

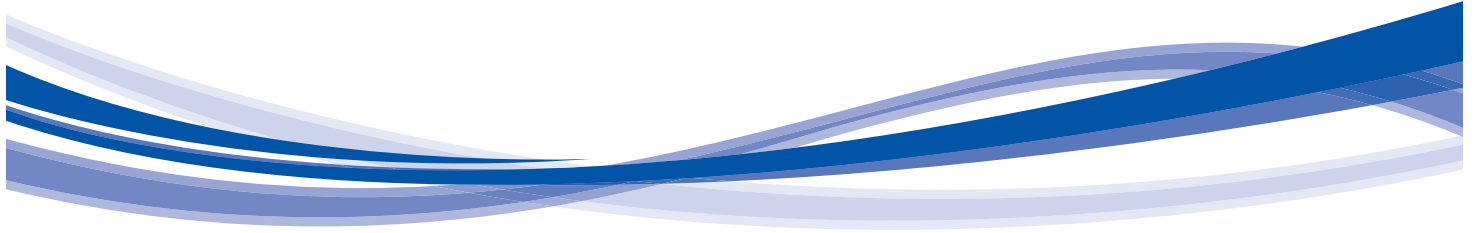


Turn to the experts

Product Data

WeatherMaker® Single Packaged Rooftop Electric Cooling Vertical Air Flow Unit

15, 17.5, 20, 25, 27.5 Nominal Tons



WeatherMaker®



Unit shown with economizer and power exhaust

50TC 17, 20, 24, 28, 30
Packaged Rooftop Cooling Units with Puron® Refrigerant
Vertical Air Flow

The 15 to 27.5 ton WeatherMaker® Carrier rooftop unit (RTU) was designed by customers for customers. Equipped with “no-strip” screw collars, handled access panels, and more; the unit is easy to install, easy to maintain, easy to use, and reliable.

Easy to install

These WeatherMaker units are designed for dedicated factory-supplied vertical air flow duct configurations. 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 a new certified and authorized adapter curb. This 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 handles by Carrier provide quick and easy access to all major, 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. Take accurate pressure readings by reading condenser pressure with panels in place as compressors are strategically located to eliminate any air bypass.

Easy to use

The newly designed, central terminal board by Carrier puts all your connections and troubleshooting points in one convenient place, standard. Most low voltage connections are made to the same board and make it easy to find what you’re looking for and easy to access it.

Reliable

Each unit comes with precision sized and tested scroll compressor that is internally

protected from over temperature and pressures. In addition, each refrigerant circuit is further protected with a high-pressure and low-pressure switch as well as containing a liquid line filter drier. Each unit is factory tested prior to shipment to help ensure unit operation once properly installed.

- 2-stage cooling capacity with independent circuits and control.
- Round tube/plate fin (RTPF) available on all sizes or Novation® all aluminum condenser (outdoor) coils available on 17-28 sizes only. Special coil-coating also available for coastal and industrial environments.
- EERs up to 11.0.
- IEERs up to 12.2 with single speed indoor fan motor and up to 12.9 with SAV™ (Staged Air Volume) 2-speed/VFD indoor fan motor.
- Dedicated vertical air flow duct configuration models. No field kits required.
- Utility connections through the side or bottom. Bottom connections are also in an enclosed environment to help prevent water entry. Field supplied couplings are required.
- Standardized components and control box layout. Standardized components and controls make stocking parts and service easier.
- Scroll compressors on all units. This makes service, stocking parts, replacement, and troubleshooting easier.
- Proven Acutrol™ refrigerant metering system.
- Easy-adjust, belt-drive motor available. Motor assembly also contains a fan belt break protection system on all models and reliable pillow block bearing system that allows lubrication thru front of the unit.

- Capable of thru-the-base electrical routing.
- Full range of electric heaters and single point electric kits that are pre-engineered and approved for field installation.
- Single-point electrical connection.
- Sloped, composite drain pan sheds water and won’t rust.
- Standardized controls and control box layout. Standardized components and controls make stocking parts and service easier.
- Clean, large, easy to use control box.
- Color-coded wiring.
- Large, laminated wiring and power wiring drawings which are affixed to unit make troubleshooting easy.
- Single, central terminal board for test and wiring connections.
- Fast-access, handled, panels for easy access on normally accessed service panels.
- “No-strip” screw system guides screws into the panel and captures them tightly without stripping the screw, the panel, or the unit.
- Mechanical cooling (115°F to 30°F/46°C to -1°C) standard on all models. Low ambient controller allows operation down to -20°F (-29°C).
- 2-in. (51mm) disposable filters on all units, with 4-in. (102 mm) filter track - field-installed.
- Refrigerant filter-drier on each circuit.
- High and low pressure switches. Added reliability with high pressure switch and low pressure switch.
- Many factory-installed options ranging from air management economizers, 2 position dampers, manual outdoor air dampers, plus convenience outlets, disconnect switch and smoke detectors.
- Factory-installed Humidi-MiZer® adaptive dehumidification system. Available on 17-28 sizes with RTPF condenser coil models only.
- Standard Parts Warranty: 10 year aluminized heat exchanger, 5 year compressor, 3 year Novation condenser coil, 1 year others.
- Optional SAV system utilizes a Variable Frequency Drive (VFD) to automatically adjust the indoor fan motor speed between cooling stages. Available on 2-stage cooling models 17-30 with electro-mechanical controls or RTU Open controller.

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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	T	C	-	D	2	4	A	1	G	6	-	0	A	0	A	0

Unit Heat Type

50 - Electric Heat
Packaged Rooftop

Model Series - WeatherMaker®

TC - Standard Efficiency

Heat Options

- = No Heat

Refrig. Systems Options

D = Two stage cooling model
E = Two stage cooling models with Humidi-MiZer®
(17-28 models with RTPF coils only)

Cooling Tons

17 = 15 tons 28 = 25 tons
20 = 17.5 tons 30 = 27.5 tons
24 = 20 tons

Sensor Options

A = None
B = RA Smoke Detector
C = SA Smoke Detector
D = RA + SA Smoke Detector
E = CO₂
F = RA Smoke Detector and CO₂
G = SA Smoke Detector and CO₂
H = RA + SA Smoke Detector and CO₂

Indoor Fan Options and Air Flow Configuration

1 = Standard Static/Vertical Supply, Return Air Flow
2 = Medium Static/Vertical Supply, Return Air Flow
3 = High Static/Vertical Supply, Return Air Flow
B = Med Static High Efficiency Motor/Vertical Supply, Return Air Flow
C = High Static High Efficiency Motor/Vertical Supply, Return Air Flow

Coil Options – RTPF (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

Coil Options – Novation® (Outdoor – Indoor – Hail Guard)

G = Al/Al – Al/Cu
H = Al/Al – Cu/Cu
J = Al/Al – E-coat Al/Cu
K = E-coat Al/Al – Al/Cu
L = E-coat Al/Al – E-coat Al/Cu
T = Al/Al – Al/Cu – Louvered Hail Guard
U = Al/Al – Cu/Cu – Louvered Hail Guard
V = Al/Al – E-coat Al/Cu – Louvered Hail Guard
W = E-coat Al/Al – Al/Cu – Louvered Hail Guard
X = E-coat Al/Al – E-coat Al/Cu – Louvered Hail Guard

Packaging & Seismic Compliance

0 = Standard
3 = California Seismic Compliant

Electrical Options

A = None
C = Non-Fused Disconnect
G = 2-Speed Indoor Fan (VFD) Controller
J = 2 Speed Fan Controller (VFD) and
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

A = None
B = Temperature Economizer w/ Barometric Relief
F = Enthalpy Economizer w/ Barometric Relief
K = 2-Position Damper
U = Temp Ultra Low Leak Economizer w/ Baro Relief
V = Temp Ultra Low Leak Economizer w/ PE (cert) -
Vertical Air Only
W = Enthalpy Ultra Low Leak Economizer w/ Baro Relief
X = Enthalpy Ultra Low Leak Economizer PE (cert) -
Vertical Air Only

Base Unit Controls

0 = Base Electromechanical Controls
1 = PremierLink Controller*
2 = RTU Open Multi-Protocol Controller
6 = Electro-mechanical w/ 2-Speed Fan
and W7220 Economizer Controller

Design Revision

- = Factory Design Revision

Voltage

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

*PremierLink™ controller cannot be used with Staged Air Volume (SAV™) 2-speed indoor fan motor.

AHRI CAPACITY RATINGS

50TC UNIT SIZE	NOM. CAPACITY (Tons)	NET COOLING CAPACITY (Mbh)	TOTAL POWER (kW)	EER	IEER	IEER With 2-SPEED	RATED INDOOR AIRFLOW (Cfm)
17	15	202.0	18.4	11.0	12.2	12.9	4,900
20	18	208.0	18.9	11.0	11.9	12.9	6,125
24	20	242.0	24.2	10.0	10.8	11.9	8,000
28	25	280.0	28.0	10.0	10.6	11.7	8,750
30*	30	330.0	33.0	10.0	10.6	11.7	9,750

LEGEND

- AHRI** — Air-Conditioning, Heating and Refrigeration Institute
ASHRAE — American Society of Heating, Refrigerating and Air-Conditioning Engineers
EER — Energy Efficiency Ratio
IECC — International Energy Conservation Code
IEER — Integrated Energy Efficiency Ratio

*Size 30 units are only available in RTPPF.

NOTES:

- Rated and certified under AHRI Standard 340/360, as appropriate.
- 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.
IEER Standard: A measure that expresses cooling part-load EER efficiency for commercial unitary air conditioning and heat pump equipment on the basis of weighted operation at various load capacities.
- The 50TC 17-30 rooftops meet ASHRAE 90.1-2016 and IECC-2015 minimum efficiency requirements when equipped with the SAV™ (staged air volume) option.
- Where appropriate, 50TC units comply with US Energy Policy Act. Refer to state and local codes or visit the following website: <http://bcap-energy.org> to determine if compliance with this standard pertains to your state, territory, or municipality.



MINIMUM - MAXIMUM AIRFLOW

50TC UNIT SIZE	NOMINAL kW	ELECTRIC HEATERS		COOLING			
		MINIMUM	MAXIMUM	MINIMUM	MINIMUM 2-SPEED FAN MOTOR (AT HIGH SPEED)	MINIMUM 2-SPEED FAN MOTOR (AT LOW SPEED)	MAXIMUM
17	25	4500	7500	4500	4500	3000	7500
	50						
	75						
20	25	5200	9000	5200	5200	3500	9000
	50						
	75						
24	25	6000	10,000	6000	6000	4000	10,000
	50						
	75						
28	25	7000	12,500	7500	8450	5633	12,500
	50						
	75						
30	25	8500	13,750	8250	9450	6300	13,750
	50						

SOUND PERFORMANCE RATINGS

50TC UNIT SIZE	COOLING STAGE	OUTDOOR SOUND (dB) At 60 Hz											
		A-WEIGHTED	LINEAR	AHRI-370 RATING	31.5	63	125	250	500	1000	2000	4000	8000
17	2	84.1	96.2	84	92.6	92.2	83.9	80.4	81.8	78.7	76.5	72.2	65.4
20	2	84.1	96.2	84	92.6	92.2	83.9	80.4	81.8	78.7	76.5	72.2	65.4
24	2	86.5	99.6	87	96.2	95.6	87.5	84.2	84.2	81.7	77.9	73.2	66.3
28	2	85.9	103.0	86	101.3	97.1	88.3	84.4	83.3	80.7	77.4	73.4	67.3
30	2	85.9	103.0	86	101.3	97.1	88.3	84.4	83.3	80.7	77.4	73.4	67.3

LEGEND

dB — Decibel

NOTES:

1. Outdoor sound data is measured in accordance with AHRI standard 270.
2. 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.

3. A-weighted sound ratings filter out very high and very low frequencies, to better approximate the response of "average" human ear. A-weighted measurements for Carrier units are taken in accordance with AHRI standard 270.

PHYSICAL DATA - 15 TO 25 TONS - NOVATION COIL

		50TC-D17	50TC-D20	50TC-D24	50TC-D28
REFRIGERATION SYSTEM		MCHX	MCHX	MCHX	MCHX
# Circuits / # Comp. / Type		2 / 2 / Scroll	2 / 2 / Scroll	2 / 2 / Scroll	2 / 2 / Scroll
R-410A Charge A/B (lbs)		9.5/12.0	9.5/12.0	14.4/12.5	12.5/13.0
Metering Device		Acutrol	Acutrol	Acutrol	Acutrol
High-press. Trip / Reset (psig)		630 / 505	630 / 505	630 / 505	630 / 505
Low-press. Trip / Reset (psig)		54 / 117	54 / 117	54 / 117	54 / 117
EVAP. COIL					
Material		Cu / Al	Cu / Al	Cu / Al	Cu / Al
Tube Diameter		3/8-in.	3/8-in.	3/8-in.	3/8-in.
Rows / FPI		4 / 15	4 / 15	4 / 15	4 / 15
Total Face Area (ft ²)		19.56	19.56	22.00	23.11
Condensate Drain Conn. Size		3/4-in.	3/4-in.	3/4-in.	3/4-in.
EVAPORATOR FAN AND MOTOR					
STANDARD STATIC	Motor Qty / Belt Qty / Driver Type	1 / 1 /Belt	1 / 1 /Belt	1 / 1 /Belt	1 / 1 /Belt
	Nominal Nameplate HP	2.9	3.7	5.25	5.25
	Max BHP	2.9	3.7	4.9	4.9
	RPM Range	514-680	622-822	690-863	717-911
	Max Blower/Shaft RPM	1200	1200	1200	1200
	Motor Frame Size	56	56	56	56
	Fan Qty / Type	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal
	Fan Diameter (in.)	15 x 15	15 x 15	15 x 15	15 x 15
MEDIUM STATIC	Motor Qty / Belt Qty / Driver Type	1 / 1/ Belt	—	—	—
	Nominal Nameplate HP	3.7	—	—	—
	Max BHP	3.7	—	—	—
	RPM Range	679-863	—	—	—
	Max Blower/Shaft RPM	1200	—	—	—
	Motor Frame Size	56	—	—	—
	Fan Qty / Type	2 / Centrifugal	—	—	—
	Fan Diameter (in.)	15 x 15	—	—	—
HIGH STATIC	Motor Qty / Belt Qty / Driver Type	1 / 1/ Belt	—	—	—
	Nominal Nameplate HP	5.25	—	—	—
	Max BHP	4.9	—	—	—
	RPM Range	826-1009	—	—	—
	Max Blower/Shaft RPM	1200	—	—	—
	Motor Frame Size	56	—	—	—
	Fan Qty / Type	2 / Centrifugal	—	—	—
	Fan Diameter (in.)	15 x 15	—	—	—
MEDIUM STATIC - HIGH EFF.	Motor Qty / Belt Qty / Driver Type	—	1 / 1/ Belt	1 / 1/ Belt	1 / 1/ Belt
	Nominal Nameplate HP	—	5.0	5.0	5.0
	Max BHP (208/230/460/575v)	—	6.5/ 6.9/ 7.0/ 8.3	6.5/ 6.9/ 7.0/ 8.3	6.5/ 6.9/ 7.0/ 8.3
	RPM Range	—	713-879	835-1021	913-1116
	Max Blower/Shaft RPM	—	1200	1200	1200
	Motor Frame Size	—	184T	184T	184T
	Fan Qty / Type	—	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal
	Fan Diameter (in.)	—	15 x 15	15 x 15	15 x 15
HIGH STATIC - HIGH EFF.	Motor Qty / Belt Qty / Driver Type	—	1 / 1/ Belt	1 / 1/ Belt	1 / 1/ Belt
	Nominal Nameplate HP	—	5.0	7.5	7.5
	Max BHP (208/230/460/575v)	—	6.5/ 6.9/ 7.0/ 8.3	10.5/11.9/11.9/11	10.5/11.9/11.9/11
	RPM Range	—	882-1078	941-1176	941-1176
	Max Blower/Shaft RPM	—	1200	1200	1200
	Motor Frame Size	—	184T	213T	213T
	Fan Qty / Type	—	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal
	Fan Diameter (in.)	—	15 x 15	15 x 15	15 x 15

Physical data (cont)



PHYSICAL DATA - 15 TO 25 TONS - NOVATION COIL (cont)

	50TC-D17	50TC-D20	50TC-D24	50TC-D28
CONDENSER COIL (CIRCUIT A)				
Coil Type	Novation	Novation	Novation	Novation
Coil Length (in.)	70	70	82	75
Coil Height (in.)	44	44	44	52
Rows / FPI	1/20.3	1/20.3	1/20.3	1/20.3
Total Face Area (ft ²)	21.4	21.4	25.1	27.1
CONDENSER COIL (CIRCUIT B)				
Coil Type	Novation	Novation	Novation	Novation
Coil Length (in.)	70	70	57	75
Coil Height (in.)	44	44	44	52
Rows / FPI	1/20.3	1/20.3	1/20.3	1/20.3
Total Face Area (ft ²)	21.4	21.4	17.4	27.1
CONDENSER FAN / MOTOR				
Qty / Motor Drive Type	3/Direct	3/Direct	4/Direct	4/Direct
Motor HP / RPM	1/4 / 1100	1/4 / 1100	1/4 / 1100	1/4 / 1100
Fan Diameter (in.)	22	22	22	22
FILTERS				
RA Filter # / Size (in.)	6/20x25x2	6/20x25x2	6/20x25x2	9/16x25x2
OA Inlet Screen # / Size (in.)	4/16x25x1	4/16x25x1	4/16x25x1	4/16x25x1

PHYSICAL DATA - 15 TO 17.5 TONS - RTPF COIL

		50TC-D17	50TC-E17	50TC-D20	50TC-E20
REFRIGERATION SYSTEM		RTPF	RTPF	RTPF	RTPF
# Circuits / # Comp. / Type		2 / 2 / Scroll	2 / 2 / Scroll	2 / 2 / Scroll	2 / 2 / Scroll
R-410A Charge A/B (lbs)		16.3/17.5	25.9/25.7	16.3/17.5	25.9/25.7
Metering Device		Acutrol	TXV	Acutrol	TXV
High-press. Trip / Reset (psig)		630 / 505	630 / 505	630 / 505	630 / 505
Low-press. Trip / Reset (psig)		54 / 117	27 / 44	54 / 117	27 / 44
EVAP. COIL					
Material		Cu / Al	Cu / Al	Cu / Al	Cu / Al
Tube Diameter		3/8-in.	3/8-in.	3/8-in.	3/8-in.
Rows / FPI		4 / 15	4 / 15	4 / 15	4 / 15
Total Face Area (ft ²)		22.00	22.00	22.00	22.00
Condensate Drain Conn. Size		3/4-in.	3/4-in.	3/4-in.	3/4-in.
HUMIDIFIER COIL					
Material		—	Cu / Al	—	Cu / Al
Tube Diameter		—	3/8-in.	—	3/8-in.
Rows / FPI		—	1 / 17	—	1 / 17
Total Face Area (ft ²)		—	22.00	—	22.00
EVAPORATOR FAN AND MOTOR					
STANDARD STATIC	Motor Qty / Belt Qty / Driver Type	1 / 1 /Belt	1 / 1 /Belt	1 / 1 /Belt	1 / 1 /Belt
	Nominal Nameplate HP	2.9	2.9	3.7	3.7
	Max BHP	2.9	2.9	3.7	3.7
	RPM range	514-680	514-680	622-822	622-822
	Max Blower/Shaft RPM	1200	1200	1200	1200
	Motor Frame Size	56	56	56	56
	Fan Qty / Type Fan Diameter (in.)	2 / Centrifugal 15 x 15	2 / Centrifugal 15 x 15	2 / Centrifugal 15 x 15	2 / Centrifugal 15 x 15
MEDIUM STATIC	Motor Qty / Belt Qty / Driver Type	1 / 1/ Belt	1 / 1/ Belt	1 / 1/ Belt	1 / 1/ Belt
	Nominal Nameplate HP	3.7	3.7	5.25	5.25
	Max BHP	3.7	3.7	4.9	4.9
	RPM range	679-863	679-863	713-879	713-879
	Max Blower/Shaft RPM	1200	1200	1200	1200
	Motor Frame Size	56	56	56	56
	Fan Qty / Type Fan Diameter (in.)	2 / Centrifugal 15 x 15	2 / Centrifugal 15 x 15	2 / Centrifugal 15 x 15	2 / Centrifugal 15 x 15
HIGH STATIC	Motor Qty / Belt Qty / Driver Type	1 / 1/ Belt	1 / 1/ Belt	—	—
	Nominal Nameplate HP	5.25	5.25	—	—
	Max BHP	4.9	4.9	—	—
	RPM Range	826-1009	826-1009	—	—
	Max Blower/Shaft RPM	1200	1200	—	—
	Motor Frame Size	56	56	—	—
	Fan Qty / Type Fan Diameter (in.)	2 / Centrifugal 15 x 15	2 / Centrifugal 15 x 15	—	—
MEDIUM STATIC - HIGH EFF.	Motor Qty / Belt Qty / Driver Type	—	—	1 / 1/ Belt	1 / 1/ Belt
	Nominal Nameplate HP	—	—	5.0	5.0
	Max BHP (208/230/460/575v)	—	—	6.5/ 6.9/ 7.0/ 8.3	6.5/ 6.9/ 7.0/ 8.3
	RPM Range	—	—	713-879	713-879
	Max Blower/Shaft RPM	—	—	1200	1200
	Motor Frame Size	—	—	184T	184T
	Fan Qty / Type Fan Diameter (in.)	—	—	2 / Centrifugal 15 x 15	2 / Centrifugal 15 x 15
HIGH STATIC - HIGH EFF.	Motor Qty / Belt Qty / Driver Type	—	—	1 / 1/ Belt	1 / 1/ Belt
	Nominal Nameplate HP	—	—	5.0	5.0
	Max BHP (208/230/460/575v)	—	—	6.5/ 6.9/ 7.0/ 8.3	6.5/ 6.9/ 7.0/ 8.3
	RPM Range	—	—	882-1078	882-1078
	Max Blower/Shaft RPM	—	—	1200	1200
	Motor Frame Size	—	—	184T	184T
	Fan Qty / Type Fan Diameter (in.)	—	—	2 / Centrifugal 15 x 15	2 / Centrifugal 15 x 15

Physical data (cont)



PHYSICAL DATA - 15 TO 17.5 TONS - RTPF COIL (cont)

	50TC-D17	50TC-E17	50TC-D20	50TC-E20
CONDENSER COIL (CIRCUIT A)				
Coil Type	RTPF	RTPF	RTPF	RTPF
Coil Length (in.)	70	70	70	70
Coil Height (in.)	44	44	44	44
Rows / FPI	2/17	2/17	2/17	2/17
Total Face Area (ft ²)	21.4	21.4	21.4	21.4
CONDENSER COIL (CIRCUIT B)				
Coil Type	RTPF	RTPF	RTPF	RTPF
Coil Length (in.)	70	70	70	70
Coil Height (in.)	44	44	44	44
Rows / FPI	2/17	2/17	2/17	2/17
Total Face Area (ft ²)	21.4	21.4	21.4	21.4
CONDENSER FAN / MOTOR				
Qty / Motor Drive Type	3/direct	3/direct	3/direct	3/direct
Motor HP / RPM	1/4 / 1100	1/4 / 1100	1/4 / 1100	1/4 / 1100
Fan Diameter (in.)	22	22	22	22
FILTERS				
RA Filter # / size (in.)	6/20 x 25 x 2	6/20 x 25 x 2	6/20 x 25 x 2	6/20 x 25 x 2
OA Inlet Screen # / size (in.)	4/16 x 25 x 1	4/16 x 25 x 1	4/16 x 25 x 1	4/16 x 25 x 1

PHYSICAL DATA - 20 TO 27.5 TONS - RTPF COIL

		50TC-D24	50TC-E24	50TC-D28	50TC-E28	50TC-D30
REFRIGERATION SYSTEM		RTPF	RTPF	RTPF	RTPF	RTPF
# Circuits / # Comp. / Type		2 / 2 / Scroll	2 / 2 / Scroll	2 / 2 / Scroll	2 / 2 / Scroll	2 / 2 / Scroll
R-410A Charge A/B (lbs)		20.6/14.7	27.9/20.5	19.8/ 20.4	27.9/ 28.9	27.0/ 28.5
Metering Device		Acutrol	TXV	Acutrol	TXV	Acutrol
High-press. Trip / Reset (psig)		630 / 505	630 / 505	630 / 505	630 / 505	630 / 505
Low-press. Trip / Reset (psig)		54 / 117	27 / 44	54 / 117	27 / 44	54 / 117
EVAP. COIL						
Material		Cu / Al	Cu / Al	Cu / Al	Cu / Al	Cu / Al
Tube Diameter		3/8-in.	3/8-in.	3/8-in.	3/8-in.	3/8-in.
Rows / FPI		4 / 15	4 / 15	4 / 15	4 / 15	4 / 15
Total Face Area (ft ²)		22.00	22.00	23.11	23.11	26
Condensate Drain Conn. Size		3/4-in.	3/4-in.	3/4-in.	3/4-in.	3/4-in.
HUMIDI-MIZER COIL						
Material		—	Cu / Al	—	Cu / Al	—
Tube Diameter		—	3/8-in.	—	3/8-in.	—
Rows / FPI		—	1 / 17	—	1 / 17	—
Total Face Area (ft ²)		—	22.00	—	23.11	—
EVAPORATOR FAN AND MOTOR						
STANDARD STATIC	Motor Qty / Belt Qty / Driver Type	1 / 1 /Belt	1 / 1 /Belt	1 / 1 /Belt	1 / 1 /Belt	—
	Nominal Nameplate HP	5.25	5.25	5.25	5.25	—
	Max BHP	4.9	4.9	4.9	4.9	—
	RPM Range	690-863	690-863	717-911	717-911	—
	Max Blower/Shaft RPM	1200	1200	1200	1200	—
	Motor Frame Size	56	56	56	56	—
	Fan Qty / Type	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	—
Fan Diameter (in.)	15 x 15	15 x 15	15 x 15	15 x 15	—	
STANDARD STATIC -HIGH EFF.	Motor Qty / Belt Qty / Driver Type	—	—	—	—	1 / 1 Belt
	Nominal Nameplate HP	—	—	—	—	5.0
	Max BHP	—	—	—	—	6.5/ 6.9/ 7.0/ 8.3
	RPM Range	—	—	—	—	751-954
	Max Blower/Shaft RPM	—	—	—	—	1300
	Motor Frame Size	—	—	—	—	184T
	Fan Qty / Type	—	—	—	—	2 / Centrifugal
Fan Diameter (in.)	—	—	—	—	15 x 15	
MEDIUM STATIC - HIGH EFF.	Motor Qty / Belt Qty / Driver Type	1 / 1/ Belt	1 / 1/ Belt	1 / 1/ Belt	1 / 1/ Belt	1 / 1/ Belt
	Nominal Nameplate HP	5.0	5.0	5.0	5.0	7.5
	Max BHP (208/230/460/575v)	6.5/ 6.9/ 7.0/ 8.3	6.5/ 6.9/ 7.0/ 8.3	6.5/ 6.9/ 7.0/ 8.3	6.5/ 6.9/ 7.0/ 8.3	10.5/11.9/11.9/11
	RPM Range	835-1021	835-1021	913-1116	913-1116	973-1175
	Max Blower/Shaft RPM	1200	1200	1200	1200	1300
	Motor Frame Size	184T	184T	184T	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	
HIGH STATIC - HIGH EFF.	Motor Qty / Belt Qty / Driver Type	1 / 1/ Belt	1 / 1/ Belt	1 / 1/ Belt	1 / 1/ Belt	1 / 2/ Belt
	Nominal Nameplate HP	7.5	7.5	7.5	7.5	10.0
	Max BHP (208/230/460/575v)	10.5/11.9/11.9/11	10.5/11.9/11.9/11	10.5/11.9/11.9/11	10.5/11.9/11.9/11	11.9/12.9/12.9/14.1
	RPM Range	941-1176	941-1176	941-1176	941-1176	1015-1299
	Max Blower/Shaft RPM	1200	1200	1200	1200	1300
	Motor Frame Size	213T	213T	213T	213T	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	
CONDENSER COIL (CIRCUIT A)						
Coil Type		RTPF	RTPF	RTPF	RTPF	RTFP
Coil Length (in.)		82	82	75	75	95
Coil Height (in.)		44	44	52	52	52
Rows / FPI		2/17	2/17	2/17	2/17	2/17
Total Face Area (ft ²)		25.1	25.1	27.1	27.1	34.3

Physical data (cont)



PHYSICAL DATA - 20 TO 27.5 TONS - RTPF COIL (cont)

	50TC-D24	50TC-E24	50TC-D28	50TC-E28	50TC-D30
CONDENSER COIL (CIRCUIT B)					
Coil Type	RTPF	RTPF	RTPF	RTPF	RTPF
Coil Length (in.)	57	57	75	75	95
Coil Height (in.)	44	44	52	52	52
Rows / FPI	2/17	2/17	2/17	2/17	2/17
Total Face Area (ft ²)	17.4	17.4	27.1	27.1	34.3
CONDENSER FAN / MOTOR					
Qty / Motor Drive Type	4/Direct	4/Direct	4/Direct	4/Direct	6/Direct
Motor HP / RPM	1/4 / 110	1/4 / 110	1/4 / 110	1/4 / 110	1/4 / 110
Fan Diameter (in.)	22	22	22	22	22
FILTERS					
RA Filter # / Size (in.)	6/20 x 25 x 2	6/20 x 25 x 2	9/16 x 25 x 2	9/16 x 25 x 2	9/16 x 25 x 2
OA inlet Screen # / Size (in.)	4/16 x 25 x 1	4/16 x 25 x 1	4/16 x 25 x 1	4/16 x 25 x 1	4/16 x 25 x 1

FACTORY-INSTALLED OPTIONS AND FIELD-INSTALLED ACCESSORIES

CATEGORY	ITEM	FACTORY-INSTALLED OPTION	FIELD-INSTALLED ACCESSORY
Cabinet	Hinged Access Panels	X	
	California Seismic Compliant Labeling (17-28 sizes only)	X	
Coil Options	Cu/Cu (indoor) coils	X	
	E-coated indoor and outdoor coils	X	
Humidity Control	Humidi-MiZer Adaptive Dehumidification System (17-28 RTPF)	X	
Condenser Protection	Condenser coil hail guard (louvered design)	X	X
Controls	Thermostats, temperature sensors, and subbases		X
	PremierLink™ DDC communicating controller	X	X
	RTU Open multi-protocol controller	X	
	Smoke detector (supply and/or return air)	X	X
	Horn/Strobe Annunciator ⁸		X
	Time Guard II compressor delay control circuit		X
	Phase Monitor		X
	Condensate Overflow switch - for electro-mechanical controls only	X	X
Economizers and Outdoor Air Dampers	EconoMi\$er IV for electro-mechanical controls – Non FDD (Low air leak damper models) ⁶	X	X
	EconoMi\$er2 for DDC controls, complies with FDD (Low Leak and Ultra Low Leak air damper models) ^{6,7}	X	X
	EconoMi\$er X for electro-mechanical controls, complies with FDD. (Low Leak and Ultra Low Leak air damper models) ⁶	X	X
	Motorized 2 position outdoor-air damper	X	X
	Manual outdoor-air damper (25%)	X	X
	Barometric relief ¹	X	X
	Power exhaust-centrifugal blower	X	X
Economizer Sensors and IAQ Devices	Single dry bulb temperature sensors ²	X	X
	Differential dry bulb temperature sensors ²		X
	Single enthalpy sensors ²	X	X
	Differential enthalpy sensors ²		X
	CO ₂ sensor (wall, duct, or unit mounted) ³	X	X
Electric Heat	Electric Resistance Heaters		X
	Single Point Kit ⁹		X
Indoor Motor and Drive	Multiple motor and drive packages	X	
	Staged Air Volume (SAV™) system w/VFD controller (2-stage cool only with electro-mechanical and RTU Open controls)	X	
	Display Kit for SAV system with VFD		X
Low Ambient Control	Winter start kit ³		X
	Motormaster head pressure controller ³		X
Power Options	Convenience outlet (powered)	X	
	Convenience outlet (unpowered)	X	
	Non-fused disconnect ⁴	X	
Roof Curbs	Roof curb 14-in. (356 mm)		X
	Roof curb 24-in. (610 mm)		X
	Adapter Curb (Adapts to Models – DP/DR/HJ/TM/TJ) ⁵ (17-24)		X

NOTES:

- Included with economizer.
- Sensors for optimizing economizer.
- See application data for assistance.
- Non-fused disconnect switch cannot be used when unit FLA rating exceeds 200 amps on 208/230 volt and 100 amps on 460/575 volt units. Carrier Packaged RTUBuilder selects this automatically.
- Not for 50TJE028-028 models using 48DP900041, 48DP900051 or 48DP900061 roof curbs.
- FDD - (Fault Detection and Diagnostic) capability per California Title 24 section 120.2.
- Models with RTU Open DDC controls comply with California Title 24 Fault Detection and Diagnostic (FDD). PremierLink is non FDD.
- Requires a field-supplied 24V transformer for each application. See price pages for details.
- See electric data tables on pages 49-54 for single point kit requirements.

Economizer (dry-bulb or enthalpy)

Economizers can reduce operating costs. 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 coupled to CO₂ sensors, economizers can limit the ventilation air to only that amount required.

Economizers are available, installed and tested by the factory, with either enthalpy or temperature dry-bulb inputs. There are also models for electro-mechanical, direct digital controllers and single speed fan or 2-speed indoor fan motors. 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 low leak versions.

CO₂ Sensor

The CO₂ sensor works with the economizer to intake only the correct amount of outside air for ventilation. As occupants fill your building, the CO₂ sensor detects their presence through increasing CO₂ levels, and opens the economizer appropriately.

When the occupants leave, the CO₂ 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 unpowered)

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 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 unit as ordered from the factory. The sizing of these does not accommodate any power exhaust devices, etc.

Power Exhaust with Barometric Relief

Superior internal building pressure control. This field-installed accessory or factory-installed option may eliminate the need for costly, external pressure control fans.

PremierLink™, DDC Controller

This CCN controller regulates your rooftop's performance to tighter tolerances and expanded limits, as well as

facilitates zoning systems and digital accessories. It also unites your Carrier HVAC equipment together on one, coherent CCN network. The PremierLink controller can be factory-installed, or easily field-installed. Not available with 2-speed indoor fan motor.

RTU Open Protocol Controller

Connect the rooftop to an existing BAS without needing complicated translators or adapter modules using the RTU Open controller. This new controller speaks the 4 most common building automation system languages (BACnet¹, Modbus², N2, and LonWorks³). Use this controller when you have an existing BAS.

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 with PremierLink controller, RTU Open controller, or authorized commercial thermostats.

Filter or Fan Status Switches

Use these differential pressure switches to detect a filter clog or indoor fan motor failure. When used in conjunction with a compatible unit controller/thermostat, the switches will activate an alarm to warn the appropriate personnel.

Motorized 2-Position Damper

The Carrier 2-position, motorized outdoor air damper admits up to 100% outside air. Using reliable, gear-driven technology, the 2-position damper opens to allow ventilation air and closes when the rooftop stops, stopping unwanted infiltration.

Manual OA Damper

Manual outdoor air dampers are an economical way to bring in ventilation air. The dampers are available in 25% versions.

Optional Humidi-MiZer Adaptive Dehumidification System

The Humidi-MiZer adaptive dehumidification system is a factory-installed option that can be ordered with WeatherMaker 50TC size 17-28 rooftop units equipped with RTPF (Cu/Al) condenser coils.

This system expands the envelope of operation of Carrier's WeatherMaker rooftop products to provide unprecedented flexibility to meet year round comfort conditions.

The Humidi-MiZer adaptive dehumidification system has a unique dual operational mode setting. The Humidi-MiZer system provides greater dehumidification of the occupied space by two modes of dehumidification operations in addition to its normal design cooling mode.

The WeatherMaker 50TC 17-28 rooftop coupled with the Humidi-MiZer system is capable of operating in normal design cooling mode, subcooling mode, and hot gas reheat mode. Normal design cooling mode is when the unit will operate under its normal sequence of operation by cycling compressors to maintain comfort conditions.

Subcooling mode will operate to satisfy part load type conditions when the space requires combined sensible and a higher proportion of latent load control. Hot Gas Reheat mode will operate when outdoor temperatures diminish and the need for latent capacity is required for sole humid-

1. BACnet is a trademark of ASHRAE.

2. Modbus is a registered trademark of Schneider Electric.

3. LonWorks is a registered trademark of Echelon Corporation.

ity control. Hot Gas Reheat mode will provide neutral air for maximum dehumidification operation.

Staged Air Volume (SAV™) Indoor Fan Speed System

Carrier's Staged Air Volume (SAV) system saves energy and installation time by utilizing a Variable Frequency Drive (VFD) to automatically adjust the indoor fan motor speed in sequence with the units cooling operation. Per ASHRAE 90.1-2016 and IECC¹-2015 standards, during the first stage of cooling operation the VFD will adjust the fan motor to provide 66% of the total cfm established for the unit. When a call for the second stage of cooling is required, the VFD will allow the total cfm for the unit established (100%). During the heating mode the VFD will allow total design cfm (100%) operation and during the ventilation mode the VFD will allow operation to 66% of total cfm.

Compared to single speed indoor fan motor systems, Carrier's SAV system can save substantial energy, 25%+, versus single speed indoor fan motor systems.

IMPORTANT: Data based on 0.10 (\$/kWh) in an office application utilizing Carrier's HAP 4.6 simulation software program.

The VFD used in Carrier's SAV system has soft start capabilities to slowly ramp up the speeds, thus eliminating any high inrush air volume during initial start-up. It also has internal over current protection for the fan motor and a field-installed display kit that allows adjustment and in depth diagnostics of the VFD.

This SAV system is available on models with 2-stage cooling operation with electrical mechanical or RTU Open, Multi Protocol controls. Both space sensor and conventional thermostats controls can be used to provide accurate control in any application.

The SAV system is very flexible for initial fan performance set up and adjustment. The standard factory shipped VFD is pre-programmed to automatically stage the fan speed between the first and second stage of cooling. The unit fan performance static pressure and cfm can be easily adjusted using the traditional means of pulley adjustments. The other means to adjust the unit static and cfm performance is to utilize the field-installed display kit and adjust the frequency and voltage in the VFD to required performance requirements. In either case, once set up, the VFD will automatically adjust the speed between the cooling stage operations.

Motormaster Head Pressure Controller

The Motormaster motor controller is a low ambient, head pressure controller kit that is designed to maintain the unit's condenser head pressure during periods of low ambient cooling operation. This device should be used as an alternative to economizer free cooling when economizer usage is either not appropriate or desired. The Motormaster will either cycle the outdoor-fan motors or operate them at reduced speed to maintain the unit operation, depending on the model.

The Motormaster controller allows cooling operation down to -20°F (-29°C) ambient conditions.

Winter Start Kit

The winter start kit by Carrier extends the low ambient limit of your rooftop to 25°F (-4°C). The kit bypasses the low pressure switch, preventing nuisance tripping of the low pressure switch. Other low ambient precautions may still be prudent.

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 provisions/connection points are available as standard with every unit. When bottom connections are required, field-furnished couplings are required.

Hinged Access Panels

Allows access to unit's major components with specifically designed hinged access panels. Panels are: filter, control box and fan motor.

Electric Heaters / Single Point Kit

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

Condensate Overflow Switch (Factory-Installed Option)

This sensor and related controller monitors the condensate level in the drain pan and shuts down compression operation when overflow conditions occur. It includes:

- Indicator light - solid red (more than 10 seconds on water contact - compressors disabled), blinking red (sensor disconnected)
- 10 second delay to break - eliminates nuisance trips from splashing or waves in pan (sensor needs 10 seconds of constant water contact before tripping)
- Disables the compressor(s) operation when condensate plug is detected, but still allows fans to run for economizer.

NOTE: The Condensate Overflow switch FIOP is only available for units with electro-mechanical controls.

California OSHPD Seismic Certification Label (17-28 sizes)

Units meet the seismic requirements of the International Code Council Evaluation Service (ICC-ES) document AC156 (Acceptance Criteria for Seismic Qualification by Shake-Table Testing of Nonstructural Components and Systems) and per International Building Code (IBC 2009) at an SDS (g) value of 2.00 z/h=1.0, Ip=1.5 and certified by independent structural engineers. A certification label is applied to the unit that meets the CA OSHPD Special Seismic Certification pre-approval labeling requirements on the external chassis of the unit.

