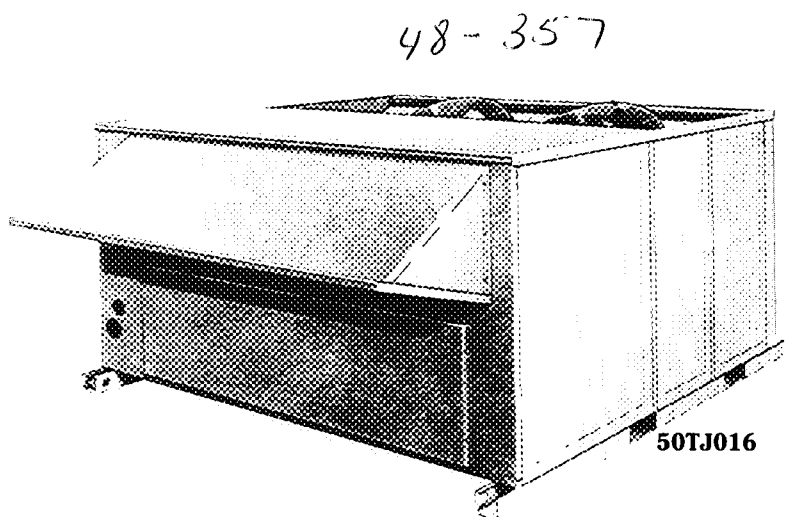
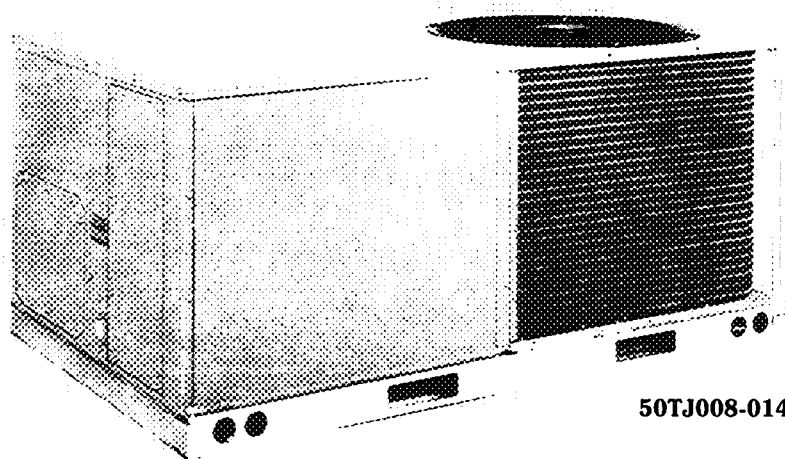




Advance Product Data

50TJ004-028 Single-Package Rooftop Units Electric Cooling with Electric Heat Option

3 to 25 Nominal Tons



Single-Package Rooftop Units with:

- Galvanized steel cabinet with Carrier Weather Armor® coating
- Return-air filters
- Commercial strength base rails (full perimeter on 004-014)
- Corrosion-resistant condensate pan
- Single power entry to unit
- Commercial duty motors with permanently lubricated bearings
- Standard cooling operation at outdoor ambient temperatures as low as 25 F
- Meets ASHRAE Standard 62

Features/Benefits

Compact, vertical discharge units convert to horizontal discharge (50TJ016-028 require accessory roof curb), combining installation flexibility with efficient performance and easy maintenance.

Easy installation and conversion

All units are shipped in the vertical discharge configuration for fit-up to standard roof curbs. (Two different curb sizes fit unit sizes 004-007 and 008-014, and one size is offered for 016-028 units.) The contractor can order and install the roof curb early in the construction stage, before decisions on size requirements are made.

All units feature formed baserail design with forklift slots and rigging holes for easier maneuvering. Packaging protects the unit during shipment and storage.

The units can be easily converted from a vertical to a horizontal discharge configuration either by inter-

changing the panels supplied with the unit (004-014) or by using the horizontal supply/return adapter curb assembly (016-028).

Convenient duct openings in the 50TJ016-028 unit basepans permit side-by-side or concentric duct connections without requiring internal unit modification.

Factory- and field-installed electric heaters are available in a wide range of capacities. Single point wiring kit makes installation simple (004-014).

Simple electrical connections

Terminal boards, located in the base unit control box, facilitate connections to room thermostat, outdoor thermostat(s), economizer, and electric heat. Service panels are quickly removed, permitting easy servicing.

Thru-the-curb service connections (standard on 50TJ016-028 units; accessory on 50TJ004-014 units) allow power and control wiring to be routed through the curb, minimizing roof penetrations. Both power and control connections are made on the same side of the unit to simplify installation.

Proven compressor reliability

Design techniques feature computer-programmed balance between compressor, condenser, and evaporator. Carrier-specified hermetic (004-014, 020, and 024 units) and semi-hermetic (016 and 028 units) compressors are equipped with compressor overcurrent and overtemperature protection to ensure dependability. Crankcase heaters (016 and 028 units) prevent refrigerant dilution of oil during off cycles and ensure proper lubrication at start-up to prolong compressor life. Crankcase heaters are not necessary on 004-014 and 020,024 units. Carrier's exclusive Acutrol™ metering device precisely controls refrigerant flow, preventing slugging and flood-back, while maintaining optimum unit performance.

Durable, dependable construction

Produced for durability in any climate, the weather-resistant cabinets are designed with Carrier Weather Armor® coating. The cabinets are made of pre-painted, galvanized steel for long life and attractive appearance.

Integrated economizers and outdoor air

During a first stage call for cooling, if the outdoor-air temperature is below the control set point, the mixed-air

sensor modulates the economizer outdoor-air damper open to achieve the set point. When second-stage cooling is called for, the compressor is energized in addition to the economizer. If the outdoor-air temperature is above the set point, the first stage of compression is activated and the economizer stays at vent position. Economizer operation is controlled by Accusensor™ I dry-bulb thermostat that senses outdoor-air temperature. Accessory upgrade kits include solid-state enthalpy control and differential enthalpy control.

The Varislide™ type economizer on the 50TJ004-014 units has a reliable sliding plate damper which is easily adjusted for 100% outdoor air, 100% return air, or any proportions of mixed air.

For units without economizer, year-round ventilation is enhanced by a manual outdoor-air damper (ordered

as standard on 50TJ016-028; ordered as an accessory on 50TJ004-014 units). The damper can be preset to admit up to 25% (016-028) or 50% (004-014) outdoor air.

Quiet, efficient operation and dependable performance

Compressors have vibration isolation for extremely quiet operation. Efficient fan and motor design permits operation at very low sound levels.

The 50TJ008-028 units offer high energy efficiency and lower utility costs through part load operation using 2 stages of cooling.

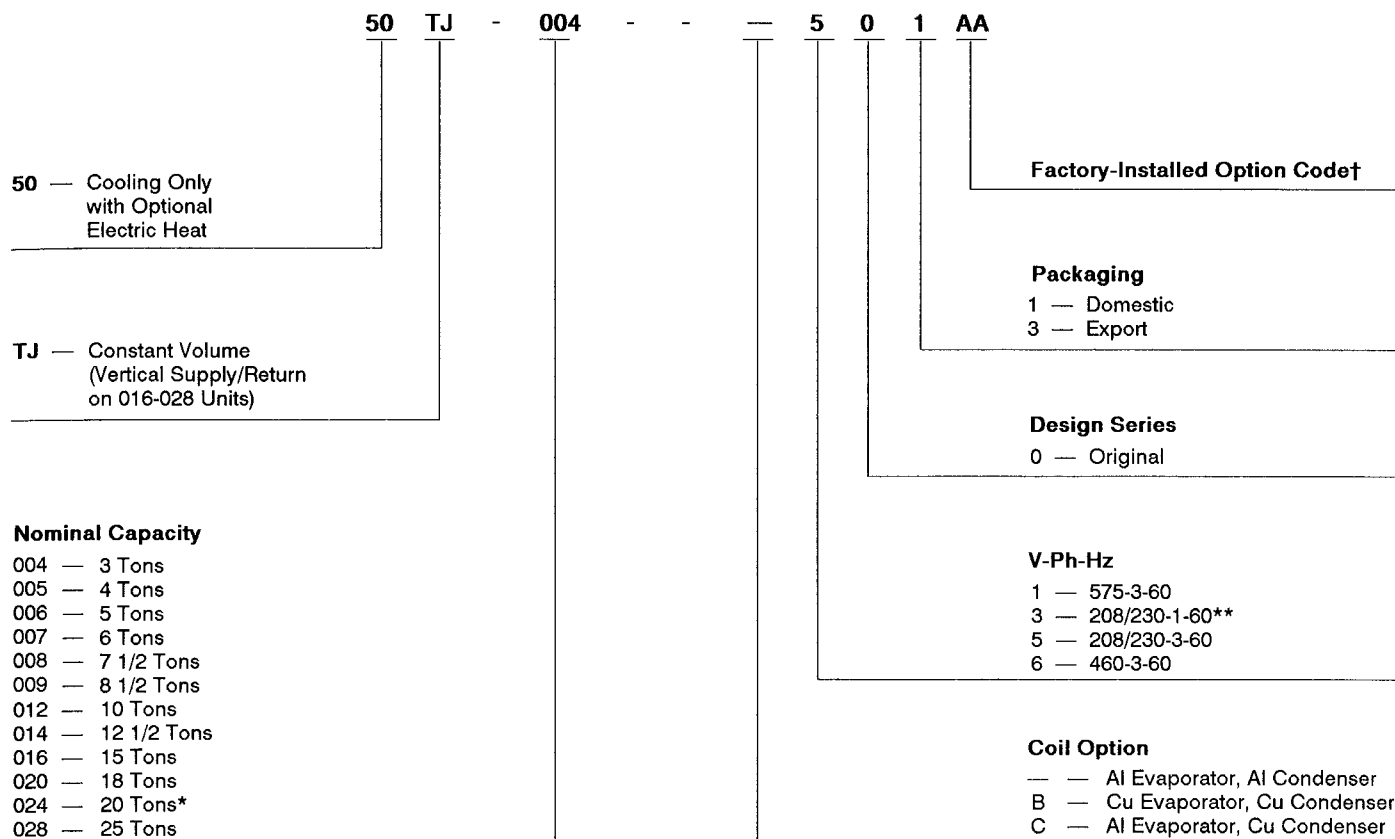
Quiet and efficient operation is provided by belt-driven evaporator fans (standard on all units over 5 tons). The belt-driven evaporator-fan motor allows available static pressure to meet the job requirements of even the most demanding applications.

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1750-3298

Model number nomenclature



LEGEND

Al — Aluminum
Cu — Copper
FIOP — Factory-Installed Option

*The 50TJ024 unit is being newly released due to changes in compressor and evaporator fan design, and to make the model number nomenclature consistent throughout the 50TJ004-028 product offering.

†Refer to 50TJ price pages for 50TJ FIOP code table.

**Single phase is available on 5-ton and smaller units 50TJ006 is 230 v only.

Physical data — 50TJ004-007

UNIT SIZE	004	005	006	007
NOMINAL CAPACITY (tons)	3	4	5	6
OPERATING WEIGHT (lb)				
Unit	—	—	—	—
Al/Al*	—	—	—	—
Al/Cu*	365	375	395	470
Economizer	34	34	34	34
Roof Curb	115	115	115	115
COMPRESSOR				
Quantity	1	1	1	1
Oil (oz)	50	50	50	65
REFRIGERANT TYPE				
Operating Charge (lb-oz)				
Circuit 1	3-6	4-11	5-13	9-0
Circuit 2	—	—	—	—
CONDENSER COIL				
Rows...Fins/in.	1.. 17	1.. 17	1.. 17	2.. 17
Total Face Area (sq ft)	7.36	11 39	13 19	10 42
CONDENSER FAN				
Nominal Cfm	4100	4100	4100	4100
Quantity...Diameter (in.)	1 22 0	1 22 0	1 22 0	1 22 0
Motor Hp...Rpm	¼ ..1100	¼ ..1100	¼ ..1100	¼ ..1100
Watts Input (Total)	325	325	325	325
EVAPORATOR COIL				
Rows...Fins/in.	2.. 15	2.. 15	3.. 15	4.. 15
Total Face Area (sq ft)	4 17	5.5	5 5	5 5
EVAPORATOR FAN				
Quantity...Size (in.)	Std 1...10 x 10 Alt 1 ..10 x 10	Std 1 10 x 10 Alt 1 ..10 x 10	Std 1 11 x 10 Alt 1 ..10 x 10	Std 1 10 x 10 Alt —
Type Drive	Std Direct	Std Direct	Std Direct	Std Belt
Nominal Cfm	Alt 1200	Alt 1600	Alt 2000	Alt 2400
Motor Hp	Std —	Std 1600	Std 2000	Std 2400
Maximum Continuous Bhp	Alt —	Alt —	Alt —	Alt —
Motor Frame Size	Std .34	Std 81	Std 1 19	Std 2 40
Motor Frame Size	Alt .66	Alt 1.20	Alt 1.80	Alt —
Nominal Rpm High/Low	Std 48	Std 48	Std 48	Std 56
Fan Rpm Range	Alt 48	Alt 48	Alt 48	Alt —
Motor Bearing Type	Std 860/845	Std 1080/970	Std 1080/850	Std —
Maximum Allowable Rpm	Alt —	Alt —	Alt —	Alt 1070-1460
Motor Pulley Pitch Diameter A/B (in.)	Std 558-1326	Std 970-1310	Std 900-1300	Std —
Nominal Motor Shaft Diameter (in.)	Alt Ball	Alt Ball	Alt Ball	Alt Ball
Fan Pulley Pitch Diameter (in.)	Std 2100	Std 2100	Std 2100	Std 2100
Nominal Fan Shaft Diameter (in.)	Alt 1.9/2 9	Alt 1 9/2 9	Alt 2 4/3 4	Alt 2 8/3 8
Belt, Quantity...Type...Length (in.)	Std —	Std —	Std —	Std 4 5
Pulley Center Line Distance (in.)	Alt 4 5	Alt 4 0	Alt 4 5	Alt —
Speed Change per Full Turn of Movable Pulley Flange (rpm)	Std —	Std —	Std —	Std 1 A...40
Movable Pulley Maximum Full Turns From Closed Position	Alt 42	Alt 68	Alt 63	Alt 78
Factory Setting	Std 5	Std 5	Std 5	Std 5
Factory Speed Setting (rpm)	Alt 3	Alt 3	Alt 3	Alt 3
Fan Shaft Diameter at Pulley (in.)	Std 651	Std 1106	Std 1060	Std 1230
	Alt ¾	Alt ¾	Alt ¾	Alt ¾
HIGH-PRESSURE SWITCH (psig)†				
Standard Compressor Internal Relief Cutout		450 ± 50		500 ± 50
Reset (Auto.)		428		428
		320		320
LOW-PRESSURE SWITCH (psig)†				
Cutout			7 ± 3	
Reset (Auto.)			22 ± 7	
FREEZE PROTECTION THERMOSTAT (F)†				
Opens			30 ± 5	
Closes			45 ± 5	
OUTDOOR-AIR INLET SCREENS				
Quantity...Size (in.)			Cleanable 1 20 x 24 x 1	
RETURN-AIR FILTERS				
Quantity...Size (in.)			Throwaway 2. 16 x 25 x 2	

LEGEND

Al — Aluminum
Bhp — Brake Horsepower
Cu — Copper

*Evaporator coil/condenser coil.

†Requires the accessory controls upgrade kit

**Weight of 14-in. roof curb

††On 50TJ020-028 units, Circuit 1 consists of lower portion of both the condenser and evaporator coils, and Circuit 2 consists of the upper portion of both coils

||50TJ016 units have adjustable standard and optional drives

†The 50TJ020-028 units have one set (2) of fixed pulleys.

***The 50TJ028 units require 2-in. industrial-grade filters capable of handling face velocities up to 625 ft/min (such as American Air Filter no. 5700 or equivalent)

NOTE: The 50TJ004-014 units have a loss-of-charge/low-pressure switch (accessory) located in the liquid line, and the 50TJ016-028 units have a low-pressure switch in the suction line (standard).

Physical data — 50TJ008-014

UNIT SIZE	008	009	012	014
NOMINAL CAPACITY (tons)	7½	8½	10	12½
OPERATING WEIGHT (lb)				
Unit				
Al/Al*	—	—	—	—
Al/Cu*	755	760	915	930
Economizer	44	44	44	44
Roof Curb**	143	143	143	143
COMPRESSOR				
Quantity	2	2	2	2
Oil (oz)	50 ea	50 ea	50 ea	65 ea
REFRIGERANT TYPE				
Operating Charge (lb-oz)				
Circuit 1	7-0	7-0	9-7	10-0
Circuit 2	5-12	6-2	8-6	9-3
CONDENSER COIL				
Rows...Fins/in.	1. 17	Enhanced Copper Tubes, Aluminum Lanced Fins	2...17	2...17
Total Face Area (sq ft)	20 50	14.25	19 86	25 00
CONDENSER FAN				
Nominal Cfm	6500	6500	7000	7200
Quantity...Diameter (in.)	1 26	1 26	1 26	1 26
Motor Hp...Rpm	¾ . 1100	¾ . 1100	¾ . 1100	¾ . 1100
Watts Input (Total)	950	950	950	950
EVAPORATOR COIL				
Rows...Fins/in.	3.. 15	Enhanced Copper Tubes, Aluminum Double-Wavy Fins, Acutrol™	3..15	Feed Device
Total Face Area (sq ft)	8 0	8.0	10 0	4 15
EVAPORATOR FAN				
Quantity...Size (in.)				
Std	1...15 x 15	1 15 x 15	1 15 x 15	1 15 x 15
Alt	1 15 x 15	—	1...15 x 15	1 15 x 15
Type Drive				
Std	Belt	Belt	Belt	Belt
Alt	Belt	—	Belt	Belt
Nominal Cfm				
Std	3000	3400	4000	5000
Alt	3000	3400	4000	5000
Motor Hp				
Std	—	—	—	—
Alt	—	—	—	—
Maximum Continuous Bhp				
Std	2.40	2 40	2 40	4 20
Alt	—	—	2.90	5.25
Motor Frame Size				
Std	56	56	56	56
Alt	—	—	56	56
Nominal Rpm High/Low				
Std	—	—	—	—
Alt	—	—	—	—
Fan Rpm Range				
Std	590-840	685-935	685-935	860-1080
Alt	685-935	—	835-1085	900-1260
Motor Bearing Type				
Std	Ball	Ball	Ball	Ball
Alt	2100	2100	2100	2100
Maximum Allowable Rpm				
Std	2 4/3 4	2 8/3 8	2 8/3 8	4.0/5.0
Alt	2 8/3 8	—	3 4/4 4	3.1/4.1
Motor Pulley Pitch Diameter A/B (in.)				
Std	—	—	—	—
Alt	—	—	—	—
Nominal Motor Shaft Diameter (in.)				
Std	7 0	7 0	7 0	8 0
Alt	7 0	—	7 0	5 9
Fan Pulley Pitch Diameter (in.)				
Std	—	—	—	—
Alt	—	—	—	—
Nominal Fan Shaft Diameter (in.)				
Std	—	—	—	—
Alt	—	—	—	—
Belt, Quantity...Type...Length (in.)				
Std	1 A 48	1...A 48	1...A 51	1 A 51
Alt	1...A 51	—	1 A...57	1...BX...46
Pulley Center Line Distance (in.)				
Std	16 75-19 25	16 75-19 25	15 85-17 50	15 85-17 50
Alt	16 75-19 25	—	15 85-17 50	15 85-17 50
Speed Change per Full Turn of Movable Pulley Flange (rpm)				
Std	50	50	50	44
Alt	50	—	50	50
Movable Pulley Maximum Full Turns From Closed Position				
Std	5	5	5	5
Alt	5	—	5	6
Factory Setting				
Std	5	5	5	5
Alt	5	—	5	5
Factory Speed Setting (rpm)				
Std	590	685	685	860
Alt	685	—	835	900
Fan Shaft Diameter at Pulley (in.)				
Std	1	1	1	1
Alt	—	—	—	—
HIGH-PRESSURE SWITCH (psig)†				
Standard Compressor Internal Relief		450 ± 50		500 ± 50
Cutout		428		428
Reset (Auto.)		320		320
LOW-PRESSURE SWITCH (psig)†				
Cutout			7 ± 3	
Reset (Auto.)			22 ± 7	
FREEZE PROTECTION THERMOSTAT (F)†				
Opens			30 ± 5	
Closes			45 ± 5	
OUTDOOR-AIR INLET SCREENS				
Quantity...Size (in.)			Cleanable	
			1 20 x 25 x 1	
			1 16 x 25 x 1	
RETURN-AIR FILTERS				
Quantity...Size (in.)			Throwaway	
	4 16 x 20 x 2	4 16 x 20 x 2	4 ..20 x 20 x 2	4 ..20 x 20 x 2

LEGEND

Al — Aluminum
Bhp — Brake Horsepower
Cu — Copper

*Evaporator coil/condenser coil.

†Requires the accessory controls upgrade kit

**Weight of 14-in roof curb.

††On 50TJ020-028 units, Circuit 1 consists of lower portion of both the condenser and evaporator coils, and Circuit 2 consists of the upper portion of both coils

‡50TJ016 units have adjustable standard and optional drives

†The 50TJ020-028 units have one set (2) of fixed pulleys

***The 50TJ028 units require 2-in industrial-grade filters capable of handling face velocities up to 625 ft/min (such as American Air Filter no 5700 or equivalent)

NOTE: The 50TJ004-014 units have a loss-of-charge/low-pressure switch (accessory) located in the liquid line, and the 50TJ016-028 units have a low-pressure switch in the suction line (standard)

Physical data — 50TJ016-028

UNIT SIZE	016	020	024	028
NOMINAL CAPACITY (tons)	15	18	20	25
OPERATING WEIGHT (lb)				
Unit				
Al/Al*	1470	1774	1774	2114
Al/Cu*	1550	1904	1904	2244
Economizer	110	110	110	110
Roof Curb**	200	200	200	200
COMPRESSOR	Semi-Hermetic	Hermetic	Hermetic	Semi-Hermetic
Quantity	1	2	2	2
Oil (oz)	160	65 ea	65 ea	152 ea
REFRIGERANT TYPE			R-22	
Operating Charge (lb-oz)				
Circuit 1††	23-9	15-8	15-8	16-12
Circuit 2	—	15-8	15-8	15-12
CONDENSER COIL		Enhanced Copper Tubes, Aluminum Lanced or Copper Fins		
Rows...Fins/in.	3...13 6	4...15	4...15	4...15
Total Face Area (sq ft)	18 9	22 2	22 2	22 2
CONDENSER FAN		Propeller Type		
Nominal Cfm	12,000	14,200	14,200	14,200
Quantity...Diameter (in.)	2 26	2...30	2 30	2 30
Motor Hp...Rpm	1...1075	1...1075	1...1075	1...1075
Watts Input (Total)	3550	3550	3550	3550
EVAPORATOR COIL		Copper Tubes, Aluminum or Copper Plate Fins		
Rows...Fins/in.	3...14.3	4...15	4...15	4...15
Total Face Area (sq ft)	16 5	17 9	17 9	17 9
EVAPORATOR FAN		Centrifugal Type		
Quantity...Size (in.)	Std 2 10 x 10 Alt 2...10 x 10	Std 2 12 x 12 Alt —	Std 2 12 x 12 Alt 2 12 x 12	Std 2 12 x 12 Alt 2 12 x 12
Type Drive	Std Belt Alt Belt	Std Belt Alt —	Std Belt Alt Belt	Std Belt Alt Belt
Nominal Cfm	Std 6000 Alt 6000	Std 8000 Alt —	Std 8000 Alt 10,000	Std 10,000 Alt 10,000
Motor Hp	Std 3 0 Alt 3 7	Std 5 Alt —	Std 5 Alt 7½	Std 10 Alt 7½
Maximum Continuous Bhp	Std 3 45 Alt 4 25	Std 5 90 Alt —	Std 5 90 Alt 8 7 [208/230 v] 9 5 [460 v]	Std 10 000 Alt 8 7 [208/230 v] 9 5 [460 v] 10 2 [208/230 v] 11 8 [460 v]
Motor Frame Size	Std — Alt —	Std 184T Alt —	Std 184T Alt 213T	Std 213T Alt 215T
Nominal Rpm High/Low	Std — Alt —	Std — Alt —	Std — Alt —	Std — Alt —
Fan Rpm Range	Std 896-1161 Alt 1141-1407	Std — Alt —	Std — Alt —	Std — Alt —
Motor Bearing Type	Std Ball Alt 1550	Std Ball Alt 1500	Std Ball Alt 1500	Std Ball Alt 1500
Maximum Allowable Rpm	Std 1 9/2 9 Alt 3 4/4 4	Std 5 1 Alt —	Std 5.1 Alt 6.1	Std 6 1 Alt 6.9
Motor Pulley Pitch Diameter A/B (in.)¶	Std — Alt —	Std 1½ Alt —	Std 1½ Alt 1¾	Std 1¾ Alt 1¾
Nominal Motor Shaft Diameter (in.)	Std — Alt —	Std 1½ Alt —	Std 1½ Alt 1¾	Std 1¾ Alt 1¾
Fan Pulley Pitch Diameter (in.)	Std 4 9 Alt 5 5	Std 8 4 Alt —	Std 8 4 Alt 8.4	Std 8 4 Alt 8.4
Nominal Fan Shaft Diameter (in.)	Std 1¾ Alt —	Std 1¾ Alt —	Std 1¾ Alt 1¾	Std 1¾ Alt 1¾
Belt, Quantity...Type...Length (in.)	Std 1 BX 38 Alt 1 A 43	Std 1 B 50 Alt —	Std 1 B. 50 Alt 1 BX 51	Std 1 BX...51 Alt 1 BX 53
Pulley Center Line Distance (in.)	Std — Alt —	Std — Alt —	Std — Alt —	Std — Alt —
Speed Change per Full Turn of Movable Pulley Flange (rpm)	Std 54 Alt 54	Std — Alt —	Std — Alt —	Std — Alt —
Movable Pulley Maximum Full Turns From Closed Position	Std 5 Alt 5	Std — Alt —	Std — Alt —	Std — Alt —
Factory Setting	Std 3.5 Alt 3.5	Std — Alt —	Std — Alt —	Std — Alt —
Factory Speed Setting (rpm)	Std 975 Alt 1221	Std 1070 Alt —	Std 1070 Alt 1287	Std 1287 Alt 1438
Fan Shaft Diameter at Pulley (in.)	Std 1 Alt —	Std 1 Alt —	Std 1 Alt —	Std 1 Alt —
HIGH-PRESSURE SWITCH (psig)			—	
Standard Compressor Internal Relief Cutout			426	
Reset (Auto.)			320	
LOW-PRESSURE SWITCH (psig)			7	
Cutout			22	
Reset (Auto.)				
FREEZE PROTECTION THERMOSTAT (F)			30 ± 5	
Opens			45 ± 5	
Closes				
OUTDOOR-AIR INLET SCREENS			Cleanable	
Quantity...Size (in.)			2 .20 x 25 x 1 1...20 x 20 x 1	
RETURN-AIR FILTERS			Throwaway***	
Quantity...Size (in.)	2 20 x 20 x 2 3 16 x 20 x 2 2 16 x 25 x 2		4 .20 x 20 x 2 4 16 x 20 x 2	

LEGEND

Al — Aluminum
Bhp — Brake Horsepower
Cu — Copper

*Evaporator coil/condenser coil.

†Requires the accessory controls upgrade kit.

**Weight of 14-in. roof curb

††On 50TJ020-028 units, Circuit 1 consists of lower portion of both the condenser and evaporator coils, and Circuit 2 consists of the upper portion of both coils

||50TJ016 units have adjustable standard and optional drives

¶The 50TJ020-028 units have one set (2) of fixed pulleys

***The 50TJ028 units require 2-in. industrial-grade filters capable of handling face velocities up to 625 ft/min (such as American Air Filter no. 5700 or equivalent)

NOTE: The 50TJ004-014 units have a loss-of-charge/low-pressure switch (accessory) located in the liquid line, and the 50TJ016-028 units have a low-pressure switch in the suction line (standard)

Capacity ratings

UNIT 50TJ	NOMINAL TONS	STANDARD CFM	NET COOLING CAPACITY (Btuh)	TOTAL kW	SEER*		EER	SOUND RATING (Bels)
					Belt Drive	Direct Drive		
004	3	1200	35,500	4.1	10.00	9.70	8.60	8.2
005	4	1600	48,000	5.6	10.00	9.70	8.60	8.2
006	5	2000	58,500	6.8	10.00	9.70	8.60	8.2

UNIT 50TJ	NOMINAL TONS	STANDARD CFM	NET COOLING CAPACITY (Btuh)	TOTAL kW	EER	SOUND RATING (Bels)	IPLV
007	6	2100	70,000	7.9	8.90	8.4	†
008	7½	2600	85,500	9.6	8.90	8.6	9.70
009	8½	3000	98,000	11.0	8.90	8.6	9.45
012	10	3500	116,000	13.0	8.90	8.8	9.75
014	12½	4500	142,000	16.0	8.90	8.8	8.85

UNIT 50TJ	NOMINAL TONS	NET COOLING CAPACITY (Btuh)	TOTAL kW	EER	IPLV
016	15	180,000	20.9	8.60	10.50
020	18	194,000	22.8	8.60	8.20
024	20	220,000	25.9	8.50	8.30
028	25	268,000	31.2	8.60	8.40

LEGEND

Bels — Sound Levels (1 bel = 10 decibels)
EER — Energy Efficiency Ratio
IPLV — Integrated Part-Load Values
SEER — Seasonal Energy Efficiency Ratio

*Applies only to units with capacity of 65,000 Btuh or less
 †The IPLV only applies to 2-stage cooling units.

NOTES:

Rated in accordance with ARI Standards 210/240-89 or 360-86 (for 014-024) and 270-84.
 Ratings are net values, reflecting the effects of circulating fan heat.
 Ratings are based on:



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

Options and accessories

ITEM	OPTION*	ACCESSORY†
Integrated Economizer (Includes Hood for 004-014 Units)	X	X
Electric Heat**	X	X
Manual Outdoor-Air Damper	X	X††
Filter Door Access Panel Kit (004-014)	X	X
Controls Upgrade Kit (004-014)	X	X
Condenser Coil Grille (004-014)	X	X
Alternate Drive (008)	X	
Alternate Motor and Drive (004-006, 012, 016, 024, 028)	X	
Two-Position Damper		X
Barometric Relief Damper (016-028)		X
Roof Curb		X
Remote Control Panel		X
Thermostat and Subbase		X
Power Exhaust (016-028)		X
Outdoor-Air Thermostat (016-028)		X
Motormaster® Head Pressure Control (Speed Control) (004-007 and 016-028)		X
Motormaster II Head Pressure Control (Fan Cycling) (004-014)		X
Time Guard® II Control Circuit (014-028)		X
Thru-the-Curb Service Connections (004-014)		X
Electronic Programmable Thermostat		X
Accusensor™ II Enthalpy Control (004-014)		X
Accusensor III Differential Enthalpy Sensor		X
Condenser Coil Hail Guard Assembly (004-014)		X
Economizer Upgrade Package (004-014)		X
External Filter Package (004-014)		X

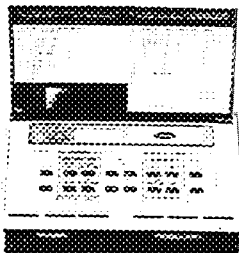
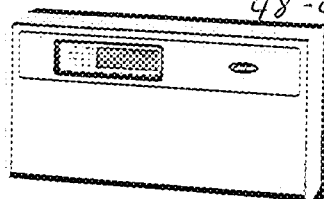
*Factory installed.

†Field installed

**Electric heat for 575-v units is only offered on 50TJ008-014 units.

††50TJ004-014 units only

ELECTRONIC PROGRAMMABLE THERMOSTAT



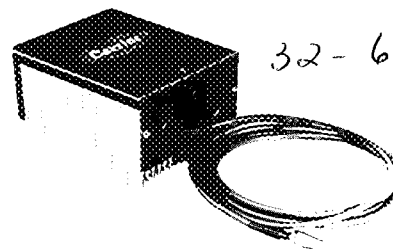
Electronic programmable thermostat provides efficient temperature control by allowing you to program heating and cooling setbacks and setups with provisions for weekends and holidays. Accessory remote sensing package is also available to provide tamperproof control in high traffic spaces

TIME GUARD II CONTROL

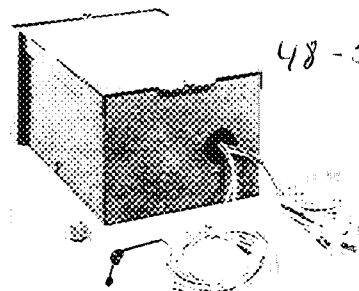
Time Guard II Control automatically prevents compressor from re-starting for at least 5 minutes after a shutdown. Accessory prevents short cycling of compressor if thermostat is rapidly changed. Time Guard II device mounts in the control compartment of unit.

