86.8	100	92	419	98.6	125	105	439
			CRHEATER279A00	18.8/25.0	52.1/60.1	97.6/107.6	100/110	92/99	419/419	112.4/122.4	125/125	105/113	439/439
			CRHEATER280A00	37.6/50.0	104.2/120.3	162.8/152.8	175/175	150/168	419/419	177.5/167.6	200/175	163/182	439/439
			CRHEATER281A00	56.3/75.0	156.4/180.4	188.9/212.9	200/250	210/237	419/419	203.7/227.7	225/250	223/251	439/439
		HIGH	NONE	—	—	93.7	110	100	493	105.5	125	113	513
			CRHEATER279A00	18.8/25.0	52.1/60.1	106.1/116.1	110/125	100/107	493/493	120.9/130.9	125/150	113/120	513/513
			CRHEATER280A00	37.6/50.0	104.2/120.3	171.3/161.3	175/175	158/176	493/493	186.0/176.1	200/200	171/190	513/513
			CRHEATER281A00	56.3/75.0	156.4/180.4	197.4/221.4	225/250	218/245	493/493	212.2/236.2	225/250	231/259	513/513
	SUPER	NONE	—	—	105.3	125	110	533	117.1	150	124	553	
		CRHEATER279A00	18.8/25.0	52.1/60.1	117.8/127.8	125/150	110/118	533/533	132.5/142.5	150/150	124/131	553/553	
		CRHEATER280A00	37.6/50.0	104.2/120.3	182.9/172.9	200/200	168/187	533/533	197.6/187.7	200/200	182/200	553/553	
		CRHEATER281A00	56.3/75.0	156.4/180.4	209.0/233.0	225/250	228/256	533/533	223.8/247.8	250/300	242/269	553/553	
	460-3-60	STD	NONE	—	—	37.0	45	39	195	43.2	50	46	207
			CRHEATER282A00	25.0	30.1	45.1	50	42	195	52.9	60	49	207
			CRHEATER283A00	50.0	60.1	67.6	80	76	195	75.4	80	83	207
			CRHEATER284A00	75.0	90.2	97.7	100	111	195	105.5	110	118	207
		MED	NONE	—	—	42.9	50	46	214	49.1	60	53	226
			CRHEATER282A00	25.0	30.1	52.5	60	48	214	60.3	70	55	226
			CRHEATER283A00	50.0	60.1	75.0	80	83	214	82.7	90	90	226
			CRHEATER284A00	75.0	90.2	105.1	125	117	214	112.8	125	125	226
HIGH		NONE	—	—	47.1	60	50	251	53.3	60	57	263	
		CRHEATER282A00	25.0	30.1	57.5	60	53	251	65.3	70	60	263	
		CRHEATER283A00	50.0	60.1	80.0	90	87	251	87.7	90	95	263	
		CRHEATER284A00	75.0	90.2	110.1	125	122	251	117.8	125	129	263	
SUPER	NONE	—	—	51.1	60	54	271	57.3	70	61	283		
	CRHEATER282A00	25.0	30.1	61.5	70	57	271	69.3	70	64	283		
	CRHEATER283A00	50.0	60.1	84.0	100	91	271	91.7	100	98	283		
	CRHEATER284A00	75.0	90.2	114.1	125	126	271	121.8	125	133	283		
575-3-60	STD	NONE	—	—	31.7	40	33	156	36.5	45	39	164	
		CRHEATER285A00	24.8	23.9	37.6	40	35	156	43.6	45	40	164	
		CRHEATER286A00	49.6	47.7	67.4	70	62	156	73.4	80	68	164	
		CRHEATER287A00	74.4	71.6	79.4	90	89	156	85.4	90	95	164	
	MED	NONE	—	—	34.4	40	37	168	39.2	45	42	176	
		CRHEATER285A00	24.8	23.9	41.0	45	38	168	47.0	50	43	176	
		CRHEATER286A00	49.6	47.7	70.8	80	65	168	76.8	80	71	176	
		CRHEATER287A00	74.4	71.6	82.7	90	93	168	88.7	90	98	176	
	HIGH	NONE	—	—	36.1	45	39	195	40.9	50	44	203	
		CRHEATER285A00	24.8	23.9	43.1	45	40	195	49.1	50	45	203	
		CRHEATER286A00	49.6	47.7	72.9	80	67	195	78.9	80	73	203	
		CRHEATER287A00	74.4	71.6	84.9	90	95	195	90.9	100	100	203	
SUPER	NONE	—	—	40.4	50	43	206	45.2	50	48	214		
	CRHEATER285A00	24.8	23.9	47.8	50	44	206	53.8	60	49	214		
	CRHEATER286A00	49.6	47.7	77.5	80	71	206	83.5	90	77	214		
	CRHEATER287A00	74.4	71.6	89.5	100	99	206	95.5	100	104	214		

See Legend and Notes on page 76.

# Electrical data (cont)



## UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA (17.5 TONS, NO C.O.)

UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	ELECTRIC HEATER			NO C.O. or UNPWR C.O.							
			Part Number	Nom (kW)	FLA	NO P.E.				with P.E. (pwrd fr/unit)			
						MCA	FUSE or HACR BRKR	DISC. SIZE		MCA	FUSE or HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
50LC*B20	208/230-3-60	STD	NONE	—	—	75.3/74.5	100/100	79/78	416	87.1/86.3	100/100	92/91	436
			CRHEATER279A00	18.8/25.0	52.1/60.1	75.9/84.9	100/100	79/78	416/416	90.6/99.6	100/100	92/92	436/436
			CRHEATER280A00	37.6/50.0	104.2/120.3	141.0/130.1	150/150	130/147	416/416	155.8/144.8	175/150	143/161	436/436
			CRHEATER281A00	56.3/75.0	156.4/180.4	167.2/190.2	200/200	190/216	416/416	181.9/204.9	200/225	203/230	436/436
		MED	NONE	—	—	87.9	100	93	455	99.7	125	107	475
			CRHEATER279A00	18.8/25.0	52.1/60.1	91.6/101.6	100/110	93/93	455/455	106.4/116.4	125/125	107/107	475/475
			CRHEATER280A00	37.6/50.0	104.2/120.3	156.8/146.8	175/175	144/163	455/455	171.5/161.6	175/175	158/176	475/475
			CRHEATER281A00	56.3/75.0	156.4/180.4	182.9/206.9	200/250	204/232	455/455	197.7/221.7	225/250	218/245	475/475
		HIGH	NONE	—	—	94.8	110	101	529	106.6	125	115	549
			CRHEATER279A00	18.8/25.0	52.1/60.1	100.1/110.1	110/125	101/101	529/529	114.9/124.9	125/125	115/115	549/549
			CRHEATER280A00	37.6/50.0	104.2/120.3	165.3/155.3	175/175	152/171	529/529	180.0/170.1	200/175	166/184	549/549
			CRHEATER281A00	56.3/75.0	156.4/180.4	191.4/215.4	200/250	212/240	529/529	206.2/230.2	225/250	226/253	549/549
		SUPER	NONE	—	—	106.4	125	112	569	118.2	150	125	589
			CRHEATER279A00	18.8/25.0	52.1/60.1	111.8/121.8	125/125	112/112	569/569	126.5/136.5	150/150	125/126	589/589
			CRHEATER280A00	37.6/50.0	104.2/120.3	176.9/166.9	200/200	163/181	569/569	191.6/181.7	200/200	176/195	589/589
			CRHEATER281A00	56.3/75.0	156.4/180.4	203.0/227.0	225/250	223/250	569/569	217.8/241.8	250/250	236/264	589/589
	460-3-60	STD	NONE	—	—	37.2	50	39	231	43.4	50	46	243
			CRHEATER282A00	25.0	30.1	42.4	50	39	231	50.1	60	46	243
			CRHEATER283A00	50.0	60.1	64.9	70	73	231	72.6	80	81	243
			CRHEATER284A00	75.0	90.2	95.0	100	108	231	102.7	110	115	243
		MED	NONE	—	—	43.1	50	46	250	49.3	60	53	262
			CRHEATER282A00	25.0	30.1	49.8	50	46	250	57.5	60	53	262
			CRHEATER283A00	50.0	60.1	72.2	80	80	250	80.0	90	87	262
			CRHEATER284A00	75.0	90.2	102.3	125	115	250	110.1	125	122	262
		HIGH	NONE	—	—	47.3	60	50	287	53.5	60	58	299
			CRHEATER282A00	25.0	30.1	54.8	60	50	287	62.5	70	58	299
			CRHEATER283A00	50.0	60.1	77.2	90	85	287	85.0	90	92	299
			CRHEATER284A00	75.0	90.2	107.3	125	119	287	115.1	125	127	299
SUPER	NONE	—	—	51.3	60	54	307	57.5	70	61	319		
	CRHEATER282A00	25.0	30.1	58.8	60	54	307	66.5	70	61	319		
	CRHEATER283A00	50.0	60.1	81.2	90	89	307	89.0	100	96	319		
	CRHEATER284A00	75.0	90.2	111.3	125	123	307	119.1	125	130	319		
575-3-60	STD	NONE	—	—	31.8	40	34	182	36.6	45	39	190	
		CRHEATER285A00	24.8	23.9	35.5	40	34	182	41.5	45	39	190	
		CRHEATER286A00	49.6	47.7	65.3	70	60	182	71.3	80	66	190	
		CRHEATER287A00	74.4	71.6	77.2	90	88	182	83.2	90	93	190	
	MED	NONE	—	—	34.5	40	37	194	39.3	45	42	202	
		CRHEATER285A00	24.8	23.9	38.9	40	37	194	44.9	45	42	202	
		CRHEATER286A00	49.6	47.7	68.6	70	63	194	74.6	80	69	202	
		CRHEATER287A00	74.4	71.6	80.6	90	91	194	86.6	90	96	202	
	HIGH	NONE	—	—	36.2	45	39	221	41.0	50	44	229	
		CRHEATER285A00	24.8	23.9	41.0	45	39	221	47.0	50	44	229	
		CRHEATER286A00	49.6	47.7	70.8	80	65	221	76.8	80	71	229	
		CRHEATER287A00	74.4	71.6	82.7	90	93	221	88.7	90	98	229	
SUPER	NONE	—	—	40.5	50	43	232	45.3	50	48	240		
	CRHEATER285A00	24.8	23.9	45.6	50	43	232	51.6	60	48	240		
	CRHEATER286A00	49.6	47.7	75.4	80	69	232	81.4	90	75	240		
	CRHEATER287A00	74.4	71.6	87.4	100	97	232	93.4	100	102	240		

See Legend and Notes on page 76.



**UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA (17.5 TONS, with POWERED C.O.)**

UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	ELECTRIC HEATER			WITH PWRD C.O.							
			Part Number	Nom (kW)	FLA	NO P.E.				with P.E. (pwrd fr/unit)			
						MCA	FUSE or HACR BRKR	DISC. SIZE		MCA	FUSE or HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
50LC*B20	208/230-3-60	STD	NONE	—	—	80.1/79.3	100/100	84/83	421	91.9/91.1	100/100	98/97	441
			CRHEATER279A00	18.8/25.0	52.1/60.1	81.9/90.9	100/100	84/84	421/421	96.6/105.6	100/110	98/97	441/441
			CRHEATER280A00	37.6/50.0	104.2/120.3	147.0/136.1	150/150	135/153	421/421	161.8/150.8	175/175	149/166	441/441
			CRHEATER281A00	56.3/75.0	156.4/180.4	173.2/196.2	200/225	195/222	421/421	187.9/210.9	200/225	209/236	441/441
		MED	NONE	—	—	92.7	100	99	460	104.5	125	112	480
			CRHEATER279A00	18.8/25.0	52.1/60.1	97.6/107.6	100/110	99/99	460/460	112.4/122.4	125/125	112/113	480/480
			CRHEATER280A00	37.6/50.0	104.2/120.3	162.8/152.8	175/175	150/168	460/460	177.5/167.6	200/175	163/182	480/480
			CRHEATER281A00	56.3/75.0	156.4/180.4	188.9/212.9	200/250	210/237	460/460	203.7/227.7	225/250	223/251	480/480
		HIGH	NONE	—	—	99.6	125	106	534	111.4	125	120	554
			CRHEATER279A00	18.8/25.0	52.1/60.1	106.1/116.1	125/125	106/107	534/534	120.9/130.9	125/150	120/120	554/554
			CRHEATER280A00	37.6/50.0	104.2/120.3	171.3/161.3	175/175	158/176	534/534	186.0/176.1	200/200	171/190	554/554
			CRHEATER281A00	56.3/75.0	156.4/180.4	197.4/221.4	225/250	218/245	534/534	212.2/236.2	225/250	231/259	554/554
	SUPER	NONE	—	—	111.2	125	117	574	123.0	150	131	594	
		CRHEATER279A00	18.8/25.0	52.1/60.1	117.8/127.8	125/150	117/118	574/574	132.5/142.5	150/150	131/131	594/594	
		CRHEATER280A00	37.6/50.0	104.2/120.3	182.9/172.9	200/200	168/187	574/574	197.6/187.7	200/200	182/200	594/594	
		CRHEATER281A00	56.3/75.0	156.4/180.4	209.0/233.0	225/250	228/256	574/574	223.8/247.8	250/300	242/269	594/594	
	460-3-60	STD	NONE	—	—	39.4	50	42	233	45.6	50	49	245
			CRHEATER282A00	25.0	30.1	45.1	50	42	233	52.9	60	49	245
			CRHEATER283A00	50.0	60.1	67.6	80	76	233	75.4	80	83	245
			CRHEATER284A00	75.0	90.2	97.7	100	111	233	105.5	110	118	245
		MED	NONE	—	—	45.3	50	48	252	51.5	60	56	264
			CRHEATER282A00	25.0	30.1	52.5	60	48	252	60.3	70	56	264
			CRHEATER283A00	50.0	60.1	75.0	80	83	252	82.7	90	90	264
			CRHEATER284A00	75.0	90.2	105.1	125	117	252	112.8	125	125	264
HIGH		NONE	—	—	49.5	60	53	289	55.7	60	60	301	
		CRHEATER282A00	25.0	30.1	57.5	60	53	289	65.3	70	60	301	
		CRHEATER283A00	50.0	60.1	80.0	90	87	289	87.7	90	95	301	
		CRHEATER284A00	75.0	90.2	110.1	125	122	289	117.8	125	129	301	
SUPER	NONE	—	—	53.5	60	57	309	59.7	70	64	321		
	CRHEATER282A00	25.0	30.1	61.5	70	57	309	69.3	70	64	321		
	CRHEATER283A00	50.0	60.1	84.0	100	91	309	91.7	100	98	321		
	CRHEATER284A00	75.0	90.2	114.1	125	126	309	121.8	125	133	321		
575-3-60	STD	NONE	—	—	33.5	40	36	184	38.3	45	41	192	
		CRHEATER285A00	24.8	23.9	37.6	40	36	184	43.6	45	41	192	
		CRHEATER286A00	49.6	47.7	67.4	70	62	184	73.4	80	68	192	
		CRHEATER287A00	74.4	71.6	79.4	90	89	184	85.4	90	95	192	
	MED	NONE	—	—	36.2	45	39	196	41.0	50	44	204	
		CRHEATER285A00	24.8	23.9	41.0	45	39	196	47.0	50	44	204	
		CRHEATER286A00	49.6	47.7	70.8	80	65	196	76.8	80	71	204	
		CRHEATER287A00	74.4	71.6	82.7	90	93	196	88.7	90	98	204	
	HIGH	NONE	—	—	37.9	45	41	223	42.7	50	46	231	
		CRHEATER285A00	24.8	23.9	43.1	45	41	223	49.1	50	46	231	
		CRHEATER286A00	49.6	47.7	72.9	80	67	223	78.9	80	73	231	
		CRHEATER287A00	74.4	71.6	84.9	90	95	223	90.9	100	100	231	
SUPER	NONE	—	—	42.2	50	45	234	47.0	60	50	242		
	CRHEATER285A00	24.8	23.9	47.8	50	45	234	53.8	60	50	242		
	CRHEATER286A00	49.6	47.7	77.5	80	71	234	83.5	90	77	242		
	CRHEATER287A00	74.4	71.6	89.5	100	99	234	95.5	100	104	242		

See Legend and Notes on page 76.

# Electrical data (cont)



## UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA (20 TONS, NO C.O.)

UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	ELECTRIC HEATER			NO C.O. or UNPWR C.O.							
			Part Number	Nom (kW)	FLA	NO P.E.				with P.E. (pwr fr/unit)			
						MCA	FUSE or HACR BRKR	DISC. SIZE		MCA	FUSE or HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
50LC*B24	208/230-3-60	STD	NONE	—	—	103.1	125	109	538	114.9	125	123	558
			CRHEATER279A00	18.8/25.0	52.1/60.1	103.1/103.1	125/125	109/109	538/538	114.9/116.4	125/125	123/123	558/558
			CRHEATER280A00	37.6/50.0	104.2/120.3	156.8/146.8	175/175	144/163	538/538	171.5/161.6	175/175	158/176	558/558
		CRHEATER281A00	56.3/75.0	156.4/180.4	182.9/206.9	200/250	204/232	538/538	197.7/221.7	225/250	218/245	558/558	
		MED	NONE	—	—	103.1	125	109	538	114.9	125	123	558
			CRHEATER279A00	18.8/25.0	52.1/60.1	103.1/103.1	125/125	109/109	538/538	114.9/116.4	125/125	123/123	558/558
			CRHEATER280A00	37.6/50.0	104.2/120.3	156.8/146.8	175/175	144/163	538/538	171.5/161.6	175/175	158/176	558/558
		CRHEATER281A00	56.3/75.0	156.4/180.4	182.9/206.9	200/250	204/232	538/538	197.7/221.7	225/250	218/245	558/558	
		HIGH	NONE	—	—	109.9	125	117	612	121.7	150	130	632
			CRHEATER279A00	18.8/25.0	52.1/60.1	109.9/110.1	125/125	117/117	612/612	121.7/124.9	150/150	130/130	632/632
			CRHEATER280A00	37.6/50.0	104.2/120.3	165.3/155.3	175/175	152/171	612/612	180.0/170.1	200/175	166/184	632/632
		CRHEATER281A00	56.3/75.0	156.4/180.4	191.4/215.4	200/250	212/240	612/612	206.2/230.2	225/250	226/253	632/632	
	SUPER	NONE	—	—	120.2	150	128	652	132.0	150	141	672	
		CRHEATER279A00	18.8/25.0	52.1/60.1	120.2/121.8	150/150	128/128	652/652	132.0/136.5	150/150	141/141	672/672	
		CRHEATER280A00	37.6/50.0	104.2/120.3	176.9/166.9	200/200	163/181	652/652	191.6/181.7	200/200	176/195	672/672	
	CRHEATER281A00	56.3/75.0	156.4/180.4	203.0/227.0	225/250	223/250	652/652	217.8/241.8	250/250	236/264	672/672		
	460-3-60	STD	NONE	—	—	56.6	70	60	278	62.8	80	67	290
			CRHEATER282A00	25.0	30.1	56.6	70	60	278	62.8	80	67	290
			CRHEATER283A00	50.0	60.1	72.2	80	80	278	80.0	90	87	290
		CRHEATER284A00	75.0	90.2	102.3	125	115	278	110.1	125	122	290	
		MED	NONE	—	—	56.6	70	60	278	62.8	80	67	290
			CRHEATER282A00	25.0	30.1	56.6	70	60	278	62.8	80	67	290
			CRHEATER283A00	50.0	60.1	72.2	80	80	278	80.0	90	87	290
		CRHEATER284A00	75.0	90.2	102.3	125	115	278	110.1	125	122	290	
HIGH		NONE	—	—	60.6	70	65	315	66.8	80	72	327	
		CRHEATER282A00	25.0	30.1	60.6	70	65	315	66.8	80	72	327	
		CRHEATER283A00	50.0	60.1	77.2	90	85	315	85.0	90	92	327	
CRHEATER284A00		75.0	90.2	107.3	125	119	315	115.1	125	127	327		
SUPER	NONE	—	—	63.8	80	68	335	70.0	80	75	347		
	CRHEATER282A00	25.0	30.1	63.8	80	68	335	70.0	80	75	347		
	CRHEATER283A00	50.0	60.1	81.2	90	89	335	89.0	100	96	347		
CRHEATER284A00	75.0	90.2	111.3	125	123	335	119.1	125	130	347			
575-3-60	STD	NONE	—	—	45.0	50	48	206	49.8	60	54	214	
		CRHEATER285A00	24.8	23.9	45.0	50	48	206	49.8	60	54	214	
		CRHEATER286A00	49.6	47.7	68.6	70	63	206	74.6	80	69	214	
	CRHEATER287A00	74.4	71.6	80.6	90	91	206	86.6	90	96	214		
	MED	NONE	—	—	45.0	50	48	206	49.8	60	54	214	
		CRHEATER285A00	24.8	23.9	45.0	50	48	206	49.8	60	54	214	
		CRHEATER286A00	49.6	47.7	68.6	70	63	206	74.6	80	69	214	
	CRHEATER287A00	74.4	71.6	80.6	90	91	206	86.6	90	96	214		
	HIGH	NONE	—	—	46.7	50	50	233	51.5	60	56	241	
		CRHEATER285A00	24.8	23.9	46.7	50	50	233	51.5	60	56	241	
		CRHEATER286A00	49.6	47.7	70.8	80	65	233	76.8	80	71	241	
	CRHEATER287A00	74.4	71.6	82.7	90	93	233	88.7	90	98	241		
SUPER	NONE	—	—	50.4	60	54	244	55.2	60	60	252		
	CRHEATER285A00	24.8	23.9	50.4	60	54	244	55.2	60	60	252		
	CRHEATER286A00	49.6	47.7	75.4	80	69	244	81.4	90	75	252		
CRHEATER287A00	74.4	71.6	87.4	100	97	244	93.4	100	102	252			

See Legend and Notes on page 76.

**UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA (20 TONS, with POWERED C.O.)**

UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	ELECTRIC HEATER			WITH PWRD C.O.							
			Part Number	Nom (kW)	FLA	NO P.E.				with P.E. (pwrd fr/unit)			
						MCA	FUSE or HACR BRKR	DISC. SIZE		MCA	FUSE or HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
50LC*B24	208/230-3-60	STD	NONE	—	—	107.9	125	115	543	119.7	150	128	563
			CRHEATER279A00	18.8/25.0	52.1/60.1	107.9/107.9	125/125	115/115	543/543	119.7/122.4	150/150	128/128	563/563
			CRHEATER280A00	37.6/50.0	104.2/120.3	162.8/152.8	175/175	150/168	543/543	177.5/167.6	200/175	163/182	563/563
			CRHEATER281A00	56.3/75.0	156.4/180.4	188.9/212.9	200/250	210/237	543/543	203.7/227.7	225/250	223/251	563/563
		MED	NONE	—	—	107.9	125	115	543	119.7	150	128	563
			CRHEATER279A00	18.8/25.0	52.1/60.1	107.9/107.9	125/125	115/115	543/543	119.7/122.4	150/150	128/128	563/563
			CRHEATER280A00	37.6/50.0	104.2/120.3	162.8/152.8	175/175	150/168	543/543	177.5/167.6	200/175	163/182	563/563
			CRHEATER281A00	56.3/75.0	156.4/180.4	188.9/212.9	200/250	210/237	543/543	203.7/227.7	225/250	223/251	563/563
		HIGH	NONE	—	—	114.7	125	122	617	126.5	150	136	637
			CRHEATER279A00	18.8/25.0	52.1/60.1	114.7/116.1	125/125	122/122	617/617	126.5/130.9	150/150	136/136	637/637
			CRHEATER280A00	37.6/50.0	104.2/120.3	171.3/161.3	175/175	158/176	617/617	186.0/176.1	200/200	171/190	637/637
			CRHEATER281A00	56.3/75.0	156.4/180.4	197.4/221.4	225/250	218/245	617/617	212.2/236.2	225/250	231/259	637/637
		SUPER	NONE	—	—	125.0	150	133	657	136.8	150	147	677
			CRHEATER279A00	18.8/25.0	52.1/60.1	125.0/127.8	150/150	133/133	657/657	136.8/142.5	150/150	147/147	677/677
			CRHEATER280A00	37.6/50.0	104.2/120.3	182.9/172.9	200/200	168/187	657/657	197.6/187.7	200/200	182/200	677/677
			CRHEATER281A00	56.3/75.0	156.4/180.4	209.0/233.0	225/250	228/256	657/657	223.8/247.8	250/300	242/269	677/677
	460-3-60	STD	NONE	—	—	58.8	70	62	280	65.0	80	70	292
			CRHEATER282A00	25.0	30.1	58.8	70	62	280	65.0	80	70	292
			CRHEATER283A00	50.0	60.1	75.0	80	83	280	82.7	90	90	292
			CRHEATER284A00	75.0	90.2	105.1	125	117	280	112.8	125	125	292
		MED	NONE	—	—	58.8	70	62	280	65.0	80	70	292
			CRHEATER282A00	25.0	30.1	58.8	70	62	280	65.0	80	70	292
			CRHEATER283A00	50.0	60.1	75.0	80	83	280	82.7	90	90	292
			CRHEATER284A00	75.0	90.2	105.1	125	117	280	112.8	125	125	292
		HIGH	NONE	—	—	62.8	80	67	317	69.0	80	74	329
			CRHEATER282A00	25.0	30.1	62.8	80	67	317	69.0	80	74	329
			CRHEATER283A00	50.0	60.1	80.0	90	87	317	87.7	90	95	329
			CRHEATER284A00	75.0	90.2	110.1	125	122	317	117.8	125	129	329
SUPER	NONE	—	—	66.0	80	71	337	72.2	90	78	349		
	CRHEATER282A00	25.0	30.1	66.0	80	71	337	72.2	90	78	349		
	CRHEATER283A00	50.0	60.1	84.0	100	91	337	91.7	100	98	349		
	CRHEATER284A00	75.0	90.2	114.1	125	126	337	121.8	125	133	349		
575-3-60	STD	NONE	—	—	46.7	50	50	208	51.5	60	56	216	
		CRHEATER285A00	24.8	23.9	46.7	50	50	208	51.5	60	56	216	
		CRHEATER286A00	49.6	47.7	70.8	80	65	208	76.8	80	71	216	
		CRHEATER287A00	74.4	71.6	82.7	90	93	208	88.7	90	98	216	
	MED	NONE	—	—	46.7	50	50	208	51.5	60	56	216	
		CRHEATER285A00	24.8	23.9	46.7	50	50	208	51.5	60	56	216	
		CRHEATER286A00	49.6	47.7	70.8	80	65	208	76.8	80	71	216	
		CRHEATER287A00	74.4	71.6	82.7	90	93	208	88.7	90	98	216	
	HIGH	NONE	—	—	48.4	60	52	235	53.2	60	58	243	
		CRHEATER285A00	24.8	23.9	48.4	60	52	235	53.2	60	58	243	
		CRHEATER286A00	49.6	47.7	72.9	80	67	235	78.9	80	73	243	
		CRHEATER287A00	74.4	71.6	84.9	90	95	235	90.9	100	100	243	
SUPER	NONE	—	—	52.1	60	56	246	56.9	70	62	254		
	CRHEATER285A00	24.8	23.9	52.1	60	56	246	56.9	70	62	254		
	CRHEATER286A00	49.6	47.7	77.5	80	71	246	83.5	90	77	254		
	CRHEATER287A00	74.4	71.6	89.5	100	99	246	95.5	100	104	254		

See Legend and Notes on page 76.

# Electrical data (cont)



## UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA (23 TONS, NO C.O.)

UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	ELECTRIC HEATER			NO C.O. or UNPWR C.O.							
			Part Number	Nom (kW)	FLA	NO P.E.				with P.E. (pwrd fr/unit)			
						MCA	FUSE or HACR BRKR	DISC. SIZE		MCA	FUSE or HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
50LC*B26	208/230-3-60	STD	NONE	—	—	126.1	175	130	629	137.9	175	144	649
			CRHEATER279A00	18.8/25.0	52.1/60.1	126.1/126.1	175/175	130/130	629/629	137.9/137.9	175/175	144/144	649/649
			CRHEATER280A00	37.6/50.0	104.2/120.3	156.8/146.8	175/175	144/163	629/629	171.5/161.6	175/175	158/176	649/649
		CRHEATER281A00	56.3/75.0	156.4/180.4	182.9/206.9	200/250	204/232	629/629	197.7/221.7	225/250	218/245	649/649	
		MED	NONE	—	—	132.9	175	138	703	144.7	175	152	723
			CRHEATER279A00	18.8/25.0	52.1/60.1	132.9/132.9	175/175	138/138	703/703	144.7/144.7	175/175	152/152	723/723
			CRHEATER280A00	37.6/50.0	104.2/120.3	165.3/155.3	175/175	152/171	703/703	180.0/170.1	200/175	166/184	723/723
		CRHEATER281A00	56.3/75.0	156.4/180.4	191.4/215.4	200/250	212/240	703/703	206.2/230.2	225/250	226/253	723/723	
		HIGH	NONE	—	—	142.2	175	149	743	154.0	200	162	763
			CRHEATER279A00	18.8/25.0	52.1/60.1	142.2/142.2	175/175	149/149	743/743	154.0/154.0	200/200	162/162	763/763
			CRHEATER280A00	37.6/50.0	104.2/120.3	176.9/166.9	200/200	163/181	743/743	191.6/181.7	200/200	176/195	763/763
		CRHEATER281A00	56.3/75.0	156.4/180.4	203.0/227.0	225/250	223/250	743/743	217.8/241.8	250/250	236/264	763/763	
	460-3-60	STD	NONE	—	—	64.9	80	68	322	71.1	90	75	334
			CRHEATER282A00	25.0	30.1	64.9	80	68	322	71.1	90	75	334
			CRHEATER283A00	50.0	60.1	72.2	80	80	322	80.0	90	87	334
			CRHEATER284A00	75.0	90.2	102.3	125	115	322	110.1	125	122	334
		MED	NONE	—	—	68.9	90	73	359	75.1	90	80	371
			CRHEATER282A00	25.0	30.1	68.9	90	73	359	75.1	90	80	371
			CRHEATER283A00	50.0	60.1	77.2	90	85	359	85.0	90	92	371
		CRHEATER284A00	75.0	90.2	107.3	125	119	359	115.1	125	127	371	
		HIGH	NONE	—	—	72.1	90	76	379	78.3	100	83	391
			CRHEATER282A00	25.0	30.1	72.1	90	76	379	78.3	100	83	391
			CRHEATER283A00	50.0	60.1	81.2	90	89	379	89.0	100	96	391
			CRHEATER284A00	75.0	90.2	111.3	125	123	379	119.1	125	130	391
575-3-60	STD	NONE	—	—	53.9	60	56	235	58.7	70	62	243	
		CRHEATER285A00	24.8	23.9	53.9	60	56	235	58.7	70	62	243	
		CRHEATER286A00	49.6	47.7	68.6	70	63	235	74.6	80	69	243	
		CRHEATER287A00	74.4	71.6	80.6	90	91	235	86.6	90	96	243	
	MED	NONE	—	—	55.6	70	58	262	60.4	80	64	270	
		CRHEATER285A00	24.8	23.9	55.6	70	58	262	60.4	80	64	270	
		CRHEATER286A00	49.6	47.7	70.8	80	65	262	76.8	80	71	270	
	CRHEATER287A00	74.4	71.6	82.7	90	93	262	88.7	90	98	270		
	HIGH	NONE	—	—	59.3	70	62	273	64.1	80	68	281	
		CRHEATER285A00	24.8	23.9	59.3	70	62	273	64.1	80	68	281	
		CRHEATER286A00	49.6	47.7	75.4	80	69	273	81.4	90	75	281	
		CRHEATER287A00	74.4	71.6	87.4	100	97	273	93.4	100	102	281	

See Legend and Notes on page 76.

**UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA (23 TONS, with POWERED C.O.)**

UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	ELECTRIC HEATER			WITH PWRD C.O.							
			Part Number	Nom (kW)	FLA	NO P.E.			with P.E. (pwrd fr/unit)				
						MCA	FUSE or HACR BRKR	DISC. SIZE		MCA	FUSE or HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
50LC*B26	208/230-3-60	STD	NONE	—	—	130.9	175	136	634	142.7	175	149	654
			CRHEATER279A00	18.8/25.0	52.1/60.1	130.9/130.9	175/175	136/136	634/634	142.7/142.7	175/175	149/149	654/654
			CRHEATER280A00	37.6/50.0	104.2/120.3	162.8/152.8	175/175	150/168	634/634	177.5/167.6	200/175	163/182	654/654
			CRHEATER281A00	56.3/75.0	156.4/180.4	188.9/212.9	200/250	210/237	634/634	203.7/227.7	225/250	223/251	654/654
		MED	NONE	—	—	137.7	175	144	708	149.5	200	157	728
			CRHEATER279A00	18.8/25.0	52.1/60.1	137.7/137.7	175/175	144/144	708/708	149.5/149.5	200/200	157/157	728/728
			CRHEATER280A00	37.6/50.0	104.2/120.3	171.3/161.3	175/175	158/176	708/708	186.0/176.1	200/200	171/190	728/728
			CRHEATER281A00	56.3/75.0	156.4/180.4	197.4/221.4	225/250	218/245	708/708	212.2/236.2	225/250	231/259	728/728
		HIGH	NONE	—	—	147.0	175	154	748	158.8	200	168	768
			CRHEATER279A00	18.8/25.0	52.1/60.1	147.0/147.0	175/175	154/154	748/748	158.8/158.8	200/200	168/168	768/768
			CRHEATER280A00	37.6/50.0	104.2/120.3	182.9/172.9	200/200	168/187	748/748	197.6/187.7	200/200	182/200	768/768
			CRHEATER281A00	56.3/75.0	156.4/180.4	209.0/233.0	225/250	228/256	748/748	223.8/247.8	250/300	242/269	768/768
	460-3-60	STD	NONE	—	—	67.1	90	70	324	73.3	90	78	336
			CRHEATER282A00	25.0	30.1	67.1	90	70	324	73.3	90	78	336
			CRHEATER283A00	50.0	60.1	75.0	90	83	324	82.7	90	90	336
			CRHEATER284A00	75.0	90.2	105.1	125	117	324	112.8	125	125	336
		MED	NONE	—	—	71.1	90	75	361	77.3	100	82	373
			CRHEATER282A00	25.0	30.1	71.1	90	75	361	77.3	100	82	373
			CRHEATER283A00	50.0	60.1	80.0	90	87	361	87.7	100	95	373
			CRHEATER284A00	75.0	90.2	110.1	125	122	361	117.8	125	129	373
		HIGH	NONE	—	—	74.3	90	79	381	80.5	100	86	393
			CRHEATER282A00	25.0	30.1	74.3	90	79	381	80.5	100	86	393
			CRHEATER283A00	50.0	60.1	84.0	100	91	381	91.7	100	98	393
			CRHEATER284A00	75.0	90.2	114.1	125	126	381	121.8	125	133	393
575-3-60	STD	NONE	—	—	55.6	70	58	237	60.4	80	64	245	
		CRHEATER285A00	24.8	23.9	55.6	70	58	237	60.4	80	64	245	
		CRHEATER286A00	49.6	47.7	70.8	80	65	237	76.8	80	71	245	
		CRHEATER287A00	74.4	71.6	82.7	90	93	237	88.7	90	98	245	
	MED	NONE	—	—	57.3	70	60	264	62.1	80	66	272	
		CRHEATER285A00	24.8	23.9	57.3	70	60	264	62.1	80	66	272	
		CRHEATER286A00	49.6	47.7	72.9	80	67	264	78.9	80	73	272	
		CRHEATER287A00	74.4	71.6	84.9	90	95	264	90.9	100	100	272	
	HIGH	NONE	—	—	61.0	80	64	275	65.8	80	70	283	
		CRHEATER285A00	24.8	23.9	61.0	80	64	275	65.8	80	70	283	
		CRHEATER286A00	49.6	47.7	77.5	80	71	275	83.5	90	77	283	
		CRHEATER287A00	74.4	71.6	89.5	100	99	275	95.5	100	104	283	

See Legend and Notes on page 76.

