



United Technologies

turn to the experts

Package Rooftop Units – 60Hz



Quality Assurance
Certificate Reg. No:
04 100 950420



Subject to change without notice
Manufacturing point: Jeddah, Saudi Arabia
Nearest port of embarkation: Jeddah Islamic port
Product classification: Commercial

Product Data Catalog

50TCM – 60Hz

Nominal Cooling Capacity 6 – 12.5 Tons
HFC R-410A Refrigerant

The 50TCM units are single side discharge rooftop cooling unit utilizing electric heat as an option. Units are pre-wired, pre-charged with R-410A refrigerant, and tested at the factory. These units can be placed on the side of a building or can be placed on a roof without roof curbs. Each unit is designed to occupy a minimal space. Piping and drain connections are readily accessible.

Contact your local Carrier representative for additional reference materials.

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Features / Benefits

Every compact one-piece unit arrives fully assembled, charged, tested, and ready to run.

Durable-Dependable Construction

Designed for durability in any climate, the weather-resistant cabinets are constructed of galvanized steel, bonderized, and all exterior panels are coated with a pre-painted baked enamel finish. The paint finish is non-chalking, and is capable of withstanding ASTM (American Society for Testing and Materials) B117 500-hour Salt Spray Test. All internal cabinet panels are primed, permitting longer life and a more attractive appearance for the entire unit. Totally enclosed condenser-fan motor and permanently lubricated bearings provide additional unit dependability.

Indoor-Air Quality

Non corrosive sloped condensate pans minimize biological growth in rooftop units in accordance with ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers) Standard 62-99 (IAQ). 2"inch filters provide for greater particle reduction in the return air.

Simple, Electrical Connections

Terminal boards, located in the unit control box, facilitate connections to room thermostat, outdoor thermostat(s) and electric heater. Service panels can be quickly removed, permitting easy servicing. Both power and control connections are made on the same side of the unit to simplify installation. In addition, color-coded wires permit easy tracing and diagnostics.

Easy Installation

All units feature base rail design with forklift slots and rigging holes for easier maneuvering. Durable packaging protects all units during shipment and storage. Convenient side by side openings permit installation very close to face of buildings or on roof top. The non-corrosive sloped condensate pan minimizes residual condensate in off cycle. An external, field-supplied P-trap is required. Field-installed electric heaters are available up to 45.9 kW.

Installation Features

- Single point electrical service entry
- Side discharge application
- No roof curb needed
- Side-by-side supply and return air
- Separate panel for control box

Performance Features

- HFC R-410A non-ozone depleting refrigerant
- ASHRAE Compliant
- EER's up to 12.2
- TXV refrigerant metering device
- Two independent refrigerant circuits, each with a scroll compressor
- Low outdoor temperature cooling operation down to 40° F
- Liquid filter drier standard on each circuit
- Fresh air intake capable
- Non-corrosive sloped condensate drain pan in accordance to ASHRAE 62 standard
- Thermally protected and permanently lubricated condenser and evaporator fan motors
- Angle type return air section with washable type filters

Environmentally Sound Refrigerant Choice

R410A refrigerant is:

- A chlorine-free refrigerant from the HFC group
- Has zero ozone depletion potential
- Thermally efficient and provides high EER (energy efficiency), COP, and part load efficiencies

Superior Reliability, Efficiency and Safety

- Exceptional endurance tests
 - Painted panels tested to ASTM B-117 500 hours salt spray protection
 - Pre-coated fin condenser coil for extra corrosion protection
- Compressor Protection:
 - High and low pressure cutouts
 - Phase protection relay
 - Crankcase heaters are standard for all units
 - Internal over temperature protection
 - Freeze protection
- Low vibration design:
 - Leak-tight refrigerant circuit
 - Brazed refrigerant connections for increased leak tightness
 - Low-noise scroll compressors with low vibration levels
- Control circuit protected by circuit breaker
- Thermally protected and permanently lubricated condenser and evaporator fan motors
- Angle type return air section with washable type filters
- Transformer for safe 24V control circuit supply included
- High Efficiency, High Static Blower
- State-of-art scroll compressor technology
- Dual, electrically and mechanically independent refrigerant circuit
- Double skin construction, insulated cabinet

Shipping Information

Unit data with Condenser and Evaporator Al/Cu Coils¹

Unit Model Number	EST. WT. (KG)		DIMENSIONS (MM)					
			Net			With Wooden create above		
	NET	GROSS (with Skid)	LENGTH	WIDTH	DEPTH	LENGTH	WIDTH	DEPTH
50TCMA07AXX1-0A0A0	275	285	1051	1888	1187	1089	1943	1219
50TCMD08AXX1-0A0A0	345	360	1048	2238	1510	1207	2292	1543
50TCMD09AXX1-0A0A0	388	403	1253	2238	1510	1412	2292	1543
50TCMD12AXX1-0A0A0	393	408	1253	2238	1510	1412	2292	1543
50TCMD14AXX1-0A0A0	489	504	1253	2238	1510	1412	2292	1543

Unit data with Condenser Only Cu/Cu Coils¹

Unit Model Number	EST. WT. (KG)		DIMENSIONS (MM)					
			Net			With Wooden create above		
	NET	GROSS (with Skid)	LENGTH	WIDTH	DEPTH	LENGTH	WIDTH	DEPTH
50TCMA07AXE1-0A0A0	310	320	1051	1888	1187	1089	1943	1219
50TCMD08AXE1-0A0A0	379	394	1048	2238	1510	1207	2292	1543
50TCMD09AXE1-0A0A0	430	445	1253	2238	1510	1412	2292	1543
50TCMD12AXE1-0A0A0	434	449	1253	2238	1510	1412	2292	1543
50TCMD14AXE1-0A0A0	530	545	1253	2238	1510	1412	2292	1543

Unit data with Condenser and Evaporator Cu/Cu Coils¹

Unit Model Number	EST. WT. (KG)		DIMENSIONS (MM)					
			Net			With Wooden create above		
	NET	GROSS (with Skid)	LENGTH	WIDTH	DEPTH	LENGTH	WIDTH	DEPTH
50TCMA07AXF1-0A0A0	331	341	1051	1888	1187	1089	1943	1219
50TCMD08AXF1-0A0A0	398	413	1048	2238	1510	1207	2292	1543
50TCMD09AXF1-0A0A0	461	476	1253	2238	1510	1412	2292	1543
50TCMD12AXF1-0A0A0	465	480	1253	2238	1510	1412	2292	1543
50TCMD14AXF1-0A0A0	561	576	1253	2238	1510	1412	2292	1543

Factory Installed Options and Field Installed Accessories

Category	Item Description	Factory Installed Option	Field Installed Accessory
Coil Options	Cu/Cu indoor and/or outdoor coils	X	
	Pre-coated outdoor coils	X	
Condenser Protection	Condenser coil hail guard (louvered design)		X
Controls	Thermostats, temperature sensors, and subbases		X
	PremierLink DDC communicating controller		X
	RTU Open –protocol controller		X
	Time Guard II compressor delay control circuit		X
	Smoke detector (supply and return)		X
Electric Heat	Electric Resistance Heaters		X
	Single Point Kit		X
Indoor Motor & Drive	Multiple motor and drive packages	X	
Low Ambient Control	Winter start kit ²		X
	Motormaster head pressure control		X

NOTES:

1. Please refer to product nomenclature for ordering information.
2. See application data for assistance.

Factory Options and Accessories

RTU Open, Multi-protocol Controller

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

PremierLink

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 can be factory-installed, or easily field-installed.

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, RTU Open, 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.

Winter Start Kit

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

Alternate Motors and Drives

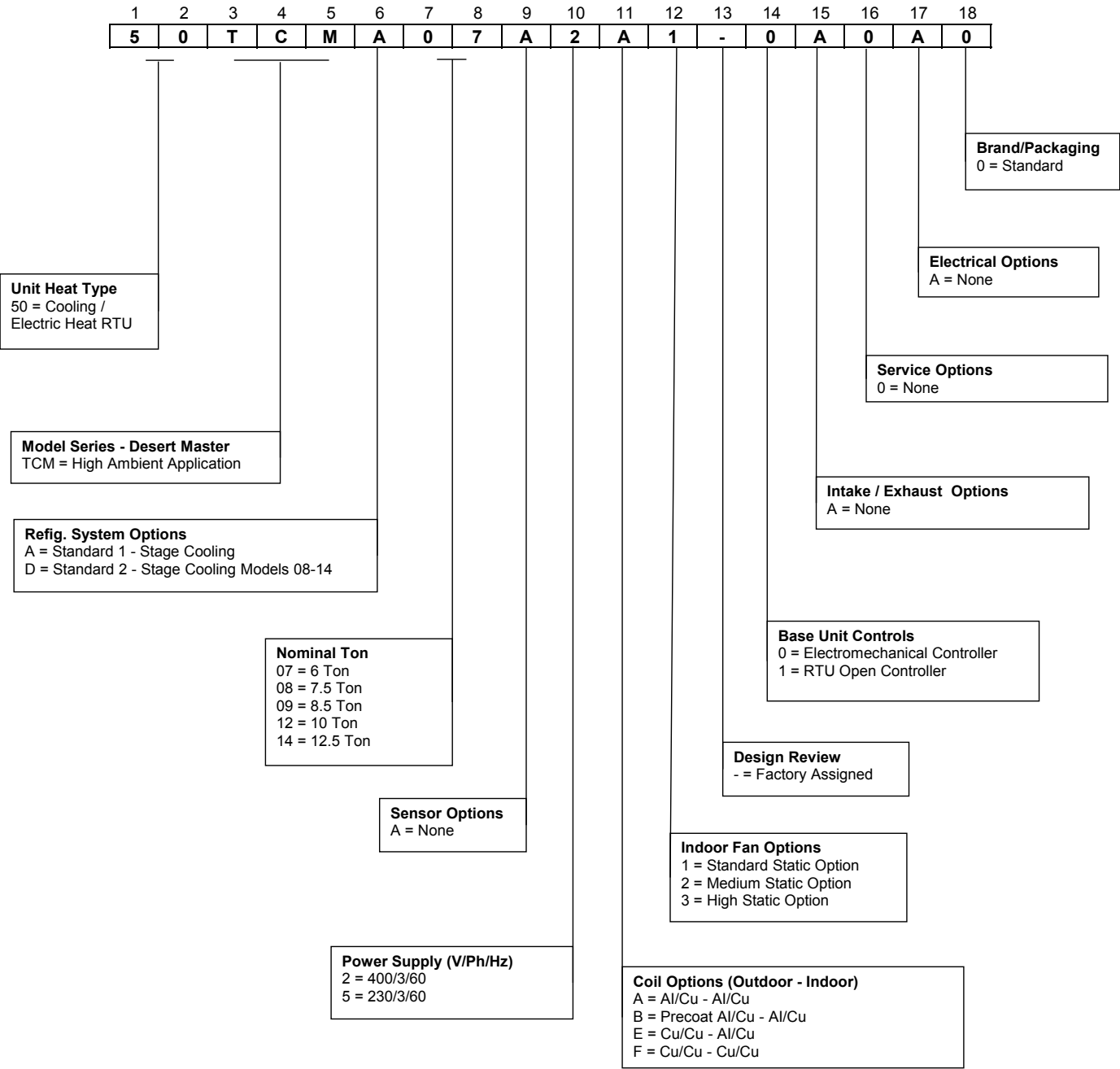
Some applications need larger horsepower motors, some need more airflow, and some need both. Regardless of the case, your Carrier expert has a factory installed combination to meet your application. A wide selection of motors and pulleys (drives) are available, factory installed, to handle nearly any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

Electric Heaters

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



MODEL NUMBER NOMENCLATURE - 50TCM - R410A SERIES



AHRI Capacity Rating

Unit 50TCM	Nominal Ton	Standard CFM	Net Cooling Capacity (BTU/hr)	Net Cooling Capacity (Watt)	Net Cooling Capacity (Ton)	EER	Standard m3/hr	Standard L/s
A07	6.0	2400	71500	20961	6.0	11.2	4075	1133
D08	7.5	3000	92500	27118	7.7	12.1	5094	1416
D09	8.5	3500	108000	31662	9.0	12.2	5943	1652
D12	10.0	4000	126500	37086	10.5	11.6	6792	1888
D14	12.5	4100	155000	45441	12.9	11.0	6962	1935

Minimum - Maximum Air Flow Rate

Unit 50TCM	Minimum	Maximum	Minimum	Maximum
	CFM	CFM	L/s	L/s
A07	1800	3000	849	1416
D08	2250	3750	1062	1770
D09	2550	4250	1203	2006
D12	3000	5000	1416	2360
D14	3700	6000	1746	2831

Minimum Electric Heating Air Flow Rate

Unit 50TCM	Unit Voltage	Heater kW	Unit Configuration	Minimum	Minimum
				CFM	L/s
A07	All	All	Horizontal	1800	849
D08	All	All	Horizontal	2250	1062
D09	All	All	Horizontal	2250	1062
D12	All	All except 42.4 & 50	Horizontal	3000	1416
D14	All	All except 42.4 & 50	Horizontal	3000	1416
D12	230	42.4 & 50	Horizontal	3200	1510
D14	230	42.4 & 50	Horizontal	3200	1510

EER - Energy Efficiency Ratio

CFM - Cubic Feet per Minute

L/s - Liters per Second

BTU - British Thermal Unit

*AHRI - Air Conditioning, Heating and Refrigeration Institute.

1. Rated in accordance with AHRI Standards 340/360.

2. Ratings are net values, reflecting the effects of circulating fan heat.

3. Cooling Standard: 80 F db, 67 wb indoor entering-air temperature and 95 F db air entering outdoor unit.

Unit Physical Data (English)

Unit 50TCM	A07	D08	D09	D12	D14
Unit Dimensions	41.3x74.3x46.7	41.2x88.1x59.4	49.3x88.1x59.4		
Unit Operating weight	606	761	855	866	1078
Refrigeration System					
Compressor No.# / Type	1 / Scroll	2 / Scroll			
Refrigerant type	Puron ® R410A				
Circuts No.#	1	2			
Charge per Circuit (1-Down/2-Up) -LBS 230V	19.84	11.02 / 11.79	11.30 / 13.27	10.91 / 10.91	13.00 / 13.88
Charge per Circuit (1-Down/2-Up) -LBS 400V	17.09	9.92 / 8.60	11.90 / 11.02	10.91 / 10.91	16.53 / 13.88
Metering Device	Acutrol				
Filter Drier Qty	1	2			
High Pressure Switch (Trip/ Reset)- PSIG	630 / 505				
Low Pressure Switch (Trip/ Reset)- PSIG	54 / 117				
Condenser Coil*					
Coil Type	3/8" Helical Grooved Copper Tube, 0.75" Aluminum Lance Sine Wave fins.				
Standard Coil Material	Cu/Al				
Rows / FPI	2 / 17			1 / 20	2 / 20
Face Area (ft ²)	21.3	20.5	25.1		
Coil test Pressure (PSIG)	450				
Condenser Fan & Motor					
Approx. Air Flow Rate (CFM)	4350	7000		10900	10000
Quantity	1	2		1	
Diameter (in) / No. of Blades	26 / 3	22 / 3		30 / 3	
Motor Type	Induction Motor - Totally Enclosed				
Motor HP-RPM	1/3 - 825	1/4 - 1100		1 - 1140	
Evaporator Coil*					
Coil Type	3/8" Helical Grooved Copper Tube, 0.75" Aluminum Lance Sine Wave fins.				
Standard Coil Material	Cu/Al				
Rows / FPI	4 / 15	3 / 15	4 / 15		
Face Area (ft ²)	7.3	8.9	11.1		
Coil test Pressure (PSIG)	350				
Drain Pan connection Size (in)	3/4				
Return Air Filter Qty / Size (in)	4 / 16x16x2	4 / 16x20x2	4 / 20x20x2		
Evaporator Fan					
Fan Qty - Fan Shaft Size (in) - Fan Size (in)	1 - 15.9 - 254 x 254	1 - 25.4 - 381 x 381			
Fan Type	Centrifugal - Forward Blade				
Drive Type	Belt				
Motor Type	Induction Motor - TEFC				
Standard Static Drive					
Motor Qty	1				
Maximum HP (230V/400V)	2.4 / 1.7	1.7 / 1.7		2.4 / 2.5	2.9 / 3.0
FLA (230V/400V)	5.2 / 2.8			5.2 / 4.2	7.5 / 5.0
Efficiency @ Full Load (230V/400V)	80% / 74%			80% / 75%	81% / 75%
RPM Range (230V)	1073 - 1457	489 - 747	518 - 733	591 - 838	652 - 843
RPM Range (400V)	728 - 1035	489 - 747	518 - 733	604 - 819	652 - 843
Motor Shaft Size (230V-400V) (in)	5/8 - 5/8			5/8 - 7/8	7/8 - 7/8
Motor Frame Size(230V/400V)	56Y / 56Y				56Y / 56HZ
Medium Static Drive					
Motor Qty	1				
Maximum HP (230V/400V)	2.9 / 3.0		2.9 / 3.0	3.7 / 4.7	
FLA (230V/400V)	7.5 / 5.0		5.2 / 4.2	10 / 7.5	
Efficiency @ Full Load (230V/400V)	81% / 75%		80% / 75%	81% / 76%	
RPM Range (230V)	1173 - 1518	733 - 949	690 - 936	838 - 1084	
RPM Range (400V)	1073 - 1457	733 - 949	690 - 936	838 - 1084	
Motor Shaft Size (230V-400V) (in)	7/8 - 7/8		5/8 - 7/8	7/8 - 7/8	
Motor Frame Size(230V/400V)	56Y / 56HZ		56Y / 56Y	56Y / 145TY	
High Static Drive					
Motor Qty	1				
Maximum HP (230V/400V)	3.7 / 4.7	4.7 / 4.7	3.7 / 3.0	4.7 / 4.7	
FLA (230V/400V)	10.0 / 7.5	15 / 7.5	10.0 / 5.0	15 / 7.5	
Efficiency @ Full Load (230V/400V)	80% / 76%	81% / 76%	80% / 75%	81% / 76%	
RPM Range (230V)	1474 - 1788	909 - 1102	838 - 1084	1022 - 1240	
RPM Range (400V)	1474 - 1788	909 - 1102	838 - 1084	1013 - 1229	
Motor Shaft Size (230V-400V) (in)	7/8 - 7/8				
Motor Frame Size(230V/400V)	56Y / 145TY	145TY / 145TY	56Y / 56HZ	145TY / 145TY	

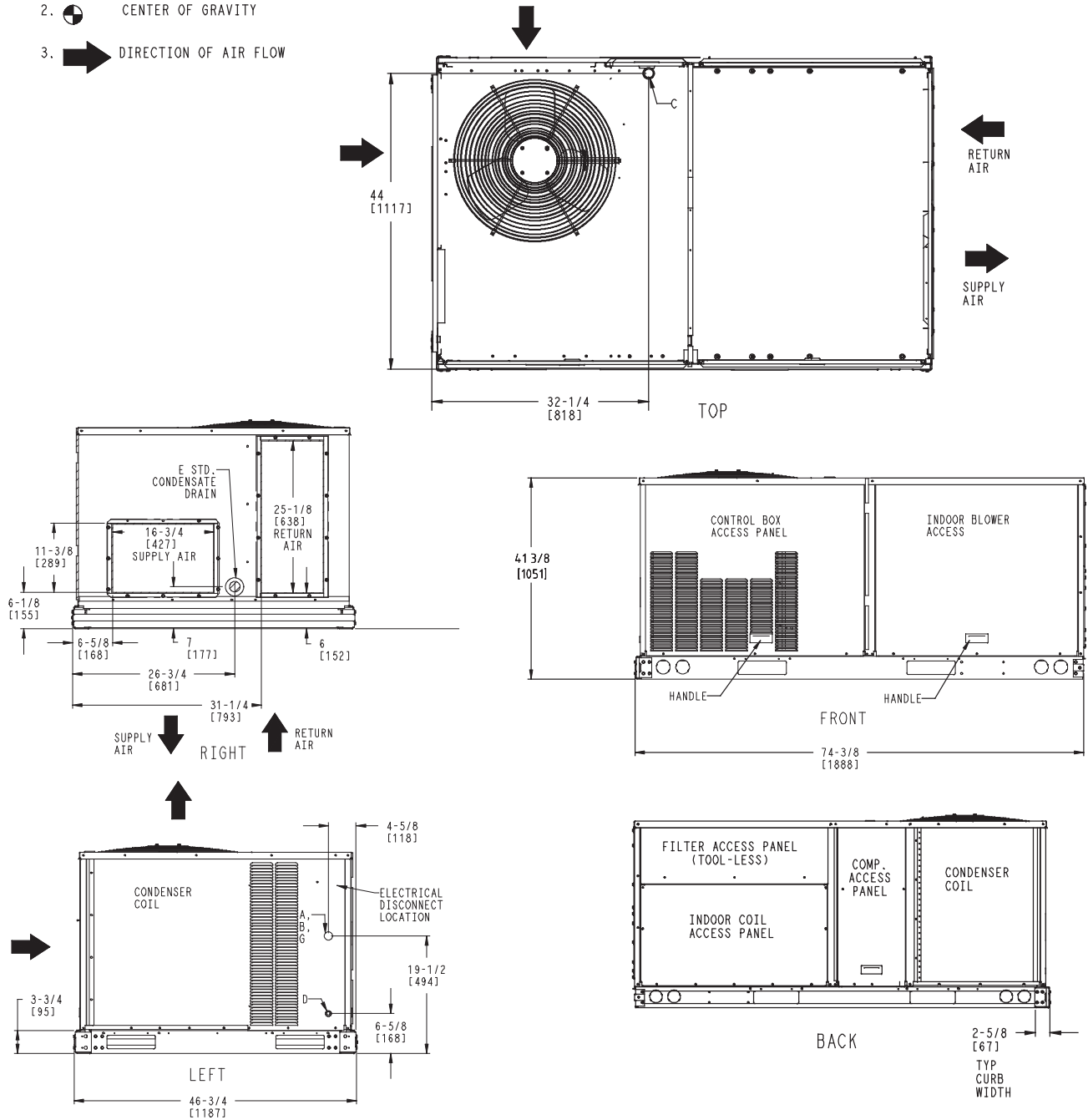
Unit Physical Data (SI)