HEAD PRESSURE CONTROL

The 50TJ004-014, 020, and 024 standard units are designed to operate at outdoor temperature down to 25 F. The standard 50TJ016 operates down to 40 F, and the standard 50TJ028 operates down to 48 F. With accessory Motormaster control (condenser-fan speed modulation for unit sizes 004-007 and 016-028) or Motormaster II control (condenser-fan cycling for unit sizes 004-014), units can operate at outdoor temperatures down to -20 F*. The head pressure controls, which mount in the condenser section, modulate the condenser-fan motor to maintain correct condensing temperature.



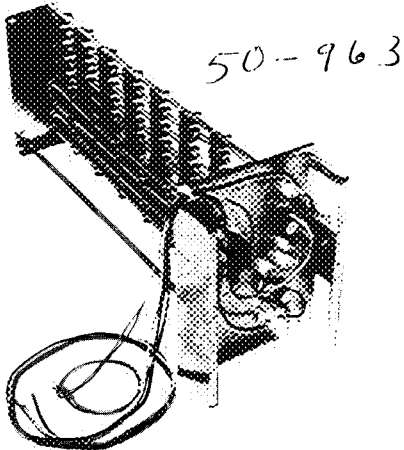
MOTORMASTER
(004-007 and 016-028)



MOTORMASTER II
(004-014)

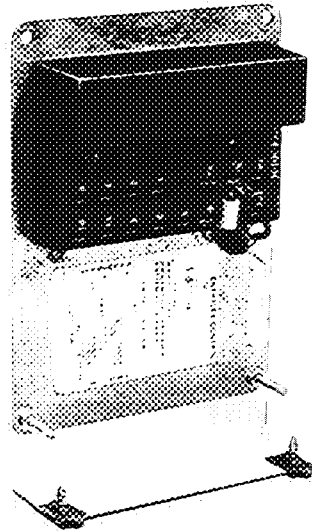
*50TJ016-028 units require both the accessory outdoor-air thermostat and accessory Motormaster control to operate down to -20 F.

ELECTRIC HEATER

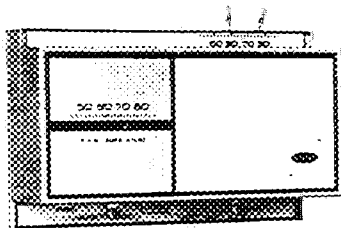


Electric heaters are available in a wide range of capacities for factory or field installation.

ACCUSENSOR™ II (004-014 only)

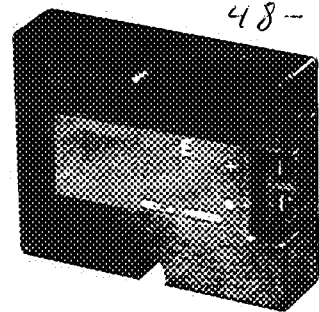


THERMOSTAT



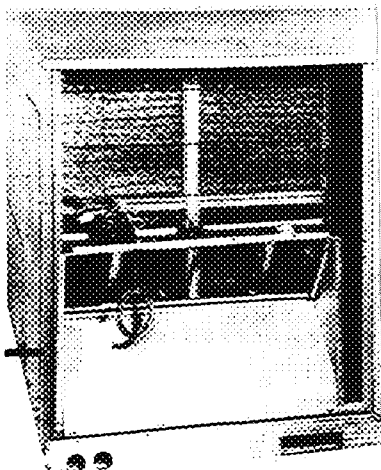
Zone thermostat (24 v) provides one- or 2-stage cooling for control of unit. Matching subbases are available with or without tamperproof switches and automatic changeover.

ACCUSENSOR III



Accusensor economizer controls help provide efficient, economical economizer operation. The standard Accusensor I dry-bulb sensor measures outdoor temperature. Accusensor II solid-state enthalpy control includes the logic and one sensor to calculate both dry and wet bulb of the outdoor air to provide an accurate enthalpy reading on 004-014 units. It then decides when to energize the economizer based on this reading. The 016-028 unit economizer provides the decision-making function internally, and requires one Accusensor III sensor for solid-state enthalpy control. Accusensor III differential enthalpy sensor provides information for comparison of outdoor temperature and humidity to return-air temperature and humidity and determines the most economical mixture of air (when purchased in addition to solid-state enthalpy control).

VARISLIDE™ ECONOMIZER (004-014)



Exclusive Varislide economizer damper design saves energy while providing economical and reliable cooling. A sliding plate on the face of the economizer controls the amount of outdoor air entering the system. Closed, it provides a leakproof seal which prevents ambient air from seeping in or conditioned air from seeping out. It can be easily adjusted for 100% outdoor air or any proportions of mixed air. Like the base unit, the economizer is easily converted for horizontal discharge applications.

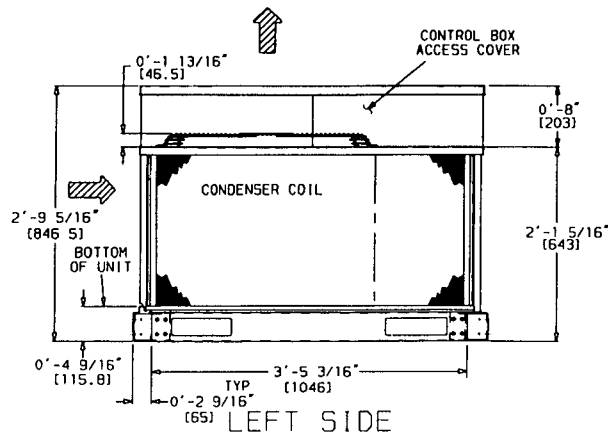
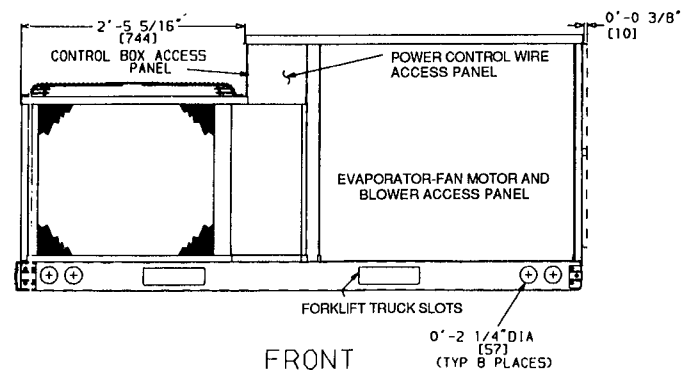
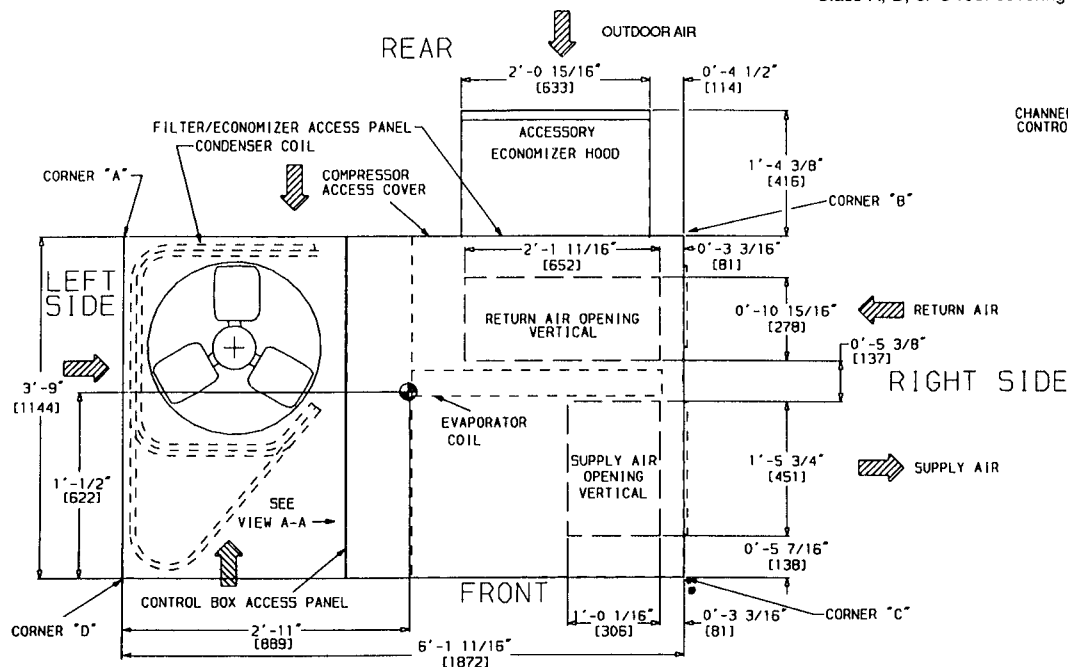
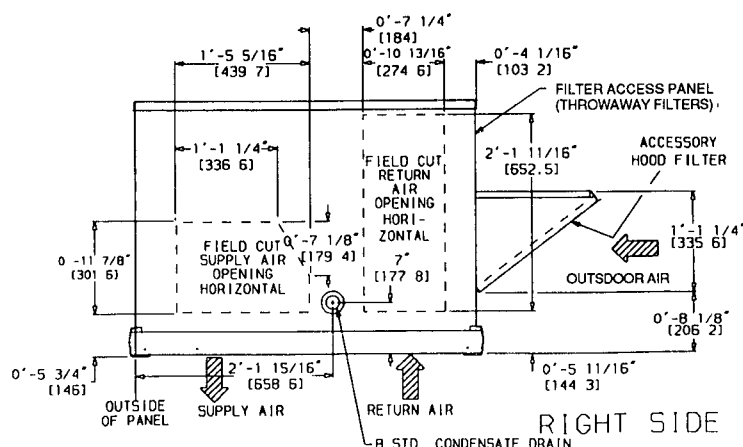
Base unit dimensions — 50TJ004-007

UNIT 50TJ	CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)	
	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg
004	126	57.2	89	40.4	111	50.3	39	17.7
005	128	58.1	90	40.8	114	51.7	43	19.5
006	132	59.9	94	42.6	120	54.4	49	22.2
007	148	67.1	103	46.7	155	70.3	64	29.0

CONNECTION SIZES	
A	1 1/16" Diameter [27] Field Power Supply Hole
B	3/4"-14 NPT Condensate Drain

NOTES:

- Dimensions in [] are in millimeters
-  Center of Gravity.
-  Direction of airflow.
- Ductwork to be attached to accessory roof curb only.
- Minimum clearance (local codes or jurisdiction may prevail):
 - Bottom to combustible surfaces (when not using curb) 0 in. and on horizontal discharge units with electric heat, 1 in. clearance to ductwork per ft.
 - Condenser coil, for proper airflow, 36 in. on one side, 12 in. on the other. The side getting the greater clearance is optional.
 - Overhead, 60 in. to assure proper condenser fan operation.
 - Between units, control box side, 42 in. per NEC (National Electrical Code)
 - Between unit and ungrounded surfaces, control box side, 36 in. per NEC
 - Between unit and block or concrete walls and other grounded surfaces (control box side), 42 in. per NEC
 - Horizontal supply and return end, 0 inches
- With the exception of the clearance for the condenser coil as stated in Notes 5b and c, a removable fence or barricade requires no clearance
- Units may be installed on combustible floors made from wood or Class A, B, or C roof covering material



Base unit dimensions — 50TJ008-014

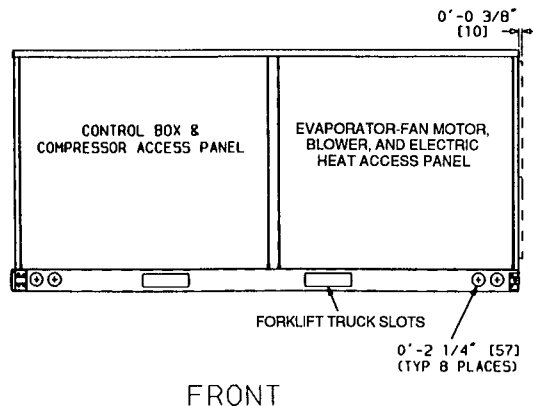
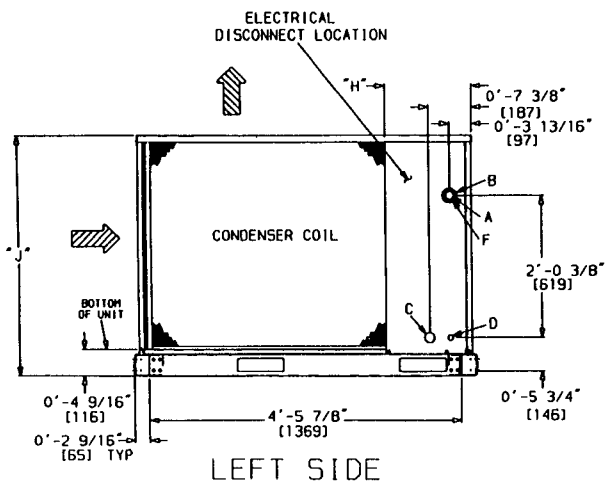
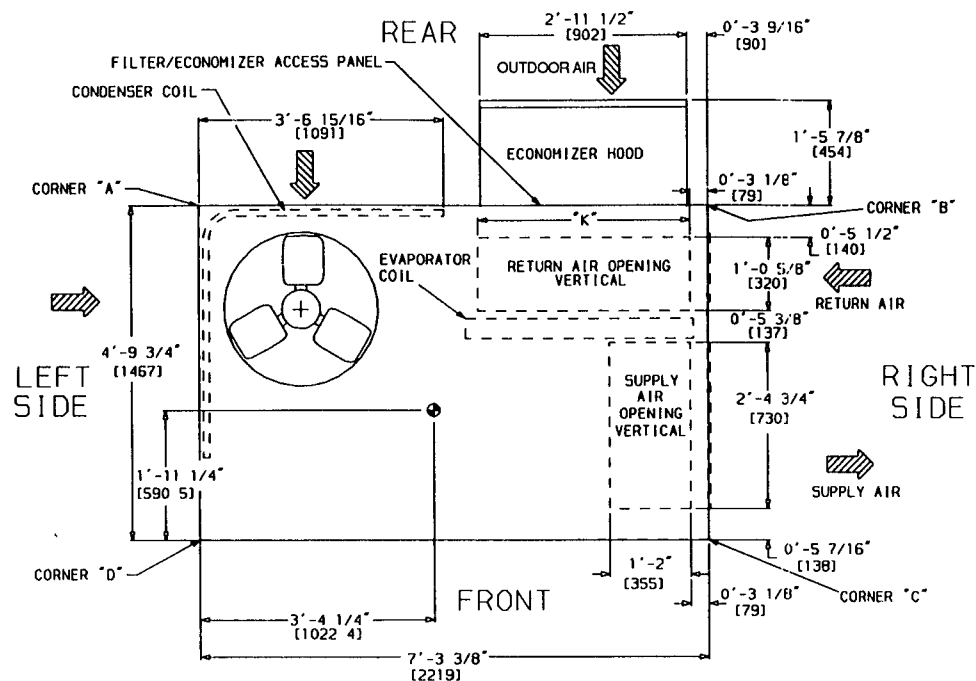
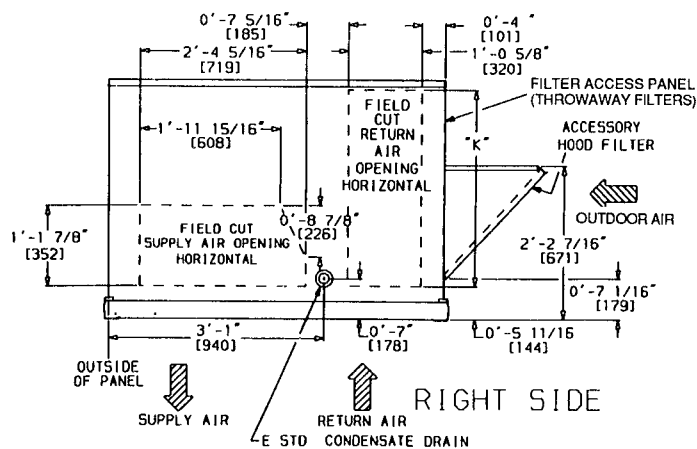
150-1024

UNIT 50TJ	CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		"H"		"J"		"K"	
	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg	Ft.-in.	mm	Ft.-in.	mm	Ft.-in.	mm
008	164	74	140	64	208	94	243	110	2'-0 7/8"	632	3'-5 1/16"	1050	2'-9 1/16"	856
009	165	75	141	64	209	94	245	111	1'-2 7/8"	378	3'-5 9/16"	1050	2'-9 1/16"	856
012	199	90	170	77	252	114	294	134	2'-10 7/8"	885	4'-1 1/16"	1253	3'-0 3/8"	924
014	202	92	172	78	256	116	300	136	1'-2 7/8"	378	4'-1 1/16"	1253	3'-0 3/8"	924

CONNECTION SIZES	
A	1 1/8" Diameter [35] Field Power Supply Hole
B	2 1/2" Diameter [64] Power Supply Knock-Out
C	1 3/4" Diameter [44] Charging Port Hole
D	7/8" Diameter [22] Field Control Wiring Hole
E	3/4"-14 NPT Condensate Drain
F	2" Diameter [51] Power Supply Knock-Out

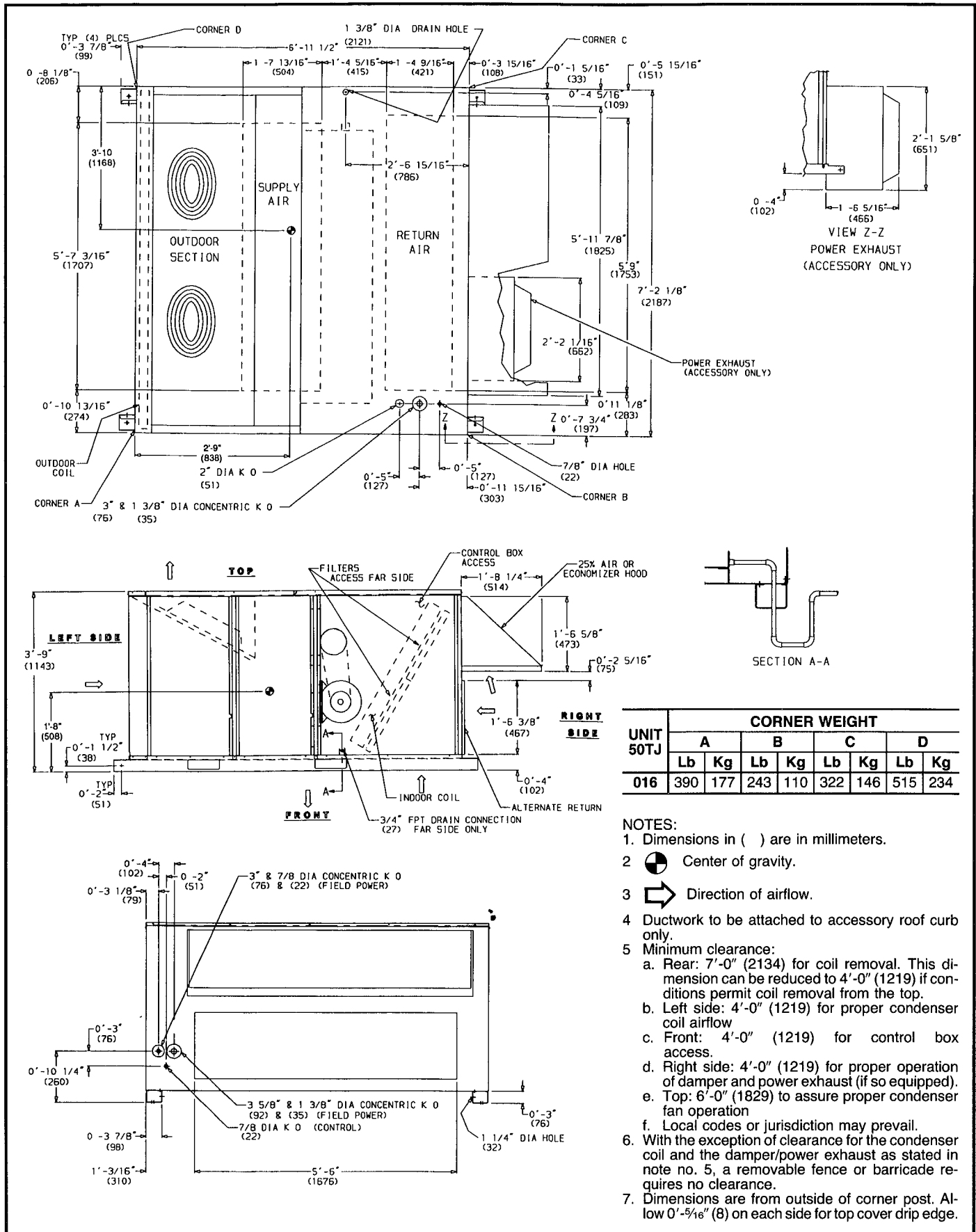
NOTES:

- Dimensions in [] are in millimeters
-  Center of Gravity
-  Direction of airflow
- Ductwork to be attached to accessory roof curb only
- Minimum clearance (local codes or jurisdiction may prevail):
 - Bottom to combustible surfaces (when not using curb) 0 in. and on horizontal discharge units with electric heat, 1 in. clearance to ductwork per ft.
 - Condenser coil, for proper airflow, 36 in. one side, 12 in. the other. The side getting the greater clearance is optional.
 - Overhead, 60 in. to assure proper condenser fan operation
 - Between units, control box side, 42 in. per NEC (National Electrical Code)
 - Between unit and ungrounded surfaces, control box side, 36 in. per NEC.
 - Between unit and block or concrete walls and other grounded surfaces (control box side), 42 in. per NEC
 - Horizontal supply and return end, 0 inches
- With the exception of the clearance for the condenser coil as stated in Notes 5b and c, a removable fence or barricade requires no clearance.
- Units may be installed on combustible floors made from wood or Class A, B, or C roof covering material

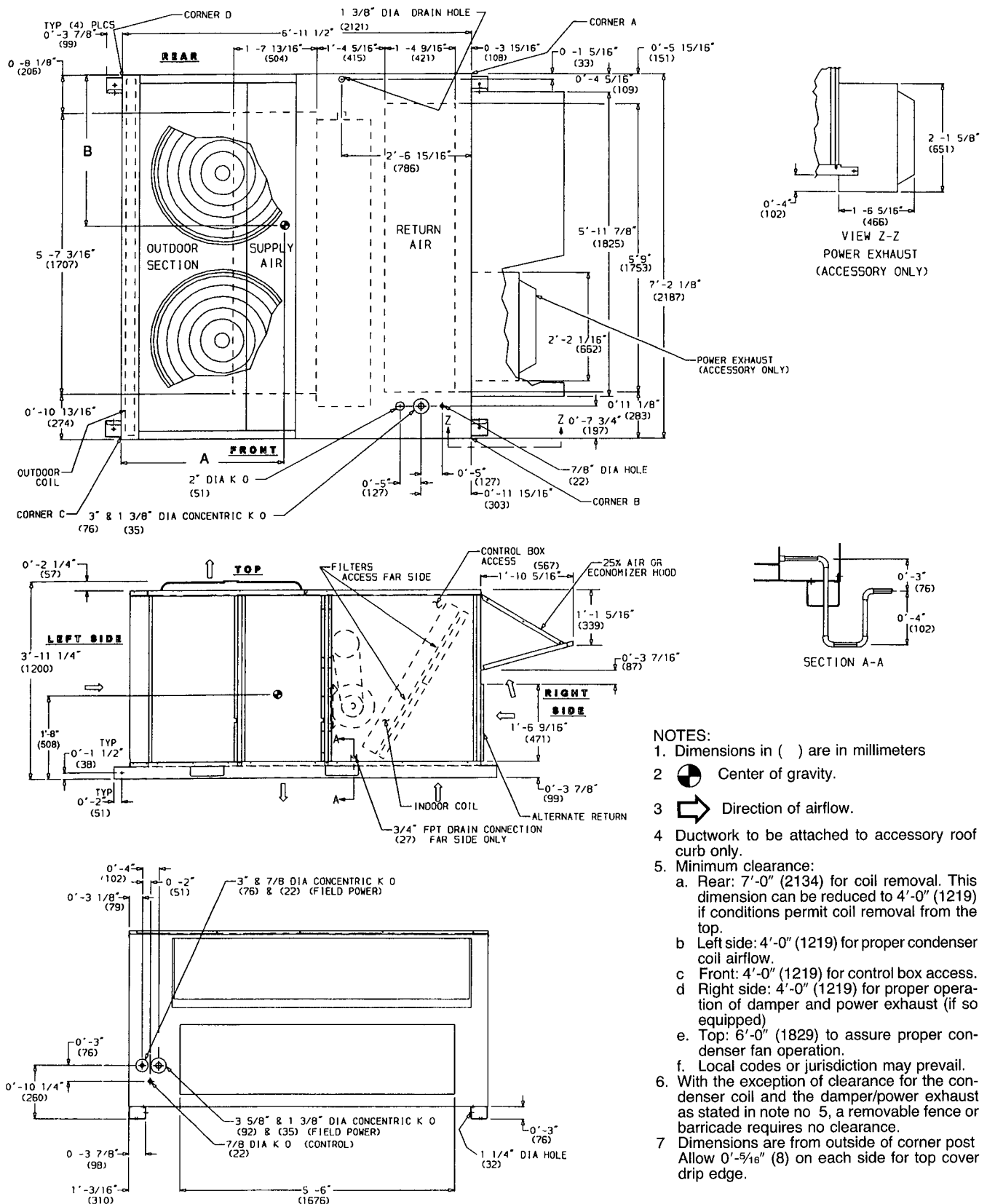


C50-1025

Base unit dimensions — 50TJ016



Base unit dimensions — 50TJ020-028



UNIT 50TJ	CORNER WEIGHT								DIMENSIONS			
	A		B		C		D		A		B	
	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg	Ft-in.	mm	Ft-in.	mm
020,024	478	217	452	205	317	144	527	239	3-4	1016	3-7	1092
028	504	229	523	237	533	242	554	251	3-0	914	2-9	838

C50-1027

Accessory dimensions

ROOF CURB — 50TJ004-007

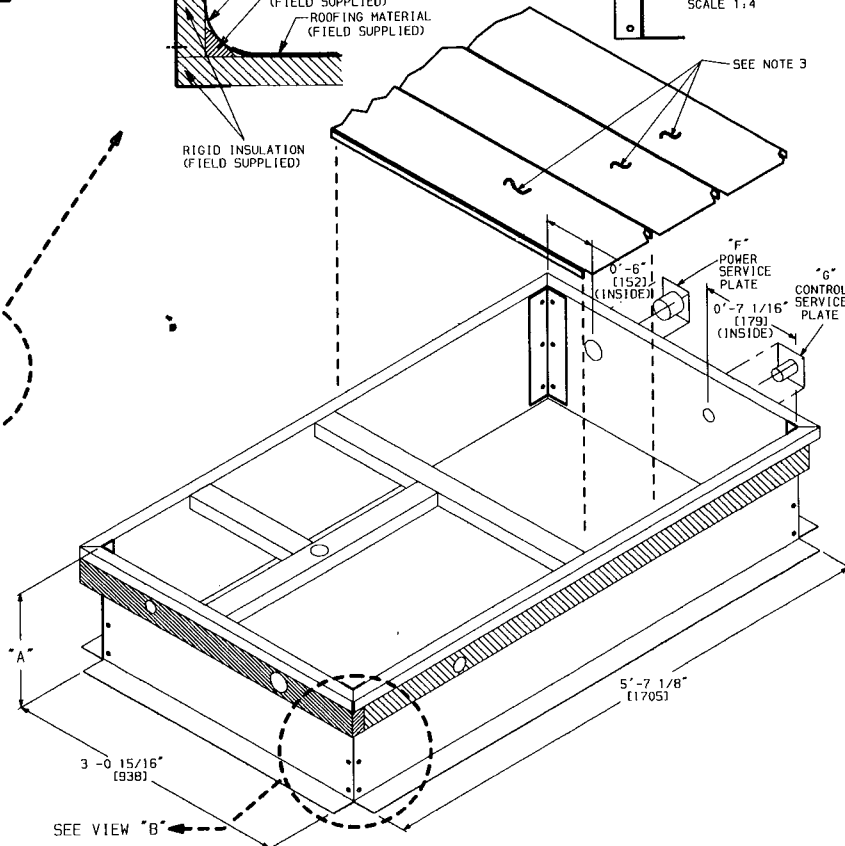
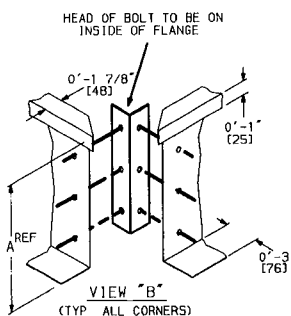
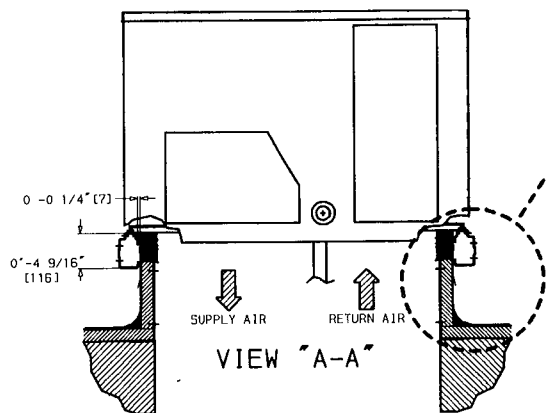
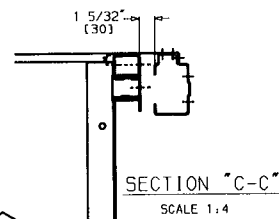
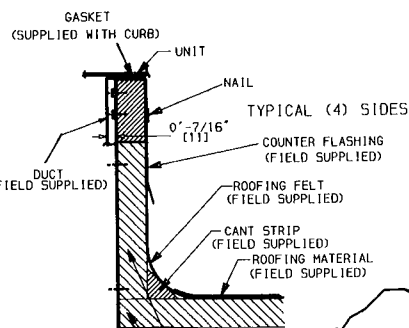
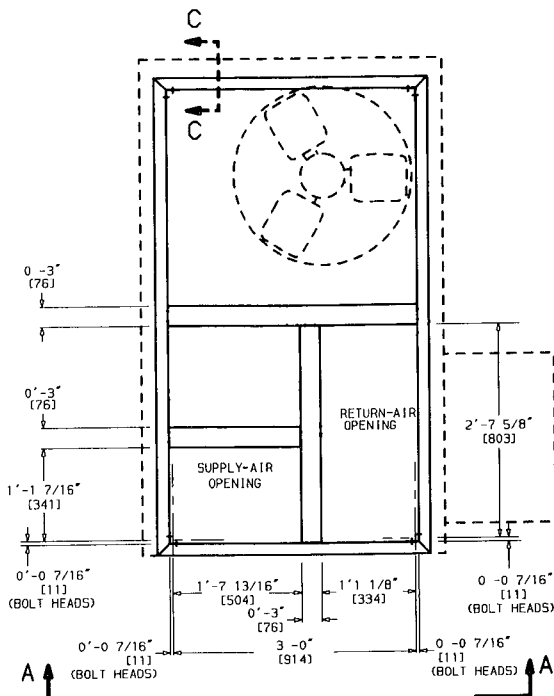
ROOF CURB ACCESSORY	"A"	UNIT SIZE
50DJ900771	1'-2" [356]	50TJ004-007
50DJ900781	2'-0" [610]	

SERVICE PLATE SIZES

UNIT SIZE	"F" POWER	"G" CONTROL	CONNECTOR PACKAGE ACCESSORY
50TJ004-007	3/4" [19] NPT or 1 1/4" [32]	3/4" [19] NPT	50DJ900801

NOTES:

- ➔ Direction of airflow
- Roof curb accessory is shipped unassembled
- Insulated panels.
- Dimensions in [] are in millimeters.
- Roof curb: galvanized steel.
- Attach ductwork to curb (flanges of duct rest on curb).
- Service clearance 4 ft on each side