1. IECC is a registered trademark of International Code Council, Inc.

OPTIONS AND ACCESSORIES WEIGHT ADDERS

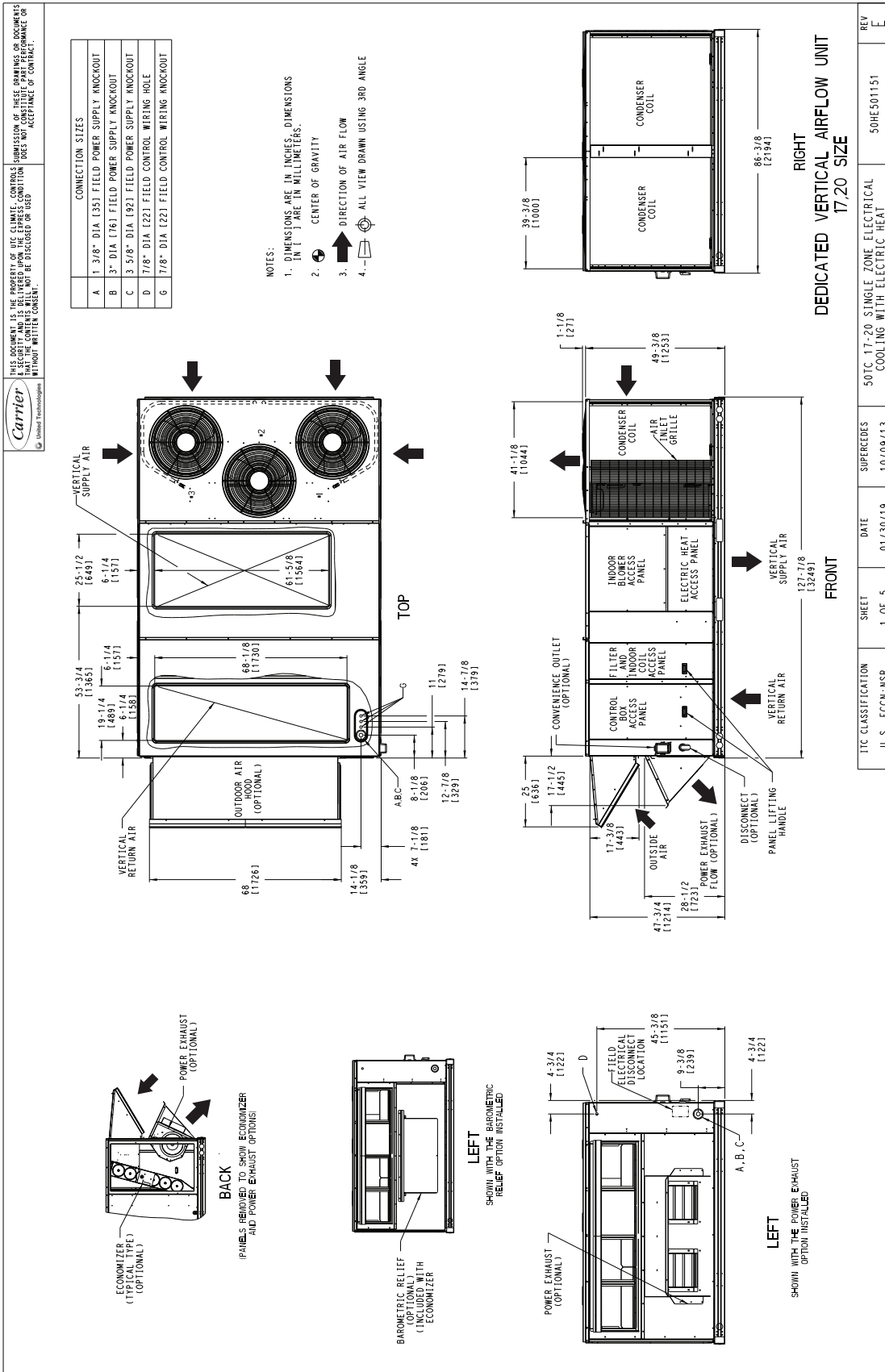
BASE UNIT WITH OPTIONS AND ACCESSORIES (WEIGHT ADDERS)	MAX WEIGHT ADDER									
	50TC-*17		50TC-*20		50TC-*24		50TC-*28		50TC-*30	
	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
Base Unit Operating Weight with RTPF coil	1808	822	1823	829	1973	897	2098	954	2193	997
Base Unit Operating Weight with Novation coil	1697	771	1712	778	1862	846	1991	905	—	—
Humidi-MiZer® System ¹	110	50	110	50	120	55	120	55	—	—
Power Exhaust	125	57	125	57	125	57	125	57	125	57
EconoMi\$er (IV, X, or 2)	246	112	246	112	246	112	246	112	246	112
Cu/Cu Condenser Coil ²	28	13	28	13	30	14	34	15	34	15
Cu/Cu Condenser and Evaporator Coils ²	53	24	53	24	58	26	64	29	64	29
Electric Heater	85	39	85	39	85	39	85	39	85	39
Single Point Kit	15	7	15	7	15	7	15	7	15	7
Roof Curb 14-in. (356 mm)	240	190	255	116	255	116	255	116	255	116
Roof Curb 24-in. (610 mm)	340	154	340	154	355	161	355	161	355	161
Louvered Hail Guard	60	27	60	27	120	54	150	68	150	68
CO ₂ Sensor	5	2	5	2	5	2	5	2	5	2
Return Smoke Detector	5	2	5	2	5	2	5	2	5	2
Supply Smoke Detector	5	2	5	2	5	2	5	2	5	2
Fan/Filter Status Switch	2	1	2	1	2	1	2	1	2	1
Non-Fused Disconnect	15	7	15	7	15	7	15	7	15	7
Powered Convenience Outlet	35	16	35	16	35	16	35	16	35	16
Unpowered Convenience Outlet	5	2	5	2	5	2	5	2	5	2
Enthalpy Sensor	2	1	2	1	2	1	2	1	2	1
Differential Enthalpy Sensor	3	1	3	1	3	1	3	1	3	1
Two Position Motorized Damper	50	23	50	23	50	23	65	29	65	29
Manual Damper	35	16	35	16	35	16	40	18	40	18
Field Filter Track 4-in. (102 mm)	22	10	22	10	22	10	22	10	22	10
Motormaster Controller	35	16	35	16	35	16	35	16	35	16
Medium Static Motor/Drive	5	2	6	3	6	3	6	3	10	5
High Static Motor/Drive	11	5	12	5	16	7	16	7	20	9
SAV™ System with VFD	20	9	20	9	20	9	20	9	20	9

¹ For Humidi-MiZer system, add Motormaster controller.

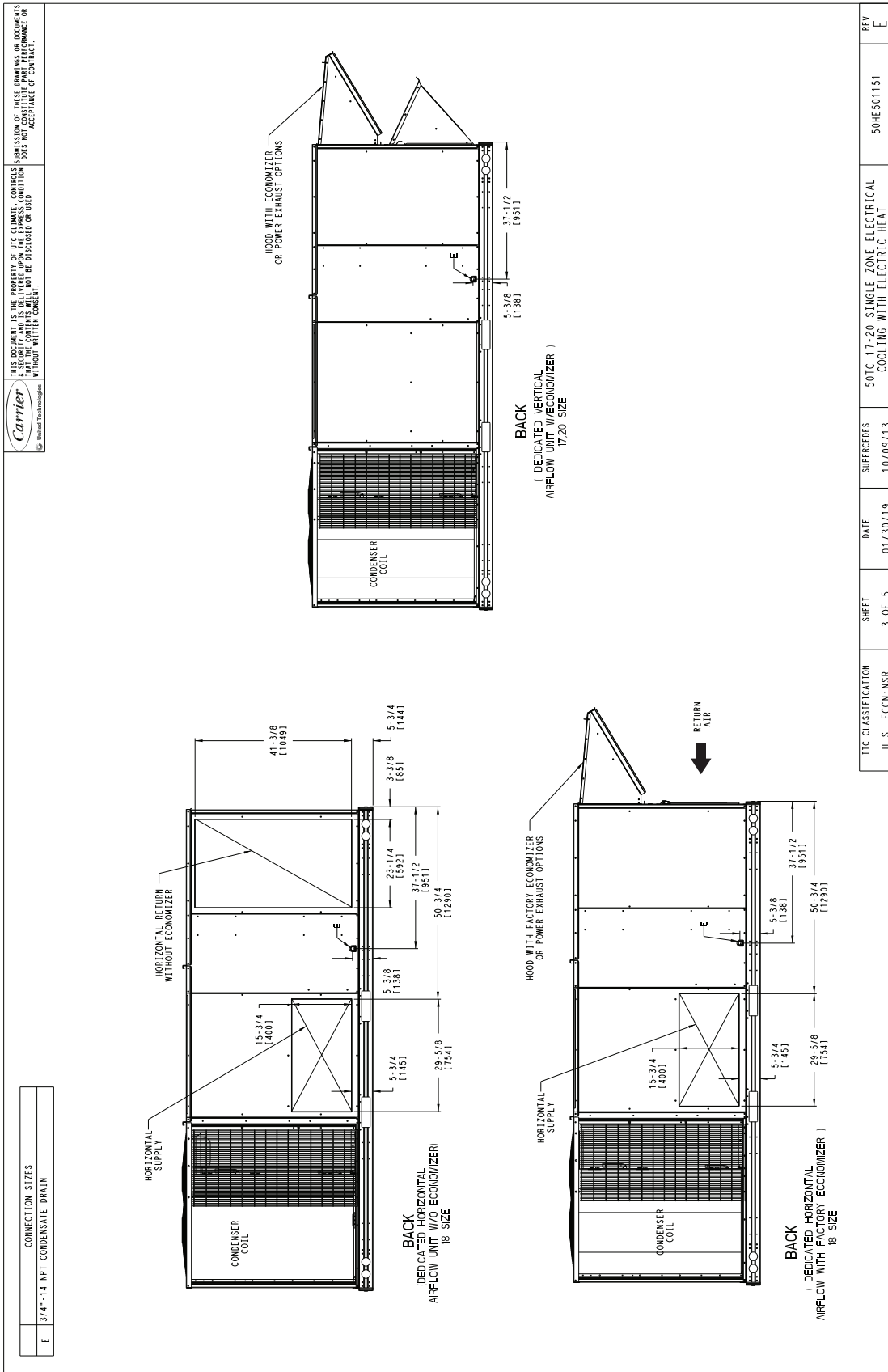
— Not Available

² Where available

50TC-*17-20 VERTICAL AIRFLOW



50TC-17-20 BACK VIEW AND CONDENSATE DRAIN LOCATION



REV	E
50HE501151	
50TC 17-20 SINGLE ZONE ELECTRICAL COOLING WITH ELECTRIC HEAT	
SUPERCEDES	10/09/13
DATE	01/30/19
SHEET	3 OF 5
ITC CLASSIFICATION	U.S. ECCN: NSR

50TC-*17-20 CORNER WEIGHTS AND CLEARANCES

Carrier
United Technologies

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UNIT	STD UNIT WEIGHT		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.								
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z						
50TC17	1697	771	403	183	412	187	446	203	436	198	44	3/4	1137	64	3/4	11645	16	1/2	1419
50TC20	1712	778	407	185	416	189	450	204	440	200	44	3/4	1137	64	3/4	11645	16	1/2	1419
50TC17	1808	822	415	189	492	224	488	222	412	187	42	29/32	11090	69	1/4	11759	16	1/2	1419
50TC18	1793	815	375	170	419	191	528	240	472	214	48	11219	67	3/8	11711	16	1/2	1419	
50TC20	1823	829	419	190	496	226	493	224	415	189	42	29/32	11090	69	1/4	11759	16	1/2	1419

RTPF - ROUND TUBE, PLATE FIN (COPPER/ALUM)
MCH - NOVATION (CALUM/ALUM)

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

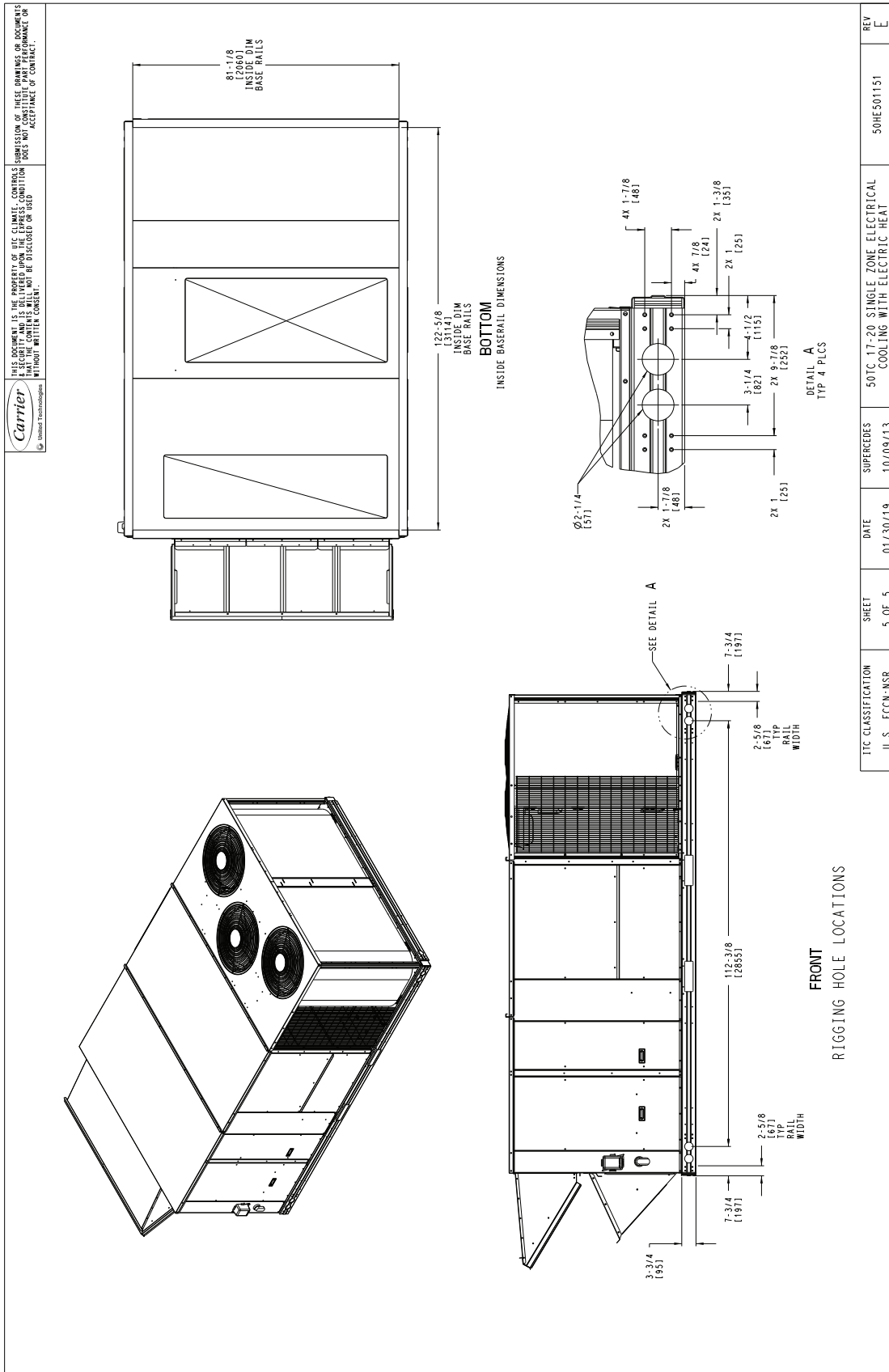
NOTES:

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

SURFACE	SERVICE WITH CONDUCTIVE BARRIER		SERVICE WITH NONCONDUCTIVE BARRIER		OPERATING CLEARANCE	
	LBS.	KG.	LBS.	KG.	LBS.	KG.
FRONT	48	11219mm	36	914mm	18	1457mm
LEFT	48	11219mm	42	11067mm	18	1457mm
BACK	42	11067mm	36	914mm	18	1457mm
LEFT WITH HOOD	36	914mm	36	914mm	18	1457mm
RIGHT	36	914mm	36	914mm	18	1457mm
TOP	72	11829mm	72	11829mm	72	11829mm

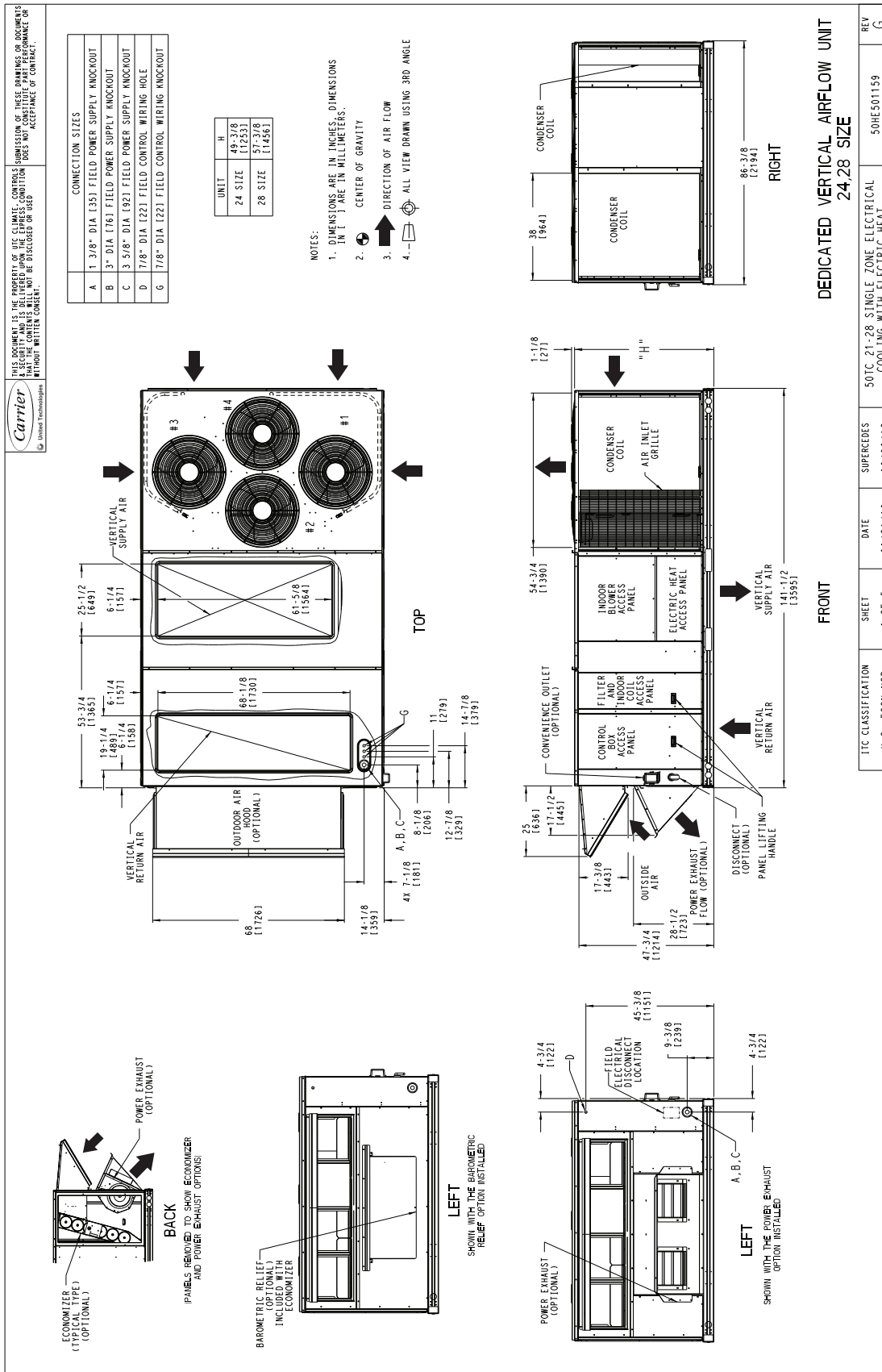
ITC CLASSIFICATION	SHEET	DATE	REV
U.S. - ECCN: NSR	4 OF 5	01/30/19	E
SUPERCEDES			50HE501151
50TC 17-20 SINGLE ZONE ELECTRICAL COOLING WITH ELECTRIC HEAT			

50TC-*17-20 BOTTOM VIEW

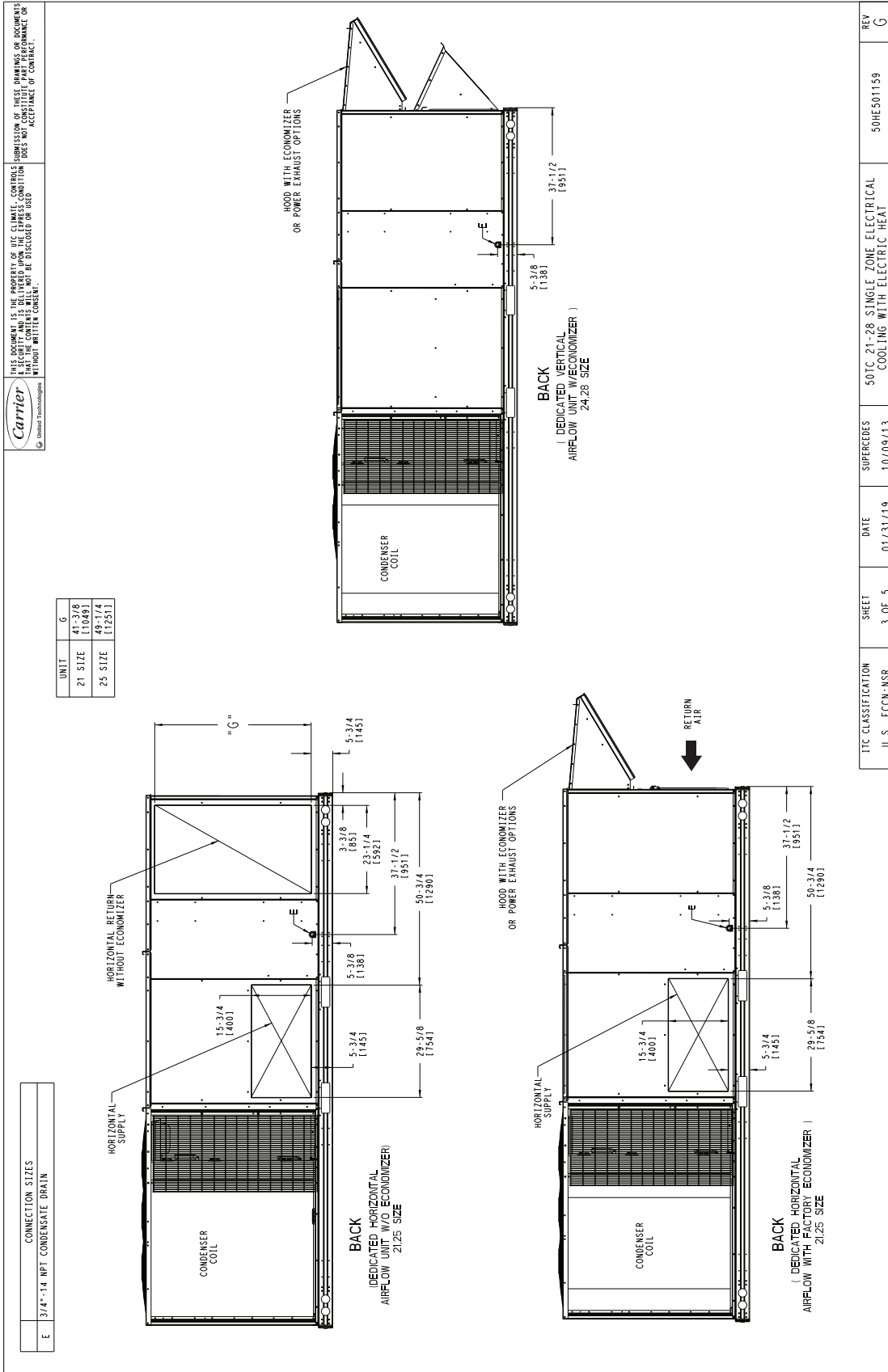


REV	DATE	SHEET	DATE	SUPERCEDES	DESCRIPTION
E	01/30/19	5 OF 5	10/09/13	50TC 17-20 SINGLE ZONE ELECTRICAL COOLING WITH ELECTRIC HEAT	
50HE501151					

50TC-*24-28 VERTICAL AIRFLOW



50TC-*24-28 BACK VIEW AND CONDENSATE DRAIN LOCATION



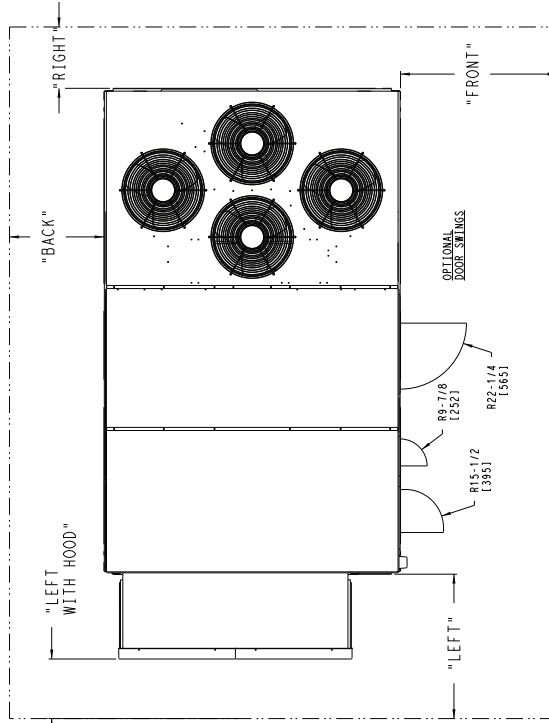
50TC-*24-28 CORNER WEIGHTS AND CLEARANCES

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UNIT	OUTDOOR COIL TYPE	STD. UNIT WEIGHT (LBS./KG.)		CORNER A WEIGHT (LBS./KG.)		CORNER B WEIGHT (LBS./KG.)		CORNER C WEIGHT (LBS./KG.)		CORNER D WEIGHT (LBS./KG.)		C.G.			
		1852	846	1852	846	1852	846	1852	846	1852	846	X	Y		
50TC24	MCX	1852	846	248	113	248	113	248	113	248	113	82	7/8 (2105)	16	1/2 (4419)
50TC26	MCX	1981	905	248	113	248	113	248	113	248	113	82	7/8 (2105)	19	(4831)
50TC28	MCX	2031	917	248	113	248	113	248	113	248	113	82	7/8 (2105)	19	(4831)
50TC24	R1FF	2031	917	248	113	248	113	248	113	248	113	82	7/8 (2105)	19	(4831)
50TC26	R1FF	2148	976	248	113	248	113	248	113	248	113	82	7/8 (2105)	19	(4831)
50TC28	R1FF	2098	954	248	113	248	113	248	113	248	113	82	7/8 (2105)	19	(4831)

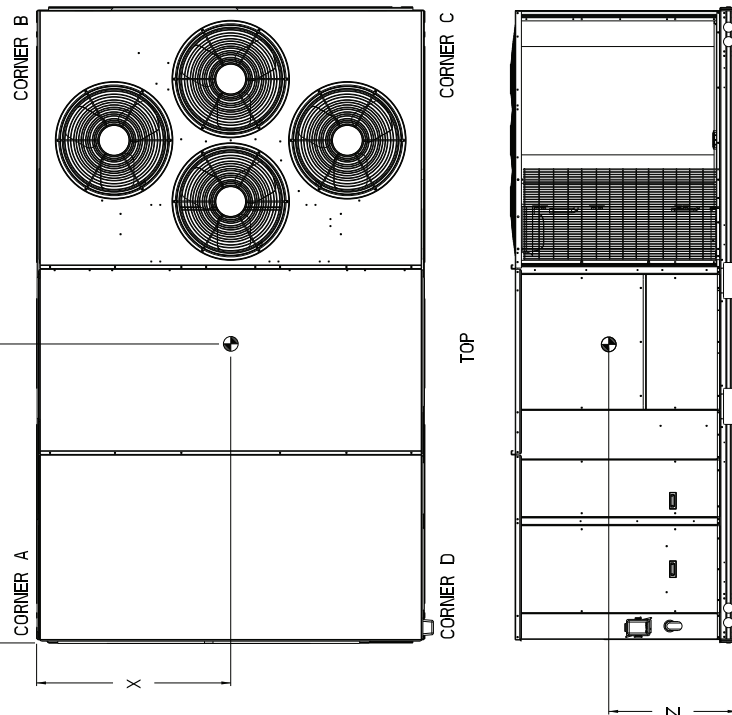
* STANDARD UNIT WEIGHT IS WITHOUT ELECTRIC HEAT AND WITHOUT PACKAGING. FOR OTHER OPTIONS AND ACCESSORIES, REFER TO THE PRODUCT DATA CATALOG.



NOTES:

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

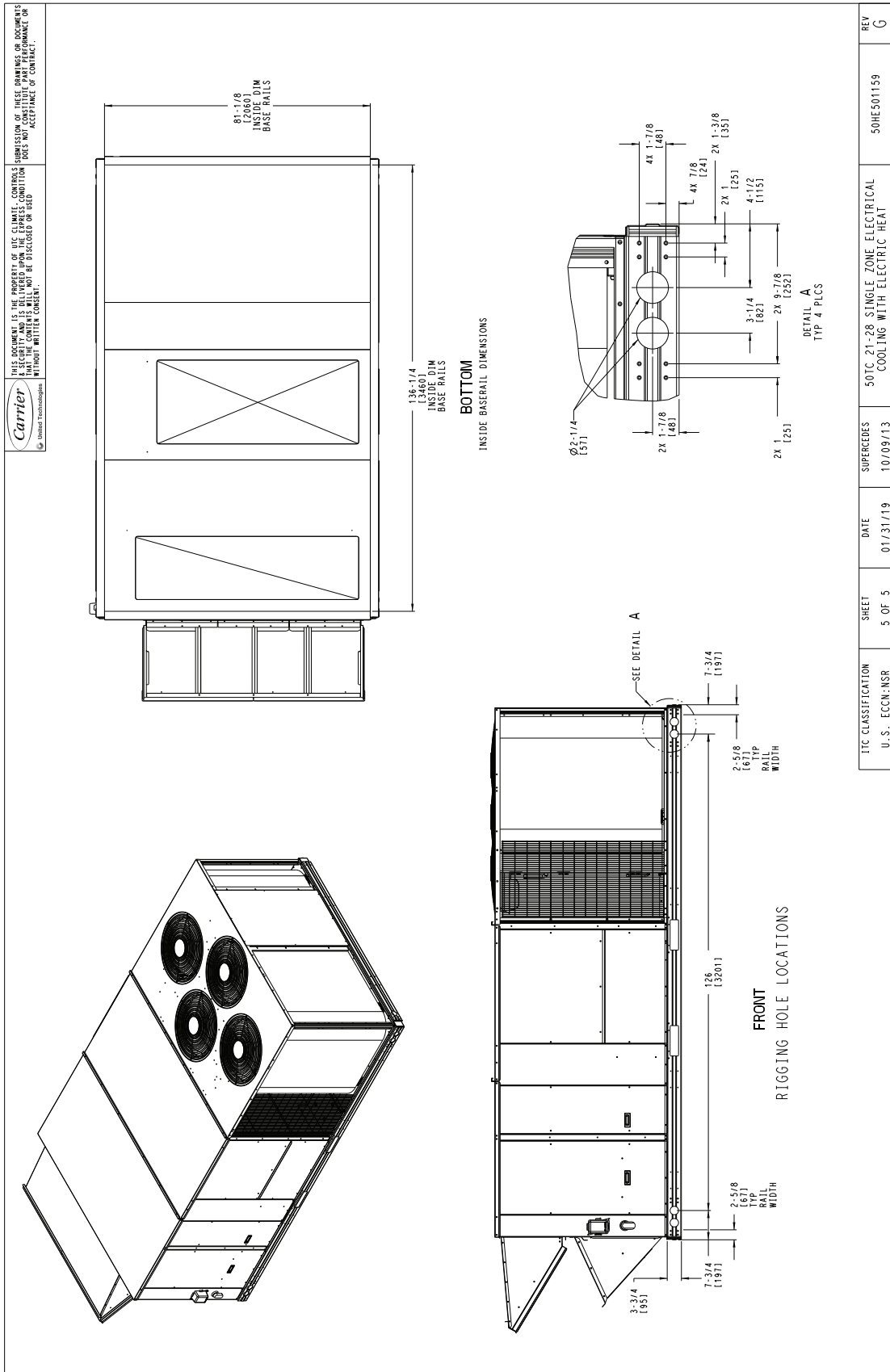
SURFACE	CLEARANCE		
	SERVICE WITH CONDUCTIVE BARRIER	NONCONDUCTIVE BARRIER	OPERATING CLEARANCE
FRONT	48 [1219mm]	36 [914mm]	18 [457mm]
LEFT	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK	42 [1067mm]	36 [914mm]	18 [457mm]
LEFT WITH HOOD	36 [914mm]	36 [914mm]	18 [457mm]
RIGHT	36 [914mm]	36 [914mm]	18 [457mm]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



FRONT

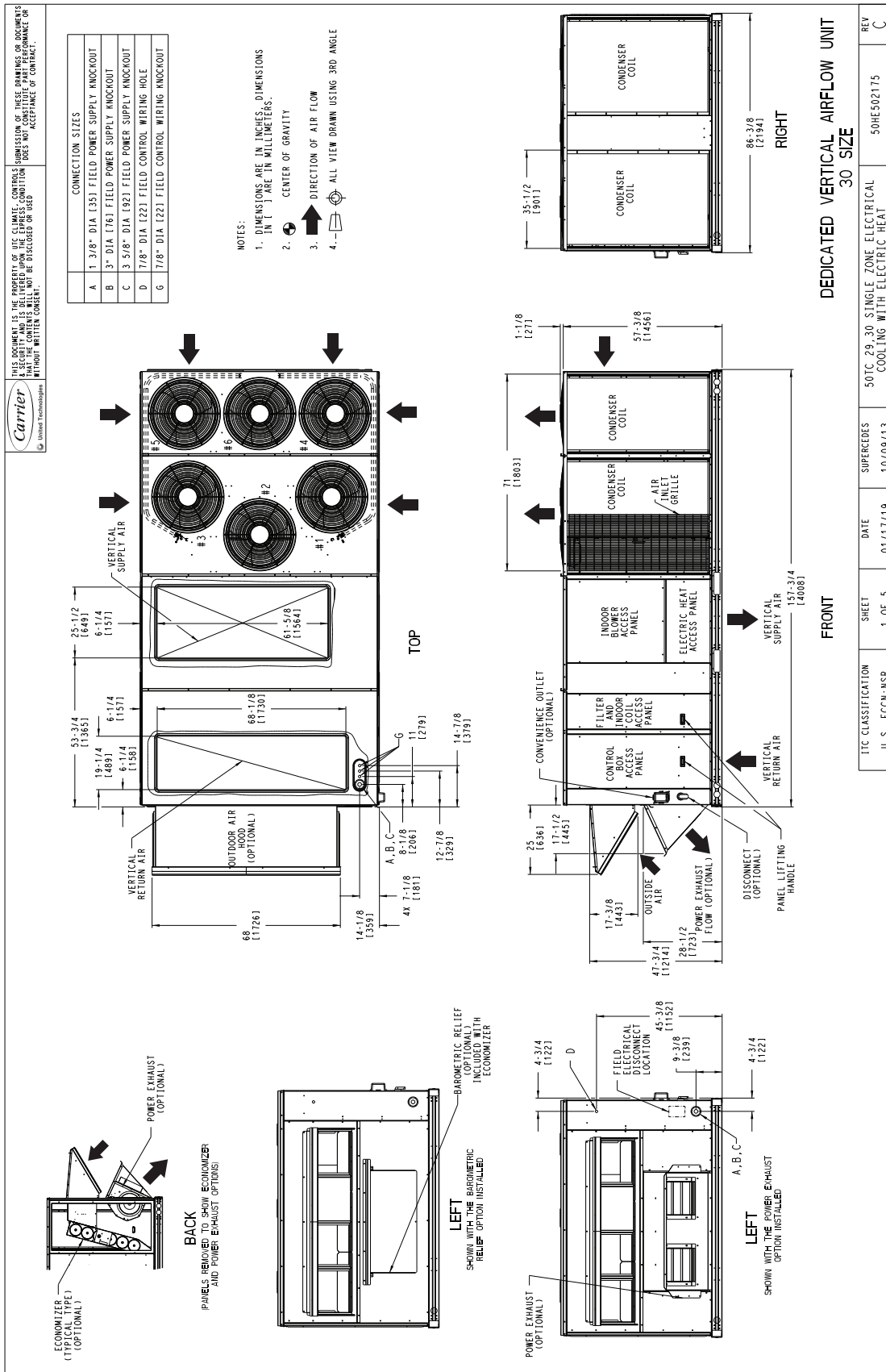
TIC CLASSIFICATION	SHEET	DATE	REV
U.S. ECCN: NSR	4 OF 5	01/31/19	G
50TC 21-28 SINGLE ZONE ELECTRICAL COOLING WITH ELECTRIC HEAT			50HE501159

50TC-*24-28 BOTTOM VIEW



TTC CLASSIFICATION	SHEET	DATE	SUPERCEDES	REV
U.S. ECCN: NSR	5 OF 5	01/31/19	10/09/13	G
50TC 21-28 SINGLE ZONE ELECTRICAL COOLING WITH ELECTRIC HEAT				50HE50159

50TC-30 VERTICAL AIRFLOW

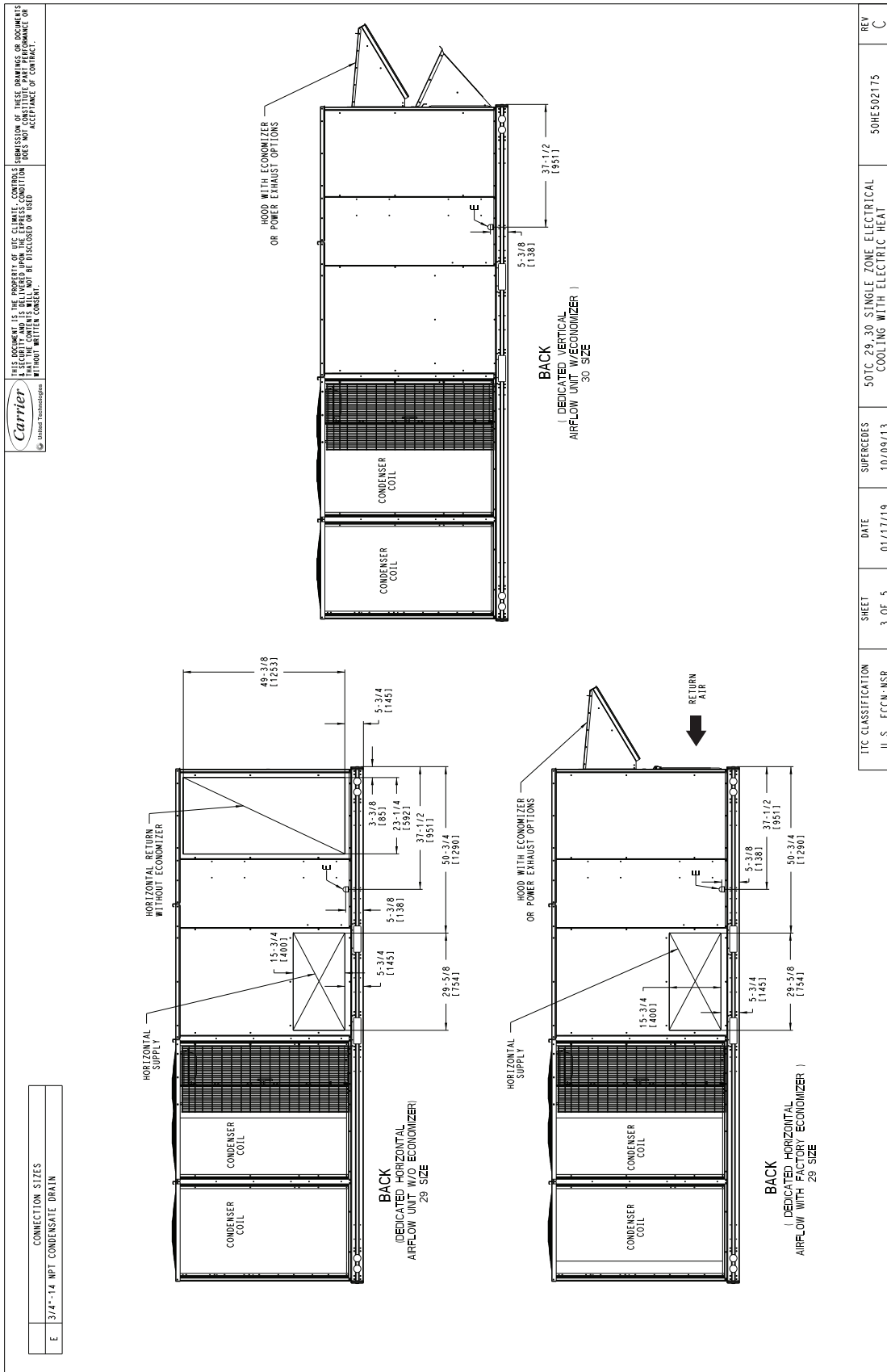


DEDICATED VERTICAL AIRFLOW UNIT

30 SIZE

I/C CLASSIFICATION	SHEET	DATE	SUPERCEDES	REV
U.S. ECCN: NSR	1 OF 5	01/17/19	10/09/13	C
50TC 29.30 SINGLE ZONE ELECTRICAL COOLING WITH ELECTRIC HEAT				50HE502175

50TC-*30 BACK VIEW AND CONDENSATE DRAIN LOCATION



50TC-*30 CORNER WEIGHTS AND CLEARANCES

Carrier
United Technologies

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"LEFT WITH HOOD" "BACK" "RIGHT" "FRONT"

OPTIONAL REFRIGERANTS

R5-7/8 [232] R22-1/4 [1565] R15-1/2 [1395]

NOTES:

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

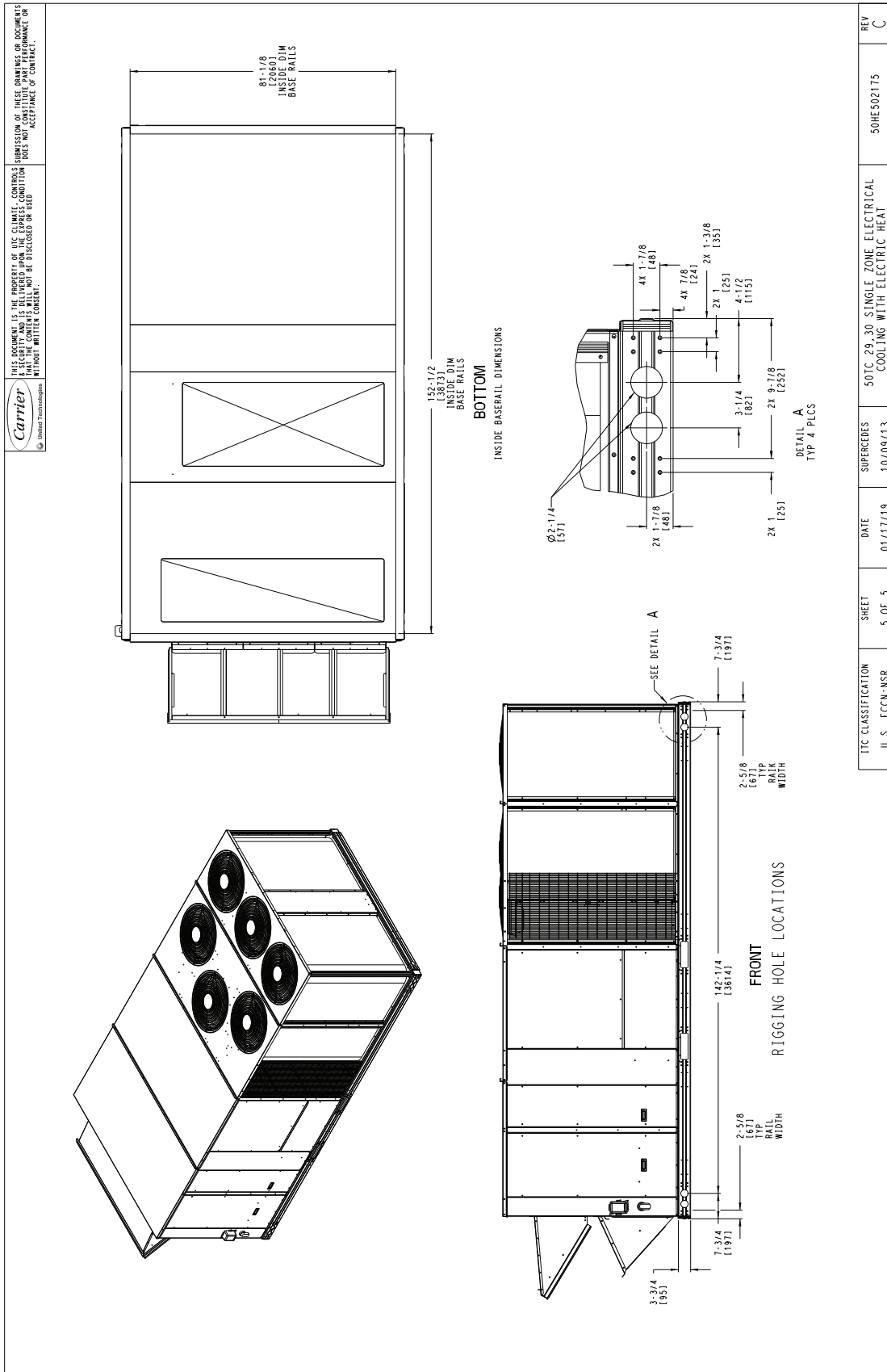
UNIT	CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.					
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y				
50TC29	2193	997	545	248	528	240	551	251	569	259	44 [111.8]	77 1/2 [1969]	19 [483]	7
50TC30	2813	1142	664	302	566	257	591	269	693	315	44 [111.8]	72 1/2 [1842]	19 [483]	

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

SURFACE	CLEARANCE		
	SERVICE WITH: CONDUCTIVE BARRIER	NONCONDUCTIVE BARRIER	OPERATING CLEARANCE
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	01/17/19	50HE502175 C

50TC-*30 BOTTOM VIEW



TIC CLASSIFICATION	SHEET	DATE	SUPERCEDES	REV
U.S. ECCN: NSR	5 OF 5	01/17/19	10/09/13	C
50TC 29.30 SINGLE ZONE ELECTRICAL COOLING WITH ELECTRIC HEAT				50HE502175

COOLING CAPACITY - 15 TONS

50TC-*17			AMBIENT TEMPERATURE (°F)													
			85			95			105			115				
			EAT (db)			EAT (db)			EAT (db)			EAT (db)				
			75	80	85	75	80	85	75	80	85	75	80	85		
4500 cfm	EAT (wb)	58	TC	159.6	159.1	163.4	148.7	148.4	155.2	136.1	137.1	146.0	122.4	127.2	136.2	
			SHC	132.6	149.6	163.4	127.0	143.9	155.2	120.7	137.1	146.0	113.9	127.2	136.2	
		62	TC	173.9	173.6	173.3	163.1	162.6	162.2	150.5	150.2	149.9	136.8	136.2	136.9	
			SHC	119.4	136.8	153.9	114.1	131.5	148.6	108.2	125.7	142.6	101.9	119.2	135.8	
		67	TC	193.4	193.0	192.5	182.5	182.1	181.7	169.9	169.5	169.1	156.0	155.5	155.2	
			SHC	102.3	119.7	137.0	97.3	114.8	132.3	91.7	109.4	126.9	85.7	103.5	121.1	
	72	TC	213.7	213.2	212.6	203.5	203.0	202.5	191.0	190.5	189.9	177.1	176.6	176.1		
		SHC	84.0	101.7	119.2	79.7	97.4	115.0	74.6	92.4	109.9	69.1	86.9	104.6		
	76	TC	—	227.8	228.5	—	219.6	219.1	—	207.9	207.4	—	194.1	193.5		
		SHC	—	89.9	103.7	—	82.5	100.2	—	78.1	95.8	—	73.0	97.2		
	5250 cfm	EAT (wb)	58	TC	168.7	168.5	176.4	157.0	158.2	167.7	143.9	148.2	158.0	129.5	137.5	147.4
				SHC	161.3	163.9	176.4	138.9	157.2	167.7	132.4	148.2	158.0	125.4	137.5	147.4
62			TC	184.2	183.8	183.2	172.3	171.8	171.5	159.1	158.5	159.3	144.4	143.8	147.8	
			SHC	129.4	149.6	168.9	123.9	144.0	163.5	117.9	137.9	156.4	111.4	131.3	147.8	
67			TC	204.7	204.0	203.5	193.1	192.6	192.2	179.7	179.2	178.7	164.8	164.3	163.6	
			SHC	109.3	129.5	149.6	104.3	124.7	144.9	98.6	119.1	139.4	92.5	113.1	133.3	
72		TC	224.6	224.1	223.6	214.4	213.7	213.1	202.0	201.4	200.7	187.0	186.4	185.8		
		SHC	87.5	107.9	128.2	83.4	103.9	124.3	78.6	99.2	119.6	72.9	93.6	114.1		
76		TC	—	239.1	239.6	—	230.6	230.1	—	218.4	217.7	—	204.4	203.7		
		SHC	—	92.6	110.2	—	86.4	107.0	—	82.0	102.6	—	77.1	97.8		
6000 cfm		EAT (wb)	58	TC	176.9	178.5	188.9	164.3	168.9	179.6	150.3	158.4	169.1	136.1	146.9	157.7
				SHC	157.4	178.5	188.9	151.1	168.9	179.6	144.3	158.4	169.1	136.1	146.9	157.7
	62		TC	193.2	192.7	192.2	180.4	179.7	180.7	166.2	165.6	170.1	150.5	150.0	158.1	
			SHC	140.2	162.8	184.2	134.4	156.9	177.8	128.1	150.6	168.9	121.3	143.5	158.1	
	67		TC	214.4	213.7	213.0	202.1	201.6	201.0	187.7	187.1	186.4	171.8	171.1	170.4	
			SHC	117.3	140.3	163.0	112.1	135.3	158.2	106.2	129.4	152.2	99.8	123.1	145.9	
	72	TC	234.9	234.6	234.2	224.0	223.3	222.5	210.9	210.1	209.3	194.9	194.1	193.4		
		SHC	92.7	115.9	139.1	88.4	111.8	134.8	83.4	106.8	130.0	77.5	101.0	124.3		
	76	TC	—	250.7	250.9	—	240.9	240.1	—	227.5	226.7	—	212.7	211.8		
		SHC	—	95.7	118.9	—	92.1	115.3	—	87.4	110.8	—	82.4	105.8		
	6750 cfm	EAT (wb)	58	TC	182.5	187.4	198.5	169.3	177.4	188.7	156.0	166.4	177.8	142.9	154.4	165.9
				SHC	167.5	187.4	198.5	161.2	177.4	188.7	153.0	166.4	177.8	142.9	154.4	165.9
62			TC	199.3	198.7	199.6	186.0	185.2	188.9	171.2	170.5	208.4	154.7	155.5	166.2	
			SHC	148.6	173.7	196.6	142.8	167.6	188.9	136.4	161.1	208.4	115.2	152.6	166.2	
67			TC	220.4	219.6	218.8	208.2	207.4	206.6	193.2	192.5	191.7	176.8	176.1	175.2	
			SHC	122.6	148.2	173.6	117.6	143.4	168.7	111.6	137.6	162.9	97.2	131.3	156.3	
72		TC	241.2	240.5	240.2	229.8	228.9	228.1	216.3	215.4	214.6	200.2	199.4	198.6		
		SHC	95.1	120.9	146.6	90.8	116.8	142.6	85.8	111.9	137.8	80.0	106.2	118.0		
76		TC	—	257.2	256.7	—	246.6	245.9	—	233.0	232.1	—	217.6	216.7		
		SHC	—	98.4	124.2	—	94.8	120.7	—	90.2	116.3	—	85.1	111.3		
7500 cfm		EAT (wb)	58	TC	187.3	195.3	206.8	174.4	184.9	196.8	161.5	173.5	185.5	148.9	161.1	173.2
				SHC	177.5	195.3	206.8	169.9	184.9	196.8	161.5	173.5	185.5	148.9	161.1	173.2
	62		TC	204.3	203.5	207.1	190.6	189.9	197.1	175.1	175.4	185.7	158.4	161.2	173.5	
			SHC	156.5	183.9	207.1	150.7	177.9	197.1	144.1	170.2	185.7	137.1	161.2	173.5	
	67		TC	225.2	224.4	223.4	213.1	212.2	211.3	197.8	197.0	196.2	180.8	179.9	179.1	
			SHC	127.5	155.8	183.5	122.8	151.2	178.9	116.8	145.5	173.1	110.3	139.0	166.3	
	72	TC	246.1	245.5	244.9	234.5	233.6	232.8	220.6	219.7	218.6	204.7	203.7	202.7		
		SHC	97.1	125.6	153.8	92.9	121.6	150.1	87.9	116.8	145.3	82.3	111.2	139.9		
	76	TC	—	262.3	261.6	—	251.3	250.5	—	237.3	236.3	—	221.6	220.6		
		SHC	—	100.9	129.2	—	97.3	125.8	—	92.8	121.5	—	87.7	116.6		

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, SUBCOOLING MODE (15 TONS)

TEMP (°F) AIR ENT CONDENSER (Edb)		AIR ENTERING EVAPORATOR - CFM								
		4,500			6,000			7,500		
		AIR ENTERING EVAPORATOR – Ewb (°F)								
		72	67	62	72	67	62	72	67	62
75	TC	208.5	190.6	172.6	229.2	208.6	188.1	247.8	224.9	202.0
	SHC	94.0	114.5	135.0	104.5	125.2	145.9	113.0	133.8	154.6
	kW	13.42	13.05	12.70	13.60	13.21	12.80	13.82	13.36	13.15
85	TC	198.3	180.7	163.0	214.9	194.8	174.6	229.8	207.4	185.1
	SHC	74.1	99.6	125.1	85.2	110.9	136.7	94.1	120.0	145.9
	kW	14.79	14.42	14.10	14.97	14.58	14.20	15.19	14.73	14.51
95	TC	188.2	170.8	153.4	200.6	180.9	161.1	211.9	190.0	168.1
	SHC	54.4	84.8	115.3	65.9	96.7	127.5	75.1	106.2	137.2
	kW	16.23	15.86	15.50	16.41	16.02	15.60	16.63	16.17	15.95
105	TC	178.1	160.9	143.8	186.4	167.0	147.7	193.9	172.5	151.2
	SHC	34.6	70.0	105.4	46.5	82.4	118.2	56.1	92.3	128.5
	kW	17.47	17.10	16.80	17.65	17.26	16.90	17.87	17.41	17.25
115	TC	167.9	151.1	134.2	172.1	153.2	134.2	175.9	155.1	134.5
	SHC	14.8	55.2	95.6	27.2	68.1	109.0	37.1	78.5	119.8
	kW	18.87	18.50	18.20	19.05	18.66	18.30	19.27	18.81	18.55

COOLING CAPACITIES, HOT GAS REHEAT MODE (15 TONS)

TEMP (°F) AIR ENT CONDENSER (Edb)		AIR ENTERING EVAPORATOR - Ewb (°F)								
		75 DRY BULB			75 DRY BULB			75 DRY BULB		
		62.5 WET BULB			64 WET BULB			65.3 WET BULB		
		(50% RELATIVE)			(56% RELATIVE)			(60% RELATIVE)		
		AIR ENTERING EVAPORATOR – CFM								
		4,500	6,000	7,500	4,500	6,000	7,500	4,500	6,000	7,500
80	TC	80.10	85.50	91.30	82.70	90.90	97.10	86.00	95.40	100.50
	SHC	12.70	22.30	34.20	5.10	12.10	21.20	-2.10	4.20	10.50
	kW	12.44	12.67	12.78	12.55	12.88	13.10	12.65	13.02	13.12
75	TC	82.30	87.60	93.40	84.70	93.00	99.20	88.10	97.30	102.50
	SHC	14.30	24.20	36.00	6.70	13.70	23.10	-0.50	5.80	12.60
	kW	12.38	12.62	12.73	12.50	12.83	13.05	12.62	12.98	13.07
70	TC	84.40	89.60	94.70	87.00	95.10	101.30	90.30	99.50	104.60
	SHC	16.10	25.70	37.30	8.20	15.80	24.50	1.10	7.50	13.70
	kW	12.34	12.58	12.69	12.47	12.78	13.03	12.59	12.93	13.02
60	TC	88.50	93.90	99.80	91.20	99.40	105.50	94.40	103.70	108.90
	SHC	19.40	29.20	40.70	11.50	18.60	27.80	4.60	10.50	16.90
	kW	12.28	12.52	12.63	12.41	12.73	12.97	12.53	12.84	12.94
50	TC	92.80	98.10	104.80	95.40	103.60	110.50	98.80	108.00	113.90
	SHC	22.70	32.20	43.80	14.80	22.10	31.30	7.70	13.90	20.50
	kW	12.21	12.45	12.56	12.34	12.68	12.91	12.46	12.75	12.85
40	TC	97.10	102.50	108.50	99.60	108.00	114.30	103.00	112.40	117.70
	SHC	26.00	35.40	46.90	17.90	25.30	34.40	10.80	17.10	23.80
	kW	12.14	12.38	12.49	12.27	12.60	12.84	12.40	12.70	12.80

LEGEND

Edb — Entering Dry-Bulb
Ewb — Entering Wet-Bulb
kW — Compressor Motor Power Input
ldb — Leaving Dry-Bulb
lwb — Leaving Wet-Bulb
SHC — Sensible Heat Capacity (1000 Btuh) Gross
TC — Total Capacity (1000 Btuh) Gross

NOTES:

1. Direct interpolation is permissible. Do not extrapolate.
2. The following formulas may be used:

$$t_{ldb} = t_{edb} - \frac{\text{sensible capacity (Btuh)}}{1.10 \times \text{cfm}}$$

t_{lwb} = Wet-bulb temperature corresponding to enthalpy of air leaving evaporator coil (h_{lwb})

$$h_{lwb} = h_{ewb} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{cfm}}$$

Where: h_{ewb} = Enthalpy of air entering evaporator coil

COOLING CAPACITY - 17.5 TONS

50TC-20			AMBIENT TEMPERATURE (°F)												
			85			95			105			115			
			EAT (db)			EAT (db)			EAT (db)			EAT (db)			
			75	80	85	75	80	85	75	80	85	75	80	85	
5250 cfm	EAT (wb)	58	TC	180.4	185.6	196.3	167.7	176.1	186.9	154.7	165.3	176.6	142.2	153.6	164.9
			SHC	166.5	185.6	196.3	160.6	176.1	186.9	152.7	165.3	176.6	142.2	153.6	164.9
		62	TC	196.2	195.5	196.9	183.6	182.9	187.2	169.3	168.7	176.9	153.4	154.1	165.2
			SHC	146.8	172.1	194.7	141.4	166.6	187.2	135.4	160.5	176.9	128.6	152.5	165.2
	67	TC	216.7	215.9	215.2	204.9	204.1	203.1	190.6	189.7	189.0	174.8	174.0	173.3	
		SHC	120.0	146.1	171.8	115.4	141.5	167.1	109.8	136.1	161.7	103.8	130.2	155.6	
	72	TC	237.4	236.8	236.0	226.0	225.1	224.2	212.8	211.9	211.0	197.3	196.4	195.5	
		SHC	92.0	118.3	144.3	87.8	114.3	140.4	83.0	109.6	135.8	77.6	104.2	130.6	
76	TC	—	252.9	253.0	—	242.5	241.6	—	229.1	228.2	—	214.1	213.1		
	SHC	—	95.1	121.4	—	91.7	118.0	—	87.3	113.8	—	82.5	107.1		
6125 cfm	EAT (wb)	58	TC	188.8	198.5	209.3	176.5	188.2	200.2	164.5	176.7	189.0	151.9	164.2	176.7
			SHC	180.4	198.5	209.3	174.4	188.2	200.2	164.5	176.7	189.0	151.9	164.2	176.7
		62	TC	205.2	204.6	209.6	191.8	191.5	200.4	176.6	177.6	189.2	159.9	164.2	176.9
			SHC	159.9	188.7	209.6	154.2	183.0	200.4	147.9	174.8	189.2	141.0	164.2	176.9
	67	TC	225.5	224.5	223.5	213.5	212.5	211.7	199.1	198.3	197.4	182.3	181.4	180.9	
		SHC	128.3	158.4	187.8	123.8	154.1	183.5	118.4	148.9	178.1	112.2	142.7	171.6	
	72	TC	245.6	245.3	244.6	234.7	233.6	232.6	220.9	219.9	218.8	205.5	204.4	203.4	
		SHC	95.4	125.9	155.7	91.7	122.2	152.4	86.9	117.7	148.1	81.7	112.5	143.1	
76	TC	—	262.0	261.2	—	250.7	250.1	—	237.3	236.2	—	221.6	220.6		
	SHC	—	99.5	129.4	—	95.9	126.2	—	91.8	122.4	—	87.0	117.8		
7000 cfm	EAT (wb)	58	TC	197.4	209.8	221.3	186.1	199.1	211.7	173.8	186.9	200.1	160.3	173.5	186.9
			SHC	196.8	209.8	221.3	186.1	199.1	211.7	173.8	186.9	200.1	160.3	173.5	186.9
		62	TC	212.7	212.4	221.5	198.4	199.8	212.0	182.3	186.9	200.3	164.7	173.8	187.1
			SHC	173.4	205.1	221.5	167.4	197.4	212.0	160.8	186.8	200.3	153.4	173.8	187.1
	67	TC	233.7	232.5	231.4	220.8	219.8	218.9	205.6	204.5	204.1	187.8	186.8	188.0	
		SHC	138.0	172.0	205.0	133.4	167.6	200.4	127.8	162.0	194.4	121.3	155.6	185.6	
	72	TC	254.3	253.3	252.8	242.7	241.5	240.3	228.0	226.8	225.7	211.8	210.6	209.3	
		SHC	101.3	135.4	169.2	97.3	131.8	165.9	92.3	127.2	161.5	86.9	121.8	156.3	
76	TC	—	270.7	269.9	—	259.0	258.1	—	245.0	243.6	—	228.5	227.1		
	SHC	—	106.1	140.0	—	102.4	136.5	—	98.2	132.7	—	93.2	127.9		
7875 cfm	EAT (wb)	58	TC	205.0	217.2	229.1	193.4	206.9	219.3	180.6	194.3	207.9	166.6	180.5	194.5
			SHC	205.0	217.2	229.1	193.4	206.9	219.3	180.6	194.3	207.9	166.6	180.5	194.5
		62	TC	216.7	217.4	229.4	202.5	207.1	219.6	185.9	194.5	208.4	168.4	180.7	194.7
			SHC	183.9	217.4	229.4	178.2	207.1	219.6	171.5	194.5	208.4	141.2	180.7	194.7
	67	TC	237.8	236.7	235.7	224.7	223.5	223.0	209.5	208.3	209.2	191.5	190.3	195.0	
		SHC	144.6	182.4	219.3	140.3	178.2	213.7	134.9	172.7	205.9	113.6	166.2	195.0	
	72	TC	258.6	257.5	256.5	246.8	245.7	244.3	231.8	230.5	229.2	215.3	213.9	212.5	
		SHC	103.9	141.8	179.2	100.0	138.3	176.1	95.1	133.9	172.1	89.7	128.6	142.0	
76	TC	—	275.4	274.2	—	262.7	261.8	—	248.7	247.6	—	231.9	230.5		
	SHC	—	109.5	147.0	—	105.7	143.6	—	101.5	139.9	—	96.6	135.4		
8750 cfm	EAT (wb)	58	TC	211.3	223.6	235.9	199.7	213.4	225.7	186.4	200.7	214.3	172.1	186.5	200.9
			SHC	211.3	223.6	235.9	199.7	213.4	225.7	186.4	200.7	214.3	172.1	186.5	200.9
		62	TC	220.0	223.7	236.3	206.0	213.6	226.1	189.3	200.9	214.5	172.2	186.7	201.2
			SHC	194.0	223.7	236.3	188.5	213.6	226.1	181.3	200.9	214.5	172.2	186.7	201.2
	67	TC	241.1	240.1	239.7	227.9	226.6	226.9	212.7	211.4	214.9	194.4	193.0	201.4	
		SHC	151.0	192.1	230.2	146.9	188.3	225.2	141.6	182.9	214.8	135.3	176.3	201.4	
	72	TC	262.2	261.0	259.7	250.0	248.8	247.7	235.0	233.5	232.1	218.1	216.6	215.2	
		SHC	106.5	148.1	189.0	102.5	144.5	186.0	97.8	140.4	182.1	92.4	135.3	177.1	
76	TC	—	278.9	277.4	—	266.0	264.8	—	251.5	250.6	—	234.7	233.0		
	SHC	—	112.7	153.7	—	108.9	150.4	—	104.7	146.7	—	100.0	142.4		

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, SUBCOOLING MODE (17.5 TONS)

TEMP (°F) AIR ENT CONDENSER (Edb)		AIR ENTERING EVAPORATOR - CFM								
		5,250			7,000			8,750		
		AIR ENTERING EVAPORATOR – Ewb (°F)								
		72	67	62	72	67	62	72	67	62
75	TC	218.70	199.60	180.50	241.40	219.40	197.40	261.70	237.20	212.70
	SHC	99.90	123.90	147.80	112.70	136.90	161.10	122.90	147.30	171.70
	kW	11.81	11.56	11.20	13.81	13.48	13.16	14.82	14.58	14.16
85	TC	206.60	187.90	169.10	224.90	203.40	181.90	241.30	217.30	193.40
	SHC	78.90	108.40	137.90	92.20	122.10	152.00	103.00	133.10	163.30
	kW	13.18	12.53	12.53	15.18	14.85	14.52	16.21	15.85	15.54
95	TC	194.70	176.20	157.80	208.40	187.40	166.40	220.80	197.40	174.10
	SHC	57.80	92.90	128.00	71.70	107.30	142.90	83.00	118.90	154.90
	kW	14.56	14.21	13.88	16.56	16.21	15.87	17.56	17.22	16.01
105	TC	182.70	164.50	146.40	191.90	171.40	150.80	200.30	177.60	154.80
	SHC	36.80	77.40	118.10	51.30	92.50	133.80	63.00	104.70	146.40
	kW	15.93	15.58	15.20	17.94	17.58	17.22	18.95	18.59	18.24
115	TC	170.60	152.80	135.00	175.40	155.40	135.30	179.80	157.70	135.50
	SHC	15.70	62.00	108.20	30.80	77.80	124.70	43.00	90.50	128.00
	kW	17.31	16.95	16.58	19.32	18.95	18.58	20.32	19.96	19.59

COOLING CAPACITIES, HOT GAS REHEAT MODE (17.5 TONS)

TEMP (°F) AIR ENT CONDENSER (Edb)		AIR ENTERING EVAPORATOR - Ewb (°F)								
		75 DRY BULB			75 DRY BULB			75 DRY BULB		
		62.5 WET BULB			64 WET BULB			65.3 WET BULB		
		(50% RELATIVE)			(56% RELATIVE)			(60% RELATIVE)		
		Air Entering Evaporator – CFM								
		4,500	6,000	7,500	4,500	6,000	7,500	4,500	6,000	7,500
80	TC	82.20	90.50	92.40	86.70	96.40	97.80	91.60	99.80	101.20
	SHC	18.20	29.40	41.60	8.60	17.20	27.50	0.50	9.30	13.20
	kW	12.64	12.73	12.88	12.78	13.06	13.15	12.96	13.07	13.22
75	TC	84.40	92.70	94.40	88.80	98.60	99.70	93.70	102.00	103.40
	SHC	19.70	31.30	43.50	10.10	18.80	29.20	12.10	10.80	15.30
	kW	12.60	12.71	12.85	12.75	13.02	13.12	12.93	13.03	13.19
70	TC	86.70	94.90	96.60	91.00	100.70	102.00	95.90	104.10	105.40
	SHC	21.30	32.80	44.80	11.60	20.40	30.70	3.80	12.30	16.50
	kW	12.56	12.66	12.82	12.70	12.99	13.08	12.89	13.00	13.14
60	TC	90.90	99.10	100.80	95.20	105.00	106.30	100.20	108.30	109.70
	SHC	24.80	36.00	48.20	14.90	23.90	35.90	7.20	15.60	19.60
	kW	12.49	12.60	12.75	12.64	12.92	13.02	12.83	12.93	13.09
50	TC	95.00	103.40	105.10	99.50	109.40	110.50	104.40	112.50	113.90
	SHC	28.10	39.30	51.30	18.20	27.20	37.40	10.30	18.90	23.20
	kW	12.43	12.53	12.67	12.57	12.86	12.95	12.76	12.87	13.02
40	TC	99.20	107.70	109.30	103.70	113.70	114.70	108.60	116.70	118.10
	SHC	31.40	42.50	54.40	21.30	30.40	40.50	13.40	22.00	26.50
	kW	12.35	12.45	12.61	12.50	12.79	12.87	12.68	12.80	12.94

LEGEND

Edb — Entering Dry-Bulb
Ewb — Entering Wet-Bulb
kW — Compressor Motor Power Input
ldb — Leaving Dry-Bulb
lwb — Leaving Wet-Bulb
SHC — Sensible Heat Capacity (1000 Btuh) Gross
TC — Total Capacity (1000 Btuh) Gross

NOTES:

1. Direct interpolation is permissible. Do not extrapolate.
2. The following formulas may be used:

$$t_{ldb} = t_{edb} - \frac{\text{sensible capacity (Btuh)}}{1.10 \times \text{cfm}}$$

t_{lwb} = Wet-bulb temperature corresponding to enthalpy of air leaving evaporator coil (h_{lwb})

$$h_{lwb} = h_{ewb} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{cfm}}$$

Where: h_{ewb} = Enthalpy of air entering evaporator coil

COOLING CAPACITY - 20 TONS

50TC-24			AMBIENT TEMPERATURE (°F)												
			85			95			105			115			
			EAT (db)			EAT (db)			EAT (db)			EAT (db)			
			75	80	85	75	80	85	75	80	85	75	80	85	
6000 cfm	EAT (wb)	58	TC	213.1	217.2	228.7	199.9	207.5	219.4	184.8	195.8	208.4	169.6	182.6	195.6
			SHC	194.3	217.2	228.7	188.0	207.5	219.4	179.0	195.8	208.4	169.6	182.6	195.6
		62	TC	230.0	229.4	230.4	217.5	217.0	219.7	202.5	201.9	208.8	184.9	184.9	195.9
			SHC	170.0	199.9	225.9	164.6	194.5	219.7	158.3	187.8	208.8	150.9	178.7	195.9
		67	TC	251.5	251.1	250.6	239.4	238.7	238.1	225.4	224.7	224.0	208.8	208.2	207.4
		SHC	137.5	168.1	198.4	132.9	163.4	193.7	127.5	158.1	188.2	121.1	151.9	181.9	
		72	TC	274.0	273.8	273.5	262.3	261.7	261.0	248.2	247.4	246.6	232.2	231.3	230.5
		SHC	104.3	135.1	165.6	100.1	130.9	161.4	95.1	125.9	156.6	89.6	120.5	151.3	
	76	TC	—	292.9	292.2	—	280.5	279.9	—	266.3	265.6	—	250.6	249.8	
		SHC	—	108.1	138.6	—	104.1	134.9	—	99.6	130.4	—	94.6	125.5	
7000 cfm	EAT (wb)	58	TC	220.8	229.7	241.7	208.4	219.7	232.2	194.3	208.1	221.0	180.1	194.2	207.9
			SHC	211.0	229.7	241.7	203.1	219.7	232.2	194.3	208.1	221.0	180.1	194.2	207.9
		62	TC	237.8	237.3	241.9	225.1	224.6	232.3	209.6	210.2	221.3	191.3	196.0	208.2
			SHC	183.3	217.8	241.9	178.2	212.1	232.3	171.8	203.8	221.3	164.3	196.0	208.2
		67	TC	260.0	259.2	258.5	247.2	246.4	245.7	232.7	231.9	231.7	215.8	215.0	214.3
		SHC	146.0	181.0	215.7	141.3	176.5	211.2	136.0	171.3	206.3	129.8	165.3	199.4	
		72	TC	283.3	282.5	281.8	270.6	269.8	268.9	255.9	255.0	254.1	240.0	238.9	238.0
		SHC	107.9	143.2	178.1	103.6	139.0	174.1	98.6	134.2	169.5	93.2	129.0	164.4	
	76	TC	—	302.3	301.6	—	289.1	288.4	—	274.4	273.6	—	257.9	256.8	
		SHC	—	112.3	147.5	—	108.3	143.7	—	103.9	139.4	—	98.9	134.5	
8000 cfm	EAT (wb)	58	TC	232.1	243.6	256.1	219.8	233.4	246.0	206.9	221.3	234.5	192.1	206.8	221.2
			SHC	227.5	243.6	256.1	219.8	233.4	246.0	206.9	221.3	234.5	192.1	206.8	221.2
		62	TC	247.8	247.1	256.4	234.7	235.5	246.2	218.7	221.1	234.7	199.5	207.0	221.4
			SHC	199.5	236.7	256.4	194.3	229.1	246.2	187.8	221.1	234.7	179.9	207.0	221.4
		67	TC	270.2	269.3	268.3	257.0	256.1	255.2	242.1	241.0	240.3	224.5	223.5	223.1
		SHC	157.6	197.1	235.6	152.7	192.6	231.0	147.3	187.2	225.3	141.0	181.0	215.6	
		72	TC	294.1	293.1	292.2	280.7	279.7	278.4	265.9	264.7	263.8	248.9	247.6	246.6
		SHC	114.8	154.6	193.9	110.3	150.4	190.0	105.4	145.6	185.5	99.7	140.1	180.2	
	76	TC	—	313.1	312.3	—	299.3	298.2	—	283.8	282.8	—	266.7	265.4	
		SHC	—	120.2	159.6	—	116.0	155.9	—	111.4	151.5	—	106.2	146.6	
9000 cfm	EAT (wb)	58	TC	238.5	252.5	266.0	226.8	241.6	255.6	213.1	228.2	243.0	197.5	213.0	229.2
			SHC	238.5	252.5	266.0	226.8	241.6	255.6	213.1	228.2	243.0	197.5	213.0	229.2
		62	TC	253.0	254.1	266.3	238.6	241.6	255.7	221.0	228.4	243.3	201.1	213.2	229.4
			SHC	211.9	249.1	266.3	206.2	241.6	255.7	199.2	228.4	243.3	164.2	213.2	229.4
		67	TC	276.9	275.8	274.8	263.0	261.8	261.0	246.5	245.2	246.6	228.2	225.9	229.6
		SHC	165.6	209.9	252.2	160.7	205.1	247.0	154.9	199.3	238.5	132.3	192.7	229.6	
		72	TC	302.2	301.0	299.7	287.9	286.6	285.4	272.3	270.9	269.6	254.3	252.9	251.6
		SHC	118.2	162.8	206.8	113.5	158.4	202.9	108.5	153.4	198.0	102.7	147.8	165.1	
	76	TC	—	322.0	320.8	—	307.7	306.1	—	291.4	289.9	—	275.1	272.5	
		SHC	—	124.5	168.7	—	120.4	164.9	—	115.6	160.5	—	110.9	155.3	
10,000 cfm	EAT (wb)	58	TC	245.7	259.8	273.9	233.8	248.7	263.2	219.8	235.3	250.5	203.7	219.8	236.5
			SHC	245.7	259.8	273.9	233.8	248.7	263.2	219.8	235.3	250.5	203.7	219.8	236.5
		62	TC	256.8	260.7	274.2	242.2	249.0	263.3	224.6	235.6	250.6	205.6	220.0	236.8
			SHC	223.8	258.4	274.2	218.1	249.0	263.3	211.0	235.6	250.6	199.3	220.0	236.8
		67	TC	280.8	279.6	266.3	266.6	265.4	265.8	249.9	248.6	251.0	231.4	229.8	237.3
		SHC	173.2	221.8	266.3	168.3	217.0	258.7	162.6	211.4	250.7	156.4	204.7	237.3	
		72	TC	306.4	305.0	274.8	292.1	290.6	289.3	276.0	274.3	273.0	257.5	256.0	254.6
		SHC	121.2	170.1	252.2	116.6	165.9	214.8	111.5	161.0	210.0	105.7	155.4	204.5	
	76	TC	—	326.2	299.7	—	311.4	310.0	—	295.2	293.2	—	277.0	275.3	
		SHC	—	128.2	206.8	—	124.0	172.9	—	119.5	168.9	—	114.3	163.8	

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, SUBCOOLING MODE (20 TONS)

TEMP (°F) AIR ENT CONDENSER (Edb)		AIR ENTERING EVAPORATOR - CFM								
		6,000			8,000			10,000		
		AIR ENTERING EVAPORATOR – Ewb (°F)								
		72	67	62	72	67	62	72	67	62
75	TC	263.0	240.4	217.7	301.0	274.0	246.9	336.9	305.6	274.4
	SHC	125.3	151.6	178.0	144.4	171.1	198.0	160.0	186.9	213.9
	kW	15.63	15.20	14.65	15.91	15.62	14.98	16.26	15.92	15.21
85	TC	248.2	226.1	204.0	279.2	252.9	226.6	308.4	278.2	248.0
	SHC	98.9	131.7	164.5	118.6	152.0	185.3	134.6	168.4	202.2
	kW	17.50	17.04	16.50	17.74	17.51	16.75	18.08	17.73	17.03
95	TC	233.4	211.8	190.2	257.3	231.8	206.4	279.8	250.7	221.5
	SHC	72.4	111.8	151.1	92.7	132.8	172.9	109.3	149.9	190.6
	kW	19.36	18.96	18.35	19.61	19.37	18.67	20.02	19.62	18.97
105	TC	218.6	197.5	176.5	235.4	210.7	186.1	251.3	223.2	195.1
	SHC	46.0	91.8	137.7	66.9	113.6	160.4	83.9	131.4	178.9
	kW	21.23	20.76	20.18	21.53	21.22	20.52	21.91	21.52	20.77
115	TC	203.7	183.3	162.8	213.5	189.7	165.8	222.7	195.7	168.7
	SHC	19.5	71.9	124.2	41.0	94.4	147.9	58.5	112.9	157.2
	kW	23.02	22.58	22.02	23.42	23.02	22.38	23.73	23.41	22.57

COOLING CAPACITIES, HOT GAS REHEAT MODE (20 TONS)

TEMP (°F) AIR ENT CONDENSER (Edb)		AIR ENTERING EVAPORATOR - Ewb (°F)								
		75 DRY BULB			75 DRY BULB			75 DRY BULB		
		62.5 WET BULB			64 WET BULB			65.3 WET BULB		
		(50% RELATIVE)			(56% RELATIVE)			(60% RELATIVE)		
		AIR ENTERING EVAPORATOR – CFM								
		6,000	8,000	10,000	6,000	8,000	10,000	6,000	8,000	10,000
80	TC	91.50	100.80	109.50	95.80	105.70	112.40	102.30	110.80	118.60
	SHC	12.30	31.20	44.50	0.90	15.10	25.70	-6.50	3.60	13.90
	kW	14.82	15.01	15.24	15.35	15.45	15.52	15.56	15.65	15.73
75	TC	94.00	103.40	112.00	98.70	108.10	115.10	104.70	113.10	121.10
	SHC	13.60	32.40	45.70	2.00	16.00	26.60	-5.60	4.70	15.10
	kW	14.90	15.07	15.33	15.43	15.56	15.64	15.69	15.77	15.85
70	TC	96.50	106.00	114.30	100.90	110.60	117.20	107.20	115.80	123.50
	SHC	14.50	33.20	45.70	3.30	17.30	28.00	-4.00	5.90	16.20
	kW	14.97	15.17	15.41	15.50	15.66	15.75	15.80	15.87	15.94
60	TC	101.80	111.30	119.30	106.20	115.60	122.20	112.60	119.40	128.00
	SHC	16.70	35.50	48.60	5.60	19.40	30.30	-1.80	8.20	18.50
	kW	15.14	15.32	15.58	15.66	15.88	15.97	16.05	16.10	16.19
50	TC	107.20	116.40	124.30	111.50	120.70	127.30	117.70	125.20	132.90
	SHC	18.60	37.60	50.70	8.00	22.00	32.70	0.50	10.50	21.00
	kW	15.27	15.46	15.76	15.81	16.10	16.23	16.27	16.34	16.41
40	TC	112.20	121.80	129.20	116.60	125.70	132.00	123.20	130.00	138.00
	SHC	21.80	39.50	52.90	10.20	24.40	35.20	2.90	13.00	23.40
	kW	15.42	15.63	15.93	15.96	16.32	16.44	16.52	16.57	16.65

LEGEND

Edb — Entering Dry-Bulb
Ewb — Entering Wet-Bulb
kW — Compressor Motor Power Input
ldb — Leaving Dry-Bulb
lwb — Leaving Wet-Bulb
SHC — Sensible Heat Capacity (1000 Btuh) Gross
TC — Total Capacity (1000 Btuh) Gross

NOTES:

- Direct interpolation is permissible. Do not extrapolate.
- The following formulas may be used:

$$t_{ldb} = t_{edb} - \frac{\text{sensible capacity (Btuh)}}{1.10 \times \text{cfm}}$$

t_{lwb} = Wet-bulb temperature corresponding to enthalpy of air leaving evaporator coil (h_{lwb})

$$h_{lwb} = h_{ewb} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{cfm}}$$

Where: h_{ewb} = Enthalpy of air entering evaporator coil

COOLING CAPACITY - 25 TONS

50TC-*28				AMBIENT TEMPERATURE (°F)												
				85			95			105			115			
				EAT (db)			EAT (db)			EAT (db)			EAT (db)			
				75	80	85	75	80	85	75	80	85	75	80	85	
7,500 cfm	EAT (wb)	58	TC	257.3	266.5	279.6	247.5	255.4	269.0	231.5	243.3	257.2	214.3	229.2	243.7	
			SHC	247.5	266.5	279.6	231.1	255.4	269.0	223.5	243.3	257.2	213.2	229.2	243.7	
		62	TC	281.4	280.5	280.6	267.5	267.0	269.3	251.3	251.0	257.6	232.7	232.5	244.1	
			SHC	208.2	244.0	278.0	202.3	238.4	269.3	195.8	231.5	257.6	188.1	223.4	244.1	
		67	TC	307.4	306.4	305.7	293.0	292.2	291.4	276.9	276.2	275.4	259.7	259.2	258.8	
			SHC	168.7	205.7	242.3	163.2	200.3	236.9	157.1	194.4	230.7	150.6	188.4	224.8	
	72	TC	333.9	333.2	332.5	320.1	319.3	318.6	304.5	303.7	302.7	287.2	285.3	284.5		
		SHC	128.1	165.4	202.3	123.1	160.6	197.8	117.6	155.1	192.5	111.5	149.0	186.6		
	76	TC	—	356.0	355.2	—	342.0	341.2	—	326.0	325.2	—	308.0	307.4		
		SHC	—	132.7	169.9	—	128.1	165.6	—	123.0	160.7	—	117.3	154.5		
	8,750 cfm	EAT (wb)	58	TC	269.8	280.2	294.4	255.3	268.9	283.2	241.1	256.1	270.7	225.5	241.3	257.3
				SHC	257.9	280.2	294.4	250.4	268.9	283.2	241.1	256.1	270.7	225.5	241.3	257.3
62			TC	289.9	289.3	294.6	275.3	274.9	283.6	258.7	258.2	271.0	238.8	241.6	257.6	
			SHC	224.2	265.0	294.6	218.6	258.6	283.6	212.0	251.7	271.0	203.9	241.6	257.6	
67			TC	316.2	315.7	314.5	301.7	300.8	299.8	285.1	284.2	283.4	266.7	266.0	265.2	
			SHC	179.0	221.6	263.1	173.5	216.4	257.9	167.5	210.5	251.9	161.0	204.5	245.1	
72		TC	343.7	342.7	341.6	315.3	327.9	327.0	313.1	311.4	310.4	294.3	293.2	292.2		
		SHC	132.4	175.4	217.7	127.6	170.7	213.3	122.0	165.3	208.3	115.6	159.2	202.5		
76		TC	—	366.0	364.9	—	351.2	350.1	—	334.2	333.2	—	315.4	314.3		
		SHC	—	138.0	180.7	—	133.4	176.5	—	128.2	171.6	—	122.5	166.1		
10,000 cfm		EAT (wb)	58	TC	277.1	291.8	306.8	264.9	280.2	295.3	251.2	267.0	282.3	235.1	252.2	268.1
				SHC	275.3	291.8	306.8	264.9	280.2	295.3	251.2	267.0	282.3	235.1	252.2	268.1
	62		TC	296.8	296.0	307.2	281.8	281.8	295.6	264.7	267.1	282.6	244.9	252.4	268.4	
			SHC	239.8	283.9	307.2	234.0	276.8	295.6	227.5	267.1	282.6	219.4	252.4	268.4	
	67		TC	323.5	322.6	321.4	308.5	307.4	306.5	291.3	290.2	289.3	272.5	271.5	270.8	
			SHC	188.8	236.9	282.9	183.5	231.9	277.4	177.5	226.1	271.2	171.2	219.7	264.3	
	72	TC	351.8	350.5	349.2	336.6	335.4	334.1	319.7	318.3	317.1	300.2	298.9	297.8		
		SHC	136.6	185.1	232.8	131.6	180.4	228.6	126.0	175.1	223.7	119.7	169.1	217.9		
	76	TC	—	374.2	372.8	—	358.6	357.3	—	340.9	339.7	—	321.3	320.1		
		SHC	—	143.1	191.2	—	138.5	187.1	—	133.3	182.3	—	127.6	176.8		
	11,250 cfm	EAT (wb)	58	TC	285.8	301.5	317.0	273.8	289.0	305.1	259.8	276.1	291.7	244.0	260.9	277.4
				SHC	285.8	301.5	317.0	273.8	289.0	305.1	259.8	276.1	291.7	244.0	260.9	277.4
62			TC	302.2	302.3	317.4	286.3	289.5	305.4	269.6	276.4	208.4	249.3	261.1	277.6	
			SHC	254.3	300.2	317.4	245.8	289.5	305.4	242.1	276.4	208.4	201.5	261.1	277.6	
67			TC	328.7	327.7	326.7	313.5	312.2	311.1	296.0	294.8	294.3	277.5	275.7	277.9	
			SHC	197.9	251.1	301.0	192.8	246.4	295.4	187.0	240.4	288.0	160.9	234.6	277.9	
72		TC	357.4	355.9	354.4	341.8	340.3	339.0	324.4	322.8	321.6	304.8	303.2	302.0		
		SHC	140.2	193.9	246.7	135.2	189.4	242.8	129.7	184.3	238.2	123.5	178.4	198.1		
76		TC	—	379.7	378.2	—	363.9	362.3	—	345.7	344.2	—	327.5	324.0		
		SHC	—	147.6	200.8	—	143.1	196.9	—	138.0	192.3	—	132.9	187.1		
12,500 cfm		EAT (wb)	58	TC	293.7	309.8	325.6	280.3	297.3	313.5	267.0	283.5	299.8	250.8	268.3	284.8
				SHC	293.7	309.8	325.6	280.3	297.3	313.5	267.0	283.5	299.8	250.8	268.3	284.8
	62		TC	310.5	310.2	326.1	290.7	297.6	313.9	273.7	283.7	300.1	253.1	268.5	285.0	
			SHC	264.9	310.1	326.1	262.1	297.6	313.9	255.7	283.7	300.1	246.9	268.5	285.0	
	67		TC	333.1	331.7	330.9	317.5	316.2	315.9	299.8	298.7	300.3	280.7	279.6	285.5	
			SHC	206.6	264.7	317.6	201.9	260.2	311.0	196.2	254.9	300.3	190.0	248.1	285.5	
	72	TC	362.1	360.3	358.7	346.0	344.3	343.0	328.2	326.6	325.1	308.4	306.6	305.3		
		SHC	143.6	202.4	260.2	138.7	198.1	256.5	133.2	193.2	252.1	127.1	187.5	246.5		
	76	TC	—	384.3	382.5	—	368.1	366.3	—	349.5	347.8	—	331.0	328.7		
		SHC	—	151.9	210.1	—	147.5	206.4	—	142.5	201.9	—	137.4	195.2		