Unit 50TCM	A07	D08	D09	D12	D14
Unit Dimensions	1051x1888x1187	1048x2238x1510	1253x2238x1510		
Unit Operating weight	275	345	388	393	489
Refrigeration System					
Compressor No.# / Type	1 / Scroll	2 / Scroll			
Refrigerant type	Puron ® R410A				
Circuts No.#	1	2			
Charge per Circuit (1-Down/2-Up) - kG 230V	9.00	5.00 / 5.35	5.13 / 6.02	4.95 / 4.95	5.90 / 6.30
Charge per Circuit (1-Down/2-Up) - kG 400V	7.75	4.50 / 3.90	5.40 / 5.00	4.95 / 4.95	7.50 / 6.30
Metering Device	Acutrol				
Filter Drier Qty	1	2			
High Pressure Switch (Trip/ Reset)- bar	43 / 34				
Low Pressure Switch (Trip/ Reset)- bar	4 / 8				
Condenser Coil*					
Coil Type	3/8" Helical Grooved Copper Tube, 0.75" Aluminum Lance Sine Wave fins.				
Standard Coil Material	Cu/Al				
Rows / FPI	2 / 17			1 / 20	2 / 20
Face Area (m ²)	1.98	1.90	2.33		
Coil test Pressure (bar)	31				
Condenser Fan & Motor					
Approx. Air Flow Rate (m³/hr)	7388	11886		18508.2	16980
Quantity	1	2		1	
Diameter (mm) / No. of Blades	660 / 3	559 / 3		762 / 3	
Motor Type	Induction Motor - Totally Enclosed				
Motor HP- RPS	1/3 - 32	1/4 - 43		1 - 45	
Evaporator Coil*					
Coil Type	3/8" Helical Grooved Copper Tube, 0.75" Aluminum Lance Sine Wave fins.				
Standard Coil Material	Cu/Al				
Rows / FPI	4 / 15	3 / 15	4 / 15		
Face Area (m ²)	0.7	0.8	1.0		
Coil test Pressure (bar)	23.8				
Drain Pan connection Size (mm)	19				
Return Air Filter Qty / Size (in)	4 / 16x16x2	4 / 16x20x2	4 / 20x20x2		
Evaporator Fan					
Fan Qty - Fan Shaft Size (mm) - Fan Size (mm)	1 - 15.9 - 254 x 254	1 - 25.4 - 381 x 381			
Fan Type	Centrifugal - Forward Blade				
Drive Type	Belt				
Motor Type	Induction Motor - TEFC				
Standard Static Drive					
Motor Qty	1				
Maximum kW (230V/400V)	1.8 / 1.3	1.3 / 1.3		1.8 / 1.9	2.2 / 2.2
FLA (230V/400V)	5.2 / 2.8			5.2 / 4.2	7.5 / 5.0
Efficiency @ Full Load (230V/400V)	80% / 74%			80% / 75%	81% / 75%
RPM Range (230V)	17.9 - 24.3	8.2 - 12.5	8.6 - 12.2	9.9 - 14.0	10.9 - 14.1
RPM Range (400V)	12.1 - 17.3	8.2 - 12.5	8.6 - 12.2	10.1 - 13.7	10.9 - 14.1
Motor Shaft Size (230V/400V) (mm)	15.9 / 15.9			15.9 / 22.2	22.2 / 22.2
Motor Frame Size(230V/400V)	56Y / 56Y				56Y / 56HZ
Medium Static Drive					
Motor Qty	1				
Maximum kW (230V/400V)	2.2 / 2.2		1.8 / 1.9	2.8 / 3.5	
FLA (230V/400V)	7.5 / 5.0		5.2 / 4.2	10 / 7.5	
Efficiency @ Full Load (230V/400V)	81% / 75%		80% / 75%	81% / 76%	
RPM Range (230V)	19.6 - 25.3	12.2 - 15.8	11.5 - 15.6	14.0 - 18.1	
RPM Range (400V)	17.9 - 24.3	12.2 - 15.8	11.5 - 15.6	14.0 - 18.1	
Motor Shaft Size (230V/400V) (mm)	22.2 / 22.2		15.9 / 22.2	22.2 / 22.2	
Motor Frame Size(230V/400V)	56Y / 56HZ		56Y / 56Y	56Y / 145TY	
High Static Drive					
Motor Qty	1				
Maximum kW (230V/400V)	2.8 / 3.5	3.5 / 3.5	2.8 / 2.2	3.5 / 3.5	
FLA (230V/400V)	10.0 / 7.5	15 / 7.5	10.0 / 5.0	15 / 7.5	
Efficiency @ Full Load (230V/400V)	80% / 76%	81% / 76%	80% / 75%	81% / 76%	
RPM Range (230V)	24.6 - 29.8	15.2 - 18.4	14.0 - 18.1	17.0 - 20.7	
RPM Range (400V)	24.6 - 29.8	15.2 - 18.4	14.0 - 18.1	16.9 - 20.5	
Motor Shaft Size (230V/400V) (mm)	22.2 / 22.2				
Motor Frame Size(230V/400V)	56Y / 145TY	145TY / 145TY	56Y / 56HZ	145TY / 145TY	

CURBS & WEIGHTS DIMENSIONS - 50TCM07

NOTES:

1. DIMENSIONS ARE IN INCHES, DIMENSIONS IN () ARE IN MILLIMETERS.
2.  CENTER OF GRAVITY
3.  DIRECTION OF AIR FLOW

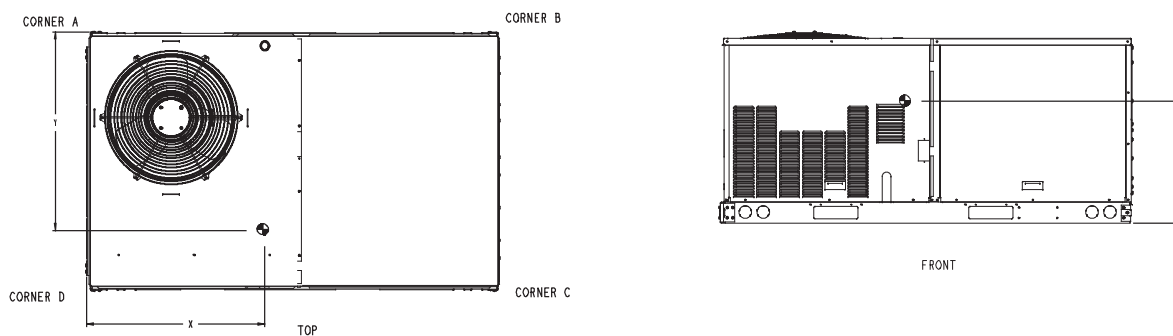


CONNECTION SIZES	
A	1 3/8" DIA [35] FIELD POWER SUPPLY HOLE
B	2" DIA [51] POWER SUPPLY KNOCKOUT
C	1 3/4" DIA [44] GAUGE ACCESS PLUG
D	7/8" DIA [22] FIELD CONTROL WIRING HOLE
E	3/4"-14 NPT CONDENSATE DRAIN
G	2 1/2 " DIA [64] POWER SUPPLY KNOCK-OUT

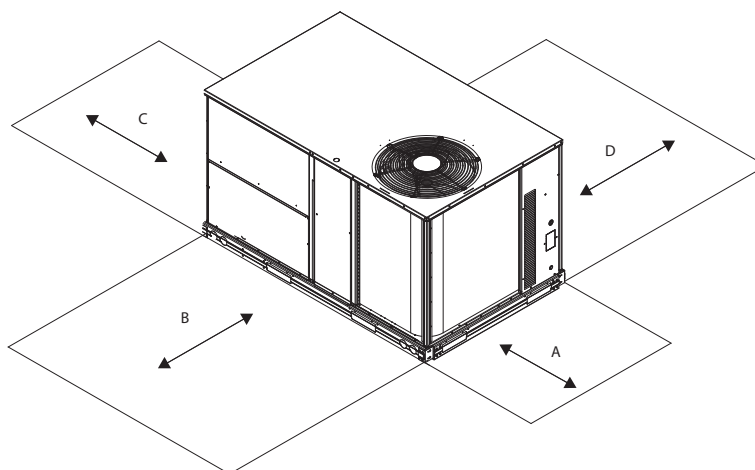
Dimensions 50TCMA07

CURBS & WEIGHTS DIMENSIONS - 50TCM07 (cont.)

UNIT	STD. UNIT WEIGHT		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		HEIGHT
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
50TCMA07	607	275	150	68	160	73	153	69	144	65	38 [965]	22 [559]	20 3/4 [527]



Dimensions 50TCMA07



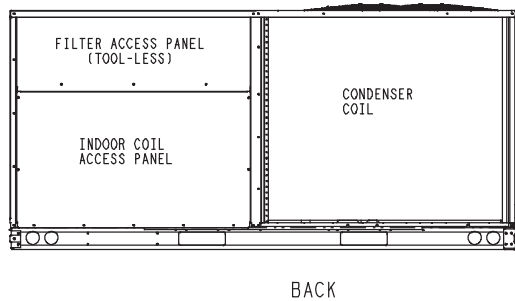
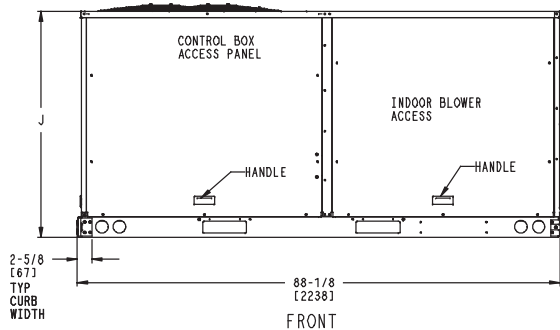
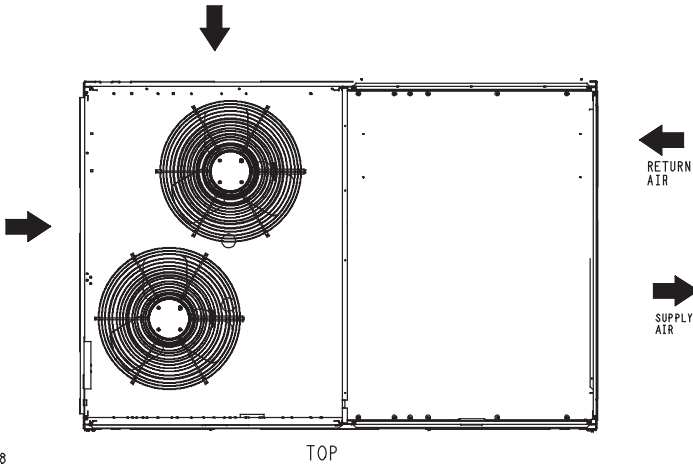
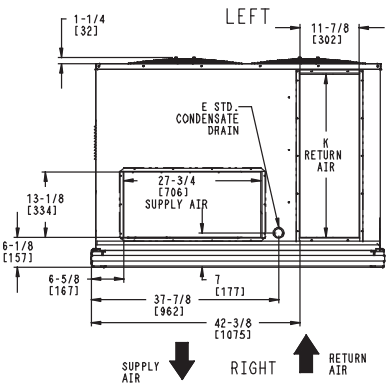
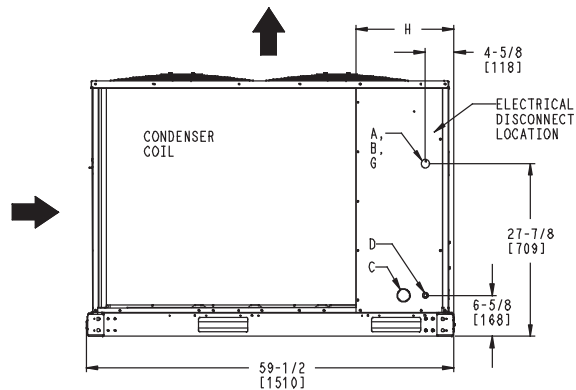
Service Clearance

LOC	DIMENSION	CONDITION
A	48-in (1219 mm)	Unit disconnect is mounted on panel
	18-in (457 mm)	No disconnect, convenience outlet option
	18-in (457 mm)	Recommended service clearance
	12-in (305 mm)	Minimum clearance
B	42-in (1067 mm)	Surface behind servicer is grounded (e.g., metal, masonry wall)
	36-in (914 mm)	Surface behind servicer is electrically non-conductive (e.g., wood, fiberglass)
C	36-in (914 mm)	Side condensate drain is used
	18-in (457 mm)	Minimum clearance
D	42-in (1067 mm)	Surface behind servicer is grounded (e.g., metal, masonry wall, another unit)
	36-in (914 mm)	Surface behind servicer is electrically non-conductive (e.g., wood, fiberglass)

CURBS & WEIGHTS DIMENSIONS - 50TCMD08/09

- NOTES:
- 1. DIMENSIONS ARE IN INCHES, DIMENSIONS IN () ARE IN MILLIMETERS.
 - 2.  CENTER OF GRAVITY
 - 3.  DIRECTION OF AIR FLOW

	CONNECTION SIZES
A	1 3/8" DIA [35] FIELD POWER SUPPLY HOLE
B	2 1/2" [64] DIA POWER SUPPLY KNOCKOUT
C	1 3/4" DIA [51] GAUGE ACCESS PLUG
D	7/8" DIA [22] FIELD CONTROL WIRING HOLE
E	3/4"-14 NPT CONDENSATE DRAIN
G	2 " DIA [51] POWER SUPPLY KNOCK-OUT

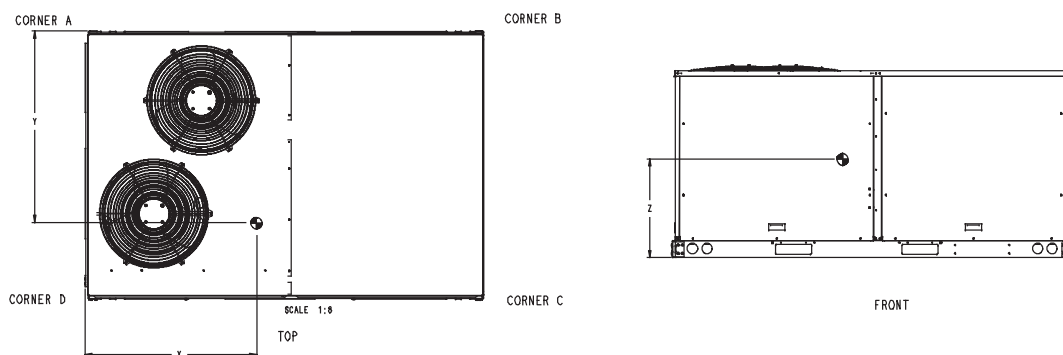


UNIT	OUTDOOR COIL TYPE	J	K	H
50TCMD08	RTPF	41 1/4 [1048]	33 [658]	15 7/8 [403]
50TCMD09	RTPF	49 3/8 [1253]	37 1/4 [946]	15 7/8 [403]
RTPF - ROUND TUBE, PLATE FIN (COPPER/ALUM)				

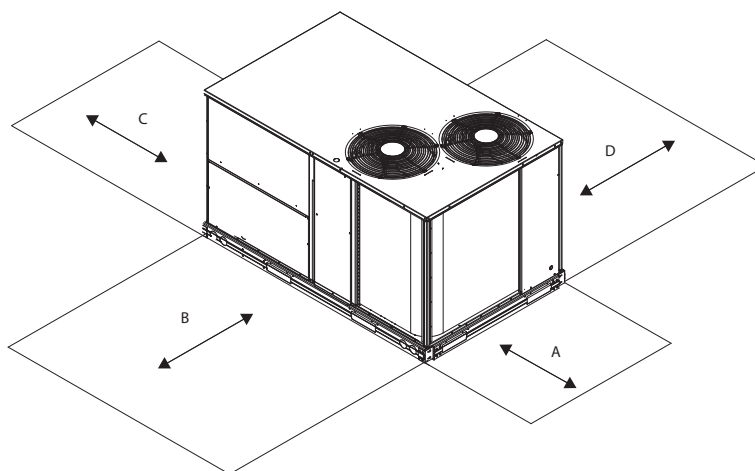
Dimensions 50TCMD08/09

CURBS & WEIGHTS DIMENSIONS - 50TCMD08/09 (cont.)

UNIT	OUTDOOR COIL TYPE	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
50TCMD08	RTPF	760	345	158	71.7	155	70.4	222	100.8	225	102.2	43 3/4 [1111.3]	35 [889]	20 [508]
50TCMD09	RTPF	855	388.2	223	101.2	171	77.6	200	90.8	261	118.5	38 3/8 [975]	32 1/8 [816]	19 1/8 [486]
RTPF - ROUND TUBE, PLATE FIN (COPPER/ALUM)								*** STANDARD UNIT WEIGHT IS WITHOUT ELECTRIC HEAT AND WITHOUT PACKAGING. FOR OTHER OPTIONS AND ACCESSORIES, REFER TO THE PRODUCT DATA CATALOG.						



Dimensions 50TCMD08/09



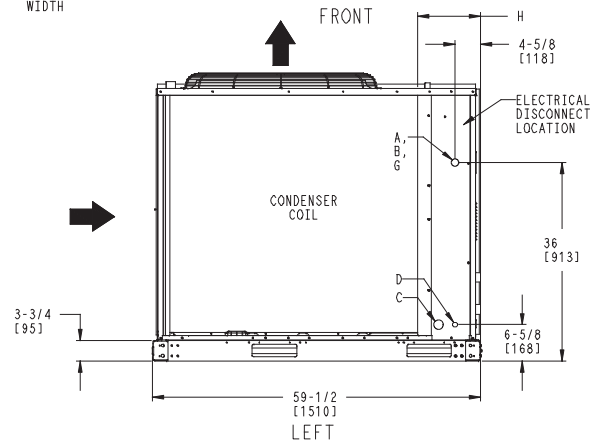
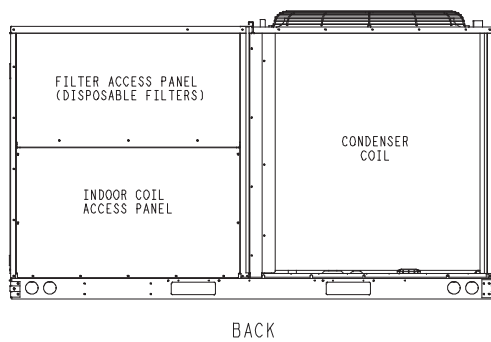
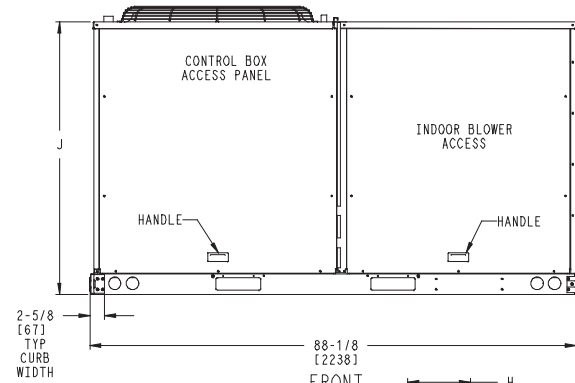
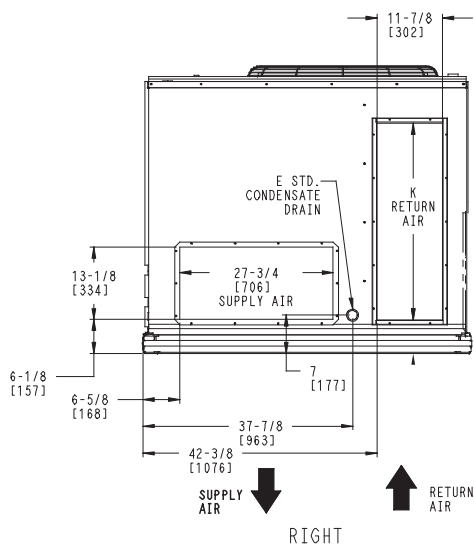
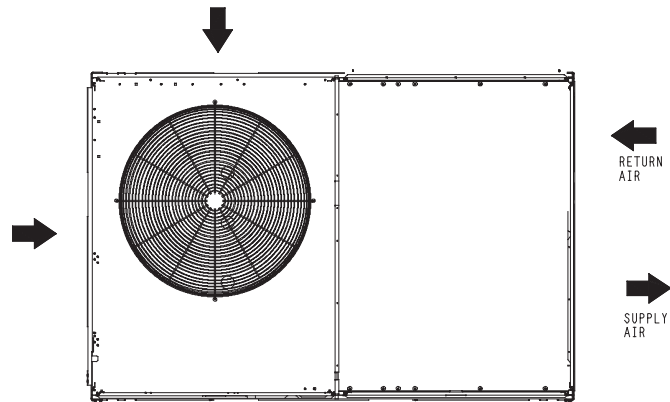
Service Clearance

LOC	DIMENSION	CONDITION
A	48-in (1219 mm)	Unit disconnect is mounted on panel
	36-in (914 mm)	If dimension-B is 12-in (305 mm)
	18-in (457 mm)	No disconnect, convenience outlet option
	18-in (457 mm)	Recommended service clearance (use electric screwdriver)
	12-in (305 mm)	Minimum clearance (use manual ratchet screwdriver)
B	12-in (305 mm) Special	If dimension-A is 36-in (914 mm) Check for sources of flue products within 10-ft of unit fresh air intake hood
C	36-in (914 mm)	Side condensate drain is used
	18-in (457 mm)	Minimum clearance
D	42-in (1067 mm)	Surface behind servicer is grounded (e.g., metal, masonry wall, another unit)
	36-in (914 mm)	Surface behind servicer is electrically non-conductive (e.g., wood, fiberglass)

CURBS & WEIGHTS DIMENSIONS - 50TCMD12/14

NOTES:

1. DIMENSIONS ARE IN INCHES. DIMENSIONS IN () ARE IN MILLIMETERS.
2.  CENTER OF GRAVITY
3.  DIRECTION OF AIR FLOW



CONNECTION SIZES	
A	1 3/8" [35] DIA FIELD POWER SUPPLY HOLE
B	2 1/2" [64] DIA POWER SUPPLY KNOCKOUT
C	1 3/4" [51] DIA GAUGE ACCESS PLUG
D	7/8" [22] DIA FIELD CONTROL WIRING HOLE
E	3/4"-14 NPT CONDENSATE DRAIN
G	2" [51] DIA POWER SUPPLY KNOCK-OUT

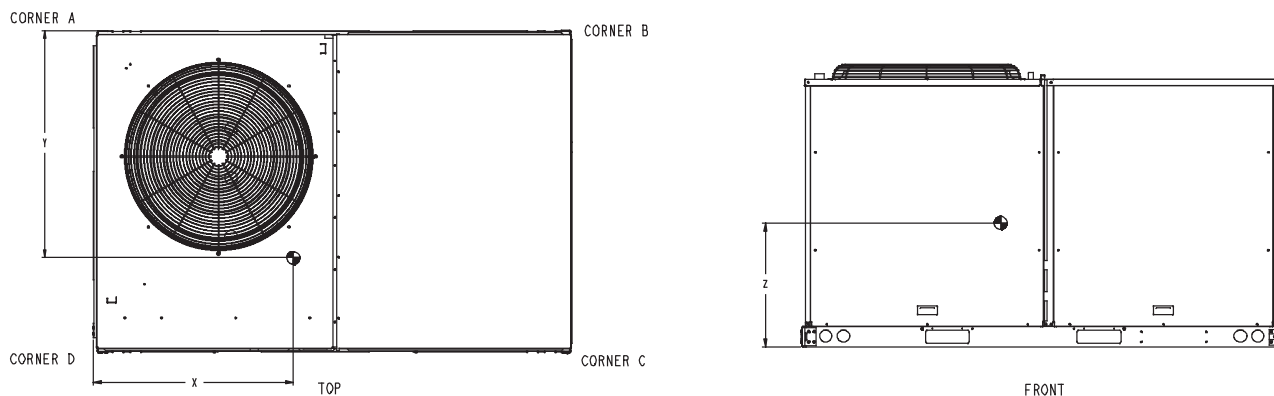
UNIT	H	J	K
50TCMD12	11 3/8 [289]	49 3/8 [1253]	35 5/8 [905]
50TCMD14	11 3/8 [289]	49 3/8 [1253]	35 5/8 [905]

Dimensions 50TCMD12/14

CURBS & WEIGHTS DIMENSIONS - 50TCMD12/14 (cont.)