# Electrical data (cont)



## UNIT WIRE SIZING DATA WITH FACTORY-INSTALLED HACR BREAKER (12.5 TONS, NO C.O.)

UNIT SIZE	NOM. V-PH-Hz	IFM TYPE	ELECTRIC HEATER			NO C.O. OR PWR C.O.							
			Part Number	Nom (kW)	FLA	NO P.E.				with P.E. (pwr fr/unit)			
						MCA	HACR BRKR	DISC. SIZE		MCA	HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
50LC*B14	208/230-3-60	STD	NONE	—	—	60.6/60.6	80/80	63/62	346	72.4/72.4	90/90	77/76	366
			CRHEATER302A00	11.3/15.0	31.3/36.1	60.6/60.6	80/80	63/62	346/346	72.4/72.4	90/90	77/76	366/366
			CRHEATER279A00	18.8/25.0	52.1/60.1	84.9/84.9	90/90	70/78	346/346	99.6/99.6	100/100	83/92	366/366
			CRHEATER309A00	37.6/50.0	104.2/120.3	141.0/141.0	150/150	130/147	346/346	155.8/155.8	175/175	143/161	366/366
		MED	NONE	—	—	65.6/65.6	80/80	69/68	381	77.4/77.4	100/100	82/81	401
			CRHEATER302A00	11.3/15.0	31.3/36.1	65.6/65.6	80/80	69/68	381/381	77.4/77.4	100/100	82/81	401/401
			CRHEATER279A00	18.8/25.0	52.1/60.1	91.0/91.0	100/100	76/84	381/381	105.8/105.8	110/110	89/97	401/401
			CRHEATER309A00	37.6/50.0	104.2/120.3	147.3/147.3	150/150	135/153	381/381	162.0/162.0	175/175	149/167	401/401
		HIGH	NONE	—	—	73.2	90	78	385	85.0	100	91	405
			CRHEATER302A00	11.3/15.0	31.3/36.1	73.2/73.2	90/90	78/78	385/385	86.4/86.4	100/100	91/91	405/405
			CRHEATER279A00	18.8/25.0	52.1/60.1	101.6/101.6	110/110	84/93	385/385	116.4/116.4	125/125	98/107	405/405
			CRHEATER309A00	37.6/50.0	104.2/120.3	156.8/156.8	175/175	144/163	385/385	171.5/171.5	175/175	158/176	405/405
	SUPER	NONE	—	—	81.2	100	85	459	93.0	110	99	479	
		CRHEATER302A00	11.3/15.0	31.3/36.1	81.2/81.2	100/100	85/85	459/459	94.9/94.9	110/110	99/99	479/479	
		CRHEATER279A00	18.8/25.0	52.1/60.1	110.1/110.1	125/125	92/101	459/459	124.9/124.9	125/125	106/115	479/479	
		CRHEATER309A00	37.6/50.0	104.2/120.3	165.3/165.3	175/175	152/171	459/459	180.0/180.0	200/200	166/184	479/479	
	460-3-60	STD	NONE	—	—	31.3	40	33	167	37.5	45	40	179
			CRHEATER303A00	15.0	18.0	31.3	40	33	167	37.5	45	40	179
			CRHEATER282A00	25.0	30.1	42.4	45	39	167	50.1	60	46	179
			CRHEATER310A00	50.0	60.1	64.9	70	73	167	72.6	80	81	179
		MED	NONE	—	—	33.9	45	36	184	40.1	50	43	196
			CRHEATER303A00	15.0	18.0	33.9	45	36	184	40.1	50	43	196
			CRHEATER282A00	25.0	30.1	45.6	50	42	184	53.4	60	49	196
			CRHEATER310A00	50.0	60.1	68.1	80	76	184	75.9	80	84	196
		HIGH	NONE	—	—	37.2	45	40	186	43.4	50	47	198
			CRHEATER303A00	15.0	18.0	37.2	45	40	186	43.4	50	47	198
			CRHEATER282A00	25.0	30.1	49.8	50	46	186	57.5	60	53	198
			CRHEATER310A00	50.0	60.1	72.2	80	80	186	80.0	90	87	198
	SUPER	NONE	—	—	41.8	50	44	223	48.0	60	51	235	
		CRHEATER303A00	15.0	18.0	41.8	50	44	223	48.0	60	51	235	
		CRHEATER282A00	25.0	30.1	54.8	60	50	223	62.5	70	58	235	
		CRHEATER310A00	50.0	60.1	77.2	90	85	223	85.0	90	92	235	
	575-3-60	STD	NONE	—	—	24.4	30	26	119	29.2	35	31	127
			CRHEATER304A00	15.0	14.4	24.4	30	26	119	29.6	35	31	127
			CRHEATER285A00	24.8	23.9	35.5	40	33	119	41.5	45	38	127
			CRHEATER311A00	49.6	47.7	65.3	70	60	119	71.3	80	66	127
MED		NONE	—	—	26.1	30	28	133	30.9	35	33	141	
		CRHEATER304A00	15.0	14.4	26.1	30	28	133	31.8	35	33	141	
		CRHEATER285A00	24.8	23.9	37.6	40	35	133	43.6	45	40	141	
		CRHEATER311A00	49.6	47.7	67.4	70	62	133	73.4	80	68	141	
HIGH		NONE	—	—	27.1	30	29	131	31.9	35	34	139	
		CRHEATER304A00	15.0	14.4	27.1	30	29	131	33.0	35	34	139	
		CRHEATER285A00	24.8	23.9	38.9	40	36	131	44.9	45	41	139	
		CRHEATER311A00	49.6	47.7	68.6	70	63	131	74.6	80	69	139	
SUPER	NONE	—	—	29.0	35	31	158	33.8	40	36	166		
	CRHEATER304A00	15.0	14.4	29.1	35	31	158	35.1	40	36	166		
	CRHEATER285A00	24.8	23.9	41.0	45	38	158	47.0	50	43	166		
	CRHEATER311A00	49.6	47.7	70.8	80	65	158	76.8	80	71	166		

See Legend and Notes on page 76.

**UNIT WIRE SIZING DATA WITH FACTORY-INSTALLED HACR BREAKER (12.5 TONS, with POWERED C.O.)**

UNIT SIZE	NOM. V-PH-Hz	IFM TYPE	ELECTRIC HEATER			WITH PWRD C.O.								
			Part Number	Nom (kW)	FLA	NO P.E.				with P.E. (pwrd fr/unit)				
						MCA	HACR BRKR	DISC. SIZE		MCA	HACR BRKR	DISC. SIZE		
								FLA	LRA			FLA	LRA	
50LC*B14	208/230-3-60	STD	NONE	—	—	65.4/65.4	80/80	69/68	351	77.2/77.2	100/100	82/81	371	
			CRHEATER302A00	11.3/15.0	31.3/36.1	65.4/65.4	80/80	69/68	351/351	77.2/77.2	100/100	82/81	371/371	
			CRHEATER279A00	18.8/25.0	52.1/60.1	90.9/90.9	100/100	75/84	351/351	105.6/105.6	110/110	89/97	371/371	
			CRHEATER309A00	37.6/50.0	104.2/120.3	147.0/147.0	150/150	135/153	351/351	161.8/161.8	175/175	149/166	371/371	
		MED	NONE	—	—	70.4/70.4	90/90	74/73	386	82.2/82.2	100/100	88/87	406	
			CRHEATER302A00	11.3/15.0	31.3/36.1	70.4/70.4	90/90	74/73	386/386	82.2/82.2	100/100	88/87	406/406	
			CRHEATER279A00	18.8/25.0	52.1/60.1	97.0/97.0	100/100	81/89	386/386	111.8/111.8	125/125	95/103	406/406	
			CRHEATER309A00	37.6/50.0	104.2/120.3	153.3/153.3	175/175	141/158	386/386	168.0/168.0	175/175	155/172	406/406	
		HIGH	NONE	—	—	78.0	100	83	390	89.8	100	97	410	
			CRHEATER302A00	11.3/15.0	31.3/36.1	78.0/78.0	100/100	83/83	390/390	92.4/92.4	100/100	97/97	410/410	
			CRHEATER279A00	18.8/25.0	52.1/60.1	107.6/107.6	110/110	90/99	390/390	122.4/122.4	125/125	103/113	410/410	
			CRHEATER309A00	37.6/50.0	104.2/120.3	162.8/162.8	175/175	150/168	390/390	177.5/177.5	200/200	163/182	410/410	
		SUPER	NONE	—	—	86.0	100	91	464	97.8	125	104	484	
			CRHEATER302A00	11.3/15.0	31.3/36.1	86.1/86.1	100/100	91/91	464/464	100.9/100.9	125/125	104/104	484/484	
			CRHEATER279A00	18.8/25.0	52.1/60.1	116.1/116.1	125/125	98/107	464/464	130.9/130.9	150/150	111/120	484/484	
			CRHEATER309A00	37.6/50.0	104.2/120.3	171.3/171.3	175/175	158/176	464/464	186.0/186.0	200/200	171/190	484/484	
		460-3-60	STD	NONE	—	—	33.5	40	35	169	39.7	50	42	181
				CRHEATER303A00	15.0	18.0	33.5	40	35	169	39.7	50	42	181
				CRHEATER282A00	25.0	30.1	45.1	50	42	169	52.9	60	49	181
				CRHEATER310A00	50.0	60.1	67.6	80	76	169	75.4	80	83	181
			MED	NONE	—	—	36.1	45	38	186	42.3	50	45	198
				CRHEATER303A00	15.0	18.0	36.1	45	38	186	42.3	50	45	198
				CRHEATER282A00	25.0	30.1	48.4	50	45	186	56.1	60	52	198
				CRHEATER310A00	50.0	60.1	70.9	80	79	186	78.6	80	86	198
	HIGH		NONE	—	—	39.4	50	42	188	45.6	50	49	200	
			CRHEATER303A00	15.0	18.0	39.4	50	42	188	45.6	50	49	200	
			CRHEATER282A00	25.0	30.1	52.5	60	48	188	60.3	70	55	200	
			CRHEATER310A00	50.0	60.1	75.0	80	83	188	82.7	90	90	200	
	SUPER	NONE	—	—	44.0	50	47	225	50.2	60	54	237		
		CRHEATER303A00	15.0	18.0	44.0	50	47	225	50.2	60	54	237		
		CRHEATER282A00	25.0	30.1	57.5	60	53	225	65.3	70	60	237		
		CRHEATER310A00	50.0	60.1	80.0	90	87	225	87.7	90	95	237		
	575-3-60	STD	NONE	—	—	26.1	30	28	121	30.9	35	33	129	
			CRHEATER304A00	15.0	14.4	26.1	30	28	121	31.8	35	33	129	
			CRHEATER285A00	24.8	23.9	37.6	40	35	121	43.6	45	40	129	
			CRHEATER311A00	49.6	47.7	67.4	70	62	121	73.4	80	68	129	
		MED	NONE	—	—	27.8	30	30	135	32.6	40	35	143	
			CRHEATER304A00	15.0	14.4	27.9	30	30	135	33.9	40	35	143	
			CRHEATER285A00	24.8	23.9	39.8	40	37	135	45.8	50	42	143	
			CRHEATER311A00	49.6	47.7	69.5	70	64	135	75.5	80	69	143	
		HIGH	NONE	—	—	28.8	35	31	133	33.6	40	36	141	
			CRHEATER304A00	15.0	14.4	29.1	35	31	133	35.1	40	36	141	
			CRHEATER285A00	24.8	23.9	41.0	45	38	133	47.0	50	43	141	
			CRHEATER311A00	49.6	47.7	70.8	80	65	133	76.8	80	71	141	
	SUPER	NONE	—	—	30.7	35	33	160	35.5	40	38	168		
		CRHEATER304A00	15.0	14.4	31.3	35	33	160	37.3	40	38	168		
		CRHEATER285A00	24.8	23.9	43.1	45	40	160	49.1	50	45	168		
		CRHEATER311A00	49.6	47.7	72.9	80	67	160	78.9	80	73	168		

See Legend and Notes on page 76.

# Electrical data (cont)



## UNIT WIRE SIZING DATA WITH FACTORY-INSTALLED HACR BREAKER (15 TONS, NO C.O.)

UNIT SIZE	NOM. V-PH-Hz	IFM TYPE	ELECTRIC HEATER			NO C.O. OR PWR C.O.							
			Part Number	Nom (kW)	FLA	NO P.E.				with P.E. (pwrd fr/unit)			
						MCA	HACR BRKR	DISC. SIZE		MCA	HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
50LC* <b>B17</b>	208/230-3-60	STD	NONE	—	—	69.4/69.4	90/90	72/71	375	81.2/81.2	100/100	85/85	395
			CRHEATER279A00	18.8/25.0	52.1/60.1	84.9/84.9	90/90	72/78	375/375	99.6/99.6	100/100	85/92	395/395
			CRHEATER280A00	37.6/50.0	104.2/120.3	141.0/141.0	150/150	130/147	375/375	155.8/155.8	175/175	143/161	395/395
			CRHEATER281A00	56.3/75.0	156.4/180.4	190.2/190.2	200/200	190/216	375/375	204.9/204.9	225/225	203/230	395/395
		MED	NONE	—	—	82.0	100	86	414	93.8	110	100	434
			CRHEATER279A00	18.8/25.0	52.1/60.1	101.6/101.6	110/110	86/93	414/414	116.4/116.4	125/125	100/107	434/434
			CRHEATER280A00	37.6/50.0	104.2/120.3	156.8/156.8	175/175	144/163	414/414	171.5/171.5	175/175	158/176	434/434
			CRHEATER281A00	56.3/75.0	156.4/180.4	206.9/206.9	225/250	204/232	414/414	221.7/221.7	225/250	218/245	434/434
		HIGH	NONE	—	—	88.9	100	94	488	100.7	125	108	508
			CRHEATER279A00	18.8/25.0	52.1/60.1	110.1/110.1	125/125	94/101	488/488	124.9/124.9	125/125	108/115	508/508
			CRHEATER280A00	37.6/50.0	104.2/120.3	165.3/165.3	175/175	152/171	488/488	180.0/180.0	200/200	166/184	508/508
			CRHEATER281A00	56.3/75.0	156.4/180.4	215.4/215.4	225/250	212/240	488/488	230.2/230.2	250/250	226/253	508/508
	SUPER	NONE	—	—	100.5	125	105	528	112.3	125	118	548	
		CRHEATER279A00	18.8/25.0	52.1/60.1	121.8/121.8	125/125	105/112	528/528	136.5/136.5	150/150	118/126	548/548	
		CRHEATER280A00	37.6/50.0	104.2/120.3	176.9/176.9	200/200	163/181	528/528	191.6/191.6	200/200	176/195	548/548	
		CRHEATER281A00	56.3/75.0	156.4/180.4	227.0/227.0	250/250	223/250	528/528	241.8/241.8	250/250	236/264	548/548	
	460-3-60	STD	NONE	—	—	34.8	45	36	193	41.0	50	43	205
			CRHEATER282A00	25.0	30.1	42.4	45	39	193	50.1	60	46	205
			CRHEATER283A00	50.0	60.1	64.9	70	73	193	72.6	80	81	205
			CRHEATER284A00	75.0	90.2	95.0	100	108	193	102.7	110	115	205
		MED	NONE	—	—	40.7	50	43	212	46.9	60	50	224
			CRHEATER282A00	25.0	30.1	49.8	50	46	212	57.5	60	53	224
			CRHEATER283A00	50.0	60.1	72.2	80	80	212	80.0	90	87	224
			CRHEATER284A00	75.0	90.2	102.3	125	115	212	110.1	125	122	224
		HIGH	NONE	—	—	44.9	50	48	249	51.1	60	55	261
			CRHEATER282A00	25.0	30.1	54.8	60	50	249	62.5	70	58	261
			CRHEATER283A00	50.0	60.1	77.2	90	85	249	85.0	90	92	261
			CRHEATER284A00	75.0	90.2	107.3	125	119	249	115.1	125	127	261
SUPER	NONE	—	—	48.9	60	51	269	55.1	60	59	281		
	CRHEATER282A00	25.0	30.1	58.8	60	54	269	66.5	70	61	281		
	CRHEATER283A00	50.0	60.1	81.2	90	89	269	89.0	100	96	281		
	CRHEATER284A00	75.0	90.2	111.3	125	123	269	119.1	125	130	281		
575-3-60	STD	NONE	—	—	30.0	40	32	154	34.8	40	37	162	
		CRHEATER285A00	24.8	23.9	35.5	40	33	154	41.5	45	38	162	
		CRHEATER286A00	49.6	47.7	65.3	70	60	154	71.3	80	66	162	
		CRHEATER287A00	74.4	71.6	77.2	90	88	154	83.2	90	93	162	
	MED	NONE	—	—	32.7	40	35	166	37.5	45	40	174	
		CRHEATER285A00	24.8	23.9	38.9	40	36	166	44.9	45	41	174	
		CRHEATER286A00	49.6	47.7	68.6	70	63	166	74.6	80	69	174	
		CRHEATER287A00	74.4	71.6	80.6	90	91	166	86.6	90	96	174	
	HIGH	NONE	—	—	34.4	40	37	193	39.2	45	42	201	
		CRHEATER285A00	24.8	23.9	41.0	45	38	193	47.0	50	43	201	
		CRHEATER286A00	49.6	47.7	70.8	80	65	193	76.8	80	71	201	
		CRHEATER287A00	74.4	71.6	82.7	90	93	193	88.7	90	98	201	
SUPER	NONE	—	—	38.7	50	41	204	43.5	50	46	212		
	CRHEATER285A00	24.8	23.9	45.6	50	42	204	51.6	60	47	212		
	CRHEATER286A00	49.6	47.7	75.4	80	69	204	81.4	90	75	212		
	CRHEATER287A00	74.4	71.6	87.4	100	97	204	93.4	100	102	212		

See Legend and Notes on page 76.



**UNIT WIRE SIZING DATA WITH FACTORY-INSTALLED HACR BREAKER (15 TONS, with POWERED C.O.)**

UNIT SIZE	NOM. V-PH-Hz	IFM TYPE	ELECTRIC HEATER			WITH PWRD C.O.								
			Part Number	Nom (kW)	FLA	NO P.E.				with P.E. (pwrd fr/unit)				
						MCA	HACR BRKR	DISC. SIZE		MCA	HACR BRKR	DISC. SIZE		
								FLA	LRA			FLA	LRA	
50LC*B17	208/230-3-60	STD	NONE	—	—	74.2/74.2	100/100	77/76	380	86.0/86.0	100/100	91/90	400	
			CRHEATER279A00	18.8/25.0	52.1/60.1	90.9/90.9	100/100	77/84	380/380	105.6/105.6	110/110	91/97	400/400	
			CRHEATER280A00	37.6/50.0	104.2/120.3	147.0/147.0	150/150	135/153	380/380	161.8/161.8	175/175	149/166	400/400	
			CRHEATER281A00	56.3/75.0	156.4/180.4	196.2/196.2	200/225	195/222	380/380	210.9/210.9	225/225	209/236	400/400	
		MED	NONE	—	—	86.8	100	92	419	98.6	125	105	439	
			CRHEATER279A00	18.8/25.0	52.1/60.1	107.6/107.6	110/110	92/99	419/419	122.4/122.4	125/125	105/113	439/439	
			CRHEATER280A00	37.6/50.0	104.2/120.3	162.8/162.8	175/175	150/168	419/419	177.5/177.5	200/200	163/182	439/439	
			CRHEATER281A00	56.3/75.0	156.4/180.4	212.9/212.9	225/250	210/237	419/419	227.7/227.7	250/250	223/251	439/439	
		HIGH	NONE	—	—	93.7	110	100	493	105.5	125	113	513	
			CRHEATER279A00	18.8/25.0	52.1/60.1	116.1/116.1	125/125	100/107	493/493	130.9/130.9	150/150	113/120	513/513	
			CRHEATER280A00	37.6/50.0	104.2/120.3	171.3/171.3	175/175	158/176	493/493	186.0/186.0	200/200	171/190	513/513	
			CRHEATER281A00	56.3/75.0	156.4/180.4	221.4/221.4	225/250	218/245	493/493	236.2/236.2	250/250	231/259	513/513	
		SUPER	NONE	—	—	105.3	125	110	533	117.1	150	124	553	
			CRHEATER279A00	18.8/25.0	52.1/60.1	127.8/127.8	150/150	110/118	533/533	142.5/142.5	150/150	124/131	553/553	
			CRHEATER280A00	37.6/50.0	104.2/120.3	182.9/182.9	200/200	168/187	533/533	197.6/197.6	200/200	182/200	553/553	
			CRHEATER281A00	56.3/75.0	156.4/180.4	233.0/233.0	250/250	228/256	533/533	247.8/247.8	250/300	242/269	553/553	
		460-3-60	STD	NONE	—	—	37.0	45	39	195	43.2	50	46	207
				CRHEATER282A00	25.0	30.1	45.1	50	42	195	52.9	60	49	207
	CRHEATER283A00			50.0	60.1	67.6	80	76	195	75.4	80	83	207	
	CRHEATER284A00			75.0	90.2	97.7	100	111	195	105.5	110	118	207	
	MED		NONE	—	—	42.9	50	46	214	49.1	60	53	226	
			CRHEATER282A00	25.0	30.1	52.5	60	48	214	60.3	70	55	226	
			CRHEATER283A00	50.0	60.1	75.0	80	83	214	82.7	90	90	226	
			CRHEATER284A00	75.0	90.2	105.1	125	117	214	112.8	125	125	226	
	HIGH		NONE	—	—	47.1	60	50	251	53.3	60	57	263	
			CRHEATER282A00	25.0	30.1	57.5	60	53	251	65.3	70	60	263	
			CRHEATER283A00	50.0	60.1	80.0	90	87	251	87.7	90	95	263	
			CRHEATER284A00	75.0	90.2	110.1	125	122	251	117.8	125	129	263	
	SUPER		NONE	—	—	51.1	60	54	271	57.3	70	61	283	
			CRHEATER282A00	25.0	30.1	61.5	70	57	271	69.3	70	64	283	
			CRHEATER283A00	50.0	60.1	84.0	100	91	271	91.7	100	98	283	
			CRHEATER284A00	75.0	90.2	114.1	125	126	271	121.8	125	133	283	
	575-3-60		STD	NONE	—	—	31.7	40	33	156	36.5	45	39	164
				CRHEATER285A00	24.8	23.9	37.6	40	35	156	43.6	45	40	164
		CRHEATER286A00		49.6	47.7	67.4	70	62	156	73.4	80	68	164	
		CRHEATER287A00		74.4	71.6	79.4	90	89	156	85.4	90	95	164	
MED		NONE	—	—	34.4	40	37	168	39.2	45	42	176		
		CRHEATER285A00	24.8	23.9	41.0	45	38	168	47.0	50	43	176		
		CRHEATER286A00	49.6	47.7	70.8	80	65	168	76.8	80	71	176		
		CRHEATER287A00	74.4	71.6	82.7	90	93	168	88.7	90	98	176		
HIGH		NONE	—	—	36.1	45	39	195	40.9	50	44	203		
		CRHEATER285A00	24.8	23.9	43.1	45	40	195	49.1	50	45	203		
		CRHEATER286A00	49.6	47.7	72.9	80	67	195	78.9	80	73	203		
		CRHEATER287A00	74.4	71.6	84.9	90	95	195	90.9	100	100	203		
SUPER		NONE	—	—	40.4	50	43	206	45.2	50	48	214		
		CRHEATER285A00	24.8	23.9	47.8	50	44	206	53.8	60	49	214		
		CRHEATER286A00	49.6	47.7	77.5	80	71	206	83.5	90	77	214		
		CRHEATER287A00	74.4	71.6	89.5	100	99	206	95.5	100	104	214		

See Legend and Notes on page 76.

