Carrier®

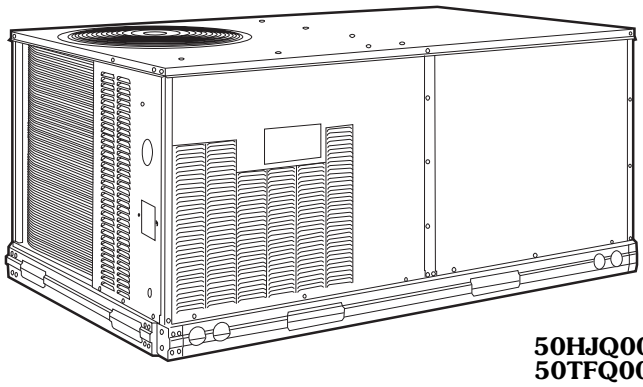
Product Data

WEATHERMASTER® 50HJQ004-016
WEATHERMAKER® 50TFQ004-012
Single-Package Rooftop
Standard and High Efficiency
Heat Pump Units

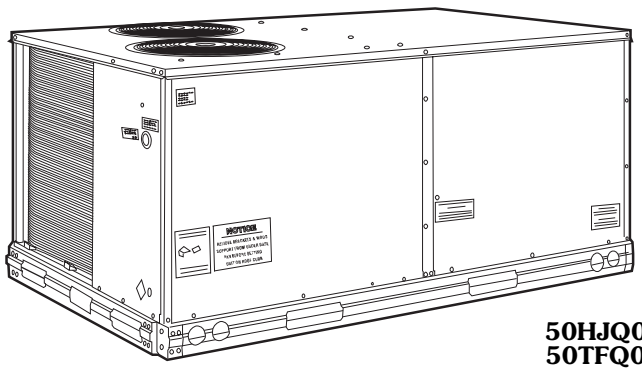
3 to 15 Nominal Tons

WEATHERMASTER

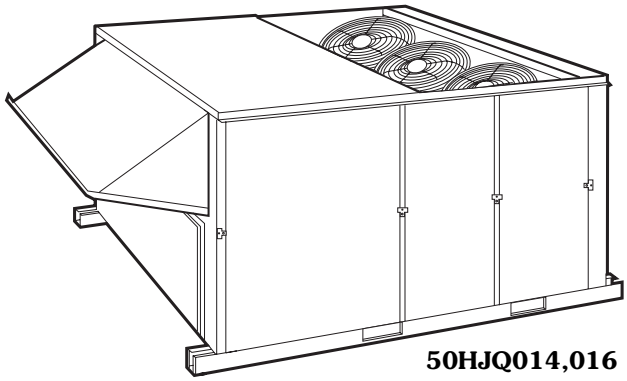
WEATHERMAKER



50HJQ004-007
50TFQ004-007



50HJQ008-012
50TFQ008-012



50HJQ014,016

ASHRAE 90.1 COMPLIANT

Standard-Efficiency (TFQ), and High-Efficiency (HJQ) heat pump units offer:

- Pre-painted galvanized steel cabinet for long life and quality appearance
- Commercial strength base rails with built-in rigging capability
- Convertible design for vertical or horizontal supply/return
- Non-corrosive, sloped condensate drain pan, meets ASHRAE 62 (IAQ)
- Two-inch return-air filters
- A wide assortment of factory-installed options available, including high-static drives that provide additional performance range
- Factory-installed PremierLink™ digital communicating controls
- Factory-installed optional gear driven EconoMi$er+ (vertical return only) for use with standard rooftop unit controls (includes CO_2 sensor control capability)
- Factory-installed optional gear driven EconoMi$er2 (vertical return only) for use with PremierLink DDC controls (includes 4 to 20 mA actuator for demand control ventilation)
- State-of-the-art defrost system
- Dependable 4-way valve operation

Heat Options

- Field-installed electric heat available
- Glycol hydronic coils

Features/Benefits

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

Quiet, efficient operation and dependable performance

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

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Carrier Comfort System
PremierLink

Unit sizes 008-016 offer lower utility costs through part-load operation using 2 stages of cooling.

Quiet and efficient operation is provided by belt-driven indoor fans (standard on all units over 5 tons). The belt-driven indoor fan is equipped with variable-pitch pulleys which allow adjustment within the rpm ranges of the factory-supplied pulleys. Increased operating efficiency is achieved through computer-designed coils featuring staggered internally enhanced copper tubes. Fins are ripple-edged for strength, lanced, and double waved for higher heat transfer.

Durable, dependable construction

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

In addition, all size 004-012 units are designed with a single, continuous top piece to eliminate any possible leaks. Totally enclosed outdoor-fan motors and permanently lubricated bearings provide additional unit dependability.

Patented state-of-the-art Chronotemp™ defrost system uses time and temperature to keep the outdoor coil frost-free for economical, dependable operation. The Chronotemp defrost board can be easily configured for defrost cycles every 30, 50, or 90 minutes.

Dependable 4-way valve operation safely and efficiently accomplishes cycle reversals, defrost, and normal operation.

Easy installation and conversion

All units are shipped in the vertical duct configuration for fit-up to standard roof curbs. (3 different curb sizes fit unit sizes 004-007, 008-012, and 014,016 respectively.) The contractor can order and install the roof curb early in the construction stage, before decisions on size requirements are made.

All units feature a base rail design with forklift slots and rigging holes for easier maneuvering. Durable packaging protects all units during shipment and storage.

The units can be easily converted from a vertical to a horizontal duct configuration by relocating the panels supplied with the unit.

To convert 004-012 units from vertical to horizontal discharge, simply relocate 2 panels. The same basic unit can be used for a variety of applications and can be quickly modified at the jobsite.

To convert size 014 and 016 units from vertical to horizontal discharge, use the optional horizontal supply/return adapter roof curb.

Convenient duct openings in the unit basepans permit side-by-side or concentric duct connections (see Application Data section) without requiring internal unit modification (size 014,016 only).

NOTE: On units using horizontal supply and return, the accessory barometric relief or power exhaust MUST be installed on the return ductwork.

Thru-the-bottom service connection capability comes standard with the rooftop unit to allow power and control wiring to be routed through the unit's basepan, thereby minimizing roof penetrations (to prevent water leaks). Power and control connections are made on the same side of the unit to simplify installation.

The non-corrosive sloped condensate drain pan permits either an external horizontal side condensate drain (outside the roof curb) or an internal vertical bottom drain (inside the roof curb). Both options require an external, field-supplied P-trap.

Standard 2-in. throwaway filters are easily accessed through a removable panel located above the air intake hood. No tools are required to change unit filters.

All 004-012 units are designed with a single, continuous top piece to eliminate leaking at the seams or gasketing.

Belt-driven indoor-fan motors allow maximum on-site flexibility without changing motors or drives.

Field-installed accessory electric heaters are available in a wide range of capacities. An available single-point wiring kit makes installation simple.

Low voltage wiring connections are easily made due to the large terminal board which is located for quick, convenient access.

In addition, color-coded wires permit easy tracing and diagnostics.

Proven compressor reliability

Design techniques feature computer-programmed balance between compressor, condenser, and evaporator. Carrier-specified hermetic compressors are equipped with compressor overcurrent and overtemperature protection to ensure dependability.

All units have Carrier's exclusive Acutrol™ fixed orifice metering device which precisely controls refrigerant flow, preventing slugging and flood-back, while maintaining optimum unit performance. Refrigerant filter driers are standard.

Standard low ambient cooling operation to 25 F; optional head pressure control kit available for outdoor ambient conditions to –20 F.

Integrated economizers and outdoor-air dampers

Available as options or accessories, economizers and manual outdoor-air dampers introduce outdoor air which mixes with the conditioned air, improving indoor-air quality and often reducing energy consumption.

During a first stage call for cooling, if the outdoor-air temperature is below the economizer control changeover set point, the mixed-air sensor modulates the economizer outdoor-air damper open to take advantage of free cooling provided by the outside air. When second-stage cooling is called for, the compressor is energized in addition to the economizer. If the outdoor-air temperature is above the changeover set point, the first stage of compression is activated and the economizer damper stays at minimum position.

Accessory upgrade kits allow for control by differential dry-bulb temperature (outdoor vs return), outdoor air enthalpy changeover, or more precise differential enthalpy control.

Units can be equipped with different economizer options to meet specific controls applications. The factory or field-installed EconoMi$er+ and EconoMi$er2 are available. The EconoMi$er+ is used with the standard rooftop unit controls and includes a state-of-the-art, stand-alone, microprocessor-based control. The control can be used with a CO_2 sensor for DCV (demand control ventilation) operation. For direct digital control (DDC) applications, the EconoMi$er2 can be operated using PremierLink™ controls or a third party controller. The EconoMi$er2 includes 4 to 20 mA actuator capability for demand control ventilation applications.

All economizers incorporate a parallel blade, gear driven damper system for efficient air mixing and reliable control. In addition, the standard damper actuator includes a spring return to provide reliable closure on power loss. The economizers for sizes 004-012 are equipped with up to 100% barometric relief capability for high outdoor airflow operations. An optional field-installed barometric relief package is available for 014 and 016 size units.

In addition, single-stage power exhaust is available as a field-installed accessory for EconoMi$er+ to help maintain proper building pressure.

For units without economizer, year-round ventilation is enhanced by a manual outdoor-air damper. On size 004-012 units, a 25% or 50% manual damper is available as a field-installed accessory. Unit sizes 014 and 016 are equipped with a manual 25% damper.

Service options

Servicing a rooftop unit has never been easier with the new factory-installed service options for these rooftop units. These options include the following:

- Hinged access panels are provided for the filter/indoor-fan motor, compressors, indoor fan, and control box areas. Quick access to major components is accomplished by simply unlatching and swinging open the various panels. Each hinged panel is permanently mounted to the unit, thereby eliminating the concern of a dropped or wind-blown panel puncturing delicate roof materials. The 4 extended access panels are also equipped with ''tie back'' retaining devices to hold the door in the open position while servicing the unit.
- An external, covered, 115-v Ground Fault Interrupt (GFI) receptacle is provided as a convenient power source for drills, lights, refrigerant recovery units, or other electrical service tools. Simply connect the outlet to a field-supplied and properly fused branch circuit power supply.
- An integral non-fused disconnect switch within the rooftop unit reduces installation time, labor and material costs. Safety is assured by an interlock which prevents access to the control box unless the switch is in the OFF position. In addition, the externally mounted handle incorporates power lockout capability to further protect service personnel.

Carrier PremierLink controls add reliability, efficiency, and simplification

The PremierLink direct digital controls can be ordered as a factory-installed option or as a field-installed accessory. Designed and manufactured exclusively by Carrier, the controls can be used to actively monitor and control all modes of operations, as well as monitor the following diagnostics and features: unit number, zone temperature, zone set point, zone humidity set point, discharge air temperatures, fan status, stages of heating, stages of cooling, damper position, outdoor-air temperature, outdoor humidity level, filter status, fire shutdown status, IAQ (indoor air quality) set point, enthalpy status, differential enthalpy status, heat/cool lockout, cfm set point, pre-occupancy purge, economizer controls and early morning warm-up.

This controller has a 38.4K baud communications capability and is compatible with *Comfort*Link™ Controls,

Features/Benefits (cont)

CCN (Carrier Comfort Network) and ComfortVIEW™ Software. The Scrolling Marquee and Navigator are optional tools that can be used for programming and monitoring the unit for optimal performance. The addition of the Carrier CO_2 sensor in the conditioned space provides ASHRAE (American Society of Heating, Refrigeration, and Air Conditioning Engineers) 62-99 compliance and Demand Control Ventilation.

The PremierLink™ peer-to-peer, internet ready, communicating control is designed specifically for Constant Volume and Variable Volume and Temperature applications. This comprehensive controls system allows all Carrier 3 to 25 ton rooftops to be daisy chained together on a roof to create a fully functional HVAC (heating, ventilation, and air conditioning) automation system.

Indoor-air quality begins with Carrier rooftops

Sloped condensate pans minimize biological growth in rooftop units in accordance with ASHRAE Standard 62. Two-inch filters with optional dirty filter indicator switch provide for greater particle reduction in the return air. The face-split evaporator coils improve the dehumidification capability of standard units, maximize building humidity control.

Optional proportional reacting CO_2 sensor is available with the EconoMi$er+ outdoor air damper option/accessory to aid the IAQ benefits.

Energy$Recycler — the IAQ solution for today's "tight" buildings

Indoor-air quality (IAQ) generally refers to the level of pollutants inside a building. These pollutants include cigarette smoke, carbon dioxide exhaled by occupants, radon gas, car exhaust, paint fumes, and odors.

Concern over increased indoor air pollutants has been spurred by several issues: 1) changes in new building construction methods and retrofit of older buildings have reduced air infiltration rates; 2) Synthetic materials release airborne particles, odors, and chemicals; and 3) HVAC (heating, ventilation, and air conditioning) systems that bring in minimal fresh air.

In 1989, IAQ concerns caused ASHRAE to recommend increased ventilation for all public buildings. Simply introducing fresh air into a building, however, is not always practical or cost effective. Additional ventilation can overload HVAC systems and increase energy costs.

Carrier's 62AQ Energy$Recycler unit solves this dilemma by providing increased fresh air while keeping increased costs to a minimum. In addition, the Energy$Recycler helps reduce humidity levels, which helps to prevent deterioration of building materials and retards the growth of mold and mildew.

The 62AQ Energy$Recycler unit provides the best solution to retaining the energy-conserving benefits of today's tighter building construction while improving indoor-air quality.

The Energy$Recycler can be integrally mounted in the size 004-012 units or free standing for all units.

Model number nomenclature

50TFQ004-012

50 TFQ 004 P - - 5 0 1 AA

50 – Electric Cooling

TFQ – Standard Efficiency Heat Pump

Nominal Capacity
004 – 3 Tons
005 – 4 Tons
006 – 5 Tons
007 – 6 Tons
008 – 7 1/2 Tons
009 – 8 1/2 Tons
012 – 10 Tons

Factory-Installed Communicating Control
- – Standard
N – Novar ETM3051 Control
P – Carrier PremierLink™ Rooftop Controller
For more information about Novar Control option, check with your sales representative.

Factory Installed Option Code*

Packaging
1 – Domestic
3 – Export

Design Series
0 – Original

V-Ph-Hz
1 – 575-3-60
3 – 208/230-1-60†
5 – 208/230-3-60
6 – 460-3-60

Coil Protection Options
- – Copper Tube/Aluminum Fin (Both Outdoor and Indoor Coils)
B – Copper Tube/Copper Fin (Both Outdoor and Indoor Coils)
C – Copper Tube/Copper Fin (Outdoor Coil Only)
E – E-Coat Copper Tube/Aluminum Fin (Both Outdoor and Indoor Coils)
F – E-Coat Copper Tube/Aluminum Fin
G – E-Coat Copper Tube/Copper Fin (Outdoor Coil Only)
V – Pre-coated Aluminum Tube/Copper Fin (Outdoor Coil Only)

Indoor Fan Motor
- – Standard Fan Motor
A – Alternate Fan Motor/Drive
M – High-Static Fan Motor

*Refer to 50TFQ Price Pages or contact your local Carrier representative for 50TFQ code table.
†Single phase is only available on 5-ton and smaller units.

Quality Assurance

Carrier Corporation UL REGISTERED FIRM ISO 9001:2000 #A2325

Model number nomenclature (cont)

50HJQ004-012

50 HJQ 004 P - - 3 1 1 A A

50 – Electric Cooling

HJQ – High Efficiency Heat Pump

Nominal Capacity
004 – 3 Tons
005 – 4 Tons
006 – 5 Tons
007 – 6 Tons
008 – 7 1/2 Tons
009 – 8 1/2 Tons
012 – 10 Tons

Controls and Sensors
– – None
G – Hinged Access Panels
H – Hinged Panels & PremierLink
N – Novar ETM3051 Control
P – PremierLink DDC Control
R – Novar ETM3051 & Hinged Panels

Indoor Motor Options
– – Standard Motor and Drive
M – High Static Motor

FIOP Code*

Packaging
1 – Domestic Unit
3 – Export

1 – Revision Number

V-Ph-Hz
3 – 208/230-1-60
5 – 208/230-3-60
6 – 460-3-60

Coil Options
– – Aluminum Fin/Copper Tube (Indoor and Outdoor Coils)
B – Copper Fin/Copper Tube (Indoor and Outdoor Coils)
C – Copper Fin/Copper Tube (Outdoor Coil) and Aluminum Fin/Copper Tube (Indoor Coil)
E – E-Coated Aluminum Fin/Copper Tube (Indoor and Outdoor Coils)
F – E-Coated Aluminum Fin/Copper Tube (Outdoor Coil) and Aluminum Fin/Copper Tube (Indoor Coil)
G – E-Coated Copper Fin/Copper Tube (Outdoor Coil) and Aluminum Fin/Copper Tube (Indoor Coil)
V – Pre-Coated Aluminum Fin/Copper Tube (Outdoor Coil) and Aluninum Fin/Copper Tube (Indoor Coil)

*Refer to 50HJQ Price Pages for FIOP (factory-installed option) code table.

Quality Assurance

Carrier Corporation UL REGISTERED FIRM ISO 9001:2000 #A2325

50HJQ014,016

50 HJQ 016 - - C 6 2 1 YA

50 – Electric Cooling

HJQ – High Efficiency Heat Pump

Normal Capacity
014 – 12 1/2 Tons
016 – 15 Tons

Service/Control Options
- – Standard Controls
G – Service Option with 6 Hinged Access Panels, Non-Fused Disconnect, and Non-Powered 115-v GFI Convenience Outlet
J – Hinged Access Panels

Fan Drive Motor
- – Standard Motor

Factory Installed Option Code*

Packaging
1 – Domestic
3 – Export

Design Series
2 – Gear Driven EconoMi$er+ Design Change

Voltage Designation
1 – 575-3-60
5 – 208/230-3-60
6 – 460-3-60

Coil Protection Options
- – Al/Cu Outdoor & Indoor Coils
B – Cu/Cu Outdoor & Indoor Coils
C – Cu/Cu Outdoor & Al/Cu Indoor Coils
F – E-Coated Al/Cu Outdoor
G – E-Coated Cu/Cu Outdoor
V – Pre-coated Outdoor Coil

*Refer to 50HJQ price pages or contact your local Carrier representative for 50HJQ code table.

Quality Assurance

Carrier Corporation UL REGISTERED FIRM ISO 9001:2000 #A2260

BSI REGISTERED FIRM

Certificate No FM 21837

Approvals:

ISO 9001

EN 9000:2000

ARI* capacity ratings

ARI* CAPACITY RATINGS — 50TFQ004-006

UNIT 50TFQ	NOMINAL TONS	COOLING			HEATING (High Temp)		SOUND RATING (decibels)
		Net Capacity (Btuh)	SEER†		Capacity (Btuh)	HSPF	
			Belt Drive	Direct Drive			
004	3	35,600	10.20	10.00	34,400	6.7	84
005	4	46,500	10.00	9.70	46,500	7.0	80
006	5	57,000	10.00	9.90	57,000	7.5	82

ARI* CAPACITY RATINGS — 50TFQ007-012

UNIT 50TFQ	NOMINAL TONS	COOLING		HEATING (High)		HEATING (Low)		IPLV**	SOUND RATING (decibels)
		Net Capacity (Btuh)	EER	Capacity (Btuh)	COP	Capacity (Btuh)	COP		
007	6	70,000	9.05	72,400	3.20	42,000	2.14	—	82
008	7 1/2	86,000	9.00	78,000	3.00	39,000	1.80	9.3	86
009	8 1/2	96,000	8.90	96,000	3.00	55,000	2.00	8.85	86
012	10	112,000	9.00	105,000	3.10	59,000	2.00	9.0	84

LEGEND

COP — Coefficient of Performance
db — dry bulb
EER — Energy Efficiency Ratio
HSPF — Heating Seasonal Performance Factor
IPLV — Integrated Part-Load Values
SEER — Seasonal Energy Efficiency Ratio
wb — wet bulb

*Air Conditioning and Refrigeration Institute.
†Applies only to units with capacity of 60,000 Btuh or less.
**The IPLV applies only to 2-stage cooling heat pump units.

NOTES:
1. Rated in accordance with ARI Standards 210/240-95 and 270-95.
2. Ratings are net values, reflecting the effects of circulating fan heat.
3. ALL the 50HJQ and 50TFQ004,005 and 006 units are in compliance with ASHRAE 90.1 2001 Energy Standard for minimum SEER and EER requirements. Refer to state and local codes or visit the following website: http://solstice.crest.org/efficiency/bcap to determine if compliance with this standard pertains to a given geographical area of the United States.
4. 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.
High-Temp Heating Standard: 70 F db indoor entering-air temperature and 47 F db, 43 F wb outdoor entering-air temperature.
Low-Temp Heating Standard: 70 F db indoor entering-air temperature and 17 F db, 15 F wb outdoor entering-air temperature.

ARI* capacity ratings (cont)

ARI* CAPACITY RATINGS — 50HJQ004-006

UNIT 50HJQ	NOMINAL TONS	COOLING		HEATING (High Temp)		SOUND RATING (decibels)
		Net Cap. (Btuh)	SEER†	Cap. (Btuh)	HSPF†	
004	3	35,600	13.1	34,800	7.7	76
005	4	45,000	13.0	45,000	7.8	76
006	5	58,000	13.0	55,000	7.7	80

ARI* CAPACITY RATINGS — 50HJQ007-012

UNIT 50HJQ	NOMINAL TONS	COOLING		HEATING (High)		HEATING (Low)		SOUND RATING (decibels)	IPLV
		Net Cap. (Btuh)	EER	Cap. (Btuh)	COP	Cap. (Btuh)	COP		
007	6	71,000	10.5	69,000	3.4	37,000	2.2	80	—
008	7 1/2	88,000	10.3	85,000	3.3	48,000	2.2	82	10.5
009	8 1/2	98,000	10.3	96,000	3.3	52,000	2.2	110	12.7 (100%) 10.4 (50%)
012	10	116,000	10.3	114,000	3.3	64,000	2.2	84	10.4

LEGEND

Cap. — Net Capacity (Btuh)
COP — Coefficient of Performance
EER — Energy Efficiency Ratio
HSPF — Heating Seasonal Performance Factor
IPLV — Integrated Part-Load Values
SEER — Seasonal Energy Efficiency Ratio

*Air Conditioning and Refrigeration Institute.
†Applies only to units with capacity of 60,000 Btuh or less.

NOTE: Rated in accordance with ARI Standard 210/240-94 and 270-95. Ratings are net values, reflecting effects of circulating fan heat. Supplementary electric heat is not included. Ratings based on:

Cooling Standard: 80 F db (dry bulb), 67 F wb (wet bulb) indoor entering-air temperature and 95 F db outdoor entering-air temperature.

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

High-Temp Heating Standard: 70 F db indoor entering-air temperature and 47 F db, 43 F wb outdoor entering-air temperature.

Low-Temp Heating Standard: 70 F db indoor entering-air temperature and 17 F db, 15 F wb outdoor entering-air temperature.

ALL the 50HJQ and 50TFQ004,005 and 006 units are in compliance with ASHRAE 90.1 2001 Energy Standard for minimum SEER and EER requirements. Refer to state and local codes or visit the following website: http://solstice.crest.org/efficiency/bcap to determine if compliance with this standard pertains to a given geographical area of the United States.

ARI* CAPACITY RATINGS —50HJQ014,016 UNITS

UNIT 50HJQ	COOLING					HEATING-HIGH TEMP			HEATING-LOW TEMP			SOUND RATING (decibels)
	Total kW	Net Capacity (Btuh)	Cfm	IPLV	EER	Total Capacity (Btuh)	Total kW	COP	Total Capacity (Btuh)	Total kW	COP	
014	14.3	140,000	4500	12.4	9.8	136,000	12.4	3.2	72,000	10.0	2.1	87
016	18.5	172,000	5200	9.7	9.3	172,000	15.3	3.3	90,000	12.5	2.2	88

LEGEND

COP — Coefficient of Performance
db — Dry Bulb
EER — Energy Efficiency Ratio
ESP — External Static Pressure
IPLV — Integrated Part-Load Value
wb — Wet Bulb

*Air-Conditioning and Refrigeration Institute.

NOTE: 50HJQ units are rated in accordance with ARI Standard 340-93.

Cooling ratings are net values, reflecting the effects of circulating fan heat. Ratings are based on:
ESP: –.35 in. wg

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

High-Temp Heating Standard: 70 F db indoor coil entering-air temperature and 47 F db, 43 F wb outdoor coil entering-air temperature.

Low-Temp Heating Standard: 70 F db indoor coil entering-air temperature and 17 F db, 15 F wb outdoor coil entering-air temperature.

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

ALL the 50HJQ and 50TFQ004,005 and 006 units are in compliance with ASHRAE 90.1 2001 Energy Standard for minimum SEER and EER requirements. Refer to state and local codes or visit the following website: http://solstice.crest.org/efficiency/bcap to determine if compliance with this standard pertains to a given geographical area of the United States.

Options and accessories

50TFQ004-012

ITEM	OPTION*	ACCESSORY†
100% Open Two-Position Damper		X
25% Open Two-Position Damper		X
Alternate Motors and Drives	X	X
Convenience Outlet (Load Side)	X	
Copper Fins Indoor and Outdoor Coil	X	
Copper Fins Outdoor Coil	X	
E-Coat Outdoor Coil (Aluminum)	X	
E-Coat Outdoor Coil (Copper)	X	
EconoMi$er+ with Controller	X	X
EconoMi$er+ 5-Pin Plug (required for Remote Potentiometer and IAQ Sensor)		X
EconoMi$er+ or EconoMi$er2 575-V Transformer		X
EconoMi$er2 (without Controller)	X	X
Electric Heat		X
Electronic Programmable Thermostat		X
Emergency Heat Package		X
Energy$Recycler Mounting Kit		X
Energy$Recycler Supply Air Blower		X
Energy$Recycler Transformer for 460 v		X
Energy$Recycler Transformer for 575 v		X
Energy$Recycler Unit	X	X
Enthalpy or Differential Enthalpy Sensor (EconoMi$er2)		X
Fan/Filter Status		X
High-Static Motor and Drive	X	
Hinged Panel Kit for Economizer		X
Indoor Air Quality (CO_2) Sensor (EconoMi$er+ or EconoMi$er2 Only)		X
Manual Outdoor-Air Damper (50% or 100%)		X
Motormaster® I, II, IV Head Pressure Control (Low Ambient Kit)		X
Novar Control	X	
Outdoor Air Enthalpy Sensor (EconoMi$er2 Only)		X
Outdoor Air Humidity Sensor (EconoMi$er+ Only)		X
Outdoor Air/Return Air Temperature Sensor		X
Outdoor Coil Grille		X
Outdoor Coil Hail Guard Assembly		X
Power Exhaust Transformer for 575 v		X
Power Exhaust with Barometric Relief		X
Pre-coat Aluminum Fins on Outdoor Coil	X	
PremierLink™ DDC Communicating Control	X	X
Return Air Enthalpy Sensor (EconoMi$er2 Only)		X
Return Air Humidity Sensor (EconoMi$er+ Only)		X
Return Air Temperature Sensor (EconoMi$er+ or EconoMi$er2 Only)		X
Roof Curbs (Vertical and Horizontal Discharge)		X
Thermostats and Subbases		X
Thru-the-Bottom Utility Connections		X
Time Guard II Control Circuit (Compressor Cycle Delay)		X
Unit-Mounted Non-Fused Disconnect	X	

*Factory-installed.
†Field-installed.

NOTES:
1. Refer to unit price pages or contact your local representative for accessory and option package information.
2. Some options may increase product lead times.

Options and accessories (cont)

50HJQ004-012

ITEM	OPTION*	ACCESSORY†
100% Open Two-Position Damper		X
25% Open Two-Position Damper		X
Alternate Motors and Drives	X	X
Convenience Outlet (Load Side)	X	
Copper Fins Indoor and Outdoor Coil	X	
Copper Fins Outdoor Coil	X	
E-Coat Outdoor Coil (Aluminum)	X	
E-Coat Outdoor Coil (Copper)	X	
EconoMi$er+ with Controller	X	X
EconoMi$er+ 5-Pin Plug (required for Remote Potentiometer and IAQ Sensor)		X
EconoMi$er+ or EconoMi$er2 575-V Transformer		X
EconoMi$er2 (without Controller)	X	X
Electric Heat		X
Electronic Programmable Thermostat		X
Emergency Heat Package		X
Energy$Recycler Mounting Kit		X
Energy$Recycler Supply Air Blower		X
Energy$Recycler Transformer for 460 v		X
Energy$Recycler Transformer for 575 v		X
Energy$Recycler Unit	X	X
Fan/Filter Status		X
Hinged Access Panels	X	
Hinged Panel Kit for Economizer		X
Indoor Air Quality (CO_2) Sensor (EconoMi$er+ or EconoMi$er2 Only)		X
Manual Outdoor-Air Damper		X
Motormaster® I, II, IV Head Pressure Control (Low Ambient Kit)		X
Novar Control	X	
Outdoor Air Enthalpy Sensor (EconoMi$er2 Only)		X
Outdoor Air Humidity Sensor (EconoMi$er+ Only)		X
Outdoor Coil Grille		X
Outdoor Coil Hail Guard Assembly		X
Outdoor Air/Return Air Temperature Sensor		X
Power Exhaust Transformer for 575 v		X
Power Exhaust with Barometric Relief		X
Pre-coat Aluminum Fins on Outdoor Coil	X	
PremierLink™ DDC Communicating Control	X	X
Return Air Enthalpy Sensor (EconoMi$er2 Only)		X
Return Air Humidity Sensor (EconoMi$er+ Only)		X
Return Air Temperature Sensor (EconoMi$er+ or EconoMi$er2 Only)		X
Roof Curbs (Vertical and Horizontal Discharge)		X
Thermostats and Subbases		X
Thru-the-Bottom Utility Connections		X
Time Guard II Control Circuit (Compressor Cycle Delay)		X
Unit-Mounted Non-Fused Disconnect	X	

*Factory-installed.
†Field-installed.

NOTES:
1. Refer to unit price pages or contact your local representative for accessory and option package information.
2. Some options may increase product lead times.

ITEM	OPTION*	ACCESSORY†
25% Open Two-Position Damper		X
Alternate Motors and Drives	X	X
Barometric Relief Damper (Not for use with horizontal roof curb)		X
Convenience Outlet (Load Side)	X	
Copper Fins Indoor and Outdoor Coil	X	
Copper Fins Outdoor Coil	X	
E-Coat Outdoor Coil (Aluminum)	X	
E-Coat Outdoor Coil (Copper)	X	
EconoMi$er+ with Controller	X	X
EconoMi$er+ 5-Pin Plug (required for Remote Potentiometer and IAQ Sensor)		X
EconoMi$er+ or EconoMi$er2 575-V Transformer		X
EconoMi$er2 (without Controller)	X	X
Electric Heat		X
Electronic Programmable Thermostat		X
Emergency Heat Package		X
Fan/Filter Status		X
Hinged Access Panels	X	
Horizontal Adapter Curb		X
Hinged Panel Kit for Economizer		X
Hydronic Glycol Coil		X
Indoor Air Quality (CO_2) Sensor (EconoMi$er+ or EconoMi$er2 Only)		X
Manual Outdoor-Air Damper		X
Motormaster® V Head Pressure Control (Low Ambient Kit)		X
Novar Control	X**	
Outdoor Air Enthalpy Sensor (EconoMi$er2 Only)		X
Outdoor Air Humidity Sensor (EconoMi$er+ Only)		X
Power Exhaust without Barometric Relief		X
Pre-coat Aluminum Fins on Outdoor Coil	X	
PremierLink™ DDC Communicating Control	X**	X
Return Air Enthalpy Sensor (EconoMi$er2 Only)		X
Return Air Humidity Sensor (EconoMi$er+ Only)		X
Return Air Temperature Sensor (EconoMi$er+ or EconoMi$er2 Only)		X
Roof Curbs (Vertical and Horizontal Discharge)		X
Thermostats and Subbases		X
Time Guard II Control Circuit (Compressor Cycle Delay)		X
Unit-Mounted Non-Fused Disconnect	X**	
Winter Start Time Delay		X

*Factory-installed.
†Field-installed.
**DEC special order only.

NOTES:
1. Refer to unit price pages or contact your local representative for accessory and option package information.
2. Some options may increase product lead times.

Options and accessories (cont)

Carrier PremierLink™ controls are available as a factory-installed option or as a field-installed accessory. The controls can be used to actively monitor and control all modes of operations.

Roof curbs (horizontal and vertical) permit installation and securing of ductwork to curb prior to mounting unit on the curb. Both 14-in. and 24-in. roof curbs are available as field-installed accessories.

**EconoMi$er+** is available as a factory-installed option in vertical supply/return configuration only. (EconoMi$er+ is available as a field-installed accessory for horizontal and/or vertical supply return configurations.) The EconoMi$er+ is provided with a stand-alone microprocessor controller for non-DDC applications. EconoMi$er+ is equipped with a barometric relief damper capable of relieving up to 100% return air. Dry bulb outdoor-air temperature sensor is provided as standard. The return air sensor, indoor humidity sensor, and outdoor humidity sensor are provided as field-installed accessories to provide enthalpy control, differential enthalpy control, and differential dry bulb temperature control.

EconoMi$er2 is available as a factory-installed option in vertical supply/return configuration only. (EconoMi$er2 is available as a field-installed accessory for horizontal and/or vertical supply return configurations.) The EconoMi$er2 is provided without a controller for use with factory-installed PremierLink™ controls or field-installed third-party controls. EconoMi$er2 is equipped with a barometric relief damper capable of relieving up to 100% return air. Dry bulb outdoor-air temperature sensor is provided as standard. The enthalpy, differential temperature (adjustable), and differential enthalpy control are provided as field-installed accessories. The EconoMi$er2 is capable of control from a 4 to 20 mA signal through optional 4 to 20 mA design without microprocessor control (required for PremierLink or third party control interface).

Manual outdoor-air damper accessory can be preset to admit up to 50% outdoor air for year round ventilation.

Two-position damper package is available as an accessory. Both 25% or 100% outdoor air dampers are available.

Head pressure control (Motormaster) accessory package maintains condensing temperature between 90 F and 110 F at outdoor ambient temperatures down to –20 F by condenser-fan speed modulation or condenser-fan cycling and wind baffles.

Electric resistance heaters are UL listed and available to match heating requirements. Single point kits available for each heater when required. Heaters are field-installed accessories.

Unit-mounted, non-fused disconnect switch provides unit power shutoff. The switch is accessible from outside the unit and provides power off lockout capability and is available as factory-installed option.

Convenience outlet is factory-installed and internally mounted with easily accessible 115-v female receptacle.

Compressor cycle delay (Time Guard II) prevents unit from restarting for minimum of 5 minutes after shutdown.

Thru-the-bottom utility connectors permit electrical connections to be brought to the unit through the basepan. Connectors are a field-installed accessory.

Fan/filter status switch accessory provides status of indoor (evaporator) fan (ON/ OFF) or filter (CLEAN/ DIRTY).

Energy$Recycler unit recovers energy from building exhaust air and pre-conditions ventilation air to allow higher ventilation requirements and minimizing energy cost. Energy$Recycler unit is a field-installed accessory.

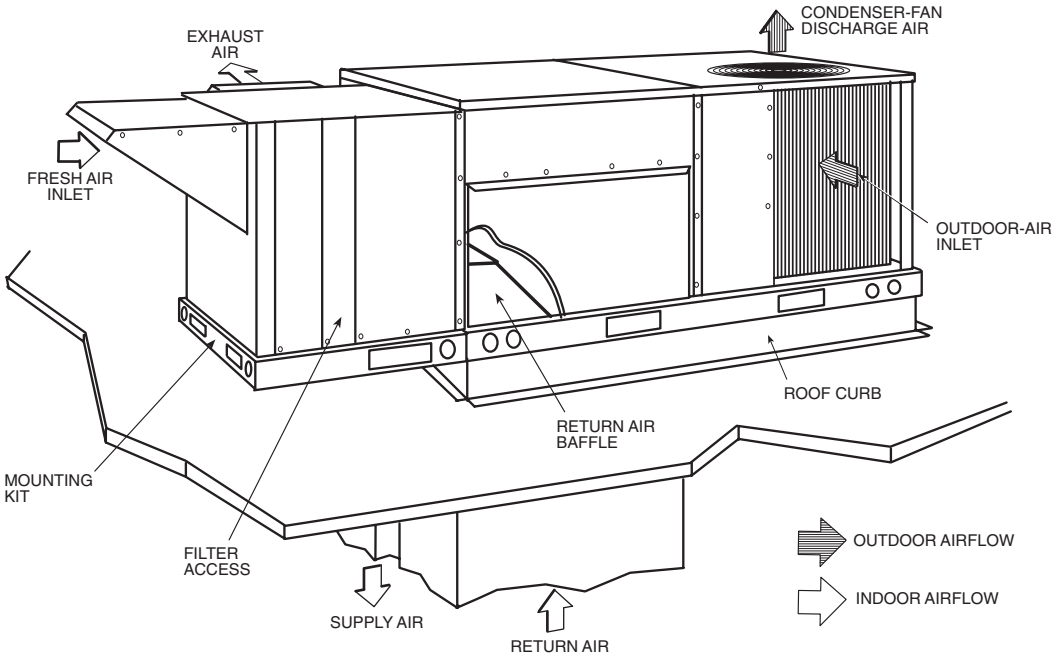
Power exhaust accessory will provide system exhaust of up to 100% of return air (vertical only). The power exhaust is a field-installed accessory (separate vertical and horizontal design).

Ultra-violet germicidal lamps eliminate odor causing mold and fungus that may develop in the wet area of the evaporator section of the unit. The high output, low temperature germicidal lamps are field installed in the evaporator section of the unit, aimed at the evaporator coil and condensate pan.

Hinged panel option provides hinged access panels for the filter, compressor, evaporator fan, and control box areas. Filter hinged panels permit tool-less entry for changing filters. Each hinged panel is permanently attached to the rooftop unit and is a factory-installed option.

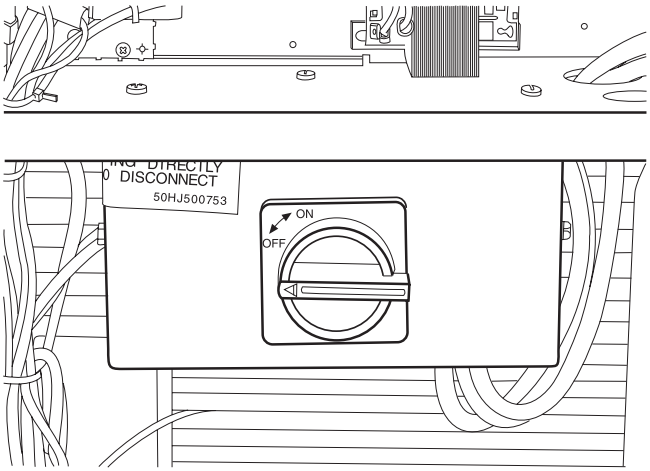
Emergency heat control package accessory activates auxiliary heat when necessary if mechanical heating is locked out.

ACCESSORY ENERGY$RECYCLER (3 TO 12 1/2 TON UNITS ONLY)

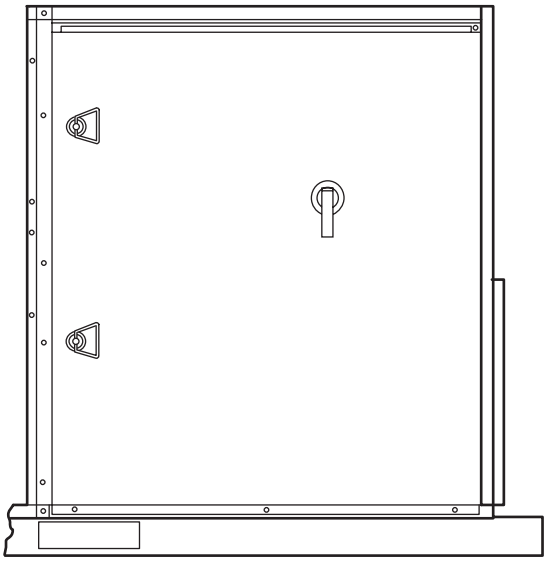


Options and accessories (cont)

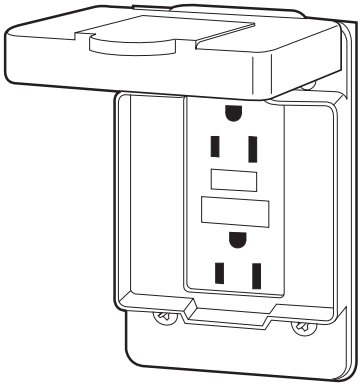
UNIT-MOUNTED DISCONNECT (Sizes 004-014)

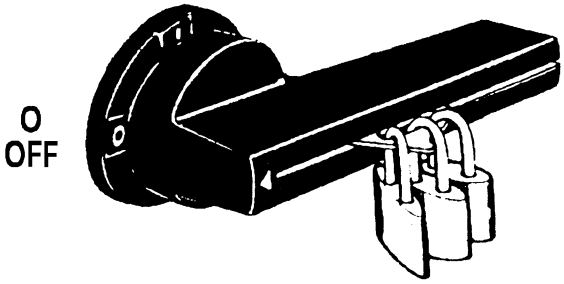


UNIT-MOUNTED DISCONNECT (Sizes 014,016)

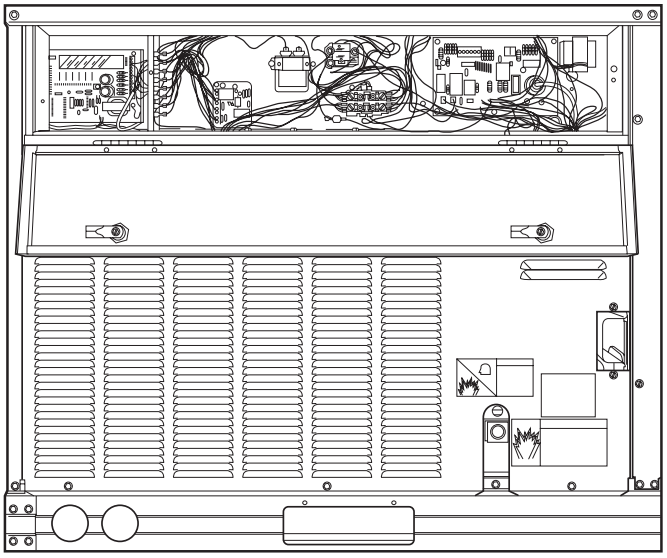


CONVENIENCE OUTLET

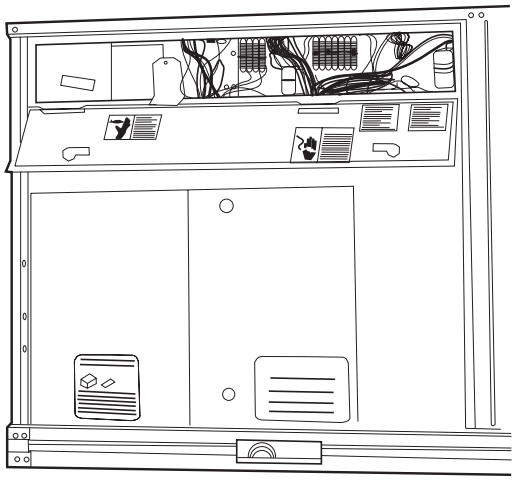




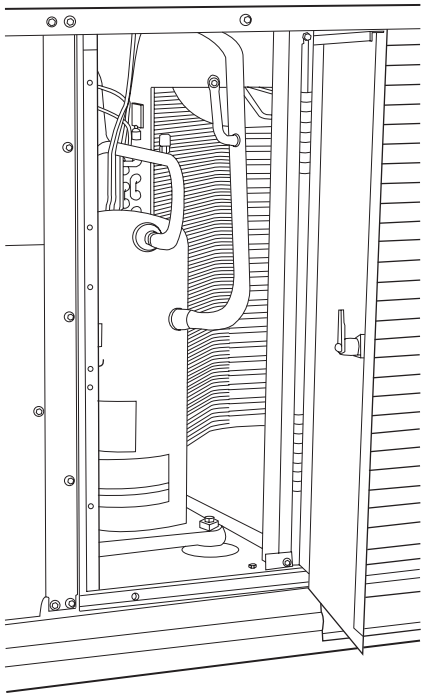
CONTROL BOX HINGED PANEL OPTION, 50HJQ004-007 UNITS SHOWN



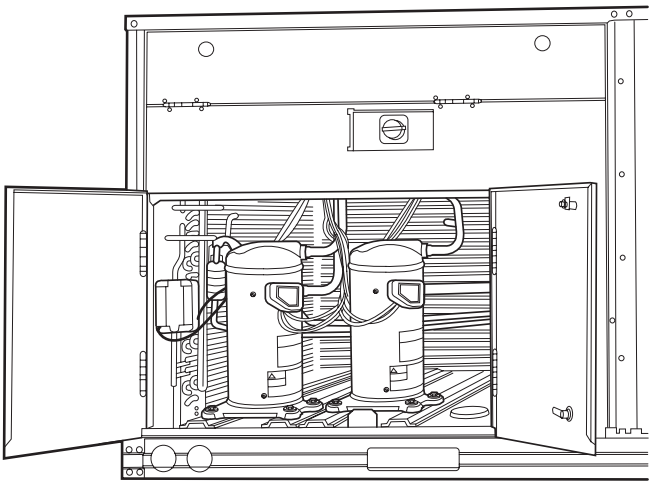
CONTROL BOX HINGED PANEL OPTION, 50HJQ008-012 UNITS SHOWN



COMPRESSOR HINGED PANEL OPTION, 50HJQ004-006 UNITS SHOWN



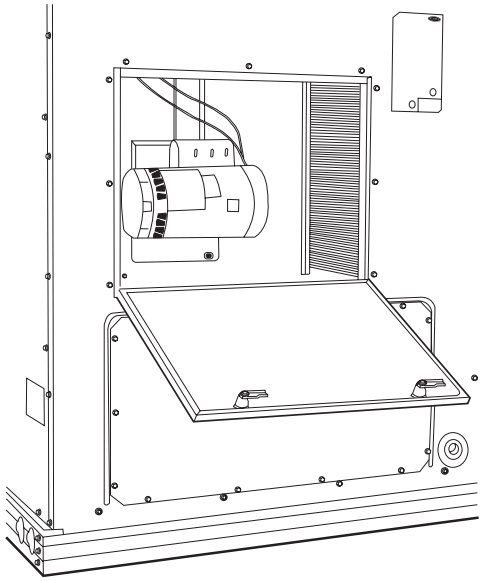
COMPRESSOR HINGED PANEL OPTION, 50HJQ008-012 UNITS SHOWN



NOTE: Hinged access panels are not available on 50TFQ units.

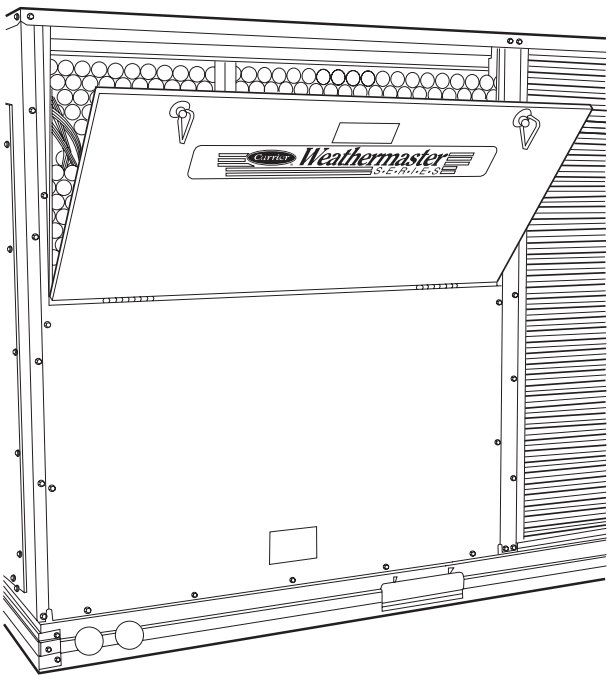
Options and accessories (cont)

EVAPORATOR-FAN HINGED PANEL OPTION



NOTE: Hinged access panels are not available on 50TFQ units.

FILTER HINGED PANEL OPTION



Physical data — 50TFQ004-007

UNIT SIZE 50TFQ		004	005	006	007
NOMINAL CAPACITY (tons)		3	4	5	6
OPERATING WEIGHT (lb)					
Unit		500	520	550	590
Economizer					
EconoMi$er+		50	50	50	50
Roof Curb*		115	115	115	115
COMPRESSOR		Hermetic			
Quantity		1	1	1	1
Oil (oz)		45	54	50	54
REFRIGERANT TYPE		R-22			
Operating Charge (lb-oz)					
Circuit 1		5-1	6-0	8-0	11-2
Circuit 2		—	—	—	—
OUTDOOR COIL		Enhanced Copper Tubes, Aluminum Lanced Fins, Acutrol™ Metering Device			
Rows...Fins/in.		1...17	1...17	2...17	2...17
Total Face Area (sq ft)		10.31	14.58	12.25	16.53
OUTDOOR FAN		Propeller Type			
Nominal Cfm		4000	4000	4000	4000
Quantity...Diameter (in.)		1...22.0	1...22.0	1...22.0	1...22.0
Motor Hp...Rpm		1/4...1100	1/4...1100	1/4...1100	1/4...1100
Watts Input (Total)		325	325	325	325
INDOOR COIL		Enhanced Copper Tubes, Aluminum Double-Wavy Fins, Acutrol Metering Device			
Rows...Fins/in.		2...15	2...15	3...15	3...15
Total Face Area (sq ft)		4.2	4.2	5.5	5.5
INDOOR FAN		Centrifugal Type			
Quantity...Size (in.)	Std	1...10 x 10	1...10 x 10	1...11 x 10	1...10 x 10
	Alt	1...10 x 10	1...10 x 10	1...10 x 10	—
	High-Static	1...10 x 10	1...10 x 10	1...10 x 10	1...10 x 10
Type Drive	Std	Direct	Direct	Direct	Belt
	Alt	Belt	Belt	Belt	—
	High-Static	Belt	Belt	Belt	Belt
Nominal Cfm		1200	1600	2000	2400
Maximum Continuous Bhp	Std	.34	.75	1.20	2.40
	Alt	1.00	1.00	1.30/2.40†	—
	High-Static	2.40	2.40	2.90	2.90
Motor Frame Size	Std	48	48	48	56
	Alt	48	48	56	—
	High-Static	56	56	56	56
Nominal Rpm High/Low	Std	860/800	1075/970	1075/970	—
	Alt	1620	1620	1725	—
	High-Static	1725	1725	1725	1725
Fan Rpm Range	Std	—	—	—	1070-1460
	Alt	760-1000	770-1175	878-1192	—
	High-Static	1075-1455	1075-1455	1300-1685	1300-1685
Motor Bearing Type		Ball	Ball	Ball	Ball
Maximum Allowable Rpm		2100	2100	2100	2100
Motor Pulley Pitch Diameter Min/Max (in.)	Std	—	—	—	2.8/3.8
	Alt	1.9/2.9	1.9/2.9	2.4/3.4	—
	High-Static	2.8/3.8	2.8/3.8	3.4/4.4	3.4/4.4
Nominal Motor Shaft Diameter (in.)	Std	1/2	1/2	1/2	5/8
	Alt	1/2	1/2	5/8	—
	High-Static	5/8	5/8	5/8	5/8
Fan Pulley Pitch Diameter (in.)	Std	—	—	—	4.5
	Alt	4.5	4.0	4.5	—
	High-Static	4.5	4.5	4.5	4.5
Belt, Quantity...Type...Length (in.)	Std	—	—	—	1...A...40
	Alt	1...A...34	1...A...34	1...A...39	—
	High-Static	1...A...39	1...A...39	1...A...40	1...A...40
Pulley Center Line Distance (in.)	Std	—	—	—	14.7-15.5
	Alt	10.0-12.4	10.0-12.4	14.7-15.5	—
	High-Static	10.0-12.4	10.0-12.4	14.7-15.5	14.7-15.5
Speed Change per Full Turn of Movable Pulley Flange (rpm)	Std	—	—	—	80
	Alt	48	70	80	—
	High-Static	65	65	60	60
Movable Pulley Maximum Full Turns From Closed Position	Std	—	—	—	5
	Alt	5	5	6	—
	High-Static	6	6	5	5
Factory Setting	Std	—	—	—	3
	Alt	3	3	3	—
	High-Static	3 1/2	3 1/2	3 1/2	3 1/2
Factory Speed Setting (rpm)	Std	—	—	—	1225
	Alt	856	932	1035	—
	High-Static	1233	1233	1416	1416
Fan Shaft Diameter at Pulley (in.)		5/8	5/8	5/8	5/8
HIGH-PRESSURE SWITCH (psig)					
Standard Compressor Internal Relief (Differential)		450 ± 50			
Cutout		428			
Reset (Auto.)		320			
LOSS-OF-CHARGE SWITCH (psig)					
Cutout		7 ± 3			
Reset (Auto.)		22 ± 7			
FREEZE-PROTECTION THERMOSTAT (F)					
Opens		30 ± 5			
Closes		45 ± 5			
OUTDOOR-AIR INLET SCREENS		Cleanable. Quantity and size depend on options selected.			
RETURN-AIR FILTERS		Throwaway			
Quantity...Size (in.)		2...16 x 25 x 2			

LEGEND

Bhp — Brake Horsepower

*Weight of 14-in. roof curb.
†Single phase/three phase.

NOTE: The 50TFQ units have a loss-of-charge switch located in the liquid line.

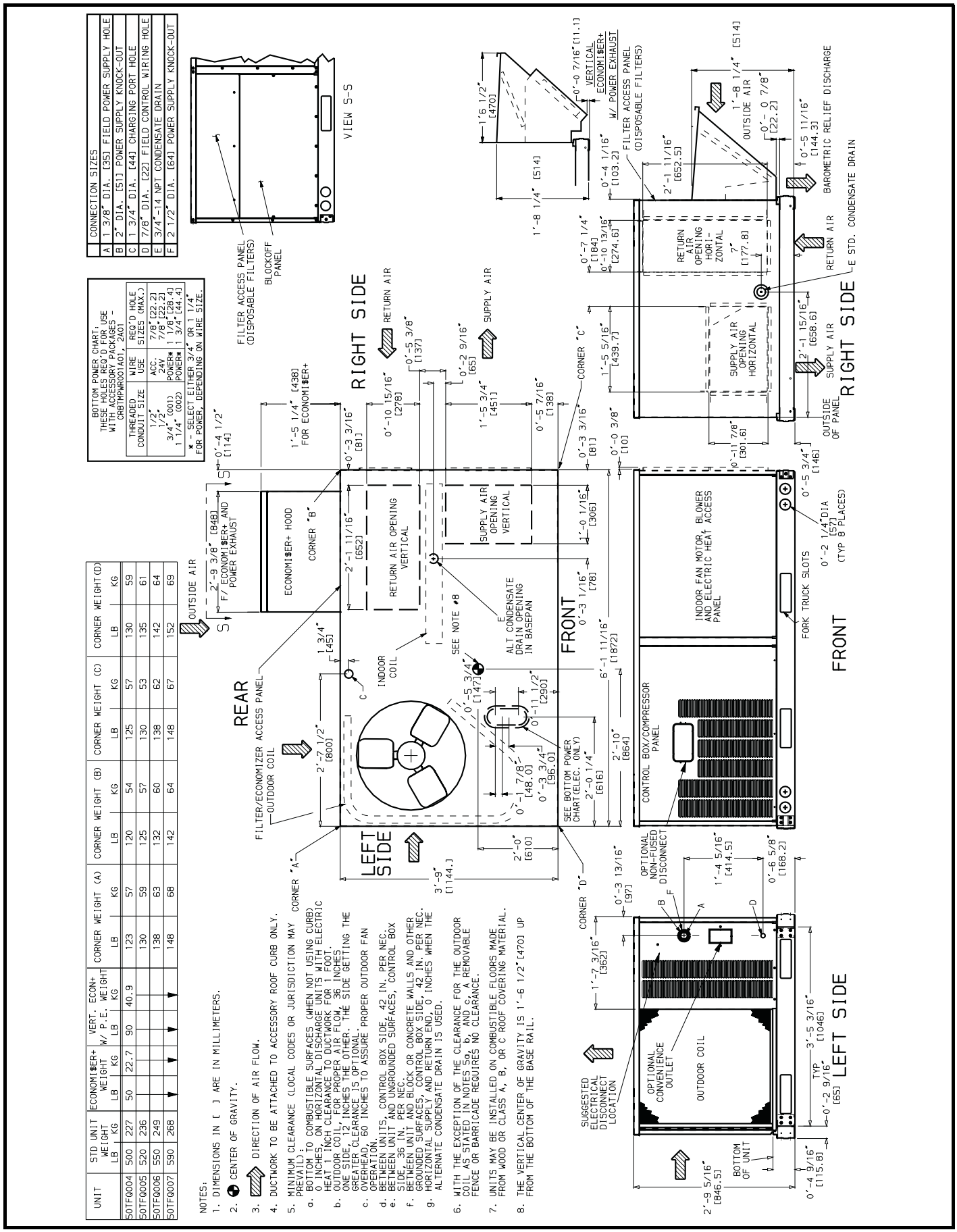
Physical data — 50TFQ008-012

UNIT SIZE 50TFQ		008	009	012
NOMINAL CAPACITY (tons)		7 1/2	8 1/2	10
OPERATING WEIGHT (lb)				
Unit		940	965	1015
Economizer				
EconoMi$er+		75	75	75
Roof Curb*		143	143	143
COMPRESSOR (Hermetic)		Reciprocating		Scroll
Quantity		2	2	2
Oil (oz)		45 ea	54 ea	54 ea
REFRIGERANT TYPE		R-22		
Operating Charge (lb-oz)				
Circuit 1		5-14	8- 6	7-14
Circuit 2		5-13	8-13	8- 3
OUTDOOR COIL		Enhanced Copper Tubes, Aluminum Lanced Fins, Acutrol™ Metering Device		
Rows...Fins/in.		1...17	2...17	2...17
Total Face Area (sq ft)		20.50	18.00	18.30
OUTDOOR FAN		Propeller Type		
Nominal Cfm		6500	6500	6500
Quantity...Diameter (in.)		2...22	2...22	2...22
Motor Hp...Rpm		1/4...1100	1/4...1100	1/4...1100
Watts Input (Total)		500	500	500
INDOOR COIL		Enhanced Copper Tubes, Aluminum Double-Wavy Fins, Acutrol Metering Device		
Rows...Fins/in.		3...15	3...15	3...15
Total Face Area (sq ft)		8.0	8.0	11.1
INDOOR FAN		Centrifugal Type		
Quantity...Size (in.)	**Std**	1...15 x 15	1...15 x 15	1...15 x 15
	Alt	1...15 x 15	—	1...15 x 15
	High-Static	1...15 x 15	1...15 x 15	1...15 x 15
Type Drive	**Std**	Belt	Belt	Belt
	Alt	Belt	—	Belt
	High-Static	Belt	Belt	Belt
Nominal Cfm		3000	3600	4000
Maximum Continuous Bhp	**Std**	2.40	2.40	2.40
	Alt	2.40	—	2.90
	High-Static	3.70	3.70	5.25
Motor Frame Size	**Std**	56	56	56
	Alt	56	—	56
	High-Static	56	56	56
Nominal Rpm	**Std**	—	—	—
	Alt	—	—	—
	High-Static	1725	1725	1725
Fan Rpm Range	**Std**	590- 840	685- 935	685- 935
	Alt	685- 935	—	835-1085
	High-Static	860-1080	860-1080	830-1130
Motor Bearing Type		Ball	Ball	Ball
Maximum Allowable Rpm		2100	2100	2100
Motor Pulley Pitch Diameter Min/Max (in.)	**Std**	2.4/3.4	2.8/3.8	2.8/3.8
	Alt	2.8/3.8	—	3.4/4.4
	High-Static	4.0/5.0	4.0/5.0	2.8/3.8
Nominal Motor Shaft Diameter (in.)	**Std**	5/8	5/8	5/8
	Alt	5/8	—	7/8
	High-Static	7/8	7/8	7/8
Fan Pulley Pitch Diameter (in.)	**Std**	7.0	7.0	7.0
	Alt	7.0	—	7.0
	High-Static	8.0	8.0	5.8
Belt, Quantity...Type...Length (in.)	**Std**	1...A...53	1...A...48	1...A...49
	Alt	1...A...49	—	1...A...51
	High-Static	1...A...65	1...A...53	1...BX...48
Pulley Center Line Distance (in.)	**Std**	16.75-19.25	16.75-19.25	15.85-17.50
	Alt	16.75-19.25	—	15.85-17.50
	High-Static	16.75-19.25	16.75-19.25	15.85-17.50
Speed Change per Full Turn of Moveable Pulley Flange (rpm)	**Std**	50	50	50
	Alt	50	—	50
	High-Static	60	60	60
Moveable Pulley Maximum Full Turns From Closed Position	**Std**	5	5	5
	Alt	5	—	5
	High-Static	5	5	6
Factory Setting	**Std**	5	5	5
	Alt	5	—	5
	High-Static	5	5	5
Factory Speed Setting (rpm)	**Std**	590	685	685
	Alt	685	—	835
	High-Static	860	880	887
Fan Shaft Diameter at Pulley (in.)		1	1	1
HIGH-PRESSURE SWITCH (psig)				
Standard Compressor Internal Relief (Differential)		450 ± 50		
Cutout		428		
Reset (Auto.)		320		
LOSS-OF-CHARGE (LOW-PRESSURE) SWITCH (psig)				
Cutout		7 ± 3		
Reset (Auto.)		22 ± 5		
FREEZE PROTECTION THERMOSTAT (F)				
Opens		30 ± 5		
Closes		45 ± 5		
OUTDOOR-AIR INLET SCREENS		Cleanable. Screen quantity and size vary based on options selected.		
RETURN-AIR FILTERS		Throwaway		
Quantity...Size (in.)		4...16 x 20 x 2	4...16 x 20 x 2	4...20 x 20 x 2

LEGEND
Bhp — Brake Horsepower

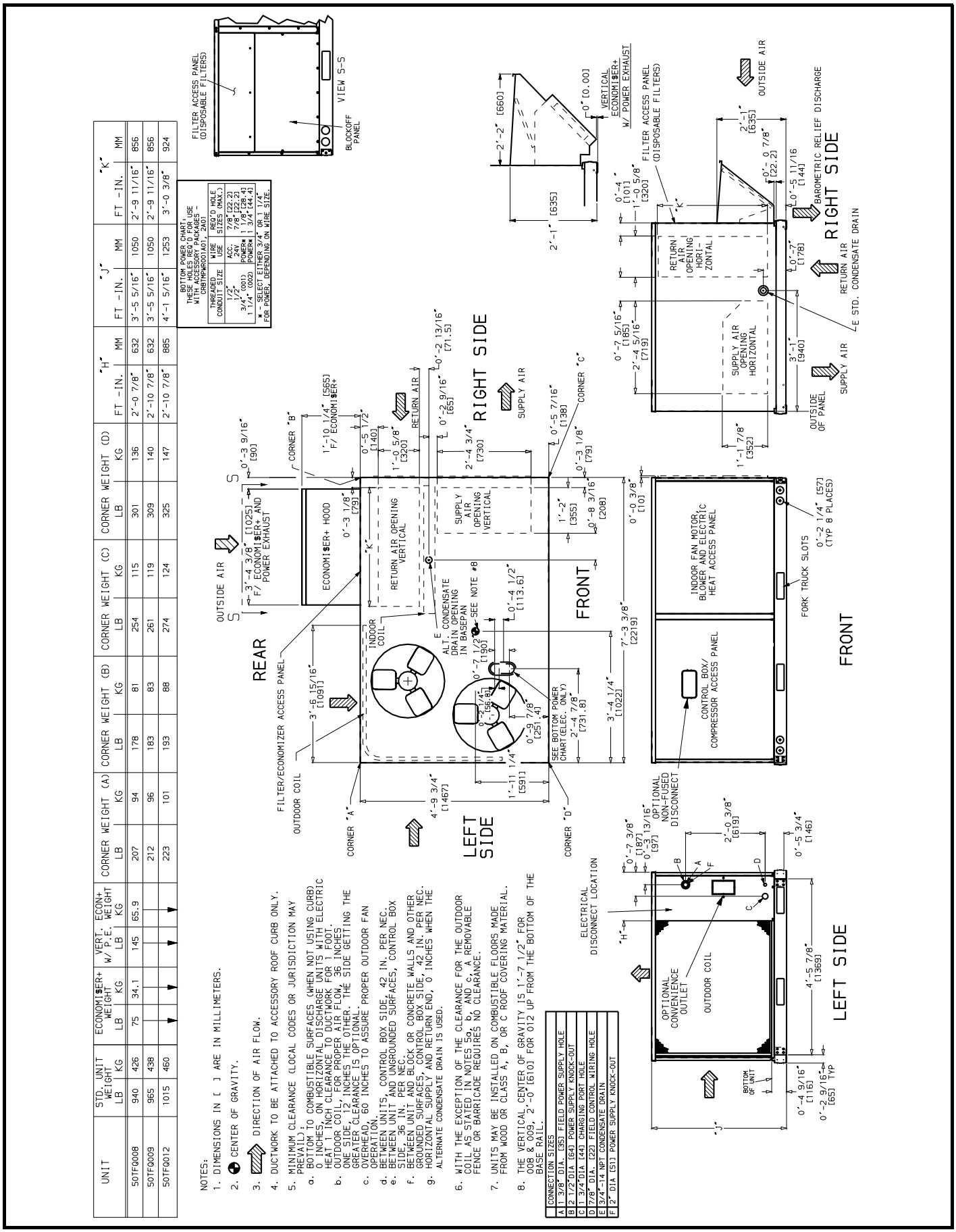
*Weight of 14-in. roof curb.

Base unit dimensions — 50TFQ004-007



UNIT	STD UNIT WEIGHT		ECONOMI$ER+ WEIGHT		VERT. ECON+ W/ P.E. WEIGHT		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)	
	LB	KG	LB	KG	LB	KG	LB	KG	LB	KG	LB	KG	LB	KG
50TFQ004	500	227	50	22.7	90	40.9	123	57	120	54	125	57	130	59
50TFQ005	520	236					130	59	125	57	130	53	135	61
50TFQ006	550	249					138	63	132	60	138	62	142	64
50TFQ007	590	268	▼	▼	▼	▼	148	68	142	64	148	67	152	69

Base unit dimensions — 50TFQ008-012



UNIT	STD. UNIT WEIGHT		ECONOMI$ER+ WEIGHT		VERT. ECON+ W/ P.E.		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		"H"		"J"		"K"	
	LB	KG	LB	KG	LB	KG	LB	KG	LB	KG	LB	KG	LB	KG	FT-IN.	MM	FT-IN.	MM	FT-IN.	MM
50TFQ008	940	426	75	34.1	145	65.9	207	94	178	81	254	115	301	136	2'-0 7/8"	632	3'-5 5/16"	1050	2'-9 11/16"	856
50TFQ009	965	438	▲	▲	▲	▲	212	96	183	83	261	119	309	140	2'-10 7/8"	632	3'-5 5/16"	1050	2'-9 11/16"	856
50TFQ012	1015	460	▲	▲	▲	▲	223	101	193	88	274	124	325	147	2'-10 7/8"	885	4'-1 5/16"	1253	3'-0 3/8"	924

BOTTOM POWER CHART
THESE HOLES REQ'D FOR USE WITH ACCESSORY PACKAGES - CRBTMPWR001A01, 2A01

THREADED CONDUIT SIZE	WIRE ACCESS	REQ'D HOLE DIAMETER MAX.
1/2"	24V	7/8" [22.2]
3/4" (001)	POWER*	1 1/8" [28.4]
1 1/4" (002)	POWER*	1 3/4" [44.4]

* - SELECT EITHER 3/4" OR 1 1/4" FOR POWER, DEPENDING ON WIRE SIZE.

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. ⊕ CENTER OF GRAVITY.
3. ▨ DIRECTION OF AIR FLOW.
4. DUCTWORK TO BE ATTACHED TO ACCESSORY ROOF CURB ONLY.
5. MINIMUM CLEARANCE (LOCAL CODES OR JURISDICTION MAY PREVAIL):
   a. BOTTOM TO COMBUSTIBLE SURFACES (WHEN NOT USING CURB) 0 INCHES, ON HORIZONTAL DISCHARGE UNITS WITH ELECTRIC HEAT 1 INCH CLEARANCE TO DUCTWORK FOR 1 FOOT.
   b. OUTDOOR COIL, FOR PROPER AIR FLOW, 36 INCHES ONE SIDE, 12 INCHES THE OTHER. THE SIDE GETTING THE GREATER CLEARANCE IS OPTIONAL.
   c. OVERHEAD, 60 INCHES TO ASSURE PROPER OUTDOOR FAN OPERATION.
   d. BETWEEN UNITS, CONTROL BOX SIDE, 42 IN. PER NEC.
   e. BETWEEN UNIT AND UNGROUNDED SURFACES, CONTROL BOX SIDE, 36 IN. PER NEC.
   f. BETWEEN UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, CONTROL BOX SIDE, 42 IN. PER NEC.
   g. HORIZONTAL SUPPLY AND RETURN END, 0 INCHES WHEN THE ALTERNATE CONDENSATE DRAIN IS USED.
6. WITH THE EXCEPTION OF THE CLEARANCE FOR THE OUTDOOR COIL AS STATED IN NOTES 5a, b, AND c, A REMOVABLE FENCE OR BARRICADE REQUIRES NO CLEARANCE.
7. UNITS MAY BE INSTALLED ON COMBUSTIBLE FLOORS MADE FROM WOOD OR CLASS A, B, OR C ROOF COVERING MATERIAL.
8. THE VERTICAL CENTER OF GRAVITY IS 1'-7 1/2" FOR 008 & 009, 2'-0" [610] FOR 012 UP FROM THE BOTTOM OF THE BASE RAIL.

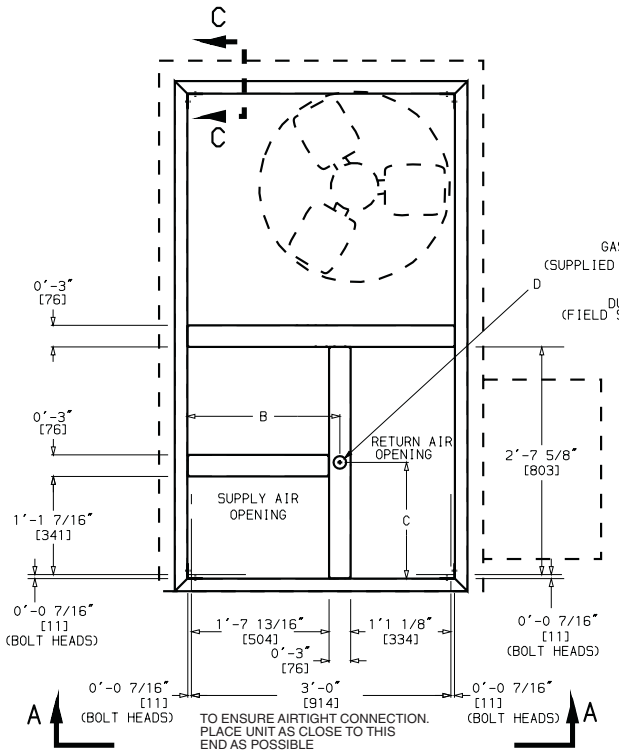
	CONNECTION SIZES
A	1 3/8" DIA. [35] FIELD POWER SUPPLY HOLE
B	2 1/2 DIA [64] POWER SUPPLY KNOCK-OUT
C	1 3/4 DIA [44] CHARGING PORT HOLE
D	7/8" DIA. [22] FIELD CONTROL WIRING HOLE
E	3/4"-14 NPT CONDENSATE DRAIN
F	2" DIA [51] POWER SUPPLY KNOCK-OUT

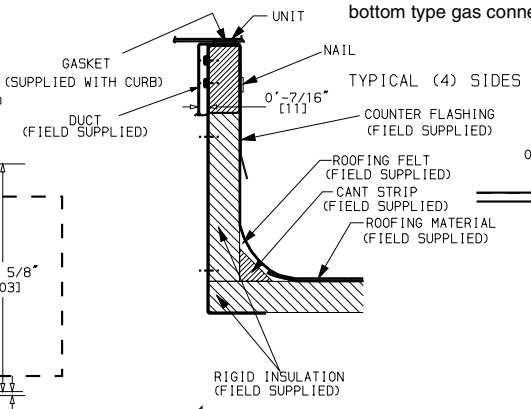
Accessory dimensions — 50TFQ004-007

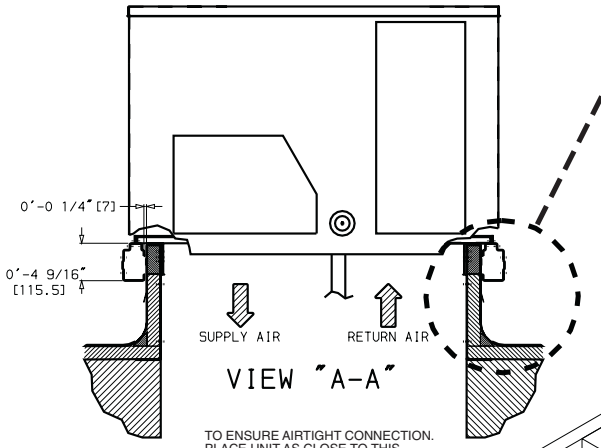
CONNECTOR PKG. ACCY.	B	C	D ALT DRAIN HOLE	GAS	POWER	CONTROL
CRBTMPWR001A00	1′-9 11/16″ [551]	1′-4″ [406]	1 3/4″ [44.5]	3/4″ [19] NPT	3/4″ [19] NPT	1/2″ [12.7]
CRBTMPWR002A00					1 1/4″ [31.7]	
CRBTMPWR003A00				1/2″ [12.7] NPT	3/4″ [19] NPT	1/2″ [12.7]
CRBTMPWR004A00				3/4″ [19] NPT	1 1/4″ [31.7]	

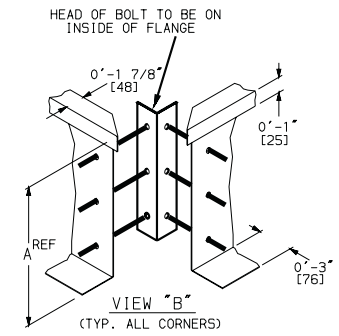
ROOF CURB ACCESSORY	A	UNIT SIZE
CRRFCURB001A00	1′-2″ [356]	50TFQ004-007
CRRFCURB002A00	2′-0″ [610]	

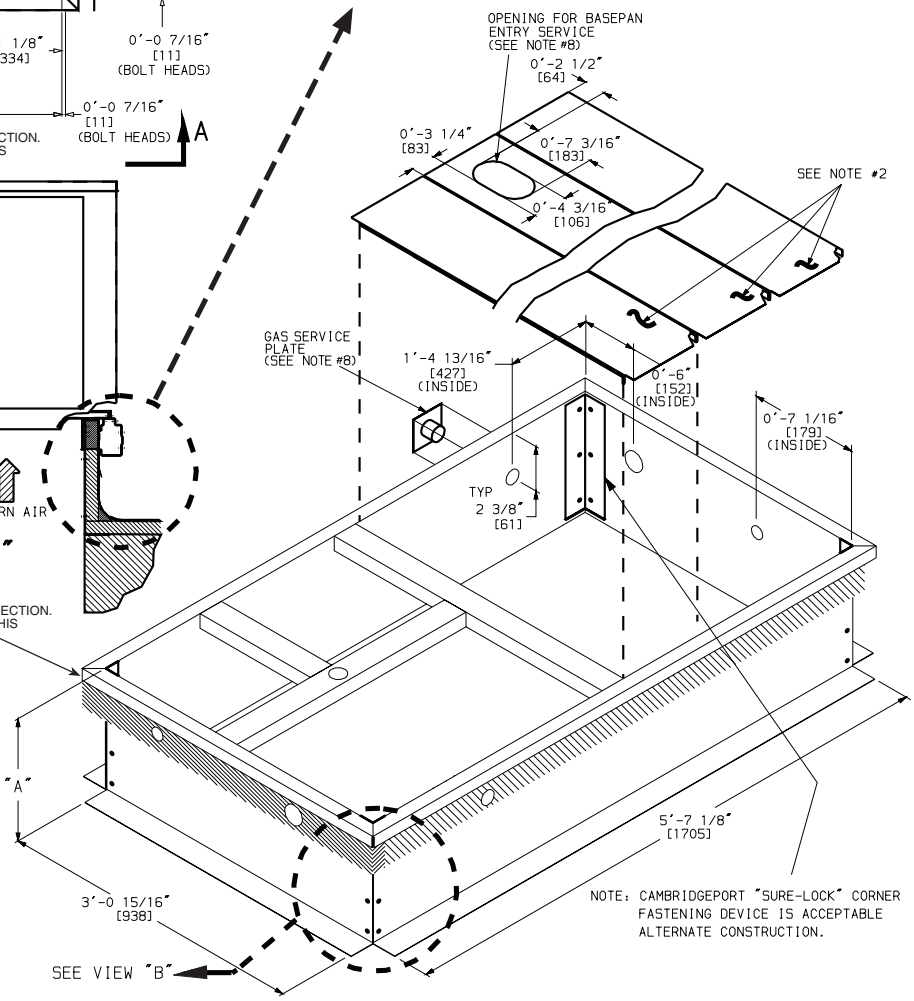
NOTES:
1. Roof curb accessory is shipped disassembled.
2. Insulated panels.
3. Dimensions in [ ] are in millimeters.
4. Roof curb: galvanized steel.
5. Attach ductwork to curb (flanges of duct rest on curb).
6. Service clearance: 4 ft on each side.
7. Direction of airflow.
8. Connector packages CRBTMPWR001A00 and 002A00 are for thru-the-curb type gas. Packages CRBTMPWR003A00 and 004A00 are for thru-the-bottom type gas connections.









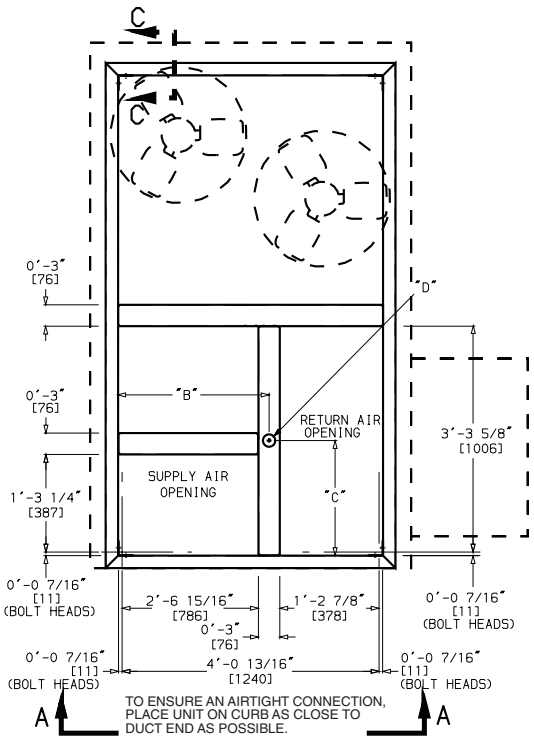


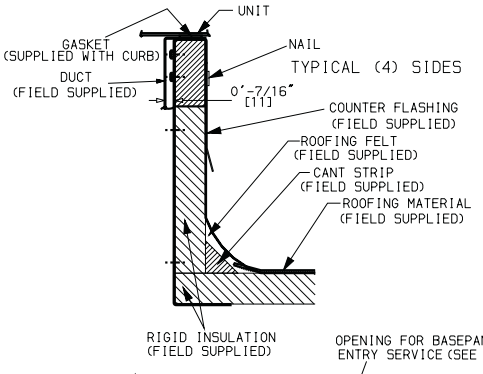
Accessory dimensions — 50TFQ008-012

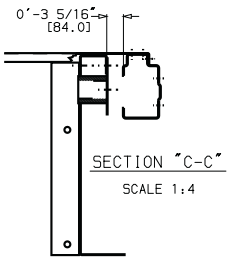
CONNECTOR PKG. ACCY.	B	C	D ALT DRAIN HOLE	GAS	POWER	CONTROL
CRBTMPWR001A00	2′-8 7/16″ [827]	1′-10 15/16″ [583]	1 3/4″ [44.5]	3/4″ [19] NPT	3/4″ [19] NPT	1/2″ [12.7] NPT
CRBTMPWR002A00					1 1/4″ [31.7]	
CRBTMPWR003A00				1/2″ [12.7] NPT	3/4″ [19] NPT	
CRBTMPWR004A00				3/4″ [19] NPT	1 1/4″ [31.7]	

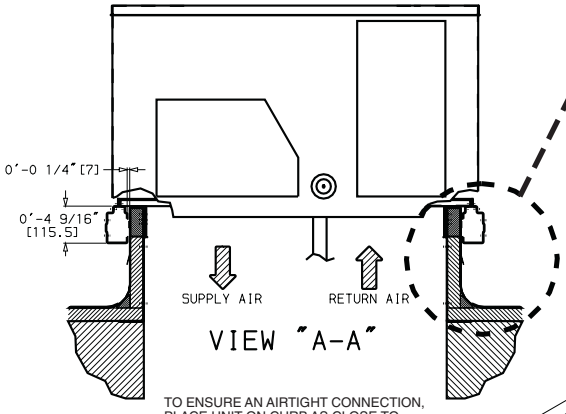
ROOF CURB ACCESSORY	"A"	UNIT SIZE 50TFQ
CRRFCURB003A00	1′-2″ [356]	008-012
CRRFCURB004A00	2′-0″ [610]	

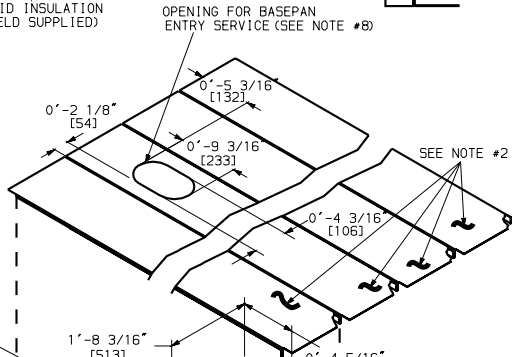
NOTES:
1. Roof curb accessory is shipped disassembled.
2. Insulated panels: 1-in. thick polyurethane foam, 1 3/4 lb density.
3. Dimensions in [ ] are in millimeters.
4. Roof curb: 16-gage steel.
5. Attach ductwork to curb (flanges of duct rest on curb).
6. Service clearance 4 ft on each side.
7. Direction of airflow.
8. Connector packages CRBTMPWR001A00 and 2A00 are for thru-the-curb gas type. Packages CRBTMPWR003A00 and 4A00 are for thru-the-bottom type gas connections.