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, SUBCOOLING MODE (25 TONS)

TEMP (°F) AIR ENT CONDENSER (Edb)		AIR ENTERING EVAPORATOR - CFM								
		7,500			10,000			12,500		
		AIR ENTERING EVAPORATOR – Ewb (°F)								
		72	67	62	72	67	62	72	67	62
75	TC	335.3	305.5	275.8	368.3	334.4	300.5	398.1	360.5	322.9
	SHC	149.6	181.7	213.7	172.8	205.5	238.2	191.7	224.9	258.2
	kW	19.50	18.70	17.70	19.50	18.70	17.70	19.70	18.80	17.90
85	TC	316.3	287.0	257.7	341.5	308.4	275.3	364.3	327.8	291.2
	SHC	120.8	160.5	200.2	144.6	185.2	225.8	164.0	205.4	246.7
	kW	21.90	21.30	20.10	22.30	21.30	20.30	22.50	21.70	20.60
95	TC	297.3	268.5	239.6	314.7	282.4	250.1	330.5	295.0	259.5
	SHC	92.1	139.4	186.7	116.4	164.9	213.5	136.3	185.8	235.3
	kW	24.30	23.50	22.50	24.40	23.50	22.60	24.40	23.60	22.50
105	TC	278.2	249.9	221.6	287.9	256.4	224.9	296.7	262.3	227.8
	SHC	63.3	118.2	173.2	88.3	144.7	201.1	108.7	166.3	223.9
	kW	26.70	26.00	25.00	27.30	26.00	25.00	27.30	26.10	25.10
115	TC	259.2	231.4	203.5	261.1	230.4	199.7	262.9	229.5	196.1
	SHC	34.5	97.1	159.7	60.1	124.4	188.7	81.0	146.7	191.2
	kW	28.70	28.00	27.10	29.30	28.10	26.90	29.10	27.90	27.20

COOLING CAPACITIES, HOT GAS REHEAT MODE (25 TONS)

TEMP (°F) AIR ENT CONDENSER (Edb)		AIR ENTERING EVAPORATOR - Ewb (°F)								
		75 DRY BULB			75 DRY BULB			75 DRY BULB		
		62.5 WET BULB			64 WET BULB			65.3 WET BULB		
		(50% RELATIVE)			(56% RELATIVE)			(60% RELATIVE)		
		Air Entering Evaporator – CFM								
		7,500	10,000	12,500	7,500	10,000	12,500	7,500	10,000	12,500
80	TC	132.40	136.80	148.40	138.20	142.40	154.60	144.30	146.40	162.50
	SHC	37.80	61.50	85.50	21.80	44.40	52.40	16.10	32.10	48.90
	kW	17.90	18.15	18.21	18.05	18.33	18.43	18.26	18.55	18.62
75	TC	138.00	142.20	154.10	143.50	148.00	160.30	148.90	151.00	167.10
	SHC	44.20	68.00	91.80	28.10	51.50	58.80	22.70	38.20	56.00
	kW	17.77	18.00	18.07	17.92	18.19	18.29	18.14	18.40	18.48
70	TC	143.80	148.10	160.00	149.30	154.00	165.90	155.50	157.60	173.80
	SHC	50.50	73.80	98.10	34.20	56.50	65.30	28.30	44.00	62.30
	kW	17.63	17.86	17.93	17.78	18.04	18.14	18.03	18.26	18.34
60	TC	154.80	159.50	171.10	160.20	165.20	177.20	166.70	168.80	185.10
	SHC	63.10	84.50	110.10	46.50	69.50	75.70	41.40	56.50	74.30
	kW	17.35	17.58	17.65	17.50	17.76	17.85	17.70	17.97	18.04
50	TC	166.30	170.50	181.20	171.30	176.40	188.40	178.00	180.00	196.40
	SHC	75.80	96.50	122.20	58.30	79.80	87.80	53.70	69.10	85.90
	kW	17.06	17.30	17.37	17.22	17.46	17.56	17.42	17.69	17.76
40	TC	177.50	181.70	192.30	182.40	187.60	199.70	189.30	191.20	207.70
	SHC	85.70	109.80	134.30	71.50	92.30	100.50	66.10	79.50	97.90
	kW	16.76	17.01	17.09	16.93	17.18	17.28	17.14	17.41	17.47

LEGEND

Edb — Entering Dry-Bulb
Ewb — Entering Wet-Bulb
kW — Compressor Motor Power Input
ldb — Leaving Dry-Bulb
lwb — Leaving Wet-Bulb
SHC — Sensible Heat Capacity (1000 Btu/h) Gross
TC — Total Capacity (1000 Btu/h) Gross

NOTES:

- Direct interpolation is permissible. Do not extrapolate.
- The following formulas may be used:

$$t_{ldb} = t_{edb} - \frac{\text{sensible capacity (Btu/h)}}{1.10 \times \text{cfm}}$$

$$t_{lwb} = \text{Wet-bulb temperature corresponding to enthalpy of air leaving evaporator coil } (h_{lwb})$$

$$h_{lwb} = h_{ewb} - \frac{\text{total capacity (Btu/h)}}{4.5 \times \text{cfm}}$$

Where: h_{ewb} = Enthalpy of air entering evaporator coil

COOLING CAPACITY - 27.5 TONS

50TC-*30			AMBIENT TEMPERATURE (°F)												
			85			95			105			115			
			EAT (db)			EAT (db)			EAT (db)			EAT (db)			
			75	80	85	75	80	85	75	80	85	75	80	85	
8,250 cfm	EAT (wb)	58	TC	298.0	298.0	336.8	285.3	285.3	322.4	270.1	270.1	305.3	253.5	253.5	286.5
			SHC	259.2	298.0	336.8	248.2	285.3	322.4	235.0	270.1	305.3	220.5	253.5	286.5
		62	TC	318.3	318.3	318.3	301.9	301.9	309.0	282.4	282.4	299.5	260.5	260.5	288.5
			SHC	233.5	275.2	316.9	225.8	267.4	309.0	216.6	258.1	299.5	206.1	247.3	288.5
	67	TC	352.3	352.3	352.3	335.9	335.9	335.9	317.1	317.1	317.1	294.0	294.0	294.0	
		SHC	193.3	235.0	276.8	186.4	228.3	270.1	178.7	220.5	262.4	169.3	211.1	252.9	
	72	TC	383.6	383.6	383.6	368.5	368.5	368.5	350.7	350.7	350.7	329.6	329.6	329.6	
		SHC	149.7	191.9	234.2	144.0	186.2	228.4	137.3	179.5	221.7	129.6	171.7	213.8	
76	TC	—	404.0	404.0	—	390.3	390.3	—	373.1	373.1	—	353.4	353.4		
	SHC	—	154.8	200.2	—	150.2	195.6	—	144.5	189.9	—	138.0	183.2		
9,625 cfm	EAT (wb)	58	TC	315.7	315.7	356.8	302.4	302.4	341.8	286.8	286.8	324.1	269.2	269.2	304.3
			SHC	274.6	315.7	356.8	263.0	302.4	341.8	249.4	286.8	324.1	234.2	269.2	304.3
		62	TC	329.7	329.7	346.7	312.7	312.7	338.3	293.0	293.0	328.0	271.1	271.1	314.6
			SHC	251.3	299.0	346.7	243.3	290.8	338.3	233.7	280.9	328.0	222.0	268.3	314.6
	67	TC	363.1	363.1	363.1	346.4	346.4	346.4	327.1	327.1	327.1	303.7	303.7	303.7	
		SHC	204.4	252.2	299.9	197.8	245.7	293.6	190.2	238.3	286.3	181.0	229.1	277.2	
	72	TC	392.4	392.4	392.4	377.4	377.4	377.4	359.5	359.5	359.5	338.6	338.6	338.6	
		SHC	153.8	201.6	249.3	148.4	196.3	244.3	141.9	190.0	238.0	134.5	182.7	230.8	
76	TC	—	410.9	410.9	—	397.4	397.4	—	380.0	380.0	—	359.9	359.9		
	SHC	—	160.7	213.6	—	156.2	208.9	—	150.1	201.8	—	143.2	194.1		
11,000 cfm	EAT (wb)	58	TC	330.4	330.4	373.4	316.6	316.6	357.8	300.7	300.7	339.9	282.3	282.3	319.0
			SHC	287.4	330.4	373.4	275.4	316.6	357.8	261.6	300.7	339.9	245.6	282.3	319.0
		62	TC	338.9	338.9	373.5	321.8	321.8	364.5	301.9	301.9	354.3	282.6	282.6	331.6
			SHC	267.2	320.3	373.5	258.9	311.7	364.5	249.5	301.9	354.3	233.5	282.6	331.6
	67	TC	371.1	371.1	371.1	354.3	354.3	354.3	334.7	334.7	334.7	310.9	310.9	310.9	
		SHC	214.5	267.9	321.3	208.2	262.0	315.7	200.9	254.9	308.9	191.9	246.0	300.1	
	72	TC	398.6	398.6	398.6	383.8	383.8	383.8	365.7	365.7	365.7	344.9	344.9	344.9	
		SHC	157.3	210.1	262.8	152.2	205.4	258.7	145.8	199.4	252.9	138.7	192.5	246.3	
76	TC	—	415.7	415.7	—	402.3	402.3	—	384.9	384.9	—	364.5	364.5		
	SHC	—	165.2	223.6	—	160.5	218.0	—	154.6	211.3	—	147.8	203.9		
13,062 cfm	EAT (wb)	58	TC	342.7	342.7	387.3	328.7	328.7	371.4	312.7	312.7	353.3	293.5	293.5	331.7
			SHC	298.1	342.7	387.3	285.9	328.7	371.4	272.0	312.7	353.3	255.3	293.5	331.7
		62	TC	346.8	346.8	396.7	329.7	329.7	387.0	313.0	313.0	367.3	293.8	293.8	344.8
			SHC	281.1	338.9	396.7	272.5	329.7	387.0	258.6	313.0	367.3	242.8	293.8	344.8
	67	TC	377.2	377.2	377.2	360.4	360.4	360.4	340.7	340.7	340.7	316.6	316.6	321.8	
		SHC	223.7	282.5	341.2	217.9	277.2	336.5	210.8	270.5	330.2	202.1	261.9	321.8	
	72	TC	403.1	403.1	403.1	388.6	388.6	388.6	370.3	370.3	370.3	349.5	349.5	349.5	
		SHC	160.3	217.7	275.1	155.5	213.7	271.9	149.3	208.0	266.7	142.4	201.4	260.5	
76	TC	—	419.3	419.3	—	406.0	406.0	—	388.5	388.5	—	367.8	367.8		
	SHC	—	168.8	231.3	—	164.4	226.3	—	158.6	220.0	—	151.9	212.8		
13,750 cfm	EAT (wb)	58	TC	353.0	353.0	398.9	338.8	338.8	382.9	322.5	322.5	364.5	303.1	303.1	342.5
			SHC	307.1	353.0	398.9	294.7	338.8	382.9	280.6	322.5	364.5	263.7	303.1	342.5
		62	TC	353.9	353.9	415.3	339.1	339.1	397.9	322.8	322.8	378.9	303.4	303.4	356.0
			SHC	292.4	353.9	415.3	280.2	339.1	397.9	266.8	322.8	378.9	250.7	303.4	356.0
	67	TC	381.9	381.9	381.9	365.2	365.2	365.2	345.3	345.3	350.4	321.3	321.3	342.2	
		SHC	232.3	296.1	360.0	227.0	291.6	356.3	220.1	285.2	350.4	211.5	276.8	342.2	
	72	TC	406.6	406.6	406.6	392.2	392.2	392.2	373.9	373.9	373.9	352.9	352.9	352.9	
		SHC	163.1	224.8	286.6	158.5	221.4	284.3	152.5	216.1	279.6	145.7	209.8	273.9	
76	TC	—	422.1	422.1	—	408.9	408.9	—	391.2	391.2	—	370.3	370.3		
	SHC	—	172.2	238.5	—	167.9	234.0	—	162.3	228.1	—	155.7	221.2		

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

Performance data (cont)



STATIC PRESSURE ADDERS (in. wg)

Humidi-MiZer® System

MODEL SIZES 50TC 17-20

CFM	3750	4750	5750	6750	7750	8750	9750	10750	11750	12750	13750
STATIC PRESSURE ADDER (in. wg)	0.03	0.04	0.06	0.07	0.09	0.10	0.12	0.14	0.16	0.19	0.21

MODEL SIZES 50TC 24-28

CFM	3750	4750	5750	6750	7750	8750	9750	10750	11750	12750	13750
STATIC PRESSURE ADDER (in. wg)	0.02	0.03	0.04	0.05	0.07	0.08	0.09	0.11	0.13	0.14	0.16

Economizer - Vertical Duct Configuration

MODEL SIZES 50TC 17-30

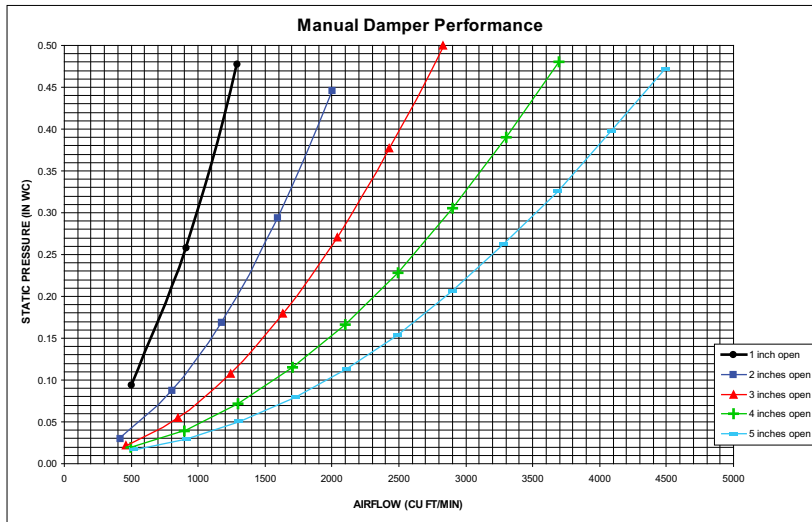
CFM	4750	5750	6750	7750	8750	9750	10750	11750	12750	13750
STATIC PRESSURE ADDER (in. wg)	0.00	0.01	0.01	0.02	0.03	0.05	0.06	0.07	0.09	0.11

Electric Heaters - Vertical Duct Configuration

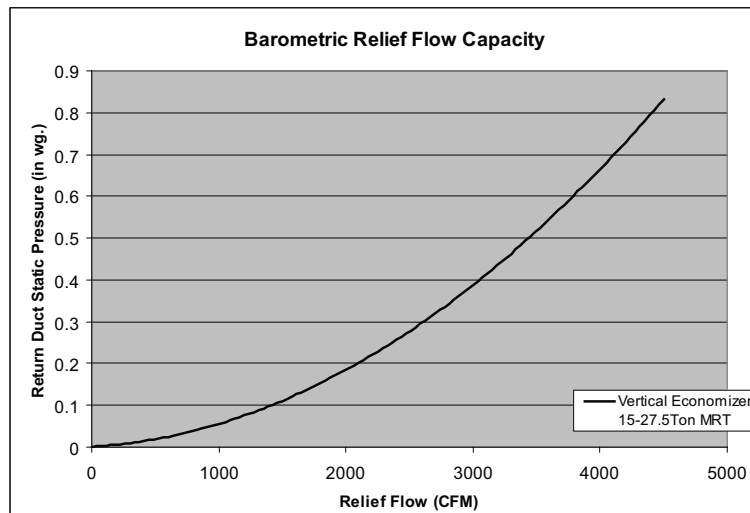
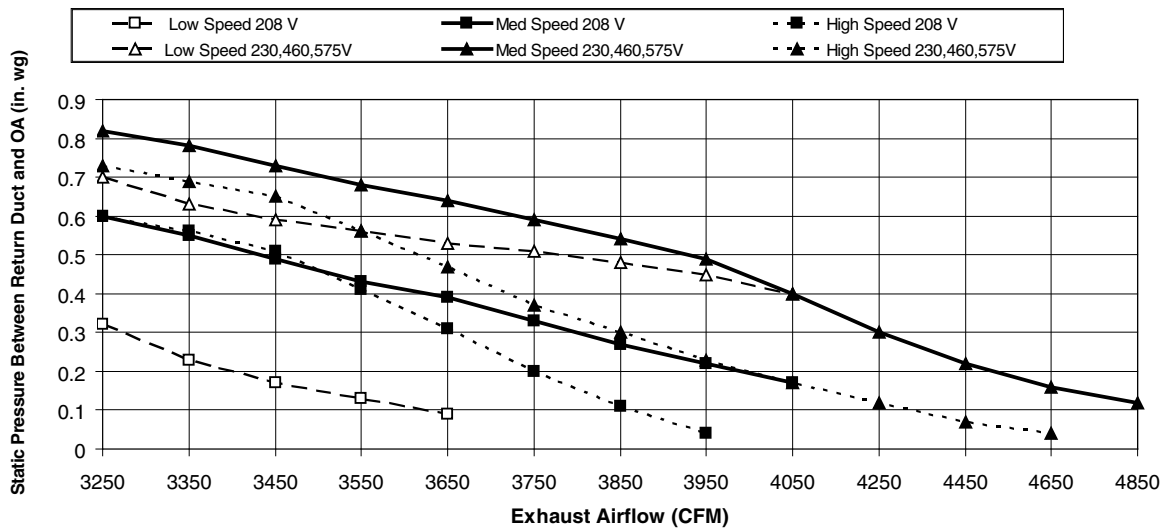
MODEL SIZES 50TC 17-30

CFM	4750	5750	6750	7750	8750	9750	10750	11750	12750	13750
25kW HEATER	0.01	0.02	0.03	0.04	0.05	0.06	0.08	0.09	0.11	0.13
50kW HEATER	0.02	0.03	0.05	0.07	0.10	0.12	0.15	0.19	0.22	0.26
75kW HEATER	0.03	0.05	0.08	0.11	0.14	0.18	0.23	0.28	0.34	0.40

DAMPER/ FAN PERFORMANCE AND BAROMETRIC RELIEF



Power Exhaust Fan Performance



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.

50TC-*17 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	436	0.60	529	0.89	611	1.20	684	1.54	749	1.90
4900	458	0.72	546	1.02	625	1.36	696	1.72	760	2.09
5250	479	0.85	561	1.16	638	1.51	708	1.88	771	2.27
5650	503	1.01	580	1.33	654	1.70	721	2.09	784	2.50
6000	525	1.17	598	1.50	668	1.88	734	2.28	795	2.71
6400	551	1.38	619	1.72	686	2.11	750	2.53	810	2.97
6750	574	1.58	638	1.93	702	2.33	764	2.76	822	3.22
7150	601	1.84	661	2.20	722	2.61	781	3.06	838	3.53
7500	625	2.09	682	2.46	740	2.88	797	3.34	852	3.82

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	808	2.27	864	2.66	916	3.06	965	3.48	<i>1012</i>	<i>3.92</i>
4900	819	2.48	874	2.89	926	3.31	975	3.74	<i>1021</i>	<i>4.19</i>
5250	829	2.68	884	3.10	935	3.53	983	3.98	<i>1029</i>	<i>4.44</i>
5650	841	2.92	895	3.36	946	3.81	994	4.28	<i>1040</i>	<i>4.76</i>
6000	852	3.15	906	3.61	956	4.08	1003	4.56	—	—
6400	865	3.43	918	3.91	968	4.40	<i>1015</i>	<i>4.90</i>	—	—
6750	878	3.70	929	4.19	979	4.69	—	—	—	—
7150	892	4.03	943	4.53	—	—	—	—	—	—
7500	905	4.33	955	4.86	—	—	—	—	—	—

- Standard static 514-680 RPM, 2.9 Max BHP
- Mid static 679-863 RPM, 3.7 Max BHP
- High static 826-1009 RPM, 4.9 BHP
- Italics* Indicates high static drive package with a different motor pulley is required.
- Bold** Indicates alternate standard static drive package is required.

50TC-*20 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	479	0.85	561	1.16	638	1.51	708	1.88	771	2.27
5700	506	1.03	582	1.35	656	1.72	723	2.11	785	2.53
6150	535	1.25	605	1.58	675	1.96	740	2.37	801	2.81
6550	561	1.46	627	1.81	693	2.20	756	2.63	815	3.08
7000	591	1.74	652	2.10	714	2.50	775	2.94	832	3.41
7450	622	2.05	679	2.42	737	2.84	795	3.30	850	3.78
7900	653	2.40	706	2.78	761	3.21	816	3.68	869	4.18
8300	681	2.75	731	3.14	783	3.58	836	4.06	887	4.57
8750	713	3.18	760	3.58	809	4.03	859	4.53	908	5.05

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	829	2.68	884	3.10	935	3.53	983	3.98	1029	4.44
5700	843	2.95	897	3.40	947	3.85	995	4.32	1041	4.80
6150	857	3.26	910	3.72	960	4.19	1008	4.68	1053	5.18
6550	871	3.54	923	4.03	972	4.52	1019	5.03	1064	5.55
7000	886	3.90	938	4.40	987	4.92	1033	5.45	1077	5.98
7450	903	4.29	953	4.81	1001	5.34	1047	5.89	1091	6.45
7900	921	4.71	970	5.25	1017	5.81	1062	6.38	—	—
8300	937	5.11	985	5.67	1031	6.25	1076	6.83	—	—
8750	956	5.61	1003	6.19	1048	6.78	—	—	—	—

Standard static 622-822 RPM, 3.7 Max BHP

Mid static 713-879 RPM
Voltage 208 / 230 / 460 / 575
Max BHP 6.5 / 6.9 / 7.0 / 8.3

High static 882-1078 RPM
Voltage 208 / 230 / 460 / 575
Max BHP 6.5 / 6.9 / 7.0 / 8.3

Bold Indicates alternate standard static drive package is required.

Underscore Indicates operation point covered by high static drive; confirm max BHP coverage based on unit voltage selected.

Italics Indicate high static drive package with a different motor pulley is required.

50TC*24 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	519	1.13	609	1.48	682	1.80	747	2.13	806	2.46
6500	545	1.36	633	1.75	705	2.11	768	2.46	826	2.82
7000	571	1.63	658	2.06	728	2.45	791	2.83	847	3.21
7500	597	1.93	683	2.40	753	2.83	814	3.24	869	3.65
8000	624	2.27	709	2.78	777	3.25	837	3.69	892	4.13
8500	650	2.64	734	3.20	802	3.71	861	4.19	915	4.66
9000	677	3.05	760	3.67	827	4.21	886	4.73	939	5.23
9500	703	3.50	786	4.17	853	4.76	910	5.31	963	5.85
10000	730	3.99	813	4.73	878	5.36	935	5.95	987	6.52

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	861	2.80	912	3.15	962	3.50	1008	3.86	1053	4.23
6500	880	3.18	930	3.55	978	3.92	1024	4.30	1068	4.69
7000	900	3.60	949	3.99	996	4.38	1041	4.78	1085	5.19
7500	921	4.06	969	4.47	1016	4.89	1060	5.31	1102	5.74
8000	943	4.57	990	5.00	1036	5.44	1079	5.89	1121	6.34
8500	965	5.12	1012	5.58	1056	6.05	1099	6.52	1140	6.99
9000	988	5.72	1034	6.21	1078	6.70	1120	7.19	1160	7.69
9500	1011	6.37	1057	6.89	1100	7.41	1141	7.93	<i>1181</i>	<i>8.45</i>
10000	1035	7.07	1080	7.62	1123	8.17	1163	8.72	—	—

- Standard static 690-863 RPM, 4.9 Max BHP
- Mid static 835-1021 RPM
Voltage 208 / 230 / 460 / 575
Max BHP 6.5 / 6.9 / 7.0 / 8.3
- High static 941-1176 RPM
Voltage 208 / 230 / 460 / 575
Max BHP 10.5 / 11.9 / 11.9 / 11.0
- Italics* Indicate high static drive package with a different motor pulley is required.
- Bold** Indicates alternate standard static drive package is required.

50TC-*28 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
7500	555	1.35	664	1.85	744	2.29	812	2.70	872	3.12
8150	579	1.62	690	2.19	771	2.68	838	3.14	898	3.60
8750	599	1.89	714	2.54	795	3.08	863	3.59	923	4.08
9400	619	2.20	739	2.96	822	3.56	889	4.12	949	4.65
10000	635	2.50	762	3.38	846	4.04	914	4.65	974	5.23
10650	649	2.82	787	3.86	872	4.61	940	5.28	1000	5.91
11250	653	3.09	808	4.35	895	5.17	965	5.90	<u>1025</u>	<u>6.58</u>
11900	647	3.31	831	4.91	921	5.83	<u>991</u>	<u>6.63</u>	<u>1051</u>	<u>7.37</u>
12500	641	3.51	851	5.46	943	6.48	<u>1015</u>	<u>7.34</u>	<u>1075</u>	<u>8.14</u>

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
7500	927	3.53	978	3.94	1026	4.36	1071	4.79	1114	5.21
8150	953	4.04	1003	4.49	1051	4.94	1096	5.39	1138	5.85
8750	977	4.56	1027	5.04	1074	5.53	1119	6.01	1161	6.49
9400	1003	5.18	1053	5.70	1100	6.21	1144	6.73	<i>1186</i>	<i>7.25</i>
10000	1028	5.80	1077	6.35	1124	6.90	1168	7.45	—	—
10650	<u>1054</u>	<u>6.52</u>	<u>1104</u>	<u>7.12</u>	1150	7.71	—	—	—	—
11250	<u>1079</u>	<u>7.24</u>	1128	7.88	1174	8.51	—	—	—	—
11900	<u>1105</u>	<u>8.07</u>	1155	8.76	—	—	—	—	—	—
12500	1130	8.90	<i>1179</i>	<i>9.63</i>	—	—	—	—	—	—

Standard static 717-911 RPM, 4.9 Max BHP

Mid static 913-1116 RPM
Voltage 208 / 230 / 460 / 575
Max BHP 6.5 / 6.9 / 7.0 / 8.3

High static 941-1176 RPM
Voltage 208 / 230 / 460 / 575
Max BHP 10.5 / 11.9 / 11.9 / 11.0

Bold Indicates alternate standard static drive package is required.

Underscore Indicates operation point covered by high static drive; confirm max BHP coverage based on unit voltage selected.

Italics Indicate high static drive package with a different motor pulley is required.

50TC*30 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
8250	582	1.66	694	2.25	775	2.75	842	3.22	902	3.67
8950	605	1.98	722	2.67	803	3.23	871	3.75	931	4.25
9650	626	2.32	749	3.13	832	3.76	900	4.34	959	4.89
10300	642	2.65	774	3.60	858	4.30	926	4.93	986	5.54
11000	653	2.99	800	4.14	886	4.93	955	5.64	1014	6.29
11700	647	3.22	824	4.73	913	5.62	983	6.40	1043	7.12
12400	641	3.47	848	5.36	940	6.37	1011	7.22	1071	8.01
13050	635	3.70	868	5.98	964	7.11	1036	8.04	1097	8.90
13750	629	3.96	888	6.67	989	7.95	1063	8.99	1125	9.92

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
8250	957	4.13	1007	4.58	1055	5.04	1099	5.49	1142	5.95
8950	985	4.75	1035	5.24	1082	5.73	1126	6.22	1169	6.72
9650	1013	5.43	1063	5.96	1110	6.49	1154	7.02	1196	7.56
10300	1040	6.12	1089	6.70	1136	7.27	1180	7.83	1221	8.40
11000	1068	6.93	1118	7.55	1164	8.17	1208	8.77	1249	9.38
11700	1097	7.81	1147	8.48	1193	9.14	1236	9.79	1277	10.44
12400	1126	8.76	1175	9.48	1221	10.19	1265	10.89	—	—
13050	1152	9.71	1202	10.48	1248	11.24	1291	11.99	—	—
13750	1180	10.79	1230	11.63	1277	12.45	—	—	—	—

Standard static 751-954 RPM
Voltage 208 / 230 / 460 / 575
Max BHP 6.5 / 6.9 / 7.0 / 8.3

Mid static 973-1175 RPM
Voltage 208 / 230 / 460 / 575
Max BHP 10.5 / 11.9 / 11.9 / 11.0

High static 1015-1300 RPM
Voltage 208 / 230 / 460 / 575
Max BHP 11.9 / 12.9 / 12.9 / 14.1


Operation point is covered by high static drive. Confirm max BHP coverage based on unit voltage selected.

Bold Indicates alternate standard static drive package is required.

FAN PULLEY ADJUSTMENT

50TC-*		MOTOR/DRIVE COMBO	MOTOR PULLEY TURNS OPEN										
			0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
17	3 phase	Standard Static	680	663	647	630	614	597	580	564	547	531	514
		Medium Static	863	845	826	808	789	771	753	734	716	697	679
		High Static	1009	991	972	954	936	918	899	881	863	844	826
20	3 phase	Standard Static	822	802	782	762	742	722	702	682	662	642	622
		Medium Static	879	862	846	829	813	796	779	763	746	730	713
		High Static	1078	1058	1039	1019	1000	980	960	941	921	902	882
24	3 phase	Standard Static	863	846	828	811	794	777	759	742	725	707	690
		Medium Static	1021	1002	984	965	947	928	909	891	872	854	835
		High Static	1176	1153	1129	1106	1082	1059	1035	1012	988	965	941
28	3 phase	Standard Static	911	892	872	853	833	814	795	775	756	736	717
		Medium Static	1116	1096	1075	1055	1035	1015	994	974	954	933	913
		High Static	1176	1153	1129	1106	1082	1059	1035	1012	988	965	941
30	3 phase	Standard Static	954	934	913	893	873	853	832	812	792	771	751
		Medium Static	1175	1155	1135	1114	1094	1074	1054	1034	1013	993	973
		High Static	1299	1271	1242	1214	1185	1157	1129	1100	1072	1043	1015

LEGEND

 Factory setting

2-STAGE COOLING WITH SINGLE SPEED INDOOR FAN MOTOR, SIZES 17-30 (15-27.5 TONS)

50TC-* UNIT	V-PH-HZ	VOLTAGE RANGE		COMP 1		COMP 2		OFM (ea)		IFM		
		MIN	MAX	RLA	LRA	RLA	LRA	WATTS	FLA	EFFICIENCY TYPE	EFF AT FULL LOAD	FLA
17	208-3-60	187	253	29.5	195	28.2	239	350	1.5	STD	88.6%	8.4
										MED	87.0%	10.6
										HIGH	82.9%	13.6
	230-3-60	187	253	29.5	195	28.2	239	350	1.5	STD	88.6%	8.3
										MED	87.0%	10.6
										HIGH	82.9%	12.7
	460-3-60	414	506	14.7	95	14.7	130	277	0.9	STD	88.6%	4.2
										MED	87.0%	5.3
										HIGH	82.9%	6.4
	575-3-60	518	633	12.2	80	11.3	94	397	0.6	STD	81.1%	2.8
										MED	81.1%	2.8
										HIGH	83.6%	5.6
20	208-3-60	187	253	29.5	195	28.2	239	350	1.5	STD	87.0%	10.6
										MED	89.5%	17.1
										HIGH-High Efficiency	89.5%	17.1
	230-3-60	187	253	29.5	195	28.2	239	350	1.5	STD	87.0%	10.6
										MED	89.5%	17.1
										HIGH-High Efficiency	89.5%	17.1
	460-3-60	414	506	14.7	95	14.7	130	277	0.9	STD	87.0%	5.3
										MED	89.5%	8.6
										HIGH-High Efficiency	89.5%	8.6
	575-3-60	518	633	12.2	80	11.3	94	397	0.6	STD	81.1%	2.8
										MED	83.6%	5.6
										HIGH-High Efficiency	89.5%	7.6
24	208-3-60	187	253	48.1	245	29.5	195	350	1.5	STD	82.9%	13.6
										MED-High Efficiency	89.5%	17.1
										HIGH-High Efficiency	91.7%	28.5
	230-3-60	187	253	48.1	245	29.5	195	350	1.5	STD	82.9%	12.7
										MED-High Efficiency	89.5%	17.1
										HIGH-High Efficiency	91.7%	28.5
	460-3-60	414	506	18.6	125	14.7	95	277	0.9	STD	82.9%	6.4
										MED-High Efficiency	89.5%	8.6
										HIGH-High Efficiency	91.7%	14.3
	575-3-60	518	633	14.7	100	12.2	80	397	0.6	STD	83.6%	5.6
										MED-High Efficiency	89.5%	7.6
										HIGH-High Efficiency	91.7%	9.5

Electrical data (cont)



2-STAGE COOLING WITH SINGLE SPEED INDOOR FAN MOTOR, SIZES 17-30 (15-27.5 TONS) (cont)

50TC-* UNIT	V-PH-HZ	VOLTAGE RANGE		COMP 1		COMP 2		OFM (ea)		IFM		
		MIN	MAX	RLA	LRA	RLA	LRA	WATTS	FLA	EFFICIENCY TYPE	EFF AT FULL LOAD	FLA
28	208-3-60	187	253	48.1	245	48.1	245	350	1.5	STD	82.9%	13.6
										MED-High Efficiency	89.5%	17.1
										HIGH-High Efficiency	91.7%	28.5
	230-3-60	187	253	48.1	245	48.1	245	350	1.5	STD	82.9%	12.7
										MED-High Efficiency	89.5%	17.1
										HIGH-High Efficiency	91.7%	28.5
	460-3-60	414	506	18.6	125	18.6	125	277	0.9	STD	82.9%	6.4
										MED-High Efficiency	89.5%	8.6
										HIGH-High Efficiency	91.7%	14.3
	575-3-60	518	633	14.7	100	14.7	100	397	0.6	STD	83.6%	5.6
										MED-High Efficiency	89.5%	7.6
										HIGH-High Efficiency	91.7%	9.5
30	208-3-60	187	253	51.3	300	51.3	300	350	1.5	STD	89.5%	17.1
										MED-High Efficiency	91.7%	28.5
										HIGH-High Efficiency	91.7%	30.4
	230-3-60	187	253	51.3	300	51.3	300	350	1.5	STD	89.5%	17.1
										MED-High Efficiency	91.7%	28.5
										HIGH-High Efficiency	91.7%	30.4
	460-3-60	414	506	23.1	150	23.1	150	277	0.9	STD	89.5%	8.6
										MED-High Efficiency	91.7%	14.3
										HIGH-High Efficiency	91.7%	15.2
	575-3-60	518	633	19.9	109	19.9	109	397	0.6	STD	89.5%	7.6
										MED-High Efficiency	91.7%	9.5
										HIGH-High Efficiency	91.7%	12.4

See Legend and Notes on page 81.

2-STAGE COOLING WITH TWO SPEED INDOOR FAN MOTOR, SIZES 17-30 (15-27.5 TONS)

50TC-* UNIT	V-PH-HZ	VOLTAGE RANGE		COMP 1		COMP 2		OFM (ea)		IFM		
		MIN	MAX	RLA	LRA	RLA	LRA	WATTS	FLA	EFFICIENCY TYPE	EFF AT FULL LOAD	FLA
17	208-3-60	187	253	29.5	195	28.2	239	350	1.5	STD	85.0%	8.6
										MED	81.5%	10.8
										HIGH	83.6%	13.6
	230-3-60	187	253	29.5	195	28.2	239	350	1.5	STD	85.0%	7.8
										MED	81.5%	9.8
										HIGH	83.6%	12.7
	460-3-60	414	506	14.7	95	14.7	130	277	0.9	STD	85.0%	3.8
										MED	81.5%	4.9
										HIGH	83.6%	6.4
	575-3-60	518	633	12.2	80	11.3	94	397	0.6	STD	81.1%	4.5
										MED	81.1%	4.5
										HIGH	83.6%	6.2
20	208-3-60	187	253	29.5	195	28.2	239	350	1.5	STD	81.5%	10.8
										MED	83.6%	13.6
										HIGH	89.5%	17.1
	230-3-60	187	253	29.5	195	28.2	239	350	1.5	STD	81.5%	9.8
										MED	83.6%	12.7
										HIGH	89.5%	17.1
	460-3-60	414	506	14.7	95	14.7	130	277	0.9	STD	81.5%	4.9
										MED	83.6%	6.4
										HIGH	89.5%	8.6
	575-3-60	518	633	12.2	80	11.3	94	397	0.6	STD	81.1%	4.5
										MED	83.6%	6.2
										HIGH	89.5%	7.6
24	208-3-60	187	253	48.1	245	29.5	195	350	1.5	STD	83.6%	13.6
										MED	89.5%	17.1
										HIGH	91.7%	28.5
	230-3-60	187	253	48.1	245	29.5	195	350	1.5	STD	83.6%	12.7
										MED	89.5%	17.1
										HIGH	91.7%	28.5
	460-3-60	414	506	18.6	125	14.7	95	277	0.9	STD	83.6%	6.4
										MED	89.5%	8.6
										HIGH	91.7%	14.3
	575-3-60	518	633	14.7	100	12.2	80	397	0.6	STD	83.6%	6.2
										MED	89.5%	7.6
										HIGH	91.7%	9.5
28	208-3-60	187	253	48.1	245	48.1	245	350	1.5	STD	83.6%	13.6
										MED	89.5%	17.1
										HIGH	91.7%	28.5
	230-3-60	187	253	48.1	245	48.1	245	350	1.5	STD	83.6%	12.7
										MED	89.5%	17.1
										HIGH	91.7%	28.5
	460-3-60	414	506	18.6	125	18.6	125	277	0.9	STD	83.6%	6.4
										MED	89.5%	8.6
										HIGH	91.7%	14.3
	575-3-60	518	633	14.7	100	14.7	100	397	0.6	STD	83.6%	6.2
										MED	89.5%	7.6
										HIGH	91.7%	9.5

Electrical data (cont)



2-STAGE COOLING WITH TWO SPEED INDOOR FAN MOTOR, SIZES 17-30 (15-27.5 TONS) (cont)

50TC-* UNIT	V-PH-HZ	VOLTAGE RANGE		COMP 1		COMP 2		OFM (ea)		IFM		
		MIN	MAX	RLA	LRA	RLA	LRA	WATTS	FLA	EFFICIENCY TYPE	EFF AT FULL LOAD	FLA
30	208-3-60	187	253	51.3	300	51.3	300	350	1.5	STD	89.5%	17.1
										MED	91.7%	28.5
										HIGH	91.7%	30.4
	230-3-60	187	253	51.3	300	51.3	300	350	1.5	STD	89.5%	17.1
										MED	91.7%	28.5
										HIGH	91.7%	30.4
	460-3-60	414	506	23.1	150	23.1	150	277	0.9	STD	89.5%	8.6
										MED	91.7%	14.3
										HIGH	91.7%	15.2
	575-3-60	518	633	19.9	109	19.9	109	397	0.6	STD	89.5%	7.6
										MED	91.7%	9.5
										HIGH	91.7%	12.4

See Legend and Notes on page 81.