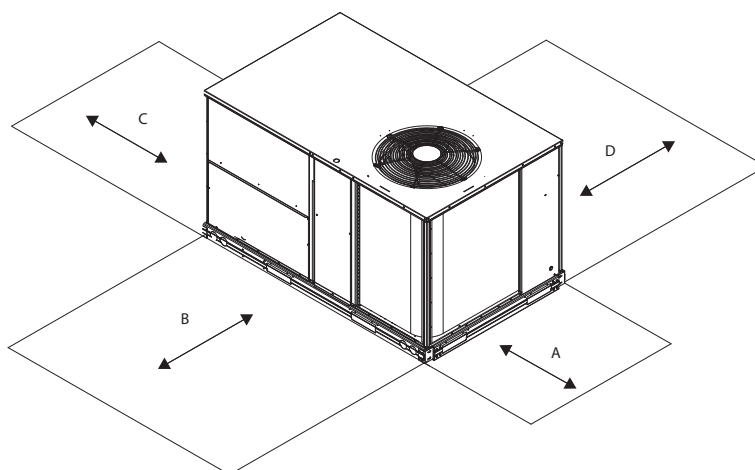
UNIT	STD. UNIT WEIGHT		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		CENTER OF GRAVITY (C.G.)		
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
50TCMD12	1030	467	294	133	146	66	197	89	395	179	28 3/8 (721)	33 1/8(841)	21 3/8 (543)
50TCMD14	1030	467	294	133	146	66	197	89	395	179	28 3/8 (721)	33 1/8(841)	21 3/8 (543)

NOTE: The STD. UNIT WEIGHT in the table above is for the unit equipped with NOVATION coils.
Add 65 lbs (29.5 kg) for units equipped with RTPF coils.



Dimensions 50TCMD12/14

C10329



Service Clearance

C08337

LOC	DIMENSION	CONDITION
A	48-in (1219 mm)	Unit disconnect is mounted on panel
	18-in (457 mm)	No disconnect, convenience outlet option
	18-in (457 mm)	Recommended service clearance
	12-in (305 mm)	Minimum clearance
B	42-in (1067 mm)	Surface behind servicer is grounded (e.g., metal, masonry wall)
	36-in (914 mm)	Surface behind servicer is electrically non-conductive (e.g., wood, fiberglass)
	Special	Check for sources of flue products within 10-ft of unit fresh air intake hood
C	36-in (914 mm)	Side condensate drain is used
	18-in (457 mm)	Minimum clearance
D	42-in (1067 mm)	Surface behind servicer is grounded (e.g., metal, masonry wall, another unit)
	36-in (914 mm)	Surface behind servicer is electrically non-conductive (e.g., wood, fiberglass)

Cooling Capacities

50TCM - A07 - 6 Tons (230V/400V)																
Temp (F) Air Entering Condenser (Edb)		Evaporator Air - CFM/BPF														
		1800 / 0.066			2100 / 0.089			2400 / 0.112			2700 / 0.142			3000 / 0.167		
		Evaporator Air - EWB (F)														
		62	67	72	62	67	72	62	67	72	62	67	72	62	67	72
75	TC	73,436	80,152	87,140	75,864	82,185	89,426	77,642	83,689	91,032	80,618	85,240	92,706	82,799	86,524	93,952
	SHC	62,983	53,004	43,090	68,570	56,734	45,486	72,882	59,934	47,486	76,648	63,961	49,966	79,105	67,693	52,102
	kW	3.78	3.86	3.95	3.81	3.89	3.99	3.83	3.91	4.01	3.88	3.94	4.03	3.91	3.95	4.05
85	TC	67,658	76,277	83,245	70,341	78,293	85,376	72,913	79,663	86,832	76,803	81,181	88,359	78,733	82,295	89,442
	SHC	60,225	51,395	41,622	65,826	55,172	44,003	70,125	58,337	45,987	73,879	62,398	48,443	76,480	66,032	50,544
	kW	4.27	4.42	4.53	4.31	4.45	4.56	4.35	4.48	4.58	4.43	4.50	4.61	4.47	4.52	4.63
95	TC	64,161	71,117	80,460	66,830	73,392	82,567	69,659	75,024	84,007	72,499	77,132	85,461	74,987	79,202	86,458
	SHC	58,022	48,656	39,973	63,058	52,625	42,391	65,711	55,939	44,380	69,017	60,417	46,825	71,384	64,225	48,904
	kW	4.84	4.94	5.14	4.88	4.98	5.18	4.93	5.02	5.20	4.97	5.06	5.23	5.02	5.13	5.25
105	TC	59,145	65,511	73,196	62,310	67,385	75,467	64,832	68,907	77,042	67,552	70,287	78,744	69,635	71,356	80,071
	SHC	55,526	46,404	37,361	59,317	50,262	39,884	61,718	53,750	41,942	64,307	57,709	44,494	66,290	61,011	46,703
	kW	5.45	5.56	5.69	5.51	5.59	5.74	5.55	5.62	5.78	5.60	5.65	5.82	5.64	5.67	5.86
115	TC	54,541	59,617	66,842	57,663	61,467	68,696	59,955	62,596	69,986	62,448	63,941	71,426	64,315	65,064	72,399
	SHC	54,776	46,488	37,023	57,912	50,741	39,557	60,214	54,059	41,653	62,718	58,198	44,273	64,593	61,692	46,483
	kW	6.15	6.24	6.38	6.21	6.28	6.42	6.25	6.30	6.44	6.30	6.33	6.48	6.34	6.36	6.50
120	TC	51,238	55,438	62,385	54,159	57,088	64,128	56,311	58,252	65,304	58,626	59,552	66,450	60,355	60,612	67,232
	SHC	51,464	44,314	35,114	54,399	48,443	37,586	56,560	51,690	39,611	58,885	55,805	42,079	60,622	58,718	44,161
	kW	6.43	6.52	6.65	6.49	6.55	6.69	6.54	6.58	6.72	6.59	6.60	6.74	6.62	6.63	6.76
125	TC	47,004	50,407	56,766	49,673	51,775	58,326	51,591	52,820	59,365	53,295	54,123	60,388	54,296	55,162	61,233
	SHC	47,212	41,472	32,529	49,892	45,180	34,862	51,820	48,279	36,777	53,531	52,005	39,102	54,536	54,742	41,155
	kW	6.86	6.93	7.07	6.92	6.96	7.10	6.96	6.99	7.13	7.01	7.02	7.15	7.05	7.04	7.18

50TCM - A07 - 6 Tons (230V/400V)																
Temp (C) Air Entering Condenser (Edb)		Evaporator Air - (L/s)/BPF														
		850 / 0.066			991 / 0.089			1133 / 0.112			1274 / 0.142			1416 / 0.167		
		Evaporator Air - EWB (C)														
		17	19	22	17	19	22	17	19	22	17	19	22	17	19	22
24	TC	21.5	23.5	25.5	22.2	24.1	26.2	22.8	24.5	26.7	23.6	25.0	27.2	24.3	25.4	27.5
	SHC	18.5	15.5	12.6	20.1	16.6	13.3	21.4	17.6	13.9	22.5	18.7	14.6	23.2	19.8	15.3
	kW	3.78	3.86	3.95	3.81	3.89	3.99	3.83	3.91	4.01	3.88	3.94	4.03	3.91	3.95	4.05
29	TC	19.8	22.4	24.4	20.6	22.9	25.0	21.4	23.3	25.4	22.5	23.8	25.9	23.1	24.1	26.2
	SHC	17.7	15.1	12.2	19.3	16.2	12.9	20.6	17.1	13.5	21.7	18.3	14.2	22.4	19.4	14.8
	kW	4.27	4.42	4.53	4.31	4.45	4.56	4.35	4.48	4.58	4.43	4.50	4.61	4.47	4.52	4.63
35	TC	18.8	20.8	23.6	19.6	21.5	24.2	20.4	22.0	24.6	21.2	22.6	25.0	22.0	23.2	25.3
	SHC	17.0	14.3	11.7	18.5	15.4	12.4	19.3	16.4	13.0	20.2	17.7	13.7	20.9	18.8	14.3
	kW	4.84	4.94	5.14	4.88	4.98	5.18	4.93	5.02	5.20	4.97	5.06	5.23	5.02	5.13	5.25
40.6	TC	17.3	19.2	21.5	18.3	19.7	22.1	19.0	20.2	22.6	19.8	20.6	23.1	20.4	20.9	23.5
	SHC	16.3	13.6	10.9	17.4	14.7	11.7	18.1	15.8	12.3	18.8	16.9	13.0	19.4	17.9	13.7
	kW	5.45	5.56	5.69	5.51	5.59	5.74	5.55	5.62	5.78	5.60	5.65	5.82	5.64	5.67	5.86
46	TC	16.0	17.5	19.6	16.9	18.0	20.1	17.6	18.3	20.5	18.3	18.7	20.9	18.8	19.1	21.2
	SHC	16.1	13.6	10.9	17.0	14.9	11.6	17.6	15.8	12.2	18.4	17.1	13.0	18.9	18.1	13.6
	kW	6.15	6.24	6.38	6.21	6.28	6.42	6.25	6.30	6.44	6.30	6.33	6.48	6.34	6.36	6.50
49	TC	15.0	16.2	18.3	15.9	16.7	18.8	16.5	17.1	19.1	17.2	17.5	19.5	17.7	17.8	19.7
	SHC	15.1	13.0	10.3	15.9	14.2	11.0	16.6	15.1	11.6	17.3	16.4	12.3	17.8	17.2	12.9
	kW	6.43	6.52	6.65	6.49	6.55	6.69	6.54	6.58	6.72	6.59	6.60	6.74	6.62	6.63	6.76
52	TC	13.8	14.8	16.6	14.6	15.2	17.1	15.1	15.5	17.4	15.6	15.9	17.7	15.9	16.2	17.9
	SHC	13.8	12.2	9.5	14.6	13.2	10.2	15.2	14.1	10.8	15.7	15.2	11.5	16.0	16.0	12.1
	kW	6.86	6.93	7.07	6.92	6.96	7.10	6.96	6.99	7.13	7.01	7.02	7.15	7.05	7.04	7.18

LEGEND
BPF — Bypass Factor
Edb — Entering Dry-Bulb
Ewb — Entering Wet-Bulb
SHC — Sensible Heat Capacity (1000 Btuh) Gross
Bold, Italics - Standard Ratings

Ldb — Leaving Dry-Bulb
Lwb — Leaving Wet-Bulb
TC — Total Capacity (1000 Btuh) Gross
kW — Compressor Motor Power Input

Notes:

1. Direct interpolation is permissible. Do not extrapolate.

2. The following formulas may be used.

tidb = tedb — sensible capacity (Btuh)

1.10 x cfm

tiwb = Wet-bulb temprature corresponding to enthalphy of air leaving evaporater coil (hlwb).

hlwb = hewb — total capacity (Btuh)

4.5 x cfm

Where: hewb = Enthalpy of air entering evaporator coil.

3. The SHC is based on 80 F edb temprature of air entering evaporator coil.

- Below 80 F edb, subtract (corr factor x cfm) from SHC.

- Above 80 F edb, add (corr factor x cfm) to SHC.

BF	ENTERING AIR DRY-BULB TEMP (F)					
	79	78	77	76	75	under 75
	81	82	83	84	85	over 85
Correction Factor						
0.05	1.04	2.07	3.11	4.14	5.18	Use formula shown below.*
0.10	0.98	1.96	2.94	3.92	4.90	
0.20	0.87	1.74	2.62	3.49	4.36	
0.30	0.76	1.53	2.29	3.05	3.82	

- Interpolation is permissible.

*Correction Factor = 1.10 x (1 - BF) x (edb - 80).

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Cooling Capacities (Continued)

50TCM - D08 - 7.5 Tons (230V/400V)																
Temp (F) Air Entering Condenser (Edb)		Evaporator Air - CFM/BPF														
		2250 / 0.074			2625 / 0.093			3000 / 0.117			3375 / 0.144			3750 / 0.173		
		Evaporator Air - EWB (F)														
		62	67	72	62	67	72	62	67	72	62	67	72	62	67	72
75	TC	91,678	99,721	107,544	93,488	101,531	109,045	94,807	102,556	109,708	95,815	102,875	109,851	98,274	103,888	110,759
	SHC	75,057	62,676	50,327	80,406	66,513	52,128	85,072	69,930	53,497	88,196	72,871	54,501	90,122	76,491	56,351
	kW	4.43	4.44	4.47	4.43	4.44	4.48	4.44	4.45	4.50	4.44	4.46	4.51	4.44	4.47	4.52
85	TC	87,335	95,447	103,784	89,296	97,228	105,229	90,630	98,237	105,923	91,882	98,556	106,059	94,322	99,567	106,860
	SHC	71,448	59,597	47,901	76,780	63,474	49,784	80,932	66,933	51,264	83,832	69,954	52,400	85,427	73,769	54,282
	kW	5.06	5.10	5.14	5.09	5.11	5.16	5.10	5.12	5.17	5.10	5.13	5.19	5.11	5.14	5.20
95	TC	85,235	93,572	102,305	87,137	95,290	103,796	89,007	96,200	104,499	90,650	96,494	104,583	92,732	97,451	105,397
	SHC	74,681	62,261	49,911	80,380	66,470	52,083	83,867	70,247	53,799	86,052	73,622	55,132	88,696	77,837	57,320
	kW	5.79	5.86	5.90	5.83	5.87	5.92	5.85	5.88	5.94	5.85	5.89	5.95	5.87	5.90	5.96
105	TC	76,889	84,901	93,226	78,959	86,336	94,603	81,070	87,122	95,211	82,562	87,265	95,227	84,639	88,122	95,946
	SHC	67,145	55,987	44,627	72,116	59,872	46,726	74,894	63,438	48,432	76,402	66,654	49,765	78,324	70,409	51,857
	kW	6.38	6.49	6.54	6.43	6.50	6.56	6.48	6.52	6.58	6.50	6.53	6.59	6.51	6.53	6.60
115	TC	65,832	73,198	80,842	68,531	74,405	82,028	70,462	74,930	82,509	71,755	75,055	82,702	73,574	75,870	83,022
	SHC	66,038	55,125	43,685	69,869	59,125	45,845	72,268	62,747	47,635	73,594	65,962	49,046	75,460	69,698	51,237
	kW	7.10	7.27	7.33	7.20	7.29	7.35	7.26	7.30	7.36	7.28	7.31	7.37	7.30	7.32	7.38
120	TC	63,140	70,275	77,909	65,949	71,425	79,035	68,000	71,931	79,449	69,266	72,023	79,624	71,018	72,803	79,914
	SHC	63,893	53,844	42,539	67,641	57,852	44,711	69,744	61,536	46,485	71,043	64,622	47,912	72,840	68,343	50,120
	kW	7.75	7.97	8.03	7.88	7.99	8.05	7.96	8.00	8.07	7.99	8.01	8.08	8.01	8.02	8.09
125	TC	60,388	67,263	74,973	63,380	68,382	76,002	65,483	68,887	76,377	66,711	68,959	76,617	68,436	69,611	76,760
	SHC	61,596	52,561	41,381	64,960	56,619	43,547	67,116	60,188	45,349	68,375	63,232	46,789	70,143	66,805	48,991
	kW	7.94	8.19	8.28	8.09	8.23	8.30	8.19	8.25	8.32	8.24	8.26	8.33	8.26	8.27	8.34

50TCM - D08 - 7.5 Tons (230V/400V)																
Temp (C) Air Entering Condenser (Edb)		Evaporator Air - (L/s)/BPF														
		1062 / 0.074			1239 / 0.093			1416 / 0.117			1593 / 0.144			1770 / 0.173		
		Evaporator Air - EWB (C)														
		17	19	22	17	19	22	17	19	22	17	19	22	17	19	22
24	TC	26.9	29.2	31.5	27.4	29.8	32.0	27.8	30.1	32.2	28.1	30.2	32.2	28.8	30.4	32.5
	SHC	22.0	18.4	14.8	23.6	19.5	15.3	24.9	20.5	15.7	25.8	21.4	16.0	26.4	22.4	16.5
	kW	4.43	4.44	4.47	4.43	4.44	4.48	4.44	4.45	4.50	4.44	4.46	4.51	4.44	4.47	4.52
29	TC	25.6	28.0	30.4	26.2	28.5	30.8	26.6	28.8	31.0	26.9	28.9	31.1	27.6	29.2	31.3
	SHC	20.9	17.5	14.0	22.5	18.6	14.6	23.7	19.6	15.0	24.6	20.5	15.4	25.0	21.6	15.9
	kW	5.06	5.10	5.14	5.09	5.11	5.16	5.10	5.12	5.17	5.10	5.13	5.19	5.11	5.14	5.20
35	TC	25.0	27.4	30.0	25.5	27.9	30.4	26.1	28.2	30.6	26.6	28.3	30.7	27.2	28.6	30.9
	SHC	21.9	18.2	14.6	23.6	19.5	15.3	24.6	20.6	15.8	25.2	21.6	16.2	26.0	22.8	16.8
	kW	5.79	5.86	5.90	5.83	5.87	5.92	5.85	5.88	5.94	5.85	5.89	5.95	5.87	5.90	5.96
40.6	TC	22.5	24.9	27.3	23.1	25.3	27.7	23.8	25.5	27.9	24.2	25.6	27.9	24.8	25.8	28.1
	SHC	19.7	16.4	13.1	21.1	17.5	13.7	22.0	18.6	14.2	22.4	19.5	14.6	23.0	20.6	15.2
	kW	6.38	6.49	6.54	6.43	6.50	6.56	6.48	6.52	6.58	6.50	6.53	6.59	6.51	6.53	6.60
46	TC	19.3	21.5	23.7	20.1	21.8	24.0	20.7	22.0	24.2	21.0	22.0	24.2	21.6	22.2	24.3
	SHC	19.4	16.2	12.8	20.5	17.3	13.4	21.2	18.4	14.0	21.6	19.3	14.4	22.1	20.4	15.0
	kW	7.10	7.27	7.33	7.20	7.29	7.35	7.26	7.30	7.36	7.28	7.31	7.37	7.30	7.32	7.38
49	TC	18.5	20.6	22.8	19.3	20.9	23.2	19.9	21.1	23.3	20.3	21.1	23.3	20.8	21.3	23.4
	SHC	18.7	15.8	12.5	19.8	17.0	13.1	20.4	18.0	13.6	20.8	18.9	14.0	21.3	20.0	14.7
	kW	7.75	7.97	8.03	7.88	7.99	8.05	7.96	8.00	8.07	7.99	8.01	8.08	8.01	8.02	8.09
52	TC	17.7	19.7	22.0	18.6	20.0	22.3	19.2	20.2	22.4	19.6	20.2	22.5	20.1	20.4	22.5
	SHC	18.1	15.4	12.1	19.0	16.6	12.8	19.7	17.6	13.3	20.0	18.5	13.7	20.6	19.6	14.4
	kW	7.94	8.19	8.28	8.09	8.23	8.30	8.19	8.25	8.32	8.24	8.26	8.33	8.26	8.27	8.34

LEGEND
BPF — Bypass Factor
Edb — Entering Dry-Bulb
Ewb — Entering Wet-Bulb
SHC — Sensible Heat Capacity (1000 Btuh) Gross
Bold, Italics - Standard Ratings

Ldb — Leaving Dry-Bulb
Lwb — Leaving Wet-Bulb
TC — Total Capacity (1000 Btuh) Gross
kW — Compressor Motor Power Input

Notes:

1. Direct interpolation is permissible. Do not extrapolate.

2. The following formulas may be used.

tidb = tedb — sensible capacity (Btuh)

1.10 x cfm

tiwb = Wet-bulb temprature corresponding to enthalphy of air leaving evaporater coil (hlwb).

hlwb = hewb — total capacity (Btuh)

4.5 x cfm

Where: hewb = Enthalpy of air entering evaporator coil.

3. The SHC is based on 80 F edb temprature of air entering evaporator coil.

- Below 80 F edb, subtract (corr factor x cfm) from SHC.

- Above 80 F edb, add (corr factor x cfm) to SHC.

BF	ENTERING AIR DRY-BULB TEMP (F)					
	79	78	77	76	75	under 75
	81	82	83	84	85	over 85
Correction Factor						
0.05	1.04	2.07	3.11	4.14	5.18	Use formula shown below.*
0.10	0.98	1.96	2.94	3.92	4.90	
0.20	0.87	1.74	2.62	3.49	4.36	
0.30	0.76	1.53	2.29	3.05	3.82	

- Interpolation is permissible.

*Correction Factor = 1.10 x (1 - BF) x (edb - 80).