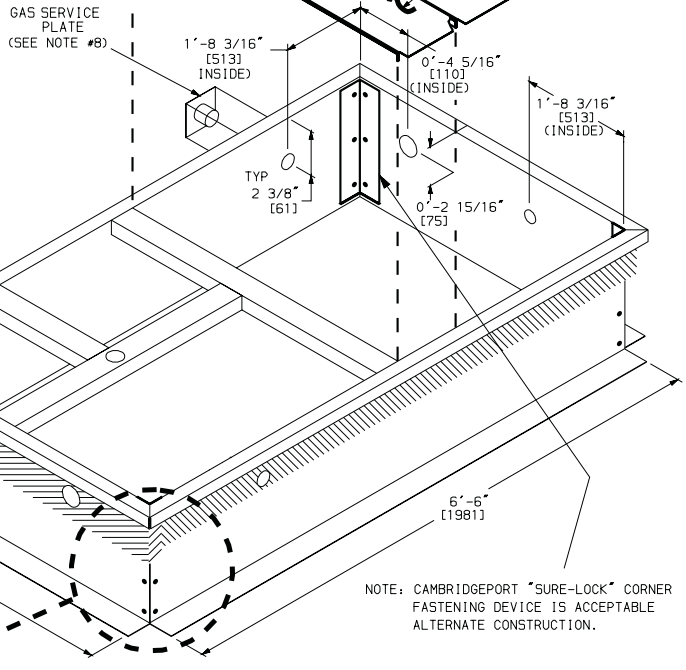


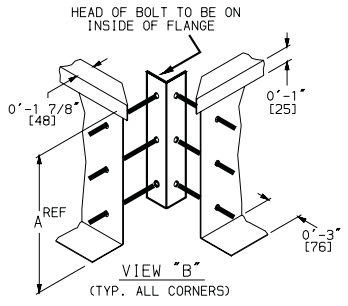












Selection procedure (with 50TFQ005 example)

I Determine cooling and heating loads at design conditions.

Given:

Required Cooling Capacity (TC) . . . . .38,000 Btuh
Sensible Heat Capacity (SHC) . . . . . .24,000 Btuh
Required Heating Capacity . . . . . .35,000 Btuh
Outdoor Entering-Air Temperature db. . . . . .95 F
Outdoor-Air Winter Design Temperature . . . . . 0° F
Indoor-Air Winter Design Temperature . . . . . .70 F
Indoor-Air
Temperature . . . 80 F edb (entering air, dry bulb)
67 F ewb (entering air, wet bulb)
Indoor-Air Quantity . . . . . 1600 cfm
External Static Pressure . . . . . .0.45 in. wg
Electrical Characteristics (V-Ph-Hz) 230-3-60

II Select unit based on required cooling capacity.

Enter Cooling Capacities table at outdoor entering temperature of 95 F, indoor air entering at 1600 cfm and 67 F ewb. The 50TFQ005 unit will provide a total cooling capacity of 49,900 Btuh and a sensible heat capacity of 33,900 Btuh.

For indoor-air temperature other than 80 F edb, calculate sensible heat capacity correction, as required, using the formula found in Note 3 following the cooling capacities tables.

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

III Select electric heat.

Enter the Instantaneous and Integrated Heating Ratings table at 1600 cfm. At 70 F return indoor air and 0° F air entering outdoor coil, the integrated heating capacity is 18,000 Btuh. (Select integrated heating capacity value since deductions for outdoor-coil frost and defrosting have already been made. No correction is required.)

The required heating capacity is 35,000 Btuh. Therefore, 17,000 Btuh (35,000 – 18,000) additional electric heat is required.

Determine additional electric heat capacity in kW.

$$\frac{17{,}000 \text{ Btuh}}{3413 \text{ Btuh/kW}} = 5.0 \text{ kW of heat required.}$$

Enter the Electric Heating Capacities table (page 59) for 50TFQ005 at 208/230, 3 phase. The 6.5-kW heater at 240 v most closely satisfies the heating required. To calculate kW at 230 v, use the Multiplication Factors table.

6.5 kW x .92 = 5.98 kW
6.5 kW x .92 x 3413 = 20,410 Btuh

Total unit heating capacity is 38,410 Btuh (18,000 + 20,410).

IV Determine fan speed and power requirements at design conditions.

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

External static pressure	.45 in. wg
EconoMi$er+	.07 in. wg
Electric heat	.09 in. wg
Total static pressure	.61 in. wg

Enter the Fan Performance table for 50TFQ005 vertical discharge. At 1600 cfm and 230-v high speed, the standard motor will deliver 0.76 in. wg static pressure, 723 watts, and 0.64 brake horsepower (bhp). This will adequately handle job requirements.

V Determine net capacities.

Capacities are gross and do not include the effect of indoor-fan motor (IFM) heat.

Determine net cooling capacity as follows:

Net capacity = Total capacity – IFM heat
= 49,900 Btuh – (723 Watts x 3.413 Btuh/Watts)
= 49,900 Btuh – 2468 Btuh
= 47,432

Net sensible capacity = 33,900 Btuh – 2468 Btuh
= 31,432 Btuh

Integrated heating capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it. Therefore, net capacity is equal to 38,410 Btuh, the total heating capacity determined in Step III.

Performance data — 50TFQ

COOLING CAPACITIES

50TFQ004 (3 TONS)

Temp (F) Outdoor Entering Air (Edb)		Indoor Entering Air — Cfm/BF								
		900/0.10			1200/0.15			1500/0.21		
		Indoor Entering Air — Ewb (F)								
		72	67	62	72	67	62	72	67	62
75	TC	42.4	39.9	36.5	43.0	41.2	38.7	45.1	42.8	40.3
	SHC	16.7	22.0	26.8	17.5	24.2	30.9	19.3	26.9	34.1
	kW	2.77	2.71	2.62	2.78	2.74	2.68	2.85	2.79	2.73
85	TC	41.5	38.4	34.8	43.3	40.4	37.0	44.0	41.7	38.7
	SHC	16.6	21.6	26.2	18.2	24.6	30.3	19.3	27.2	33.7
	kW	3.01	2.92	2.80	3.07	2.98	2.88	3.09	3.03	2.94
95	TC	40.0	36.3	33.0	42.3	38.5	35.2	43.4	40.0	36.7
	SHC	16.2	20.9	25.7	18.2	24.2	29.8	19.7	27.2	32.7
	kW	3.24	3.10	2.99	3.32	3.19	3.07	3.36	3.24	3.13
105	TC	38.4	34.7	31.0	40.0	36.7	33.1	41.2	37.7	35.2
	SHC	15.7	20.5	24.8	17.5	23.9	28.8	19.3	26.6	31.7
	kW	3.47	3.32	3.16	3.53	3.41	3.26	3.58	3.44	3.35
115	TC	36.1	32.5	28.9	38.1	34.3	31.1	39.3	35.5	33.2
	SHC	15.1	19.8	23.9	17.2	23.2	27.8	19.1	26.2	30.2
	kW	3.66	3.50	3.32	3.76	3.59	3.44	3.81	3.65	3.54
125	TC	34.2	30.5	26.8	35.9	32.0	29.3	36.8	33.0	31.3
	SHC	14.6	19.2	22.9	16.7	22.6	26.3	18.5	25.5	28.4
	kW	3.88	3.68	3.49	3.97	3.77	3.62	4.02	3.83	3.74

50TFQ005 (4 TONS)

Temp (F) Outdoor Entering Air (Edb)		Indoor Entering Air — Cfm/BF								
		1200/0.11			1600/0.15			2000/0.22		
		Indoor Entering Air — Ewb (F)								
		72	67	62	72	67	62	72	67	62
75	TC	55.5	51.9	47.4	56.9	54.6	50.3	59.3	56.5	52.1
	SHC	24.5	31.2	37.4	26.0	35.2	43.4	28.4	39.0	47.6
	kW	3.80	3.70	3.55	3.84	3.79	3.66	3.93	3.86	3.71
85	TC	53.4	49.7	45.3	56.3	52.6	47.8	57.5	54.1	49.8
	SHC	23.8	30.4	36.7	26.3	34.9	42.6	28.3	38.6	46.9
	kW	4.10	3.99	3.84	4.23	4.11	3.94	4.27	4.16	4.01
95	TC	52.0	47.4	43.0	53.7	49.9	45.5	54.5	51.6	47.4
	SHC	23.4	29.6	35.8	25.5	33.9	41.6	27.3	38.2	45.2
	kW	4.47	4.28	4.11	4.53	4.39	4.23	4.56	4.48	4.29
105	TC	49.3	45.0	40.6	51.8	47.2	43.0	52.6	48.7	45.4
	SHC	22.5	28.8	34.7	25.3	33.0	40.3	27.1	37.1	43.3
	kW	4.77	4.59	4.39	4.90	4.68	4.52	4.92	4.76	4.63
115	TC	46.6	42.4	38.0	48.8	44.6	40.6	50.2	45.8	43.2
	SHC	21.7	27.9	33.6	24.3	32.4	38.7	26.8	36.1	41.2
	kW	5.08	4.90	4.66	5.21	5.01	4.81	5.29	5.06	4.96
125	TC	44.0	39.6	35.4	45.6	41.6	38.3	47.0	42.9	40.9
	SHC	20.9	26.9	32.4	23.3	31.6	36.5	25.9	35.6	39.0
	kW	5.45	5.21	4.96	5.51	5.34	5.14	5.60	5.41	5.30

50TFQ006 (5 TONS)

Temp (F) Outdoor Entering Air (Edb)		Indoor Entering Air — Cfm/BF								
		1500/0.05			2000/0.08			2500/0.14		
		Indoor Entering Air — Ewb (F)								
		72	67	62	72	67	62	72	67	62
75	TC	69.3	64.5	59.3	70.8	67.9	62.8	72.9	69.3	65.4
	SHC	30.9	39.2	47.4	33.1	44.9	55.4	35.8	49.4	61.4
	kW	4.28	4.15	4.03	4.32	4.25	4.12	4.38	4.29	4.19
85	TC	67.7	62.4	56.8	69.1	65.7	60.2	71.1	67.7	63.2
	SHC	30.4	38.6	46.5	32.8	44.6	54.4	35.8	50.0	59.8
	kW	4.76	4.61	4.49	4.79	4.72	4.56	4.86	4.78	4.65
95	TC	65.2	59.8	54.4	67.7	62.9	57.6	69.1	64.8	60.7
	SHC	29.6	37.6	45.5	32.8	43.6	53.2	35.6	49.3	57.7
	kW	5.27	5.10	4.97	5.35	5.20	5.07	5.39	5.27	5.14
105	TC	62.3	57.2	51.8	65.1	59.6	54.9	66.8	61.7	58.3
	SHC	28.6	33.8	44.4	32.1	42.6	51.6	35.4	48.2	55.5
	kW	5.79	5.66	5.50	5.90	5.73	5.61	5.97	5.79	5.68
115	TC	59.7	54.2	49.0	61.7	57.0	52.5	63.2	58.4	55.8
	SHC	27.6	35.8	43.2	31.1	41.9	49.6	34.3	47.0	53.2
	kW	6.37	6.24	6.06	6.47	6.34	6.20	6.53	6.36	6.31
125	TC	56.5	51.0	46.0	58.2	53.5	49.8	59.4	55.1	53.0
	SHC	26.8	34.7	41.9	30.0	40.8	47.3	33.0	46.5	50.5
	kW	7.03	6.87	6.65	7.07	6.96	6.82	7.13	7.03	6.96

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} = Wet-bulb temperature corresponding to enthalpy of air leaving indoor 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 indoor coil. Below 80 F edb, subtract (corr factor x cfm) from SHC. *Above 80 F edb, add (corr factor x cfm) to SHC.*

COOLING CAPACITIES (cont)

50TFQ007 (6 TONS)

Temp (F) Outdoor Entering Air (Edb)		Indoor Entering Air — Cfm/BF								
		1800/0.10			2400/0.13			3000/0.19		
		Indoor Entering Air — Ewb (F)								
		72	67	62	72	67	62	72	67	62
75	TC	81.1	77.6	72.1	84.0	80.3	75.2	84.2	81.1	77.8
	SHC	36.2	46.9	57.0	39.1	52.4	65.4	40.8	56.2	72.2
	kW	5.16	5.11	5.01	5.23	5.16	5.06	5.23	5.17	5.11
85	TC	80.7	75.8	70.0	83.9	79.3	73.4	84.1	80.8	76.2
	SHC	36.1	46.5	56.4	39.7	52.9	65.2	41.6	58.3	71.9
	kW	5.83	5.74	5.65	5.90	5.81	5.69	5.90	5.84	5.76
95	TC	79.3	73.0	67.3	82.0	76.7	70.8	83.0	79.1	73.5
	SHC	35.8	45.4	55.3	39.3	52.3	64.3	42.2	58.9	69.7
	kW	6.54	6.37	6.28	6.60	6.47	6.37	6.62	6.55	6.40
105	TC	76.0	70.6	64.3	79.6	73.4	67.9	80.7	75.5	71.3
	SHC	34.6	44.8	54.1	38.8	51.2	62.9	42.0	57.6	67.8
	kW	7.21	7.12	6.94	7.34	7.15	7.06	7.36	7.22	7.14
115	TC	72.7	67.5	61.1	75.8	70.6	64.7	77.9	71.8	68.5
	SHC	33.6	43.7	52.7	37.6	50.7	60.9	41.5	56.4	65.2
	kW	7.95	7.86	7.63	8.06	7.95	7.77	8.14	7.94	7.90
125	TC	70.1	63.9	57.6	71.8	66.9	61.6	73.5	68.6	65.4
	SHC	32.9	42.4	51.2	36.4	49.5	58.4	40.2	56.1	62.3
	kW	8.82	8.62	8.37	8.83	8.73	8.54	8.89	8.79	8.69

50TFQ008 (7½ TONS)

Temp (F) Outdoor Entering Air (Edb)		Indoor Entering Air — Cfm/BF											
		2250/0.04			3000/0.06			3200/0.08			3750/0.11		
		Indoor Entering Air — Ewb (F)											
		72	67	62	72	67	62	72	67	62	72	67	62
75	TC	109.8	101.4	92.2	116.2	107.0	98.0	117.6	108.8	100.2	118.8	110.4	102.4
	SHC	44.2	57.4	69.4	49.6	66.0	82.0	51.8	69.8	87.0	54.0	74.0	92.0
	kW	6.66	6.44	6.18	6.86	6.60	6.36	6.92	6.66	6.42	6.94	6.70	6.48
85	TC	105.2	96.4	87.0	111.4	102.2	92.6	113.0	104.0	95.0	114.6	105.8	97.6
	SHC	42.8	55.6	67.6	48.4	65.0	80.0	50.8	69.0	84.4	53.4	73.8	88.8
	kW	7.20	6.94	6.64	7.42	7.14	6.82	7.48	7.20	6.90	7.54	7.28	7.00
95	TC	100.6	91.0	82.0	105.6	96.2	87.4	107.2	98.0	89.8	108.6	99.6	92.8
	SHC	41.6	54.0	65.8	47.0	63.2	77.8	49.4	67.4	81.4	52.0	72.2	84.6
	kW	7.78	7.42	7.08	7.96	7.62	7.30	8.00	7.70	7.40	8.06	7.76	7.50
105	TC	94.8	85.4	76.8	99.8	90.2	82.2	101.4	91.6	85.0	103.2	93.2	88.0
	SHC	40.0	52.2	63.8	45.6	61.6	74.6	48.2	65.8	77.6	51.2	70.4	80.4
	kW	8.26	7.88	7.50	8.48	8.10	7.76	8.56	8.18	7.88	8.64	8.24	8.02
115	TC	88.8	79.9	71.4	93.4	84.0	77.6	94.8	85.4	80.0	96.0	86.6	83.0
	SHC	38.4	50.4	61.6	44.2	59.8	70.6	46.6	64.0	73.2	49.4	68.6	75.8
	kW	8.76	8.32	7.90	8.98	8.54	8.22	9.04	8.62	8.36	9.10	8.70	8.50
125	TC	82.6	73.8	65.8	86.6	77.4	74.4	88.0	78.8	75.0	89.2	80.0	77.6
	SHC	36.8	48.6	59.2	42.2	57.8	66.2	45.2	62.0	68.6	48.2	66.6	71.0
	kW	9.20	8.74	8.30	9.44	8.96	8.68	9.52	9.02	8.82	9.60	9.12	8.98

50TFQ009 (8½ TONS)

Temp (F) Outdoor Entering Air (Edb)		Indoor Entering Air — Cfm/BF											
		2400/0.06			3200/0.09			3600/0.11			4000/0.14		
		Indoor Entering Air — Ewb (F)											
		72	67	62	72	67	62	72	67	62	72	67	62
75	TC	111.4	102.3	91.0	115.7	108.2	97.6	117.0	110.1	100.4	118.1	111.6	102.5
	SHC	51.8	64.3	75.3	54.9	71.9	87.6	55.8	74.9	92.5	56.7	77.1	96.4
	kW	8.64	8.48	8.23	9.32	9.18	8.95	9.73	9.61	9.30	10.19	10.12	9.72
85	TC	108.8	97.4	86.1	113.7	104.2	92.9	115.2	106.6	94.8	116.6	108.3	98.0
	SHC	50.9	62.3	73.2	54.7	70.9	85.1	55.7	74.3	89.3	56.7	77.2	92.2
	kW	9.27	9.09	8.76	9.98	9.79	9.40	10.40	10.24	9.83	10.88	10.74	10.20
95	TC	104.5	92.7	81.2	110.4	98.8	87.7	112.0	101.3	90.8	113.2	103.1	93.8
	SHC	49.3	60.2	70.9	53.7	68.7	82.4	55.1	72.6	86.3	56.2	75.7	88.2
	kW	9.90	9.56	9.22	10.64	10.39	9.88	11.07	10.86	10.25	11.55	11.36	10.67
105	TC	98.8	87.8	75.9	105.5	93.4	83.0	107.4	95.4	86.5	108.9	97.1	89.5
	SHC	47.1	58.3	68.1	52.2	66.5	79.0	53.7	69.9	82.2	55.1	72.9	83.9
	kW	10.37	10.08	9.70	11.26	10.90	10.33	11.71	11.34	10.73	12.20	11.82	11.24
115	TC	93.8	82.4	71.1	98.7	87.9	78.6	100.8	89.8	82.1	102.9	91.3	85.3
	SHC	45.3	56.0	65.9	49.5	64.5	75.5	51.3	68.0	77.9	53.0	71.0	79.6
	kW	10.99	10.56	10.13	11.72	11.39	10.79	12.16	11.86	11.24	12.76	12.38	11.76
125	TC	88.4	77.2	66.7	93.1	82.2	74.5	94.9	83.9	77.9	96.2	85.3	80.8
	SHC	43.4	54.1	63.1	47.7	62.3	71.4	49.2	65.8	73.7	50.4	68.8	75.2
	kW	11.52	11.03	10.56	12.33	11.87	11.30	12.78	12.33	11.75	13.29	12.81	12.27

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} = Wet-bulb temperature corresponding to enthalpy of air leaving indoor 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 indoor coil. Below 80 F edb, subtract (corr factor x cfm) from SHC. *Above 80 F edb, add (corr factor x cfm) to SHC.*

Performance data — 50TFQ (cont)

COOLING CAPACITIES (cont)

50TFQ012 (10 TONS)

Temp (F) Outdoor Entering Air (Edb)		Indoor Entering Air — Cfm/BF											
		2800/0.11			3750/0.16			4100/0.18			4700/0.21		
		Indoor Entering Air — Ewb (F)											
		72	67	62	72	67	62	72	67	62	72	67	62
75	TC	127.4	120.4	110.6	134.2	126.2	116.2	135.6	127.4	117.8	137.0	129.0	120.6
	SHC	60.0	76.4	91.0	66.2	86.0	104.4	67.8	89.0	108.8	70.2	93.4	115.6
	kW	8.30	8.18	7.88	8.54	8.34	8.04	8.60	8.36	8.10	8.64	8.38	8.20
85	TC	124.6	116.2	106.4	131.0	122.0	112.4	132.4	123.6	114.0	133.8	126.0	116.4
	SHC	59.2	74.6	89.4	65.4	84.8	103.6	67.4	88.4	107.4	70.0	94.2	112.8
	kW	9.24	9.04	8.74	9.50	9.24	8.98	9.54	9.28	9.02	9.60	9.36	9.08
95	TC	121.8	112.0	102.2	126.2	117.4	107.4	127.8	119.0	109.4	130.0	121.2	112.6
	SHC	58.4	73.2	87.4	63.8	83.4	101.0	66.0	87.2	104.8	69.6	93.4	110.2
	kW	10.34	10.04	9.66	10.46	10.18	9.90	10.52	10.26	9.96	10.62	10.36	10.08
105	TC	116.9	107.2	97.6	122.4	112.4	102.8	123.6	113.8	105.0	124.6	115.6	108.4
	SHC	56.6	71.4	85.4	63.0	82.0	98.4	65.0	85.8	101.8	67.8	91.4	106.2
	kW	11.38	11.08	10.66	11.64	11.28	10.90	11.68	11.32	11.00	11.68	11.38	11.16
115	TC	112.0	102.0	92.8	116.6	107.0	98.0	118.0	108.2	100.2	120.0	110.0	103.8
	SHC	55.0	69.6	83.2	61.2	80.2	95.2	63.6	84.2	98.0	67.4	90.2	101.8
	kW	12.58	12.18	11.74	12.78	11.42	12.00	12.84	12.48	12.12	12.96	12.56	12.30
125	TC	106.4	96.8	87.8	110.4	101.2	93.6	111.6	102.2	95.8	113.6	103.8	99.0
	SHC	53.2	67.4	80.8	59.2	78.4	91.4	61.4	82.2	94.0	65.4	88.0	97.2
	kW	13.84	13.36	12.90	13.96	13.62	13.22	14.02	13.68	13.34	14.14	13.76	13.54

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} = Wet-bulb temperature corresponding to enthalpy of air leaving indoor 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 indoor coil.
Below 80 F edb, subtract (corr factor x cfm) from SHC.
Above 80 F edb, add (corr factor x cfm) to SHC.

INSTANTANEOUS AND INTEGRATED HEATING RATINGS

50TFQ004

Return Air (F db)	Cfm (Standard Air)		Air Temperature Entering Outdoor Coil (F)															
			0		10		17		30		40		47		50		60	
55	900	Cap.	15.4	13.1	19.2	17.6	21.7	19.8	27.4	24.0	31.9	31.9	35.3	35.3	36.9	36.9	41.4	41.4
		kW	2.25		2.44		2.57		2.86		3.10		3.29		3.38		3.64	
	1200	Cap.	15.9	13.5	19.4	17.8	22.5	20.5	28.3	24.8	32.9	32.9	35.8	35.8	37.0	37.0	40.1	40.1
		kW	2.24		2.40		2.54		2.80		3.02		3.15		3.21		3.35	
	1500	Cap.	16.2	13.8	19.8	18.2	22.9	20.9	28.8	25.2	33.1	33.1	35.3	35.3	36.5	36.5	38.6	38.6
		kW	2.23		2.38		2.52		2.76		2.94		3.03		3.08		3.17	
70	900	Cap.	13.2	11.2	17.1	15.7	20.0	18.2	25.4	22.2	29.8	29.8	33.2	33.2	34.7	34.7	40.1	40.1
		kW	2.29		2.50		2.67		2.98		3.24		3.45		3.55		3.91	
	1200	Cap.	13.7	11.6	17.7	16.3	20.3	18.5	26.3	23.1	30.8	30.8	34.4	34.4	36.0	36.0	40.9	40.9
		kW	2.28		2.49		2.62		2.93		3.17		3.36		3.45		3.72	
	1500	Cap.	14.0	11.9	18.1	16.6	20.7	18.9	26.9	23.6	31.6	31.6	35.1	35.1	36.9	36.9	40.2	40.2
		kW	2.27		2.47		2.60		2.89		3.12		3.30		3.38		3.54	
80	900	Cap.	11.5	9.8	15.5	14.2	18.4	16.8	23.7	20.8	28.1	28.1	31.7	31.7	33.2	33.2	38.5	38.5
		kW	2.30		2.54		2.71		3.04		3.32		3.55		3.65		4.03	
	1200	Cap.	12.0	10.2	16.2	14.8	19.2	17.5	24.7	21.6	29.3	29.3	33.0	33.0	34.5	34.5	40.2	40.2
		kW	2.30		2.52		2.69		2.99		3.26		3.47		3.56		3.91	
	1500	Cap.	12.3	10.5	16.6	15.2	19.7	18.0	25.4	22.3	30.1	30.1	33.7	33.7	35.3	35.3	39.2	39.2
		kW	2.29		2.51		2.68		2.97		3.22		3.41		3.50		3.70	

LEGEND

Cap. — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
db — dry bulb
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor input, and indoor-fan motor input)

NOTES:
1. ▭ indicates integrated ratings.
2. Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

INSTANTANEOUS AND INTEGRATED HEATING RATINGS (cont)

50TFQ005

Return Air (F db)	Cfm (Standard Air)		Air Temperature Entering Outdoor Coil (F)													
			0		10		17		30		40		47		50		60	
55	1200	Cap.	22.7	19.3	26.6	24.4	30.2	27.6	37.4	32.7	43.1	43.1	47.6	47.6	49.8	49.8	57.2	57.2
		kW	2.91		3.14		3.35		3.77		4.12		4.40		4.54		5.04	
	1600	Cap.	23.1	19.7	27.2	25.0	30.8	28.1	38.2	33.5	44.1	44.1	48.9	48.9	51.1	51.1	59.0	59.0
		kW	2.87		3.09		3.28		3.66		3.97		4.23		4.34		4.80	
	2000	Cap.	23.4	19.9	27.4	25.2	31.2	28.4	38.7	33.9	44.8	44.8	49.7	49.7	52.0	52.0	60.2	60.2
		kW	2.85		3.05		3.23		3.59		3.88		4.11		4.23		4.65	
70	1200	Cap.	20.6	17.5	25.5	23.4	28.4	25.9	35.6	31.2	41.0	41.0	45.5	45.5	47.5	47.5	54.9	54.9
		kW	3.00		3.33		3.52		4.01		4.39		4.71		4.85		5.40	
	1600	Cap.	21.2	18.0	25.6	23.5	29.1	26.6	36.3	31.8	42.1	42.1	46.8	46.8	48.9	48.9	56.5	56.5
		kW	2.99		3.25		3.47		3.90		4.25		4.54		4.67		5.15	
	2000	Cap.	21.6	18.3	25.9	23.8	29.5	26.9	36.9	32.3	42.8	42.8	47.5	47.5	49.7	49.7	57.6	57.6
		kW	2.97		3.22		3.43		3.84		4.16		4.42		4.55		5.00	
80	1200	Cap.	18.6	15.8	23.9	21.9	27.1	24.7	34.2	29.9	39.7	39.7	44.1	44.1	46.1	46.1	53.2	53.2
		kW	3.01		3.40		3.62		4.15		4.56		4.90		5.06		5.63	
	1600	Cap.	19.4	16.4	24.7	22.6	27.8	25.4	35.1	30.8	40.7	40.7	45.3	45.3	47.3	47.3	54.9	54.9
		kW	3.01		3.37		3.58		4.06		4.43		4.74		4.88		5.39	
	2000	Cap.	19.8	16.8	25.1	23.1	28.2	25.7	35.7	31.3	41.5	41.5	46.0	46.0	48.2	48.2	55.8	55.8
		kW	3.01		3.35		3.54		4.00		4.35		4.63		4.76		5.24	

50TFQ006

Return Air (F db)	Cfm (Standard Air)		Air Temperature Entering Outdoor Coil (F)													
			0		10		17		30		40		47		50		60	
55	1500	Cap.	29.7	25.2	34.5	31.7	38.4	35.0	46.0	40.3	52.4	52.4	57.2	57.2	59.6	59.6	67.9	67.9
		kW	3.96		4.14		4.30		4.62		4.90		5.14		5.25		5.67	
	2000	Cap.	29.8	25.4	34.7	31.8	38.6	35.2	46.3	40.6	52.9	52.9	57.7	57.7	60.1	60.1	68.7	68.7
		kW	3.83		3.98		4.12		4.38		4.63		4.82		4.91		5.25	
	2500	Cap.	29.8	25.4	34.8	31.9	38.7	35.3	46.6	40.8	53.1	53.1	58.0	58.0	60.4	60.4	68.4	68.4
		kW	3.76		3.89		4.01		4.26		4.47		4.63		4.72		4.99	
70	1500	Cap.	28.7	24.4	33.8	31.0	37.8	34.4	45.4	39.8	51.5	51.5	56.2	56.2	58.4	58.4	66.5	66.5
		kW	4.43		4.66		4.84		5.21		5.53		5.79		5.91		6.39	
	2000	Cap.	29.0	24.7	34.0	31.2	38.0	34.7	45.7	40.1	51.9	51.9	56.7	56.7	59.0	59.0	67.4	67.4
		kW	4.30		4.48		4.63		4.94		5.20		5.41		5.52		5.91	
	2500	Cap.	29.2	24.8	34.2	31.4	38.2	34.8	45.8	40.2	52.2	52.2	57.1	57.1	59.4	59.4	67.9	67.9
		kW	4.22		4.38		4.51		4.78		5.01		5.21		5.30		5.63	
80	1500	Cap.	28.1	23.8	33.1	30.4	37.2	33.9	44.9	39.3	51.0	51.0	55.6	55.6	57.8	57.8	65.7	65.7
		kW	4.77		5.03		5.23		5.64		5.99		6.27		6.41		6.92	
	2000	Cap.	28.4	24.2	33.5	30.7	37.6	34.2	45.3	39.7	51.4	51.4	56.1	56.1	58.3	58.3	66.5	66.5
		kW	4.63		4.84		5.01		5.34		5.63		5.86		5.97		6.39	
	2500	Cap.	28.6	24.3	33.7	30.9	37.7	34.4	45.5	39.8	51.6	51.6	56.4	56.4	58.7	58.7	67.0	67.0
		kW	4.55		4.73		4.88		5.17		5.42		5.62		5.72		6.09	

LEGEND

Cap. — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
db — dry bulb
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor input, and indoor-fan motor input)

NOTES:
1. ▭ indicates integrated ratings.
2. Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

Performance data — 50TFQ (cont)

INSTANTANEOUS AND INTEGRATED HEATING RATINGS (cont)

50TFQ007

Return Air (F db)	Cfm (Standard Air)		Air Temperature Entering Outdoor Coil (F)													
			0		10		17		30		40		47		50		60	
55	1800	Cap.	37.8	32.2	43.9	40.3	48.3	44.1	58.0	50.8	66.2	66.2	72.3	72.3	75.2	75.2	86.0	86.0
		kW	4.72		4.97		5.16		5.58		5.96		6.25		6.40		6.95	
	2400	Cap.	37.9	32.2	44.0	40.4	48.5	44.2	58.4	51.2	66.6	66.6	72.8	72.8	75.9	75.9	87.0	87.0
		kW	4.55		4.76		4.92		5.28		5.57		5.81		5.93		6.38	
	3000	Cap.	38.0	32.3	44.0	40.4	48.5	44.3	58.5	51.3	66.9	66.9	73.1	73.1	76.2	76.2	87.5	87.5
		kW	4.46		4.64		4.78		5.09		5.35		5.56		5.67		6.07	
70	1800	Cap.	37.3	31.7	43.6	40.0	48.1	43.9	57.5	50.4	65.2	65.2	71.1	71.1	74.0	74.0	84.6	84.6
		kW	5.32		5.61		5.84		6.33		6.75		7.10		7.27		7.91	
	2400	Cap.	37.5	31.9	43.8	40.2	48.2	43.9	57.7	50.5	65.6	65.6	71.8	71.8	74.7	74.7	85.4	85.4
		kW	5.13		5.38		5.57		5.97		6.32		6.61		6.74		7.25	
	3000	Cap.	37.6	32.0	43.9	40.3	48.3	44.0	57.8	50.7	66.0	66.0	72.1	72.1	75.0	75.0	86.0	86.0
		kW	5.03		5.25		5.41		5.76		6.08		6.32		6.44		6.89	
80	1800	Cap.	36.8	31.3	43.1	39.6	47.9	43.7	57.1	50.1	64.8	64.8	70.5	70.5	73.4	73.4	83.6	83.6
		kW	5.75		6.09		6.34		6.88		7.35		7.72		7.90		8.58	
	2400	Cap.	37.0	31.4	43.4	39.8	48.0	43.8	57.4	50.3	65.1	65.1	71.1	71.1	73.9	73.9	84.5	84.5
		kW	5.55		5.83		6.04		6.49		6.87		7.18		7.33		7.89	
	3000	Cap.	37.1	31.5	43.5	39.9	48.1	43.9	57.5	50.4	65.3	65.3	71.5	71.5	74.4	74.4	85.0	85.0
		kW	5.44		5.68		5.87		6.26		6.60		6.88		7.01		7.49	

50TFQ008

Return Air (F db)	Cfm (Standard Air)		Air Temperature Entering Outdoor Coil (F)													
			0		10		17		30		40		47		50		60	
55	2000	Cap.	36.6	31.2	44.0	40.4	49.8	45.4	61.4	53.8	70.4	70.4	77.4	77.4	80.6	80.6	91.8	91.8
		kW	5.24		5.64		5.94		6.58		7.08		7.50		7.68		8.32	
	2600	Cap.	37.6	32.0	45.2	41.4	51.2	46.6	63.0	55.2	72.4	72.4	79.6	79.6	83.0	83.0	92.4	92.4
		kW	5.18		5.56		5.82		6.40		6.84		7.20		7.36		7.78	
	3200	Cap.	38.2	32.4	45.8	42.0	51.8	47.2	63.8	55.8	73.6	73.6	81.0	81.0	83.8	83.8	91.2	91.2
		kW	5.16		5.50		5.74		6.28		6.70		7.02		7.12		7.40	
70	2000	Cap.	32.4	27.6	40.4	37.2	46.0	41.8	57.8	50.6	66.8	66.8	73.6	73.6	76.6	76.6	87.8	87.8
		kW	5.42		5.90		6.22		6.92		7.48		7.94		8.16		8.90	
	2600	Cap.	33.4	28.4	41.8	38.2	47.4	43.2	59.6	52.2	68.8	68.8	75.8	75.8	79.0	79.0	90.4	90.4
		kW	5.38		5.82		6.12		6.76		7.28		7.68		7.86		8.48	
	3200	Cap.	34.2	29.0	42.2	38.6	48.4	44.0	60.6	53.0	70.0	70.0	77.2	77.2	80.6	80.6	91.0	91.0
		kW	5.36		5.76		6.06		6.66		7.14		7.50		7.68		8.16	
80	2000	Cap.	29.2	24.8	37.4	34.4	43.4	39.6	54.8	48.0	64.0	64.0	70.8	70.8	73.8	73.8	84.8	84.8
		kW	5.52		6.02		6.40		7.12		7.72		8.22		8.44		9.24	
	2600	Cap.	30.2	25.8	38.8	35.6	44.6	40.6	56.8	49.8	66.2	66.2	73.2	73.2	76.4	76.4	87.8	87.8
		kW	5.48		5.96		6.30		6.98		7.54		7.98		8.18		8.88	
	3200	Cap.	31.0	26.4	39.6	36.4	45.4	41.4	58.0	50.8	67.4	67.4	74.6	74.6	78.0	78.0	89.0	89.0
		kW	5.46		5.92		6.24		6.90		7.42		7.82		8.00		8.58	

LEGEND

Cap. — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
db — dry bulb
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor input, and indoor-fan motor input)

NOTES:
1. ▭ indicates integrated ratings.
2. Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

INSTANTANEOUS AND INTEGRATED HEATING RATINGS (cont)

50TFQ009

Return Air (F db)	Cfm (Standard Air)		Air Temperature Entering Outdoor Coil (F)															
			0		10		17		30		40		47		50		60	
55	2400	Cap.	37.0	34.1	47.1	43.3	54.8	50.0	70.3	61.6	83.2	83.2	92.0	92.0	95.5	95.5	107.9	107.9
		kW	5.30		5.81		6.18		6.92		7.56		8.11		8.27		8.92	
	3200	Cap.	40.7	37.4	51.31	47.1	59.28	54.0	75.51	66.2	88.59	88.6	96.82	96.8	100.58	100.6	112.54	112.5
		kW	5.88		6.36		6.69		7.35		7.96		8.30		8.44		8.93	
	3600	Cap.	42.6	39.2	53.4	49.1	61.5	56.1	78.1	68.4	90.9	90.9	98.9	98.9	102.6	102.6	114.5	114.5
		kW	6.29		6.75		7.07		7.70		8.29		8.56		8.70		9.14	
	4000	Cap.	44.8	41.2	55.7	51.1	63.9	58.2	80.7	70.7	93.1	93.1	98.8	98.8	104.6	104.6	116.5	116.5
		kW	6.78		7.23		7.53		8.15		8.70		8.88		9.05		9.46	
70	2400	Cap.	30.0	27.6	39.8	36.5	47.4	43.2	62.8	55.0	75.4	75.4	85.0	85.0	89.0	89.0	101.6	101.6
		kW	5.38		5.97		6.41		7.25		7.95		8.55		8.85		9.61	
	3200	Cap.	33.3	30.6	43.8	40.2	51.8	47.2	68.0	59.6	81.5	81.5	91.0	91.0	94.6	94.6	107.5	107.5
		kW	5.96		6.53		6.93		7.70		8.34		8.91		9.08		9.68	
	3600	Cap.	35.1	32.3	45.8	42.1	53.9	49.2	70.4	61.7	84.1	84.1	92.4	92.4	97.1	97.1	109.8	109.8
		kW	6.37		6.92		7.31		8.06		8.68		9.21		9.35		9.90	
	4000	Cap.	37.1	34.2	48.0	44.1	56.2	51.3	72.9	63.9	86.7	86.7	95.8	95.8	99.5	99.5	112.0	112.0
		kW	6.85		7.39		7.77		8.50		9.10		9.57		9.71		10.21	
80	2400	Cap.	25.7	23.7	35.0	32.1	42.4	38.6	57.6	50.5	70.1	70.1	79.7	79.7	83.9	83.9	96.8	96.8
		kW	5.52		6.07		6.52		7.45		8.21		8.82		9.12		10.05	
	3200	Cap.	28.6	26.3	38.5	35.3	46.5	42.4	62.6	54.9	75.9	75.9	86.0	86.0	90.2	90.2	103.2	103.2
		kW	6.05		6.62		7.06		7.91		8.59		9.18		9.48		10.14	
	3600	Cap.	30.2	27.8	40.5	37.1	48.6	44.3	65.0	57.0	78.6	78.6	88.7	88.7	92.8	92.8	105.8	105.8
		kW	6.43		7.00		7.44		8.27		8.92		9.50		9.78		10.37	
	4000	Cap.	32.2	29.6	42.6	39.1	50.9	46.4	67.5	59.2	81.2	81.2	91.3	91.3	95.2	95.2	108.3	108.3
		kW	6.90		7.47		7.90		8.71		9.34		9.91		10.13		10.70	

50TFQ012

Return Air (F db)	Cfm (Standard Air)		Air Temperature Entering Outdoor Coil (F)															
			0		10		17		30		40		47		50		60	
55	2650	Cap.	52.2	44.4	62.2	57.0	69.6	63.4	84.2	73.8	96.0	96.0	104.6	104.6	108.8	108.8	123.6	123.6
		kW	7.20		7.58		7.86		8.46		9.00		9.42		9.62		10.38	
	3500	Cap.	52.7	44.8	62.8	57.6	70.2	64.0	85.0	74.4	96.8	96.8	105.8	105.8	109.8	109.8	125.4	125.4
		kW	6.98		7.30		7.52		8.02		8.46		8.80		8.96		9.62	
	4100	Cap.	53.2	45.2	63.0	58.0	70.4	64.2	85.2	74.8	97.2	97.2	105.8	105.8	110.2	110.2	126.0	126.0
		kW	6.88		7.16		7.38		7.82		8.22		8.54		8.68		9.28	
	4400	Cap.	53.2	45.2	63.2	58.0	70.6	64.4	85.4	74.8	97.4	97.4	106.0	106.0	110.4	110.4	126.4	126.4
		kW	6.84		7.12		7.32		7.74		8.14		8.44		8.58		9.14	
70	2650	Cap.	49.8	42.2	59.2	54.4	67.0	61.2	82.0	72.0	94.0	94.0	102.6	102.6	106.8	106.8	121.2	121.2
		kW	8.08		8.50		8.86		9.56		10.14		10.62		10.86		11.72	
	3500	Cap.	50.6	43.0	60.2	55.2	63.2	62.2	83.2	72.8	95.2	95.2	103.8	103.8	108.0	108.0	122.8	122.8
		kW	7.86		8.20		8.50		9.04		9.52		9.92		10.10		10.80	
	4100	Cap.	51.0	43.2	60.6	55.6	68.6	62.6	83.6	73.2	95.6	95.6	104.2	104.2	108.4	108.4	123.4	123.4
		kW	7.74		8.06		8.32		8.82		9.26		9.62		9.78		10.40	
	4400	Cap.	51.0	43.4	60.8	55.8	68.8	62.6	83.8	73.4	95.8	95.8	104.4	104.4	108.6	108.6	123.8	123.8
		kW	7.70		8.02		8.26		8.74		9.16		9.50		9.66		10.26	
80	2650	Cap.	47.6	40.6	57.6	52.8	64.6	58.8	80.2	70.4	92.0	92.0	101.0	101.0	105.2	105.2	119.8	119.8
		kW	8.72		9.20		9.56		10.36		11.00		11.52		11.76		12.70	
	3500	Cap.	48.6	41.4	58.6	53.8	66.0	60.2	81.6	71.4	93.6	93.6	102.4	102.4	106.6	106.6	121.2	121.2
		kW	8.48		8.88		9.18		9.82		10.34		10.74		10.96		11.70	
	4100	Cap.	49.0	41.8	58.6	53.8	66.6	60.8	82.0	71.8	94.2	94.2	103.0	103.0	107.2	107.2	121.8	121.8
		kW	8.36		8.72		9.02		9.58		10.04		10.42		10.60		11.28	
	4400	Cap.	49.2	41.8	58.8	54.0	66.8	61.0	82.2	72.2	94.4	94.4	103.2	103.2	107.4	107.4	122.2	122.2
		kW	8.32		8.66		8.94		9.48		9.92		10.28		10.46		11.10	

LEGEND

Cap. — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
db — dry bulb
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor input, and indoor-fan motor input)

NOTES:
1. ▭ indicates integrated ratings.
2. Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

Performance data — 50TFQ (cont)

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS

50TFQ004 (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	Watts	ESP	Bhp	Watts	ESP	Bhp	Watts	ESP	Bhp	Watts
900	0.67	0.21	253	0.68	0.23	277	0.69	0.26	307	0.69	0.31	363
1000	0.60	0.23	270	0.61	0.25	292	0.61	0.27	321	0.63	0.32	374
1100	0.55	0.24	287	0.56	0.26	307	0.57	0.28	335	0.58	0.33	385
1200	0.51	0.26	304	0.51	0.27	323	0.52	0.29	349	0.53	0.34	397
1300	0.45	0.27	321	0.46	0.29	338	0.46	0.31	364	0.47	0.34	408
1400	0.38	0.29	338	0.41	0.30	354	0.43	0.32	378	—	—	—
1500	0.34	0.30	355	0.36	0.31	369	0.38	0.33	392	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
ESP — External Static Pressure (in. wg)
Watts — Input Watts to Motor

See General Fan Performance notes below.

50TFQ004 (3 TONS) — ALTERNATE MOTOR AND DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
900	**643**	**0.15**	**152**	768	0.22	222	870	0.30	296	958	0.37	373	**1037**	**0.46**	**454**
1000	**683**	**0.19**	**191**	804	0.27	268	904	0.35	348	991	0.43	430	**1069**	**0.52**	**517**
1100	**725**	**0.24**	**237**	842	0.32	321	939	0.41	407	**1025**	**0.50**	**496**	**1102**	**0.59**	**588**
1200	767	0.29	291	880	0.38	382	976	0.48	474	**1060**	**0.57**	**570**	**1136**	**0.67**	**668**
1300	811	0.35	352	920	0.45	451	**1013**	**0.55**	**550**	**1095**	**0.66**	**652**	**1170**	**0.76**	**756**
1400	855	0.43	423	960	0.53	529	**1051**	**0.64**	**636**	**1132**	**0.75**	**744**	**1205**	**0.86**	**855**
1500	900	0.51	504	**1002**	**0.62**	**617**	**1090**	**0.74**	**731**	**1169**	**0.85**	**846**	**1242**	**0.97**	**963**

50TFQ004 (3 TONS) — ALTERNATE MOTOR AND DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
900	**1110**	**0.54**	**538**	**1177**	**0.63**	**627**	**1239**	**0.72**	**718**	**1298**	**0.82**	**813**	**1355**	**0.92**	**911**
1000	**1141**	**0.61**	**607**	**1207**	**0.70**	**700**	**1269**	**0.80**	**796**	**1328**	**0.90**	**895**	**1384**	**1.00**	**998**
1100	**1173**	**0.69**	**683**	**1238**	**0.79**	**781**	**1300**	**0.89**	**883**	**1358**	**0.99**	**987**	—	—	—
1200	**1205**	**0.77**	**768**	**1270**	**0.88**	**872**	**1332**	**0.98**	**979**	—	—	—	—	—	—
1300	**1239**	**0.87**	**863**	**1303**	**0.98**	**972**	—	—	—	—	—	—	—	—	—
1400	**1273**	**0.97**	**967**	—	—	—	—	—	—	—	—	—	—	—	—
1500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 760 to 1000 rpm. All other rpms require a field-supplied drive.

See General Fan Performance notes below.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 1.00.

GENERAL FAN PERFORMANCE NOTES

1. Extensive motor and electrical testing on these units ensures that the full range of the motor can be utilized with confidence. Using your fan motors up to the wattage ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected. For additional information on motor performance, refer to Indoor Fan Motor Performance table on page 61.
2. Values include losses for filters, unit casing, and wet coils. See Accessory/FIOP Static Pressure tables on page 57 for accessory static pressure information.
3. Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative for details.
4. Interpolation is permissible. Do not extrapolate.

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50TFQ004 (3 TONS) — HIGH-STATIC MOTOR AND DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
900	**643**	**0.15**	**152**	**768**	**0.22**	**222**	**870**	**0.30**	**296**	**958**	**0.37**	**373**	**1037**	**0.46**	**454**
1000	**683**	**0.19**	**191**	**804**	**0.27**	**268**	**904**	**0.35**	**348**	**991**	**0.43**	**430**	**1069**	**0.52**	**517**
1100	**725**	**0.24**	**237**	**842**	**0.32**	**321**	**939**	**0.41**	**407**	**1025**	**0.50**	**496**	1102	0.59	588
1200	**767**	**0.29**	**291**	**880**	**0.38**	**382**	**976**	**0.48**	**474**	**1060**	**0.57**	**570**	1136	0.67	668
1300	**811**	**0.35**	**352**	**920**	**0.45**	**451**	**1013**	**0.55**	**550**	1095	0.66	652	1170	0.76	756
1400	**855**	**0.43**	**423**	**960**	**0.53**	**529**	**1051**	**0.64**	**636**	1132	0.75	744	1205	0.86	855
1500	**900**	**0.51**	**504**	**1002**	**0.62**	**617**	1090	0.74	731	1169	0.85	846	1242	0.97	963

50TFQ004 (3 TONS) — HIGH-STATIC MOTOR AND DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
900	1110	0.54	538	1177	0.63	627	1239	0.72	718	1298	0.82	813	1355	0.92	911
1000	1141	0.61	607	1207	0.70	700	1269	0.80	796	1328	0.90	895	1384	1.00	998
1100	1173	0.69	683	1238	0.79	781	1300	0.89	883	1358	0.99	987	1414	1.10	1094
1200	1205	0.77	768	1270	0.88	872	1332	0.98	979	1389	1.09	1088	1444	1.21	1200
1300	1239	0.87	863	1303	0.98	972	1364	1.09	1084	1421	1.21	1199	**1475**	**1.32**	**1316**
1400	1273	0.97	967	1337	1.09	1082	1397	1.21	1200	1453	1.33	1320	**1507**	**1.45**	**1443**
1500	1309	1.09	1082	1371	1.21	1204	1430	1.33	1327	**1486**	**1.46**	**1453**	**1540**	**1.59**	**1581**

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1075 to 1455 rpm. All other rpms require a field-supplied drive.

See General Fan Performance notes on page 30.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.40.

50TFQ005 (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	Watts	ESP	Bhp	Watts	ESP	Bhp	Watts	ESP	Bhp	Watts
1200	0.93	0.41	458	0.94	0.45	506	0.94	0.51	572	0.99	0.56	632
1300	0.86	0.42	471	0.87	0.46	521	0.87	0.52	589	0.92	0.58	651
1400	0.78	0.45	503	0.79	0.49	556	0.79	0.54	616	0.87	0.60	681
1500	0.70	0.47	536	0.73	0.52	593	0.73	0.56	631	0.80	0.62	698
1600	0.61	0.49	557	0.64	0.54	616	0.66	0.58	654	0.76	0.64	723
1700	0.51	0.52	584	0.54	0.57	646	0.58	0.60	678	0.68	0.66	750
1800	0.40	0.54	610	0.44	0.60	674	0.51	0.62	698	0.63	0.68	772
1900	0.29	0.56	629	0.37	0.62	696	0.46	0.64	720	0.56	0.70	796
2000	0.25	0.58	651	0.30	0.64	720	0.39	0.66	744	0.50	0.73	823

LEGEND

See General Fan Performance notes on page 30.

Bhp — Brake Horsepower Input to Fan
ESP — External Static Pressure (in. wg)
Watts — Input Watts to Motor

Performance data — 50TFQ (cont)

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50TFQ005 (4 TONS) — ALTERNATE MOTOR AND DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1200	**767**	**0.29**	**291**	880	0.38	382	976	0.48	474	1060	0.57	570	1136	0.67	668
1300	811	0.35	352	920	0.45	451	1013	0.55	550	1095	0.66	652	1170	0.76	756
1400	855	0.43	423	960	0.53	529	1051	0.64	636	1132	0.75	744	**1205**	**0.86**	**855**
1500	900	0.51	504	1002	0.62	617	1090	0.74	731	1169	0.85	846	**1242**	**0.97**	**963**
1600	945	0.60	594	1044	0.72	716	1130	0.84	837	**1207**	**0.96**	**959**	—	—	—
1700	991	0.70	696	1086	0.83	825	1170	0.96	954	—	—	—	—	—	—
1800	1038	0.81	810	1130	0.95	947	—	—	—	—	—	—	—	—	—
1900	1085	0.94	936	—	—	—	—	—	—	—	—	—	—	—	—
2000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

50TFQ005 (4 TONS) — ALTERNATE MOTOR AND DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1200	**1205**	**0.77**	**768**	**1270**	**0.88**	**872**	**1332**	**0.98**	**979**	—	—	—	—	—	—
1300	**1239**	**0.87**	**863**	**1303**	**0.98**	**972**	—	—	—	—	—	—	—	—	—
1400	**1273**	**0.97**	**967**	—	—	—	—	—	—	—	—	—	—	—	—
1500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 770 to 1175 rpm. All other rpms require a field-supplied drive.

See General Fan Performance notes on page 30.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 1.00.

50TFQ005 (4 TONS) — HIGH-STATIC MOTOR AND DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1200	**767**	**0.29**	**291**	**880**	**0.38**	**382**	**976**	**0.48**	**474**	**1060**	**0.57**	**570**	1136	0.67	668
1300	**811**	**0.35**	**352**	**920**	**0.45**	**451**	**1013**	**0.55**	**550**	1095	0.66	652	1170	0.76	756
1400	**855**	**0.43**	**423**	**960**	**0.53**	**529**	**1051**	**0.64**	**636**	1132	0.75	744	1205	0.86	855
1500	**900**	**0.51**	**504**	**1002**	**0.62**	**617**	1090	0.74	731	1169	0.85	846	1242	0.97	963
1600	**945**	**0.60**	**594**	**1044**	**0.72**	**716**	1130	0.84	837	1207	0.96	959	1278	1.09	1083
1700	**991**	**0.70**	**696**	1086	0.83	825	1170	0.96	954	1246	1.09	1083	1316	1.22	1214
1800	**1038**	**0.81**	**810**	1130	0.95	947	1211	1.09	1083	1286	1.23	1219	1354	1.36	1357
1900	1085	0.94	936	1174	1.09	1081	1253	1.23	1224	1326	1.38	1368	1393	1.52	1513
2000	1132	1.08	1075	1218	1.23	1228	1296	1.39	1379	1367	1.54	1531	1432	1.69	1682

50TFQ005 (4 TONS) — HIGH-STATIC MOTOR AND DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1200	1205	0.77	768	1270	0.88	872	1332	0.98	979	1389	1.09	1088	1444	1.21	1200
1300	1239	0.87	863	1303	0.98	972	1364	1.09	1084	1421	1.21	1199	**1475**	**1.32**	**1316**
1400	1273	0.97	967	1337	1.09	1082	1397	1.21	1200	1453	1.33	1320	**1507**	**1.45**	**1443**
1500	1309	1.09	1082	1371	1.21	1204	1430	1.33	1327	**1486**	**1.46**	**1453**	**1540**	**1.59**	**1581**
1600	1344	1.21	1208	1406	1.34	1336	**1465**	**1.47**	**1465**	**1520**	**1.61**	**1597**	**1573**	**1.74**	**1731**
1700	1381	1.35	1346	1442	1.49	1480	**1500**	**1.62**	**1616**	**1555**	**1.76**	**1753**	**1607**	**1.90**	**1893**
1800	1418	1.50	1496	**1478**	**1.64**	**1636**	**1535**	**1.79**	**1778**	**1589**	**1.93**	**1922**	**1641**	**2.08**	**2068**
1900	**1456**	**1.67**	**1658**	**1515**	**1.82**	**1806**	**1571**	**1.96**	**1954**	**1625**	**2.12**	**2104**	**1676**	**2.27**	**2256**
2000	**1494**	**1.84**	**1835**	**1553**	**2.00**	**1989**	**1608**	**2.16**	**2144**	**1661**	**2.31**	**2301**	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1075 to 1455 rpm. All other rpms require a field-supplied drive.

See General Fan Performance notes on page 30.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.40.

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50TFQ006 (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	Watts	ESP	Bhp	Watts	ESP	Bhp	Watts	ESP	Bhp	Watts	ESP	Bhp	Watts	ESP	Bhp	Watts
1500	0.88	0.67	750	1.20	0.71	791	1.19	0.70	782	1.36	0.76	845	1.38	0.79	875	1.44	0.85	949
1600	0.68	0.70	780	1.04	0.74	824	1.04	0.74	821	1.22	0.79	883	1.25	0.82	913	1.33	0.89	988
1700	0.51	0.73	810	0.89	0.77	857	0.89	0.77	861	1.09	0.83	921	1.13	0.85	950	1.22	0.92	1027
1800	0.35	0.75	839	0.73	0.80	891	0.74	0.81	900	0.96	0.86	959	1.00	0.89	988	1.11	0.96	1066
1900	0.26	0.78	873	0.58	0.83	924	0.59	0.84	940	0.86	0.90	997	0.88	0.92	1025	1.00	0.99	1105
2000	0.18	0.81	905	0.42	0.86	957	0.44	0.88	979	0.73	0.93	1035	0.78	0.95	1063	0.92	1.03	1144
2100	0.08	0.84	940	0.27	0.89	990	0.29	0.91	1018	0.59	0.96	1073	0.63	0.99	1101	0.81	1.06	1183
2200	—	—	—	0.19	0.92	1023	0.19	0.93	1035	0.46	1.00	1111	0.49	1.02	1138	0.69	1.10	1222
2300	—	—	—	0.11	0.95	1056	0.11	0.97	1076	0.34	1.03	1149	0.41	1.06	1176	0.59	1.13	1261
2400	—	—	—	0.03	0.98	1096	0.04	1.00	1113	0.19	1.07	1187	0.22	1.09	1213	0.43	1.17	1300
2500	—	—	—	—	—	—	—	—	—	0.09	1.10	1225	0.12	1.12	1251	0.34	1.20	1340

LEGEND

Bhp — Brake Horsepower Input to Fan
ESP — External Static Pressure (in. wg)
Watts — Input Watts to Motor

See General Fan Performance notes on page 30.

50TFQ006 (5 TONS) — ALTERNATE MOTOR AND BELT DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1500	**807**	**0.42**	**369**	913	0.56	489	1011	0.71	621	1103	0.87	766	1188	1.05	923
1600	**847**	**0.49**	**432**	948	0.63	557	1042	0.79	694	1130	0.96	843	**1213**	**1.14**	**1003**
1700	887	0.57	501	983	0.72	632	1073	0.88	774	1158	1.06	928	**1239**	**1.24**	**1092**
1800	928	0.66	579	1020	0.82	715	1106	0.98	863	1188	1.16	1021	**1266**	**1.35**	**1189**
1900	969	0.76	666	1057	0.92	808	1140	1.09	960	**1219**	**1.28**	**1123**	**1295**	**1.48**	**1296**
2000	1010	0.87	761	1095	1.04	909	1175	1.21	1066	**1251**	**1.41**	**1234**	**1325**	**1.61**	**1411**
2100	1052	0.99	866	1133	1.16	1019	**1211**	**1.35**	**1182**	**1285**	**1.54**	**1355**	**1355**	**1.75**	**1537**
2200	1095	1.12	981	1173	1.30	1140	**1247**	**1.49**	**1308**	**1319**	**1.69**	**1486**	**1387**	**1.91**	**1673**
2300	1137	1.26	1105	**1212**	**1.45**	**1271**	**1284**	**1.65**	**1445**	**1353**	**1.85**	**1628**	**1420**	**2.07**	**1820**
2400	1180	1.41	1241	**1252**	**1.61**	**1412**	**1322**	**1.81**	**1592**	**1389**	**2.03**	**1781**	**1454**	**2.25**	**1977**
2500	**1223**	**1.58**	**1388**	**1293**	**1.78**	**1565**	**1360**	**1.99**	**1751**	**1425**	**2.22**	**1945**	—	—	—

50TFQ006 (5 TONS) — ALTERNATE MOTOR AND BELT DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1500	**1270**	**1.24**	**1091**	**1347**	**1.45**	**1269**	**1421**	**1.66**	**1458**	**1492**	**1.89**	**1657**	**1561**	**2.13**	**1865**
1600	**1292**	**1.34**	**1174**	**1367**	**1.54**	**1356**	**1440**	**1.76**	**1547**	**1509**	**1.99**	**1748**	**1576**	**2.23**	**1959**
1700	**1315**	**1.44**	**1267**	**1389**	**1.65**	**1451**	**1459**	**1.88**	**1646**	**1527**	**2.11**	**1849**	**1593**	**2.35**	**2062**
1800	**1341**	**1.56**	**1368**	**1412**	**1.77**	**1556**	**1481**	**2.00**	**1753**	**1547**	**2.23**	**1960**	—	—	—
1900	**1367**	**1.68**	**1478**	**1437**	**1.90**	**1670**	**1504**	**2.13**	**1871**	**1569**	**2.37**	**2080**	—	—	—
2000	**1395**	**1.82**	**1598**	**1463**	**2.04**	**1794**	**1528**	**2.28**	**1998**	—	—	—	—	—	—
2100	**1424**	**1.97**	**1728**	**1490**	**2.20**	**1928**	—	—	—	—	—	—	—	—	—
2200	**1454**	**2.13**	**1869**	**1518**	**2.36**	**2073**	—	—	—	—	—	—	—	—	—
2300	**1485**	**2.30**	**2020**	—	—	—	—	—	—	—	—	—	—	—	—
2400	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 878 to 1192 rpm. All other rpms require a field-supplied drive.

See General Fan Performance notes on page 30.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 1.30 for single-phase units and 2.40 for three-phase units.

Performance data — 50TFQ (cont)

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50TFQ006 (5 TONS) — HIGH-STATIC MOTOR AND DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1500	**807**	**0.42**	**369**	**913**	**0.56**	**489**	**1011**	**0.71**	**621**	**1103**	**0.87**	**766**	**1188**	**1.05**	**923**
1600	**847**	**0.49**	**432**	**948**	**0.63**	**557**	**1042**	**0.79**	**694**	**1130**	**0.96**	**843**	**1213**	**1.14**	**1003**
1700	**887**	**0.57**	**501**	**983**	**0.72**	**632**	**1073**	**0.88**	**774**	**1158**	**1.06**	**928**	**1239**	**1.24**	**1092**
1800	**928**	**0.66**	**579**	**1020**	**0.82**	**715**	**1106**	**0.98**	**863**	**1188**	**1.16**	**1021**	**1266**	**1.35**	**1189**
1900	**969**	**0.76**	**666**	**1057**	**0.92**	**808**	**1140**	**1.09**	**960**	**1219**	**1.28**	**1123**	**1295**	**1.48**	**1296**
2000	**1010**	**0.87**	**761**	**1095**	**1.04**	**909**	**1175**	**1.21**	**1066**	**1251**	**1.41**	**1234**	1325	1.61	1411
2100	**1052**	**0.99**	**866**	**1133**	**1.16**	**1019**	**1211**	**1.35**	**1182**	**1285**	**1.54**	**1355**	1355	1.75	1537
2200	**1095**	**1.12**	**981**	**1173**	**1.30**	**1140**	**1247**	**1.49**	**1308**	1319	1.69	1486	1387	1.91	1673
2300	**1137**	**1.26**	**1105**	**1212**	**1.45**	**1271**	**1284**	**1.65**	**1445**	1353	1.85	1628	1420	2.07	1820
2400	**1180**	**1.41**	**1241**	**1252**	**1.61**	**1412**	1322	1.81	1592	1389	2.03	1781	1454	2.25	1977
2500	**1223**	**1.58**	**1388**	**1293**	**1.78**	**1565**	1360	1.99	1751	1425	2.22	1945	1488	2.45	2147

50TFQ006 (5 TONS) — HIGH-STATIC MOTOR AND DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1500	**1270**	**1.24**	**1091**	1347	1.45	1269	1421	1.66	1458	1492	1.89	1657	1561	2.13	1865
1600	**1292**	**1.34**	**1174**	1367	1.54	1356	1440	1.76	1547	1509	1.99	1748	1576	2.23	1959
1700	1315	1.44	1267	1389	1.65	1451	1459	1.88	1646	1527	2.11	1849	1593	2.35	2062
1800	1341	1.56	1368	1412	1.77	1556	1481	2.00	1753	1547	2.23	1960	1612	2.48	2175
1900	1367	1.68	1478	1437	1.90	1670	1504	2.13	1871	1569	2.37	2080	1632	2.62	2299
2000	1395	1.82	1598	1463	2.04	1794	1528	2.28	1998	1591	2.52	2212	1653	2.77	2433
2100	1424	1.97	1728	1490	2.20	1928	1554	2.43	2136	1615	2.68	2353	—	—	—
2200	1454	2.13	1869	1518	2.36	2073	1580	2.60	2285	1641	2.85	2505	—	—	—
2300	1485	2.30	2020	1547	2.54	2228	1608	2.79	2445	—	—	—	—	—	—
2400	1516	2.49	2182	1577	2.73	2395	—	—	—	—	—	—	—	—	—
2500	1549	2.69	2357	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1300 to 1685 rpm. All other rpms require a field-supplied drive.

See General Fan Performance notes on page 30.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.90.

50TFQ007 (6 TONS) — STANDARD MOTOR AND BELT DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1800	**928**	**0.66**	**579**	**1020**	**0.82**	**715**	1106	0.98	863	1188	1.16	1021	1266	1.35	1189
1900	**969**	**0.76**	**666**	**1057**	**0.92**	**808**	1140	1.09	960	1219	1.28	1123	1295	1.48	1296
2000	**1010**	**0.87**	**761**	1095	1.04	909	1175	1.21	1066	1251	1.41	1234	1325	1.61	1411
2100	**1052**	**0.99**	**866**	1133	1.16	1019	1211	1.35	1182	1285	1.54	1355	1355	1.75	1537
2200	1095	1.12	981	1173	1.30	1140	1247	1.49	1308	1319	1.69	1486	1387	1.91	1673
2300	1137	1.26	1105	1212	1.45	1271	1284	1.65	1445	1353	1.85	1628	1420	2.07	1820
2400	1180	1.41	1241	1252	1.61	1412	1322	1.81	1592	1389	2.03	1781	1454	2.25	1977
2500	1223	1.58	1388	1293	1.78	1565	1360	1.99	1751	1425	2.22	1945	—	—	—
2600	1267	1.76	1546	1334	1.97	1730	1399	2.19	1921	—	—	—	—	—	—
2700	1310	1.96	1717	1375	2.17	1907	1438	2.40	2104	—	—	—	—	—	—
2800	1354	2.17	1901	1417	2.39	2096	—	—	—	—	—	—	—	—	—
2900	1398	2.39	2098	—	—	—	—	—	—	—	—	—	—	—	—
3000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

50TFQ007 (6 TONS) — STANDARD MOTOR AND BELT DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1800	1341	1.56	1368	1412	1.77	1556	**1481**	**2.00**	**1753**	**1547**	**2.23**	**1960**	—	—	—
1900	1367	1.68	1478	1437	1.90	1670	**1504**	**2.13**	**1871**	**1569**	**2.37**	**2080**	—	—	—
2000	1395	1.82	1598	**1463**	**2.04**	**1794**	**1528**	**2.28**	**1998**	—	—	—	—	—	—
2100	1424	1.97	1728	**1490**	**2.20**	**1928**	—	—	—	—	—	—	—	—	—
2200	1454	2.13	1869	**1518**	**2.36**	**2073**	—	—	—	—	—	—	—	—	—
2300	**1485**	**2.30**	**2020**	—	—	—	—	—	—	—	—	—	—	—	—
2400	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1070 to 1460 rpm. All other rpms require a field-supplied drive.

See General Fan Performance notes on page 30.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.40.

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50TFQ007 (6 TONS) — HIGH-STATIC MOTOR AND BELT DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1800	**928**	**0.66**	**579**	**1020**	**0.82**	**715**	**1106**	**0.98**	**863**	**1188**	**1.16**	**1021**	**1266**	**1.35**	**1189**
1900	**969**	**0.76**	**666**	**1057**	**0.92**	**808**	**1140**	**1.09**	**960**	**1219**	**1.28**	**1123**	**1295**	**1.48**	**1296**
2000	**1010**	**0.87**	**761**	**1095**	**1.04**	**909**	**1175**	**1.21**	**1066**	**1251**	**1.41**	**1234**	1325	1.61	1411
2100	**1052**	**0.99**	**866**	**1133**	**1.16**	**1019**	**1211**	**1.35**	**1182**	**1285**	**1.54**	**1355**	1355	1.75	1537
2200	**1095**	**1.12**	**981**	**1173**	**1.30**	**1140**	**1247**	**1.49**	**1308**	1319	1.69	1486	1387	1.91	1673
2300	**1137**	**1.26**	**1105**	**1212**	**1.45**	**1271**	**1284**	**1.65**	**1445**	1353	1.85	1628	1420	2.07	1820
2400	**1180**	**1.41**	**1241**	**1252**	**1.61**	**1412**	1322	1.81	1592	1389	2.03	1781	1454	2.25	1977
2500	**1223**	**1.58**	**1388**	**1293**	**1.78**	**1565**	1360	1.99	1751	1425	2.22	1945	1488	2.45	2147
2600	**1267**	**1.76**	**1546**	1334	1.97	1730	1399	2.19	1921	1462	2.42	2121	1523	2.65	2328
2700	1310	1.96	1717	1375	2.17	1907	1438	2.40	2104	1499	2.63	2309	1559	2.87	2522
2800	1354	2.17	1901	1417	2.39	2096	1478	2.62	2300	1537	2.86	2510	—	—	—
2900	1398	2.39	2098	1459	2.62	2299	1518	2.86	2508	—	—	—	—	—	—
3000	1442	2.63	2308	1501	2.87	2516	—	—	—	—	—	—	—	—	—

50TFQ007 (6 TONS) — HIGH-STATIC MOTOR AND BELT DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1800	1341	1.56	1368	1412	1.77	1556	1481	2.00	1753	1547	2.23	1960	1612	2.48	2175
1900	1367	1.68	1478	1437	1.90	1670	1504	2.13	1871	1569	2.37	2080	1632	2.62	2299
2000	1395	1.82	1598	1463	2.04	1794	1528	2.28	1998	1591	2.52	2212	1653	2.77	2433
2100	1424	1.97	1728	1490	2.20	1928	1554	2.43	2136	1615	2.68	2353	—	—	—
2200	1454	2.13	1869	1518	2.36	2073	1580	2.60	2285	1641	2.85	2505	—	—	—
2300	1485	2.30	2020	1547	2.54	2228	1608	2.79	2445	—	—	—	—	—	—
2400	1516	2.49	2182	1577	2.73	2395	—	—	—	—	—	—	—	—	—
2500	1549	2.69	2357	—	—	—	—	—	—	—	—	—	—	—	—
2600	1583	2.90	2543	—	—	—	—	—	—	—	—	—	—	—	—
2700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1300 to 1685 rpm. All other rpms require a field-supplied drive.

See General Fan Performance notes on page 30.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.90.

Performance data — 50TFQ (cont)

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50TFQ008 (7½ TONS) — STANDARD MOTOR AND DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2250	**511**	**0.58**	**538**	591	0.75	697	660	0.93	864	722	1.12	1041	779	1.32	1228
2300	**519**	**0.61**	**567**	597	0.78	729	666	0.97	900	727	1.16	1079	784	1.36	1268
2400	**534**	**0.68**	**630**	611	0.86	798	678	1.04	974	739	1.24	1158	794	1.45	1352
2500	**550**	**0.75**	**698**	624	0.93	872	690	1.13	1053	750	1.33	1243	805	1.55	1441
2550	**557**	**0.79**	**733**	631	0.98	910	697	1.17	1095	756	1.38	1287	811	1.60	1488
2600	**565**	**0.83**	**770**	638	1.02	950	703	1.22	1138	762	1.43	1333	816	1.65	1536
2700	**581**	**0.91**	**848**	652	1.11	1034	716	1.32	1228	774	1.53	1428	828	1.75	1636
2800	597	1.00	932	667	1.21	1124	729	1.42	1323	786	1.64	1529	839	1.87	1742
2900	613	1.09	1020	681	1.31	1220	743	1.53	1425	799	1.75	1636	**851**	**1.99**	**1855**
3000	629	1.20	1115	696	1.42	1321	756	1.64	1532	812	1.88	1749	**863**	**2.12**	**1973**
3100	646	1.30	1217	711	1.53	1428	770	1.76	1645	825	2.00	1869	**875**	**2.25**	**2098**
3200	662	1.42	1324	726	1.65	1542	784	1.89	1765	838	2.14	1994	**888**	**2.39**	**2229**
3300	679	1.54	1438	741	1.78	1663	798	2.03	1892	**851**	**2.28**	**2126**	—	—	—
3400	695	1.67	1558	756	1.92	1790	812	2.17	2025	—	—	—	—	—	—
3500	712	1.81	1686	772	2.06	1923	827	2.32	2165	—	—	—	—	—	—
3600	729	1.95	1820	787	2.21	2065	—	—	—	—	—	—	—	—	—
3700	746	2.10	1962	803	2.37	2213	—	—	—	—	—	—	—	—	—
3750	754	2.18	2036	—	—	—	—	—	—	—	—	—	—	—	—

50TFQ008 (7½ TONS) — STANDARD MOTOR AND DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2250	831	1.53	1423	**880**	**1.74**	**1627**	**927**	**1.97**	**1840**	**971**	**2.21**	**2061**	—	—	—
2300	836	1.57	1465	**885**	**1.79**	**1671**	**931**	**2.02**	**1886**	**975**	**2.26**	**2109**	—	—	—
2400	**846**	**1.67**	**1554**	**895**	**1.89**	**1764**	**941**	**2.13**	**1982**	**984**	**2.37**	**2209**	—	—	—
2500	**856**	**1.77**	**1647**	**905**	**2.00**	**1862**	**950**	**2.24**	**2085**	—	—	—	—	—	—
2550	**862**	**1.82**	**1697**	**910**	**2.05**	**1913**	**955**	**2.29**	**2138**	—	—	—	—	—	—
2600	**867**	**1.87**	**1747**	**915**	**2.11**	**1966**	**960**	**2.35**	**2193**	—	—	—	—	—	—
2700	**878**	**1.99**	**1852**	**925**	**2.23**	**2076**	—	—	—	—	—	—	—	—	—
2800	**889**	**2.11**	**1963**	**936**	**2.35**	**2192**	—	—	—	—	—	—	—	—	—
2900	**900**	**2.23**	**2080**	—	—	—	—	—	—	—	—	—	—	—	—
3000	**912**	**2.36**	**2204**	—	—	—	—	—	—	—	—	—	—	—	—
3100	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3300	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3400	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3750	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 590 to 840 rpm. All other rpms require field-supplied drive.

Refer to page 30 General Fan Performance Notes.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.40.

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50TFQ008 (7½ TONS) — ALTERNATE DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2250	**511**	**0.58**	**538**	**591**	**0.75**	**697**	**660**	**0.93**	**864**	722	1.12	1041	779	1.32	1228
2300	**519**	**0.61**	**567**	**597**	**0.78**	**729**	**666**	**0.97**	**900**	727	1.16	1079	784	1.36	1268
2400	**534**	**0.68**	**630**	**611**	**0.86**	**798**	**678**	**1.04**	**974**	739	1.24	1158	794	1.45	1352
2500	**550**	**0.75**	**698**	**624**	**0.93**	**872**	690	1.13	1053	750	1.33	1243	805	1.55	1441
2550	**557**	**0.79**	**733**	**631**	**0.98**	**910**	697	1.17	1095	756	1.38	1287	811	1.60	1488
2600	**565**	**0.83**	**770**	**638**	**1.02**	**950**	703	1.22	1138	762	1.43	1333	816	1.65	1536
2700	**581**	**0.91**	**848**	**652**	**1.11**	**1034**	716	1.32	1228	774	1.53	1428	828	1.75	1636
2800	**597**	**1.00**	**932**	**667**	**1.21**	**1124**	729	1.42	1323	786	1.64	1529	839	1.87	1742
2900	**613**	**1.09**	**1020**	**681**	**1.31**	**1220**	743	1.53	1425	799	1.75	1636	851	1.99	1855
3000	**629**	**1.20**	**1115**	696	1.42	1321	756	1.64	1532	812	1.88	1749	863	2.12	1973
3100	**646**	**1.30**	**1217**	711	1.53	1428	770	1.76	1645	825	2.00	1869	875	2.25	2098
3200	**662**	**1.42**	**1324**	726	1.65	1542	784	1.89	1765	838	2.14	1994	888	2.39	2229
3300	**679**	**1.54**	**1438**	741	1.78	1663	798	2.03	1892	851	2.28	2126	—	—	—
3400	695	1.67	1558	756	1.92	1790	812	2.17	2025	—	—	—	—	—	—
3500	712	1.81	1686	772	2.06	1923	827	2.32	2165	—	—	—	—	—	—
3600	729	1.95	1820	787	2.21	2065	—	—	—	—	—	—	—	—	—
3700	746	2.10	1962	803	2.37	2213	—	—	—	—	—	—	—	—	—
3750	754	2.18	2036	—	—	—	—	—	—	—	—	—	—	—	—

50TFQ008 (7½ TONS) — ALTERNATE DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2250	831	1.53	1423	880	1.74	1627	927	1.97	1840	**971**	**2.21**	**2061**	—	—	—
2300	836	1.57	1465	885	1.79	1671	931	2.02	1886	**975**	**2.26**	**2109**	—	—	—
2400	846	1.67	1554	895	1.89	1764	**941**	**2.13**	**1982**	**984**	**2.37**	**2209**	—	—	—
2500	856	1.77	1647	905	2.00	1862	**950**	**2.24**	**2085**	—	—	—	—	—	—
2550	862	1.82	1697	910	2.05	1913	**955**	**2.29**	**2138**	—	—	—	—	—	—
2600	867	1.87	1747	915	2.11	1966	**960**	**2.35**	**2193**	—	—	—	—	—	—
2700	878	1.99	1852	925	2.23	2076	—	—	—	—	—	—	—	—	—
2800	889	2.11	1963	**936**	**2.35**	**2192**	—	—	—	—	—	—	—	—	—
2900	900	2.23	2080	—	—	—	—	—	—	—	—	—	—	—	—
3000	912	2.36	2204	—	—	—	—	—	—	—	—	—	—	—	—
3100	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3300	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3400	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3750	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 685 to 935 rpm. All other rpms require field-supplied drive.

Refer to page 30 General Fan Performance Notes.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.40.

Performance data — 50TFQ (cont)

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50TFQ008 (7½ TONS) — HIGH-STATIC MOTOR AND DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2250	**511**	**0.58**	**538**	**591**	**0.75**	**697**	**660**	**0.93**	**864**	**722**	**1.12**	**1041**	**779**	**1.32**	**1228**
2300	**519**	**0.61**	**567**	**597**	**0.78**	**729**	**666**	**0.97**	**900**	**727**	**1.16**	**1079**	**784**	**1.36**	**1268**
2400	**534**	**0.68**	**630**	**611**	**0.86**	**798**	**678**	**1.04**	**974**	**739**	**1.24**	**1158**	**794**	**1.45**	**1352**
2500	**550**	**0.75**	**698**	**624**	**0.93**	**872**	**690**	**1.13**	**1053**	**750**	**1.33**	**1243**	**805**	**1.55**	**1441**
2550	**557**	**0.79**	**733**	**631**	**0.98**	**910**	**697**	**1.17**	**1095**	**756**	**1.38**	**1287**	**811**	**1.60**	**1488**
2600	**565**	**0.83**	**770**	**638**	**1.02**	**950**	**703**	**1.22**	**1138**	**762**	**1.43**	**1333**	**816**	**1.65**	**1536**
2700	**581**	**0.91**	**848**	**652**	**1.11**	**1034**	**716**	**1.32**	**1228**	**774**	**1.53**	**1428**	**828**	**1.75**	**1636**
2800	**597**	**1.00**	**932**	**667**	**1.21**	**1124**	**729**	**1.42**	**1323**	**786**	**1.64**	**1529**	**839**	**1.87**	**1742**
2900	**613**	**1.09**	**1020**	**681**	**1.31**	**1220**	**743**	**1.53**	**1425**	**799**	**1.75**	**1636**	**851**	**1.99**	**1855**
3000	**629**	**1.20**	**1115**	**696**	**1.42**	**1321**	**756**	**1.64**	**1532**	**812**	**1.88**	**1749**	863	2.12	1973
3100	**646**	**1.30**	**1217**	**711**	**1.53**	**1428**	**770**	**1.76**	**1645**	**825**	**2.00**	**1869**	875	2.25	2098
3200	**662**	**1.42**	**1324**	**726**	**1.65**	**1542**	**784**	**1.89**	**1765**	**838**	**2.14**	**1994**	888	2.39	2229
3300	**679**	**1.54**	**1438**	**741**	**1.78**	**1663**	**798**	**2.03**	**1892**	**851**	**2.28**	**2126**	901	2.54	2367
3400	**695**	**1.67**	**1558**	**756**	**1.92**	**1790**	**812**	**2.17**	**2025**	865	2.43	2266	913	2.69	2512
3500	**712**	**1.81**	**1686**	**772**	**2.06**	**1923**	**827**	**2.32**	**2165**	878	2.59	2412	926	2.86	2664
3600	**729**	**1.95**	**1820**	**787**	**2.21**	**2065**	**841**	**2.48**	**2312**	892	2.75	2565	940	3.03	2823
3700	**746**	**2.10**	**1962**	**803**	**2.37**	**2213**	**856**	**2.65**	**2467**	906	2.92	2726	953	3.21	2990
3750	**754**	**2.18**	**2036**	**811**	**2.46**	**2290**	864	2.73	2548	913	3.01	2809	960	3.30	3076

50TFQ008 (7½ TONS) — HIGH-STATIC MOTOR AND DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2250	**831**	**1.53**	**1423**	880	1.74	1627	927	1.97	1840	971	2.21	2061	1013	2.46	2289
2300	**836**	**1.57**	**1465**	885	1.79	1671	931	2.02	1886	975	2.26	2109	1017	2.51	2340
2400	**846**	**1.67**	**1554**	895	1.89	1764	941	2.13	1982	984	2.37	2209	1026	2.62	2443
2500	**856**	**1.77**	**1647**	905	2.00	1862	950	2.24	2085	993	2.48	2315	1035	2.74	2553
2550	862	1.82	1697	910	2.05	1913	955	2.29	2138	998	2.54	2370	1039	2.80	2611
2600	867	1.87	1747	915	2.11	1966	960	2.35	2193	1003	2.60	2427	1044	2.86	2669
2700	878	1.99	1852	925	2.23	2076	970	2.47	2307	1012	2.73	2545	1053	2.99	2791
2800	889	2.11	1963	936	2.35	2192	980	2.60	2427	1022	2.86	2670	1063	3.13	2920
2900	900	2.23	2080	946	2.48	2314	990	2.74	2554	1032	3.00	2800	1072	3.28	3055
3000	912	2.36	2204	957	2.62	2442	1001	2.88	2687	1043	3.15	2938	**1082**	**3.43**	**3196**
3100	923	2.50	2334	969	2.76	2577	1012	3.03	2826	1053	3.31	3082	**1093**	**3.59**	**3345**
3200	935	2.65	2471	980	2.92	2718	1023	3.19	2973	1064	3.47	3233	—	—	—
3300	947	2.80	2613	992	3.07	2867	1034	3.35	3126	1074	3.64	3391	—	—	—
3400	960	2.96	2764	1003	3.24	3022	1045	3.52	3286	—	—	—	—	—	—
3500	972	3.13	2921	1015	3.42	3185	1057	3.70	3454	—	—	—	—	—	—
3600	985	3.31	3086	1028	3.60	3355	—	—	—	—	—	—	—	—	—
3700	997	3.49	3259	—	—	—	—	—	—	—	—	—	—	—	—
3750	1004	3.59	3347	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 860 to 1080 rpm. All other rpms require field-supplied drive.