50TC ELECTRIC HEAT DATA — SINGLE SPEED MOTOR — 15 to 27.5 TONS

50TC-* 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 CO OR UNPWR CO		WITH PWRD CO	
							NO P.E.	WITH P.E. (PWRD FR/ UNIT)	NO P.E.	WITH P.E. (PWRD FR/ UNIT)
17	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	—	—	—	—
			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
	575-3-60	STD	CRHEATER285A00	24.8	22.8	77.7	—	—	—	—
			CRHEATER286A00	49.6	45.6	155.4	—	—	—	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
			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
			CRHEATER287A00	74.4	68.3	233.1	057	057	057	057
20	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 - High Efficiency	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
	460-3-60	STD	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
		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 - High Efficiency	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
			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
			CRHEATER287A00	74.4	68.3	233.1	057	057	057	057
		HIGH - High Efficiency	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

50TC ELECTRIC HEAT DATA — SINGLE SPEED MOTOR — 15 to 27.5 TONS (cont)

50TC-* 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 CO OR UNPWR CO		WITH PWRD CO	
							NO P.E.	WITH P.E. (PWRD FR/ UNIT)	NO P.E.	WITH P.E. (PWRD FR/ UNIT)
24	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 - High Efficiency	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 - High Efficiency	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	—	—	—	—
			CRHEATER283A00	50.0	45.9	156.7	057	057	057	057
			CRHEATER284A00	75.0	68.9	235.0	057	057	057	057
		MED - High Efficiency	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 - High Efficiency	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
	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 - High Efficiency	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 - High Efficiency		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	
28	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 - High Efficiency	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 - High Efficiency	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	—	—	—	—
			CRHEATER283A00	50.0	45.9	156.7	057	057	057	057
			CRHEATER284A00	75.0	68.9	235.0	057	057	057	057
		MED - High Efficiency	CRHEATER282A00	25.0	23.0	78.3	—	—	—	057
			CRHEATER283A00	50.0	45.9	156.7	057	057	057	057
			CRHEATER284A00	75.0	68.9	235.0	057	057	057	057
		HIGH - High Efficiency	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
	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 - High Efficiency	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 - High Efficiency		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)



50TC ELECTRIC HEAT DATA — SINGLE SPEED MOTOR — 15 to 27.5 TONS (cont)

50TC-* 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 CO OR UNPWR CO		WITH PWRD CO	
							NO P.E.	WITH P.E. (PWRD FR/ UNIT)	NO P.E.	WITH P.E. (PWRD FR/ UNIT)
30	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 - High Efficiency	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 - High Efficiency	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 - High Efficiency	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 - High Efficiency	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	—	057
			CRHEATER286A00	49.6	45.6	155.4	—	057	057	057
			CRHEATER287A00	74.4	68.3	233.1	057	057	057	057
		MED - High Efficiency	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 - High Efficiency	CRHEATER285A00	24.8	22.8	77.7	057	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

See Legend and Notes on page 81.

50TC ELECTRIC HEAT DATA — TWO SPEED MOTOR — 15 to 27.5 TONS

50TC- [*] 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 CO OR UNPWR CO		WITH PWRD CO		
							NO P.E.	WITH P.E. (PWRD FR/ UNIT)	NO P.E.	WITH P.E. (PWRD FR/ UNIT)	
17	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	—	—	—	—	
			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	
	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	
			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	
			CRHEATER287A00	74.4	68.3	233.1	057	057	057	057	
	20	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	—	—	—	—
				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	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	
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	
			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	
			CRHEATER287A00	74.4	68.3	233.1	057	057	057	057	

Electrical data (cont)



50TC ELECTRIC HEAT DATA — TWO SPEED MOTOR — 15 to 27.5 TONS (cont)

50TC-* 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 CO OR UNPWR CO		WITH PWRD CO	
							NO P.E.	WITH P.E. (PWRD FR/ UNIT)	NO P.E.	WITH P.E. (PWRD FR/ UNIT)
24	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	—	—	—	—
			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	—	—	—	—
			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
			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	
28	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	—	—	—	—
			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
			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
	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	

Electrical data (cont)



50TC ELECTRIC HEAT DATA — TWO SPEED MOTOR — 15 to 27.5 TONS (cont)

50TC-* 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 CO OR UNPWR CO		WITH PWRD CO	
							NO P.E.	WITH P.E. (PWRD FR/ UNIT)	NO P.E.	WITH P.E. (PWRD FR/ UNIT)
30	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	—	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	057
			CRHEATER286A00	49.6	45.6	155.4	057	057	057	057
			CRHEATER287A00	74.4	68.3	233.1	057	057	057	057

See Legend and Notes on page 81.

UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA - SINGLE-SPEED INDOOR FAN MOTOR, 15 TONS

50TC-* UNIT	NOM. V-PH- HZ	IFM TYPE	ELECTRIC HEATER			NO C.O. OR UNPWR C.O.							
			PART NUMBER CRHEATER*	NOM (kW)	FLA	NO P.E.				W/ P.E. (PWRD FR/ UNIT)			
						MCA	MAX FUSE OR HACR BRKR	DISC. SIZE		MCA	MAX FUSE OR HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
17	208/230-3-60	STD	NONE	—	—	78.0/77.9	100/100	81/81	515	89.8/89.7	100/100	95/95	535
			279A00	18.8/25.0	52.1/60.1	78.0/85.5	100/100	81/81	515/515	90.4/100.3	100/110	95/95	535/535
			280A00	37.6/50.0	104.2/120.3	140.8/130.7	150/150	129/148	515/515	155.5/145.4	175/175	143/161	535/535
			281A00	56.3/75.0	156.4/180.4	166.9/190.8	200/200	190/217	515/515	181.7/205.5	200/225	203/231	535/535
		MED	NONE	—	—	80.2	100	84	529	92.0	100	97	549
			279A00	18.8/25.0	52.1/60.1	80.2/88.4	100/100	84/84	529/529	93.1/103.1	100/110	97/97	549/549
			280A00	37.6/50.0	104.2/120.3	143.5/133.6	150/150	132/151	529/529	158.3/148.3	175/175	146/164	549/549
			281A00	56.3/75.0	156.4/180.4	169.7/193.7	200/225	192/220	529/529	184.4/208.4	200/225	206/233	549/549
		HIGH	NONE	—	—	83.2/82.3	100/100	87/86	531	95.0/94.1	110/110	101/100	551
			279A00	18.8/25.0	52.1/60.1	83.2/91.0	100/100	87/86	531/531	96.9/105.8	110/110	101/100	551/551
			280A00	37.6/50.0	104.2/120.3	147.3/136.2	150/150	135/153	531/531	162.0/150.9	175/175	149/167	551/551
			281A00	56.3/75.0	156.4/180.4	173.4/196.3	200/225	196/222	531/531	188.2/211.0	200/225	209/236	551/551
	460-3-60	STD	NONE	—	—	40.0	50	42	267	46.2	60	49	279
			282A00	25.0	30.1	42.9	50	42	267	50.6	60	49	279
			283A00	50.0	60.1	65.4	70	74	267	73.1	80	81	279
			284A00	75.0	90.2	95.5	100	109	267	103.2	110	116	279
		MED	NONE	—	—	41.1	50	43	274	47.3	60	50	286
			282A00	25.0	30.1	44.3	50	43	274	52.0	60	50	286
			283A00	50.0	60.1	66.7	80	75	274	74.5	80	82	286
			284A00	75.0	90.2	96.8	100	110	274	104.6	110	117	286
		HIGH	NONE	—	—	42.2	50	44	275	48.4	60	51	287
			282A00	25.0	30.1	45.6	50	44	275	53.4	60	51	287
			283A00	50.0	60.1	68.1	80	76	275	75.9	80	84	287
			284A00	75.0	90.2	98.2	100	111	275	106.0	125	118	287
	575-3-60	STD	NONE	—	—	31.2	40	32	202	36.0	45	38	210
			285A00	24.8	23.9	33.4	40	32	202	39.4	45	38	210
			286A00	49.6	47.7	63.1	70	58	202	69.1	70	64	210
			287A00	74.4	71.6	75.1	80	86	202	81.1	90	91	210
		MED	NONE	—	—	31.2	40	32	202	36.0	45	38	210
			285A00	24.8	23.9	33.4	40	32	202	39.4	45	38	210
			286A00	49.6	47.7	63.1	70	58	202	69.1	70	64	210
			287A00	74.4	71.6	75.1	80	86	202	81.1	90	91	210
		HIGH	NONE	—	—	34.0	45	36	216	38.8	50	41	224
			285A00	24.8	23.9	36.9	45	36	216	42.9	50	41	224
			286A00	49.6	47.7	66.6	70	61	216	72.6	80	67	224
			287A00	74.4	71.6	78.6	90	89	216	84.6	90	94	224

See Legend and Notes on page 81.

Electrical data (cont)



UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA - SINGLE-SPEED INDOOR FAN MOTOR, 15 TONS (cont)

50TC-* UNIT	NOM. V-PH- HZ	IFM TYPE	ELECTRIC HEATER			WITH PWRD C.O.							
			PART NUMBER CRHEATER*	NOM (kW)	FLA	NO P.E.			W/ P.E. (PWRD FR/ UNIT)				
						MCA	MAX FUSE OR HACR BRKR	DISC. SIZE		MCA	MAX FUSE OR HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
17	208/230-3-60	STD	NONE	—	—	82.8/82.7	100/100	87/87	520	94.6/94.5	110/110	100/100	540
			279A00	18.8/25.0	52.1/60.1	82.8/91.5	100/100	87/87	520/520	96.4/106.3	110/110	100/100	540/540
			280A00	37.6/50.0	104.2/120.3	146.8/136.7	150/150	135/153	520/520	161.5/151.4	175/175	149/167	540/540
			281A00	56.3/75.0	156.4/180.4	172.9/196.8	200/225	195/223	520/520	187.7/211.5	200/225	209/236	540/540
		MED	NONE	—	—	85.0	100	89	534	96.8	125	103	554
			279A00	18.8/25.0	52.1/60.1	85.0/94.4	100/100	89/89	534/534	99.1/109.1	125/125	103/103	554/554
			280A00	37.6/50.0	104.2/120.3	149.5/139.6	150/150	138/156	534/534	164.3/154.3	175/175	151/170	554/554
			281A00	56.3/75.0	156.4/180.4	175.7/199.7	200/225	198/225	534/534	190.4/214.4	200/225	211/239	554/554
		HIGH	NONE	—	—	88.0/87.1	100/100	93/92	536	99.8/98.9	125/125	106/105	556
			279A00	18.8/25.0	52.1/60.1	88.1/97.0	100/100	93/92	536/536	102.9/111.8	125/125	106/105	556/556
			280A00	37.6/50.0	104.2/120.3	153.3/142.2	175/175	141/158	536/536	168.0/156.9	175/175	155/172	556/556
			281A00	56.3/75.0	156.4/180.4	179.4/202.3	200/225	201/228	536/536	194.2/217.0	200/250	215/241	556/556
	460-3-60	STD	NONE	—	—	42.2	50	44	269	48.4	60	51	281
			282A00	25.0	30.1	45.6	50	44	269	53.4	60	51	281
			283A00	50.0	60.1	68.1	80	76	269	75.9	80	84	281
			284A00	75.0	90.2	98.2	100	111	269	106.0	110	118	281
		MED	NONE	—	—	43.3	50	46	276	49.5	60	53	288
			282A00	25.0	30.1	47.0	50	46	276	54.8	60	53	288
			283A00	50.0	60.1	69.5	80	78	276	77.2	80	85	288
			284A00	75.0	90.2	99.6	110	112	276	107.3	125	119	288
		HIGH	NONE	—	—	44.4	50	47	277	50.6	60	54	289
			282A00	25.0	30.1	48.4	50	47	277	56.1	60	54	289
			283A00	50.0	60.1	70.9	80	79	277	78.6	80	86	289
			284A00	75.0	90.2	101.0	110	114	277	108.7	125	121	289
	575-3-60	STD	NONE	—	—	32.9	45	34	204	37.7	45	40	212
			285A00	24.8	23.9	35.5	45	34	204	41.5	45	40	212
			286A00	49.6	47.7	65.3	70	60	204	71.3	80	66	212
			287A00	74.4	71.6	77.2	80	88	204	83.2	90	93	212
		MED	NONE	—	—	32.9	45	34	204	37.7	45	40	212
			285A00	24.8	23.9	35.5	45	34	204	41.5	45	40	212
			286A00	49.6	47.7	65.3	70	60	204	71.3	80	66	212
			287A00	74.4	71.6	77.2	80	88	204	83.2	90	93	212
		HIGH	NONE	—	—	35.7	45	37	218	40.5	50	43	226
			285A00	24.8	23.9	39.0	45	37	218	45.0	50	43	226
			286A00	49.6	47.7	68.8	70	63	218	74.8	80	69	226
			287A00	74.4	71.6	80.7	90	91	218	86.7	90	96	226

See Legend and Notes on page 81.

UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA - SINGLE-SPEED INDOOR FAN MOTOR, 17.5 TONS

50TC* UNIT	NOM. V-PH-HZ	IFM TYPE	ELECTRIC HEATER			NO C.O. OR UNPWR C.O.							
			PART NUMBER CRHEATER*	NOM (kW)	FLA	NO P.E.				W/ P.E. (PWRD FR/ UNIT)			
						MCA	MAX FUSE OR HACR BRKR	DISC. SIZE		MCA	MAX FUSE OR HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
20	208/230-3-60	STD	NONE	—	—	80.2	100	84	529	92.0	100	97	549
			279A00	18.8/25.0	52.1/60.1	80.2/88.4	100/100	84/84	529/529	93.1/103.1	100/110	97/97	549/549
			280A00	37.6/50.0	104.2/120.3	143.5/133.6	150/150	132/151	529/529	158.3/148.3	175/175	146/164	549/549
			281A00	56.3/75.0	156.4/180.4	169.7/193.7	200/225	192/220	529/529	184.4/208.4	200/225	206/233	549/549
		MED	NONE	—	—	86.7	100	91	527	98.5	125	105	547
			279A00	18.8/25.0	52.1/60.1	86.7/96.5	100/100	91/91	527/527	101.3/111.3	125/125	105/105	547/547
			280A00	37.6/50.0	104.2/120.3	151.6/141.7	175/175	139/158	527/527	166.4/156.4	175/175	153/172	547/547
			281A00	56.3/75.0	156.4/180.4	177.8/201.8	200/225	200/227	527/527	192.5/216.5	200/250	213/241	547/547
		HIGH - High Efficiency	NONE	—	—	86.7	100	91	527	98.5	125	105	547
			279A00	18.8/25.0	52.1/60.1	86.7/96.5	100/100	91/91	527/527	101.3/111.3	125/125	105/105	547/547
			280A00	37.6/50.0	104.2/120.3	151.6/141.7	175/175	139/158	527/527	166.4/156.4	175/175	153/172	547/547
			281A00	56.3/75.0	156.4/180.4	177.8/201.8	200/225	200/227	527/527	192.5/216.5	200/250	213/241	547/547
	460-3-60	STD	NONE	—	—	41.1	50	43	274	47.3	60	50	286
			282A00	25.0	30.1	44.3	50	43	274	52.0	60	50	286
			283A00	50.0	60.1	66.7	80	75	274	74.5	80	82	286
			284A00	75.0	90.2	96.8	100	110	274	104.6	110	117	286
		MED	NONE	—	—	44.4	50	47	273	50.6	60	54	285
			282A00	25.0	30.1	48.4	50	47	273	56.1	60	54	285
			283A00	50.0	60.1	70.9	80	79	273	78.6	80	86	285
			284A00	75.0	90.2	101.0	110	114	273	108.7	125	121	285
		HIGH - High Efficiency	NONE	—	—	44.4	50	47	273	50.6	60	54	285
			282A00	25.0	30.1	48.4	50	47	273	56.1	60	54	285
			283A00	50.0	60.1	70.9	80	79	273	78.6	80	86	285
			284A00	75.0	90.2	101.0	110	114	273	108.7	125	121	285
	575-3-60	STD	NONE	—	—	31.2	40	32	202	36.0	45	38	210
			285A00	24.8	23.9	33.4	40	32	202	39.4	45	38	210
			286A00	49.6	47.7	63.1	70	58	202	69.1	70	64	210
			287A00	74.4	71.6	75.1	80	86	202	81.1	90	91	210
		MED	NONE	—	—	34.0	45	36	216	38.8	50	41	224
			285A00	24.8	23.9	36.9	45	36	216	42.9	50	41	224
			286A00	49.6	47.7	66.6	70	61	216	72.6	80	67	224
			287A00	74.4	71.6	78.6	90	89	216	84.6	90	94	224
		HIGH - High Efficiency	NONE	—	—	36.0	45	38	214	40.8	50	43	222
			285A00	24.8	23.9	39.4	45	38	214	45.4	50	43	222
			286A00	49.6	47.7	69.1	70	64	214	75.1	80	69	222
			287A00	74.4	71.6	81.1	90	91	214	87.1	90	97	222

See Legend and Notes on page 81.

Electrical data (cont)



UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA - SINGLE-SPEED INDOOR FAN MOTOR, 17.5 TONS (cont)

50TC* UNIT	NOM. V-PH-HZ	IFM TYPE	ELECTRIC HEATER			WITH PWRD C.O.							
			PART NUMBER CRHEATER*	NOM (kW)	FLA	NO P.E.				W/ P.E. (PWRD FR/ UNIT)			
						MCA	MAX FUSE OR HACR BRKR	DISC. SIZE		MCA	MAX FUSE OR HACR BRKR	DISC. SIZE	
							FLA	LRA			FLA	LRA	
20	208/230-3-60	STD	NONE	—	—	85.0	100	89	534	96.8	125	103	554
			279A00	18.8/25.0	52.1/60.1	85.0/94.4	100/100	89/89	534/534	99.1/109.1	125/125	103/103	554/554
			280A00	37.6/50.0	104.2/120.3	149.5/139.6	150/150	138/156	534/534	164.3/154.3	175/175	151/170	554/554
			281A00	56.3/75.0	156.4/180.4	175.7/199.7	200/225	198/225	534/534	190.4/214.4	200/225	211/239	554/554
		MED	NONE	—	—	91.5	100	97	532	103.3	125	110	552
			279A00	18.8/25.0	52.1/60.1	92.5/102.5	100/110	97/97	532/532	107.3/117.3	125/125	110/110	552/552
			280A00	37.6/50.0	104.2/120.3	157.6/147.7	175/175	145/164	532/532	172.4/162.4	175/175	159/177	552/552
			281A00	56.3/75.0	156.4/180.4	183.8/207.8	200/225	205/233	532/532	198.5/222.5	200/250	219/246	552/552
		HIGH - High Efficiency	NONE	—	—	91.5	100	97	532	103.3	125	110	552
			279A00	18.8/25.0	52.1/60.1	92.5/102.5	100/110	97/97	532/532	107.3/117.3	125/125	110/110	552/552
			280A00	37.6/50.0	104.2/120.3	157.6/147.7	175/175	145/164	532/532	172.4/162.4	175/175	159/177	552/552
			281A00	56.3/75.0	156.4/180.4	183.8/207.8	200/225	205/233	532/532	198.5/222.5	200/250	219/246	552/552
	460-3-60	STD	NONE	—	—	43.3	50	46	276	49.5	60	53	288
			282A00	25.0	30.1	47.0	50	46	276	54.8	60	53	288
			283A00	50.0	60.1	69.5	80	78	276	77.2	80	85	288
			284A00	75.0	90.2	99.6	110	112	276	107.3	125	119	288
		MED	NONE	—	—	46.6	60	49	275	52.8	60	56	287
			282A00	25.0	30.1	51.1	60	49	275	58.9	60	56	287
			283A00	50.0	60.1	73.6	80	82	275	81.4	90	89	287
			284A00	75.0	90.2	103.7	125	116	275	111.5	125	123	287
		HIGH - High Efficiency	NONE	—	—	46.6	60	49	275	52.8	60	56	287
			282A00	25.0	30.1	51.1	60	49	275	58.9	60	56	287
			283A00	50.0	60.1	73.6	80	82	275	81.4	90	89	287
			284A00	75.0	90.2	103.7	125	116	275	111.5	125	123	287
	575-3-60	STD	NONE	—	—	32.9	45	34	204	37.7	45	40	212
			285A00	24.8	23.9	35.5	45	34	204	41.5	45	40	212
			286A00	49.6	47.7	65.3	70	60	204	71.3	80	66	212
			287A00	74.4	71.6	77.2	80	88	204	83.2	90	93	212
MED		NONE	—	—	35.7	45	37	218	40.5	50	43	226	
		285A00	24.8	23.9	39.0	45	37	218	45.0	50	43	226	
		286A00	49.6	47.7	68.8	70	63	218	74.8	80	69	226	
		287A00	74.4	71.6	80.7	90	91	218	86.7	90	96	226	
HIGH - High Efficiency		NONE	—	—	37.7	45	40	216	42.5	50	45	224	
		285A00	24.8	23.9	41.5	45	40	216	47.5	50	45	224	
		286A00	49.6	47.7	71.3	80	66	216	77.3	80	71	224	
		287A00	74.4	71.6	83.2	90	93	216	89.2	90	99	224	

See Legend and Notes on page 81.

UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA - SINGLE-SPEED INDOOR FAN MOTOR, 20 TONS

50TC* UNIT	NOM. V-PH-HZ	IFM TYPE	ELECTRIC HEATER			NO C.O. OR UNPWR C.O.							
			PART NUMBER CRHEATER*	NOM (kW)	FLA	NO P.E.				W/ P.E. (PWRD FR/ UNIT)			
						MCA	MAX FUSE OR HACR BRKR	DISC. SIZE		MCA	MAX FUSE OR HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
24	208/230-3-60	STD	NONE	—	—	109.2/108.3	150/150	112/111	540	121.0/120.1	150/150	125/124	560
			279A00	18.8/25.0	52.1/60.1	109.2/108.3	150/150	112/111	540/540	121.0/120.1	150/150	125/124	560/560
			280A00	37.6/50.0	104.2/120.3	147.3/136.2	150/150	135/153	540/540	162.0/150.9	175/175	149/167	560/560
			281A00	56.3/75.0	156.4/180.4	173.4/196.3	200/225	196/222	540/540	188.2/211.0	200/225	209/236	560/560
		MED - High Efficiency	NONE	—	—	112.7	150	116	536	124.5	150	129	556
			279A00	18.8/25.0	52.1/60.1	112.7/112.7	150/150	116/116	536/536	124.5/124.5	150/150	129/129	556/556
			280A00	37.6/50.0	104.2/120.3	151.6/141.7	175/175	139/158	536/536	166.4/156.4	175/175	153/172	556/556
			281A00	56.3/75.0	156.4/180.4	177.8/201.8	200/225	200/227	536/536	192.5/216.5	200/250	213/241	556/556
		HIGH - High Efficiency	NONE	—	—	124.1	150	129	615	135.9	175	142	635
			279A00	18.8/25.0	52.1/60.1	124.1/124.1	150/150	129/129	615/615	135.9/135.9	175/175	142/142	635/635
			280A00	37.6/50.0	104.2/120.3	165.9/155.9	175/175	153/171	615/615	180.6/170.7	200/175	166/185	635/635
			281A00	56.3/75.0	156.4/180.4	192.0/216.0	200/250	213/240	615/615	206.8/230.8	225/250	226/254	635/635
	460-3-60	STD	NONE	—	—	48.0	60	50	272	54.2	60	57	284
			282A00	25.0	30.1	48.0	60	50	272	54.2	60	57	284
			283A00	50.0	60.1	68.1	80	76	272	75.9	80	84	284
			284A00	75.0	90.2	98.2	100	111	272	106.0	125	118	284
		MED - High Efficiency	NONE	—	—	50.2	60	52	270	56.4	70	59	282
			282A00	25.0	30.1	50.2	60	52	270	56.4	70	59	282
			283A00	50.0	60.1	70.9	80	79	270	78.6	80	86	282
			284A00	75.0	90.2	101.0	110	114	270	108.7	125	121	282
		HIGH - High Efficiency	NONE	—	—	55.9	70	59	310	62.1	80	66	322
			282A00	25.0	30.1	55.9	70	59	310	63.3	80	66	322
			283A00	50.0	60.1	78.0	90	86	310	85.7	90	93	322
			284A00	75.0	90.2	108.1	125	120	310	115.8	125	127	322
	575-3-60	STD	NONE	—	—	38.6	50	40	224	43.4	50	46	232
			285A00	24.8	23.9	38.6	50	40	224	43.4	50	46	232
			286A00	49.6	47.7	66.6	70	61	224	72.6	80	67	232
			287A00	74.4	71.6	78.6	90	89	224	84.6	90	94	232
		MED - High Efficiency	NONE	—	—	40.6	50	42	222	45.4	60	48	230
			285A00	24.8	23.9	40.6	50	42	222	45.4	60	48	230
			286A00	49.6	47.7	69.1	70	64	222	75.1	80	69	230
			287A00	74.4	71.6	81.1	90	91	222	87.1	90	97	230
		HIGH - High Efficiency	NONE	—	—	42.5	50	45	249	47.3	60	50	257
			285A00	24.8	23.9	42.5	50	45	249	47.8	60	50	257
			286A00	49.6	47.7	71.5	80	66	249	77.5	80	71	257
			287A00	74.4	71.6	83.5	90	93	249	89.5	100	99	257

See Legend and Notes on page 81.

UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA - SINGLE-SPEED INDOOR FAN MOTOR, 20 TONS (cont)

50TC+ UNIT	NOM. V-PH- HZ	IFM TYPE	ELECTRIC HEATER			WITH PWRD C.O.							
			PART NUMBER CRHEATER*	NOM (kW)	FLA	NO P.E.				W/ P.E. (PWRD FR/ UNIT)			
						MCA	MAX FUSE OR HACR BRKR	DISC. SIZE		MCA	MAX FUSE OR HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
24	208/230-3-60	STD	NONE	—	—	114.0/113.1	150/150	117/116	545	125.8/124.9	150/150	131/130	565
			279A00	18.8/25.0	52.1/60.1	114.0/113.1	150/150	117/116	545/545	125.8/124.9	150/150	131/130	565/565
			280A00	37.6/50.0	104.2/120.3	153.3/142.2	175/175	141/158	545/545	168.0/156.9	175/175	155/172	565/565
			281A00	56.3/75.0	156.4/180.4	179.4/202.3	200/225	201/228	545/545	194.2/217.0	200/250	215/241	565/565
		MED - High Efficiency	NONE	—	—	117.5	150	121	541	129.3	175	135	561
			279A00	18.8/25.0	52.1/60.1	117.5/117.5	150/150	121/121	541/541	129.3/129.3	175/175	135/135	561/561
			280A00	37.6/50.0	104.2/120.3	157.6/147.7	175/175	145/164	541/541	172.4/162.4	175/175	159/177	561/561
			281A00	56.3/75.0	156.4/180.4	183.8/207.8	200/225	205/233	541/541	198.5/222.5	200/250	219/246	561/561
		HIGH - High Efficiency	NONE	—	—	128.9	175	134	620	140.7	175	148	640
			279A00	18.8/25.0	52.1/60.1	128.9/128.9	175/175	134/134	620/620	140.7/140.7	175/175	148/148	640/640
			280A00	37.6/50.0	104.2/120.3	171.9/161.9	175/175	158/177	620/620	186.6/176.7	200/200	172/190	640/640
			281A00	56.3/75.0	156.4/180.4	198.0/222.0	225/250	218/246	620/620	212.8/236.8	225/250	232/259	640/640
	460-3-60	STD	NONE	—	—	50.2	60	52	274	56.4	70	59	286
			282A00	25.0	30.1	50.2	60	52	274	56.4	70	59	286
			283A00	50.0	60.1	70.9	80	79	274	78.6	80	86	286
			284A00	75.0	90.2	101.0	110	114	274	108.7	125	121	286
		MED - High Efficiency	NONE	—	—	52.4	60	55	272	58.6	70	62	284
			282A00	25.0	30.1	52.4	60	55	272	58.9	70	62	284
			283A00	50.0	60.1	73.6	80	82	272	81.4	90	89	284
			284A00	75.0	90.2	103.7	125	116	272	111.5	125	123	284
		HIGH - High Efficiency	NONE	—	—	58.1	70	61	312	64.3	80	69	324
			282A00	25.0	30.1	58.3	70	61	312	66.0	80	69	324
			283A00	50.0	60.1	80.7	90	88	312	88.5	100	95	324
			284A00	75.0	90.2	110.8	125	123	312	118.6	125	130	324
	575-3-60	STD	NONE	—	—	40.3	50	42	226	45.1	50	48	234
			285A00	24.8	23.9	40.3	50	42	226	45.1	50	48	234
			286A00	49.6	47.7	68.8	70	63	226	74.8	80	69	234
			287A00	74.4	71.6	80.7	90	91	226	86.7	90	96	234
		MED - High Efficiency	NONE	—	—	42.3	50	44	224	47.1	60	50	232
			285A00	24.8	23.9	42.3	50	44	224	47.5	60	50	232
			286A00	49.6	47.7	71.3	80	66	224	77.3	80	71	232
			287A00	74.4	71.6	83.2	90	93	224	89.2	90	99	232
		HIGH - High Efficiency	NONE	—	—	44.2	50	47	251	49.0	60	52	259
			285A00	24.8	23.9	44.2	50	47	251	49.9	60	52	259
			286A00	49.6	47.7	73.6	80	68	251	79.6	80	73	259
			287A00	74.4	71.6	85.6	90	95	251	91.6	100	101	259

See Legend and Notes on page 81.

UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA - SINGLE-SPEED INDOOR FAN MOTOR, 25 TONS

50TC* UNIT	NOM. V-PH-HZ	IFM TYPE	ELECTRIC HEATER			NO C.O. OR UNPWR C.O.							
			PART NUMBER CRHEATER*	NOM (kW)	FLA	NO P.E.				W/ P.E. (PWRD FR/ UNIT)			
						MCA	MAX FUSE OR HACR BRKR	DISC. SIZE		MCA	MAX FUSE OR HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
28	208/230-3-60	STD	NONE	—	—	127.8/126.9	175/175	133/132	590	139.6/138.7	175/175	147/146	610
			279A00	18.8/25.0	52.1/60.1	127.8/126.9	175/175	133/132	590/590	139.6/138.7	175/175	147/146	610/610
			280A00	37.6/50.0	104.2/120.3	147.3/136.2	175/175	135/153	590/590	162.0/150.9	175/175	149/167	610/610
			281A00	56.3/75.0	156.4/180.4	173.4/196.3	200/225	196/222	590/590	188.2/211.0	200/225	209/236	610/610
		MED - High Efficiency	NONE	—	—	131.3	175	137	586	143.1	175	151	606
			279A00	18.8/25.0	52.1/60.1	131.3/131.3	175/175	137/137	586/586	143.1/143.1	175/175	151/151	606/606
			280A00	37.6/50.0	104.2/120.3	151.6/141.7	175/175	139/158	586/586	166.4/156.4	175/175	153/172	606/606
			281A00	56.3/75.0	156.4/180.4	177.8/201.8	200/225	200/227	586/586	192.5/216.5	200/250	213/241	606/606
		HIGH - High Efficiency	NONE	—	—	142.7	175	150	665	154.5	200	164	685
			279A00	18.8/25.0	52.1/60.1	142.7/142.7	175/175	150/150	665/665	154.5/154.5	200/200	164/164	685/685
			280A00	37.6/50.0	104.2/120.3	165.9/155.9	175/175	153/171	665/665	180.6/170.7	200/200	166/185	685/685
			281A00	56.3/75.0	156.4/180.4	192.0/216.0	200/250	213/240	665/665	206.8/230.8	225/250	226/254	685/685
	460-3-60	STD	NONE	—	—	51.9	60	54	302	58.1	70	61	314
			282A00	25.0	30.1	51.9	60	54	302	58.1	70	61	314
			283A00	50.0	60.1	68.1	80	76	302	75.9	80	84	314
			284A00	75.0	90.2	98.2	100	111	302	106.0	125	118	314
		MED - High Efficiency	NONE	—	—	54.1	60	57	300	60.3	70	64	312
			282A00	25.0	30.1	54.1	60	57	300	60.3	70	64	312
			283A00	50.0	60.1	70.9	80	79	300	78.6	80	86	312
			284A00	75.0	90.2	101.0	110	114	300	108.7	125	121	312
		HIGH - High Efficiency	NONE	—	—	59.8	70	63	340	66.0	80	70	352
			282A00	25.0	30.1	59.8	70	63	340	66.0	80	70	352
			283A00	50.0	60.1	78.0	90	86	340	85.7	90	93	352
			284A00	75.0	90.2	108.1	125	120	340	115.8	125	127	352
	575-3-60	STD	NONE	—	—	41.1	50	43	244	45.9	60	49	252
			285A00	24.8	23.9	41.1	50	43	244	45.9	60	49	252
			286A00	49.6	47.7	66.6	70	61	244	72.6	80	67	252
			287A00	74.4	71.6	78.6	90	89	244	84.6	90	94	252
		MED - High Efficiency	NONE	—	—	43.1	50	45	242	47.9	60	51	250
			285A00	24.8	23.9	43.1	50	45	242	47.9	60	51	250
			286A00	49.6	47.7	69.1	70	64	242	75.1	80	69	250
			287A00	74.4	71.6	81.1	90	91	242	87.1	90	97	250
		HIGH - High Efficiency	NONE	—	—	45.0	50	47	269	49.8	60	53	277
			285A00	24.8	23.9	45.0	50	47	269	49.8	60	53	277
			286A00	49.6	47.7	71.5	80	66	269	77.5	80	71	277
			287A00	74.4	71.6	83.5	90	93	269	89.5	100	99	277

See Legend and Notes on page 81.

UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA - SINGLE-SPEED INDOOR FAN MOTOR, 25 TONS (cont)

50TC* UNIT	NOM. V-PH-HZ	IFM TYPE	ELECTRIC HEATER			WITH PWRD C.O.							
			PART NUMBER CRHEATER*	NOM (kW)	FLA	NO P.E.				W/ P.E. (PWRD FR/ UNIT)			
						MCA	MAX FUSE OR HACR BRKR	DISC. SIZE		MCA	MAX FUSE OR HACR BRKR	DISC. SIZE	
							FLA	LRA			FLA	LRA	
28	208/230-3-60	STD	NONE	—	—	132.6/131.7	175/175	139/138	595	144.4/143.5	175/175	152/151	615
			279A00	18.8/25.0	52.1/60.1	132.6/131.7	175/175	139/138	595/595	144.4/143.5	175/175	152/151	615/615
			280A00	37.6/50.0	104.2/120.3	153.3/142.2	175/175	141/158	595/595	168.0/156.9	175/175	155/172	615/615
			281A00	56.3/75.0	156.4/180.4	179.4/202.3	200/225	201/228	595/595	194.2/217.0	200/250	215/241	615/615
		MED - High Efficiency	NONE	—	—	136.1	175	143	591	147.9	175	156	611
			279A00	18.8/25.0	52.1/60.1	136.1/136.1	175/175	143/143	591/591	147.9/147.9	175/175	156/156	611/611
			280A00	37.6/50.0	104.2/120.3	157.6/147.7	175/175	145/164	591/591	172.4/162.4	175/175	159/177	611/611
			281A00	56.3/75.0	156.4/180.4	183.8/207.8	200/225	205/233	591/591	198.5/222.5	200/250	219/246	611/611
		HIGH - High Efficiency	NONE	—	—	147.5	175	156	670	159.3	200	169	690
			279A00	18.8/25.0	52.1/60.1	147.5/147.5	175/175	156/156	670/670	159.3/159.3	200/200	169/169	690/690
			280A00	37.6/50.0	104.2/120.3	171.9/161.9	175/175	158/177	670/670	186.6/176.7	200/200	172/190	690/690
			281A00	56.3/75.0	156.4/180.4	198.0/222.0	225/250	218/246	670/670	212.8/236.8	225/250	232/259	690/690
	460-3-60	STD	NONE	—	—	54.1	60	57	304	60.3	70	64	316
			282A00	25.0	30.1	54.1	60	57	304	60.3	70	64	316
			283A00	50.0	60.1	70.9	80	79	304	78.6	80	86	316
			284A00	75.0	90.2	101.0	110	114	304	108.7	125	121	316
		MED - High Efficiency	NONE	—	—	56.3	70	59	302	62.5	80	66	314
			282A00	25.0	30.1	56.3	70	59	302	62.5	80	66	314
			283A00	50.0	60.1	73.6	80	82	302	81.4	90	89	314
			284A00	75.0	90.2	103.7	125	116	302	111.5	125	123	314
		HIGH - High Efficiency	NONE	—	—	62.0	80	66	342	68.2	80	73	354
			282A00	25.0	30.1	62.0	80	66	342	68.2	80	73	354
			283A00	50.0	60.1	80.7	90	88	342	88.5	100	95	354
			284A00	75.0	90.2	110.8	125	123	342	118.6	125	130	354
	575-3-60	STD	NONE	—	—	42.8	50	45	246	47.6	60	50	254
			285A00	24.8	23.9	42.8	50	45	246	47.6	60	50	254
			286A00	49.6	47.7	68.8	70	63	246	74.8	80	69	254
			287A00	74.4	71.6	80.7	90	91	246	86.7	90	96	254
MED - High Efficiency		NONE	—	—	44.8	50	47	244	49.6	60	53	252	
		285A00	24.8	23.9	44.8	50	47	244	49.6	60	53	252	
		286A00	49.6	47.7	71.3	80	66	244	77.3	80	71	252	
		287A00	74.4	71.6	83.2	90	93	244	89.2	90	99	252	
HIGH - High Efficiency		NONE	—	—	46.7	60	49	271	51.5	60	55	279	
		285A00	24.8	23.9	46.7	60	49	271	51.5	60	55	279	
		286A00	49.6	47.7	73.6	80	68	271	79.6	80	73	279	
		287A00	74.4	71.6	85.6	90	95	271	91.6	100	101	279	

See Legend and Notes on page 81.

UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA - SINGLE-SPEED INDOOR FAN MOTOR, 27.5 TONS

50TC* UNIT	NOM. V-PH-HZ	IFM TYPE	ELECTRIC HEATER			NO C.O. OR UNPWR C.O.							
			PART NUMBER CRHEATER*	NOM (kW)	FLA	NO P.E.				W/ P.E. (PWRD FR/ UNIT)			
						MCA	MAX FUSE OR HACR BRKR	DISC. SIZE		MCA	MAX FUSE OR HACR BRKR	DISC. SIZE	
FLA	LRA	FLA	LRA	FLA	LRA								
30	208/230-3-60	STD	NONE	—	—	141.5	175	148	702	153.3	200	162	722
			279A00	18.8/25.0	52.1/60.1	141.5/141.5	175/175	148/148	702/702	153.3/153.3	200/200	162/162	722/722
			280A00	37.6/50.0	104.2/120.3	151.6/141.7	175/175	148/158	702/702	166.4/156.4	200/200	162/172	722/722
			281A00	56.3/75.0	156.4/180.4	177.8/201.8	200/225	200/227	702/702	192.5/216.5	200/250	213/241	722/722
		MED - High Efficiency	NONE	—	—	152.9	200	161	781	164.7	200	175	801
			279A00	18.8/25.0	52.1/60.1	152.9/152.9	200/200	161/161	781/781	164.7/164.7	200/200	175/175	801/801
			280A00	37.6/50.0	104.2/120.3	165.9/155.9	200/200	161/171	781/781	180.6/170.7	200/200	175/185	801/801
			281A00	56.3/75.0	156.4/180.4	192.0/216.0	200/250	213/240	781/781	206.8/230.8	225/250	226/254	801/801
		HIGH - High Efficiency	NONE	—	—	154.8	200	163	812	166.6	200	177	832
			279A00	18.8/25.0	52.1/60.1	154.8/154.8	200/200	163/163	812/812	166.6/166.6	200/200	177/177	832/832
			280A00	37.6/50.0	104.2/120.3	168.3/158.3	200/200	163/173	812/812	183.0/173.1	200/200	177/187	832/832
			281A00	56.3/75.0	156.4/180.4	194.4/218.4	225/250	215/242	812/812	209.2/233.2	225/250	228/256	832/832
	460-3-60	STD	NONE	—	—	66.0	80	69	354	72.2	90	76	366
			282A00	25.0	30.1	66.0	80	69	354	72.2	90	76	366
			283A00	50.0	60.1	70.9	80	79	354	78.6	90	86	366
			284A00	75.0	90.2	101.0	110	114	354	108.7	125	121	366
		MED - High Efficiency	NONE	—	—	71.7	90	76	394	77.9	100	83	406
			282A00	25.0	30.1	71.7	90	76	394	77.9	100	83	406
			283A00	50.0	60.1	78.0	90	86	394	85.7	100	93	406
			284A00	75.0	90.2	108.1	125	120	394	115.8	125	127	406
		HIGH - High Efficiency	NONE	—	—	72.6	90	77	409	78.8	100	84	421
			282A00	25.0	30.1	72.6	90	77	409	78.8	100	84	421
			283A00	50.0	60.1	79.1	90	87	409	86.9	100	94	421
			284A00	75.0	90.2	109.2	125	121	409	117.0	125	128	421
	575-3-60	STD	NONE	—	—	56.0	70	59	264	60.8	80	64	272
			285A00	24.8	23.9	56.0	70	59	264	60.8	80	64	272
			286A00	49.6	47.7	69.1	70	64	264	75.1	80	69	272
			287A00	74.4	71.6	81.1	90	91	264	87.1	90	97	272
		MED - High Efficiency	NONE	—	—	57.9	70	61	291	62.7	80	66	299
			285A00	24.8	23.9	57.9	70	61	291	62.7	80	66	299
			286A00	49.6	47.7	71.5	80	66	291	77.5	80	71	299
			287A00	74.4	71.6	83.5	90	93	291	89.5	100	99	299
		HIGH - High Efficiency	NONE	—	—	60.8	80	64	302	65.6	80	70	310
			285A00	24.8	23.9	60.8	80	64	302	65.6	80	70	310
			286A00	49.6	47.7	75.1	80	69	302	81.1	90	75	310
			287A00	74.4	71.6	87.1	100	97	302	93.1	100	102	310

See Legend and Notes on page 81.

UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA - SINGLE-SPEED INDOOR FAN MOTOR, 27.5 TONS (cont)

50TC+ UNIT	NOM. V.-PH- HZ	IFM TYPE	ELECTRIC HEATER			WITH PWRD C.O.							
			PART NUMBER CRHEATER*	NOM (kW)	FLA	NO P.E.			W/ P.E. (PWRD FR/ UNIT)				
						MCA	MAX FUSE OR HACR BRKR	DISC. SIZE		MCA	MAX FUSE OR HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
30	208/230-3-60	STD	NONE	—	—	146.3	175	154	707	158.1	200	167	727
			279A00	18.8/25.0	52.1/60.1	146.3/146.3	175/175	154/154	707/707	158.1/158.1	200/200	167/167	727/727
			280A00	37.6/50.0	104.2/120.3	157.6/147.7	175/175	154/164	707/707	172.4/162.4	200/200	167/177	727/727
			281A00	56.3/75.0	156.4/180.4	183.8/207.8	200/225	205/233	707/707	198.5/222.5	200/250	219/246	727/727
		MED - High Efficiency	NONE	—	—	157.7	200	167	786	169.5	200	180	806
			279A00	18.8/25.0	52.1/60.1	157.7/157.7	200/200	167/167	786/786	169.5/169.5	200/200	180/180	806/806
			280A00	37.6/50.0	104.2/120.3	171.9/161.9	200/200	167/177	786/786	186.6/176.7	200/200	180/190	806/806
			281A00	56.3/75.0	156.4/180.4	198.0/222.0	225/250	218/246	786/786	212.8/236.8	225/250	232/259	806/806
		HIGH - High Efficiency	NONE	—	—	159.6	200	169	817	171.4	200	182	837
			279A00	18.8/25.0	52.1/60.1	159.6/159.6	200/200	169/169	817/817	171.4/171.4	200/200	182/182	837/837
			280A00	37.6/50.0	104.2/120.3	174.3/164.3	200/200	169/179	817/817	189.0/179.1	200/200	182/192	837/837
			281A00	56.3/75.0	156.4/180.4	200.4/224.4	225/250	220/248	817/817	215.2/239.2	225/250	234/262	837/837
	460-3-60	STD	NONE	—	—	68.2	90	72	356	74.4	90	79	368
			282A00	25.0	30.1	68.2	90	72	356	74.4	90	79	368
			283A00	50.0	60.1	73.6	90	82	356	81.4	90	89	368
			284A00	75.0	90.2	103.7	125	116	356	111.5	125	123	368
		MED - High Efficiency	NONE	—	—	73.9	90	78	396	80.1	100	85	408
			282A00	25.0	30.1	73.9	90	78	396	80.1	100	85	408
			283A00	50.0	60.1	80.7	90	88	396	88.5	100	95	408
			284A00	75.0	90.2	110.8	125	123	396	118.6	125	130	408
		HIGH - High Efficiency	NONE	—	—	74.8	90	79	411	81.0	100	86	423
			282A00	25.0	30.1	74.8	90	79	411	81.0	100	86	423
			283A00	50.0	60.1	81.9	90	89	411	89.6	100	96	423
			284A00	75.0	90.2	112.0	125	124	411	119.7	125	131	423
	575-3-60	STD	NONE	—	—	57.7	70	61	266	62.5	80	66	274
			285A00	24.8	23.9	57.7	70	61	266	62.5	80	66	274
			286A00	49.6	47.7	71.3	80	66	266	77.3	80	71	274
			287A00	74.4	71.6	83.2	90	93	266	89.2	90	99	274
		MED - High Efficiency	NONE	—	—	59.6	70	63	293	64.4	80	68	301
			285A00	24.8	23.9	59.6	70	63	293	64.4	80	68	301
			286A00	49.6	47.7	73.6	80	68	293	79.6	80	73	301
			287A00	74.4	71.6	85.6	90	95	293	91.6	100	101	301
		HIGH - High Efficiency	NONE	—	—	62.5	80	66	304	67.3	80	72	312
			285A00	24.8	23.9	62.5	80	66	304	67.3	80	72	312
			286A00	49.6	47.7	77.3	80	71	304	83.3	90	77	312
			287A00	74.4	71.6	89.2	100	99	304	95.2	100	104	312

See Legend and Notes on page 81.

UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA - TWO-SPEED INDOOR FAN MOTOR, 15 TONS

50TC-* UNIT	NOM. V-PH- HZ	IFM TYPE	ELECTRIC HEATER			NO C.O. OR UNPWR C.O.							
			PART NUMBER CRHEATER*	NOM (kW)	FLA	NO P.E.				W/ P.E. (PWRD FR/ UNIT)			
						MCA	MAX FUSE OR HACR BRKR	DISC. SIZE		MCA	MAX FUSE OR HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
17	208/230-3-60	STD	NONE	—	—	78.2/77.4	100/100	81/81	496	90.0/89.2	100/100	95/94	516
			279A00	18.8/25.0	52.1/60.1	78.2/84.9	100/100	81/81	496/496	90.6/99.6	100/100	95/94	516/516
			280A00	37.6/50.0	104.2/120.3	141.0/130.1	150/150	130/147	496/496	155.8/144.8	175/150	143/161	516/516
			281A00	56.3/75.0	156.4/180.4	167.2/190.2	200/200	190/216	496/496	181.9/204.9	200/225	203/230	516/516
		MED	NONE	—	—	80.4/79.4	100/100	84/83	520	92.2/91.2	100/100	98/96	540
			279A00	18.8/25.0	52.1/60.1	80.4/87.4	100/100	84/83	520/520	93.4/102.1	100/110	98/96	540/540
			280A00	37.6/50.0	104.2/120.3	143.8/132.6	150/150	132/150	520/520	158.5/147.3	175/175	146/163	540/540
			281A00	56.3/75.0	156.4/180.4	169.9/192.7	200/225	192/219	520/520	184.7/207.4	200/225	206/232	540/540
		HIGH	NONE	—	—	83.2/82.3	100/100	87/86	531	95.0/94.1	110/110	101/100	551
			279A00	18.8/25.0	52.1/60.1	83.2/91.0	100/100	87/86	531/531	96.9/105.8	110/110	101/100	551/551
			280A00	37.6/50.0	104.2/120.3	147.3/136.2	150/150	135/153	531/531	162.0/150.9	175/175	149/167	551/551
			281A00	56.3/75.0	156.4/180.4	173.4/196.3	200/225	196/222	531/531	188.2/211.0	200/225	209/236	551/551
	460-3-60	STD	NONE	—	—	39.6	50	41	258	45.8	60	48	270
			282A00	25.0	30.1	42.4	50	41	258	50.1	60	48	270
			283A00	50.0	60.1	64.9	70	73	258	72.6	80	81	270
			284A00	75.0	90.2	95.0	100	108	258	102.7	110	115	270
		MED	NONE	—	—	40.7	50	43	270	46.9	60	50	282
			282A00	25.0	30.1	43.8	50	43	270	51.5	60	50	282
			283A00	50.0	60.1	66.2	80	75	270	74.0	80	82	282
			284A00	75.0	90.2	96.3	100	109	270	104.1	110	116	282
		HIGH	NONE	—	—	42.2	50	44	275	48.4	60	51	287
			282A00	25.0	30.1	45.6	50	44	275	53.4	60	51	287
			283A00	50.0	60.1	68.1	80	76	275	75.9	80	84	287
			284A00	75.0	90.2	98.2	100	111	275	106.0	125	118	287
	575-3-60	STD	NONE	—	—	32.9	45	34	202	37.7	45	40	210
			285A00	24.8	23.9	35.5	45	34	202	41.5	45	40	210
			286A00	49.6	47.7	65.3	70	60	202	71.3	80	66	210
			287A00	74.4	71.6	77.2	90	88	202	83.2	90	93	210
		MED	NONE	—	—	32.9	45	34	202	37.7	45	40	210
			285A00	24.8	23.9	35.5	45	34	202	41.5	45	40	210
			286A00	49.6	47.7	65.3	70	60	202	71.3	80	66	210
			287A00	74.4	71.6	77.2	90	88	202	83.2	90	93	210
		HIGH	NONE	—	—	34.6	45	36	216	39.4	50	42	224
			285A00	24.8	23.9	37.6	45	36	216	43.6	50	42	224
			286A00	49.6	47.7	67.4	70	62	216	73.4	80	68	224
			287A00	74.4	71.6	79.4	90	89	216	85.4	90	95	224

See Legend and Notes on page 81.

Electrical data (cont)



UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA - TWO-SPEED INDOOR FAN MOTOR, 15 TONS (cont)

50TC-* UNIT	NOM. V-PH- HZ	IFM TYPE	ELECTRIC HEATER			WITH PWRD C.O.							
			PART NUMBER CRHEATER*	NOM (kW)	FLA	NO P.E.			W/ P.E. (PWRD FR/ UNIT)				
						MCA	MAX FUSE OR HACR BRKR	DISC. SIZE		MCA	MAX FUSE OR HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
17	208/230-3-60	STD	NONE	—	—	83.0/82.2	100/100	87/86	501	94.8/94.0	110/110	101/100	521
			279A00	18.8/25.0	52.1/60.1	83.0/90.9	100/100	87/86	501/501	96.6/105.6	110/110	101/100	521/521
			280A00	37.6/50.0	104.2/120.3	147.0/136.1	150/150	135/153	501/501	161.8/150.8	175/175	149/166	521/521
			281A00	56.3/75.0	156.4/180.4	173.2/196.2	200/225	195/222	501/501	187.9/210.9	200/225	209/236	521/521
		MED	NONE	—	—	85.2/84.2	100/100	89/88	525	97.0/96.0	125/125	103/102	545
			279A00	18.8/25.0	52.1/60.1	85.2/93.4	100/100	89/88	525/525	99.4/108.1	125/125	103/102	545/545
			280A00	37.6/50.0	104.2/120.3	149.8/138.6	150/150	138/155	525/525	164.5/153.3	175/175	151/169	545/545
			281A00	56.3/75.0	156.4/180.4	175.9/198.7	200/225	198/224	525/525	190.7/213.4	200/225	211/238	545/545
		HIGH	NONE	—	—	88.0/87.1	100/100	93/92	536	99.8/98.9	125/125	106/105	556
			279A00	18.8/25.0	52.1/60.1	88.1/97.0	100/100	93/92	536/536	102.9/111.8	125/125	106/105	556/556
			280A00	37.6/50.0	104.2/120.3	153.3/142.2	175/175	141/158	536/536	168.0/156.9	175/175	155/172	556/556
			281A00	56.3/75.0	156.4/180.4	179.4/202.3	200/225	201/228	536/536	194.2/217.0	200/250	215/241	556/556
	460-3-60	STD	NONE	—	—	41.8	50	44	260	48.0	60	51	272
			282A00	25.0	30.1	45.1	50	44	260	52.9	60	51	272
			283A00	50.0	60.1	67.6	80	76	260	75.4	80	83	272
			284A00	75.0	90.2	97.7	100	111	260	105.5	110	118	272
		MED	NONE	—	—	42.9	50	45	272	49.1	60	52	284
			282A00	25.0	30.1	46.5	50	45	272	54.3	60	52	284
			283A00	50.0	60.1	69.0	80	77	272	76.7	80	84	284
			284A00	75.0	90.2	99.1	100	112	272	106.8	110	119	284
		HIGH	NONE	—	—	44.4	50	47	277	50.6	60	54	289
			282A00	25.0	30.1	48.4	50	47	277	56.1	60	54	289
			283A00	50.0	60.1	70.9	80	79	277	78.6	80	86	289
			284A00	75.0	90.2	101.0	110	114	277	108.7	125	121	289
	575-3-60	STD	NONE	—	—	34.6	45	36	204	39.4	50	42	212
			285A00	24.8	23.9	37.6	45	36	204	43.6	50	42	212
			286A00	49.6	47.7	67.4	70	62	204	73.4	80	68	212
			287A00	74.4	71.6	79.4	90	89	204	85.4	90	95	212
		MED	NONE	—	—	34.6	45	36	204	39.4	50	42	212
			285A00	24.8	23.9	37.6	45	36	204	43.6	50	42	212
			286A00	49.6	47.7	67.4	70	62	204	73.4	80	68	212
			287A00	74.4	71.6	79.4	90	89	204	85.4	90	95	212
		HIGH	NONE	—	—	36.3	45	38	218	41.1	50	44	226
			285A00	24.8	23.9	39.8	45	38	218	45.8	50	44	226
			286A00	49.6	47.7	69.5	70	64	218	75.5	80	69	226
			287A00	74.4	71.6	81.5	90	91	218	87.5	90	97	226

See Legend and Notes on page 81.

UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA - TWO-SPEED INDOOR FAN MOTOR, 17.5 TONS

50TC-* UNIT	NOM. V-PH- HZ	IFM TYPE	ELECTRIC HEATER			NO C.O. OR UNPWR C.O.							
			PART NUMBER CRHEATER*	NOM (kW)	FLA	NO P.E.				W/ P.E. (PWRD FR/ UNIT)			
						MCA	MAX FUSE OR HACR BRKR	DISC. SIZE		MCA	MAX FUSE OR HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
20	208/230-3-60	STD	NONE	—	—	80.4/79.4	100/100	84/83	520	92.2/91.2	100/100	98/96	540
			279A00	18.8/25.0	52.1/60.1	80.4/87.4	100/100	84/83	520/520	93.4/102.1	100/110	98/96	540/540
			280A00	37.6/50.0	104.2/120.3	143.8/132.6	150/150	132/150	520/520	158.5/147.3	175/175	146/163	540/540
			281A00	56.3/75.0	156.4/180.4	169.9/192.7	200/225	192/219	520/520	184.7/207.4	200/225	206/232	540/540
		MED	NONE	—	—	83.2/82.3	100/100	87/86	531	95.0/94.1	110/110	101/100	551
			279A00	18.8/25.0	52.1/60.1	83.2/91.0	100/100	87/86	531/531	96.9/105.8	110/110	101/100	551/551
			280A00	37.6/50.0	104.2/120.3	147.3/136.2	150/150	135/153	531/531	162.0/150.9	175/175	149/167	551/551
			281A00	56.3/75.0	156.4/180.4	173.4/196.3	200/225	196/222	531/531	188.2/211.0	200/225	209/236	551/551
		HIGH	NONE	—	—	86.7	100	91	527	98.5	125	105	547
			279A00	18.8/25.0	52.1/60.1	86.7/96.5	100/100	91/91	527/527	101.3/111.3	125/125	105/105	547/547
			280A00	37.6/50.0	104.2/120.3	151.6/141.7	175/175	139/158	527/527	166.4/156.4	175/175	153/172	547/547
			281A00	56.3/75.0	156.4/180.4	177.8/201.8	200/225	200/227	527/527	192.5/216.5	200/250	213/241	547/547
	460-3-60	STD	NONE	—	—	40.7	50	43	270	46.9	60	50	282
			282A00	25.0	30.1	43.8	50	43	270	51.5	60	50	282
			283A00	50.0	60.1	66.2	80	75	270	74.0	80	82	282
			284A00	75.0	90.2	96.3	100	109	270	104.1	110	116	282
		MED	NONE	—	—	42.2	50	44	275	48.4	60	51	287
			282A00	25.0	30.1	45.6	50	44	275	53.4	60	51	287
			283A00	50.0	60.1	68.1	80	76	275	75.9	80	84	287
			284A00	75.0	90.2	98.2	100	111	275	106.0	125	118	287
		HIGH	NONE	—	—	44.4	50	47	273	50.6	60	54	285
			282A00	25.0	30.1	48.4	50	47	273	56.1	60	54	285
			283A00	50.0	60.1	70.9	80	79	273	78.6	80	86	285
			284A00	75.0	90.2	101.0	110	114	273	108.7	125	121	285
	575-3-60	STD	NONE	—	—	32.9	45	34	202	37.7	45	40	210
			285A00	24.8	23.9	35.5	45	34	202	41.5	45	40	210
			286A00	49.6	47.7	65.3	70	60	202	71.3	80	66	210
			287A00	74.4	71.6	77.2	90	88	202	83.2	90	93	210
		MED	NONE	—	—	34.6	45	36	216	39.4	50	42	224
			285A00	24.8	23.9	37.6	45	36	216	43.6	50	42	224
			286A00	49.6	47.7	67.4	70	62	216	73.4	80	68	224
			287A00	74.4	71.6	79.4	90	89	216	85.4	90	95	224
		HIGH	NONE	—	—	36.0	45	38	214	40.8	50	43	222
			285A00	24.8	23.9	39.4	45	38	214	45.4	50	43	222
			286A00	49.6	47.7	69.1	70	64	214	75.1	80	69	222
			287A00	74.4	71.6	81.1	90	91	214	87.1	90	97	222

See Legend and Notes on page 81.

Electrical data (cont)



UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA - TWO-SPEED INDOOR FAN MOTOR, 17.5 TONS (cont)

50TC- UNIT	NOM. V-PH- HZ	IFM TYPE	ELECTRIC HEATER			WITH PWRD C.O.							
			PART NUMBER CRHEATER*	NOM (kW)	FLA	NO P.E.			W/ P.E. (PWRD FR/ UNIT)				
						MCA	MAX FUSE OR HACR BRKR	DISC. SIZE		MCA	MAX FUSE OR HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
20	208/230-3-60	STD	NONE	—	—	85.2/84.2	100/100	89/88	525	97.0/96.0	125/125	103/102	545
			279A00	18.8/25.0	52.1/60.1	85.2/93.4	100/100	89/88	525/525	99.4/108.1	125/125	103/102	545/545
			280A00	37.6/50.0	104.2/120.3	149.8/138.6	150/150	138/155	525/525	164.5/153.3	175/175	151/169	545/545
			281A00	56.3/75.0	156.4/180.4	175.9/198.7	200/225	198/224	525/525	190.7/213.4	200/225	211/238	545/545
		MED	NONE	—	—	88.0/87.1	100/100	93/92	536	99.8/98.9	125/125	106/105	556
			279A00	18.8/25.0	52.1/60.1	88.1/97.0	100/100	93/92	536/536	102.9/111.8	125/125	106/105	556/556
			280A00	37.6/50.0	104.2/120.3	153.3/142.2	175/175	141/158	536/536	168.0/156.9	175/175	155/172	556/556
			281A00	56.3/75.0	156.4/180.4	179.4/202.3	200/225	201/228	536/536	194.2/217.0	200/250	215/241	556/556
		HIGH	NONE	—	—	91.5	100	97	532	103.3	125	110	552
			279A00	18.8/25.0	52.1/60.1	92.5/102.5	100/110	97/97	532/532	107.3/117.3	125/125	110/110	552/552
			280A00	37.6/50.0	104.2/120.3	157.6/147.7	175/175	145/164	532/532	172.4/162.4	175/175	159/177	552/552
			281A00	56.3/75.0	156.4/180.4	183.8/207.8	200/225	205/233	532/532	198.5/222.5	200/250	219/246	552/552
	460-3-60	STD	NONE	—	—	42.9	50	45	272	49.1	60	52	284
			282A00	25.0	30.1	46.5	50	45	272	54.3	60	52	284
			283A00	50.0	60.1	69.0	80	77	272	76.7	80	84	284
			284A00	75.0	90.2	99.1	100	112	272	106.8	110	119	284
		MED	NONE	—	—	44.4	50	47	277	50.6	60	54	289
			282A00	25.0	30.1	48.4	50	47	277	56.1	60	54	289
			283A00	50.0	60.1	70.9	80	79	277	78.6	80	86	289
			284A00	75.0	90.2	101.0	110	114	277	108.7	125	121	289
		HIGH	NONE	—	—	46.6	60	49	275	52.8	60	56	287
			282A00	25.0	30.1	51.1	60	49	275	58.9	60	56	287
			283A00	50.0	60.1	73.6	80	82	275	81.4	90	89	287
			284A00	75.0	90.2	103.7	125	116	275	111.5	125	123	287
	575-3-60	STD	NONE	—	—	34.6	45	36	204	39.4	50	42	212
			285A00	24.8	23.9	37.6	45	36	204	43.6	50	42	212
			286A00	49.6	47.7	67.4	70	62	204	73.4	80	68	212
			287A00	74.4	71.6	79.4	90	89	204	85.4	90	95	212
		MED	NONE	—	—	36.3	45	38	218	41.1	50	44	226
			285A00	24.8	23.9	39.8	45	38	218	45.8	50	44	226
			286A00	49.6	47.7	69.5	70	64	218	75.5	80	69	226
			287A00	74.4	71.6	81.5	90	91	218	87.5	90	97	226
		HIGH	NONE	—	—	37.7	45	40	216	42.5	50	45	224
			285A00	24.8	23.9	41.5	45	40	216	47.5	50	45	224
			286A00	49.6	47.7	71.3	80	66	216	77.3	80	71	224
			287A00	74.4	71.6	83.2	90	93	216	89.2	90	99	224

See Legend and Notes on page 81.

UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA - TWO-SPEED INDOOR FAN MOTOR, 20 TONS

50TC-* UNIT	NOM. V-PH- HZ	IFM TYPE	ELECTRIC HEATER			NO C.O. OR UNPWR C.O.							
			PART NUMBER CRHEATER*	NOM (kW)	FLA	NO P.E.				W/ P.E. (PWRD FR/ UNIT)			
						MCA	MAX FUSE OR HACR BRKR	DISC. SIZE		MCA	MAX FUSE OR HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
24	208/230-3-60	STD	NONE	—	—	109.2/108.3	150/150	112/111	540	121.0/120.1	150/150	125/124	560
			279A00	18.8/25.0	52.1/60.1	109.2/108.3	150/150	112/111	540/540	121.0/120.1	150/150	125/124	560/560
			280A00	37.6/50.0	104.2/120.3	147.3/136.2	150/150	135/153	540/540	162.0/150.9	175/175	149/167	560/560
			281A00	56.3/75.0	156.4/180.4	173.4/196.3	200/225	196/222	540/540	188.2/211.0	200/225	209/236	560/560
		MED	NONE	—	—	112.7	150	116	536	124.5	150	129	556
			279A00	18.8/25.0	52.1/60.1	112.7/112.7	150/150	116/116	536/536	124.5/124.5	150/150	129/129	556/556
			280A00	37.6/50.0	104.2/120.3	151.6/141.7	175/175	139/158	536/536	166.4/156.4	175/175	153/172	556/556
			281A00	56.3/75.0	156.4/180.4	177.8/201.8	200/225	200/227	536/536	192.5/216.5	200/250	213/241	556/556
		HIGH	NONE	—	—	124.1	150	129	615	135.9	175	142	635
			279A00	18.8/25.0	52.1/60.1	124.1/124.1	150/150	129/129	615/615	135.9/135.9	175/175	142/142	635/635
			280A00	37.6/50.0	104.2/120.3	165.9/155.9	175/175	153/171	615/615	180.6/170.7	200/175	166/185	635/635
			281A00	56.3/75.0	156.4/180.4	192.0/216.0	200/250	213/240	615/615	206.8/230.8	225/250	226/254	635/635
	460-3-60	STD	NONE	—	—	48.0	60	50	272	54.2	60	57	284
			282A00	25.0	30.1	48.0	60	50	272	54.2	60	57	284
			283A00	50.0	60.1	68.1	80	76	272	75.9	80	84	284
			284A00	75.0	90.2	98.2	100	111	272	106.0	125	118	284
		MED	NONE	—	—	50.2	60	52	270	56.4	70	59	282
			282A00	25.0	30.1	50.2	60	52	270	56.4	70	59	282
			283A00	50.0	60.1	70.9	80	79	270	78.6	80	86	282
			284A00	75.0	90.2	101.0	110	114	270	108.7	125	121	282
		HIGH	NONE	—	—	55.9	70	59	310	62.1	80	66	322
			282A00	25.0	30.1	55.9	70	59	310	63.3	80	66	322
			283A00	50.0	60.1	78.0	90	86	310	85.7	90	93	322
			284A00	75.0	90.2	108.1	125	120	310	115.8	125	127	322
	575-3-60	STD	NONE	—	—	39.2	50	41	224	44.0	50	46	232
			285A00	24.8	23.9	39.2	50	41	224	44.0	50	46	232
			286A00	49.6	47.7	67.4	70	62	224	73.4	80	68	232
			287A00	74.4	71.6	79.4	90	89	224	85.4	90	95	232
		MED	NONE	—	—	40.6	50	42	222	45.4	60	48	230
			285A00	24.8	23.9	40.6	50	42	222	45.4	60	48	230
			286A00	49.6	47.7	69.1	70	64	222	75.1	80	69	230
			287A00	74.4	71.6	81.1	90	91	222	87.1	90	97	230
		HIGH	NONE	—	—	42.5	50	45	249	47.3	60	50	257
			285A00	24.8	23.9	42.5	50	45	249	47.8	60	50	257
			286A00	49.6	47.7	71.5	80	66	249	77.5	80	71	257
			287A00	74.4	71.6	83.5	90	93	249	89.5	100	99	257

See Legend and Notes on page 81.

UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA - TWO-SPEED INDOOR FAN MOTOR, 20 TONS (cont)

50TC-* UNIT	NOM. V-PH- HZ	IFM TYPE	ELECTRIC HEATER			WITH PWRD C.O.							
			PART NUMBER CRHEATER*	NOM (kW)	FLA	NO P.E.				W/ P.E. (PWRD FR/ UNIT)			
						MCA	MAX FUSE OR HACR BRKR	DISC. SIZE		MCA	MAX FUSE OR HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
24	208/230-3-60	STD	NONE	—	—	114.0/113.1	150/150	117/116	545	125.8/124.9	150/150	131/130	565
			279A00	18.8/25.0	52.1/60.1	114.0/113.1	150/150	117/116	545/545	125.8/124.9	150/150	131/130	565/565
			280A00	37.6/50.0	104.2/120.3	153.3/142.2	175/175	141/158	545/545	168.0/156.9	175/175	155/172	565/565
			281A00	56.3/75.0	156.4/180.4	179.4/202.3	200/225	201/228	545/545	194.2/217.0	200/250	215/241	565/565
		MED	NONE	—	—	117.5	150	121	541	129.3	175	135	561
			279A00	18.8/25.0	52.1/60.1	117.5/117.5	150/150	121/121	541/541	129.3/129.3	175/175	135/135	561/561
			280A00	37.6/50.0	104.2/120.3	157.6/147.7	175/175	145/164	541/541	172.4/162.4	175/175	159/177	561/561
			281A00	56.3/75.0	156.4/180.4	183.8/207.8	200/225	205/233	541/541	198.5/222.5	200/250	219/246	561/561
		HIGH	NONE	—	—	128.9	175	134	620	140.7	175	148	640
			279A00	18.8/25.0	52.1/60.1	128.9/128.9	175/175	134/134	620/620	140.7/140.7	175/175	148/148	640/640
			280A00	37.6/50.0	104.2/120.3	171.9/161.9	175/175	158/177	620/620	186.6/176.7	200/200	172/190	640/640
			281A00	56.3/75.0	156.4/180.4	198.0/222.0	225/250	218/246	620/620	212.8/236.8	225/250	232/259	640/640
	460-3-60	STD	NONE	—	—	50.2	60	52	274	56.4	70	59	286
			282A00	25.0	30.1	50.2	60	52	274	56.4	70	59	286
			283A00	50.0	60.1	70.9	80	79	274	78.6	80	86	286
			284A00	75.0	90.2	101.0	110	114	274	108.7	125	121	286
		MED	NONE	—	—	52.4	60	55	272	58.6	70	62	284
			282A00	25.0	30.1	52.4	60	55	272	58.9	70	62	284
			283A00	50.0	60.1	73.6	80	82	272	81.4	90	89	284
			284A00	75.0	90.2	103.7	125	116	272	111.5	125	123	284
		HIGH	NONE	—	—	58.1	70	61	312	64.3	80	69	324
			282A00	25.0	30.1	58.3	70	61	312	66.0	80	69	324
			283A00	50.0	60.1	80.7	90	88	312	88.5	100	95	324
			284A00	75.0	90.2	110.8	125	123	312	118.6	125	130	324
	575-3-60	STD	NONE	—	—	40.9	50	43	226	45.7	60	48	234
			285A00	24.8	23.9	40.9	50	43	226	45.8	60	48	234
			286A00	49.6	47.7	69.5	70	64	226	75.5	80	69	234
			287A00	74.4	71.6	81.5	90	91	226	87.5	90	97	234
		MED	NONE	—	—	42.3	50	44	224	47.1	60	50	232
			285A00	24.8	23.9	42.3	50	44	224	47.5	60	50	232
			286A00	49.6	47.7	71.3	80	66	224	77.3	80	71	232
			287A00	74.4	71.6	83.2	90	93	224	89.2	90	99	232
		HIGH	NONE	—	—	44.2	50	47	251	49.0	60	52	259
			285A00	24.8	23.9	44.2	50	47	251	49.9	60	52	259
			286A00	49.6	47.7	73.6	80	68	251	79.6	80	73	259
			287A00	74.4	71.6	85.6	90	95	251	91.6	100	101	259

See Legend and Notes on page 81.

UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA - TWO-SPEED INDOOR FAN MOTOR, 25 TONS

50TC-* UNIT	NOM. V-PH- HZ	IFM TYPE	ELECTRIC HEATER			NO C.O. OR UNPWR C.O.							
			PART NUMBER CRHEATER*	NOM (kW)	FLA	NO P.E.			W/ P.E. (PWRD FR/ UNIT)				
						MCA	MAX FUSE OR HACR BRKR	DISC. SIZE		MCA	MAX FUSE OR HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
28	208/230-3-60	STD	NONE	—	—	127.8/126.9	175/175	133/132	590	139.6/138.7	175/175	147/146	610
			279A00	18.8/25.0	52.1/60.1	127.8/126.9	175/175	133/132	590/590	139.6/138.7	175/175	147/146	610/610
			280A00	37.6/50.0	104.2/120.3	147.3/136.2	175/175	135/153	590/590	162.0/150.9	175/175	149/167	610/610
			281A00	56.3/75.0	156.4/180.4	173.4/196.3	200/225	196/222	590/590	188.2/211.0	200/225	209/236	610/610
		MED	NONE	—	—	131.3	175	137	586	143.1	175	151	606
			279A00	18.8/25.0	52.1/60.1	131.3/131.3	175/175	137/137	586/586	143.1/143.1	175/175	151/151	606/606
			280A00	37.6/50.0	104.2/120.3	151.6/141.7	175/175	139/158	586/586	166.4/156.4	175/175	153/172	606/606
			281A00	56.3/75.0	156.4/180.4	177.8/201.8	200/225	200/227	586/586	192.5/216.5	200/250	213/241	606/606
		HIGH	NONE	—	—	142.7	175	150	665	154.5	200	164	685
			279A00	18.8/25.0	52.1/60.1	142.7/142.7	175/175	150/150	665/665	154.5/154.5	200/200	164/164	685/685
			280A00	37.6/50.0	104.2/120.3	165.9/155.9	175/175	153/171	665/665	180.6/170.7	200/200	166/185	685/685
			281A00	56.3/75.0	156.4/180.4	192.0/216.0	200/250	213/240	665/665	206.8/230.8	225/250	226/254	685/685
	460-3-60	STD	NONE	—	—	51.9	60	54	302	58.1	70	61	314
			282A00	25.0	30.1	51.9	60	54	302	58.1	70	61	314
			283A00	50.0	60.1	68.1	80	76	302	75.9	80	84	314
			284A00	75.0	90.2	98.2	100	111	302	106.0	125	118	314
		MED	NONE	—	—	54.1	60	57	300	60.3	70	64	312
			282A00	25.0	30.1	54.1	60	57	300	60.3	70	64	312
			283A00	50.0	60.1	70.9	80	79	300	78.6	80	86	312
			284A00	75.0	90.2	101.0	110	114	300	108.7	125	121	312
		HIGH	NONE	—	—	59.8	70	63	340	66.0	80	70	352
			282A00	25.0	30.1	59.8	70	63	340	66.0	80	70	352
			283A00	50.0	60.1	78.0	90	86	340	85.7	90	93	352
			284A00	75.0	90.2	108.1	125	120	340	115.8	125	127	352
	575-3-60	STD	NONE	—	—	41.7	50	44	244	46.5	60	49	252
			285A00	24.8	23.9	41.7	50	44	244	46.5	60	49	252
			286A00	49.6	47.7	67.4	70	62	244	73.4	80	68	252
			287A00	74.4	71.6	79.4	90	89	244	85.4	90	95	252
		MED	NONE	—	—	43.1	50	45	242	47.9	60	51	250
			285A00	24.8	23.9	43.1	50	45	242	47.9	60	51	250
			286A00	49.6	47.7	69.1	70	64	242	75.1	80	69	250
			287A00	74.4	71.6	81.1	90	91	242	87.1	90	97	250
		HIGH	NONE	—	—	45.0	50	47	269	49.8	60	53	277
			285A00	24.8	23.9	45.0	50	47	269	49.8	60	53	277
			286A00	49.6	47.7	71.5	80	66	269	77.5	80	71	277
			287A00	74.4	71.6	83.5	90	93	269	89.5	100	99	277

See Legend and Notes on page 81.

Electrical data (cont)



UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA - TWO-SPEED INDOOR FAN MOTOR, 25 TONS (cont)

50TC-* UNIT	NOM. V-PH- HZ	IFM TYPE	ELECTRIC HEATER			WITH PWRD C.O.							
			PART NUMBER CRHEATER*	NOM (kW)	FLA	NO P.E.				W/ P.E. (PWRD FR/ UNIT)			
						MCA	MAX FUSE OR HACR BRKR	DISC. SIZE		MCA	MAX FUSE OR HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
28	208/230-3-60	STD	NONE	—	—	132.6/131.7	175/175	139/138	595	144.4/143.5	175/175	152/151	615
			279A00	18.8/25.0	52.1/60.1	132.6/131.7	175/175	139/138	595/595	144.4/143.5	175/175	152/151	615/615
			280A00	37.6/50.0	104.2/120.3	153.3/142.2	175/175	141/158	595/595	168.0/156.9	175/175	155/172	615/615
			281A00	56.3/75.0	156.4/180.4	179.4/202.3	200/225	201/228	595/595	194.2/217.0	200/250	215/241	615/615
		MED	NONE	—	—	136.1	175	143	591	147.9	175	156	611
			279A00	18.8/25.0	52.1/60.1	136.1/136.1	175/175	143/143	591/591	147.9/147.9	175/175	156/156	611/611
			280A00	37.6/50.0	104.2/120.3	157.6/147.7	175/175	145/164	591/591	172.4/162.4	175/175	159/177	611/611
			281A00	56.3/75.0	156.4/180.4	183.8/207.8	200/225	205/233	591/591	198.5/222.5	200/250	219/246	611/611
		HIGH	NONE	—	—	147.5	175	156	670	159.3	200	169	690
			279A00	18.8/25.0	52.1/60.1	147.5/147.5	175/175	156/156	670/670	159.3/159.3	200/200	169/169	690/690
			280A00	37.6/50.0	104.2/120.3	171.9/161.9	175/175	158/177	670/670	186.6/176.7	200/200	172/190	690/690
			281A00	56.3/75.0	156.4/180.4	198.0/222.0	225/250	218/246	670/670	212.8/236.8	225/250	232/259	690/690
	460-3-60	STD	NONE	—	—	54.1	60	57	304	60.3	70	64	316
			282A00	25.0	30.1	54.1	60	57	304	60.3	70	64	316
			283A00	50.0	60.1	70.9	80	79	304	78.6	80	86	316
			284A00	75.0	90.2	101.0	110	114	304	108.7	125	121	316
		MED	NONE	—	—	56.3	70	59	302	62.5	80	66	314
			282A00	25.0	30.1	56.3	70	59	302	62.5	80	66	314
			283A00	50.0	60.1	73.6	80	82	302	81.4	90	89	314
			284A00	75.0	90.2	103.7	125	116	302	111.5	125	123	314
		HIGH	NONE	—	—	62.0	80	66	342	68.2	80	73	354
			282A00	25.0	30.1	62.0	80	66	342	68.2	80	73	354
			283A00	50.0	60.1	80.7	90	88	342	88.5	100	95	354
			284A00	75.0	90.2	110.8	125	123	342	118.6	125	130	354
	575-3-60	STD	NONE	—	—	43.4	50	46	246	48.2	60	51	254
			285A00	24.8	23.9	43.4	50	46	246	48.2	60	51	254
			286A00	49.6	47.7	69.5	70	64	246	75.5	80	69	254
			287A00	74.4	71.6	81.5	90	91	246	87.5	90	97	254
		MED	NONE	—	—	44.8	50	47	244	49.6	60	53	252
			285A00	24.8	23.9	44.8	50	47	244	49.6	60	53	252
			286A00	49.6	47.7	71.3	80	66	244	77.3	80	71	252
			287A00	74.4	71.6	83.2	90	93	244	89.2	90	99	252
		HIGH	NONE	—	—	46.7	60	49	271	51.5	60	55	279
			285A00	24.8	23.9	46.7	60	49	271	51.5	60	55	279
			286A00	49.6	47.7	73.6	80	68	271	79.6	80	73	279
			287A00	74.4	71.6	85.6	90	95	271	91.6	100	101	279

See Legend and Notes on page 81.

UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA - TWO-SPEED INDOOR FAN MOTOR, 27.5 TONS

50TC-* UNIT	NOM. V-PH- HZ	IFM TYPE	ELECTRIC HEATER			NO C.O. OR UNPWR C.O.							
			PART NUMBER CRHEATER*	NOM (kW)	FLA	NO P.E.				W/ P.E. (PWRD FR/ UNIT)			
						MCA	MAX FUSE OR HACR BRKR	DISC. SIZE		MCA	MAX FUSE OR HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
30	208/230-3-60	STD	NONE	—	—	141.5	175	148	702	153.3	200	162	722
			279A00	18.8/25.0	52.1/60.1	141.5/141.5	175/175	148/148	702/702	153.3/153.3	200/200	162/162	722/722
			280A00	37.6/50.0	104.2/120.3	151.6/141.7	175/175	148/158	702/702	166.4/156.4	200/200	162/172	722/722
			281A00	56.3/75.0	156.4/180.4	177.8/201.8	200/225	200/227	702/702	192.5/216.5	200/250	213/241	722/722
		MED	NONE	—	—	152.9	200	161	781	164.7	200	175	801
			279A00	18.8/25.0	52.1/60.1	152.9/152.9	200/200	161/161	781/781	164.7/164.7	200/200	175/175	801/801
			280A00	37.6/50.0	104.2/120.3	165.9/155.9	200/200	161/171	781/781	180.6/170.7	200/200	175/185	801/801
			281A00	56.3/75.0	156.4/180.4	192.0/216.0	200/250	213/240	781/781	206.8/230.8	225/250	226/254	801/801
		HIGH	NONE	—	—	154.8	200	163	812	166.6	200	177	832
			279A00	18.8/25.0	52.1/60.1	154.8/154.8	200/200	163/163	812/812	166.6/166.6	200/200	177/177	832/832
			280A00	37.6/50.0	104.2/120.3	168.3/158.3	200/200	163/173	812/812	183.0/173.1	200/200	177/187	832/832
			281A00	56.3/75.0	156.4/180.4	194.4/218.4	225/250	215/242	812/812	209.2/233.2	225/250	228/256	832/832
	460-3-60	STD	NONE	—	—	66.0	80	69	354	72.2	90	76	366
			282A00	25.0	30.1	66.0	80	69	354	72.2	90	76	366
			283A00	50.0	60.1	70.9	80	79	354	78.6	90	86	366
			284A00	75.0	90.2	101.0	110	114	354	108.7	125	121	366
		MED	NONE	—	—	71.7	90	76	394	77.9	100	83	406
			282A00	25.0	30.1	71.7	90	76	394	77.9	100	83	406
			283A00	50.0	60.1	78.0	90	86	394	85.7	100	93	406
			284A00	75.0	90.2	108.1	125	120	394	115.8	125	127	406
		HIGH	NONE	—	—	72.6	90	77	409	78.8	100	84	421
			282A00	25.0	30.1	72.6	90	77	409	78.8	100	84	421
			283A00	50.0	60.1	79.1	90	87	409	86.9	100	94	421
			284A00	75.0	90.2	109.2	125	121	409	117.0	125	128	421
	575-3-60	STD	NONE	—	—	56.0	70	59	264	60.8	80	64	272
			285A00	24.8	23.9	56.0	70	59	264	60.8	80	64	272
			286A00	49.6	47.7	69.1	70	64	264	75.1	80	69	272
			287A00	74.4	71.6	81.1	90	91	264	87.1	90	97	272
		MED	NONE	—	—	57.9	70	61	291	62.7	80	66	299
			285A00	24.8	23.9	57.9	70	61	291	62.7	80	66	299
			286A00	49.6	47.7	71.5	80	66	291	77.5	80	71	299
			287A00	74.4	71.6	83.5	90	93	291	89.5	100	99	299
		HIGH	NONE	—	—	60.8	80	64	302	65.6	80	70	310
			285A00	24.8	23.9	60.8	80	64	302	65.6	80	70	310
			286A00	49.6	47.7	75.1	80	69	302	81.1	90	75	310
			287A00	74.4	71.6	87.1	100	97	302	93.1	100	102	310

See Legend and Notes on page 81.