4. Cooling capacities are gross and do not include deductions for indoor fan motor heat.

5. Variable Air Volume units will operate down to 70 cfm/ton. Performance at 70 cfm/ton is limited to unloaded operation and may be additionally limited to edb and ewb conditions.

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Cooling Capacities (Continued)

50TCM - D09 - 8.5 Tons (230V/400V)																
Temp (F) Air Entering Condenser (Edb)		Evaporator Air - CFM/BPF														
		2550 / 0.022			2975 / 0.036			3500 / 0.045			3825 / 0.113			4250 / 0.154		
		Evaporator Air - EWB (F)														
		62	67	72	62	67	72	62	67	72	62	67	72	62	67	72
75	TC	107,731	117,058	126,956	110,890	120,294	130,273	114,222	123,374	132,919	116,431	124,907	134,200	119,389	126,535	135,613
	SHC	97,679	82,191	66,908	105,939	88,273	70,647	114,952	95,566	74,640	118,998	100,007	77,008	122,749	105,521	80,005
	kW	5.24	5.26	5.30	5.26	5.27	5.33	5.25	5.28	5.37	5.26	5.29	5.38	5.27	5.30	5.40
85	TC	102,548	112,233	122,277	105,908	115,296	125,628	109,602	118,176	128,283	111,923	119,676	129,542	114,925	121,164	130,958
	SHC	95,141	80,116	65,105	103,590	86,279	69,017	111,756	93,604	73,314	114,798	98,104	75,795	118,353	103,678	78,940
	kW	5.96	6.03	6.08	6.01	6.04	6.10	6.03	6.06	6.14	6.04	6.06	6.16	6.05	6.08	6.18
95	TC	96,398	106,782	116,796	100,139	109,715	119,918	104,776	112,422	122,690	107,185	113,745	123,931	110,143	115,236	125,172
	SHC	92,125	77,769	62,935	100,603	84,010	66,835	107,987	91,458	71,361	110,271	95,931	73,985	113,543	101,459	77,247
	kW	6.71	6.87	6.92	6.80	6.88	6.95	6.85	6.90	6.98	6.87	6.91	6.99	6.89	6.92	7.02
105	TC	88,622	99,996	110,656	93,052	103,193	113,565	98,756	105,865	116,154	101,685	107,155	117,405	104,680	108,549	118,663
	SHC	87,763	74,915	60,569	95,797	81,362	64,464	101,906	88,889	69,039	104,823	93,383	71,748	108,127	98,939	75,142
	kW	7.30	7.57	7.68	7.40	7.63	7.70	7.55	7.65	7.73	7.62	7.66	7.75	7.64	7.67	7.76
115	TC	79,458	89,348	101,141	84,412	92,386	103,927	89,753	95,351	106,484	92,597	96,742	107,664	95,937	98,300	108,921
	SHC	82,717	71,179	57,746	89,149	77,759	61,735	94,601	85,557	66,407	97,599	90,054	69,182	101,220	95,805	72,710
	kW	8.11	8.35	8.61	8.23	8.43	8.64	8.37	8.53	8.66	8.45	8.57	8.67	8.54	8.60	8.69
120	TC	77,501	86,725	99,071	82,700	89,720	101,851	88,036	92,523	104,318	90,804	93,995	105,507	94,024	95,650	106,816
	SHC	80,214	69,307	56,180	85,594	75,917	60,218	91,026	83,615	64,914	93,973	88,171	67,722	97,315	93,861	71,328
	kW	8.58	8.80	9.13	8.71	8.89	9.16	8.85	8.97	9.18	8.93	9.02	9.19	9.03	9.07	9.20
125	TC	74,133	82,172	94,687	79,198	85,013	97,464	84,372	87,781	99,822	87,080	89,183	100,968	90,196	91,145	102,183
	SHC	76,728	67,438	54,510	81,970	74,000	58,615	87,325	81,705	63,336	90,128	86,178	66,172	93,353	91,283	69,782
	kW	9.06	9.27	9.63	9.19	9.35	9.69	9.34	9.44	9.71	9.42	9.48	9.72	9.52	9.55	9.73

50TCM - D09 - 8.5 Tons (230V/400V)																
Temp (C) Air Entering Condenser (Edb)		Evaporator Air - (L/s)/BPF														
		1203 / 0.022			1404 / 0.036			1652 / 0.045			1805 / 0.113			2006 / 0.154		
		Evaporator Air - EWB (C)														
		17	19	22	17	19	22	17	19	22	17	19	22	17	19	22
24	TC	31.6	34.3	37.2	32.5	35.3	38.2	33.5	36.2	39.0	34.1	36.6	39.3	35.0	37.1	39.7
	SHC	28.6	24.1	19.6	31.0	25.9	20.7	33.7	28.0	21.9	34.9	29.3	22.6	36.0	30.9	23.4
	kW	5.24	5.26	5.30	5.26	5.27	5.33	5.25	5.28	5.37	5.26	5.29	5.38	5.27	5.30	5.40
29	TC	30.1	32.9	35.8	31.0	33.8	36.8	32.1	34.6	37.6	32.8	35.1	38.0	33.7	35.5	38.4
	SHC	27.9	23.5	19.1	30.4	25.3	20.2	32.8	27.4	21.5	33.6	28.8	22.2	34.7	30.4	23.1
	kW	5.96	6.03	6.08	6.01	6.04	6.10	6.03	6.06	6.14	6.04	6.06	6.16	6.05	6.08	6.18
35	TC	28.3	31.3	34.2	29.3	32.2	35.1	30.7	32.9	36.0	31.4	33.3	36.3	32.3	33.8	36.7
	SHC	27.0	22.8	18.4	29.5	24.6	19.6	31.6	26.8	20.9	32.3	28.1	21.7	33.3	29.7	22.6
	kW	6.71	6.87	6.92	6.80	6.88	6.95	6.85	6.90	6.98	6.87	6.91	6.99	6.89	6.92	7.02
40.6	TC	26.0	29.3	32.4	27.3	30.2	33.3	28.9	31.0	34.0	29.8	31.4	34.4	30.7	31.8	34.8
	SHC	25.7	22.0	17.8	28.1	23.8	18.9	29.9	26.1	20.2	30.7	27.4	21.0	31.7	29.0	22.0
	kW	7.30	7.57	7.68	7.40	7.63	7.70	7.55	7.65	7.73	7.62	7.66	7.75	7.64	7.67	7.76
46	TC	23.3	26.2	29.6	24.7	27.1	30.5	26.3	27.9	31.2	27.1	28.4	31.6	28.1	28.8	31.9
	SHC	24.2	20.9	16.9	26.1	22.8	18.1	27.7	25.1	19.5	28.6	26.4	20.3	29.7	28.1	21.3
	kW	8.11	8.35	8.61	8.23	8.43	8.64	8.37	8.53	8.66	8.45	8.57	8.67	8.54	8.60	8.69
49	TC	22.7	25.4	29.0	24.2	26.3	29.9	25.8	27.1	30.6	26.6	27.5	30.9	27.6	28.0	31.3
	SHC	23.5	20.3	16.5	25.1	22.3	17.6	26.7	24.5	19.0	27.5	25.8	19.8	28.5	27.5	20.9
	kW	8.58	8.80	9.13	8.71	8.89	9.16	8.85	8.97	9.18	8.93	9.02	9.19	9.03	9.07	9.20
52	TC	21.7	24.1	27.8	23.2	24.9	28.6	24.7	25.7	29.3	25.5	26.1	29.6	26.4	26.7	29.9
	SHC	22.5	19.8	16.0	24.0	21.7	17.2	25.6	23.9	18.6	26.4	25.3	19.4	27.4	26.8	20.5
	kW	9.06	9.27	9.63	9.19	9.35	9.69	9.34	9.44	9.71	9.42	9.48	9.72	9.52	9.55	9.73

LEGEND
BPF — Bypass Factor
Edb — Entering Dry-Bulb
Ewb — Entering Wet-Bulb
SHC — Sensible Heat Capacity (1000 Btuh) Gross
Bold, Italics - Standard Ratings

Ldb — Leaving Dry-Bulb
Lwb — Leaving Wet-Bulb
TC — Total Capacity (1000 Btuh) Gross
kW — Compressor Motor Power Input

Notes:

1. Direct interpolation is permissible. Do not extrapolate.

2. The following formulas may be used.

tidb = tedb — sensible capacity (Btuh)

1.10 x cfm

tiwb = Wet-bulb temprature corresponding to enthalphy of air leaving evaporater coil (hlwb).

hlwb = hewb — total capacity (Btuh)

4.5 x cfm

Where: hewb = Enthalpy of air entering evaporator coil.

4. Cooling capacities are gross and do not include deductions for indoor fan motor heat.

5. Variable Air Volume units will operate down to 70 cfm/ton. Performance at 70 cfm/ton is limited to unloaded operation and may be additionally limited to edb and ewb conditions.

3. The SHC is based on 80 F edb temprature of air entering evaporator coil.

- Below 80 F edb, subtract (corr factor x cfm) from SHC.

- Above 80 F edb, add (corr factor x cfm) to SHC.

BF	ENTERING AIR DRY-BULB TEMP (F)					
	79	78	77	76	75	under 75
	81	82	83	84	85	over 85
Correction Factor						
0.05	1.04	2.07	3.11	4.14	5.18	Use formula shown below.*
0.10	0.98	1.96	2.94	3.92	4.90	
0.20	0.87	1.74	2.62	3.49	4.36	
0.30	0.76	1.53	2.29	3.05	3.82	

- Interpolation is permissible.

*Correction Factor = 1.10 x (1 - BF) x (edb - 80).

Cooling Capacities (Continued)

50TCM - D12 - 10 Tons (230V/400V)																
Temp (F) Air Entering Condenser (Edb)		Evaporator Air - CFM/BPF														
		3000 / 0.064			3500 / 0.086			4000 / 0.111			4500 / 0.138			5000 / 0.206		
		Evaporator Air - EWB (F)														
		62	67	72	62	67	72	62	67	72	62	67	72	62	67	72
75	TC	125,652	135,720	145,622	128,777	139,070	148,363	131,676	141,510	150,551	134,948	143,338	152,324	137,891	144,845	153,784
	SHC	104,119	86,901	69,703	112,331	93,211	73,055	119,320	99,114	76,250	124,219	104,631	79,253	128,415	109,952	82,133
	kW	5.77	5.78	5.86	5.78	5.80	5.89	5.78	5.82	5.92	5.78	5.84	5.94	5.80	5.86	5.96
85	TC	121,255	131,235	142,103	124,484	134,381	144,904	127,489	136,865	147,044	130,822	138,787	148,728	134,207	140,281	150,090
	SHC	102,388	85,369	68,760	110,849	91,701	72,399	117,446	97,848	75,767	122,175	103,909	78,996	124,025	109,476	82,113
	kW	6.64	6.63	6.68	6.63	6.64	6.72	6.64	6.65	6.74	6.64	6.67	6.77	6.65	6.68	6.79
95	TC	114,780	126,004	136,795	119,010	128,954	139,805	122,763	131,223	141,986	126,578	133,090	143,594	129,297	134,573	144,919
	SHC	99,609	83,529	66,950	108,354	89,952	70,870	114,522	96,188	74,497	117,150	102,331	77,957	120,750	107,974	81,261
	kW	7.47	7.57	7.61	7.55	7.58	7.63	7.57	7.59	7.65	7.57	7.60	7.68	7.58	7.60	7.69
105	TC	106,293	118,899	130,530	111,396	122,301	133,492	116,381	124,559	135,694	120,629	126,320	137,357	123,746	127,730	138,580
	SHC	95,996	80,930	64,808	103,690	87,754	68,841	108,689	94,153	72,674	112,656	100,143	76,316	115,566	105,894	79,815
	kW	8.10	8.34	8.44	8.19	8.41	8.45	8.30	8.42	8.47	8.40	8.42	8.48	8.41	8.43	8.50
115	TC	91,063	101,619	114,535	96,419	104,659	117,275	101,058	107,242	119,335	104,983	109,189	120,942	108,310	110,849	122,204
	SHC	91,062	77,705	62,676	97,107	84,737	66,843	101,778	91,394	70,853	105,731	97,718	74,704	109,082	103,813	78,449
	kW	9.37	9.60	9.92	9.49	9.68	9.94	9.60	9.76	9.95	9.70	9.82	9.96	9.80	9.87	9.98
120	TC	87,070	96,572	109,882	92,412	99,547	112,886	96,992	101,968	114,894	100,818	103,873	116,465	104,098	105,694	117,712
	SHC	87,691	75,680	60,955	93,071	82,697	65,313	97,684	89,353	69,372	101,537	95,769	73,297	104,841	101,574	77,134
	kW	9.86	10.08	10.45	9.99	10.17	10.52	10.11	10.24	10.54	10.21	10.29	10.55	10.31	10.35	10.56
125	TC	82,984	91,114	104,678	88,251	94,056	107,715	92,689	96,346	110,008	96,456	98,424	111,542	99,679	100,272	112,748
	SHC	83,592	73,527	59,083	88,898	80,525	63,523	93,368	87,164	67,743	97,163	93,513	71,716	100,409	99,152	75,590
	kW	10.35	10.56	10.94	10.49	10.64	11.04	10.61	10.71	11.12	10.72	10.78	11.13	10.82	10.84	11.14

50TCM - D12 - 10 Tons (230V/400V)																
Temp (C) Air Entering Condenser (Edb)		Evaporator Air - (L/s)/BPF														
		1416 / 0.064			1652 / 0.086			1888 / 0.111			2124 / 0.138			2360 / 0.206		
		Evaporator Air - EWB (C)														
		17	19	22	17	19	22	17	19	22	17	19	22	17	19	22
24	TC	36.8	39.8	42.7	37.7	40.8	43.5	38.6	41.5	44.1	39.6	42.0	44.6	40.4	42.5	45.1
	SHC	30.5	25.5	20.4	32.9	27.3	21.4	35.0	29.0	22.3	36.4	30.7	23.2	37.6	32.2	24.1
	kW	5.77	5.78	5.86	5.78	5.80	5.89	5.78	5.82	5.92	5.78	5.84	5.94	5.80	5.86	5.96
29	TC	35.5	38.5	41.6	36.5	39.4	42.5	37.4	40.1	43.1	38.3	40.7	43.6	39.3	41.1	44.0
	SHC	30.0	25.0	20.2	32.5	26.9	21.2	34.4	28.7	22.2	35.8	30.5	23.2	36.3	32.1	24.1
	kW	6.64	6.63	6.68	6.63	6.64	6.72	6.64	6.65	6.74	6.64	6.67	6.77	6.65	6.68	6.79
35	TC	33.6	36.9	40.1	34.9	37.8	41.0	36.0	38.5	41.6	37.1	39.0	42.1	37.9	39.4	42.5
	SHC	29.2	24.5	19.6	31.8	26.4	20.8	33.6	28.2	21.8	34.3	30.0	22.8	35.4	31.6	23.8
	kW	7.47	7.57	7.61	7.55	7.58	7.63	7.57	7.59	7.65	7.57	7.60	7.68	7.58	7.60	7.69
40.6	TC	31.2	34.8	38.3	32.6	35.8	39.1	34.1	36.5	39.8	35.4	37.0	40.3	36.3	37.4	40.6
	SHC	28.1	23.7	19.0	30.4	25.7	20.2	31.9	27.6	21.3	33.0	29.4	22.4	33.9	31.0	23.4
	kW	8.10	8.34	8.44	8.19	8.41	8.45	8.30	8.42	8.47	8.40	8.42	8.48	8.41	8.43	8.50
46	TC	26.7	29.8	33.6	28.3	30.7	34.4	29.6	31.4	35.0	30.8	32.0	35.4	31.7	32.5	35.8
	SHC	26.7	22.8	18.4	28.5	24.8	19.6	29.8	26.8	20.8	31.0	28.6	21.9	32.0	30.4	23.0
	kW	9.37	9.60	9.92	9.49	9.68	9.94	9.60	9.76	9.95	9.70	9.82	9.96	9.80	9.87	9.98
49	TC	25.5	28.3	32.2	27.1	29.2	33.1	28.4	29.9	33.7	29.5	30.4	34.1	30.5	31.0	34.5
	SHC	25.7	22.2	17.9	27.3	24.2	19.1	28.6	26.2	20.3	29.8	28.1	21.5	30.7	29.8	22.6
	kW	9.86	10.08	10.45	9.99	10.17	10.52	10.11	10.24	10.54	10.21	10.29	10.55	10.31	10.35	10.56
52	TC	24.3	26.7	30.7	25.9	27.6	31.6	27.2	28.2	32.2	28.3	28.8	32.7	29.2	29.4	33.0
	SHC	24.5	21.5	17.3	26.1	23.6	18.6	27.4	25.5	19.9	28.5	27.4	21.0	29.4	29.1	22.2
	kW	10.35	10.56	10.94	10.49	10.64	11.04	10.61	10.71	11.12	10.72	10.78	11.13	10.82	10.84	11.14

LEGEND
BPF — Bypass Factor
Edb — Entering Dry-Bulb
Ewb — Entering Wet-Bulb
SHC — Sensible Heat Capacity (1000 Btuh) Gross
Bold, Italics - Standard Ratings

Ldb — Leaving Dry-Bulb
Lwb — Leaving Wet-Bulb
TC — Total Capacity (1000 Btuh) Gross
kW — Compressor Motor Power Input

- Notes:**
1. Direct interpolation is permissible. Do not extrapolate.

2. The following formulas may be used.

tidb =

tedb —

sensible capacity (Btuh)

1.10 x cfm

tiwb = Wet-bulb temprature corresponding to enthalphy of air leaving evaporater coil (hlwb).

hlwb =

hewb —

total capacity (Btuh)

4.5 x cfm

Where: hewb = Enthalpy of air entering evaporator coil.

3. The SHC is based on 80 F edb temprature of air entering evaporator coil.

- Below 80 F edb, subtract (corr factor x cfm) from SHC.

- Above 80 F edb, add (corr factor x cfm) to SHC.

BF	ENTERING AIR DRY-BULB TEMP (F)					
	79	78	77	76	75	under 75
	81	82	83	84	85	over 85
Correction Factor						
0.05	1.04	2.07	3.11	4.14	5.18	Use formula shown below.*
0.10	0.98	1.96	2.94	3.92	4.90	
0.20	0.87	1.74	2.62	3.49	4.36	
0.30	0.76	1.53	2.29	3.05	3.82	

- Interpolation is permissible.
*Correction Factor = 1.10 x (1 - BF) x (edb - 80).

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Cooling Capacities (Continued)

50TCM - D14 - 12.5 Tons (230V/400V)																
Temp (F) Air Entering Condenser (Edb)		Evaporator Air - CFM/BPF														
		3700 / 0.084			4100 / 0.093			4550 / 0.104			5300 / 0.116			6000 / 0.158		
		Evaporator Air - EWB (F)														
		62	67	72	62	67	72	62	67	72	62	67	72	62	67	72
75	TC	156,424	169,175	184,214	159,260	171,869	184,328	161,970	174,348	186,546	166,196	177,655	189,348	170,399	179,946	191,200
	SHC	136,012	114,016	87,697	143,190	119,109	95,028	150,888	124,563	98,196	161,528	133,334	103,121	167,494	141,057	107,319
	kW	8.76	8.80	8.90	8.77	8.81	8.90	8.77	8.82	8.92	8.78	8.85	8.96	8.78	8.87	8.98
85	TC	149,624	162,980	176,147	152,662	165,645	178,686	155,678	168,162	181,049	160,234	171,267	183,971	164,277	173,573	185,939
	SHC	132,754	111,548	90,042	140,204	116,771	93,123	148,058	122,368	96,454	157,939	131,470	101,672	164,376	139,545	106,233
	kW	9.76	9.84	9.91	9.79	9.85	9.94	9.81	9.86	9.96	9.82	9.89	10.00	9.84	9.91	10.03
95	TC	144,371	158,951	172,547	147,846	161,517	175,176	151,252	163,887	177,445	156,691	167,138	180,431	160,644	169,321	182,446
	SHC	128,913	108,599	87,444	136,485	113,833	90,652	143,681	119,621	94,039	152,679	128,903	99,442	158,902	137,060	104,189
	kW	10.77	10.96	11.04	10.85	10.98	11.07	10.89	10.99	11.09	10.95	11.02	11.13	10.96	11.03	11.16
105	TC	131,597	146,195	159,389	135,123	148,477	161,706	139,295	150,609	163,929	144,744	153,540	166,637	148,396	155,703	168,568
	SHC	122,514	103,438	82,918	129,635	108,577	86,071	135,555	114,330	89,530	143,733	123,398	94,916	149,590	131,514	99,721
	kW	11.86	12.16	12.25	11.95	12.18	12.28	12.06	12.20	12.31	12.14	12.22	12.34	12.16	12.24	12.37
115	TC	118,119	132,253	145,247	121,284	134,568	147,294	126,045	136,547	149,229	130,975	139,186	151,636	136,464	141,116	153,336
	SHC	116,718	98,995	79,092	123,503	104,358	82,219	128,785	110,038	85,645	136,554	119,045	91,014	139,432	127,039	95,799
	kW	13.01	13.46	13.57	13.11	13.48	13.59	13.28	13.50	13.62	13.37	13.53	13.65	13.49	13.54	13.67
120	TC	113,355	127,031	140,390	117,056	129,459	142,346	121,650	131,510	144,176	128,009	134,091	146,493	132,161	135,945	148,071
	SHC	112,438	96,649	77,141	119,474	102,115	80,262	124,584	107,841	83,672	130,669	116,869	89,043	134,908	124,740	93,829
	kW	13.73	14.22	14.38	13.85	14.30	14.41	14.03	14.32	14.43	14.26	14.34	14.47	14.32	14.36	14.50
125	TC	108,260	121,323	135,605	112,788	123,852	137,499	117,152	126,219	139,242	123,410	128,933	141,530	127,862	130,875	142,966
	SHC	109,243	93,899	75,055	113,902	99,405	78,190	119,095	105,325	81,584	125,457	114,491	86,987	129,982	122,298	91,718
	kW	14.64	15.13	15.42	14.80	15.24	15.44	14.98	15.33	15.46	15.23	15.37	15.50	15.35	15.39	15.53