Refer to page 30 General Fan Performance Notes.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 3.70.

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50TFQ009 (8½ TONS) — STANDARD MOTOR AND DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2550	**557**	**0.79**	**733**	**631**	**0.98**	**910**	697	1.17	1095	756	1.38	1287	811	1.60	1488
2600	**565**	**0.83**	**770**	**638**	**1.02**	**950**	703	1.22	1138	762	1.43	1333	816	1.65	1536
2700	**581**	**0.91**	**848**	**652**	**1.11**	**1034**	716	1.32	1228	774	1.53	1428	828	1.75	1636
2800	**597**	**1.00**	**932**	**667**	**1.21**	**1124**	729	1.42	1323	786	1.64	1529	839	1.87	1742
2900	**613**	**1.09**	**1020**	**681**	**1.31**	**1220**	743	1.53	1425	799	1.75	1636	851	1.99	1855
3000	**629**	**1.20**	**1115**	696	1.42	1321	756	1.64	1532	812	1.88	1749	863	2.12	1973
3100	**646**	**1.30**	**1217**	711	1.53	1428	770	1.76	1645	825	2.00	1869	875	2.25	2098
3200	**662**	**1.42**	**1324**	726	1.65	1542	784	1.89	1765	838	2.14	1994	888	2.39	2229
3300	**679**	**1.54**	**1438**	741	1.78	1663	798	2.03	1892	851	2.28	2126	—	—	—
3400	695	1.67	1558	756	1.92	1790	812	2.17	2025	—	—	—	—	—	—
3500	712	1.81	1686	772	2.06	1923	827	2.32	2165	—	—	—	—	—	—
3600	729	1.95	1820	787	2.21	2065	—	—	—	—	—	—	—	—	—
3700	746	2.10	1962	803	2.37	2213	—	—	—	—	—	—	—	—	—
3750	754	2.18	2036	—	—	—	—	—	—	—	—	—	—	—	—
3800	763	2.26	2112	—	—	—	—	—	—	—	—	—	—	—	—
3900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4100	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4250	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

50TFQ009 (8½ TONS) — STANDARD MOTOR AND DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2550	862	1.82	1697	910	2.05	1913	**955**	**2.29**	**2138**	—	—	—	—	—	—
2600	867	1.87	1747	915	2.11	1966	**960**	**2.35**	**2193**	—	—	—	—	—	—
2700	878	1.99	1852	925	2.23	2076	—	—	—	—	—	—	—	—	—
2800	889	2.11	1963	**936**	**2.35**	**2192**	—	—	—	—	—	—	—	—	—
2900	900	2.23	2080	—	—	—	—	—	—	—	—	—	—	—	—
3000	912	2.36	2204	—	—	—	—	—	—	—	—	—	—	—	—
3100	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3300	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3400	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3750	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4100	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4250	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 685 to 935 rpm. All other rpms require field-supplied drive.

Refer to page 30 General Fan Performance Notes.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.40.

Performance data — 50TFQ (cont)

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50TFQ009 (8½ TONS) — HIGH-STATIC MOTOR AND DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2550	**557**	**0.79**	**733**	**631**	**0.98**	**910**	**697**	**1.17**	**1095**	**756**	**1.38**	**1287**	**811**	**1.60**	**1488**
2600	**565**	**0.83**	**770**	**638**	**1.02**	**950**	**703**	**1.22**	**1138**	**762**	**1.43**	**1333**	**816**	**1.65**	**1536**
2700	**581**	**0.91**	**848**	**652**	**1.11**	**1034**	**716**	**1.32**	**1228**	**774**	**1.53**	**1428**	**828**	**1.75**	**1636**
2800	**597**	**1.00**	**932**	**667**	**1.21**	**1124**	**729**	**1.42**	**1323**	**786**	**1.64**	**1529**	**839**	**1.87**	**1742**
2900	**613**	**1.09**	**1020**	**681**	**1.31**	**1220**	**743**	**1.53**	**1425**	**799**	**1.75**	**1636**	**851**	**1.99**	**1855**
3000	**629**	**1.20**	**1115**	**696**	**1.42**	**1321**	**756**	**1.64**	**1532**	**812**	**1.88**	**1749**	863	2.12	1973
3100	**646**	**1.30**	**1217**	**711**	**1.53**	**1428**	**770**	**1.76**	**1645**	**825**	**2.00**	**1869**	875	2.25	2098
3200	**662**	**1.42**	**1324**	**726**	**1.65**	**1542**	**784**	**1.89**	**1765**	**838**	**2.14**	**1994**	888	2.39	2229
3300	**679**	**1.54**	**1438**	**741**	**1.78**	**1663**	**798**	**2.03**	**1892**	**851**	**2.28**	**2126**	901	2.54	2367
3400	**695**	**1.67**	**1558**	**756**	**1.92**	**1790**	**812**	**2.17**	**2025**	865	2.43	2266	913	2.69	2512
3500	**712**	**1.81**	**1686**	**772**	**2.06**	**1923**	**827**	**2.32**	**2165**	878	2.59	2412	926	2.86	2664
3600	**729**	**1.95**	**1820**	**787**	**2.21**	**2065**	**841**	**2.48**	**2312**	892	2.75	2565	940	3.03	2823
3700	**746**	**2.10**	**1962**	**803**	**2.37**	**2213**	**856**	**2.65**	**2467**	906	2.92	2726	953	3.21	2990
3750	**754**	**2.18**	**2036**	**811**	**2.46**	**2290**	864	2.73	2548	913	3.01	2809	960	3.30	3076
3800	**763**	**2.26**	**2112**	**819**	**2.54**	**2369**	871	2.82	2630	920	3.10	2895	966	3.39	3164
3900	**780**	**2.43**	**2269**	**835**	**2.72**	**2533**	886	3.00	2800	934	3.29	3070	980	3.59	3346
4000	**797**	**2.61**	**2434**	**851**	**2.90**	**2705**	901	3.19	2978	949	3.49	3255	—	—	—
4100	**814**	**2.80**	**2607**	867	3.09	2884	916	3.39	3164	963	3.70	3447	—	—	—
4200	**831**	**2.99**	**2788**	883	3.29	3072	932	3.60	3358	—	—	—	—	—	—
4250	**840**	**3.09**	**2883**	891	3.40	3170	—	—	—	—	—	—	—	—	—

50TFQ009 (8½ TONS) — HIGH-STATIC MOTOR AND DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2550	862	1.82	1697	910	2.05	1913	955	2.29	2138	998	2.54	2370	1039	2.80	2611
2600	867	1.87	1747	915	2.11	1966	960	2.35	2193	1003	2.60	2427	1044	2.86	2669
2700	878	1.99	1852	925	2.23	2076	970	2.47	2307	1012	2.73	2545	1053	2.99	2791
2800	889	2.11	1963	936	2.35	2192	980	2.60	2427	1022	2.86	2670	1063	3.13	2920
2900	900	2.23	2080	946	2.48	2314	990	2.74	2554	1032	3.00	2800	1072	3.28	3055
3000	912	2.36	2204	957	2.62	2442	1001	2.88	2687	1043	3.15	2938	**1082**	**3.43**	**3196**
3100	923	2.50	2334	969	2.76	2577	1012	3.03	2826	1053	3.31	3082	**1093**	**3.59**	**3345**
3200	935	2.65	2471	980	2.92	2718	1023	3.19	2973	1064	3.47	3233	—	—	—
3300	947	2.80	2613	992	3.07	2867	1034	3.35	3126	1074	3.64	3391	—	—	—
3400	960	2.96	2764	1003	3.24	3022	1045	3.52	3286	—	—	—	—	—	—
3500	972	3.13	2921	1015	3.42	3185	1057	3.70	3454	—	—	—	—	—	—
3600	985	3.31	3086	1028	3.60	3355	—	—	—	—	—	—	—	—	—
3700	997	3.49	3259	—	—	—	—	—	—	—	—	—	—	—	—
3750	1004	3.59	3347	—	—	—	—	—	—	—	—	—	—	—	—
3800	1010	3.69	3438	—	—	—	—	—	—	—	—	—	—	—	—
3900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4100	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4250	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 860 to 1080 rpm. All other rpms require field-supplied drive.

Refer to page 30 General Fan Performance Notes.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 3.70.

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50TFQ012 (10 TONS) — STANDARD MOTOR AND DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	**556**	**0.65**	**604**	**623**	**0.80**	**748**	**684**	**0.95**	**891**	738	1.11	1034	789	1.26	1177
3100	**569**	**0.70**	**656**	**636**	**0.86**	**805**	695	1.02	953	749	1.18	1100	799	1.34	1249
3200	**583**	**0.76**	**712**	**648**	**0.93**	**865**	707	1.09	1018	760	1.26	1170	809	1.42	1323
3300	**597**	**0.83**	**770**	**661**	**1.00**	**929**	718	1.17	1086	771	1.33	1244	820	1.50	1401
3400	**611**	**0.89**	**832**	**674**	**1.07**	**996**	730	1.24	1158	782	1.42	1320	831	1.59	1483
3500	**625**	**0.96**	**898**	687	1.14	1066	742	1.32	1233	794	1.50	1400	841	1.68	1567
3600	**639**	**1.04**	**967**	700	1.22	1140	754	1.41	1312	805	1.59	1484	852	1.78	1656
3700	**654**	**1.11**	**1040**	713	1.31	1218	767	1.50	1395	817	1.69	1571	863	1.87	1748
3800	**668**	**1.20**	**1116**	726	1.39	1299	779	1.59	1481	828	1.78	1662	874	1.98	1844
3900	**683**	**1.28**	**1197**	739	1.48	1385	792	1.69	1572	840	1.88	1758	886	2.08	1943
4000	697	1.37	1281	753	1.58	1474	804	1.79	1666	852	1.99	1857	897	2.20	2048
4100	712	1.47	1370	766	1.68	1567	817	1.89	1764	864	2.10	1960	909	2.31	2155
4200	726	1.57	1462	780	1.79	1665	830	2.00	1866	876	2.22	2067	—	—	—
4300	741	1.67	1559	794	1.89	1767	843	2.12	1973	889	2.34	2179	—	—	—
4400	755	1.78	1660	807	2.01	1873	856	2.23	2084	—	—	—	—	—	—
4500	770	1.89	1766	821	2.13	1984	869	2.36	2200	—	—	—	—	—	—
4600	785	2.01	1876	835	2.25	2099	—	—	—	—	—	—	—	—	—
4700	800	2.14	1991	849	2.38	2219	—	—	—	—	—	—	—	—	—
4800	815	2.26	2111	—	—	—	—	—	—	—	—	—	—	—	—
4900	829	2.40	2235	—	—	—	—	—	—	—	—	—	—	—	—
5000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

50TFQ012 (10 TONS) — STANDARD MOTOR AND DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	836	1.42	1322	881	1.57	1467	923	1.73	1613	**963**	**1.89**	**1761**	**1001**	**2.05**	**1909**
3100	846	1.50	1398	890	1.66	1547	932	1.82	1698	**972**	**1.98**	**1849**	**1010**	**2.15**	**2002**
3200	856	1.58	1477	899	1.75	1631	**941**	**1.92**	**1786**	**980**	**2.08**	**1942**	**1018**	**2.25**	**2099**
3300	866	1.67	1559	909	1.84	1718	**950**	**2.01**	**1878**	**989**	**2.19**	**2038**	**1027**	**2.36**	**2199**
3400	876	1.76	1645	919	1.94	1808	**960**	**2.12**	**1972**	**998**	**2.29**	**2137**	—	—	—
3500	886	1.86	1734	929	2.04	1902	**969**	**2.22**	**2071**	**1008**	**2.40**	**2240**	—	—	—
3600	897	1.96	1827	**939**	**2.14**	**2000**	**979**	**2.33**	**2173**	—	—	—	—	—	—
3700	907	2.06	1924	**949**	**2.25**	**2101**	—	—	—	—	—	—	—	—	—
3800	918	2.17	2025	**959**	**2.37**	**2207**	—	—	—	—	—	—	—	—	—
3900	929	2.28	2130	—	—	—	—	—	—	—	—	—	—	—	—
4000	**940**	**2.40**	**2238**	—	—	—	—	—	—	—	—	—	—	—	—
4100	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4300	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4400	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 685 to 935 rpm. All other rpms require field-supplied drive.

Refer to page 30 General Fan Performance Notes.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.40.

Performance data — 50TFQ (cont)

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50TFQ012 (10 TONS) — ALTERNATE MOTOR AND DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	**556**	**0.65**	**604**	**623**	**0.80**	**748**	**684**	**0.95**	**891**	**738**	**1.11**	**1034**	**789**	**1.26**	**1177**
3100	**569**	**0.70**	**656**	**636**	**0.86**	**805**	**695**	**1.02**	**953**	**749**	**1.18**	**1100**	**799**	**1.34**	**1249**
3200	**583**	**0.76**	**712**	**648**	**0.93**	**865**	**707**	**1.09**	**1018**	**760**	**1.26**	**1170**	**809**	**1.42**	**1323**
3300	**597**	**0.83**	**770**	**661**	**1.00**	**929**	**718**	**1.17**	**1086**	**771**	**1.33**	**1244**	**820**	**1.50**	**1401**
3400	**611**	**0.89**	**832**	**674**	**1.07**	**996**	**730**	**1.24**	**1158**	**782**	**1.42**	**1320**	**831**	**1.59**	**1483**
3500	**625**	**0.96**	**898**	**687**	**1.14**	**1066**	**742**	**1.32**	**1233**	**794**	**1.50**	**1400**	841	1.68	1567
3600	**639**	**1.04**	**967**	**700**	**1.22**	**1140**	**754**	**1.41**	**1312**	**805**	**1.59**	**1484**	852	1.78	1656
3700	**654**	**1.11**	**1040**	**713**	**1.31**	**1218**	**767**	**1.50**	**1395**	**817**	**1.69**	**1571**	863	1.87	1748
3800	**668**	**1.20**	**1116**	**726**	**1.39**	**1299**	**779**	**1.59**	**1481**	**828**	**1.78**	**1662**	874	1.98	1844
3900	**683**	**1.28**	**1197**	**739**	**1.48**	**1385**	**792**	**1.69**	**1572**	840	1.88	1758	886	2.08	1943
4000	**697**	**1.37**	**1281**	**753**	**1.58**	**1474**	**804**	**1.79**	**1666**	852	1.99	1857	897	2.20	2048
4100	**712**	**1.47**	**1370**	**766**	**1.68**	**1567**	**817**	**1.89**	**1764**	864	2.10	1960	909	2.31	2155
4200	**726**	**1.57**	**1462**	**780**	**1.79**	**1665**	**830**	**2.00**	**1866**	876	2.22	2067	920	2.43	2268
4300	**741**	**1.67**	**1559**	**794**	**1.89**	**1767**	843	2.12	1973	889	2.34	2179	932	2.56	2384
4400	**755**	**1.78**	**1660**	**807**	**2.01**	**1873**	856	2.23	2084	901	2.46	2295	944	2.69	2505
4500	**770**	**1.89**	**1766**	**821**	**2.13**	**1984**	869	2.36	2200	914	2.59	2415	956	2.82	2630
4600	**785**	**2.01**	**1876**	835	2.25	2099	882	2.49	2320	926	2.72	2541	—	—	—
4700	**800**	**2.14**	**1991**	849	2.38	2219	895	2.62	2445	939	2.86	2670	—	—	—
4800	**815**	**2.26**	**2111**	863	2.51	2344	909	2.76	2575	—	—	—	—	—	—
4900	**829**	**2.40**	**2235**	877	2.65	2473	—	—	—	—	—	—	—	—	—
5000	844	2.54	2365	891	2.80	2608	—	—	—	—	—	—	—	—	—

50TFQ012 (10 TONS) — ALTERNATE MOTOR AND DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	836	1.42	1322	881	1.57	1467	923	1.73	1613	963	1.89	1761	1001	2.05	1909
3100	846	1.50	1398	890	1.66	1547	932	1.82	1698	972	1.98	1849	1010	2.15	2002
3200	856	1.58	1477	899	1.75	1631	941	1.92	1786	980	2.08	1942	1018	2.25	2099
3300	866	1.67	1559	909	1.84	1718	950	2.01	1878	989	2.19	2038	1027	2.36	2199
3400	876	1.76	1645	919	1.94	1808	960	2.12	1972	998	2.29	2137	1036	2.47	2303
3500	886	1.86	1734	929	2.04	1902	969	2.22	2071	1008	2.40	2240	1045	2.58	2410
3600	897	1.96	1827	939	2.14	2000	979	2.33	2173	1017	2.52	2347	1054	2.70	2521
3700	907	2.06	1924	949	2.25	2101	989	2.44	2279	1027	2.63	2457	1063	2.83	2636
3800	918	2.17	2025	959	2.37	2207	999	2.56	2389	1036	2.76	2571	—	—	—
3900	929	2.28	2130	970	2.48	2316	1009	2.68	2502	1046	2.88	2690	—	—	—
4000	940	2.40	2238	980	2.61	2429	1019	2.81	2620	—	—	—	—	—	—
4100	951	2.52	2351	991	2.73	2547	—	—	—	—	—	—	—	—	—
4200	962	2.65	2468	1002	2.86	2668	—	—	—	—	—	—	—	—	—
4300	973	2.78	2589	—	—	—	—	—	—	—	—	—	—	—	—
4400	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 835 to 1085 rpm. All other rpms require field-supplied drive.

Refer to page 30 General Fan Performance Notes.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.90.

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50TFQ012 (10 TONS) — HIGH-STATIC MOTOR AND DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	**556**	**0.65**	**604**	**623**	**0.80**	**748**	**684**	**0.95**	**891**	**738**	**1.11**	**1034**	**789**	**1.26**	**1177**
3100	**569**	**0.70**	**656**	**636**	**0.86**	**805**	**695**	**1.02**	**953**	**749**	**1.18**	**1100**	**799**	**1.34**	**1249**
3200	**583**	**0.76**	**712**	**648**	**0.93**	**865**	**707**	**1.09**	**1018**	**760**	**1.26**	**1170**	**809**	**1.42**	**1323**
3300	**597**	**0.83**	**770**	**661**	**1.00**	**929**	**718**	**1.17**	**1086**	**771**	**1.33**	**1244**	**820**	**1.50**	**1401**
3400	**611**	**0.89**	**832**	**674**	**1.07**	**996**	**730**	**1.24**	**1158**	**782**	**1.42**	**1320**	831	1.59	1483
3500	**625**	**0.96**	**898**	**687**	**1.14**	**1066**	**742**	**1.32**	**1233**	**794**	**1.50**	**1400**	841	1.68	1567
3600	**639**	**1.04**	**967**	**700**	**1.22**	**1140**	**754**	**1.41**	**1312**	**805**	**1.59**	**1484**	852	1.78	1656
3700	**654**	**1.11**	**1040**	**713**	**1.31**	**1218**	**767**	**1.50**	**1395**	**817**	**1.69**	**1571**	863	1.87	1748
3800	**668**	**1.20**	**1116**	**726**	**1.39**	**1299**	**779**	**1.59**	**1481**	**828**	**1.78**	**1662**	874	1.98	1844
3900	**683**	**1.28**	**1197**	**739**	**1.48**	**1385**	**792**	**1.69**	**1572**	840	1.88	1758	886	2.08	1943
4000	**697**	**1.37**	**1281**	**753**	**1.58**	**1474**	**804**	**1.79**	**1666**	852	1.99	1857	897	2.20	2048
4100	**712**	**1.47**	**1370**	**766**	**1.68**	**1567**	**817**	**1.89**	**1764**	864	2.10	1960	909	2.31	2155
4200	**726**	**1.57**	**1462**	**780**	**1.79**	**1665**	830	2.00	1866	876	2.22	2067	920	2.43	2268
4300	**741**	**1.67**	**1559**	**794**	**1.89**	**1767**	843	2.12	1973	889	2.34	2179	932	2.56	2384
4400	**755**	**1.78**	**1660**	**807**	**2.01**	**1873**	856	2.23	2084	901	2.46	2295	944	2.69	2505
4500	**770**	**1.89**	**1766**	**821**	**2.13**	**1984**	869	2.36	2200	914	2.59	2415	956	2.82	2630
4600	**785**	**2.01**	**1876**	835	2.25	2099	882	2.49	2320	926	2.72	2541	968	2.96	2760
4700	**800**	**2.14**	**1991**	849	2.38	2219	895	2.62	2445	939	2.86	2670	980	3.10	2895
4800	**815**	**2.26**	**2111**	863	2.51	2344	909	2.76	2575	952	3.01	2805	993	3.25	3034
4900	**829**	**2.40**	**2235**	877	2.65	2473	922	2.91	2709	965	3.16	2944	1005	3.41	3178
5000	844	2.54	2365	891	2.80	2608	936	3.06	2849	978	3.31	3089	1018	3.57	3328

50TFQ012 (10 TONS) — HIGH-STATIC MOTOR AND DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	836	1.42	1322	881	1.57	1467	923	1.73	1613	963	1.89	1761	1001	2.05	1909
3100	846	1.50	1398	890	1.66	1547	932	1.82	1698	972	1.98	1849	1010	2.15	2002
3200	856	1.58	1477	899	1.75	1631	941	1.92	1786	980	2.08	1942	1018	2.25	2099
3300	866	1.67	1559	909	1.84	1718	950	2.01	1878	989	2.19	2038	1027	2.36	2199
3400	876	1.76	1645	919	1.94	1808	960	2.12	1972	998	2.29	2137	1036	2.47	2303
3500	886	1.86	1734	929	2.04	1902	969	2.22	2071	1008	2.40	2240	1045	2.58	2410
3600	897	1.96	1827	939	2.14	2000	979	2.33	2173	1017	2.52	2347	1054	2.70	2521
3700	907	2.06	1924	949	2.25	2101	989	2.44	2279	1027	2.63	2457	1063	2.83	2636
3800	918	2.17	2025	959	2.37	2207	999	2.56	2389	1036	2.76	2571	1073	2.95	2755
3900	929	2.28	2130	970	2.48	2316	1009	2.68	2502	1046	2.88	2690	1082	3.09	2877
4000	940	2.40	2238	980	2.61	2429	1019	2.81	2620	1056	3.02	2812	1092	3.22	3004
4100	951	2.52	2351	991	2.73	2547	1029	2.94	2743	1066	3.15	2939	1102	3.36	3136
4200	962	2.65	2468	1002	2.86	2668	1040	3.08	2869	1076	3.29	3070	1112	3.51	3271
4300	973	2.78	2589	1013	3.00	2794	1050	3.22	2999	1087	3.44	3205	1122	3.66	3411
4400	985	2.91	2715	1024	3.14	2924	1061	3.36	3134	1097	3.59	3345	**1132**	**3.81**	**3555**
4500	996	3.05	2845	1035	3.28	3059	1072	3.51	3274	1108	3.74	3489	**1142**	**3.97**	**3704**
4600	1008	3.20	2979	1046	3.43	3199	1083	3.67	3418	1118	3.90	3638	**1152**	**4.14**	**3857**
4700	1020	3.34	3119	1058	3.58	3343	1094	3.83	3567	1129	4.07	3792	**1163**	**4.31**	**4016**
4800	1032	3.50	3263	1069	3.74	3492	1105	3.99	3721	**1140**	**4.24**	**3950**	**1174**	**4.48**	**4179**
4900	1044	3.66	3413	1081	3.91	3646	1117	4.16	3880	**1151**	**4.41**	**4113**	**1184**	**4.66**	**4347**
5000	1056	3.82	3566	1093	4.08	3805	1128	4.34	4044	**1162**	**4.59**	**4282**	**1195**	**4.85**	**4520**

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 830 to 1130 rpm. All other rpms require field-supplied drive.

Refer to page 30 General Fan Performance Notes.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 5.25.

Performance data — 50TFQ (cont)

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS

50TFQ004 (3 TONS) — STANDARD MOTOR (DIRECT DRIVE)

Airflow (Cfm)	Low Speedq						High Speed					
	208 v			230, 460, 575 v			208 v			230, 460, 575 v		
	ESP	Bhp	Watts	ESP	Bhp	Watts	ESP	Bhp	Watts	ESP	Bhp	Watts
900	0.72	0.21	253	0.75	0.23	277	0.73	0.26	307	0.76	0.31	363
1000	0.67	0.23	270	0.69	0.25	292	0.70	0.27	321	0.71	0.32	374
1100	0.61	0.24	287	0.63	0.26	307	0.64	0.28	335	0.65	0.33	385
1200	0.57	0.26	304	0.58	0.27	323	0.56	0.29	349	0.59	0.34	397
1300	0.51	0.27	321	0.53	0.29	338	0.53	0.31	364	0.54	0.34	408
1400	0.44	0.29	338	0.46	0.30	354	0.47	0.32	378	—	—	—
1500	0.39	0.30	355	0.41	0.31	369	0.43	0.33	392	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
ESP — External Static Pressure (in. wg)
Watts — Input Watts to Motor

See General Fan Performance notes on page 30.

50TFQ004 (3 TONS) — ALTERNATE MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
900	**607**	**0.14**	**142**	**745**	**0.22**	**221**	856	0.31	304	952	0.39	393	**1037**	**0.49**	**485**
1000	**640**	**0.18**	**174**	775	0.26	261	884	0.35	351	978	0.45	446	**1062**	**0.55**	**545**
1100	**674**	**0.21**	**212**	805	0.31	307	912	0.41	404	**1005**	**0.51**	**506**	**1089**	**0.61**	**611**
1200	**708**	**0.26**	**256**	836	0.36	359	941	0.47	464	**1033**	**0.57**	**572**	**1116**	**0.69**	**683**
1300	**743**	**0.31**	**307**	868	0.42	417	971	0.53	530	**1062**	**0.65**	**645**	**1143**	**0.77**	**764**
1400	780	0.37	364	900	0.49	483	**1002**	**0.61**	**603**	**1091**	**0.73**	**726**	**1172**	**0.86**	**851**
1500	816	0.43	428	934	0.56	556	**1033**	**0.69**	**685**	**1121**	**0.82**	**815**	**1201**	**0.95**	**947**

50TFQ004 (3 TONS) — ALTERNATE MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
900	**1114**	**0.59**	**582**	**1186**	**0.69**	**684**	**1253**	**0.79**	**789**	**1316**	**0.90**	**898**	—	—	—
1000	**1139**	**0.65**	**648**	**1210**	**0.76**	**754**	**1277**	**0.87**	**865**	**1340**	**0.98**	**979**	—	—	—
1100	**1165**	**0.72**	**720**	**1236**	**0.84**	**832**	**1302**	**0.95**	**948**	—	—	—	—	—	—
1200	**1191**	**0.80**	**799**	**1261**	**0.92**	**917**	—	—	—	—	—	—	—	—	—
1300	**1218**	**0.89**	**885**	—	—	—	—	—	—	—	—	—	—	—	—
1400	**1246**	**0.99**	**980**	—	—	—	—	—	—	—	—	—	—	—	—
1500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 760 to 1000 rpm. All other rpms require a field-supplied drive.

See General Fan Performance notes on page 30.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 1.00.

50TFQ004 (3 TONS) — HIGH-STATIC MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
900	**607**	**0.14**	**142**	**745**	**0.22**	**221**	**856**	**0.31**	**304**	**952**	**0.39**	**393**	**1037**	**0.49**	**485**
1000	**640**	**0.18**	**174**	**775**	**0.26**	**261**	**884**	**0.35**	**351**	**978**	**0.45**	**446**	**1062**	**0.55**	**545**
1100	**674**	**0.21**	**212**	**805**	**0.31**	**307**	**912**	**0.41**	**404**	**1005**	**0.51**	**506**	1089	0.61	611
1200	**708**	**0.26**	**256**	**836**	**0.36**	**359**	**941**	**0.47**	**464**	**1033**	**0.57**	**572**	1116	0.69	683
1300	**743**	**0.31**	**307**	**868**	**0.42**	**417**	**971**	**0.53**	**530**	**1062**	**0.65**	**645**	1143	0.77	764
1400	**780**	**0.37**	**364**	**900**	**0.49**	**483**	**1002**	**0.61**	**603**	1091	0.73	726	1172	0.86	851
1500	**816**	**0.43**	**428**	**934**	**0.56**	**556**	**1033**	**0.69**	**685**	1121	0.82	815	1201	0.95	947

50TFQ004 (3 TONS) — HIGH-STATIC MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
900	1114	0.59	582	1186	0.69	684	1253	0.79	789	1316	0.90	898	1375	1.02	1010
1000	1139	0.65	648	1210	0.76	754	1277	0.87	865	1340	0.98	979	1399	1.10	1097
1100	1165	0.72	720	1236	0.84	832	1302	0.95	948	1364	1.07	1068	1423	1.20	1191
1200	1191	0.80	799	1261	0.92	917	1327	1.04	1039	1389	1.17	1165	1448	1.30	1293
1300	1218	0.89	885	1288	1.02	1010	1353	1.14	1138	1414	1.28	1270	**1473**	**1.41**	**1404**
1400	1246	0.99	980	1315	1.12	1111	1379	1.25	1246	1440	1.39	1383	**1499**	**1.53**	**1523**
1500	1274	1.09	1083	1342	1.23	1221	1406	1.37	1362	**1467**	**1.51**	**1505**	**1525**	**1.66**	**1652**

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1075 to 1455 rpm. All other rpms require a field-supplied drive.

See General Fan Performance notes on page 30.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.40.

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50TFQ005 (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	Watts	ESP	Bhp	Watts	ESP	Bhp	Watts	ESP	Bhp	Watts
1200	0.93	0.41	458	0.97	0.45	506	1.04	0.51	572	1.09	0.56	632
1300	0.86	0.42	471	0.90	0.46	521	0.96	0.52	589	1.02	0.58	651
1400	0.78	0.45	503	0.84	0.49	556	0.90	0.54	616	0.96	0.60	681
1500	0.73	0.47	536	0.76	0.52	593	0.83	0.56	631	0.89	0.62	698
1600	0.67	0.49	557	0.70	0.54	616	0.75	0.58	654	0.82	0.64	723
1700	0.60	0.52	584	0.63	0.57	646	0.67	0.60	678	0.74	0.66	750
1800	0.51	0.54	610	0.54	0.60	674	0.62	0.62	698	0.69	0.68	772
1900	0.40	0.56	629	0.45	0.62	696	0.54	0.64	720	0.62	0.70	796
2000	0.32	0.58	661	0.33	0.65	731	0.47	0.66	744	0.54	0.73	823

LEGEND

Bhp — Brake Horsepower Input to Fan
ESP — External Static Pressure (in. wg)
Watts — Input Watts to Motor

See General Fan Performance notes on page 30.

50TFQ005 (4 TONS) — ALTERNATE MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1200	**708**	**0.26**	**256**	836	0.36	359	941	0.47	464	1033	0.57	572	1116	0.69	683
1300	**743**	**0.31**	**307**	868	0.42	417	971	0.53	530	1062	0.65	645	1143	0.77	764
1400	780	0.37	364	900	0.49	483	1002	0.61	603	1091	0.73	726	1172	0.86	851
1500	816	0.43	428	934	0.56	556	1033	0.69	685	1121	0.82	815	**1201**	**0.95**	**947**
1600	854	0.50	501	968	0.64	638	1065	0.78	774	1152	0.92	912	—	—	—
1700	892	0.59	582	1002	0.73	728	1098	0.88	872	—	—	—	—	—	—
1800	930	0.68	672	1038	0.83	826	1131	0.99	980	—	—	—	—	—	—
1900	969	0.78	772	1073	0.94	935	—	—	—	—	—	—	—	—	—
2000	1008	0.89	881	—	—	—	—	—	—	—	—	—	—	—	—

50TFQ005 (4 TONS) — ALTERNATE MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1200	**1191**	**0.80**	**799**	**1261**	**0.92**	**917**	—	—	—	—	—	—	—	—	—
1300	**1218**	**0.89**	**885**	—	—	—	—	—	—	—	—	—	—	—	—
1400	**1246**	**0.99**	**980**	—	—	—	—	—	—	—	—	—	—	—	—
1500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 770 to 1175 rpm. All other rpms require a field-supplied drive.

See General Fan Performance notes on page 30.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 1.00.

Performance data — 50TFQ (cont)

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50TFQ005 (4 TONS) — HIGH-STATIC MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1200	**708**	**0.26**	**256**	**836**	**0.36**	**359**	**941**	**0.47**	**464**	**1033**	**0.57**	**572**	1116	0.69	683
1300	**743**	**0.31**	**307**	**868**	**0.42**	**417**	**971**	**0.53**	**530**	**1062**	**0.65**	**645**	1143	0.77	764
1400	**780**	**0.37**	**364**	**900**	**0.49**	**483**	**1002**	**0.61**	**603**	1091	0.73	726	1172	0.86	851
1500	**816**	**0.43**	**428**	**934**	**0.56**	**556**	**1033**	**0.69**	**685**	1121	0.82	815	1201	0.95	947
1600	**854**	**0.50**	**501**	**968**	**0.64**	**638**	**1065**	**0.78**	**774**	1152	0.92	912	1230	1.06	1052
1700	**892**	**0.59**	**582**	**1002**	**0.73**	**728**	1098	0.88	872	1183	1.02	1018	1260	1.17	1166
1800	**930**	**0.68**	**672**	**1038**	**0.83**	**826**	1131	0.99	980	1215	1.14	1134	1291	1.30	1289
1900	**969**	**0.78**	**772**	**1073**	**0.94**	**935**	1165	1.10	1097	1247	1.27	1259	1322	1.43	1422
2000	**1008**	**0.89**	**881**	1110	1.06	1054	1199	1.23	1224	1280	1.40	1395	1354	1.57	1566

50TFQ005 (4 TONS) — HIGH-STATIC MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1200	1191	0.80	799	1261	0.92	917	1327	1.04	1039	1389	1.17	1165	1448	1.30	1293
1300	1218	0.89	885	1288	1.02	1010	1353	1.14	1138	1414	1.28	1270	**1473**	**1.41**	**1404**
1400	1246	0.99	980	1315	1.12	1111	1379	1.25	1246	1440	1.39	1383	**1499**	**1.53**	**1523**
1500	1274	1.09	1083	1342	1.23	1221	1406	1.37	1362	**1467**	**1.51**	**1505**	**1525**	**1.66**	**1652**
1600	1303	1.20	1194	1370	1.35	1339	1434	1.49	1487	**1494**	**1.65**	**1637**	**1551**	**1.80**	**1790**
1700	1332	1.32	1315	1399	1.48	1467	**1462**	**1.63**	**1622**	**1522**	**1.79**	**1778**	**1579**	**1.95**	**1938**
1800	1362	1.45	1446	1428	1.61	1605	**1490**	**1.78**	**1767**	**1550**	**1.94**	**1930**	**1606**	**2.11**	**2096**
1900	1392	1.60	1587	**1458**	**1.76**	**1753**	**1519**	**1.93**	**1922**	**1578**	**2.10**	**2092**	**1634**	**2.28**	**2265**
2000	1423	1.75	1738	**1488**	**1.92**	**1912**	**1549**	**2.10**	**2088**	**1607**	**2.28**	**2266**	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1075 to 1455 rpm. All other rpms require a field-supplied drive.

See General Fan Performance notes on page 30.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.40.

50TFQ006 (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	Watts	ESP	Bhp	Watts	ESP	Bhp	Watts	ESP	Bhp	Watts	ESP	Bhp	Watts	ESP	Bhp	Watts
1500	1.01	0.67	750	1.25	0.71	791	1.26	0.70	782	1.46	0.76	845	1.46	0.79	875	1.52	0.85	949
1600	0.82	0.70	780	1.09	0.74	824	1.11	0.74	821	1.32	0.79	883	1.33	0.82	913	1.41	0.89	988
1700	0.64	0.73	810	0.97	0.77	857	0.99	0.77	861	1.22	0.83	921	1.24	0.85	950	1.33	0.92	1027
1800	0.44	0.75	839	0.81	0.80	891	0.84	0.80	900	1.09	0.86	959	1.11	0.89	988	1.22	0.96	1066
1900	0.32	0.78	869	0.66	0.83	924	0.69	0.83	940	0.96	0.90	997	0.99	0.92	1025	1.11	0.99	1105
2000	0.21	0.81	899	0.47	0.86	957	0.51	0.86	979	0.80	0.93	1035	0.83	0.95	1063	0.97	1.03	1144
2100	0.13	0.83	929	0.32	0.89	990	0.36	0.89	1018	0.64	0.96	1073	0.71	0.99	1101	0.86	1.06	1183
2200	0.05	0.86	959	0.19	0.92	1023	0.21	0.92	1058	0.50	1.00	1111	0.58	1.02	1138	0.75	1.10	1222
2300	—	—	—	0.08	0.95	1057	0.08	0.95	1097	0.34	1.03	1149	0.39	1.06	1176	0.57	1.13	1261
2400	—	—	—	—	—	—	—	—	—	0.24	1.07	1187	0.29	1.09	1213	0.49	1.17	1300
2500	—	—	—	—	—	—	—	—	—	0.15	1.10	1225	0.15	1.12	1251	0.34	1.20	1340

LEGEND

See General Fan Performance notes on page 30.

Bhp — Brake Horsepower Input to Fan
ESP — External Static Pressure (in. wg)
Watts — Input Watts to Motor

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50TFQ006 (5 TONS) — ALTERNATE MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1500	**776**	**0.38**	**340**	883	0.51	454	977	0.65	579	1061	0.80	715	1138	0.97	860
1600	**813**	**0.45**	**397**	916	0.58	517	1007	0.73	646	1089	0.89	786	1165	1.05	935
1700	**851**	**0.52**	**461**	949	0.66	586	1038	0.81	721	1118	0.97	865	1192	1.15	1018
1800	888	0.60	532	984	0.75	662	1069	0.90	802	1148	1.07	951	**1221**	**1.25**	**1109**
1900	927	0.69	610	1019	0.84	747	1102	1.00	892	1179	1.18	1046	**1250**	**1.36**	**1208**
2000	965	0.78	697	1054	0.94	839	1135	1.11	990	**1210**	**1.29**	**1149**	**1280**	**1.48**	**1316**
2100	1004	0.89	792	1090	1.06	940	1169	1.23	1096	**1242**	**1.42**	**1260**	**1310**	**1.61**	**1432**
2200	1044	1.01	896	1127	1.18	1050	**1203**	**1.36**	**1211**	**1274**	**1.55**	**1381**	**1341**	**1.75**	**1557**
2300	1084	1.14	1009	1164	1.32	1169	**1238**	**1.50**	**1336**	**1308**	**1.70**	**1511**	**1373**	**1.91**	**1693**
2400	1123	1.27	1132	**1201**	**1.46**	**1298**	**1273**	**1.66**	**1471**	**1341**	**1.86**	**1651**	**1405**	**2.07**	**1838**
2500	1164	1.42	1265	**1239**	**1.62**	**1437**	**1309**	**1.82**	**1616**	**1375**	**2.03**	**1801**	**1438**	**2.24**	**1994**

50TFQ006 (5 TONS) — ALTERNATE MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1500	**1210**	**1.14**	**1014**	**1278**	**1.33**	**1178**	**1342**	**1.52**	**1350**	**1403**	**1.72**	**1530**	**1461**	**1.93**	**1717**
1600	**1236**	**1.23**	**1094**	**1302**	**1.42**	**1261**	**1365**	**1.62**	**1436**	**1425**	**1.82**	**1618**	**1483**	**2.04**	**1809**
1700	**1262**	**1.33**	**1181**	**1328**	**1.52**	**1351**	**1390**	**1.72**	**1530**	**1449**	**1.93**	**1716**	**1505**	**2.15**	**1910**
1800	**1289**	**1.44**	**1276**	**1354**	**1.63**	**1450**	**1415**	**1.84**	**1632**	**1473**	**2.05**	**1822**	**1529**	**2.27**	**2019**
1900	**1317**	**1.55**	**1379**	**1380**	**1.75**	**1557**	**1441**	**1.96**	**1743**	**1498**	**2.18**	**1937**	—	—	—
2000	**1345**	**1.68**	**1491**	**1408**	**1.88**	**1673**	**1467**	**2.10**	**1863**	**1524**	**2.32**	**2060**	—	—	—
2100	**1375**	**1.81**	**1611**	**1436**	**2.03**	**1798**	**1494**	**2.24**	**1993**	—	—	—	—	—	—
2200	**1405**	**1.96**	**1742**	**1465**	**2.18**	**1933**	**1522**	**2.40**	**2132**	—	—	—	—	—	—
2300	**1435**	**2.12**	**1882**	**1494**	**2.34**	**2078**	—	—	—	—	—	—	—	—	—
2400	**1466**	**2.29**	**2032**	—	—	—	—	—	—	—	—	—	—	—	—
2500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 878 to 1192 rpm. All other rpms require a field-supplied drive.

See General Fan Performance notes on page 30.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 1.30 for single phase units and 2.40 for three-phase units.

50TFQ006 (5 TONS) — HIGH-STATIC MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1500	**776**	**0.38**	**340**	**883**	**0.51**	**454**	**977**	**0.65**	**579**	**1061**	**0.80**	**715**	**1138**	**0.97**	**860**
1600	**813**	**0.45**	**397**	**916**	**0.58**	**517**	**1007**	**0.73**	**646**	**1089**	**0.89**	**786**	**1165**	**1.05**	**935**
1700	**851**	**0.52**	**461**	**949**	**0.66**	**586**	**1038**	**0.81**	**721**	**1118**	**0.97**	**865**	**1192**	**1.15**	**1018**
1800	**888**	**0.60**	**532**	**984**	**0.75**	**662**	**1069**	**0.90**	**802**	**1148**	**1.07**	**951**	**1221**	**1.25**	**1109**
1900	**927**	**0.69**	**610**	**1019**	**0.84**	**747**	**1102**	**1.00**	**892**	**1179**	**1.18**	**1046**	**1250**	**1.36**	**1208**
2000	**965**	**0.78**	**697**	**1054**	**0.94**	**839**	**1135**	**1.11**	**990**	**1210**	**1.29**	**1149**	**1280**	**1.48**	**1316**
2100	**1004**	**0.89**	**792**	**1090**	**1.06**	**940**	**1169**	**1.23**	**1096**	**1242**	**1.42**	**1260**	1310	1.61	1432
2200	**1044**	**1.01**	**896**	**1127**	**1.18**	**1050**	**1203**	**1.36**	**1211**	**1274**	**1.55**	**1381**	1341	1.75	1557
2300	**1084**	**1.14**	**1009**	**1164**	**1.32**	**1169**	**1238**	**1.50**	**1336**	1308	1.70	1511	1373	1.91	1693
2400	**1123**	**1.27**	**1132**	**1201**	**1.46**	**1298**	**1273**	**1.66**	**1471**	1341	1.86	1651	1405	2.07	1838
2500	**1164**	**1.42**	**1265**	**1239**	**1.62**	**1437**	1309	1.82	1616	1375	2.03	1801	1438	2.24	1994

50TFQ006 (5 TONS) — HIGH-STATIC MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1500	**1210**	**1.14**	**1014**	**1278**	**1.33**	**1178**	1342	1.52	1350	1403	1.72	1530	1461	1.93	1717
1600	**1236**	**1.23**	**1094**	1302	1.42	1261	1365	1.62	1436	1425	1.82	1618	1483	2.04	1809
1700	**1262**	**1.33**	**1181**	1328	1.52	1351	1390	1.72	1530	1449	1.93	1716	1505	2.15	1910
1800	**1289**	**1.44**	**1276**	1354	1.63	1450	1415	1.84	1632	1473	2.05	1822	1529	2.27	2019
1900	1317	1.55	1379	1380	1.75	1557	1441	1.96	1743	1498	2.18	1937	1553	2.41	2137
2000	1345	1.68	1491	1408	1.88	1673	1467	2.10	1863	1524	2.32	2060	1579	2.55	2264
2100	1375	1.81	1611	1436	2.03	1798	1494	2.24	1993	1550	2.47	2194	1604	2.70	2401
2200	1405	1.96	1742	1465	2.18	1933	1522	2.40	2132	1578	2.63	2337	1631	2.87	2548
2300	1435	2.12	1882	1494	2.34	2078	1551	2.57	2280	1605	2.80	2490	—	—	—
2400	1466	2.29	2032	1524	2.51	2232	1580	2.75	2440	—	—	—	—	—	—
2500	1498	2.47	2193	1555	2.70	2398	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1300 to 1685 rpm. All other rpms require a field-supplied drive.

See General Fan Performance notes on page 30.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.90.

Performance data — 50TFQ (cont)

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50TFQ007 (6 TONS) — STANDARD MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1800	**888**	**0.60**	**532**	**984**	**0.75**	**662**	**1069**	**0.90**	**802**	1148	1.07	951	1221	1.25	1109
1900	**927**	**0.69**	**610**	**1019**	**0.84**	**747**	1102	1.00	892	1179	1.18	1046	1250	1.36	1208
2000	**965**	**0.78**	**697**	**1054**	**0.94**	**839**	1135	1.11	990	1210	1.29	1149	1280	1.48	1316
2100	**1004**	**0.89**	**792**	1090	1.06	940	1169	1.23	1096	1242	1.42	1260	1310	1.61	1432
2200	**1044**	**1.01**	**896**	1127	1.18	1050	1203	1.36	1211	1274	1.55	1381	1341	1.75	1557
2300	1084	1.14	1009	1164	1.32	1169	1238	1.50	1336	1308	1.70	1511	1373	1.91	1693
2400	1123	1.27	1132	1201	1.46	1298	1273	1.66	1471	1341	1.86	1651	1405	2.07	1838
2500	1164	1.42	1265	1239	1.62	1437	1309	1.82	1616	1375	2.03	1801	1438	2.24	1994
2600	1204	1.59	1409	1277	1.79	1586	1345	1.99	1771	1410	2.21	1962	—	—	—
2700	1244	1.76	1563	1315	1.97	1747	1382	2.18	1938	1445	2.40	2135	—	—	—
2800	1285	1.95	1729	1354	2.16	1919	1419	2.38	2116	—	—	—	—	—	—
2900	1326	2.15	1907	1393	2.37	2104	—	—	—	—	—	—	—	—	—
3000	1367	2.36	2097	—	—	—	—	—	—	—	—	—	—	—	—

50TFQ007 (6 TONS) — STANDARD MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1800	1289	1.44	1276	1354	1.63	1450	1415	1.84	1632	**1473**	**2.05**	**1822**	**1529**	**2.27**	**2019**
1900	1317	1.55	1379	1380	1.75	1557	1441	1.96	1743	**1498**	**2.18**	**1937**	—	—	—
2000	1345	1.68	1491	1408	1.88	1673	**1467**	**2.10**	**1863**	**1524**	**2.32**	**2060**	—	—	—
2100	1375	1.81	1611	1436	2.03	1798	**1494**	**2.24**	**1993**	—	—	—	—	—	—
2200	1405	1.96	1742	**1465**	**2.18**	**1933**	**1522**	**2.40**	**2132**	—	—	—	—	—	—
2300	1435	2.12	1882	**1494**	**2.34**	**2078**	—	—	—	—	—	—	—	—	—
2400	**1466**	**2.29**	**2032**	—	—	—	—	—	—	—	—	—	—	—	—
2500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1070 to 1460 rpm. All other rpms require a field-supplied drive.

See General Fan Performance notes on page 30.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.40.

50TFQ007 (6 TONS) — HIGH-STATIC MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1800	**888**	**0.60**	**532**	**984**	**0.75**	**662**	**1069**	**0.90**	**802**	**1148**	**1.07**	**951**	**1221**	**1.25**	**1109**
1900	**927**	**0.69**	**610**	**1019**	**0.84**	**747**	**1102**	**1.00**	**892**	**1179**	**1.18**	**1046**	**1250**	**1.36**	**1208**
2000	**965**	**0.78**	**697**	**1054**	**0.94**	**839**	**1135**	**1.11**	**990**	**1210**	**1.29**	**1149**	**1280**	**1.48**	**1316**
2100	**1004**	**0.89**	**792**	**1090**	**1.06**	**940**	**1169**	**1.23**	**1096**	**1242**	**1.42**	**1260**	1310	1.61	1432
2200	**1044**	**1.01**	**896**	**1127**	**1.18**	**1050**	**1203**	**1.36**	**1211**	**1274**	**1.55**	**1381**	1341	1.75	1557
2300	**1084**	**1.14**	**1009**	**1164**	**1.32**	**1169**	**1238**	**1.50**	**1336**	1308	1.70	1511	1373	1.91	1693
2400	**1123**	**1.27**	**1132**	**1201**	**1.46**	**1298**	**1273**	**1.66**	**1471**	1341	1.86	1651	1405	2.07	1838
2500	**1164**	**1.42**	**1265**	**1239**	**1.62**	**1437**	1309	1.82	1616	1375	2.03	1801	1438	2.24	1994
2600	**1204**	**1.59**	**1409**	**1277**	**1.79**	**1586**	1345	1.99	1771	1410	2.21	1962	1471	2.43	2160
2700	**1244**	**1.76**	**1563**	1315	1.97	1747	1382	2.18	1938	1445	2.40	2135	1505	2.63	2338
2800	**1285**	**1.95**	**1729**	1354	2.16	1919	1419	2.38	2116	1481	2.61	2319	1539	2.85	2527
2900	1326	2.15	1907	1393	2.37	2104	1456	2.60	2306	1517	2.83	2514	—	—	—
3000	1367	2.36	2097	1432	2.59	2300	1494	2.82	2508	—	—	—	—	—	—

50TFQ007 (6 TONS) — HIGH-STATIC MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1800	**1289**	**1.44**	**1276**	1354	1.63	1450	1415	1.84	1632	1473	2.05	1822	1529	2.27	2019
1900	1317	1.55	1379	1380	1.75	1557	1441	1.96	1743	1498	2.18	1937	1553	2.41	2137
2000	1345	1.68	1491	1408	1.88	1673	1467	2.10	1863	1524	2.32	2060	1579	2.55	2264
2100	1375	1.81	1611	1436	2.03	1798	1494	2.24	1993	1550	2.47	2194	1604	2.70	2401
2200	1405	1.96	1742	1465	2.18	1933	1522	2.40	2132	1578	2.63	2337	1631	2.87	2548
2300	1435	2.12	1882	1494	2.34	2078	1551	2.57	2280	1605	2.80	2490	—	—	—
2400	1466	2.29	2032	1524	2.51	2232	1580	2.75	2440	—	—	—	—	—	—
2500	1498	2.47	2193	1555	2.70	2398	—	—	—	—	—	—	—	—	—
2600	1530	2.66	2364	1586	2.90	2574	—	—	—	—	—	—	—	—	—
2700	1563	2.87	2547	—	—	—	—	—	—	—	—	—	—	—	—
2800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1300 to 1685 rpm. All other rpms require a field-supplied drive.

See General Fan Performance notes on page 30.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.90.

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50TFQ008 (7 1/2 TONS) — STANDARD MOTOR AND DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2250	**465**	**0.49**	**459**	**555**	**0.67**	**621**	629	0.84	786	694	1.03	959	752	1.22	1138
2300	**471**	**0.52**	**483**	**560**	**0.69**	**648**	634	0.88	817	698	1.06	992	757	1.26	1174
2400	**483**	**0.57**	**534**	**570**	**0.76**	**705**	644	0.94	880	708	1.14	1061	765	1.34	1248
2500	**495**	**0.63**	**588**	**581**	**0.82**	**767**	653	1.02	948	717	1.22	1134	774	1.42	1327
2550	**501**	**0.66**	**617**	**586**	**0.86**	**799**	658	1.05	983	722	1.26	1173	779	1.47	1368
2600	**507**	**0.69**	**647**	592	0.89	832	663	1.09	1020	727	1.30	1212	784	1.51	1410
2700	**519**	**0.76**	**709**	603	0.97	902	674	1.18	1096	736	1.39	1294	793	1.61	1498
2800	**532**	**0.83**	**775**	614	1.05	976	684	1.26	1176	746	1.48	1381	802	1.71	1590
2900	**544**	**0.91**	**846**	625	1.13	1054	694	1.35	1261	756	1.58	1472	812	1.81	1687
3000	**557**	**0.99**	**922**	637	1.22	1137	705	1.45	1351	766	1.68	1568	821	1.92	1789
3100	**570**	**1.07**	**1002**	648	1.31	1224	716	1.55	1445	776	1.79	1669	831	2.03	1896
3200	**582**	**1.17**	**1087**	660	1.41	1317	727	1.66	1545	786	1.90	1774	**841**	**2.15**	**2008**
3300	595	1.26	1177	671	1.52	1414	738	1.77	1649	797	2.02	1885	**851**	**2.28**	**2125**
3400	608	1.36	1271	683	1.63	1517	749	1.89	1759	807	2.15	2002	—	—	—
3500	622	1.47	1372	695	1.74	1625	760	2.01	1874	818	2.28	2124	—	—	—
3600	635	1.58	1477	707	1.86	1738	771	2.14	1995	—	—	—	—	—	—
3700	648	1.70	1588	720	1.99	1857	783	2.27	2121	—	—	—	—	—	—
3750	655	1.77	1646	726	2.06	1918	788	2.34	2187	—	—	—	—	—	—

50TFQ008 (7 1/2 TONS) — STANDARD MOTOR AND DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2250	806	1.42	1326	**855**	**1.63**	**1521**	**902**	**1.85**	**1723**	**946**	**2.07**	**1932**	**988**	**2.30**	**2148**
2300	810	1.46	1363	**859**	**1.67**	**1561**	**906**	**1.89**	**1765**	**950**	**2.12**	**1976**	**991**	**2.35**	**2194**
2400	818	1.55	1443	**868**	**1.76**	**1644**	**914**	**1.99**	**1853**	**958**	**2.22**	**2068**	—	—	—
2500	827	1.64	1527	**876**	**1.86**	**1733**	**922**	**2.09**	**1946**	**966**	**2.32**	**2165**	—	—	—
2550	832	1.68	1570	**880**	**1.91**	**1779**	**926**	**2.14**	**1994**	**970**	**2.38**	**2215**	—	—	—
2600	836	1.73	1615	**885**	**1.96**	**1826**	**931**	**2.19**	**2043**	—	—	—	—	—	—
2700	**845**	**1.83**	**1708**	**893**	**2.06**	**1923**	**939**	**2.30**	**2146**	—	—	—	—	—	—
2800	**854**	**1.94**	**1805**	**902**	**2.17**	**2026**	—	—	—	—	—	—	—	—	—
2900	**863**	**2.05**	**1907**	**911**	**2.29**	**2134**	—	—	—	—	—	—	—	—	—
3000	**872**	**2.16**	**2015**	—	—	—	—	—	—	—	—	—	—	—	—
3100	**882**	**2.28**	**2127**	—	—	—	—	—	—	—	—	—	—	—	—
3200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3300	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3400	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3750	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 590 to 840 rpm. All other rpms require field-supplied drive.

Refer to page 30 General Fan Performance Notes.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.40.

Performance data — 50TFQ (cont)

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50TFQ008 (7 1/2 TONS) — ALTERNATE DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2250	**465**	**0.49**	**459**	**555**	**0.67**	**621**	**629**	**0.84**	**786**	694	1.03	959	752	1.22	1138
2300	**471**	**0.52**	**483**	**560**	**0.69**	**648**	**634**	**0.88**	**817**	698	1.06	992	757	1.26	1174
2400	**483**	**0.57**	**534**	**570**	**0.76**	**705**	**644**	**0.94**	**880**	708	1.14	1061	765	1.34	1248
2500	**495**	**0.63**	**588**	**581**	**0.82**	**767**	**653**	**1.02**	**948**	717	1.22	1134	774	1.42	1327
2550	**501**	**0.66**	**617**	**586**	**0.86**	**799**	**658**	**1.05**	**983**	722	1.26	1173	779	1.47	1368
2600	**507**	**0.69**	**647**	**592**	**0.89**	**832**	**663**	**1.09**	**1020**	727	1.30	1212	784	1.51	1410
2700	**519**	**0.76**	**709**	**603**	**0.97**	**902**	**674**	**1.18**	**1096**	736	1.39	1294	793	1.61	1498
2800	**532**	**0.83**	**775**	**614**	**1.05**	**976**	**684**	**1.26**	**1176**	746	1.48	1381	802	1.71	1590
2900	**544**	**0.91**	**846**	**625**	**1.13**	**1054**	694	1.35	1261	756	1.58	1472	812	1.81	1687
3000	**557**	**0.99**	**922**	**637**	**1.22**	**1137**	705	1.45	1351	766	1.68	1568	821	1.92	1789
3100	**570**	**1.07**	**1002**	**648**	**1.31**	**1224**	716	1.55	1445	776	1.79	1669	831	2.03	1896
3200	**582**	**1.17**	**1087**	**660**	**1.41**	**1317**	727	1.66	1545	786	1.90	1774	841	2.15	2008
3300	**595**	**1.26**	**1177**	**671**	**1.52**	**1414**	738	1.77	1649	797	2.02	1885	851	2.28	2125
3400	**608**	**1.36**	**1271**	**683**	**1.63**	**1517**	749	1.89	1759	807	2.15	2002	—	—	—
3500	**622**	**1.47**	**1372**	695	1.74	1625	760	2.01	1874	818	2.28	2124	—	—	—
3600	**635**	**1.58**	**1477**	707	1.86	1738	771	2.14	1995	—	—	—	—	—	—
3700	**648**	**1.70**	**1588**	720	1.99	1857	783	2.27	2121	—	—	—	—	—	—
3750	**655**	**1.77**	**1646**	726	2.06	1918	788	2.34	2187	—	—	—	—	—	—

50TFQ008 (7 1/2 TONS) — ALTERNATE DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2250	806	1.42	1326	855	1.63	1521	902	1.85	1723	**946**	**2.07**	**1932**	**988**	**2.30**	**2148**
2300	810	1.46	1363	859	1.67	1561	906	1.89	1765	**950**	**2.12**	**1976**	**991**	**2.35**	**2194**
2400	818	1.55	1443	868	1.76	1644	914	1.99	1853	**958**	**2.22**	**2068**	—	—	—
2500	827	1.64	1527	876	1.86	1733	922	2.09	1946	**966**	**2.32**	**2165**	—	—	—
2550	832	1.68	1570	880	1.91	1779	926	2.14	1994	**970**	**2.38**	**2215**	—	—	—
2600	836	1.73	1615	885	1.96	1826	931	2.19	2043	—	—	—	—	—	—
2700	845	1.83	1708	893	2.06	1923	**939**	**2.30**	**2146**	—	—	—	—	—	—
2800	854	1.94	1805	902	2.17	2026	—	—	—	—	—	—	—	—	—
2900	863	2.05	1907	911	2.29	2134	—	—	—	—	—	—	—	—	—
3000	872	2.16	2015	—	—	—	—	—	—	—	—	—	—	—	—
3100	882	2.28	2127	—	—	—	—	—	—	—	—	—	—	—	—
3200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3300	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3400	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3750	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 685 to 935 rpm. All other rpms require field-supplied drive.

Refer to page 30 General Fan Performance Notes.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.40.

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50TFQ008 (7 1/2 TONS) — HIGH-STATIC MOTOR AND DRIVE (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2250	**465**	**0.49**	**459**	**555**	**0.67**	**621**	**629**	**0.84**	**786**	**694**	**1.03**	**959**	**752**	**1.22**	**1138**
2300	**471**	**0.52**	**483**	**560**	**0.69**	**648**	**634**	**0.88**	**817**	**698**	**1.06**	**992**	**757**	**1.26**	**1174**
2400	**483**	**0.57**	**534**	**570**	**0.76**	**705**	**644**	**0.94**	**880**	**708**	**1.14**	**1061**	**765**	**1.34**	**1248**
2500	**495**	**0.63**	**588**	**581**	**0.82**	**767**	**653**	**1.02**	**948**	**717**	**1.22**	**1134**	**774**	**1.42**	**1327**
2550	**501**	**0.66**	**617**	**586**	**0.86**	**799**	**658**	**1.05**	**983**	**722**	**1.26**	**1173**	**779**	**1.47**	**1368**
2600	**507**	**0.69**	**647**	**592**	**0.89**	**832**	**663**	**1.09**	**1020**	**727**	**1.30**	**1212**	**784**	**1.51**	**1410**
2700	**519**	**0.76**	**709**	**603**	**0.97**	**902**	**674**	**1.18**	**1096**	**736**	**1.39**	**1294**	**793**	**1.61**	**1498**
2800	**532**	**0.83**	**775**	**614**	**1.05**	**976**	**684**	**1.26**	**1176**	**746**	**1.48**	**1381**	**802**	**1.71**	**1590**
2900	**544**	**0.91**	**846**	**625**	**1.13**	**1054**	**694**	**1.35**	**1261**	**756**	**1.58**	**1472**	**812**	**1.81**	**1687**
3000	**557**	**0.99**	**922**	**637**	**1.22**	**1137**	**705**	**1.45**	**1351**	**766**	**1.68**	**1568**	**821**	**1.92**	**1789**
3100	**570**	**1.07**	**1002**	**648**	**1.31**	**1224**	**716**	**1.55**	**1445**	**776**	**1.79**	**1669**	**831**	**2.03**	**1896**
3200	**582**	**1.17**	**1087**	**660**	**1.41**	**1317**	**727**	**1.66**	**1545**	**786**	**1.90**	**1774**	**841**	**2.15**	**2008**
3300	**595**	**1.26**	**1177**	**671**	**1.52**	**1414**	**738**	**1.77**	**1649**	**797**	**2.02**	**1885**	**851**	**2.28**	**2125**
3400	**608**	**1.36**	**1271**	**683**	**1.63**	**1517**	**749**	**1.89**	**1759**	**807**	**2.15**	**2002**	861	2.41	2248
3500	**622**	**1.47**	**1372**	**695**	**1.74**	**1625**	**760**	**2.01**	**1874**	**818**	**2.28**	**2124**	871	2.55	2376
3600	**635**	**1.58**	**1477**	**707**	**1.86**	**1738**	**771**	**2.14**	**1995**	**829**	**2.41**	**2252**	881	2.69	2510
3700	**648**	**1.70**	**1588**	**720**	**1.99**	**1857**	**783**	**2.27**	**2121**	**839**	**2.56**	**2385**	892	2.84	2650
3750	**655**	**1.77**	**1646**	**726**	**2.06**	**1918**	**788**	**2.34**	**2187**	**845**	**2.63**	**2454**	897	2.92	2722

50TFQ008 (7 1/2 TONS) — HIGH-STATIC MOTOR AND DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2250	**806**	**1.42**	**1326**	**855**	**1.63**	**1521**	902	1.85	1723	946	2.07	1932	988	2.30	2148
2300	**810**	**1.46**	**1363**	**859**	**1.67**	**1561**	906	1.89	1765	950	2.12	1976	991	2.35	2194
2400	**818**	**1.55**	**1443**	868	1.76	1644	914	1.99	1853	958	2.22	2068	999	2.46	2290
2500	**827**	**1.64**	**1527**	876	1.86	1733	922	2.09	1946	966	2.32	2165	1007	2.56	2391
2550	**832**	**1.68**	**1570**	880	1.91	1779	926	2.14	1994	970	2.38	2215	1011	2.62	2444
2600	**836**	**1.73**	**1615**	885	1.96	1826	931	2.19	2043	974	2.43	2267	1015	2.68	2497
2700	**845**	**1.83**	**1708**	893	2.06	1923	939	2.30	2146	982	2.55	2374	1023	2.80	2609
2800	**854**	**1.94**	**1805**	902	2.17	2026	948	2.42	2253	991	2.67	2486	1031	2.92	2725
2900	863	2.05	1907	911	2.29	2134	956	2.54	2366	999	2.79	2603	1040	3.05	2847
3000	872	2.16	2015	920	2.41	2246	965	2.66	2483	1008	2.92	2726	1048	3.19	2974
3100	882	2.28	2127	929	2.54	2365	974	2.80	2607	1016	3.06	2854	1057	3.33	3107
3200	891	2.41	2245	938	2.67	2488	983	2.93	2735	1025	3.20	2988	1065	3.48	3246
3300	901	2.54	2369	948	2.81	2617	992	3.08	2869	1034	3.35	3127	1074	3.64	3390
3400	911	2.68	2497	957	2.95	2751	1001	3.23	3010	1043	3.51	3273	—	—	—
3500	921	2.82	2632	967	3.10	2891	1011	3.38	3155	1052	3.67	3424	—	—	—
3600	930	2.97	2772	977	3.26	3038	1020	3.55	3307	—	—	—	—	—	—
3700	941	3.13	2918	986	3.42	3190	1030	3.72	3465	—	—	—	—	—	—
3750	946	3.21	2994	991	3.50	3268	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 860 to 1080 rpm. All other rpms require field-supplied drive.

Refer to page 30 General Fan Performance Notes.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 3.70.

Performance data — 50TFQ (cont)

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50TFQ009 (8 1/2 TONS) — STANDARD MOTOR AND DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2550	**501**	**0.66**	**617**	**586**	**0.86**	**799**	**658**	**1.05**	**983**	722	1.26	1173	779	1.47	1368
2600	**507**	**0.69**	**647**	**592**	**0.89**	**832**	**663**	**1.09**	**1020**	727	1.30	1212	784	1.51	1410
2700	**519**	**0.76**	**709**	**603**	**0.97**	**902**	**674**	**1.18**	**1096**	736	1.39	1294	793	1.61	1498
2800	**532**	**0.83**	**775**	**614**	**1.05**	**976**	**684**	**1.26**	**1176**	746	1.48	1381	802	1.71	1590
2900	**544**	**0.91**	**846**	**625**	**1.13**	**1054**	694	1.35	1261	756	1.58	1472	812	1.81	1687
3000	**557**	**0.99**	**922**	**637**	**1.22**	**1137**	705	1.45	1351	766	1.68	1568	821	1.92	1789
3100	**570**	**1.07**	**1002**	**648**	**1.31**	**1224**	716	1.55	1445	776	1.79	1669	831	2.03	1896
3200	**582**	**1.17**	**1087**	**660**	**1.41**	**1317**	727	1.66	1545	786	1.90	1774	841	2.15	2008
3300	**595**	**1.26**	**1177**	**671**	**1.52**	**1414**	738	1.77	1649	797	2.02	1885	851	2.28	2125
3400	**608**	**1.36**	**1271**	**683**	**1.63**	**1517**	749	1.89	1759	807	2.15	2002	—	—	—
3500	**622**	**1.47**	**1372**	695	1.74	1625	760	2.01	1874	818	2.28	2124	—	—	—
3600	**635**	**1.58**	**1477**	707	1.86	1738	771	2.14	1995	—	—	—	—	—	—
3700	**648**	**1.70**	**1588**	720	1.99	1857	783	2.27	2121	—	—	—	—	—	—
3750	**655**	**1.77**	**1646**	726	2.06	1918	788	2.34	2187	—	—	—	—	—	—
3800	**662**	**1.83**	**1705**	732	2.13	1982	—	—	—	—	—	—	—	—	—
3900	**675**	**1.96**	**1828**	744	2.26	2112	—	—	—	—	—	—	—	—	—
4000	689	2.10	1957	—	—	—	—	—	—	—	—	—	—	—	—
4100	702	2.24	2092	—	—	—	—	—	—	—	—	—	—	—	—
4200	716	2.40	2234	—	—	—	—	—	—	—	—	—	—	—	—
4250	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

50TFQ009 (8 1/2 TONS) — STANDARD MOTOR AND DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2550	832	1.68	1570	880	1.91	1779	926	2.14	1994	**970**	**2.38**	**2215**	—	—	—
2600	836	1.73	1615	885	1.96	1826	931	2.19	2043	—	—	—	—	—	—
2700	845	1.83	1708	893	2.06	1923	**939**	**2.30**	**2146**	—	—	—	—	—	—
2800	854	1.94	1805	902	2.17	2026	—	—	—	—	—	—	—	—	—
2900	863	2.05	1907	911	2.29	2134	—	—	—	—	—	—	—	—	—
3000	872	2.16	2015	—	—	—	—	—	—	—	—	—	—	—	—
3100	882	2.28	2127	—	—	—	—	—	—	—	—	—	—	—	—
3200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3300	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3400	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3750	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4100	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4250	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 685 to 935 rpm. All other rpms require field-supplied drive.

Refer to page 30 General Fan Performance Notes.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.40.

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50TFQ009 (8 1/2 TONS) — HIGH-STATIC MOTOR AND DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2550	**501**	**0.66**	**617**	**586**	**0.86**	**799**	**658**	**1.05**	**983**	**722**	**1.26**	**1173**	**779**	**1.47**	**1368**
2600	**507**	**0.69**	**647**	**592**	**0.89**	**832**	**663**	**1.09**	**1020**	**727**	**1.30**	**1212**	**784**	**1.51**	**1410**
2700	**519**	**0.76**	**709**	**603**	**0.97**	**902**	**674**	**1.18**	**1096**	**736**	**1.39**	**1294**	**793**	**1.61**	**1498**
2800	**532**	**0.83**	**775**	**614**	**1.05**	**976**	**684**	**1.26**	**1176**	**746**	**1.48**	**1381**	**802**	**1.71**	**1590**
2900	**544**	**0.91**	**846**	**625**	**1.13**	**1054**	**694**	**1.35**	**1261**	**756**	**1.58**	**1472**	**812**	**1.81**	**1687**
3000	**557**	**0.99**	**922**	**637**	**1.22**	**1137**	**705**	**1.45**	**1351**	**766**	**1.68**	**1568**	**821**	**1.92**	**1789**
3100	**570**	**1.07**	**1002**	**648**	**1.31**	**1224**	**716**	**1.55**	**1445**	**776**	**1.79**	**1669**	**831**	**2.03**	**1896**
3200	**582**	**1.17**	**1087**	**660**	**1.41**	**1317**	**727**	**1.66**	**1545**	**786**	**1.90**	**1774**	**841**	**2.15**	**2008**
3300	**595**	**1.26**	**1177**	**671**	**1.52**	**1414**	**738**	**1.77**	**1649**	**797**	**2.02**	**1885**	**851**	**2.28**	**2125**
3400	**608**	**1.36**	**1271**	**683**	**1.63**	**1517**	**749**	**1.89**	**1759**	**807**	**2.15**	**2002**	861	2.41	2248
3500	**622**	**1.47**	**1372**	**695**	**1.74**	**1625**	**760**	**2.01**	**1874**	**818**	**2.28**	**2124**	871	2.55	2376
3600	**635**	**1.58**	**1477**	**707**	**1.86**	**1738**	**771**	**2.14**	**1995**	**829**	**2.41**	**2252**	881	2.69	2510
3700	**648**	**1.70**	**1588**	**720**	**1.99**	**1857**	**783**	**2.27**	**2121**	**839**	**2.56**	**2385**	892	2.84	2650
3750	**655**	**1.77**	**1646**	**726**	**2.06**	**1918**	**788**	**2.34**	**2187**	**845**	**2.63**	**2454**	897	2.92	2722
3800	**662**	**1.83**	**1705**	**732**	**2.13**	**1982**	**794**	**2.42**	**2253**	**850**	**2.71**	**2524**	902	3.00	2796
3900	**675**	**1.96**	**1828**	**744**	**2.26**	**2112**	**806**	**2.56**	**2392**	861	2.86	2669	913	3.16	2948
4000	**689**	**2.10**	**1957**	**757**	**2.41**	**2249**	**817**	**2.72**	**2536**	873	3.02	2820	924	3.33	3106
4100	**702**	**2.24**	**2092**	**769**	**2.57**	**2392**	**829**	**2.88**	**2686**	884	3.19	2978	935	3.51	3271
4200	**716**	**2.40**	**2234**	**782**	**2.73**	**2541**	**841**	**3.05**	**2843**	895	3.37	3143	945	3.69	3442
4250	**723**	**2.47**	**2307**	**788**	**2.81**	**2619**	**847**	**3.14**	**2924**	901	3.46	3227	—	—	—

50TFQ009 (8 1/2 TONS) — HIGH-STATIC MOTOR AND DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2550	**832**	**1.68**	**1570**	880	1.91	1779	926	2.14	1994	970	2.38	2215	1011	2.62	2444
2600	**836**	**1.73**	**1615**	885	1.96	1826	931	2.19	2043	974	2.43	2267	1015	2.68	2497
2700	**845**	**1.83**	**1708**	893	2.06	1923	939	2.30	2146	982	2.55	2374	1023	2.80	2609
2800	**854**	**1.94**	**1805**	902	2.17	2026	948	2.42	2253	991	2.67	2486	1031	2.92	2725
2900	863	2.05	1907	911	2.29	2134	956	2.54	2366	999	2.79	2603	1040	3.05	2847
3000	872	2.16	2015	920	2.41	2246	965	2.66	2483	1008	2.92	2726	1048	3.19	2974
3100	882	2.28	2127	929	2.54	2365	974	2.80	2607	1016	3.06	2854	1057	3.33	3107
3200	891	2.41	2245	938	2.67	2488	983	2.93	2735	1025	3.20	2988	1065	3.48	3246
3300	901	2.54	2369	948	2.81	2617	992	3.08	2869	1034	3.35	3127	1074	3.64	3390
3400	911	2.68	2497	957	2.95	2751	1001	3.23	3010	1043	3.51	3273	—	—	—
3500	921	2.82	2632	967	3.10	2891	1011	3.38	3155	1052	3.67	3424	—	—	—
3600	930	2.97	2772	977	3.26	3038	1020	3.55	3307	—	—	—	—	—	—
3700	941	3.13	2918	986	3.42	3190	—	—	—	—	—	—	—	—	—
3750	946	3.21	2994	991	3.50	3268	—	—	—	—	—	—	—	—	—
3800	951	3.29	3071	996	3.59	3348	—	—	—	—	—	—	—	—	—
3900	961	3.46	3229	—	—	—	—	—	—	—	—	—	—	—	—
4000	971	3.64	3393	—	—	—	—	—	—	—	—	—	—	—	—
4100	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4250	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 860 to 1080 rpm. All other rpms require field-supplied drive.

Refer to page 30 General Fan Performance Notes.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 3.70.

Performance data — 50TFQ (cont)

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50TFQ012 (10 TONS) — STANDARD MOTOR AND DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	**523**	**0.58**	**541**	**592**	**0.73**	**680**	**657**	**0.88**	**825**	718	1.05	977	775	1.22	1135
3100	**536**	**0.63**	**587**	**603**	**0.78**	**730**	**666**	**0.94**	**879**	726	1.11	1035	783	1.28	1196
3200	**549**	**0.68**	**637**	**614**	**0.84**	**783**	**676**	**1.00**	**936**	735	1.17	1096	790	1.35	1260
3300	**562**	**0.74**	**689**	**626**	**0.90**	**839**	686	1.07	996	743	1.24	1159	798	1.42	1328
3400	**575**	**0.80**	**744**	**637**	**0.96**	**898**	696	1.14	1059	752	1.31	1226	806	1.50	1398
3500	**588**	**0.86**	**802**	**649**	**1.03**	**961**	707	1.21	1125	762	1.39	1296	815	1.58	1472
3600	**601**	**0.93**	**864**	**661**	**1.10**	**1026**	717	1.28	1194	771	1.47	1369	823	1.66	1548
3700	**614**	**1.00**	**929**	**673**	**1.17**	**1095**	728	1.36	1267	781	1.55	1445	832	1.75	1629
3800	**628**	**1.07**	**997**	685	1.25	1167	739	1.44	1343	791	1.64	1525	841	1.84	1712
3900	**641**	**1.15**	**1069**	697	1.33	1243	750	1.53	1423	801	1.72	1608	850	1.93	1799
4000	**655**	**1.23**	**1144**	709	1.42	1322	761	1.61	1506	812	1.82	1695	860	2.03	1890
4100	**668**	**1.31**	**1223**	722	1.51	1405	773	1.71	1593	822	1.92	1786	870	2.13	1984
4200	**682**	**1.40**	**1305**	734	1.60	1492	784	1.80	1683	833	2.02	1880	880	2.23	2082
4300	696	1.49	1392	747	1.70	1582	796	1.91	1777	844	2.12	1979	890	2.34	2184
4400	710	1.59	1482	760	1.80	1677	808	2.01	1876	855	2.23	2081	—	—	—
4500	723	1.69	1577	773	1.90	1775	820	2.12	1978	866	2.35	2187	—	—	—
4600	737	1.80	1675	785	2.01	1877	832	2.24	2085	—	—	—	—	—	—
4700	751	1.91	1778	798	2.13	1984	844	2.35	2195	—	—	—	—	—	—
4800	765	2.02	1885	812	2.25	2095	—	—	—	—	—	—	—	—	—
4900	779	2.14	1996	825	2.37	2210	—	—	—	—	—	—	—	—	—
5000	793	2.26	2112	—	—	—	—	—	—	—	—	—	—	—	—

50TFQ012 (10 TONS) — STANDARD MOTOR AND DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	830	1.39	1298	883	1.57	1466	934	1.76	1638	**982**	**1.95**	**1815**	**1029**	**2.14**	**1996**
3100	837	1.46	1363	889	1.65	1534	**938**	**1.83**	**1710**	**986**	**2.03**	**1891**	**1033**	**2.23**	**2075**
3200	843	1.53	1431	894	1.72	1606	**944**	**1.91**	**1785**	**991**	**2.11**	**1969**	**1037**	**2.31**	**2157**
3300	850	1.61	1502	901	1.80	1680	**949**	**2.00**	**1863**	**996**	**2.20**	**2051**	**1041**	**2.40**	**2242**
3400	858	1.69	1576	907	1.88	1758	**955**	**2.09**	**1944**	**1001**	**2.29**	**2135**	—	—	—
3500	865	1.77	1653	914	1.97	1838	**961**	**2.18**	**2029**	**1007**	**2.38**	**2223**	—	—	—
3600	873	1.86	1733	921	2.06	1922	**967**	**2.27**	**2116**	—	—	—	—	—	—
3700	881	1.95	1816	928	2.16	2010	**974**	**2.37**	**2207**	—	—	—	—	—	—
3800	889	2.04	1904	**936**	**2.25**	**2100**	—	—	—	—	—	—	—	—	—
3900	898	2.14	1995	**944**	**2.35**	**2195**	—	—	—	—	—	—	—	—	—
4000	907	2.24	2089	—	—	—	—	—	—	—	—	—	—	—	—
4100	916	2.35	2187	—	—	—	—	—	—	—	—	—	—	—	—
4200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4300	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4400	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 685 to 935 rpm. All other rpms require field-supplied drive.

Refer to page 30 General Fan Performance Notes.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.40.