Electrical data (cont)



UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA - TWO-SPEED INDOOR FAN MOTOR, 27.5 TONS (cont)

50TC-* UNIT	NOM. V-PH- HZ	IFM TYPE	ELECTRIC HEATER			WITH PWRD C.O.							
			PART NUMBER CRHEATER*	NOM (kW)	FLA	NO P.E.				W/ P.E. (PWRD FR/ UNIT)			
						MCA	MAX FUSE OR HACR BRKR	DISC. SIZE		MCA	MAX FUSE OR HACR BRKR	DISC. SIZE	
								FLA	LRA			FLA	LRA
30	208/230-3-60	STD	NONE	—	—	146.3	175	154	707	158.1	200	167	727
			279A00	18.8/25.0	52.1/60.1	146.3/146.3	175/175	154/154	707/707	158.1/158.1	200/200	167/167	727/727
			280A00	37.6/50.0	104.2/120.3	157.6/147.7	175/175	154/164	707/707	172.4/162.4	200/200	167/177	727/727
			281A00	56.3/75.0	156.4/180.4	183.8/207.8	200/225	205/233	707/707	198.5/222.5	200/250	219/246	727/727
		MED	NONE	—	—	157.7	200	167	786	169.5	200	180	806
			279A00	18.8/25.0	52.1/60.1	157.7/157.7	200/200	167/167	786/786	169.5/169.5	200/200	180/180	806/806
			280A00	37.6/50.0	104.2/120.3	171.9/161.9	200/200	167/177	786/786	186.6/176.7	200/200	180/190	806/806
			281A00	56.3/75.0	156.4/180.4	198.0/222.0	225/250	218/246	786/786	212.8/236.8	225/250	232/259	806/806
		HIGH	NONE	—	—	159.6	200	169	817	171.4	200	182	837
			279A00	18.8/25.0	52.1/60.1	159.6/159.6	200/200	169/169	817/817	171.4/171.4	200/200	182/182	837/837
			280A00	37.6/50.0	104.2/120.3	174.3/164.3	200/200	169/179	817/817	189.0/179.1	200/200	182/192	837/837
			281A00	56.3/75.0	156.4/180.4	200.4/224.4	225/250	220/248	817/817	215.2/239.2	225/250	234/262	837/837
	460-3-60	STD	NONE	—	—	68.2	90	72	356	74.4	90	79	368
			282A00	25.0	30.1	68.2	90	72	356	74.4	90	79	368
			283A00	50.0	60.1	73.6	90	82	356	81.4	90	89	368
			284A00	75.0	90.2	103.7	125	116	356	111.5	125	123	368
		MED	NONE	—	—	73.9	90	78	396	80.1	100	85	408
			282A00	25.0	30.1	73.9	90	78	396	80.1	100	85	408
			283A00	50.0	60.1	80.7	90	88	396	88.5	100	95	408
			284A00	75.0	90.2	110.8	125	123	396	118.6	125	130	408
		HIGH	NONE	—	—	74.8	90	79	411	81.0	100	86	423
			282A00	25.0	30.1	74.8	90	79	411	81.0	100	86	423
			283A00	50.0	60.1	81.9	90	89	411	89.6	100	96	423
			284A00	75.0	90.2	112.0	125	124	411	119.7	125	131	423
	575-3-60	STD	NONE	—	—	57.7	70	61	266	62.5	80	66	274
			285A00	24.8	23.9	57.7	70	61	266	62.5	80	66	274
			286A00	49.6	47.7	71.3	80	66	266	77.3	80	71	274
			287A00	74.4	71.6	83.2	90	93	266	89.2	90	99	274
		MED	NONE	—	—	59.6	70	63	293	64.4	80	68	301
			285A00	24.8	23.9	59.6	70	63	293	64.4	80	68	301
			286A00	49.6	47.7	73.6	80	68	293	79.6	80	73	301
			287A00	74.4	71.6	85.6	90	95	293	91.6	100	101	301
		HIGH	NONE	—	—	62.5	80	66	304	67.3	80	72	312
			285A00	24.8	23.9	62.5	80	66	304	67.3	80	72	312
			286A00	49.6	47.7	77.3	80	71	304	83.3	90	77	312
			287A00	74.4	71.6	89.2	100	99	304	95.2	100	104	312

See Legend and Notes on page 81.

2-STAGE COOLING WITH TWO-SPEED INDOOR FAN MOTOR, SIZES 17-30 (15-27.5 TONS) — HIGH SCCR

50TC** UNIT	V-PH-HZ	VOLTAGE		HIGH SCCR kA	COMP 1		COMP 2		OFM (ea)		IFM		
		RANGE			RLA	LRA	RLA	LRA	WATTS	FLA	TYPE*	EFF AT FULL LOAD	FLA
		MIN	MAX										
17	208-3-60	253	187	60	29.5	195	28.2	239	350	1.5	STD	85.0%	8.6
											MED	81.5%	10.8
											HIGH	83.6%	13.6
	230-3-60	253	187	60	29.5	195	28.2	239	350	1.5	STD	85.0%	7.8
											MED	81.5%	9.8
											HIGH	83.6%	12.7
	460-3-60	506	414	65	14.7	95	14.7	130	277	0.9	STD	85.0%	3.8
											MED	81.5%	4.9
											HIGH	83.6%	6.4
20	208-3-60	253	187	60	29.5	195	28.2	239	350	1.5	STD	81.5%	10.8
											MED	83.6%	13.6
											HIGH	89.5%	17.1
	230-3-60	253	187	60	29.5	195	28.2	239	350	1.5	STD	81.5%	9.8
											MED	83.6%	12.7
											HIGH	89.5%	17.1
	460-3-60	506	414	65	14.7	95	14.7	130	277	0.9	STD	81.5%	4.9
											MED	83.6%	6.4
											HIGH	89.5%	8.6
24	208-3-60	253	187	60	48.1	245	29.5	195	350	1.5	STD	83.6%	13.6
											MED	89.5%	17.1
											HIGH	91.7%	28.5
	230-3-60	253	187	60	48.1	245	29.5	195	350	1.5	STD	83.6%	12.7
											MED	89.5%	17.1
											HIGH	91.7%	28.5
	460-3-60	506	414	65	18.6	125	14.7	95	277	0.9	STD	83.6%	6.4
											MED	89.5%	8.6
											HIGH	91.7%	14.3
28	208-3-60	253	187	60	48.1	245	48.1	245	350	1.5	STD	83.6%	13.6
											MED	89.5%	17.1
											HIGH	91.7%	28.5
	230-3-60	253	187	60	48.1	245	48.1	245	350	1.5	STD	83.6%	12.7
											MED	89.5%	17.1
											HIGH	91.7%	28.5
	460-3-60	506	414	65	18.6	125	18.6	125	277	0.9	STD	83.6%	6.4
											MED	89.5%	8.6
											HIGH	91.7%	14.3
30	208-3-60	253	187	60	51.3	300	51.3	300	350	1.5	STD	89.5%	17.1
											MED	91.7%	28.5
											HIGH	91.7%	30.4
	230-3-60	253	187	60	51.3	300	51.3	300	350	1.5	STD	89.5%	17.1
											MED	91.7%	28.5
											HIGH	91.7%	30.4
	460-3-60	506	414	65	23.1	150	23.1	150	277	0.9	STD	89.5%	8.6
											MED	91.7%	14.3
											HIGH	91.7%	15.2

* The 2 speed motors are the same efficiency level as the single speed motors.

See Legend and Notes on page 81.

NOTE: High SCCR is not available for units with 575v.

UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA, TWO-SPEED INDOOR FAN MOTOR, 15 TONS — HIGH SCCR

50TC** UNIT	NOM. V-PH-HZ	IFM TYPE *	HIGH SCCR kA	PART NUMBER CRHEATER	NOM (kW)	FLA	NO C.O. OR UNPWR C.O.							
							NO P.E.				W/ P.E. (PWRD FR/UNIT)			
							MCA	FUSE OR HACR BRKR	DISC. SIZE		MCA	FUSE OR HACR BRKR	DISC. SIZE	
									FLA	LRA			FLA	LRA
17	208/230-3-60	STD	60	—	—	—	78.2/ 77.4	100/100	81/81	496	90.0/ 89.2	100/100	95/94	516
				402A00	18.8/ 25.0	52.1/ 60.1	78.2/ 84.9	100/100	81/81	496/496	90.6/ 99.6	100/100	95/94	516/516
				406A00	37.6/ 50.0	104.2/ 120.3	141.0/ 130.1	150/150	130/147	496/496	155.8/ 144.8	175/150	143/161	516/516
				408A00	56.3/ 75.0	156.4/ 180.4	167.2/ 190.2	200/200	190/216	496/496	181.9/ 204.9	200/225	203/230	516/516
		MED	60	—	—	—	80.4/ 79.4	100/100	84/83	520	92.2/ 91.2	100/100	98/96	540
				402A00	18.8/ 25.0	52.1/ 60.1	80.4/ 87.4	100/100	84/83	520/520	93.4/ 102.1	100/110	98/96	540/540
				406A00	37.6/ 50.0	104.2/ 120.3	143.8/ 132.6	150/150	132/150	520/520	158.5/ 147.3	175/175	146/163	540/540
				408A00	56.3/ 75.0	156.4/ 180.4	169.9/ 192.7	200/225	192/219	520/520	184.7/ 207.4	200/225	206/232	540/540
		HIGH	60	—	—	—	83.2/ 82.3	100/100	87/86	531	95.0/ 94.1	110/110	101/100	551
				402A00	18.8/ 25.0	52.1/ 60.1	83.2/ 91.0	100/100	87/86	531/531	96.9/ 105.8	110/110	101/100	551/551
				406A00	37.6/ 50.0	104.2/ 120.3	147.3/ 136.2	150/150	135/153	531/531	162.0/ 150.9	175/175	149/167	551/551
				408A00	56.3/ 75.0	156.4/ 180.4	173.4/ 196.3	200/225	196/222	531/531	188.2/ 211.0	200/225	209/236	551/551
	460-3-60	STD	65	—	—	—	39.6	50	41	258	45.8	60	48	270
				403A00	25.0	30.1	42.4	50	41	258	50.1	60	48	270
				407A00	50.0	60.1	64.9	70	73	258	72.6	80	81	270
				409A00	75.0	90.2	95.0	100	108	258	102.7	110	115	270
		MED	65	—	—	—	40.7	50	43	270	46.9	60	50	282
				403A00	25.0	30.1	43.8	50	43	270	51.5	60	50	282
				407A00	50.0	60.1	66.2	80	75	270	74.0	80	82	282
				409A00	75.0	90.2	96.3	100	109	270	104.1	110	116	282
HIGH		65	—	—	—	42.2	50	44	275	48.4	60	51	287	
			403A00	25.0	30.1	45.6	50	44	275	53.4	60	51	287	
			407A00	50.0	60.1	68.1	80	76	275	75.9	80	84	287	
			409A00	75.0	90.2	98.2	100	111	275	106.0	125	118	287	

See Legend and Notes on page 81.

NOTE: High SCCR is not available for units with 575v.

UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA, TWO-SPEED INDOOR FAN MOTOR, 17.5 TONS — HIGH SCCR

50TC** UNIT	NOM. V-PH-HZ	IFM TYPE *	HIGH SCCR kA	PART NUMBER CRHEATER	NOM (kW)	FLA	NO C.O. OR UNPWR C.O.							
							NO P.E.				W/ P.E. (PWRD FR/UNIT)			
							MCA	FUSE OR HACR BRKR	DISC. SIZE		MCA	FUSE OR HACR BRKR	DISC. SIZE	
									FLA	LRA			FLA	LRA
20	208/230-3-60	STD	60	—	—	—	80.4/ 79.4	100/100	84/83	520	92.2/ 91.2	100/100	98/96	540
				402A00	18.8/25.0	52.1/ 60.1	80.4/ 87.4	100/100	84/83	520/520	93.4/ 102.1	100/110	98/96	540/540
				406A00	37.6/50.0	104.2/ 120.3	143.8/ 132.6	150/150	132/150	520/520	158.5/ 147.3	175/175	146/163	540/540
				408A00	56.3/75.0	156.4/ 180.4	169.9/ 192.7	200/225	192/219	520/520	184.7/ 207.4	200/225	206/232	540/540
		MED	60	—	—	—	83.2/ 82.3	100/100	87/86	531	95.0/ 94.1	110/110	101/100	551
				402A00	18.8/25.0	52.1/ 60.1	83.2/ 91.0	100/100	87/86	531/531	96.9/ 105.8	110/110	101/100	551/551
				406A00	37.6/50.0	104.2/ 120.3	147.3/ 136.2	150/150	135/153	531/531	162.0/ 150.9	175/175	149/167	551/551
				408A00	56.3/75.0	156.4/ 180.4	173.4/ 196.3	200/225	196/222	531/531	188.2/ 211.0	200/225	209/236	551/551
		HIGH	60	—	—	—	86.7	100	91	527	98.5	125	105	547
				402A00	18.8/25.0	52.1/ 60.1	86.7/ 96.5	100/100	91/91	527/527	101.3/ 111.3	125/125	105/105	547/547
				406A00	37.6/50.0	104.2/ 120.3	151.6/ 141.7	175/175	139/158	527/527	166.4/ 156.4	175/175	153/172	547/547
				408A00	56.3/75.0	156.4/ 180.4	177.8/ 201.8	200/225	200/227	527/527	192.5/ 216.5	200/250	213/241	547/547
	460-3-60	STD	65	—	—	—	40.7	50	43	270	46.9	60	50	282
				403A00	25.0	30.1	43.8	50	43	270	51.5	60	50	282
				407A00	50.0	60.1	66.2	80	75	270	74.0	80	82	282
				409A00	75.0	90.2	96.3	100	109	270	104.1	110	116	282
		MED	65	—	—	—	42.2	50	44	275	48.4	60	51	287
				403A00	25.0	30.1	45.6	50	44	275	53.4	60	51	287
				407A00	50.0	60.1	68.1	80	76	275	75.9	80	84	287
				409A00	75.0	90.2	98.2	100	111	275	106.0	125	118	287
HIGH		65	—	—	—	44.4	50	47	273	50.6	60	54	285	
			403A00	25.0	30.1	48.4	50	47	273	56.1	60	54	285	
			407A00	50.0	60.1	70.9	80	79	273	78.6	80	86	285	
			409A00	75.0	90.2	101.0	110	114	273	108.7	125	121	285	

See Legend and Notes on page 81.

NOTE: High SCCR is not available for units with 575v.

UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA, TWO-SPEED INDOOR FAN MOTOR, 20 TONS — HIGH SCCR

50TC** UNIT	NOM. V-PH-HZ	IFM TYPE *	HIGH SCCR kA	PART NUMBER CRHEATER	NOM (kW)	FLA	NO C.O. OR UNPWR C.O.							
							NO P.E.				W/ P.E. (PWRD FR/UNIT)			
							MCA	FUSE OR HACR BRKR	DISC. SIZE		MCA	FUSE OR HACR BRKR	DISC. SIZE	
									FLA	LRA			FLA	LRA
24	208/230-3-60	STD	60	—	—	—	109.2/ 108.3	150/150	112/111	540	121.0/ 120.1	150/150	125/124	560
				402A00	18.8/ 25.0	52.1/ 60.1	109.2/ 108.3	150/150	112/111	540/540	121.0/ 120.1	150/150	125/124	560/560
				406A00	37.6/ 50.0	104.2/ 120.3	147.3/ 136.2	150/150	135/153	540/540	162.0/ 150.9	175/175	149/167	560/560
				408A00	56.3/ 75.0	156.4/ 180.4	173.4/ 196.3	200/225	196/222	540/540	188.2/ 211.0	200/225	209/236	560/560
		MED	60	—	—	—	112.7	150	116	536	124.5	150	129	556
				402A00	18.8/ 25.0	52.1/ 60.1	112.7/ 112.7	150/150	116/116	536/536	124.5/ 124.5	150/150	129/129	556/556
				406A00	37.6/ 50.0	104.2/ 120.3	151.6/ 141.7	175/175	139/158	536/536	166.4/ 156.4	175/175	153/172	556/556
				408A00	56.3/ 75.0	156.4/ 180.4	177.8/ 201.8	200/225	200/227	536/536	192.5/ 216.5	200/250	213/241	556/556
		HIGH	60	—	—	—	124.1	150	129	615	135.9	175	142	635
				402A00	18.8/ 25.0	52.1/ 60.1	124.1/ 124.1	150/150	129/129	615/615	135.9/ 135.9	175/175	142/142	635/635
				406A00	37.6/ 50.0	104.2/ 120.3	165.9/ 155.9	175/175	153/171	615/615	180.6/ 170.7	200/175	166/185	635/635
				408A00	56.3/ 75.0	156.4/ 180.4	192.0/ 216.0	200/250	213/240	615/615	206.8/ 230.8	225/250	226/254	635/635
	460-3-60	STD	65	—	—	—	48.0	60	50	272	54.2	60	57	284
				403A00	25.0	30.1	48.0	60	50	272	54.2	60	57	284
				407A00	50.0	60.1	68.1	80	76	272	75.9	80	84	284
				409A00	75.0	90.2	98.2	100	111	272	106.0	125	118	284
		MED	65	—	—	—	50.2	60	52	270	56.4	70	59	282
				403A00	25.0	30.1	50.2	60	52	270	56.4	70	59	282
				407A00	50.0	60.1	70.9	80	79	270	78.6	80	86	282
				409A00	75.0	90.2	101.0	110	114	270	108.7	125	121	282
		HIGH	65	—	—	—	55.9	70	59	310	62.1	80	66	322
				403A00	25.0	30.1	55.9	70	59	310	63.3	80	66	322
				407A00	50.0	60.1	78.0	90	86	310	85.7	90	93	322
				409A00	75.0	90.2	108.1	125	120	310	115.8	125	127	322

See Legend and Notes on page 81.

NOTE: High SCCR is not available for units with 575v.

UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA, TWO-SPEED INDOOR FAN MOTOR, 25 TONS — HIGH SCCR

50TC** UNIT	NOM. V-PH-HZ	IFM TYPE *	HIGH SCCR KA	PART NUMBER CRHEATER	NOM (kW)	FLA	NO C.O. OR UNPWR C.O.							
							NO P.E.				W/ P.E. (PWRD FR/UNIT)			
							MCA	FUSE OR HACR BRKR	DISC. SIZE		MCA	FUSE OR HACR BRKR	DISC. SIZE	
									FLA	LRA			FLA	LRA
28	208/230-3-60	STD	60	—	—	—	127.8/ 126.9	175/175	133/132	590	139.6/ 138.7	175/175	147/146	610
				402A00	18.8/ 25.0	52.1/ 60.1	127.8/ 126.9	175/175	133/132	590/590	139.6/ 138.7	175/175	147/146	610/610
				406A00	37.6/ 50.0	104.2/ 120.3	147.3/ 136.2	175/175	135/153	590/590	162.0/ 150.9	175/175	149/167	610/610
				408A00	56.3/ 75.0	156.4/ 180.4	173.4/ 196.3	200/225	196/222	590/590	188.2/ 211.0	200/225	209/236	610/610
		MED	60	—	—	—	131.3	175	137	586	143.1	175	151	606
				402A00	18.8/ 25.0	52.1/ 60.1	131.3/ 131.3	175/175	137/137	586/586	143.1/ 143.1	175/175	151/151	606/606
				406A00	37.6/ 50.0	104.2/ 120.3	151.6/ 141.7	175/175	139/158	586/586	166.4/ 156.4	175/175	153/172	606/606
				408A00	56.3/ 75.0	156.4/ 180.4	177.8/ 201.8	200/225	200/227	586/586	192.5/ 216.5	200/250	213/241	606/606
		HIGH	60	—	—	—	142.7	175	150	665	154.5	200	164	685
				402A00	18.8/ 25.0	52.1/ 60.1	142.7/ 142.7	175/175	150/150	665/665	154.5/ 154.5	200/200	164/164	685/685
				406A00	37.6/ 50.0	104.2/ 120.3	165.9/ 155.9	175/175	153/171	665/665	180.6/ 170.7	200/200	166/185	685/685
				408A00	56.3/ 75.0	156.4/ 180.4	192.0/ 216.0	200/250	213/240	665/665	206.8/ 230.8	225/250	226/254	685/685
	460-3-60	STD	65	—	—	—	51.9	60	54	302	58.1	70	61	314
				403A00	25.0	30.1	51.9	60	54	302	58.1	70	61	314
				407A00	50.0	60.1	68.1	80	76	302	75.9	80	84	314
				409A00	75.0	90.2	98.2	100	111	302	106.0	125	118	314
		MED	65	—	—	—	54.1	60	57	300	60.3	70	64	312
				403A00	25.0	30.1	54.1	60	57	300	60.3	70	64	312
				407A00	50.0	60.1	70.9	80	79	300	78.6	80	86	312
				409A00	75.0	90.2	101.0	110	114	300	108.7	125	121	312
		HIGH	65	—	—	—	59.8	70	63	340	66.0	80	70	352
				403A00	25.0	30.1	59.8	70	63	340	66.0	80	70	352
				407A00	50.0	60.1	78.0	90	86	340	85.7	90	93	352
				409A00	75.0	90.2	108.1	125	120	340	115.8	125	127	352

See Legend and Notes on page 81.

NOTE: High SCCR is not available for units with 575v.

**UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA,
TWO-SPEED INDOOR FAN MOTOR, 27.5 TONS — HIGH SCCR**

50TC** UNIT	NOM. V-PH-HZ	IFM TYPE *	HIGH SCCR KA	PART NUMBER CRHEATER	NOM (kW)	FLA	NO C.O. OR UNPWR C.O.							
							NO P.E.				W/ P.E. (PWRD FR/UNIT)			
							MCA	FUSE OR HACR BRKR	DISC. SIZE		MCA	FUSE OR HACR BRKR	DISC. SIZE	
									FLA	LRA			FLA	LRA
30	208/230-3-60	STD	60	—	—	—	141.5	175	148	702	153.3	200	162	722
				402A00	18.8/ 25.0	52.1/ 60.1	141.5/ 141.5	175/175	148/148	702/702	153.3/ 153.3	200/200	162/162	722/722
				406A00	37.6/ 50.0	104.2/ 120.3	151.6/ 141.7	175/175	148/158	702/702	166.4/ 156.4	200/200	162/172	722/722
				408A00	56.3/ 75.0	156.4/ 180.4	177.8/ 201.8	200/225	200/227	702/702	192.5/ 216.5	200/250	213/241	722/722
		MED	60	—	—	—	152.9	200	161	781	164.7	200	175	801
				402A00	18.8/ 25.0	52.1/ 60.1	152.9/ 152.9	200/200	161/161	781/781	164.7/ 164.7	200/200	175/175	801/801
				406A00	37.6/ 50.0	104.2/ 120.3	165.9/ 155.9	200/200	161/171	781/781	180.6/ 170.7	200/200	175/185	801/801
				408A00	56.3/ 75.0	156.4/ 180.4	192.0/ 216.0	200/250	213/240	781/781	206.8/ 230.8	225/250	226/254	801/801
		HIGH	60	—	—	—	154.8	200	163	812	166.6	200	177	832
				402A00	18.8/ 25.0	52.1/ 60.1	154.8/ 154.8	200/200	163/163	812/812	166.6/ 166.6	200/200	177/177	832/832
				406A00	37.6/ 50.0	104.2/ 120.3	168.3/ 158.3	200/200	163/173	812/812	183.0/ 173.1	200/200	177/187	832/832
				408A00	56.3/ 75.0	156.4/ 180.4	194.4/ 218.4	225/250	215/242	812/812	209.2/ 233.2	225/250	228/256	832/832
	460-3-60	STD	65	—	—	—	66.0	80	69	354	72.2	90	76	366
				403A00	25.0	30.1	66.0	80	69	354	72.2	90	76	366
				407A00	50.0	60.1	70.9	80	79	354	78.6	90	86	366
				409A00	75.0	90.2	101.0	110	114	354	108.7	125	121	366
		MED	65	—	—	—	71.7	90	76	394	77.9	100	83	406
				403A00	25.0	30.1	71.7	90	76	394	77.9	100	83	406
				407A00	50.0	60.1	78.0	90	86	394	85.7	100	93	406
				409A00	75.0	90.2	108.1	125	120	394	115.8	125	127	406
		HIGH	65	—	—	—	72.6	90	77	409	78.8	100	84	421
				403A00	25.0	30.1	72.6	90	77	409	78.8	100	84	421
				407A00	50.0	60.1	79.1	90	87	409	86.9	100	94	421
				409A00	75.0	90.2	109.2	125	121	409	117.0	125	128	421

See Legend and Notes on page 81.

NOTE: High SCCR is not available for units with 575v.

Legend and notes for tables on pages 45-80

BRKR	—	Circuit Breaker
C.O.	—	Convenience Outlet
DISC	—	Disconnect
FLA	—	Full Load Amps
HACR	—	Heating, Air Conditioning, and Refrigeration
IFM	—	Indoor Fan Motor
LRA	—	Locked Rotor Amps
MCA	—	Minimum Circuit Amps
OFM	—	Outdoor Fan Motor
P.E.	—	Power Exhaust
Pwr'd fr/ unit	—	Powered from Unit
PWRD C.O.	—	Powered Convenience Outlet
SCCR	—	Short Circuit Current Rating
UNPWR C.O.	—	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.

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

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.

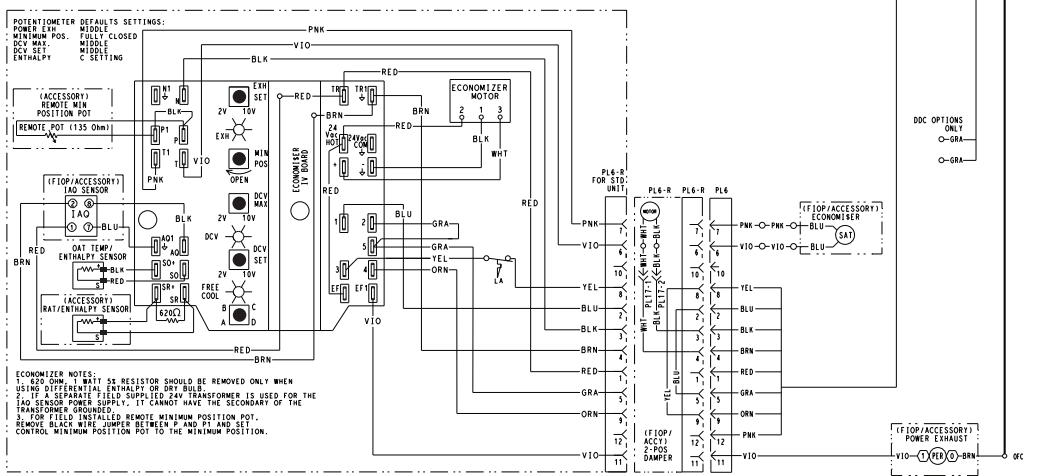
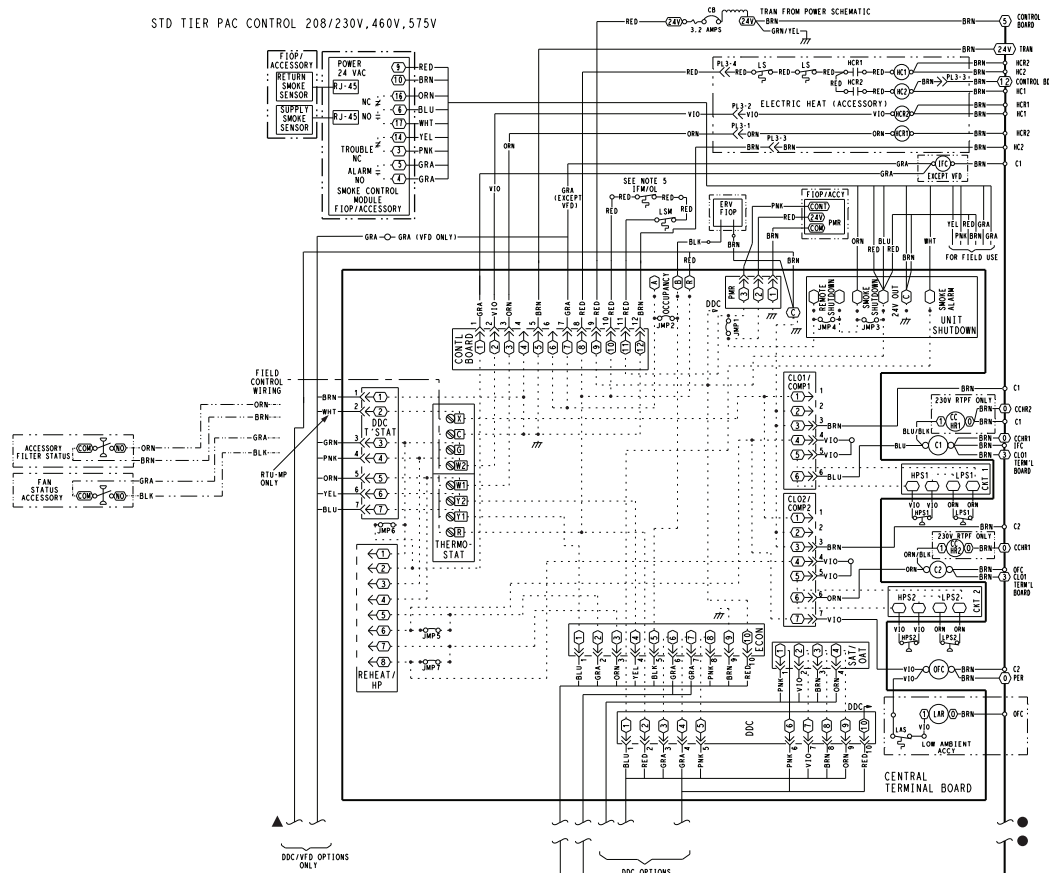
Determine percent of voltage imbalance.

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

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.

TYPICAL 50TC**17-28 CONTROL WIRING DIAGRAM

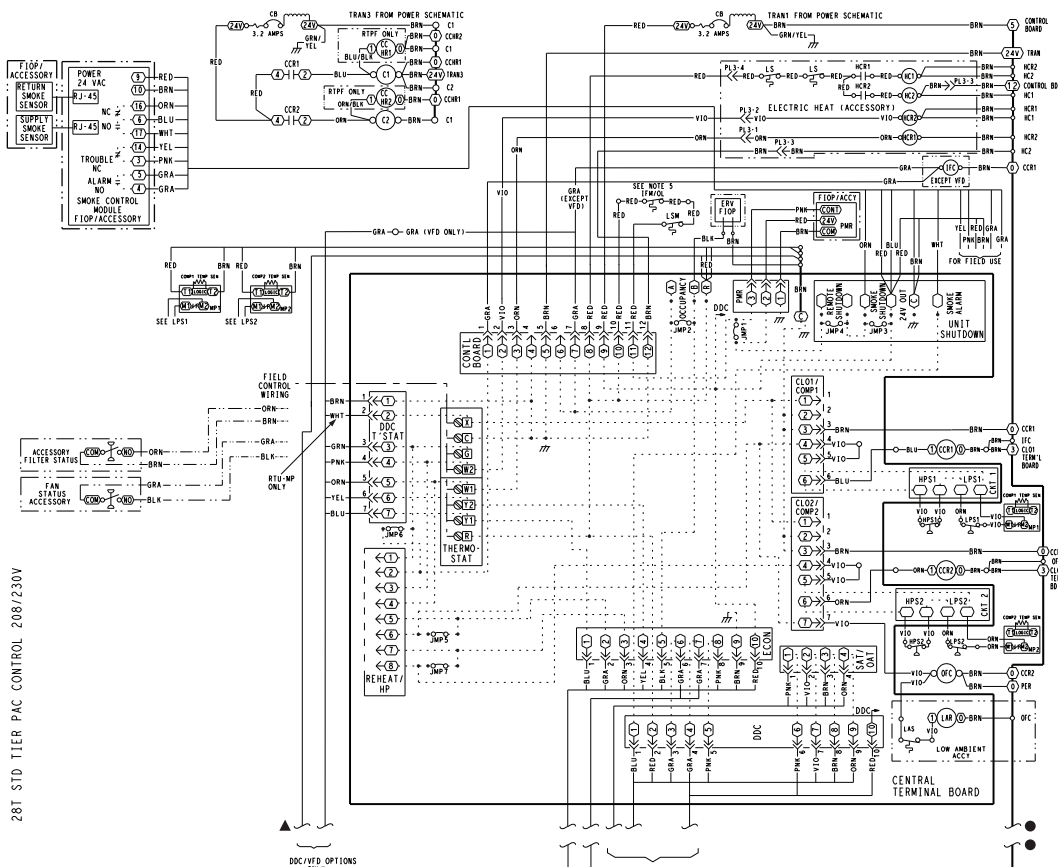


ECONOMIZER NOTES:

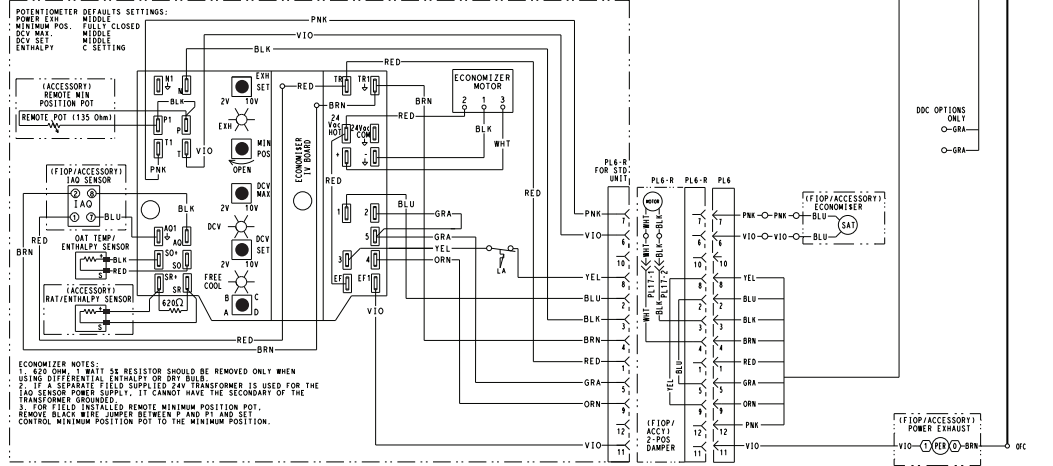
1. 650 OHM 1/2 WATT 5% RESISTOR SHOULD BE REMOVED ONLY WHEN USING DIFFERENTIAL ENTHALPY OR DRY BULB.
2. IF A SEPARATE FIELD SUPPLIED 24V TRANSFORMER IS USED FOR THE 100 SENSOR POWER SUPPLY, IT CANNOT HAVE THE SECONDARY OF THE TRANSFORMER GROUND.
3. FOR FIELD INSTALLED REMOTE MINIMUM POSITION POT, REMOVE BLACK WIRE JUMPER BETWEEN P AND P1 AND SET CONTROL MINIMUM POSITION POT TO THE MINIMUM POSITION.

C	CONTACTOR, COMPRESSOR	IFC	INDOOR FAN CONTACTOR	POT	POTENTIOMETER
CAP	CAPACITOR	IFM	INDOOR FAN MOTOR	PMR	PHASE MONITOR RELAY
CB	CIRCUIT BREAKER	IRH	INDOOR RELATIVE HUMIDITY	QT	QUADRUPLE TERMINAL
CH	CRANKCASE HEATER	LA	LOW AMBIENT LOCKOUT	R	RELAY
CCHR	CRANKCASE HEATER RELAY	LAR	LOW AMBIENT RELAY	RAT	RETURN AIR TEMP. SEN
CCN	CARRIER COMFORT NETWORK	LAS	LOW AMBIENT SWITCH	RMT OCC	REMOTE OCCUPANCY
CCP	COMPRESSOR SAFETY	LCP	CURRENT LOOP POWER	RTPF	ROUND TUBE PLATE FIN
COFS	CONDENSATE OVERFLOW SWITCH	LPS	LOW PRESSURE SWITCH	SAT	CONDENSER COIL
COMP	COMPRESSOR MOTOR	LSM	LIMIT SWITCH (MANUAL RESET)	SEN	SUPPLY AIR TEMP. SENSOR
CTB	CENTRAL TERMINAL BOARD	OAO	OUTDOOR AIR QUALITY	SET	SET POINT OFFSET
DCI	DIRECT DIGITAL CONTROL	OAT	OUTDOOR AIR TEMP. SEN	SFS	SUPPLY FAN STATUS
DCV	DIRECT DIGITAL CONTROL	OFC	OUTDOOR FAN CONTACTOR	SRS	SET POINT STATUS
FIOP	FACTORY INSTALLED OPTION	OFM	OUTDOOR FAN MOTOR	TDR	TIME DELAY RELAY
FSD	FIRE SHUT DOWN	OFB	OUTDOOR FAN TERMINAL BLOCK	TRN	TRANSFORMER
FU	FUSE	OLR	OVERLOAD RELAY	VFD	VARIABLE FREQUENCY DRIVE
GR	GROUND	PL	PLUG ASSEMBLY		
HC	HEATER CONTACTOR				
HCR	HEATER CONTROL RELAY				
HPS	HIGH PRESSURE SWITCH				
IAO	INDOOR AIR QUALITY SENSORS				

TYPICAL 50TC**30 CONTROL WIRING DIAGRAM (208/230-3-60V SHOWN)



28T STD TIER PAC CONTROL 208/230V



ECONOMIZER NOTES:
 1. 90C WIRE MUST BE REMOVED ONLY WHEN USING DIFFERENTIAL ENTHALPY OR DRY BULB.
 2. IF A SEPARATE FIELD SUPPLIED 24V TRANSFORMER IS USED FOR THE IAO, SENSOR POWER SUPPLY, IT CANNOT HAVE THE SECONDARY OF THE TRANSFORMER GROUND.
 3. FOR FIELD INSTALLED REMOTE MINIMUM POSITION POT, REMOVE BLACK WIRE JUMPER BETWEEN P1 AND P2 AND SET CONTROL MINIMUM POSITION POT TO THE MINIMUM POSITION.

- NOTES**
- IF ANY OF THE ORIGINAL WIRE FURNISHED MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE 90C WIRE OR ITS EQUIVALENT.
 - COMPRESSOR AND FAN MOTORS ARE THERMALLY PROTECTED. THREE PHASE MOTORS ARE PROTECTED AGAINST PRIMARY SINGLE PHASING CONDITIONS.
 - 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.
 - USE COPPER CONDUCTOR ONLY.
 - IF W/O IS NOT USED ON ALL MODELS, WHEN NOT USED, RED LEADS ARE CONNECTED TOGETHER.

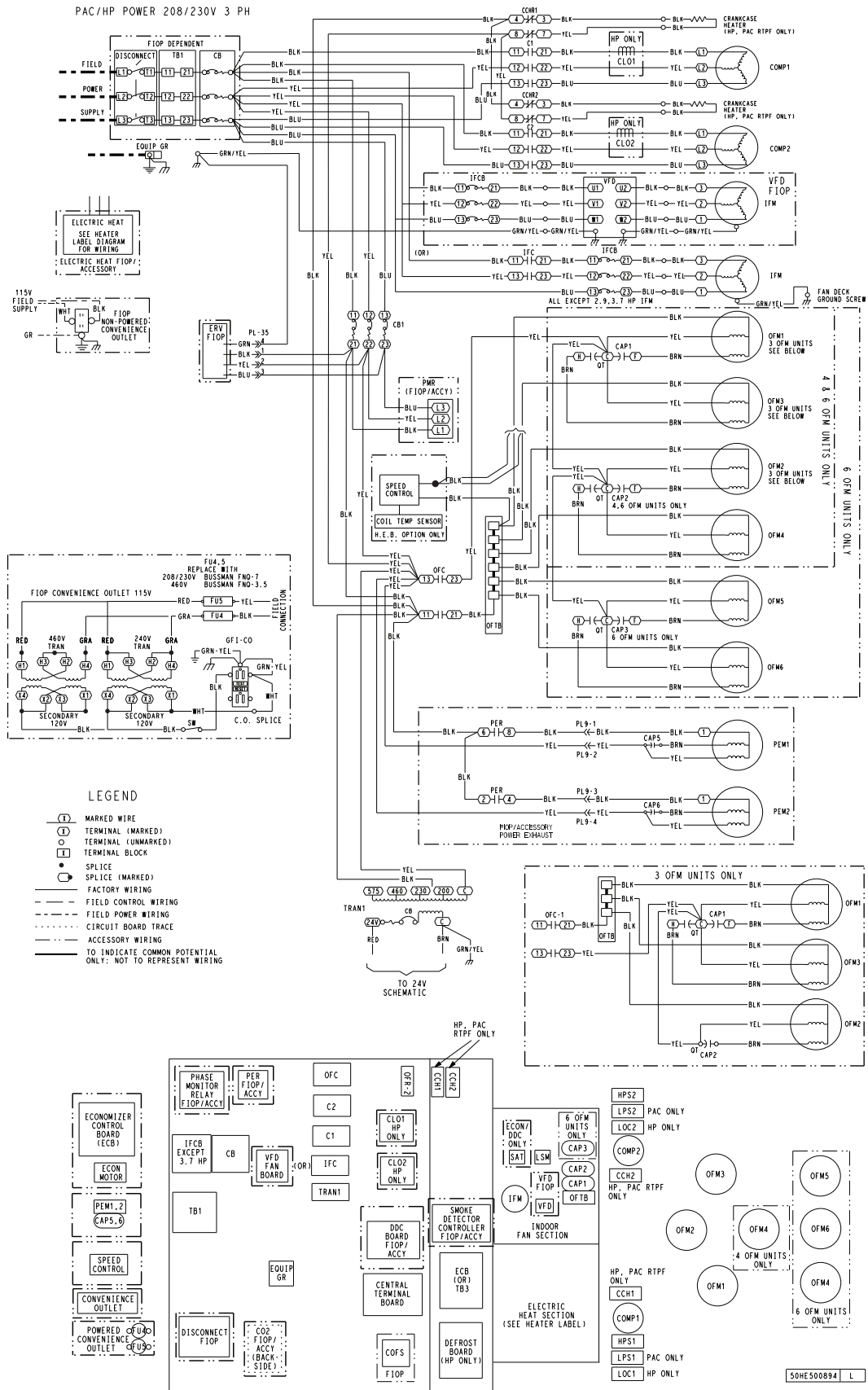
C	CONTACTOR, COMPRESSOR	IFC	INDOOR FAN CONTACTOR	PMR	PHASE MONITOR RELAY
CB	CAPACITOR	ITM	INDOOR FAN MOTOR	QT	QUADRUPLE TERMINAL RELAY
CCH	CIRCUIT BREAKER	IRH	INDOOR RELATIVE HUMIDITY	R	RELAY
CCN	CRANKCASE HEATER	LA	LOW AMBIENT LOCKOUT	RAT	RETURN AIR TEMP. SEN
CCR	CRANKCASE HEATER RELAY	LAR	LOW AMBIENT RELAY	RMT OCC	REMOTE OCCUPANCY
CCN	CRANKCASE HEATER NETWORK	LAS	LOW AMBIENT SWITCH	RTPF	ROUND TUBE PLATE FIN CONDENSER COIL
CMP	COMPRESSOR MOTOR	LPWR	LOOP POWER	SEN	SENSOR
CMP SAFE	COMPRESSOR MOTOR SAFETY	LPS	LOW PRESSURE SWITCH	SET	SET POINT OFFSET
COP	CONDENSATE OVERFLOW SWITCH	LSM	LIMIT SWITCH (MANUAL RESET)	SFS	SET POINT SETTING
COMP	COMPRESSOR MOTOR	MP	COMPRESSOR MOTOR PROTECTOR	TDR	TIME DELAY RELAY
CTB	CENTRAL TERMINAL BOARD	OAO	OUTDOOR AIR QUALITY	TRN	TRANSFORMER
DDC	DIRECT DIGITAL CONTROL	OAT	OUTDOOR AIR TEMP. SEN	VFD	VARIABLE FREQUENCY DRIVE
ENV	ENERGY RECOVERY VENTILATOR	OFM	OUTDOOR FAN MOTOR		
FIP	FACTORY INSTALLED OPTION	OFB	OUTDOOR FAN CONTACTOR		
FSD	FINE SHUT DOWN	OLR	OVERLOAD RELAY		
FU	FUSE	PER	POWER EXHAUST RELAY		
GR	GROUND	PIG	PLUG ASSEMBLY		
HC	HEATER CONTACTOR	POT	POTENTIOMETER		
HCR	HEATER CONTROL RELAY				
HPS	HIGH PRESSURE SWITCH				
IAQ	INDOOR AIR QUALITY SENSORS				

50HE50233T E

Typical wiring diagrams (cont)



TYPICAL 50TC**17-30 POWER WIRING DIAGRAM (208/230-3-60V SHOWN)



General

The sequence below describes the sequence of operation for an electro-mechanical unit with and without a factory-installed EconoMi\$er IV and X (called “economizer” in this sequence). For information regarding a direct digital controller, see the start-up, operations, and troubleshooting manual for the applicable controller.