# Electrical data (cont)



## UNIT WIRE SIZING DATA WITH FACTORY-INSTALLED HACR BREAKER (17.5 TONS, NO C.O.)

UNIT SIZE	NOM. V-PH-Hz	IFM TYPE	ELECTRIC HEATER			NO C.O. OR PWR C.O.								
			Part Number	Nom (kW)	FLA	NO P.E.				with P.E. (pwrd fr/unit)				
						MCA	HACR BRKR	DISC. SIZE		MCA	HACR BRKR	DISC. SIZE		
								FLA	LRA			FLA	LRA	
50LC* B20	208/230-3-60	STD	NONE	—	—	75.3/75.3	100/100	79/78	416	87.1/87.1	100/100	92/91	436	
			CRHEATER279A00	18.8/25.0	52.1/60.1	84.9/84.9	100/100	79/78	416/416	99.6/99.6	100/100	92/92	436/436	
			CRHEATER280A00	37.6/50.0	104.2/120.3	141.0/141.0	150/150	130/147	416/416	155.8/155.8	175/175	143/161	436/436	
			CRHEATER281A00	56.3/75.0	156.4/180.4	190.2/190.2	200/200	190/216	416/416	204.9/204.9	225/225	203/230	436/436	
		MED	NONE	—	—	87.9	100	93	455	99.7	125	107	475	
			CRHEATER279A00	18.8/25.0	52.1/60.1	101.6/101.6	110/110	93/93	455/455	116.4/116.4	125/125	107/107	475/475	
			CRHEATER280A00	37.6/50.0	104.2/120.3	156.8/156.8	175/175	144/163	455/455	171.5/171.5	175/175	158/176	475/475	
			CRHEATER281A00	56.3/75.0	156.4/180.4	206.9/206.9	225/250	204/232	455/455	221.7/221.7	225/250	218/245	475/475	
		HIGH	NONE	—	—	94.8	110	101	529	106.6	125	115	549	
			CRHEATER279A00	18.8/25.0	52.1/60.1	110.1/110.1	125/125	101/101	529/529	124.9/124.9	125/125	115/115	549/549	
			CRHEATER280A00	37.6/50.0	104.2/120.3	165.3/165.3	175/175	152/171	529/529	180.0/180.0	200/200	166/184	549/549	
			CRHEATER281A00	56.3/75.0	156.4/180.4	215.4/215.4	225/250	212/240	529/529	230.2/230.2	250/250	226/253	549/549	
		SUPER	NONE	—	—	106.4	125	112	569	118.2	150	125	589	
			CRHEATER279A00	18.8/25.0	52.1/60.1	121.8/121.8	125/125	112/112	569/569	136.5/136.5	150/150	125/126	589/589	
			CRHEATER280A00	37.6/50.0	104.2/120.3	176.9/176.9	200/200	163/181	569/569	191.6/191.6	200/200	176/195	589/589	
			CRHEATER281A00	56.3/75.0	156.4/180.4	227.0/227.0	250/250	223/250	569/569	241.8/241.8	250/250	236/264	589/589	
		460-3-60	STD	NONE	—	—	37.2	50	39	231	43.4	50	46	243
				CRHEATER282A00	25.0	30.1	42.4	50	39	231	50.1	60	46	243
	CRHEATER283A00			50.0	60.1	64.9	70	73	231	72.6	80	81	243	
	CRHEATER284A00			75.0	90.2	95.0	100	108	231	102.7	110	115	243	
	MED		NONE	—	—	43.1	50	46	250	49.3	60	53	262	
			CRHEATER282A00	25.0	30.1	49.8	50	46	250	57.5	60	53	262	
			CRHEATER283A00	50.0	60.1	72.2	80	80	250	80.0	90	87	262	
			CRHEATER284A00	75.0	90.2	102.3	125	115	250	110.1	125	122	262	
	HIGH		NONE	—	—	47.3	60	50	287	53.5	60	58	299	
			CRHEATER282A00	25.0	30.1	54.8	60	50	287	62.5	70	58	299	
			CRHEATER283A00	50.0	60.1	77.2	90	85	287	85.0	90	92	299	
			CRHEATER284A00	75.0	90.2	107.3	125	119	287	115.1	125	127	299	
	SUPER		NONE	—	—	51.3	60	54	307	57.5	70	61	319	
			CRHEATER282A00	25.0	30.1	58.8	60	54	307	66.5	70	61	319	
			CRHEATER283A00	50.0	60.1	81.2	90	89	307	89.0	100	96	319	
			CRHEATER284A00	75.0	90.2	111.3	125	123	307	119.1	125	130	319	
	575-3-60		STD	NONE	—	—	31.8	40	34	182	36.6	45	39	190
				CRHEATER285A00	24.8	23.9	35.5	40	34	182	41.5	45	39	190
		CRHEATER286A00		49.6	47.7	65.3	70	60	182	71.3	80	66	190	
		CRHEATER287A00		74.4	71.6	77.2	90	88	182	83.2	90	93	190	
MED		NONE	—	—	34.5	40	37	194	39.3	45	42	202		
		CRHEATER285A00	24.8	23.9	38.9	40	37	194	44.9	45	42	202		
		CRHEATER286A00	49.6	47.7	68.6	70	63	194	74.6	80	69	202		
		CRHEATER287A00	74.4	71.6	80.6	90	91	194	86.6	90	96	202		
HIGH		NONE	—	—	36.2	45	39	221	41.0	50	44	229		
		CRHEATER285A00	24.8	23.9	41.0	45	39	221	47.0	50	44	229		
		CRHEATER286A00	49.6	47.7	70.8	80	65	221	76.8	80	71	229		
		CRHEATER287A00	74.4	71.6	82.7	90	93	221	88.7	90	98	229		
SUPER	NONE	—	—	40.5	50	43	232	45.3	50	48	240			
	CRHEATER285A00	24.8	23.9	45.6	50	43	232	51.6	60	48	240			
	CRHEATER286A00	49.6	47.7	75.4	80	69	232	81.4	90	75	240			
	CRHEATER287A00	74.4	71.6	87.4	100	97	232	93.4	100	102	240			

See Legend and Notes on page 76.

**UNIT WIRE SIZING DATA WITH FACTORY-INSTALLED HACR BREAKER (17.5 TONS, with POWERED C.O.)**

UNIT SIZE	NOM. V-PH-Hz	IFM TYPE	ELECTRIC HEATER			WITH PWRD C.O.								
			Part Number	Nom (kW)	FLA	NO P.E.				with P.E. (pwrd fr/unit)				
						MCA	HACR BRKR	DISC. SIZE		MCA	HACR BRKR	DISC. SIZE		
								FLA	LRA			FLA	LRA	
50LC*B20	208/230-3-60	STD	NONE	—	—	80.1/80.1	100/100	84/83	421	91.9/91.9	100/100	98/97	441	
			CRHEATER279A00	18.8/25.0	52.1/60.1	90.9/90.9	100/100	84/84	421/421	105.6/105.6	110/110	98/97	441/441	
			CRHEATER280A00	37.6/50.0	104.2/120.3	147.0/147.0	150/150	135/153	421/421	161.8/161.8	175/175	149/166	441/441	
			CRHEATER281A00	56.3/75.0	156.4/180.4	196.2/196.2	200/225	195/222	421/421	210.9/210.9	225/225	209/236	441/441	
		MED	NONE	—	—	92.7	100	99	460	104.5	125	112	480	
			CRHEATER279A00	18.8/25.0	52.1/60.1	107.6/107.6	110/110	99/99	460/460	122.4/122.4	125/125	112/113	480/480	
			CRHEATER280A00	37.6/50.0	104.2/120.3	162.8/162.8	175/175	150/168	460/460	177.5/177.5	200/200	163/182	480/480	
			CRHEATER281A00	56.3/75.0	156.4/180.4	212.9/212.9	225/250	210/237	460/460	227.7/227.7	250/250	223/251	480/480	
		HIGH	NONE	—	—	99.6	125	106	534	111.4	125	120	554	
			CRHEATER279A00	18.8/25.0	52.1/60.1	116.1/116.1	125/125	106/107	534/534	130.9/130.9	150/150	120/120	554/554	
			CRHEATER280A00	37.6/50.0	104.2/120.3	171.3/171.3	175/175	158/176	534/534	186.0/186.0	200/200	171/190	554/554	
			CRHEATER281A00	56.3/75.0	156.4/180.4	221.4/221.4	225/250	218/245	534/534	236.2/236.2	250/250	231/259	554/554	
		SUPER	NONE	—	—	111.2	125	117	574	123.0	150	131	594	
			CRHEATER279A00	18.8/25.0	52.1/60.1	127.8/127.8	150/150	117/118	574/574	142.5/142.5	150/150	131/131	594/594	
			CRHEATER280A00	37.6/50.0	104.2/120.3	182.9/182.9	200/200	168/187	574/574	197.6/197.6	200/200	182/200	594/594	
			CRHEATER281A00	56.3/75.0	156.4/180.4	233.0/233.0	250/250	228/256	574/574	247.8/247.8	250/300	242/269	594/594	
		460-3-60	STD	NONE	—	—	39.4	50	42	233	45.6	50	49	245
				CRHEATER282A00	25.0	30.1	45.1	50	42	233	52.9	60	49	245
				CRHEATER283A00	50.0	60.1	67.6	80	76	233	75.4	80	83	245
				CRHEATER284A00	75.0	90.2	97.7	100	111	233	105.5	110	118	245
			MED	NONE	—	—	45.3	50	48	252	51.5	60	56	264
				CRHEATER282A00	25.0	30.1	52.5	60	48	252	60.3	70	56	264
				CRHEATER283A00	50.0	60.1	75.0	80	83	252	82.7	90	90	264
				CRHEATER284A00	75.0	90.2	105.1	125	117	252	112.8	125	125	264
	HIGH		NONE	—	—	49.5	60	53	289	55.7	60	60	301	
			CRHEATER282A00	25.0	30.1	57.5	60	53	289	65.3	70	60	301	
			CRHEATER283A00	50.0	60.1	80.0	90	87	289	87.7	90	95	301	
			CRHEATER284A00	75.0	90.2	110.1	125	122	289	117.8	125	129	301	
	SUPER		NONE	—	—	53.5	60	57	309	59.7	70	64	321	
			CRHEATER282A00	25.0	30.1	61.5	70	57	309	69.3	70	64	321	
			CRHEATER283A00	50.0	60.1	84.0	100	91	309	91.7	100	98	321	
			CRHEATER284A00	75.0	90.2	114.1	125	126	309	121.8	125	133	321	
	575-3-60		STD	NONE	—	—	33.5	40	36	184	38.3	45	41	192
				CRHEATER285A00	24.8	23.9	37.6	40	36	184	43.6	45	41	192
				CRHEATER286A00	49.6	47.7	67.4	70	62	184	73.4	80	68	192
				CRHEATER287A00	74.4	71.6	79.4	90	89	184	85.4	90	95	192
			MED	NONE	—	—	36.2	45	39	196	41.0	50	44	204
				CRHEATER285A00	24.8	23.9	41.0	45	39	196	47.0	50	44	204
				CRHEATER286A00	49.6	47.7	70.8	80	65	196	76.8	80	71	204
				CRHEATER287A00	74.4	71.6	82.7	90	93	196	88.7	90	98	204
		HIGH	NONE	—	—	37.9	45	41	223	42.7	50	46	231	
			CRHEATER285A00	24.8	23.9	43.1	45	41	223	49.1	50	46	231	
			CRHEATER286A00	49.6	47.7	72.9	80	67	223	78.9	80	73	231	
			CRHEATER287A00	74.4	71.6	84.9	90	95	223	90.9	100	100	231	
		SUPER	NONE	—	—	42.2	50	45	234	47.0	60	50	242	
			CRHEATER285A00	24.8	23.9	47.8	50	45	234	53.8	60	50	242	
			CRHEATER286A00	49.6	47.7	77.5	80	71	234	83.5	90	77	242	
			CRHEATER287A00	74.4	71.6	89.5	100	99	234	95.5	100	104	242	

See Legend and Notes on page 76.

## UNIT WIRE SIZING DATA WITH FACTORY-INSTALLED HACR BREAKER (20 TONS, NO C.O.)

UNIT SIZE	NOM. V-PH-Hz	IFM TYPE	ELECTRIC HEATER			NO C.O. OR PWR C.O.								
			Part Number	Nom (kW)	FLA	NO P.E.				with P.E. (pwrd fr/unit)				
						MCA	HACR BRKR	DISC. SIZE		MCA	HACR BRKR	DISC. SIZE		
								FLA	LRA			FLA	LRA	
50LC* B24	208/230-3-60	STD	NONE	—	—	103.1	125	109	538	114.9	125	123	558	
			CRHEATER279A00	18.8/25.0	52.1/60.1	103.1/103.1	125/125	109/109	538/538	116.4/116.4	125/125	123/123	558/558	
			CRHEATER280A00	37.6/50.0	104.2/120.3	156.8/156.8	175/175	144/163	538/538	171.5/171.5	175/175	158/176	558/558	
			CRHEATER281A00	56.3/75.0	156.4/180.4	206.9/206.9	225/250	204/232	538/538	221.7/221.7	225/250	218/245	558/558	
		MED	NONE	—	—	103.1	125	109	538	114.9	125	123	558	
			CRHEATER279A00	18.8/25.0	52.1/60.1	103.1/103.1	125/125	109/109	538/538	116.4/116.4	125/125	123/123	558/558	
			CRHEATER280A00	37.6/50.0	104.2/120.3	156.8/156.8	175/175	144/163	538/538	171.5/171.5	175/175	158/176	558/558	
			CRHEATER281A00	56.3/75.0	156.4/180.4	206.9/206.9	225/250	204/232	538/538	221.7/221.7	225/250	218/245	558/558	
		HIGH	NONE	—	—	109.9	125	117	612	121.7	150	130	632	
			CRHEATER279A00	18.8/25.0	52.1/60.1	110.1/110.1	125/125	117/117	612/612	124.9/124.9	150/150	130/130	632/632	
			CRHEATER280A00	37.6/50.0	104.2/120.3	165.3/165.3	175/175	152/171	612/612	180.0/180.0	200/200	166/184	632/632	
			CRHEATER281A00	56.3/75.0	156.4/180.4	215.4/215.4	225/250	212/240	612/612	230.2/230.2	250/250	226/253	632/632	
		SUPER	NONE	—	—	120.2	150	128	652	132.0	150	141	672	
			CRHEATER279A00	18.8/25.0	52.1/60.1	121.8/121.8	150/150	128/128	652/652	136.5/136.5	150/150	141/141	672/672	
			CRHEATER280A00	37.6/50.0	104.2/120.3	176.9/176.9	200/200	163/181	652/652	191.6/191.6	200/200	176/195	672/672	
			CRHEATER281A00	56.3/75.0	156.4/180.4	227.0/227.0	250/250	223/250	652/652	241.8/241.8	250/250	236/264	672/672	
		460-3-60	STD	NONE	—	—	56.6	70	60	278	62.8	80	67	290
				CRHEATER282A00	25.0	30.1	56.6	70	60	278	62.8	80	67	290
	CRHEATER283A00			50.0	60.1	72.2	80	80	278	80.0	90	87	290	
	CRHEATER284A00			75.0	90.2	102.3	125	115	278	110.1	125	122	290	
	MED		NONE	—	—	56.6	70	60	278	62.8	80	67	290	
			CRHEATER282A00	25.0	30.1	56.6	70	60	278	62.8	80	67	290	
			CRHEATER283A00	50.0	60.1	72.2	80	80	278	80.0	90	87	290	
			CRHEATER284A00	75.0	90.2	102.3	125	115	278	110.1	125	122	290	
	HIGH		NONE	—	—	60.6	70	65	315	66.8	80	72	327	
			CRHEATER282A00	25.0	30.1	60.6	70	65	315	66.8	80	72	327	
			CRHEATER283A00	50.0	60.1	77.2	90	85	315	85.0	90	92	327	
			CRHEATER284A00	75.0	90.2	107.3	125	119	315	115.1	125	127	327	
	SUPER		NONE	—	—	63.8	80	68	335	70.0	80	75	347	
			CRHEATER282A00	25.0	30.1	63.8	80	68	335	70.0	80	75	347	
			CRHEATER283A00	50.0	60.1	81.2	90	89	335	89.0	100	96	347	
			CRHEATER284A00	75.0	90.2	111.3	125	123	335	119.1	125	130	347	
	575-3-60		STD	NONE	—	—	45.0	50	48	206	49.8	60	54	214
				CRHEATER285A00	24.8	23.9	45.0	50	48	206	49.8	60	54	214
		CRHEATER286A00		49.6	47.7	68.6	70	63	206	74.6	80	69	214	
		CRHEATER287A00		74.4	71.6	80.6	90	91	206	86.6	90	96	214	
MED		NONE	—	—	45.0	50	48	206	49.8	60	54	214		
		CRHEATER285A00	24.8	23.9	45.0	50	48	206	49.8	60	54	214		
		CRHEATER286A00	49.6	47.7	68.6	70	63	206	74.6	80	69	214		
		CRHEATER287A00	74.4	71.6	80.6	90	91	206	86.6	90	96	214		
HIGH		NONE	—	—	46.7	50	50	233	51.5	60	56	241		
		CRHEATER285A00	24.8	23.9	46.7	50	50	233	51.5	60	56	241		
		CRHEATER286A00	49.6	47.7	70.8	80	65	233	76.8	80	71	241		
		CRHEATER287A00	74.4	71.6	82.7	90	93	233	88.7	90	98	241		
SUPER		NONE	—	—	50.4	60	54	244	55.2	60	60	252		
		CRHEATER285A00	24.8	23.9	50.4	60	54	244	55.2	60	60	252		
		CRHEATER286A00	49.6	47.7	75.4	80	69	244	81.4	90	75	252		
		CRHEATER287A00	74.4	71.6	87.4	100	97	244	93.4	100	102	252		

See Legend and Notes on page 76.