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50TFQ012 (10 TONS) — ALTERNATE MOTOR AND DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	**523**	**0.58**	**541**	**592**	**0.73**	**680**	**657**	**0.88**	**825**	**718**	**1.05**	**977**	**775**	**1.22**	**1135**
3100	**536**	**0.63**	**587**	**603**	**0.78**	**730**	**666**	**0.94**	**879**	**726**	**1.11**	**1035**	**783**	**1.28**	**1196**
3200	**549**	**0.68**	**637**	**614**	**0.84**	**783**	**676**	**1.00**	**936**	**735**	**1.17**	**1096**	**790**	**1.35**	**1260**
3300	**562**	**0.74**	**689**	**626**	**0.90**	**839**	**686**	**1.07**	**996**	**743**	**1.24**	**1159**	**798**	**1.42**	**1328**
3400	**575**	**0.80**	**744**	**637**	**0.96**	**898**	**696**	**1.14**	**1059**	**752**	**1.31**	**1226**	**806**	**1.50**	**1398**
3500	**588**	**0.86**	**802**	**649**	**1.03**	**961**	**707**	**1.21**	**1125**	**762**	**1.39**	**1296**	**815**	**1.58**	**1472**
3600	**601**	**0.93**	**864**	**661**	**1.10**	**1026**	**717**	**1.28**	**1194**	**771**	**1.47**	**1369**	**823**	**1.66**	**1548**
3700	**614**	**1.00**	**929**	**673**	**1.17**	**1095**	**728**	**1.36**	**1267**	**781**	**1.55**	**1445**	**832**	**1.75**	**1629**
3800	**628**	**1.07**	**997**	**685**	**1.25**	**1167**	**739**	**1.44**	**1343**	**791**	**1.64**	**1525**	841	1.84	1712
3900	**641**	**1.15**	**1069**	**697**	**1.33**	**1243**	**750**	**1.53**	**1423**	**801**	**1.72**	**1608**	850	1.93	1799
4000	**655**	**1.23**	**1144**	**709**	**1.42**	**1322**	**761**	**1.61**	**1506**	**812**	**1.82**	**1695**	860	2.03	1890
4100	**668**	**1.31**	**1223**	**722**	**1.51**	**1405**	**773**	**1.71**	**1593**	**822**	**1.92**	**1786**	870	2.13	1984
4200	**682**	**1.40**	**1305**	**734**	**1.60**	**1492**	**784**	**1.80**	**1683**	**833**	**2.02**	**1880**	880	2.23	2082
4300	**696**	**1.49**	**1392**	**747**	**1.70**	**1582**	**796**	**1.91**	**1777**	844	2.12	1979	890	2.34	2184
4400	**710**	**1.59**	**1482**	**760**	**1.80**	**1677**	**808**	**2.01**	**1876**	855	2.23	2081	900	2.46	2290
4500	**723**	**1.69**	**1577**	**773**	**1.90**	**1775**	**820**	**2.12**	**1978**	866	2.35	2187	910	2.57	2400
4600	**737**	**1.80**	**1675**	**785**	**2.01**	**1877**	**832**	**2.24**	**2085**	877	2.46	2297	921	2.70	2514
4700	**751**	**1.91**	**1778**	**798**	**2.13**	**1984**	844	2.35	2195	889	2.59	2412	932	2.82	2633
4800	**765**	**2.02**	**1885**	**812**	**2.25**	**2095**	856	2.48	2310	900	2.71	2531	—	—	—
4900	**779**	**2.14**	**1996**	**825**	**2.37**	**2210**	869	2.61	2430	912	2.85	2654	—	—	—
5000	**793**	**2.26**	**2112**	838	2.50	2330	881	2.74	2554	—	—	—	—	—	—

50TFQ012 (10 TONS) — ALTERNATE MOTOR AND DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	**830**	**1.39**	**1298**	883	1.57	1466	934	1.76	1638	982	1.95	1815	1029	2.14	1996
3100	837	1.46	1363	889	1.65	1534	938	1.83	1710	986	2.03	1891	1033	2.23	2075
3200	843	1.53	1431	894	1.72	1606	944	1.91	1785	991	2.11	1969	1037	2.31	2157
3300	850	1.61	1502	901	1.80	1680	949	2.00	1863	996	2.20	2051	1041	2.40	2242
3400	858	1.69	1576	907	1.88	1758	955	2.09	1944	1001	2.29	2135	1046	2.50	2331
3500	865	1.77	1653	914	1.97	1838	961	2.18	2029	1007	2.38	2223	1051	2.60	2422
3600	873	1.86	1733	921	2.06	1922	967	2.27	2116	1012	2.48	2314	1056	2.70	2516
3700	881	1.95	1816	928	2.16	2010	974	2.37	2207	1019	2.58	2409	1062	2.80	2615
3800	889	2.04	1904	936	2.25	2100	981	2.47	2302	1025	2.69	2507	—	—	—
3900	898	2.14	1995	944	2.35	2195	988	2.57	2399	1032	2.80	2608	—	—	—
4000	907	2.24	2089	952	2.46	2293	996	2.68	2501	—	—	—	—	—	—
4100	916	2.35	2187	960	2.57	2395	1004	2.80	2607	—	—	—	—	—	—
4200	925	2.45	2289	969	2.68	2500	—	—	—	—	—	—	—	—	—
4300	934	2.57	2395	978	2.80	2610	—	—	—	—	—	—	—	—	—
4400	944	2.69	2504	—	—	—	—	—	—	—	—	—	—	—	—
4500	954	2.81	2618	—	—	—	—	—	—	—	—	—	—	—	—
4600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 835 to 1085 rpm. All other rpms require field-supplied drive.

Refer to page 30 General Fan Performance Notes.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.90.

Performance data — 50TFQ (cont)

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50TFQ012 (10 TONS) — HIGH-STATIC MOTOR AND DRIVE*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	**523**	**0.58**	**541**	**592**	**0.73**	**680**	**657**	**0.88**	**825**	**718**	**1.05**	**977**	**775**	**1.22**	**1135**
3100	**536**	**0.63**	**587**	**603**	**0.78**	**730**	**666**	**0.94**	**879**	**726**	**1.11**	**1035**	**783**	**1.28**	**1196**
3200	**549**	**0.68**	**637**	**614**	**0.84**	**783**	**676**	**1.00**	**936**	**735**	**1.17**	**1096**	**790**	**1.35**	**1260**
3300	**562**	**0.74**	**689**	**626**	**0.90**	**839**	**686**	**1.07**	**996**	**743**	**1.24**	**1159**	**798**	**1.42**	**1328**
3400	**575**	**0.80**	**744**	**637**	**0.96**	**898**	**696**	**1.14**	**1059**	**752**	**1.31**	**1226**	**806**	**1.50**	**1398**
3500	**588**	**0.86**	**802**	**649**	**1.03**	**961**	**707**	**1.21**	**1125**	**762**	**1.39**	**1296**	**815**	**1.58**	**1472**
3600	**601**	**0.93**	**864**	**661**	**1.10**	**1026**	**717**	**1.28**	**1194**	**771**	**1.47**	**1369**	**823**	**1.66**	**1548**
3700	**614**	**1.00**	**929**	**673**	**1.17**	**1095**	**728**	**1.36**	**1267**	**781**	**1.55**	**1445**	832	1.75	1629
3800	**628**	**1.07**	**997**	**685**	**1.25**	**1167**	**739**	**1.44**	**1343**	**791**	**1.64**	**1525**	841	1.84	1712
3900	**641**	**1.15**	**1069**	**697**	**1.33**	**1243**	**750**	**1.53**	**1423**	**801**	**1.72**	**1608**	850	1.93	1799
4000	**655**	**1.23**	**1144**	**709**	**1.42**	**1322**	**761**	**1.61**	**1506**	**812**	**1.82**	**1695**	860	2.03	1890
4100	**668**	**1.31**	**1223**	**722**	**1.51**	**1405**	**773**	**1.71**	**1593**	**822**	**1.92**	**1786**	870	2.13	1984
4200	**682**	**1.40**	**1305**	**734**	**1.60**	**1492**	**784**	**1.80**	**1683**	833	2.02	1880	880	2.23	2082
4300	**696**	**1.49**	**1392**	**747**	**1.70**	**1582**	**796**	**1.91**	**1777**	844	2.12	1979	890	2.34	2184
4400	**710**	**1.59**	**1482**	**760**	**1.80**	**1677**	**808**	**2.01**	**1876**	855	2.23	2081	900	2.46	2290
4500	**723**	**1.69**	**1577**	**773**	**1.90**	**1775**	**820**	**2.12**	**1978**	866	2.35	2187	910	2.57	2400
4600	**737**	**1.80**	**1675**	**785**	**2.01**	**1877**	832	2.24	2085	877	2.46	2297	921	2.70	2514
4700	**751**	**1.91**	**1778**	**798**	**2.13**	**1984**	844	2.35	2195	889	2.59	2412	932	2.82	2633
4800	**765**	**2.02**	**1885**	**812**	**2.25**	**2095**	856	2.48	2310	900	2.71	2531	942	2.95	2756
4900	**779**	**2.14**	**1996**	**825**	**2.37**	**2210**	869	2.61	2430	912	2.85	2654	953	3.09	2883
5000	**793**	**2.26**	**2112**	838	2.50	2330	881	2.74	2554	923	2.98	2782	965	3.23	3014

50TFQ012 (10 TONS) — HIGH-STATIC MOTOR AND DRIVE* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	830	1.39	1298	883	1.57	1466	934	1.76	1638	982	1.95	1815	1029	2.14	1996
3100	837	1.46	1363	889	1.65	1534	938	1.83	1710	986	2.03	1891	1033	2.23	2075
3200	843	1.53	1431	894	1.72	1606	944	1.91	1785	991	2.11	1969	1037	2.31	2157
3300	850	1.61	1502	901	1.80	1680	949	2.00	1863	996	2.20	2051	1041	2.40	2242
3400	858	1.69	1576	907	1.88	1758	955	2.09	1944	1001	2.29	2135	1046	2.50	2331
3500	865	1.77	1653	914	1.97	1838	961	2.18	2029	1007	2.38	2223	1051	2.60	2422
3600	873	1.86	1733	921	2.06	1922	967	2.27	2116	1012	2.48	2314	1056	2.70	2516
3700	881	1.95	1816	928	2.16	2010	974	2.37	2207	1019	2.58	2409	1062	2.80	2615
3800	889	2.04	1904	936	2.25	2100	981	2.47	2302	1025	2.69	2507	1068	2.91	2716
3900	898	2.14	1995	944	2.35	2195	988	2.57	2399	1032	2.80	2608	1074	3.03	2821
4000	907	2.24	2089	952	2.46	2293	996	2.68	2501	1038	2.91	2713	1080	3.14	2930
4100	916	2.35	2187	960	2.57	2395	1004	2.80	2607	1046	3.03	2822	1087	3.26	3042
4200	925	2.45	2289	969	2.68	2500	1011	2.91	2716	1053	3.15	2935	1094	3.39	3159
4300	934	2.57	2395	978	2.80	2610	1020	3.03	2828	1061	3.27	3052	1101	3.52	3279
4400	944	2.69	2504	986	2.92	2723	1028	3.16	2946	1068	3.40	3173	1108	3.65	3403
4500	954	2.81	2618	996	3.05	2840	1037	3.29	3067	1076	3.54	3297	1115	3.79	3531
4600	963	2.93	2736	1005	3.18	2962	1045	3.42	3192	1085	3.67	3426	1123	3.93	3664
4700	974	3.07	2858	1014	3.31	3088	1054	3.56	3322	1093	3.82	3560	**1131**	**4.08**	**3801**
4800	984	3.20	2985	1024	3.45	3219	1063	3.71	3456	1102	3.96	3697	**1139**	**4.23**	**3943**
4900	994	3.34	3116	1034	3.60	3353	1073	3.85	3594	1111	4.12	3839	**1148**	**4.38**	**4088**
5000	1005	3.49	3251	1044	3.74	3492	1082	4.01	3737	1119	4.27	3986	**1156**	**4.55**	**4238**

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 830 to 1130 rpm. All other rpms require field-supplied drive.

Refer to General Fan Performance Notes on page 30.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 5.25.

FAN RPM AT MOTOR PULLEY SETTINGS* — 50TFQ004-012

UNIT 50TFQ	MOTOR PULLEY TURNS OPEN												
	0	1/2	1	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2	6
004†	1000	976	952	928	904	880	856	832	808	784	760	—	—
004**	1455	1423	1392	1360	1328	1297	1265	1233	1202	1170	1138	1107	1075
005†	1175	1135	1094	1054	1013	973	932	892	851	811	770	—	—
005**	1455	1423	1392	1360	1328	1297	1265	1233	1202	1170	1138	1107	1075
006†	1192	1166	1140	1114	1087	1061	1035	1009	983	957	930	904	878
006**	1685	1647	1608	1570	1531	1493	1454	1416	1377	1339	1300	—	—
007††	1460	1420	1380	1345	1305	1265	1225	1185	1150	1110	1070	—	—
007**	1685	1647	1608	1570	1531	1493	1454	1416	1377	1339	1300	—	—
008††	840	815	790	765	740	715	690	665	635	615	590	—	—
008***	935	910	885	860	835	810	785	760	735	710	685	—	—
008**	1080	1025	1007	988	970	952	933	915	897	878	860	—	—
009††	935	910	885	860	835	810	785	760	735	710	685	—	—
009**	1080	1025	1007	988	970	952	933	915	897	878	860	—	—
012††	935	910	885	860	835	810	785	760	735	710	685	—	—
012†	1085	1060	1035	1010	985	960	935	910	885	860	835	—	—
012**	1130	1112	1087	1062	1037	1012	987	962	937	912	887	862	830

*Approximate fan rpm shown.
†Indicates alternate motor and drive package.
**Indicates high-static motor and drive package.
††Indicates standard motor and drive package.
***Indicates alternate drive package only.

ACCESSORY/HEATER STATIC PRESSURE* (in. wg) — 50TFQ004-007

COMPONENT	CFM									
	900	1200	1400	1600	1800	2000	2200	2400	2600	3000
1 Heater Module	0.05	0.07	0.09	0.09	0.10	0.11	0.11	0.12	0.13	0.15
2 Heater Modules	0.15	0.16	0.16	0.16	0.17	0.17	0.17	0.18	0.18	0.19

*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 tables to determine blower rpm and watts.

ACCESSORY/HEATER STATIC PRESSURE* (in. wg) — 50TFQ008-012

COMPONENT	CFM									
	2250	2500	3000	3500	4000	4500	5000	5500	6000	6250
1 Heater Module	0.02	0.03	0.05	0.07	0.08	0.10	0.12	0.14	0.16	0.17
2 Heater Modules	0.03	0.05	0.07	0.09	0.12	0.14	0.16	0.19	0.21	0.20

*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 tables to determine blower rpm and watts.

ACCESSORY/FIOP STATIC PRESSURE* (in wg) — 50TFQ004-007

COMPONENT	CFM							
	1250	1500	1750	2000	2250	2500	2750	3000
Vertical EconoMi$er+ and EconoMi$er2	0.045	0.065	0.08	0.12	0.145	0.175	0.22	0.255
Horizontal EconoMi$er+ and EconoMi$er2	—	—	0.1	0.125	0.15	0.18	0.225	0.275

LEGEND
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 tables to determine blower rpm and watts.

ACCESSORY/FIOP STATIC PRESSURE* (in wg) — 50TFQ008-012

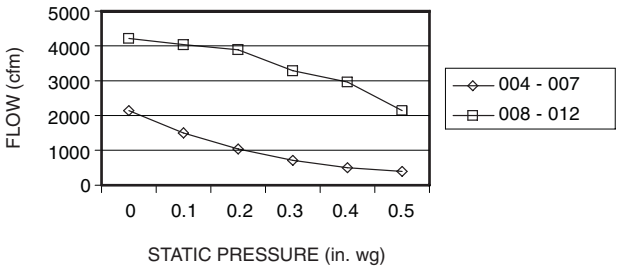
COMPONENT	CFM													
	2250	2500	2750	3000	3250	3500	3750	4000	4250	4500	4750	5000	5250	6250
Vertical EconoMi$er+ and EconoMi$er2	0.06	0.075	0.09	0.115	0.13	0.15	0.17	0.195	0.22	0.25	0.285	0.325	0.36	—
Horizontal EconoMi$er+ and EconoMi$er2	—	0.1	0.125	0.15	0.18	0.21	0.25	0.275	0.3	0.34	0.388	—	—	—

LEGEND
FIOP — Factory-Installed Option

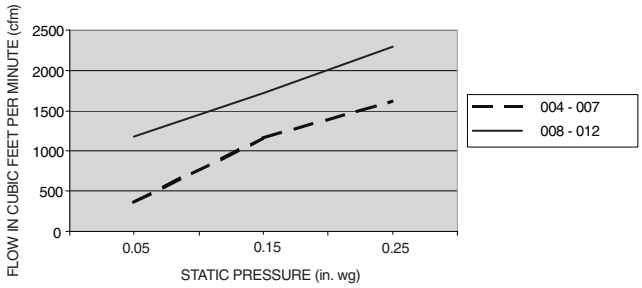
*The static pressure must be added to external static pressure. The sum and the evaporator entering-air cfm should then be used in conjunction with the Fan Performance tables to determine blower rpm and watts.

Performance data — 50TFQ (cont)

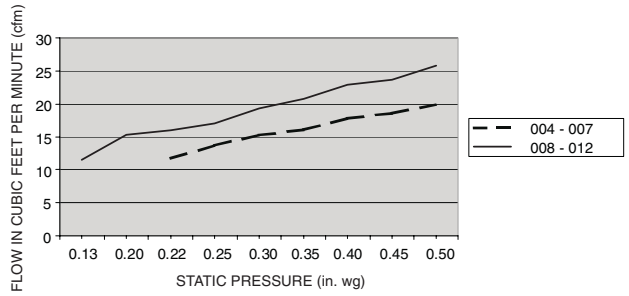
VERTICAL ECONOMI$ER+ AND ECONOMI$ER2 PERFORMANCE DATA (50TFQ004-012)



VERTICAL POWER EXHAUST PERFORMANCE

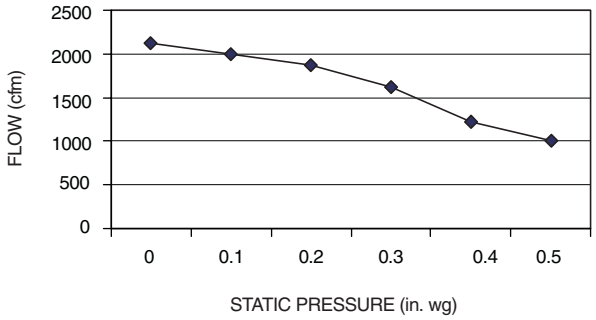


BAROMETRIC RELIEF FLOW CAPACITY

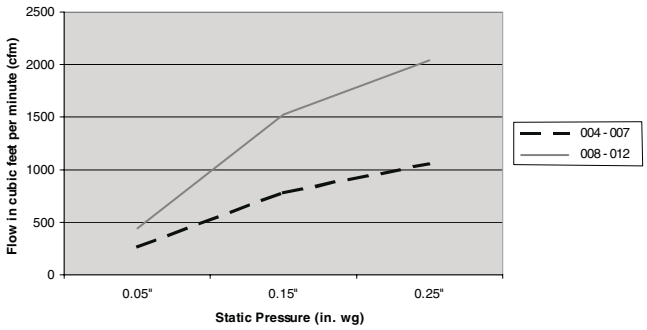


OUTDOOR AIR DAMPER LEAKAGE

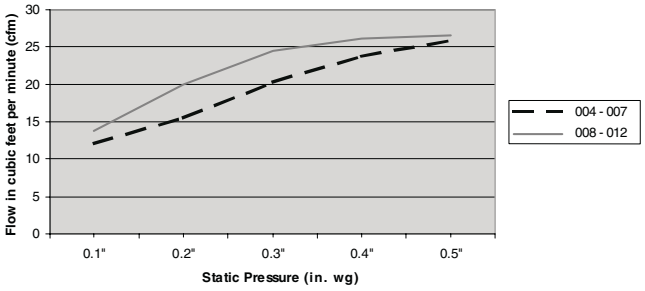
HORIZONTAL ECONOMI$ER+ AND ECONOMI$ER2 PERFORMANCE DATA (50TFQ004-012)



HORIZONTAL POWER EXHAUST PERFORMANCE



BAROMETRIC RELIEF CAPACITY



OUTDOOR AIR DAMPER LEAKAGE

ELECTRIC HEATING CAPACITIES — 50TFQ004-007

UNIT 50TFQ	VOLTAGE (60 Hz)	ACCESSORY kW	ACCESSORY HEATER PART NUMBER CRHEATER - - - A00	SINGLE POINT BOX PACKAGE NO. CRSINGLE---A00
004	208/230/240 (single phase)	3.3/ 4.0/ 4.4 4.9/ 6.0/ 6.5 6.5/ 8.0/ 8.7 7.9/ 9.6/10.5 9.8/12.0/13.0*	001 002 003 004 002 & 002	— —† 004 004 004**
	208/230/240 (3 phase)	3.3/ 4.0/ 4.4 4.9/ 6.0/ 6.5 6.5/ 8.0/ 8.7 7.9/ 9.6/10.5 12.0/14.7/16.0	001 002 003 004 005	— — — — 002
	460/480 (3 phase)	5.5/ 6.0 8.1/ 8.8 10.6/11.5 12.9/14.0	006 007 008 009	— — — —
005	208/230/240 (single phase)	3.3/ 4.0/ 4.4 6.5/ 8.0/ 8.7 9.8/12.0/13.0* 13.1/16.0/17.4* 15.8/19.3/21.0*	001 003 002 & 002 003 & 003 004 & 004	—† 004 004 005 005
	208/230/240 (3 phase)	4.9/ 6.0/ 6.5 6.5/ 8.0/ 8.7 12.0/14.7/16.0 15.8/19.3/21.0*	002 003 005 004 & 004	— — 002 003
	460/480 (3 phase)	5.5/ 6.0 10.6/11.5 12.9/14.0 21.1/23.0*	006 008 009 008 & 008	— — — —
006	208/230/240 (single phase)	4.9/ 6.0/ 6.5 6.5/ 8.0/ 8.7 9.8/12.0/13.0* 13.1/16.0/17.4* 15.8/19.3/21.0*	002 003 002 & 002 003 & 003 004 & 004	004 004 005 005 005
	208/230/240 (3 phase)	4.9/ 6.0/ 6.5 7.9/ 9.6/10.5 12.0/14.7/16.0 15.8/19.3/21.0* 19.9/24.3/26.5*	002 004 005 004 & 004 004 & 005	— —†† 002 003 003
	460/480 (3 phase)	5.5/ 6.0 10.6/11.5 12.9/14.0 21.1/23.0* 23.4/25.5*	006 008 009 008 & 008 008 & 009	— — — — —
007	208/230/240 (3 phase)	4.9/ 6.0/ 6.5 7.9/ 9.6/10.5 12.0/14.7/16.0 15.8/19.3/21.0* 19.9/24.3/26.5*	002 004 005 004 & 004 004 & 006	—*** 002 002 003 003
	460/480 (3 phase)	5.5/ 6.0 10.6/11.5 12.9/14.0 21.1/23.0* 23.4/25.5*	006 008 009 008 & 008 008 & 009	— — — — —

*Two heater packages required to provide kW indicated.
†Use CRSINGLE004A00 for units with convenience outlet.
**Use CRSINGLE005A00 for units with convenience outlet.
††Use CRSINGLE002A00 for units with convenience outlet.
***Use CRSINGLE002A00 for units with high-static motor *and* convenience outlet.

NOTES:
1. The rated heater voltage is 240, 480, and 575 v. If power distribution voltage varies from rated heater voltage, heater kW will vary accordingly.
2. To determine heater kW at voltages other than those shown in table, use the following formula:
   Heater kW new = Heater kW rated x (unit power distribution voltage/rated heater voltage)^2

   As an example:
   For a 16 kW heater rated at 240 v with a power distribution voltage of 215 v
   kW new = 16 kW (215/240)^2
   kW new = 12.8 kW (rating at 215 v)

Performance data — 50TFQ (cont)

ELECTRIC HEATING CAPACITIES — 50TFQ008-012

UNIT 50TFQ	UNIT VOLTAGE (60 Hz)	ACCESSORY kW	ELECTRIC HEATER PART NUMBER CRHEATER---A00	SINGLE POINT BOX PACKAGE NO. CRSINGLE---A00
008, 009	208/230/240 (3 phase)	7.8/ 9.6/10.4 12.0/14.7/16.0 18.6/22.8/24.8 24.0/29.4/32.0 31.8/39.0/42.4*	017 010 011 012 012 and 017	007 007 009 009 013
	460/480 (3 phase)	12.8/13.9 15.2/16.5 25.6/27.8 30.4/33.0 38.4/41.7*	016 013 014 015 014 and 016	006 006 008 008 010
	575 (3 phase)	17.0 34.0	018 019	006 006†
012	208/230/240 (3 phase)	7.8/ 9.6/10.4 12.0/14.7/16.0 24.0/29.4/32.0 31.8/39.0/42.4* 37.6/46.2/50.0*	017 010 012 012 and 017 010 and 012	012 012 015 017 017
	460/480 (3 phase)	15.2/16.5 25.6/27.8 30.4/33.0 38.4/41.7* 45.9/50.0*	013 014 015 014 and 016 013 and 015	011 014 014 016 016
	575 (3 phase)	17.0 34.0 51.0*	018 019 018 and 019	011 014 016

*Two heater packages required to provide kW indicated.
†Use CRSINGLE008A00 for units with an electrical convenience outlet.

NOTES:
1. The rated heater voltage is 240, 480, and 575 v. If power distribution voltage varies from rated heater voltage, heater kW will vary accordingly.
2. To determine heater kW at voltages other than those shown in table, use the following formula:
   Heater kW new = Heater kW rated x (unit power distribution voltage/rated heater voltage)^2

   As an example:
   For a 16 kW heater rated at 240 v with a power distribution voltage of 215 v
   kW new = 16 kW (215/240)^2
   kW new = 12.8 kW (rating at 215 v)

INDOOR-FAN MOTOR PERFORMANCE — 50TFQ UNITS

UNIT 50TFQ	INDOOR-FAN MOTOR	UNIT VOLTAGE	MAXIMUM ACCEPTABLE CONTINUOUS BHP*	MAXIMUM ACCEPTABLE OPERATING WATTS	MAXIMUM AMP DRAW	MOTOR EFFICIENCY (%)
004	Standard	208/230	0.34	440	2.8	75
		460			1.3	
		575			1.3	
	Alternate	208/230	1.00	1000	4.9	
		460			2.1	
		575			2.1	
	High Static	208/230	2.40	2120	6.0	
		460			3.0	
		575			3.0	
005	Standard	208/230	0.75	850	3.5	75
		460			1.8	
		575			1.8	
	Alternate	208/230	1.00	1000	4.9	
		460			2.1	
		575			2.1	
	High Static	208/230	2.40	2120	6.0	
		460			3.0	
		575			3.0	
006	Standard	208/230	1.20	1340	5.9	74
		460			3.2	
		575			3.2	
	Alternate	208/230	1.30/2.40†	2120	7.6/6.0†	
		460			3.0	
		575			3.0	
	High Static	208/230	2.90	2562	8.6	
		460			3.9	
		575			3.9	
007	Standard	208/230	2.40	2120	6.0	84
		460			3.0	
		575			3.0	
	High Static	208/230	2.90	2562	8.6	
		460			3.9	
		575			3.9	
008	Standard, Alternate	208/230	2.40	2120	6.0	80
		460			3.0	
		575			3.0	
	High Static	208/230	3.70	3313	11.7	
		460			5.5	
		575			5.5	
009	Standard	208/230	2.40	2120	6.0	80
		460			3.0	
		575			3.0	
	High Static	208/230	3.70	3313	11.7	
		460			5.5	
		575			5.5	
012	Standard	208/230	2.40	2120	6.0	80
		460			3.0	
		575			3.0	
	Alternate	208/230	2.90	2615	8.6	
		460			3.9	
		575			3.9	
	High Static	208/230	5.25	4400	17.3	
		460			8.5	
		575			8.5	

LEGEND

BHP — Brake Horsepower

*Extensive motor and electrical testing on these units ensures that the full horsepower range of the motors 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.

†Single-phase/three-phase.

NOTES:

1. All indoor-fan motors 5 hp and larger meet the minimum efficiency requirements as established by the Energy Policy Act of 1992 (EPACT) effective October 24, 1997.
2. High-static motor not available on single-phase units.

Electrical data — 50TFQ

50TFQ004-012 (UNITS WITHOUT ELECTRICAL CONVENIENCE OUTLET)

UNIT 50TFQ	NOMINAL V-PH-Hz	IFM TYPE	VOLTAGE RANGE		COMPRESSOR (each)		OFM FLA	IFM FLA	ELECTRIC HEAT*		POWER SUPPLY		DISCONNECT SIZE†	
			Min	Max	RLA	LRA			Nominal kW**	FLA	MCA	MOCP	FLA	LRA
004 (3 Tons)	208/230-1-60	STD	187	254	16.4	96.0	1.5	3.1	—	—	25.5/ 25.5	30/ 30††	25/ 25	107/107
									3.3/ 4.4	15.9/18.3	45.4/ 48.4	50/ 50††	43/ 46	123/125
									4.9/ 6.5	23.6/27.1	55.0/ 59.4	60/ 60††	52/ 56	131/184
									6.5/ 8.7	31.3/36.3	64.6/ 70.9	70/ 80	61/ 66	138/143
									7.9/10.5	38.0/43.8	73.0/ 80.3	80/ 90	68/ 75	145/151
									9.8/13.0	47.1/54.2	84.4/ 93.3	90/100	79/ 87	154/161***
		ALT	187	254	16.4	96.0	1.5	4.9	—	—	26.9/ 26.9	30/ 30††	26/ 26	111/111
									3.3/ 4.4	15.9/18.3	46.8/ 49.8	50/ 50††	45/ 47	127/130
									4.9/ 6.5	23.6/27.1	56.4/ 60.8	60/ 70	53/ 57	135/138
									6.5/ 8.7	31.3/36.3	66.0/ 72.3	70/ 80	62/ 68	143/148
									7.9/10.5	38.0/43.8	74.4/ 81.7	80/ 90	70/ 77	149/155
									9.8/13.0	47.1/54.2	85.8/ 94.7	90/100	80/ 89	158/166***
	208/230-3-60	STD	187	254	10.2	75.0	1.5	3.1	—	—	17.8/ 17.8	20/ 20††	17/ 17	86/ 86
									3.3/ 4.4	9.2/10.6	29.3/ 31.0	30/ 35††	28/ 30	95/ 97
									4.9/ 6.5	13.6/15.6	34.8/ 37.3	35/ 40††	33/ 35	100/102
									6.5/ 8.7	18.0/20.9	40.3/ 43.9	45/ 45††	38/ 42	104/107
									7.9/10.5	21.9/25.3	45.1/ 49.4	50/ 50††	43/ 47	108/111
									12.0/16.0	33.3/38.5	59.4/ 65.9	60/ 70	56/ 62	119/124
		ALT	187	254	10.2	75.0	1.5	4.9	—	—	19.2/ 19.2	20/ 20††	19/ 19	90/ 90
									3.3/ 4.4	9.2/10.6	30.7/ 32.4	35/ 35††	30/ 31	100/101
									4.9/ 6.5	13.6/15.6	36.2/ 38.7	40/ 40††	35/ 37	104/106
									6.5/ 8.7	18.0/20.9	41.7/ 45.3	45/ 50††	40/ 43	108/111
									7.9/10.5	21.9/25.3	46.5/ 50.8	50/ 60††	44/ 48	112/116
									12.0/16.0	33.3/38.5	60.8/ 67.3	70/ 70	57/ 63	124/129
		HIGH-STATIC	187	254	10.2	75.0	1.5	5.8	—	—	20.1/ 20.1	25/ 25††	20/ 20	120/120
									3.3/ 4.4	9.2/10.6	31.6/ 33.3	35/ 35††	31/ 32	129/130
									4.9/ 6.5	13.6/15.6	37.1/ 39.6	40/ 40††	36/ 38	133/135
									6.5/ 8.7	18.0/20.9	42.6/ 46.2	45/ 50††	41/ 44	138/141
									7.9/10.5	21.9/25.3	47.4/ 51.7	50/ 60††	45/ 49	142/145
									12.0/16.0	33.3/38.5	61.7/ 68.2	70/ 70	58/ 64	153/158
	460-3-60	STD	414	508	4.8	40.0	0.8	1.7	—	—	8.1	15††	8	45
									6.0	7.2	17.1	20††	16	52
									8.8	10.6	21.4	25††	20	55
									11.5	13.8	25.4	30††	24	59
									14.0	16.8	29.1	30††	27	62
		ALT	414	508	4.8	40.0	0.8	2.1	—	—	8.9	15††	9	48
									6.0	7.2	17.9	20††	17	55
									8.8	10.6	22.2	25††	21	59
									11.5	13.8	26.2	30††	25	62
									14.0	16.8	29.9	30††	28	65
		HIGH-STATIC	414	508	4.8	40.0	0.8	2.6	—	—	9.4	15††	9	62
									6.0	7.2	18.4	20††	18	70
									8.8	10.6	22.7	25††	22	73
									11.5	13.8	26.7	30††	25	76
									14.0	16.8	30.4	35††	29	79
	575-3-60	STD	518	632	3.8	31.0	0.8	1.7	—	—	6.4	15††	6	35
		ALT	518	632	3.8	31.0	0.8	2.1	—	—	7.1	15††	7	37
		HIGH-STATIC	518	632	3.8	31.0	0.8	2.6	—	—	7.5	15††	7	49
005 (4 Tons)	208/230-1-60	STD	187	254	29.1	132.0	1.5	3.5	—	—	41.4/ 41.4	45/ 45††	39/ 39	143/143
									3.3/ 4.4	15.9/18.3	61.3/ 64.3	70/ 70	58/ 60	159/161
									6.5/ 8.7	31.3/36.3	80.5/ 86.8	90/ 90	75/ 81	174/179
									9.8/13.0	47.1/54.2	100.3/109.1	110/110	93/102	190/197
									13.1/17.4	63.0/72.5	120.1/132.0	125/150	112/123	206/215
									15.8/21.0	76.0/87.5	136.4/150.8	150/175	127/140	219/230
		ALT	187	254	29.1	132.0	1.5	4.9	—	—	42.8/ 42.8	45/ 45††	41/ 41	147/147
									3.3/ 4.4	15.9/18.3	62.7/ 65.7	70/ 70	59/ 62	163/166
									6.5/ 8.7	31.3/36.3	81.9/ 88.2	90/ 90	77/ 83	179/184
									9.8/13.0	47.1/54.2	107.7/110.5	110/125	95/103	194/202
									13.1/17.4	63.0/72.5	121.5/133.4	125/150	113/124	210/220
									15.8/21.0	76.0/87.5	137.8/152.2	150/175	128/141	223/235
	208/230-3-60	STD	187	254	16.8	91.0	1.5	3.5	—	—	26.0/ 26.0	30/ 30††	25/ 25	102/102
									4.9/ 6.5	13.6/15.6	43.0/ 45.5	45/ 50††	41/ 43	115/117
									6.5/ 8.7	18.0/20.9	48.5/ 52.1	50/ 60††	46/ 49	120/123
									12.0/16.0	33.3/38.5	67.6/ 74.1	70/ 80	63/ 69	135/140
									15.8/21.0	43.9/50.5	80.9/ 89.1	90/ 90	76/ 83	146/152
		ALT	187	254	16.8	91.0	1.5	4.9	—	—	27.4/ 27.4	30/ 30††	27/ 27	106/106
									4.9/ 6.5	13.6/15.6	44.4/ 46.9	45/ 50††	42/ 45	120/122
									6.5/ 8.7	18.0/20.9	49.9/ 53.5	50/ 60††	47/ 51	124/127
									12.0/16.0	33.3/38.5	69.0/ 75.5	70/ 80	65/ 71	140/145
									15.8/21.0	43.9/50.5	82.3/ 90.5	90/100	77/ 85	150/157
		HIGH-STATIC	187	254	16.8	91.0	1.5	5.8	—	—	28.3/ 28.3	30/ 30††	28/ 28	136/136
									4.9/ 6.5	13.6/15.6	45.3/ 47.8	50/ 50††	43/ 46	149/151
									6.5/ 8.7	18.0/20.9	50.8/ 54.4	60/ 60††	48/ 52	154/157
									12.0/16.0	33.3/38.5	69.9/ 76.4	70/ 80	66/ 72	169/174
									15.8/21.0	43.9/50.5	83.2/ 91.4	90/100	78/ 86	180/186***

NOTE: Legend and Notes for Electrical Data are on page 64.

50TFQ004-012 (UNITS WITHOUT ELECTRICAL CONVENIENCE OUTLET) (cont)

UNIT 50TFQ	NOMINAL V-PH-Hz	IFM TYPE	VOLTAGE RANGE		COMPRESSOR (each)		OFM FLA	IFM FLA	ELECTRIC HEAT*		POWER SUPPLY		DISCONNECT SIZE†	
			Min	Max	RLA	LRA			Nominal kW**	FLA	MCA	MOCP	FLA	LRA
005 (4 Tons) (cont)	460-3-60	STD	414	508	8.4	50.0	0.8	1.8	—	—	13.1	15††	13	56
									6.0	7.2	22.1	25††	21	63
									11.5	13.8	30.4	35††	29	70
									14.0	16.8	34.1	35††	32	73
									23.0	27.7	47.7	50††	45	84
		ALT	414	508	8.4	50.0	0.8	2.1	—	—	13.4	15††	13	58
									6.0	7.2	22.4	25††	21	65
									11.5	13.8	30.7	35††	29	72
									14.0	16.8	34.4	35††	32	75
									23.0	27.7	48.0	50††	45	86
		HIGH-STATIC	414	508	8.4	50.0	0.8	2.6	—	—	13.9	15††	14	72
									6.0	7.2	22.9	25††	22	80
									11.5	13.8	31.2	35††	29	86
									14.0	16.8	34.9	35††	33	89
									23.0	27.7	48.5	50††	45	100
	575-3-60	STD	518	632	6.7	37.0	0.8	1.8	—	—	10.5	15††	10	42
		ALT	518	632	6.7	37.0	0.8	2.1	—	—	10.7	15††	10	43
		HIGH-STATIC	518	632	6.7	37.0	0.8	2.6	—	—	11.1	15††	11	55
006 (5 Tons)	208/230-1-60	STD	187	254	26.7	170.0	1.5	5.9	—	—	40.8/ 40.8	45/ 45††	39/ 39	184/184
									4.9/ 6.5	23.6/27.1	70.3/ 74.7	80/ 80	66/ 70	208/211
									6.5/ 8.7	31.3/36.3	79.9/ 86.2	80/ 90	75/ 81	215/220***
									9.8/13.0	47.1/54.2	99.7/108.5	100/110	93/102	231/238***
									13.1/17.4	63.0/72.5	119.5/131.4	125/150	112/123	247/257***
									15.8/21.0	76.0/87.5	135.8/150.2	150/175	127/140	260/272***
		ALT	187	254	26.7	170.0	1.5	8.8	—	—	48.5/ 48.5	50/ 50††	48/ 48	222/222
									4.9/ 6.5	23.6/27.1	78.0/ 82.4	80/ 90	75/ 79	246/249
									6.5/ 8.7	31.3/36.3	87.6/ 93.9	90/100	84/ 90	253/258***
									9.8/13.0	47.1/54.2	107.4/116.2	110/125	102/110	269/276***
									13.1/17.4	63.0/72.5	127.2/139.1	150/150	121/131	285/294***
									15.8/21.0	76.0/87.5	143.5/157.9	150/175	135/149	298/309***
	208/230-3-60	STD	187	254	15.4	124.0	1.5	5.9	—	—	26.7/ 26.7	30/ 30††	26/ 26	138/138
									4.9/ 6.5	13.6/15.6	43.7/ 46.2	45/ 50††	42/ 44	152/154
									7.9/10.5	21.9/25.3	54.0/ 58.3	60/ 60††	51/ 55	160/163
									12.0/16.0	33.3/38.5	68.3/ 74.8	70/ 80	65/ 70	171/177
									15.8/21.0	43.9/50.5	81.5/ 89.8	90/ 90	77/ 84	182/189***
									19.9/26.5	55.2/63.8	95.7/106.4	100/110	90/100	193/202***
		ALT	187	254	15.4	124.0	1.5	5.8	—	—	26.6/ 26.6	30/ 30††	26/ 26	169/169
									4.9/ 6.5	13.6/15.6	43.6/ 46.1	45/ 50††	42/ 44	182/184
									7.9/10.5	21.9/25.3	53.9/ 58.2	60/ 60	51/ 55	191/194
									12.0/16.0	33.3/38.5	68.2/ 74.7	70/ 80	64/ 70	202/207
									15.8/21.0	43.9/50.5	81.4/ 89.7	90/ 90	77/ 84	213/219***
									19.9/26.5	55.2/63.8	95.6/106.3	100/110	90/ 99	224/233***
		HIGH-STATIC	187	254	15.4	124.0	1.5	7.5	—	—	28.3/ 28.3	30/ 30††	28/ 28	188/188
									4.9/ 6.5	13.6/15.6	45.3/ 47.8	50/ 50††	44/ 46	201/203
									7.9/10.5	21.9/25.3	55.6/ 59.9	60/ 60††	53/ 57	210/213
									12.0/16.0	33.3/38.5	69.9/ 76.4	70/ 80	66/ 72	221/226
									15.8/21.0	43.9/50.5	83.1/ 91.4	90/100	79/ 86	232/238***
									19.9/26.5	55.2/63.8	97.3/108.0	100/110	92/101	243/252***
	460-3-60	STD	414	508	7.7	59.6	0.8	3.2	—	—	13.6	15††	13	67
									6.0	7.2	22.6	25††	22	75
									11.5	13.8	30.9	35††	29	81
									14.0	16.8	34.6	35††	33	84
									23.0	27.7	48.3	50††	45	95
									25.5	30.7	52.0	60††	49	98
		ALT	414	508	7.7	59.6	0.8	2.6	—	—	13.0	15††	13	82
									6.0	7.2	22.0	25††	21	89
									11.5	13.8	30.3	35††	29	96
									14.0	16.8	34.0	35††	32	99
									23.0	27.7	47.7	50††	45	110
									25.5	30.7	51.4	60††	48	113
		HIGH-STATIC	414	508	7.7	59.6	0.8	3.4	—	—	13.8	15††	14	92
									6.0	7.2	22.8	25††	22	99
									11.5	13.8	31.1	35††	30	105
									14.0	16.8	34.8	35††	33	108
									23.0	27.7	48.5	50††	46	119
									25.5	30.7	52.2	60††	49	122
	575-3-60	STD	518	632	6.2	49.4	0.8	3.2	—	—	11.0	15††	11	56
		ALT	518	632	6.2	49.4	0.8	2.6	—	—	10.5	15††	10	67
		HIGH-STATIC	518	632	6.2	49.4	0.8	3.4	—	—	11.1	15††	11	75

NOTE: Legend and Notes for Electrical Data are on page 64.

Electrical data — 50TFQ (cont)

50TFQ004-012 (UNITS WITHOUT ELECTRICAL CONVENIENCE OUTLET) (cont)

UNIT 50TFQ	NOMINAL V-PH-Hz	IFM TYPE	VOLTAGE RANGE		COMPRESSOR (each)		OFM FLA	IFM FLA	ELECTRIC HEAT*		POWER SUPPLY		DISCONNECT SIZE†	
			Min	Max	RLA	LRA			Nominal kW**	FLA	MCA	MOCP	FLA	LRA
007 (6 Tons)	208/230-3-60	STD	187	254	22.7	146.0	1.4	5.8	—	—	35.6/ 35.6	40/ 40††	34/ 34	190/190
									4.9/ 6.5	13.6/15.6	52.6/ 55.1	60/ 60††	50/ 52	204/206
									7.9/10.5	21.9/25.3	63.0/ 67.2	70/ 70	60/ 63	212/215
									12.0/16.0	33.3/38.5	77.2/ 83.7	80/ 90	73/ 79	223/229
									15.8/21.0	43.9/50.5	90.5/ 98.7	100/100	85/ 92	234/241***
									19.9/26.5	55.2/63.8	104.6/115.3	110/125	98/108	245/254***
		HIGH-STATIC	187	254	22.7	146.0	1.4	7.5	—	—	37.3/ 37.3	40/ 40††	36/ 36	209/209
									4.9/ 6.5	13.6/15.6	54.3/ 56.8	60/ 60††	52/ 54	223/225
									7.9/10.5	21.9/25.3	64.7/ 68.9	70/ 70	62/ 65	231/234
									12.0/16.0	33.3/38.5	78.9/ 85.4	80/ 90	75/ 81	242/248***
									15.8/21.0	43.9/50.5	92.2/100.4	100/110	87/ 94	253/260***
									19.9/26.5	55.2/63.8	106.3/117.0	110/125	100/110	264/273***
	460-3-60	STD	414	508	11.4	73.0	0.7	2.6	—	—	17.6	20††	17	95
									6.0	7.2	26.6	30††	25	102
									11.5	13.8	34.8	35††	33	109
									14.0	16.8	38.6	40††	36	112
									23.0	27.7	52.2	60††	49	123
									25.5	30.7	55.9	60††	52	126
		HIGH-STATIC	414	508	11.4	73.0	0.7	3.4	—	—	18.4	20††	18	105
									6.0	7.2	27.4	30††	26	112
									11.5	13.8	35.6	40††	34	118
									14.0	16.8	39.4	40††	37	121
									23.0	27.7	53.0	60††	50	132
									25.5	30.7	56.7	60††	53	135
	575-3-60	STD	518	632	9.1	58.4	0.7	2.6	—	—	14.0	15††	14	76
		HIGH-STATIC	518	632	9.1	58.4	0.7	3.4	—	—	14.7	15††	14	84

LEGEND

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

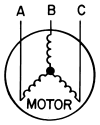
*Heaters are field installed only.
†Used to determine minimum disconnect size per NEC.
**Heater capacity (kW) is based on heater voltage of 208 v, 240 v and 480 v. If power distribution voltage to unit varies from rated heater voltage, heater kW will vary accordingly.
††Fuse or HACR circuit breaker.
***Optional disconnect switch is unavailable.

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.
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.

   % 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.

POWER EXHAUST ELECTRICAL DATA

POWER EXHAUST PART NO.	MCA (230 v)	MCA (460 v)	MCA (575 v)	MOCP (for separate power source)
CRPWREXH021A01	N/A	0.9	N/A	15
CRPWREXH022A01	3.3	N/A	1.32	15
CRPWREXH023A01	N/A	1.8	N/A	15
CRPWREXH028A01	1.7	N/A	0.68	15
CRPWREXH029A01	N/A	1.0	N/A	15
CRPWREXH030A01	1.6	N/A	0.64	15

N/A — Not available

NOTE: If a single power source is to be used, size wire to include power exhaust MCA and MOCP.

Check MCA and MOCP when power exhaust is powered through the unit. Determine the new MCA including the power exhaust using the following formula:
MCA New = MCA unit only + MCA of Power Exhaust

For example, using a 50TFQ006---5 unit with MCA = 35.6 and MOCP = 40, with CRPWREXH030A01 power exhaust.
MCA New = 35.6 amps + 1.6 amps = 37.2 amps
If the new MCA does not exceed the published MOCP, then MOCP would not change. The MOCP in this example is 40 amps and the MCA New is below 40; therefore the MOCP is acceptable. If "MCA New" is larger than the published MOCP, raise the MOCP to the next larger size. In all cases, the MOCP for the power exhaust should be 15 amps per NEC.

50TFQ004-012 (UNITS WITHOUT ELECTRICAL CONVENIENCE OUTLET) (cont)

UNIT 50TFQ	NOMINAL V-PH-Hz	IFM TYPE	VOLTAGE RANGE		COMPRESSOR (each)		OFM FLA	IFM FLA	ELECTRIC HEAT*		POWER SUPPLY		DISCONNECT SIZE†	
			Min	Max	RLA	LRA			Nominal kW**	FLA	MCA	MOCP	FLA	LRA
008 (7½ Tons)	208/230-3-60	STD	187	254	13.4	91.0	1.4	5.8	—	—	38.8/ 38.8	40/ 40††	41/ 41	229/229
									7.8/10.4	21.7/ 25.0	65.9/ 70.0	70/ 70	66/ 69	251/254
									12.0/16.0	33.3/ 38.5	80.4/ 86.9	90/ 90	79/ 85	262/268***
									18.6/24.8	51.6/ 59.7	103.3/113.4	110/125	100/109	281/289***
									24.0/32.0	66.6/ 77.0	122.0/135.0	125/150	117/129	296/306***
									31.8/42.4	88.3/102.0	149.1/166.3	150/175	142/158	317/331***
		HIGH-STATIC	187	254	13.4	91.0	1.4	10.6	—	—	43.6/ 43.6	45/ 45††	46/ 46	273/273
									7.8/10.4	21.7/ 25.0	70.7/ 74.8	80/ 80	71/ 75	294/298
									12.0/16.0	33.3/ 38.5	85.2/ 91.7	90/100	85/ 91	306/311***
									18.6/24.8	51.6/ 59.7	108.1/118.2	110/125	106/115	324/332***
									24.0/32.0	66.6/ 77.0	126.8/139.8	150/150	123/135	339/350***
									31.8/42.4	88.3/102.0	153.9/171.1	175/175	148/164	361/375***
	460-3-60	STD	414	508	6.7	42.0	0.7	2.6	—	—	19.1	20††	20	108
									13.9	16.7	40.0	40††	39	124
									16.5	19.8	43.8	45††	43	128
									27.8	33.4	60.8	70	58	141
									33.0	39.7	68.7	70	66	147
									41.7	50.2	81.8	90	78	158
		HIGH-STATIC	414	508	6.7	42.0	0.7	4.8	—	—	21.3	25††	23	130
									13.9	16.7	42.2	45††	42	146
									16.5	19.8	46.0	50††	45	149
									27.8	33.4	63.0	70	61	163
									33.0	39.7	70.9	80	68	169
									41.7	50.2	84.0	90	80	180***
	575-3-60	STD	518	632	5.4	39.0	0.7	2.6	—	—	15.4	20††	16	97
									17.0	17.1	36.7	40††	36	114
									34.0	34.1	58.0	60††	55	131
		HIGH-STATIC						4.8	—	—	17.1	20††	18	114
									17.0	17.1	38.5	40††	38	132
									34.0	34.1	59.7	60††	57	149
009 (8½ Tons)	208/230-3-60	STD	187	254	16.0	137.0	1.4	5.8	—	—	44.6/ 44.6	45/ 45††	47/ 47	321/321
									7.8/10.4	21.7/ 25.0	71.7/ 75.9	80/ 80	72/ 75	343/346
									12.0/16.0	33.3/ 38.5	86.2/ 92.7	90/100	85/ 91	354/360***
									18.6/24.8	51.6/ 59.7	109.1/119.2	110/125	106/115	373/381***
									24.0/32.0	66.6/ 77.0	127.9/140.9	150/150	123/135	388/398***
									31.8/42.4	88.3/102.0	155.0/172.1	175/175	148/164	409/428***
		HIGH-STATIC	187	254	16.0	137.0	1.4	10.6	—	—	49.4/ 49.4	50/ 50††	52/ 52	365/365
									7.8/10.4	21.7/ 25.0	76.5/ 80.7	80/ 90	77/ 81	386/390***
									12.0/16.0	33.3/ 38.5	91.0/ 97.5	100/100	91/ 96	398/403***
									18.6/24.8	51.6/ 59.7	113.9/124.0	125/125	112/121	416/424***
									24.0/32.0	66.6/ 77.0	132.7/145.7	150/150	129/141	431/442***
									31.8/42.4	88.3/102.0	159.8/176.9	175/200	154/170	453/467***
	460-3-60	STD	414	508	8.3	69.0	0.7	2.6	—	—	22.7	25††	24	162
									13.9	16.7	43.6	45††	43	178
									16.5	19.8	47.4	50††	46	182
									27.8	33.4	64.4	70	62	195
									33.0	39.7	72.3	80	69	201
									41.7	50.2	85.4	90	81	212***
		HIGH-STATIC	414	508	8.3	69.0	0.7	4.8	—	—	24.9	25††	26	184
									13.9	16.7	45.8	50††	45	200
									16.5	19.8	49.6	50††	49	203
									27.8	33.4	66.6	70	65	217
									33.0	39.7	74.5	80	72	223
									41.7	50.2	87.6	90	84	234***
	575-3-60	STD	518	632	6.4	58.0	0.7	2.6	—	—	17.6	20††	18	135
									17.0	17.1	39.0	40††	38	152
									34.0	34.1	60.2	70††	58	169
		HIGH-STATIC						4.8	—	—	19.4	20††	20	152
									17.0	17.1	40.7	45††	40	170
									34.0	34.1	62.0	70	60	187

NOTE: Legend and Notes for Electrical Data are on page 64.

Electrical data — 50TFQ (cont)

50TFQ004-012 (UNITS WITHOUT ELECTRICAL CONVENIENCE OUTLET) (cont)

UNIT 50TFQ	NOMINAL V-PH-Hz	IFM TYPE	VOLTAGE RANGE		COMPRESSOR (each)		OFM FLA	IFM FLA	ELECTRIC HEAT*		POWER SUPPLY		DISCONNECT SIZE†	
			Min	Max	RLA	LRA			Nominal kW**	FLA	MCA	MOCP	FLA	LRA
012 (10 Tons)	208/230-3-60	STD	187	254	17.2	124.0	1.4	5.8	—	—	47.3/ 47.3	50/ 50††	49/ 49	295/295
									7.8/10.4	21.7/ 25.0	74.4/ 78.6	80/ 80	74/ 78	317/320
									12.0/16.0	33.3/ 38.5	88.9/ 95.4	90/100	88/ 94	328/334***
									24.0/32.0	66.6/ 77.0	130.6/143.6	150/150	126/138	362/372***
									31.8/42.4	88.3/102.0	157.7/174.8	175/175	151/167	383/397***
									37.6/50.0	104.4/120.3	177.8/167.6	200/175	170/188	399/415***
		ALT	187	254	17.2	124.0	1.4	7.5	—	—	49.0/ 49.0	50/ 50††	51/ 51	314/314
									7.8/10.4	21.7/ 25.0	76.1/ 80.8	80/ 90	76/ 80	336/389***
									12.0/16.0	33.3/ 38.5	90.6/ 97.1	100/100	90/ 96	347/353***
									24.0/32.0	66.6/ 77.0	132.3/145.3	150/150	128/140	381/391***
									31.8/42.4	88.3/102.0	159.4/176.5	175/200	153/169	402/416***
									37.6/50.0	104.4/120.3	179.5/169.3	200/200	171/190	418/434***
		HIGH-STATIC	187	254	17.2	124.0	1.4	15.0	—	—	56.5/ 56.5	60/ 60††	60/ 60	362/362
									7.8/10.4	21.7/ 25.0	83.6/ 87.8	90/ 90	85/ 89	384/387***
									12.0/16.0	33.3/ 38.5	98.1/104.6	100/110	98/104	395/401***
									24.0/32.0	66.6/ 77.0	139.8/152.8	150/175	137/149	429/439***
									31.8/42.4	88.3/102.0	166.9/184.0	175/200	162/177	450/464***
									37.6/50.0	104.4/120.3	187.0/176.8	200/200	180/198	466/482***
	460-3-60	STD	414	508	8.6	59.6	0.7	2.6	—	—	23.4	25††	24	143
									16.5	19.8	48.1	50††	47	163
									27.8	33.4	65.1	70	63	176
									33.0	39.7	73.0	80	70	183
									41.7	50.2	86.1	90	82	193***
									50.0	60.1	83.5	90	93	203***
		ALT	414	508	8.6	59.6	0.7	3.4	—	—	24.2	25††	25	182
									16.5	19.8	48.9	50††	48	202
									27.8	33.4	65.9	70	64	216
									33.0	39.7	73.8	80	71	222
									41.7	50.2	86.9	90	83	233***
									50.0	60.1	84.3	90	94	243***
		HIGH-STATIC	414	508	8.6	59.6	0.7	7.4	—	—	28.2	30††	30	176
									16.5	19.8	52.9	60††	53	196
									27.8	33.4	69.9	70	68	210
									33.0	39.7	77.8	80	76	216
									41.7	50.2	90.9	100	88	227***
									50.0	60.1	88.3	100	99	237***
	575-3-60	STD	518	632	6.9	49.4	0.7	2.6	—	—	18.7	20††	20	118
									17.0	17.1	40.1	45††	39	135
									34.0	34.1	61.4	70	59	152
									51.0	51.2	69.9	70	78	169
		ALT	518	632	6.9	49.4	0.7	3.4	—	—	19.4	20††	20	149
									17.0	17.1	40.7	45††	40	166
									34.0	34.1	62.0	70	60	183
									51.0	51.2	70.6	80	79	201***
		HIGH-STATIC	518	632	6.9	49.4	0.7	7.4	—	—	22.6	25††	24	145
									17.0	17.1	43.9	45††	44	162
									34.0	34.1	65.2	70	63	179
									51.0	51.2	73.8	80	83	196***

NOTE: Legend and Notes for Electrical Data are on page 64.

50TFQ004-012 (UNITS WITH ELECTRICAL CONVENIENCE OUTLET)

UNIT 50TFQ	NOMINAL V-PH-Hz	IFM TYPE	VOLTAGE RANGE		COMPRESSOR (each)		OFM FLA	IFM FLA	ELECTRIC HEAT*		POWER SUPPLY		DISCONNECT SIZE†	
			Min	Max	RLA	LRA			Nominal kW**	FLA	MCA	MOCP	FLA	LRA
004 (3 Tons)	208/230-1-60	STD	187	254	16.4	96.0	1.5	3.1	—	—	30.3/ 30.3	35/ 35††	30/ 30	112/112
									3.3/ 4.4	15.9/18.3	50.2/ 53.2	60/ 60††	48/ 51	128/130
									4.9/ 6.5	23.6/27.1	59.8/ 64.2	60/ 70	57/ 61	135/139
									6.5/ 8.7	31.3/36.3	69.4/ 75.7	70/ 80	66/ 72	143/148
									7.9/10.5	38.0/43.8	77.8/ 85.1	80/ 90	74/ 81	150/156***
									9.8/13.0	47.1/54.2	89.2/ 98.1	90/100	84/ 92	159/166***
		ALT	187	254	16.4	96.0	1.5	4.9	—	—	31.7/ 31.7	35/ 35††	32/ 32	116/116
									3.3/ 4.4	15.9/18.3	51.6/ 54.6	60/ 60††	50/ 53	132/134
									4.9/ 6.5	23.6/27.1	61.2/ 65.6	70/ 70	59/ 63	140/143
									6.5/ 8.7	31.3/36.3	70.8/ 77.1	80/ 80	68/ 73	147/152
									7.9/10.5	38.0/43.8	79.2/ 86.5	80/ 90	75/ 82	154/160***
									9.8/13.0	47.1/54.2	90.6/ 99.5	100/110	86/ 94	163/170***
	208/230-3-60	STD	187	254	10.2	75.0	1.5	3.1	—	—	22.6/ 22.6	25/ 25††	23/ 23	91/ 91
									3.3/ 4.4	9.2/10.6	34.1/ 35.8	35/ 40††	34/ 35	100/101
									4.9/ 6.5	13.6/15.6	39.6/ 42.1	40/ 45††	39/ 41	104/106
									8.5/ 8.7	18.0/20.9	45.1/ 48.7	50/ 50††	44/ 47	109/112
									7.9/10.5	21.9/25.3	49.9/ 54.2	50/ 60††	48/ 52	113/116
									12.0/16.0	33.3/38.5	64.2/ 70.7	70/ 80††	61/ 67	124/129
		ALT	187	254	10.2	75.0	1.5	4.9	—	—	24.0/ 24.0	30/ 30††	25/ 25	95/ 95
									3.3/ 4.4	9.2/10.6	35.5/ 37.2	40/ 40††	35/ 37	104/106
									4.9/ 6.5	13.6/15.6	41.0/ 43.5	45/ 45††	40/ 43	109/111
									6.5/ 8.7	18.0/20.9	46.5/ 50.1	50/ 60††	45/ 49	113/116
									7.9/10.5	21.9/25.3	51.3/ 55.6	60/ 60††	50/ 54	117/120
									12.0/16.0	33.3/38.5	65.6/ 72.1	70/ 80	63/ 69	128/134
		HIGH-STATIC	187	254	10.2	75.0	1.5	5.8	—	—	24.9/ 24.9	25/ 25††	26/ 26	125/125
									3.3/ 4.4	9.2/10.6	36.4/ 38.1	40/ 40††	36/ 38	134/135
									4.9/ 6.5	13.6/15.6	41.9/ 44.4	45/ 45††	41/ 44	138/140
									6.5/ 8.7	18.0/20.9	47.4/ 51.0	50/ 60††	46/ 50	143/145
									7.9/10.5	21.9/25.3	52.2/ 56.5	60/ 60††	51/ 55	146/150
									12.0/16.0	33.3/38.5	66.5/ 73.0	70/ 80	64/ 70	158/163
	460-3-60	STD	414	508	4.8	40.0	0.8	1.7	—	—	10.3	15††	10	47
									6.0	7.2	19.3	20††	19	54
									8.8	10.6	23.5	25††	23	58
									11.5	13.8	27.5	30††	26	61
									14.0	16.8	31.3	35††	30	64
		ALT	414	508	4.8	40.0	0.8	2.1	—	—	11.1	15††	11	50
									6.0	7.2	20.1	25††	20	57
									8.8	10.6	24.3	25††	24	61
									11.5	13.8	28.3	30††	27	64
									14.0	16.8	32.1	35††	31	67
		HIGH-STATIC	414	508	4.8	40.0	0.8	2.6	—	—	11.6	15††	12	65
									6.0	7.2	20.6	25††	20	72
									8.8	10.6	24.8	25††	24	75
									11.5	13.8	28.8	30††	28	78
									14.0	16.8	32.6	35††	31	81
	575-3-60	STD	518	632	3.8	31.0	0.8	1.7	—	—	8.2	15††	8	37
		ALT	518	632	3.8	31.0	0.8	2.1	—	—	8.8	15††	9	39
		HIGH-STATIC	518	632	3.8	31.0	0.8	2.6	—	—	9.2	15††	9	51
005 (4 Tons)	208/230-1-60	STD	187	254	29.1	132.0	1.5	3.5	—	—	46.2/ 46.2	50/ 50††	45/ 45	148/148
									3.3/ 4.4	15.9/18.3	66.1/ 69.1	70/ 70	63/ 66	163/166
									6.5/ 8.7	31.3/36.3	85.3/ 91.6	90/100	81/ 86	179/184
									9.8/13.0	47.1/54.2	105.1/113.9	110/125	99/107	195/202
									13.1/17.4	63.0/72.5	124.1/136.8	125/150	117/128	211/220
									15.8/21.0	76.0/87.5	141.2/155.6	150/175	132/145	224/235
		ALT	187	254	29.1	132.0	1.5	4.9	—	—	47.6/ 47.6	50/ 50††	46/ 46	152/152
									3.3/ 4.4	15.9/18.3	67.5/ 70.5	70/ 80	65/ 67	168/170
									6.5/ 8.7	31.3/36.3	86.7/ 93.0	90/100	82/ 88	183/188
									9.8/13.0	47.1/54.2	106.5/115.3	110/125	101/109	199/206
									13.1/17.4	63.0/72.5	126.3/138.2	150/150	119/130	215/225
									15.8/21.0	76.0/87.5	142.6/157.0	150/175	134/147	228/240
	208/230-3-60	STD	187	254	16.8	91.0	1.5	3.5	—	—	30.8/ 30.8	35/ 35††	31/ 31	107/107
									4.9/ 6.5	13.6/15.6	47.8/ 50.3	50/ 60††	46/ 49	120/122
									6.5/ 8.7	18.0/20.9	53.3/ 56.9	60/ 60††	51/ 55	125/127
									12.0/16.0	33.3/38.5	72.4/ 78.9	80/ 80	69/ 75	140/145
									15.8/21.0	43.9/50.5	85.7/ 93.9	90/100	81/ 89	150/157
		ALT	187	254	16.8	91.0	1.5	4.9	—	—	32.2/ 32.2	35/ 35††	32/ 32	111/111
									4.9/ 6.5	13.6/15.6	49.2/ 51.7	50/ 60††	48/ 50	125/127
									6.5/ 8.7	18.0/20.9	54.7/ 58.3	60/ 60††	53/ 56	129/132
									12.0/16.0	33.3/38.5	73.8/ 80.3	80/ 90	71/ 76	144/150
									15.8/21.0	43.9/50.5	87.1/ 95.3	90/100	83/ 90	155/162
		HIGH-STATIC	187	254	16.8	91.0	1.5	5.8	—	—	33.1/ 33.1	35/ 35††	33/ 33	141/141
									4.9/ 6.5	13.6/15.6	50.1/ 52.6	60/ 60††	49/ 51	154/156
									6.5/ 8.7	18.0/20.9	55.6/ 59.2	60/ 60††	54/ 57	159/161
									12.0/16.0	33.3/38.5	74.7/ 81.2	80/ 90	72/ 78	174/179
									15.8/21.0	43.9/50.5	88.0/ 96.2	90/100	84/ 91	184/191***

NOTE: Legend and Notes for Electrical Data are on page 69.

Electrical data — 50TFQ (cont)

50TFQ004-012 (UNITS WITH ELECTRICAL CONVENIENCE OUTLET) (cont)

UNIT 50TFQ	NOMINAL V-PH-Hz	IFM TYPE	VOLTAGE RANGE		COMPRESSOR (each)		OFM FLA	IFM FLA	ELECTRIC HEAT*		POWER SUPPLY		DISCONNECT SIZE†	
			Min	Max	RLA	LRA			Nominal kW**	FLA	MCA	MOCP	FLA	LRA
005 (4 Tons) (cont)	460-3-60	STD	414	508	8.4	50.0	0.8	1.8	—	—	15.3	20††	15	58
									6.0	7.2	24.3	25††	23	66
									11.5	13.8	32.5	35††	31	72
									14.0	16.8	36.3	40††	34	75
									23.0	27.7	49.9	50††	47	86
		ALT	414	508	8.4	50.0	0.8	2.1	—	—	15.6	20††	15	60
									6.0	7.2	24.6	25††	24	67
									11.5	13.8	32.8	35††	31	74
									14.0	16.8	36.6	40††	35	77
									23.0	27.7	50.2	60††	47	88
		HIGH-STATIC	414	508	8.4	50.0	0.8	2.6	—	—	16.1	20††	16	75
									6.0	7.2	25.1	30††	24	82
									11.5	13.8	33.3	35††	32	88
									14.0	16.8	37.1	40††	35	91
									23.0	27.7	50.7	60††	48	102
	575-3-60	STD	518	632	6.7	37.0	0.8	1.8	—	—	12.2	15††	12	44
		ALT	518	632	6.7	37.0	0.8	2.1	—	—	12.4	15††	12	45
		HIGH-STATIC	518	632	6.7	37.0	0.8	2.6	—	—	12.8	15††	13	57
006 (5 Tons)	208/230-1-60	STD	187	254	26.7	170.0	1.5	5.9	—	—	45.6/ 45.6	50/ 50††	45/ 45	189/189
									4.9/ 6.5	23.6/27.1	75.1/ 79.5	80/ 80	72/ 76	213/216
									6.5/ 8.7	31.3/36.3	84.7/ 91.0	90/100	81/ 86	220/225***
									9.8/13.0	47.1/54.2	104.3/113.3	110/125	99/107	236/243***
									13.1/17.4	63.0/72.5	124.3/136.2	125/150	117/128	252/261***
									15.8/21.0	76.0/87.5	140.6/155.0	150/175	132/145	265/276***
		ALT	187	254	26.7	170.0	1.5	8.8	—	—	48.5/ 48.5	50/ 50††	48/ 48	222/222
									4.9/ 6.5	23.6/27.1	78.0/ 82.4	80/ 90	75/ 79	246/249
									6.5/ 8.7	31.3/36.3	87.6/ 93.9	90/100	84/ 90	253/258***
									9.8/13.0	47.1/54.2	107.4/116.2	110/125	102/110	269/276***
									13.1/17.4	63.0/72.5	127.2/139.1	150/150	121/131	285/294***
									15.8/21.0	76.0/87.5	143.5/157.9	150/175	135/149	298/309***
	208/230-3-60	STD	187	254	15.4	124.0	1.5	5.9	—	—	31.5/ 31.5	35/ 40††	32/ 32	143/143
									4.9/ 6.5	13.6/15.6	48.5/ 51.0	50/ 60††	47/ 50	157/159
									7.9/10.5	21.9/25.3	58.8/ 63.1	60/ 70	57/ 61	165/168
									12.0/16.0	33.3/38.5	73.1/ 79.6	80/ 90	70/ 76	176/181
									15.8/21.0	43.9/50.5	86.3/ 94.6	90/100	82/ 90	187/193***
									19.9/26.5	55.2/63.8	100.5/111.2	110/125	95/105	198/207***
		ALT	187	254	15.4	124.0	1.5	5.8	—	—	31.4/ 31.4	35/ 35††	32/ 32	174/174
									4.9/ 6.5	13.6/15.6	48.4/ 50.9	50/ 60††	47/ 50	187/189
									7.9/10.5	21.9/25.3	58.7/ 63.0	60/ 70	57/ 61	195/199
									12.0/16.0	33.3/38.5	73.0/ 79.5	80/ 80	70/ 76	207/212
									15.8/21.0	43.9/50.5	86.2/ 94.5	90/100	82/ 90	217/224***
									19.9/26.5	55.2/63.8	100.4/111.1	110/125	95/105	229/237***
		HIGH-STATIC	187	254	15.4	124.0	1.5	7.5	—	—	33.1/ 33.1	35/ 35††	34/ 34	193/193
									4.9/ 6.5	13.6/15.6	50.1/ 52.6	60/ 60††	49/ 52	206/208
									7.9/10.5	21.9/25.3	60.4/ 64.7	70/ 70	59/ 63	214/218
									12.0/16.0	33.3/38.5	74.7/ 81.2	80/ 80	72/ 78	226/231
									15.8/21.0	43.9/50.5	87.9/ 96.2	90/100	84/ 92	236/243***
									19.9/26.5	55.2/63.8	102.1/112.8	110/125	97/107	248/256***
	460-3-60	STD	414	508	7.7	59.6	0.8	3.2	—	—	15.8	20††	16	70
									6.0	7.2	24.8	25††	24	77
									11.5	13.8	33.1	35††	32	83
									14.0	16.8	36.8	40††	35	86
									23.0	27.7	50.4	60††	48	97
									25.5	30.7	54.2	60††	51	100
		ALT	414	508	7.7	59.6	0.8	2.6	—	—	15.2	20††	15	84
									6.0	7.2	24.2	25††	24	91
									11.5	13.8	32.5	35††	31	98
									14.0	16.8	36.2	40††	35	101
									23.0	27.7	49.8	60††	47	112
									25.5	30.7	53.6	60††	51	115
		HIGH-STATIC	414	508	7.7	59.6	0.8	3.4	—	—	16.0	20††	16	94
									6.0	7.2	25.0	25††	24	101
									11.5	13.8	33.3	35††	32	107
									14.0	16.8	37.0	40††	36	110
									23.0	27.7	50.6	60††	48	121
									25.5	30.7	54.4	60††	51	124
	575-3-60	STD	518	632	6.2	49.4	0.8	3.2	—	—	12.7	15††	13	57
		ALT	518	632	6.2	49.4	0.8	2.6	—	—	12.2	15††	12	69
		HIGH-STATIC	518	632	6.2	49.4	0.8	3.4	—	—	12.9	15††	13	77

NOTE: Legend and Notes for Electrical Data are on page 69.

50TFQ004-012 (UNITS WITH ELECTRICAL CONVENIENCE OUTLET) (cont)

UNIT 50TFQ	NOMINAL V-PH-Hz	IFM TYPE	VOLTAGE RANGE		COMPRESSOR (each)		OFM FLA	IFM FLA	ELECTRIC HEAT*		POWER SUPPLY		DISCONNECT SIZE†	
			Min	Max	RLA	LRA			Nominal kW**	FLA	MCA	MOCP	FLA	LRA
007 (6 Tons)	208/230-3-60	STD	187	254	22.7	146.0	1.4	5.8	—	—	40.4/ 40.4	45/ 45††	40/ 40	195/195
									4.9/ 6.5	13.6/15.6	57.4/ 59.9	60/ 60††	56/ 58	208/211
									7.9/10.5	21.9/25.3	67.8/ 72.0	70/ 80	65/ 69	217/220
									12.0/16.0	33.3/38.5	82.0/ 88.5	90/ 90	78/ 84	228/233***
									15.8/21.0	43.9/50.5	95.3/103.5	100/110	90/ 98	239/245***
									19.9/26.5	55.2/63.8	109.4/120.1	110/125	103/113	250/259***
		HIGH-STATIC	187	254	22.7	146.0	1.4	7.5	—	—	42.1/ 42.1	45/ 45††	42/ 42	214/214
									4.9/ 6.5	13.6/15.6	59.1/ 61.6	60/ 70	58/ 60	227/229
									7.9/10.5	21.9/25.3	69.5/ 73.7	70/ 80	67/ 71	236/239
									12.0/16.0	33.3/38.5	83.7/ 90.2	90/100	80/ 86	247/252***
									15.8/21.0	43.9/50.5	97.0/105.2	100/110	92/100	258/264***
									19.9/26.5	55.2/63.8	111.1/121.8	125/125	105/115	269/278***
	460-3-60	STD	414	508	11.4	73.0	0.7	2.6	—	—	19.7	20††	19	97
									6.0	7.2	28.7	30††	28	104
									11.5	13.8	37.0	40††	35	111
									14.0	16.8	40.7	45††	39	114
									23.0	27.7	54.4	60††	51	125
									25.5	30.7	58.1	60††	55	128
		HIGH-STATIC	414	508	11.4	73.0	0.7	3.4	—	—	20.5	25††	20	107
									6.0	7.2	29.5	30††	29	114
									11.5	13.8	37.8	40††	36	121
									14.0	16.8	41.5	45††	40	124
									23.0	27.7	55.2	60††	52	134
									25.5	30.7	58.9	60††	56	137
	575-3-60	STD	518	632	9.1	58.4	0.7	2.6	—	—	15.8	20††	16	78
		HIGH-STATIC	518	632	9.1	58.4	0.7	3.4	—	—	16.4	20††	16	85

LEGEND

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

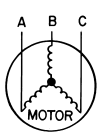
*Heaters are field installed only.
†Used to determine minimum disconnect size per NEC.
**Heater capacity (kW) is based on heater voltage of 208 v, 240 v and 480 v. If power distribution voltage to unit varies from rated heater voltage, heater kW will vary accordingly.
††Fuse or HACR circuit breaker.
***Optional disconnect switch is unavailable.

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.
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.

   % 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.

POWER EXHAUST ELECTRICAL DATA

POWER EXHAUST PART NO.	MCA (230 v)	MCA (460 v)	MCA (575 v)	MOCP (for separate power source)
CRPWREXH021A01	N/A	0.9	N/A	15
CRPWREXH022A01	3.3	N/A	1.32	15
CRPWREXH023A01	N/A	1.8	N/A	15
CRPWREXH028A01	1.7	N/A	0.68	15
CRPWREXH029A01	N/A	1.0	N/A	15
CRPWREXH030A01	1.6	N/A	0.64	15

N/A — Not available

NOTE: If a single power source is to be used, size wire to include power exhaust MCA and MOCP.

Check MCA and MOCP when power exhaust is powered through the unit. Determine the new MCA including the power exhaust using the following formula:

MCA New = MCA unit only + MCA of Power Exhaust

For example, using a 50TFQ006---5 unit with MCA = 35.6 and MOCP = 40, with CRPWREXH030A01 power exhaust.

MCA New = 35.6 amps + 1.6 amps = 37.2 amps

If the new MCA does not exceed the published MOCP, then MOCP would not change. The MOCP in this example is 40 amps and the MCA New is below 40; therefore the MOCP is acceptable. If "MCA New" is larger than the published MOCP, raise the MOCP to the next larger size. In all cases, the MOCP for the power exhaust should be 15 amps per NEC.

Electrical data — 50TFQ (cont)

50TFQ004-012 (UNITS WITH ELECTRICAL CONVENIENCE OUTLET) (cont)

UNIT 50TFQ	NOMINAL V-PH-Hz	IFM TYPE	VOLTAGE RANGE		COMPRESSOR (each)		OFM FLA	IFM FLA	ELECTRIC HEAT*		POWER SUPPLY		DISCONNECT SIZE†	
			Min	Max	RLA	LRA			Nominal kW**	FLA	MCA	MOCP	FLA	LRA
008 (7 1/2 Tons)	208/230-3-60	STD	187	254	13.4	91.0	1.4	5.8	—	—	43.6/ 43.6	45/ 45††	46/ 46	234/234
									7.8/10.4	21.7/ 25.0	70.7/ 74.8	80/ 80	71/ 75	256/259
									12.0/16.0	33.3/ 38.5	85.2/ 91.7	90/100	85/ 91	267/272***
									18.6/24.8	51.6/ 59.7	108.1/118.2	110/125	106/115	285/294***
									24.0/32.0	66.6/ 77.0	126.8/139.8	150/150	123/135	300/311***
									31.8/42.4	88.3/102.0	153.9/171.1	175/175	148/164	322/336***
		HIGH-STATIC	187	254	13.4	91.0	1.4	10.6	—	—	48.4/ 48.4	50/ 50††	52/ 52	277/277
									7.8/10.4	21.7/ 25.0	75.5/ 79.6	80/ 80	77/ 81	299/302***
									12.0/16.0	33.3/ 38.5	90.0/ 96.5	90/100	90/ 96	311/316***
									18.6/24.8	51.6/ 59.7	112.9/123.0	125/125	111/120	329/337***
									24.0/32.0	66.6/ 77.0	131.6/144.6	150/150	128/140	344/354***
									31.8/42.4	88.3/102.0	158.7/175.9	175/200	153/169	366/379***
	460-3-60	STD	414	508	6.7	42.0	0.7	2.6	—	—	21.3	25††	23	110
									13.9	16.7	42.1	45††	42	127
									16.5	19.8	46.0	50††	45	130
									27.8	33.4	63.0	70	61	143
									33.0	39.7	70.9	80	68	150
									41.7	50.2	84.0	90	80	160***
		HIGH-STATIC	414	508	6.7	42.0	0.7	4.8	—	—	23.5	25††	25	132
									13.9	16.7	44.3	45††	44	148
									16.5	19.8	48.2	50††	48	151
									27.8	33.4	65.2	70	63	165
									33.0	39.7	73.1	80	71	171
									41.7	50.2	86.2	90	83	182***
	575-3-60	STD	518	632	5.4	39.0	0.7	2.6	—	—	17.1	20††	18	99
									17.0	17.1	38.5	40††	38	116
									34.0	34.1	59.7	60††	57	133
		HIGH-STATIC	518	632	5.4	39.0	0.7	4.8	—	—	18.9	20††	20	116
									17.0	17.1	40.2	45††	40	133
									34.0	34.1	61.5	70	59	150
009 (8 1/2 Tons)	208/230-3-60	STD	187	254	16.0	137.0	1.4	5.8	—	—	49.4/ 49.4	50/ 50††	52/ 52	326/326
									7.8/10.4	21.7/ 25.0	76.5/ 80.7	80/ 90	77/ 81	348/351
									12.0/16.0	33.3/ 38.5	91.0/ 97.5	100/100	91/ 96	359/364
									18.6/24.8	51.6/ 59.7	113.9/124.0	125/125	112/121	377/386
									24.0/32.0	66.6/ 77.0	132.7/145.7	150/150	129/141	392/403
									31.8/42.4	88.3/102.0	154.8/176.9	175/200	154/170	414/428
		HIGH-STATIC	187	254	16.0	137.0	1.4	10.6	—	—	54.2/ 54.2	60/ 60††	58/ 58	369/369
									7.8/10.4	21.7/ 25.0	81.3/ 85.5	90/ 90	83/ 86	391/394***
									12.0/16.0	33.3/ 38.5	95.8/102.3	100/110	96/102	403/408***
									18.6/24.8	51.6/ 59.7	118.7/128.8	125/150	117/126	421/429***
									24.0/32.0	66.6/ 77.0	137.5/150.5	150/175	134/146	436/446***
									31.8/42.4	88.3/102.0	164.6/181.7	175/200	159/175	458/471***
	460-3-60	STD	414	508	8.3	69.0	0.7	2.6	—	—	24.9	25††	26	164
									13.9	16.7	45.7	50††	45	181
									16.5	19.8	49.6	50††	49	184
									27.8	33.4	66.6	70	65	197
									33.0	39.7	74.5	80	72	204
									41.7	50.2	87.6	90	84	214***
		HIGH-STATIC	414	508	8.3	69.0	0.7	4.8	—	—	27.1	30††	29	186
									13.9	16.7	47.9	50††	48	202
									16.5	19.8	51.8	60††	51	205
									27.8	33.4	68.8	70	67	219
									33.0	39.7	76.7	80	74	225
									41.7	50.2	89.8	90	86	236***
	575-3-60	STD	518	632	6.4	58.0	0.7	2.6	—	—	19.3	20††	20	137
									17.0	17.1	40.7	45††	40	154
									34.0	34.1	62.0	70	60	171
		HIGH-STATIC	518	632	6.4	58.0	0.7	4.8	—	—	21.1	25††	22	154
									17.0	17.1	42.5	45††	42	171
									34.0	34.1	63.7	70	62	188
012 (10 Tons)	208/230-3-60	STD	187	254	17.2	124.0	1.4	5.8	—	—	52.1/ 52.1	60/ 60††	55/ 55	300/300
									7.8/10.4	21.7/ 25.0	79.2/ 83.4	80/ 90	80/ 84	322/325***
									12.0/16.0	33.3/ 38.5	93.7/100.2	100/110	93/ 99	333/338***
									24.0/32.0	66.6/ 77.0	135.4/148.4	150/150	132/144	366/377***
									31.8/42.4	88.3/102.0	162.5/179.6	175/200	157/172	388/402***
									37.6/50.0	104.4/120.3	182.6/172.4	200/200	175/193	404/420***
		ALT	187	254	17.2	124.0	1.4	7.5	—	—	53.8/ 53.8	60/ 60††	57/ 57	319/319
									7.8/10.4	21.7/ 25.0	80.9/ 85.1	90/ 90	82/ 86	341/344***
									12.0/16.0	33.3/ 38.5	95.4/101.9	100/110	95/101	352/357***
									24.0/32.0	66.6/ 77.0	137.1/150.1	150/175	134/145	385/396***
									31.8/42.4	88.3/102.0	164.2/181.3	175/200	158/174	407/421***
									37.6/50.0	104.4/120.3	184.3/174.1	200/200	177/195	423/439***
		HIGH-STATIC	187	254	17.2	124.0	1.4	15.0	—	—	61.3/ 61.3	70/ 70	66/ 66	367/367
									7.8/10.4	21.7/ 25.0	88.4/ 92.6	90/100	91/ 94	389/392***
									12.0/16.0	33.3/ 38.5	102.9/109.4	110/110	104/110	400/405***
									24.0/32.0	66.6/ 77.0	144.6/157.6	150/175	142/154	433/444***
									31.8/42.4	88.3/102.0	171.7/188.8	175/200	167/183	455/459***
									37.6/50.0	104.4/120.3	191.8/181.6	200/200	186/204	471/487***

NOTE: Legend and Notes for Electrical Data are on page 71.