C50-1028

ROOF CURB — 50TJ008-014

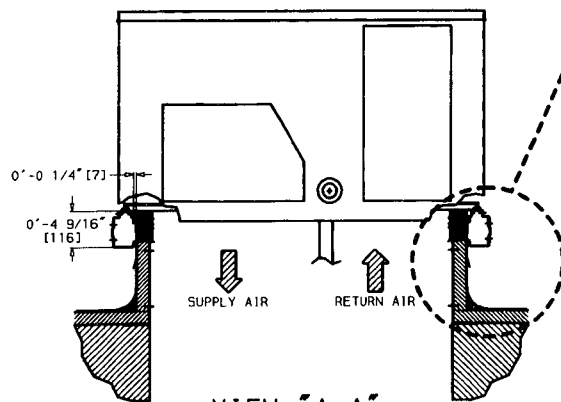
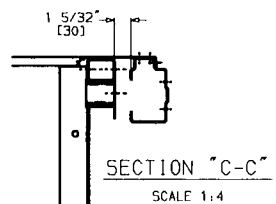
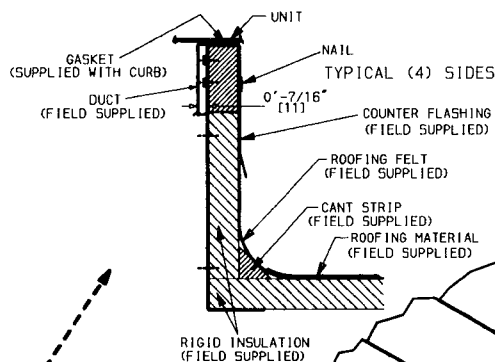
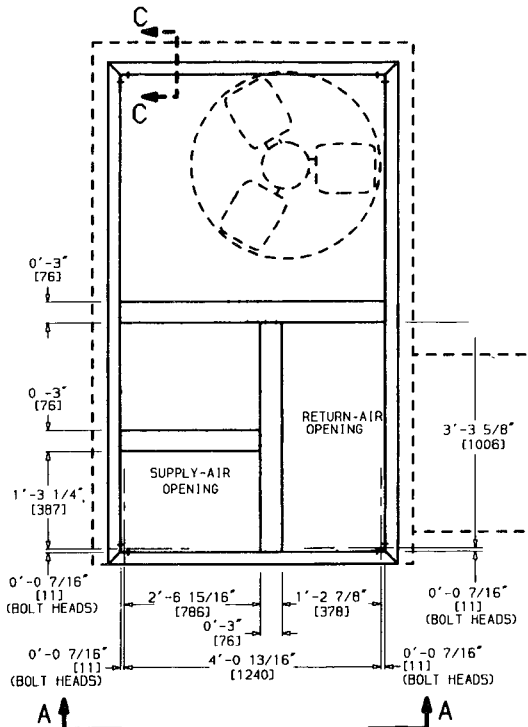
ROOF CURB ACCESSORY	"A"	UNIT SIZE
50DJ901371	1'-2" [356]	50TJ008-014
50DJ901381	2'-0" [610]	

SERVICE PLATE SIZES

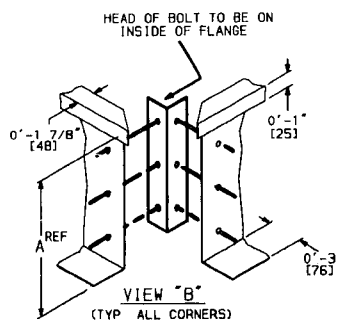
UNIT SIZE	"F" POWER	"G" CONTROL	CONNECTOR PACKAGE ACCESSORY
50TJ008-014	1" [25] NPT or 2" [51] NPT	3/4" [19] NPT	50DJ901311

NOTES:

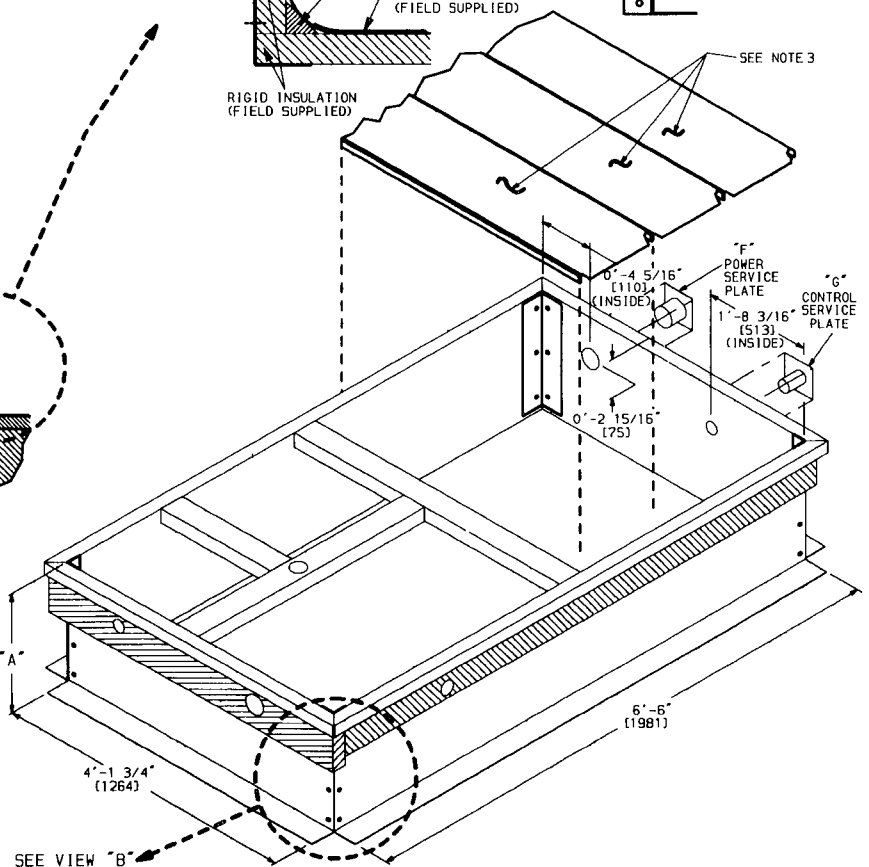
- ➡ Direction of airflow.
- Roof curb accessory is shipped unassembled.
- Insulated panels.
- Dimensions in [] are in millimeters.
- Roof curb: galvanized steel.
- Attach ductwork to curb (flanges of duct rest on curb).
- Service clearance 4 ft on each side.



VIEW "A-A"

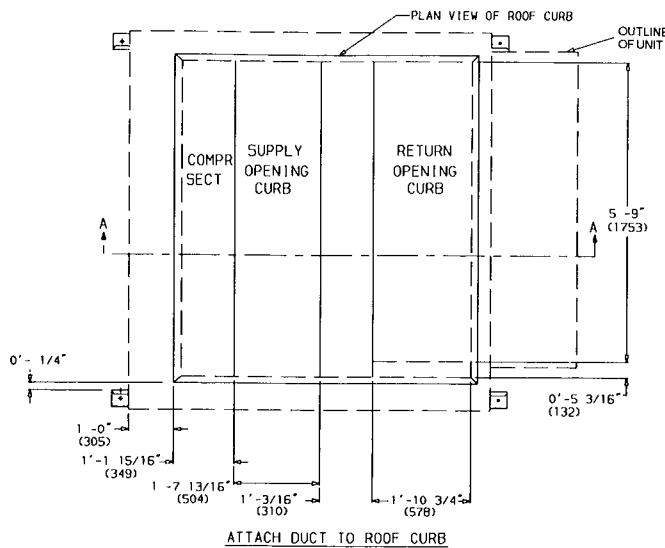
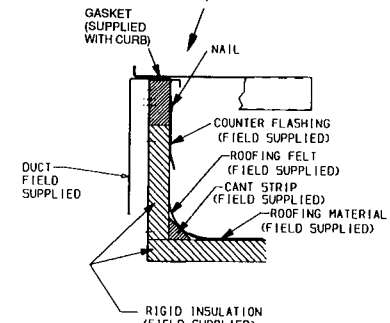
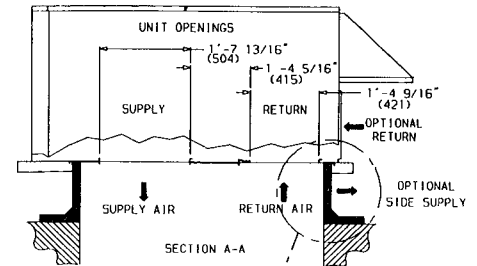
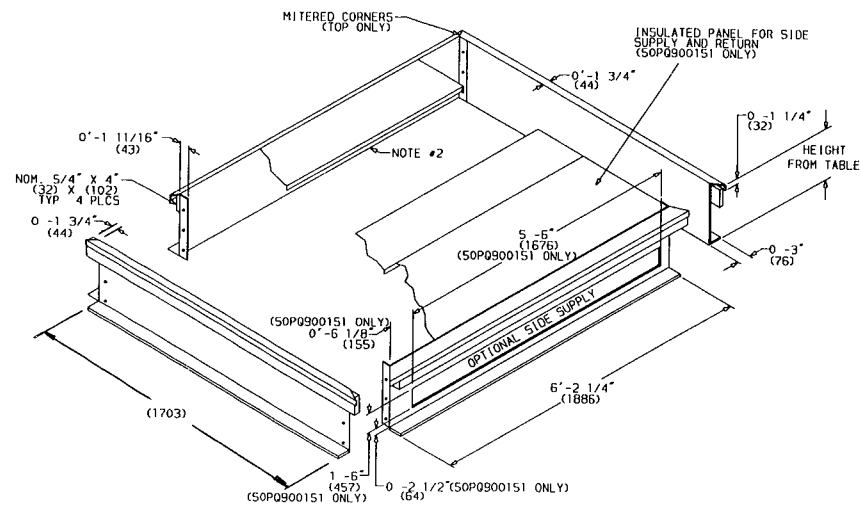


VIEW "B"
(TYP ALL CORNERS)



Accessory dimensions (cont)

ROOF CURB — 50TJ016-028



ACCESSORY PACKAGE NO.	CURB HEIGHT	DESCRIPTION
50PQ900221	1'-2" (305)	Standard Curb — 14" High
50PQ900141	2'-0" (610)	Standard Curb for Units Requiring High Installation
50PQ900151	2'-0" (610)	Horizontal Supply and Return Curb

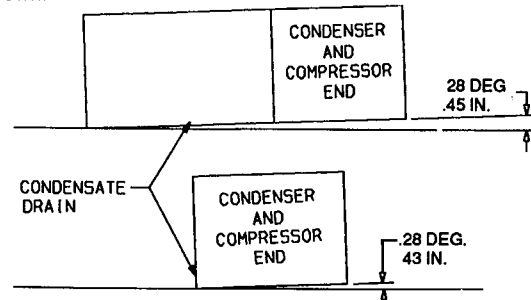
LEGEND

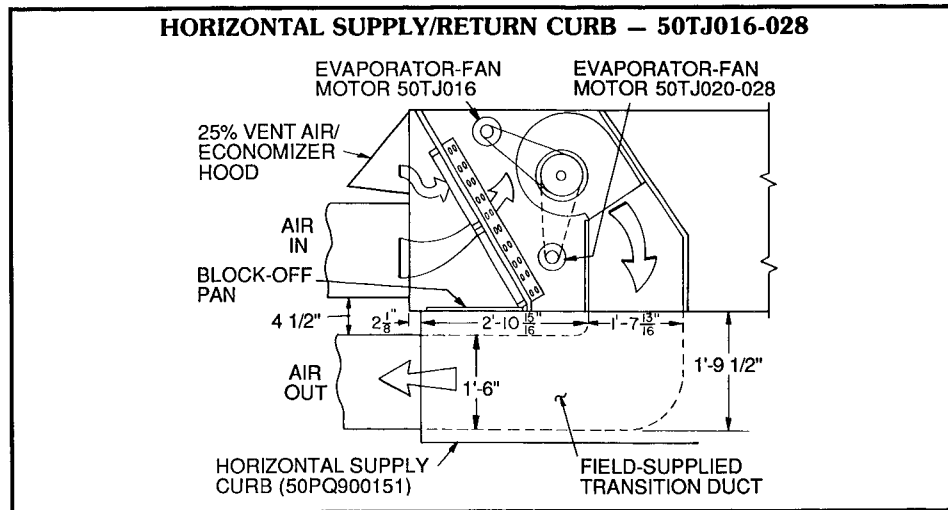
COMP SECT. — Compressor Section

NOTES:

1. Roof curb accessory is shipped unassembled
2. Insulated panels, 1-in thick neoprene-coated, 1½ lb density.
3. Dimensions in () are in millimeters.
4. Direction of airflow
5. Roof curb: 16 gage steel.

NOTE: To prevent the hazard of stagnant water build-up in the drain pan of the indoor-air section, unit can only be pitched as shown.





Selection procedure (with 50TJ016 example)

I Determine cooling and heating requirements at design conditions:

Given:

Cooling Capacity Required 179,000 Btuh
 Sensible Heat Capacity 128,000 Btuh
 Condenser Entering-Air Temperature 95 F Edb/78 F Ewb
 Evaporator Entering-Air Temperature 80 F Edb/67 F Ewb
 Evaporator Air Quantity 6000 cfm
 External Static Pressure 0.66 in. wg
 Heating Capacity 76,000 Btuh
 Power Supply (V-Ph-Hz) 230-3-60
 Edb — Entering dry bulb
 Ewb — Entering wet bulb

II Select unit based on required cooling capacity.

Enter cooling capacity table for 50TJ016 on page 20 at condenser entering dry bulb temperature 95 F, air entering evaporator at 6000 cfm, 80 F edb and 67 F ewb. The 50TJ016 unit will provide a total cooling capacity of 187,000 Btuh, and a sensible heating capacity of 137,000 Btuh. For evaporator-air temperatures other than 80 F edb, calculate sensible heat capacity correction as required using the formula in the notes following the Cooling Capacities tables.

NOTE: Unit ratings are gross capacities and do not include the effect of evaporator-fan motor heat. To calculate net capacities, see Step VI.

III Select electric heat.

Heating load required is 76,000 Btuh.

$$\frac{76,000 \text{ Btuh}}{3.414 \text{ Btu/W}} = 22,261 \text{ Watts of heat required}$$

$$= 22.3 \text{ kW}$$

Enter the Electric Resistance Heater Data table on page 37 for the 50TJ016 at 230-3-60. The 31 kW electric heat most closely satisfies the heat required

IV Determine fan speed and motor horsepower requirements at design conditions.

Enter Accessory/FIOP Static Pressure Drop table on page 35 at selected unit size and heater kW.

Find that at given air quantity (6000 cfm), pressure loss is .09 in. wg.

V Determine fan speed and motor horsepower requirements at design conditions.

Before entering the Fan Performance tables, calculate the total static pressure required based on unit components. From the given find:

External static pressure	0.66 in. wg
31 kW Heater static pressure	.09 in. wg
Total static pressure	0.75 in. wg

Enter Fan Performance table for unit 50TJ016 on page 34. At 6000 cfm and 0.75 in. wg external static pressure, the fan speed is 1184 rpm and bhp is 2.96 (Interpolation is necessary.) The 3 hp motor and drive are suitable.

VI Determine net cooling capacity.

Cooling capacities are gross capacities and do not include indoor (evaporator) fan motor (IFM) heat. To determine input power to the motor, convert bhp to watts using the following information:

$$\text{IFM Watts} = \frac{\text{Bhp} \times 746 \text{ Watts/Bhp}}{\text{Motor Efficiency}}$$

$$= \frac{2.96 \times 746}{0.84}$$

$$\text{IFM Watts} = 2629$$

Determine net cooling capacity using the following formula:

$$\begin{aligned} \text{Net capacity} &= \text{Gross capacity} - \text{IFM heat} \\ &= 187,000 \text{ Btuh} - 2629 \left(3.414 \frac{\text{Btuh}}{\text{Watt}} \right) \\ &= 187,000 \text{ Btuh} - 8973 \text{ Btuh} \\ &= 178,027 \text{ Btuh} \end{aligned}$$

$$\begin{aligned} \text{Net sensible capacity} &= 137,000 \text{ Btuh} - 8973 \text{ Btuh} \\ &= 128,027 \text{ Btuh} \end{aligned}$$

As demonstrated above, the 50TJ016 with the 31 kW electric heater meets the cooling capacity, sensible heating capacity, and heating capacity requirements.

NOTE: to obtain more sensible cooling, increase quantity of air entering evaporator.

Performance data

COOLING CAPACITIES

50TJ004 (3 TONS)										
Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF								
		900/0.11			1200/0.14			1500/0.17		
		Air Entering Evaporator — Ewb (F)								
		72	67	62	72	67	62	72	67	62
85	TC	40.8	36.9	33.3	42.5	38.7	35.0	43.6	39.9	36.1
	SHC	19.4	23.7	27.9	21.0	26.8	31.8	22.6	29.7	35.1
	kW	3.14	3.01	2.90	3.20	3.08	2.97	3.24	3.14	3.02
95	TC	38.7	34.9	31.4	40.4	36.6	33.0	41.4	37.6	34.1
	SHC	18.6	22.9	27.0	20.3	26.0	30.9	22.0	28.8	34.0
	kW	3.35	3.21	3.09	3.42	3.29	3.16	3.47	3.35	3.22
105	TC	36.5	32.8	29.2	38.1	34.3	30.9	39.0	35.2	32.4
	SHC	17.8	22.1	25.9	19.6	25.2	29.8	21.2	28.0	32.3
	kW	3.55	3.41	3.27	3.63	3.49	3.35	3.68	3.54	3.43
115	TC	34.3	30.7	26.9	35.7	32.1	28.8	36.5	32.9	30.6
	SHC	17.0	21.3	24.8	19.0	24.4	28.8	20.5	27.1	30.6
	kW	3.76	3.60	3.45	3.84	3.68	3.54	3.88	3.74	3.64

50TJ006 (5 TONS)										
Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF								
		1500/0.07			2000/0.09			2500/0.12		
		Air Entering Evaporator — Ewb (F)								
		72	67	62	72	67	62	72	67	62
85	TC	69.2	61 0	54.2	72 9	65.6	57.2	75.2	68 1	61 5
	SHC	33.4	40.5	47.3	37.0	46.9	54 9	40.1	52.3	61.3
	kW	5 50	5 27	5 02	5 66	5 41	5 18	5.75	5 50	5 29
95	TC	65 5	56 6	50 4	69 4	~~80.9~~	53.1	71.2	63 3	57 8
	SHC	32.1	38.8	45.6	35.8	~~45.3~~	52.6	39 1	50.9	57.8
	kW	5 88	5 62	5 37	6.01	~~5.76~~	5.53	6 12	5.87	5 67
105	TC	61 9	53 1	47 1	65 4	56 6	50 5	67 1	58 8	54 5
	SHC	30.8	37.5	44.1	34.5	43.7	50.2	37.9	49.3	54.5
	kW	6 25	5 99	5 72	6 38	6.13	5.91	6.50	6.23	6 06
115	TC	58 2	49 7	43 7	61 4	52 3	47 8	63.0	54 3	51 2
	SHC	29.5	36.1	42.5	33.2	42.1	47.8	36.7	47.6	51.2
	kW	6 63	6 35	6 08	6 75	6 49	6 29	6 88	6 59	6 46

50TJ005 (4 TONS)										
Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF								
		1200/0.12			1600/0.15			2000/0.18		
		Air Entering Evaporator — Ewb (F)								
		72	67	62	72	67	62	72	67	62
85	TC	55.7	50.8	45.3	57.7	53.4	48.5	59.4	55.0	50.2
	SHC	26.4	32.5	37.8	28.4	36.7	43.6	30.5	40.3	47.9
	kW	4.40	4.24	4.08	4.47	4.35	4.20	4.54	4.42	4.25
95	TC	52.9	48.1	42.5	55.2	50.5	45.7	56.7	52.0	47.4
	SHC	25.5	31.5	36.4	27.6	35.6	42.2	29.7	39.2	46.7
	kW	4.70	4.54	4.36	4.78	4.63	4.47	4.87	4.70	4.56
105	TC	50.1	45.3	39.8	52.3	47.6	42.8	53.6	48.9	44.9
	SHC	24.4	30.3	35.1	26.7	34.5	40.7	28.8	38.1	44.6
	kW	5.00	4.81	4.62	5.10	4.91	4.73	5.17	4.99	4.84
115	TC	47.3	42.6	37.2	49.3	44.6	40.0	50.5	45.9	42.4
	SHC	23.4	29.2	33.7	25.9	33.3	39.3	27.8	37.1	42.4
	kW	5.30	5.07	4.88	5.42	5.19	4.99	5.48	5.28	5.12

50TJ007 (6 TONS)										
Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF								
		1500/0.05			2100/0.08			2700/0.10		
		Air Entering Evaporator — Ewb (F)								
		72	67	62	72	67	62	72	67	62
85	TC	79.2	72.3	65.5	84.8	77.1	69.5	87.1	79.9	72.7
	SHC	37.3	45.5	53.7	42.0	53.0	64.0	45.8	59.7	72.7
	kW	6.05	5.87	5.69	6.25	6.04	5.83	6.33	6.14	5.95
95	TC	76.2	69.1	62.1	80.5	73.4	66.3	83.7	75.9	68.0
	SHC	36.3	44.2	52.1	40.5	51.6	62.8	44.9	58.3	68.0
	kW	6.60	6.38	6.15	6.76	6.54	6.33	6.90	6.65	6.39
105	TC	72.5	65.6	58.7	76.6	69.6	62.5	79.2	71.8	64.3
	SHC	34.9	42.7	50.6	39.3	50.2	61.1	43.5	57.0	64.3
	kW	7.12	6.86	6.60	7.30	7.05	6.80	7.42	7.16	6.90
115	TC	68.8	62.0	55.2	72.7	65.7	58.7	74.7	67.7	60.7
	SHC	33.5	41.3	49.1	38.1	48.7	58.7	42.0	55.7	60.7
	kW	7.63	7.34	7.05	7.83	7.55	7.27	7.94	7.67	7.40

Standard Ratings

LEGEND

BF	—	Bypass Factor
Edb	—	Entering Dry-Bulb
Ewb	—	Entering Wet-Bulb
kW	—	Compressor Motor Power Input
Ldb	—	Leaving Dry-Bulb
Lwb	—	Leaving Wet-Bulb
SHC	—	Sensible Heat Capacity (1000 Btuh) Gross
TC	—	Total Capacity (1000 Btuh) Gross

NOTES:

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

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

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

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

Where: h_{ewb} = 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.
Correction Factor = $1.10 \times (1 - BF) \times (edb - 80)$

COOLING CAPACITIES (cont)

50TJ008 (7½ TONS)										
Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF								
		2250/0.08			3000/0.105			3750/0.125		
		Air Entering Evaporator — Ewb (F)								
		72	67	62	72	67	62	72	67	62
85	TC SHC kW	104.9	96.1	87.0	110.5	101.3	92.3	113.7	104.4	96.1
		51.5	63.7	75.2	56.9	72.8	87.1	61.5	81.0	95.9
		7.53	7.24	6.93	7.73	7.44	7.14	7.84	7.55	7.30
95	TC SHC kW	100.0	90.8	81.1	104.6	95.7	86.6	107.6	98.6	91.1
		49.7	61.7	72.4	55.0	70.9	84.2	59.7	79.0	91.1
		8.15	7.81	7.46	8.32	8.01	7.69	8.45	8.14	7.85
105	TC SHC kW	94.0	85.3	75.1	98.6	89.6	80.7	101.1	92.3	86.4
		47.5	59.5	69.5	53.0	68.4	80.6	57.6	76.8	86.4
		8.71	8.37	8.00	8.93	8.56	8.25	9.04	8.70	8.44
115	TC SHC kW	88.2	79.4	67.9	91.7	83.5	75.3	94.3	85.9	81.5
		45.4	57.1	65.9	50.5	66.3	75.2	55.2	73.9	81.5
		9.29	8.92	8.58	9.46	9.12	8.86	9.59	9.25	9.05

50TJ012 (10 TONS)										
Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF								
		3000/0.07			4000/0.11			5000/0.15		
		Air Entering Evaporator — Ewb (F)								
		72	67	62	72	67	62	72	67	62
85	TC SHC kW	139.1	125.6	111.4	146.0	132.8	118.9	150.5	138.2	125.1
		66.3	81.5	95.1	73.1	93.5	110.7	79.1	104.8	124.6
		10.55	10.16	9.78	10.78	10.43	10.07	10.94	10.63	10.27
95	TC SHC kW	132.8	119.2	104.2	139.4	126.1	112.0	143.7	130.9	118.8
		64.1	79.0	91.8	71.1	91.1	107.1	77.4	102.6	118.8
		11.36	10.94	10.53	11.64	11.23	10.82	11.81	11.45	11.04
105	TC SHC kW	126.0	112.4	97.6	131.9	119.0	105.7	135.8	123.4	113.1
		61.7	76.3	88.6	68.6	88.3	103.1	74.7	99.4	113.1
		12.16	11.68	11.24	12.43	11.99	11.56	12.62	12.22	11.84
115	TC SHC kW	118.8	105.1	90.1	124.2	111.6	98.9	128.1	115.6	107.7
		59.0	73.4	84.8	66.0	85.7	98.2	72.7	96.8	107.7
		12.91	12.42	11.94	13.19	12.74	12.29	13.42	12.98	12.64

50TJ009 (8½ TONS)										
Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF								
		2550/0.08			3400/0.105			4250/0.125		
		Air Entering Evaporator — Ewb (F)								
		72	67	62	72	67	62	72	67	62
85	TC	118 5	106 6	94 1	125 3	113 3	100 4	129.7	117.5	106 2
	SHC	58.0	70.9	82.8	64.3	81 7	96.6	69.8	91.3	106.0
	KW	8 22	7.95	7.68	8 37	8.12	7 87	8 49	8 23	7 99
95	TC	112 7	100 4	87 8	119 2	107 1	94 9	122 6	111 1	101 4
	SHC	56.0	68.6	79.8	62.2	79.3	93.1	67.3	89.2	101.3
	KW	8.83	8 54	8.25	9.00	8.73	8 43	9 08	8 84	8 61
105	TC	106 6	94 4	81 3	112 4	100 7	89 0	116 3	104 5	96 3
	SHC	53.7	66 2	76.6	59.6	76.9	89 0	65.7	86.4	96.2
	KW	9 43	9 13	8 82	9.59	9 31	9 03	9 73	9 43	9.23
115	TC	100 5	87 4	73 8	105 5	94 2	83 4	108 4	97 7	90 9
	SHC	51.5	63.6	72.6	57 1	74.3	83 4	62.4	83.6	90 9
	KW	10 04	9 73	9 42	10.19	9 89	9 67	10.29	10 00	9 86

50TJ014 (12½ TONS)										
Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF								
		3750/0.075			5000/0.10			6250/0.125		
		Air Entering Evaporator — Ewb (F)								
		72	67	62	72	67	62	72	67	62
85	TC SHC kW	165.1	152.0	138.2	172.2	159.2	145.9	177.0	163.4	151.9
		81.3	102.3	122.2	89.4	116.6	140.7	97.6	129.6	151.9
		12.46	12.25	12.01	12.62	12.39	12.18	12.73	12.48	12.29
95	TC SHC kW	159.0	144.6	126.7	165.6	151.8	137.2	169.9	156.3	146.0
		79.6	99.6	116.9	88.1	114.9	136.7	96.4	128.7	145.7
		13.38	13.09	12.79	13.53	13.27	13.01	13.65	13.39	13.17
105	TC SHC kW	151.1	135.1	112.3	157.9	142.5	125.8	161.7	147.3	138.1
		77.3	96.5	109.6	86.5	112.5	125.8	94.4	126.7	138.1
		14.31	13.96	13.62	14.49	14.18	13.89	14.60	14.30	14.11
115	TC SHC kW	142.0	118.5	100.0	148.5	125.6	114.8	152.4	132.3	125.6
		74.4	89.9	100.0	83.7	106.1	114.8	92.9	121.2	125.6
		15.25	14.83	14.52	15.46	15.05	14.83	15.58	15.18	15.05

Standard Ratings

LEGEND

BF	—	Bypass Factor
Edb	—	Entering Dry-Bulb
Ewb	—	Entering Wet-Bulb
Ldb	—	Leaving Dry-Bulb
Lwb	—	Leaving Wet-Bulb
SHC	—	Sensible Heat Capacity (1000 Btuh) Gross
TC	—	Total Capacity (1000 Btuh) Gross

NOTES:

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

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

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

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

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

- 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. Correction Factor = $1.10 \times (1 - BF) \times (edb - 80)$

Performance data (cont)

COOLING CAPACITIES (cont)

50TJ016 (15 TONS)										
Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF								
		4500/0.06			6000/0.08			7500/0.10		
		Air Entering Evaporator — Ewb (F)								
		72	67	62	72	67	62	72	67	62
85	TC	204	187	169	210	194	177	215	199	184
	SHC	97.4	122	145	106	139	168	115	154	183
	KW	15.9	15.4	14.9	16.1	15.7	15.2	16.4	15.9	15.5
95	TC	197	179	155	204	187	166	209	191	178
	SHC	96.0	120	139	104	137	163	114	152	177
	KW	17.2	16.6	15.9	17.5	17.0	16.4	17.8	17.2	16.8
105	TC	189	169	142	197	178	155	200	182	169
	SHC	92.9	116	132	103	134	154	112	150	169
	KW	18.5	17.8	17.1	18.9	18.3	17.6	19.1	18.5	18.0
115	TC	180	154	128	186	163	144	191	170	158
	SHC	90.2	110	125	101	129	144	111	146	158
	KW	19.9	19.0	18.3	20.2	19.4	18.9	20.5	19.7	19.3

50TJ020 (18 TONS)													
Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF											
		5000/0.045			6000/0.06			7000/0.075			8000/0.085		
		Air Entering Evaporator — Ewb (F)											
		72	67	62	72	67	62	72	67	62	72	67	62
85	TC	232 1	210 2	188 4	235 7	214 8	193 8	239 3	219 3	199 3	242 1	225.7	203.8
	SHC	108.8	132.8	156.1	114.2	143 5	170.8	119.6	154.2	185.5	125.6	166.5	197.7
	kW	17 34	16 96	16.46	17.48	17 13	16.63	17 62	17.29	16.81	17 74	17.34	16.96
95	TC	223 0	202 9	179 5	227 5	~~206 6~~	184.8	232 1	210 2	190 1	235 7	218.4	195 0
	SHC	105.8	129.9	153.3	112 0	~~140.6~~	167.2	118.2	151.2	181.0	124.5	163.8	193.2
	kW	18 96	18.50	17.82	19.12	~~18.64~~	18.01	19 28	18.77	18.20	19.43	18.83	18 37
105	TC	212 0	192 0	167 5	216 6	196 6	172 6	221 1	201 1	177 7	225.7	203 8	184 6
	SHC	101.9	125.9	147.7	108.6	136 9	161.5	115.2	147.9	175.4	121.7	158.4	184.6
	kW	20.48	19.93	19.09	20.66	20.11	19.38	20 84	20 29	19 67	20.93	20 48	19 96
115	TC	202 9	178 0	153 2	206 6	183.5	159 8	210 2	188.9	166 3	212 9	192 4	174 6
	SHC	98.3	120.8	144.1	105 0	132.2	155.2	111.7	143.6	166.2	118.1	154.3	174.6
	kW	21 84	21 20	20 48	22 11	21.48	20 84	22 39	21 75	21 20	22.48	21 93	21 48

Standard ratings

LEGEND

BF — Bypass Factor
Edb — Entering Dry-Bulb
Ewb — Entering Wet-Bulb
kW — Compressor Motor Power Input
Ldb — Leaving Dry-Bulb
Lwb — Leaving Wet-Bulb
SHC — Sensible Heat Capacity (1000 Btuh) Gross
TC — Total Capacity (1000 Btuh) Gross

NOTES:

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

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

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

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

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

- 3 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.