50TCM - D14 - 12.5 Tons (230V/400V)																
Temp (C) Air Entering Condenser (Edb)		Evaporator Air - (L/s)/BPF														
		1746 / 0.084			1935 / 0.093			2147 / 0.104			2501 / 0.116			2832 / 0.158		
		Evaporator Air - EWB (C)														
		17	19	22	17	19	22	17	19	22	17	19	22	17	19	22
24	TC	45.8	49.6	54.0	46.7	50.4	54.0	47.5	51.1	54.7	48.7	52.1	55.5	49.9	52.7	56.0
	SHC	39.9	33.4	25.7	42.0	34.9	27.9	44.2	36.5	28.8	47.3	39.1	30.2	49.1	41.3	31.5
	kW	8.76	8.80	8.90	8.77	8.81	8.90	8.77	8.82	8.92	8.78	8.85	8.96	8.78	8.87	8.98
29	TC	43.9	47.8	51.6	44.7	48.5	52.4	45.6	49.3	53.1	47.0	50.2	53.9	48.1	50.9	54.5
	SHC	38.9	32.7	26.4	41.1	34.2	27.3	43.4	35.9	28.3	46.3	38.5	29.8	48.2	40.9	31.1
	kW	9.76	9.84	9.91	9.79	9.85	9.94	9.81	9.86	9.96	9.82	9.89	10.00	9.84	9.91	10.03
35	TC	42.3	46.6	50.6	43.3	47.3	51.3	44.3	48.0	52.0	45.9	49.0	52.9	47.1	49.6	53.5
	SHC	37.8	31.8	25.6	40.0	33.4	26.6	42.1	35.1	27.6	44.7	37.8	29.1	46.6	40.2	30.5
	kW	10.77	10.96	11.04	10.85	10.98	11.07	10.89	10.99	11.09	10.95	11.02	11.13	10.96	11.03	11.16
40.6	TC	38.6	42.8	46.7	39.6	43.5	47.4	40.8	44.1	48.0	42.4	45.0	48.8	43.5	45.6	49.4
	SHC	35.9	30.3	24.3	38.0	31.8	25.2	39.7	33.5	26.2	42.1	36.2	27.8	43.8	38.5	29.2
	kW	11.86	12.16	12.25	11.95	12.18	12.28	12.06	12.20	12.31	12.14	12.22	12.34	12.16	12.24	12.37
46	TC	34.6	38.8	42.6	35.5	39.4	43.2	36.9	40.0	43.7	38.4	40.8	44.4	40.0	41.4	44.9
	SHC	34.2	29.0	23.2	36.2	30.6	24.1	37.7	32.3	25.1	40.0	34.9	26.7	40.9	37.2	28.1
	kW	13.01	13.46	13.57	13.11	13.48	13.59	13.28	13.50	13.62	13.37	13.53	13.65	13.49	13.54	13.67
49	TC	33.2	37.2	41.1	34.3	37.9	41.7	35.7	38.5	42.3	37.5	39.3	42.9	38.7	39.8	43.4
	SHC	33.0	28.3	22.6	35.0	29.9	23.5	36.5	31.6	24.5	38.3	34.3	26.1	39.5	36.6	27.5
	kW	13.73	14.22	14.38	13.85	14.30	14.41	14.03	14.32	14.43	14.26	14.34	14.47	14.32	14.36	14.50
52	TC	31.7	35.6	39.7	33.1	36.3	40.3	34.3	37.0	40.8	36.2	37.8	41.5	37.5	38.4	41.9
	SHC	32.0	27.5	22.0	33.4	29.1	22.9	34.9	30.9	23.9	36.8	33.6	25.5	38.1	35.8	26.9
	kW	14.64	15.13	15.42	14.80	15.24	15.44	14.98	15.33	15.46	15.23	15.37	15.50	15.35	15.39	15.53

LEGEND
BPF — Bypass Factor
Edb — Entering Dry-Bulb
Ewb — Entering Wet-Bulb
SHC — Sensible Heat Capacity (1000 Btuh) Gross
Bold, Italics - Standard Ratings
Notes:
1. Direct interpolation is permissible. Do not extrapolate.
2. The following formulas may be used.
$$t_{ldb} = t_{edb} - \frac{\text{sensible capacity (Btuh)}}{1.10 \times \text{cfm}}$$
$$t_{twb} = \text{Wet-bulb temperature corresponding to enthalpy of air leaving evaporator coil (hlwb).}$$
$$hlwb = h_{ewb} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{cfm}}$$
Where: hewb = Enthalpy of air entering evaporator coil.
3. The SHC is based on 80 F edb temperature of air entering evaporator coil.
- Below 80 F edb, subtract (corr factor x cfm) from SHC.
- Above 80 F edb, add (corr factor x cfm) to SHC.

BF	ENTERING AIR DRY-BULB TEMP (F)					
	79	78	77	76	75	under 75
	81	82	83	84	85	over 85
Correction Factor						
0.05	1.04	2.07	3.11	4.14	5.18	Use formula shown below.*
0.10	0.98	1.96	2.94	3.92	4.90	
0.20	0.87	1.74	2.62	3.49	4.36	
0.30	0.76	1.53	2.29	3.05	3.82	

4. Cooling capacities are gross and do not include deductions for indoor fan motor heat.
5. Variable Air Volume units will operate down to 70 cfm/ton. Performance at 70 cfm/ton is limited to unloaded operation and may be additionally limited to edb and ewb conditions.
- Interpolation is permissible.
*Correction Factor = 1.10 x (1 - BF) x (edb - 80).

Fan Performance Table

Unit 50TCM - A07 - 6 Tons - 230V- 60Hz

Air flow Rate (CFM)	0.2			0.4			0.6			0.8			1		
	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP
1800	822	0.48	0.51	927	0.62	0.66	1018	0.76	0.82	1100	0.91	0.98	1174	1.07	1.15
1950	872	0.58	0.62	973	0.74	0.79	1061	0.89	0.95	1140	1.05	1.13	1213	1.22	1.31
2100	923	0.70	0.75	1019	0.86	0.92	1104	1.03	1.10	1182	1.20	1.29	1253	1.38	1.48
2250	974	0.84	0.90	1067	1.01	1.08	1149	1.18	1.27	1224	1.36	1.46	1294	1.55	1.66
2400	1026	0.99	1.06	1115	1.17	1.26	1195	1.36	1.46	1268	1.55	1.66	1336	1.74	1.87
2550	1079	1.17	1.25	1164	1.36	1.46	1241	1.56	1.67	1312	1.75	1.88	1379	1.96	2.10
2700	1132	1.36	1.46	1214	1.56	1.67	1289	1.77	1.90	1358	1.98	2.12	1422	2.19	2.35
2850	1186	1.58	1.69	1264	1.79	1.92	1336	2.00	2.15	1404	2.23	2.39	1467	2.42	2.63
3000	1240	1.81	1.94	1315	2.03	2.18	1385	2.27	2.43	1451	2.47	2.68	1512	2.70	2.93

Unit 50TCM - A07 - 6 Tons - 230V - 60Hz (Continued)

Air flow Rate (CFM)	1.2			1.4			1.6			1.8			2		
	RPM	KWI	BHP	RPM		BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP
1800	1244	1.24	1.33	1308	1.41	1.51	1369	1.59	1.70	1427	1.77	1.90	1438	1.96	2.10
1950	1281	1.39	1.49	1345	1.57	1.68	1405	1.75	1.88	1462	1.92	2.09	1517	2.12	2.30
2100	1320	1.56	1.67	1382	1.74	1.87	1441	1.94	2.08	1498	2.11	2.29	1552	2.34	2.51
2250	1359	1.74	1.87	1420	1.94	2.08	1479	2.11	2.29	1534	2.34	2.51	1587	2.56	2.74
2400	1400	1.95	2.09	1460	2.13	2.31	1517	2.33	2.53	1572	2.57	2.76	1624	2.79	2.99
2550	1441	2.17	2.33	1500	2.35	2.55	1557	2.60	2.79	1610	2.83	3.03	1662	3.05	3.27
2700	1483	2.42	2.59	1541	2.64	2.83	1597	2.86	3.07	1650	3.10	3.32	1701	3.33	3.57
2850	1527	2.68	2.87	1583	2.91	3.12	1638	3.14	3.37	1690	3.38	3.63	-	-	-
3000	1571	2.97	3.18	1626	3.21	3.44	1680	3.45	3.70	-	-	-	-	-	-

Unit 50TCM - A07 - 6 Tons - 400V - 60Hz

Air flow Rate (CFM)	0.2			0.4			0.6			0.8			1		
	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP
1800	826	0.50	0.50	932	0.65	0.65	1023	0.81	0.80	1106	0.99	0.98	1180	1.13	1.13
1950	876	0.61	0.61	978	0.78	0.77	1066	0.94	0.93	1146	1.11	1.11	1219	1.29	1.28
2100	928	0.74	0.74	1024	0.91	0.90	1110	1.08	1.08	1188	1.27	1.26	1259	1.46	1.45
2250	979	0.89	0.88	1072	1.06	1.06	1155	1.25	1.24	1230	1.44	1.43	1300	1.64	1.63
2400	1031	1.04	1.04	1121	1.24	1.23	1201	1.44	1.43	1274	1.64	1.63	1343	1.84	1.83
2550	1084	1.23	1.23	1170	1.44	1.43	1247	1.65	1.64	1319	1.85	1.84	1386	2.07	2.06
2700	1138	1.44	1.43	1220	1.65	1.64	1295	1.87	1.86	1365	2.09	2.08	1429	2.32	2.30
2850	1192	1.67	1.66	1270	1.89	1.88	1343	2.12	2.11	1411	2.35	2.34	1474	2.56	2.58
3000	1246	1.91	1.90	1322	2.15	2.14	1392	2.39	2.38	1457	2.61	2.63	1518	2.83	2.84

Unit 50TCM - A07 - 6 Tons - 400V - 60Hz (Continued)

Air flow Rate (CFM)	1.2			1.4			1.6			1.8			2		
	RPM	KWI	BHP	RPM		BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP
1800	1250	1.31	1.30	1315	1.49	1.48	1376	1.67	1.67	1434	1.87	1.86	1445	2.07	2.06
1950	1287	1.47	1.46	1352	1.66	1.65	1412	1.85	1.84	1469	2.04	2.05	1525	2.24	2.25
2100	1327	1.65	1.64	1389	1.84	1.83	1448	2.05	2.04	1505	2.23	2.24	1560	2.40	2.46
2250	1366	1.84	1.83	1427	2.05	2.04	1486	2.23	2.24	1542	2.40	2.46	1595	2.62	2.69
2400	1407	2.06	2.05	1476	2.25	2.26	1525	2.47	2.48	1580	2.64	2.70	1632	2.86	2.93
2550	1448	2.30	2.28	1508	2.49	2.50	1565	2.67	2.73	1618	2.90	2.97	1670	3.13	3.20
2700	1490	2.55	2.54	1549	2.71	2.77	1605	2.94	3.01	1658	3.18	3.25	1710	3.42	3.50
2850	1535	2.75	2.81	1591	2.99	3.06	1646	3.23	3.30	1698	3.48	3.56	-	-	-
3000	1579	3.04	3.12	1634	3.29	3.37	1688	3.54	3.63	-	-	-	-	-	-

Legend:

Normal Font - Field Installed Drive Package

Bold Font - Standard Drive Package + Standard Motor.

Italics Font - Medium Drive Package + Medium Static Motor.

Bold , Italics Font - High Drive Package + High Static Motor.

RPM - Revolutions Per Minute

KWI - Kilo Watts Input to Motor

BHP - Brake Horsepower Input to Fan

CFM - Cubic Feet per Minute

in.wg - Inch Water Gage

Notes:

1. Do not adjust motor rpm such that motor maximum bhp and/or watts is exceeded at the maximum operatin cfm.
2. Static Pressure (i.e Filters) must be added to external static pressure before entering fan performance table.
3. Interpolation is permissible. Do not extrapolate.
4. Fan performance is based on wet coils, clean filters and casing loses.
5. Extensive motor and drive testing on these units ensures that the full brake horsepower and watts range of the motor can be utilized with confidence. Using your fan motors up to the watts or bhp rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
6. Bold data shows the range of air flow rate for unit management system, other rpms require field-supplied drive.
7. Use of field-supplied motor may affect wiring size. Contact your Carrier representative for details.
8. Conversion - Bhp to KWI

Bhp X 0.746

Motor efficiency

KWI=

Fan Performance Table (Continued)

Unit 50TCM - D08 - 7.5 Tons - 230V - 60Hz

Air flow Rate (CFM)	0.2			0.4			0.6			0.8			1		
	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP
2250	511	0.49	0.53	591	0.68	0.73	660	0.89	0.95	722	1.11	1.19	779	1.33	1.44
2438	540	0.60	0.64	616	0.79	0.85	683	1.01	1.08	743	1.24	1.33	799	1.46	1.59
2625	569	0.71	0.76	642	0.92	0.99	706	1.15	1.23	765	1.37	1.49	819	1.62	1.76
2813	599	0.84	0.90	669	1.06	1.14	731	1.30	1.39	788	1.53	1.66	841	1.79	1.94
3000	630	0.99	1.06	696	1.22	1.31	756	1.46	1.58	811	1.71	1.86	863	1.98	2.15
3188	661	1.15	1.23	724	1.40	1.50	782	1.64	1.78	836	1.91	2.07	886	2.19	2.38
3375	692	1.33	1.43	753	1.57	1.71	809	1.84	2.00	861	2.13	2.31	910	2.41	2.62
3563	723	1.54	1.65	782	1.79	1.94	836	2.07	2.25	887	2.36	2.56	934	2.66	2.89
3750	755	1.74	1.89	811	2.03	2.20	864	2.32	2.52	913	2.62	2.84	959	2.93	3.18

Unit 50TCM - D08 - 7.5 Tons - 230V - 60Hz (Continued)

Air flow Rate (CFM)	1.2			1.4			1.6			1.8			2		
	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP
2250	832	1.57	1.71	882	1.83	1.99	928	2.11	2.29	973	2.39	2.59	1015	2.69	2.92
2438	851	1.72	1.87	899	1.99	2.16	945	2.27	2.46	989	2.56	2.78	1031	2.86	3.11
2625	870	1.88	2.04	918	2.16	2.34	963	2.45	2.66	1006	2.74	2.98	1048	3.06	3.32
2813	890	2.06	2.24	937	2.35	2.55	982	2.64	2.87	1024	2.96	3.21	1065	3.27	3.55
3000	912	2.27	2.46	958	2.56	2.78	1001	2.86	3.11	1043	3.18	3.45	1083	3.50	3.80
3188	934	2.48	2.69	979	2.78	3.02	1022	3.09	3.36	1063	3.43	3.72	1102	3.76	4.08
3375	956	2.72	2.95	1000	3.03	3.29	1042	3.35	3.64	1083	3.68	4.00	1122	4.03	4.38
3563	980	2.97	3.23	1023	3.30	3.58	1064	3.63	3.94	1104	3.98	4.32	1142	4.33	4.70
3750	1004	3.26	3.54	1046	3.59	3.90	1088	3.93	4.27	1125	4.28	4.65	-	-	-

Unit 50TCM - D08 - 7.5 Tons - 400V - 60Hz

Air flow Rate (CFM)	0.2			0.4			0.6			0.8			1		
	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP
2250	504	0.44	0.44	583	0.61	0.60	651	0.79	0.78	713	0.99	0.98	769	1.18	1.19
2438	533	0.53	0.53	608	0.71	0.70	674	0.90	0.89	733	1.10	1.10	789	1.30	1.31
2625	562	0.63	0.63	634	0.82	0.82	697	1.02	1.01	755	1.22	1.23	808	1.44	1.45
2813	591	0.75	0.74	660	0.95	0.94	721	1.15	1.15	778	1.36	1.37	830	1.59	1.60
3000	622	0.88	0.87	687	1.09	1.08	746	1.30	1.30	800	1.53	1.53	852	1.76	1.77
3188	652	1.02	1.01	715	1.24	1.24	772	1.46	1.47	825	1.70	1.71	874	1.95	1.96
3375	683	1.19	1.18	743	1.40	1.41	798	1.64	1.65	850	1.90	1.91	898	2.15	2.16
3563	714	1.37	1.36	772	1.59	1.60	825	1.85	1.86	875	2.10	2.11	922	2.37	2.38
3750	745	1.55	1.56	800	1.81	1.82	853	2.07	2.08	901	2.33	2.34	947	2.56	2.62

Unit 50TCM - D08 - 7.5 Tons - 400V - 60Hz (Continued)

Air flow Rate (CFM)	1.2			1.4			1.6			1.8			2		
	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP
2250	821	1.40	1.41	871	1.63	1.64	916	1.88	1.89	960	2.13	2.14	1002	2.35	2.41
2438	840	1.53	1.54	887	1.77	1.78	933	2.02	2.03	976	2.24	2.29	1018	2.51	2.57
2625	859	1.67	1.68	906	1.92	1.93	950	2.14	2.19	993	2.40	2.46	1034	2.68	2.74
2813	878	1.84	1.85	925	2.09	2.10	969	2.31	2.37	1011	2.59	2.65	1051	2.86	2.93
3000	900	2.02	2.03	946	2.24	2.29	988	2.51	2.57	1029	2.78	2.85	1069	3.06	3.14
3188	922	2.21	2.22	966	2.43	2.49	1009	2.71	2.77	1049	3.00	3.07	1088	3.29	3.37
3375	944	2.38	2.43	987	2.65	2.71	1028	2.93	3.00	1069	3.22	3.30	1107	3.53	3.61
3563	967	2.60	2.66	1010	2.89	2.95	1050	3.18	3.25	1090	3.48	3.56	1127	3.79	3.88
3750	991	2.85	2.92	1032	3.14	3.22	1074	3.44	3.52	1110	3.75	3.84	-	-	-

Legend:

Normal Font - Field Installed Drive Package

Bold Font - Standard Drive Package + Standard Motor.

Italics Font - Medium Drive Package + Medium Static Motor.

Bold , Italics Font - High Drive Package + High Static Motor.

RPM - Revolutions Per Minute

KWI - Kilo Watts Input to Motor

BHP - Brake Horsepower Input to Fan

CFM - Cubic Feet per Minute

in.wg - Inch Water Gage

Notes:

1. Do not adjust motor rpm such that motor maximum bhp and/or watts is exceeded at the maximum operatin cfm.
2. Static Pressure (i.e Filters) must be added to external static pressure before entering fan performance table.
3. Interpolation is permissible. Do not extrapolate.
4. Fan performance is based on wet coils, clean filters and casing loses.
5. Extensive motor and drive testing on these units ensures that the full brake horsepower and watts range of the motor can be utilized with confidence. Using your fan motors up to the watts or bhp rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
6. Bold data shows the range of air flow rate for unit management system, other rpms require field-supplied drive.
7. Use of field-supplied motor may affect wiring size. Contact your Carrier representative for details.
8. Conversion - Bhp to KWI

Bhp X 0.746

Motor efficiency

Fan Performance Table (Continued)

Unit 50TCM - D09 - 8.5 Tons - 230V - 60Hz

Air flow Rate (CFM)	0.2			0.4			0.6			0.8			1		
	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP
2550	477	0.40	0.43	556	0.53	0.57	624	0.66	0.71	685	0.79	0.85	742	0.92	0.99
2763	503	0.48	0.52	578	0.62	0.67	644	0.76	0.82	704	0.90	0.97	759	1.05	1.13
2975	529	0.58	0.62	601	0.74	0.79	665	0.89	0.95	724	1.04	1.11	777	1.19	1.28
3188	556	0.69	0.74	625	0.86	0.92	687	1.02	1.09	744	1.17	1.26	796	1.34	1.44
3400	583	0.82	0.88	650	0.99	1.06	710	1.16	1.24	765	1.33	1.43	816	1.51	1.62
3613	611	0.96	1.03	675	1.14	1.22	733	1.32	1.42	787	1.50	1.61	836	1.69	1.81
3825	639	1.11	1.19	701	1.31	1.40	757	1.50	1.61	809	1.69	1.81	857	1.88	2.02
4038	668	1.29	1.38	727	1.49	1.60	781	1.69	1.81	832	1.89	2.03	879	2.10	2.25
4250	696	1.47	1.58	753	1.69	1.81	806	1.90	2.04	855	2.12	2.27	901	2.33	2.50

Unit 50TCM - D09 - 8.5 Tons - 230V - 60Hz (Continued)

Air flow Rate (CFM)	1.2			1.4			1.6			1.8			2		
	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP
2550	794	1.06	1.14	842	1.20	1.29	888	1.34	1.44	932	1.48	1.59	973	1.63	1.75
2763	810	1.19	1.28	858	1.34	1.44	903	1.49	1.60	946	1.65	1.77	987	1.80	1.93
2975	827	1.34	1.44	874	1.50	1.61	919	1.66	1.78	961	1.82	1.95	1001	1.99	2.13
3188	845	1.51	1.62	891	1.67	1.79	935	1.85	1.98	977	2.01	2.16	1017	2.18	2.34
3400	864	1.68	1.80	909	1.86	1.99	952	2.03	2.18	993	2.22	2.38	1033	2.40	2.57
3613	883	1.87	2.01	928	2.06	2.21	970	2.25	2.41	1010	2.43	2.61	1049	2.63	2.82
3825	903	2.08	2.23	947	2.28	2.44	988	2.47	2.65	1028	2.68	2.87	1066	2.87	3.08
4038	924	2.30	2.47	967	2.52	2.70	1008	2.72	2.92	1047	2.93	3.14	1084	3.14	3.37
4250	945	2.55	2.73	987	2.77	2.97	1027	2.98	3.20	1066	3.20	3.43	1103	3.42	3.67

Unit 50TCM - D09 - 8.5 Tons - 400V - 60Hz

Air flow Rate (CFM)	0.2			0.4			0.6			0.8			1		
	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP
2550	489	0.47	0.46	570	0.62	0.62	640	0.77	0.77	702	0.92	0.92	761	1.07	1.07
2763	518	0.56	0.56	592	0.73	0.72	660	0.89	0.89	722	1.05	1.05	778	1.22	1.22
2975	542	0.67	0.67	616	0.86	0.85	682	1.03	1.03	742	1.21	1.20	796	1.38	1.38
3188	570	0.80	0.80	641	1.00	0.99	704	1.18	1.18	763	1.36	1.36	816	1.55	1.56
3400	598	0.96	0.95	666	1.15	1.14	728	1.35	1.34	784	1.54	1.54	836	1.75	1.75
3613	626	1.12	1.11	692	1.32	1.32	751	1.54	1.53	807	1.74	1.74	857	1.95	1.95
3825	655	1.29	1.29	719	1.52	1.51	776	1.74	1.74	829	1.95	1.95	878	2.18	2.18
4038	685	1.50	1.49	745	1.74	1.73	801	1.95	1.95	853	2.19	2.19	901	2.43	2.43
4250	713	1.66	1.65	772	1.95	1.95	826	2.20	2.20	876	2.45	2.45	924	2.69	2.70

Unit 50TCM - D09 - 8.5 Tons - 400V - 60Hz (Continued)

Air flow Rate (CFM)	1.2			1.4			1.6			1.8			2		
	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP
2550	814	1.23	1.23	863	1.39	1.39	910	1.55	1.56	955	1.71	1.72	997	1.88	1.89
2763	830	1.38	1.38	879	1.55	1.56	926	1.73	1.73	970	1.90	1.91	1012	2.07	2.08
2975	848	1.55	1.56	896	1.74	1.74	942	1.92	1.92	985	2.09	2.11	1026	2.29	2.30
3188	866	1.75	1.75	913	1.93	1.93	958	2.14	2.14	1001	2.32	2.33	1042	2.51	2.53
3400	886	1.94	1.94	932	2.15	2.15	976	2.34	2.35	1018	2.56	2.57	1059	2.76	2.78
3613	905	2.17	2.17	951	2.38	2.39	994	2.59	2.60	1035	2.80	2.82	1075	3.03	3.05
3825	926	2.41	2.41	971	2.62	2.64	1013	2.85	2.86	1054	3.08	3.10	1093	3.31	3.33
4038	947	2.65	2.67	991	2.90	2.92	1033	3.14	3.15	1073	3.37	3.39	1111	3.62	3.64
4250	969	2.93	2.95	1012	3.19	3.21	1053	3.44	3.46	1093	3.68	3.70	1131	3.94	3.96

Legend:

Normal Font - Field Installed Drive Package

Bold Font - Standard Drive Package + Standard Motor.