50TFQ004-012 (UNITS WITH ELECTRICAL CONVENIENCE OUTLET) (cont)

UNIT 50TFQ	NOMINAL V-PH-Hz	IFM TYPE	VOLTAGE RANGE		COMPRESSOR (each)		OFM FLA	IFM FLA	ELECTRIC HEAT*		POWER SUPPLY		DISCONNECT SIZE†	
			Min	Max	RLA	LRA			Nominal kW**	FLA	MCA	MOCP	FLA	LRA
012 (10 Tons)	460-3-60	STD	414	508	8.6	59.6	0.7	2.6	—	—	25.5	30††	27	145
									16.5	19.8	50.3	60††	50	165
									27.8	33.4	67.3	70	65	178
									33.0	39.7	75.2	80	73	185
									41.7	50.2	88.3	90	85	195***
									50.0	60.1	85.6	90	96	205***
		ALT	414	508	8.6	59.6	0.7	3.4	—	—	26.3	30††	28	185
									16.5	19.8	51.1	60††	51	204
									27.8	33.4	68.1	70	66	218
									33.0	39.7	76.0	80	73	224
									41.7	50.2	89.1	90	86	235***
									50.0	60.1	86.4	90	97	245***
		HIGH-STATIC	414	508	8.6	59.6	0.7	7.4	—	—	30.3	35††	32	179
									16.5	19.8	55.1	60††	55	198
									27.8	33.4	72.1	80	71	212
									33.0	39.7	80.0	80	78	218
									41.7	50.2	93.1	100	90	229***
									50.0	60.1	90.4	100	102	239***
	575-3-60	STD	518	632	6.9	49.4	0.7	2.6	—	—	20.5	25††	22	120
									17.0	17.1	41.8	45††	41	137
									34.0	34.1	63.1	70	61	154
									51.0	51.2	71.7	80	80	171***
		ALT	518	632	6.9	49.4	0.7	3.4	—	—	21.1	25††	22	151
									17.0	17.1	42.5	45††	42	168
									34.0	34.1	63.7	70	62	185
									51.0	51.2	72.3	80	81	202***
		HIGH-STATIC	518	632	6.9	49.4	0.7	7.4	—	—	24.3	25††	26	146
									17.0	17.1	45.7	50††	46	163
									34.0	34.1	66.9	70	65	180
									51.0	51.2	75.5	80	85	198***

LEGEND

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

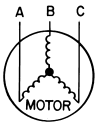
*Heaters are field installed only.
†Used to determine minimum disconnect size per NEC.
**Heater capacity (kW) is based on heater voltage of 208 v, 240 v, 480 v, and 575 v. If power distribution voltage to unit varies from rated heater voltage, heater kW will vary accordingly.
††Fuse or HACR circuit breaker.
***Optional disconnect switch is unavailable.

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.
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.

   % 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.

POWER EXHAUST ELECTRICAL DATA

POWER EXHAUST PART NO.	MCA (230 v)	MCA (460 v)	MCA (575 v)	MOCP (for separate power source)
CRPWREXH021A01	N/A	0.9	N/A	15
CRPWREXH022A01	3.3	N/A	1.32	15
CRPWREXH023A01	N/A	1.8	N/A	15
CRPWREXH028A01	1.7	N/A	0.68	15
CRPWREXH029A01	N/A	1.0	N/A	15
CRPWREXH030A01	1.6	N/A	0.64	15

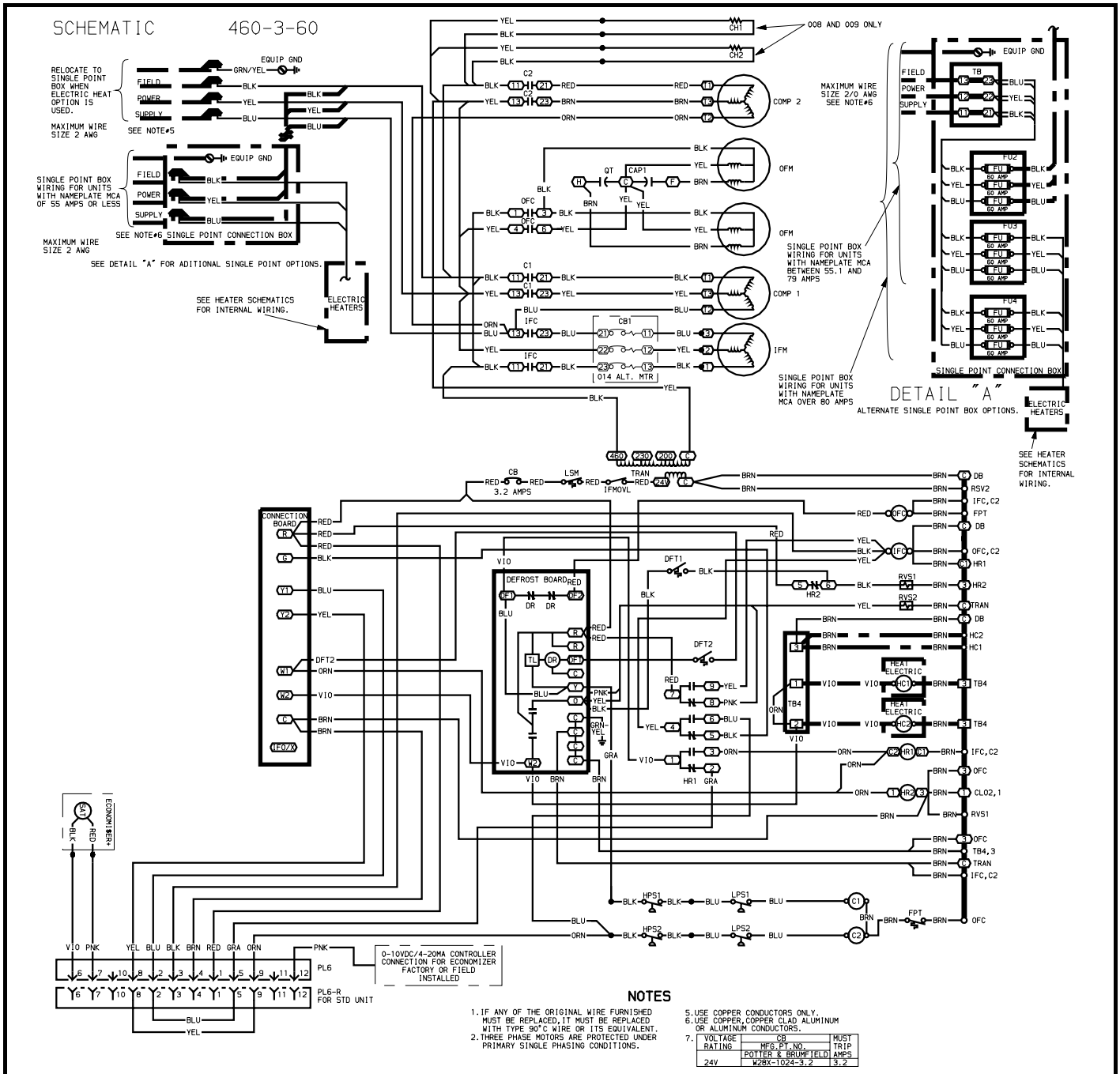
N/A — Not available

NOTE: If a single power source is to be used, size wire to include power exhaust MCA and MOCP.

Check MCA and MOCP when power exhaust is powered through the unit. Determine the new MCA including the power exhaust using the following formula:
MCA New = MCA unit only + MCA of Power Exhaust

For example, using a 50TFQ006---5 unit with MCA = 35.6 and MOCP = 40, with CRPWREXH030A01 power exhaust.
MCA New = 35.6 amps + 1.6 amps = 37.2 amps
If the new MCA does not exceed the published MOCP, then MOCP would not change. The MOCP in this example is 40 amps and the MCA New is below 40; therefore the MOCP is acceptable. If "MCA New" is larger than the published MOCP, raise the MOCP to the next larger size. In all cases, the MOCP for the power exhaust should be 15 amps per NEC.

Typical wiring schematics — 50TFQ (50TFQ008-012 — 460 v shown)



NOTES

1. IF ANY OF THE ORIGINAL WIRE FURNISHED MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE 90°C WIRE OR ITS EQUIVALENT.
2. THREE PHASE MOTORS ARE PROTECTED UNDER PRIMARY SINGLE PHASING CONDITIONS.
5. USE COPPER CONDUCTORS ONLY.
6. USE COPPER, COPPER CLAD ALUMINUM OR ALUMINUM CONDUCTORS.
7.

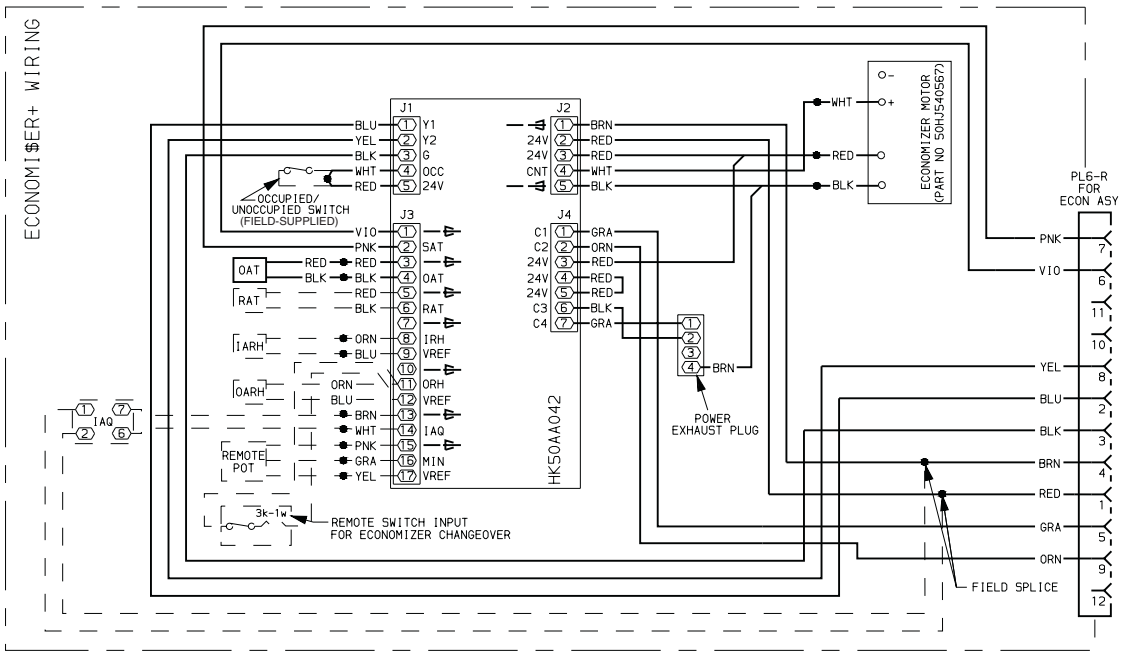
VOLTAGE RATING	CB MFG.PT.NO. POTTER & BRUMFIELD	MUST TRIP AMPS
24V	W28X-1024-3.2	3.2

LEGEND

C — Contactor, Compressor
CAP — Capacitor
COMP — Compressor Motor
DFT — Defrost Thermostat
EQUIP — Equipment
FPT — Freeze Protection Thermostat
GND — Ground
HC — Heater Contactor
HPS — High-Pressure Switch
HR — Heater Relay
IAQ — Indoor Air Quality Sensor
IARH — Indoor Air Relative Humidity Sensor
IFC — Indoor Fan Contactor
IFM — Indoor Fan Motor
IFMOVL — Indoor Fan Motor Overload
LPS — Low-Pressure Switch
LSM — Limit Switch (Manual Reset)
OARH — Outdoor Air Relative Humidity Sensor
OAT — Outdoor-Air Thermostat
OFC — Outdoor Fan Contactor
OFM — Outdoor Fan Motor
P — Plug
PL — Plug Assembly
POT — Potentiometer
QT — Quadruple Terminal
RAT — Return Air Temperature Sensor
RSV — Reversing Valve
SAT — Supply-Air Thermostat
SEN — Sensor
TRAN — Transformer

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

ECONOMI$ER+ WIRING

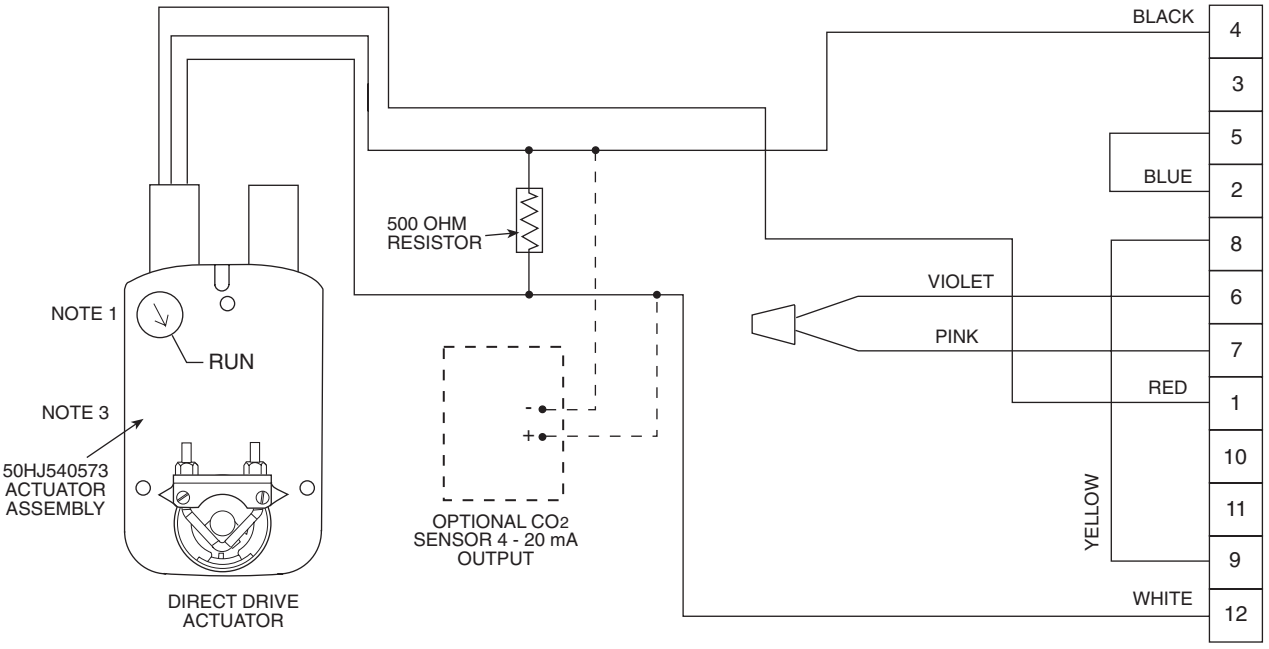


LEGEND

ECON — Economizer
IAQ — Indoor Air Quality (4 to 20 mA)
IARH — Indoor Air Relative Humidity (Signal)
IRH — Indoor Air Relative Humidity (Sensor)
OARH — Outdoor Air Relative Humidity (Signal)
OAT — Outdoor-Air Temperature
ORH — Outdoor Air Relative Humidity (Sensor)
POT — Potentiometer
RAT — Return-Air Temperature
SAT — Supply-Air Temperature

NOTES:
1. Terminals 13-17 are wired to 5-pin plug assembly (P/N CRE+PLUG001A00).
2. Pin numbers are not printed on the controller. They are provided in this book as a reference.

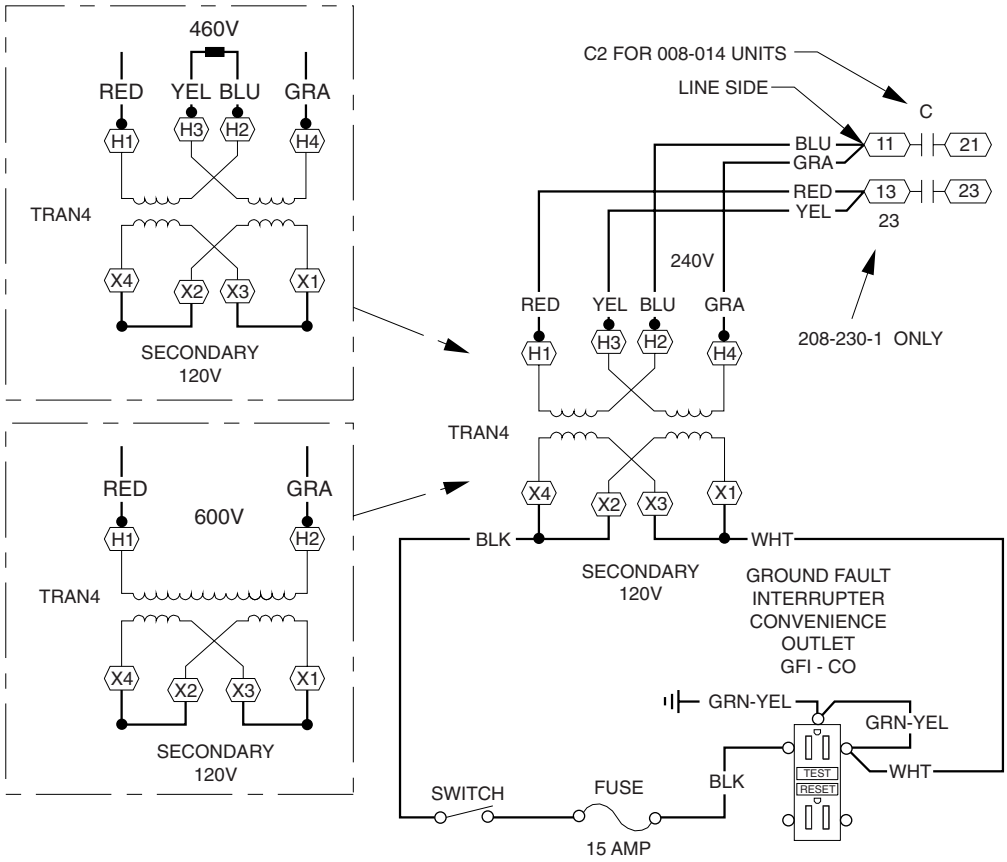
ECONOMI$ER2 WIRING



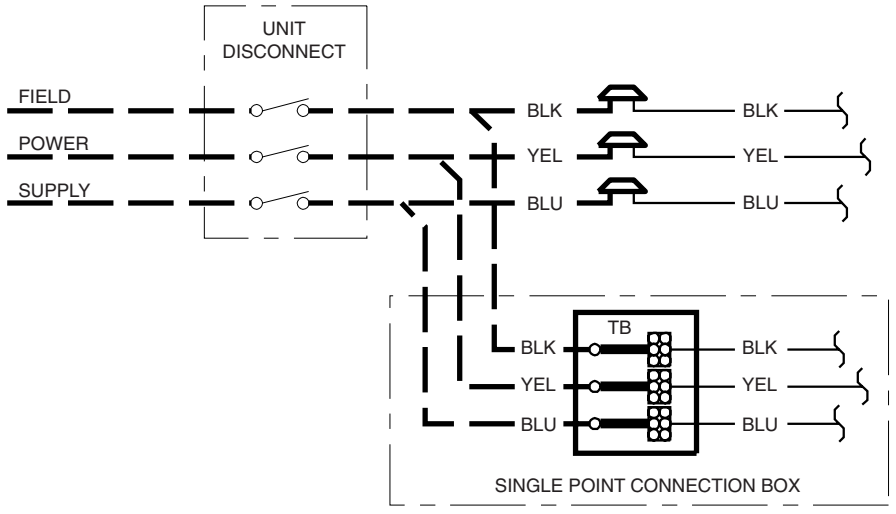
NOTES:
1. Switch on actuator must be in run position for economizer to operate.
2. PremierLink™ control requires that the standard 50HJ540569 outside-air sensor be replaced by either the CROASENR001A00 dry bulb sensor or HH57A077 enthalpy sensor.
3. 50HJ540573 actuator consists of the 50HJ540567 actuator and a harness with 500-ohm resistor.

Typical wiring schematics — 50TFQ (cont)

CONVENIENCE OUTLET (OPTIONAL) — SIZES 004-012



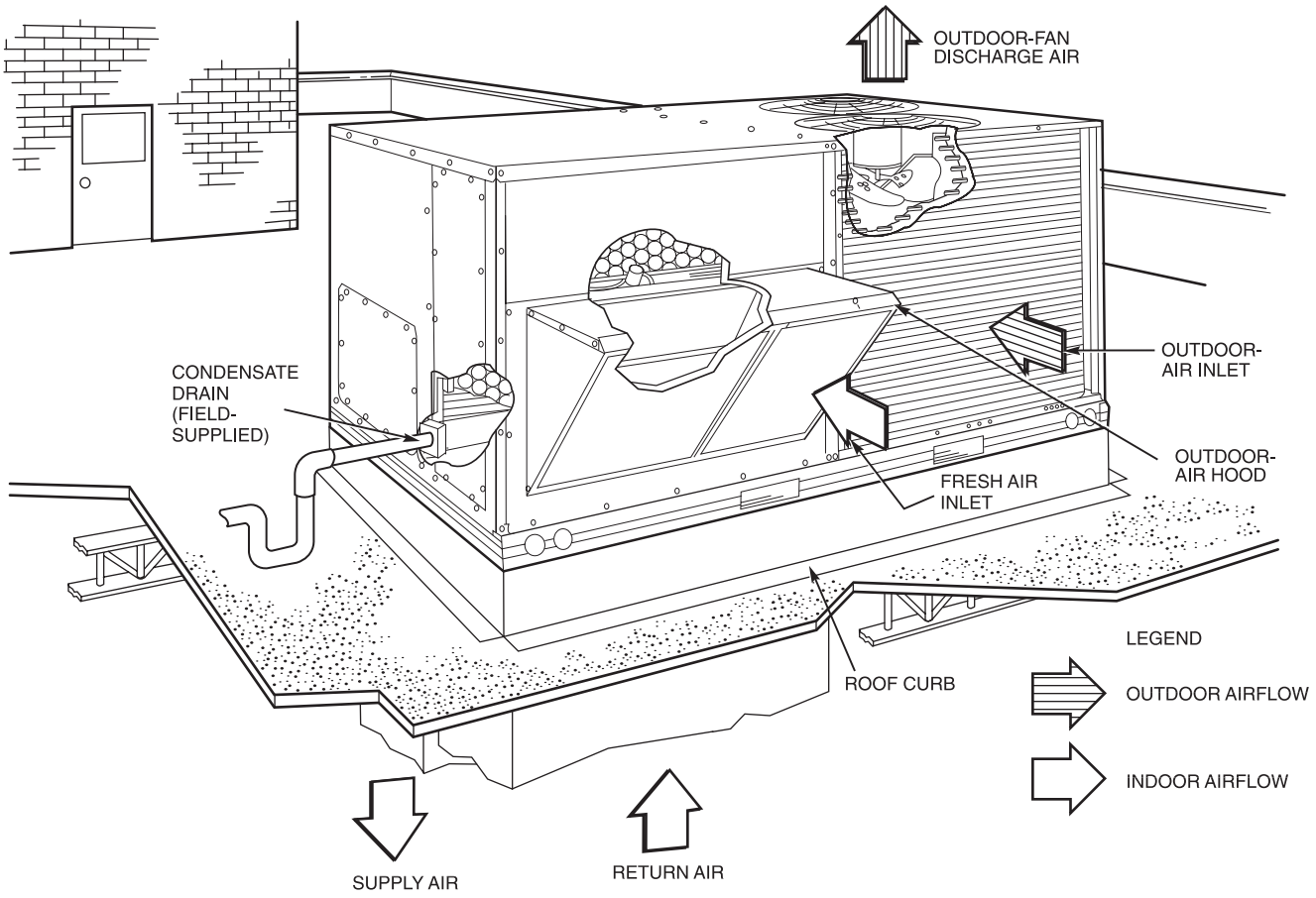
NON-FUSED DISCONNECT (OPTIONAL) — SIZES 004-012



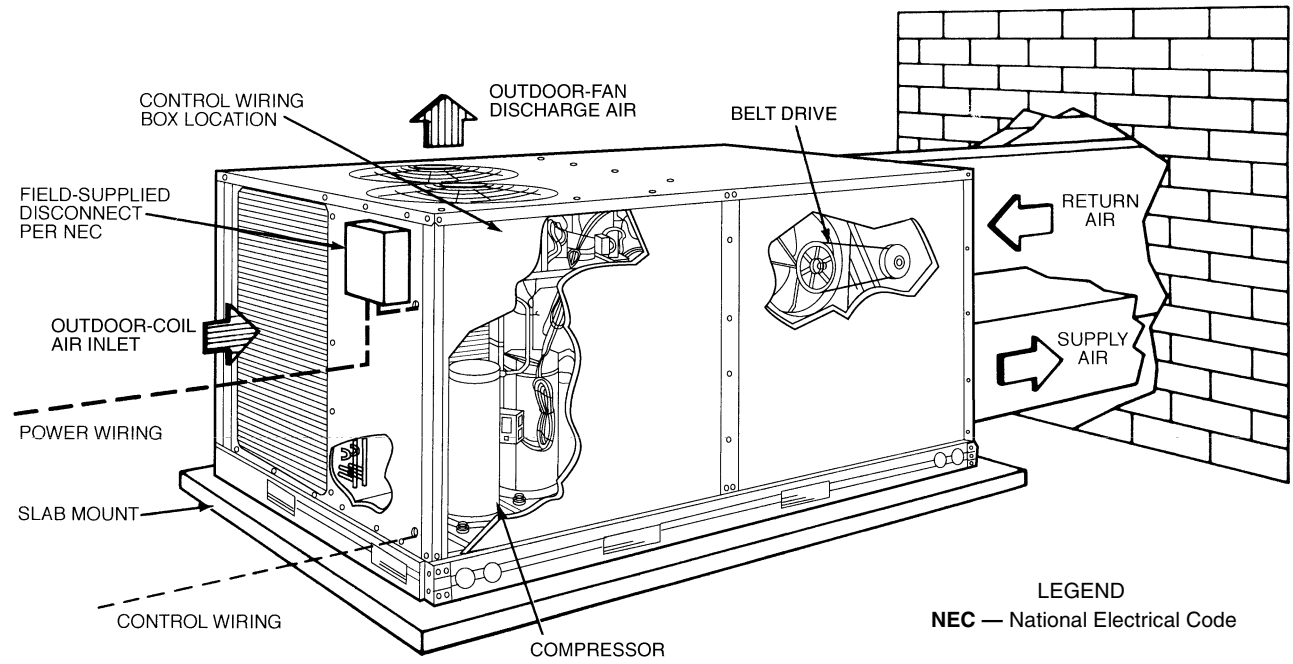
NOTE: Use copper conductors only.

Typical piping and wiring — 50TFQ

VERTICAL DISCHARGE DUCTING



HORIZONTAL DISCHARGE DUCTING



Packaged Rooftop Air-to-Air Heat Pump with Electric Heat Option — Constant Volume Application

HVAC Guide Specifications

→ Size Range: **3 to 10 Tons, Nominal (Cooling)**
34,400 to 105,000 Btuh, Nominal (Heating)
4 to 50 kW Nominal (Electric Heating)

Carrier Model Number: **50TFQ**

Part 1 — General

1.01 SYSTEM DESCRIPTION

Outdoor rooftop-mounted or slab-mounted, electrically controlled air-to-air heat pump utilizing a hermetic compressor for heating and cooling 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 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 tested and certified in accordance with ANSI Z21.47 Standard and UL listed and certified under Canadian Standards 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

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

Part 2 — Products

2.01 EQUIPMENT (STANDARD)

A. General:

Factory-assembled, single-piece, air-to-air heat pump. 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 with primer coated internal panels.
2. Indoor fan cabinet interior 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. Holes shall be provided in the base rails for rigging shackles to facilitate overhead rigging, and forklift slots shall be provided to facilitate maneuvering.
5. Unit shall have a factory-installed, sloped condensate drain pan made of a non-corrosive material, providing a minimum 3/4-in. connection with both vertical and horizontal drains and shall comply with ASHRAE 62.
6. Unit shall have factory-installed filter access panel to provide filter access with tool-less removal.
7. Unit shall have standard thru-the-bottom power connection capability.

C. Fans:

1. Indoor blower shall be of the direct-driven or belt-driven, double inlet, forward-curved centrifugal type. Belt drive shall include an adjustable-pitch motor pulley.
2. Indoor blower 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. Outdoor fan shall be of the direct-driven propeller type and shall discharge air vertically.
5. Outdoor 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.

E. Coils:

1. Outdoor and indoor 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. Indoor coil shall be of the face split design.
4. Coils:
   a. Copper-fin coils shall be constructed of copper fins mechanically bonded to copper tubes and copper tube sheets. Galvanized steel tube sheets shall not be acceptable. A polymer strip shall prevent coil assembly from contacting the sheet metal coil pan to minimize potential for galvanic corrosion between coil and pan. All copper construction shall provide protection in moderate coastal environments.
   b. E-Coated aluminum-fin coils shall have a flexible epoxy polymer coating uniformly applied to all coil surface areas without material bridging between fins. Coating process shall

ensure complete coil encapsulation. Color shall be high gloss black with gloss — 60 deg of 65 to 90% per ASTM D523-89. Uniform dry film thickness from 0.8 to 1.2 mil on all surface areas including fin edges. Superior hardness characteristics of 2H per ASTM D3363-92A and cross-hatch adhesion of 4B-5B per ASTM D3359-93. Impact resistance shall be up to 160 in./lb (ASTM D2794-93). Humidity and water immersion resistance shall be up to minimum 1000 and 250 hours respectively (ASTM D2247-92 and ASTM D870-92). Corrosion durability shall be confirmed through testing to be no less than 1000 hours salt spray per ASTM B117-90. Coil construction shall be aluminum fins mechanically bonded to copper tubes.

c. E-Coated copper-fin coils shall have a flexible epoxy polymer coating uniformly applied to all coil surface areas without material bridging between fins. Coating process shall ensure complete coil encapsulation. Color shall be high gloss black with gloss — 60 deg of 65 to 90% per ASTM D523-89. Uniform dry film thickness from 0.8 to 1.2 mil on all surface areas including fin edges. Superior hardness characteristics of 2H per ASTM D3363-92A and cross-hatch adhesion of 4B-5B per ASTM D3359-93. Impact resistance shall be up to 160 in./lb (ASTM D2794-93). Humidity and water immersion resistance shall be up to minimum 1000 and 250 hours respectively (ASTM D2247-92 and ASTM D870-92). Corrosion durability shall be confirmed through testing to be no less than 1000 hours salt spray per ASTM B117-90. Coil construction shall be copper fins mechanically bonded to copper tubes with copper tube sheets. Galvanized steel tube sheets shall not be acceptable. A polymer strip shall prevent coil assembly from contacting sheet metal coil pan to maintain coating integrity and minimize corrosion potential between coil and pan.

d. Optional pre-coated aluminum-fin coils shall have a durable epoxy-phenolic coating to provide protection in mildly corrosive coastal environments. Coating shall be applied to the aluminum fin stock prior to the fin stamping process to create an inert barrier between the aluminum fin and copper tube. Epoxy-phenolic barrier shall minimize galvanic action between dissimilar metals.

F. Refrigerant Components: Refrigerant circuit components shall include:

1. Acutrol™ multiple independent circuit metering system.
2. Service gage connections on suction, discharge, and liquid line to charge, evacuate, and contain refrigerant.
3. Accumulator.
4. Reversing valve.

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 300 fpm at nominal airflows.
3. Filter section shall use only one size filter.
4. Filters shall be accessible through an access panel with ''no-tool'' removal.

H. Controls and Safeties:

1. Unit Controls:
   a. Unit shall be complete with self-contained low-voltage control circuit.
   b. Unit shall incorporate an outdoor coil defrost system to prevent excessive frost accumulation during heating duty, and shall be controlled as follows:
      1) Defrost shall be initiated on the basis of time and coil temperature.
      2) A 30/50/90-minute timer shall activate defrost cycle only if coil temperature is low enough to indicate a heavy frost condition.
      3) Defrost cycle shall terminate when defrost thermostat is satisfied and shall have a positive termination time of 10 minutes.
   c. Unit shall contain high-pressure, loss-of-charge/low-pressure, and freeze protection switches. It shall mount on factory-installed Schrader fittings.
2. Standard Safeties:

   Unit shall incorporate compressor overtemperature and overcurrent safety devices to shut off compressor.

I. Operating Characteristics:

1. Unit shall be capable of starting and running in cooling at 125 F ambient outdoor temperature, meeting maximum load criteria of ARI Standard 210/240 at ±10% voltage.
2. Compressor with standard controls shall be capable of cooling operation down to 25 F ambient outdoor temperature.
3. Compressor shall be capable of operation in heating duty down to –10 F ambient outdoor-air temperature.
4. Unit shall be capable of simultaneous heating duty and defrost cycle operation when using electric heaters indicated in Section L, Special Features.

J. Electrical Requirements:

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

Guide specifications — 50TFQ004-012 (cont)

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 motor shall have permanently lubricated bearings and inherent automatic-reset thermal overload protection.
   3. Totally enclosed outdoor-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. Carrier PremierLink™ Controls:
   a. Shall be available as a factory-installed or as a field-installed accessory.
   b. Shall work with CCN and ComfortVIEW™ software.
   c. Shall be compatible with *Comfort*Link™ controllers.
   d. Shall be ASHRAE 62-99 compliant.
   e. Shall accept a CO_2 sensor in the conditioned space — Demand Control Ventilation (DCV) Ready.
   f. Shall have baud communication rate of 38.4K or faster.
   g. Shall be Internet Ready.
   h. Shall include an integrated economizer controller.

   2. Roof Curbs:
      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.

* 3. Integrated Economizers:
   a. Integrated integral modulating type capable of simultaneous economizer and compressor operation. During economizer operation, up to two compressors on sizes 008-014 will operate.
   b. Available as a factory-installed option in vertical supply/return configuration only. (Available as a field-installed accessory for horizontal and/or vertical supply return configurations.)
   c. Includes all hardware and controls to provide cooling with outdoor air.
   d. Equipped with low-leakage dampers, not to exceed 2% leakage at 1 in. wg pressure differential.
   e. Capable of introducing up to 100% outdoor air.
   f. EconoMi$er+ and EconoMi$er2 shall be equipped with a barometric relief damper capable of relieving up to 100% return air.
   g. Designed to close damper(s) during loss-of-power situations with spring return built into motor.
   h. Dry bulb outdoor-air temperature sensor shall be provided as standard. Outdoor air sensor set point is adjustable and shall range from 45 to 70 F. For the EconoMi$er+, the return air sensor, indoor humidity sensor, and outdoor humidity sensor shall be provided as field-installed accessories to provide enthalpy control, differential enthalpy control, and differential dry bulb temperature control. For the EconoMi$er2, the enthalpy, differential temperature (adjustable), and differential enthalpy control shall be provided as field-installed accessories.
   i. The EconoMi$er+ and EconoMi$er2 shall have a gear-driven parallel blade design.
   j. EconoMi$er+ microprocessor control shall provide control of internal building pressure through its accessory power exhaust function. Factory set at 100%, with a range of 0% to 100%.
   k. EconoMi$er2 shall be capable of control from a 4 to 20 mA signal through optional 4 to 20 mA design without microprocessor control (required for PremierLink™ or third party control interface).
   l. EconoMi$er+ Microprocessor Occupied Minimum Damper Position Setting maintains the minimum airflow into the building during occupied period providing design ventilation rate for full occupancy (damper position during heating). A remote potentiometer may be used to override the set point.
   m. EconoMi$er+ Microprocessor Unoccupied Minimum Damper Position Setting maintains the minimum airflow into the building during unoccupied period providing base ventilation rate for demand control ventilation. The demand control ventilation position shall be set in the EconoMi$er+ software through configuration input. The EconoMi$er+ damper shall modulate between unoccupied and occupied minimum damper positions for demand control ventilation.
   n. EconoMi$er+ Microprocessor Maximum Damper Position Setting — Setting the maximum position of the damper prevents the introduction of large amounts of hot or cold air into the space.

o. EconoMi$er+ Microprocessor IAQ control modulates the outdoor-air damper to provide ventilation based on the optional 2 to 10 vdc CO_2 sensor input.

p. Compressor lockout sensor (opens at 35 F, closes at 50 F).

4. 25% 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.

5. 50% Manual Outdoor-Air Damper:

   Manual damper package shall consist of damper birdscreen, and rainhood which can be preset to admit up to 50% outdoor air for year-round ventilation.

* 6. 100% Two-Position Damper:

   a. Two-position damper package shall include single blade damper. Admits up to 100% outdoor air.

   b. Damper shall close upon indoor fan shutoff.

   c. Designed to close damper during loss of power situations.

   d. Equipped with barometric relief damper.

* 7. 25% Two-Position Damper:

   a. Two-position damper package shall include single blade damper and motor. Admits up to 25% outdoor air.

   b. Damper shall close upon indoor fan shutoff.

* 8. 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.

   d. Single point kits available for each heater when required.

* 9. Head Pressure Control Packages:

   Consists of solid-state control and outdoor-coil temperature sensor to maintain condensing temperature between 90 F and 110 F at outdoor ambient temperatures down to –20 F by outdoor fan speed modulation or outdoor fan cycling.

*10. Thermostat and Subbase:

   Provides staged cooling and heating automatic (or manual) changeover, fan control, and indicator light.

11. Thru-The-Bottom Utility Connections:

   Kit shall provide connectors to permit electrical connections to be brought to the unit through the basepan.

*12. Electronic Programmable Thermostat:

   Capable of using deluxe full-featured electronic thermostat. Shall use built-in compressor cycle delay control for both heating and cooling duty. Capable of working with Carrier direct digital controls.

13. Energy$Recycler:

   The package shall be an outdoor rooftop or surface mounted, electronically controlled, air-to-air heat pump unit utilizing a hermetic compressor for cooling and heating duty.

   The Energy$Recycler shall recover energy from building exhaust air and pre-condition ventilation air to allow higher ventilation requirements and minimizing energy cost.

   This option shall be available with the following:

   a. A mounting kit for the Energy$Recycler for cantilever mounting off of the rooftop unit with out the use of a slab or a roof curb.

   b. A supplementary supply air fan kit to provide increased air movement into the 62AQ unit.

   c. A field-installed 460 v to 208/230 v transformer to provide power when the Energy$Recycler is used with a 460-v rooftop unit.

14. Power Exhaust Accessory for EconoMi$er+ or EconoMi$er2:

   Power exhaust shall be used in conjunction with EconoMi$er+ or EconoMi$er2 to provide system exhaust of up to 100% of return air (vertical only). The power exhaust is a field-installed accessory (separate vertical and horizontal design).

   NOTE: Horizontal power exhaust is intended to mount in return ductwork.

   As the outdoor-air damper opens and closes, *both* propeller fans are energized and de-energized through the EconoMi$er+ controller. The set point is factory set at 100% of outdoor-air, and is adjustable 0 to 100% to meet specific job requirements. Available in 208/230-1-60 v or 460-3-60 v. An LED light on the controller indicates when the power exhaust is operating.

   For the EconoMi$er2, the power exhaust shall be controlled by the PremierLink or third party controls.

15. Outdoor Air Enthalpy Sensor (EconoMi$er2):

   The outdoor air enthalpy sensor shall be used with the EconoMi$er2 device to provide single enthalpy control. When used in conjunction with a return air enthalpy sensor, the PremierLink control will provide differential enthalpy control. The sensor allows the PremierLink controller to determine if outside air is suitable for free cooling.

16. Return Air Enthalpy Sensor (EconoMi$er2):

    The return air enthalpy sensor shall be used with the EconoMi$er2 device. When used in conjunction with an outdoor air enthalpy sensor, the EconoMi$er2 device will provide differential enthalpy control.

17. Return Air Temperature Sensor (EconoMi$er2):

    The return air temperature sensor shall be used with the EconoMi$er2 device. When used in conjunction with the standard outdoor air temperature sensor, the EconoMi$er2 device will provide differential temperature control.

18. Outdoor Air/Return Air Temperature Sensor (adjustable) (EconoMi$er2):

    Optional sensor uses the PremierLink control to control outdoor air damper and compressor operation.

19. Indoor Air Quality (CO_2) Sensor:

    a. Shall have the ability to provide demand ventilation indoor air quality (IAQ) control through the EconoMi$er2 with an IAQ sensor.

    b. The IAQ sensor shall be available in duct mount, wall mount, and wall mount with LED display. The set point shall have adjustment capability.

    c. Requires EconoMi$er2 PremierLink control options.

20. Power Exhaust Auxiliary Transformer:

    Field-installed 460 v or 575 v to 230 v transformer to provide power to the 230 v power exhaust when attached to a 460 v or 575 v rooftop unit.

21. Outdoor Coil Hail Guard Assembly:

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

22. Outdoor Air Humidity Sensor (EconoMi$er+):

    The outdoor air humidity sensor is used to sense outdoor air humidity for the EconoMi$er+ device. The outdoor air humidity sensor, in conjunction with the standard outdoor air temperature sensor, shall be used with the EconoMi$er+ device to provide outdoor enthalpy. Outdoor air enthalpy shall be calculated by the EconoMi$er+ device from the outdoor air temperature and humidity readings. When the outdoor air humidity sensor is installed, the EconoMi$er+ can perform Outdoor Air Enthalpy control. With the additional installation of an accessory return air temperature sensor and return air humidity sensor, differential enthalpy control can also be performed.

23. Return Air Humidity Sensor (EconoMi$er+):

    The return air humidity sensor is used to sense return air humidity for the EconoMi$er+ device. The return air humidity sensor, in conjunction with the accessory return air temperature sensor, shall be used with the EconoMi$er+ device to provide return air enthalpy. Return air enthalpy shall be calculated by the EconoMi$er+ device from the return air temperature and humidity readings. With the additional installation of an accessory return air temperature sensor and outdoor air humidity sensor, differential enthalpy control can also be performed.

24. Return Air Temperature Sensor (EconoMi$er+):

    The return air temperature sensor is used to sense return air temperature for the EconoMi$er+ device. When the return air temperature sensor is installed, the EconoMi$er+ can perform Differential Temperature control. The return air temperature sensor, in conjunction with the accessory return air humidity sensor, shall be used with the EconoMi$er+ device to provide return air enthalpy. Return air enthalpy shall be calculated by the EconoMi$er+ device from the return air temperature and humidity readings. With the additional installation of an accessory return air humidity sensor and outdoor air humidity sensor, differential enthalpy control can also be performed.

25. EconoMi$er+ 5-Pin Plug Assembly:

    The EconoMi$er+ 5-pin plug assembly shall provide a wiring connection to the EconoMi$er+ control board for a CO_2 sensor or a field-supplied remote potentiometer. The accessory plug is required when using a CO_2 sensor or a remote potentiometer.

26. Indoor Air Quality (CO_2) Room Sensor (EconoMi$er+):

    Sensor shall have the ability to provide demand ventilation control through the EconoMi$er+. The IAQ sensor shall be wall mounted with an LED display in parts per million. The set point shall have adjustment capability. The accessory 5-Pin Plug assembly is required to wire this device to the EconoMi$er+ control board.

27. Return Air CO_2 Sensor (EconoMi$er+):

    Sensor shall have the ability to provide demand ventilation control through the EconoMi$er+. The IAQ sensor shall be duct mounted. The set point shall have adjustment capability. The accessory 5-Pin Plug assembly is required to wire this device to the EconoMi$er+ control board.

28. Alternate Motors and/or Drives (004-006, 008, 012):

    Alternate motors and drives shall be factory-installed to provide additional performance range.

29. High-Static Motor(s) and Drive(s) (50TFQ004-012):

    High-static motor(s) and drive(s) shall be factory-installed to provide an additional performance range.

30. Outdoor Coil Grille:

    The grille protects the outdoor coil from damage by large objects without increasing unit clearances.

31. Compressor Cycle Delay:

    Unit shall be prevented from restarting for a minimum of 5 min. after shutdown.

32. Salt Spray Protection Package (008-012):

    Coil guard protects coil from corrosion in coastal areas and in areas with high sulfur emissions.

33. Fan/Filter Status Switch:

    Provides status of evaporator fan (ON/OFF) or filter (CLEAN/DIRTY). Status shall be displayed over communication bus when used with direct digital controls or with an indicator light at the thermostat.

34. Unit-Mounted Disconnect Switch:

    Shall be factory-installed. Internally mounted, NEC and UL approved non-fused switch provides unit power shutoff. Shall be accessible from outside the unit.

35. Convenience Outlet:

    Shall be factory-installed and internally mounted with easily accessible 115-v female receptacle. Shall include 15 amp GFI receptacle with independent fuse protection. Voltage required to operate convenience outlet shall be provided by a factory-installed step-down transformer. Shall be accessible from outside the unit.

36. Emergency Heat Package:

    When mechanical heating is locked out, auxiliary heat shall be activated when necessary.

37. Ultra-Violet Germicidal Lamps:

    Ultra-violet germicidal lamps are designed to eliminate odor causing mold and fungus that may develop in the wet area of the indoor section of the unit. The high output, low temperature germicidal lamps are field installed in the indoor section of the unit, aimed at the indoor coil and condensate pan. The short wavelength ultra-violet light inhibits and kills mold, fungus and microbial growth. The lamps have an output rating at 45 F in 400 fpm airflow of 120 microwatts/cm^2 at 1 meter.

Physical data — 50HJQ004-007

UNIT SIZE 50HJQ		004	005	006	007
NOMINAL CAPACITY (tons)		3	4	5	6
OPERATING WEIGHT (lb)					
Unit		550	560	630	630
EconoMi$er+		50	50	50	50
Roof Curb		115	115	115	115
COMPRESSOR		Scroll			
Quantity		1	1	1	1
Oil (oz)		42	42	53	80
REFRIGERANT TYPE		R-22			
Operating Charge (lb)		12.0	12.0	18.3	17.7
OUTDOOR COIL		Enhanced Copper Tubes, Aluminum Fins, Acutrol™ Metering Device			
Rows...Fins/in.		2...17	2...17	2...17	2...17
Total Face Area (sq ft)		16.53	16.53	21.25	21.25
OUTDOOR FAN		Propeller Type			
Quantity...Diameter (in.)		1...22	1...22	1...22	1...22
Nominal Cfm		3500	3500	3500	3500
Motor Hp...Rpm		1/8...825	1/8...825	1/4...1100	1/4...1100
INDOOR COIL		Enhanced Copper Tubes, Aluminum Double-Wavy Fins, Acutrol Metering Device			
Rows...Fins/in.		2...15	3...15	4...15	4...15
Total Face Area (sq ft)		5.5	5.5	7.33	7.33
INDOOR FAN		Centrifugal Type			
Quantity...Size (in.)	Std	1...10 x 10	1...10 x 10	1...10 x 10	1...10 x 10
	High-Static	1...10 x 10	1...10 x 10	1...10 x 10	1...10 x 10
Type Drive	Std	Belt	Belt	Belt	Belt
	High-Static	Belt	Belt	Belt	Belt
Nominal Cfm		1200	1600	2000	2400
Maximum Continuous Bhp	Std	1.20	1.20	1.30/2.40*	2.40
	High-Static	2.40	2.40	2.90	2.90
Motor Frame Size	Std	48	48	56	56
	High-Static	56	56	56	56
Nominal Rpm High/Low	Std	1620	1620	1725	—
	High-Static	1725	1725	1725	1725
Fan Rpm Range	Std	680-1044	770-1185	1035-1460	1119-1585
	High-Static	1075-1455	1075-1455	1300-1685	1300-1685
Motor Bearing Type		Ball	Ball	Ball	Ball
Maximum Allowable Rpm		2100	2100	2100	2100
Motor Pulley Pitch Diameter Min/Max (in.)	Std	1.9/2.9	1.9/2.9	2.4/3.4	2.4/3.4
	High-Static	2.8/3.8	2.8/3.8	3.4/4.4	3.4/4.4
Nominal Motor Shaft Diameter (in.)	Std	1/2	1/2	5/8	5/8
	High-Static	5/8	5/8	5/8	5/8
Fan Pulley Pitch Diameter (in.)	Std	4.5	4.0	4.5	3.7
	High-Static	4.5	4.5	4.5	4.5
Belt, Quantity...Type...Length (in.)	Std	1...A...34	1...A...34	1...A...39	1...A...40
	High-Static	1...A...39	1...A...39	1...A...40	1...A...40
Pulley Center Line Distance (in.)	Std	10.0-12.4	10.0-12.4	14.7-15.5	14.7-15.5
	High-Static	10.0-12.4	10.0-12.4	14.7-15.5	14.7-15.5
Speed Change per Full Turn of Movable Pulley Flange (rpm)	Std	48	70	80	80
	High-Static	65	65	60	60
Movable Pulley Maximum Full Turns From Closed Position	Std	5	5	6	5
	High-Static	6	6	5	5
Factory Setting	Std	3	3	3	3
	High-Static	3 1/2	3 1/2	3 1/2	3 1/2
Factory Speed Setting (rpm)	Std	826	936	1249	1305
	High-Static	1265	1265	1454	1454
Fan Shaft Diameter at Pulley (in.)		5/8	5/8	5/8	5/8
HIGH-PRESSURE SWITCH (psig)					
Standard Compressor Internal Relief		625			
Cutout		428			
Reset (Auto.)		320			
LOSS OF CHARGE (Low-Pressure Switch) (Liquid Line) (psig)					
Cutout		7 ± 3			
Reset (Auto.)		22 ± 5			
FREEZE PROTECTION THERMOSTAT					
Opens (F)		30			
Closes (F)		45			
OUTDOOR-AIR INLET SCREENS		Cleanable. Screen quantity and size varies with option selected.			
RETURN-AIR FILTERS		Throwaway			
Quantity...Size (in.)		2...16 x 25 x 2			

LEGEND

Bhp — Brake Horsepower

*Single phase/three phase.

Physical data — 50HJQ008-012

BASE UNIT 50HJQ		008	009	012
NOMINAL CAPACITY (tons)		7 1/2	8 1/2	10
OPERATING WEIGHT (lb)				
Unit		870	1000	1000
EconoMi$er+		75	75	75
Roof Curb		223	223	223
COMPRESSOR			Scroll	
Quantity		2	2	2
Oil (oz) (each compr)		57	70	57
REFRIGERANT TYPE			R-22	
Operating Charge (lb)				
Circuit 1		9.5	11.0	10.7
Circuit 2		9.5	11.0	10.8
OUTDOOR COIL		Enhanced Copper Tubes, Aluminum Fins, Acutrol™ Metering Device		
Rows...Fins/in.		2...17	2...17	2...17
Total Face Area (sq ft)		20.5	25.1	25.1
OUTDOOR FAN			Propeller	
Quantity...Diameter (in.)		2...22	2...22	2...22
Nominal Cfm		6500	6500	6500
Motor Hp...Rpm		1/4...1100	1/4...1100	1/4...1100
INDOOR COIL		Enhanced Copper Tubes, Aluminum Double-Wavy Fins, Acutrol Metering Device		
Rows...Fins/in.		3...15	4...15	4...15
Total Face Area (sq ft)		8.9	11.1	11.1
INDOOR FAN			Centrifugal Type	
Quantity...Size (in.)	Standard	1...15 x 15	1...15 x 15	1...15 x 15
	High-Static	1...15 x 15	1...15 x 15	1...15 x 15
Type Drive	Standard	Belt	Belt	Belt
	High-Static	Belt	Belt	Belt
Nominal Cfm		3000	3400	4000
Maximum Continuous Bhp	Standard	2.90	2.90	3.70
	High-Static	3.70	3.70	5.25
Motor Frame Size	Standard	56	56	56
	High-Static	56	56	56
Nominal Rpm	Standard	1725	1725	1725
	High-Static	1725	1725	1725
Fan Rpm Range	Standard	730-950	840-1085	860-1080
	High-Static	860-1080	860-1080	922-1219
Motor Bearing Type		Ball	Ball	Ball
Maximum Allowable Rpm		2100	2100	2100
Motor Pulley Pitch Diameter Min/Max (in.)	Standard	3.4/4.4	3.4/4.4	4.0/5.0
	High-Static	4.0/5.0	4.0/5.0	3.1/4.1
Nominal Motor Shaft Diameter (in.)	Standard	7/8	7/8	7/8
	High-Static	7/8	7/8	7/8
Fan Pulley Pitch Diameter (in.)	Standard	8.0	7.0	8.0
	High-Static	8.0	8.0	5.8
Belt, Quantity...Type...Length (in.)	Standard	1...A...51	1...A...51	1...A...53
	High-Static	1...A...53	1...A...53	1...BX...48
Pulley Center Line Distance (in.)	Standard	16.75-19.25	16.75-19.25	15.85-17.50
	High-Static	16.75-19.25	16.75-19.25	15.85-17.50
Speed Change per Full Turn of Movable Pulley Flange (rpm)	Standard	45	45	45
	High-Static	45	45	60
Movable Pulley Maximum Full Turns from Closed Position	Standard	5	5	5
	High-Static	5	5	6
Factory Setting	Standard	5	5	5
	High-Static	5	5	5
Factory Speed Setting (rpm)	Standard	730	840	860
	High-Static	860	860	887
Fan Shaft Diameter at Pulley (in.)		1	1	1
HIGH-PRESSURE SWITCH (psig)				
Standard Compressor Internal Relief			625	
Cutout			428	
Reset (Auto.)			320	
LOSS-OF-CHARGE/LOW-PRESSURE SWITCH (Liquid Line) (psig)				
Cutout			7 ± 3	
Reset (Auto.)			22 ± 5	
FREEZE PROTECTION THERMOSTAT				
Opens (F)			30	
Closes (F)			45	
OUTDOOR-AIR INLET SCREEN		Cleanable. Screen size and quantity vary by option selected.		
RETURN-AIR FILTERS			Throwaway	
Quantity...Size (in.)		4...16 x 20 x 2	4...20 x 20 x 2	4...20 x 20 x 2

LEGEND

Bhp — Brake Horsepower

Physical data — 50HJQ014,016

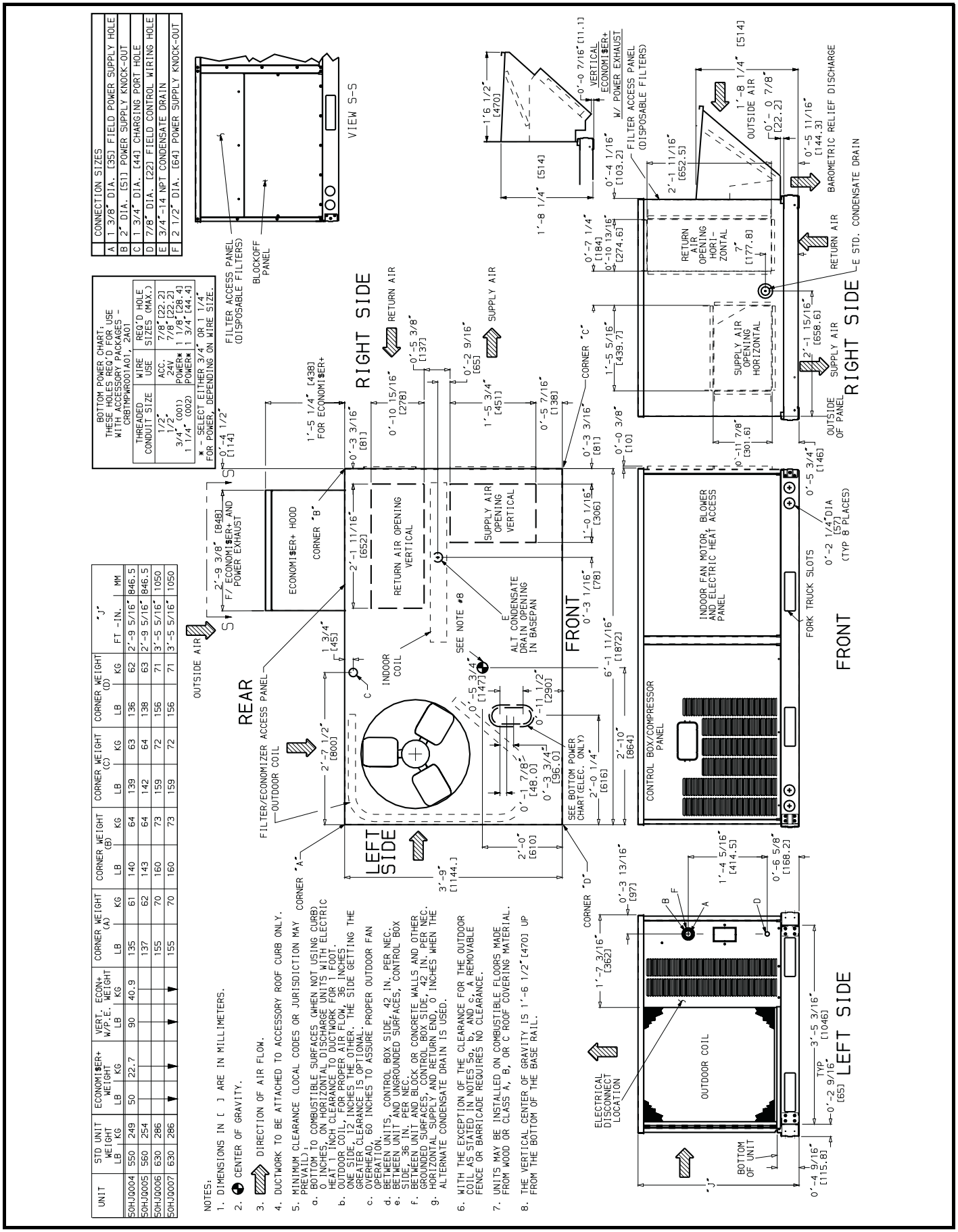
UNIT SIZE 50HJQ		014		016
		203/230 V, 460 V	575 V	
NOMINAL CAPACITY (tons)		12.5		15
OPERATING WT (lb)				
Unit		1615		1925
EconoMi$er+		90		90
EconoMi$er2		85		85
Roof Curb*		200		200
COMPRESSOR		Semi-Hermetic		
Model Number (Quantity)		06D-328 (1)		06D-818 (2)
Cylinders		6		4
Capacity Staging (%)		0,66,100		0,50,100
Oil Change (oz)		11		88 (each)
REFRIGERANT TYPE		R-22		
Charge (lb)				
System 1		26.0		16.5
System 2		—		16.5
OUTDOOR COIL		3/8 in. Enhanced Copper Tubes, Aluminum Lanced or Copper Plate Fins		
Rows		3		3
Fins/in.		15		15
Total Face Area (sq ft)		21.7		21.7
OUTDOOR FAN		Propeller Type, Direct Drive		
Nominal Cfm		9,000		9,000
Number...Diameter (in.)		3...22		3...22
Motor Hp (1075 Rpm)		1/2		1/2
Watts Input (Total)		1090		1090
INDOOR COIL		3/8-in. Enhanced Copper Tubes, Aluminum Double Wavy or Copper Plate Fins, Face Split		
Rows		3		3
Fins/in.		15		15
Total Face Area (sq ft)		17.5		17.5
INDOOR FAN		Centrifugal, Adjustable Pitch Belt Drive		
Quantity...Size (in.)		2...10 x 10	2...10 x 10	2...12 x 12
Nominal Cfm		5000	5000	6000
Maximum Continuous Bhp		4.25	3.45	5.90
Fan Rpm Range	STD	891-1179	1159-1429	817-1038
	ALT	1227-1559	—	1082-1303
Motor Nominal Rpm		1725	1550	1745
Maximum Allowable Rpm		1550	—	1550
Motor Pulley Pitch Diameter (in.)	STD	3.1-4.1	4.3-5.3	3.7-4.7
	ALT	3.7-4.7	—	4.9-5.9
Fan Pulley Pitch Diameter (in.)	STD	6.0	6.4	7.9
	ALT	5.2	—	7.9
Belt, Quantity...Type...Length (in.)	STD	1...BX...42	1...BX...45	1...BX...46
	ALT	1...BX...42	—	1...BX...50
Pulley Center Line Distance (in.)		13.5-15.5	13.5-15.5	13.3-14.8
Factory Setting		3.5	3.5	3.5
Factory Speed Setting	STD	1035	1296	934
	ALT	1389	—	1199
Motor Hp (Service Factor)		3.7 (1.15)	3.0 (1.15)	5 (1.15)
Motor Frame Size		56H	56H	184T
Motor Efficiency		0.86	0.82	0.875
HIGH-PRESSURE SWITCH				
Cutout (psig)		426		
Reset (psig)		320		
LOW-PRESSURE/LOSS-OF-CHARGE SWITCH				
Cutout (psig)		7		
Reset (psig)		22		
FREEZE PROTECTION THERMOSTAT (F)				
Opens		30 ± 5		
Closes		45 ± 5		
OUTDOOR AIR INLET SCREENS		Cleanable		
Economizer, Quantity...Size (in.)		2...20 x 25 x 1 1...20 x 20 x 1		
RETURN-AIR FILTERS (Type)		10% Efficient — 2-in. Throwaway Fiberglass		
Quantity...Size (in.)		4...20 x 20 x 2 4..16 x 20 x 2		
POWER EXHAUST		1/2 Hp 208/230 or 460 V Motor, Direct Drive Propeller Fan (Factory Wired for 460 V)		

LEGEND

Al — Aluminum
Cu — Copper

*Weight of 14 in. roof curb.

Base unit dimensions — 50HJQ004-007



UNIT	STD UNIT WEIGHT		ECONOMI$ER+ WEIGHT		VERT. ECON+ W/P.E. WEIGHT		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		"J" FT - IN.	"J" MM
	LB	KG	LB	KG	LB	KG	LB	KG	LB	KG	LB	KG	LB	KG		
50HJQ004	550	249	50	22.7	90	40.9	135	61	140	64	139	63	136	62	2'-9 5/16"	846.5
50HJQ005	560	254					137	62	143	64	142	64	138	63	2'-9 5/16"	846.5
50HJQ006	630	286					155	70	160	73	159	72	156	71	3'-5 5/16"	1050
50HJQ007	630	286					155	70	160	73	159	72	156	71	3'-5 5/16"	1050

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY.
3. DIRECTION OF AIR FLOW.
4. DUCTWORK TO BE ATTACHED TO ACCESSORY ROOF CURB ONLY.
5. MINIMUM CLEARANCE (LOCAL CODES OR JURISDICTION MAY PREVAIL):
   a. BOTTOM-TO COMBUSTIBLE SURFACES (WHEN NOT USING CURB) 0 INCHES, ON HORIZONTAL DISCHARGE UNITS WITH ELECTRIC HEAT. 1 INCH CLEARANCE TO DUCTWORK FOR 1 FOOT.
   b. OUTDOOR COIL, INCHES OF CLEAR AIR FOR PROPER AIR FLOW. 36 INCHES OTHER THAN THE SIDE GETTING THE GREATER CLEARANCE IS OPTIONAL.
   c. OVERHEAD, 60 INCHES TO ASSURE PROPER OUTDOOR FAN OPERATION.
   d. BETWEEN UNITS, CONTROL BOX SIDE, 42 IN. PER NEC.
   e. BETWEEN UNIT AND UNGROUNDED SURFACES, CONTROL BOX SIDE 36 IN. PER NEC.
   f. BETWEEN UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, CONTROL BOX SIDE, 42 IN. PER NEC.
   g. HORIZONTAL SUPPLY AND RETURN END, 0 INCHES WHEN THE ALTERNATE CONDENSATE DRAIN IS USED.
6. WITH THE EXCEPTION OF THE CLEARANCE FOR THE OUTDOOR COIL AS STATED IN NOTES 5a, b, AND c, A REMOVABLE FENCE OR BARRICADE REQUIRES NO CLEARANCE.
7. UNITS MAY BE INSTALLED ON COMBUSTIBLE FLOORS MADE FROM WOOD OR CLASS A, B, OR C ROOF COVERING MATERIAL.
8. THE VERTICAL CENTER OF GRAVITY IS 1'-6 1/2" [470] UP FROM THE BOTTOM OF THE BASE RAIL.

Base unit dimensions — 50HJQ008-012

UNIT	STD. UNIT WEIGHT LB	STD. UNIT WEIGHT KG	ECONOMI$ER+ WEIGHT LB	ECONOMI$ER+ WEIGHT KG	VERT. ECON+ W/ P.E. WEIGHT LB	VERT. ECON+ W/ P.E. WEIGHT KG	CORNER WEIGHT (A) LB	CORNER WEIGHT (A) KG	CORNER WEIGHT (B) LB	CORNER WEIGHT (B) KG	CORNER WEIGHT (C) LB	CORNER WEIGHT (C) KG	CORNER WEIGHT (D) LB	CORNER WEIGHT (D) KG	"H" FT - IN.	"H" MM	"J" FT - IN.	"J" MM	"K" FT - IN.	"K" MM
50HJQ008	870	395	75	34.1	145	65.9	198	90	183	83	237	108	252	114	2'-0 7/8"	632	3'-5 5/16"	1050	2'-9 11/16"	856
50HJQ009,012	1000	454	▼	▼	▼	▼	231	105	214	97	269	122	286	130	2'-10 7/8"	885	4'-1 5/16"	1253	3'-0 3/8"	924

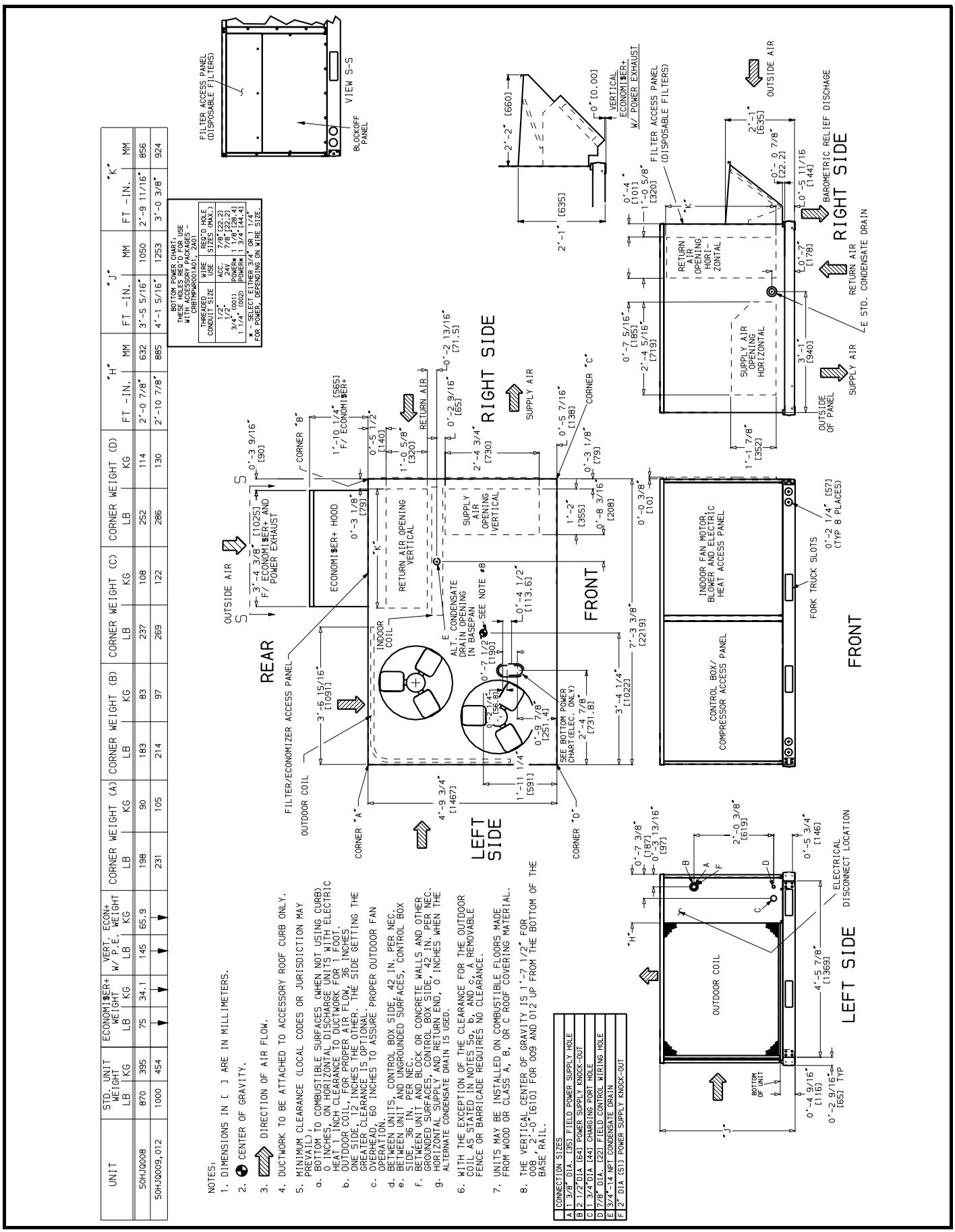
BOTTOM POWER CHART.
THESE HOLES REQ'D FOR USE WITH ACCESSORY PACKAGES - CRBTMPWR001A01, 2A01

THREADED CONDUIT SIZE	WIRE USE	REQ'D HOLE SIZES (MAX.)
1/2"	ALL	7/8" [22.2]
3/4" (001) 1 1/4" (002)	240V POWER#	1 1/8" [28.4]
	POWER#	1 3/4" [44.4]

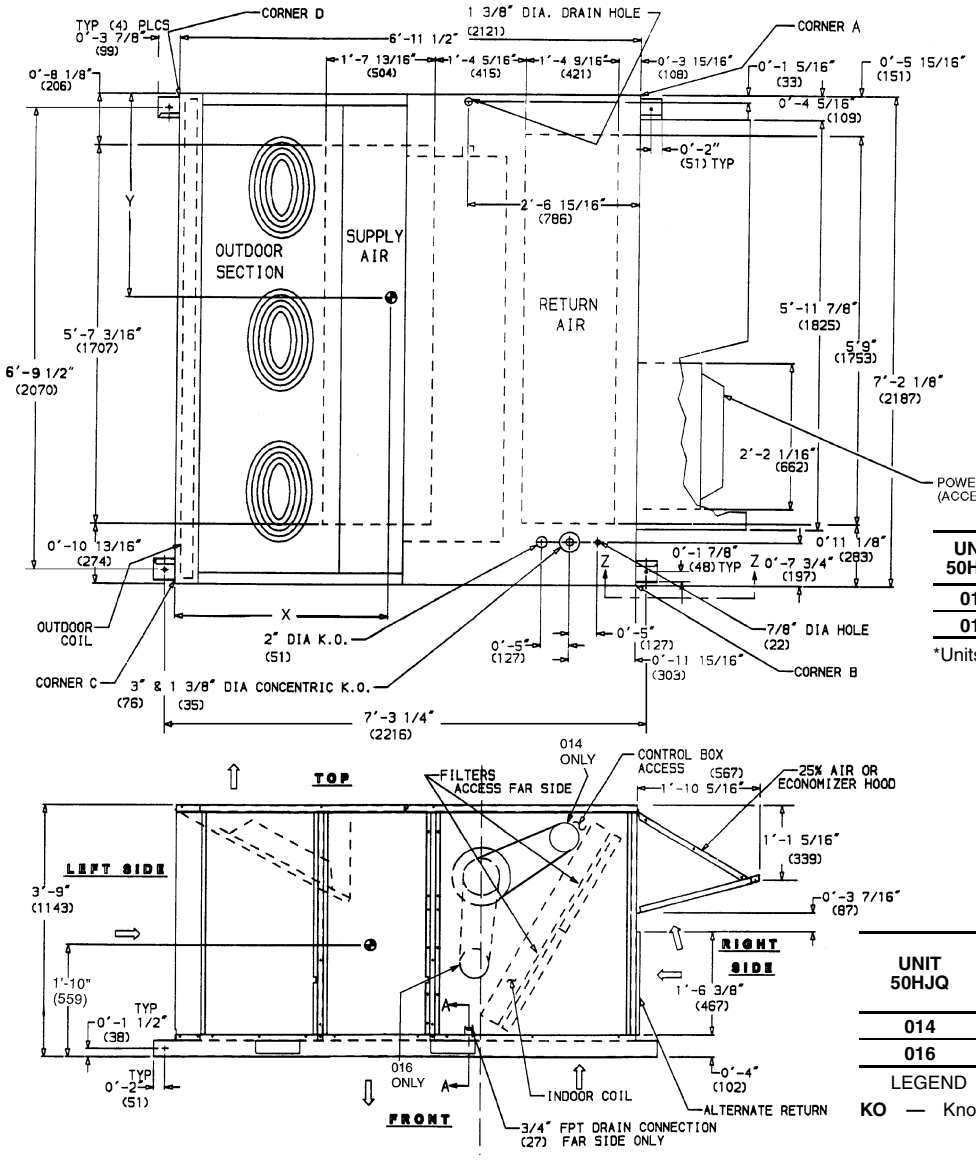
- SELECT EITHER 3/4" OR 1 1/4" FOR POWER, DEPENDING ON WIRE SIZE.

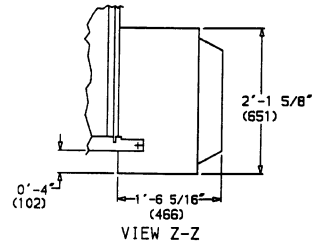
NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. ⊕ CENTER OF GRAVITY.
3. ⇨ DIRECTION OF AIR FLOW.
4. DUCTWORK TO BE ATTACHED TO ACCESSORY ROOF CURB ONLY.
5. MINIMUM CLEARANCE (LOCAL CODES OR JURISDICTION MAY PREVAIL):
   a. BOTTOM TO COMBUSTIBLE SURFACES (WHEN NOT USING CURB) 0 INCHES, ON HORIZONTAL DISCHARGE UNITS WITH ELECTRIC HEAT 1 INCH CLEARANCE TO DUCTWORK FOR 1 FOOT.
   b. OUTDOOR COIL, FOR PROPER AIR FLOW, 36 INCHES ONE SIDE, 12 INCHES THE OTHER. THE SIDE GETTING THE GREATER CLEARANCE IS OPTIONAL.
   c. OVERHEAD, 60 INCHES TO ASSURE PROPER OUTDOOR FAN OPERATION.
   d. BETWEEN UNITS, CONTROL BOX SIDE, 42 IN. PER NEC.
   e. BETWEEN UNIT AND UNGROUNDED SURFACES, CONTROL BOX SIDE, 36 IN. PER NEC.
   f. BETWEEN UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, CONTROL BOX SIDE, 42 IN. PER NEC.
   g. HORIZONTAL SURFACES, AND RETURN END, 0 INCHES WHEN THE ALTERNATE CONDENSATE DRAIN IS USED.
6. WITH THE EXCEPTION OF THE CLEARANCE FOR THE OUTDOOR COIL AS STATED IN NOTES 5a, b, AND c, A REMOVABLE FENCE OR BARRICADE REQUIRES NO CLEARANCE.
7. UNITS MAY BE INSTALLED ON COMBUSTIBLE FLOORS MADE FROM WOOD OR CLASS A, B, OR C ROOF COVERING MATERIAL.
8. THE VERTICAL CENTER OF GRAVITY IS 1'-7 1/2" FOR 008', 2'-0" [610] FOR 009 AND 012 UP FROM THE BOTTOM OF THE BASE RAIL.

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



Base unit dimensions — 50HJQ014,016

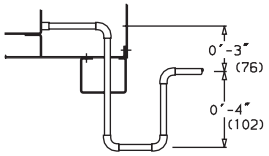




VIEW Z-Z
POWER EXHAUST/BAROMETRIC RELIEF (ACCESSORY ONLY)

UNIT 50HJQ	MAXIMUM SHIPPING WEIGHT*	
	Lb	Kg
014	1895	860
016	2205	1000

*Units with aluminum indoor and outdoor coil fins.

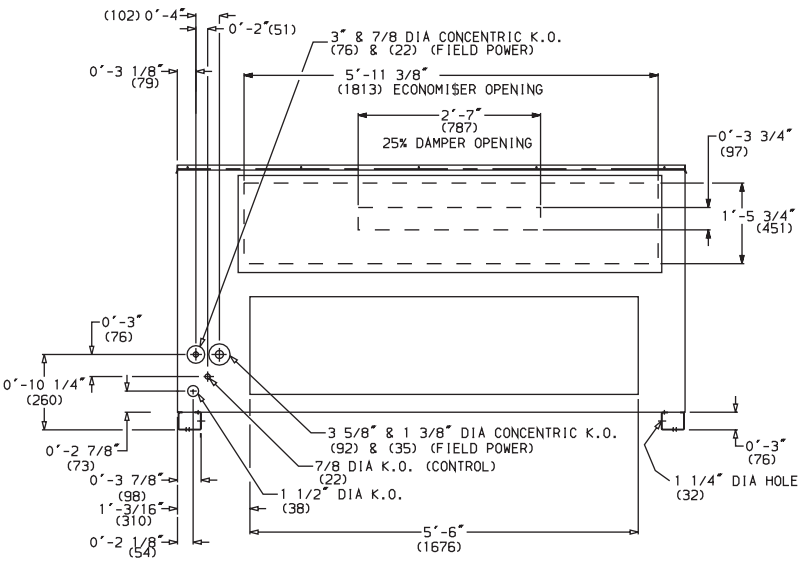


SECTION A-A

UNIT 50HJQ	DIMENSIONS			
	X		Y	
	Ft-in.	mm	Ft-in.	mm
014	3-1	947	3-2	965
016	3-6	1059	3-8	1105

LEGEND

KO — Knockout



NOTES:

1. Dimensions in [ ] are in millimeters.
2. Center of gravity.
3. Direction of airflow.
4. Ductwork to be attached to accessory roof curb only.
5. Minimum clearance:
   a. Rear: 7′-0″ (2134) for coil removal. This dimension can be reduced to 4′-0″ (1219) if conditions permit coil removal from the top.
   b. Left side: 4′-0″ (1219) for proper outdoor coil airflow.
   c. Front: 4′-0″ (1219) for control box access.
   d. Right side: 4′-0″ (1219) for proper operation of damper and power exhaust (if so equipped).
   e. Top: 6′-0″ (1829) to assure proper outdoor fan operation.
   f. Local codes or jurisdiction may prevail.
6. With the exception of clearance for the outdoor coil and the damper and power exhaust as stated in note no. 5, a removable fence or barricade requires no clearance.
7. Dimensions are from outside of corner post. Allow $0'-5/16''$ (8) on each side for top cover drip edge.