BYPASS FACTOR (BF)	ENTERING AIR DRY-BULB TEMP (F)					
	79	78	77	76	75	under 75
	81	82	83	84	85	over 85
Correction Factor						
.05	1.04	2.07	3.11	4.14	5.18	Use formula shown below
.10	.98	1.96	2.94	3.92	4.90	
.20	.87	1.74	2.62	3.49	4.36	
.30	.76	1.53	2.29	3.05	3.82	

Interpolation is permissible

$$\text{Correction Factor} = 1.10 \times (1 - \text{BF}) \times (\text{edb} - 80)$$

COOLING CAPACITIES (cont)

50TJ024 (20 TONS)													
Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF											
		6000/0.06			7000/0.075			8000/0.085			9000/0.095		
		Air Entering Evaporator — Ewb (F)											
		72	67	62	72	67	62	72	67	62	72	67	62
85	TC	259.0	236.0	213.0	263.0	241.0	219.0	266.0	248.0	224.0	269.0	252.0	229.0
	SHC	125.5	157.7	187.7	131.4	169.5	203.9	138.0	183.0	217.3	145.0	193.0	227.0
	kW	19.21	18.82	18.28	19.36	19.00	18.47	19.49	19.06	18.64	19.56	19.17	18.81
95	TC	250.0	227.0	203.1	255.0	231.0	208.9	259.0	240.0	214.3	262.0	246.0	220.0
	SHC	123.1	154.5	183.7	129.9	166.2	198.9	136.8	180.0	212.3	142.7	189.0	220.0
	kW	21.01	20.48	19.79	21.19	20.63	20.00	21.35	20.69	20.19	21.48	20.82	20.48
105	TC	238.0	216.0	189.7	243.0	221.0	195.3	248.0	224.0	202.9	250.0	226.0	210.9
	SHC	119.3	150.4	177.5	126.6	162.5	192.7	133.7	174.1	202.9	140.0	184.8	210.9
	kW	22.7	22.1	21.3	22.9	22.3	21.62	23.0	22.5	21.93	23.2	21.6	22.12
115	TC	227.0	201.6	175.6	231.0	207.6	182.8	234.0	211.4	191.9	237.0	214.6	200.1
	SHC	115.4	145.3	170.5	122.8	157.8	182.6	129.8	169.6	191.9	136.5	180.2	200.1
	kW	24.3	23.6	22.9	24.6	23.9	23.3	24.7	24.1	23.6	24.9	24.1	23.8

50TJ028 (25 TONS)													
Temp (F) Air Entering Condenser (Edb)		Air Entering Evaporator — Cfm/BF											
		7000/0.03			8750/0.05			10,000/0.07			11,250/0.09		
		Air Entering Evaporator — Ewb (F)											
		72	67	62	72	67	62	72	67	62	72	67	62
85	TC	315.3	290 4	264 3	326 9	303.2	278 0	333 7	309.1	285.0	335 1	314 2	291 1
	SHC	156.3	191 7	224.9	168 4	213.2	254.9	177.5	226.9	273.8	184.4	240.7	288.4
	kW	22 7	22 1	21.3	23 1	22 5	21.8	23.3	22.7	22 0	23 3	22.8	22.2
95	TC	304 1	277 4	243 1	315 3	290 1	263 8	320.4	295 6	271 1	324 1	300 6	279 4
	SHC	152.0	186.5	215.2	165.0	208.5	248.0	173.0	222.4	266.4	181.6	236.5	279.4
	kW	24 8	24.0	23 2	25.2	24 5	23.5	25.4	24.6	23 8	25 5	24 8	24 1
105	TC	291 2	261.4	224 8	300.9	274 2	242.1	305.7	280 3	252 3	309 8	284 8	266.3
	SHC	147.2	179.7	206.6	159.9	201.8	237.3	168 3	216.8	252.3	176.8	231.1	266.3
	kW	26.9	25 8	25 0	27.2	26 3	25.4	27.4	26.6	25 8	27.6	26 8	26 0
115	TC	274.6	237 9	207 6	285 9	251 5	222 6	291 3	258 4	237 7	293 9	267.5	247 1
	SHC	140.9	170.0	198.6	154 9	193.2	222 6	164 1	208.7	237.7	163.0	224.3	247 1
	kW	28 8	27 8	26 8	29 4	28 2	27 4	29 6	28 5	27 7	29 7	28.5	28 1

LEGEND

BF — Bypass Factor
Edb — Entering Dry-Bulb
Ewb — Entering Wet-Bulb
kW — Compressor Motor Power Input
Ldb — Leaving Dry-Bulb
Lwb — Leaving Wet-Bulb
SHC — Sensible Heat Capacity (1000 Btuh) Gross
TC — Total Capacity (1000 Btuh) Gross

NOTES:

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

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

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

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

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

- 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) SHC

BYPASS FACTOR (BF)	ENTERING AIR DRY-BULB TEMP (F)					
	79	78	77	76	75	under 75
	81	82	83	84	85	over 85
Correction Factor						
.05	1.04	2.07	3.11	4.14	5.18	Use formula shown below
.10	.98	1.96	2.94	3.92	4.90	
.20	.87	1.74	2.62	3.49	4.36	
.30	.76	1.53	2.29	3.05	3.82	

Interpolation is permissible

$$\text{Correction Factor} = 1.10 \times (1 - \text{BF}) \times (\text{edb} - 80)$$

Performance data (cont)

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS

50TJ004 (3 TONS) — STANDARD MOTOR (DIRECT DRIVE)								
Airflow (Cfm)	Low Speed				High Speed			
	208 V		230, 460, 575 V		208 V		230, 460, 575 V	
	ESP	Bhp	ESP	Bhp	ESP	Bhp	ESP	Bhp
900	.63	.17	.65	.19	.66	.21	.68	.25
1000	.61	.20	.63	.22	.65	.23	.66	.27
1100	.58	.21	.60	.24	.62	.25	.63	.29
1200	.54	.23	.56	.25	.57	.27	.58	.31
1300	.46	.24	.49	.26	.51	.29	.52	.32
1400	.40	.26	.42	.28	.45	.30	.46	.33
1500	.34	.27	.37	.33	.37	.31	.38	.34

LEGEND

Bhp — Brake Horsepower

ESP — External Static Pressure (in. wg)

NOTE: Values include losses for filters, unit casing, and wet coils.

50TJ004 (3 TONS) — ALTERNATE MOTOR AND DRIVE (BELT)																		
Airflow (Cfm)	External Static Pressure (in. wg)																	
	0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.85		0.90	
	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
900	673	0.18	736	0.22	805	0.25	865	0.29	911	0.34	957	0.39	988	0.43	1039	0.45	1061	0.47
950	691	0.20	750	0.23	821	0.27	885	0.32	925	0.36	977	0.41	1018	0.46	1052	0.48	1070	0.50
1000	709	0.22	782	0.28	835	0.30	900	0.35	937	0.38	992	0.44	1039	0.49	1061	0.51	1083	0.55
1050	727	0.24	786	0.29	851	0.32	914	0.37	950	0.41	1005	0.46	1055	0.52	1081	0.56	1089	0.57
1100	746	0.26	806	0.30	867	0.35	929	0.40	964	0.44	1013	0.49	1068	0.55	1092	0.58	1093	0.61
1150	770	0.30	826	0.32	885	0.38	944	0.43	979	0.47	1031	0.52	1089	0.61	1100	0.63	1112	0.66
1200	785	0.32	843	0.35	903	0.41	960	0.47	994	0.50	1045	0.56	1098	0.64	1109	0.66	1142	0.68
1250	805	0.35	869	0.39	922	0.45	977	0.50	1011	0.54	1060	0.59	1105	0.66	1138	0.70	—	—
1300	826	0.38	891	0.43	942	0.48	991	0.53	1047	0.60	1075	0.64	1122	0.70	—	—	—	—
1350	846	0.41	914	0.47	963	0.52	1013	0.58	1063	0.64	1092	0.68	1141	0.73	—	—	—	—
1400	868	0.45	937	0.51	984	0.57	1032	0.62	1067	0.67	1110	0.73	—	—	—	—	—	—
1450	889	0.49	961	0.56	1006	0.61	1052	0.67	1088	0.72	1129	0.78	—	—	—	—	—	—
1500	911	0.53	985	0.61	1029	0.66	1073	0.72	1109	0.77	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower

NOTES:

- Boldface** indicates field-supplied motor and drive required. (See Note 4.)
- Maximum usable bhp is 0.66. Extensive motor and electrical testing on these units ensures that the full horsepower range of the motor can be utilized with confidence. Using your fan motors up to the horsepower ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
- Values include losses for filters, unit casing, and wet coils.
- Alternate motor drive range: 558 to 1326 rpm. All other rpms require field-supplied drive. In order to achieve rpms over 790, reversal of the evaporator-fan and fan-motor pulleys in the field will be necessary. See Fan Rpm tables on page 35.
- Use of a field-supplied motor may affect wire sizing. Contact your Carrier distributor to verify.
- To convert bhp to watts:

$$\text{Watts input} = \frac{\text{Bhp} \times 746}{\text{Motor efficiency}}$$

$$\text{Motor efficiency} = .63$$

50TJ005 (4 TONS) — STANDARD MOTOR (DIRECT DRIVE)								
Airflow (Cfm)	Low Speed				High Speed			
	208 V		230, 460, 575 V		208 V		230, 460, 575 V	
	ESP	Bhp	ESP	Bhp	ESP	Bhp	ESP	Bhp
1200	.77	.44	.81	.48	.89	.56	.98	.65
1300	.70	.48	.75	.50	.82	.60	.91	.68
1400	.62	.50	.68	.54	.75	.63	.85	.69
1500	.54	.53	.61	.58	.67	.65	.78	.72
1600	.45	.57	.52	.60	.59	.68	.70	.74
1700	.36	.58	.44	.63	.50	.69	.61	.76
1800	.26	.61	.35	.65	.42	.71	.54	.78
1900	.18	.63	.27	.68	.34	.73	.46	.79
2000	.08	.64	.19	.69	.26	.74	.39	.81

LEGEND

Bhp — Brake Horsepower

ESP — External Static Pressure (in. wg)

NOTE: Values include losses for filters, unit casing, and wet coils

FAN PERFORMANCE – VERTICAL DISCHARGE UNITS (cont)

50TJ005 (4 TONS) – ALTERNATE MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)																	
	0.1		0.2		0.3		0.4		0.6		0.7		0.8		1.0		1.2	
	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
1200	701	0.22	758	0.28	834	0.35	914	0.42	1012	0.56	1056	0.59	1098	0.62	1180	0.68	1255	0.76
1300	747	0.27	800	0.34	865	0.41	945	0.52	1050	0.62	1090	0.63	1132	0.68	1212	0.72	1280	0.78
1400	792	0.33	847	0.40	901	0.47	960	0.56	1091	0.67	1130	0.70	1165	0.72	1242	0.82	1310	0.89
1500	836	0.39	897	0.46	947	0.55	1000	0.61	1132	0.72	1170	0.75	1205	0.82	1275	0.91	1330	0.98
1600	881	0.47	945	0.54	983	0.62	1065	0.67	1172	0.77	1207	0.86	1238	0.92	1310	1.05	1350	1.08
1700	925	0.55	981	0.61	1020	0.68	1103	0.72	1202	0.88	1243	0.98	1270	1.05	1350	1.16	1372	1.19
1800	964	0.63	1024	0.72	1084	0.75	1140	0.82	1230	0.97	1268	1.07	1300	1.15	1390	1.29	1450	1.58
1900	1011	0.73	1068	0.79	1120	0.82	1172	0.91	1256	1.18	1310	1.13	1329	1.27	1440	1.47	1505	1.60
2000	1058	0.81	1100	0.85	1160	0.90	1237	1.20	1286	1.25	1320	1.31	1400	1.36	1448	1.57	1550	1.65

LEGEND

Bhp — Brake Horsepower

NOTES:

- Boldface** indicates field-supplied drive required (See Note 5)
- Shading** indicates field-supplied motor and drive required.
- Maximum usable bhp is 1.2. Extensive motor and drive testing on these units ensures that the full horsepower range of the motor can be utilized with confidence. Using your fan motors up to the horsepower rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
- Values include losses for filters, unit casing, and wet coils
- Alternate motor drive range: 970 to 1310 rpm. All other rpms require field-supplied drive
- To convert bhp to watts:

$$\text{Watts input} = \frac{\text{Bhp} \times 746}{\text{Motor efficiency}}$$

$$\text{Motor efficiency} = .79$$

50TJ006 (5 TONS) – STANDARD MOTOR (DIRECT DRIVE)

Airflow (Cfm)	Low Speed				Medium Speed				High Speed			
	208 V		230, 460, 575 V		208 V		230, 460, 575 V		208 V		230, 460, 575 V	
	ESP	Bhp	ESP	Bhp	ESP	Bhp	ESP	Bhp	ESP	Bhp	ESP	Bhp
1500	0.85	0.64	1.10	0.71	1.10	0.68	1.20	0.75	1.25	0.82	1.30	0.90
1600	0.65	0.64	1.00	0.71	1.00	0.70	1.12	0.77	1.17	0.84	1.23	0.93
1700	0.43	0.64	0.85	0.71	0.85	0.75	1.03	0.83	1.09	0.86	1.15	0.95
1800	0.21	0.64	0.72	0.71	0.72	0.79	0.93	0.87	0.98	0.88	1.07	0.97
1900	0.05	0.62	0.55	0.70	0.55	0.83	0.81	0.92	0.86	0.92	0.98	1.02
2000	—	—	0.39	0.64	0.39	0.84	0.70	0.93	0.75	0.94	0.88	1.04
2100	—	—	0.20	0.57	0.20	0.86	0.55	0.96	0.62	0.99	0.78	1.09
2200	—	—	0.02	0.50	0.03	0.90	0.42	0.95	0.50	1.02	0.67	1.12
2300	—	—	—	—	—	—	0.28	0.92	0.35	1.04	0.56	1.15
2400	—	—	—	—	—	—	0.20	0.89	0.22	1.06	0.45	1.18
2500	—	—	—	—	—	—	0.10	0.84	0.10	1.08	0.33	1.19

LEGEND

Bhp — Brake Horsepower

ESP — External Static Pressure (in. wg)

NOTE: Values include losses for filters, unit casing, and wet coils

Performance data (cont)

FAN PERFORMANCE – VERTICAL DISCHARGE UNITS (cont)

50TJ006 (5 TONS) – ALTERNATE MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)																			
	0.1		0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8	
	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
1500	730	0.34	789	0.40	896	0.53	990	0.67	1072	0.83	1153	1.00	1221	1.17	1256	1.30	1243	1.32	1174	1.22
1600	770	0.40	826	0.46	931	0.61	1020	0.75	1101	0.91	1178	1.09	1252	1.27	1311	1.45	1340	1.58	1330	1.61
1700	811	0.47	865	0.54	966	0.69	1051	0.84	1133	1.01	1205	1.18	1278	1.37	1345	1.57	1397	1.76	1424	1.89
1800	852	0.55	905	0.62	1002	0.78	1084	0.93	1163	1.10	1235	1.29	1303	1.48	1371	1.69	1433	1.90	1490	2.09
1900	894	0.54	945	0.72	1037	0.88	1119	1.04	1194	1.21	1266	1.40	1330	1.59	1396	1.81	1460	2.03	1517	2.25
2000	936	0.74	984	0.82	1072	0.98	1154	1.16	1226	1.33	1297	1.53	1362	1.73	1422	1.94	1485	2.16	1544	2.40
2100	978	0.85	1024	0.93	1108	1.10	1192	1.29	1259	1.47	1327	1.66	1393	1.87	1452	2.08	1510	2.31	1569	2.55
2200	1021	0.97	1064	1.05	1145	1.22	1225	1.43	1294	1.62	1359	1.81	1423	2.02	1483	2.24	1538	2.46	1596	2.71
2300	1064	1.10	1104	1.18	1183	1.36	1260	1.57	1330	1.78	1392	1.97	1454	2.18	1515	2.41	1569	2.64	1622	2.88
2400	1107	1.24	1145	1.32	1222	1.45	1296	1.73	1365	1.94	1426	2.15	1485	2.36	1544	2.59	1601	2.84	1652	3.07
2500	1150	1.39	1186	1.48	1262	1.68	1331	1.89	1400	2.12	1461	2.34	1518	2.55	1575	2.78	1631	3.03	1684	3.28

LEGEND

Bhp — Brake Horsepower

NOTES:

1. **Boldface** indicates field-supplied drive required. (See Note 4.)
2. **Shading** indicates field-supplied motor and drive required.
3. *Maximum usable bhp is 1.8* Extensive motor and drive testing on these units ensures that the full horsepower range of the motor can be utilized with confidence. Using your fan motors up to the horsepower rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected
4. Alternate motor drive range: 900 to 1300 rpm. All other rpms require field-supplied drive
5. Values include losses for filters, unit casing, and wet coils.
6. To convert bhp to watts:

$$\text{Watts input} = \frac{\text{Bhp} \times 746}{\text{Motor efficiency}}$$

$$\text{Motor efficiency} = .81$$

50TJ007 (6 TONS) – STANDARD MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)																	
	0.1		0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6	
	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
1800	852	0.55	905	0.62	1002	0.78	1084	0.93	1163	1.10	1235	1.29	1303	1.48	1371	1.69	1433	1.90
1900	894	0.64	945	0.72	1037	0.88	1119	1.04	1194	1.21	1266	1.40	1330	1.59	1396	1.81	1460	2.03
2000	936	0.74	984	0.82	1072	0.98	1154	1.16	1226	1.33	1297	1.53	1362	1.73	1422	1.94	1485	2.16
2100	978	0.85	1024	0.93	1108	1.10	1190	1.29	1259	1.47	1327	1.66	1393	1.87	1452	2.08	1510	2.31
2200	1021	0.97	1064	1.05	1145	1.22	1225	1.43	1294	1.62	1359	1.81	1423	2.02	1483	2.24	1538	2.46
2300	1064	1.10	1104	1.18	1183	1.36	1260	1.57	1330	1.78	1392	1.97	1454	2.18	1515	2.41	1569	2.64
2400	1107	1.24	1145	1.32	1222	1.52	1296	1.73	1365	1.94	1426	2.15	1485	2.36	1544	2.59	1601	2.84
2500	1150	1.39	1186	1.48	1262	1.68	1331	1.89	1400	2.12	1461	2.34	1518	2.55	1575	2.78	—	—
2600	1193	1.56	1228	1.65	1301	1.86	1367	2.07	1435	2.31	1497	2.54	1552	2.76	—	—	—	—
2700	1237	1.74	1269	1.83	1341	2.05	1404	2.26	1471	2.51	1532	2.75	—	—	—	—	—	—
2800	1280	1.94	1311	2.03	1381	2.25	1442	2.47	1506	2.72	—	—	—	—	—	—	—	—
2900	1324	2.15	1354	2.24	1420	2.47	1481	2.69	1542	2.94	—	—	—	—	—	—	—	—
3000	1368	2.37	1396	2.46	1460	2.69	1521	2.93	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower

NOTES:

1. **Boldface** indicates field-supplied drive required (See Note 6.)
2. **Shading** indicates field-supplied motor and drive required.
3. *Maximum usable bhp is 2.4* Extensive motor and electrical testing on these units ensures that the full horsepower range of the motor can be utilized with confidence. Using your fan motors up to the horsepower ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
4. Values include losses for filters, unit casing, and wet coils
5. Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.
6. Standard motor drive range is 1070 to 1460 rpm. All other rpms require field-supplied drive
7. To convert bhp to watts:

$$\text{Watts input} = \frac{\text{Bhp} \times 746}{\text{Motor efficiency}}$$

$$\text{Motor efficiency} = .81$$

FAN PERFORMANCE – VERTICAL DISCHARGE UNITS (cont)

50TJ008 (7½ TONS) – STANDARD MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)																			
	0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0	
	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
2200	503	0.50	585	0.71	653	0.92	716	1.15	772	1.38	824	1.63	884	1.95	934	2.30	916	2.64	1019	3.09
2250	511	0.52	592	0.74	659	0.95	722	1.19	778	1.43	829	1.68	884	1.97	937	2.33	947	2.66	1022	3.10
2300	518	0.55	599	0.77	665	0.98	727	1.22	783	1.47	834	1.72	885	2.00	939	2.36	979	2.69	1025	3.12
2400	534	0.61	613	0.84	677	1.06	738	1.30	794	1.55	844	1.81	892	2.08	944	2.40	987	2.76	1039	3.20
2500	549	0.67	627	0.90	690	1.14	750	1.38	805	1.64	855	1.91	902	2.18	949	2.48	1002	2.84	1041	3.25
2550	557	0.71	633	0.94	697	1.18	756	1.42	811	1.69	861	1.96	908	2.24	953	2.52	1003	2.87	1045	3.28
2600	565	0.74	639	0.97	703	1.22	761	1.46	816	1.74	866	2.01	913	2.29	957	2.56	1004	2.91	1050	3.31
2700	581	0.81	652	1.04	717	1.31	773	1.55	827	1.83	878	2.12	924	2.41	967	2.70	1010	3.01	1056	3.37
2800	597	0.89	665	1.12	731	1.40	786	1.66	839	1.93	889	2.23	935	2.52	978	2.82	1019	3.13	1061	3.47
2900	613	0.97	679	1.20	745	1.50	799	1.76	850	2.04	900	2.34	946	2.65	989	2.96	1030	3.27	—	—
3000	629	1.06	694	1.29	759	1.59	812	1.88	862	2.15	911	2.46	957	2.78	1000	3.09	1040	3.41	—	—
3100	646	1.15	709	1.39	772	1.70	825	1.99	875	2.28	923	2.58	968	2.91	1011	3.24	—	—	—	—
3200	662	1.25	724	1.50	785	1.80	840	2.11	887	2.41	934	2.71	980	3.04	1022	3.38	—	—	—	—
3300	679	1.35	740	1.61	798	1.91	854	2.24	900	2.54	946	2.85	991	3.18	—	—	—	—	—	—
3400	696	1.46	756	1.73	811	2.02	868	2.37	914	2.69	959	3.00	1003	3.32	—	—	—	—	—	—
3500	712	1.57	771	1.85	824	2.14	881	2.50	928	2.84	971	3.16	1014	3.48	—	—	—	—	—	—
3600	729	1.69	787	1.98	839	2.27	894	2.64	942	2.98	984	3.32	—	—	—	—	—	—	—	—
3700	746	1.82	803	2.12	854	2.42	907	2.78	956	3.15	997	3.48	—	—	—	—	—	—	—	—
3750	755	1.89	811	2.20	862	2.49	914	2.85	963	3.23	—	—	—	—	—	—	—	—	—	—
3800	763	1.95	819	2.27	869	2.56	920	2.92	970	3.31	—	—	—	—	—	—	—	—	—	—
3900	780	2.09	835	2.42	884	2.72	933	3.07	983	3.48	—	—	—	—	—	—	—	—	—	—
4000	796	2.23	851	2.56	900	2.89	946	3.23	—	—	—	—	—	—	—	—	—	—	—	—
4100	813	2.39	867	2.74	915	3.06	960	3.40	—	—	—	—	—	—	—	—	—	—	—	—
4200	830	2.55	883	2.91	931	3.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4250	838	2.63	892	3.00	939	3.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4300	847	2.71	900	3.09	947	3.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower

NOTES:

1 **Shading** indicates field-supplied drive required (See Note 7.)

2 **Shading** indicates factory-supplied alternate drive required (See Note 7.)

3 **Shading** indicates field-supplied motor and drive required

4 **Maximum usable bhp is 2.4** Extensive motor and electrical testing on these units ensures that the full horsepower range of the motor can be utilized with confidence. Using your fan motors up to the horsepower ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.

5 Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.

6 Values include losses for filters, unit casing, and wet coils.

7 Standard motor drive range: 590 to 840 rpm. Alternate motor drive range: 685 to 935 rpm. All other rpms require field-supplied drive.

8 To convert bhp to watts:

$$\text{Watts input} = \frac{\text{Bhp} \times 746}{\text{Motor efficiency}}$$

$$\text{Motor efficiency} = 83$$

50TJ009 (8½ TONS) – STANDARD MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)																			
	0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0	
	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
2200	503	0.50	585	0.71	653	0.92	716	1.15	772	1.38	824	1.63	884	1.95	934	2.30	916	2.64	1019	3.09
2250	511	0.52	592	0.74	659	0.95	722	1.19	778	1.43	829	1.68	884	1.97	937	2.33	947	2.66	1022	3.10
2300	518	0.55	599	0.77	665	0.98	727	1.22	783	1.47	834	1.72	885	2.00	939	2.36	979	2.69	1025	3.12
2400	534	0.61	613	0.84	677	1.06	738	1.30	794	1.55	844	1.81	892	2.08	944	2.40	987	2.76	1039	3.20
2500	549	0.67	627	0.90	690	1.14	750	1.38	805	1.64	855	1.91	902	2.18	949	2.48	1002	2.84	1041	3.25
2550	557	0.71	633	0.94	697	1.18	756	1.42	811	1.69	861	1.96	908	2.24	953	2.52	1003	2.87	1045	3.28
2600	565	0.74	639	0.97	703	1.22	761	1.46	816	1.74	866	2.01	913	2.29	957	2.56	1004	2.91	1050	3.31
2700	581	0.81	652	1.04	717	1.31	773	1.55	827	1.83	878	2.12	924	2.41	967	2.70	1010	3.01	1056	3.37
2800	597	0.89	665	1.12	731	1.40	786	1.66	839	1.93	889	2.23	935	2.52	978	2.82	1019	3.13	1061	3.47
2900	613	0.97	679	1.20	745	1.50	799	1.76	850	2.04	900	2.34	946	2.65	989	2.96	1030	3.27	—	—
3000	629	1.06	694	1.29	759	1.59	812	1.88	862	2.15	911	2.46	957	2.78	1000	3.09	1040	3.41	—	—
3100	646	1.15	709	1.39	772	1.70	825	1.99	875	2.28	923	2.58	968	2.91	1011	3.24	—	—	—	—
3200	662	1.25	724	1.50	785	1.80	840	2.11	887	2.41	934	2.71	980	3.04	1022	3.38	—	—	—	—
3300	679	1.35	740	1.61	798	1.91	854	2.24	900	2.54	946	2.85	991	3.18	—	—	—	—	—	—
3400	696	1.46	756	1.73	811	2.02	868	2.37	914	2.69	959	3.00	1003	3.32	—	—	—	—	—	—
3500	712	1.57	771	1.85	824	2.14	881	2.50	928	2.84	971	3.16	1014	3.48	—	—	—	—	—	—
3600	729	1.69	787	1.98	839	2.27	894	2.64	942	2.98	984	3.32	—	—	—	—	—	—	—	—
3700	746	1.82	803	2.12	854	2.42	907	2.78	956	3.15	997	3.48	—	—	—	—	—	—	—	—
3750	755	1.89	811	2.20	862	2.49	914	2.85	963	3.23	—	—	—	—	—	—	—	—	—	—
3800	763	1.95	819	2.27	869	2.56	920	2.92	970	3.31	—	—	—	—	—	—	—	—	—	—
3900	780	2.09	835	2.42	884	2.72	933	3.07	983	3.48	—	—	—	—	—	—	—	—	—	—
4000	796	2.23	851	2.56	900	2.89	946	3.23	—	—	—	—	—	—	—	—	—	—	—	—
4100	813	2.39	867	2.74	915	3.06	960	3.40	—	—	—	—	—	—	—	—	—	—	—	—
4200	830	2.55	883	2.91	931	3.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4250	838	2.63	892	3.00	939	3.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4300	847	2.71	900	3.09	947	3.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower

NOTES:

1 **Shading** indicates field-supplied drive required (See Note 6.)

2 **Shading** indicates field-supplied motor and drive required

3 **Maximum usable bhp is 2.4** Extensive motor and electrical testing on these units ensures that the full horsepower range of the motor can be utilized with confidence. Using your fan motors up to the horsepower ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.

4 Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.

5 Values include losses for filters, unit casing, and wet coils.

6 Standard motor drive range: 685 to 935 rpm. All other rpms require field-supplied drive.

7 To convert bhp to watts:

$$\text{Watts input} = \frac{\text{Bhp} \times 746}{\text{Motor efficiency}}$$

$$\text{Motor efficiency} = 83$$

Performance data (cont)

FAN PERFORMANCE – VERTICAL DISCHARGE UNITS (cont)

50TJ012 (10 TONS) – STANDARD AND ALTERNATE MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)																			
	0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0	
	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
3000	532	0.64	605	0.81	670	0.97	725	1.12	778	1.28	825	1.43	874	1.60	926	1.82	974	2.11	1012	2.36
3100	544	0.70	616	0.86	680	1.03	735	1.20	787	1.36	835	1.52	880	1.68	933	1.87	983	2.16	1017	2.41
3200	557	0.75	628	0.93	690	1.10	746	1.28	796	1.44	844	1.61	888	1.77	934	1.94	988	2.18	1025	2.47
3300	570	0.81	639	0.99	700	1.18	757	1.36	805	1.52	854	1.70	897	1.86	940	2.03	989	2.24	1032	2.53
3400	583	0.88	651	1.06	711	1.25	767	1.44	815	1.61	863	1.79	907	1.97	947	2.14	991	2.32	1038	2.57
3500	596	0.94	663	1.14	721	1.33	777	1.52	826	1.71	871	1.88	916	2.07	956	2.25	997	2.43	1043	2.64
3600	609	1.01	674	1.22	732	1.42	787	1.61	836	1.80	880	1.98	926	2.18	965	2.36	1004	2.54	1045	2.74
3700	622	1.09	686	1.30	744	1.50	797	1.70	847	1.91	890	2.09	934	2.28	975	2.48	1013	2.66	1051	2.85
3800	635	1.16	698	1.39	755	1.59	808	1.80	857	2.01	901	2.20	943	2.39	985	2.60	1023	2.79	1059	2.98
3900	649	1.25	710	1.48	767	1.68	818	1.90	867	2.11	912	2.32	952	2.51	994	2.72	1032	2.92	1066	3.12
4000	662	1.33	722	1.57	778	1.78	829	2.01	878	2.22	922	2.44	962	2.63	1003	2.84	1042	3.06	1078	3.26
4100	675	1.42	734	1.67	790	1.89	839	2.12	888	2.33	933	2.56	973	2.77	1011	2.97	1051	3.20	1087	3.41
4200	689	1.52	746	1.77	801	1.99	851	2.23	898	2.45	943	2.69	983	2.91	1021	3.11	1060	3.34	—	—
4300	702	1.61	759	1.88	813	2.11	862	2.34	908	2.58	953	2.81	994	3.05	1031	3.25	1066	3.48	—	—
4400	715	1.72	772	1.99	825	2.22	873	2.46	919	2.71	962	2.94	1004	3.19	1042	3.41	—	—	—	—
4500	729	1.83	785	2.10	837	2.35	885	2.59	929	2.85	973	3.08	1015	3.33	—	—	—	—	—	—
4600	742	1.94	797	2.22	848	2.48	896	2.72	940	2.98	984	3.22	1025	3.48	—	—	—	—	—	—
4700	756	2.06	810	2.34	860	2.61	908	2.86	951	3.12	994	3.38	—	—	—	—	—	—	—	—
4800	770	2.18	823	2.46	872	2.75	919	3.00	962	3.27	—	—	—	—	—	—	—	—	—	—
4900	783	2.31	836	2.60	884	2.89	931	3.14	974	3.41	—	—	—	—	—	—	—	—	—	—
5000	797	2.44	849	2.73	897	3.04	943	3.30	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower

NOTES:

- NOTES:
- 1 **Shading** indicates field-supplied drive required (See Note 7)
 - 2 **Shading** indicates alternate motor and drive required (See Note 7)
 - 3 **Shading** indicates field-supplied motor and drive required
 - 4 *Maximum usable bhp is 2.4 with standard motor; 2.9 with alternate motor* Extensive motor and electrical testing on these units ensures that the full horsepower range of the motor can be utilized with confidence. Using your fan motors up to the horsepower ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
 - 5 Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.
 - 6 Values include losses for filters, unit casing, and wet coils.
 - 7 Standard motor drive range: 685 to 935 rpm. Alternate motor drive range: 835 to 1085 rpm. All other rpms require field-supplied drive.
 - 8 To convert bhp to watts:

$$\text{Watts input} = \frac{\text{Bhp} \times 746}{\text{Motor efficiency}}$$

Motor efficiency = .83

50TJ014 (12½ TONS) – STANDARD MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)																			
	0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0	
	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
3700	654	1.12	714	1.31	767	1.50	815	1.67	861	1.85	906	2.08	950	2.27	991	2.47	1030	2.65	1064	2.82
3800	668	1.20	727	1.40	780	1.60	827	1.77	873	1.95	916	2.18	959	2.38	1001	2.58	1040	2.78	1075	2.96
3900	683	1.28	741	1.49	793	1.70	839	1.88	884	2.05	927	2.28	969	2.50	1010	2.70	1049	2.91	1085	3.11
4000	697	1.37	754	1.59	806	1.80	851	1.99	895	2.16	938	2.38	979	2.62	1020	2.83	1059	3.04	1095	3.25
4100	711	1.46	767	1.69	819	1.90	864	2.10	907	2.28	949	2.49	989	2.74	1029	2.96	1068	3.18	1105	3.39
4200	726	1.56	780	1.80	832	2.01	877	2.22	919	2.41	960	2.60	1000	2.86	1039	3.10	1077	3.31	1114	3.54
4300	741	1.66	794	1.91	845	2.12	889	2.35	931	2.54	971	2.72	1011	2.97	1049	3.23	1087	3.46	1124	3.69
4400	755	1.77	808	2.03	858	2.24	902	2.48	943	2.68	983	2.86	1022	3.10	1059	3.37	1097	3.61	1133	3.84
4500	770	1.89	821	2.15	871	2.37	915	2.61	955	2.82	995	3.01	1033	3.23	1070	3.51	1107	3.76	1143	4.00
4600	784	2.00	835	2.27	884	2.49	928	2.75	968	2.96	1006	3.17	1044	3.37	1081	3.64	1117	3.92	1152	4.17
4700	799	2.13	849	2.40	897	2.63	941	2.88	981	3.11	1018	3.32	1056	3.52	1092	3.78	1127	4.07	1162	4.33
4800	814	2.25	863	2.53	910	2.77	954	3.02	993	3.27	1030	3.48	1067	3.69	1103	3.93	1138	4.23	1172	4.50
4900	829	2.39	877	2.67	923	2.92	967	3.17	1006	3.43	1043	3.65	1079	3.87	1114	4.09	1149	4.37	1182	4.68
5000	843	2.52	892	2.81	937	3.08	980	3.32	1019	3.60	1055	3.82	1091	4.05	1126	4.25	1160	4.53	1193	4.85
5100	858	2.67	906	2.95	950	3.24	993	3.48	1032	3.76	1068	4.00	1103	4.23	1137	4.45	1171	4.70	1204	5.01
5200	873	2.82	920	3.10	963	3.40	1006	3.65	1045	3.93	1081	4.19	1115	4.42	1149	4.65	1182	4.88	1215	5.18
5300	888	2.97	934	3.26	977	3.57	1019	3.82	1058	4.11	1094	4.38	1127	4.62	1161	4.85	1194	5.07	1226	5.36
5400	903	3.13	949	3.43	991	3.75	1032	4.00	1071	4.29	1106	4.57	1139	4.82	1173	5.06	1205	5.29	1237	5.55
5500	918	3.30	963	3.59	1004	3.92	1045	4.18	1084	4.47	1119	4.77	1152	5.03	1185	5.27	1217	5.51	1248	5.75
5600	933	3.47	978	3.77	1018	4.11	1058	4.38	1097	4.66	1132	4.97	1165	5.24	1197	5.49	1229	5.74	—	—
5700	948	3.65	992	3.95	1032	4.30	1072	4.56	1110	4.86	1145	5.18	1178	5.46	1209	5.72	—	—	—	—
5800	963	3.83	1006	4.14	1046	4.50	1085	4.79	1123	5.07	1158	5.39	1191	5.69	—	—	—	—	—	—
5900	978	4.00	1021	4.34	1060	4.63	1098	5.01	1135	5.28	1171	5.60	—	—	—	—	—	—	—	—
6000	993	4.22	1035	4.54	1074	4.89	1112	5.23	1149	5.50	—	—	—	—	—	—	—	—	—	—
6100	1008	4.42	1050	4.75	1089	5.10	1125	5.45	1162	5.73	—	—	—	—	—	—	—	—	—	—
6200	1023	4.63	1065	4.96	1103	5.32	1139	5.68	—	—	—	—	—	—	—	—	—	—	—	—
6300	1038	4.85	1079	5.19	1117	5.54	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower

NOTES:

- 1 **Boldface** indicates field-supplied drive required. (See Note 6)
- 2 **Shading** indicates field-supplied motor and drive required
- 3 *Maximum usable bhp is 4.2* Extensive motor and electrical testing on these units ensures that the full horsepower range of the motor can be utilized with confidence. Using your fan motors up to the horsepower ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
- 4 Use of field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.
- 5 Values include losses for filters, unit casing, and wet coils
- 6 Standard motor drive range is 860 to 1080 rpm. All other rpms require a field-supplied drive
- 7 To convert bhp to watts:

$$\text{Watts input} = \frac{\text{Bhp} \times 746}{\text{Motor efficiency}}$$

Motor efficiency = 85

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50TJ014 (12½ TONS) — ALTERNATE MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)																			
	0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0	
	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
3700	654	1.12	714	1.31	767	1.50	815	1.67	861	1.85	906	2.08	950	2.27	991	2.47	1030	2.65	1064	2.82
3800	668	1.20	727	1.40	780	1.60	827	1.77	873	1.95	916	2.18	959	2.38	1001	2.58	1040	2.78	1075	2.96
3900	683	1.28	741	1.49	793	1.70	839	1.88	884	2.05	927	2.28	969	2.50	1010	2.70	1049	2.91	1085	3.11
4000	697	1.37	754	1.59	806	1.80	851	1.99	895	2.16	938	2.38	979	2.62	1020	2.83	1059	3.04	1095	3.25
4100	711	1.46	767	1.69	819	1.90	864	2.10	907	2.28	949	2.49	989	2.74	1029	2.96	1068	3.18	1105	3.39
4200	726	1.56	780	1.80	832	2.01	877	2.22	919	2.41	960	2.60	1000	2.86	1039	3.10	1077	3.31	1114	3.54
4300	741	1.66	794	1.91	845	2.12	889	2.35	931	2.54	971	2.72	1011	2.97	1049	3.23	1087	3.46	1124	3.69
4400	755	1.77	808	2.03	858	2.24	902	2.48	943	2.68	983	2.86	1022	3.10	1059	3.37	1097	3.61	1133	3.84
4500	770	1.89	821	2.15	871	2.37	915	2.61	955	2.82	995	3.01	1033	3.23	1070	3.51	1107	3.76	1143	4.00
4600	784	2.00	835	2.27	884	2.49	928	2.75	968	2.96	1006	3.17	1044	3.37	1081	3.64	1117	3.92	1152	4.17
4700	799	2.13	849	2.40	897	2.63	941	2.88	981	3.11	1018	3.32	1056	3.52	1092	3.78	1127	4.07	1162	4.33
4800	814	2.25	863	2.53	910	2.77	954	3.02	993	3.27	1030	3.48	1067	3.69	1103	3.93	1138	4.23	1172	4.50
4900	829	2.39	877	2.67	923	2.92	967	3.17	1006	3.43	1043	3.65	1079	3.87	1114	4.09	1149	4.37	1182	4.68
5000	843	2.52	892	2.81	937	3.08	980	3.32	1019	3.60	1055	3.82	1091	4.05	1126	4.25	1160	4.53	1193	4.85
5100	858	2.67	906	2.95	950	3.24	993	3.48	1032	3.76	1068	4.00	1103	4.23	1137	4.45	1171	4.70	1204	5.01
5200	873	2.82	920	3.10	963	3.40	1006	3.65	1045	3.93	1081	4.19	1115	4.42	1149	4.65	1182	4.88	1215	5.18
5300	888	2.97	934	3.26	977	3.57	1019	3.82	1058	4.11	1094	4.38	1127	4.62	1161	4.85	1194	5.07	1226	5.36
5400	903	3.13	949	3.43	991	3.75	1032	4.00	1071	4.29	1106	4.57	1139	4.82	1173	5.06	1205	5.29	1237	5.55
5500	918	3.30	963	3.59	1004	3.92	1045	4.18	1084	4.47	1119	4.77	1152	5.03	1185	5.27	1217	5.51	1248	5.75
5600	933	3.47	978	3.77	1018	4.11	1058	4.38	1097	4.66	1132	4.97	1165	5.24	1197	5.49	1229	5.74	—	—
5700	948	3.65	992	3.95	1032	4.30	1072	4.58	1110	4.86	1145	5.18	1178	5.46	1209	5.72	—	—	—	—
5800	963	3.83	1006	4.14	1046	4.50	1085	4.79	1123	5.07	1156	5.39	1171	5.69	—	—	—	—	—	—
5900	978	4.00	1021	4.34	1060	4.69	1098	5.01	1136	5.28	1171	5.60	—	—	—	—	—	—	—	—
6000	993	4.22	1035	4.54	1074	4.89	1112	5.23	1149	5.50	—	—	—	—	—	—	—	—	—	—
6100	1008	4.42	1050	4.75	1089	5.10	1125	5.45	1162	5.73	—	—	—	—	—	—	—	—	—	—
6200	1023	4.63	1065	4.96	1103	5.32	1139	5.68	—	—	—	—	—	—	—	—	—	—	—	—
6300	1038	4.85	1079	5.19	1079	5.54	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower

NOTES:

- 1. Boldface** indicates field-supplied drive required (See Note 4)
- Shading** indicates field-supplied motor and drive required.
- Maximum usable bhp is 5.25.* Extensive motor and drive testing on these units ensures that the full horsepower range of the motor can be utilized with confidence using your fan motors up to the horsepower rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
- Alternate motor drive range 900 to 1260 rpm All other rpms require field-supplied drive.
- Values include losses for filters, unit casing, and wet coils.
- To convert bhp to watts:

$$\text{Watts input} = \frac{\text{Bhp} \times 746}{\text{Motor efficiency}}$$

$$\text{Motor efficiency} = 85$$

NOTE: Fan performance tables for 016-028 units are on pages 33 and 34.

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS

50TJ004 (3 TONS) — STANDARD MOTOR (DIRECT DRIVE)

Airflow (Cfm)	Low Speed				High Speed			
	208 V		230, 460, 575 V		208 V		230, 460, 575 V	
	ESP	Bhp	ESP	Bhp	ESP	Bhp	ESP	Bhp
900	.71	.17	.73	.19	.80	.21	.82	.25
1000	.67	.20	.70	.22	.76	.23	.78	.27
1100	.61	.21	.64	.24	.70	.25	.72	.29
1200	.55	.23	.58	.25	.65	.27	.66	.31
1300	.47	.24	.50	.26	.57	.29	.58	.32
1400	.38	.26	.41	.28	.49	.30	.50	.33
1500	.29	.27	.32	.33	.40	.31	.41	.34

LEGEND

Bhp — Brake Horsepower

ESP — External Static Pressure (in. wg)

NOTE Values include losses for filters, unit casing, and wet coils.

Performance data (cont)

FAN PERFORMANCE – HORIZONTAL DISCHARGE UNITS (cont)

50TJ004 (3 TONS) ALTERNATE MOTOR AND DRIVE (BELT)

Airflow (Cfm)	External Static Pressure (in. wg)																					
	0.2		0.3		0.4		0.5		0.6		0.7		0.8		0.9		1.0		1.1		1.2	
	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
900	—	—	—	—	777	0.22	831	0.25	885	0.27	923	0.32	960	0.35	995	0.38	1068	0.42	1117	0.45	1165	0.48
950	—	—	728	0.17	783	0.25	837	0.27	890	0.29	931	0.34	971	0.38	1000	0.41	1071	0.44	1120	0.47	1170	0.51
1000	—	—	738	0.19	800	0.26	848	0.29	895	0.31	936	0.35	977	0.39	1020	0.44	1076	0.48	1123	0.52	1173	0.56
1050	—	—	748	0.21	808	0.27	855	0.30	902	0.33	949	0.38	995	0.42	1045	0.47	1081	0.50	1128	0.54	1176	0.58
1100	—	—	758	0.23	812	0.29	863	0.32	914	0.35	960	0.39	1005	0.43	1052	0.49	1091	0.52	1138	0.56	1186	0.60
1150	—	—	766	0.26	821	0.30	874	0.34	926	0.38	970	0.42	1013	0.45	1066	0.50	1106	0.56	1155	0.60	1204	0.65
1200	710	0.23	780	0.28	840	0.32	889	0.36	938	0.40	988	0.45	1038	0.50	1076	0.53	1110	0.59	1160	0.63	1210	0.68
1250	731	0.25	795	0.30	850	0.32	900	0.39	950	0.43	998	0.48	1045	0.52	1085	0.56	1135	0.62	1185	0.67	1236	0.71
1300	752	0.27	808	0.32	868	0.37	916	0.41	963	0.45	1012	0.51	1061	0.56	1094	0.61	1141	0.65	1190	0.70	1238	0.75
1350	759	0.29	828	0.35	878	0.39	922	0.44	966	0.48	1015	0.53	1064	0.58	1104	0.65	1145	0.68	1193	0.73	1241	0.78
1400	776	0.31	845	0.38	891	0.42	937	0.47	983	0.51	1027	0.56	1071	0.60	1108	0.67	1149	0.70	1196	0.75	1243	0.80
1450	795	0.35	853	0.40	902	0.45	951	0.50	999	0.55	1040	0.60	1081	0.64	1112	0.68	1152	0.72	1199	0.76	1243	0.80
1500	816	0.38	870	0.43	924	0.48	969	0.53	1014	0.58	1056	0.63	1097	0.68	1117	0.70	1155	0.74	1201	0.78	1245	0.82

LEGEND

Bhp — Brake Horsepower

NOTES:

1. **Boldface** indicates field-supplied motor and drive required (See Note 4.)
2. *Maximum usable bhp is 0.66* Extensive motor and electrical testing on these units ensures that the full horsepower range of the motor can be utilized with confidence. Using your fan motors up to the horsepower ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
3. Values include losses for filters, unit casing, and wet coils.
4. Alternate motor drive range: 558 to 1326 rpm. All other rpms require field-supplied drive. In order to achieve rpms over 790, reversal of the evaporator-fan and fan-motor pulleys in the field will be necessary. See Fan Rpm tables on page 35.
5. To convert bhp to watts:

$$\text{Watts input} = \frac{\text{Bhp} \times 746}{\text{Motor efficiency}}$$

$$\text{Motor efficiency} = .63$$

50TJ005 (4 TONS) — STANDARD MOTOR (DIRECT DRIVE)

Airflow (Cfm)	Low Speed				High Speed			
	208 V		230, 460, 575 V		208 V		230, 460, 575 V	
	ESP	Bhp	ESP	Bhp	ESP	Bhp	ESP	Bhp
1200	.96	.44	1.01	.48	1.09	.56	1.18	.65
1300	.91	.48	.96	.50	1.04	.60	1.13	.68
1400	.84	.50	.90	.54	.96	.63	1.06	.69
1500	.76	.53	.84	.58	.90	.65	1.01	.72
1600	.69	.57	.76	.60	.83	.68	.94	.74
1700	.60	.58	.67	.63	.76	.69	.86	.76
1800	.51	.61	.59	.65	.68	.71	.78	.78
1900	.42	.63	.48	.68	.59	.73	.70	.79
2000	.30	.64	.36	.69	.50	.74	.61	.81

LEGEND

Bhp — Brake Horsepower

ESP — External Static Pressure (in. wg)

NOTE: Values include losses for filters, unit casing, and wet coils.

50TJ005 (4 TONS) — ALTERNATE MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)																	
	0.1		0.2		0.3		0.4		0.6		0.7		0.8		1.0		1.2	
	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
1300	701	0.22	758	0.28	834	0.35	914	0.42	1012	0.56	1056	0.59	1098	0.62	1180	0.68	1255	0.76
1400	747	0.27	800	0.34	865	0.41	945	0.52	1050	0.62	1090	0.63	1132	0.68	1212	0.72	1280	0.78
1500	792	0.33	847	0.40	901	0.47	960	0.56	1091	0.67	1130	0.70	1165	0.72	1242	0.82	1310	0.89
1600	836	0.39	897	0.46	947	0.55	1000	0.61	1132	0.72	1170	0.75	1205	0.82	1275	0.91	1330	0.98
1700	881	0.47	945	0.54	983	0.62	1065	0.67	1172	0.77	1207	0.86	1238	0.92	1310	1.05	1350	1.08
1800	925	0.55	981	0.61	1020	0.68	1103	0.72	1202	0.88	1243	0.98	1270	1.05	1350	1.16	1372	1.19
1900	964	0.63	1024	0.72	1084	0.75	1140	0.82	1230	0.97	1268	1.07	1300	1.15	1390	1.29	1450	1.58
2000	1011	0.73	1068	0.79	1120	0.82	1172	0.91	1256	1.18	1310	1.13	1325	1.27	1440	1.47	1505	1.60
2100	1058	0.81	1100	0.85	1160	0.90	1237	1.20	1286	1.25	1320	1.31	1400	1.38	1448	1.57	1550	1.65

LEGEND

Bhp — Brake Horsepower

NOTES:

1. **Boldface** indicates field-supplied drive required (See Note 5.)
2. **Shading** indicates field-supplied motor and drive required.
3. *Maximum usable bhp is 1.2* Extensive motor and drive testing on these units ensures that the full horsepower range of the motor can be utilized with confidence. Using your fan motors up to the horsepower ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
4. Values include losses for filters, unit casing, and wet coils.
5. Alternate motor drive range: 970 to 1310 rpm. All other rpms require field-supplied drive.
6. Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.
7. To convert bhp to watts:

$$\text{Watts input} = \frac{\text{Bhp} \times 746}{\text{Motor efficiency}}$$

$$\text{Motor efficiency} = .79$$

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50TJ006 (5 TONS) — STANDARD MOTOR (DIRECT DRIVE)

Airflow (Cfm)	Low Speed				Medium Speed				High Speed			
	208 V		230, 460, 575 V		208 V		230, 460, 575 V		208 V		230, 460, 575V	
	ESP	Bhp	ESP	Bhp	ESP	Bhp	ESP	Bhp	ESP	Bhp	ESP	Bhp
1500	1.00	0.64	1.25	0.71	1.25	0.68	1.35	0.75	1.40	0.82	1.45	0.90
1600	0.80	0.64	1.15	0.71	1.15	0.70	1.27	0.77	1.32	0.84	1.38	0.93
1700	0.58	0.64	1.00	0.71	1.00	0.75	1.18	0.83	1.24	0.86	1.30	0.95
1800	0.36	0.64	0.87	0.71	0.87	0.79	1.08	0.87	1.13	0.88	1.22	0.97
1900	0.25	0.64	0.70	0.70	0.70	0.83	0.96	0.92	1.01	0.92	1.13	1.02
2000	0.12	0.64	0.54	0.64	0.54	0.84	0.85	0.93	0.90	0.94	1.03	1.04
2100	—	—	0.35	0.57	0.35	0.86	0.70	0.96	0.77	0.99	0.93	1.09
2200	—	—	0.25	0.53	0.20	0.87	0.57	0.95	0.65	1.02	0.82	1.12
2300	—	—	0.15	0.50	0.05	0.88	0.43	0.92	0.50	1.04	0.71	1.15
2400	—	—	—	—	—	—	0.35	0.89	0.37	1.06	0.60	1.18
2500	—	—	—	—	—	—	0.25	0.87	0.25	1.08	0.48	1.19

LEGEND

Bhp — Brake Horsepower

ESP — External Static Pressure (in. wg)

NOTE: Values include losses for filters, unit casing, and wet coils.

50TJ006 (5 TONS) — ALTERNATE MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)																			
	0.1		0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8	
	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
1500	658	0.27	722	0.33	840	0.46	937	0.59	1027	0.74	1108	0.90	1186	1.08	1263	1.30	1343	1.58	1431	1.81
1600	693	0.32	754	0.38	867	0.52	963	0.65	1052	0.81	1130	0.97	1205	1.15	1278	1.35	1350	1.61	1424	1.88
1700	729	0.38	787	0.44	895	0.58	991	0.73	1075	0.88	1154	1.06	1226	1.23	1296	1.42	1364	1.64	1432	1.89
1800	765	0.45	821	0.51	923	0.65	1019	0.81	1099	0.96	1178	1.14	1249	1.32	1316	1.52	1382	1.72	1447	1.95
1900	802	0.52	854	0.58	953	0.73	1046	0.90	1126	1.06	1201	1.23	1274	1.43	1338	1.62	1402	1.83	1464	2.05
2000	840	0.60	888	0.66	984	0.82	1073	0.99	1154	1.16	1226	1.33	1297	1.53	1363	1.73	1424	1.94	1484	2.16
2100	878	0.69	923	0.75	1015	0.91	1101	1.08	1182	1.27	1252	1.45	1320	1.64	1388	1.85	1448	2.07	1505	2.29
2200	916	0.78	958	0.85	1046	1.01	1129	1.19	1209	1.39	1280	1.58	1345	1.77	1410	1.97	1473	2.20	1529	2.43
2300	954	0.89	993	0.96	1079	1.13	1160	1.31	1237	1.51	1309	1.71	1372	1.91	1434	2.11	1496	2.34	1554	2.58
2400	993	1.00	1029	1.07	1112	1.25	1190	1.43	1264	1.63	1336	1.85	1400	2.06	1459	2.26	1519	2.48	1578	2.76
2500	1031	1.13	1066	1.20	1145	1.39	1220	1.57	1292	1.77	1363	2.00	1428	2.22	1486	2.43	1543	2.65	1600	2.89

LEGEND

Bhp — Brake Horsepower

NOTES:

1. **Boldface** indicates field-supplied drive required. (See Note 4.)
2. **Shading** indicates field-supplied motor and drive required.
3. *Maximum usable bhp is 1.80* Extensive motor and drive testing on these units ensures that the full horsepower range of the motor can be utilized with confidence. Using your fan motors up to the horsepower rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected
4. Alternate motor drive range: 900 to 1300 rpm. All other rpms require field-supplied drive.
5. Values include losses for filters, unit casing, and wet coils.
6. To convert bhp to watts

$$\text{Watts input} = \frac{\text{Bhp} \times 746}{\text{Motor efficiency}}$$

$$\text{Motor efficiency} = 81$$

Performance data (cont)

FAN PERFORMANCE – HORIZONTAL DISCHARGE UNITS (cont)

50TJ007 (6 TONS) – STANDARD MOTOR (BELT DRIVE)																		
Airflow (Cfm)	External Static Pressure (in. wg)																	
	0.1		0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6	
	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
1800	765	0.45	821	0.51	923	0.65	1019	0.81	1099	0.96	1178	1.14	1249	1.32	1316	1.52	1382	1.72
1900	802	0.52	854	0.58	953	0.73	1046	0.90	1126	1.06	1201	1.23	1274	1.43	1338	1.62	1402	1.83
2000	840	0.60	888	0.66	984	0.82	1073	0.99	1154	1.16	1226	1.33	1297	1.53	1363	1.73	1424	1.94
2100	878	0.69	923	0.75	1015	0.91	1101	1.08	1182	1.27	1252	1.45	1320	1.64	1388	1.85	1448	2.07
2200	916	0.78	958	0.85	1046	1.01	1129	1.19	1209	1.39	1280	1.58	1345	1.77	1410	1.97	1473	2.20
2300	954	0.89	993	0.96	1079	1.13	1160	1.31	1237	1.51	1309	1.71	1372	1.91	1434	2.11	1496	2.34
2400	993	1.00	1029	1.07	1112	1.25	1190	1.43	1264	1.63	1336	1.85	1400	2.06	1459	2.26	1519	2.48
2500	1031	1.13	1066	1.20	1145	1.39	1220	1.57	1292	1.77	1363	2.00	1428	2.22	1486	2.43	1543	2.65
2600	1070	1.26	1103	1.34	1179	1.52	1251	1.71	1322	1.92	1390	2.15	1456	2.38	1514	2.61	1569	2.83
2700	1109	1.41	1140	1.48	1212	1.67	1283	1.87	1352	2.09	1418	2.31	1483	2.56	1543	2.80	—	—
2800	1148	1.57	1177	1.64	1246	1.83	1316	2.04	1383	2.26	1446	2.48	1510	2.73	—	—	—	—
2900	1188	1.74	1215	1.81	1281	2.00	1349	2.22	1413	2.44	1476	2.67	1537	2.92	—	—	—	—
3000	1227	1.92	1253	2.00	1316	2.19	1382	2.42	1444	2.65	1506	2.88	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower

NOTES:

- 1** **Shading** indicates field-supplied drive required (See Note 6)
- 2** **Shading** indicates field-supplied motor and drive required.
- 3** **Maximum usable bhp is 2.4** Extensive motor and electrical testing on these units ensures that the full horsepower range of the motor can be utilized with confidence. Using your fan motors up to the horsepower ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
- 4** Values include losses for filters, unit casing, and wet coils
- 5** Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.
- 6** Standard motor drive range is 1070 to 1460 rpm. All other rpms require field-supplied drive
- 7** To convert bhp to watts:

$$\text{Watts input} = \frac{\text{Bhp} \times 746}{\text{Motor efficiency}}$$

$$\text{Motor efficiency} = 81$$

50TJ008 (7½ TONS) – STANDARD MOTOR (BELT DRIVE)																		
Airflow (Cfm)	External Static Pressure (in. wg)																	
	0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8	
	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
2200	459	0.42	549	0.62	625	0.83	691	1.06	753	1.31	805	1.58	842	1.87	857	2.16	851	2.45
2250	465	0.43	554	0.64	630	0.86	695	1.09	757	1.34	810	1.62	850	1.91	873	2.20	863	2.50
2300	471	0.45	559	0.66	635	0.89	699	1.12	760	1.37	816	1.65	859	1.94	888	2.24	897	2.55
2400	482	0.50	569	0.71	645	0.95	708	1.18	768	1.44	824	1.72	872	2.01	909	2.32	931	2.64
2500	494	0.54	581	0.76	654	1.01	717	1.25	776	1.51	832	1.79	882	2.09	925	2.40	955	2.72
2550	501	0.57	587	0.79	659	1.05	722	1.29	780	1.55	836	1.83	887	2.13	931	2.45	964	2.77
2600	507	0.59	592	0.82	663	1.08	727	1.32	784	1.58	839	1.87	891	2.17	936	2.49	973	2.82
2700	520	0.65	604	0.89	672	1.14	737	1.40	793	1.66	846	1.95	898	2.26	946	2.56	987	2.91
2800	533	0.71	615	0.95	683	1.20	747	1.49	802	1.75	855	2.04	906	2.35	954	2.67	997	3.01
2900	546	0.77	626	1.02	693	1.27	756	1.57	813	1.84	863	2.13	913	2.44	961	2.77	1006	3.12
3000	559	0.83	637	1.09	704	1.35	765	1.66	823	1.94	872	2.22	921	2.54	969	2.88	1014	3.22
3100	572	0.90	648	1.17	715	1.43	775	1.74	832	2.05	882	2.33	930	2.65	976	2.99	1021	3.34
3200	585	0.96	660	1.24	727	1.52	785	1.83	841	2.15	892	2.45	939	2.76	984	3.10	—	—
3300	598	1.03	671	1.32	739	1.62	795	1.91	851	2.26	902	2.57	948	2.88	993	3.21	—	—
3400	610	1.10	682	1.41	750	1.72	806	2.01	860	2.36	912	2.69	958	3.01	1002	3.34	—	—
3500	623	1.17	694	1.50	761	1.82	817	2.11	870	2.47	921	2.82	968	3.15	—	—	—	—
3600	636	1.25	707	1.60	772	1.93	828	2.23	880	2.57	930	2.95	978	3.29	—	—	—	—
3700	649	1.33	720	1.71	783	2.03	840	2.35	890	2.69	940	3.07	—	—	—	—	—	—
3750	655	1.37	727	1.77	789	2.09	846	2.42	896	2.75	945	3.14	—	—	—	—	—	—
3800	661	1.41	733	1.82	795	2.15	852	2.48	901	2.80	949	3.20	—	—	—	—	—	—
3900	674	1.49	746	1.93	806	2.26	863	2.61	912	2.93	959	3.33	—	—	—	—	—	—
4000	687	1.57	759	2.05	817	2.38	874	2.75	923	3.08	—	—	—	—	—	—	—	—
4100	699	1.66	772	2.17	828	2.50	885	2.88	935	3.23	—	—	—	—	—	—	—	—
4200	712	1.75	785	2.30	840	2.64	897	3.03	947	3.39	—	—	—	—	—	—	—	—
4250	719	1.80	792	2.37	846	2.71	903	3.10	—	—	—	—	—	—	—	—	—	—
4300	725	1.85	798	2.43	852	2.77	908	3.17	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower

NOTES:

- 1** **Shading** indicates field-supplied drive required. (See Note 7)
- 2** **Shading** indicates alternate drive required (See Note 7)
- 3** **Shading** indicates field-supplied motor and drive required
- 4** **Maximum usable bhp is 2.4** Extensive motor and electrical testing on these units ensures that the full horsepower range of the motor can be utilized with confidence. Using your fan motors up to the horsepower ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
- 5** Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.
- 6** Values include losses for filters, unit casing, and wet coils
- 7** Standard motor drive range: 590 to 840 rpm. Alternate motor drive range: 685 to 935 rpm. All other rpms require field-supplied drive
- 8** To convert bhp to watts:

$$\text{Watts input} = \frac{\text{Bhp} \times 746}{\text{Motor efficiency}}$$

$$\text{Motor efficiency} = 83$$

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50TJ009 (8½ TONS) — STANDARD MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (In. wg)																			
	0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0	
	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
2200	459	0.42	549	0.62	625	0.83	691	1.06	753	1.31	805	1.58	842	1.87	857	2.16	931	2.45	923	2.70
2250	465	0.43	554	0.64	630	0.86	695	1.09	757	1.34	810	1.62	850	1.91	873	2.20	963	2.50	955	2.78
2300	471	0.45	559	0.66	635	0.89	699	1.12	760	1.37	816	1.65	859	1.94	888	2.24	997	2.55	987	2.85
2400	482	0.50	569	0.71	645	0.95	708	1.18	768	1.44	824	1.72	872	2.01	909	2.32	931	2.64	935	2.96
2500	494	0.54	581	0.76	654	1.01	717	1.25	776	1.51	832	1.79	882	2.09	925	2.40	955	2.72	972	3.06
2550	501	0.57	587	0.79	659	1.05	722	1.29	780	1.55	836	1.83	887	2.13	931	2.45	964	2.77	986	3.11
2600	507	0.59	592	0.82	663	1.08	727	1.32	784	1.58	839	1.87	891	2.17	936	2.48	973	2.82	999	3.16
2700	520	0.65	604	0.89	672	1.14	737	1.40	793	1.66	846	1.95	898	2.26	946	2.56	987	2.91	1019	3.25
2800	533	0.71	615	0.95	683	1.20	747	1.49	802	1.75	855	2.04	906	2.35	954	2.87	997	3.01	1034	3.36
2900	546	0.77	626	1.02	693	1.27	756	1.57	813	1.84	863	2.13	913	2.44	961	2.77	1006	3.12	—	—
3000	559	0.83	637	1.09	704	1.35	765	1.66	823	1.94	872	2.22	921	2.54	969	2.88	1014	3.22	—	—
3100	572	0.90	648	1.17	715	1.43	775	1.74	832	2.05	882	2.33	930	2.65	976	2.98	1021	3.34	—	—
3200	585	0.96	660	1.24	727	1.52	785	1.83	841	2.15	892	2.45	939	2.76	984	3.10	—	—	—	—
3300	598	1.03	671	1.32	739	1.62	795	1.91	851	2.26	902	2.57	948	2.88	993	3.21	—	—	—	—
3400	610	1.10	682	1.41	750	1.72	806	2.01	860	2.36	912	2.69	958	3.01	1002	3.34	—	—	—	—
3500	623	1.17	694	1.50	761	1.82	817	2.11	870	2.47	921	2.82	968	3.15	—	—	—	—	—	—
3600	636	1.25	707	1.60	772	1.93	828	2.23	880	2.57	930	2.95	978	3.29	—	—	—	—	—	—
3700	649	1.33	720	1.71	783	2.03	840	2.35	890	2.69	940	3.07	—	—	—	—	—	—	—	—
3750	655	1.37	727	1.77	789	2.09	846	2.42	896	2.75	945	3.14	—	—	—	—	—	—	—	—
3800	661	1.41	733	1.82	795	2.15	852	2.49	901	2.80	949	3.20	—	—	—	—	—	—	—	—
3900	674	1.49	746	1.93	806	2.26	863	2.61	912	2.93	959	3.33	—	—	—	—	—	—	—	—
4000	687	1.57	759	2.05	817	2.38	874	2.75	923	3.08	—	—	—	—	—	—	—	—	—	—
4100	699	1.66	772	2.17	828	2.50	885	2.88	935	3.23	—	—	—	—	—	—	—	—	—	—
4200	712	1.75	785	2.30	840	2.64	897	3.03	947	3.39	—	—	—	—	—	—	—	—	—	—
4250	719	1.80	792	2.37	846	2.71	903	3.10	—	—	—	—	—	—	—	—	—	—	—	—
4300	725	1.85	798	2.43	852	2.77	909	3.17	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower

NOTES:

- Boldface** indicates field-supplied drive required (See Note 6)
- Shading** indicates field-supplied motor and drive required
- Maximum usable bhp is 2.4 Extensive motor and electrical testing on these units ensures that the full horsepower range of the motor can be utilized with confidence. Using your fan motors up to the horsepower ratings shown will not result in nuisance tripping or premature motor failure Unit warranty will not be affected
- Use of a field-supplied motor may affect wire sizing Contact your Carrier representative to verify
- Values include losses for filters, unit casing, and wet coils
- Standard motor drive range: 685 to 935 rpm All other rpms require field-supplied drive
- To convert bhp to watts:

$$\text{Watts input} = \frac{\text{Bhp} \times 746}{\text{Motor efficiency}}$$

$$\text{Motor efficiency} = .83$$

50TJ012 (10 TONS) — STANDARD AND ALTERNATE MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)																			
	0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0	
	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
3000	484	0.55	560	0.70	631	0.87	690	1.03	747	1.20	800	1.38	850	1.52	879	1.38	925	1.81	964	1.92
3100	495	0.61	570	0.76	638	0.92	699	1.10	755	1.27	805	1.44	857	1.63	896	1.66	935	1.93	975	1.98
3200	505	0.66	579	0.81	646	0.98	708	1.16	761	1.34	812	1.51	862	1.71	908	1.85	944	2.01	984	2.09
3300	516	0.72	589	0.87	655	1.05	717	1.23	767	1.40	819	1.59	867	1.78	915	1.98	952	2.11	993	2.22
3400	527	0.78	599	0.93	664	1.11	724	1.30	775	1.48	827	1.67	873	1.85	920	2.07	963	2.21	1001	2.31
3500	537	0.85	609	0.99	672	1.18	731	1.36	784	1.56	833	1.75	880	1.94	926	2.15	970	2.36	1007	2.46
3600	548	0.92	619	1.05	680	1.24	738	1.43	794	1.64	840	1.83	888	2.04	931	2.23	976	2.47	1017	2.62
3700	560	1.00	629	1.12	688	1.31	747	1.51	802	1.73	847	1.92	895	2.13	938	2.33	981	2.56	1024	2.77
3800	571	1.08	639	1.19	698	1.39	756	1.60	810	1.81	856	2.02	901	2.23	945	2.44	986	2.65	1029	2.89
3900	582	1.16	649	1.27	708	1.47	764	1.69	816	1.89	865	2.12	908	2.32	953	2.55	993	2.75	1034	3.00
4000	593	1.25	659	1.35	717	1.56	773	1.78	823	1.98	875	2.22	915	2.42	960	2.65	1000	2.87	1039	3.10
4100	605	1.35	670	1.44	727	1.65	781	1.86	832	2.08	883	2.32	924	2.54	966	2.76	1006	2.99	1046	3.21
4200	616	1.45	680	1.53	737	1.74	789	1.95	841	2.18	889	2.41	934	2.65	972	2.87	1015	3.12	1053	3.34
4300	628	1.56	690	1.63	747	1.83	798	2.05	849	2.30	896	2.51	943	2.77	980	2.99	1021	3.23	1061	3.48
4400	639	1.67	701	1.73	757	1.92	807	2.16	858	2.41	903	2.62	951	2.89	990	3.12	1028	3.36	—	—
4500	651	1.78	712	1.84	767	2.02	817	2.27	866	2.51	912	2.74	958	3.00	999	3.26	—	—	—	—
4600	662	1.91	722	1.95	777	2.13	827	2.38	874	2.62	921	2.87	965	3.11	1008	3.39	—	—	—	—
4700	674	2.03	733	2.07	787	2.24	836	2.50	882	2.73	930	3.00	972	3.23	—	—	—	—	—	—
4800	686	2.17	744	2.20	797	2.36	846	2.62	891	2.85	938	3.14	980	3.37	—	—	—	—	—	—
4900	698	2.31	755	2.33	808	2.48	856	2.73	900	2.98	946	3.27	—	—	—	—	—	—	—	—
5000	710	2.45	766	2.47	818	2.61	866	2.86	910	3.12	954	3.39	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower

NOTES:

- Boldface** indicates field-supplied drive required (See Note 7)
- Shading** indicates alternate motor and drive required (See Note 7)
- Shading** indicates field-supplied motor and drive required.
- Maximum usable bhp is 2.4 with standard motor; 2.9 with alternate motor Extensive motor and electrical testing on these units ensures that the full horsepower range of the motor can be utilized with confidence Using your fan motors up to the horsepower ratings shown will not result in nuisance tripping or premature motor failure Unit warranty will not be affected
- Use of a field-supplied motor may affect wire sizing Contact your Carrier representative to verify
- Values include losses for filters, unit casing, and wet coils
- Standard motor drive range: 685 to 935 rpm Alternate motor drive range: 835 to 1085 rpm All other rpms require field-supplied drive
- To convert bhp to watts:

$$\text{Watts input} = \frac{\text{Bhp} \times 746}{\text{Motor efficiency}}$$

$$\text{Motor efficiency} = .83$$

Performance data (cont)

FAN PERFORMANCE – HORIZONTAL DISCHARGE UNITS (cont)

50TJ014 (12½ TONS) — STANDARD MOTOR (BELT DRIVE)																				
Airflow (Cfm)	External Static Pressure (in. wg)																			
	0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0	
	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
3700	607	0.97	670	1.18	732	1.37	782	1.56	833	1.73	879	1.95	927	2.17	973	2.38	1013	2.57	1046	2.73
3800	621	1.05	681	1.25	742	1.45	795	1.66	842	1.82	889	2.03	934	2.26	980	2.48	1022	2.69	1058	2.87
3900	636	1.13	693	1.32	751	1.53	808	1.76	851	1.92	898	2.12	942	2.36	987	2.59	1030	2.81	1068	3.01
4000	650	1.21	705	1.40	761	1.61	819	1.86	861	2.02	908	2.21	950	2.46	994	2.70	1037	2.92	1077	3.14
4100	665	1.30	717	1.48	772	1.71	830	1.96	871	2.13	917	2.32	960	2.55	1001	2.81	1045	3.04	1085	3.27
4200	680	1.39	728	1.57	783	1.81	839	2.05	883	2.25	925	2.44	969	2.65	1009	2.92	1051	3.17	1092	3.40
4300	696	1.49	739	1.66	794	1.91	848	2.14	896	2.38	935	2.56	979	2.77	1018	3.03	1058	3.29	1100	3.53
4400	711	1.60	750	1.75	805	2.02	857	2.24	908	2.51	945	2.68	988	2.89	1028	3.14	1066	3.41	1106	3.67
4500	727	1.70	762	1.85	817	2.12	867	2.35	919	2.63	955	2.82	996	3.02	1037	3.25	1074	3.54	1113	3.81
4600	742	1.82	774	1.96	828	2.23	877	2.46	929	2.75	967	2.96	1005	3.16	1046	3.38	1084	3.66	1121	3.95
4700	758	1.94	786	2.07	840	2.34	888	2.59	938	2.87	980	3.11	1015	3.30	1056	3.52	1093	3.79	1129	4.09
4800	773	2.06	799	2.18	852	2.46	899	2.72	947	2.98	992	3.26	1025	3.45	1064	3.67	1103	3.92	1137	4.22
4900	789	2.19	812	2.30	863	2.57	910	2.86	957	3.11	1003	3.41	1036	3.61	1073	3.83	1112	4.07	1147	4.36
5000	805	2.32	826	2.43	875	2.70	921	2.99	966	3.24	1014	3.56	1049	3.79	1083	4.00	1121	4.23	1157	4.50
5100	821	2.47	840	2.57	887	2.83	932	3.13	976	3.38	1024	3.71	1061	3.96	1093	4.17	1129	4.40	1166	4.66
5200	837	2.61	854	2.71	898	2.96	943	3.28	987	3.53	1033	3.84	1073	4.14	1103	4.34	1138	4.58	1175	4.82
5300	853	2.76	868	2.85	909	3.09	955	3.42	998	3.69	1042	3.98	1084	4.27	1115	4.53	1148	4.76	1184	5.01
5400	869	2.92	882	3.01	920	3.24	967	3.57	1009	3.86	1051	4.14	1095	4.49	1128	4.74	1158	4.95	1193	5.20
5500	885	3.09	897	3.17	932	3.38	978	3.72	1020	4.03	1061	4.30	1105	4.66	1140	4.94	1168	5.15	1202	5.40
5600	901	3.26	911	3.33	943	3.54	990	3.87	1031	4.20	1071	4.46	1114	4.81	1152	5.14	1180	5.36	1211	5.60
5700	917	3.44	926	3.50	956	3.70	1002	4.03	1042	4.38	1081	4.64	1123	4.98	1163	5.34	1193	5.59	—	—
5800	933	3.62	941	3.68	968	3.87	1013	4.20	1053	4.56	1092	4.84	1132	5.15	1174	5.54	—	—	—	—
5900	949	3.81	956	3.87	981	4.05	1025	4.37	1065	4.74	1103	5.04	1142	5.34	1183	5.72	—	—	—	—
6000	965	4.01	972	4.06	995	4.23	1037	4.55	1076	4.92	1114	5.24	1152	5.53	—	—	—	—	—	—
6100	981	4.21	987	4.26	1008	4.42	1047	4.73	1088	5.10	1125	5.45	1162	5.73	—	—	—	—	—	—
6200	997	4.42	1002	4.46	1022	4.62	1058	4.91	1100	5.29	1136	5.66	—	—	—	—	—	—	—	—
6300	1014	4.64	1018	4.68	1036	4.83	1070	5.11	1112	5.49	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower

NOTES:

- 1 **Shading** indicates field-supplied drive required
- 2 **Shading** indicates field-supplied motor and drive required
- 3 **Maximum usable bhp is 4.2** Extensive motor and electrical testing on these units ensures that the full horsepower range of the motor can be utilized with confidence. Using your fan motors up to the horsepower ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
- 4 Use of field-supplied motor may affect wire sizing. Contact your Carrier representative to verify.
- 5 Values include losses for filters, unit casing, and wet coils.
- 6 Standard motor drive range is 860 to 1080 rpm. All other rpms require a field-supplied drive.
- 7 To convert bhp to watts:

$$\text{Watts input} = \frac{\text{Bhp} \times 746}{\text{Motor efficiency}}$$

$$\text{Motor efficiency} = .85$$

50TJ014 (12½ TONS) – ALTERNATE MOTOR (BELT DRIVE)

Airflow (Cfm)	External Static Pressure (in. wg)																			
	0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0	
	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
3700	607	0.97	670	1.18	732	1.37	782	1.56	833	1.73	879	1.95	927	2.17	973	2.38	1013	2.57	1046	2.73
3800	621	1.05	681	1.25	742	1.45	795	1.66	842	1.82	889	2.03	934	2.26	980	2.48	1022	2.69	1058	2.87
3900	636	1.13	693	1.32	751	1.53	808	1.76	851	1.92	898	2.12	942	2.36	987	2.59	1030	2.81	1068	3.01
4000	650	1.21	705	1.40	761	1.61	819	1.86	861	2.02	908	2.21	950	2.46	994	2.70	1037	2.92	1077	3.14
4100	665	1.30	717	1.48	772	1.71	830	1.96	871	2.13	917	2.32	960	2.55	1001	2.81	1045	3.04	1085	3.27
4200	680	1.39	728	1.57	783	1.81	839	2.05	883	2.25	925	2.44	969	2.66	1009	2.92	1051	3.17	1092	3.40
4300	696	1.49	739	1.66	794	1.91	848	2.14	896	2.38	935	2.56	979	2.77	1018	3.03	1058	3.29	1100	3.53
4400	711	1.60	750	1.75	805	2.02	857	2.24	908	2.51	945	2.68	988	2.89	1028	3.14	1066	3.41	1106	3.67
4500	727	1.70	762	1.85	817	2.12	867	2.35	919	2.63	955	2.82	996	3.02	1037	3.25	1074	3.54	1113	3.81
4600	742	1.82	774	1.96	828	2.23	877	2.46	929	2.75	967	2.96	1005	3.16	1046	3.38	1084	3.66	1121	3.95
4700	758	1.94	786	2.07	840	2.34	888	2.59	938	2.87	980	3.11	1015	3.30	1056	3.52	1093	3.79	1129	4.09
4800	773	2.06	799	2.18	852	2.46	899	2.72	947	2.98	992	3.26	1025	3.45	1064	3.67	1103	3.92	1137	4.22
4900	789	2.19	812	2.30	863	2.57	910	2.86	957	3.11	1003	3.41	1036	3.61	1073	3.83	1112	4.07	1147	4.36
5000	805	2.32	826	2.43	875	2.70	921	2.99	966	3.24	1014	3.56	1049	3.79	1083	4.00	1121	4.23	1157	4.50
5100	821	2.47	840	2.57	887	2.83	932	3.13	976	3.38	1024	3.71	1061	3.96	1093	4.17	1129	4.40	1166	4.66
5200	837	2.61	854	2.71	898	2.96	943	3.28	987	3.53	1033	3.84	1073	4.14	1103	4.34	1138	4.58	1175	4.82
5300	853	2.76	868	2.85	909	3.09	955	3.42	998	3.69	1042	3.98	1084	4.31	1115	4.53	1148	4.79	1184	5.01
5400	869	2.92	882	3.01	920	3.24	967	3.57	1009	3.86	1051	4.14	1095	4.49	1128	4.74	1158	4.95	1193	5.20
5500	885	3.09	897	3.17	932	3.38	978	3.72	1029	4.03	1061	4.30	1105	4.66	1140	4.94	1168	5.15	1202	5.40
5600	901	3.26	911	3.33	943	3.54	990	3.87	1031	4.20	1071	4.46	1114	4.81	1152	5.14	1180	5.36	1211	5.60
5700	917	3.44	926	3.50	956	3.70	1002	4.03	1042	4.38	1081	4.64	1123	4.98	1163	5.34	1193	5.59	—	—
5800	933	3.62	941	3.68	968	3.87	1013	4.20	1053	4.56	1092	4.84	1132	5.15	1174	5.54	—	—	—	—
5900	949	3.81	956	3.87	981	4.05	1025	4.37	1065	4.74	1103	5.04	1142	5.34	1183	5.72	—	—	—	—
6000	965	4.01	972	4.06	995	4.23	1037	4.55	1076	4.92	1114	5.24	1152	5.53	—	—	—	—	—	—
6100	981	4.21	987	4.26	1008	4.42	1047	4.73	1088	5.10	1125	5.45	1162	5.73	—	—	—	—	—	—
6200	997	4.42	1002	4.46	1022	4.62	1058	4.91	1100	5.29	1136	5.66	—	—	—	—	—	—	—	—
6300	1014	4.64	1018	4.68	1036	4.83	1070	5.11	1112	5.49	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower

NOTES:

- 1 **Shading** indicates field-supplied drive required (See Note 4)
- 2 **Shading** indicates field-supplied motor and drive required
- 3 **Maximum usable bhp is 5.25** Extensive motor and drive testing on these units ensures that the full horsepower range of the motor can be utilized with confidence. Using your fan motors up to the horsepower ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
- 4 Alternate motor drive range: 900 to 1260 rpm. All other rpms require field-supplied drive.
- 5 Values include losses for filters, unit casing, and wet coils

FAN PERFORMANCE

50TJ016 (15 TONS) – STANDARD AND ALTERNATE MOTOR (BELT DRIVE)

[illegible]

LEGEND

Bhp — Brake horsepower input to fan

NOTES:

- NOTES:
- 1 **Boldface** indicates optional drive.
 2. **Shading** indicates field-supplied motor and/or drive.
 - 3 To convert bhp to watts:

$$\text{Watts input} = \frac{\text{Bhp} \times 746}{\text{Motor efficiency}}$$

Motor efficiencies: Horsepower — Maximum Continuous Bhp:

3 hp = 0.84	3.0 – 3.45
3 7 hp = 0.84	3.7 – 4.25

4. Fan performance is based on wet coils, clean filters, and casing losses
5. Add electric heater pressure loss to external static pressure required before using table.
6. Condenser fan watts input are shown in Electrical Data table on page 41
7. Standard motor drive range: 896 to 1161 rpm Alternate motor drive range: 1141 to 1407 rpm All other rpms require field-supplied drive.
8. Extensive motor and drive testing on these units ensures that the full horsepower range of the motor can be utilized with confidence. Using your fan motors up to the horsepower rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.

50TJ020,024 (18 AND 20 TONS) – STANDARD AND ALTERNATE (024 Only) MOTORS (BELT DRIVE)

[illegible]

LEGEND

Bhp — Brake Horsepower

NOTES:

- NOTES:
1. **Boldface** indicates factory-supplied 5 hp or 7½ hp motor and drive
 2. Shading indicates factory-supplied 7½ hp or 10 hp motor and drive.
 3. Fan performance data that is not shaded or in boldface requires a field-supplied drive
 4. Static pressure losses (i.e., economizer, electric heater) must be added to external static pressure before entering Fan Performance table.
 5. To convert bhp to watts

$$\text{Watts input} = \frac{\text{Bhp} \times 746}{\text{Motor efficiency}}$$

Motor efficiencies: Horsepower — Maximum Continuous Bhp:

5 hp — 0.85	5 hp — 5.90 Bhp
7½ hp — 0.82	7½ hp — 8.7 (208/230 v) 9.5 (460 v)
10 hp — 0.80	10 hp — 10.2 (208/230 v) 11.8 (460 v)

- 6 All other rpms require replacement drives.
7 Add electric heater pressure loss to external static pressure required before using table
8 Fan performance is based on wet coils, clean filters, and casing losses
9 Extensive motor and drive testing on these units ensures that the full horsepower range of the motor can be utilized with
confidence. Using your fan motors up to the horsepower rating shown will not result in nuisance tripping or premature motor
failure. Unit warranty will not be affected

Performance data (cont)

FAN PERFORMANCE (cont)

50TJ028 (25 TONS) — STANDARD AND ALTERNATE MOTORS (BELT DRIVE)																		
Airflow (Cfm)	External Static Pressure (in. wg)																	
	0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8	
	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
7,000	912	3.38	982	3.67	1049	3.98	1116	4.33	1184	4.71	1251	5.13	1317	5.59	1381	6.06	1443	6.56
7,500	966	3.84	1034	4.17	1096	4.51	1158	4.87	1221	5.27	1285	5.71	1347	6.18	1409	6.68	1469	7.20
8,000	1021	4.38	1086	4.75	1145	5.11	1203	5.49	1262	5.91	1321	6.36	1381	6.85	1439	7.36	1497	7.90
8,500	1075	4.99	1139	5.40	1195	5.79	1250	6.20	1305	6.63	1361	7.10	1417	7.60	1472	8.13	—	—
9,000	1130	5.68	1193	6.14	1247	6.56	1299	6.99	1351	7.44	1403	7.92	1455	8.43	—	—	—	—
9,500	1185	6.45	1247	6.96	1299	7.41	1349	7.87	1398	8.34	1447	8.83	1496	9.36	—	—	—	—
10,000	1239	7.31	1301	7.87	1352	8.36	1399	8.84	1446	9.33	1493	9.85	—	—	—	—	—	—
10,500	1294	8.26	1355	8.87	1405	9.40	1451	9.91	1496	10.43	—	—	—	—	—	—	—	—
11,000	1348	9.30	1410	9.98	1458	10.54	—	—	—	—	—	—	—	—	—	—	—	—
11,250	1375	9.85	1437	10.57	1485	11.16	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower

NOTES:

- Boldface** indicates factory-supplied 5 hp or 7½ hp motor and drive
- Shading** indicates factory-supplied 7½ hp or 10 hp motor and drive.
- Fan performance data that is not shaded or in boldface requires a field-supplied drive.
- Static pressure losses (i.e., economizer, electric heater) must be added to external static pressure before entering Fan Performance table.
- To convert bhp to watts:

$$\text{Watts input} = \frac{\text{Bhp} \times 746}{\text{Motor efficiency}}$$

Motor efficiencies: Horsepower — Maximum Continuous Bhp:

5 hp — 0.85	5 hp — 5.90 Bhp
7½ hp — 0.82	7½ hp — 8.7 (208/230 v)
	9.5 (460 v)
10 hp — 0.80	10 hp — 10.2 (208/230 v)
	11.8 (460 v)

- All other rpms require replacement drives
- Add electric heater pressure loss to external static pressure required before using table.
- Fan performance is based on wet coils, clean filters, and casing losses.
- Extensive motor and drive testing on these units ensures that the full horsepower range of the motor can be utilized with confidence. Using your fan motors up to the horsepower rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected

ACCESSORY/FIOP STATIC PRESSURE DROP* (in. wg) — 50TJ004-014

UNIT 50TJ	UNIT VOLTAGE	CFM	1 HEATER MODULE	2 HEATER MODULES	ECONOMIZER
004-007	All	900	.05	.15	.05
		1,200	.07	.16	.05
		1,400	.09	.16	.05
		1,600	.09	.16	.05
		1,800	.10	.17	.05
		2,000	.11	.17	.05
		2,200	.11	.17	.05
		2,400	.12	.18	.05
		2,600	.13	.18	.05
008-014	All	2,200	.02	.03	.02
		2,500	.03	.05	.02
		3,000	.05	.07	.03
		3,500	.07	.09	.04
		4,000	.08	.12	.05
		4,500	.10	.14	.06
		5,000	.12	.16	.07
		5,500	.14	.19	.08
		6,000	.16	.21	.09

FIOP — Factory-Installed Option

*The static pressure must be added to external static pressure. The sum and the evaporator entering air cfm should then be used in conjunction with the Fan Performance table to determine blower rpm and bhp

NOTE: Heaters are rated at 208/240 v and 480 v

ACCESSORY/FIOP STATIC PRESSURE DROP* (in. wg) — 50TJ016-028

UNIT 50TJ	UNIT VOLTAGE	CFM	ELECTRIC HEATERS (kW)			ECONOMIZER
016	208/230-3-60	4,000	.05 (26/31)	.06 (42/52)	.07 (56/69)	0.03
		5,000	.07 (26/31)	.08 (42/52)	10 (56/69)	0.05
		6,000	.09 (26/31)	.12 (42/52)	15 (56/69)	0.07
		7,200	.11 (26/31)	.16 (42/52)	20 (56/69)	0.09
	460-3-60	4,000	.05 (30)	.06 (51)	07 (73)	0.03
		5,000	.07 (30)	.08 (51)	.10 (73)	0.05
		6,000	.09 (30)	.12 (51)	15 (73)	0.07
		7,200	.11 (30)	.15 (51)	.20 (73)	0.09
020- 028	208/230-3-60	6,000	0.09 (26/34)	0.12 (42/56)		0.07
		7,200	0.11 (26/34)	0.16 (42/56)		0.09
		9,000	0.15 (26/34)	0.19 (42/56)		0.11
		10,000	0.17 (26/34)	0.21 (42/56)		0.12
		11,250	0.20 (26/34)	0.24 (42/56)		0.14
	460-3-60	6,000	0.09 (32)	0.12 (55)		0.07
		7,200	0.11 (32)	0.15 (55)		0.09
		9,000	0.15 (32)	0.19 (55)		0.11
		10,000	0.17 (32)	0.21 (55)		0.12
		11,250	0.20 (32)	0.24 (55)		0.14

FIOP — Factory-Installed Option

*The static pressure must be added to external static pressure. The sum and the evaporator entering air cfm should then be used in conjunction with the Fan Performance table to determine blower rpm and bhp.

NOTE: Heaters are rated at 208/240 v and 480 v.

FAN RPM AT FAN PULLEY SETTINGS, 50TJ004 — VARIABLE MOTOR PULLEY

UNIT 50TJ	MOTOR/DRIVE	MOTOR PULLEY TURNS OPEN										
		0	½	1	1½	2	2½	3	3½	4	4½	5
004	Alt	790	767	744	721	697	674	651	628	604	581	558

FAN RPM AT FAN PULLEY SETTINGS, 50TJ004 — VARIABLE FAN PULLEY

UNIT 50TJ	MOTOR/DRIVE	FAN PULLEY TURNS OPEN										
		0	½	1	1½	2	2½	3	3½	4	4½	5
004	Alt	936	964	994	1026	1061	1097	1136	1179	1224	1273	1326

FAN RPM AT MOTOR PULLEY SETTINGS* — 50TJ005-016

UNIT 50TJ	MOTOR PULLEY TURNS OPEN												
	0	½	1	1½	2	2½	3	3½	4	4½	5	5½	6
005†	1310	1275	1240	1210	1175	1140	1106	1070	1040	1005	970	—	—
006†	1300	1260	1220	1180	1140	1100	1060	1020	980	940	900	—	—
007**	1460	1421	1382	1343	1304	1265	1230	1187	1148	1109	1070	—	—
008**	840	815	790	765	740	715	690	665	635	615	590	—	—
008††	935	910	885	860	835	810	785	760	735	710	685	—	—
009**	935	910	885	860	835	810	785	760	735	710	685	—	—
012**	935	910	885	860	835	810	785	760	735	710	685	—	—
012†	1085	1060	1035	1010	985	960	935	910	885	860	835	—	—
014**	1080	1060	1035	1015	990	970	950	925	905	880	860	—	—
014†	1260	1220	1185	1155	1130	1100	1075	1045	1015	990	960	930	900
016**	1161	1134	1108	1081	1055	1028	1002	975	949	922	896	—	—
016†	1407	1380	1353	1327	1300	1274	1274	1221	1194	1168	1141	—	—

*Approximate fan rpm shown.

†Indicates alternate motor and drive package.

**Indicates standard motor and drive package.

††Indicates alternate drive package only

Performance data (cont)

SOUND POWER (Total Unit) — 50TJ004-014

UNIT 50TJ	SOUND RATING (60 Hz)	OCTAVE BANDS							
		63	125	250	500	1000	2000	4000	8000
004-006	8.2 Bels	56.8	75.8	72.4	72.9	74.8	75.4	71.3	69.1
007	8.4 Bels	56.0	69.8	72.9	75.9	78.3	76.5	72.6	67.9
008-009	8.6 Bels	83.2	87.4	83.5	82.8	83.0	77.7	71.8	67.0
012	8.8 Bels	97.6	90.4	85.7	84.8	83.9	77.5	71.3	65.8
014	8.8 Bels	83.7	87.2	83.4	82.8	83.0	77.7	71.8	67.0

LEGEND

ARI — Air-Conditioning & Refrigeration Institute
Bels — Sound Levels (1 bel = 10 decibels)

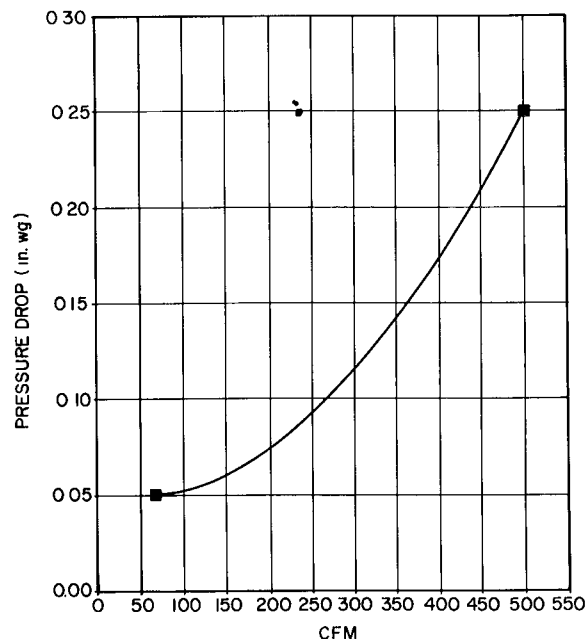
MOTOR LIMITATIONS

UNIT 50TJ	EVAPORATOR-FAN MOTOR	MAXIMUM ACCEPTABLE OPERATING HP
004	Standard	0.34
	Alternate	0.66
005	Standard	0.81
	Alternate	1.20
006	Standard	1.19
	Alternate	1.80
007	Standard	2.40
008	Standard	2.40
009	Standard	2.40
012	Standard	2.40
	Alternate	2.90
014	Standard	4.20
	Alternate	5.25
016	Standard	3.45
	Alternate	4.25
020	Standard	5.90
024	Standard	5.90
	Alternate	8.70 (208/230 v), 9.50 (460 v)
028	Standard	8.70 (208/230 v), 9.50 (460 v)
	Alternate	10.20 (208/230 v), 11.80 (460 v)

NOTE: Extensive motor and electrical testing on these units ensures that the full horsepower range of the motor can be utilized with confidence. Using your fan motors up to the horsepower ratings shown in this table will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.

A.50 - 2222

ECONOMIZER/TWO-POSITION DAMPER BAROMETRIC RELIEF DAMPER CHARACTERISTICS — 50TJ004-014



ELECTRIC HEATING CAPACITIES – 50TJ004-014

UNIT 50TJ	VOLTAGE (60 Hz)	FIOP* kW	ACCESSORY kW
004	208/230 (single phase)	4.9/6.5 6.5/8.7	4.4 6.5 8.7 10.5 13.0†
	208/230 (3 phase)	4.9/6.5 6.5/8.7	4.4 6.5 8.7 10.5 16.0
	460 (3 phase)	6.5 8.8	6.5 8.8 11.5 14.0
005	208/230 (single phase)	8.7 13.0	4.4 8.7 13.0† 17.4† 21.0†
	208/203 (3 phase)	6.5/8.7 12.0/16.0	6.5 8.7 16.0 21.0†
	460 (3 phase)	6.0 11.5	6.0 11.5 14.0† 23.0†
006	230 (single phase)	8.7 13.0	6.5 8.7 13.0† 17.4† 21.0†
	208/230 (3 phase)	7.9/10.5 12.0/16.0	6.5 10.5 16.0 21.0† 26.5†
	460 (3 phase)	11.5 14.0	6.0 11.5 14.0 23.0† 25.5†
007	208/230 (3 phase)	7.6/10.5 12.0/16.0	6.5 10.5 16.0 21.0† 26.5†
	460 (3 phase)	11.5 14.0	6.0 11.5 14.0 23.0† 25.5†

ELECTRIC HEATING CAPACITIES – 50TJ004-014 (cont)

UNIT 50TJ	VOLTAGE (60 Hz)	FIOP* kW	ACCESSORY kW
008,009	208/230 (3 phase)	12.0/16.0 24.0/32.0	10.4 16.0 24.8 32.0 42.4†
	460 (3 phase)	16.5 33.0	13.9 16.5 27.8 33.0 41.7†
	575 (3 phase)	18.0 36.0	18.0 36.0
012,014	208/230 (3 phase)	12.0/16.0 24.0/32.0	10.4 16.0 32.0 42.4† 50.0†
	460 (3 phase)	27.8 41.7	16.5 27.8 33.0 41.7† 50.0†
	575 (3 phase)	18.0 54.0	18.0 36.0 54.0†

*FIOP indicates a factory-installed option.

†Two heater packages required to provide kW indicated.

NOTES:

1. The kW ratings shown above are at 240, 480, and 575 v. Use the Multiplication Factors table below to determine heater capacity for your particular voltage.
2. Heaters are not available for size 004-007 575-v units.

MULTIPLICATION FACTORS – 50TJ004-014

HEATER kW RATING	VOLTAGE DISTRIBUTION V-3-60	MULTIPLICATION FACTOR
240	200	.69
	208	.75
	230	.92
	240	1.00
480	440	.84
	460	.92
	480	1.00

Example: 32.0 kW (at 240 v) heater on 208 v
= 32.0 (.75 mult factor)
= 24.0 kW capacity at 208 v

ELECTRIC RESISTANCE HEATER DATA – 50TJ016-028

UNIT 50TJ	HEATER kW			HEATER STAGES	% HEAT PER STAGE	MAXIMUM STAGES*
	Unit Voltages					
	208	230	460			
016	26	31	30	2	50/50	2
	42	52	51	2	33/67	3
	56	69	73	2	50/50	4
020-028	26	31	30	2	50/50	2
	42	52	51	2	33/67	3

*Maximum number of stages using accessory outdoor-air thermostats.