Italics Font - Medium Drive Package + Medium Static Motor.

Bold , Italics Font - High Drive Package + High Static Motor.

RPM - Revolutions Per Minute

KWI - Kilo Watts Input to Motor

BHP - Brake Horsepower Input to Fan

CFM - Cubic Feet per Minute

in.wg - Inch Water Gage

Notes:

1. Do not adjust motor rpm such that motor maximum bhp and/or watts is exceeded at the maximum operatin cfm.
2. Static Pressure (i.e Filters) must be added to external static pressure before entering fan performance table.
3. Interpolation is permissible. Do not extrapolate.
4. Fan performance is based on wet coils, clean filters and casing loses.
5. Extensive motor and drive testing on these units ensures that the full brake horsepower and watts range of the motor can be utilized with confidence. Using your fan motors up to the watts or bhp rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
6. Bold data shows the range of air flow rate for unit management system, other rpms require field-supplied drive.
7. Use of field-supplied motor may affect wiring size. Contact your Carrier representative for details.
8. Conversion - Bhp to KWI

Bhp X 0.746

Motor efficiency

Fan Performance Table (Continued)

Unit 50TCM - D12 - 10 Tons - 230V - 60Hz

Air flow Rate (CFM)	0.2			0.4			0.6			0.8			1		
	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP
3000	556	0.61	0.65	623	0.75	0.80	684	0.89	0.95	738	1.04	1.11	789	1.17	1.26
3250	590	0.74	0.79	655	0.90	0.96	713	1.05	1.13	766	1.20	1.29	815	1.36	1.46
3500	625	0.90	0.96	687	1.06	1.14	742	1.23	1.32	794	1.40	1.50	841	1.55	1.68
3750	661	1.08	1.16	719	1.26	1.35	773	1.44	1.54	822	1.61	1.73	869	1.78	1.93
4000	697	1.28	1.37	753	1.47	1.58	804	1.67	1.79	852	1.86	1.99	897	2.03	2.20
4250	733	1.51	1.62	787	1.72	1.84	836	1.92	2.06	883	2.13	2.28	926	2.29	2.49
4500	770	1.76	1.89	821	1.99	2.13	869	2.17	2.36	914	2.39	2.59	956	2.60	2.82
4750	807	2.05	2.20	856	2.26	2.45	902	2.48	2.69	945	2.71	2.94	986	2.93	3.18
5000	844	2.34	2.54	891	2.58	2.80	936	2.82	3.06	978	3.05	3.31	1018	3.29	3.57

Unit 50TCM - D12 - 10 Tons - 230V - 60Hz (Continued)

Air flow Rate (CFM)	1.2			1.4			1.6			1.8			2		
	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP
3000	836	1.32	1.42	881	1.45	1.57	923	1.59	1.73	963	1.74	1.89	1001	1.89	2.05
3250	861	1.50	1.63	904	1.65	1.79	945	1.81	1.96	985	1.96	2.13	1023	2.12	2.30
3500	886	1.71	1.86	929	1.88	2.04	969	2.04	2.22	1008	2.21	2.40	1045	2.38	2.58
3750	912	1.95	2.12	954	2.13	2.31	994	2.30	2.50	1031	2.49	2.70	1068	2.66	2.89
4000	940	2.21	2.40	980	2.40	2.61	1019	2.59	2.81	1056	2.78	3.02	1092	2.97	3.22
4250	968	2.50	2.71	1007	2.70	2.93	1045	2.90	3.15	1081	3.09	3.36	1117	3.30	3.58
4500	996	2.81	3.05	1035	3.02	3.28	1072	3.23	3.51	1108	3.44	3.74	1142	3.66	3.97
4750	1026	3.15	3.42	1063	3.37	3.66	1100	3.60	3.91	1135	3.82	4.15	1168	4.04	4.39
5000	1056	3.52	3.82	1093	3.76	4.08	1128	4.00	4.34	1162	4.23	4.59	-	-	-

Unit 50TCM - D12 - 10 Tons - 400V - 60Hz

Air flow Rate (CFM)	0.2			0.4			0.6			0.8			1		
	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP
3000	556	0.65	0.65	623	0.80	0.80	684	0.95	0.95	738	1.11	1.11	789	1.26	1.26
3250	590	0.79	0.79	655	0.96	0.96	713	1.13	1.13	766	1.29	1.29	815	1.46	1.46
3500	625	0.96	0.96	687	1.14	1.14	742	1.32	1.32	794	1.50	1.50	841	1.64	1.68
3750	661	1.16	1.16	719	1.35	1.35	773	1.54	1.54	819	1.73	1.73	869	1.89	1.93
4000	697	1.37	1.37	753	1.58	1.58	804	1.79	1.79	852	1.99	1.99	897	2.15	2.20
4250	733	1.62	1.62	787	1.84	1.84	838	2.06	2.06	883	2.28	2.28	926	2.43	2.49
4500	770	1.89	1.89	821	2.13	2.13	869	2.31	2.36	914	2.53	2.59	956	2.76	2.82
4750	807	2.20	2.20	856	2.39	2.45	902	2.63	2.69	945	2.87	2.94	986	3.11	3.18
5000	844	2.48	2.54	891	2.74	2.80	936	2.99	3.06	978	3.23	3.31	1018	3.49	3.57

Unit 50TCM - D12 - 10 Tons - 400V - 60Hz (Continued)

Air flow Rate (CFM)	1.2			1.4			1.6			1.8			2		
	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP
3000	838	1.42	1.42	881	1.53	1.57	923	1.69	1.73	963	1.85	1.89	1001	2.00	2.05
3250	861	1.59	1.63	904	1.75	1.79	945	1.92	1.96	985	2.08	2.13	1023	2.25	2.30
3500	886	1.82	1.86	929	1.99	2.04	969	2.17	2.22	1008	2.34	2.40	1045	2.52	2.58
3750	912	2.07	2.12	954	2.26	2.31	994	2.44	2.50	1031	2.64	2.70	1068	2.82	2.89
4000	940	2.34	2.40	980	2.55	2.61	1019	2.75	2.81	1056	2.95	3.02	1092	3.15	3.22
4250	968	2.65	2.71	1007	2.86	2.93	1045	3.08	3.15	1081	3.28	3.36	1117	3.50	3.58
4500	996	2.98	3.05	1035	3.20	3.28	1072	3.43	3.51	1108	3.65	3.74	1142	3.88	3.97
4750	1026	3.34	3.42	1063	3.58	3.66	1100	3.82	3.91	1135	4.05	4.15	1168	4.29	4.39
5000	1056	3.73	3.82	1093	3.99	4.08	1128	4.24	4.34	1162	4.48	4.59	-	-	-

Legend:

Normal Font - Field Installed Drive Package

Bold Font - Standard Drive Package + Standard Motor.

Italics Font - Medium Drive Package + Medium Static Motor.

Bold , Italics Font - High Drive Package + High Static Motor.

RPM - Revolutions Per Minute

KWI - Kilo Watts Input to Motor

BHP - Brake Horsepower Input to Fan

CFM - Cubic Feet per Minute

in.wg - Inch Water Gage

Notes:

1. Do not adjust motor rpm such that motor maximum bhp and/or watts is exceeded at the maximum operatin cfm.
2. Static Pressure (i.e Filters) must be added to external static pressure before entering fan performance table.
3. Interpolation is permissible. Do not extrapolate.
4. Fan performance is based on wet coils, clean filters and casing loses.
5. Extensive motor and drive testing on these units ensures that the full brake horsepower and watts range of the motor can be utilized with confidence. Using your fan motors up to the watts or bhp rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
6. Bold data shows the range of air flow rate for unit management system, other rpms require field-supplied drive.
7. Use of field-supplied motor may affect wiring size. Contact your Carrier representative for details.
8. Conversion - Bhp to KWI

Bhp X 0.746

Motor efficiency

Fan Performance Table (Continued)

Unit 50TCM - D14 - 12.5 Tons - 230V - 60Hz

Air flow Rate (CFM)	0.2			0.4			0.6			0.8			1		
	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP
3600	580	0.76	0.82	642	0.91	0.99	700	1.07	1.16	756	1.23	1.34	809	1.41	1.53
3750	621	0.95	1.03	679	1.11	1.21	734	1.29	1.40	786	1.46	1.59	837	1.65	1.79
4063	663	1.18	1.28	717	1.35	1.47	769	1.54	1.67	818	1.73	1.88	866	1.92	2.09
4375	706	1.44	1.56	757	1.63	1.77	805	1.82	1.98	852	2.03	2.20	897	2.24	2.43
4688	749	1.74	1.89	797	1.94	2.11	843	2.16	2.34	887	2.37	2.57	930	2.59	2.81
5000	793	2.08	2.26	838	2.30	2.50	881	2.52	2.74	923	2.74	2.98	965	2.97	3.23
5313	837	2.48	2.69	880	2.70	2.93	921	2.94	3.19	961	3.17	3.44	1000	3.42	3.71
5625	882	2.91	3.16	922	3.15	3.42	961	3.39	3.68	999	3.64	3.95	1037	3.90	4.23
5938	926	3.39	3.68	964	3.65	3.96	1001	3.90	4.23	1038	4.16	4.52	-	-	-
6000	936	3.50	3.80	974	3.76	4.09	1011	4.02	4.36	1049	4.29	4.66	-	-	-

Unit 50TCM - D14 - 12.5 Tons - 230V - 60Hz (Continued)

Air flow Rate (CFM)	1.2			1.4			1.6			1.8			2		
	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP
3600	860	1.58	1.72	910	1.77	1.92	957	1.95	2.12	1003	2.14	2.32	1048	2.34	2.54
3750	885	1.83	1.99	932	2.03	2.20	978	2.23	2.42	1022	2.43	2.64	1065	2.63	2.86
4063	912	2.13	2.31	957	2.33	2.53	1001	2.53	2.75	1043	2.74	2.98	1084	2.97	3.22
4375	941	2.45	2.66	984	2.66	2.89	1026	2.88	3.13	1066	3.10	3.37	1106	3.33	3.62
4688	972	2.81	3.05	1013	3.03	3.29	1053	3.26	3.54	1092	3.50	3.80	1130	3.74	4.06
5000	1005	3.21	3.49	1044	3.44	3.74	1082	3.69	4.01	1119	3.93	4.27	1156	4.19	4.55
5313	1038	3.66	3.97	1076	3.90	4.24	1113	4.16	4.52	-	-	-	-	-	-
5625	1073	4.15	4.51	-	-	-	-	-	-	-	-	-	-	-	-
5938	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Unit 50TCM - D14 - 12.5 Tons - 400V - 60Hz

Air flow Rate (CFM)	0.2			0.4			0.6			0.8			1		
	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP
3600	595	0.82	0.83	658	0.99	1.00	718	1.17	1.17	775	1.35	1.35	829	1.54	1.55
3750	637	1.03	1.04	696	1.22	1.22	752	1.41	1.41	806	1.60	1.61	858	1.80	1.81
4063	680	1.29	1.29	735	1.48	1.48	788	1.68	1.69	838	1.89	1.90	888	2.06	2.11
4375	724	1.57	1.58	776	1.78	1.79	825	1.99	2.00	873	2.17	2.22	919	2.40	2.45
4688	768	1.90	1.91	817	2.12	2.13	864	2.35	2.36	909	2.54	2.60	953	2.77	2.84
5000	813	2.27	2.28	859	2.51	2.53	903	2.70	2.77	946	2.94	3.01	989	3.19	3.26
5313	858	2.70	2.72	902	2.89	2.96	944	3.15	3.22	985	3.39	3.47	1025	3.66	3.75
5625	904	3.12	3.19	945	3.38	3.45	985	3.63	3.72	1024	3.90	3.99	1063	4.17	4.27
5938	949	3.63	3.72	988	3.91	4.00	1026	4.17	4.27	1064	4.46	4.57	-	-	-
6000	959	3.75	3.83	998	4.03	4.13	1037	4.31	4.41	1075	4.60	4.71	-	-	-

Unit 50TCM - D14 - 12.5 Tons - 400V - 60Hz (Continued)

Air flow Rate (CFM)	1.2			1.4			1.6			1.8			2		
	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP	RPM	KWI	BHP
3600	882	1.70	1.74	933	1.89	1.94	981	2.09	2.14	1028	2.29	2.34	1074	2.51	2.57
3750	907	1.96	2.01	955	2.17	2.22	1002	2.39	2.44	1048	2.61	2.67	1092	2.82	2.89
4063	935	2.28	2.33	981	2.50	2.56	1026	2.71	2.78	1069	2.94	3.01	1111	3.18	3.25
4375	965	2.63	2.69	1009	2.85	2.92	1052	3.09	3.16	1093	3.33	3.40	1134	3.57	3.66
4688	996	3.01	3.08	1038	3.25	3.32	1079	3.49	3.58	1119	3.75	3.84	1158	4.01	4.10
5000	1030	3.44	3.52	1070	3.69	3.78	1109	3.96	4.05	1147	4.21	4.31	1185	4.49	4.60
5313	1064	3.92	4.01	1103	4.18	4.28	1141	4.46	4.57	-	-	-	-	-	-
5625	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5938	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Legend:

- Normal Font - Field Installed Drive Package
- Bold Font** - Standard Drive Package + Standard Motor.
- Italics Font* - Medium Drive Package + Medium Static Motor.
- Bold , Italics Font** - High Drive Package + High Static Motor.
- RPM** - Revolutions Per Minute
- KWI** - Kilo Watts Input to Motor
- BHP** - Brake Horsepower Input to Fan
- CFM** - Cubic Feet per Minute
- in.wg** - Inch Water Gage

Notes:

- Do not adjust motor rpm such that motor maximum bhp and/or watts is exceeded at the maximum operatin cfm.
 - Static Pressure (i.e Filters) must be added to external static pressure before entering fan performance table.
 - Interpolation is permissible. Do not extrapolate.
 - Fan performance is based on wet coils, clean filters and casing loses.
 - Extensive motor and drive testing on these units ensures that the full brake horsepower and watts range of the motor can be utilized with confidence. Using your fan motors up to the watts or bhp rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
 - Bold data shows the range of air flow rate for unit management system, other rpms require field-supplied drive.
 - Use of field-supplied motor may affect wiring size. Contact your Carrier representative for details.
 - Conversion - Bhp to KWI
- KWI=

Bhp X 0.746

Motor efficiency

Fan RPM at Motor Pulley Settings

Freq.	Unit 50TCM	Application	Drive Package	MOTOR PULLEY TURNS OPEN - ENGLISH										
				0	1/2	1	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5
60Hz	A07	230V	Standard Static	1457	1419	1380	1342	1303	1265	1227	1188	1150	1111	1073
		400V	Standard Static	-	-	1035	997	958	920	882	843	805	767	728
		230V	Medium Static	1518	1484	1449	1415	1380	1346	1311	1277	1242	1208	1173
		400V	Medium Static	1457	1418	1380	1342	1303	1265	1227	1188	1150	1112	1073
		All	High Static	1788	1757	1725	1694	1662	1631	1600	1568	1537	1505	1474
	D08	All	Standard Static	747	721	695	670	644	618	592	566	541	515	489
			Medium Static	949	927	906	884	863	841	819	798	776	755	733
			High Static	1102	1083	1063	1044	1025	1006	986	967	948	928	909
	D09	All	Standard Static	733	712	690	669	647	626	604	583	561	540	518
			Medium Static	936	911	887	862	838	813	788	764	739	715	690
			High Static	1084	1059	1035	1010	986	961	936	912	887	863	838
	D12	230V	Standard Static	838	813	789	764	739	715	690	665	640	616	591
		400V	Standard Static	819	798	776	755	733	712	690	668	647	625	604
		All	Medium Static	1084	1059	1035	1010	986	961	936	912	887	863	838
		230V	High Static	1240	1218	1196	1175	1153	1131	1109	1087	1066	1044	1022
		400V	High Static	1229	1208	1186	1164	1143	1121	1100	1078	1057	1035	1013
	D14	All	Standard Static	843	824	805	786	767	748	728	709	690	671	652
			Medium Static	1084	1060	1035	1010	986	961	936	912	887	863	838
		230V	High Static	1240	1218	1196	1175	1153	1131	1109	1087	1066	1044	1022
		400V	High Static	1229	1208	1186	1164	1143	1121	1100	1078	1057	1035	1013

Freq.	Unit 50TCM	Application	Drive Package	MOTOR PULLEY TURNS OPEN - SI										
				0	1/2	1	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5
60Hz	D07	230V	Standard Static	24.3	23.7	23.0	22.4	21.7	21.1	20.5	19.8	19.2	18.5	17.9
		400V	Standard Static	-	-	17.3	16.6	16.0	15.3	14.7	14.1	13.4	12.8	12.1
		230V	Medium Static	25.3	24.7	24.2	23.6	23.0	22.4	21.9	21.3	20.7	20.1	19.6
		400V	Medium Static	24.3	23.6	23.0	22.4	21.7	21.1	20.4	19.8	19.2	18.5	17.9
		All	High Static	29.8	29.3	28.8	28.2	27.7	27.2	26.7	26.1	25.6	25.1	24.6
	D08	All	Standard Static	12.5	12.0	11.6	11.2	10.7	10.3	9.9	9.4	9.0	8.6	8.2
			Medium Static	15.8	15.5	15.1	14.7	14.4	14.0	13.7	13.3	12.9	12.6	12.2
			High Static	18.4	18.1	17.7	17.4	17.1	16.8	16.4	16.1	15.8	15.5	15.2
	D09	All	Standard Static	12.2	11.9	11.5	11.2	10.8	10.4	10.1	9.7	9.4	9.0	8.6
			Medium Static	15.6	15.2	14.8	14.4	14.0	13.6	13.1	12.7	12.3	11.9	11.5
			High Static	18.1	17.7	17.3	16.8	16.4	16.0	15.6	15.2	14.8	14.4	14.0
	D12	230V	Standard Static	14.0	13.6	13.2	12.7	12.3	11.9	11.5	11.1	10.7	10.3	9.9
		400V	Standard Static	13.7	13.3	12.9	12.6	12.2	11.9	11.5	11.1	10.8	10.4	10.1
		All	Medium Static	18.1	17.7	17.3	16.8	16.4	16.0	15.6	15.2	14.8	14.4	14.0
		230V	High Static	20.7	20.3	19.9	19.6	19.2	18.9	18.5	18.1	17.8	17.4	17.0
		400V	High Static	20.5	20.1	19.8	19.4	19.0	18.7	18.3	18.0	17.6	17.3	16.9
	D14	All	Standard Static	14.1	13.7	13.4	13.1	12.8	12.5	12.1	11.8	11.5	11.2	10.9
			Medium Static	18.1	17.7	17.3	16.8	16.4	16.0	15.6	15.2	14.8	14.4	14.0
		230V	High Static	20.7	20.3	19.9	19.6	19.2	18.9	18.5	18.1	17.8	17.4	17.0
		400V	High Static	20.5	20.1	19.8	19.4	19.0	18.7	18.3	18.0	17.6	17.3	16.9

Bold, Italics RPM is the factory setting . In range of +- 5 % due to different voltage application (230V, 400V and 600V)
The standard belt size may not cover all the above range. Other RPMs require field supplied drive package.

Sound Rating Data

Unit 50TCM	Cooling Stages	Unit Sound (dB) - Based on cooling mode								
		A-Weighted	63	125	250	500	1000	2000	4000	8000
A07	1	91.2	97.2	88.5	89.4	88.4	86.6	83.4	78.1	72.6
D08	2	80.0	97.2	83.9	78.1	75.5	75.3	70.3	66.5	62.1
D09	2	80.3	97.4	84.1	78.2	75.8	75.7	70.7	66.7	62.2
D12	2	91.9	97.2	90.0	90.1	88.0	87.0	84.3	81.3	77.0
D14	2	92.3	97.5	90.2	90.4	88.6	87.6	84.6	81.6	77.3

dB – Decibel

NOTES:

- Measurements are expressed in terms of sound power. Do not compare these values to sound pressure values because sound pressure accounts for specific environment factors which do not match individual applications. Sound power values are independent of the environment and therefore
- A-Weighted sound ratings filter out very high and very low frequencies, to better approximate the response of an "average" human ear.