UNIT 50HJQ	WEIGHT OF CORNER†							
	A		B		C		D	
	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg
014	366	166	356	161	360	163	534	242
016	464	211	496	225	477	217	487	221

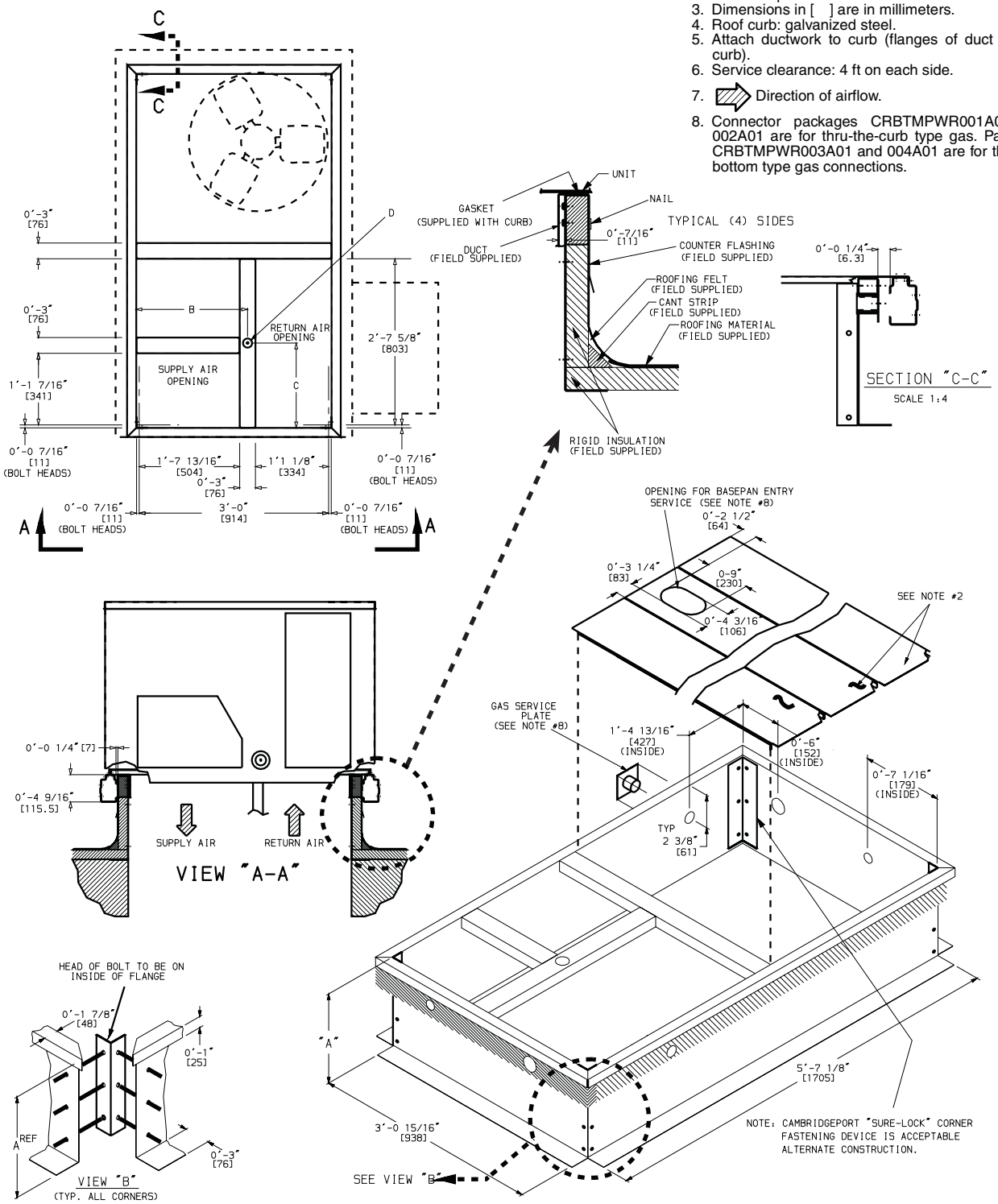
†Weights are for unit only and do not include options or crating.

Accessory dimensions — 50HJQ004-007

CONNECTOR PKG. ACCY.	B	C	D ALT DRAIN HOLE	GAS	POWER	CONTROL	ACCESSORY POWER
CRBTMPWR001A01	1′-9 11/16″ [551]	1′-4″ [406]	1 3/4″ [44.5]	3/4″ [19] NPT	3/4″ [19] NPT	1/2″ [12.7] NPT	1/2″ [12.7] NPT
CRBTMPWR002A01					1 1/4″ [31.7]		
CRBTMPWR003A01				1/2″ [12.7] NPT	3/4″ [19] NPT		
CRBTMPWR004A01				3/4″ [19] NPT	1 1/4″ [31.7]		

ROOF CURB ACCESSORY	A	UNIT SIZE
CRRFCURB001A01	1′-2″ [356]	50HJQ 004-007
CRRFCURB002A01	2′-0″ [610]	

NOTES:
1. Roof curb accessory is shipped disassembled.
2. Insulated panels.
3. Dimensions in [ ] are in millimeters.
4. Roof curb: galvanized steel.
5. Attach ductwork to curb (flanges of duct rest on curb).
6. Service clearance: 4 ft on each side.
7. Direction of airflow.
8. Connector packages CRBTMPWR001A01 and 002A01 are for thru-the-curb type gas. Packages CRBTMPWR003A01 and 004A01 are for thru-the-bottom type gas connections.

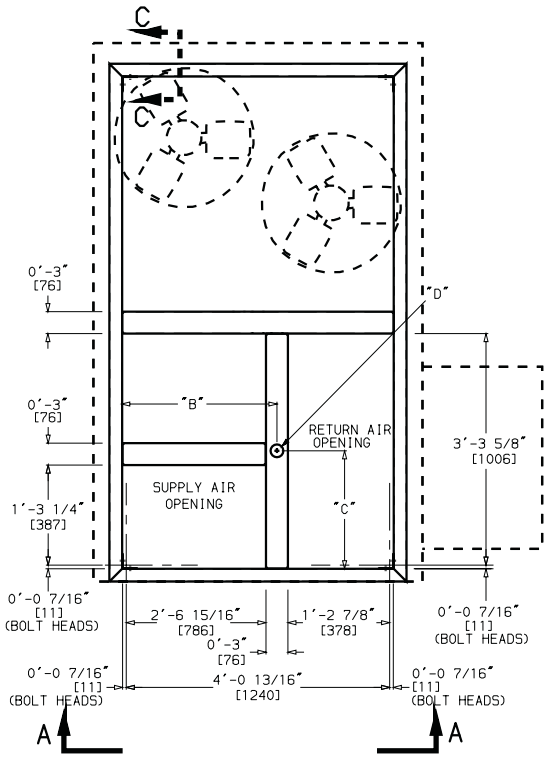


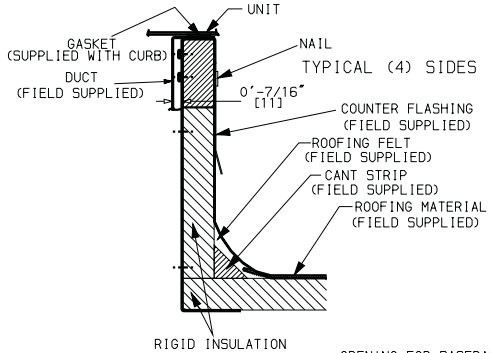
Accessory dimensions — 50HJQ008-012

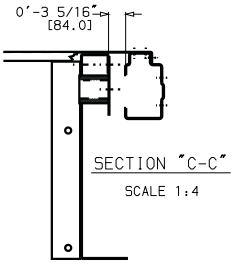
CONNECTOR PKG. ACCY.	B	C	D ALT DRAIN HOLE	GAS	POWER	CONTROL	ACCESSORY POWER
CRBTMPWR001A01	2′-8 7/16″ [827]	1′-10 15/16″ [583]	1 3/4″ [44.5]	3/4″ [19] NPT	3/4″ [19] NPT	1/2″ [12.7] NPT	1/2″ [12.7] NPT
CRBTMPWR002A01					1 1/4″ [31.7]		
CRBTMPWR003A01				1/2″ [12.7] NPT	3/4″ [19] NPT		
CRBTMPWR004A01				3/4″ [19] NPT	1 1/4″ [31.7]		

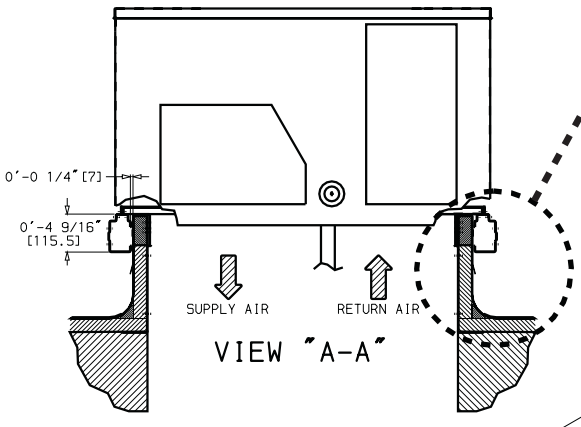
ROOF CURB ACCESSORY	"A"	UNIT SIZE
CRRFCURB003A01	1′-2″ [356]	50HJQ008-012
CRRFCURB004A01	2′-0″ [610]	

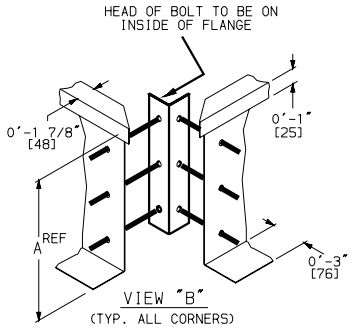
NOTES:
1. Roof curb accessory is shipped disassembled.
2. Insulated panels: 1-in. thick polyurethane foam, 1 3/4 lb density.
3. Dimensions in [ ] are in millimeters.
4. Roof curb: 16-gage steel.
5. Attach ductwork to curb (flanges of duct rest on curb).
6. Service clearance 4 ft on each side.
7. Direction of airflow.
8. Connector packages CRBTMPWR001A01 and 2A01 are for thru-the-curb gas type. Packages CRBTMPWR003A01 and 4A01 are for the thru-the-bottom type gas connections.

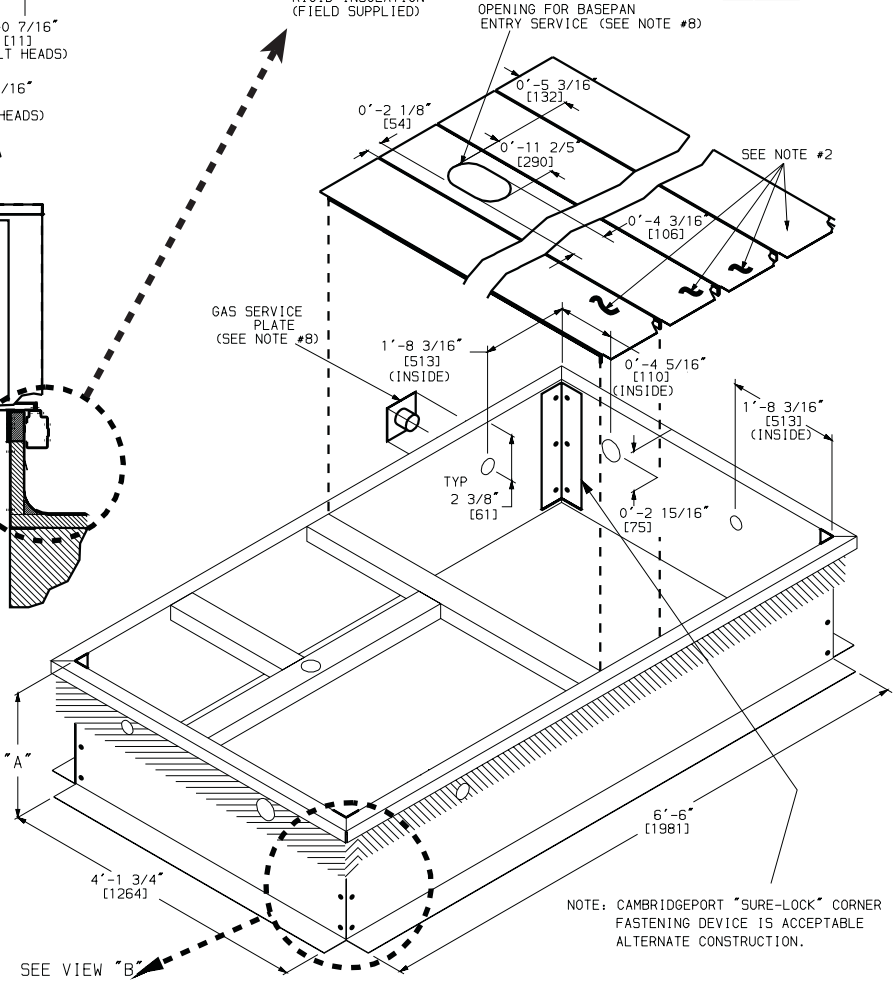






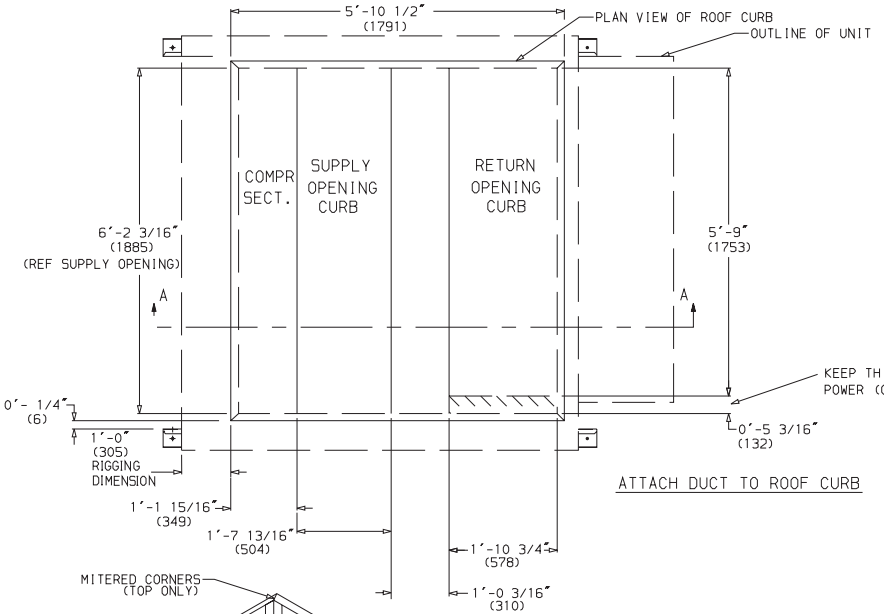




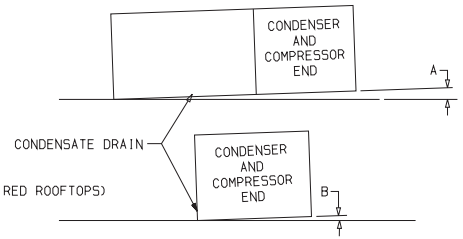


PKG NO. REF.	CURB HEIGHT	DESCRIPTION
CRRFCURB010A00	1′-2″ (305)	Standard Curb 14″ High
CRRFCURB011A00	2′-0″ (610)	Standard Curb for Units Requiring High Installation
CRRFCURB012A00	2′-0″ (610)	Side Supply and Return Curb for High Installation

NOTES:
1. Roof curb accessory is shipped disassembled.
2. Insulated panels: 1″ thick neoprene coated 1½ lb density.
3. Dimensions in ( ) are in millimeters.
4. ⇨ Direction of airflow.
5. Roof curb: 16 ga. (VA03-56) stl.
6. **A 90 degree elbow must be installed on the supply ductwork below the unit discharge for units equipped with electric heaters.**
7. To prevent the hazard of stagnant water build-up in the drain pan of the indoor section, unit can only be pitched as shown.



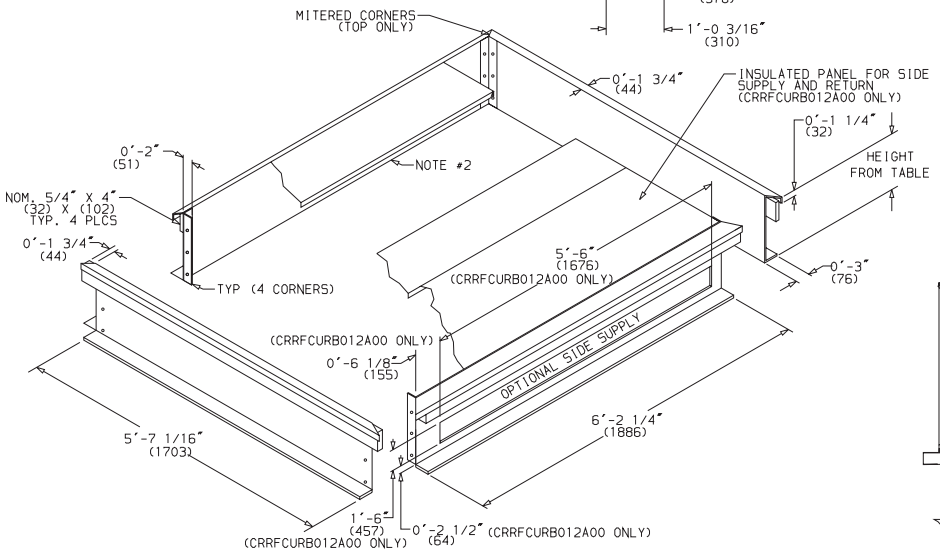
ATTACH DUCT TO ROOF CURB

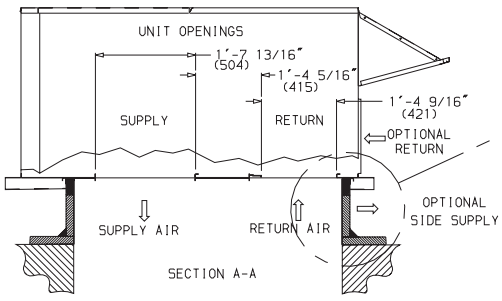


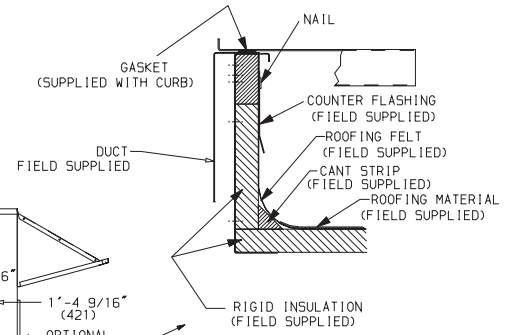
DIMENSIONS* (degrees and inches)

UNIT	A		B	
	Deg.	in.	Deg.	in.
ALL	.28	.45	.28	.43

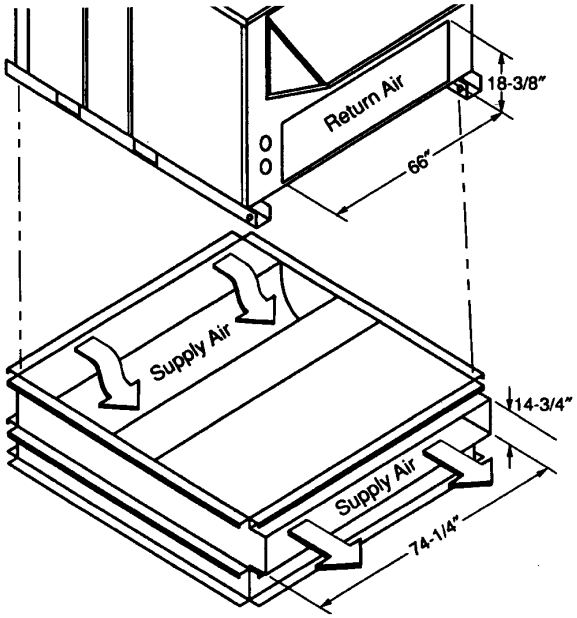
UNIT LEVELING TOLERANCES
*From edge of unit to horizontal.





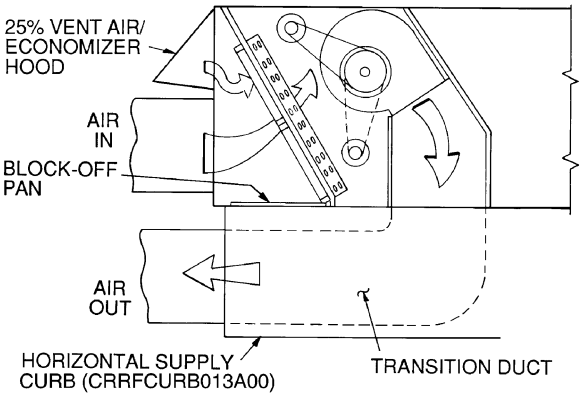


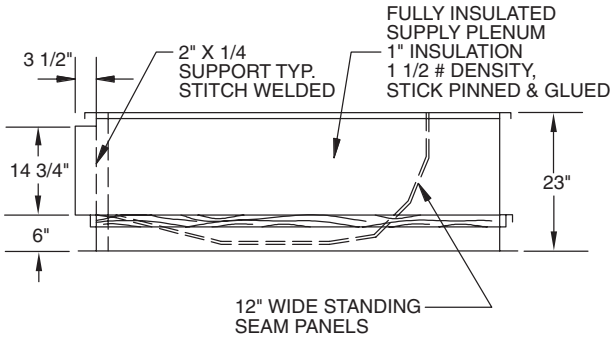
HORIZONTAL ADAPTER INSTALLATION — 50HJ0154,016



NOTE: CRRFCURB013A00 is a fully factory preassembled horizontal adapter and includes an insulated transition duct. The pressure drop through the adapter curb is negligible. Power exhaust and barometric relief accessory are not available with horizontal adapter.

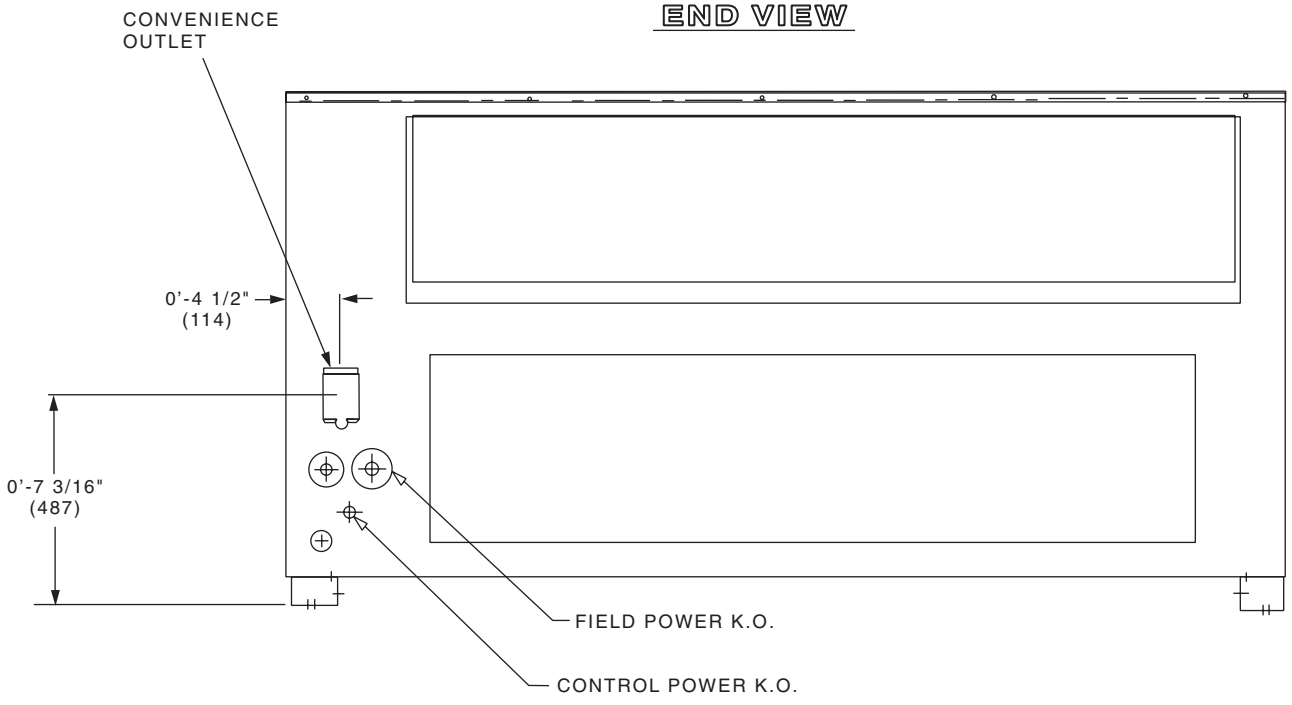
For Horizontal return applications: The power exhaust and barometric relief dampers must be installed in the return air duct.





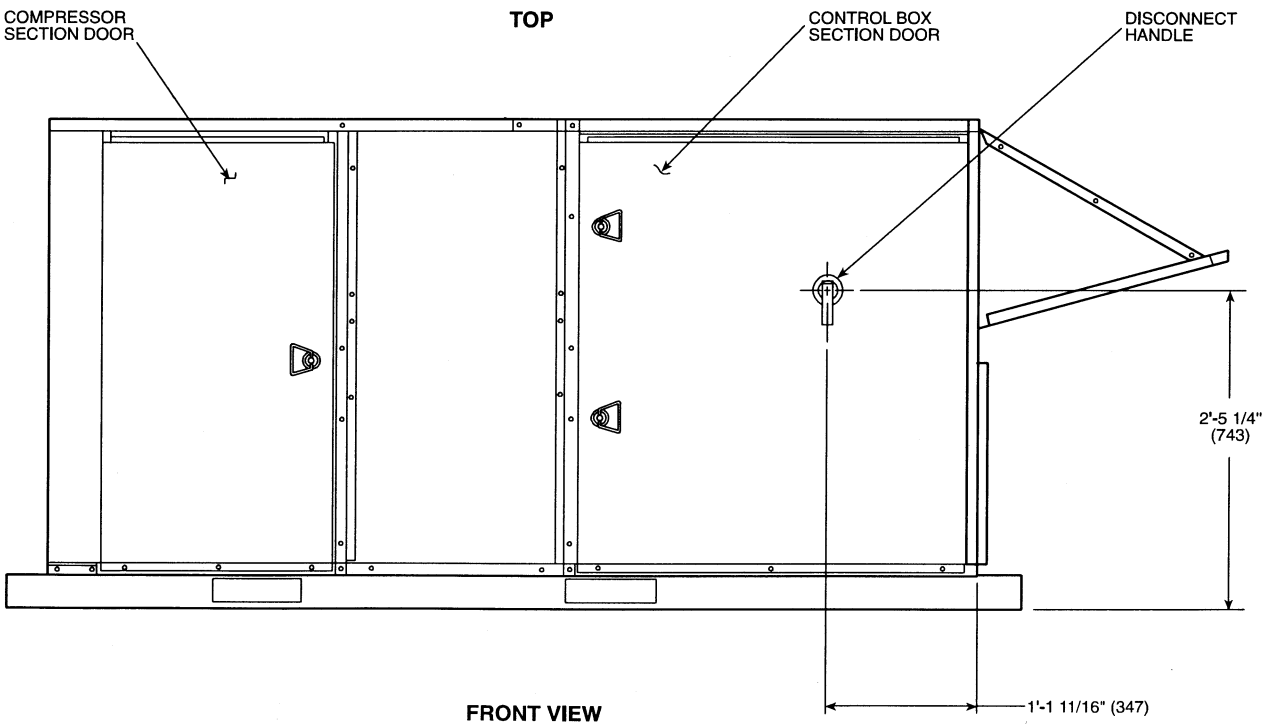
ACCESSORY PACKAGE NO.	CURB HEIGHT	DESCRIPTION
CRRFCURB013A00	1′-11″ (584)	Pre-Assembled Horizontal Adapter Roof Curb

CONVENIENCE OUTLET — 50HJQ014,016

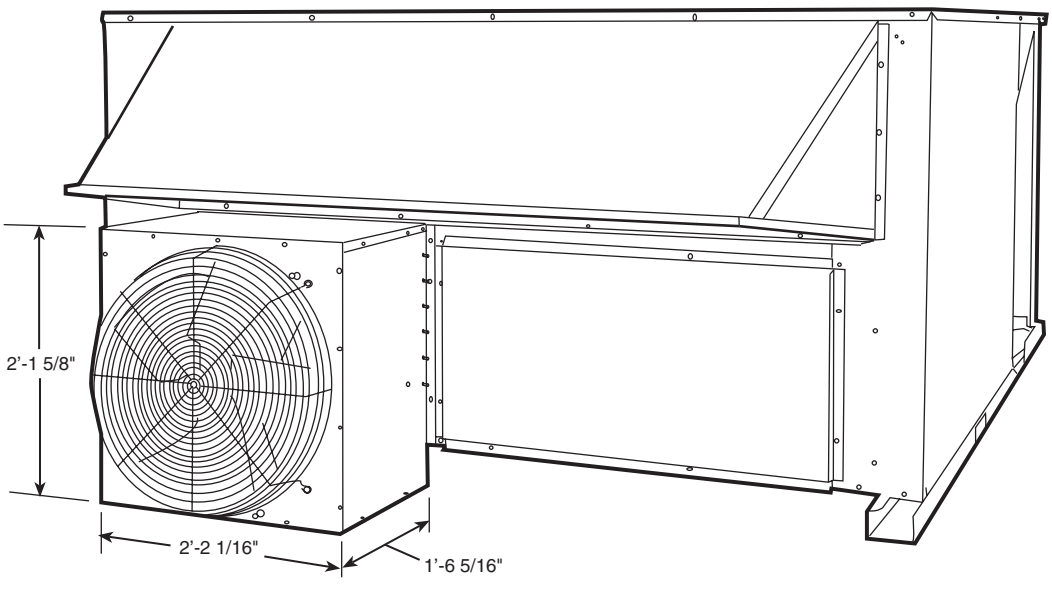


Accessory dimensions — 50HJQ014,016 (cont)

NON-FUSED DISCONNECT — 50HJQ014,016



POWER EXHAUST — 50HJQ014,016



Selection procedure (with 50HJQ005 example)

I Determine cooling and heating requirements at design conditions:

Given:

Required Cooling Capacity (TC) . . . . . 38,000 Btuh
Sensible Heat Capacity (SHC). . . . . 24,000 Btuh
Required Heating Capacity. . . . . 35,000 Btuh
Outdoor Entering-Air Temperature . . . . . 95 F
Outdoor-Air Winter Design Temperature . . . . . 0° F
Indoor-Air Winter Design Temperature . . . . . 70 F
Indoor Entering-Air
Temperature . . . 80 F edb (entering air, dry bulb), 67 F ewb (entering air, wet bulb)
Indoor-Air Quantity . . . . . 1600 cfm
External Static Pressure . . . . . 0.45 in. wg
Electrical Characteristics (V-Ph-Hz) 230-3-60

II Select unit based on required cooling capacity.

Enter Cooling Capacities table at outdoor entering temperature of 95 F, indoor air entering at 1600 cfm and 67 F ewb. The 50HJQ005 unit will provide a total cooling capacity of 46,300 Btuh and a sensible heat capacity of 35,600 Btuh.

For indoor-air temperature other than 80 F edb, calculate sensible heat capacity correction, as required, using the formula found in Note 3 following the cooling capacities tables.

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

III Select electric heat.

Enter the Instantaneous and Integrated Heating Ratings table at 1600 cfm. At 70 F return indoor air and 0° F air entering outdoor coil, the integrated heating capacity is 22,400 Btuh. (Select integrated heating capacity value since deductions for outdoor-coil frost and defrosting have already been made. No correction is required.)

The required heating capacity is 35,000 Btuh. Therefore, 12,600 Btuh (35,000 – 22,400) additional electric heat is required.

Determine additional electric heat capacity in kW.

$$\frac{12{,}600 \text{ Btuh}}{3413 \text{ Btuh/kW}} = 3.7 \text{ kW of heat required.}$$

Enter the Electric Heating Capacities table for 50HJQ005 at 208/230, 3 phase. The 6.5-kW heater at 240 v most closely satisfies the heating required. To calculate kW at 230 v, use the Multiplication Factors table.

6.5 kW x .92 = 5.98 kW
6.5 kW x .92 x 3413 = 20,410 Btuh

Total unit heating capacity is 42,810 Btuh (22,400 + 20,410).

IV Determine fan speed and power requirements at design conditions.

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

External static pressure	.45 in. wg
EconoMi$er+	.07 in. wg
Electric heat	.09 in. wg
Total static pressure	.61 in. wg

Enter the Fan Performance table for 50HJQ005 vertical discharge at 1600 cfm and .61 in. wg static pressure. The bhp is 0.79 and the watts are 781. The rpm is 997. The standard motor will adequately handle job requirements.

V Determine net capacities.

Capacities are gross and do not include the effect of indoor-fan motor (IFM) heat.

Determine net cooling capacity as follows:

Net capacity = Total capacity – IFM heat
= 46,300 Btuh – (781 Watts x 3.413 Btuh/Watts)
= 46,300 Btuh – 2665 Btuh
= 43,635

Net sensible capacity = 35,600 Btuh – 2665 Btuh
= 32,935 Btuh

Integrated heating capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it. Therefore, net capacity is equal to 42,810 Btuh, the total heating capacity determined in Step III.

Performance data — 50HJQ

COOLING CAPACITIES

50HJQ004 (3 Tons)

Temp (F) Outdoor Entering Air (Edb)		Indoor Entering Air — Cfm/BF								
		900/0.12			1200/0.15			1500/0.18		
		Indoor Entering Air — Ewb (F)								
		72	67	62	72	67	62	72	67	62
75	TC	41.2	37.8	34.4	42.9	39.6	36.3	43.6	40.6	37.5
	SHC	19.8	24.5	28.8	21.5	27.6	32.9	22.5	30.1	36.3
	kW	2.11	2.08	2.05	2.12	2.10	2.07	2.12	2.10	2.08
85	TC	39.9	36.5	33.1	41.9	38.2	34.9	42.5	39.2	36.1
	SHC	19.4	24.0	28.2	21.2	27.2	32.4	22.6	29.8	35.9
	kW	2.36	2.34	2.31	2.38	2.35	2.33	2.38	2.36	2.35
95	TC	38.6	35.0	31.7	40.4	36.7	33.4	41.3	37.6	34.8
	SHC	18.9	23.4	27.4	20.8	26.6	31.6	22.4	29.2	34.7
	kW	2.65	2.62	2.58	2.66	2.63	2.61	2.67	2.64	2.63
105	TC	37.1	33.2	30.0	38.7	35.0	31.5	39.3	36.0	33.2
	SHC	18.3	22.7	26.6	20.3	26.1	30.7	21.7	29.0	33.2
	kW	2.96	2.92	2.88	2.98	2.95	2.90	2.97	2.96	2.93
115	TC	35.1	31.4	28.0	36.7	32.8	29.7	37.7	33.8	31.6
	SHC	17.6	21.9	25.6	19.7	25.2	29.6	21.5	28.1	31.6
	kW	3.29	3.25	3.20	3.31	3.27	3.23	3.32	3.29	3.26
125	TC	33.0	29.0	25.7	34.4	30.6	27.8	35.4	31.5	29.8
	SHC	16.9	21.0	24.5	19.0	24.3	27.8	20.9	27.1	29.7
	kW	3.65	3.59	3.53	3.68	3.62	3.57	3.69	3.64	3.61

50HJQ005 (4 Tons)

Temp (F) Outdoor Entering Air (Edb)		Indoor Entering Air — Cfm/BF								
		1200/0.1			1600/0.12			2000/0.15		
		Indoor Entering Air — Ewb (F)								
		72	67	62	72	67	62	72	67	62
75	TC	51.0	48.9	43.9	52.3	50.2	46.0	53.7	51.5	48.1
	SHC	24.1	33.1	40.3	26.0	37.0	44.2	27.8	40.9	48.0
	kW	2.65	2.64	2.60	2.66	2.65	2.61	2.67	2.66	2.63
85	TC	48.9	47.1	41.9	50.7	48.4	44.2	52.6	49.8	46.6
	SHC	22.9	32.2	40.2	25.4	36.4	43.4	27.9	40.6	46.6
	kW	2.99	2.98	2.94	3.01	3.00	2.96	3.03	3.01	2.99
95	TC	47.1	45.1	39.2	49.0	46.3	42.1	50.8	47.6	44.9
	SHC	22.3	31.5	39.2	24.9	35.6	42.1	27.4	39.8	44.9
	kW	3.37	3.37	3.31	3.40	3.38	3.34	3.42	3.39	3.37
105	TC	44.9	42.9	37.5	46.8	44.1	40.3	48.7	45.4	43.2
	SHC	21.3	30.7	37.5	24.1	34.8	40.3	26.9	39.0	43.1
	kW	3.79	3.78	3.71	3.82	3.80	3.75	3.84	3.81	3.79
115	TC	42.9	40.8	35.2	44.6	41.9	38.3	46.3	43.0	41.3
	SHC	20.4	30.1	35.2	23.3	34.0	38.3	26.1	37.9	41.3
	kW	4.24	4.23	4.15	4.26	4.24	4.19	4.29	4.25	4.23
125	TC	40.9	38.2	32.9	42.2	39.3	36.1	43.5	40.5	39.3
	SHC	19.8	29.1	32.9	22.4	33.0	36.1	25.1	36.9	39.3
	kW	4.72	4.70	4.62	4.73	4.71	4.66	4.74	4.72	4.71

Standard Ratings

LEGEND

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

NOTES:

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

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

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

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

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

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 x (1 – BF) x (edb – 80).

50HJQ006 (5 Tons)

Temp (F) Outdoor Entering Air (Edb)		Indoor Entering Air — Cfm/BF															
		1500/0.17				1750/0.25				2000/0.31				2500/0.42			
		Indoor Entering Air — Ewb (F)															
		72	67	62	57	72	67	62	57	72	67	62	57	72	67	62	57
75	TC	70.2	65.3	59.9	56.6	71.7	66.8	61.9	59.7	72.8	67.8	63.4	62.4	74.1	69.9	65.8	65.8
	SHC	31.6	40.6	49.2	54.1	33.3	43.5	53.8	57.0	34.8	46.0	57.8	59.6	37.5	51.8	62.9	62.9
	kW	3.51	3.47	3.45	3.43	3.52	3.48	3.46	3.44	3.45	3.49	3.47	3.46	3.55	3.51	3.48	3.48
85	TC	68.7	63.3	57.4	54.2	70.3	65.1	59.3	57.8	71.8	66.3	60.9	60.5	73.2	68.5	64.5	64.4
	SHC	31.3	40.0	48.3	51.8	33.1	43.2	52.8	55.2	34.9	46.2	56.8	57.7	38.0	52.5	61.6	61.5
	kW	3.95	3.91	3.89	3.87	3.96	3.92	3.89	3.89	3.98	3.93	3.91	3.91	4.00	3.96	3.93	3.92
95	TC	66.7	60.6	52.0	50.1	68.4	62.4	55.5	54.7	69.1	63.8	58.2	58.2	71.2	65.6	62.2	62.2
	SHC	30.7	39.1	46.2	47.8	32.7	42.5	51.3	52.3	34.2	45.8	55.5	55.5	38.0	51.6	59.4	59.4
	kW	4.43	4.39	4.34	4.32	4.45	4.41	4.37	4.37	4.46	4.43	4.39	4.40	4.48	4.43	4.42	4.42
105	TC	63.7	55.4	45.8	45.8	65.6	58.6	50.2	50.1	66.9	60.5	53.3	53.6	68.2	62.4	59.5	59.5
	SHC	29.8	37.4	43.5	43.7	31.9	41.3	47.9	47.9	33.9	44.8	50.9	51.2	37.3	51.1	56.8	56.8
	kW	4.96	4.91	4.81	4.81	4.99	4.94	4.86	4.86	5.00	4.96	4.90	4.90	5.00	4.97	4.95	4.95
115	TC	60.2	47.9	41.2	41.2	62.0	50.9	45.2	45.2	63.3	52.8	48.2	48.2	65.1	56.2	54.2	54.1
	SHC	28.8	34.8	39.3	39.3	30.9	38.8	43.1	43.2	32.9	42.4	46.1	46.0	36.8	49.2	51.8	51.7
	kW	5.55	5.43	5.33	5.33	5.57	5.46	5.40	5.40	5.58	5.49	5.44	5.44	5.59	5.53	5.50	5.50

COOLING CAPACITIES (cont)

50HJQ007 (6 Tons)

Temp (F) Outdoor Entering Air (Edb)		Indoor Entering Air — Cfm/BF															
		1800/0.06				2100/0.066				2400/0.071				3000/0.088			
		Indoor Entering Air — Ewb (F)															
		72	67	62	57	72	67	62	57	72	67	62	57	72	67	62	57
75	TC	83.2	77.6	71.6	67.9	84.7	79.8	73.6	71.5	85.9	81.0	75.0	74.3	88.4	82.9	78.4	78.3
	SHC	39.7	50.4	60.6	66.6	41.6	54.3	65.9	70.1	43.4	57.6	70.6	72.8	47.2	63.9	76.9	76.8
	kW	4.90	4.78	4.69	4.63	4.94	4.84	4.71	4.69	4.97	4.86	4.74	4.73	5.04	4.91	4.81	4.81
85	TC	81.5	75.5	69.0	64.8	83.2	77.3	71.1	69.4	84.5	78.5	72.7	72.2	86.2	80.8	76.5	76.5
	SHC	39.2	49.8	59.6	63.6	41.4	53.5	65.0	68.0	43.3	56.9	69.7	70.8	47.1	64.1	75.0	75.0
	kW	5.45	5.34	5.23	5.16	5.49	5.36	5.27	5.23	5.52	5.38	5.29	5.27	5.57	5.45	5.36	5.36
95	TC	78.8	72.5	64.1	61.8	80.9	74.5	67.0	66.1	82.0	76.0	69.9	69.9	83.7	78.1	74.2	74.1
	SHC	38.4	48.6	57.4	60.6	40.8	52.6	63.2	64.8	42.8	56.4	68.3	68.5	46.8	63.7	72.7	72.7
	kW	6.03	5.91	5.79	5.73	6.09	5.96	5.84	5.82	6.11	6.00	5.89	5.89	6.16	6.05	5.96	5.96
105	TC	76.2	69.5	58.6	57.8	77.9	71.3	63.4	63.1	79.3	72.7	67.2	67.2	81.1	74.5	71.3	71.2
	SHC	37.6	47.4	55.0	56.6	39.9	51.4	61.4	61.9	42.2	55.3	65.9	65.9	46.5	62.5	69.9	69.9
	kW	6.69	6.56	6.40	6.38	6.73	6.61	6.45	6.44	6.77	6.64	6.51	6.51	6.82	6.67	6.57	6.57
115	TC	72.5	65.1	54.8	54.7	74.3	67.8	58.6	58.6	75.6	69.1	63.2	63.2	77.3	70.9	68.4	68.4
	SHC	36.3	45.8	53.2	53.6	38.7	50.2	57.4	57.5	41.1	54.0	62.0	62.0	45.5	61.3	67.1	67.1
	kW	7.37	7.24	7.08	7.07	7.43	7.30	7.16	7.16	7.48	7.34	7.21	7.21	7.52	7.38	7.32	7.32

50HJQ008 (7½ Tons)

Temp (F) Outdoor Entering Air (Edb)		Indoor Entering Air — Cfm/BF								
		2250/0.12			3000/0.15			3750/0.18		
		Indoor Entering Air — Ewb (F)								
		72	67	62	72	67	62	72	67	62
75	TC	97.6	92.5	84.3	100.8	95.6	89.9	101.6	97.8	91.7
	SHC	47.7	61.0	72.7	51.5	67.3	83.8	55.0	74.4	89.7
	kW	5.80	5.76	5.73	5.86	5.78	5.78	5.86	5.82	5.73
85	TC	97.2	89.9	79.8	100.0	94.1	86.7	102.4	96.0	89.9
	SHC	48.1	60.2	70.5	51.7	68.1	82.4	55.8	74.1	89.3
	kW	6.61	6.50	6.43	6.65	6.56	6.62	6.69	6.58	6.50
95	TC	94.4	86.9	75.0	98.2	91.3	81.8	99.6	93.7	87.3
	SHC	47.3	59.2	68.1	51.7	67.5	79.8	55.0	74.8	87.3
	kW	7.43	7.37	7.19	7.50	7.41	7.30	7.50	7.43	7.35
105	TC	91.7	82.2	70.7	94.8	87.3	76.6	97.0	90.1	83.4
	SHC	46.3	57.4	65.9	50.9	66.3	76.4	54.8	74.1	83.4
	kW	8.37	8.22	8.04	8.39	8.33	8.15	8.44	8.35	8.26
115	TC	87.7	77.4	66.9	91.7	81.6	72.5	93.9	85.3	78.8
	SHC	44.9	55.4	64.0	50.3	64.2	72.5	55.0	72.5	78.6
	kW	9.33	9.16	8.98	9.44	9.27	9.11	9.48	9.33	9.22
125	TC	83.6	73.3	66.7	87.1	76.0	69.1	89.5	79.0	74.4
	SHC	43.6	53.9	63.8	48.7	62.0	69.1	53.7	70.1	74.4
	kW	10.38	10.16	9.94	10.49	10.27	10.14	10.53	10.36	10.25

50HJQ009 (8½ Tons)

Temp (F) Outdoor Entering Air (Edb)		Indoor Entering Air — Cfm/BF								
		2550/0.03			3400/0.04			4250/0.05		
		Indoor Entering Air — Ewb (F)								
		72	67	62	72	67	62	72	67	62
75	TC	116.4	105.6	94.8	118.9	110.4	99.4	120.4	112.9	104.3
	SHC	55.7	69.2	82.0	58.6	79.7	95.8	61.6	89.2	104.2
	kW	6.01	5.89	5.8	6.04	5.97	5.87	6.07	6.01	5.93
85	TC	117.6	102.1	91.1	121.0	106.7	95.6	117.5	109.3	101.3
	SHC	58.4	67.9	80.4	64.1	78.6	93.9	61.0	88.4	101.2
	kW	6.47	6.72	6.61	6.52	6.80	6.69	6.91	6.85	6.77
95	TC	113.7	98.0	86.1	117.4	102.3	91.3	113.4	104.7	97.9
	SHC	57.4	66.5	78.2	63.5	77.2	91.1	59.9	87.2	97.8
	kW	7.34	7.63	7.49	7.40	7.72	7.60	7.82	7.77	7.69
105	TC	109.8	93.0	78.7	113.2	97.3	85.9	108.9	99.9	93.7
	SHC	56.2	64.6	75.0	62.4	75.5	85.9	58.7	85.5	93.6
	kW	8.28	8.59	8.42	8.36	8.71	8.57	8.81	8.74	8.68
115	TC	100.2	86.4	72.7	104.5	90.0	80.8	106.0	93.2	88.0
	SHC	50.4	62.1	71.9	57.2	73.0	80.8	63.4	83.2	88.0
	kW	9.79	9.60	9.40	9.91	9.71	9.59	9.95	9.79	9.71
125	TC	94.0	76.6	63.1	98.8	80.1	68.1	101.0	84.4	75.1
	SHC	48.3	58.5	63.1	55.4	69.2	68.1	61.9	79.8	75.1
	kW	10.91	10.65	10.45	11.03	10.78	10.61	11.1	10.86	10.73

Standard Ratings

LEGEND

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

NOTES:

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

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

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

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

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

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 x (1 – BF) x (edb – 80).

Performance data — 50HJQ (cont)

COOLING CAPACITIES (cont)

50HJQ012 (10 Tons)

Temp (F) Outdoor Entering Air (Edb)		Indoor Entering Air — Cfm/BF								
		3000/0.03			4000/0.04			5000/0.06		
		Indoor Entering Air — Ewb (F)								
		72	67	62	72	67	62	72	67	62
75	TC	136.0	124.0	111.4	141.2	129.0	116.6	145.6	132.0	121.2
	SHC	64.6	80.8	96.0	71.2	92.4	111.8	78.6	103.2	121.0
	kW	7.51	7.35	7.20	7.61	7.45	7.29	7.72	7.53	7.39
85	TC	132.6	119.6	106.6	137.6	124.4	112.0	140.4	127.4	118.0
	SHC	63.6	79.2	94.0	70.6	91.4	110.0	77.0	102.6	118.0
	kW	8.40	8.23	8.09	8.50	8.33	8.17	8.58	8.40	8.27
95	TC	127.8	114.6	99.4	133.2	119.4	107.2	136.2	121.8	114.2
	SHC	62.2	77.6	90.8	69.6	89.8	107.0	76.8	101.2	113.8
	kW	9.36	9.18	9.01	9.48	9.30	9.15	9.56	9.36	9.24
105	TC	122.4	108.8	92.0	127.4	113.6	101.4	130.4	116.0	109.6
	SHC	60.4	75.4	87.4	68.0	88.0	101.4	75.4	99.4	109.4
	kW	10.41	10.26	10.02	10.53	10.35	10.22	10.63	10.43	10.35
115	TC	116.8	101.8	86.6	121.2	106.6	94.8	123.6	109.2	104.6
	SHC	58.6	72.8	84.6	66.0	85.4	94.8	73.4	97.0	104.6
	kW	11.58	11.37	11.15	11.68	11.51	11.35	11.76	11.60	11.51
125	TC	110.6	95.8	84.6	114.6	98.4	88.8	117.0	100.8	96.4
	SHC	56.4	70.6	83.4	64.4	82.4	88.8	71.4	93.8	96.4
	kW	12.87	12.62	12.36	12.97	12.73	12.60	13.03	12.83	12.77

50HJQ014 (12 1/2 Tons)

Temp (F) Outdoor Entering Air (Edb)		Indoor Entering Air — Cfm/BF														
		3750/0.04			4500/0.05			5000/0.05			5625/0.06			6250/0.07		
		Indoor Entering Air — Ewb (F)														
		72	67	62	72	67	62	72	67	62	72	67	62	72	67	62
75	TC	167.0	154.0	140.0	171.0	158.0	144.0	173.0	159.0	146.0	171.0	162.0	148.0	173.0	161.0	151.0
	SHC	79.6	100.0	120.0	85.0	108.0	131.0	87.5	114.0	138.0	94.5	120.0	146.0	97.7	127.0	150.0
	kW	10.00	9.77	9.50	10.10	9.87	9.61	10.20	9.93	9.68	10.20	10.00	9.74	10.20	10.00	9.80
85	TC	160.0	148.0	133.0	164.0	151.0	137.0	167.0	154.0	140.0	168.0	155.0	143.0	166.0	157.0	146.0
	SHC	77.6	98.9	118.0	82.0	107.0	129.0	86.1	113.0	136.0	89.6	118.0	142.0	95.3	125.0	146.0
	kW	11.10	10.80	10.40	11.20	10.90	10.60	11.30	11.00	10.70	11.30	11.00	10.80	11.30	11.10	10.80
95	TC	155.0	141.0	127.0	157.0	144.0	131.0	160.0	146.0	133.0	161.0	149.0	137.0	163.0	149.0	140.0
	SHC	76.1	96.3	115.0	80.3	105.0	126.0	84.4	110.0	132.0	86.5	117.0	137.0	91.7	121.0	140.0
	kW	12.20	11.80	11.40	12.20	11.90	11.50	12.40	12.00	11.60	12.40	12.10	11.80	12.50	12.10	11.90
105	TC	147.0	133.0	120.0	150.0	137.0	124.0	152.0	138.0	127.0	153.0	140.0	131.0	154.0	141.0	134.0
	SHC	73.6	93.3	112.0	78.5	102.0	123.0	81.6	108.0	127.0	85.1	114.0	131.0	88.6	120.0	134.0
	kW	13.20	12.70	12.30	13.30	12.90	12.50	13.40	13.00	12.60	13.50	13.10	12.80	13.50	13.10	12.90
115	TC	140.0	126.0	112.0	141.0	129.0	118.0	144.0	130.0	121.0	144.0	131.0	125.0	146.0	133.0	128.0
	SHC	71.4	90.3	109.0	75.1	99.1	117.0	78.9	104.0	121.0	81.9	110.0	125.0	87.0	117.0	128.0
	kW	14.20	13.70	13.20	14.30	13.90	13.50	14.40	14.00	13.70	14.50	14.00	13.90	14.60	14.10	14.00
125	TC	131.0	118.0	105.0	134.0	120.0	111.0	135.0	122.0	115.0	137.0	123.0	118.0	136.0	124.0	121.0
	SHC	68.1	87.6	105.0	73.5	96.4	111.0	75.7	102.0	115.0	80.7	108.0	118.0	83.4	113.0	121.0
	kW	15.20	14.70	14.10	15.40	14.90	14.50	15.40	14.90	14.70	15.60	15.00	14.90	15.60	15.10	15.00

LEGEND

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

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

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

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

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

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

3. SHC is based on 80 F edb temperature of air entering indoor 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.
Correction Factor = 1.10 x (1 – BF) x (edb – 80).

COOLING CAPACITIES (cont)

50HJQ016 (15 Tons)

Temp (F) Outdoor Entering Air (Edb)		Indoor Entering Air — Cfm/BF														
		4500/0.06			5250/0.08			6000/0.10			6750/0.10			7500/0.12		
		Indoor Entering Air — Ewb (F)														
		72	67	62	72	67	62	72	67	62	72	67	62	72	67	62
75	TC	210.0	192.0	173.4	216.0	196.6	178.4	220.0	202.0	182.2	222.0	204.0	185.6	224.0	206.0	190.2
	SHC	100.6	125.2	148.2	106.0	134.0	160.6	110.6	143.0	172.2	115.0	151.2	183.2	120.2	158.2	190.0
	kW	13.58	13.12	12.66	13.76	13.28	12.84	13.88	13.44	12.98	13.96	13.52	13.10	14.02	13.60	13.26
85	TC	202.0	183.0	164.4	208.0	187.8	169.0	212.0	191.4	172.8	212.0	194.0	177.2	214.0	195.8	182.2
	SHC	98.0	121.8	144.2	103.8	131.2	156.4	109.0	140.0	168.6	112.0	148.0	177.0	116.2	155.6	182.2
	kW	14.86	14.32	13.78	15.08	14.52	13.98	15.22	14.66	14.14	15.26	14.78	14.30	15.34	14.86	14.50
95	TC	192.4	173.2	155.0	196.2	177.8	159.2	200.0	180.8	163.4	202.0	183.4	169.0	204.0	185.4	174.2
	SHC	94.8	118.0	140.0	100.2	127.4	152.6	105.6	136.4	163.4	110.6	144.8	169.0	114.2	153.2	173.8
	kW	16.16	15.52	14.88	16.32	15.72	15.10	16.48	15.88	15.30	16.62	16.00	15.54	16.64	16.12	15.76
105	TC	182.0	163.0	145.0	186.4	167.0	149.4	188.6	170.0	155.4	191.0	172.2	160.8	193.0	173.8	165.2
	SHC	91.0	114.2	135.2	96.8	123.6	147.6	101.8	132.6	155.2	107.2	141.2	160.6	112.2	149.6	165.2
	kW	17.36	16.64	15.92	17.58	16.86	16.16	17.70	17.04	16.48	17.84	17.18	16.74	17.94	17.28	16.96
115	TC	171.2	152.4	134.8	175.0	156.2	140.6	177.8	158.8	146.8	179.4	160.8	152.2	179.6	162.2	156.4
	SHC	87.4	110.2	130.8	92.6	119.4	140.6	98.8	128.2	146.8	103.6	136.8	151.8	107.2	144.6	156.2
	kW	18.54	17.72	16.90	18.76	17.94	17.24	18.94	18.12	17.60	19.02	18.28	17.90	19.04	18.38	18.16
125	TC	159.4	141.2	125.0	162.8	143.8	132.0	165.6	147.0	137.8	166.6	148.8	143.0	168.2	150.0	146.8
	SHC	83.6	105.8	125.0	89.0	115.0	131.8	94.4	123.6	137.8	99.8	132.2	142.8	105.0	139.6	146.6
	kW	19.64	18.74	17.88	19.86	19.00	18.34	20.00	19.12	18.72	20.20	19.28	19.00	20.20	19.40	19.28

LEGEND

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

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

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

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

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

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

3. SHC is based on 80 F edb temperature of air entering indoor 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.
Correction Factor = 1.10 x (1 – BF) x (edb – 80).

INSTANTANEOUS AND INTEGRATED HEATING RATINGS

50HJQ004 (3 Tons)

Return Air (F db)	Cfm (Standard Air)		Temperature Air Entering Outdoor Coil (F db at 70% rh)																	
			–20		–10		0		10		17		30		40		47		50		60	
55	900	Cap.	10.3	9.47	13.7	12.6	16.8	15.4	20.1	18.5	23.5	21.3	27.6	24.2	31.9	31.9	35.1	35.1	36.3	36.3	40.3	40.3
		kW	1.48		1.58		1.66		1.75		1.85		1.97		2.11		2.22		2.27		2.41	
	1200	Cap.	10.8	9.92	14.2	13.0	17.3	15.9	20.7	19.0	24.0	21.7	28.3	24.8	32.8	32.8	36.2	36.2	37.4	37.4	41.5	41.5
		kW	1.45		1.52		1.59		1.66		1.73		1.82		1.94		2.03		2.06		2.18	
	1500	Cap.	11.1	10.2	14.6	13.4	17.6	16.2	21.2	19.4	24.4	22.1	28.9	25.3	33.5	33.5	36.5	36.5	37.7	37.7	41.2	41.2
		kW	1.43		1.49		1.54		1.60		1.66		1.74		1.83		1.90		1.92		2.00	
70	900	Cap.	8.67	7.97	11.9	10.9	15.1	13.9	18.6	17.1	22.2	20.2	26.4	23.1	30.5	30.5	33.6	33.6	34.7	34.7	39.0	39.0
		kW	1.69		1.83		1.95		2.08		2.21		2.38		2.54		2.67		2.72		2.92	
	1200	Cap.	9.15	8.42	12.4	11.4	15.7	14.5	19.3	17.7	22.9	20.7	27.1	23.8	31.4	31.4	34.6	34.6	35.8	35.8	40.0	40.0
		kW	1.67		1.78		1.88		1.99		2.09		2.22		2.35		2.45		2.49		2.64	
	1500	Cap.	9.55	8.78	12.8	11.8	16.2	14.9	19.8	18.2	23.3	21.1	27.7	24.3	32.0	32.0	35.2	35.2	36.4	36.4	40.2	40.2
		kW	1.65		1.75		1.84		1.93		2.02		2.12		2.23		2.32		2.35		2.46	
80	900	Cap.	7.32	6.73	10.6	9.79	14.1	12.9	17.7	16.2	21.4	19.4	25.6	22.4	29.5	29.5	32.5	32.5	33.7	33.7	38.1	38.1
		kW	1.83		1.99		2.14		2.30		2.45		2.64		2.82		2.97		3.02		3.25	
	1200	Cap.	7.80	7.17	11.2	10.3	14.7	13.5	18.4	16.8	22.1	20.1	26.3	23.1	30.4	30.4	33.6	33.6	34.7	34.7	39.0	39.0
		kW	1.81		1.95		2.08		2.20		2.33		2.48		2.62		2.73		2.78		2.94	
	1500	Cap.	8.22	7.56	11.7	10.7	15.2	14.0	18.8	17.3	22.6	20.5	26.9	23.5	31.1	31.1	34.3	34.3	35.5	35.5	39.6	39.6
		kW	1.79		1.92		2.04		2.15		2.25		2.38		2.50		2.60		2.63		2.76	

See Legend and Notes on page 98.

Performance data — 50HJQ (cont)

INSTANTANEOUS AND INTEGRATED HEATING RATINGS (cont)

50HJQ005 (4 Tons)

Return Air (F db)	Cfm (Standard Air)		Temperature Air Entering Outdoor Coil (F db at 70% rh)																	
			–20		–10		0		10		20		30		40		47		50		60	
55	1200	Cap.	14.0	12.9	17.7	17.7	21.7	21.7	26.0	26.0	30.4	30.4	35.9	31.5	41.4	41.4	45.4	45.4	46.9	46.9	52.3	52.3
		kW	1.83		1.96		2.08		2.20		2.32		2.48		2.65		2.78		2.83		3.02	
	1600	Cap.	1.46	13.4	18.3	18.3	22.4	22.4	26.6	26.6	31.0	31.0	36.7	32.1	42.3	42.3	46.5	46.5	48.0	48.0	53.4	53.4
		kW	1.79		1.90		1.99		2.09		2.18		2.31		2.44		2.55		2.59		2.74	
	2000	Cap.	15.1	13.9	18.8	18.8	22.9	22.9	27.0	27.0	31.5	31.5	37.2	32.6	43.0	43.0	47.2	47.2	48.8	48.8	54.2	54.2
		kW	1.77		1.86		1.94		2.02		2.10		2.21		2.32		2.42		2.45		2.59	
70	1200	Cap.	11.9	11.0	17.7	17.7	21.7	21.7	26.0	26.0	30.4	30.4	35.9	31.5	41.4	41.4	45.4	45.4	46.9	46.9	52.3	52.3
		kW	2.08		1.96		2.08		2.20		2.32		2.48		2.65		2.78		2.83		3.02	
	1600	Cap.	12.6	11.6	18.3	18.3	22.4	22.4	26.6	26.6	31.0	31.0	36.7	32.1	42.3	42.3	46.5	46.5	48.0	48.0	53.4	53.4
		kW	2.05		1.90		1.99		2.09		2.18		2.31		2.44		2.55		2.59		2.74	
	2000	Cap.	13.1	12.0	18.8	18.8	22.9	22.9	27.0	27.0	31.5	31.5	37.2	32.6	43.0	43.0	47.2	47.2	48.8	48.8	54.2	54.2
		kW	2.02		1.86		1.94		2.02		2.10		2.21		2.32		2.42		2.45		2.59	
80	1200	Cap.	10.1	9.3	17.7	17.7	21.7	21.7	26.0	26.0	30.4	30.4	35.9	31.5	41.4	41.4	45.4	45.4	46.9	46.9	52.3	52.3
		kW	2.22		1.96		2.08		2.20		2.32		2.48		2.65		2.78		2.83		3.02	
	1600	Cap.	10.7	9.9	18.3	18.3	22.4	22.4	26.6	26.6	31.0	31.0	36.7	32.1	42.3	42.3	46.5	46.5	48.0	48.0	53.4	53.4
		kW	2.20		1.90		1.99		2.09		2.18		2.31		2.44		2.55		2.59		2.74	
	2000	Cap.	11.3	10.4	18.8	18.8	22.9	22.9	27.0	27.0	31.5	31.5	37.2	32.6	43.0	43.0	47.2	47.2	48.8	48.8	54.2	54.2
		kW	2.18		1.86		1.94		2.02		2.10		2.21		2.32		2.42		2.45		2.59	

50HJQ006 (5 Tons)

Return Air (F db)	Cfm (Standard Air)		Temperature Air Entering Outdoor Coil (F db at 70% rh)																	
			–20		–10		0		10		17		30		40		47		50		60	
55	1500	Cap.	15.6	14.3	20.5	18.8	25.6	21.8	35.4	32.3	35.4	32.3	43.6	38.2	50.7	50.7	56.2	56.2	63.3	63.3	63.0	63.0
		kW	3.16		3.26		3.36		3.54		3.54		3.72		3.88		4.01		4.20		4.18	
	1750	Cap.	16.0	14.7	20.9	19.2	26.0	22.1	35.8	32.7	35.8	32.7	44.6	39.1	51.3	51.3	56.4	56.4	62.9	62.9	63.0	63.0
		kW	3.19		3.28		3.36		3.52		3.52		3.67		3.80		3.90		4.04		4.04	
	2000	Cap.	16.9	15.6	21.9	20.2	27.0	23.0	36.9	33.7	36.9	33.7	45.6	40.1	52.3	52.3	56.7	56.7	62.8	62.8	62.6	62.6
		kW	3.41		3.49		3.56		3.69		3.69		3.83		3.93		4.01		4.12		4.11	
	2500	Cap.	18.9	17.6	23.9	22.1	29.1	25.0	38.9	35.7	38.9	35.7	47.8	42.1	53.5	53.5	56.9	56.9	62.2	62.2	62.5	62.5
		kW	3.92		3.99		4.04		4.15		4.15		4.25		4.32		4.37		4.45		4.45	
70	1500	Cap.	12.5	11.5	17.9	16.5	23.4	19.9	33.2	30.2	33.2	30.2	41.7	36.5	48.8	48.8	54.2	54.2	62.7	62.7	62.7	62.7
		kW	3.46		3.63		3.78		4.01		4.01		4.23		4.44		4.60		4.86		4.85	
	1750	Cap.	13.0	11.9	18.4	16.9	23.9	20.3	33.8	30.8	33.8	30.8	42.3	37.1	49.5	49.5	55.0	55.0	62.1	62.1	63.1	63.1
		kW	3.5		3.65		3.78		3.98		3.98		4.17		4.34		4.48		4.66		4.68	
	2000	Cap.	13.9	12.9	19.4	17.9	24.9	21.3	34.9	31.8	34.9	31.8	43.5	38.2	50.6	50.6	56.2	56.2	63.0	63.0	63.2	63.2
		kW	3.73		3.87		3.98		4.15		4.15		4.32		4.47		4.58		4.73		4.73	
	2500	Cap.	16.0	14.9	21.5	19.9	27.0	23.3	37.1	34.0	37.1	34.0	45.8	40.4	52.9	52.9	57.7	57.7	63.3	63.3	63.1	63.1
		kW	4.24		4.37		4.46		4.60		4.60		4.74		4.85		4.92		5.03		5.01	
80	1500	Cap.	9.93	9.14	15.7	14.5	21.5	18.2	31.6	28.8	31.6	28.8	39.9	35.0	46.9	46.9	52.8	52.8	61.9	61.9	62.1	62.1
		kW	3.65		3.87		4.06		4.36		4.36		4.59		4.82		5.02		5.35		5.35	
	1750	Cap.	10.3	9.51	16.2	14.9	22.0	18.7	32.2	29.4	32.2	29.4	40.7	35.7	47.7	47.7	53.6	53.6	62.1	62.1	62.5	62.5
		kW	3.70		3.90		4.07		4.33		4.33		4.53		4.73		4.89		5.14		5.14	
	2000	Cap.	11.3	10.5	17.2	15.9	23.1	19.7	33.3	30.4	33.3	30.4	42.1	37.0	49.0	49.0	54.9	54.9	63.0	63.0	62.7	62.7
		kW	3.92		4.11		4.27		4.50		4.50		4.67		4.85		4.99		5.19		5.18	
	2500	Cap.	13.4	12.5	19.4	18.0	25.3	21.8	35.6	32.6	35.6	32.6	44.4	39.2	51.7	51.7	57.0	57.0	63.8	63.8	63.8	63.8
		kW	4.45		4.62		4.75		4.94		4.94		5.09		5.23		5.32		5.46		5.45	

LEGEND

Cap. — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor input, and indoor-fan motor input)
rh — Relative Humidity

NOTES:

1. ▭ indicates integrated ratings.
2. Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

INSTANTANEOUS AND INTEGRATED HEATING RATINGS (cont)

50HJQ007 (6 Tons)

Return Air (F db)	Cfm (Standard Air)		Temperature Air Entering Outdoor Coil (F db at 70% rh)									
			–20	–10	0	10	17	30	40	47	50	60
55	1800	Cap.	16.5 | 15.2	20.8 | 19.1	26.4 | 22.4	33.6 | 30.8	41.0 | 37.6	51.3 | 44.9	61.9 | 61.9	69.5 | 69.5	78.0 | 78.0	77.9 | 77.9
		kW	3.50	3.63	3.79	4.01	4.18	4.57	4.94	5.22	5.57	5.55
	2100	Cap.	16.9 | 15.5	21.2 | 19.5	27.2 | 23.1	34.9 | 32.0	41.8 | 38.3	52.2 | 45.8	63.2 | 63.2	69.6 | 69.6	75.7 | 75.7	76.5 | 76.5
		kW	3.56	3.68	3.84	4.04	4.18	4.54	4.86	5.07	5.30	5.32
	2400	Cap.	17.2 | 15.9	21.8 | 20.0	28.0 | 23.8	35.6 | 32.6	43.1 | 39.5	53.8 | 47.2	64.1 | 64.1	69.0 | 69.0	74.8 | 74.8	74.3 | 74.3
		kW	3.64	3.75	3.89	4.08	4.21	4.54	4.82	4.97	5.18	5.15
	3000	Cap.	18 | 16.5	23.0 | 21.1	29.4 | 25.0	37.4 | 34.4	45.2 | 41.4	56.6 | 49.6	63.2 | 63.2	65.5 | 65.5	69.8 | 69.8	70.6 | 70.6
		kW	3.79	3.90	4.03	4.19	4.32	4.61	4.77	4.84	4.98	4.99
70	1800	Cap.	15.2 | 14.0	18.2 | 16.7	24.1 | 20.5	31.1 | 28.5	38.0 | 34.8	47.7 | 41.8	58.4 | 58.4	67.1 | 67.1	78.0 | 78.0	77.9 | 77.9
		kW	3.97	4.12	4.33	4.57	4.75	5.19	5.59	5.94	6.43	6.41
	2100	Cap.	15.6 | 14.4	18.6 | 17.1	24.8 | 21.1	32.0 | 29.4	39.1 | 35.9	49.1 | 43.1	59.7 | 59.7	68.5 | 68.5	77.3 | 77.3	76.7 | 76.7
		kW	4.04	4.18	4.37	4.59	4.76	5.15	5.51	5.81	6.17	6.13
	2400	Cap.	16.1 | 14.8	19.0 | 17.5	25.9 | 22.0	32.7 | 30.0	39.9 | 36.6	51.1 | 44.7	61.3 | 61.3	69.0 | 69.0	75.6 | 75.6	76.3 | 76.3
		kW	4.11	4.24	4.43	4.63	4.79	5.17	5.48	5.73	5.97	5.99
	3000	Cap.	16.8 | 15.5	19.7 | 18.1	26.7 | 22.7	34.3 | 31.5	41.8 | 38.3	53.5 | 46.8	63.7 | 63.7	68.3 | 68.3	73.0 | 73.0	73.8 | 73.8
		kW	4.28	4.39	4.56	4.75	4.89	5.22	5.49	5.63	5.80	5.82
80	1800	Cap.	13.6 | 12.5	17.1 | 15.7	21.7 | 18.4	29.2 | 26.8	36.5 | 33.4	45.6 | 40.0	55.3 | 55.3	64.2 | 64.2	77.2 | 77.2	76.9 | 76.9
		kW	4.20	4.46	4.67	4.95	5.16	5.62	6.02	6.40	7.00	6.98
	2100	Cap.	14.1 | 13.0	17.6 | 16.2	22.6 | 19.2	30.1 | 27.6	37.1 | 34.0	46.9 | 41.1	57.0 | 57.0	66.4 | 66.4	76.3 | 76.3	77.2 | 77.2
		kW	4.28	4.52	4.72	4.98	5.16	5.58	5.95	6.30	6.71	6.74
	2400	Cap.	14.5 | 13.4	18.0 | 16.6	23.1 | 19.6	31.2 | 28.7	37.9 | 32.7	48.5 | 42.5	58.7 | 58.7	67.7 | 67.7	76.3 | 76.3	75.9 | 75.9
		kW	4.37	4.59	4.77	5.03	5.19	5.59	5.93	6.23	6.57	6.54
	3000	Cap.	15.4 | 14.1	18.8 | 17.3	24.1 | 20.5	32.2 | 29.6	39.6 | 36.3	50.4 | 44.2	61.6 | 61.6	68.9 | 68.9	74.3 | 74.3	74.5 | 74.5
		kW	4.54	4.74	4.91	5.14	5.29	5.64	5.95	6.17	6.37	6.36

50HJQ008 (7 1/2 Tons)

Return Air (F db)	Cfm (Standard Air)		Temperature Air Entering Outdoor Coil (F db at 70% rh)									
			–20	–10	0	10	17	30	40	47	50	60
55	2250	Cap.	31.4 | 28.8	37.8 | 34.9	44.5 | 41.0	52.1 | 47.8	57.6 | 52.5	70.2 | 61.5	79.9 | 79.9	87.9 | 87.9	91.6 | 91.6	105.9 | 105.9
		kW	5.32	5.47	5.61	5.74	5.84	6.09	6.72	6.92	7.02	7.48
	3000	Cap.	33.3 | 30.6	39.6 | 36.5	46.3 | 42.5	53.9 | 49.4	59.6 | 54.3	72.1 | 63.1	81.9 | 81.9	90.0 | 90.0	93.9 | 93.9	105.1 | 105.1
		kW	5.76	5.90	6.01	6.13	6.23	6.44	7.05	7.25	7.35	7.64
	3750	Cap.	35.1 | 32.1	41.4 | 38.2	48.0 | 44.1	55.7 | 51.0	61.3 | 56.1	73.9 | 64.7	83.6 | 83.6	91.8 | 91.8	94.7 | 94.7	103.4 | 103.4
		kW	6.23	6.34	6.44	6.56	6.63	6.85	7.48	7.68	7.75	7.93
70	2250	Cap.	28.8 | 26.5	35.9 | 32.9	43.1 | 39.8	50.8 | 46.6	56.4 | 51.4	68.4 | 60.0	77.8 | 77.8	85.6 | 85.6	89.2 | 89.2	103.2 | 103.2
		kW	5.76	5.99	6.21	6.40	6.54	6.85	7.54	7.77	7.89	8.36
	3000	Cap.	30.6 | 28.2	37.8 | 34.7	45.1 | 41.6	52.5 | 48.2	58.2 | 53.1	70.2 | 61.5	79.7 | 79.7	87.5 | 87.5	91.4 | 91.4	105.3 | 105.3
		kW	6.19	6.40	6.60	6.77	6.89	7.14	7.83	8.03	8.16	8.61
	3750	Cap.	32.3 | 29.8	39.4 | 36.3	46.8 | 43.8	54.3 | 49.8	60.0 | 54.7	72.1 | 63.3	81.7 | 81.7	89.6 | 89.6	93.3 | 93.3	105.5 | 105.5
		kW	6.63	6.85	7.00	7.18	7.28	7.53	8.22	8.43	8.53	8.88
80	2250	Cap.	26.3 | 24.1	33.9 | 31.2	41.7 | 38.4	49.6 | 45.7	55.5 | 50.6	67.2 | 58.8	76.4 | 76.4	84.0 | 84.0	87.7 | 87.7	101.1 | 101.1
		kW	6.01	6.34	6.62	6.87	7.06	7.39	8.18	8.43	8.55	9.06
	3000	Cap.	28.0 | 25.9	35.9 | 33.1	43.7 | 40.2	51.3 | 47.2	57.2 | 52.3	69.0 | 60.6	78.4 | 78.4	86.1 | 86.1	89.8 | 89.8	103.4 | 103.4
		kW	6.44	6.75	7.00	7.22	7.37	7.68	8.43	8.65	8.78	9.25
	3750	Cap.	29.8 | 27.4	37.8 | 34.7	45.5 | 41.9	53.3 | 48.8	59.0 | 53.9	71.0 | 62.1	80.1 | 80.1	88.1 | 88.1	91.8 | 91.8	105.3 | 105.3
		kW	6.89	7.18	7.41	7.60	7.76	8.03	8.80	9.00	9.13	9.58

LEGEND

Cap. — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor input, and indoor-fan motor input)
rh — Relative Humidity

NOTES:
1. ▭ indicates integrated ratings.
2. Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

Performance data — 50HJQ (cont)

INSTANTANEOUS AND INTEGRATED HEATING RATINGS (cont)

50HJQ009 (8 1/2 Tons)

Return Air (F db)	Cfm (Standard Air)		Temperature Air Entering Outdoor Coil (F db at 70% rh)																	
			–20		–10		0		10		20		30		40		47		50		60	
55	2550	Cap.	31.6	29.1	39.1	36.0	47.2	43.5	56.3	51.8	65.4	59.3	75.3	66.0	86.1	86.1	97.9	97.9	108.0	108.0	113.5	113.5
		kW	3.73		4.01		4.30		4.66		5.01		5.37		5.79		6.23		6.52		6.80	
	3400	Cap.	32.9	30.2	40.5	37.2	48.3	44.5	57.5	52.7	66.5	60.3	76.5	67.1	87.5	87.5	97.4	97.4	106.1	106.1	109.9	109.9
		kW	3.62		3.86		4.10		4.39		4.67		4.96		5.29		5.54		5.71		5.89	
	4250	Cap.	33.9	31.2	41.5	38.1	49.3	45.4	58.5	53.6	67.5	61.2	77.6	67.9	86.6	86.6	94.6	94.6	102.5	102.5	105.6	105.6
		kW	3.55		3.77		3.98		4.23		4.47		4.72		4.92		5.09		5.21		5.33	
70	2550	Cap.	28.9	26.6	36.9	34.0	45.5	41.8	55.0	50.5	64.4	58.4	74.2	65.0	84.5	84.5	95.8	95.8	107.1	107.1	114.3	114.3
		kW	4.38		4.76		5.14		5.54		5.98		6.45		6.92		7.41		7.82		8.26	
	3400	Cap.	30.2	27.8	38.4	35.3	46.9	43.0	56.4	51.8	65.6	59.5	75.4	66.1	86.0	86.0	97.4	97.4	107.3	107.3	111.9	111.9
		kW	4.27		4.61		4.91		5.25		5.61		5.98		6.36		6.74		6.98		7.20	
	4250	Cap.	31.4	28.8	39.5	36.4	47.9	44.2	57.5	52.7	66.6	60.4	76.4	67.0	87.1	87.1	97.2	97.2	106.3	106.3	109.1	109.1
		kW	4.21		4.51		4.79		5.09		5.40		5.70		6.03		6.28		6.46		6.60	
80	2550	Cap.	26.3	24.2	34.9	32.1	43.8	40.3	53.6	49.2	63.3	57.4	73.4	64.3	83.7	83.7	94.4	94.4	106.5	106.5	112.5	112.5
		kW	4.82		5.27		5.72		6.19		6.66		7.21		7.76		8.29		8.79		9.23	
	3400	Cap.	27.8	25.5	36.4	33.5	45.3	41.7	55.1	50.6	64.7	58.7	74.7	65.4	85.0	85.0	96.2	96.2	107.1	107.1	110.0	110.0
		kW	4.72		5.11		5.49		5.88		6.28		6.72		7.14		7.57		7.90		8.06	
	4250	Cap.	29.0	26.7	37.6	34.7	46.4	42.7	56.5	51.8	65.9	59.6	75.7	66.4	86.2	86.2	96.9	96.9	106.2	106.2	110.8	110.8
		kW	4.66		5.02		5.35		5.70		6.05		6.42		6.79		7.11		7.34		7.54	

50HJQ012 (10 Tons)

Return Air (F db)	Cfm (Standard Air)		Temperature Air Entering Outdoor Coil (F db at 70% rh)																	
			–20		–10		0		10		17		30		40		47		50		60	
55	3000	Cap.	37.7	34.6	45.5	41.9	53.5	49.2	62.6	57.5	69.2	63.1	84.3	74.0	101.3	101.3	111.3	111.3	116.0	116.0	134.2	134.2
		kW	6.87		7.07		7.25		7.43		7.55		7.88		8.26		8.52		8.64		9.20	
	4000	Cap.	40.0	36.7	47.6	43.8	55.6	51.1	64.8	59.4	71.6	65.2	86.7	75.8	103.7	103.7	114.0	114.0	118.9	118.9	133.2	133.2
		kW	7.45		7.63		7.78		7.93		8.05		8.33		8.67		8.92		9.05		9.40	
	5000	Cap.	42.2	38.6	49.7	45.9	57.7	53.0	66.9	61.2	73.7	67.4	88.8	77.7	105.9	105.9	116.2	116.2	119.9	119.9	131.0	131.0
		kW	8.05		8.20		8.33		8.48		8.58		8.86		9.20		9.45		9.53		9.76	
70	3000	Cap.	34.6	31.8	43.1	39.6	51.8	47.8	61.0	56.1	67.8	61.7	82.2	72.1	98.5	98.5	108.4	108.4	113.0	113.0	130.7	130.7
		kW	7.45		7.75		8.03		8.28		8.45		8.86		9.28		9.55		9.71		10.29	
	4000	Cap.	36.7	33.9	45.5	41.7	54.2	49.9	63.1	57.9	69.9	63.8	84.3	74.0	101.0	101.0	110.8	110.8	115.8	115.8	133.4	133.4
		kW	8.00		8.28		8.53		8.76		8.91		9.23		9.63		9.88		10.04		10.59	
	5000	Cap.	38.9	35.8	47.3	43.6	56.3	51.8	65.2	59.8	72.1	65.7	86.7	76.1	103.5	103.5	113.5	113.5	118.2	118.2	133.7	133.7
		kW	8.58		8.86		9.06		9.28		9.41		9.73		10.11		10.37		10.49		10.92	
80	3000	Cap.	31.6	29.0	40.7	37.4	50.2	46.2	59.6	54.9	66.7	60.8	80.8	70.7	96.8	96.8	06.4	106.4	111.1	111.1	128.0	128.0
		kW	7.78		8.20		8.56		8.88		9.13		9.56		10.06		10.37		10.52		11.15	
	4000	Cap.	33.7	31.1	43.1	39.8	52.5	48.3	61.9	56.8	68.8	62.9	82.9	72.8	99.3	99.3	109.1	109.1	113.8	113.8	131.0	131.0
		kW	8.33		8.73		9.06		9.33		9.53		9.93		10.37		10.64		10.80		11.38	
	5000	Cap.	35.8	33.0	45.5	41.7	54.6	50.4	64.1	58.6	70.9	64.8	85.3	74.7	101.5	101.5	111.6	111.6	116.2	116.2	133.4	133.4
		kW	8.91		9.28		9.58		9.83		10.04		10.39		10.82		11.08		11.23		11.78	

LEGEND

Cap. — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor input, and indoor-fan motor input)
rh — Relative Humidity

NOTES:

1. ▭ indicates integrated ratings.
2. Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

INTEGRATED HEATING CAPACITIES

50HJQ014 (12 1/2 Tons)

CFM	Return Air Temp F (db)	Temp Air Entering Outdoor Coil (F db at 75% RH)																			
		–10		0		10		17		20		30		40		47		50		60	
		Cap.	kW	Cap.	kW	Cap.	kW	Cap.	kW	Cap.	kW	Cap.	kW	Cap.	kW	Cap.	kW	Cap.	kW	Cap.	kW
3750	55	40.4	7.81	53.0	8.35	65.6	8.89	74.5	9.27	78.5	9.47	91.9	10.10	120.0	11.00	140.0	11.50	147.0	11.80	168.0	12.60
	70	37.7	8.19	49.8	8.85	61.9	9.51	70.3	9.97	74.1	10.20	86.8	11.00	114.0	11.90	133.0	12.50	139.0	12.90	161.0	13.90
	80	35.4	8.41	47.1	9.15	58.8	9.89	67.0	10.40	70.8	10.70	83.4	11.50	109.0	12.50	128.0	13.20	134.0	13.60	156.0	14.70
4500	55	40.3	7.98	53.9	8.49	67.5	9.00	77.0	9.35	80.9	9.54	93.8	10.10	123.0	10.90	144.0	11.40	149.0	11.60	167.0	12.30
	70	36.7	8.38	49.8	9.00	62.9	9.62	72.0	10.00	75.9	10.30	88.6	11.00	116.0	11.80	136.0	12.50	142.0	12.70	163.0	13.60
	80	33.2	8.64	46.4	9.32	59.6	10.00	68.7	10.50	72.6	10.70	85.2	11.50	112.0	12.50	131.0	13.10	137.0	13.40	159.0	14.50
5000	55	41.0	8.11	54.7	8.60	68.4	9.09	78.0	9.43	81.9	9.60	95.0	10.20	124.0	10.90	144.0	11.40	149.0	11.60	165.0	12.10
	70	44.7	8.45	55.2	9.07	65.7	9.69	73.1	10.10	76.9	10.30	89.7	11.00	118.0	11.90	138.0	12.50	143.0	12.70	163.0	13.50
	80	33.6	8.76	47.0	9.43	60.4	10.10	69.8	10.60	73.6	10.80	86.3	11.60	113.0	12.50	132.0	13.10	139.0	13.40	160.0	14.40
5625	55	42.0	8.27	55.7	8.74	69.4	9.21	79.0	9.54	83.0	9.71	96.2	10.30	124.0	10.90	144.0	11.40	148.0	11.50	164.0	12.10
	70	42.7	8.66	54.3	9.24	65.9	9.82	74.1	10.20	77.9	10.40	90.9	11.10	120.0	11.90	140.0	12.50	145.0	12.70	163.0	13.40
	80	34.5	8.94	48.0	9.57	61.5	10.20	70.9	10.70	74.7	10.90	87.4	11.60	115.0	12.50	134.0	13.10	140.0	13.40	160.0	14.30
6250	55	44.0	8.43	57.3	8.89	70.6	9.35	79.9	9.67	83.9	9.83	97.3	10.40	124.0	11.00	143.0	11.40	147.0	11.50	160.0	12.00
	70	45.7	8.79	56.8	9.37	67.9	9.95	75.6	10.40	79.4	10.50	91.9	11.20	120.0	12.00	140.0	12.50	145.0	12.70	161.0	13.30
	80	35.2	9.04	48.8	9.72	62.4	10.40	71.9	10.80	75.7	11.00	88.4	11.70	117.0	12.60	136.0	13.20	142.0	13.40	159.0	14.20

50HJQ016 (15 Tons)

CFM	Return Air Temp F (db)	Temp Air Entering Outdoor Coil (F db at 75% RH)																			
		–10		0		10		17		20		30		40		47		50		60	
		Cap.	kW	Cap.	kW	Cap.	kW	Cap.	kW	Cap.	kW	Cap.	kW	Cap.	kW	Cap.	kW	Cap.	kW	Cap.	kW
3750	55	46.4	9.80	60.8	10.60	75.6	11.34	85.8	11.84	91.4	12.10	110.0	12.96	150.2	14.00	178.2	14.72	189.4	15.08	228.0	16.32
	70	39.6	10.04	54.4	10.96	69.8	11.86	80.4	12.48	85.8	12.78	103.4	13.82	141.6	15.02	168.4	15.84	179.0	16.26	214.0	17.64
	80	35.0	10.20	50.2	11.20	65.8	12.20	76.8	12.90	81.8	13.24	99.2	14.38	136.0	15.70	161.8	16.60	172.0	17.04	206.0	18.52
4500	55	47.8	10.02	62.0	10.78	77.0	11.48	87.6	11.96	93.2	12.20	112.0	12.98	153.2	13.92	182.2	14.58	193.4	14.90	230.0	15.94
	70	40.6	10.26	55.8	11.16	71.2	12.00	82.0	12.60	87.4	12.90	105.4	13.86	144.6	14.98	172.0	15.74	182.8	16.12	220.0	17.36
	80	36.0	10.44	51.6	11.40	67.4	12.36	78.4	13.04	83.6	13.36	101.0	14.44	138.8	15.68	165.2	16.52	175.8	16.94	212.0	18.30
5000	55	48.6	10.26	63.0	10.98	78.4	11.64	89.2	12.10	94.8	12.32	113.6	13.06	155.2	13.94	184.4	14.56	195.8	14.86	234.0	15.80
	70	41.8	10.50	56.8	11.36	72.6	12.18	83.6	12.76	89.0	13.04	107.2	13.96	147.0	15.00	174.8	15.74	185.8	16.08	222.0	17.24
	80	37.2	10.66	52.8	11.62	68.6	12.54	79.8	13.20	85.0	13.50	103.0	14.56	141.4	15.72	168.2	16.52	179.0	16.90	216.0	18.18
5625	55	49.2	10.50	63.8	11.18	79.4	11.82	90.2	12.26	96.0	12.46	115.2	13.18	158.0	14.02	187.8	14.60	198.4	14.84	234.0	15.64
	70	42.6	10.72	58.0	11.58	73.6	12.38	84.6	12.92	90.2	13.20	108.6	14.08	149.2	15.08	177.6	15.78	188.4	16.10	224.0	17.14
	80	38.2	10.88	54.0	11.84	69.8	12.74	81.0	13.38	86.4	13.68	104.4	14.68	143.4	15.80	170.8	16.58	181.6	16.94	218.0	18.14
6250	55	50.0	10.72	64.6	11.40	80.2	12.00	91.0	12.42	97.0	12.64	116.6	13.30	159.8	14.14	190.0	14.70	200.0	14.92	234.0	15.58
	70	43.4	10.96	58.8	11.80	74.6	12.58	85.6	13.12	91.2	13.36	110.0	14.22	151.0	15.20	179.6	15.88	190.2	16.16	226.0	17.12
	80	39.0	11.12	54.8	12.06	70.8	12.94	82.0	13.56	87.6	13.86	105.6	14.84	145.0	15.92	172.6	16.66	183.6	17.00	220.0	18.16

LEGEND

Cap. — Capacity (1000 Btuh)
Edb — Entering Air Dry-Bulb Temperature (F)
Ldb — Leaving Air Dry-Bulb Temperature (F)
kW — Compressor and Outdoor-Fan Power Input
RH — Relative Humidity

NOTES:

1. Integrated heating capacity ratings shown are not adjusted for the effects of the indoor-fan motor power and heat. A deduction has been made for defrosting the outdoor coils at temperatures below 40 F.
2. Direct interpolation is permissible. Do not extrapolate.
3. When using auxiliary and/or supplementary heating, the maximum allowable leaving-air temperature is 140 F.

$$\text{Ldb F} = \text{Edb F} + \frac{\text{Total heating cap. (Btuh)}}{1.10 \times \text{airflow cfm}}$$

4. For supplementary glycol coil:

$$\text{Fluid flow Gpm} = \frac{\text{fluid capacity (Btuh)}}{500 \times \text{fluid temperature drop (F)}}$$

Performance data — 50HJQ (cont)

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS

50HJQ004 (3 TONS) STANDARD MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
900	**566**	**0.14**	**142**	690	0.23	228	791	0.32	320	879	0.42	418	957	0.52	522
1000	**598**	**0.17**	**173**	718	0.27	267	817	0.37	366	903	0.47	471	981	0.58	581
1100	**632**	**0.21**	**210**	748	0.31	311	844	0.42	418	929	0.53	530	1006	0.65	646
1200	**666**	**0.25**	**252**	778	0.36	361	873	0.48	476	956	0.60	594	1031	0.72	718
1300	701	0.30	300	809	0.42	418	902	0.54	540	983	0.67	665	**1057**	**0.80**	**796**
1400	737	0.36	355	842	0.48	481	932	0.61	610	1012	0.75	744	**1085**	**0.89**	**881**
1500	774	0.42	417	875	0.55	551	962	0.69	689	1041	0.83	830	**1112**	**0.98**	**974**

50HJQ004 (3 TONS) STANDARD MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
900	1029	0.63	630	**1095**	**0.75**	**742**	**1157**	**0.86**	**859**	**1216**	**0.99**	**980**	**1272**	**1.11**	**1105**
1000	**1052**	**0.70**	**695**	**1118**	**0.82**	**814**	**1179**	**0.94**	**937**	**1237**	**1.07**	**1064**	**1293**	**1.20**	**1195**
1100	**1076**	**0.77**	**767**	**1141**	**0.90**	**892**	**1202**	**1.03**	**1021**	**1260**	**1.16**	**1154**	—	—	—
1200	**1100**	**0.85**	**845**	**1165**	**0.98**	**977**	**1225**	**1.12**	**1112**	—	—	—	—	—	—
1300	**1126**	**0.94**	**930**	**1189**	**1.07**	**1069**	—	—	—	—	—	—	—	—	—
1400	**1152**	**1.03**	**1023**	**1215**	**1.17**	**1168**	—	—	—	—	—	—	—	—	—
1500	**1179**	**1.13**	**1123**	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 680 to 1044 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 1.20.
3. See page 114 for General Fan Performance Notes.