**UNIT WIRE SIZING DATA WITH FACTORY-INSTALLED HACR BREAKER (20 TONS, with POWERED C.O.)**

UNIT SIZE	NOM. V-PH-Hz	IFM TYPE	ELECTRIC HEATER			WITH PWRD C.O.								
			Part Number	Nom (kW)	FLA	NO P.E.				with P.E. (pwrd fr/unit)				
						MCA	HACR BRKR	DISC. SIZE		MCA	HACR BRKR	DISC. SIZE		
								FLA	LRA			FLA	LRA	
50LC* B24	208/230-3-60	STD	NONE	—	—	107.9	125	115	543	119.7	150	128	563	
			CRHEATER279A00	18.8/25.0	52.1/60.1	107.9/107.9	125/125	115/115	543/543	122.4/122.4	150/150	128/128	563/563	
			CRHEATER280A00	37.6/50.0	104.2/120.3	162.8/162.8	175/175	150/168	543/543	177.5/177.5	200/200	163/182	563/563	
			CRHEATER281A00	56.3/75.0	156.4/180.4	212.9/212.9	225/250	210/237	543/543	227.7/227.7	250/250	223/251	563/563	
		MED	NONE	—	—	107.9	125	115	543	119.7	150	128	563	
			CRHEATER279A00	18.8/25.0	52.1/60.1	107.9/107.9	125/125	115/115	543/543	122.4/122.4	150/150	128/128	563/563	
			CRHEATER280A00	37.6/50.0	104.2/120.3	162.8/162.8	175/175	150/168	543/543	177.5/177.5	200/200	163/182	563/563	
			CRHEATER281A00	56.3/75.0	156.4/180.4	212.9/212.9	225/250	210/237	543/543	227.7/227.7	250/250	223/251	563/563	
		HIGH	NONE	—	—	114.7	125	122	617	126.5	150	136	637	
			CRHEATER279A00	18.8/25.0	52.1/60.1	116.1/116.1	125/125	122/122	617/617	130.9/130.9	150/150	136/136	637/637	
			CRHEATER280A00	37.6/50.0	104.2/120.3	171.3/171.3	175/175	158/176	617/617	186.0/186.0	200/200	171/190	637/637	
			CRHEATER281A00	56.3/75.0	156.4/180.4	221.4/221.4	225/250	218/245	617/617	236.2/236.2	250/250	231/259	637/637	
		SUPER	NONE	—	—	125.0	150	133	657	136.8	150	147	677	
			CRHEATER279A00	18.8/25.0	52.1/60.1	127.8/127.8	150/150	133/133	657/657	142.5/142.5	150/150	147/147	677/677	
			CRHEATER280A00	37.6/50.0	104.2/120.3	182.9/182.9	200/200	168/187	657/657	197.6/197.6	200/200	182/200	677/677	
			CRHEATER281A00	56.3/75.0	156.4/180.4	233.0/233.0	250/250	228/256	657/657	247.8/247.8	250/300	242/269	677/677	
		460-3-60	STD	NONE	—	—	58.8	70	62	280	65.0	80	70	292
				CRHEATER282A00	25.0	30.1	58.8	70	62	280	65.0	80	70	292
	CRHEATER283A00			50.0	60.1	75.0	80	83	280	82.7	90	90	292	
	CRHEATER284A00			75.0	90.2	105.1	125	117	280	112.8	125	125	292	
	MED		NONE	—	—	58.8	70	62	280	65.0	80	70	292	
			CRHEATER282A00	25.0	30.1	58.8	70	62	280	65.0	80	70	292	
			CRHEATER283A00	50.0	60.1	75.0	80	83	280	82.7	90	90	292	
			CRHEATER284A00	75.0	90.2	105.1	125	117	280	112.8	125	125	292	
	HIGH		NONE	—	—	62.8	80	67	317	69.0	80	74	329	
			CRHEATER282A00	25.0	30.1	62.8	80	67	317	69.0	80	74	329	
			CRHEATER283A00	50.0	60.1	80.0	90	87	317	87.7	90	95	329	
			CRHEATER284A00	75.0	90.2	110.1	125	122	317	117.8	125	129	329	
	SUPER		NONE	—	—	66.0	80	71	337	72.2	90	78	349	
			CRHEATER282A00	25.0	30.1	66.0	80	71	337	72.2	90	78	349	
			CRHEATER283A00	50.0	60.1	84.0	100	91	337	91.7	100	98	349	
			CRHEATER284A00	75.0	90.2	114.1	125	126	337	121.8	125	133	349	
	575-3-60		STD	NONE	—	—	46.7	50	50	208	51.5	60	56	216
				CRHEATER285A00	24.8	23.9	46.7	50	50	208	51.5	60	56	216
		CRHEATER286A00		49.6	47.7	70.8	80	65	208	76.8	80	71	216	
		CRHEATER287A00		74.4	71.6	82.7	90	93	208	88.7	90	98	216	
MED		NONE	—	—	46.7	50	50	208	51.5	60	56	216		
		CRHEATER285A00	24.8	23.9	46.7	50	50	208	51.5	60	56	216		
		CRHEATER286A00	49.6	47.7	70.8	80	65	208	76.8	80	71	216		
		CRHEATER287A00	74.4	71.6	82.7	90	93	208	88.7	90	98	216		
HIGH		NONE	—	—	48.4	60	52	235	53.2	60	58	243		
		CRHEATER285A00	24.8	23.9	48.4	60	52	235	53.2	60	58	243		
		CRHEATER286A00	49.6	47.7	72.9	80	67	235	78.9	80	73	243		
		CRHEATER287A00	74.4	71.6	84.9	90	95	235	90.9	100	100	243		
SUPER	NONE	—	—	52.1	60	56	246	56.9	70	62	254			
	CRHEATER285A00	24.8	23.9	52.1	60	56	246	56.9	70	62	254			
	CRHEATER286A00	49.6	47.7	77.5	80	71	246	83.5	90	77	254			
	CRHEATER287A00	74.4	71.6	89.5	100	99	246	95.5	100	104	254			

See Legend and Notes on page 76.

# Electrical data (cont)



## UNIT WIRE SIZING DATA WITH FACTORY-INSTALLED HACR BREAKER (23 TONS, NO C.O.)

UNIT SIZE	NOM. V-PH-Hz	IFM TYPE	ELECTRIC HEATER			NO C.O. OR PWR C.O.							
			Part Number	Nom (kW)	FLA	NO P.E.				with P.E. (pwrd fr/unit)			
						MCA	HACR BRKR	DISC. SIZE		MCA	HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
50LC*B26	208/230-3-60	STD	NONE	—	—	126.1	175	130	629	137.9	175	144	649
			CRHEATER279A00	18.8/25.0	52.1/60.1	126.1/126.1	175/175	130/130	629/629	137.9/137.9	175/175	144/144	649/649
			CRHEATER280A00	37.6/50.0	104.2/120.3	156.8/156.8	175/175	144/163	629/629	171.5/171.5	175/175	158/176	649/649
			CRHEATER281A00	56.3/75.0	156.4/180.4	206.9/206.9	225/250	204/232	629/629	221.7/221.7	225/250	218/245	649/649
		MED	NONE	—	—	132.9	175	138	703	144.7	175	152	723
			CRHEATER279A00	18.8/25.0	52.1/60.1	132.9/132.9	175/175	138/138	703/703	144.7/144.7	175/175	152/152	723/723
			CRHEATER280A00	37.6/50.0	104.2/120.3	165.3/165.3	175/175	152/171	703/703	180.0/180.0	200/200	166/184	723/723
			CRHEATER281A00	56.3/75.0	156.4/180.4	215.4/215.4	225/250	212/240	703/703	230.2/230.2	250/250	226/253	723/723
		HIGH	NONE	—	—	142.2	175	149	743	154.0	200	162	763
			CRHEATER279A00	18.8/25.0	52.1/60.1	142.2/142.2	175/175	149/149	743/743	154.0/154.0	200/200	162/162	763/763
			CRHEATER280A00	37.6/50.0	104.2/120.3	176.9/176.9	200/200	163/181	743/743	191.6/191.6	200/200	176/195	763/763
			CRHEATER281A00	56.3/75.0	156.4/180.4	227.0/227.0	250/250	223/250	743/743	241.8/241.8	250/250	236/264	763/763
	460-3-60	STD	NONE	—	—	64.9	80	68	322	71.1	90	75	334
			CRHEATER282A00	25.0	30.1	64.9	80	68	322	71.1	90	75	334
			CRHEATER283A00	50.0	60.1	72.2	80	80	322	80.0	90	87	334
			CRHEATER284A00	75.0	90.2	102.3	125	115	322	110.1	125	122	334
		MED	NONE	—	—	68.9	90	73	359	75.1	90	80	371
			CRHEATER282A00	25.0	30.1	68.9	90	73	359	75.1	90	80	371
			CRHEATER283A00	50.0	60.1	77.2	90	85	359	85.0	90	92	371
			CRHEATER284A00	75.0	90.2	107.3	125	119	359	115.1	125	127	371
		HIGH	NONE	—	—	72.1	90	76	379	78.3	100	83	391
			CRHEATER282A00	25.0	30.1	72.1	90	76	379	78.3	100	83	391
			CRHEATER283A00	50.0	60.1	81.2	90	89	379	89.0	100	96	391
			CRHEATER284A00	75.0	90.2	111.3	125	123	379	119.1	125	130	391
575-3-60	STD	NONE	—	—	53.9	60	56	235	58.7	70	62	243	
		CRHEATER285A00	24.8	23.9	53.9	60	56	235	58.7	70	62	243	
		CRHEATER286A00	49.6	47.7	68.6	70	63	235	74.6	80	69	243	
		CRHEATER287A00	74.4	71.6	80.6	90	91	235	86.6	90	96	243	
	MED	NONE	—	—	55.6	70	58	262	60.4	80	64	270	
		CRHEATER285A00	24.8	23.9	55.6	70	58	262	60.4	80	64	270	
		CRHEATER286A00	49.6	47.7	70.8	80	65	262	76.8	80	71	270	
		CRHEATER287A00	74.4	71.6	82.7	90	93	262	88.7	90	98	270	
	HIGH	NONE	—	—	59.3	70	62	273	64.1	80	68	281	
		CRHEATER285A00	24.8	23.9	59.3	70	62	273	64.1	80	68	281	
		CRHEATER286A00	49.6	47.7	75.4	80	69	273	81.4	90	75	281	
		CRHEATER287A00	74.4	71.6	87.4	100	97	273	93.4	100	102	281	

See Legend and Notes on page 76.

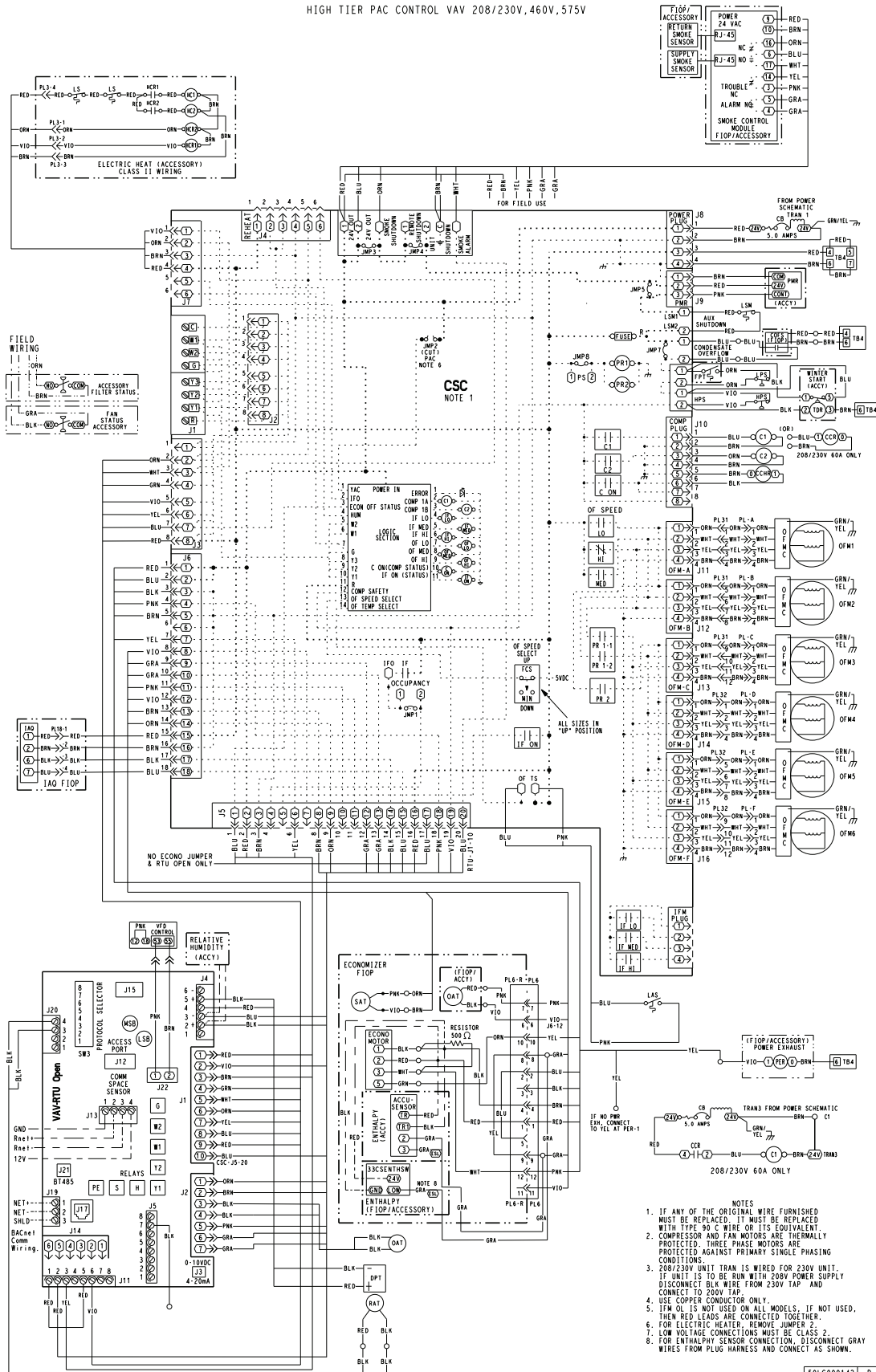
**UNIT WIRE SIZING DATA WITH FACTORY-INSTALLED HACR BREAKER (23 TONS, with POWERED C.O.)**

UNIT SIZE	NOM. V-PH-Hz	IFM TYPE	ELECTRIC HEATER			WITH PWRD C.O.							
			Part Number	Nom (kW)	FLA	NO P.E.				with P.E. (pwrd fr/unit)			
						MCA	HACR BRKR	DISC. SIZE		MCA	HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
50LC*B26	208/230-3-60	STD	NONE	—	—	130.9	175	136	634	142.7	175	149	654
			CRHEATER279A00	18.8/25.0	52.1/60.1	130.9/130.9	175/175	136/136	634/634	142.7/142.7	175/175	149/149	654/654
			CRHEATER280A00	37.6/50.0	104.2/120.3	162.8/162.8	175/175	150/168	634/634	177.5/177.5	200/200	163/182	654/654
			CRHEATER281A00	56.3/75.0	156.4/180.4	212.9/212.9	225/250	210/237	634/634	227.7/227.7	250/250	223/251	654/654
		MED	NONE	—	—	137.7	175	144	708	149.5	200	157	728
			CRHEATER279A00	18.8/25.0	52.1/60.1	137.7/137.7	175/175	144/144	708/708	149.5/149.5	200/200	157/157	728/728
			CRHEATER280A00	37.6/50.0	104.2/120.3	171.3/171.3	175/175	158/176	708/708	186.0/186.0	200/200	171/190	728/728
			CRHEATER281A00	56.3/75.0	156.4/180.4	221.4/221.4	225/250	218/245	708/708	236.2/236.2	250/250	231/259	728/728
		HIGH	NONE	—	—	147.0	175	154	748	158.8	200	168	768
			CRHEATER279A00	18.8/25.0	52.1/60.1	147.0/147.0	175/175	154/154	748/748	158.8/158.8	200/200	168/168	768/768
			CRHEATER280A00	37.6/50.0	104.2/120.3	182.9/182.9	200/200	168/187	748/748	197.6/197.6	200/200	182/200	768/768
			CRHEATER281A00	56.3/75.0	156.4/180.4	233.0/233.0	250/250	228/256	748/748	247.8/247.8	250/300	242/269	768/768
	460-3-60	STD	NONE	—	—	67.1	90	70	324	73.3	90	78	336
			CRHEATER282A00	25.0	30.1	67.1	90	70	324	73.3	90	78	336
			CRHEATER283A00	50.0	60.1	75.0	90	83	324	82.7	90	90	336
			CRHEATER284A00	75.0	90.2	105.1	125	117	324	112.8	125	125	336
		MED	NONE	—	—	71.1	90	75	361	77.3	100	82	373
			CRHEATER282A00	25.0	30.1	71.1	90	75	361	77.3	100	82	373
			CRHEATER283A00	50.0	60.1	80.0	90	87	361	87.7	100	95	373
			CRHEATER284A00	75.0	90.2	110.1	125	122	361	117.8	125	129	373
		HIGH	NONE	—	—	74.3	90	79	381	80.5	100	86	393
			CRHEATER282A00	25.0	30.1	74.3	90	79	381	80.5	100	86	393
			CRHEATER283A00	50.0	60.1	84.0	100	91	381	91.7	100	98	393
			CRHEATER284A00	75.0	90.2	114.1	125	126	381	121.8	125	133	393
575-3-60	STD	NONE	—	—	55.6	70	58	237	60.4	80	64	245	
		CRHEATER285A00	24.8	23.9	55.6	70	58	237	60.4	80	64	245	
		CRHEATER286A00	49.6	47.7	70.8	80	65	237	76.8	80	71	245	
		CRHEATER287A00	74.4	71.6	82.7	90	93	237	88.7	90	98	245	
	MED	NONE	—	—	57.3	70	60	264	62.1	80	66	272	
		CRHEATER285A00	24.8	23.9	57.3	70	60	264	62.1	80	66	272	
		CRHEATER286A00	49.6	47.7	72.9	80	67	264	78.9	80	73	272	
		CRHEATER287A00	74.4	71.6	84.9	90	95	264	90.9	100	100	272	
	HIGH	NONE	—	—	61.0	80	64	275	65.8	80	70	283	
		CRHEATER285A00	24.8	23.9	61.0	80	64	275	65.8	80	70	283	
		CRHEATER286A00	49.6	47.7	77.5	80	71	275	83.5	90	77	283	
		CRHEATER287A00	74.4	71.6	89.5	100	99	275	95.5	100	104	283	

See Legend and Notes on page 76.