Electrical Data

50TCM - 230/3/60Hz application			Compressor				OFM			IFM		Electric Heater			MCA	MOCP
Unit Size 50TCM	Power Supply V / Ph / Hz	Drive package Indoor Motor	No.1		No.2							P.N. CRHEATERXXXXXX	APP (KW)	FLA		
			RLA	LRA	RLA	LRA	Qty	HP	FLA	HP	FLA					
A07	230/3/60	Standard	19	123	-	-	1	1/3	2.8	2.4	5.2	-	-	-	31.8	50
			19	123	-	-	1	1/3	2.8	2.4	5.2	102A00	6.0	15.6	31.8	50
			19	123	-	-	1	1/3	2.8	2.4	5.2	104B00	9.6	25.3	38.1	50
			19	123	-	-	1	1/3	2.8	2.4	5.2	105A00	14.7	38.5	54.6	60
			19	123	-	-	1	1/3	2.8	2.4	5.2	104B00, 104B00	19.3	50.5	69.6	70
			19	123	-	-	1	1/3	2.8	2.4	5.2	104B00, 105A00	24.3	63.8	86.3	90
		Medium	19	123	-	-	1	1/3	2.8	2.9	7.5	-	-	-	34.1	50
			19	123	-	-	1	1/3	2.8	2.9	7.5	102A00	6.0	15.6	34.1	50
			19	123	-	-	1	1/3	2.8	2.9	7.5	104B00	9.6	25.3	41.0	50
			19	123	-	-	1	1/3	2.8	2.9	7.5	105A00	14.7	38.5	57.5	60
			19	123	-	-	1	1/3	2.8	2.9	7.5	104B00, 104B00	19.3	50.5	72.5	80
			19	123	-	-	1	1/3	2.8	2.9	7.5	104B00, 105A00	24.3	63.8	89.1	90
		High	19	123	-	-	1	1/3	2.8	3.7	10	-	-	-	36.6	50
			19	123	-	-	1	1/3	2.8	3.7	10	102A00	6.0	15.6	36.6	50
			19	123	-	-	1	1/3	2.8	3.7	10	104B00	9.6	25.3	44.1	50
			19	123	-	-	1	1/3	2.8	3.7	10	105A00	14.7	38.5	60.6	70
			19	123	-	-	1	1/3	2.8	3.7	10	104B00, 104B00	19.3	50.5	75.6	80
			19	123	-	-	1	1/3	2.8	3.7	10	104B00, 105A00	24.3	63.8	92.3	100
D08	230/3/60	Standard	13.6	83	13.6	83	2	1/4	1.4	1.7	5.2	-	-	-	38.6	50
			13.6	83	13.6	83	2	1/4	1.4	1.7	5.2	117A00	9.6	25	38.6	50
			13.6	83	13.6	83	2	1/4	1.4	1.7	5.2	110A00	14.7	38.5	54.6	60
			13.6	83	13.6	83	2	1/4	1.4	1.7	5.2	111A00	22.8	59.7	81.1	90
			13.6	83	13.6	83	2	1/4	1.4	1.7	5.2	112A00	29.4	77	102.8	110
			13.6	83	13.6	83	2	1/4	1.4	1.7	5.2	112A00, 117A00	38.9	102	134.0	150
		Medium	13.6	83	13.6	83	2	1/4	1.4	2.9	7.5	-	-	-	40.9	50
			13.6	83	13.6	83	2	1/4	1.4	2.9	7.5	117A00	9.6	25	40.9	50
			13.6	83	13.6	83	2	1/4	1.4	2.9	7.5	110A00	14.7	38.5	57.5	60
			13.6	83	13.6	83	2	1/4	1.4	2.9	7.5	111A00	22.8	59.7	84.0	90
			13.6	83	13.6	83	2	1/4	1.4	2.9	7.5	112A00	29.4	77	105.6	110
			13.6	83	13.6	83	2	1/4	1.4	2.9	7.5	112A00, 117A00	38.9	102	136.9	150
		High	13.6	83	13.6	83	2	1/4	1.4	4.7	15	-	-	-	48.4	60
			13.6	83	13.6	83	2	1/4	1.4	4.7	15	117A00	9.6	25	50.0	60
			13.6	83	13.6	83	2	1/4	1.4	4.7	15	110A00	14.7	38.5	66.9	70
			13.6	83	13.6	83	2	1/4	1.4	4.7	15	111A00	22.8	59.7	93.4	100
			13.6	83	13.6	83	2	1/4	1.4	4.7	15	112A00	29.4	77	115.0	125
			13.6	83	13.6	83	2	1/4	1.4	4.7	15	112A00, 117A00	38.9	102	146.3	150
D09	230/3/60	Standard	14.5	98	13.7	83	2	1/4	1.4	1.7	5.2	-	-	-	39.8	50
			14.5	98	13.7	83	2	1/4	1.4	1.7	5.2	117A00	9.6	25	39.8	50
			14.5	98	13.7	83	2	1/4	1.4	1.7	5.2	110A00	14.7	38.5	54.6	60
			14.5	98	13.7	83	2	1/4	1.4	1.7	5.2	111A00	22.8	59.7	81.1	90
			14.5	98	13.7	83	2	1/4	1.4	1.7	5.2	112A00	29.4	77	102.8	110
			14.5	98	13.7	83	2	1/4	1.4	1.7	5.2	112A00, 117A00	38.9	102	134.0	150
		Medium	14.5	98	13.7	83	2	1/4	1.4	2.4	5.2	-	-	-	39.8	50
			14.5	98	13.7	83	2	1/4	1.4	2.4	5.2	117A00	9.6	25	39.8	50
			14.5	98	13.7	83	2	1/4	1.4	2.4	5.2	110A00	14.7	38.5	54.6	60
			14.5	98	13.7	83	2	1/4	1.4	2.4	5.2	111A00	22.8	59.7	81.1	90
			14.5	98	13.7	83	2	1/4	1.4	2.4	5.2	112A00	29.4	77	102.8	110
			14.5	98	13.7	83	2	1/4	1.4	2.4	5.2	112A00, 117A00	38.9	102	134.0	150
		High	14.5	98	13.7	83	2	1/4	1.4	3.7	10	-	-	-	44.6	50
			14.5	98	13.7	83	2	1/4	1.4	3.7	10	117A00	9.6	25	44.6	50
			14.5	98	13.7	83	2	1/4	1.4	3.7	10	110A00	14.7	38.5	60.6	70
			14.5	98	13.7	83	2	1/4	1.4	3.7	10	111A00	22.8	59.7	87.1	90
			14.5	98	13.7	83	2	1/4	1.4	3.7	10	112A00	29.4	77	108.8	110
			14.5	98	13.7	83	2	1/4	1.4	3.7	10	112A00, 117A00	38.9	102	140.0	150

Electrical Data (Continued)

50TCM - 230/3/60Hz application			Compressor				OFM			IFM		Electric Heater			MCA	MOCP
Unit Size 50TCM	Power Supply V / Ph / Hz	Drive package Indoor Motor	No.1		No.2							P.N. CRHEATERXXXXXX	APP (KW)	FLA		
			RLA	LRA	RLA	LRA	Qty	HP	FLA	HP	FLA					
D12	230/3/60	Standard	15.9	110	15.9	110	1	1	6.6	2.4	5.2	-	-	-	47.6	60
			15.9	110	15.9	110	1	1	6.6	2.4	5.2	117A00	9.6	25	47.6	60
			15.9	110	15.9	110	1	1	6.6	2.4	5.2	110A00	14.7	38.5	54.6	60
			15.9	110	15.9	110	1	1	6.6	2.4	5.2	112A00	29.4	77	102.8	110
			15.9	110	15.9	110	1	1	6.6	2.4	5.2	112A00, 117A00	38.9	102	134.0	150
			15.9	110	15.9	110	1	1	6.6	2.4	5.2	112A00, 110A00	45.9	120.3	156.9	175
		Medium	15.9	110	15.9	110	1	1	6.6	3.7	10	-	-	-	52.4	60
			15.9	110	15.9	110	1	1	6.6	3.7	10	117A00	9.6	25	52.4	60
			15.9	110	15.9	110	1	1	6.6	3.7	10	110A00	14.7	38.5	60.6	70
			15.9	110	15.9	110	1	1	6.6	3.7	10	112A00	29.4	77	108.8	110
			15.9	110	15.9	110	1	1	6.6	3.7	10	112A00, 117A00	38.9	102	140.0	150
			15.9	110	15.9	110	1	1	6.6	3.7	10	112A00, 110A00	45.9	120.3	162.9	175
		High	15.9	110	15.9	110	1	1	6.6	4.7	15	-	-	-	57.4	70
			15.9	110	15.9	110	1	1	6.6	4.7	15	117A00	9.6	25	57.4	70
			15.9	110	15.9	110	1	1	6.6	4.7	15	110A00	14.7	38.5	66.9	70
			15.9	110	15.9	110	1	1	6.6	4.7	15	112A00	29.4	77	115.0	125
			15.9	110	15.9	110	1	1	6.6	4.7	15	112A00, 117A00	38.9	102	146.3	150
			15.9	110	15.9	110	1	1	6.6	4.7	15	112A00, 110A00	45.9	120.3	169.1	175
D14	230/3/60	Standard	19	123	22.4	149	1	1	6.6	2.9	7.5	-	-	-	60.3	70
			19	123	22.4	149	1	1	6.6	2.9	7.5	117A00	9.6	25	60.3	70
			19	123	22.4	149	1	1	6.6	2.9	7.5	110A00	14.7	38.5	60.3	70
			19	123	22.4	149	1	1	6.6	2.9	7.5	112A00	29.4	77	105.6	110
			19	123	22.4	149	1	1	6.6	2.9	7.5	112A00, 117A00	38.9	102	136.9	150
			19	123	22.4	149	1	1	6.6	2.9	7.5	112A00, 110A00	45.9	120.3	159.8	175
		Medium	19	123	22.4	149	1	1	6.6	3.7	10	-	-	-	62.8	80
			19	123	22.4	149	1	1	6.6	3.7	10	117A00	9.6	25	62.8	80
			19	123	22.4	149	1	1	6.6	3.7	10	110A00	14.7	38.5	62.8	80
			19	123	22.4	149	1	1	6.6	3.7	10	112A00	29.4	77	108.8	110
			19	123	22.4	149	1	1	6.6	3.7	10	112A00, 117A00	38.9	102	140.0	150
			19	123	22.4	149	1	1	6.6	3.7	10	112A00, 110A00	45.9	120.3	162.9	175
		High	19	123	22.4	149	1	1	6.6	4.7	15	-	-	-	67.8	80
			19	123	22.4	149	1	1	6.6	4.7	15	117A00	9.6	25	67.8	80
			19	123	22.4	149	1	1	6.6	4.7	15	110A00	14.7	38.5	67.8	80
			19	123	22.4	149	1	1	6.6	4.7	15	112A00	29.4	77	115.0	125
			19	123	22.4	149	1	1	6.6	4.7	15	112A00, 117A00	38.9	102	146.3	150
			19	123	22.4	149	1	1	6.6	4.7	15	112A00, 110A00	45.9	120.3	169.1	175

Legend and Notes for Electrical Data Table

FLA - Full Load Amps

IFM - Indoor (Evaporator) Fan Motor

LRA - Locked Rotor Amps

MCA - Minimum Circuit Amps

OFM - Outdoor (Condenser) Fan Motor

RLA - Rated Load Amps

APP - Application power at rated power supply voltage

MOCP - Maximum Overcurrent Protection

Minimum Voltage: 360V, Maximum Voltage: 420 on 400V/3Ph/60Hz

For ordering electric heater: Include complete heater part number in the order placement e.g CRHEATER116A00.

Unbalanced 3-Phase Supply Voltage

Never operate a motor where phase imbalance in supply voltage is greater than 2%.

Use the following formula to determine the percentage of voltage imbalance

$$= 100 \times \frac{\text{Maximum Deviation From Average Voltage}}{\text{Average Voltage}}$$

Determine maximum deviation from average voltage.

$$(AB) 397 - 392 = 5v$$

$$(BC) 404 - 397 = 7v$$

$$(AC) 457 - 397 = 2v$$

Maximum Deviation is 7v.

Determine Percentage Voltage Imbalance.

$$\% \text{ Voltage Imbalance} = 100 \times \frac{7}{397} = 1.76\%$$

Example: Supply Voltage is 400V - 3ph - 60Hz

AB = 392v	Average Voltage = $\frac{392 + 404 + 395}{3}$
BC = 404v	
AC = 395v	$= \frac{1191}{3} = 397V$

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

Electrical Data (Continued)

50TCM-400/3/60Hz application			Compressor				OFM			IFM		Electric Heater			MCA	MOCP
Unit Size 50TCM	Power Supply V / Ph / Hz	Drive package Indoor Motor	No.1		No.2							P.N. CRHEATERXXXXXX	APP (KW)	FLA		
			RLA	LRA	RLA	LRA	Qty	HP	FLA	HP	FLA					
A07	400/3/60	Standard	10.7	78.0	-	-	1	1/3	2.8	1.7	2.8	-	-	-	19.0	30
			10.7	78.0	-	-	1	1/3	2.8	1.7	2.8	106A00	4.2	6	19.0	30
			10.7	78.0	-	-	1	1/3	2.8	1.7	2.8	108A00	8	11.5	19.0	30
			10.7	78.0	-	-	1	1/3	2.8	1.7	2.8	109A00	9.7	14	21.0	30
			10.7	78.0	-	-	1	1/3	2.8	1.7	2.8	108A00, 109A00	16	23.1	32.4	35
			10.7	78.0	-	-	1	1/3	2.8	1.7	2.8	108A00, 109A00	17.7	25.6	35.5	40
		Medium	10.7	78.0	-	-	1	1/3	2.8	3	5	-	-	-	21.2	30
			10.7	78.0	-	-	1	1/3	2.8	3	5	106A00	4.2	6	21.2	30
			10.7	78.0	-	-	1	1/3	2.8	3	5	108A00	8	11.5	21.2	30
			10.7	78.0	-	-	1	1/3	2.8	3	5	109A00	9.7	14	23.8	30
			10.7	78.0	-	-	1	1/3	2.8	3	5	108A00, 109A00	16	23.1	35.1	40
			10.7	78.0	-	-	1	1/3	2.8	3	5	108A00, 109A00	17.7	25.6	38.3	40
		High	10.7	78.0	-	-	1	1/3	2.8	4.7	7.5	-	-	-	23.7	30
			10.7	78.0	-	-	1	1/3	2.8	4.7	7.5	106A00	4.2	6	23.7	30
			10.7	78.0	-	-	1	1/3	2.8	4.7	7.5	108A00	8	11.5	23.8	30
			10.7	78.0	-	-	1	1/3	2.8	4.7	7.5	109A00	9.7	14	26.9	30
			10.7	78.0	-	-	1	1/3	2.8	4.7	7.5	108A00, 109A00	16	23.1	38.3	40
			10.7	78.0	-	-	1	1/3	2.8	4.7	7.5	108A00, 109A00	17.7	25.6	41.4	45
D08	400/3/60	Standard	7.6	51.8	7.6	51.8	2	1/4	1.42	1.7	2.8	-	-	-	22.7	30
			7.6	51.8	7.6	51.8	2	1/4	1.42	1.7	2.8	116A00	9.7	13.9	22.7	30
			7.6	51.8	7.6	51.8	2	1/4	1.42	1.7	2.8	113A00	11.5	16.5	24.1	30
			7.6	51.8	7.6	51.8	2	1/4	1.42	1.7	2.8	114A00	19.3	27.9	38.4	40
			7.6	51.8	7.6	51.8	2	1/4	1.42	1.7	2.8	115A00	22.9	33.1	44.9	45
			7.6	51.8	7.6	51.8	2	1/4	1.42	1.7	2.8	114A00, 116A00	29	41.8	55.8	60
		Medium	7.6	51.8	7.6	51.8	2	1/4	1.42	3	5	-	-	-	24.9	30
			7.6	51.8	7.6	51.8	2	1/4	1.42	3	5	116A00	9.7	13.9	24.9	30
			7.6	51.8	7.6	51.8	2	1/4	1.42	3	5	113A00	11.5	16.5	26.9	30
			7.6	51.8	7.6	51.8	2	1/4	1.42	3	5	114A00	19.3	27.9	41.1	45
			7.6	51.8	7.6	51.8	2	1/4	1.42	3	5	115A00	22.9	33.1	47.6	50
			7.6	51.8	7.6	51.8	2	1/4	1.42	3	5	114A00, 116A00	29	41.8	58.5	60
		High	7.6	51.8	7.6	51.8	2	1/4	1.42	4.7	7.5	-	-	-	27.4	35
			7.6	51.8	7.6	51.8	2	1/4	1.42	4.7	7.5	116A00	9.7	13.9	27.4	35
			7.6	51.8	7.6	51.8	2	1/4	1.42	4.7	7.5	113A00	11.5	16.5	30.0	35
			7.6	51.8	7.6	51.8	2	1/4	1.42	4.7	7.5	114A00	19.3	27.9	44.3	45
			7.6	51.8	7.6	51.8	2	1/4	1.42	4.7	7.5	115A00	22.9	33.1	50.8	60
			7.6	51.8	7.6	51.8	2	1/4	1.42	4.7	7.5	114A00, 116A00	29	41.8	61.6	70
D09	400/3/60	Standard	8.8	64	8.8	64.0	2	1/4	1.42	1.7	2.8	-	-	-	25.4	30
			8.8	64	8.8	64.0	2	1/4	1.42	1.7	2.8	116A00	9.7	13.9	25.4	30
			8.8	64	8.8	64.0	2	1/4	1.42	1.7	2.8	113A00	11.5	16.5	25.4	30
			8.8	64	8.8	64.0	2	1/4	1.42	1.7	2.8	114A00	19.3	27.9	38.4	40
			8.8	64	8.8	64.0	2	1/4	1.42	1.7	2.8	115A00	22.9	33.1	44.9	45
			8.8	64	8.8	64.0	2	1/4	1.42	1.7	2.8	114A00, 116A00	29	41.8	55.8	60
		Medium	8.8	64	8.8	64.0	2	1/4	1.42	2.5	4.2	-	-	-	26.8	35
			8.8	64	8.8	64.0	2	1/4	1.42	2.5	4.2	116A00	9.7	13.9	26.8	35
			8.8	64	8.8	64.0	2	1/4	1.42	2.5	4.2	113A00	11.5	16.5	26.8	35
			8.8	64	8.8	64.0	2	1/4	1.42	2.5	4.2	114A00	19.3	27.9	40.1	45
			8.8	64	8.8	64.0	2	1/4	1.42	2.5	4.2	115A00	22.9	33.1	46.6	50
			8.8	64	8.8	64.0	2	1/4	1.42	2.5	4.2	114A00, 116A00	29	41.8	57.5	60
		High	8.8	64	8.8	64.0	2	1/4	1.42	3	5	-	-	-	27.6	35
			8.8	64	8.8	64.0	2	1/4	1.42	3	5	116A00	9.7	13.9	27.6	35
			8.8	64	8.8	64.0	2	1/4	1.42	3	5	113A00	11.5	16.5	27.6	35
			8.8	64	8.8	64.0	2	1/4	1.42	3	5	114A00	19.3	27.9	41.1	45
			8.8	64	8.8	64.0	2	1/4	1.42	3	5	115A00	22.9	33.1	47.6	50
			8.8	64	8.8	64.0	2	1/4	1.42	3	5	114A00, 116A00	29	41.8	58.5	60

Electrical Data (Continued)

50TCM-400/3/60Hz application			Compressor				OFM			IFM		Electric Heater			MCA	MOCP
Unit Size 50TCM	Power Supply V / Ph / Hz	Drive package Indoor Motor	No.1		No.2							P.N CRHEATERXXXXXX	APP (KW)	FLA		
			RLA	LRA	RLA	LRA	Qty	HP	FLA	HP	FLA					
D12	400/3/60	Standard	7.9	66	7.9	66	1	1	3.9	2.5	4.2	-	-	-	25.9	30
			7.9	66	7.9	66	1	1	3.9	2.5	4.2	116A00	9.7	13.9	25.9	30
			7.9	66	7.9	66	1	1	3.9	2.5	4.2	113A00	11.5	16.5	25.9	30
			7.9	66	7.9	66	1	1	3.9	2.5	4.2	115A00	22.9	33.1	46.6	50
			7.9	66	7.9	66	1	1	3.9	2.5	4.2	114A00, 116A00	29	41.8	57.5	60
			7.9	66	7.9	66	1	1	3.9	2.5	4.2	115A00, 113A00	34.7	50.1	67.9	70
		Medium	7.9	66	7.9	66	1	1	3.9	4.7	7.5	-	-	-	29.2	35
			7.9	66	7.9	66	1	1	3.9	4.7	7.5	116A00	9.7	13.9	29.2	35
			7.9	66	7.9	66	1	1	3.9	4.7	7.5	113A00	11.5	16.5	30.0	35
			7.9	66	7.9	66	1	1	3.9	4.7	7.5	115A00	22.9	33.1	50.8	60
			7.9	66	7.9	66	1	1	3.9	4.7	7.5	114A00, 116A00	29	41.8	61.6	70
			7.9	66	7.9	66	1	1	3.9	4.7	7.5	115A00, 113A00	34.7	50.1	72.0	80
		High	7.9	66	7.9	66	1	1	3.9	4.7	7.5	-	-	-	29.2	35
			7.9	66	7.9	66	1	1	3.9	4.7	7.5	116A00	9.7	13.9	29.2	35
			7.9	66	7.9	66	1	1	3.9	4.7	7.5	113A00	11.5	16.5	30.0	35
			7.9	66	7.9	66	1	1	3.9	4.7	7.5	115A00	22.9	33.1	50.8	60
			7.9	66	7.9	66	1	1	3.9	4.7	7.5	114A00, 116A00	29	41.8	61.6	70
			7.9	66	7.9	66	1	1	3.9	4.7	7.5	115A00, 113A00	34.7	50.1	72.0	80
D14	400/3/60	Standard	10.7	78.0	11.0	88.0	1	1	3.9	3	5	-	-	-	33.3	40
			10.7	78.0	11.0	88.0	1	1	3.9	3	5	116A00	9.7	13.9	33.3	40
			10.7	78.0	11.0	88.0	1	1	3.9	3	5	113A00	11.5	16.5	33.3	40
			10.7	78.0	11.0	88.0	1	1	3.9	3	5	115A00	22.9	33.1	47.6	50
			10.7	78.0	11.0	88.0	1	1	3.9	3	5	114A00, 116A00	29	41.8	58.5	60
			10.7	78.0	11.0	88.0	1	1	3.9	3	5	115A00, 113A00	34.7	50.1	68.9	70
		Medium	10.7	78.0	11.0	88.0	1	1	3.9	4.7	7.5	-	-	-	35.8	45
			10.7	78.0	11.0	88.0	1	1	3.9	4.7	7.5	116A00	9.7	13.9	35.8	45
			10.7	78.0	11.0	88.0	1	1	3.9	4.7	7.5	113A00	11.5	16.5	35.8	45
			10.7	78.0	11.0	88.0	1	1	3.9	4.7	7.5	115A00	22.9	33.1	50.8	60
			10.7	78.0	11.0	88.0	1	1	3.9	4.7	7.5	114A00, 116A00	29	41.8	61.6	70
			10.7	78.0	11.0	88.0	1	1	3.9	4.7	7.5	115A00, 113A00	34.7	50.1	72.0	80
		High	10.7	78.0	11.0	88.0	1	1	3.9	4.7	7.5	-	-	-	35.8	45
			10.7	78.0	11.0	88.0	1	1	3.9	4.7	7.5	116A00	9.7	13.9	35.8	45
			10.7	78.0	11.0	88.0	1	1	3.9	4.7	7.5	113A00	11.5	16.5	35.8	45
			10.7	78.0	11.0	88.0	1	1	3.9	4.7	7.5	115A00	22.9	33.1	50.8	60
			10.7	78.0	11.0	88.0	1	1	3.9	4.7	7.5	114A00, 116A00	29	41.8	61.6	70
			10.7	78.0	11.0	88.0	1	1	3.9	4.7	7.5	115A00, 113A00	34.7	50.1	72.0	80

Legend and Notes for Electrical Data Table

FLA - Full Load Amps

IFM - Indoor (Evaporator) Fan Motor

LRA - Locked Rotor Amps

MCA - Minimum Circuit Amps

OFM - Outdoor (Condenser) Fan Motor

RLA - Rated Load Amps

APP - Application power at rated power supply voltage

MOCP - Maximum Overcurrent Protection

Minimum Voltage: 360V, Maximum Voltage: 420 on 400V/3Ph/60Hz

For ordering electric heater: Include complete heater part number in the order placement e.g CRHEATER116A00.