50HJQ004 (3 TONS) HIGH-STATIC MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
900	**566**	**0.14**	**142**	**690**	**0.23**	**228**	**791**	**0.32**	**320**	**879**	**0.42**	**418**	**957**	**0.52**	**522**
1000	**598**	**0.17**	**173**	**718**	**0.27**	**267**	**817**	**0.37**	**366**	**903**	**0.47**	**471**	**981**	**0.58**	**581**
1100	**632**	**0.21**	**210**	**748**	**0.31**	**311**	**844**	**0.42**	**418**	**929**	**0.53**	**530**	**1006**	**0.65**	**646**
1200	**666**	**0.25**	**252**	**778**	**0.36**	**361**	**873**	**0.48**	**476**	**956**	**0.60**	**594**	**1031**	**0.72**	**718**
1300	**701**	**0.30**	**300**	**809**	**0.42**	**418**	**902**	**0.54**	**540**	**983**	**0.67**	**665**	**1057**	**0.80**	**796**
1400	**737**	**0.36**	**355**	**842**	**0.48**	**481**	**932**	**0.61**	**610**	**1012**	**0.75**	**744**	1085	0.89	881
1500	**774**	**0.42**	**417**	**875**	**0.55**	**551**	**962**	**0.69**	**689**	**1041**	**0.83**	**830**	1112	0.98	974

50HJQ004 (3 TONS) HIGH-STATIC MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
900	**1029**	**0.63**	**630**	1095	0.75	742	1157	0.86	859	1216	0.99	980	1272	1.11	1105
1000	**1052**	**0.70**	**695**	1118	0.82	814	1179	0.94	937	1237	1.07	1064	1293	1.20	1195
1100	1076	0.77	767	1141	0.90	892	1202	1.03	1021	1260	1.16	1154	1314	1.30	1291
1200	1100	0.85	845	1165	0.98	977	1225	1.12	1112	1282	1.26	1252	1337	1.40	1395
1300	1126	0.94	930	1189	1.07	1069	1249	1.22	1211	1306	1.36	1356	1360	1.51	1506
1400	1152	1.03	1023	1215	1.17	1168	1274	1.32	1317	1330	1.48	1469	1384	1.63	1625
1500	1179	1.13	1123	1241	1.28	1275	1300	1.44	1431	1355	1.60	1590	1408	1.76	1752

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1075 to 1455 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.40.
3. See page 114 for General Fan Performance Notes.

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50HJQ005 (4 TONS) STANDARD MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1200	**666**	**0.25**	**252**	778	0.36	361	873	0.48	476	956	0.60	594	1031	0.72	718
1300	**701**	**0.30**	**300**	809	0.42	418	902	0.54	540	983	0.67	665	1057	0.80	796
1400	**737**	**0.36**	**355**	842	0.48	481	932	0.61	610	1012	0.75	744	1085	0.89	881
1500	774	0.42	417	875	0.55	551	962	0.69	689	1041	0.83	830	1112	0.98	974
1600	811	0.49	487	909	0.63	629	994	0.78	774	1071	0.93	923	1141	1.08	1076
1700	849	0.57	565	943	0.72	715	1026	0.87	869	1101	1.03	1025	1170	1.19	1185
1800	887	0.65	651	978	0.81	810	1059	0.98	972	1133	1.14	1136	—	—	—
1900	926	0.75	746	1014	0.92	914	1092	1.09	1084	—	—	—	—	—	—
2000	965	0.86	852	1050	1.03	1028	—	—	—	—	—	—	—	—	—

50HJQ005 (4 TONS) STANDARD MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1200	1100	0.85	845	1165	0.98	977	**1225**	**1.12**	**1112**	—	—	—	—	—	—
1300	1126	0.94	930	**1189**	**1.07**	**1069**	—	—	—	—	—	—	—	—	—
1400	1152	1.03	1023	**1215**	**1.17**	**1168**	—	—	—	—	—	—	—	—	—
1500	1179	1.13	1123	—	—	—	—	—	—	—	—	—	—	—	—
1600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 770 to 1185 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 1.20.
3. See page 114 for General Fan Performance Notes.

50HJQ005 (4 TONS) HIGH-STATIC MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1200	**666**	**0.25**	**252**	**778**	**0.36**	**361**	**873**	**0.48**	**476**	**956**	**0.60**	**594**	**1031**	**0.72**	**718**
1300	**701**	**0.30**	**300**	**809**	**0.42**	**418**	**902**	**0.54**	**540**	**983**	**0.67**	**665**	**1057**	**0.80**	**796**
1400	**737**	**0.36**	**355**	**842**	**0.48**	**481**	**932**	**0.61**	**610**	**1012**	**0.75**	**744**	1085	0.89	881
1500	**774**	**0.42**	**417**	**875**	**0.55**	**551**	**962**	**0.69**	**689**	**1041**	**0.83**	**830**	1112	0.98	974
1600	**811**	**0.49**	**487**	**909**	**0.63**	**629**	**994**	**0.78**	**774**	**1071**	**0.93**	**923**	1141	1.08	1076
1700	**849**	**0.57**	**565**	**943**	**0.72**	**715**	**1026**	**0.87**	**869**	1101	1.03	1025	1170	1.19	1185
1800	**887**	**0.65**	**651**	**978**	**0.81**	**810**	**1059**	**0.98**	**972**	1133	1.14	1136	1200	1.31	1304
1900	**926**	**0.75**	**746**	**1014**	**0.92**	**914**	1092	1.09	1084	1164	1.26	1257	1231	1.44	1432
2000	**965**	**0.86**	**852**	**1050**	**1.03**	**1028**	1127	1.21	1206	1197	1.39	1387	1262	1.58	1570

50HJQ005 (4 TONS) HIGH-STATIC MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1200	1100	0.85	845	1165	0.98	977	1225	1.12	1112	1282	1.26	1252	1337	1.40	1395
1300	1126	0.94	930	1189	1.07	1069	1249	1.22	1211	1306	1.36	1356	1360	1.51	1506
1400	1152	1.03	1023	1215	1.17	1168	1274	1.32	1317	1330	1.48	1469	1384	1.63	1625
1500	1179	1.13	1123	1241	1.28	1275	1300	1.44	1431	1355	1.60	1590	1408	1.76	1752
1600	1206	1.24	1231	1268	1.40	1391	1326	1.56	1553	1381	1.73	1719	1433	1.90	1888
1700	1235	1.36	1349	1295	1.52	1515	1352	1.69	1685	1407	1.87	1858	**1459**	**2.04**	**2034**
1800	1264	1.48	1475	1323	1.66	1649	1380	1.84	1826	1434	2.02	2006	**1485**	**2.20**	**2189**
1900	1293	1.62	1611	1352	1.80	1792	1408	1.99	1976	**1461**	**2.17**	**2163**	**1512**	**2.37**	**2353**
2000	1324	1.77	1756	1381	1.96	1945	1436	2.15	2137	**1489**	**2.34**	**2332**	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1075 to 1455 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.40.
3. See page 114 for General Fan Performance Notes.

Performance data — 50HJQ (cont)

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50HJQ006 (5 TONS) STANDARD MOTOR (BELT DRIVE)* — SINGLE-PHASE UNITS

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watt	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1500	**790**	**0.40**	**353**	**897**	**0.53**	**471**	**991**	**0.68**	**600**	1075	0.83	739	1152	1.00	888
1600	**828**	**0.46**	**412**	**931**	**0.60**	**536**	**1022**	**0.75**	**670**	1104	0.92	813	1180	1.09	966
1700	**866**	**0.54**	**478**	**966**	**0.68**	**608**	1054	0.84	747	1134	1.01	895	1208	1.19	1053
1800	**905**	**0.62**	**551**	**1001**	**0.77**	**687**	1087	0.94	832	1165	1.11	985	1238	1.29	1148
1900	**944**	**0.71**	**633**	1037	0.87	774	1120	1.04	925	1197	1.22	1084	—	—	—
2000	**983**	**0.81**	**723**	1073	0.98	870	1154	1.16	1026	—	—	—	—	—	—
2100	**1023**	**0.92**	**821**	1110	1.10	975	1189	1.28	1137	—	—	—	—	—	—
2200	1063	1.05	929	1147	1.23	1089	—	—	—	—	—	—	—	—	—
2300	1104	1.18	1046	—	—	—	—	—	—	—	—	—	—	—	—
2400	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

50HJQ006 (5 TONS) STANDARD MOTOR (BELT DRIVE)* — SINGLE-PHASE UNITS (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1500	1224	1.18	1045	—	—	—	—	—	—	—	—	—	—	—	—
1600	1250	1.27	1128	—	—	—	—	—	—	—	—	—	—	—	—
1700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2100	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2300	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2400	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1035 to 1460 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 1.30.
3. See page 114 for General Fan Performance Notes.

50HJQ006 (5 TONS) STANDARD MOTOR (BELT DRIVE)* — THREE-PHASE UNITS

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watt	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1500	**790**	**0.40**	**353**	**897**	**0.53**	**471**	**991**	**0.68**	**600**	1075	0.83	739	1152	1.00	888
1600	**828**	**0.46**	**412**	**931**	**0.60**	**536**	**1022**	**0.75**	**670**	1104	0.92	813	1180	1.09	966
1700	**866**	**0.54**	**478**	**966**	**0.68**	**608**	1054	0.84	747	1134	1.01	895	1208	1.19	1053
1800	**905**	**0.62**	**551**	**1001**	**0.77**	**687**	1087	0.94	832	1165	1.11	985	1238	1.29	1148
1900	**944**	**0.71**	**633**	1037	0.87	774	1120	1.04	925	1197	1.22	1084	1268	1.41	1251
2000	**983**	**0.81**	**723**	1073	0.98	870	1154	1.16	1026	1229	1.34	1190	1299	1.53	1362
2100	**1023**	**0.92**	**821**	1110	1.10	975	1189	1.28	1137	1262	1.47	1306	1330	1.67	1483
2200	1063	1.05	929	1147	1.23	1089	1224	1.41	1256	1295	1.61	1431	1362	1.82	1614
2300	1104	1.18	1046	1185	1.37	1212	1260	1.56	1386	1329	1.76	1567	1395	1.98	1754
2400	1145	1.32	1174	1223	1.52	1346	1296	1.72	1526	1364	1.93	1712	1428	2.15	1905
2500	1185	1.48	1311	1262	1.68	1490	1333	1.89	1676	1399	2.10	1868	**1462**	**2.33**	**2067**

50HJQ006 (5 TONS) STANDARD MOTOR (BELT DRIVE)* — THREE-PHASE UNITS (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1500	1224	1.18	1045	1291	1.36	1212	1354	1.56	1387	1414	1.77	1570	**1472**	**1.98**	**1761**
1600	1250	1.27	1128	1316	1.46	1299	1379	1.66	1478	1438	1.87	1664	**1495**	**2.09**	**1858**
1700	1278	1.37	1219	1343	1.57	1394	1405	1.77	1576	**1463**	**1.99**	**1766**	**1520**	**2.21**	**1964**
1800	1306	1.48	1318	1370	1.69	1497	1431	1.90	1683	**1489**	**2.11**	**1877**	**1545**	**2.34**	**2078**
1900	1335	1.61	1426	1398	1.81	1609	1458	2.03	1799	**1515**	**2.25**	**1997**	—	—	—
2000	1364	1.74	1542	1427	1.95	1730	**1486**	**2.17**	**1925**	**1542**	**2.39**	**2126**	—	—	—
2100	1395	1.88	1668	1456	2.09	1860	**1514**	**2.32**	**2060**	—	—	—	—	—	—
2200	1426	2.03	1804	**1486**	**2.25**	**2001**	—	—	—	—	—	—	—	—	—
2300	1457	2.19	1949	—	—	—	—	—	—	—	—	—	—	—	—
2400	**1489**	**2.37**	**2106**	—	—	—	—	—	—	—	—	—	—	—	—
2500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1035 to 1460 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.40.
3. See page 114 for General Fan Performance Notes.

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50HJQ006 (5 TONS) HIGH-STATIC MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watt	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1500	**790**	**0.40**	**353**	**897**	**0.53**	**471**	**991**	**0.68**	**600**	**1075**	**0.83**	**739**	**1152**	**1.00**	**888**
1600	**828**	**0.46**	**412**	**931**	**0.60**	**536**	**1022**	**0.75**	**670**	**1104**	**0.92**	**813**	**1180**	**1.09**	**966**
1700	**866**	**0.54**	**478**	**966**	**0.68**	**608**	**1054**	**0.84**	**747**	**1134**	**1.01**	**895**	**1208**	**1.19**	**1053**
1800	**905**	**0.62**	**551**	**1001**	**0.77**	**687**	**1087**	**0.94**	**832**	**1165**	**1.11**	**985**	**1238**	**1.29**	**1148**
1900	**944**	**0.71**	**633**	**1037**	**0.87**	**774**	**1120**	**1.04**	**925**	**1197**	**1.22**	**1084**	**1268**	**1.41**	**1251**
2000	**983**	**0.81**	**723**	**1073**	**0.98**	**870**	**1154**	**1.16**	**1026**	**1229**	**1.34**	**1190**	**1299**	**1.53**	**1362**
2100	**1023**	**0.92**	**821**	**1110**	**1.10**	**975**	**1189**	**1.28**	**1137**	**1262**	**1.47**	**1306**	1330	1.67	1483
2200	**1063**	**1.05**	**929**	**1147**	**1.23**	**1089**	**1224**	**1.41**	**1256**	**1295**	**1.61**	**1431**	1362	1.82	1614
2300	**1104**	**1.18**	**1046**	**1185**	**1.37**	**1212**	**1260**	**1.56**	**1386**	1329	1.76	1567	1395	1.98	1754
2400	**1145**	**1.32**	**1174**	**1223**	**1.52**	**1346**	**1296**	**1.72**	**1526**	1364	1.93	1712	1428	2.15	1905
2500	**1185**	**1.48**	**1311**	**1262**	**1.68**	**1490**	1333	1.89	1676	1399	2.10	1868	1462	2.33	2067

50HJQ006 (5 TONS) HIGH-STATIC MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1500	**1224**	**1.18**	**1045**	**1291**	**1.36**	**1212**	1354	1.56	1387	1414	1.77	1570	1472	1.98	1761
1600	**1250**	**1.27**	**1128**	1316	1.46	1299	1379	1.66	1478	1438	1.87	1664	1495	2.09	1858
1700	**1278**	**1.37**	**1219**	1343	1.57	1394	1405	1.77	1576	1463	1.99	1766	1520	2.21	1964
1800	1306	1.48	1318	1370	1.69	1497	1431	1.90	1683	1489	2.11	1877	1545	2.34	2078
1900	1335	1.61	1426	1398	1.81	1609	1458	2.03	1799	1515	2.25	1997	1570	2.48	2202
2000	1364	1.74	1542	1427	1.95	1730	1486	2.17	1925	1542	2.39	2126	1596	2.63	2335
2100	1395	1.88	1668	1456	2.09	1860	1514	2.32	2060	1570	2.55	2265	1623	2.79	2478
2200	1426	2.03	1804	1486	2.25	2001	1543	2.48	2204	1598	2.72	2415	—	—	—
2300	1457	2.19	1949	1516	2.42	2151	1573	2.66	2360	1627	2.90	2574	—	—	—
2400	1489	2.37	2106	1547	2.60	2312	1603	2.84	2526	—	—	—	—	—	—
2500	1522	2.56	2272	1579	2.80	2484	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1300 to 1685 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.90.
3. See page 114 for General Fan Performance Notes.

50HJQ007 (6 TONS) STANDARD MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watt	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1800	**907**	**0.63**	**558**	**1006**	**0.80**	**708**	**1092**	**0.97**	**860**	1169	1.14	1015	1239	1.32	1174
1900	**945**	**0.72**	**638**	**1042**	**0.90**	**796**	1126	1.08	956	1201	1.26	1119	1271	1.45	1285
2000	**984**	**0.82**	**727**	**1078**	**1.00**	**892**	1160	1.19	1060	1235	1.39	1230	1303	1.58	1403
2100	**1024**	**0.93**	**823**	**1115**	**1.12**	**997**	1195	1.32	1173	1268	1.52	1350	1335	1.72	1531
2200	**1063**	**1.05**	**929**	1152	1.25	1111	1230	1.46	1294	1302	1.67	1480	1368	1.88	1668
2300	**1103**	**1.18**	**1044**	1189	1.39	1234	1266	1.60	1425	1337	1.82	1618	1402	2.04	1814
2400	1143	1.32	1168	1227	1.54	1367	1302	1.76	1566	1371	1.99	1767	1435	2.22	1970
2500	1183	1.47	1303	1265	1.70	1510	1339	1.93	1717	1406	2.17	1926	—	—	—
2600	1224	1.63	1448	1303	1.87	1663	1375	2.12	1878	1442	2.36	2095	—	—	—
2700	1264	1.81	1604	1342	2.06	1828	1412	2.31	2051	—	—	—	—	—	—
2800	1305	1.99	1772	1381	2.26	2003	—	—	—	—	—	—	—	—	—
2900	1346	2.20	1951	—	—	—	—	—	—	—	—	—	—	—	—
3000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

50HJQ007 (6 TONS) STANDARD MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1800	1304	1.51	1337	1365	1.69	1503	1422	1.88	1674	1477	2.08	1848	1528	2.28	2025
1900	1335	1.64	1454	1395	1.83	1627	1452	2.03	1804	1506	2.23	1984	—	—	—
2000	1366	1.78	1580	1426	1.98	1760	1482	2.19	1943	1535	2.40	2130	—	—	—
2100	1398	1.93	1715	1457	2.14	1901	1512	2.35	2091	—	—	—	—	—	—
2200	1430	2.09	1858	1488	2.31	2052	—	—	—	—	—	—	—	—	—
2300	1462	2.27	2012	—	—	—	—	—	—	—	—	—	—	—	—
2400	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1119 to 1585 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.40.
3. See page 114 for General Fan Performance Notes.

Performance data — 50HJQ (cont)

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50HJQ007 (6 TONS) HIGH-STATIC MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watt	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1800	**907**	**0.63**	**558**	**1006**	**0.80**	**708**	**1092**	**0.97**	**860**	**1169**	**1.14**	**1015**	**1239**	**1.32**	**1174**
1900	**945**	**0.72**	**638**	**1042**	**0.90**	**796**	**1126**	**1.08**	**956**	**1201**	**1.26**	**1119**	**1271**	**1.45**	**1285**
2000	**984**	**0.82**	**727**	**1078**	**1.00**	**892**	**1160**	**1.19**	**1060**	**1235**	**1.39**	**1230**	1303	1.58	1403
2100	**1024**	**0.93**	**823**	**1115**	**1.12**	**997**	**1195**	**1.32**	**1173**	**1268**	**1.52**	**1350**	1335	1.72	1531
2200	**1063**	**1.05**	**929**	**1152**	**1.25**	**1111**	**1230**	**1.46**	**1294**	1302	1.67	1480	1368	1.88	1668
2300	**1103**	**1.18**	**1044**	**1189**	**1.39**	**1234**	**1266**	**1.60**	**1425**	1337	1.82	1618	1402	2.04	1814
2400	**1143**	**1.32**	**1168**	**1227**	**1.54**	**1367**	1302	1.76	1566	1371	1.99	1767	1435	2.22	1970
2500	**1183**	**1.47**	**1303**	**1265**	**1.70**	**1510**	1339	1.93	1717	1406	2.17	1926	1470	2.41	2136
2600	**1224**	**1.63**	**1448**	1303	1.87	1663	1375	2.12	1878	1442	2.36	2095	1504	2.60	2313
2700	**1264**	**1.81**	**1604**	1342	2.06	1828	1412	2.31	2051	1478	2.56	2275	1539	2.82	2501
2800	1305	1.99	1772	1381	2.26	2003	1450	2.52	2235	1514	2.78	2467	—	—	—
2900	1346	2.20	1951	1420	2.47	2191	1488	2.74	2431	—	—	—	—	—	—
3000	1387	2.41	2142	1459	2.69	2391	—	—	—	—	—	—	—	—	—

50HJQ007 (6 TONS) HIGH-STATIC MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1800	1304	1.51	1337	1365	1.69	1503	1422	1.88	1674	1477	2.08	1848	1528	2.28	2025
1900	1335	1.64	1454	1395	1.83	1627	1452	2.03	1804	1506	2.23	1984	1557	2.44	2168
2000	1366	1.78	1580	1426	1.98	1760	1482	2.19	1943	1535	2.40	2130	1586	2.61	2319
2100	1398	1.93	1715	1457	2.14	1901	1512	2.35	2091	1565	2.57	2284	1616	2.79	2481
2200	1430	2.09	1858	1488	2.31	2052	1543	2.53	2249	1596	2.76	2449	—	—	—
2300	1462	2.27	2012	1520	2.49	2212	1574	2.72	2416	—	—	—	—	—	—
2400	1495	2.45	2175	1552	2.68	2383	—	—	—	—	—	—	—	—	—
2500	1529	2.64	2349	1585	2.89	2564	—	—	—	—	—	—	—	—	—
2600	1562	2.85	2533	—	—	—	—	—	—	—	—	—	—	—	—
2700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1300 to 1685 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.90.
3. See page 114 for General Fan Performance Notes.

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50HJQ008 (7 1/2 TONS) STANDARD MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2250	**511**	**0.53**	**492**	**591**	**0.73**	**680**	**660**	**0.95**	**885**	**722**	**1.19**	**1106**	779	1.44	1342
2300	**519**	**0.56**	**518**	**597**	**0.76**	**709**	**666**	**0.98**	**916**	**727**	**1.22**	**1140**	784	1.48	1378
2400	**534**	**0.61**	**571**	**611**	**0.82**	**768**	**678**	**1.05**	**982**	739	1.30	1210	795	1.56	1453
2500	**550**	**0.67**	**629**	**624**	**0.89**	**832**	**690**	**1.13**	**1051**	750	1.38	1285	805	1.64	1533
2550	**558**	**0.71**	**660**	**631**	**0.93**	**866**	**697**	**1.17**	**1088**	756	1.42	1324	811	1.69	1574
2600	**565**	**0.74**	**691**	**638**	**0.97**	**901**	**703**	**1.21**	**1125**	762	1.46	1365	816	1.73	1617
2700	**581**	**0.81**	**758**	**652**	**1.04**	**974**	**716**	**1.29**	**1204**	774	1.55	1449	828	1.83	1707
2800	**597**	**0.89**	**829**	**667**	**1.13**	**1051**	**729**	**1.38**	**1287**	786	1.65	1538	839	1.93	1801
2900	**613**	**0.97**	**905**	**681**	**1.22**	**1133**	742	1.48	1376	799	1.75	1632	851	2.04	1900
3000	**630**	**1.06**	**985**	**696**	**1.31**	**1220**	756	1.58	1469	811	1.86	1731	863	2.15	2004
3100	**646**	**1.15**	**1071**	**711**	**1.41**	**1313**	770	1.68	1568	824	1.97	1835	875	2.27	2114
3200	**663**	**1.25**	**1162**	**726**	**1.51**	**1411**	784	1.79	1672	837	2.09	1944	888	2.39	2229
3300	**679**	**1.35**	**1259**	741	1.62	1514	798	1.91	1781	851	2.21	2060	900	2.52	2351
3400	**696**	**1.46**	**1361**	756	1.74	1623	812	2.03	1896	864	2.34	2181	913	2.66	2478
3500	**713**	**1.58**	**1469**	772	1.86	1737	827	2.16	2017	878	2.48	2308	926	2.80	2610
3600	**729**	**1.70**	**1583**	787	1.99	1857	841	2.30	2144	892	2.62	2441	—	—	—
3700	746	1.83	1703	803	2.13	1985	856	2.44	2277	906	2.77	2580	—	—	—
3750	755	1.89	1766	811	2.20	2051	864	2.52	2346	913	2.84	2653	—	—	—

50HJQ008 (7 1/2 TONS) STANDARD MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2250	832	1.71	1592	882	1.99	1855	928	2.29	2131	**973**	**2.59**	**2420**	—	—	—
2300	837	1.75	1630	886	2.03	1896	933	2.33	2174	**977**	**2.64**	**2463**	—	—	—
2400	847	1.83	1710	896	2.12	1980	942	2.43	2262	**986**	**2.74**	**2556**	—	—	—
2500	857	1.92	1794	905	2.22	2069	**951**	**2.52**	**2355**	**995**	**2.84**	**2653**	—	—	—
2550	862	1.97	1838	910	2.27	2114	**956**	**2.58**	**2403**	**999**	**2.90**	**2704**	—	—	—
2600	867	2.02	1884	915	2.32	2162	**961**	**2.63**	**2453**	—	—	—	—	—	—
2700	878	2.12	1978	926	2.42	2261	**971**	**2.74**	**2556**	—	—	—	—	—	—
2800	889	2.23	2077	936	2.54	2365	**981**	**2.86**	**2664**	—	—	—	—	—	—
2900	900	2.34	2181	947	2.65	2474	—	—	—	—	—	—	—	—	—
3000	912	2.46	2290	**958**	**2.78**	**2588**	—	—	—	—	—	—	—	—	—
3100	923	2.58	2406	**969**	**2.90**	**2708**	—	—	—	—	—	—	—	—	—
3200	935	2.71	2526	—	—	—	—	—	—	—	—	—	—	—	—
3300	947	2.84	2652	—	—	—	—	—	—	—	—	—	—	—	—
3400	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3750	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 730 to 950 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.90.
3. See page 114 for General Fan Performance Notes.

Performance data — 50HJQ (cont)

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50HJQ008 (7½ TONS) HIGH-STATIC MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2250	**511**	**0.53**	**492**	**591**	**0.73**	**680**	**660**	**0.95**	**885**	**722**	**1.19**	**1106**	**779**	**1.44**	**1342**
2300	**519**	**0.56**	**518**	**597**	**0.76**	**709**	**666**	**0.98**	**916**	**727**	**1.22**	**1140**	**784**	**1.48**	**1378**
2400	**534**	**0.61**	**571**	**611**	**0.82**	**768**	**678**	**1.05**	**982**	**739**	**1.30**	**1210**	**795**	**1.56**	**1453**
2500	**550**	**0.67**	**629**	**624**	**0.89**	**832**	**690**	**1.13**	**1051**	**750**	**1.38**	**1285**	**805**	**1.64**	**1533**
2550	**558**	**0.71**	**660**	**631**	**0.93**	**866**	**697**	**1.17**	**1088**	**756**	**1.42**	**1324**	**811**	**1.69**	**1574**
2600	**565**	**0.74**	**691**	**638**	**0.97**	**901**	**703**	**1.21**	**1125**	**762**	**1.46**	**1365**	**816**	**1.73**	**1617**
2700	**581**	**0.81**	**758**	**652**	**1.04**	**974**	**716**	**1.29**	**1204**	**774**	**1.55**	**1449**	**828**	**1.83**	**1707**
2800	**597**	**0.89**	**829**	**667**	**1.13**	**1051**	**729**	**1.38**	**1287**	**786**	**1.65**	**1538**	**839**	**1.93**	**1801**
2900	**613**	**0.97**	**905**	**681**	**1.22**	**1133**	**742**	**1.48**	**1376**	**799**	**1.75**	**1632**	**851**	**2.04**	**1900**
3000	**630**	**1.06**	**985**	**696**	**1.31**	**1220**	**756**	**1.58**	**1469**	**811**	**1.86**	**1731**	863	2.15	2004
3100	**646**	**1.15**	**1071**	**711**	**1.41**	**1313**	**770**	**1.68**	**1568**	**824**	**1.97**	**1835**	875	2.27	2114
3200	**663**	**1.25**	**1162**	**726**	**1.51**	**1411**	**784**	**1.79**	**1672**	**837**	**2.09**	**1944**	888	2.39	2229
3300	**679**	**1.35**	**1259**	**741**	**1.62**	**1514**	**798**	**1.91**	**1781**	**851**	**2.21**	**2060**	900	2.52	2351
3400	**696**	**1.46**	**1361**	**756**	**1.74**	**1623**	**812**	**2.03**	**1896**	864	2.34	2181	913	2.66	2478
3500	**713**	**1.58**	**1469**	**772**	**1.86**	**1737**	**827**	**2.16**	**2017**	878	2.48	2308	926	2.80	2610
3600	**729**	**1.70**	**1583**	**787**	**1.99**	**1857**	**841**	**2.30**	**2144**	892	2.62	2441	939	2.95	2749
3700	**746**	**1.83**	**1703**	**803**	**2.13**	**1985**	**856**	**2.44**	**2277**	906	2.77	2580	953	3.10	2894
3750	**755**	**1.89**	**1766**	**811**	**2.20**	**2051**	864	2.52	2346	913	2.84	2653	959	3.18	2969

50HJQ008 (7½ TONS) HIGH-STATIC MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2250	**832**	**1.71**	**1592**	882	1.99	1855	928	2.29	2131	973	2.59	2420	1015	2.92	2720
2300	**837**	**1.75**	**1630**	886	2.03	1896	933	2.33	2174	977	2.64	2463	1020	2.97	2766
2400	**847**	**1.83**	**1710**	896	2.12	1980	942	2.43	2262	986	2.74	2556	1028	3.07	2861
2500	**857**	**1.92**	**1794**	905	2.22	2069	951	2.52	2355	995	2.84	2653	1037	3.18	2962
2550	862	1.97	1838	910	2.27	2114	956	2.58	2403	999	2.90	2704	1041	3.23	3014
2600	867	2.02	1884	915	2.32	2162	961	2.63	2453	1004	2.95	2755	1045	3.29	3068
2700	878	2.12	1978	926	2.42	2261	971	2.74	2556	1013	3.07	2862	1055	3.41	3180
2800	889	2.23	2077	936	2.54	2365	981	2.86	2664	1023	3.19	2975	1064	3.54	3297
2900	900	2.34	2181	947	2.65	2474	991	2.98	2778	1033	3.32	3094	1073	3.67	3419
3000	912	2.46	2290	958	2.78	2588	1001	3.11	2897	1043	3.45	3217	**1083**	**3.80**	**3547**
3100	923	2.58	2406	969	2.90	2708	1012	3.24	3022	1053	3.59	3347	**1093**	**3.95**	**3682**
3200	935	2.71	2526	980	3.04	2834	1023	3.38	3152	1064	3.73	3482	**1103**	**4.10**	**3821**
3300	947	2.84	2652	992	3.18	2966	1034	3.53	3289	1075	3.89	3623	—	—	—
3400	959	2.99	2785	1003	3.33	3103	1045	3.68	3432	**1086**	**4.04**	**3771**	—	—	—
3500	972	3.13	2923	1015	3.48	3246	1057	3.84	3581	—	—	—	—	—	—
3600	984	3.29	3068	1027	3.64	3396	1068	4.01	3736	—	—	—	—	—	—
3700	997	3.45	3218	1040	3.81	3553	1080	4.18	3897	—	—	—	—	—	—
3750	1004	3.54	3296	1046	3.90	3633	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 860 to 1080 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 3.70.
3. See page 114 for General Fan Performance Notes.

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50HJQ009 (8 1/2 TONS) STANDARD MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2500	**489**	**0.41**	**386**	**564**	**0.54**	**506**	**629**	**0.67**	**625**	**688**	**0.80**	**745**	**741**	**0.93**	**866**
2600	**502**	**0.45**	**424**	**576**	**0.59**	**548**	**640**	**0.72**	**672**	**697**	**0.85**	**797**	**750**	**0.99**	**923**
2700	**515**	**0.50**	**465**	**587**	**0.64**	**594**	**650**	**0.77**	**723**	**707**	**0.91**	**852**	**760**	**1.05**	**982**
2800	**529**	**0.55**	**508**	**599**	**0.69**	**642**	**661**	**0.83**	**776**	**718**	**0.98**	**910**	**769**	**1.12**	**1044**
2900	**542**	**0.59**	**555**	**611**	**0.74**	**693**	**672**	**0.89**	**832**	**728**	**1.04**	**970**	**779**	**1.19**	**1109**
3000	**556**	**0.65**	**604**	**623**	**0.80**	**748**	**684**	**0.95**	**891**	**738**	**1.11**	**1034**	**789**	**1.26**	**1177**
3100	**569**	**0.70**	**656**	**636**	**0.86**	**805**	**695**	**1.02**	**953**	**749**	**1.18**	**1100**	**799**	**1.34**	**1249**
3200	**583**	**0.76**	**712**	**648**	**0.93**	**865**	**707**	**1.09**	**1018**	**760**	**1.26**	**1170**	**809**	**1.42**	**1323**
3300	**597**	**0.83**	**770**	**661**	**1.00**	**929**	**718**	**1.17**	**1086**	**771**	**1.33**	**1244**	**820**	**1.50**	**1401**
3400	**611**	**0.89**	**832**	**674**	**1.07**	**996**	**730**	**1.24**	**1158**	**782**	**1.42**	**1320**	**831**	**1.59**	**1483**
3500	**625**	**0.96**	**898**	**687**	**1.14**	**1066**	**742**	**1.32**	**1233**	**794**	**1.50**	**1400**	841	1.68	1567
3600	**639**	**1.04**	**967**	**700**	**1.22**	**1140**	**754**	**1.41**	**1312**	**805**	**1.59**	**1484**	852	1.78	1656
3700	**654**	**1.11**	**1040**	**713**	**1.31**	**1218**	**767**	**1.50**	**1395**	**817**	**1.69**	**1571**	863	1.87	1748
3800	**668**	**1.20**	**1116**	**726**	**1.39**	**1299**	**779**	**1.59**	**1481**	**828**	**1.78**	**1662**	874	1.98	1844
3900	**683**	**1.28**	**1197**	**739**	**1.48**	**1385**	**792**	**1.69**	**1572**	840	1.88	1758	886	2.08	1943
4000	**697**	**1.37**	**1281**	**753**	**1.58**	**1474**	**804**	**1.79**	**1666**	852	1.99	1857	897	2.20	2048
4100	**712**	**1.47**	**1370**	**766**	**1.68**	**1567**	**817**	**1.89**	**1764**	864	2.10	1960	909	2.31	2155
4200	**726**	**1.57**	**1462**	**780**	**1.79**	**1665**	**830**	**2.00**	**1866**	876	2.22	2067	920	2.43	2268
4300	**741**	**1.67**	**1559**	**794**	**1.89**	**1767**	843	2.12	1973	889	2.34	2179	932	2.56	2384

50HJQ009 (8 1/2 TONS) STANDARD MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2500	**791**	**1.06**	**988**	**837**	**1.19**	**1112**	881	1.33	1236	922	1.46	1362	962	1.60	1490
2600	**799**	**1.12**	**1049**	845	1.26	1177	889	1.40	1306	930	1.54	1436	969	1.68	1568
2700	**808**	**1.19**	**1113**	854	1.34	1245	897	1.48	1378	938	1.62	1513	977	1.77	1648
2800	**817**	**1.26**	**1179**	863	1.41	1316	905	1.56	1454	946	1.71	1592	985	1.86	1732
2900	**827**	**1.34**	**1249**	872	1.49	1390	914	1.64	1532	954	1.80	1675	993	1.95	1819
3000	**836**	**1.42**	**1322**	881	1.57	1467	923	1.73	1613	963	1.89	1761	1001	2.05	1909
3100	846	1.50	1398	890	1.66	1547	932	1.82	1698	972	1.98	1849	1010	2.15	2002
3200	856	1.58	1477	899	1.75	1631	941	1.92	1786	980	2.08	1942	1018	2.25	2099
3300	866	1.67	1559	909	1.84	1718	950	2.01	1878	989	2.19	2038	1027	2.36	2199
3400	876	1.76	1645	919	1.94	1808	960	2.12	1972	998	2.29	2137	1036	2.47	2303
3500	886	1.86	1734	929	2.04	1902	969	2.22	2071	1008	2.40	2240	1045	2.58	2410
3600	897	1.96	1827	939	2.14	2000	979	2.33	2173	1017	2.52	2347	1054	2.70	2521
3700	907	2.06	1924	949	2.25	2101	989	2.44	2279	1027	2.63	2457	1063	2.83	2636
3800	918	2.17	2025	959	2.37	2207	999	2.56	2389	1036	2.76	2571	—	—	—
3900	929	2.28	2130	970	2.48	2316	1009	2.68	2502	1046	2.88	2690	—	—	—
4000	940	2.40	2238	980	2.61	2429	1019	2.81	2620	—	—	—	—	—	—
4100	951	2.52	2351	991	2.73	2547	—	—	—	—	—	—	—	—	—
4200	962	2.65	2468	1002	2.86	2668	—	—	—	—	—	—	—	—	—
4300	973	2.78	2589	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 840 to 1085 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.90.
3. See page 114 for General Fan Performance Notes.

Performance data — 50HJQ (cont)

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50HJQ009 (8 1/2 TONS) HIGH-STATIC MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2500	**489**	**0.41**	**386**	**564**	**0.54**	**506**	**629**	**0.67**	**625**	**688**	**0.80**	**745**	**741**	**0.93**	**866**
2600	**502**	**0.45**	**424**	**576**	**0.59**	**548**	**640**	**0.72**	**672**	**697**	**0.85**	**797**	**750**	**0.99**	**923**
2700	**515**	**0.50**	**465**	**587**	**0.64**	**594**	**650**	**0.77**	**723**	**707**	**0.91**	**852**	**760**	**1.05**	**982**
2800	**529**	**0.55**	**508**	**599**	**0.69**	**642**	**661**	**0.83**	**776**	**718**	**0.98**	**910**	**769**	**1.12**	**1044**
2900	**542**	**0.59**	**555**	**611**	**0.74**	**693**	**672**	**0.89**	**832**	**728**	**1.04**	**970**	**779**	**1.19**	**1109**
3000	**556**	**0.65**	**604**	**623**	**0.80**	**748**	**684**	**0.95**	**891**	**738**	**1.11**	**1034**	**789**	**1.26**	**1177**
3100	**569**	**0.70**	**656**	**636**	**0.86**	**805**	**695**	**1.02**	**953**	**749**	**1.18**	**1100**	**799**	**1.34**	**1249**
3200	**583**	**0.76**	**712**	**648**	**0.93**	**865**	**707**	**1.09**	**1018**	**760**	**1.26**	**1170**	**809**	**1.42**	**1323**
3300	**597**	**0.83**	**770**	**661**	**1.00**	**929**	**718**	**1.17**	**1086**	**771**	**1.33**	**1244**	**820**	**1.50**	**1401**
3400	**611**	**0.89**	**832**	**674**	**1.07**	**996**	**730**	**1.24**	**1158**	**782**	**1.42**	**1320**	**831**	**1.59**	**1483**
3500	**625**	**0.96**	**898**	**687**	**1.14**	**1066**	**742**	**1.32**	**1233**	**794**	**1.50**	**1400**	**841**	**1.68**	**1567**
3600	**639**	**1.04**	**967**	**700**	**1.22**	**1140**	**754**	**1.41**	**1312**	**805**	**1.59**	**1484**	**852**	**1.78**	**1656**
3700	**654**	**1.11**	**1040**	**713**	**1.31**	**1218**	**767**	**1.50**	**1395**	**817**	**1.69**	**1571**	863	1.87	1748
3800	**668**	**1.20**	**1116**	**726**	**1.39**	**1299**	**779**	**1.59**	**1481**	**828**	**1.78**	**1662**	874	1.98	1844
3900	**683**	**1.28**	**1197**	**739**	**1.48**	**1385**	**792**	**1.69**	**1572**	**840**	**1.88**	**1758**	886	2.08	1943
4000	**697**	**1.37**	**1281**	**753**	**1.58**	**1474**	**804**	**1.79**	**1666**	**852**	**1.99**	**1857**	897	2.20	2048
4100	**712**	**1.47**	**1370**	**766**	**1.68**	**1567**	**817**	**1.89**	**1764**	864	2.10	1960	909	2.31	2155
4200	**726**	**1.57**	**1462**	**780**	**1.79**	**1665**	**830**	**2.00**	**1866**	876	2.22	2067	920	2.43	2268
4300	**741**	**1.67**	**1559**	**794**	**1.89**	**1767**	**843**	**2.12**	**1973**	889	2.34	2179	932	2.56	2384

50HJQ009 (8 1/2 TONS) HIGH-STATIC MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2500	**791**	**1.06**	**988**	**837**	**1.19**	**1112**	881	1.33	1236	922	1.46	1362	962	1.60	1490
2600	**799**	**1.12**	**1049**	**845**	**1.26**	**1177**	889	1.40	1306	930	1.54	1436	969	1.68	1568
2700	**808**	**1.19**	**1113**	**854**	**1.34**	**1245**	897	1.48	1378	938	1.62	1513	977	1.77	1648
2800	**817**	**1.26**	**1179**	863	1.41	1316	905	1.56	1454	946	1.71	1592	985	1.86	1732
2900	**827**	**1.34**	**1249**	872	1.49	1390	914	1.64	1532	954	1.80	1675	993	1.95	1819
3000	**836**	**1.42**	**1322**	881	1.57	1467	923	1.73	1613	963	1.89	1761	1001	2.05	1909
3100	**846**	**1.50**	**1398**	890	1.66	1547	932	1.82	1698	972	1.98	1849	1010	2.15	2002
3200	**856**	**1.58**	**1477**	899	1.75	1631	941	1.92	1786	980	2.08	1942	1018	2.25	2099
3300	866	1.67	1559	909	1.84	1718	950	2.01	1878	989	2.19	2038	1027	2.36	2199
3400	876	1.76	1645	919	1.94	1808	960	2.12	1972	998	2.29	2137	1036	2.47	2303
3500	886	1.86	1734	929	2.04	1902	969	2.22	2071	1008	2.40	2240	1045	2.58	2410
3600	897	1.96	1827	939	2.14	2000	979	2.33	2173	1017	2.52	2347	1054	2.70	2521
3700	907	2.06	1924	949	2.25	2101	989	2.44	2279	1027	2.63	2457	1063	2.83	2636
3800	918	2.17	2025	959	2.37	2207	999	2.56	2389	1036	2.76	2571	1073	2.95	2755
3900	929	2.28	2130	970	2.48	2316	1009	2.68	2502	1046	2.88	2690	**1082**	**3.09**	**2877**
4000	940	2.40	2238	980	2.61	2429	1019	2.81	2620	1056	3.02	2812	**1092**	**3.22**	**3004**
4100	951	2.52	2351	991	2.73	2547	1029	2.94	2743	1066	3.15	2939	**1102**	**3.36**	**3136**
4200	962	2.65	2468	1002	2.86	2668	1040	3.08	2869	1076	3.29	3070	**1112**	**3.51**	**3271**
4300	973	2.78	2589	1013	3.00	2794	1050	3.22	2999	**1087**	**3.44**	**3205**	**1122**	**3.66**	**3411**

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 860 to 1080 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 3.70.
3. See page 114 for General Fan Performance Notes.

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50HJQ012 (10 TONS) STANDARD MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	**556**	**0.65**	**604**	**623**	**0.80**	**748**	**684**	**0.95**	**891**	**738**	**1.11**	**1034**	**789**	**1.26**	**1177**
3100	**569**	**0.70**	**656**	**636**	**0.86**	**805**	**695**	**1.02**	**953**	**749**	**1.18**	**1100**	**799**	**1.34**	**1249**
3200	**583**	**0.76**	**712**	**648**	**0.93**	**865**	**707**	**1.09**	**1018**	**760**	**1.26**	**1170**	**809**	**1.42**	**1323**
3300	**597**	**0.83**	**770**	**661**	**1.00**	**929**	**718**	**1.17**	**1086**	**771**	**1.33**	**1244**	**820**	**1.50**	**1401**
3400	**611**	**0.89**	**832**	**674**	**1.07**	**996**	**730**	**1.24**	**1158**	**782**	**1.42**	**1320**	**831**	**1.59**	**1483**
3500	**625**	**0.96**	**898**	**687**	**1.14**	**1066**	**742**	**1.32**	**1233**	**794**	**1.50**	**1400**	**841**	**1.68**	**1567**
3600	**639**	**1.04**	**967**	**700**	**1.22**	**1140**	**754**	**1.41**	**1312**	**805**	**1.59**	**1484**	**852**	**1.78**	**1656**
3700	**654**	**1.11**	**1040**	**713**	**1.31**	**1218**	**767**	**1.50**	**1395**	**817**	**1.69**	**1571**	863	1.87	1748
3800	**668**	**1.20**	**1116**	**726**	**1.39**	**1299**	**779**	**1.59**	**1481**	**828**	**1.78**	**1662**	874	1.98	1844
3900	**683**	**1.28**	**1197**	**739**	**1.48**	**1385**	**792**	**1.69**	**1572**	**840**	**1.88**	**1758**	886	2.08	1943
4000	**697**	**1.37**	**1281**	**753**	**1.58**	**1474**	**804**	**1.79**	**1666**	**852**	**1.99**	**1857**	897	2.20	2048
4100	**712**	**1.47**	**1370**	**766**	**1.68**	**1567**	**817**	**1.89**	**1764**	864	2.10	1960	909	2.31	2155
4200	**726**	**1.57**	**1462**	**780**	**1.79**	**1665**	**830**	**2.00**	**1866**	876	2.22	2067	920	2.43	2268
4300	**741**	**1.67**	**1559**	**794**	**1.89**	**1767**	**843**	**2.12**	**1973**	889	2.34	2179	932	2.56	2384
4400	**755**	**1.78**	**1660**	**807**	**2.01**	**1873**	**856**	**2.23**	**2084**	901	2.46	2295	944	2.69	2505
4500	**770**	**1.89**	**1766**	**821**	**2.13**	**1984**	869	2.36	2200	914	2.59	2415	956	2.82	2630
4600	**785**	**2.01**	**1876**	**835**	**2.25**	**2099**	882	2.49	2320	926	2.72	2541	968	2.96	2760
4700	**800**	**2.14**	**1991**	**849**	**2.38**	**2219**	895	2.62	2445	939	2.86	2670	980	3.10	2895
4800	**815**	**2.26**	**2111**	863	2.51	2344	909	2.76	2575	952	3.01	2805	993	3.25	3034
4900	**829**	**2.40**	**2235**	877	2.65	2473	922	2.91	2709	965	3.16	2944	1005	3.41	3178
5000	**844**	**2.54**	**2365**	891	2.80	2608	936	3.06	2849	978	3.31	3089	1018	3.57	3328

50HJQ012 (10 TONS) STANDARD MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	**836**	**1.42**	**1322**	881	1.57	1467	923	1.73	1613	963	1.89	1761	1001	2.05	1909
3100	**846**	**1.50**	**1398**	890	1.66	1547	932	1.82	1698	972	1.98	1849	1010	2.15	2002
3200	**856**	**1.58**	**1477**	899	1.75	1631	941	1.92	1786	980	2.08	1942	1018	2.25	2099
3300	866	1.67	1559	909	1.84	1718	950	2.01	1878	989	2.19	2038	1027	2.36	2199
3400	876	1.76	1645	919	1.94	1808	960	2.12	1972	998	2.29	2137	1036	2.47	2303
3500	886	1.86	1734	929	2.04	1902	969	2.22	2071	1008	2.40	2240	1045	2.58	2410
3600	897	1.96	1827	939	2.14	2000	979	2.33	2173	1017	2.52	2347	1054	2.70	2521
3700	907	2.06	1924	949	2.25	2101	989	2.44	2279	1027	2.63	2457	1063	2.83	2636
3800	918	2.17	2025	959	2.37	2207	999	2.56	2389	1036	2.76	2571	1073	2.95	2755
3900	929	2.28	2130	970	2.48	2316	1009	2.68	2502	1046	2.88	2690	**1082**	**3.09**	**2877**
4000	940	2.40	2238	980	2.61	2429	1019	2.81	2620	1056	3.02	2812	**1092**	**3.22**	**3004**
4100	951	2.52	2351	991	2.73	2547	1029	2.94	2743	1066	3.15	2939	**1102**	**3.36**	**3136**
4200	962	2.65	2468	1002	2.86	2668	1040	3.08	2869	1076	3.29	3070	**1112**	**3.51**	**3271**
4300	973	2.78	2589	1013	3.00	2794	1050	3.22	2999	**1087**	**3.44**	**3205**	**1122**	**3.66**	**3411**
4400	985	2.91	2715	1024	3.14	2924	1061	3.36	3134	**1097**	**3.59**	**3345**	—	—	—
4500	996	3.05	2845	1035	3.28	3059	1072	3.51	3274	—	—	—	—	—	—
4600	1008	3.20	2979	1046	3.43	3199	**1083**	**3.67**	**3418**	—	—	—	—	—	—
4700	1020	3.34	3119	1058	3.58	3343	—	—	—	—	—	—	—	—	—
4800	1032	3.50	3263	—	—	—	—	—	—	—	—	—	—	—	—
4900	1044	3.66	3413	—	—	—	—	—	—	—	—	—	—	—	—
5000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 860 to 1080 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 3.70.
3. See page 114 for General Fan Performance Notes.

Performance data — 50HJQ (cont)

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50HJQ012 (10 TONS) HIGH-STATIC MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	**556**	**0.65**	**604**	**623**	**0.80**	**748**	**684**	**0.95**	**891**	**738**	**1.11**	**1034**	**789**	**1.26**	**1177**
3100	**569**	**0.70**	**656**	**636**	**0.86**	**805**	**695**	**1.02**	**953**	**749**	**1.18**	**1100**	**799**	**1.34**	**1249**
3200	**583**	**0.76**	**712**	**648**	**0.93**	**865**	**707**	**1.09**	**1018**	**760**	**1.26**	**1170**	**809**	**1.42**	**1323**
3300	**597**	**0.83**	**770**	**661**	**1.00**	**929**	**718**	**1.17**	**1086**	**771**	**1.33**	**1244**	**820**	**1.50**	**1401**
3400	**611**	**0.89**	**832**	**674**	**1.07**	**996**	**730**	**1.24**	**1158**	**782**	**1.42**	**1320**	**831**	**1.59**	**1483**
3500	**625**	**0.96**	**898**	**687**	**1.14**	**1066**	**742**	**1.32**	**1233**	**794**	**1.50**	**1400**	**841**	**1.68**	**1567**
3600	**639**	**1.04**	**967**	**700**	**1.22**	**1140**	**754**	**1.41**	**1312**	**805**	**1.59**	**1484**	**852**	**1.78**	**1656**
3700	**654**	**1.11**	**1040**	**713**	**1.31**	**1218**	**767**	**1.50**	**1395**	**817**	**1.69**	**1571**	**863**	**1.87**	**1748**
3800	**668**	**1.20**	**1116**	**726**	**1.39**	**1299**	**779**	**1.59**	**1481**	**828**	**1.78**	**1662**	**874**	**1.98**	**1844**
3900	**683**	**1.28**	**1197**	**739**	**1.48**	**1385**	**792**	**1.69**	**1572**	**840**	**1.88**	**1758**	**886**	**2.08**	**1943**
4000	**697**	**1.37**	**1281**	**753**	**1.58**	**1474**	**804**	**1.79**	**1666**	**852**	**1.99**	**1857**	**897**	**2.20**	**2048**
4100	**712**	**1.47**	**1370**	**766**	**1.68**	**1567**	**817**	**1.89**	**1764**	**864**	**2.10**	**1960**	**909**	**2.31**	**2155**
4200	**726**	**1.57**	**1462**	**780**	**1.79**	**1665**	**830**	**2.00**	**1866**	**876**	**2.22**	**2067**	**920**	**2.43**	**2268**
4300	**741**	**1.67**	**1559**	**794**	**1.89**	**1767**	**843**	**2.12**	**1973**	**889**	**2.34**	**2179**	932	2.56	2384
4400	**755**	**1.78**	**1660**	**807**	**2.01**	**1873**	**856**	**2.23**	**2084**	**901**	**2.46**	**2295**	944	2.69	2505
4500	**770**	**1.89**	**1766**	**821**	**2.13**	**1984**	**869**	**2.36**	**2200**	**914**	**2.59**	**2415**	956	2.82	2630
4600	**785**	**2.01**	**1876**	**835**	**2.25**	**2099**	**882**	**2.49**	**2320**	926	2.72	2541	968	2.96	2760
4700	**800**	**2.14**	**1991**	**849**	**2.38**	**2219**	**895**	**2.62**	**2445**	939	2.86	2670	980	3.10	2895
4800	**815**	**2.26**	**2111**	**863**	**2.51**	**2344**	**909**	**2.76**	**2575**	952	3.01	2805	993	3.25	3034
4900	**829**	**2.40**	**2235**	**877**	**2.65**	**2473**	922	2.91	2709	965	3.16	2944	1005	3.41	3178
5000	**844**	**2.54**	**2365**	**891**	**2.80**	**2608**	936	3.06	2849	978	3.31	3089	1018	3.57	3328

50HJQ012 (10 TONS) HIGH-STATIC MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	**836**	**1.42**	**1322**	**881**	**1.57**	**1467**	923	1.73	1613	963	1.89	1761	1001	2.05	1909
3100	**846**	**1.50**	**1398**	**890**	**1.66**	**1547**	932	1.82	1698	972	1.98	1849	1010	2.15	2002
3200	**856**	**1.58**	**1477**	**899**	**1.75**	**1631**	941	1.92	1786	980	2.08	1942	1018	2.25	2099
3300	**866**	**1.67**	**1559**	**909**	**1.84**	**1718**	950	2.01	1878	989	2.19	2038	1027	2.36	2199
3400	**876**	**1.76**	**1645**	**919**	**1.94**	**1808**	960	2.12	1972	998	2.29	2137	1036	2.47	2303
3500	**886**	**1.86**	**1734**	929	2.04	1902	969	2.22	2071	1008	2.40	2240	1045	2.58	2410
3600	**897**	**1.96**	**1827**	939	2.14	2000	979	2.33	2173	1017	2.52	2347	1054	2.70	2521
3700	**907**	**2.06**	**1924**	949	2.25	2101	989	2.44	2279	1027	2.63	2457	1063	2.83	2636
3800	**918**	**2.17**	**2025**	959	2.37	2207	999	2.56	2389	1036	2.76	2571	1073	2.95	2755
3900	929	2.28	2130	970	2.48	2316	1009	2.68	2502	1046	2.88	2690	1082	3.09	2877
4000	940	2.40	2238	980	2.61	2429	1019	2.81	2620	1056	3.02	2812	1092	3.22	3004
4100	951	2.52	2351	991	2.73	2547	1029	2.94	2743	1066	3.15	2939	1102	3.36	3136
4200	962	2.65	2468	1002	2.86	2668	1040	3.08	2869	1076	3.29	3070	1112	3.51	3271
4300	973	2.78	2589	1013	3.00	2794	1050	3.22	2999	1087	3.44	3205	1122	3.66	3411
4400	985	2.91	2715	1024	3.14	2924	1061	3.36	3134	1097	3.59	3345	1132	3.81	3555
4500	996	3.05	2845	1035	3.28	3059	1072	3.51	3274	1108	3.74	3489	1142	3.97	3704
4600	1008	3.20	2979	1046	3.43	3199	1083	3.67	3418	1118	3.90	3638	1152	4.14	3857
4700	1020	3.34	3119	1058	3.58	3343	1094	3.83	3567	1129	4.07	3792	1163	4.31	4016
4800	1032	3.50	3263	1069	3.74	3492	1105	3.99	3721	1140	4.24	3950	1174	4.48	4179
4900	1044	3.66	3413	1081	3.91	3646	1117	4.16	3880	1151	4.41	4113	1184	4.66	4347
5000	1056	3.82	3566	1093	4.08	3805	1128	4.34	4044	1162	4.59	4282	1195	4.85	4520

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 922 to 1219 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 5.25.
3. See page 114 for General Fan Performance Notes.

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50HJQ014 (208/230 V AND 460 V) (12 1/2 TONS)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
3750	724	481	0.55	838	685	0.78	937	889	1.01	1028	1097	1.25	1111	1309	1.49
4000	754	613	0.70	865	824	0.94	962	1034	1.18	1050	1247	1.42	1131	1463	1.67
4250	786	757	0.86	893	975	1.11	987	1191	1.36	1073	1408	1.60	1152	1629	1.86
4500	818	914	1.04	922	1138	1.30	1013	1360	1.55	1097	1583	1.80	1174	1808	2.06
4750	850	1084	1.23	951	1313	1.50	1040	1541	1.76	1122	1770	2.02	1197	2000	2.28
5000	883	1267	1.44	980	1501	1.71	1068	1736	1.98	1147	1969	2.24	1221	2204	2.51
5250	917	1464	1.67	1011	1703	1.94	1096	1943	2.21	1174	2183	2.49	1246	2423	2.76
5500	950	1675	1.91	1041	1918	2.19	1124	2165	2.47	1201	2409	2.75	1272	2655	3.02
5750	985	1901	2.17	1072	2147	2.45	1153	2400	2.73	1228	2650	3.02	1298	2901	3.31
6000	1020	2142	2.44	1103	2391	2.72	1183	2649	3.02	1256	2905	3.31	1324	3160	3.60
6250	1055	2398	2.73	1135	2650	3.02	1213	2912	3.32	1284	3175	3.62	1352	3435	3.91

50HJQ014 (208/230 V AND 460 V) (12 1/2 TONS)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
3750	1190	1526	1.74	1265	1746	1.99	1337	1972	2.25	1405	2199	2.51	1471	2431	2.77
4000	1208	1684	1.92	1281	1908	2.17	1351	2136	2.43	1418	2368	2.70	1483	2603	2.97
4250	1227	1853	2.11	1299	2082	2.37	1367	2313	2.64	1433	2548	2.90	1496	2787	3.18
4500	1247	2036	2.32	1317	2268	2.58	1384	2503	2.85	1448	2742	3.12	1510	2983	3.40
4750	1269	2232	2.54	1337	2468	2.81	1403	2707	3.08	1465	2948	3.36	1526	3194	3.64
5000	1291	2441	2.78	1358	2680	3.05	1422	2923	3.33	1484	3168	3.61	1544	3418	3.89
5250	1315	2664	3.03	1380	2907	3.31	1443	3154	3.59	1503	3403	3.88	1562	3655	4.16
5500	1339	2900	3.30	1403	3148	3.59	1464	3398	3.87	1524	3651	4.16	—	—	—
5750	1364	3151	3.59	1426	3403	3.88	1486	3657	4.17	—	—	—	—	—	—
6000	1389	3416	3.89	1450	3672	4.18	—	—	—	—	—	—	—	—	—
6250	1415	3695	4.21	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
FIOP — Factory-Installed Option
Watts — Input Watts to Motor

*Standard drive range is 891 to 1179 rpm. Alternate drive range is 1227 to 1559. Other rpms may require a field-supplied drive.

NOTES:
1. Maximum continuous bhp is 4.25 and maximum continuous watts are 3775. Do not adjust motor rpm such that motor maximum bhp and/or watts is exceeded at the maximum operating cfm.
2. Fan performance is identical for horizontal discharge applications using horizontal adapter curb (CRRFCURB013A00).
3. See page 114 for General Fan Performance notes.

50HJQ014 (575 V) (12 1/2 TONS)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
3750	724	481	0.55	838	685	0.78	937	889	1.01	1028	1097	1.25	1111	1309	1.49
4000	754	613	0.70	865	824	0.94	962	1034	1.18	1050	1247	1.42	1131	1463	1.67
4250	786	757	0.86	893	975	1.11	987	1191	1.36	1073	1408	1.60	1152	1629	1.86
4500	818	914	1.04	922	1138	1.30	1013	1360	1.55	1097	1583	1.80	1174	1808	2.06
4750	850	1084	1.23	951	1313	1.50	1040	1541	1.76	1122	1770	2.02	1197	2000	2.28
5000	883	1267	1.44	980	1501	1.71	1068	1736	1.98	1147	1969	2.24	1221	2204	2.51
5250	917	1464	1.67	1011	1703	1.94	1096	1943	2.21	1174	2183	2.49	1246	2423	2.76
5500	950	1675	1.91	1041	1918	2.19	1124	2165	2.47	1201	2409	2.75	1272	2655	3.02
5750	985	1901	2.17	1072	2147	2.45	1153	2400	2.73	1228	2650	3.02	1298	2901	3.31
6000	1020	2142	2.44	1103	2391	2.72	1183	2649	3.02	1256	2905	3.31	—	—	—
6250	1055	2398	2.73	1135	2650	3.02	1213	2912	3.32	—	—	—	—	—	—

50HJQ014 (575 V) (12 1/2 TONS)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
3750	1190	1526	1.74	1265	1746	1.99	1337	1972	2.25	1405	2199	2.51	1471	2431	2.77
4000	1208	1684	1.92	1281	1908	2.17	1351	2136	2.43	1418	2368	2.70	1483	2603	2.97
4250	1227	1853	2.11	1299	2082	2.37	1367	2313	2.64	1433	2548	2.90	1496	2787	3.18
4500	1247	2036	2.32	1317	2268	2.58	1384	2503	2.85	1448	2742	3.12	1510	2983	3.40
4750	1269	2232	2.54	1337	2468	2.81	1403	2707	3.08	1465	2948	3.36	—	—	—
5000	1291	2441	2.78	1358	2680	3.05	1422	2923	3.33	—	—	—	—	—	—
5250	1315	2664	3.03	1380	2907	3.31	—	—	—	—	—	—	—	—	—
5500	1339	2900	3.30	—	—	—	—	—	—	—	—	—	—	—	—
5750	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6250	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
FIOP — Factory-Installed Option
Watts — Input Watts to Motor

*Factory-shipped motor drive range is 1159 to 1429 rpm. Other rpms may require a field-supplied drive.

NOTES:
1. Maximum continuous bhp is 3.45 and maximum continuous watts are 3065. Do not adjust motor rpm such that motor maximum bhp and/or watts is exceeded at the maximum operating cfm.
2. Fan performance is identical for horizontal discharge applications using horizontal adapter curb (CRRFCURB013A00).
3. See page 114 for General Fan Performance notes.

Performance data — 50HJQ (cont)

FAN PERFORMANCE — VERTICAL DISCHARGE UNITS (cont)

50HJQ016 (15 TONS)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
4500	584	717	0.8	695	952	1.1	798	1205	1.3	893	1483	1.7	984	1786	2.0
4800	609	839	0.9	717	1085	1.2	815	1346	1.5	907	1630	1.8	994	1938	2.2
5100	634	971	1.1	738	1229	1.4	833	1500	1.7	921	1791	2.0	1006	2104	2.4
5400	660	1118	1.3	760	1389	1.6	852	1669	1.9	937	1968	2.2	1019	2286	2.6
5700	687	1284	1.4	783	1566	1.8	873	1858	2.1	956	2165	2.4	1034	2490	2.8
6000	712	1458	1.6	805	1752	2.0	892	2055	2.3	973	2371	2.7	1049	2703	3.0
6300	736	1644	1.8	826	1952	2.2	911	2265	2.5	990	2591	2.9	1064	2930	3.3
6600	763	1856	2.1	851	2176	2.4	933	2502	2.8	1010	2837	3.2	1082	3186	3.6
6900	788	2078	2.3	873	2410	2.7	954	2747	3.1	1029	3093	3.5	1099	3451	3.9
7200	813	2316	2.6	896	2662	3.0	975	3011	3.4	1048	3367	3.8	1117	3734	4.2
7500	841	2584	2.9	921	2943	3.3	998	3304	3.7	1070	3672	4.1	1137	4049	4.5

50HJQ016 (15 TONS)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
4500	1070	2113	2.4	1151	2458	2.8	1229	2819	3.2	1302	3194	3.6	—	—	—
4800	1078	2269	2.5	1157	2620	2.9	1233	2990	3.3	1306	3374	3.8	—	—	—
5100	1086	2439	2.7	1164	2795	3.1	1238	3170	3.5	—	—	—	—	—	—
5400	1097	2626	2.9	1172	2986	3.3	1245	3366	3.8	—	—	—	—	—	—
5700	1110	2835	3.2	1183	3200	3.6	1253	3584	4.0	—	—	—	—	—	—
6000	1122	3053	3.4	1193	3422	3.8	1262	3810	4.3	—	—	—	—	—	—
6300	1135	3286	3.7	1204	3660	4.1	1271	4052	4.5	—	—	—	—	—	—
6600	1151	3549	4.0	1218	3928	4.4	1283	4325	4.8	—	—	—	—	—	—
6900	1167	3821	4.3	1232	4207	4.7	1295	4608	5.2	—	—	—	—	—	—
7200	1183	4113	4.6	1246	4505	5.0	—	—	—	—	—	—	—	—	—
7500	1202	4437	5.0	1264	4837	5.4	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
FIOP — Factory-Installed Option
Watts — Input Watts to Motor

*Standard drive range is 817 to 1038 rpm. Alternate drive range is 1082 to 1303. Other rpms may require a field-supplied drive.

NOTES:
1. Maximum continuous bhp is 5.90 and maximum continuous watts are 5180. Do not adjust motor rpm such that motor maximum bhp and/or watts is exceeded at the maximum operating cfm.
2. Fan performance is identical for horizontal discharge applications using horizontal adapter curb (CRRFCURB013A00).
3. See this page for General Fan Performance notes.

GENERAL NOTES FOR FAN PERFORMANCE TABLES

1. Extensive motor and electrical testing on these units ensures that the full range of the motor can be utilized with confidence. Using your fan motors up to the wattage ratings shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected. For additional information on motor performance, refer to Indoor-Fan Motor Performance table on page 127.
2. Values include losses for filters, unit casing, and wet coils. See page 128 for accessory/FIOP static pressure information.
3. Use of a field-supplied motor may affect wire sizing. Contact your Carrier representative for details.
4. Interpolation is permissible. Do not extrapolate.

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS

50HJQ004 (3 TONS) STANDARD MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
900	**554**	**0.14**	**134**	681	0.22	222	783	0.32	316	870	0.42	416	947	0.53	523
1000	**583**	**0.16**	**163**	707	0.26	257	808	0.36	358	894	0.47	465	971	0.58	578
1100	**612**	**0.20**	**195**	735	0.30	298	834	0.41	406	919	0.52	519	995	0.64	638
1200	**643**	**0.23**	**233**	762	0.35	344	860	0.46	459	944	0.58	579	1020	0.71	705
1300	**674**	**0.28**	**276**	791	0.40	395	887	0.52	517	970	0.65	645	**1045**	**0.78**	**777**
1400	706	0.33	324	820	0.45	451	914	0.59	582	997	0.72	717	**1071**	**0.86**	**857**
1500	738	0.38	379	849	0.52	515	942	0.66	653	1024	0.80	796	**1097**	**0.95**	**942**

50HJQ004 (3 TONS) STANDARD MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
900	1017	0.64	635	1082	0.76	753	**1143**	**0.88**	**876**	**1200**	**1.01**	**1004**	**1254**	**1.14**	**1136**
1000	1041	0.70	696	**1105**	**0.82**	**820**	**1166**	**0.95**	**948**	**1223**	**1.09**	**1081**	—	—	—
1100	**1065**	**0.77**	**763**	**1129**	**0.90**	**892**	**1189**	**1.03**	**1026**	**1245**	**1.17**	**1165**	—	—	—
1200	**1089**	**0.84**	**835**	**1153**	**0.98**	**971**	**1212**	**1.12**	**1111**	—	—	—	—	—	—
1300	**1114**	**0.92**	**915**	**1177**	**1.06**	**1056**	—	—	—	—	—	—	—	—	—
1400	**1139**	**1.01**	**1000**	**1202**	**1.15**	**1149**	—	—	—	—	—	—	—	—	—
1500	**1164**	**1.10**	**1093**	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 680 to 1044 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 1.20.
3. See page 114 for General Fan Performance Notes.

50HJQ004 (3 TONS) HIGH-STATIC MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
900	**554**	**0.14**	**134**	**681**	**0.22**	**222**	**783**	**0.32**	**316**	**870**	**0.42**	**416**	**947**	**0.53**	**523**
1000	**583**	**0.16**	**163**	**707**	**0.26**	**257**	**808**	**0.36**	**358**	**894**	**0.47**	**465**	**971**	**0.58**	**578**
1100	**612**	**0.20**	**195**	**735**	**0.30**	**298**	**834**	**0.41**	**406**	**919**	**0.52**	**519**	**995**	**0.64**	**638**
1200	**643**	**0.23**	**233**	**762**	**0.35**	**344**	**860**	**0.46**	**459**	**944**	**0.58**	**579**	**1020**	**0.71**	**705**
1300	**674**	**0.28**	**276**	**791**	**0.40**	**395**	**887**	**0.52**	**517**	**970**	**0.65**	**645**	**1045**	**0.78**	**777**
1400	**706**	**0.33**	**324**	**820**	**0.45**	**451**	**914**	**0.59**	**582**	**997**	**0.72**	**717**	**1071**	**0.86**	**857**
1500	**738**	**0.38**	**379**	**849**	**0.52**	**515**	**942**	**0.66**	**653**	**1024**	**0.80**	**796**	1097	0.95	942

50HJQ004 (3 TONS) HIGH-STATIC MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
900	**1017**	**0.64**	**635**	1082	0.76	753	1143	0.88	876	1200	1.01	1004	1254	1.14	1136
1000	**1041**	**0.70**	**696**	1105	0.82	820	1166	0.95	948	1223	1.09	1081	1276	1.23	1219
1100	**1065**	**0.77**	**763**	1129	0.90	892	1189	1.03	1026	1245	1.17	1165	1299	1.32	1308
1200	1089	0.84	835	1153	0.98	971	1212	1.12	1111	1269	1.26	1256	1322	1.41	1404
1300	1114	0.92	915	1177	1.06	1056	1236	1.21	1202	1292	1.36	1353	1346	1.52	1508
1400	1139	1.01	1000	1202	1.15	1149	1261	1.31	1301	1316	1.47	1457	1369	1.63	1618
1500	1164	1.10	1093	1227	1.25	1248	1285	1.41	1407	1341	1.58	1570	1394	1.75	1736

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1075 to 1455 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.40.
3. See page 114 for General Fan Performance Notes.

Performance data — 50HJQ (cont)

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50HJQ005 (4 TONS) STANDARD MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1200	**643**	**0.23**	**233**	**762**	**0.35**	**344**	860	0.46	459	944	0.58	579	1020	0.71	705
1300	**674**	**0.28**	**276**	791	0.40	395	887	0.52	517	970	0.65	645	1045	0.78	777
1400	**706**	**0.33**	**324**	820	0.45	451	914	0.59	582	997	0.72	717	1071	0.86	857
1500	**738**	**0.38**	**379**	849	0.52	515	942	0.66	653	1024	0.80	796	1097	0.95	942
1600	771	0.44	440	879	0.59	584	971	0.74	731	1051	0.89	881	1124	1.04	1035
1700	804	0.51	507	910	0.66	661	1000	0.82	816	1079	0.98	974	1151	1.14	1136
1800	837	0.59	582	941	0.75	745	1029	0.91	909	1107	1.08	1075	—	—	—
1900	871	0.67	665	972	0.84	837	1059	1.02	1010	1136	1.19	1184	—	—	—
2000	906	0.76	756	1004	0.94	938	1089	1.12	1119	—	—	—	—	—	—

50HJQ005 (4 TONS) STANDARD MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1200	1089	0.84	835	1153	0.98	971	**1212**	**1.12**	**1111**	—	—	—	—	—	—
1300	1114	0.92	915	1177	1.06	1056	—	—	—	—	—	—	—	—	—
1400	1139	1.01	1000	**1202**	**1.15**	**1149**	—	—	—	—	—	—	—	—	—
1500	1164	1.10	1093	—	—	—	—	—	—	—	—	—	—	—	—
1600	**1190**	**1.20**	**1193**	—	—	—	—	—	—	—	—	—	—	—	—
1700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 770 to 1185 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 1.20.
3. See page 114 for General Fan Performance Notes.