## 50LC\*B14-26 VAV-RTU OPEN CONTROL WIRING DIAGRAM

HIGH TIER PAC CONTROL VAV 208/230V, 460V, 575V



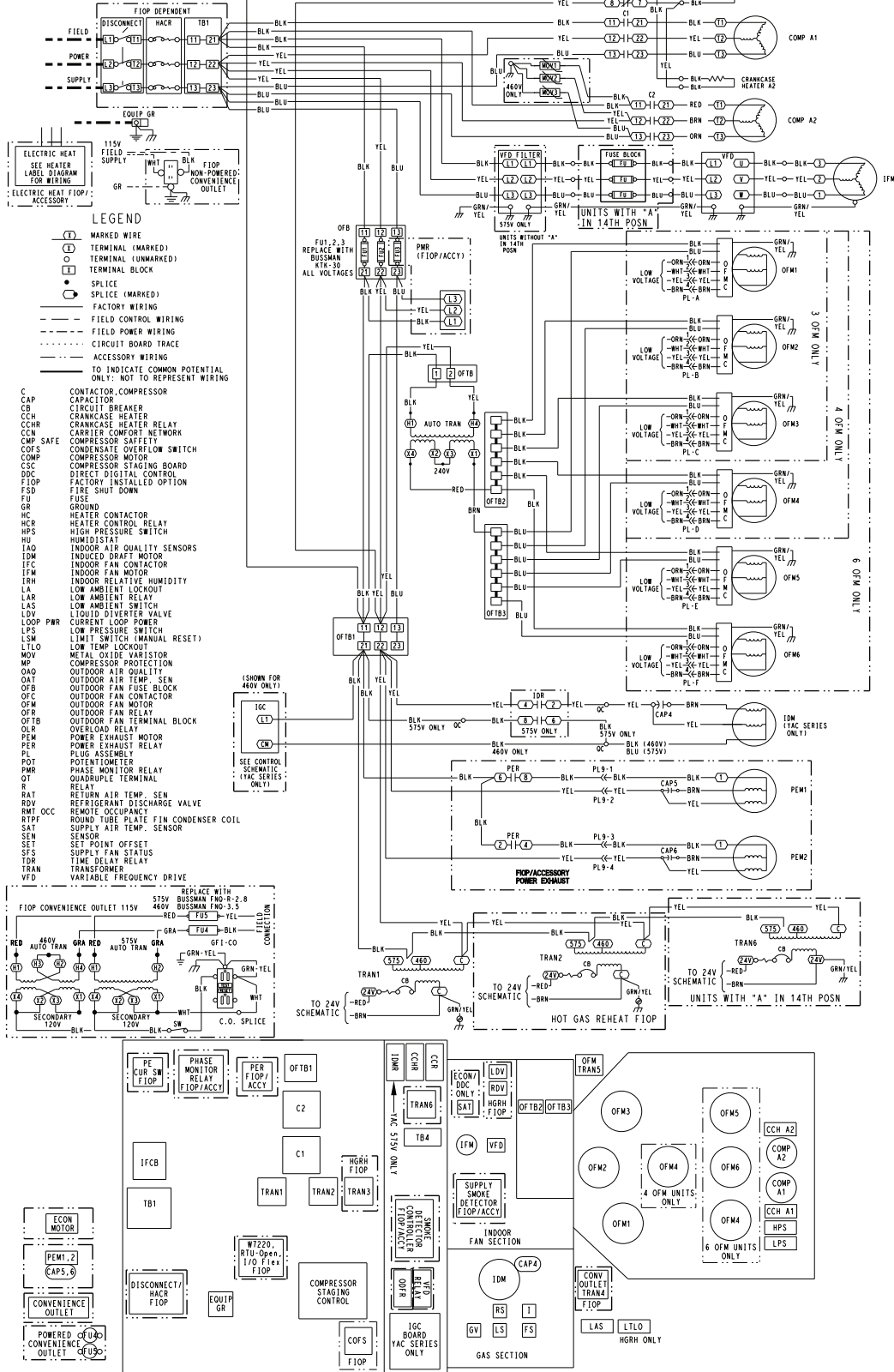
- NOTES
1. IF ANY OF THE ORIGINAL WIRE FURNISHED MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE 90 C WIRE OR ITS EQUIVALENT.
  2. COMPRESSOR AND FAN MOTORS ARE THERMALLY PROTECTED. THREE PHASE MOTORS ARE PROTECTED AGAINST PRIMARY SINGLE PHASING CONDITIONS.
  3. 208/230V UNIT TRANS IS WIRED FOR 230V UNIT. IF UNIT IS TO BE RUN WITH 208V POWER SUPPLY DISCONNECT BLK WIRE FROM 230V TAP AND CONNECT TO 200V TAP.
  4. USE COPPER CONDUCTOR ONLY.
  5. IFM OL IS NOT USED ON ALL MODELS. IF NOT USED, THEN RED LEADS ARE CONNECTED TOGETHER.
  6. FOR ELECTRIC HEATER, REMOVE JUMPER 2.
  7. LOW VOLTAGE CONNECTIONS MUST BE CLASS 2.
  8. FOR ENTHALPHY SENSOR CONNECTION, DISCONNECT GRAY WIRES FROM PLUG HARNESS AND CONNECT AS SHOWN.

50LC000142 D



### 50LC\*B14-26 POWER WIRING DIAGRAM

12.5 - 22.5 TON YAC, PAC POWER 460, 575V 3 PH  
WITH/WITHOUT HOT GAS REHEAT FIOF



50LC500533 F

## VAV-RTU Open

The VAV-RTU Open control is designed to provide VAV system operation when using a 50LC\*B chassis small packaged rooftop and Carrier i-Vu® Open VAV terminal controls. Functionality includes:

- Duct Static Pressure Control (with optional Reset function)
- Supply Air Temperature Control (with optional Reset function)
- Morning Warm-up Cycle
- Occupied Heating (available)
- Heating and Cooling Setpoint Separation
- Economizer Cooling Cycle
- Mechanical Cooling Cycle
- Integrated Cooling Cycle
- Minimum Ventilation
- Unoccupied Free Cooling
- Supply Air Tempering
- Demand Controlled Ventilation [DCV]
- Open Airside Linkage
- Field Test/Commissioning

### Duct Static Pressure Control (with optional Reset function)

The supply fan VFD will be controlled using a PID and an analog input from a duct static pressure transducer. The supply fan will modulate its speed to maintain the desired duct static pressure setpoint.

### Supply Air Temperature Control (with optional Reset function)

The control will maintain the desired supply air temperature setpoint whenever cooling is required. A user configurable setpoint will be provided (default 53°F). The control will use the appropriate method (economizer cooling, mechanical cooling, or a combination of both) to achieve this setpoint whenever the zone temperature is greater than the current cooling setpoint (occupied or unoccupied). If Supply Air Reset is enabled, the reset algorithm will calculate a proportional reset value between the Occupied Cooling setpoint and 1°F above the Occupied Heating setpoint. The amount of reset (reset ratio and maximum reset limit value) is user configurable.

### Morning Warm-up

The control will provide a Morning Warm-up cycle the first time if transition from unoccupied to occupied and if the heating is required and the unit goes into heating immediately. Whenever the unit enters the heating mode, before any heat stage is enabled, the control will provide a Linkage mode to the system that will cause the terminals to maintain sufficient airflow. The Linkage mode of Warm-up (2) will be sent to the terminal system to ensure sufficient airflow while in the heating mode but also providing a controlled warm-up cycle to prevent overheating of some zones. As a safety measure, should the heating cycle continue and the SAT approach the “Maximum Heating SAT” limit, the Linkage mode sent will change to Pressurization (6) to ensure all terminals open to their maximum airflow. The Linkage mode will remain as Pressurization until that heating cycle ends. Once the heating demand is met and the heat cycle is completed or if cooling is required, heating will be locked out until the beginning of the next occupied period.

## Occupied Heating

Optionally, the user may enable occupied heating, which will allow heating whenever heating is needed during the occupied period. The cycle will operate exactly the same as Morning Warm-up above, except it will not be limited by the transition into an occupied period.

## Heating and Cooling Setpoint Separation

By default, the control will maintain a 5°F (configurable) separation between the heating and cooling setpoints. This will prevent the unit from prematurely entering the opposite mode.

## Economizer Cooling Cycle

The VAV-RTU Open provides variable supply airflow to the VAV system and maintain constant minimum ventilation. As the supply airflow changes, the economizer minimum position is adjusted to provide a constant amount of outdoor air. The control will provide the ability to utilize outdoor air for maintaining the supply air setpoint should the outdoor air be suitable. The economizer control will utilize an OAT temperature check, a RAT temperature check if RAT is available or a SPT temperature check comparison and optionally, an OA enthalpy check to determine if OA conditions are suitable for economizing. Economizer operation, if available, will begin whenever cooling is required. The economizer will modulate the position of the OA damper to maintain the desired calculated economizer setpoint. The economizer will be controlled to meet CEC Title 24 requirements so that it will remain open 100% during integrated cooling and only partially close if required. The VAV-RTU Open also provides FDD (Fault Detection and Diagnostics) for economizer operation. The FDD logic will detect an economizer that fails to close, fails to open, is stuck fully open, and fails to fully open. Each condition will cause an Economizer Operation alarm to occur and the specific fault condition will be displayed.

## Mechanical Cooling Cycle

The control will operate three stages of mechanical cooling in order to maintain the desired supply air temperature whenever economizer cooling operation is unavailable but cooling is required. This condition will be determined if the OA has high enthalpy or at a temperature above the Economizer Lockout temperature. The two compressors will be staged in a binary fashion so that three stages of cooling are provided. Mechanical cooling stages will be added as required to meet the desired SA setpoint. The number of stages will depend on the return air conditions and the system load (airflow through the coil). Stages will be added or dropped as required to maintain the setpoint while also maintaining the minimum on time and minimum off time for compressor operation. Anytime the SA falls below the desired SA setpoint, stages will be dropped until only stage 1 is operating. At that point, should the SA fall below 45°F (7°C), the economizer will modulate to increase the amount of outdoor air in order to maintain this minimum SA temperature. Should the economizer reach the maximum OA position and if the SA is still below the minimum SA temperature, the first cooling stage will be disabled and the economizer will return to the minimum position.

## Integrated Cooling Cycle

If economizer cooling operation is insufficient to maintain the desired SA setpoint, mechanical cooling will be activated to supplement the free economizer cooling. This condition will be determined if the OA has low enthalpy but is at a temperature at least 5°F above the desired SA setpoint and below the Economizer Lockout temperature. Mechanical cooling stages will be added as required to meet the desired SA setpoint. The number of stages will depend on the return air conditions and the system load (airflow through the coil). Stages will be added or dropped as required to maintain the setpoint while also maintaining the minimum on time and minimum off time for compressor operation. Anytime the SA falls below the desired SA setpoint, stages will be dropped until only stage 1 is operating. At that point, should the SA fall below the minimum SA temperature, the economizer will modulate to increase the amount of return air in order to maintain this minimum SA temperature. Should the economizer reach the minimum OA position and if the SA is still below the minimum SA temperature, the first cooling stage will be disabled.

## Minimum Ventilation

The economizer minimum position will be adjusted as required based on the supply fan speed. Two user configurable minimum economizer positions will be provided. The economizer will be positioned at the “Low Fan Econ Min Pos” when the fan is operating at its slowest speed. When the fan is operating at its maximum speed, the economizer will be positioned at the “Vent Dmpr Pos / DCV Min Pos”. For any supply fan speed between these two points, the economizer minimum position will be calculated proportionally.

## Unoccupied Free Cooling

Unoccupied Free Cooling allows the rooftop with the economizer damper to use outdoor air for free cooling during unoccupied periods.

When the VAV-RTU Open is unoccupied and the space temperature rises at least 2°F above the Occupied Cooling Setpoint, the supply fan starts. The economizer damper opens as necessary to maintain the Supply Air Setpoint and cool the space. The VAV-RTU Open continues to operate in this mode until the space temperature drops to 1°F below the Occupied Cooling Setpoint or the outside air conditions are no longer suitable for free cooling.

## Demand Controlled Ventilation [DCV]

Whenever the unit is in an occupied mode and “DCV Control” is set to enable, a unique economizer minimum position will be calculated based on the output of the DCV algorithm. The algorithm monitors the CO<sub>2</sub> sensor value and compares that value to the user-defined setpoint. A control algorithm calculates the required minimum economizer position required to satisfy the ventilation requirements of the space. A user-adjustable DCV Max Vent Damper Position is provided to limit the maximum amount of outdoor air that can be brought into the unit due to the DCV algorithm. Demand Controlled Ventilation can be used in either a differential mode where both the indoor air and outdoor air CO<sub>2</sub> levels are provided to the control or it may be used in a single indoor air mode with only the

indoor air CO<sub>2</sub> level. In the latter case, the outdoor air CO<sub>2</sub> level is assumed at 400 ppm.

## Supply Air Tempering

The VAV-RTU Open provides the capability to operate the optional electric heat, if equipped, to maintain a minimum supply air temperature during conditions where very cold outdoor air causes the supply air temperature to fall below the configured Supply Air (SA) Tempering Setpoint. This occurs during periods where DCV is active and increasing the amount of outdoor air or in cases where the system is operating at very low airflow and the calculated economizer position has increased to maintain a constant ventilation rate.

Heat operation is subject to anti-recycle timers to protect the equipment from short-cycling. There are fixed application specific minimum on and off times for each heating output (15 seconds on and 10 seconds off).

## Open Airside Linkage

The control will support Airside Linkage to accommodate system operation using Carrier VAV terminal controls. The VAV-RTU Open will receive zone information (occupancy status, occupied and unoccupied zone temperatures, occupied and unoccupied heating and cooling setpoints, zone CO<sub>2</sub> level for DCV, and zone RH level). The VAV-RTU Open will operate in the mode required to satisfy the zones. Airside Linkage will provide operating mode information to the zones so that the system operation is fully coordinated between the rooftop and the terminal zones. The VAV air terminals offer a minimum airflow setting in AHU heating mode. This shall be configured to maintain the required airflow (CFM) whenever the VAV RTU is in a heating mode per the unit’s specification. The VAV terminals will recognize the Heating or Warm-up modes as a heat mode and utilize the higher airflow minimum setpoint as configured. For heating cycles, initially utilize the Linkage Morning Warm-Up mode to open dampers on all zones below the midpoint of the occupied heating and cooling setpoints. This provides a controlled heat cycle and prevents the overheating of random zones where heating may not be required. Any zone below this middle setpoint will have its airflow at the maximum value. Further monitor the SAT of the VAV RTU to determine if the SAT is approaching the configured maximum limit. As the limit is approached, the Linkage mode is changed to Linkage Pressurization to ensure all terminals open to their maximum airflow.

## Field Test/Commissioning

The control will provide BACnet test points to activate specific test modes that can be used to commission the rooftop and the system. Test modes will be available in the Service Test screen on the Property pages and shall also be available on the local Equipment Touch device for stand-alone commissioning. Tests include: Fan Test, Low Heat Test, High Heat Test, Cooling Test, Power Exhaust Test, and an Economizer Test. When any test is active, the appropriate Linkage mode will be sent to the system’s terminals. This will ensure appropriate system operation and airflow during any test mode.

## Min operating ambient temp (cooling):

In mechanical cooling mode, your Carrier rooftop can safely operate down to an outdoor ambient temperature of 45°F (7°C).

An economizer shall be the source of cooling in low ambient conditions. When the outside air temperature is below 45°F (7°C), to improve system reliability, reduce energy usage, and improve system efficiency: mechanical cooling shall not be utilized. Therefore, an economizer shall be used in these conditions to provide efficient low ambient cooling. Using an economizer for low ambient cooling merely requires fan energy to satisfy space requirements. The compressors shall not be required to run, which will provide exceptional energy savings due to less power draw, improved system reliability due to fewer compressor run hours, improved reliability through fewer starts/stops, and lower life cycle costs due to reduced compressor maintenance.

## Max operating ambient temp (cooling):

The maximum operating ambient temperature for cooling mode is 125°F (52°C). While cooling operation above 125°F (52°C) may be possible, it could cause either a reduction in performance, reliability, or a protective action by the unit's internal safety devices.

## Min and max airflow (heating and cooling):

To maintain safe and reliable operation of your rooftop, operate within the heating airflow limits during heating mode and cooling airflow limits during cooling mode. Operating above the maximum may cause blow-off, undesired airflow noise, or airflow related problems with the rooftop unit. Operating below the minimum may cause problems with coil freeze-up and unsafe heating operation. For proper minimum and maximum cfm values, see the tables on page 8.

## Airflow:

All units are draw-through in cooling mode.

## Outdoor air application strategies:

Economizers reduce operating expenses and compressor run time by providing a free source of cooling and a means of ventilation to match application changing needs. Consider the various economizer control methods and their benefits, as well as sensors required to accomplish your application goals. Please contact your local Carrier representative for assistance.

## Motor limits, break horsepower (BHP):

Due to Carrier's internal unit design, air path, and specially designed motors, the full horsepower (maximum continuous BHP) band, as listed in the Physical Data table on page 9, can be used with the utmost confidence. There is no need for extra safety factors, as Carrier's motors are designed and rigorously tested to use the entire, listed BHP range without either nuisance tripping or premature motor failure.

## Sizing a rooftop

Bigger isn't necessarily better. While an air conditioner needs to have enough capacity to meet the load, it doesn't need excess capacity. In fact, having excess capacity typically results in very poor part load performance and humidity control.

Using higher design temperatures than ASHRAE recommends for your location, adding "safety factors" to the calculated load, and rounding up to the next largest unit are all signs of oversizing air conditioners. Oversizing can cause short-cycling, and short cycling leads to poor humidity control, reduced efficiency, higher utility bills, drastic indoor temperature swings, excessive noise, and increased wear and tear on the air conditioner.

Rather than oversizing an air conditioner, wise contractors and engineers "right-size" or even slightly undersize air conditioners. Correctly sizing an air conditioner controls humidity better; promotes efficiency; reduces utility bills; extends equipment life, and maintains even, comfortable temperatures.

## SYSTEM OVERVIEW

	STANDALONE NO BAS	CARRIER I-VU® BAS	THIRD PARTY BAS
VAV-RTU Open Controller Accessible points	X	X	Limited (see Controls, Start-up, Operation and Troubleshooting manual)
Average Space Temperature	X	X	X
Supply Air Temperature	X	X	X
Return Air Temperature	Monitor only	Monitor only	Monitor only
Duct Static Pressure	X	X	X
Zone Setpoints	X	X	n/a
i-Vu VAV Zone space/CO <sub>2</sub> /RH	X	X	n/a
System Touch	X	X	n/a
Equipment Touch	X	X	n/a

Note about this specification:

This specification is in the “Masterformat” as published by the Construction Specification Institute. Please feel free to copy this specification directly into your building spec.

## **WeatherExpert® Ultra High Efficient Cooling Only/Electric Heat Packaged Variable Air Volume (VAV) Rooftop**

HVAC Guide Specifications:

Size Range: 12.5 to 23 Nominal Tons

### **Part 1 — 23 06 80 Schedules for Packaged VAV HVAC Equipment**

1.01 23 06 80.13 Unitary Packaged VAV HVAC Equipment Schedule

A. 23 06 80.13.A. Rooftop unit schedule

1. Schedule is per the project specification requirements.

### **Part 2 — 23 07 16 HVAC Equipment Insulation**

2.01 23 07 16.13 Decentralized, Rooftop Units:

A. 23 07 16.13.A. Evaporator fan compartment:

1. Interior cabinet surfaces shall be insulated with a minimum 1/2-in. thick, minimum 1 1/2 lb density aluminum foil-faced insulation on the air side.
2. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.

B. 23 07 16.13.B. Electric heat compartment:

1. Aluminum foil-faced fiberglass insulation shall be used.
2. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.

### **Part 3 — 23 09 13 Instrumentation and Control Devices for HVAC**

3.01 23 09 13.23 Sensors and Zone Air Terminals:

A. 23 09 13.23.A. Space terminal sensors:

1. Carrier zone air terminal space sensors shall be available with capabilities of combining:
  - a. Space temperature sensing
  - b. Sensors with communication port
  - c. Sensors with CO<sub>2</sub> sensing
  - d. Sensors with LCD display
  - e. Sensors with RH sensing
  - f. Sensors with local override and indicating light
2. i-Vu® Equipment Touch™; Carrier brand 4.3-in. color touch screen zone sensor and local user interface for a single Open (BACnet<sup>1</sup> MS/TP) equipment controller. Includes built-in temperature sensor.
3. i-Vu System Touch™; Carrier brand 4.3-in. color touch screen user interface connects to a

network of up to 60 Open (BACnet MS/TP) equipment controllers. Includes built-in temperature sensor.