Electro-mechanical units with no economizer

Cooling (Single speed indoor fan motor)

When the thermostat calls for cooling, terminals G and Y1 are energized. As a result, the indoor-fan contactor (IFC) and the compressor contactor (C1) are energized, causing the indoor-fan motor (IFM), compressor #1, and outdoor fan to start. If the unit has 2 stages of cooling, the thermostat will additionally energize Y2. The Y2 signal will energize compressor contactor #2 (C2), causing compressor #2 to start. Regardless of the number of stages, the outdoor-fan motor runs continuously while unit is cooling.

Cooling (2-speed indoor fan motor)

Per ASHRAE 90.1-2016 and IECC-2015 standards, during the first stage of cooling operation the VFD will adjust the fan motor to provide 66% of the total cfm established for the unit. When a call for the second stage of cooling is required, the VFD will allow the total cfm for the unit established (100%).

Heating

NOTE: The 50TC is sold as cooling only. If electric heaters are required, use only factory-approved electric heaters. They will operate as described below.

Units have either 1 or 2 stages of electric heat. When the thermostat calls for heating, power is applied to the W1 terminal at the unit. The unit control will energize the indoor fan contactor and the first stage of electric heat. On units with 2-stage heating, when additional heating is required, the second stage of electric heat (if equipped) will be energized when power is applied at the W2 terminal on the unit.

Electro-mechanical units with an economizer

Cooling

When free cooling is not available, the compressors will be controlled by the zone thermostat. When free cooling is available, the outdoor-air damper is modulated by the EconoMi\$er IV and X control to provide a 50°F (10°C) to 55°F (13°C) mixed-air temperature into the zone. As the mixed air temperature fluctuates above 55°F (13°C) or below 50°F (10°C) dampers will be modulated (open or close) to bring the mixed-air temperature back within control. If mechanical cooling is utilized with free cooling, the outdoor-air damper will maintain its current position at the time the compressor is started. If the increase in cooling capacity causes the mixed-air temperature to drop below 48°F (9°C), then the outdoor-air damper position will be decreased to the minimum position. If the mixed-air temperature continues to fall, the outdoor-air damper will close. Control returns to normal once the mixed-air temperature rises above 48°F (9°C). The power exhaust fans will be energized and de-energized, if installed, as the outdoor-air damper opens and closes.

If field-installed accessory CO₂ sensors are connected to the EconoMi\$er IV and X control, a demand controlled ventilation strategy will begin to operate. As the CO₂ level in the zone increases above the CO₂ setpoint, the minimum position of the damper will be increased proportionally. As the CO₂ level decreases because of the increase in fresh air, the outdoor-air damper will be proportionally closed. For EconoMi\$er IV and X operation, there must be a thermostat

call for the fan (G). If the unit is occupied and the fan is on, the damper will operate at minimum position. Otherwise, the damper will be closed.

When the EconoMi\$er IV and X control is in the occupied mode and a call for cooling exists (Y1 on the thermostat), the control will first check for indoor fan operation. If the fan is not on, then cooling will not be activated. If the fan is on, then the control will open the EconoMi\$er IV and X damper to the minimum position.

On the initial power to the EconoMi\$er IV and X control, it will take the damper up to 2-1/2 minutes before it begins to position itself. After the initial power-up, further changes in damper position can take up to 30 seconds to initiate. Damper movement from full closed to full open (or vice versa) will take between 1-1/2 and 2-1/2 minutes. If free cooling can be used as determined from the appropriate changeover command (switch, dry bulb, enthalpy curve, differential dry bulb, or differential enthalpy), then the control will modulate the dampers open to maintain the mixed-air temperature setpoint at 50°F (10°C) to 55°F (13°C). If there is a further demand for cooling (cooling second stage - Y2 is energized), then the control will bring on compressor stage 1 to maintain the mixed-air temperature setpoint. The EconoMi\$er IV and X damper will be open at maximum position. EconoMi\$er IV and X operation is limited to a single compressor.

2-Speed Note: When operating in ventilation mode only, the indoor fan motor will automatically adjust to 66% of the total cfm established.

Heating

The sequence of operation for the heating is the same as an electro-mechanical unit with no economizer. The only difference is how the economizer acts. The economizer will stay at the Economizer Minimum Position while the evaporator fan is operating. The outdoor-air damper is closed when the indoor fan is not operating.

Refer to Service and Maintenance Manual for further details.

Optional Humidi-MiZer Dehumidification System

Units with the factory equipped Humidi-MiZer system option are capable of providing multiple modes of improved dehumidification as a variation of the normal cooling cycle. The Humidi-MiZer system option includes additional valves in the liquid line and discharge line of each refrigerant circuit, a small reheat condenser coil downstream of the evaporator, and Motormaster variable-speed control of some or all outdoor fans. Operation of the revised refrigerant circuit for each mode is described below.

The Humidi-MiZer system provides three sub-modes of operation: Cool, Reheat1, and Reheat2.

Cool mode - provides a normal ratio of Sensible and Latent Cooling effect from the evaporator coil.

Reheat1 - provides increased Latent Cooling while slightly reducing the Sensible Cooling effect.

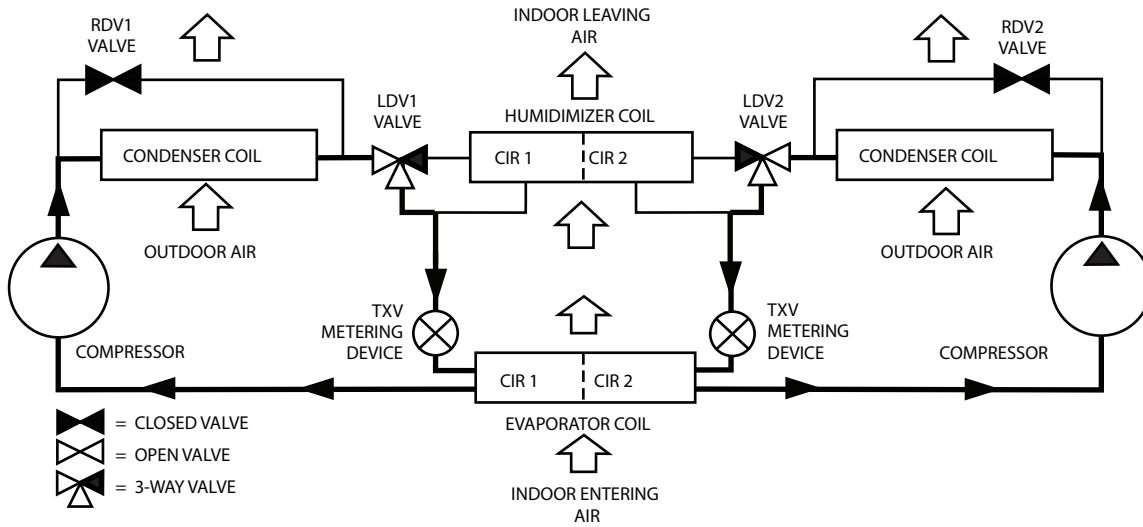
Reheat2 - provides normal Latent Cooling but with null or minimum Sensible Cooling effect delivered to the space.

The Reheat1 and Reheat2 modes are available when the unit is not in a Heating mode and when the Low Ambient Lockout switch is closed.

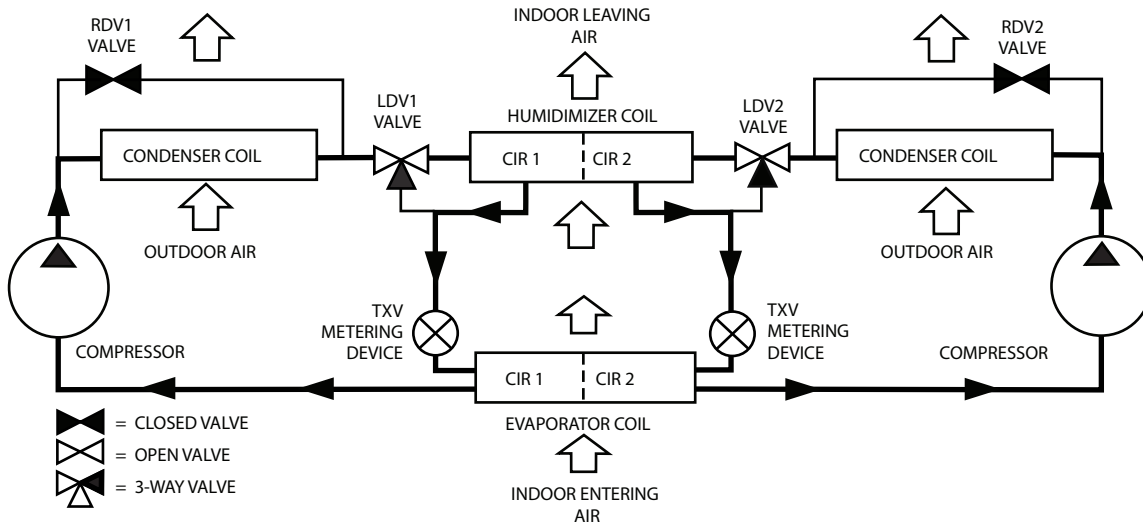
RTU Open (Factory Option)

For details on operating 50TC units equipped with the factory-installed RTU Open option, refer to the *Factory Installed Option RTU Open Multi-Protocol Controller Controls, Start-Up, Operation and Troubleshooting manual*.

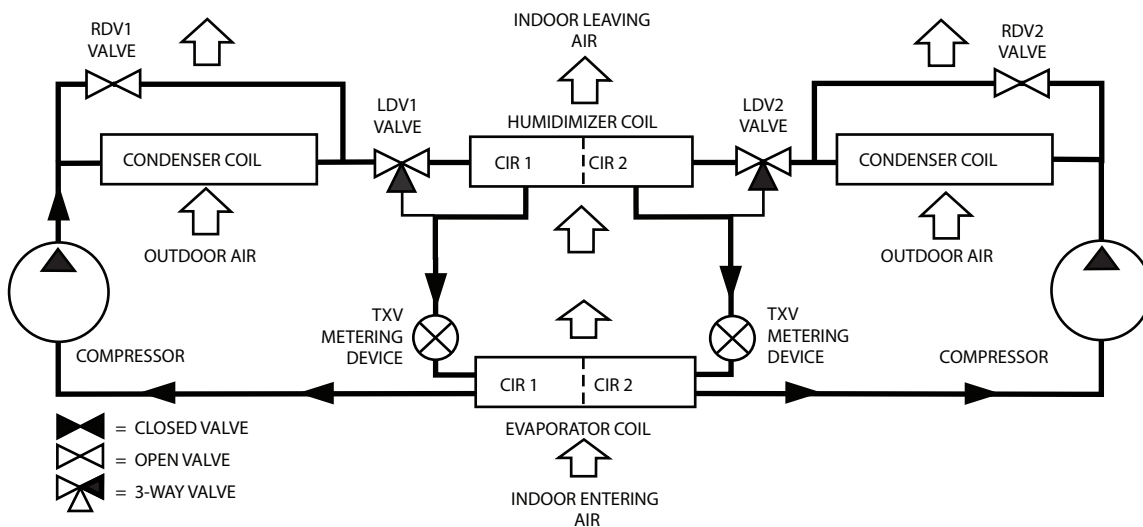
NORMAL COOLING MODE - HUMIDI-MIZER SYSTEM



SUBCOOLING MODE (REHEAT 1) - HUMIDI-MIZER SYSTEM



HOT GAS REHEAT MODE (REHEAT 2) - HUMIDI-MIZER SYSTEM



Min operating ambient temp (cooling)

In mechanical cooling mode, your Carrier rooftop can safely operate down to an outdoor ambient temperature of 30°F (-1°C). It is possible to provide cooling at lower outdoor ambient temperatures by using less outside air, economizers, and/or accessory low ambient kits.

Max operating ambient temp (cooling)

The maximum operating ambient temperature for cooling mode is 115°F (46°C). While cooling operation above 115°F (46°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 (cooling mode)

To maintain safe and reliable operation of your rooftop, operate within the cooling airflow limits. 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. For proper minimum and maximum CFM values, see the tables on page 4.

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. In fact, they should be considered for most applications. Also, 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 tables on page 6 (for Novation units) and page 8 (for RTPF units), 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.

Low ambient applications

When equipped with a Carrier economizer, your rooftop unit can cool your space by bringing in fresh, cool outside air. In fact, when so equipped, accessory low-ambient kit may not be necessary. In low ambient conditions, unless the outdoor air is excessively humid or contaminated, economizer-based "free cooling" is the preferred less costly and energy conscious method.

In low ambient applications where outside air might not be desired (such as contaminated or excessively humid outdoor environments), your Carrier rooftop can operate to ambient temperatures down to -20°F (-29°C) using the recommended accessory Motormaster low ambient controller.

Winter start

Carrier's winter start kit extends the low ambient limit of your rooftop to 25°F (-4°C). The kit bypasses the low pressure switch, preventing nuisance tripping of the low pressure switch. Other low ambient precautions may still be prudent.

Application/Selection Option

Selection software by Carrier saves time by performing many of the steps above. Contact your Carrier sales representative for assistance.

Staged Air Volume (SAV) with Variable Frequency Drive (VFD)

Carrier's Staged Air Volume (SAV) system utilizes a Variable Frequency Drive (VFD) to automatically adjust the indoor fan motor speed in sequence with the units cooling operation. Per ASHRAE 90.1-2016 and IECC-2015 standards, during the first stage of cooling operation the VFD will adjust the fan motor to provide 66% of the total cfm established for the unit. When a call for the second stage of cooling is required, the VFD will allow the total cfm for the unit established (100%). During the heating mode, the VFD will allow total design cfm (100%) operation and during the ventilation mode the VFD will allow operation to 66% of total cfm.

The VFD used in Carrier's SAV system has soft start capabilities to slowly ramp up the speeds, thus eliminating any high inrush air volume during initial start-up. It also has internal over current protection for the fan motor and a field-installed display kit that allows adjustment and in depth diagnostics of the VFD.

This SAV system is available on models with 2-stage cooling operation with electro-mechanical or RTU Open (multi Protocol) controls. Both space sensor and conventional thermostats controls can be used to provide accurate control in any application.

The SAV system is very flexible for initial fan performance set up and adjustment. The standard factory-shipped VFD is pre-programmed to automatically stage the fan speed between the first and second stage of cooling. The unit fan performance static pressure and cfm can be easily adjusted using the traditional means of pulley adjustments. The other means to adjust the unit static and cfm performance is to utilize the field-installed display module and adjust the frequency and voltage in the VFD to required performance requirements. In either case, once set up the VFD will automatically adjust the speed between the cooling stage operations.

Note about this specification:

These specifications are written in "Masterformat" as published by the Construction Specification Institute. Please feel free to copy this specification directly into your building spec.

Cooling Only/Electric Heat Packaged Rooftop HVAC Guide Specifications

Size Range: 15 to 27.5 Nominal Tons

Carrier Model Number: 50TC

Part 1 — 23 06 80 Schedules for Decentralized HVAC Equipment

1.01 23 06 80.13 Decentralized Unitary 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, flexible fiberglass insulation bonded with a phenolic binder, neoprene coated on the air side.
 2. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.
 3. Unit internal insulation linings shall be resistant to mold growth in accordance with "mold growth and humidity" test in ASTM C1338, G21, and UL 181 or comparable test method. Air stream surfaces shall be evaluated in accordance with the "Erosion Test" in UL 181, as part of ASTM C1071.
- 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 Transmitters

- A. 23 09 13.23.A. Thermostats
1. Thermostat must
 - a. energize both "W" and "G" when calling for heat.
 - b. have capability to energize 2 different stages of cooling, and 2 different stages of heating.
 - c. include capability for occupancy scheduling.

Part 4 — 23 09 23 Direct-digital Control system for HVAC

4.01 23 09 23.13 Decentralized, Rooftop Units:

- A. 23 09 23.13.A. PremierLink™ controller:
1. Shall be ASHRAE 62 compliant.
 2. Shall accept 18-32VAC input power.

3. Shall have an operating temperature range from -40°F (-40°C) to 158°F (70°C), 10% - 95% RH (non-condensing).
 4. Shall include an integrated economizer controller to support an economizer with 4 to 20 mA actuator input and no microprocessor controller.
 5. Controller shall accept the following inputs: space temperature, setpoint adjustment, outdoor air temperature, indoor air quality, outdoor air quality, indoor relative humidity, compressor lock-out, fire shutdown, enthalpy, fan status, remote time clock/door switch.
 6. Shall accept a CO₂ sensor in the conditioned space, and be Demand Controlled Ventilation (DCV) ready.
 7. Shall provide the following outputs: Economizer, fan, cooling stage 1, cooling stage 2, heat stage 1, heat stage 2, heat stage 3/ exhaust/ reversing valve/ dehumidify/ occupied.
 8. Unit shall provide surge protection for the controller through a circuit breaker.
 9. Shall be Internet capable, and communicate at a Baud rate of 38.4K or faster.
 10. Shall have an LED display independently showing the status of activity on the communication bus, and processor operation.
 11. Shall include an EIA-485 protocol communication port, 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, and a port to connect an optional LonWorks¹ plug-in communications card.
 12. Shall have built-in Carrier Comfort Network® (CCN) protocol, and be compatible with other CCN devices, including ComfortVIEW™ controllers.
 13. Shall have built-in support for Carrier technician tool.
 14. Software upgrades will be accomplished by local download. Software upgrades through chip replacements are not allowed.
 15. Shall be shock resistant in all planes to 5G peak, 11ms during operation, and 100G peak, 11ms during storage.
 16. Shall be vibration resistant in all planes to 1.5G at 20-300 Hz.
 17. Shall support a bus length of 4000 ft max (1219 m), 60 devices per 1000 ft (305 m) section, and 1 RS-485 repeater per 1000 ft sections.
- B. 23 09 23.13.B. RTU-Open protocol, direct digital controller:
1. Shall be ASHRAE 62-2001 compliant.
 2. Shall accept 18 to 30VAC, 50-60Hz, and consumer 15VA or less power.

1. LonWorks is a registered trademark of Echelon Corporation.

3. Shall have an operating temperature range from -40°F (-40°C) to 130°F (54°C), 10% - 90% RH (non-condensing).
4. Shall include built-in protocol for BACnet¹ (MS/TP and PTP modes), Modbus² (RTU and ASCII), Johnson N2 and LonWorks. LonWorks Echelon processor required for all Lon applications shall be contained in separate communication board.
5. Shall allow access of up to 62 network variables (SNVT). Shall be compatible with all open controllers.
6. Baud rate controller shall be selectable using a dipswitch.
7. Shall have an LED display independently showing the status of serial communication, running, errors, power, all digital outputs, and all analog inputs.
8. 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.
9. Shall provide the following outputs: economizer, fan, cooling stage 1, cooling stage 2, heat stage 1, heat stage 2, heat stage 3/exhaust/ reversing valve.
10. 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.
11. Shall have a battery back-up capable of a minimum of 10,000 hours of data and time clock retention during power outages.
12. Shall have built-in support for Carrier technician tool.
13. Shall include an EIA-485 protocol communication port, 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, and a port to connect an optional LonWorks communications card.
14. Software upgrades will be accomplished by either local or remote download. No software upgrades through chip replacements are allowed.

1. BACnet is a trademark of ASHRAE.

2. Modbus is a registered trademark of Schneider Electric.

Part 5 — 23 09 33 Electric and Electronic Control System for HVAC

5.01 23 09 33.13 Decentralized, 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 a central control terminal board to conveniently and safely provide connection points for vital control functions such as: smoke detectors, phase monitor, economizer, thermostat, DDC control options, and low and high pressure switches.
4. Unit shall include a minimum of one 8-pin screw terminal connection board for connection of control wiring.

B. 23 09 33.13.B. Safeties:

1. Compressor over-temperature, over current.
2. Low-pressure switch.
 - a. Units shall have different sized connectors for the circuit 1 and circuit 2 low and high pressure switches. They shall physically prevent the cross-wiring of the safety switches between circuits 1 and 2.
 - b. 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 troubleshoot the rooftop unit.
3. High-pressure switch.
 - a. Units compressors shall have different sized connectors for the circuit 1 and circuit 2 low and high pressure switches. They shall physically prevent the cross-wiring of the safety switches between circuits 1 and 2.
 - b. High-pressure switch shall use different color wire than the low-pressure switch. The purpose is to assist the installer and service technician to correctly wire and or troubleshoot the rooftop unit.
4. Automatic reset, motor thermal overload protector.

Part 6 — 23 09 93 Sequence of Operations for HVAC Controls

6.01 23 09 93.13 Decentralized, Rooftop Units:

A. 23 09 93.13.A. INSERT SEQUENCE OF OPERATION

Part 7 — 23 40 13 Panel Air Filters

7.01 23 40 13.13 Decentralized, 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 a dedicated, weather tight panel.
 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 8 — 23 81 19 Self-Contained Air Conditioners

8.01 23 81 19.13 Medium-Capacity Self-Contained Air Conditioners

- A. 23 81 19.13.A. General
1. Outdoor, rooftop mounted, electrically controlled, heating and cooling unit utilizing hermetic scroll compressor(s) for cooling duty and with optional electrical heating accessories for heating duty.
 2. Factory assembled, single-piece heating and cooling rooftop unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, and special features required prior to field start-up.
 3. Unit shall use Puron® 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.
- B. 23 81 19.13.B. Quality Assurance
1. Unit meets ASHRAE 90.1-2016 and IECC-2015 minimum efficiency requirements.
 2. Unit shall be rated in accordance with AHRI Standard 340/360.
 3. Unit shall be designed to conform to ASHRAE 15.
 4. Unit shall be ETL-tested and certified in accordance with ANSI Z21.47 Standards and ETL-listed and certified under Canadian standards as a total package for safety requirements.
 5. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.
 6. Unit internal insulation linings shall be resistant to mold growth in accordance with "mold growth and humidity" test in ASTM C1338, G21, and UL 181 or comparable test method. Air stream surfaces shall be evaluated in accordance with the "Erosion Test" in UL 181, as part of ASTM C1071.

7. Unit casing shall be capable of withstanding 500 hour salt spray exposure per ASTM B117 (scribed specimen).
 8. Roof curb shall be designed to conform to NRCA Standards.
 9. 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.
 10. Unit shall be designed in accordance with UL Standard 1995, ETL listed including tested to withstand rain.
 11. Unit shall be constructed to prevent intrusion of snow and tested to prevent snow intrusion into the control box up to 40 mph.
 12. Unit shake tested to assurance level 1, ASTM D4169 to ensure shipping reliability.
 13. High Efficiency 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
As specified in the contract.
- E. 23 81 19.13.E. Operating Characteristics
1. Unit shall be capable of starting and running at 115°F (46°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 from 30°F (-1°C), ambient outdoor temperatures. Accessory kits are necessary if mechanically cooling at ambient temperatures below 30°F (-1°C).
 3. Unit shall discharge supply air vertically 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 vertical configuration. No field conversion is required.
- F. 23 81 19.13.F. Electrical Requirements
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 inches minimum, gloss (per

- ASTM D523, 60°F / 16°C): 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, flexible fiberglass insulation, neoprene coated on the air side. Aluminum foil-faced fiberglass insulation shall be used in the heat compartment.
 4. Unit internal insulation linings shall be resistant to mold growth in accordance with “mold growth and humidity” test in ASTM C1338, G21, and UL 181 or comparable test method. Air stream surfaces shall be evaluated in accordance with the “Erosion Test” in UL 181, as part of ASTM C1071.
 5. Base of unit shall have a minimum of four locations for factory thru-the-base electrical connections. Connections shall be internal to the cabinet to protect from environmental issues.
 6. Base Rail
 - a. Unit shall have base rails on a minimum of 2 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.
 7. Condensate pan and connections:
 - a. Shall be a sloped condensate drain pan made of a non-corrosive material.
 - b. Shall comply with ASHRAE Standard 62.
 - c. Shall use a 3/4-in. -14 NPT drain connection at the end of the drain pan. Connection shall be made per manufacturer’s recommendations.
 8. Top panel:

Shall be a multi-piece top panel linked with water tight flanges and interlocking systems.
 9. Electrical Connections
 - a. All unit power wiring shall enter unit cabinet at a single, factory-prepared, knockout location.
 - b. Thru-the-base capability:
 - 1) Thru-the base provisions/connections are available as standard with every unit. When bottom connections are required, field furnished couplings are required.
 - 2) No basepan penetration, other than those authorized by the manufacturer, is permitted.
 10. Component access panels (standard):
 - a. Cabinet panels shall be easily removable for servicing.
 - b. Unit shall have one factory-installed, removable, filter access panel.
 - c. Panels covering control box and filters shall have molded composite handles while the blower access door shall have an integrated flange for easy removal.
 - d. Handles shall be UV modified, composite. They shall be 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 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 of accelerated ultraviolet light testing. 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).

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 6000 hours salt spray per ASTM B117-90.

5. Standard All Aluminum Novation Coils:

- a. Standard condenser coils shall have all aluminum Novation Heat Exchanger Technology design consisting of aluminum multi port flat tube design and aluminum fin. Coils shall be a furnace brazed design and contain epoxy lined shrink wrap on all aluminum to copper connections.
- b. Condenser coils shall be leak tested to 150 psig, pressure tested to 650 psig, and qualified to UL 1995 burst test at 1980 psig.

6. Optional E-coated aluminum-fin, aluminum tube condenser coils:

- a. Shall have a flexible epoxy polymer coating uniformly applied to all coil external surface areas without material bridging between fins.
- b. Coating process shall ensure complete coil encapsulation, including all exposed fin edges.
- c. E-coat thickness of 0.8 to 1.2 mil with top coat having a uniform dry film thickness from

1.0 to 2.0 mil on all external coil surface areas, including fin edges, shall be provided.

- d. Shall have superior hardness characteristics of 2H per ASTM D3363-00 and cross-hatch adhesion of 4B-5B per ASTM D3359-02.
- e. Shall have superior impact resistance with no cracking, chipping or peeling per NSF/ANSI 51-2002 Method 10.2.

I. 23 81 19.13.I. Refrigerant Components

1. Refrigerant circuit shall include the following control, safety, and maintenance features:

- a. Fixed orifice metering system (on non-Humidi-MiZer system units) shall prevent maldistribution of two-phase refrigerant by including multiple fixed orifice devices in each refrigeration circuit. Each orifice is to be optimized to the coil circuit it serves.
- b. Thermostatic Expansion Valve (TXV) 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 (for Humidi-MiZer system units only).
- c. Refrigerant filter drier - Solid core design.
- d. Service gage connections on suction and discharge lines.
- e. Pressure gage access through a specially designed screen on the side of the unit.

2. Compressors:

- a. Unit shall use one fully hermetic, scroll compressor for each independent refrigeration circuit.
- b. Models shall be available with 2 compressor/2-stage cooling.
- 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 heaters shall not be required for normal operating range, unless provided by the factory.

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 preformed slide out 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 inherent automatic-reset thermal overload protection or circuit breaker.
 - b. Shall have a maximum continuous bhp rating for continuous duty operation; no safety factors above that rating shall be required.
 2. Belt-driven Evaporator Fan:
 - a. Belt drive shall include an adjustable-pitch motor pulley and belt break protection system.
 - b. Shall use rigid pillow block bearing system with lubricated fittings that are accessible or lubrication line.
 - c. Blower fan shall be double-inlet type with forward-curved blades.
 - d. Shall be constructed from steel with a finish that aids with corrosion resistance and dynamically balanced.
- L. 23 81 19.13.L. Condenser Fans and Motors:
1. Condenser fan motors:
 - a. Shall be a totally enclosed 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 galvalum blades riveted to steel spindlers that have corrosion resistant properties and shall be dynamically balanced.
- M. 23 81 19.13.M. Special Features, Options and Accessories
1. Staged Air Volume System (SAV™) for 2-stage cooling models only:
 - a. Evaporator fan motor:
 - 1) Shall have permanently lubricated bearings.
 - 2) Shall have a maximum continuous bhp rating for continuous duty operation; no safety factors above that rating.
 - 3) Shall be Variable Frequency duty and 2-speed control.
 - 4) 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). Only available on 2-speed indoor fan motor option (SAV):
 - a. Factory-supplied VFDs qualify, through ABB, for a 24-month warranty from date of commissioning or 30 months from date of sale, whichever occurs first.
 - b. Shall be installed inside the unit cabinet, mounted, wired and tested.
 - c. Shall contain Electromagnetic Interference (EMI) frequency protection.
 - d. Insulated Gate Bi-Polar Transistors (IGBT) used to produce the output pulse width modulated (PWM) waveform, allowing for quiet motor operation.
 - e. Self diagnostics with fault and power code LED indicator. Field accessory display kit available for further diagnostics and special setup applications.
 - f. RS485 capability standard.
 - g. Electronic thermal overload protection.
 - h. 5% swinging chokes for harmonic reduction and improved power factor.
 - i. All printed circuit boards shall be conformal coated.
 3. Integrated EconoMi\$er IV, EconoMi\$er 2, and EconoMi\$er X standard leak rate models. (Factory or field-installed):
 - a. Integrated, gear driven opposing modulating blade design type capable of simultaneous economizer and compressor operation.
 - b. Independent modules for vertical return configuration shall be available.
 - c. Damper blades shall be galvanized steel with composite gears. Plastic or composite blades on intake or return shall not be acceptable.
 - d. Shall include all hardware and controls to provide free cooling with outdoor air when temperature and/or humidity are below setpoints.
 - e. Shall be equipped with gear driven dampers for both the outdoor ventilation air and the return air for positive air stream control.
 - f. Standard leak rate models shall be equipped with dampers not to exceed 2% leakage at 1 in. wg pressure differential.
 - g. Economizer controller on EconoMi\$er IV models shall be the Honeywell W7212 that provides:
 - 1) Combined minimum and DCV maximum damper position potentiometers with compressor staging relay.
 - 2) Functions with solid state analog enthalpy or dry bulb changeover control

- 3) Contain LED indicates for: when free cooling is available, when module is in DCV mode, when exhaust fan contact is closed.
 - h. Economizer controller on EconoMi\$er X models shall be the Honeywell W7220 that provides:
 - 1) 2-line LCD interface screen for setup, configuration and troubleshooting.
 - 2) On-board Fault Detection and Diagnostics (FDD) that senses and alerts when the economizer is not operating properly, per California Title 24.
 - 3) Sensor failure loss of communication identification.
 - 4) Automatic sensor detection.
 - 5) Capabilities for use with multiple-speed indoor fan systems.
 - 6) Utilize digital sensors: Dry bulb and Enthalpy.
 - i. Economizer controller on EconoMi\$er 2 models with PremierLink controller shall be 4 to 20mA design and controlled by the PremierLink controller. PremierLink controller does not comply with California Title 24 Fault Detection and Diagnostic (FDD) requirements.
 - j. Economizer controller on EconoMi\$er 2 models with RTU Open controller shall be 4 to 20mA design controlled directly by the RTU Open controller. RTU Open meets California Title 24 Fault Detection and Diagnostic (FDD) requirements.
 - k. Shall be capable of introducing up to 100% outdoor air.
 - l. Shall be equipped with a barometric relief damper capable of relieving up to 100% return air and contain seals that meet ASHRAE 90.1-2016 and IECC-2015 requirements.
 - m. Shall be designed to close damper(s) during loss-of-power situations with spring return built into motor.
 - n. Dry bulb outdoor air temperature sensor shall be provided as standard. Enthalpy sensor is also available for factory-installed economizers 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.
 - o. 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%.
 - p. The economizer shall maintain minimum airflow into the building during occupied period and provide design ventilation rate for full occupancy.
 - q. Dampers shall be completely closed when the unit is in the unoccupied mode.
 - r. Economizer controller shall accept a 2 to 10 Vdc CO₂ sensor input for IAQ/DCV control. In this mode, dampers shall modulate the outdoor air damper to provide ventilation based on the sensor input.
 - s. Compressor lockout temperature on W7220 is adjustable from -45°F to 80°F, set at a factory default of 32°F. Others shall open at 35°F (2°C) and close at 50°F (10°C).
 - t. Actuator shall be direct coupled to economizer gear. No linkage arms or control rods shall be acceptable.
 - u. Economizer controller shall provide indications when in free cooling mode, in the DCV mode, or the exhaust fan contact is closed.
4. Integrated EconoMi\$er 2, and EconoMi\$er X Ultra Low Leak rate models. (Factory or field-installed):
 - a. Integrated, gear driven opposing modulating blade design type capable of simultaneous economizer and compressor operation.
 - b. Independent modules for vertical return configuration shall be available.
 - c. Damper blades shall be galvanized steel with composite gears. Plastic or composite blades on intake or return shall not be acceptable.
 - d. Shall include all hardware and controls to provide free cooling with outdoor air when temperature and/or humidity are below setpoints.
 - e. Shall be equipped with gear driven dampers for both the outdoor ventilation air and the return air for positive air stream control.
 - f. Ultra Low Leak design meets California Title 24 section 140.4 and ASHRAE 90.1-2016 and IECC-2015 requirements of 4 cfm per sq. ft. on the outside air dampers and 10 cfm per sq. ft. on the return dampers.
 - g. Economizer controller on EconoMi\$er X models shall be the Honeywell W7220 that provides:
 - 1) 2-line LCD interface screen for setup, configuration and troubleshooting.
 - 2) On-board Fault Detection and Diagnostics (FDD) that senses and alerts when the economizer is not operating properly, per California Title 24.
 - 3) Sensor failure loss of communication identification.
 - 4) Automatic sensor detection.
 - 5) Capabilities for use with multiple-speed indoor fan systems.
 - 6) Utilize digital sensors: Dry bulb and Enthalpy.
 - h. Economizer controller on EconoMi\$er 2 models with RTU Open controller shall be 4 to 20mA design controlled directly by the RTU Open controller. RTU Open controller

- meets California Title 24 Fault Detection and Diagnostic (FDD) requirements.
- i. Shall be capable of introducing up to 100% outdoor air.
 - j. Shall be equipped with a barometric relief damper capable of relieving up to 100% return air and contain seals that meet ASHRAE 90.1-2016 and IECC-2015 requirements.
 - k. Shall be designed to close damper(s) during loss-of-power situations with spring return built into motor.
 - l. Dry bulb outdoor air temperature sensor shall be provided as standard. Enthalpy sensor is also available for factory-installed economizers 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.
 - m. 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%.
 - n. The economizer shall maintain minimum airflow into the building during occupied period and provide design ventilation rate for full occupancy.
 - o. Dampers shall be completely closed when the unit is in the unoccupied mode.
 - p. Economizer controller shall accept a 2 to 10 Vdc CO₂ sensor input for IAQ/DCV control. In this mode, dampers shall modulate the outdoor air damper to provide ventilation based on the sensor input.
 - q. Compressor lockout temperature on W7220 is adjustable from -45°F to 80°F, set at a factory default of 32°F. Others shall open at 35°F (2°C) and close at 50°F (10°C).
 - r. Actuator shall be direct coupled to economizer gear. No linkage arms or control rods shall be acceptable.
 - s. Economizer controller shall provide indications when in free cooling mode, in the DCV mode, or the exhaust fan contact is closed.
5. Two-Position Motorized Damper:
 - a. Damper shall be a two-position damper. Damper travel shall be from the full closed position to the field adjustable %-open setpoint.
 - b. Damper shall include adjustable damper travel from 25% to 100% (full open).
 - c. Damper shall include single or dual blade, gear driven dampers and actuator motor.
 - d. Actuator shall be direct coupled to damper gear. No linkage arms or control rods shall be acceptable.
 - e. Damper will admit up to 100% outdoor air for applicable rooftop units.
 - f. Damper shall close upon indoor (evaporator) fan shutoff and/or loss of power.
 - g. The damper actuator shall plug into the rooftop unit's wiring harness plug. No hard wiring shall be required.
 - h. Outside air hood shall include aluminum water entrainment filter.
 6. Manual damper:

Manual damper package shall consist of damper, air inlet screen, and rain hood which can be preset to admit up to 25% outdoor air for year round ventilation.
 7. Humidi-MiZer Adaptive Dehumidification System (not available on 30 size models):
 - a. The Humidi-MiZer Adaptive Dehumidification System shall be factory-installed in 50TC-*17-28 models with RTPF (round tube plate fin) condenser coils, and shall provide greater dehumidification of the occupied space by two modes of dehumidification operations beside its normal design cooling mode:
 - 1) Subcooling mode further subcools the hot liquid refrigerant leaving the condenser coil when both temperature and humidity in the space are not satisfied.
 - 2) Hot gas reheat mode shall mix a portion of the hot gas from the discharge of the compressor with the hot liquid refrigerant leaving the condenser coil to create a two-phase heat transfer in the system, resulting in a neutral leaving air temperature when only humidity in the space is not satisfied.
 - 3) Includes head pressure controller.
 8. Head Pressure Control Package (Motormaster):
 - a. Controller shall control coil head pressure by condenser-fan speed modulation or condenser-fan cycling and wind baffles.
 - b. Shall consist of solid-state control and condenser-coil temperature sensor to maintain condensing temperature between 90°F (32°C) and 110°F (43°C) at outdoor ambient temperatures down to -20°F (-29°C).
 9. Condenser Coil Hail Guard Assembly:
 - a. Shall protect against damage from hail.
 - b. Shall be louvered style design.
 10. Unit-Mounted, Non-Fused Disconnect Switch:
 - a. Switch shall be factory-installed, internally mounted.
 - b. National Electric Code (NEC) and ETL 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.
11. 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 of disconnect by installing contractor, as required by code. If outlet is powered from load side of disconnect, unit electrical ratings shall be ETL 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. Unpowered 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.
12. 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.
13. Centrifugal Power Exhaust:
- a. Power exhaust shall be used in conjunction with an integrated economizer.
 - b. 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.
14. 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.
15. Adapter Curb (Vertical):
- a. Full perimeter – fully assembled and welded 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 of new 50TC-*17-28 models to past Carrier design curb models: DP, DR, HJ, TM, and TJ. (Not for 50TJE024-028 models.) Check with Carrier sales expert of further details and information.
16. High-Static Indoor Fan Motor(s) and Drive(s):
High-static motor(s) and drive(s) shall be factory-installed to provide additional performance range.
17. Outdoor Air Enthalpy Sensor:
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.
18. Return Air Enthalpy Sensor:
The return air enthalpy sensor shall be used in conjunction with an outdoor air enthalpy sensor to provide differential enthalpy control.
19. Indoor Air Quality (CO₂) 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.
20. Smoke detectors:
- 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.
21. Horn/Strobe Annunciator:
- a. Provides an audible/visual signaling device for use with factory-installed option or field-installed accessory smoke detectors:
 - 1) Requires installation of a field-supplied 24-v transformer suitable for 4.2 VA (AC) or 3.0 VA (DC) per horn/strobe accessory.
 - 2) Requires field-supplied electrical box, North American 1-gang box, 2-in. (51 mm) x 4-in. (102 mm).
 - 3) Shall have a clear colored lens.
22. Winter start kit:
- a. Shall contain a bypass device around the low-pressure switch.
 - b. Shall be required when mechanical cooling is required down to 25°F (-4°C).
 - c. Shall not be required to operate on an economizer when below an outdoor ambient of 40°F (4°C).
23. Time Guard:
- a. Shall prevent compressor short cycling by providing a 5 minute delay (± 2 minutes) before restarting a compressor after shut-down for any reason.
 - b. One device shall be required per compressor.
24. Electric Heat:
- a. Heating Section:
 - 1) Heater element open coil resistance wire, nickel-chrome alloy, 0.29 inches 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.
25. California OSHPD Seismic Certification Label (17-28 sizes only):
- a. Units meet the seismic requirements of the International Code Council Evaluation Service (ICC-ES) document AC156 (Acceptance Criteria for Seismic Qualification by Shake-Table Testing of Nonstructural Components and Systems) and per International Building Code (IBC 2009) at an SDS (g) value of 2.00 $z/h=1.0$, $I_p=1.5$ and certified by independent structural engineers.
- b. Units shall include a certification label that meets the CA OSHPD Special Seismic Certification pre-approval labeling requirements on the external chassis of the unit.
26. 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 and communication cable.
 - c. Display kit can be permanently installed in the unit or used on any SAV system VFD controller as needed.
27. Hinged Access Panels:
- a. Shall provide easy access through hinged access doors with vinyl coated door retainers.
 - b. Shall be on major panels of: filter, control box and fan motor.
28. Energy Demand System - EDS (field-installed accessory):
- a. Shall utilize wireless network communication to optimize rooftop unit energy usage, up to 875 yds and up to 49 load controllers for each gateway. A wireless cellular signal shall be utilized to communicate energy information to/from the customer web portal.
 - b. Shall utilize explicit algorithms to minimize rooftop electrical demand charges, customizable to each facility.
 - c. Shall allow scheduling of rooftop units and provide a "staggered start" approach to minimize electrical consumption charges, customized to each facility.
 - d. Scheduling, adjustments, and sub-metered electrical data shall be accessible through a web based customer portal.
 - e. Shall provide demand response capability, including compliance with Open ADR protocol.
 - f. Shall utilize an external 4-pole relay and an internal single pole relay.
 - g. Shall use (2) split core transformers to provide real-time sub-metered electrical usage.
29. High Short Circuit Current Rating (SCCR):
- a. An optional SCCR of 65kA shall be provided for 460 volt and 60kA for 208/230 volt units.