Electrical data — 50TJ004-007

UNIT 50TJ	NOMINAL VOLTAGE (60 Hz)	IFM TYPE	VOLTAGE RANGE		COMPR		OFM FLA	IFM FLA	ELECTRIC HEAT		POWER SUPPLY		DISCONNECT SIZE	
			Min	Max	RLA	LRA			Nominal kW*	FLA	MCA	MOCPT†	FLA	LRA
004 (3 Tons)	208/230 (single phase)	Std	187	254	17.9	93	19	2.8	3.3/ 4.4** 4.9/ 6.5 6.5/ 8.7 7.9/10.5** 9.8/13.0**	16.2/18.6 23.8/27.3 31.4/36.2 37.9/43.8 47.1/54.6	27.1/27.1 27.1/27.1 33.2/37.6 42.8/48.7 50.9/58.2 62.4/71.7	35/35 35/35 35/40 45/50 60/60 70/80††	26/26 26/26 31/35 39/45 47/54 57/66	105/105
		Alt						3.8	3.3/ 4.4** 4.9/ 6.5 6.5/ 8.7 7.9/10.5** 9.8/16.0**	16.2/18.6 23.8/27.3 31.4/36.2 37.9/43.8 41.7/54.6	28.1/28.1 28.1/28.1 34.5/38.9 44.0/50.0 52.1/59.5 63.6/73.0	35/35 35/35 35/40 45/50 60/60 70/80††	27/27 27/27 32/36 40/46 48/55 59/67	107/107
	208/230 (3 phase)	Std	187	254	11.2	80	19	2.8	3.3/ 4.4** 4.9/ 6.5 6.5/ 8.7 7.9/10.5** 12.0/16.0**	9.4/10.6 13.6/15.7 18.1/20.7 22.2/25.3 33.6/38.4	18.7/18.7 18.7/18.7 20.7/23.1 26.2/29.4 31.3/35.1 45.5/51.5	25/25 25/25 25/25 30/35 35/40 50/60	18/18 18/18 19/21 24/27 29/32 42/47	92/92
		Alt						3.8	3.3/ 4.4** 4.9/ 6.5 6.5/ 8.7 7.9/10.5** 12.0/16.0**	9.4/10.6 13.6/15.7 18.1/20.7 22.2/25.3 33.6/38.4	19.7/19.7 19.7/19.7 22.1/24.4 27.4/30.6 32.5/36.4 46.8/52.8	25/25 25/25 25/25 30/35 35/40 50/60	19/19 19/19 20/22 25/28 30/33 43/49	94/94
	460 (3 phase)	Std	414	508	6.1	40	1.0	1.5	6.5 8.8 11.5** 14.0**	7.0 10.5 13.8 16.8	10.1 10.6 15.0 19.1 22.9	15 15 20 20 25	10 10 14 16 19	45
		Alt						1.9	6.5 8.8 11.5** 14.0**	7.0 10.5 13.8 16.8	10.5 11.1 15.2 19.6 23.4	15 15 20 20 25	10 10 14 16 19	46
	575 (3 phase)	Std	518	632	4.5	29	1.9	2.8	—	—	7.5	15	7	34
		Alt						3.8	—	—	7.9	15	8	34
005 (4 Tons)	208/230 (single phase)	Std	187	254	24.8	127	1.9	3.8	3.3/ 4.4** 6.5/ 8.7 9.8/13.0** 13.1/17.4** 15.8/21.0**	16.2/18.6 31.4/36.2 47.1/54.6 62.8/72.4 75.8/87.6	36.7/ 36.7 36.7/ 36.7 44.1/ 50.0 63.6/ 73.0 83.3/ 95.2 99.5/114.3	45/ 45 45/ 45 45/ 60 70/ 80†† 90/100†† 110/125††	35/ 35 35/ 35 41/ 46 59/ 67 77/ 88 92/105	141/141
		Alt						5.7	3.3/ 4.4** 6.5/ 8.7 9.8/13.0** 13.1/17.4** 15.8/21.0**	16.2/18.6 31.4/36.2 47.1/54.6 62.8/72.4 75.8/87.6	38.6/ 38.6 38.6/ 38.6 46.4/ 52.4 66.0/ 75.3 85.6/ 97.6 101.9/116.6	45/ 45 45/ 45 50/ 60 70/ 80†† 90/100†† 110/125††	37/ 37 37/ 37 43/ 48 61/ 69 79/ 90 94/107	144/144
	208/230 (3 phase)	Std	187	254	15.7	99	1.9	3.8	4.9/ 6.5** 6.5/ 8.7 12.0/16.0** 16.0/21.0**	13.8/15.7 18.1/20.7 33.6/38.4 44.4/50.4	25.3/25.3 25.3/25.3 27.4/30.6 46.8/52.8 60.2/67.7	30/30 30/30 30/35 50/60 70/70††	25/25 25/25 25/28 43/49 55/62	113/113
		Alt						5.7	4.9/ 6.5** 6.5/ 8.7 12.0/16.0** 15.8/21.0**	13.8/15.7 18.1/20.7 33.6/38.4 44.4/50.4	27.2/27.2 27.2/27.2 29.8/32.9 49.1/55.1 62.6/70.1	35/35 35/35 35/35 50/60 70/80††	27/27 27/27 27/30 45/51 58/65	116/116
	460 (3 phase)	Std	414	508	7.8	50	1.0	1.9	6.0 11.5 14.0** 23.0**	7.0 13.8 16.8 27.8	12.6 12.6 19.6 23.4 37.1	15 15 20 25 40	12 12 18 22 34	56
		Alt						2.8	6.0 11.5 14.0** 23.0**	7.0 13.8 16.8 27.8	13.5 13.5 20.8 24.5 38.3	15 15 25 25 40	13 13 19 23 35	58
	575 (3 phase)	Std	518	632	5.5	40	1.9	3.8	—	—	9.2	15	9	45
		Alt					1.9	5.7	—	—	9.9	15	10	47
006 (5 Tons)	230 (single phase)	Std and Alt	207	254	27.8	141	1.9	8.8	6.5** 8.7 13.0 17.4** 21.0**	27.3 36.2 54.6 72.4 87.6	45.5 45.5 56.2 79.2 101.5 120.5	60 60 60 80†† 110†† 125††	44 44 52 73 93 111	190
	208/230 (3 phase)		187	254	19.2	110	1.9	4.0	4.9/ 6.5** 7.9/10.5 12.0/16.0** 15.8/21.0** 19.9/26.5**	13.8/15.7 22.2/25.3 33.6/38.4 44.4/50.4 55.8/63.7	29.9/29.9 29.9/29.9 32.7/36.6 47.0/53.0 60.5/68.0 74.7/84.6	35/35 35/35 35/40 50/60 70/70†† 80/90††	29/29 29/29 30/34 43/49 56/63 69/78	141/141
	460 (3 phase)		414	508	9.6	55	1.0	1.8	6.0** 11.5 14.0 23.0** 25.5**	7.0 13.8 16.8 27.8 30.7	14.8 14.8 19.5 23.3 37.0 40.6	20 20 20 25 40 45	14 14 18 19 32 35	75
	575 (3 phase)		518	632	8.3	45	1.9	8.8	—	—	14.7	20	14	64
007 (6 Tons)	208/230 (3 phase)	Std	187	254	21.9	142	1.9	4.0	4.9/ 6.5** 7.6/10.5 12.0/16.0** 15.8/21.0** 19.9/26.5**	13.8/15.7 22.2/25.3 33.6/38.4 44.4/50.4 55.8/63.7	33.3/33.3 33.3/33.3 33.3/36.6 47.0/53.0 60.5/68.0 74.8/84.6	40/40 40/40 40/40 50/60 70/70†† 80/90††	32/32 32/32 32/34 43/49 56/63 69/78	173/173
	460 (3 phase)		414	508	10.4	72	1.0	1.8	6.0** 11.5 14.0 23.0** 25.5**	7.0 13.8 16.8 27.8 30.7	15.8 15.8 19.5 23.3 36.9 40.6	20 20 20 25 40 45	15 15 18 21 34 37	92
	575 (3 phase)		518	632	9.6	58.5	1.9	8.8	—	—	16.3	20	16	78

(See Legend and Notes, page 40)

Electrical data — 50TJ008-012

UNIT 50TJ	NOMINAL VOLTAGE (60 Hz)	IFM TYPE	VOLTAGE RANGE		COMPR (each)		OFM	IFM	ELECTRIC HEAT		POWER SUPPLY		DISCONNECT SIZE											
			Min	Max	RLA	LRA	FLA	FLA	Nominal kW*	FLA	MCA	MOCP†	FLA	LRA										
008 (7½ Tons)	208/230 (3 phase)	Std	187	254	13 7	82	3 0	5 8	—	—	39 6/ 39 6	45/ 45	42/ 42	223/223										
									7 8/10 4**	21 7/ 25 0	39 6/ 39 6	45/ 45	42/ 42											
		12 0/16 0							33 4/ 38 1	48 9/ 54 9	50/ 60	44/ 50												
		18 6/24 8**							51 7/ 59 7	71 9/ 81 8	80/ 90††	66/ 75												
	Alt	24 0/32 0	66 7/ 74 2	90 6/100 0	100/100††	83/ 92																		
		31 8/42 4**	88 4/102 0	117 7/134 8	125/150††	108/124																		
		—	—	39 6/ 39 6	45/ 45	42/ 42																		
		7 8/10 4**	21 7/ 25 0	39 6/ 39 6	45/ 45	42/ 42																		
	460 (3 phase)	Std	414	508	6 9	41	1 5	2 6	12 0/16 0	33 4/ 38 1	48 9/ 54 9	50/ 60	44/ 50	112										
									18 6/24 8**	51 7/ 59 7	71 9/ 81 8	80/ 90††	66/ 75											
		Alt							24 0/32 0	66 7/ 74 2	90 6/100 0	100/100††	83/ 92											
									31 8/42 4**	88 4/102 0	117 7/134 8	125/150††	108/124											
575 (3 phase)	Std	518	632	4 9	30	1 5	2 6	13 9**	16 7	19 6	25	21	84											
								16 5	19 8	24 1	25	22												
	Alt							27 8**	33 4	45 0	50	38												
								33 0	39 7	52 9	60	46												
009 (8½ Tons)	208/230 (3 phase)	Std	187	254	16 2	96	3 0	5 8	41.7**	50 2	65 9	70††	58	251/251										
									—	—	19 6	25	21											
									13 9**	16 7	24 1	25	22											
									16 5	19 8	28 1	30	26											
	460 (3 phase)	Std	414	508	8 0	46	1.5	2 6	27 8**	33 4	45 0	50	38	122										
									33 0	39 7	52 9	60	46											
									Alt	41 7**	50.2	65.9	70††		58									
										—	—	17 0	20		18									
	575 (3 phase)	Std	518	632	6 1	44	1 5	2 6	18 0	17 0	23 8	25	22	112										
									36 0	34.0	45 1	50	41											
									010 (10 Tons)	208/230 (3 phase)	Std	187	254		19 2	110	3 0	5 8	—	—	52 0/ 52 0	60/ 60	54/ 54	279/279
																			7 8/10 4**	21 7/ 25 0	52 0/ 52 0	60/ 60	54/ 54	
12 0/16 0	33 4/ 38 1	52 0/ 54 9	60/ 60	54/ 54																				
24 0/32 0	66 7/ 74 2	90 6/100 0	100/100††	83/ 92																				
Alt	31 8/42 4**	88 4/102 0	117 7/134 8	125/150††	108/124																			
	37 5/50 0**	104 1/120.2	137 5/127 5	150/150††	127/145																			
	—	—	53 7/ 53 7	60/ 60	56/ 56																			
	7 8/10 4**	21 7/ 25 0	53 7/ 53 7	60/ 60	56/ 56																			
460 (3 phase)	Std	414	508	9 6	55	1 5	2 6	12 0/16 0		33 4/ 38 1	53 7/ 57 5	60/ 60	56/ 56	140										
								24 0/32 0		66 7/ 74 2	92 8/105 6	100/110††	85/ 97											
	Alt							31 8/42 4**		88 4/102 0	119 9/136 9	125/150††	110/126											
								37.5/50.0**		104 1/120 2	139 6/129 6	150/150††	128/147											
575 (3 phase)	Std	518	632	8 3	45	1 5	2 6	16 5**	19 8	25 7	30	27	114											
								27 8	33 4	45 0	50	41												
	Alt							33 0**	39 7	52 9	60	46												
								41 7	50 2	65 9	70††	58												
012 (10 Tons)	208/230 (3 phase)	Std	187	254	19 2	110	3 0	5 8	50 0**	60 1	63.4	70††	69	238/238										
									—	—	26 5	30	28											
									16 5**	19 8	29 1	30	28											
									27 8	33 4	46 0	50	42											
	Alt	33 0**	39 7	53 9	60	46																		
		41 7	50 2	66 9	70††	58																		
		50 0**	60 1	64.4	70††	69																		
		—	—	22 6	30	24																		
	460 (3 phase)	Std	414	508	9 6	55	1 5	2 6	18 0	17 0	23 8	25	22	121										
									36 0**	34 0	45 1	50	41											
		Alt							54 0	51 0	53 6	60	59											
									—	—	22 6	30	24											
575 (3 phase)	Std	518	632	8 3	45	1 5	3 4	18 0	17 0	24 6	25	24												
								36 0**	34 0	45 9	50	42												
								Alt	54 0	51 0	54 4	60	62											
									—	—	22 6	30	24											

(See Legend and Notes, page 40.)

Electrical data — 50TJ014

UNIT 50TJ	NOMINAL VOLTAGE (60 Hz)	IFM TYPE	VOLTAGE RANGE		COMPR (each)		OFM	IFM	ELECTRIC HEAT		POWER SUPPLY		DISCONNECT SIZE	
			Min	Max	RLA	LRA	FLA	FLA	Nominal kW*	FLA	MCA	MOCP†	FLA	LRA
014 (12½ Tons)	208/230 (3 phase)	Std	187	254	22 3	142	3 0	12 0	—	—	65 2/ 65 2	80/ 80††	69/ 69	386/386
									7 8/10 4**	21 7/ 25 0	65 2/ 65 2	80/ 80††	69/ 69	
									12 0/16 0	33 4/ 38 5	65 2/ 65 2	80/ 80††	69/ 69	
									24 0/32 0	66 7/ 77 0	98 4/111 2	100/125††	91/102	
	208/230 (3 phase)	Alt	187	254	22 3	142	3 0	15 0	31 8/42 4**	88 4/102 0	125 5/142 5	150/150††	115/131	410/410
									37 5/50 0**	104 2/120 3	145 3/135 3	150/150††	134/154	
									—	—	68 2/ 68 2	80/ 80††	72/ 72	
									7 8/10 4**	21 7/ 25 0	68 2/ 68 2	80/ 80††	72/ 72	
	460 (3 phase)	Std	414	508	10 4	72	1 5	5 4	—	—	30 3	35	32	195
									16 5**	19 8	31 6	35	32	
									27 8	33 4	48 5	50	45	
									33 0**	39 7	56 4	60	52	
	460 (3 phase)	Alt	414	508	10 4	72	1 5	7 5	41 7	50 2	69 4	70††	64	207
									50 0**	60 1	66 9	80††	75	
									—	—	32 4	35	34	
									16 5**	19 8	34 2	40	34	
	575 (3 phase)	Std	518	632	9 6	58 5	1 5	5 4	—	—	27 1	35	28	158
									18 0	17 0	27 1	35	28	
									36 0**	34 0	47 9	50	45	
									54 0	51 0	56 4	70††	65	
	575 (3 phase)	Alt	518	632	9 6	58 5	1 5	7 5	—	—	28 8	35	40	167
									18 0	17 0	28 8	35	30	
									36 0**	34 0	50 0	60	48	
									54 0	51 0	58 5	70††	67	

LEGEND AND NOTES FOR ELECTRICAL DATA TABLES PAGES 38-41

LEGEND

CSA — Canadian Standards Association
FLA — Full Load Amps
HACR — Heating, Air Conditioning and Refrigeration
IFM — Indoor (Evaporator) Fan Motor
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps
MOCP — Maximum Overcurrent Protection
NEC — National Electrical Code
OFM — Outdoor (Condenser) Fan Motor
RLA — Rated Load Amps

*Heater capacity (kW) is based on heater voltage of 208 v, 240 v, 480 v, and 575 v. If power distribution voltage to unit varies from rated heater voltage, heater kW will vary accordingly.

†Fuse or HACR circuit breaker

**Heaters are field installed only

††Fusing in single point box provides the required branch circuit protection.

||The 7½ hp IFM is not available on the 50TJ020

NOTES:

1. In compliance with NEC requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be fuse or HACR breaker. The CSA units may be fuse or circuit breaker.

2 Unbalanced 3-Phase Supply Voltage

Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the percent of voltage imbalance.

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

Example: Supply voltage is 460-3-60

AB = 452 v

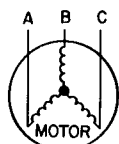
BC = 464 v

AC = 455 v

$$\text{Average Voltage} = \frac{452 + 464 + 455}{3}$$

$$= \frac{1371}{3}$$

$$= 457$$



Determine maximum deviation from average voltage

(AB) 457 — 452 = 5 v

(BC) 464 — 457 = 7 v

(AC) 457 — 455 = 2 v

Maximum deviation is 7 v

Determine percent of voltage imbalance

$$\% \text{ Voltage Imbalance} = 100 \times \frac{7}{457}$$

$$= 1.53\%$$

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

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

3 MCA calculation for 50TJ016-028 units with electric heaters over 50 kW = (1.25 x IFM amps) + (1.00 x heater FLA)



016-028 only



004-014 only



016 Only

Warnock Hersey



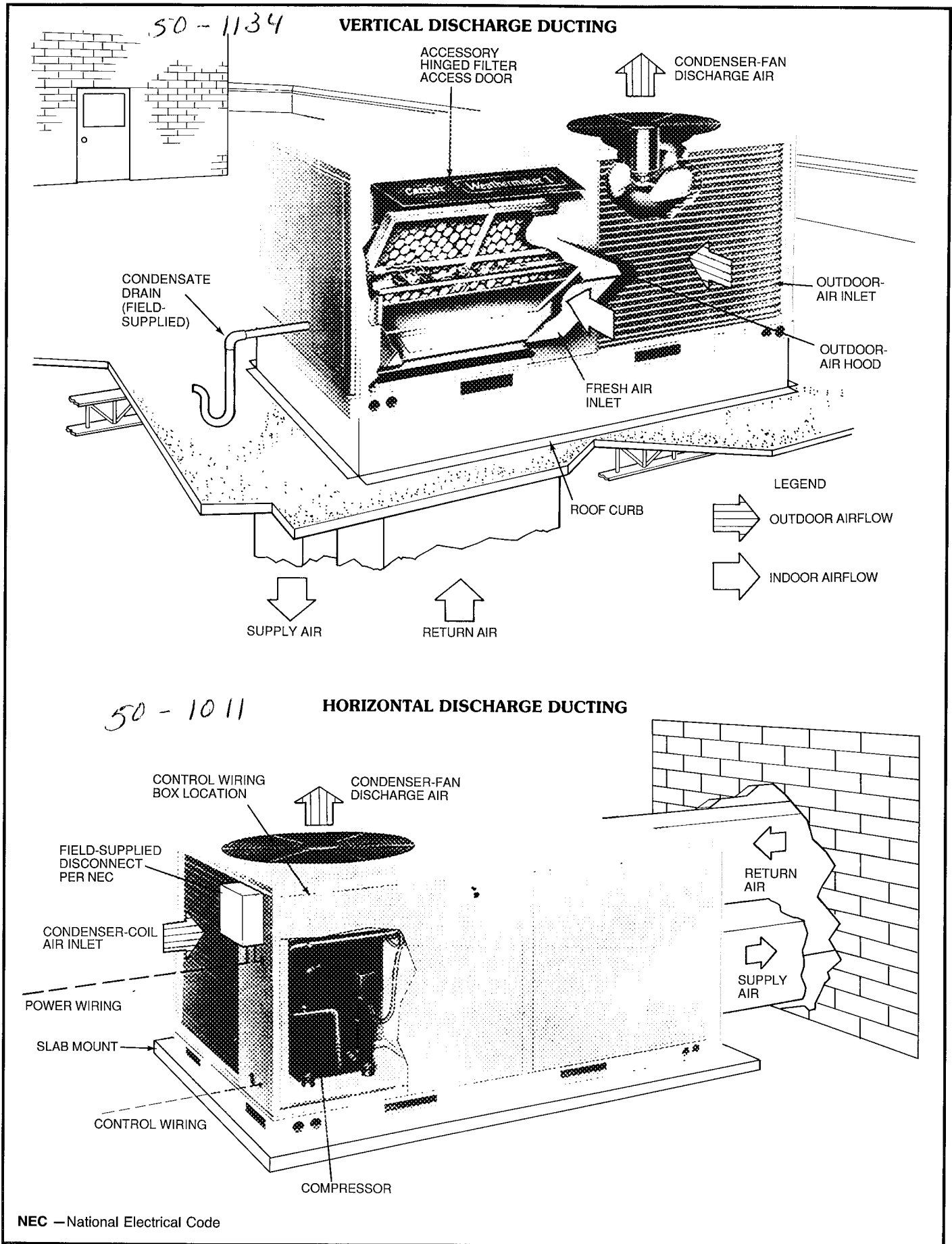
020-028 Only

Electrical data — 50TJ016-028

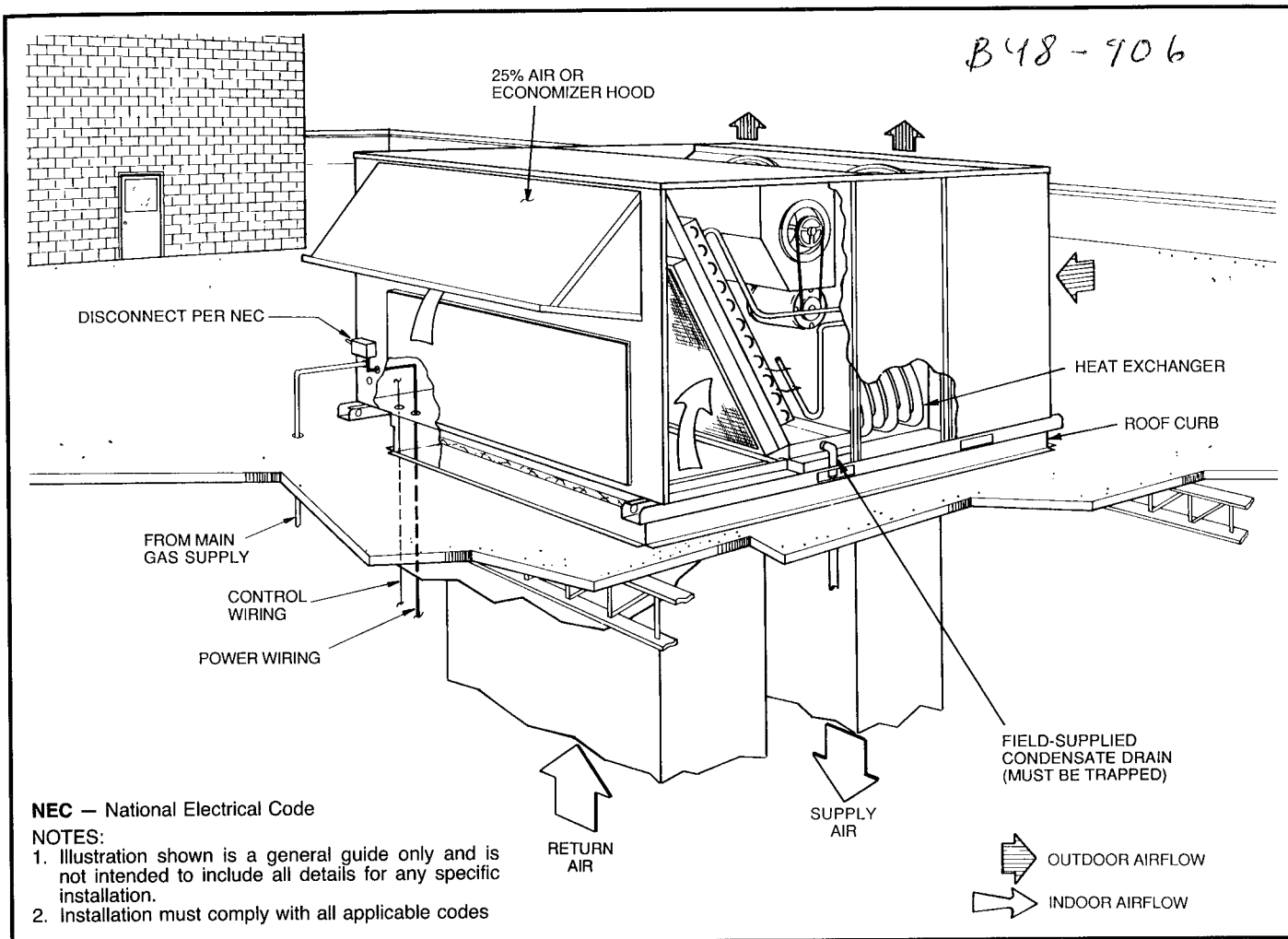
UNIT 50TJ	NOMINAL VOLTAGE (60 Hz)	IFM TYPE	VOLTAGE RANGE		COMPRESSOR				OFM		IFM		ELECTRIC HEAT		POWER SUPPLY		
					No. 1		No. 2										
			Min	Max	RLA	LRA	RLA	LRA	Quantity	FLA (ea)	Hp	FLA	Nominal kW	FLA	MCA	MOCP†	
016 (15 Tons)	208/230 (3 phase)	Std	187	253	61	266	0	0	2	5.4	3	10.5/10.5	— 26/34 42/56 56/75**	— 72/ 82 117/135 156/180	98/ 98 103/116 159/148 169/193	150/150 150/150 175/150 175/200	
		Alt															3.7
	460 (3 phase)	Std	414	508	28.6	120	0	0	2	2.7	3	4.8	— 32 55 80**	— 39 66 96	46 55 72 102	70 70 80 110	
		Alt															3.7
	575 (3 phase)	Std	518	632	22.9	96	0	0	2	2.6	3	3.8	— 50	— 50	38 67	60 70	
	020,024 (18 Tons, 20 Tons)	208/230 (3 phase)	Std	187	253	34.5	239	28.3	205	2	5.5	5	16.7/15.2	— 26/34 42/56 56/75**	— 72/ 82 117/135 156/180	99/ 98 111/122 167/154 177/199	125/125 125/125 175/175 200/200
			Alt														
		460 (3 phase)	Std	414	508	17	119	14.4	104	2	2.8	5	7.6	— 32 55 80**	— 39 66 96	49 58 76 106	60 60 80 110
			Alt														
575 (3 phase)		Std	518	632	15.2	111	11.4	78.4	2	3.4	5	6.1	—	—	43	50	
		Alt									7½	9.0	—	—	46	60	
028 (25 Tons)		208/230 (3 phase)	Std	187	253	43.6	228	43.6	228	2	5.5	7½	24.2/22.0	— 26/34 42/56 56/75**	— 72/ 82 117/135 156/180	133/131 133/131 177/163 186/208	175/150 175/150 200/175 200/225
			Alt														
		460 (3 phase)	Std	414	508	22.1	114	22.1	114	2	2.8	7½	11.0	— 32 55 80**	— 39 66 96	66 66 80 110	80 80 90 110
	Alt		10														
	575 (3 phase)	Std		518	632	17.9	91	17.9	91	2	3.4	7½	9.0	—	—	56	70
		Alt	10									11.0	—	—	58	70	

(See Legend and Notes, page 40.)

Typical piping and wiring — 50TJ004-014



Typical piping and wiring — 50TJ016-028



LEGEND FOR TYPICAL CONTROL WIRING SCHEMATICS

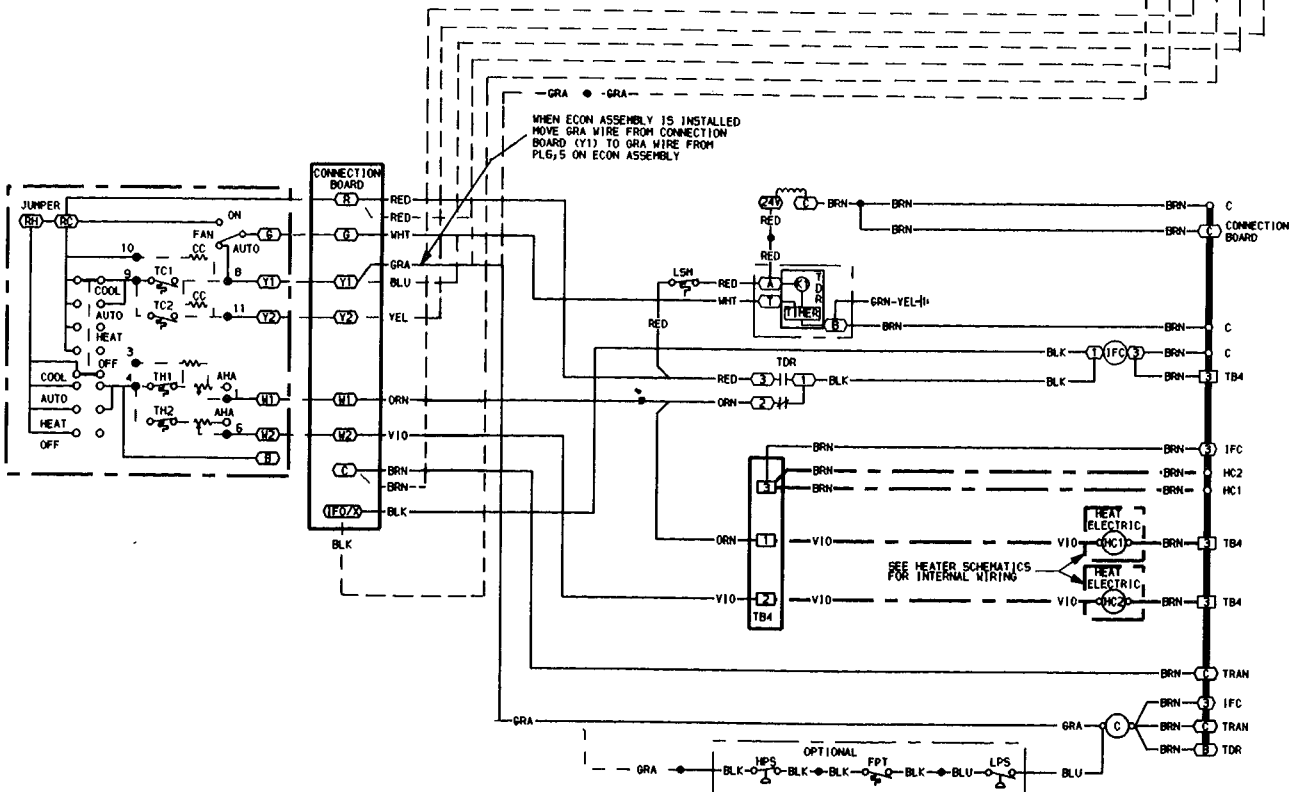
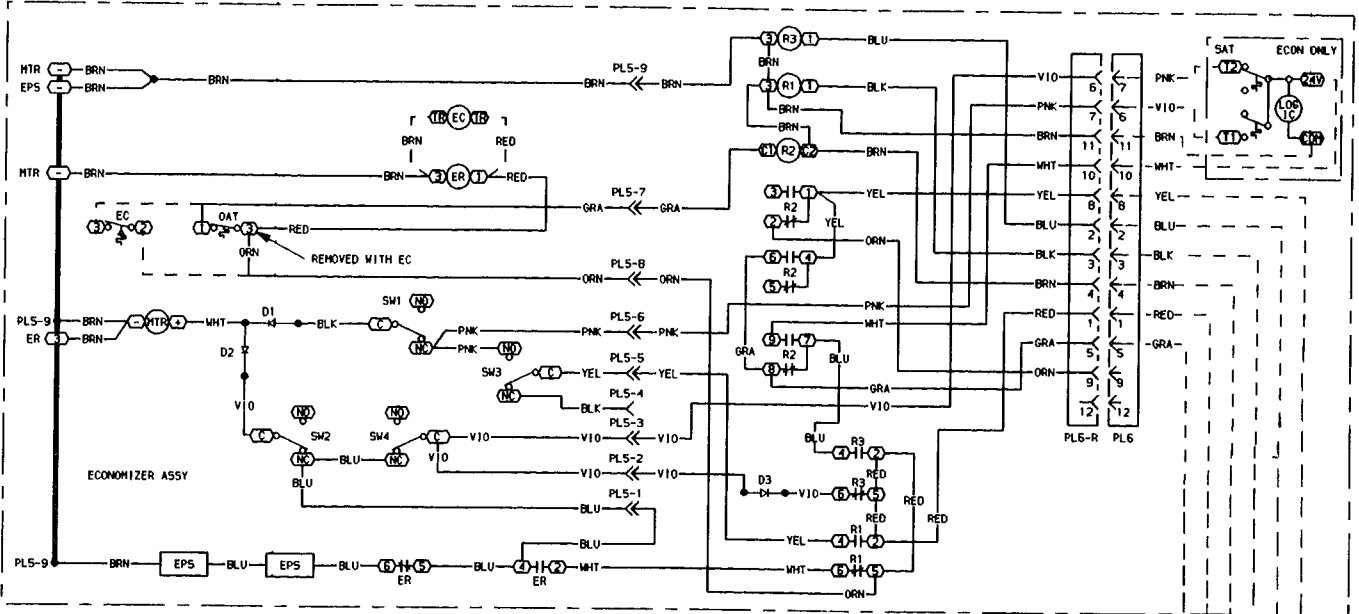
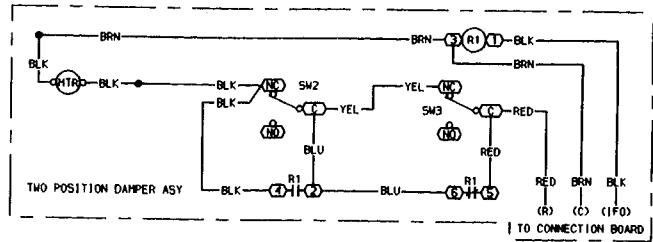
AHA — Adjustable Heat Anticipator
BRK W/AT — Breaks With Amp Turns
C — Contactor, Compressor
CB — Circuit Breaker
CC — Cooling Compensator
CH — Crankcase Heater
CLO — Compressor Lockout
CLS — Compressor Lockout Switch
COMP — Compressor Motor
CT — Current Transformer
DM — Damper Motor
DU — Dummy Terminal
EC — Enthalpy Control
EQUIP — Equipment
FL — Fuse Link
FPT — Freeze Protection Thermostat
FU — Fuse
GND — Ground
HC — Heater Contactor
HPS — High-Pressure Switch
HTR — Heater
IFC — Indoor-Fan Contactor
IFCB — Indoor-Fan Circuit Breaker