Unbalanced 3-Phase Supply Voltage

Never operate a motor where phase imbalance in supply voltage is greater than 2%.

Use the following formula to determine the percentage of voltage imbalance

$$= 100 \times \frac{\text{Maximum Deviation From Average Voltage}}{\text{Average Voltage}}$$

Determine maximum deviation from average voltage.

$$(AB) 397 - 392 = 5v$$

$$(BC) 404 - 397 = 7v$$

$$(AC) 457 - 397 = 2v$$

Maximum Deviation is 7v.

Determine Percentage Voltage Imbalance.

$$\% \text{ Voltage Imbalance} = 100 \times \frac{7}{397} = 1.76\%$$

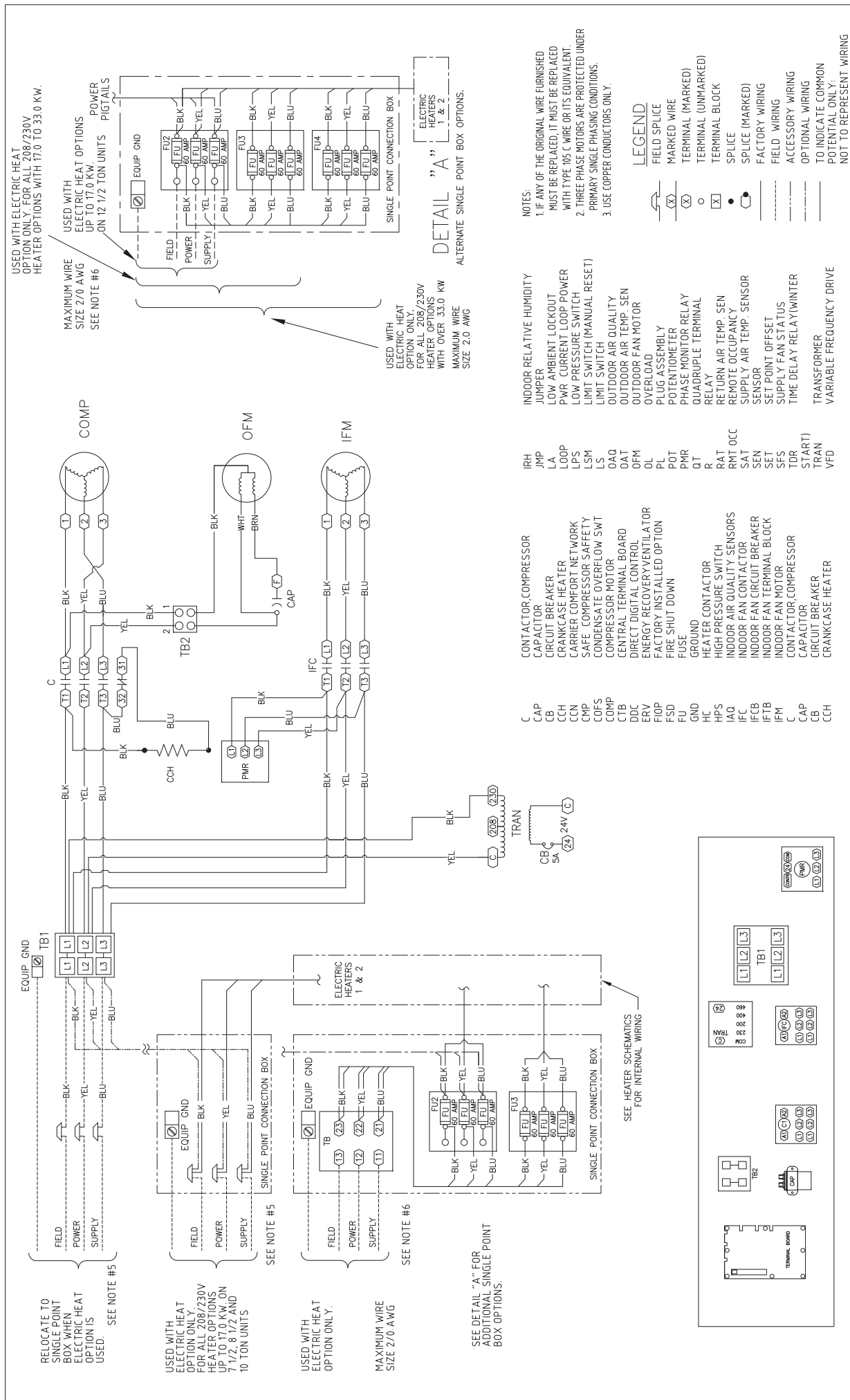
Example: Supply Voltage is 400V - 3ph - 60Hz

AB = 392v	Average Voltage = $\frac{392 + 404 + 395}{3}$
BC = 404v	
AC = 395v	$= \frac{1191}{3} = 397V$

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

Typical Wiring Schematic 50TCMA07 230V

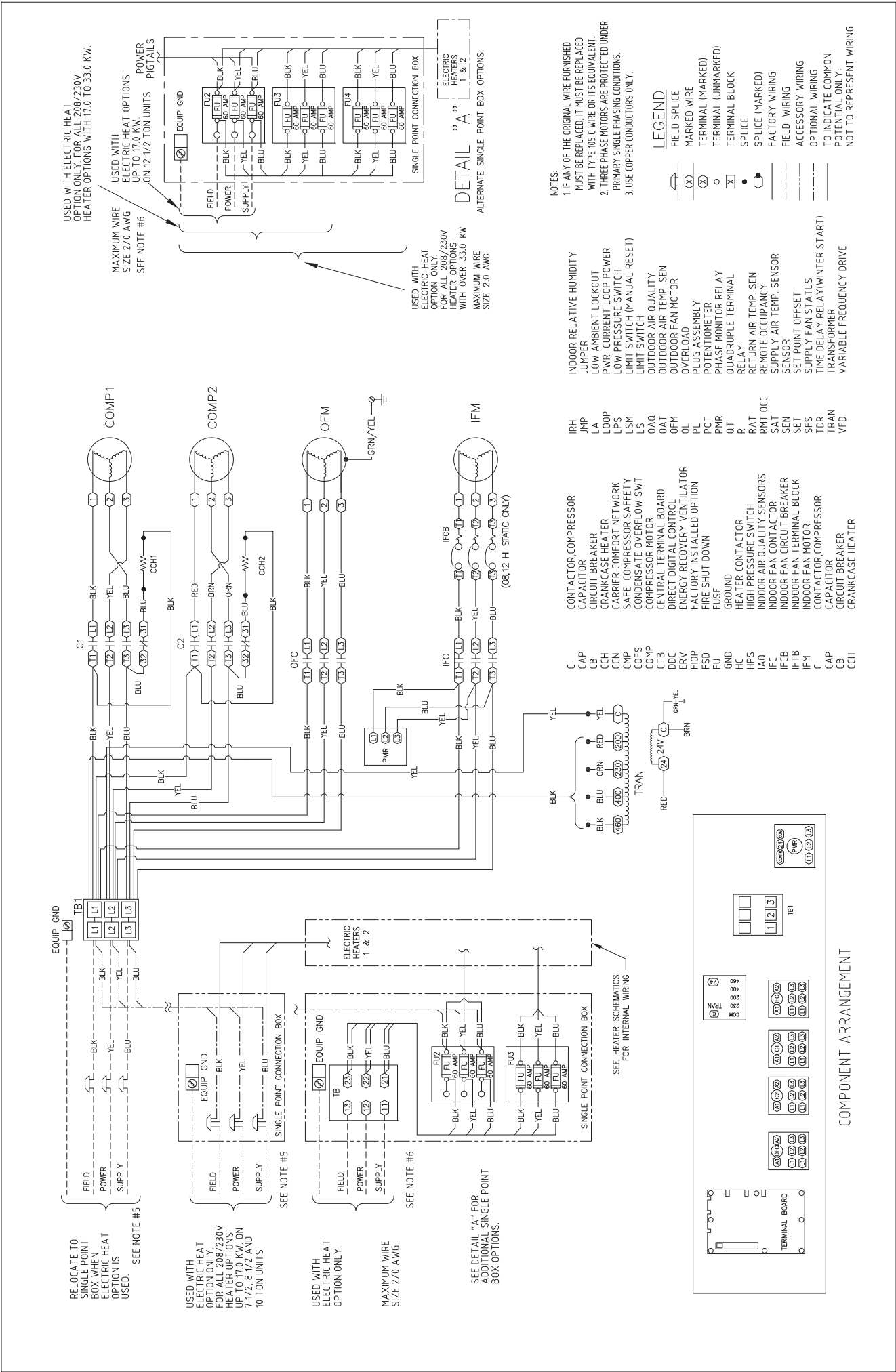


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Typical Wiring Schematic 50TCMD 12/14 230V/400V



NOTES:

1. TERMINAL BOARD SCHEMATIC LAYOUT DOES NOT MATCH ACTUAL TERMINAL BOARD TO SIMPLIFY CIRCUIT TRACE
2. ENSURE DESIGNATED JUMPERS ON TERMINAL BOARD ARE CUT WHEN ADDING SMOKE DETECTORS, PHASE LOSS REALY, ACCUPANCY AND SHUTDOWN.
3. FOR SINGLE STAGE ELECTRIC HEAT OPTION MOVE VIOLET TO TB4 ORANGE
4. TB4 LOCATED IN HEAT SECTION.

APPLICATION DATA

Min operating ambient temp (cooling)

In mechanical cooling mode, your Carrier rooftop can safely operate down to an outdoor ambient temperature of 40°F (4°C) and 25°F (- 4°C), with an accessory winter start kit.

Max operating ambient temp (cooling)

The maximum operating ambient temperature for cooling mode is 125°F (52°C).

Airflow

All units are draw-through in cooling mode.

Motor limits; Brake horsepower (BHP)

Due to Carrier's internal unit design, air path, and specially designed motors, the full horsepower (maximum continuous BHP) band, 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.

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.

GUIDE SPECIFICATIONS - 50TCM

Cooling Only/Electric Heat Packaged Rooftop HVAC Guide Specifications Size Range: 6 to 12.5 Nominal Tons



System Description

Small-Capacity Self-Contained Air Conditioners (50TCM)

Outdoor, rooftop mounted, electrically controlled, heating and cooling unit utilizing hermetic scroll compressor(s) for cooling duty and electric for heating duty.

Quality Assurance

1. Unit shall achieve ASHRAE 90.1 minimum efficiency requirements (2010 version).
2. Unit shall be designed to conform to ASHRAE 15, 2001.
3. Unit shall be rated in accordance with AHRI Standards 210/240 and 340/360.
4. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.
5. Unit casing shall be capable of withstanding 500-hour salt spray exposure per ASTM B117 (scribed specimen).
6. Unit shall be designed in accordance with ISO 9001:2000, and shall be manufactured in a registered ISO 9001:2000 facility.
7. 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.
8. Unit shall be designed in accordance with UL Standard 1995, including tested to withstand rain.

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.

Product General

1. 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.
2. Unit shall use environmentally safe, Puron refrigerant.
3. Unit shall be installed in accordance with the manufacturer's instructions.
4. Unit must be selected and installed in compliance with local, state, and federal codes.
5. Interior cabinet surfaces shall be insulated with closed cell foam minimum ½ -in. thick, minimum density 3.1lb/ft³.

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) 76mm minimum, gloss (per ASTM D523, 60°F): 60, Hardness: H-2H Pencil hardness.
3. Evaporator fan compartment interior cabinet insulation shall conform to AHRI Standards 210/240 or 340/360 minimum exterior sweat criteria.
4. Base of unit shall have a minimum of four locations for thru-the-base gas and electrical connections (factory installed or field installed), standard.
5. Base Rail
 - a) Unit shall have base rails on a minimum of 2 sides.
 - b) Holes shall be provided in the base rails for rigging shackles to ease 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 gauge thickness.
6. 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" - 14 NPT drain connection, possible either through the bottom or end of the drain pan. Connection shall be made per manufacturer's recommendations.
7. Top panel:

Shall be a single piece top panel on 07 size, two piece on 08 thru 14 size.
8. Electrical Connections:

All unit power wiring shall enter unit cabinet at a single, factory-prepared, knock out location.

9. Component access panels (standard):
 - a) Cabinet panels shall be easily removable for servicing.
 - b) Unit shall have one factory installed; tool-less, removable, filter access panel.
 - c) Panels covering control box, indoor fan, indoor fan motor, and compressors shall have molded composite handles.
 - d) Handles shall be UV modified, composite, permanently attached, and recessed into the panel.
 - e) Screws on the vertical portion of all removable access panels shall engage into heat resistant, molded composite collars.
 - f) Collars shall be removable and easily replaceable using manufacturer recommended parts.

Coils

Standard Aluminum fin-Copper Tube Coils:

1. Standard evaporator and condenser coils shall have aluminum lanced plate fins mechanically bonded to seam- less internally grooved copper tubes with all joints brazed.
2. Evaporator coils shall be leak tested to 150 psig, pressure tested to 450 psig, and qualified to UL 1995 burst test at 1775 psig.
3. Condenser coils shall be leak tested to 150 psig, pressure tested to 450 psig, and qualified to UL 1995 burst test at 1980 psig.

Optional Pre-coated aluminum-fin condenser coils:

1. Shall have a durable epoxy-phenolic coating to provide protection in mildly corrosive coastal environments.
2. 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.
3. Epoxy-phenolic barrier shall minimize galvanic action between dissimilar metals.

Optional Copper-fin evaporator and condenser coils:

Shall be constructed of copper fins mechanically bonded to copper tubes

Refrigerant Components

1. Refrigerant circuit shall include the following control, safety, and maintenance features:
 - a) Fixed orifice metering system shall prevent mal-distribution 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) Refrigerant filter drier.
 - c) Service gauge connections on suction and discharge lines.
2. There shall be gauge line access, covered cap:
 - a) The plug shall be easy to remove and replace.
 - b) When the plug is removed, the gauge access port shall enable maintenance personnel to route their pressure gauge lines.
 - c) This gauge access port shall facilitate correct and accurate condenser pressure readings by enabling the reading with the compressor access panel on.
 - d) The plug shall be made of a leak proof, UV-resistant, composite material.
3. Compressors:
 - a) Unit shall use one fully hermetic, scroll compressor for each independent refrigeration circuit.
 - b) Compressor motors shall be cooled by refrigerant gas passing through motor windings.
 - c) Compressors shall be internally protected from high discharge temperature conditions.
 - d) Compressors shall be protected from an over-temperature and over-ampere conditions by an internal, motor overload device.
 - e) Compressor shall be factory mounted on rubber grommets.
 - f) Compressor motors shall have internal line break thermal, current overload and high pressure differential protection.
 - g) Crankcase heaters shall not be required for normal operating range, unless provided by compressor manufacturer due to refrigerant charge limits.

Evaporator Fan and Motor

Evaporator Fan Motor:

1. Shall have permanently lubricated bearings.
2. Shall have inherent automatic-reset thermal overload protection.
3. Shall have a maximum continuous bhp rating for continuous duty operation; no safety factors above that rating shall be required.

Belt-driven Evaporator Fan:

1. Belt drive shall include an adjustable pitch motor pulley.
2. Shall use sealed, permanently lubricated ball-bearing type.
3. Blower fan shall be double-inlet type with forward-curved blades.
4. Shall be constructed from steel with a corrosion resistant finish and dynamically balanced.

Condenser Fans and Motors

Condenser Fan Motors:

1. Shall be a totally enclosed motor.
2. Shall use permanently lubricated bearings.
3. Shall have inherent thermal overload protection with an automatic reset feature.
4. Shall use a shaft-down design on 07 to 09 models and shaft-up design on 12, 14 sizes with rain shield.

Condenser Fans:

1. Shall be a direct-driven propeller type fan.
2. Shall have aluminum blades riveted to corrosion-resistant steel spiders and shall be dynamically balanced.

Electric and Electronic Control System for HVAC

General:

1. Shall be complete with self-contained low-voltage control circuit protected by a resettable circuit breaker on the 24V 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, 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.

Safeties:

1. Compressor over-temperature, over current.
2. Low pressure switch:
 - a. Units with 2 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. 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 with 2 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.

Filter Section

1. Filters access is specified in the unit cabinet section of this specification.
2. Filters shall be held in place by a pivoting filter tray, facilitating easy removal and installation.
3. Shall consist of factory-installed, low velocity, throw-away 2 -in. thick fiberglass filters.
4. Filters shall be standard, commercially available sizes.
5. Only one size filter per unit is allowed.

Operating Characteristics

1. Unit shall be capable of starting and running at 125°F (52°C) ambient outdoor temperature, meeting maximum load criteria of AHRI Standard 210/240 or 340/360 at $\pm 10\%$ voltage.
2. Compressor with standard controls shall be capable of operation down to 40°F (4°C), ambient outdoor temperatures. Accessory winter start kit is necessary if mechanically cooling at ambient temperatures down to 25°F (- 4°C).
3. Unit shall discharge supply air horizontally as shown on contract drawings.
4. Unit shall be factory configured for horizontal supply and return configurations.

Thermostats

Thermostat must:

1. Energize both "W" and "G" when calling for heat.
2. Have capability to energize 2 different stages of cooling, and 2 different stages of heating.
3. Include capability for occupancy scheduling.

Electrical Requirements

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

Special Features: Options and Accessories

Open protocol, direct digital controller:

1. Shall be ASHRAE 62-2001 compliant.
2. Shall accept 18-30VAC, 50-60Hz, and consumer 15VA or less power.
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 BACNET (MS/TP and PTP modes), Modbus (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, set point 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: Fan, cooling stage 1, cooling stage 2, heat stage 1, heat stage 2, heat stage 3/ exhaust.
10. Shall have built-in surge protection circuitry through solid state polyswitches. Polyswitches shall be used on in-coming power and network connections. Polyswitches will return to normal when the "trip" condition clears.
11. Shall have a battery backup 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.

PremierLink controller:

1. Shall be ASHRAE 62-2001 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. Controller shall accept the following inputs: space temperature, set point 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.
5. Shall accept a CO2 sensor in the conditioned space, and be Demand Control Ventilation (DCV) ready.
6. Shall provide the following outputs: Fan, cooling stage 1, cooling stage 2, heat stage 1, heat stage 2, heat stage 3/ exhaust/ occupied.
7. Unit shall provide surge protection for the controller through a field installed circuit breaker.
8. Shall be Internet capable, and communicate at a Baud rate of 38.4K or faster
9. Shall have an LED display independently showing the status of activity on the communication bus, and processor operation.
10. 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 plug-in communications card.
11. Shall have built-in Carrier Comfort Network (CCN) protocol, and be compatible with other CCN devices, including ComfortLink and ComfortVIEW controllers.
12. Shall have built-in support for Carrier technician tool.
13. Software upgrades will be accomplished by local download. Software upgrades through chip replacements are not allowed.
14. Shall be shock resistant in all planes to 5G peak, 11ms during operation, and 100G peak, 11ms during storage.
15. Shall be vibration resistant in all planes to 1.5G @ 20-300 Hz.
16. Shall support a bus length of 4000 ft max, 60 devices per 1000 ft section, and 1 RS-485 repeater per 1000ft sections.

Manual damper:

Manual damper package shall consist of damper, air inlet screen, and rain hood which can be preset to admit up to 50% outdoor air for year round ventilation.

Head Pressure Control Package:

1. Controller shall control coil head pressure by condenser-fan speed modulation or condenser-fan cycling and wind baffles.
2. 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).

High/Medium-Static Indoor Fan Motor(s) and Drive(s):

Shall be factory-installed to provide additional performance range.

Smoke detectors:

1. Shall be a Four-Wire Controller and Detector.
2. Shall be environmental compensated with differential sensing for reliable, stable, and drift-free sensitivity.
3. Shall use magnet-activated test/reset sensor switches.
4. Shall have tool-less connection terminal access.
5. Shall have a recessed momentary switch for testing and resetting the detector.
6. Controller shall include:
 - a) One set of normally open alarm initiation contacts for connection to an initiating device circuit on a fire alarm control panel.
 - b) Two Form-C auxiliary alarm relays for interface with rooftop unit or other equipment.
 - c) One Form-C supervision (trouble) relay to control the operation of the Trouble LED on a remote test/reset station.
 - d) Capable of direct connection to two individual detector modules.
 - e) Can be wired to up to 14 other duct smoke detectors for multiple fan shutdown applications.

Winter start kit:

1. Shall contain a bypass device around the low pressure switch.
2. Shall be required when mechanical cooling is required down to 25°F (-4°C).

Time Guard:

1. Shall prevent compressor short-cycling by providing a 5-minute delay (±2 minutes) before restarting a compressor after shutdown for any reason.
2. One device shall be required per compressor.

Electric Heat:

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. Auto reset thermo limit controls, magnetic heater contactors (24V coil) and terminal block all mounted in electric heater control box (minimum 18 ga galvanized steel) attached to end of heater assembly.