B. 23 09 13.23.B. Zone terminals:

1. Zone air terminals shall be a i-Vu VAV Zone Single Duct and Fan Terminal type for optimum integrated system solution. This includes:
  - a. 35E – Single Duct Air Terminals
  - b. 45J – Series Fan Powered Air Terminals
  - c. 45K – Quiet Series Fan Powered Air Terminals
  - d. 45M – Parallel Fan Powered Air Terminals
  - e. 45N – Quiet Parallel Fan Powered Air Terminals
  - f. 45Q – Low Profile Series Fan Powered Air Terminals
  - g. 45R – Low Profile Parallel Fan Powered Air Terminals
  - h. 35J – Single Duct Retrofit Air Terminals

### **Part 4 — 23 09 33 Integrated Staging Control (ISC) Board System for HVAC**

4.01 23 09 33.13 Packaged VAV, Rooftop Units:

A. 23 09 33.13.A. General:

1. Shall be complete with self-contained low-voltage control circuit protected by a resettable circuit breaker on the 24-v transformer side. Transformer shall have 75VA capability.
2. Shall utilize color-coded wiring.
3. Shall include an electro-mechanical control board, to conveniently and safely provide connection points for vital control functions such as: smoke detectors, phase monitor, economizer, thermostat, and safety switches. Shall control all three stages of compressor logic, fully variable the indoor fan motor logic as well as staging of the outdoor fan motor. Shall also have a green LED indicator to indicate GO operation as well as a fault LED indicator for thermostat mis-wiring, no fan operation and safety switches.
4. Unit shall include a minimum of one 8-pin screw terminal connection board for connection of control wiring.

B. 23 09 33.23.B. Safeties:

1. Compressor over-temperature, over current.
2. Low-pressure protection switch.
  - a. Low pressure switch shall use different color wire than the high pressure switch. The purpose is to assist the installer and service technician to correctly wire and or trouble-shoot the rooftop unit.
3. High-pressure protection switch.
  - a. High pressure switch shall use different color wire than the low pressure switch. The purpose is to assist the installer and service

1. BACnet is a registered trademark of ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers).

technician to correctly wire and or troubleshoot the rooftop unit.

4. Automatic reset, motor thermal overload protector.

## Part 5 — 23 09 93 Sequence of Operations for HVAC Controls

### 5.01 23 09 93.13 Packaged VAV, Rooftop Units:

- A. 23 09 93.13.A Duct Static Pressure Control (with optional Reset function) – The supply fan VFD will be controlled using a PID and an analog input from a duct static pressure transducer. The supply fan will modulate its speed to maintain the desired duct static pressure setpoint.
- B. 23 09 93.13.B Supply Air Temperature Control (with optional Reset function) – The control will maintain the desired supply air temperature setpoint whenever cooling is required. A user configurable setpoint will be provided (default 53°F). The control will use the appropriate method (economizer cooling, mechanical cooling, or a combination of both) to achieve this setpoint whenever the zone temperature is greater than the current cooling setpoint (occupied or unoccupied). If Supply Air Reset is enabled, the reset algorithm will calculate a proportional reset value between the Occupied Cooling setpoint and 1°F above the Occupied Heating setpoint. The amount of reset (reset ratio and maximum reset limit value) is user configurable.
- C. 23 09 93.13.C Morning Warm-up – The control will provide a Morning Warm-up cycle the first time if transition from unoccupied to occupied and if the heating is required and the unit goes into heating immediately. Whenever the unit enters the heating mode, before any heat stage is enabled, the control will provide a Linkage mode to the system that will cause the terminals to maintain sufficient airflow. The Linkage mode of Warm-up (2) will be sent to the terminal system to ensure sufficient airflow while in the heating mode but also providing a controlled warm-up cycle to prevent overheating of some zones. As a safety measure, should the heating cycle continue and the SAT approach the “Maximum Heating SAT” limit, the Linkage mode sent will change to Pressurization (6) to ensure all terminals open to their maximum airflow. The Linkage mode will remain Pressurization until that heating cycle ends. Once the heating demand is met and the heat cycle is completed or if cooling is required, heating will be locked out until the beginning of the next occupied period.
- D. 23 09 93.13.D Occupied Heating – Optionally, the user may enable occupied heating which will allow heating whenever heating is needed during the occupied period. The cycle will operate exactly the same as Morning Warm-up above, except it will not be limited by the transition into an occupied period.
- E. 23 09 93.13.E Heating and Cooling Setpoint Separation – By default, the control will maintain a 5°F (configurable) separation between the heating and

cooling setpoints. This will prevent the unit from prematurely entering the opposite mode.

- F. 23 09 93.13.F Economizer Cooling Cycle – The VAV-RTU Open provides variable supply airflow to the VAV system and maintain constant minimum ventilation. As the supply airflow changes, the economizer minimum position is adjusted to provide a constant amount of outdoor air. The control will provide the ability to utilize outdoor air for maintaining the supply air setpoint should the outdoor air be suitable. The economizer control will utilize an OAT temperature check, a RAT temperature check if RAT is available or a SPT temperature check comparison and optionally, an OA enthalpy check to determine if OA conditions are suitable for economizing. Economizer operation, if available, will begin whenever cooling is required. The economizer will modulate the position of the OA damper to maintain the desired calculated economizer setpoint. The economizer will be controlled to meet CEC Title 24 requirements so that it will remain open 100% during integrated cooling and only partially close if required. The VAV-RTU Open also provides FDD (Fault Detection and Diagnostics) for economizer operation. The FDD logic will detect an economizer that fails to close, fails to open, is stuck fully open, and fails to fully open. Each condition will cause an Economizer Operation alarm to occur and the specific fault condition will be displayed.
- G. 23 09 93.13.G Mechanical Cooling Cycle – The control will operate three stages of mechanical cooling in order to maintain the desired supply air temperature whenever economizer cooling operation is unavailable but cooling is required. This condition will be determined if the OA has high enthalpy or at a temperature above the Economizer Lockout temperature. The two compressors will be staged in a binary fashion so that three stages of cooling are provided. Mechanical cooling stages will be added as required to meet the desired SA setpoint. The number of stages will depend on the return air conditions and the system load (airflow through the coil). Stages will be added or dropped as required to maintain the setpoint while also maintaining the minimum on time and minimum off time for compressor operation. Anytime the SA falls below the desired SA setpoint, stages will be dropped until only stage 1 is operating. At that point, should the SA fall below 45°F, the economizer will modulate to increase the amount of outdoor air in order to maintain this minimum SA temperature. Should the economizer reach the maximum OA position and if the SA is still below the minimum SA temperature, the first cooling stage will be disabled and the economizer will return to the minimum position.
- H. 23 09 93.13.H Integrated Cooling Cycle - If economizer cooling operation is insufficient to maintain the desired SA setpoint, mechanical cooling will be activated to supplement the free economizer cooling. This condition will be determined if the OA has low enthalpy but is at a temperature at least 5°F above

the desired SA setpoint and below the Economizer Lockout temperature. Mechanical cooling stages will be added as required to meet the desired SA setpoint. The number of stages will depend on the return air conditions and the system load (airflow through the coil). Stages will be added or dropped as required to maintain the setpoint while also maintaining the minimum on time and minimum off time for compressor operation. Anytime the SA falls below the desired SA setpoint, stages will be dropped until only stage 1 is operating. At that point, should the SA fall below the minimum SA temperature, the economizer will modulate to increase the amount of return air in order to maintain this minimum SA temperature. Should the economizer reach the minimum OA position and if the SA is still below the minimum SA temperature, the first cooling stage will be disabled.

- I. 23 09 93.13.I Minimum Ventilation – The economizer minimum position will be adjusted as required based on the supply fan speed. Two user configurable minimum economizer positions will be provided. The economizer will be positioned at the “Low Fan Econ Min Pos” when the fan is operating at its slowest speed. When the fan is operating at its maximum speed, the economizer will be positioned at the “Vent Dmpr Pos / DCV Min Pos”. For any supply fan speed between these two points, the economizer minimum position will be calculated proportionally.
- J. 23 09 93.13.J Unoccupied Free Cooling - Unoccupied Free Cooling allows the rooftop with the economizer damper to use outdoor air for free cooling during unoccupied periods. When the VAV-RTU Open is unoccupied and the space temperature rises at least 2°F above the Occupied Cooling Setpoint, the supply fan starts. The economizer damper opens as necessary to maintain the Supply Air Setpoint and cool the space. The VAV-RTU Open continues to operate in this mode until the space temperature drops to 1°F below the Occupied Cooling Setpoint or the outside air conditions are no longer suitable for free cooling.
- K. 23 09 93.13.K Demand Controlled Ventilation [DCV] – Whenever the unit is in an occupied mode and “DCV Control” is set to enable, a unique economizer minimum position will be calculated based on the output of the DCV algorithm. The algorithm monitors the CO<sub>2</sub> sensor value and compares that value to the user defined setpoint. A control algorithm calculates the required minimum economizer position required to satisfy the ventilation requirements of the space. A user adjustable DCV Max Vent Damper Position is provided to limit the maximum amount of outdoor air that can be brought into the unit due to the DCV algorithm. Demand Controlled Ventilation can be used in either a differential mode where both the indoor air and outdoor air CO<sub>2</sub> levels are provided to the control or it may be used in a single indoor air mode with only the indoor air CO<sub>2</sub> level. In the latter case, the outdoor air CO<sub>2</sub> level is assumed at 400 ppm.
- L. 23 09 93.13.L Supply Air Tempering – The VAV-RTU Open provides the capability to operate the optional electric heat, if equipped, to maintain a minimum supply air temperature during conditions where very cold outdoor air causes the supply air temperature to fall below the configured Supply Air (SA) Tempering Setpoint. This occurs during periods where DCV is active and increasing the amount of outdoor air or in cases where the system is operating at very low airflow and the calculated economizer position has increased to maintain a constant ventilation rate. Heat operation is subject to anti-recycle timers to protect the equipment from short-cycling. There are fixed application specific minimum on and off times for each heating output (15 seconds on and 10 seconds off).
- M. 23 09 93.13.M Open Airside Linkage – The control will support Airside Linkage to accommodate system operation using Carrier VAV terminal controls. The VAV-RTU Open will receive zone information (occupancy status, occupied and unoccupied zone temperatures, occupied and unoccupied heating and cooling setpoints, zone CO<sub>2</sub> level for DCV, and zone RH level). The VAV-RTU Open will operate in the mode required to satisfy the zones. Airside Linkage will provide operating mode information to the zones so that the system operation is fully coordinated between the rooftop and the terminal zones. The VAV air terminals offer a minimum airflow setting in AHU heating mode. This shall be configured to maintain the required airflow (CFM) whenever the VAV RTU is in a heating mode per the unit’s specification. The VAV terminals will recognize the Heating or Warm-up modes as a heat mode and utilize the higher airflow minimum setpoint as configured. For heating cycles, initially utilize the Linkage Morning Warm-Up mode to open dampers on all zones below the midpoint of the occupied heating and cooling setpoints. This provides a controlled heat cycle and prevents the overheating of random zones where heating may not be required. Any zone below this middle setpoint will have its airflow at the maximum value. Further monitor the SAT of the VAV RTU to determine if the SAT is approaching the configured maximum limit. As the limit is approached, the Linkage mode is changed to Linkage Pressurization to ensure all terminals open to their maximum airflow.
- N. 23 09 93.13.N Field Test/Commissioning – The control will provide BACnet test points to activate specific test modes that can be used to commission the rooftop and the system. Test modes will be available in the Service Test screen on the Property pages and shall also be available on the local Equipment Touch device for standalone commissioning. Tests include: fan test, low heat test, high heat test, cooling test, power exhaust test, and an economizer test. When any test is active, the appropriate Linkage mode will be sent to the system’s terminals. This will ensure appropriate system operation and airflow during any test mode.

## Part 6 — 23 40 13 Panel Air Filters

### 6.01 23 40 13.13 Packaged VAV, Rooftop Units:

- A. 23 40 13.13.A. Standard filter section:
1. Shall consist of factory-installed, low velocity, throwaway 2-in. thick fiberglass filters of commercially available sizes.
  2. Unit shall use only one filter size. Multiple sizes are not acceptable.
  3. Filters shall be accessible through an access panel with “no-tool” removal as described in the unit cabinet section of this specification (23 81 19.13.G).
  4. 4-in. filter capabilities shall be capable with pre-engineered and approved Carrier filter track field installed accessory. This kit requires field furnished filters.

## Part 7 — 23 81 19 Self-Contained Air Conditioners

### 7.01 23 81 19.13 Small-Capacity Self-Contained Air Conditioners (50LC\*B14-26)

- A. 23 81 19.13.A. General:
1. Outdoor, rooftop mounted, DDC electrically controlled, heating and cooling VAV unit utilizing fully hermetic scroll compressors for cooling duty and electrical elements for heating duty. VAV-RTU Open - BACnet, direct digital controller:
    - a. Shall be ASHRAE 62-2001 compliant.
    - b. Shall accept 18-30VAC, 50-60Hz, and consumer 15VA or less power.
    - c. Shall have an operating temperature range from -40°F (-40°C) to 130°F (54°C), 10% to 90% RH (non-condensing).
    - d. Shall include built-in protocol for BACnet MS/TP.
    - e. Shall allow access of up to 62 network variables (SNVT). Shall be compatible with all open controllers.
    - f. Baud rate controller shall be selectable using a dipswitch.
    - g. Shall have an LED display independently showing the status of serial communication, running, errors, power, all digital outputs, and all analog inputs.
    - h. Shall accept the following inputs: space temperature, setpoint adjustment, outdoor air temperature, indoor air quality, outdoor air quality, compressor lock-out, fire shutdown, enthalpy switch, and fan status/filter status/humidity/ remote occupancy.
    - i. Shall provide the following outputs: Economizer, Fan Speed, Fan Start/Stop, Cooling Stage 1, Cooling Stage 2, Cooling Stage 3, Heating Stage 1, Heating Stage 2, Power Exhaust.
    - j. Shall have built-in surge protection circuitry through solid state polyswitches. Polyswitches shall be used on incoming power

and network connections. Polyswitches will return to normal when the “trip” condition clears.

- k. Shall have a battery back-up capable of a minimum of 10,000 hours of data and time clock retention during power outages.
  - l. Shall have built-in support for Carrier technician tool.
  - m. Shall include an EIA-485 protocol communication port (BACnet MS/TP only), an access port for connection of either a computer or a Carrier technician tool, an EIA-485 port for network communication to intelligent space sensors and displays.
  - n. Software upgrades will be accomplished by either local or remote download. No software upgrades through chip replacements are allowed.
2. Factory assembled, single-piece heating and VAV cooling rooftop unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, and special features required prior to field start-up.
    - a. Return air temperature sensor to control multi stage of cooling capacity.
    - b. Supply air temperature sensor to control multi stage of cooling capacity.
    - c. Duct static pressure transducer – located in control box for remote field mounting.
    - d. Evaporator coil freeze protection.
  3. Unit shall use Puron® (R-401A) refrigerant.
  4. Unit shall be installed in accordance with the manufacturer’s instructions.
  5. Unit must be selected and installed in compliance with local, state, and federal codes.
  6. To properly control to the desired supply air temperature comfort setting, an integrated EconoMi\$er2 is provided standard. Two versions shall be available: standard air leak and ultra-low leak versions.
    - a. Integrated Standard Leak:
      - 1.) Integrated, gear driven opposing modulating blade design type capable of simultaneous economizer and compressor operation.
      - 2.) Independent modules for vertical or horizontal return configuration shall be available. Vertical return modules shall be available as a factory-installed option.
      - 3.) Damper blades shall be galvanized steel with composite gears. Plastic or composite blades on intake or return shall not be acceptable.
      - 4.) Shall include all hardware and controls to provide free cooling with outdoor air when temperature and/or humidity are below setpoints.



- 5.) Shall be equipped with gear driven dampers for both the outdoor ventilation air and the return air for positive air stream control.
  - 6.) Standard leak rate models shall be equipped with leakage dampers, not to exceed 2% leakage at 1 in. wg pressure differential.
  - 7.) Economizer controller shall be a 4 to 20mA design controlled directly by the VAV - RTU Open controller. VAV - RTU Open meets California Title 24 Fault Detection and Diagnostic (FDD) requirements.
  - 8.) Shall be capable of introducing up to 100% outdoor air.
  - 9.) Shall be equipped with a barometric relief damper capable of relieving up to 100% return air and contain seals that meet ASHRAE 90.1 requirements.
  - 10.) Shall be designed to close damper(s) during loss-of-power situations with spring return built into motor.
  - 11.) Dry bulb outdoor air temperature sensor shall be provided as standard. Enthalpy sensor is also available on factory installed only. Outdoor air sensor setpoint shall be adjustable and shall range from 40°F to 100°F (4°C to 38°C). Additional sensor options shall be available as accessories.
  - 12.) VAV-RTU Open controller shall also provide control of an accessory power exhaust unit function.
  - 13.) The economizer shall maintain minimum airflow into the building during occupied period and provide design ventilation rate for full occupancy.
  - 14.) Dampers shall be completely closed when the unit is in the unoccupied mode
  - 15.) Economizer controller shall accept a 2 to 10 vdc CO<sub>2</sub> sensor input for IAQ/DCV control. In this mode, dampers shall modulate the outdoor air damper to provide ventilation based on the sensor input.
  - 16.) Compressor lockout temperature is adjustable from 45°F to 80°F, set at a factory default of 45°F. Others shall open at 35°F (2°C) and closes at 50°F (10°C).
  - 17.) Actuator shall be direct coupled to economizer gear. No linkage arms or control rods shall be acceptable.
  - 18.) Economizer controller shall provide indications when in free cooling mode, in the DCV mode, or the exhaust fan contact is closed.
- b. Integrated Ultra Low Leak Models:
- 1.) Integrated, gear driven opposing modulating blade design type capable of simultaneous economizer and compressor operation.
  - 2.) Independent modules for vertical or horizontal return configuration shall be available. Vertical return modules shall be available as a factory installed option.
  - 3.) Damper blades shall be galvanized steel with composite gears. Plastic or composite blades on intake or return shall not be acceptable.
  - 4.) Shall include all hardware and controls to provide free cooling with outdoor air when temperature and/or humidity are below setpoints.
  - 5.) Shall be equipped with gear driven dampers for both the outdoor ventilation air and the return air for positive air stream control.
  - 6.) Ultra Low Leak design meets California Title 24 section 140.4 and ASHRAE 90.1 requirements of 4cfm per sq. ft. on the outside dampers and 10cfm per sq. ft. on the return dampers.
  - 7.) Economizer controller shall be a 4 to 20mA design controlled directly by the VAV - RTU Open controller. VAV - RTU Open meets California Title 24 Fault Detection and Diagnostic (FDD) requirements.
  - 8.) Shall be capable of introducing up to 100% outdoor air.
  - 9.) Shall be equipped with a barometric relief damper capable of relieving up to 100% return air and contain seals that meet ASHRAE 90.1 requirements.
  - 10.) Shall be designed to close damper(s) during loss-of-power situations with spring return built into motor.
  - 11.) Dry bulb outdoor air temperature sensor is also available on factory installed only. Outdoor air sensor setpoint shall be adjustable and shall range from 40°F to 100°F (4°C to 38°C). Additional sensor options shall be available as accessories.
  - 12.) The economizer controller shall also provide control of an accessory power exhaust unit function. Factory set at 100%, with a range of 0% to 100%.
  - 13.) The economizer shall maintain minimum airflow into the building during occupied period and provide design ventilation rate over the entire system airflow range.
  - 14.) Dampers shall be completely closed when the unit is in the unoccupied mode.
  - 15.) Economizer controller shall accept a 2 to 10 vdc CO<sub>2</sub> sensor input for IAQ/DCV control. In this mode, dampers shall modulate the outdoor air damper

to provide ventilation based on the sensor input.