IFM — Indoor-Fan Motor
IFR — Indoor-Fan Relay
IP — Internal Protector
L — Light
LOR — Lockout Relay
LPS — Low-Pressure Switch
LS — Limit Switch
MAT — Mixed-Air Thermostat
NC — Normally Closed
NEUT — Neutral
NO — Normally Open
OAT — Outdoor-Air Thermostat
OFC — Outdoor-Fan Contactor
OFM — Outdoor-Fan Motor
OP — Overcurrent Protector
PL — Plug Assembly
PRI — Primary
QT — Quadruple Terminal
SW — Switch
TB — Terminal Block
TC — Thermostat Cooling
TH — Thermostat Heating
TRAN — Transformer

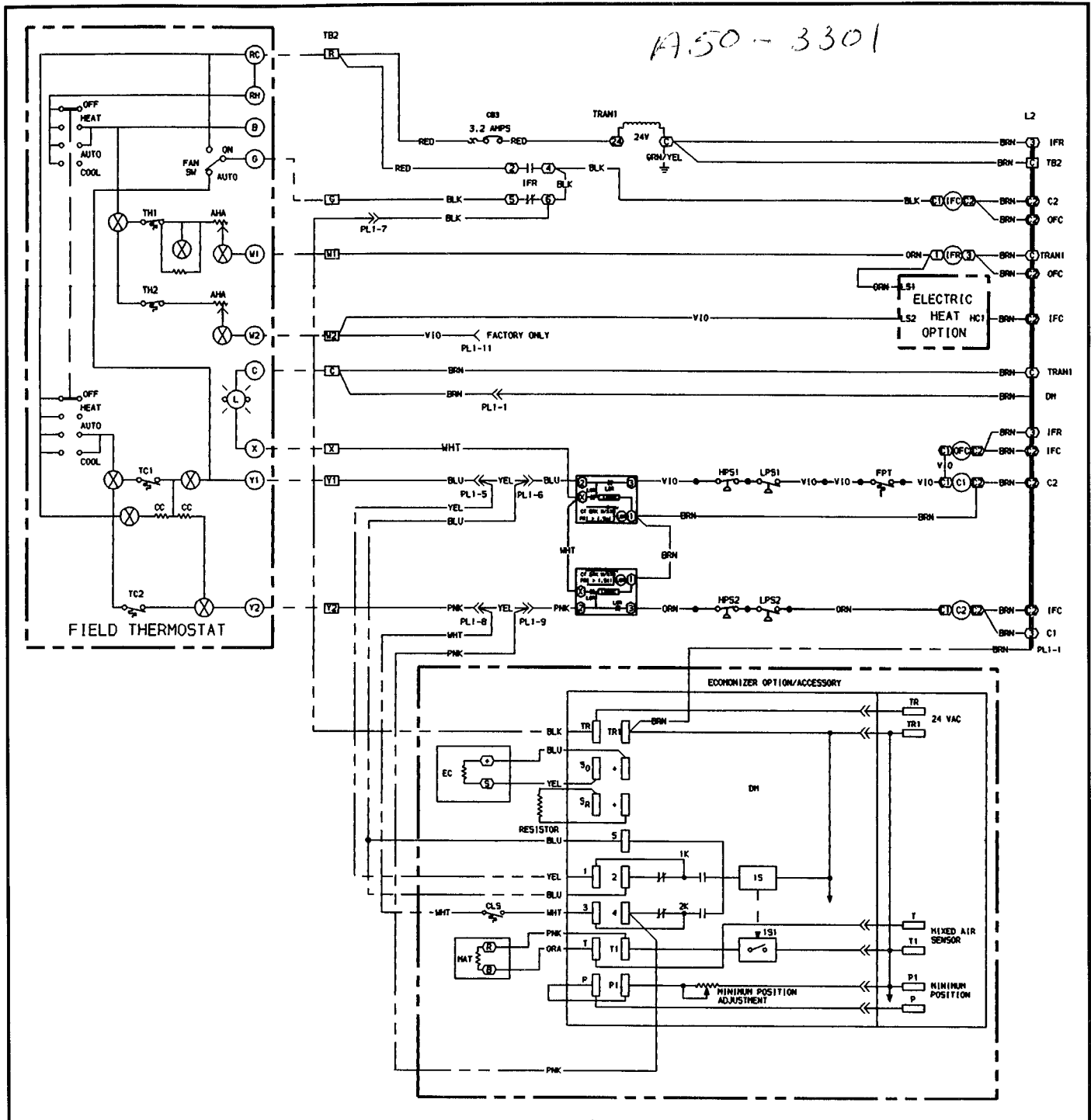
Terminal (Marked)
 Terminal (Unmarked)
 Terminal Block
 Splice
 Splice (Marked)
 Factory Wiring
 Field Control Wiring
 Field Power Wiring
 Accessory Wiring or Optional Wiring
 Accessory
 To indicate common potential only, not to represent wiring

Typical wiring schematic — 50TJ004-014

B50-1925



Typical wiring schematic, 50TJ016-028



Controls

Operating sequence

Cooling, units without economizer — When thermostat calls for cooling, terminals G and Y1 are energized. The indoor (evaporator) fan contactor (IFC), and compressor contactor no. 1 (C1) are energized and evaporator-fan motor, compressor no. 1 (50TJ004-014 and 020-028) or unloaded compressor (50TJ016), and condenser fans start. The condenser-fan motor runs continuously while unit is cooling. On 50TJ008-028 units, if the thermostat calls for a second stage of cooling by energizing Y2, compressor contactor no. 2 (C2) is energized and compressor no. 2 starts (50TJ004-014 and 020-028), or compressor no. 1 runs fully loaded (50TJ016).

Heating, units without economizer (If Accessory or Optional Heater is Installed) — Upon a call for heating through terminal W1, IFC and heater contactor no. 1 (HC1) are energized. On units equipped for 2 stages of heat, when additional heat is needed, HC2 is energized through W2.

Cooling, units with economizer (50TJ004-014) — When the outdoor-air temperature is above the outdoor-air thermostat (OAT) setting and the room thermostat calls for cooling, compressor contactor no. 1 is energized to start compressor no. 1 and the condenser-fan motor. The evaporator-fan motor is energized and the economizer damper moves to the minimum position. Upon a further call for cooling, compressor contactor no. 2 will be energized, starting compressor no. 2. After the thermostat is satisfied, the damper moves to the fully closed position.

When the outdoor-air temperature is below the OAT setting and the thermostat calls for cooling, the economizer dampers move to the minimum position. If the supply-air temperature is above 57 F, the damper continues to open until it reaches the fully open position or until the supply-air temperature drops below 57 F.

When the supply-air temperature falls to between 57 F and 52 F, the damper will remain at an intermediate open position. If the supply-air temperature falls below 52 F, the damper will modulate closed until it reaches the minimum position or until the supply-air temperature is above 52 F. When the thermostat is satisfied, the damper will move to the fully closed position.

If the outdoor air alone cannot satisfy the cooling requirements of the conditioned space, economizer cooling is integrated with mechanical cooling, providing second-stage cooling. Compressor no. 1 and the condenser fan will be energized and the position of the economizer damper will be determined by the supply-air temperature. Compressor no. 2 is locked out.

When the second stage of cooling is satisfied, the compressor and condenser-fan motor will be deenergized. The damper position will be determined by the supply-air temperature.

When the first stage of cooling is satisfied, the damper will move to fully closed position.

Cooling, units with economizer (50TJ016-028) — Upon a call for cooling, when outdoor ambient temperature is above the temperature control setting, the evaporator and condenser fans and compressor energize. The economizer damper moves to VENT position.

Upon a first-stage call for cooling, when outdoor ambient temperature is below the temperature control setting, the evaporator fan starts and economizer damper modulates to maintain mixed-air temperature. The compressor(s) remains off.

Upon a second-stage call for cooling, compressor no. 1 (50TJ020-028) or unloaded compressor (50TJ016) is energized and mechanical cooling is integrated with economizer cooling. Compressor no. 2 is locked out. If the air temperature is above 50 F, a cooling lockout switch prevents the compressor(s) from running.

When supply-air temperature drops below a fixed set point, the economizer damper modulates to maintain the temperature at the fixed set point.

A freeze protection thermostat (FPT) is located on the evaporator coil. It detects frost buildup and turns off the compressor, allowing the coil to clear. Once frost has melted, the compressor can be reenergized.

Heating, units with economizer (50TJ004-014) (If Accessory or Optional Heater is Installed) — When the room thermostat calls for heat through terminal W1, the evaporator-fan contactor and heater contactor no. 1 are energized. On units equipped for 2 stages of heat, when additional heat is needed, heater contactor no. 2 is energized through W2. The economizer damper moves to the minimum position during heating. When the thermostat is satisfied, the damper moves to the fully closed position.

Heating, units with economizer (50TJ016-028) (If Accessory or Optional Heater is Installed) — The outdoor air damper stays at VENT position while the evaporator fan is operating.

Application data

Outdoor installation — Units approved for outdoor installation only.

Ductwork (50TJ004-014) — Secure vertical discharge ductwork to roof curb. For horizontal discharge applications, either attach ductwork to unit, or use field-supplied flanges attached to the horizontal discharge openings and attach all ductwork to flanges.

Ductwork (50TJ016-028) — Ductwork should be attached to the curb on all units. Interior installation may proceed before unit is set in place on roof. If ductwork is to be attached to unit, do not drill in condensate drain pan area — leaks may result. Field-fabricated concentric ductwork may be connected as shown on page 48.

Horizontal discharge (50TJ004-014) — To convert from vertical discharge to horizontal discharge:

- 1 Remove economizer or two-position damper to gain access to return duct opening.
- 2 Move the horizontal-discharge duct opening covers to the vertical discharge openings.
- 3 Rotate economizer or two-position damper 90 degrees (until the economizer motor faces the condenser section).
- 4 Rotate the barometric relief damper 90 degrees
5. Install block-off plate over the opening on the access panel.

IMPORTANT On horizontal discharge units equipped with economizer, the air filters **MUST** be installed external to the unit or economizer will have to be partially removed

Thru-the-curb service connections — Roof curb connections allow field power wires and control wires to enter through the roof curb opening

Thermostat — Use of 2-stage heating and cooling thermostat is recommended for all units. A 2-stage cooling thermostat is required on units with accessory economizer to provide integrated cooling.

Heating-to-cooling changeover — All units are automatic changeover from heating to cooling when automatic changeover thermostat and subbase are used.

Airflow — Units are draw-thru on cooling and blow-thru on heating.

Maximum airflow — To minimize the possibility of condensate blow-off from evaporator, airflow through units should not exceed 500 cfm/ton on 004-024 units and 11,250 cfm on 028 units.

Minimum airflow — For cooling minimum airflow is 300 cfm/ton. For 004-014 units with electric heating, required minimum cfm is 900 for 50TJ004; 1200 for 50TJ005; 1500 for 50TJ006; 1800 for 50TJ007; 2250 for 50TJ008; 2550 for 50TJ009; and 3000 for 50TJ012 and 014, with the following exceptions:

UNIT 50TJ	UNIT VOLTAGE	HEATER kW	UNIT CONFIGURATION	REQUIRED MINIMUM CFM
012, 014	208/230	42.4	Horizontal	3200
	208/230	50.0	Horizontal	3200
	460	50.0	Horizontal or Vertical	3200
008- 014	575	18.0	Horizontal or Vertical	2800
		36.0		2350

NOTE: For 016-028 units with electric heating, the required minimum cfm is 300 cfm/ton.

Minimum ambient cooling operating temperature (50TJ004-014) — The minimum temperature for size 004-014 standard units is 25 F. With accessory Motormaster® control (for unit sizes 004-007) or Motormaster II control (for unit sizes 004-014), units can operate at outdoor temperatures down to -20 F.

Minimum ambient cooling operation temperature (50TJ016-028) — Units are designed to operate at outdoor temperatures down to 40 F for 50TJ016, 25 F for 50TJ020 and 024, and 48 F for 50TJ028. To operate at lower outdoor temperatures, accessory outdoor-air thermostat or accessory Motormaster head pressure control device and outdoor-air thermostat are required. See Minimum-Ambient Temperature Cooling Operation table on page 48 for operating limits.

Internal unit design — Due to Carrier's internal unit design (draw-thru over the motor), air path, and specially designed motors, the full horsepower (maximum continuous bhp) listed in the Physical Data table and the notes following each Fan Performance table can be utilized with confidence.

Using Carrier motors with the values listed in the Physical and Fan Performance Data tables *will not* result in nuisance tripping or premature motor failure. The unit warranty will not be affected.

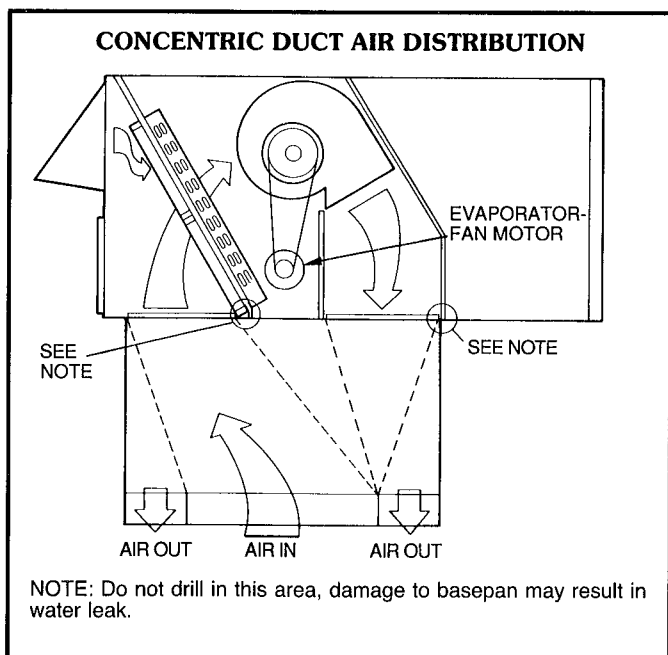
Application data (cont)

MINIMUM-AMBIENT TEMPERATURE COOLING OPERATION

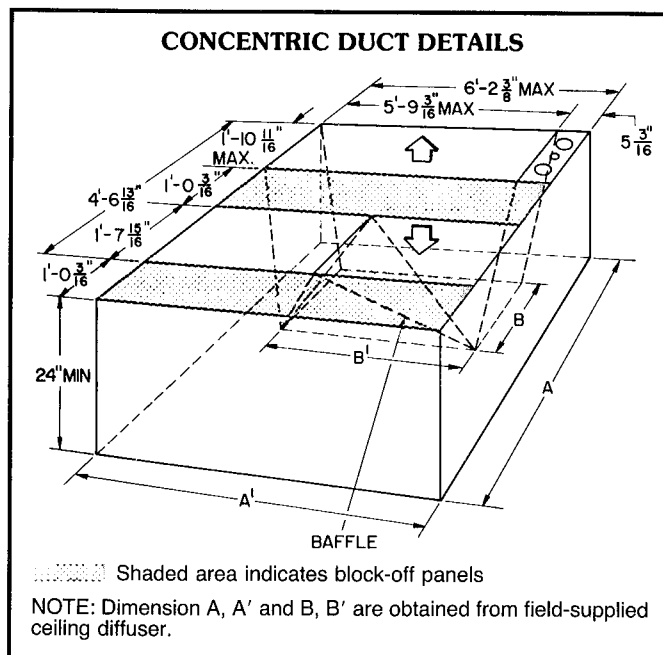
UNIT 50TJ	OUTDOOR COOLING TEMPERATURE (F)		
	Base Unit	With Accessory OAT	With Accessory OAT and Motormaster® Head Pressure Control
016	40	25	-20
020,024	25	—	-20
028	48	35	-20

OAT — Outdoor-Air Thermostat

A.50-2778



A.50-874



Guide specifications — 50TJ004-014

Packaged Rooftop Cooling Unit with Electric Heat Option — Constant Volume Application

HVAC Guide Specifications

Size Range: **3 to 12½ Tons, Nominal Cooling**

Carrier Model Number: **50TJ**

Part 1 — General

1.01 SYSTEM DESCRIPTION

- A. Outdoor rooftop- or slab-mounted, electrically controlled cooling unit with optional heat utilizing a compressor for cooling duty and electric resistance coils for heating duty. Unit shall discharge supply air vertically or horizontally as shown on contract drawings.

1.02 QUALITY ASSURANCE

- A. Unit shall be rated in accordance with ARI Standards 210/240 or 360 and 270.
- B. Unit shall be designed to conform to ASHRAE 15, latest revision, and in accordance with UL 1995
- C. Unit shall be UL listed and CSA or ULC certified as a total package for safety requirements.
- D. Roof curb shall be designed to conform to NRCA Standards.
- E. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.
- F. Unit casing shall be capable of withstanding Federal test method Standard No. 141 (Method 6061) 500-hour salt spray test.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Unit(s) shall be stored and handled per manufacturer's recommendations.

Part 2 — Products

2.01 EQUIPMENT (STANDARD)

A. General:

Factory-assembled, single-piece cooling unit with optional heat. Contained within the unit enclosure shall be all factory wiring, piping, controls, refrigerant charge (R-22), and special features required prior to field start-up.

B. Unit Cabinet:

- 1. Unit cabinet shall be constructed of galvanized steel, bonderized and coated with a baked enamel finish on all externally exposed surfaces.
- 2. Evaporator fan cabinet interior shall be insulated with a minimum ½-in. thick flexible fiberglass insulation coated on the air side. Aluminum foil-faced fiberglass insulation shall be used in the furnace compartment
- 3. Cabinet panels shall be easily removable for servicing.
- 4. Holes shall be provided in the base rails for rigging shackles to facilitate overhead rigging, and forklift slots shall be provided to facilitate maneuvering.

C. Fans.

- 1. Indoor blower (evaporator fan) shall be of the direct- or belt-driven, double inlet, forward-curved centrif-

ugal type. Belt drive shall include an adjustable-pitch motor pulley.

- 2. Indoor blower (evaporator-fan) shall be made from steel with a corrosion-resistant finish and shall be dynamically balanced.
- 3. Bearings shall be of the sealed, permanently lubricated, ball-bearing type for longer life and lower maintenance.
- 4. Condenser fan shall be of the direct-driven propeller type and shall discharge air vertically.
- 5. Condenser fan shall have aluminum blades riveted to corrosion-resistant steel spiders and shall be dynamically balanced.

D. Compressor(s):

- 1. Fully hermetic type, internally protected.
- 2. Factory rubber shock mounted and internally spring mounted for vibration isolation.
- 3. On independent circuits (008-014).

E. Coils:

- 1. Condenser coils shall have aluminum plate fins mechanically bonded to enhanced copper tubes with all joints brazed.
- 2. Tube sheet openings shall be belled to prevent tube wear.
- 3. Evaporator coil shall be of the full face active design

F. Refrigerant Components.

Refrigerant circuit components shall include:

- 1. Acutrol™ feed system
- 2. Refrigerant strainer
- 3. Service gage connections on suction, discharge, and liquid line

G. Filter Section.

- 1. Standard filter section shall consist of factory-installed low-velocity, throwaway 2-in. thick fiberglass filters of commercially available sizes
- 2. Filter face velocity shall not exceed 320 fpm at nominal airflows

H. Controls and Safeties:

1. Unit Controls:

Unit shall be complete with self-contained low-voltage control circuit, protected by a manual-reset circuit breaker

2. Standard Safeties:

- a. Unit shall incorporate compressor overtemperature and overcurrent safety devices to shut off compressor.
- b. Heating section shall be provided with the following minimum protections:
 - 1) High-temperature limit switches.
 - 2) Overcurrent protection

Guide specifications — 50TJ004-014 (cont)

I. Operating Characteristics:

1. Unit shall be capable of starting and running at 115 F ambient outdoor temperature, meeting maximum load criteria of ARI Standard 210/240 or 360 at $\pm 10\%$ voltage.
2. Compressor with standard controls shall be capable of operation down to 25 F ambient outdoor temperature.

J. Electrical Requirements:

All unit power wiring shall enter unit cabinet at a single factory-predrilled location.

K. Motors.

1. Compressor motors shall be cooled by refrigerant passing through motor windings and shall have line break thermal and current overload protection
2. Indoor blower (evaporator-fan) motor shall have permanently lubricated bearings and inherent automatic-reset thermal overload protection.
3. Totally-enclosed condenser-fan motor shall have permanently lubricated bearings, and inherent automatic-reset thermal overload protection.

L. Special Features:

Certain features are not applicable when the features designated by * are specified. For assistance in amending the specifications, your local Carrier Sales Office should be contacted.

1. Roof Curb
 - a. Formed galvanized steel with wood nailer strip and capable of supporting entire unit weight.
 - b. Allows for installing and securing ductwork to curb prior to mounting unit on the curb
- * 2. Integrated Economizer:
 - a. Integrated incremental-modulating type capable of simultaneous economizer and compressor operation.
 - b. Includes all hardware and controls to provide cooling with outdoor air.
 - c. Equipped with low-leakage dampers not to exceed 3% leakage, at 1 in. wg pressure differential.
 - d. Capable of introducing up to 100% outdoor air.
 - e. Equipped with a gravity relief sliding plate damper. Damper shall close upon unit shutoff.
- * 3. Manual Outdoor-Air Damper:

Manual damper package shall consist of damper, birdscreen, and rainhood which can be preset to admit up to 25% outdoor air for year-round ventilation.
- * 4. Two-Position Outdoor-Air Damper
 - a. Two-position damper package shall include single blade damper. Admits up to 25% outdoor air
 - b. Damper shall close upon unit shutoff.
- * 5. Solid-State Enthalpy Control:
 - a. For use with economizer package only.
 - b. Capable of sensing outdoor-air enthalpy content (temperature and humidity) and controlling economizer cut-in point to have minimum heat content air passing over the evaporator coil for most efficient system operation.
- * 6. Differential Enthalpy Sensor:
 - a. For use with economizer only.
 - b. Capable of comparing enthalpy content (temperature and humidity) of outdoor and indoor air and controlling economizer cut-in point at the most economical level.
- * 7. Electric Resistance Heaters:
 - a. Open wire nichrome elements with all necessary safety operating controls.
 - b. UL listed and indicated on basic unit informative plate.
 - c. Available in multiples to match heating requirements.
- * 8. Head Pressure Control Package:

Consists of solid-state control and condenser-coil temperature sensor to maintain condensing temperature between 90 F and 110 F at outdoor ambient temperatures down to -20 F by either condenser-fan speed modulation (004-007) or condenser-fan cycling (004-014).
- * 9. Remote Control Panel:

Panel shall be a decorative, indoor, wall-mounted panel consisting of:

 - a. Two-stage heat/2-stage cool thermostat.
 - b. Automatic changeover.
 - c. System switch with HEAT-COOL-AUTO -OFF settings.
 - d. Fan switch with ON-AUTO. settings.
 - e. Ventilation control for remote variation of the amount of outdoor-air intake.
 - f. Indicator lights for HEAT-COOL-FAN operation.
 - g. Three unused indicator lights for field use.
- * 10. Thermostat and Subbase:

Provides staged cooling and heating automatic (or manual) changeover, fan control, and indicator light.
11. Thru-the-Curb Service Connections:

Allow electrical connections to be brought to the unit through the roof curb.
- * 12. Electronic Programmable Thermostat:

Capable of using deluxe full-featured electronic thermostat.
13. Condenser Coil Hail Guard Assembly:

Hail guard shall protect against damage from hail and flying debris.

- * 14. Filter Door Access Panel Kit:
Package shall contain all necessary hardware and instructions to install hinged access door and shall provide filter access with no panel or screw removal.
- 15. Controls Upgrade Kit:
Kit shall contain high-pressure, loss-of-charge/low-pressure, and freeze protection switches. It shall mount on factory-installed Schrader fittings.
- * 16. Economizer Upgrade Package:
Damper blade shall close automatically when power failure occurs.
- 17. Alternate Motors and Drives:
Alternate motors and drives shall be factory-installed to provide additional performance range.
- 18. External Filter Package:
 - a. For use with economizer on horizontal discharge units.
 - b. Package shall contain all necessary hardware and instructions to install filters outside of the unit
- 19. Condenser Coil Grille:
The grille protects the condenser coil from damage by large objects without increasing unit clearances

Guide specifications — 50TJ016-028

Packaged Rooftop Cooling Unit with Electric Heat Option, Constant Volume Application

HVAC Guide Specifications

Size Range: **15 to 25 tons, Nominal Cooling**

Carrier Model Number: **50TJ**

Part 1 — General

1.01 SYSTEM DESCRIPTION

Unit is an outdoor, rooftop-mounted, cooling unit utilizing reciprocating, semi-hermetic (016,028) or hermetic (020,024) compressor(s) for cooling duty. Supply air is discharged vertically or horizontally (with horizontal supply/return adapter curb assembly) as shown on contract drawings

1.02 QUALITY ASSURANCE

- A Unit shall be rated in accordance with ARI Standard 360 and designed in accordance with UL 1995.
- B Unit shall be ETL and CSA (016) or Warnock Hersey (020-028) listed (208/230-v and 460-v). The 575-v units shall be CSA or Warnock Hersey approved
- C. Roof curb shall be designed to conform to NRCA Standards
- D. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.
- E. Unit casing shall be capable of withstanding Federal test method Standard No 141 (Method 6061) 500-hour salt spray test.

1.03 DELIVERY, STORAGE, AND HANDLING

Unit shall be stored and handled per manufacturer's recommendations

Part 2 — Products

2.01 EQUIPMENT (STANDARD)

A. General:

The 50TJ unit shall be a factory-assembled, single piece cooling unit. Contained within the unit enclosure shall be all factory-installed wiring, piping, controls, refrigerant charge (R-22), and special features required prior to field start-up

B Unit Cabinet:

- 1. Unit cabinet shall be constructed of galvanized steel, precoated with a baked enamel finish.
- 2. Indoor blower compartment interior surfaces shall be insulated with a minimum 1/2-in. thick, flexible fiberglass insulation coated on the air side
- 3. Cabinet panels shall be easily removable for servicing.
- 4. Filters shall be accessible through an access panel.
- 5. The manual damper shall permit up to 25% outdoor air for year-round ventilation.
- 6. Holes shall be provided in the base rails for rigging shackles to facilitate overhead rigging.
- 7. Unit shall have a factory-installed internal condensate drain connection and a sloped condensate pan.

C. Fans:

- 1. Indoor Blower (Evaporator Fan):

- a The fan shall be belt driven with adjustable (016) or fixed (020-028) motor pulleys.
- b. The fan wheel shall be made from steel, be of the double inlet type with forward-curved blades, and have a corrosion-resistant finish. It shall also be dynamically balanced.
- c. Fan bearings shall be of the pillow block, ball-bearing type (020-028).

- 2. The condenser fan shall be of the direct driven, propeller type, with corrosion-resistant blades riveted to corrosion-resistant steel spiders. It shall be dynamically balanced and discharge air vertically.

D. Compressor(s):

- 1. The reciprocating semi-hermetic or hermetic compressor(s) shall have factory-installed external spring vibration isolation (016,028) or shall be factory rubber shock mounted and internally spring mounted (020,024) for vibration isolation.
- 2. The factory-installed crankcase heater shall prevent refrigerant dilution of oil (016,028).
- 3. The semi-hermetic compressor shall have unloading capability (016 only).
- 4 On independent circuits (020-028).

E. Coils:

Evaporator and condenser coils shall have aluminum or copper plate fins mechanically bonded to seamless copper tubes with all joints brazed.

F. Refrigerant Components:

Refrigerant circuit components shall include:

- 1. Filter driers and fixed expansion devices.
- 2. Service gage connection on suction, discharge, and liquid lines.
- 3. Acutrol™ feed system.

G. Filter Section:

Standard filter section shall consist of 2 sizes of factory-installed, 2-in thick throwaway fiberglass filters of commercially available sizes.

H. Controls and Safeties:

1. Unit Controls.

Controls shall perform the following functions:

- a Capacity control (2-step).
- b. Economizer operation.
- c. Self-contained low-voltage control circuit.

2. Safeties:

a. Should any of the following safety devices trip and shut off the compressor, the unit shall incorporate a solid-state compressor protector which will provide reset capability at the space thermostat:

- 1) Compressor overtemperature, overcurrent.
- 2) Low-pressure switch.
- 3) High-pressure switch.
- 4) Freeze protection thermostat.

- b. Heating section shall be provided with the following minimum protections:
 - 1) High-temperature limit switches.
 - 2) Overcurrent protection.
- I. Operating Characteristics:
 1. Unit shall be capable of starting and running at 115 F ambient outdoor temperature per maximum load criteria of ARI Standard 360.
 2. Unit shall have standard controls and will operate in cooling to 40 F on 50TJ016 units, to 25 F ambient on 50TJ020 and 024 units, and to 48 F ambient on 50TJ028 units.
- J. Electrical Requirements:

All unit power wiring shall enter unit cabinet at a single location.
- K. Motors:
 1. The 50TJ016 and 028 compressor motors shall be of the refrigerant cooled type with internal thermal overload protection and shall use a calibrated circuit breaker for electrical protection. The 50TJ020 and 024 compressor motors shall be cooled by refrigerant passing through motor windings and shall have line break thermal and current overload protection.
 2. All fan motors shall have permanently lubricated, sealed bearings and inherent automatic reset thermal overload protection or manual reset calibrated circuit breakers.
- L. Special Features:

Certain standard features are not applicable when the features designated * are specified. For assistance in amending the specifications, your local Carrier Sales office should be contacted.

 1. Roof Curb:

The roof curb shall be formed of 16-gage steel with wood nailer strip and shall be capable of supporting unit's entire weight
 - * 2. Integrated Economizer:
 - a. Integrated type capable of simultaneous economizer and compressor operation to provide cooling with outdoor air.
 - b. Equipped with low-leakage dampers not to exceed 3% leakage at 10 in. wg pressure differential.
 - c. Capable of introducing up to 100% outdoor air.
 - d. Equipped with dry-bulb temperature control to govern economizer changeover.
 - * 3 Head Pressure Control Package:

Package shall consist of an accessory outdoor-air package and a solid-state control with condenser coil temperature sensor for controlling condenser fan motor speed to maintain condensing temperature between 90 F and 100 F at outdoor ambient temperatures down to -20 F.
 - * 4. Power Exhaust Package:

Package shall include an exhaust fan, motor, and damper for vertical flow units with economizer to assure proper building pressurization.
 - * 5. Barometric Relief Damper Package:
 - a. Package shall include damper, seals, hardware, and hoods to relieve excess internal pressure.
 - b. Damper shall close due to gravity upon unit shutdown.
 - * 6. Thermostat and Subbase Assembly:

To provide staged heating and cooling in addition to automatic (or manual) changeover and fan control.
 7. Two-Position Damper:

The two-position damper package shall include a single-blade damper and motor. It admits up to 25% outdoor air, and shall close upon unit shutoff.
 8. Accessory Compressor Cycle Delay:

The compressor cycle delay prevents rapid cycling of the compressor by preventing it from restarting for a minimum of 5 minutes after shutdown.
 9. Electric Heater Package:

Fully assembled for installation. The 208/230-v and 460-v units are designed in accordance with UL standards and all units feature a single point connection.
 10. Outdoor-Air Thermostat:

When used either alone or in conjunction with head pressure control package, allows unit to operate at lower outdoor ambient temperatures.
 - * 11 Solid-State Enthalpy Control:
 - a. For use with economizer package only.
 - b. Capable of sensing outdoor-air enthalpy content (temperature and humidity) and controlling economizer cut-in point to have minimum heat content air passing over the evaporator coil for most efficient system operation.
 - * 12. Differential Enthalpy Sensor:
 - a. For use with economizer only.
 - b. Capable of comparing enthalpy content (temperature and humidity) of outdoor and indoor air and controlling economizer cut-in point at the most economical level.
 - * 13. Remote Control Panel:

Panel shall be a decorative, indoor, wall-mounted panel consisting of:

 - a. Two-stage heat/2-stage cool thermostat
 - b. Automatic changeover.
 - c. System switch with HEAT-COOL-AUTO.-OFF settings
 - d. Fan switch with ON-AUTO. settings.
 - e. Ventilation control for remote variation of the amount of outdoor-air intake.
 - f. Indicator lights for HEAT-COOL-FAN operation.
 - g. Three unused indicator lights for field use.

Guide specifications — 50TJ016-028 (cont)

- * 14. Electronic Programmable Thermostat:
Capable of using deluxe full-featured electronic thermostat.

- 15. Alternate Motors and Drives:
Alternate motors and drives shall be factory-installed to provide additional performance range.