- 16.) Compressor lockout temperature is adjustable from 45°F to 80°F, set at a factory default of 45°F.
- 17.) Actuator shall be direct coupled to economizer gear. No linkage arms or control rods shall be acceptable.
- 18.) Economizer controller shall provide indications when in free cooling mode, in the DCV mode, or the exhaust fan contact is closed.

## B. 23 81 19.13.B. Quality Assurance:

1. Unit meets and exceeds ASHRAE 90.1 minimum efficiency requirements.
2. Unit meets and exceeds Consortium for Energy Efficiency (CEE) performance criteria.
3. Unit shall be rated in accordance with AHRI Standards 340/360.
4. Unit shall be designed to conform to ASHRAE 15.
5. Unit shall be ETL/UL-tested and certified in accordance with ANSI Z21.47 Standards and UL-listed and certified under Canadian standards as a total package for safety requirements.
6. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.
7. Unit casing shall be capable of withstanding 500 hour salt spray exposure per ASTM B117 (scribed specimen).
8. Unit shall be designed in accordance with ISO 9001, and shall be manufactured in a facility registered by ISO 9001.
9. Roof curb shall be designed to conform to NRCA Standards.
10. Unit shall be subjected to a completely automated run test on the assembly line. The data for each unit will be stored at the factory, and must be available upon request.
11. Unit shall be designed in accordance with UL Standard 1995, including tested to withstand rain.
12. Unit shall be constructed to prevent intrusion of snow and tested to prevent snow intrusion into the control box up to 40 mph.
13. Unit shake tested to assurance level 1, ASTM D4169 to ensure shipping reliability.
14. High Efficient Motors listed shall meet section 313 of the Energy Independence and Security Act of 2007 (EISA 2007).

## C. 23 81 19.13.C. Delivery, Storage, and Handling:

1. Unit shall be stored and handled per manufacturer's recommendations.
2. Lifted by crane requires either shipping top panel or spreader bars.

3. Unit shall only be stored or positioned in the upright position.

## D. 23 81 19.13.D. Project Conditions:

1. As specified in the contract.

## E. 23 81 19.13.E. Operating Characteristics:

1. Unit shall be capable of starting and running at 125°F (52°C) ambient outdoor temperature, meeting maximum load criteria of AHRI Standard 340/360 at ± 10% voltage.
2. Compressor with standard controls shall be capable of operation down to 45°F (7°C) ambient outdoor temperatures. For lower operation, an integrated economizer shall be utilized to allow lower temperatures and accommodate indoor air quality initiatives.
3. Unit shall discharge supply air vertically or horizontally as shown on contract drawings.
4. Unit shall be factory configured and ordered for vertical supply and return configurations.
5. Unit shall be factory furnished for either vertical or horizontal configuration without the use of special conversion kits. No field kits conversion is possible.
6. Unit shall be capable of mixed operation: vertical supply with horizontal return or horizontal supply with vertical return.

## F. 23 81 19.13.F. Electrical Requirements:

1. Main power supply voltage, phase, and frequency must match those required by the manufacturer.

## G. 23 81 19.13.G. Unit Cabinet:

1. Unit cabinet shall be constructed of galvanized steel, and shall be bonderized and coated with a pre-painted baked enamel finish on all externally exposed surfaces.
2. Unit cabinet exterior paint shall be: film thickness, (dry) 0.003-in. minimum, gloss (per ASTM D523, 60°F): 60, Hardness: H-2H Pencil hardness.
3. Evaporator fan compartment interior cabinet insulation shall conform to AHRI Standards 340/360 minimum exterior sweat criteria. Interior surfaces shall be insulated with a minimum 1/2-in. thick, 1 lb density, aluminum foil faced fiberglass insulation, Aluminum foil-faced fiberglass insulation shall also be used in the heat compartment.
4. Base of unit shall have a minimum of four locations for thru-the-base gas and electrical connections (factory installed or field installed), standard.
5. Base Rail:
  - a. Unit shall have base rails on a minimum of 4 sides.
  - b. Holes shall be provided in the base rails for rigging shackles to facilitate maneuvering and overhead rigging.

- c. Holes shall be provided in the base rail for moving the rooftop by fork truck.
  - d. Base rail shall be a minimum of 16 gage thickness.
  - 6. Condensate pan and connections:
    - a. Shall be an internally sloped condensate drain pan made of a non-corrosive material.
    - b. Shall comply with ASHRAE Standard 62.
    - c. Shall use a  $\frac{3}{4}$ -in. 14 NPT drain connection, possible either through the bottom or end of the drain pan. Connection shall be made per manufacturer's recommendations.
  - 7. Top panel:
    - a. Shall be a multi-piece top panel linked with water tight flanges and interlocking systems.
  - 8. Electrical Connections:
    - a. All unit power wiring shall enter unit cabinet at a single, factory-prepared, knockout location.
    - b. Thru-the-base capability
      - 1.) Standard unit shall have a thru-the-base electrical location(s) using a raised, embossed portion of the unit basepan.
      - 2.) No basepan penetration, other than those authorized by the manufacturer, is permitted.
  - 9. Component access panels (standard):
    - a. Cabinet panels shall be easily removable for servicing.
    - b. Unit shall have one factory installed, tool-less, removable, filter access panel.
    - c. Panels covering control box, indoor fan, indoor fan motor and compressors shall have molded composite handles.
    - d. Handles shall be UV modified, composite, permanently attached, and recessed into the panel.
    - e. Screws on the vertical portion of all removable access panel shall engage into heat resistant, molded composite collars.
    - f. Collars shall be removable and easily replaceable using manufacturer recommended parts.
- H. 23 81 19.13.H. Coils:
- 1. Standard Aluminum Fin/Copper Tube Coils:
    - a. Standard evaporator and condenser coils shall have aluminum lanced plate fins mechanically bonded to seamless internally grooved  $\frac{5}{16}$ -in. diameter copper tubes with all joints brazed.
    - b. Evaporator coils shall be leak tested to 150 psig, pressure tested to 450 psig, and qualified to UL 1995 burst test at 1775 psig.
    - c. Condenser coils shall be leak tested to 150 psig, pressure tested to 650 psig, and qualified to UL 1995 burst test at 1980 psig.
  - 2. Optional Pre-coated aluminum-fin condenser coils:
    - a. Shall have a durable epoxy-phenolic coating to provide protection in mildly corrosive coastal environments.
    - b. Coating shall be applied to the aluminum fin stock prior to the fin stamping process to create an inert barrier between the aluminum fin and copper tube.
    - c. Epoxy-phenolic barrier shall minimize galvanic action between dissimilar metals.
    - d. Corrosion durability of fin stock shall be confirmed through testing to be no less than 1000 hours salt spray per ASTM B117-90.
    - e. Corrosion durability of fin stock shall be confirmed through testing to have no visible corrosion after 48 hour immersion in a room temperature solution of 5% salt, 1% acetic acid.
    - f. Fin stock coating shall pass 2000 hours of the following: one week exposure in the prohesion chamber followed by one week in a QUV. Prohesion chamber: the solution shall contain 3.5% sodium chloride and 0.35% ammonium sulfate. The exposure cycle is one hour of salt fog application at ambient followed by one hour drying at 95°F (35°C).
    - g. Corrosion durability shall be confirmed through testing to be no less than 1000 hours salt spray per ASTM B117-90.
  - 3. Optional Copper-fin evaporator and condenser coils:
    - a. Shall be constructed of copper fins mechanically bonded to copper tubes and copper tube sheets.
    - b. Galvanized steel tube sheets shall not be acceptable.
    - c. A polymer strip shall prevent coil assembly from contacting the sheet metal coil pan to minimize potential for galvanic corrosion between coil and pan.
  - 4. Optional E-coated aluminum-fin evaporator and condenser coils:
    - a. Shall have a flexible epoxy polymer coating uniformly applied to all coil surface areas without material bridging between fins.
    - b. Coating process shall ensure complete coil encapsulation of tubes, fins and headers.
    - c. Color shall be high gloss black with gloss per ASTM D523-89.
    - d. Uniform dry film thickness from 0.8 to 1.2 mil on all surface areas including fin edges.
    - e. Superior hardness characteristics of 2H per ASTM D3363-92A and cross-hatch adhesion of 4B-5B per ASTM D3359-93.

- f. Impact resistance shall be up to 160 in.-lb (ASTM D2794-93).
  - g. Humidity and water immersion resistance shall be up to minimum 1000 and 250 hours respectively (ASTM D2247-92 and ASTM D870-92).
  - h. Corrosion durability shall be confirmed through testing to be no less than 1000 hours salt spray per ASTM B117-90.
- I. 23 81 19.13.I. Refrigerant Components:
- 1. Refrigerant circuit shall include the following control, safety, and maintenance features:
    - a. Multi Thermostatic Expansion Valve (TXV) system shall help provide optimum performance across the entire operating range. Shall contain removable power element to allow change out of power element and bulb without removing the valve body.
    - b. Refrigerant filter drier.
    - c. Service gage connections on suction and discharge lines.
    - d. Pressure gage access through a specially designed screen on the side of the unit.
    - e. Single circuit design with tandem compressor and fully activated evaporator coil.
  - 2. Compressors:
    - a. Models shall use fully hermetic tandem scroll compressors optimized for comfort staging and IEER energy savings.
    - b. Models shall be available with a single refrigerant circuit and three stages of cooling operation on all models.
    - c. Compressor motors shall be cooled by refrigerant gas passing through motor windings.
    - d. Compressors shall be internally protected from high discharge temperature conditions.
    - e. Compressors shall be protected from an over-temperature and over-ampereage conditions by an internal, motor overload device.
    - f. Compressor shall be factory mounted on rubber grommets.
    - g. Compressor motors shall have internal line break thermal, current overload and high pressure differential protection.
    - h. Crankcase heater shall be standard on each compressor and deactivated whenever a compressor is in operation.
- J. 23 81 19.13.J. Filter Section:
- 1. Filters access is specified in the unit cabinet section of this specification.
  - 2. Filters shall be held in place by a pivoting filter tray, facilitating easy removal and installation.
  - 3. Shall consist of factory-installed, low velocity, throw-away 2-in. thick fiberglass filters.
- 4. Filters shall be standard, commercially available sizes.
  - 5. Only one size filter per unit is allowed.
  - 6. 4-in. filter capability is possible with a field installed pre-engineered slide out filter track accessory. 4-in. filters are field furnished.
- K. 23 81 19.13.K. Evaporator Fan and Motor:
- 1. Evaporator fan motor:
    - a. Shall have permanently lubricated bearings.
    - b. Shall have inherent automatic-reset thermal overload protection or circuit breaker.
    - c. Shall have a maximum continuous bhp rating for continuous duty operation; no safety factors above that rating shall be required.
    - d. Shall be Variable Frequency duty to match the three stage compression logic.
    - e. Shall contain motor shaft grounding ring to prevent electrical bearing fluting damage by safely diverting harmful shaft voltages and bearing currents to ground.
  - 2. Variable Frequency Drive (VFD). For indoor fan motor controlled by duct static pressure transducer:
    - a. Shall be installed inside the unit cabinet, mounted, wired and tested.
    - b. Shall contain Electromagnetic Interference (EMI) frequency protection.
    - c. Insulated Gate Bi-Polar Transistors (IGBT) used to produce the output pulse width modulated (PWM) waveform, allowing for quiet motor operation.
    - d. Self diagnostics with fault and power code LED indicator. Field accessory Display Kit available for further diagnostics and special setup applications.
    - e. RS485 capability standard.
    - f. Electronic thermal overload protection.
    - g. 5% swinging chokes for harmonic reduction and improved power factor.
    - h. All printed circuit boards shall be conformal coated.
    - i. Shall not contain visual display to adjust internal setting. Only available as field installed kit.
  - 3. Belt-driven Evaporator Fan:
    - a. Belt drive shall include an adjustable-pitch motor pulley.
    - b. Shall use sealed, permanently lubricated ball-bearing type.
    - c. Blower fan shall be double-inlet type with forward-curved blades.
    - d. Shall be constructed from steel with a corrosion resistant finish and dynamically balanced.

L. 23 81 19.13.L. Condenser Fans and Motors:

1. Condenser fan motors:
  - a. Shall be a totally enclosed - multi speed ECM motor.
  - b. Shall use permanently lubricated bearings.
  - c. Shall have inherent thermal overload protection with an automatic reset feature.
  - d. Shall use a shaft-down design.
2. Condenser Fans:
  - a. Shall be a direct-driven propeller type fan.
  - b. Shall have galvanized aluminum (galvalum) blades riveted to corrosion-resistant steel spiders and shall be dynamically balanced.

M. 23 81 19.13.M. Special Features, Options and Accessories:

1. Condenser Coil Hail Guard Assembly (Factory or field installed):
  - a. Shall protect against damage from hail.
  - b. Shall be louvered design.
2. Unit-Mounted, Non-Fused Disconnect Switch:
  - a. Switch shall be factory-installed, internally mounted.
  - b. National Electric Code (NEC) and ETL/UL approved non-fused switch shall provide unit power shutoff.
  - c. Shall be accessible from outside the unit.
  - d. Shall provide local shutdown and lockout capability.
  - e. Sized only for the unit as ordered from the factory. Does not accommodate field installed devices.
3. HACR Breaker:
  - a. These manual reset devices provide overload and short circuit protection for the unit. Factory wired and mounted with the units, with access cover to help provide environmental protection. On 575v applications, HACR breaker can only be used with WYE power distribution systems. Use on Delta power distribution systems is prohibited.
  - b. Sized only for the unit as ordered from the factory. Does not accommodate field installed devices.
4. Convenience Outlet:
  - a. Powered convenience outlet:
    - 1.) Outlet shall be powered from main line power to the rooftop unit.
    - 2.) Outlet shall be powered from line side or load side of disconnect by installing contractor, as required by code. If outlet is powered from load side of disconnect, unit electrical ratings shall be ETL/UL certified and rated for additional outlet amperage.

- 3.) Outlet shall be factory-installed and internally mounted with easily accessible 115-v female receptacle.
  - 4.) Outlet shall include 15 amp GFI receptacles with independent fuse protection.
  - 5.) Voltage required to operate convenience outlet shall be provided by a factory-installed step-down transformer.
  - 6.) Outlet shall be accessible from outside the unit.
  - 7.) Outlet shall include a field-installed "Wet in Use" cover.
- b. Non-powered convenience outlet.
- 1.) Outlet shall be powered from a separate 115/120v power source.
  - 2.) A transformer shall not be included.
  - 3.) Outlet shall be factory-installed and internally mounted with easily accessible 115-v female receptacle.
  - 4.) Outlet shall include 15 amp GFI receptacles with independent fuse protection.
  - 5.) Outlet shall be accessible from outside the unit.
  - 6.) Outlet shall include a field-installed "Wet in Use" cover.
5. Fan/Filter Status Switch:
- a. Switch shall provide status of indoor evaporator fan (ON/OFF) or filter (CLEAN/DIRTY).
  - b. Status shall be displayed either over communication bus (when used with direct digital controls) or with an indicator light at the thermostat.
6. Centrifugal Power Exhaust:
- a. Power exhaust shall be used in conjunction with an integrated economizer.
  - b. Independent modules for vertical or horizontal return configurations shall be available.
  - c. Horizontal power exhaust is shall be mounted in return ductwork.
  - d. Power exhaust shall be controlled by economizer controller operation. Exhaust fans shall be energized when dampers open past the 0-100% adjustable setpoint on the economizer control.
7. Roof Curbs (Vertical):
- a. Full perimeter roof curb with exhaust capability providing separate air streams for energy recovery from the exhaust air without supply air contamination.
  - b. Formed galvanized steel with wood nailer strip and shall be capable of supporting entire unit weight.
  - c. Permits installation and securing of ductwork to curb prior to mounting unit on the curb.

## Guide specifications (cont)

8. High-Static Indoor Fan Motor(s) and Drive(s):
  - a. High-static motor(s) and drive(s) shall be factory-installed to provide additional performance range.
9. Outdoor Air Enthalpy Sensor:
  - a. The outdoor air enthalpy sensor shall be used to provide single enthalpy control. When used in conjunction with a return air enthalpy sensor, the unit will provide differential enthalpy control. The sensor allows the unit to determine if outside air is suitable for free cooling.
10. Return Air Enthalpy Sensor:
  - a. The return air enthalpy sensor shall be used in conjunction with an outdoor air enthalpy sensor to provide differential enthalpy control.
11. Indoor Air Quality (CO<sub>2</sub>) Sensor:
  - a. Shall be able to provide demand ventilation indoor air quality (IAQ) control.
  - b. The IAQ sensor shall be available in duct mount, wall mount, or wall mount with LED display. The setpoint shall have adjustment capability.
12. Smoke detectors (factory-installed only):
  - a. Shall be a Four-Wire Controller and Detector.
  - b. Shall be environmental compensated with differential sensing for reliable, stable, and drift-free sensitivity.
  - c. Shall use magnet-activated test/reset sensor switches.
  - d. Shall have tool-less connection terminal access.
  - e. Shall have a recessed momentary switch for testing and resetting the detector.
  - f. Controller shall include:
    - 1.) One set of normally open alarm initiation contacts for connection to an initiating device circuit on a fire alarm control panel.
    - 2.) Two Form-C auxiliary alarm relays for interface with rooftop unit or other equipment.
    - 3.) One Form-C supervision (trouble) relay to control the operation of the Trouble LED on a remote test/reset station.
    - 4.) Capable of direct connection to two individual detector modules.
- 5.) Can be wired to up to 14 other duct smoke detectors for multiple fan shut-down applications.
13. Time Guard:
  - a. Shall prevent compressor short cycling by providing a 5 minute delay ( $\pm 2$  minutes) before restarting a compressor after shut-down for any reason.
  - b. One device shall be required per compressor.
14. Electric Heat:
  - a. Heating Section
    - 1.) Heater element open coil resistance wire, nickel-chrome alloy, 0.29-in. inside diameter, strung through ceramic insulators mounted on metal frame. Coil ends are staked and welded to terminal screw slots.
    - 2.) Heater assemblies are provided with integral fusing for protection of internal heater circuits not exceeding 48 amps each. Auto reset thermo limit controls, magnetic heater contactors (24 v coil) and terminal block all mounted in electric heater control box (minimum 18 ga galvanized steel) attached to end of heater assembly.
15. Barometric Hood (Horizontal Economizer Applications):
  - a. Shall be required when a horizontal economizer and barometric relief are required. Barometric relief damper must be installed in the return air (horizontal) duct work. This hood provides weather protection.
16. Hinged access panels:
  - a. Shall provide easy access through integrated quarter turn latches.
  - b. Shall be on major panels of; filter, control box, fan motor and compressor.
17. Display Kit for Variable Frequency Drive:
  - a. Kit allows the ability to access the VFD controller programs to provide special setup capabilities and diagnostics.
  - b. Kit contains display module, mounting bracket and communication cable.
  - c. Display Kit can be permanently installed in the unit or used on any VFD controller as needed.