50HJQ005 (4 TONS) HIGH-STATIC MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1200	**643**	**0.23**	**233**	**762**	**0.35**	**344**	**860**	**0.46**	**459**	**944**	**0.58**	**579**	**1020**	**0.71**	**705**
1300	**674**	**0.28**	**276**	**791**	**0.40**	**395**	**887**	**0.52**	**517**	**970**	**0.65**	**645**	**1045**	**0.78**	**777**
1400	**706**	**0.33**	**324**	**820**	**0.45**	**451**	**914**	**0.59**	**582**	**997**	**0.72**	**717**	**1071**	**0.86**	**857**
1500	**738**	**0.38**	**379**	**849**	**0.52**	**515**	**942**	**0.66**	**653**	**1024**	**0.80**	**796**	1097	0.95	942
1600	**771**	**0.44**	**440**	**879**	**0.59**	**584**	**971**	**0.74**	**731**	**1051**	**0.89**	**881**	1124	1.04	1035
1700	**804**	**0.51**	**507**	**910**	**0.66**	**661**	**1000**	**0.82**	**816**	1079	0.98	974	1151	1.14	1136
1800	**837**	**0.59**	**582**	**941**	**0.75**	**745**	**1029**	**0.91**	**909**	1107	1.08	1075	1178	1.25	1244
1900	**871**	**0.67**	**665**	**972**	**0.84**	**837**	**1059**	**1.02**	**1010**	1136	1.19	1184	1206	1.37	1361
2000	**906**	**0.76**	**756**	**1004**	**0.94**	**938**	1089	1.12	1119	1165	1.31	1301	1234	1.49	1486

50HJQ005 (4 TONS) HIGH-STATIC MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1200	1089	0.84	835	1153	0.98	971	1212	1.12	1111	1269	1.26	1256	1322	1.41	1404
1300	1114	0.92	915	1177	1.06	1056	1236	1.21	1202	1292	1.36	1353	1346	1.52	1508
1400	1139	1.01	1000	1202	1.15	1149	1261	1.31	1301	1316	1.47	1457	1369	1.63	1618
1500	1164	1.10	1093	1227	1.25	1248	1285	1.41	1407	1341	1.58	1570	1394	1.75	1736
1600	1190	1.20	1193	1252	1.36	1355	1311	1.53	1520	1366	1.70	1690	1418	1.87	1863
1700	1217	1.31	1301	1278	1.48	1470	1336	1.65	1642	1391	1.83	1818	1443	2.01	1998
1800	1244	1.42	1417	1305	1.60	1593	1362	1.78	1772	1416	1.97	1955	**1468**	**2.15**	**2141**
1900	1271	1.55	1541	1331	1.73	1724	1388	1.92	1911	1442	2.11	2101	**1494**	**2.31**	**2294**
2000	1298	1.68	1674	1358	1.87	1865	1415	2.07	2059	**1468**	**2.27**	**2256**	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1075 to 1455 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.40.
3. See page 114 for General Fan Performance Notes.

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50HJQ006 (5 TONS) STANDARD MOTOR (BELT DRIVE)* — SINGLE-PHASE UNITS

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watt	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1500	**724**	**0.33**	**295**	**837**	**0.45**	**402**	**937**	**0.59**	**524**	**1028**	**0.74**	**660**	1111	0.91	808
1600	**757**	**0.39**	**343**	**866**	**0.51**	**455**	**962**	**0.65**	**580**	1050	0.81	719	1132	0.98	870
1700	**790**	**0.45**	**398**	**894**	**0.58**	**514**	**988**	**0.72**	**643**	1074	0.88	784	1154	1.06	938
1800	**823**	**0.52**	**458**	**924**	**0.65**	**579**	**1015**	**0.80**	**712**	1099	0.96	857	1177	1.14	1013
1900	**857**	**0.59**	**525**	**955**	**0.73**	**650**	1043	0.89	787	1125	1.05	936	1201	1.23	1096
2000	**892**	**0.67**	**599**	**986**	**0.82**	**729**	1072	0.98	870	1151	1.15	1022	—	—	—
2100	**927**	**0.77**	**680**	**1017**	**0.92**	**815**	1101	1.08	960	1178	1.26	1116	—	—	—
2200	**962**	**0.87**	**769**	1050	1.02	909	1131	1.19	1059	—	—	—	—	—	—
2300	**997**	**0.97**	**865**	1082	1.14	1010	—	—	—	—	—	—	—	—	—
2400	**1033**	**1.09**	**970**	1115	1.26	1120	—	—	—	—	—	—	—	—	—
2500	1069	1.22	1084	—	—	—	—	—	—	—	—	—	—	—	—

50HJQ006 (5 TONS) STANDARD MOTOR (BELT DRIVE)* — SINGLE-PHASE UNITS (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1500	1188	1.09	970	1261	1.29	1143	—	—	—	—	—	—	—	—	—
1600	1208	1.16	1033	—	—	—	—	—	—	—	—	—	—	—	—
1700	1229	1.24	1103	—	—	—	—	—	—	—	—	—	—	—	—
1800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2100	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2300	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2400	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1035 to 1460 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 1.30.
3. See page 114 for General Fan Performance Notes.

50HJQ006 (5 TONS) STANDARD MOTOR (BELT DRIVE)* — THREE-PHASE UNITS

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1500	**724**	**0.33**	**295**	**837**	**0.45**	**402**	**937**	**0.59**	**524**	**1028**	**0.74**	**660**	1111	0.91	808
1600	**757**	**0.39**	**343**	**866**	**0.51**	**455**	**962**	**0.65**	**580**	1050	0.81	719	1132	0.98	870
1700	**790**	**0.45**	**398**	**894**	**0.58**	**514**	**988**	**0.72**	**643**	1074	0.88	784	1154	1.06	938
1800	**823**	**0.52**	**458**	**924**	**0.65**	**579**	**1015**	**0.80**	**712**	1099	0.96	857	1177	1.14	1013
1900	**857**	**0.59**	**525**	**955**	**0.73**	**650**	1043	0.89	787	1125	1.05	936	1201	1.23	1096
2000	**892**	**0.67**	**599**	**986**	**0.82**	**729**	1072	0.98	870	1151	1.15	1022	1226	1.33	1185
2100	**927**	**0.77**	**680**	**1017**	**0.92**	**815**	1101	1.08	960	1178	1.26	1116	1251	1.44	1283
2200	**962**	**0.87**	**769**	1050	1.02	909	1131	1.19	1059	1206	1.37	1218	1277	1.56	1389
2300	**997**	**0.97**	**865**	1082	1.14	1010	1161	1.31	1165	1235	1.50	1329	1304	1.69	1503
2400	**1033**	**1.09**	**970**	1115	1.26	1120	1192	1.44	1279	1264	1.63	1448	1332	1.83	1625
2500	1069	1.22	1084	1149	1.39	1239	1223	1.58	1403	1293	1.77	1576	1360	1.98	1757

50HJQ006 (5 TONS) STANDARD MOTOR (BELT DRIVE)* — THREE-PHASE UNITS (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1500	1188	1.09	970	1261	1.29	1143	1330	1.49	1327	1395	1.71	1523	1457	1.95	1729
1600	1208	1.16	1033	1279	1.36	1208	1347	1.57	1394	1412	1.79	1590	**1474**	**2.02**	**1797**
1700	1229	1.24	1103	1299	1.44	1280	1366	1.65	1468	1429	1.88	1665	**1490**	**2.11**	**1873**
1800	1250	1.33	1181	1319	1.53	1360	1385	1.74	1549	1448	1.97	1748	**1508**	**2.20**	**1957**
1900	1273	1.43	1266	1341	1.63	1447	1405	1.84	1638	**1467**	**2.07**	**1839**	**1527**	**2.31**	**2050**
2000	1296	1.53	1359	1363	1.74	1542	1427	1.95	1736	**1488**	**2.18**	**1939**	—	—	—
2100	1320	1.64	1459	1386	1.85	1646	1448	2.07	1842	**1508**	**2.30**	**2047**	—	—	—
2200	1345	1.77	1568	1409	1.98	1758	**1471**	**2.20**	**1956**	—	—	—	—	—	—
2300	1371	1.90	1686	1434	2.11	1878	**1494**	**2.34**	**2080**	—	—	—	—	—	—
2400	1397	2.04	1812	1459	2.26	2008	—	—	—	—	—	—	—	—	—
2500	1424	2.19	1948	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1035 to 1460 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.40.
3. See page 114 for General Fan Performance Notes.

Performance data — 50HJQ (cont)

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50HJQ006 (5 TONS) HIGH-STATIC MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1500	**724**	**0.33**	**295**	**837**	**0.45**	**402**	**937**	**0.59**	**524**	**1028**	**0.74**	**660**	**1111**	**0.91**	**808**
1600	**757**	**0.39**	**343**	**866**	**0.51**	**455**	**962**	**0.65**	**580**	**1050**	**0.81**	**719**	**1132**	**0.98**	**870**
1700	**790**	**0.45**	**398**	**894**	**0.58**	**514**	**988**	**0.72**	**643**	**1074**	**0.88**	**784**	**1154**	**1.06**	**938**
1800	**823**	**0.52**	**458**	**924**	**0.65**	**579**	**1015**	**0.80**	**712**	**1099**	**0.96**	**857**	**1177**	**1.14**	**1013**
1900	**857**	**0.59**	**525**	**955**	**0.73**	**650**	**1043**	**0.89**	**787**	**1125**	**1.05**	**936**	**1201**	**1.23**	**1096**
2000	**892**	**0.67**	**599**	**986**	**0.82**	**729**	**1072**	**0.98**	**870**	**1151**	**1.15**	**1022**	**1226**	**1.33**	**1185**
2100	**927**	**0.77**	**680**	**1017**	**0.92**	**815**	**1101**	**1.08**	**960**	**1178**	**1.26**	**1116**	**1251**	**1.44**	**1283**
2200	**962**	**0.87**	**769**	**1050**	**1.02**	**909**	**1131**	**1.19**	**1059**	**1206**	**1.37**	**1218**	**1277**	**1.56**	**1389**
2300	**997**	**0.97**	**865**	**1082**	**1.14**	**1010**	**1161**	**1.31**	**1165**	**1235**	**1.50**	**1329**	1304	1.69	1503
2400	**1033**	**1.09**	**970**	**1115**	**1.26**	**1120**	**1192**	**1.44**	**1279**	**1264**	**1.63**	**1448**	1332	1.83	1625
2500	**1069**	**1.22**	**1084**	**1149**	**1.39**	**1239**	**1223**	**1.58**	**1403**	**1293**	**1.77**	**1576**	1360	1.98	1757

50HJQ006 (5 TONS) HIGH-STATIC MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1500	**1188**	**1.09**	**970**	**1261**	**1.29**	**1143**	1330	1.49	1327	1395	1.71	1523	1457	1.95	1729
1600	**1208**	**1.16**	**1033**	**1279**	**1.36**	**1208**	1347	1.57	1394	1412	1.79	1590	1474	2.02	1797
1700	**1229**	**1.24**	**1103**	**1299**	**1.44**	**1280**	1366	1.65	1468	1429	1.88	1665	1490	2.11	1873
1800	**1250**	**1.33**	**1181**	1319	1.53	1360	1385	1.74	1549	1448	1.97	1748	1508	2.20	1957
1900	**1273**	**1.43**	**1266**	1341	1.63	1447	1405	1.84	1638	1467	2.07	1839	1527	2.31	2050
2000	**1296**	**1.53**	**1359**	1363	1.74	1542	1427	1.95	1736	1488	2.18	1939	1546	2.42	2151
2100	1320	1.64	1459	1386	1.85	1646	1448	2.07	1842	1508	2.30	2047	1566	2.55	2262
2200	1345	1.77	1568	1409	1.98	1758	1471	2.20	1956	1530	2.44	2164	1587	2.68	2380
2300	1371	1.90	1686	1434	2.11	1878	1494	2.34	2080	1553	2.58	2290	1609	2.83	2509
2400	1397	2.04	1812	1459	2.26	2008	1518	2.49	2213	1576	2.73	2425	—	—	—
2500	1424	2.19	1948	1484	2.42	2147	1543	2.65	2355	1599	2.89	2571	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1300 to 1685 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.90.
3. See page 114 for General Fan Performance Notes.

50HJQ007 (6 TONS) STANDARD MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1800	**822**	**0.51**	**455**	**927**	**0.66**	**589**	**1018**	**0.82**	**728**	**1100**	**0.98**	**873**	1174	1.15	1024
1900	**855**	**0.59**	**520**	**957**	**0.74**	**659**	**1046**	**0.91**	**805**	1127	1.08	956	1200	1.25	1113
2000	**889**	**0.66**	**591**	**988**	**0.83**	**737**	**1075**	**1.00**	**888**	1154	1.18	1045	1226	1.36	1208
2100	**923**	**0.75**	**668**	**1019**	**0.92**	**821**	**1104**	**1.10**	**979**	1182	1.29	1142	1253	1.48	1310
2200	**957**	**0.85**	**753**	**1051**	**1.03**	**912**	1134	1.21	1077	1210	1.40	1245	1280	1.60	1419
2300	**992**	**0.95**	**845**	**1083**	**1.14**	**1011**	1164	1.33	1182	1239	1.53	1357	1308	1.73	1537
2400	**1026**	**1.06**	**945**	**1115**	**1.26**	**1118**	1195	1.46	1295	1268	1.66	1476	1336	1.87	1662
2500	**1061**	**1.19**	**1053**	1148	1.39	1233	1226	1.59	1416	1297	1.81	1604	1364	2.02	1796
2600	**1097**	**1.32**	**1169**	1181	1.53	1356	1257	1.74	1546	1327	1.96	1740	1393	2.18	1938
2700	1132	1.46	1294	1214	1.67	1487	1289	1.90	1684	1358	2.12	1885	1422	2.35	2089
2800	1168	1.61	1428	1247	1.83	1629	1320	2.06	1832	1388	2.30	2039	—	—	—
2900	1204	1.77	1572	1281	2.00	1779	1353	2.24	1989	—	—	—	—	—	—
3000	1240	1.94	1725	1315	2.18	1939	—	—	—	—	—	—	—	—	—

50HJQ007 (6 TONS) STANDARD MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1800	1244	1.33	1182	1308	1.51	1345	1369	1.70	1513	1427	1.90	1687	1483	2.10	1867
1900	1268	1.44	1275	1332	1.63	1443	1393	1.82	1617	1450	2.02	1796	1505	2.23	1979
2000	1294	1.55	1376	1357	1.74	1549	1417	1.95	1727	1474	2.15	1911	1528	2.36	2100
2100	1320	1.67	1483	1382	1.87	1662	1441	2.08	1845	1498	2.29	2034	—	—	—
2200	1346	1.80	1598	1408	2.01	1782	1466	2.22	1971	—	—	—	—	—	—
2300	1372	1.94	1721	1434	2.15	1911	1491	2.37	2105	—	—	—	—	—	—
2400	1400	2.09	1852	1460	2.31	2047	—	—	—	—	—	—	—	—	—
2500	1427	2.24	1992	—	—	—	—	—	—	—	—	—	—	—	—
2600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1119 to 1585 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.40.
3. See page 114 for General Fan Performance Notes.

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50HJQ007 (6 TONS) HIGH-STATIC MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1800	**822**	**0.51**	**455**	**927**	**0.66**	**589**	**1018**	**0.82**	**728**	**1100**	**0.98**	**873**	**1174**	**1.15**	**1024**
1900	**855**	**0.59**	**520**	**957**	**0.74**	**659**	**1046**	**0.91**	**805**	**1127**	**1.08**	**956**	**1200**	**1.25**	**1113**
2000	**889**	**0.66**	**591**	**988**	**0.83**	**737**	**1075**	**1.00**	**888**	**1154**	**1.18**	**1045**	**1226**	**1.36**	**1208**
2100	**923**	**0.75**	**668**	**1019**	**0.92**	**821**	**1104**	**1.10**	**979**	**1182**	**1.29**	**1142**	**1253**	**1.48**	**1310**
2200	**957**	**0.85**	**753**	**1051**	**1.03**	**912**	**1134**	**1.21**	**1077**	**1210**	**1.40**	**1245**	**1280**	**1.60**	**1419**
2300	**992**	**0.95**	**845**	**1083**	**1.14**	**1011**	**1164**	**1.33**	**1182**	**1239**	**1.53**	**1357**	1308	1.73	1537
2400	**1026**	**1.06**	**945**	**1115**	**1.26**	**1118**	**1195**	**1.46**	**1295**	**1268**	**1.66**	**1476**	1336	1.87	1662
2500	**1061**	**1.19**	**1053**	**1148**	**1.39**	**1233**	**1226**	**1.59**	**1416**	**1297**	**1.81**	**1604**	1364	2.02	1796
2600	**1097**	**1.32**	**1169**	**1181**	**1.53**	**1356**	**1257**	**1.74**	**1546**	1327	1.96	1740	1393	2.18	1938
2700	**1132**	**1.46**	**1294**	**1214**	**1.67**	**1487**	**1289**	**1.90**	**1684**	1358	2.12	1885	1422	2.35	2089
2800	**1168**	**1.61**	**1428**	**1247**	**1.83**	**1629**	1320	2.06	1832	1388	2.30	2039	1452	2.53	2249
2900	**1204**	**1.77**	**1572**	**1281**	**2.00**	**1779**	1353	2.24	1989	1419	2.48	2202	1482	2.72	2419
3000	**1240**	**1.94**	**1725**	1315	2.18	1939	1385	2.43	2156	1451	2.68	2376	—	—	—

50HJQ007 (6 TONS) HIGH-STATIC MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
1800	**1244**	**1.33**	**1182**	1308	1.51	1345	1369	1.70	1513	1427	1.90	1687	1483	2.10	1867
1900	**1268**	**1.44**	**1275**	1332	1.63	1443	1393	1.82	1617	1450	2.02	1796	1505	2.23	1979
2000	**1294**	**1.55**	**1376**	1357	1.74	1549	1417	1.95	1727	1474	2.15	1911	1528	2.36	2100
2100	1320	1.67	1483	1382	1.87	1662	1441	2.08	1845	1498	2.29	2034	1552	2.51	2227
2200	1346	1.80	1598	1408	2.01	1782	1466	2.22	1971	1522	2.44	2165	1575	2.66	2363
2300	1372	1.94	1721	1434	2.15	1911	1491	2.37	2105	1547	2.59	2304	1600	2.82	2507
2400	1400	2.09	1852	1460	2.31	2047	1517	2.53	2247	1572	2.76	2451	—	—	—
2500	1427	2.24	1992	1487	2.47	2192	1543	2.70	2398	—	—	—	—	—	—
2600	1455	2.41	2140	1514	2.64	2346	1570	2.88	2557	—	—	—	—	—	—
2700	1483	2.59	2297	1541	2.83	2509	—	—	—	—	—	—	—	—	—
2800	1512	2.77	2463	—	—	—	—	—	—	—	—	—	—	—	—
2900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 1300 to 1685 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.90.
3. See page 114 for General Fan Performance Notes.

Performance data — 50HJQ (cont)

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50HJQ008 (7½ TONS) STANDARD MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2250	**465**	**0.43**	**402**	**555**	**0.64**	**596**	**629**	**0.86**	**802**	**694**	**1.10**	**1021**	753	1.34	1252
2300	**471**	**0.45**	**421**	**560**	**0.66**	**618**	**634**	**0.89**	**828**	**699**	**1.13**	**1050**	757	1.38	1283
2400	**483**	**0.49**	**461**	**571**	**0.71**	**665**	**644**	**0.94**	**881**	**708**	**1.19**	**1109**	766	1.45	1348
2500	**495**	**0.54**	**503**	**581**	**0.77**	**715**	**654**	**1.01**	**937**	**717**	**1.26**	**1171**	775	1.52	1416
2550	**501**	**0.56**	**526**	**587**	**0.79**	**740**	**659**	**1.04**	**967**	**722**	**1.29**	**1204**	779	1.56	1452
2600	**507**	**0.59**	**549**	**592**	**0.82**	**767**	**664**	**1.07**	**996**	**727**	**1.33**	**1237**	784	1.60	1488
2700	**519**	**0.64**	**597**	**603**	**0.88**	**823**	**674**	**1.14**	**1059**	737	1.40	1306	793	1.68	1563
2800	**532**	**0.70**	**649**	**614**	**0.95**	**882**	**684**	**1.21**	**1125**	746	1.48	1378	803	1.76	1641
2900	**544**	**0.75**	**703**	**625**	**1.01**	**944**	**695**	**1.28**	**1194**	756	1.56	1453	812	1.85	1723
3000	**557**	**0.82**	**761**	**637**	**1.08**	**1009**	**705**	**1.36**	**1266**	766	1.64	1533	822	1.94	1808
3100	**570**	**0.88**	**823**	**648**	**1.16**	**1079**	**716**	**1.44**	**1342**	776	1.73	1615	831	2.03	1897
3200	**583**	**0.95**	**888**	**660**	**1.23**	**1151**	**727**	**1.53**	**1422**	787	1.82	1702	841	2.13	1991
3300	**596**	**1.03**	**957**	**672**	**1.32**	**1228**	738	1.61	1506	797	1.92	1792	851	2.24	2088
3400	**609**	**1.10**	**1030**	**684**	**1.40**	**1308**	749	1.71	1593	808	2.02	1887	861	2.35	2188
3500	**622**	**1.19**	**1106**	**696**	**1.49**	**1392**	760	1.81	1685	818	2.13	1985	872	2.46	2294
3600	**635**	**1.27**	**1187**	**708**	**1.59**	**1481**	771	1.91	1781	829	2.24	2088	882	2.58	2403
3700	**649**	**1.36**	**1272**	**720**	**1.69**	**1573**	783	2.02	1881	840	2.35	2195	892	2.70	2517
3750	**655**	**1.41**	**1316**	**726**	**1.74**	**1621**	789	2.07	1932	845	2.41	2250	897	2.76	2575

50HJQ008 (7½ TONS) STANDARD MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2250	806	1.60	1494	856	1.87	1747	903	2.15	2009	947	2.45	2282	**988**	**2.75**	**2564**
2300	811	1.64	1528	860	1.91	1784	907	2.20	2048	950	2.49	2323	**992**	**2.80**	**2607**
2400	819	1.71	1599	868	1.99	1859	915	2.28	2129	**958**	**2.58**	**2410**	**1000**	**2.89**	**2698**
2500	828	1.79	1672	877	2.08	1938	923	2.37	2214	**966**	**2.68**	**2499**	—	—	—
2550	832	1.83	1710	881	2.12	1979	927	2.42	2258	**971**	**2.73**	**2545**	—	—	—
2600	836	1.88	1749	885	2.17	2021	931	2.47	2302	**975**	**2.78**	**2592**	—	—	—
2700	845	1.96	1830	894	2.26	2107	940	2.57	2394	**983**	**2.88**	**2689**	—	—	—
2800	854	2.05	1914	903	2.36	2197	948	2.67	2488	—	—	—	—	—	—
2900	864	2.15	2002	912	2.46	2290	**957**	**2.77**	**2587**	—	—	—	—	—	—
3000	873	2.24	2093	921	2.56	2388	**966**	**2.89**	**2691**	—	—	—	—	—	—
3100	882	2.35	2189	930	2.67	2489	—	—	—	—	—	—	—	—	—
3200	892	2.45	2288	939	2.78	2595	—	—	—	—	—	—	—	—	—
3300	901	2.56	2391	948	2.90	2704	—	—	—	—	—	—	—	—	—
3400	911	2.68	2499	—	—	—	—	—	—	—	—	—	—	—	—
3500	921	2.80	2610	—	—	—	—	—	—	—	—	—	—	—	—
3600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3750	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 730 to 950 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.90.
3. See page 114 for General Fan Performance Notes.

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50HJQ008 (7½ TONS) HIGH-STATIC MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2250	**465**	**0.43**	**402**	**555**	**0.64**	**596**	**629**	**0.86**	**802**	**694**	**1.10**	**1021**	**753**	**1.34**	**1252**
2300	**471**	**0.45**	**421**	**560**	**0.66**	**618**	**634**	**0.89**	**828**	**699**	**1.13**	**1050**	**757**	**1.38**	**1283**
2400	**483**	**0.49**	**461**	**571**	**0.71**	**665**	**644**	**0.94**	**881**	**708**	**1.19**	**1109**	**766**	**1.45**	**1348**
2500	**495**	**0.54**	**503**	**581**	**0.77**	**715**	**654**	**1.01**	**937**	**717**	**1.26**	**1171**	**775**	**1.52**	**1416**
2550	**501**	**0.56**	**526**	**587**	**0.79**	**740**	**659**	**1.04**	**967**	**722**	**1.29**	**1204**	**779**	**1.56**	**1452**
2600	**507**	**0.59**	**549**	**592**	**0.82**	**767**	**664**	**1.07**	**996**	**727**	**1.33**	**1237**	**784**	**1.60**	**1488**
2700	**519**	**0.64**	**597**	**603**	**0.88**	**823**	**674**	**1.14**	**1059**	**737**	**1.40**	**1306**	**793**	**1.68**	**1563**
2800	**532**	**0.70**	**649**	**614**	**0.95**	**882**	**684**	**1.21**	**1125**	**746**	**1.48**	**1378**	**803**	**1.76**	**1641**
2900	**544**	**0.75**	**703**	**625**	**1.01**	**944**	**695**	**1.28**	**1194**	**756**	**1.56**	**1453**	**812**	**1.85**	**1723**
3000	**557**	**0.82**	**761**	**637**	**1.08**	**1009**	**705**	**1.36**	**1266**	**766**	**1.64**	**1533**	**822**	**1.94**	**1808**
3100	**570**	**0.88**	**823**	**648**	**1.16**	**1079**	**716**	**1.44**	**1342**	**776**	**1.73**	**1615**	**831**	**2.03**	**1897**
3200	**583**	**0.95**	**888**	**660**	**1.23**	**1151**	**727**	**1.53**	**1422**	**787**	**1.82**	**1702**	**841**	**2.13**	**1991**
3300	**596**	**1.03**	**957**	**672**	**1.32**	**1228**	**738**	**1.61**	**1506**	**797**	**1.92**	**1792**	**851**	**2.24**	**2088**
3400	**609**	**1.10**	**1030**	**684**	**1.40**	**1308**	**749**	**1.71**	**1593**	**808**	**2.02**	**1887**	861	2.35	2188
3500	**622**	**1.19**	**1106**	**696**	**1.49**	**1392**	**760**	**1.81**	**1685**	**818**	**2.13**	**1985**	872	2.46	2294
3600	**635**	**1.27**	**1187**	**708**	**1.59**	**1481**	**771**	**1.91**	**1781**	**829**	**2.24**	**2088**	882	2.58	2403
3700	**649**	**1.36**	**1272**	**720**	**1.69**	**1573**	**783**	**2.02**	**1881**	**840**	**2.35**	**2195**	892	2.70	2517
3750	**655**	**1.41**	**1316**	**726**	**1.74**	**1621**	**789**	**2.07**	**1932**	**845**	**2.41**	**2250**	897	2.76	2575

50HJQ008 (7½ TONS) HIGH-STATIC MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2250	**806**	**1.60**	**1494**	**856**	**1.87**	**1747**	903	2.15	2009	947	2.45	2282	988	2.75	2564
2300	**811**	**1.64**	**1528**	860	1.91	1784	907	2.20	2048	950	2.49	2323	992	2.80	2607
2400	**819**	**1.71**	**1599**	868	1.99	1859	915	2.28	2129	958	2.58	2410	1000	2.89	2698
2500	**828**	**1.79**	**1672**	877	2.08	1938	923	2.37	2214	966	2.68	2499	1008	3.00	2793
2550	**832**	**1.83**	**1710**	881	2.12	1979	927	2.42	2258	971	2.73	2545	1012	3.05	2842
2600	**836**	**1.88**	**1749**	885	2.17	2021	931	2.47	2302	975	2.78	2592	1016	3.10	2891
2700	**845**	**1.96**	**1830**	894	2.26	2107	940	2.57	2394	983	2.88	2689	1024	3.21	2993
2800	**854**	**2.05**	**1914**	903	2.36	2197	948	2.67	2488	991	2.99	2790	1032	3.32	3099
2900	864	2.15	2002	912	2.46	2290	957	2.77	2587	1000	3.10	2894	1041	3.44	3209
3000	873	2.24	2093	921	2.56	2388	966	2.89	2691	1008	3.22	3003	1049	3.56	3323
3100	882	2.35	2189	930	2.67	2489	975	3.00	2798	1017	3.34	3115	1057	3.69	3441
3200	892	2.45	2288	939	2.78	2595	984	3.12	2909	1026	3.47	3233	1066	3.82	3564
3300	901	2.56	2391	948	2.90	2704	993	3.24	3024	1035	3.60	3353	1075	3.96	3690
3400	911	2.68	2499	958	3.02	2817	1002	3.37	3144	1044	3.73	3479	**1084**	**4.10**	**3821**
3500	921	2.80	2610	967	3.15	2935	1011	3.50	3268	1053	3.87	3608	—	—	—
3600	931	2.92	2726	977	3.28	3057	1021	3.64	3396	1062	4.01	3743	—	—	—
3700	941	3.05	2847	987	3.41	3184	1030	3.78	3529	1071	4.16	3882	—	—	—
3750	946	3.12	2908	992	3.48	3249	1035	3.86	3597	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 860 to 1080 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 3.70.
3. See page 114 for General Fan Performance Notes.

Performance data — 50HJQ (cont)

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50HJQ009 (8½ TONS) STANDARD MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2500	**462**	**0.37**	**348**	**541**	**0.50**	**467**	**614**	**0.64**	**594**	**681**	**0.78**	**728**	**744**	**0.93**	**868**
2600	**474**	**0.41**	**381**	**551**	**0.54**	**505**	**622**	**0.68**	**635**	**688**	**0.83**	**773**	**750**	**0.98**	**916**
2700	**486**	**0.45**	**417**	**561**	**0.58**	**545**	**630**	**0.73**	**679**	**695**	**0.88**	**820**	**756**	**1.04**	**967**
2800	**498**	**0.49**	**456**	**571**	**0.63**	**587**	**639**	**0.78**	**725**	**702**	**0.93**	**870**	**762**	**1.09**	**1020**
2900	**510**	**0.53**	**497**	**581**	**0.68**	**632**	**648**	**0.83**	**774**	**710**	**0.99**	**922**	**768**	**1.15**	**1076**
3000	**523**	**0.58**	**541**	**592**	**0.73**	**680**	**657**	**0.88**	**825**	**718**	**1.05**	**977**	**775**	**1.22**	**1135**
3100	**536**	**0.63**	**587**	**603**	**0.78**	**730**	**666**	**0.94**	**879**	**726**	**1.11**	**1035**	**783**	**1.28**	**1196**
3200	**549**	**0.68**	**637**	**614**	**0.84**	**783**	**676**	**1.00**	**936**	**735**	**1.17**	**1096**	**790**	**1.35**	**1260**
3300	**562**	**0.74**	**689**	**626**	**0.90**	**839**	**686**	**1.07**	**996**	**743**	**1.24**	**1159**	**798**	**1.42**	**1328**
3400	**575**	**0.80**	**744**	**637**	**0.96**	**898**	**696**	**1.14**	**1059**	**752**	**1.31**	**1226**	**806**	**1.50**	**1398**
3500	**588**	**0.86**	**802**	**649**	**1.03**	**961**	**707**	**1.21**	**1125**	**762**	**1.39**	**1296**	**815**	**1.58**	**1472**
3600	**601**	**0.93**	**864**	**661**	**1.10**	**1026**	**717**	**1.28**	**1194**	**771**	**1.47**	**1369**	**823**	**1.66**	**1548**
3700	**614**	**1.00**	**929**	**673**	**1.17**	**1095**	**728**	**1.36**	**1267**	**781**	**1.55**	**1445**	**832**	**1.75**	**1629**
3800	**628**	**1.07**	**997**	**685**	**1.25**	**1167**	**739**	**1.44**	**1343**	**791**	**1.64**	**1525**	841	1.84	1712
3900	**641**	**1.15**	**1069**	**697**	**1.33**	**1243**	**750**	**1.53**	**1423**	**801**	**1.72**	**1608**	850	1.93	1799
4000	**655**	**1.23**	**1144**	**709**	**1.42**	**1322**	**761**	**1.61**	**1506**	**812**	**1.82**	**1695**	860	2.03	1890
4100	**668**	**1.31**	**1223**	**722**	**1.51**	**1405**	**773**	**1.71**	**1593**	**822**	**1.92**	**1786**	870	2.13	1984
4200	**682**	**1.40**	**1305**	**734**	**1.60**	**1492**	**784**	**1.80**	**1683**	**833**	**2.02**	**1880**	880	2.23	2082
4300	**696**	**1.49**	**1392**	**747**	**1.70**	**1582**	**796**	**1.91**	**1777**	844	2.12	1979	890	2.34	2184

50HJQ009 (8½ TONS) STANDARD MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2500	**804**	**1.09**	**1013**	861	1.25	1164	915	1.41	1319	967	1.59	1479	1017	1.76	1642
2600	**809**	**1.14**	**1065**	864	1.31	1219	918	1.48	1378	969	1.65	1541	1018	1.83	1708
2700	**813**	**1.20**	**1119**	869	1.37	1277	921	1.54	1439	972	1.72	1606	1021	1.90	1776
2800	**819**	**1.26**	**1176**	873	1.43	1337	925	1.61	1503	975	1.79	1673	1023	1.98	1847
2900	**824**	**1.32**	**1235**	878	1.50	1400	929	1.68	1569	978	1.87	1742	1026	2.06	1920
3000	**830**	**1.39**	**1298**	883	1.57	1466	934	1.76	1638	982	1.95	1815	1029	2.14	1996
3100	**837**	**1.46**	**1363**	889	1.65	1534	938	1.83	1710	986	2.03	1891	1033	2.23	2075
3200	843	1.53	1431	894	1.72	1606	944	1.91	1785	991	2.11	1969	1037	2.31	2157
3300	850	1.61	1502	901	1.80	1680	949	2.00	1863	996	2.20	2051	1041	2.40	2242
3400	858	1.69	1576	907	1.88	1758	955	2.09	1944	1001	2.29	2135	1046	2.50	2331
3500	865	1.77	1653	914	1.97	1838	961	2.18	2029	1007	2.38	2223	1051	2.60	2422
3600	873	1.86	1733	921	2.06	1922	967	2.27	2116	1012	2.48	2314	1056	2.70	2516
3700	881	1.95	1816	928	2.16	2010	974	2.37	2207	1019	2.58	2409	1062	2.80	2615
3800	889	2.04	1904	936	2.25	2100	981	2.47	2302	1025	2.69	2507	—	—	—
3900	898	2.14	1995	944	2.35	2195	988	2.57	2399	1032	2.80	2608	—	—	—
4000	907	2.24	2089	952	2.46	2293	996	2.68	2501	—	—	—	—	—	—
4100	916	2.35	2187	960	2.57	2395	1004	2.80	2607	—	—	—	—	—	—
4200	925	2.45	2289	969	2.68	2500	—	—	—	—	—	—	—	—	—
4300	934	2.57	2395	978	2.80	2610	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 840 to 1085 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 2.90.
3. See page 114 for General Fan Performance Notes.

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50HJQ009 (8 1/2 TONS) HIGH-STATIC MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2500	**462**	**0.37**	**348**	**541**	**0.50**	**467**	**614**	**0.64**	**594**	**681**	**0.78**	**728**	**744**	**0.93**	**868**
2600	**474**	**0.41**	**381**	**551**	**0.54**	**505**	**622**	**0.68**	**635**	**688**	**0.83**	**773**	**750**	**0.98**	**916**
2700	**486**	**0.45**	**417**	**561**	**0.58**	**545**	**630**	**0.73**	**679**	**695**	**0.88**	**820**	**756**	**1.04**	**967**
2800	**498**	**0.49**	**456**	**571**	**0.63**	**587**	**639**	**0.78**	**725**	**702**	**0.93**	**870**	**762**	**1.09**	**1020**
2900	**510**	**0.53**	**497**	**581**	**0.68**	**632**	**648**	**0.83**	**774**	**710**	**0.99**	**922**	**768**	**1.15**	**1076**
3000	**523**	**0.58**	**541**	**592**	**0.73**	**680**	**657**	**0.88**	**825**	**718**	**1.05**	**977**	**775**	**1.22**	**1135**
3100	**536**	**0.63**	**587**	**603**	**0.78**	**730**	**666**	**0.94**	**879**	**726**	**1.11**	**1035**	**783**	**1.28**	**1196**
3200	**549**	**0.68**	**637**	**614**	**0.84**	**783**	**676**	**1.00**	**936**	**735**	**1.17**	**1096**	**790**	**1.35**	**1260**
3300	**562**	**0.74**	**689**	**626**	**0.90**	**839**	**686**	**1.07**	**996**	**743**	**1.24**	**1159**	**798**	**1.42**	**1328**
3400	**575**	**0.80**	**744**	**637**	**0.96**	**898**	**696**	**1.14**	**1059**	**752**	**1.31**	**1226**	**806**	**1.50**	**1398**
3500	**588**	**0.86**	**802**	**649**	**1.03**	**961**	**707**	**1.21**	**1125**	**762**	**1.39**	**1296**	**815**	**1.58**	**1472**
3600	**601**	**0.93**	**864**	**661**	**1.10**	**1026**	**717**	**1.28**	**1194**	**771**	**1.47**	**1369**	**823**	**1.66**	**1548**
3700	**614**	**1.00**	**929**	**673**	**1.17**	**1095**	**728**	**1.36**	**1267**	**781**	**1.55**	**1445**	**832**	**1.75**	**1629**
3800	**628**	**1.07**	**997**	**685**	**1.25**	**1167**	**739**	**1.44**	**1343**	**791**	**1.64**	**1525**	**841**	**1.84**	**1712**
3900	**641**	**1.15**	**1069**	**697**	**1.33**	**1243**	**750**	**1.53**	**1423**	**801**	**1.72**	**1608**	**850**	**1.93**	**1799**
4000	**655**	**1.23**	**1144**	**709**	**1.42**	**1322**	**761**	**1.61**	**1506**	**812**	**1.82**	**1695**	860	2.03	1890
4100	**668**	**1.31**	**1223**	**722**	**1.51**	**1405**	**773**	**1.71**	**1593**	**822**	**1.92**	**1786**	870	2.13	1984
4200	**682**	**1.40**	**1305**	**734**	**1.60**	**1492**	**784**	**1.80**	**1683**	**833**	**2.02**	**1880**	880	2.23	2082
4300	**696**	**1.49**	**1392**	**747**	**1.70**	**1582**	**796**	**1.91**	**1777**	**844**	**2.12**	**1979**	890	2.34	2184

50HJQ009 (8 1/2 TONS) HIGH-STATIC MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
2500	**804**	**1.09**	**1013**	861	1.25	1164	915	1.41	1319	967	1.59	1479	1017	1.76	1642
2600	**809**	**1.14**	**1065**	864	1.31	1219	918	1.48	1378	969	1.65	1541	1018	1.83	1708
2700	**813**	**1.20**	**1119**	869	1.37	1277	921	1.54	1439	972	1.72	1606	1021	1.90	1776
2800	**819**	**1.26**	**1176**	873	1.43	1337	925	1.61	1503	975	1.79	1673	1023	1.98	1847
2900	**824**	**1.32**	**1235**	878	1.50	1400	929	1.68	1569	978	1.87	1742	1026	2.06	1920
3000	**830**	**1.39**	**1298**	883	1.57	1466	934	1.76	1638	982	1.95	1815	1029	2.14	1996
3100	**837**	**1.46**	**1363**	889	1.65	1534	938	1.83	1710	986	2.03	1891	1033	2.23	2075
3200	**843**	**1.53**	**1431**	894	1.72	1606	944	1.91	1785	991	2.11	1969	1037	2.31	2157
3300	**850**	**1.61**	**1502**	901	1.80	1680	949	2.00	1863	996	2.20	2051	1041	2.40	2242
3400	**858**	**1.69**	**1576**	907	1.88	1758	955	2.09	1944	1001	2.29	2135	1046	2.50	2331
3500	865	1.77	1653	914	1.97	1838	961	2.18	2029	1007	2.38	2223	1051	2.60	2422
3600	873	1.86	1733	921	2.06	1922	967	2.27	2116	1012	2.48	2314	1056	2.70	2516
3700	881	1.95	1816	928	2.16	2010	974	2.37	2207	1019	2.58	2409	1062	2.80	2615
3800	889	2.04	1904	936	2.25	2100	981	2.47	2302	1025	2.69	2507	1068	2.91	2716
3900	898	2.14	1995	944	2.35	2195	988	2.57	2399	1032	2.80	2608	1074	3.03	2821
4000	907	2.24	2089	952	2.46	2293	996	2.68	2501	1038	2.91	2713	1080	3.14	2930
4100	916	2.35	2187	960	2.57	2395	1004	2.80	2607	1046	3.03	2822	**1087**	**3.26**	**3042**
4200	925	2.45	2289	969	2.68	2500	1011	2.91	2716	1053	3.15	2935	**1094**	**3.39**	**3159**
4300	934	2.57	2395	978	2.80	2610	1020	3.03	2828	1061	3.27	3052	**1101**	**3.52**	**3279**

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 860 to 1080 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 3.70.
3. See page 114 for General Fan Performance Notes.

Performance data — 50HJQ (cont)

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50HJQ012 (10 TONS) STANDARD MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	**523**	**0.58**	**541**	**592**	**0.73**	**680**	**657**	**0.88**	**825**	**718**	**1.05**	**977**	**775**	**1.22**	**1135**
3100	**536**	**0.63**	**587**	**603**	**0.78**	**730**	**666**	**0.94**	**879**	**726**	**1.11**	**1035**	**783**	**1.28**	**1196**
3200	**549**	**0.68**	**637**	**614**	**0.84**	**783**	**676**	**1.00**	**936**	**735**	**1.17**	**1096**	**790**	**1.35**	**1260**
3300	**562**	**0.74**	**689**	**626**	**0.90**	**839**	**686**	**1.07**	**996**	**743**	**1.24**	**1159**	**798**	**1.42**	**1328**
3400	**575**	**0.80**	**744**	**637**	**0.96**	**898**	**696**	**1.14**	**1059**	**752**	**1.31**	**1226**	**806**	**1.50**	**1398**
3500	**588**	**0.86**	**802**	**649**	**1.03**	**961**	**707**	**1.21**	**1125**	**762**	**1.39**	**1296**	**815**	**1.58**	**1472**
3600	**601**	**0.93**	**864**	**661**	**1.10**	**1026**	**717**	**1.28**	**1194**	**771**	**1.47**	**1369**	**823**	**1.66**	**1548**
3700	**614**	**1.00**	**929**	**673**	**1.17**	**1095**	**728**	**1.36**	**1267**	**781**	**1.55**	**1445**	**832**	**1.75**	**1629**
3800	**628**	**1.07**	**997**	**685**	**1.25**	**1167**	**739**	**1.44**	**1343**	**791**	**1.64**	**1525**	**841**	**1.84**	**1712**
3900	**641**	**1.15**	**1069**	**697**	**1.33**	**1243**	**750**	**1.53**	**1423**	**801**	**1.72**	**1608**	**850**	**1.93**	**1799**
4000	**655**	**1.23**	**1144**	**709**	**1.42**	**1322**	**761**	**1.61**	**1506**	**812**	**1.82**	**1695**	860	2.03	1890
4100	**668**	**1.31**	**1223**	**722**	**1.51**	**1405**	**773**	**1.71**	**1593**	**822**	**1.92**	**1786**	870	2.13	1984
4200	**682**	**1.40**	**1305**	**734**	**1.60**	**1492**	**784**	**1.80**	**1683**	**833**	**2.02**	**1880**	880	2.23	2082
4300	**696**	**1.49**	**1392**	**747**	**1.70**	**1582**	**796**	**1.91**	**1777**	**844**	**2.12**	**1979**	890	2.34	2184
4400	**710**	**1.59**	**1482**	**760**	**1.80**	**1677**	**808**	**2.01**	**1876**	**855**	**2.23**	**2081**	900	2.46	2290
4500	**723**	**1.69**	**1577**	**773**	**1.90**	**1775**	**820**	**2.12**	**1978**	866	2.35	2187	910	2.57	2400
4600	**737**	**1.80**	**1675**	**785**	**2.01**	**1877**	**832**	**2.24**	**2085**	877	2.46	2297	921	2.70	2514
4700	**751**	**1.91**	**1778**	**798**	**2.13**	**1984**	**844**	**2.35**	**2195**	889	2.59	2412	932	2.82	2633
4800	**765**	**2.02**	**1885**	**812**	**2.25**	**2095**	**856**	**2.48**	**2310**	900	2.71	2531	942	2.95	2756
4900	**779**	**2.14**	**1996**	**825**	**2.37**	**2210**	869	2.61	2430	912	2.85	2654	953	3.09	2883
5000	**793**	**2.26**	**2112**	**838**	**2.50**	**2330**	881	2.74	2554	923	2.98	2782	965	3.23	3014

50HJQ012 (10 TONS) STANDARD MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	**830**	**1.39**	**1298**	883	1.57	1466	934	1.76	1638	982	1.95	1815	1029	2.14	1996
3100	**837**	**1.46**	**1363**	889	1.65	1534	938	1.83	1710	986	2.03	1891	1033	2.23	2075
3200	**843**	**1.53**	**1431**	894	1.72	1606	944	1.91	1785	991	2.11	1969	1037	2.31	2157
3300	**850**	**1.61**	**1502**	901	1.80	1680	949	2.00	1863	996	2.20	2051	1041	2.40	2242
3400	**858**	**1.69**	**1576**	907	1.88	1758	955	2.09	1944	1001	2.29	2135	1046	2.50	2331
3500	865	1.77	1653	914	1.97	1838	961	2.18	2029	1007	2.38	2223	1051	2.60	2422
3600	873	1.86	1733	921	2.06	1922	967	2.27	2116	1012	2.48	2314	1056	2.70	2516
3700	881	1.95	1816	928	2.16	2010	974	2.37	2207	1019	2.58	2409	1062	2.80	2615
3800	889	2.04	1904	936	2.25	2100	981	2.47	2302	1025	2.69	2507	1068	2.91	2716
3900	898	2.14	1995	944	2.35	2195	988	2.57	2399	1032	2.80	2608	1074	3.03	2821
4000	907	2.24	2089	952	2.46	2293	996	2.68	2501	1038	2.91	2713	1080	3.14	2930
4100	916	2.35	2187	960	2.57	2395	1004	2.80	2607	1046	3.03	2822	**1087**	**3.26**	**3042**
4200	925	2.45	2289	969	2.68	2500	1011	2.91	2716	1053	3.15	2935	**1094**	**3.39**	**3159**
4300	934	2.57	2395	978	2.80	2610	1020	3.03	2828	1061	3.27	3052	**1101**	**3.52**	**3279**
4400	944	2.69	2504	986	2.92	2723	1028	3.16	2946	1068	3.40	3173	**1108**	**3.65**	**3403**
4500	954	2.81	2618	996	3.05	2840	1037	3.29	3067	1076	3.54	3297	—	—	—
4600	963	2.93	2736	1005	3.18	2962	1045	3.42	3192	**1085**	**3.67**	**3426**	—	—	—
4700	974	3.07	2858	1014	3.31	3088	1054	3.56	3322	—	—	—	—	—	—
4800	984	3.20	2985	1024	3.45	3219	—	—	—	—	—	—	—	—	—
4900	994	3.34	3116	1034	3.60	3353	—	—	—	—	—	—	—	—	—
5000	1005	3.49	3251	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

*Motor drive range: 860 to 1080 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 3.70.
3. See page 114 for General Fan Performance Notes.

FAN PERFORMANCE — HORIZONTAL DISCHARGE UNITS (cont)

50HJQ012 (10 TONS) HIGH-STATIC MOTOR (BELT DRIVE)*

Airflow (Cfm)	External Static Pressure (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	**523**	**0.58**	**541**	**592**	**0.73**	**680**	**657**	**0.88**	**825**	**718**	**1.05**	**977**	**775**	**1.22**	**1135**
3100	**536**	**0.63**	**587**	**603**	**0.78**	**730**	**666**	**0.94**	**879**	**726**	**1.11**	**1035**	**783**	**1.28**	**1196**
3200	**549**	**0.68**	**637**	**614**	**0.84**	**783**	**676**	**1.00**	**936**	**735**	**1.17**	**1096**	**790**	**1.35**	**1260**
3300	**562**	**0.74**	**689**	**626**	**0.90**	**839**	**686**	**1.07**	**996**	**743**	**1.24**	**1159**	**798**	**1.42**	**1328**
3400	**575**	**0.80**	**744**	**637**	**0.96**	**898**	**696**	**1.14**	**1059**	**752**	**1.31**	**1226**	**806**	**1.50**	**1398**
3500	**588**	**0.86**	**802**	**649**	**1.03**	**961**	**707**	**1.21**	**1125**	**762**	**1.39**	**1296**	**815**	**1.58**	**1472**
3600	**601**	**0.93**	**864**	**661**	**1.10**	**1026**	**717**	**1.28**	**1194**	**771**	**1.47**	**1369**	**823**	**1.66**	**1548**
3700	**614**	**1.00**	**929**	**673**	**1.17**	**1095**	**728**	**1.36**	**1267**	**781**	**1.55**	**1445**	**832**	**1.75**	**1629**
3800	**628**	**1.07**	**997**	**685**	**1.25**	**1167**	**739**	**1.44**	**1343**	**791**	**1.64**	**1525**	**841**	**1.84**	**1712**
3900	**641**	**1.15**	**1069**	**697**	**1.33**	**1243**	**750**	**1.53**	**1423**	**801**	**1.72**	**1608**	**850**	**1.93**	**1799**
4000	**655**	**1.23**	**1144**	**709**	**1.42**	**1322**	**761**	**1.61**	**1506**	**812**	**1.82**	**1695**	**860**	**2.03**	**1890**
4100	**668**	**1.31**	**1223**	**722**	**1.51**	**1405**	**773**	**1.71**	**1593**	**822**	**1.92**	**1786**	**870**	**2.13**	**1984**
4200	**682**	**1.40**	**1305**	**734**	**1.60**	**1492**	**784**	**1.80**	**1683**	**833**	**2.02**	**1880**	**880**	**2.23**	**2082**
4300	**696**	**1.49**	**1392**	**747**	**1.70**	**1582**	**796**	**1.91**	**1777**	**844**	**2.12**	**1979**	**890**	**2.34**	**2184**
4400	**710**	**1.59**	**1482**	**760**	**1.80**	**1677**	**808**	**2.01**	**1876**	**855**	**2.23**	**2081**	**900**	**2.46**	**2290**
4500	**723**	**1.69**	**1577**	**773**	**1.90**	**1775**	**820**	**2.12**	**1978**	**866**	**2.35**	**2187**	**910**	**2.57**	**2400**
4600	**737**	**1.80**	**1675**	**785**	**2.01**	**1877**	**832**	**2.24**	**2085**	**877**	**2.46**	**2297**	**921**	**2.70**	**2514**
4700	**751**	**1.91**	**1778**	**798**	**2.13**	**1984**	**844**	**2.35**	**2195**	**889**	**2.59**	**2412**	932	2.82	2633
4800	**765**	**2.02**	**1885**	**812**	**2.25**	**2095**	**856**	**2.48**	**2310**	**900**	**2.71**	**2531**	942	2.95	2756
4900	**779**	**2.14**	**1996**	**825**	**2.37**	**2210**	**869**	**2.61**	**2430**	**912**	**2.85**	**2654**	953	3.09	2883
5000	**793**	**2.26**	**2112**	**838**	**2.50**	**2330**	**881**	**2.74**	**2554**	923	2.98	2782	965	3.23	3014

50HJQ012 (10 TONS) HIGH-STATIC MOTOR (BELT DRIVE)* (cont)

Airflow (Cfm)	External Static Pressure (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
3000	**830**	**1.39**	**1298**	**883**	**1.57**	**1466**	934	1.76	1638	982	1.95	1815	1029	2.14	1996
3100	**837**	**1.46**	**1363**	**889**	**1.65**	**1534**	938	1.83	1710	986	2.03	1891	1033	2.23	2075
3200	**843**	**1.53**	**1431**	**894**	**1.72**	**1606**	944	1.91	1785	991	2.11	1969	1037	2.31	2157
3300	**850**	**1.61**	**1502**	**901**	**1.80**	**1680**	949	2.00	1863	996	2.20	2051	1041	2.40	2242
3400	**858**	**1.69**	**1576**	**907**	**1.88**	**1758**	955	2.09	1944	1001	2.29	2135	1046	2.50	2331
3500	**865**	**1.77**	**1653**	**914**	**1.97**	**1838**	961	2.18	2029	1007	2.38	2223	1051	2.60	2422
3600	**873**	**1.86**	**1733**	**921**	**2.06**	**1922**	967	2.27	2116	1012	2.48	2314	1056	2.70	2516
3700	**881**	**1.95**	**1816**	928	2.16	2010	974	2.37	2207	1019	2.58	2409	1062	2.80	2615
3800	**889**	**2.04**	**1904**	936	2.25	2100	981	2.47	2302	1025	2.69	2507	1068	2.91	2716
3900	**898**	**2.14**	**1995**	944	2.35	2195	988	2.57	2399	1032	2.80	2608	1074	3.03	2821
4000	**907**	**2.24**	**2089**	952	2.46	2293	996	2.68	2501	1038	2.91	2713	1080	3.14	2930
4100	**916**	**2.35**	**2187**	960	2.57	2395	1004	2.80	2607	1046	3.03	2822	1087	3.26	3042
4200	925	2.45	2289	969	2.68	2500	1011	2.91	2716	1053	3.15	2935	1094	3.39	3159
4300	934	2.57	2395	978	2.80	2610	1020	3.03	2828	1061	3.27	3052	1101	3.52	3279
4400	944	2.69	2504	986	2.92	2723	1028	3.16	2946	1068	3.40	3173	1108	3.65	3403
4500	954	2.81	2618	996	3.05	2840	1037	3.29	3067	1076	3.54	3297	1115	3.79	3531
4600	963	2.93	2736	1005	3.18	2962	1045	3.42	3192	1085	3.67	3426	1123	3.93	3664
4700	974	3.07	2858	1014	3.31	3088	1054	3.56	3322	1093	3.82	3560	1131	4.08	3801
4800	984	3.20	2985	1024	3.45	3219	1063	3.71	3456	1102	3.96	3697	1139	4.23	3943
4900	994	3.34	3116	1034	3.60	3353	1073	3.85	3594	1111	4.12	3839	1148	4.38	4088
5000	1005	3.49	3251	1044	3.74	3492	1082	4.01	3737	1119	4.27	3986	1156	4.55	4238

LEGEND

Bhp — Brake Horsepower Input to Fan
Watts — Input Watts to Motor

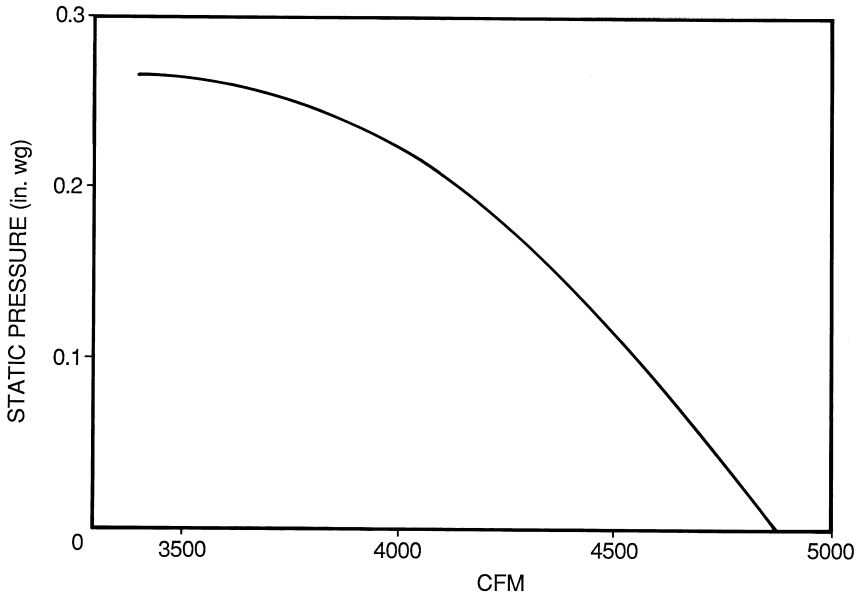
*Motor drive range: 922 to 1219 rpm. All other rpms require field-supplied drive.

NOTES:
1. **Boldface** indicates field-supplied drive is required.
2. Maximum continuous bhp is 5.25.
3. See page 114 for General Fan Performance Notes.

REFER TO 50HJQ014,016 VERTICAL FAN PERFORMANCE TABLES ON PAGES 113 AND 114 FOR FAN PERFORMANCE WITH HORIZONTAL ADAPTER CURB.

Performance data — 50HJQ (cont)

FAN PERFORMANCE USING ACCESSORY POWER EXHAUST — 50HJQ014,016



FAN RPM AT MOTOR PULLEY SETTINGS*

UNIT 50HJQ	MOTOR PULLEY TURNS OPEN												
	0	1/2	1	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2	6
004†	1044	1008	971	935	898	862	826	789	753	716	680	—	—
004**	1455	1423	1392	1360	1328	1297	1265	1233	1202	1170	1138	1107	1075
005†	1185	1144	1102	1061	1019	978	936	895	853	812	770	—	—
005**	1455	1423	1392	1360	1328	1297	1265	1233	1202	1170	1138	1107	1075
006†	1460	1425	1390	1355	1319	1284	1249	1214	1179	1144	1108	1073	1038
006**	1685	1647	1608	1570	1531	1493	1454	1416	1377	1339	1300	—	—
007†	1585	1538	1492	1445	1399	1352	1305	1259	1212	1166	1119	—	—
007**	1685	1647	1608	1570	1531	1493	1454	1416	1377	1339	1300	—	—
008†	950	930	905	885	865	840	820	795	775	750	730	—	—
008**	1080	1060	1035	1015	990	970	950	925	905	880	860	—	—
009†	1085	1061	1036	1012	987	963	938	914	889	865	840	—	—
009**	1080	1058	1036	1014	992	970	948	926	904	882	860	—	—
012†	1080	1060	1035	1015	990	970	950	925	905	880	860	—	—
012**	1219	1195	1170	1145	1120	1095	1071	1046	1021	996	972	947	922
014 (208/230 V and 460 V)†	—	—	1179	1150	1121	1093	1064	1035	1006	978	949	920	891
014 (208/230 V and 460 V)††	—	—	1559	1522	1488	1455	1422	1389	1356	1323	1289	1256	1227
014 (575 V)†	—	—	1429	1403	1376	1349	1323	1296	1269	1242	1215	1188	1159
016†	—	—	1038	1023	1001	979	956	934	912	890	868	846	817
016††	—	—	1303	1288	1266	1244	1222	1199	1177	1155	1133	1111	1082

*Approximate fan rpm shown.
†Indicates standard motor and drive package.
**Indicates high-static motor and drive package.
††Indicates standard motor and alternate drive package.

INDOOR-FAN MOTOR PERFORMANCE — STANDARD MOTORS

UNIT 50HJQ	UNIT VOLTAGE	MAXIMUM CONTINUOUS BHP*	MAXIMUM OPERATING WATTS*	MAXIMUM AMP DRAW	MOTOR EFFICIENCY
004	208/230-1-60	1.20	1195	4.9	75.0
	208/230-3-60			4.9	75.0
	460-3-60			2.3	75.0
005	208/230-1-60	1.20	1195	4.9	75.0
	208/230-3-60			4.9	75.0
	460-3-60			2.3	75.0
006	208/230-1-60	1.30	1290	7.6	74.0
	208/230-3-60	2.40	2120	6.0	84.0
	460-3-60			3.0	84.0
007	208/230-3-60	2.40	2120	6.0	84.0
	460-3-60			3.0	84.0
008, 009	208/230-3-60	2.90	2615	8.6	80.0
	460-3-60	2.90	2615	3.9	80.0
012	208/230-3-60	3.70	3313	11.7	85.0
	460-3-60	3.70	3313	5.5	85.0
014	208/230-3-60	4.25	3775	10.5	85.8
	460-3-60			4.9	85.8
	575-3-60	3.45	3065	3.9	81.7
016	208/230-3-60	5.90	5180	15.8	87.5
	460-3-60			7.9	87.5
	575-3-60			6.0	87.5

INDOOR-FAN MOTOR PERFORMANCE — HIGH-STATIC MOTORS

UNIT 50HJQ	UNIT VOLTAGE	MAXIMUM CONTINUOUS BHP*	MAXIMUM OPERATING WATTS*	MAXIMUM AMP DRAW	MOTOR EFFICIENCY
004	208/230-3-60	2.40	2120	6.0	75
	460-3-60			3.0	75
005	208/230-3-60	2.40	2120	6.0	75
	460-3-60			3.0	75
006	208/230-3-60	2.90	2615	8.6	84
	460-3-60			3.9	84
007	208/230-3-60	2.90	2615	8.6	84
	460-3-60			3.9	84
008, 009	208/230-3-60	3.70	3313	11.7	80
	460-3-60			5.5	80
012	208/230-3-60	5.25	4400	17.3	85
	460-3-60			8.5	85

LEGEND

BHP — Brake Horsepower

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

Performance data — 50HJQ (cont)

ACCESSORY ELECTRIC HEATERS STATIC PRESSURE (in. wg) — 50HJQ004-007

COMPONENT	CFM								
	900	1200	1400	1600	1800	2000	2200	2400	2600
1 Heater Module	0.05	0.07	0.09	0.09	0.10	0.11	0.11	0.12	0.13
2 Heater Modules	0.15	0.16	0.16	0.16	0.17	0.17	0.17	0.18	0.18

ACCESSORY ELECTRIC HEATERS STATIC PRESSURE* (in. wg) — 50HJQ008-012

COMPONENT	CFM									
	2250	2500	3000	3500	4000	4500	5000	5500	6000	6250
1 Heater Module	0.02	0.03	0.05	0.07	0.08	0.10	0.12	0.14	0.16	0.17
2 Heater Modules	0.03	0.05	0.07	0.09	0.12	0.14	0.16	0.19	0.21	0.20

ACCESSORY/FIOP ECONOMIZER STATIC PRESSURE* (in. wg) — 50HJQ004-007

COMPONENT	CFM							
	1250	1500	1750	2000	2250	2500	2750	3000
Vertical EconoMi$er2 and EconoMi$er+	0.045	0.065	0.08	0.12	0.145	0.175	0.22	0.255
Horizontal EconoMi$er2 and EconoMi$er+	—	—	0.1	0.125	0.15	0.18	0.225	0.275

LEGEND

FIOP — Factory-Installed Option

*The static pressure must be added to external static pressure. The sum and the indoor entering-air cfm should be used in conjunction with the Fan Performance tables to determine indoor blower rpm and watts.

ACCESSORY/FIOP ECONOMIZER STATIC PRESSURE* (in. wg) — 50HJQ008-012

COMPONENT	CFM													
	2250	2500	2750	3000	3250	3500	3750	4000	4250	4500	4750	5000	5250	6250
Vertical EconoMi$er2 and EconoMi$er+	0.06	0.075	0.09	0.115	0.13	0.15	0.17	0.195	0.22	0.25	0.285	0.325	0.36	—
Horizontal EconoMi$er2 and EconoMi$er+	—	0.1	0.125	0.15	0.18	0.21	0.25	0.275	0.3	0.34	0.388	—	—	—

LEGEND

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 tables to determine blower rpm and watts.

ACCESSORY/FIOP STATIC PRESSURE* (in. wg) — 50HJQ014,016

ACCESSORY/FIOP	UNIT SIZE	UNIT VOLTAGE	kW	CFM							
				3750	4500	5000	5600	6000	6250	7200	7500
Electric Heaters	014	208/230-3-60	14-34 42,56	0.05 0.06	0.05 0.06	0.07 0.08	0.08 0.10	0.09 0.12	0.09 0.13	0.11 0.16	0.12 0.17
		460-3-60	15,32 55	0.05 0.06	0.05 0.06	0.07 0.08	0.08 0.10	0.09 0.12	0.09 0.13	0.11 0.15	0.12 0.15
		575-3-60	37	0.06	0.06	0.08	0.10	0.12	0.13	0.15	0.17
	016	208/230-3-60	26,34 42,59	*	*	*	0.08 0.10	0.09 0.12	0.09 0.13	0.11 0.16	0.12 0.17
		460-3-60	32,55	*	*	*	0.08 0.10	0.09 0.12	0.09 0.13	0.11 0.15	0.12 0.17
		575-3-60	50	*	*	*	0.13	0.15	0.16	0.20	0.21
EconoMi$er+ and EconoMi$er2	014,016	All	—	0.03	0.04	0.05	0.06	0.07	0.07	0.08	0.10
Glycol Coil	014,016	All	—	0.16	0.18	0.25	0.31	0.35	0.37	0.44	0.46

LEGEND

FIOP — Factory-Installed Option

*Units with electric heat are not designed to operate at these ranges.

NOTES:

1. Heaters are rated at 208/240 v, 480 v, and 600 v.
2. The static pressure must be added to external static pressure. The sum and the indoor-air section entering-air cfm should then be used in conjunction with the Fan Performance table to determine blower rpm, bhp, and watts.

ELECTRIC HEATING CAPACITIES — 50HJQ004-014

UNIT 50HJQ	VOLTAGE (60 Hz)	ACCESSORY kW	ACCESSORY HEATER PART NUMBER CRHEATER---A00	SINGLE POINT BOX PACKAGE NO. CRSINGLE---A00
004 (3 Tons)	208/230/240 (single phase)	3.3/ 4.0/ 4.4	001	—
		4.9/ 6.0/ 6.5	002	—
		6.5/ 8.0/ 8.7	003	004
		7.9/ 9.6/10.5	004	004
		9.8/12.0/13.0*	002 & 002	005
	208/230/240 (3 phase)	3.3/ 4.0/ 4.4	001	—
		4.9/ 6.0/ 6.5	002	—
		6.5/ 8.0/ 8.7	003	—
		7.9/ 9.6/10.5	004	—
		12.0/14.7/16.0	005	002
	460/480 (3 phase)	5.5/ 6.0	006	—
		8.1/ 8.8	007	—
		10.6/11.5	008	—
		12.9/14.0	009	—
005 (4 tons)	208/230/240 (single phase)	3.3/ 4.0/ 4.4	001	—
		6.5/ 8.0/ 8.7	003	004
		9.8/12.0/13.0*	002 & 002	005
		13.1/16.0/17.4*	003 & 003	005
		15.8/19.3/21.0*	004 & 004	005
	208/230/240 (3 phase)	4.9/ 6.0/ 6.5	002	—
		6.5/ 8.0/ 8.7	003	—
		12.0/14.7/16.0	005	002
		15.8/19.3/21.0*	004 & 004	003
	460/480 (3 phase)	5.5/ 6.0	006	—
		10.6/11.5	008	—
		12.9/14.0	009	—
		21.1/23.0*	008 & 008	—
006 (5 Tons)	208/230/240 (single phase)	4.9/ 6.0/ 6.5	002	004
		6.5/ 8.0/ 8.7	003	004
		9.8/12.0/13.0*	002 & 002	005
		13.1/16.0/17.4*	003 & 003	005
		15.8/19.3/21.0*	004 & 004	005
	208/230/240 (3 phase)	4.9/ 6.0/ 6.5	002	—
		7.9/ 9.6/10.5	004	002
		12.0/14.7/16.0	005	002
		15.8/19.3/21.0*	004 & 004	003
		19.9/24.3/26.5*	004 & 005	002
	460/480 (3 phase)	5.5/ 6.0	006	—
		10.6/11.5	008	—
		12.9/14.0	009	—
		21.1/23.0*	008 & 008	—
		23.4/25.5*	008 & 009	—
007 (6 tons)	208/230/240 (3 phase)	4.9/ 6.0/ 6.5	002	—
		7.9/ 9.6/10.5	004	002
		12.0/14.7/16.0	005	002
		15.8/19.3/21.0*	004 & 004	003
		19.9/24.3/26.5*	004 & 006	003
	460/480 (3 phase)	5.5/ 6.0	006	—
		10.6/11.5	008	—
		12.9/14.0	009	—
		21.1/23.0*	008 & 008	—
		23.4/25.5*	008 & 009	—

*Two heater packages required to provide kW indicated.

NOTES:
1. The rated heater voltage is 240 and 480 v. If power distribution voltage varies from rated heater voltage, heater kW will vary accordingly.
2. To determine heater kW at voltages other than those shown in table, use the following formula:

   Heater kW_{new} = Heater kW rated x (unit power distribution voltage/rated heater voltage)^2

   As an example:

   For a 16 kW heater rated at 240 v with a power distribution voltage of 215 v

   kW_{new} = 16 kW $(215/240)^2$

   kW_{new} = 12.8 kW (rating at 215 v)

Performance data — 50HJQ (cont)

ELECTRIC HEATING CAPACITIES — 50HJQ004-014 (cont)

UNIT 50HJQ	VOLTAGE (60 Hz)	ACCESSORY kW	ACCESSORY HEATER PART NUMBER CRHEATER---A00	ACCESSORY SINGLE POINT BOX PART NO. CRSINGLE---A00
008 (7½ Tons)	208/230/240 (3 phase)	7.8/ 9.6/10.4	117	007
		12.0/14.7/16.0	110	007
		18.6/22.8/24.8	111	009
		24.0/29.4/32.0	112	009
		31.8/39.0/42.4*	112,117	013
	460/480 (3 phase)	12.8/13.9	116	006
		15.2/16.5	113	006
		25.6/27.8	114	008
		30.4/33.0	115	008
		38.4/41.7*	114,116	—
009 (8½ Tons)	208/230/240 (3 phase)	7.8/ 9.6/10.4	117	012
		12.0/14.7/16.0	110	012
		18.6/22.8/24.8	111	015
		24.0/29.4/32.0	112	015
		31.8/39.0/42.4*	112,117	017
	460/480 (3 phase)	12.8/13.9	116	011
		15.2/16.5	113	011
		25.6/27.8	114	014
		30.4/33.0	115	014
		38.4/41.7*	114,116	016
012 (10 Tons)	208/230/240 (3 phase)	7.8/ 9.6/10.4	117	012
		12.0/14.7/16.0	110	012
		24.0/29.4/32.0	112	015
		31.8/39.0/42.4*	112,117	017
		37.6/46.2/50.0*	112,110	017
	460/480 (3 phase)	15.2/16.5	113	011
		25.6/27.8	114	014
		30.4/33.0	115	014
		38.4/41.7*	114,116	016
		46.0/50.0*	115,113	016

*Two heater packages required to provide kW indicated.

NOTES:
1. The rated heater voltage is 240 and 480 v. If power distribution voltage varies from rated heater voltage, heater kW will vary accordingly.
2. To determine heater kW at voltages other than those shown in table, use the following formula:

   Heater kW_{new} = Heater kW rated x (unit power distribution voltage/rated heater voltage)^2

   As an example:

   For a 16 kW heater rated at 240 v with a power distribution voltage of 215 v

   kW_{new} = 16 kW $(215/240)^2$

   kW_{new} = 12.8 kW (rating at 215 v)

ELECTRIC HEATING CAPACITIES — 50HJQ014,016

UNIT 50HJQ	HEATER kW Unit Voltages				HEATER STAGES	% HEAT PER STAGE	MAXIMUM STAGES*
	208	230	460	575			
014	14	19	15	—	1	100	1
	26	34	32	—	2	50/50	2
	42	56	55	37	2	33/67	3
016	26	34	32	—	2	50/50	2
	42	56	55	—	2	33/67	3
	—	—	—	50	2	50/50	4

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

NOTE: Heaters are rated at 208 v, 240 v, 480 v, and 600 v. See multiplication factors table on page 131.

GLYCOL COIL DATA* — 50HJQ014,016

EDB	EGT	CFM																	
		4400						5000						6200					
		% Glycol																	
		25			50			25			50			25			50		
		Cap.	Gpm	Ldb	Cap.	Gpm	Ldb	Cap.	Gpm	Ldb	Cap.	Gpm	Ldb	Cap.	Gpm	Ldb	Cap.	Gpm	Ldb
55	200	310	33	120	293	33	116	333	35	117	315	36	113	375	40	111	353	40	108
	180	255	27	108	237	27	105	274	29	106	254	29	102	308	33	101	285	33	98
	160	200	21	97	181	21	93	215	23	95	194	22	91	241	25	91	217	25	87
70	200	274	29	127	257	29	124	294	31	124	276	31	121	331	35	119	310	35	116
	180	218	23	116	201	23	112	235	25	114	216	25	110	264	28	109	241	28	106
	160	164	17	104	146	17	100	176	19	103	156	18	99	197	21	99	174	20	96
80	200	249	26	132	233	27	129	268	28	130	250	28	126	301	32	125	280	32	122
	180	194	21	121	177	20	117	209	22	119	190	22	115	234	25	115	212	24	112
	160	140	15	109	123	14	106	150	16	108	131	15	104	168	18	105	146	17	102

LEGEND

Cap. — Btuh x 1000
EDB — Entering Dry-Bulb Temperature (F)
EGT — Entering Glycol Temperature (F)
Gpm — Gallons per Minute
Ldb — Leaving Dry-Bulb Temperature (F)

*This accessory glycol coil is intended for use with a MINIMUM of 25% glycol solution. It IS NOT intended for use solely with water due to freeze-up conditions and the resulting water damage to the conditioned space.

NOTE: Fluid ∆t = 20 F.

GLYCOL COIL RATINGS — 50HJQ014,016

ENTERING FLUID TEMP (F)	CFM							
	4000		5000		6000		8000	
	GPM	∆P	GPM	∆P	GPM	∆P	GPM	∆P
200	27	1.2	31	1.5	35	1.8	41	2.4
180	22	0.9	25	1.1	27	1.3	32	1.6
160	16	0.6	19	0.7	20	0.8	24	1.0

NOTE: ∆P is the fluid pressure in ft of head.

MULTIPLICATION FACTORS

HEATER RATING VOLTAGE	ACTUAL HEATER VOLTAGE										
	200	208	230	240	380	440	460	480	550	575	600
240	0.694	0.751	0.918	1.000	—	—	—	—	—	—	—
480	—	—	—	—	0.626	0.840	0.918	1.000	—	—	—
600	—	—	—	—	—	—	—	—	0.840	0.918	1.000

NOTE: The following equation converts kW of heat energy to Btuh:
kW x 3.413 = Btuh.

EXAMPLE: 34 kW (at 230 v) heater on 208 v
= 34.0 (.751 mult factor)
= 25.5 kW capacity at 208 v.

OUTDOOR SOUND POWER (TOTAL UNIT)

50HJQ	ARI RATING (decibels)	OCTAVE BANDS; Lw (A)							
		63	125	250	500	1000	2000	4000	8000
004,005	76	50.8	63.4	62.2	65.9	69.2	65.9	63.0	56.5
006,007	80	57.6	70.2	66.9	71.7	74.7	72.2	67.8	62.4
008	82	62.3	69.3	71.5	74.7	76.2	72.9	68.7	61.5
009	84	64.6	71.1	73.3	76.9	77.6	73.7	70.6	63.7
012	84	64.6	71.1	73.3	76.9	77.6	73.7	70.6	63.7

ARI — Air Conditioning and Refrigeration Institute
Lw (A) — Unit A — Weighted Sound Power Level

Electrical data — 50HJQ

50HJQ004-012 STANDARD MOTOR UNITS WITHOUT ELECTRICAL CONVENIENT OUTLET

UNIT 50HJQ	NOMINAL VOLTAGE V-PH-Hz	VOLTAGE RANGE		COMPRESSOR		OFM	IFM	ELECTRIC HEAT*		POWER SUPPLY		MINIMUM UNIT DISCONNECT SIZE	
		Min	Max	RLA	LRA	FLA	FLA	kW†	FLA	MCA	MOCP	FLA	LRA
004 (3 Tons)	208/230-1-60	187	254	16.0	88.0	0.7	4.9	—/— 3.3/ 4.4 4.9/ 6.5 6.5/ 8.7 7.9/10.5 9.8/13.0	—/— 15.9/18.3 23.6/27.1 31.3/36.3 38.0/43.8 47.1/54.2	25.6/ 25.6 45.5/ 48.5 55.1/ 59.5 64.7/ 71.0 73.1/ 80.4 84.5/ 93.4	30/ 30** 50/ 50** 60/ 60** 70/ 80 80/ 90 90/100	25/ 25 43/ 46 52/ 56 61/ 67 69/ 75 79/ 87	101/101 117/120 125/128 133/138 139/145 148/155††
	208/230-3-60	187	254	10.3	77.0	0.7	4.9	—/— 3.3/ 4.4 4.9/ 6.5 6.5/ 8.7 7.9/10.5 12.0/16.0	—/— 9.2/10.6 13.6/15.6 18.0/20.9 21.9/25.3 33.3/38.5	18.5/ 18.5 30.0/ 31.7 35.5/ 38.0 41.0/ 44.6 45.9/ 50.1 60.1/ 66.6	20/20** 30/35** 40/40** 45/45** 50/60** 70/70	18/ 18 29/ 30 34/ 36 39/ 42 43/ 47 57/ 63	90/ 90 99/101 104/106 108/111 112/116 124/129
	460-3-60	414	508	5.1	39.0	0.4	2.2	— 6.0 8.8 11.5 14.0	— 7.2 10.6 13.8 16.8	9.0 18.0 22.2 26.2 30.0	15** 20** 25** 30** 30**	9 17 21 25 28	46 53 57 60 63
005 (4 Tons)	208/230-1-60	187	254	18.3	109.0	0.7	4.9	—/— 3.3/ 4.4 6.5/ 8.7 9.8/13.0 13.1/17.4 15.8/21.0	—/— 15.9/18.3 31.3/36.3 47.1/54.2 63.0/72.5 76.0/87.5	28.5/ 28.5 48.4/ 51.4 67.6/ 73.9 87.4/ 96.2 107.2/119.1 123.5/137.9	30/ 30** 50/ 60** 70/ 80 90/100 110/125 125/150	27/ 27 46/ 49 63/ 69 82/ 90 100/111 115/128	122/122 138/141 154/159 169/176†† 185/195†† 198/210††
	208/230-3-60	187	254	12.4	88.0	0.7	4.9	—/— 4.9/ 6.5 6.5/ 8.7 12.0/16.0 15.8/21.0	—/— 13.6/15.6 18.0/20.9 33.3/38.5 43.9/50.5	21.1/21.1 38.1/40.6 43.6/47.2 62.7/69.2 76.0/84.2	25/25** 40/45** 45/50** 70/70 80/90	21/ 21 36/ 39 41/ 45 59/ 65 71/ 79	101/101 115/117 119/122 135/140 145/152
	460-3-60	414	508	6.4	44.0	0.4	2.2	— 6.0 11.5 14.0 23.0	— 7.2 13.8 16.8 27.7	10.6 19.6 27.9 31.6 45.2	15** 20** 30** 35** 50**	10 19 26 30 42	51 58 65 68 79
006 (5 Tons)	208/230-1-60	187	254	25.0	150.0	1.5	7.6	—/— 4.9/ 6.5 6.5/ 8.7 9.8/16.0 13.1/17.4 15.8/21.0	— 23.6/27.1 31.3/36.3 47.1/54.2 63.0/72.5 76.0/87.5	40.4/ 40.4 69.9/ 74.2 79.5/ 85.7 99.2/108.1 119.1/131.0 135.4/149.7	45/ 45** 70/ 80 80/ 90 100/110 125/150 150/150	39/ 39 66/ 70 75/ 81 93/102 112/123 127/140	188/188 211/215 219/224†† 235/242†† 251/260†† 264/275††
	208/230-3-60	187	254	17.3	123.0	1.5	5.8	—/— 4.9/ 6.5 7.9/10.5 12.0/16.0 15.8/21.0 19.9/26.5	—/— 13.6/15.6 21.9/25.3 33.3/38.5 43.9/50.5 55.2/63.8	28.9/ 28.9 45.9/ 48.4 56.3/ 60.6 70.6/ 77.1 83.8/ 92.1 97.9/108.7	30/ 30** 50/ 50** 60/ 70 80/ 80 90/100 100/110	28/ 28 44/ 46 53/ 57 67/ 73 79/ 86 92/102	168/168 181/183 190/193 201/208 212/218†† 223/232††
	460-3-60	414	508	9.0	62.0	0.8	2.6	— 6.0 11.5 14.0 23.0 25.5	— 7.2 13.8 16.8 27.7 30.7	13.9 22.9 31.2 34.9 48.5 51.5	15** 25** 35** 35** 50** 60**	14 22 29 33 45 48	92 100 106 109 120 123
007 (6 Tons)	208/230-3-60	187	254	20.5	156.0	1.4	5.8	—/— 4.9/ 6.5 7.9/10.5 12.0/16.0 15.8/21.0 19.9/26.5	—/— 13.6/15.6 21.9/25.3 33.3/38.5 43.9/50.5 55.2/63.8	32.8/ 32.8 49.8/ 52.3 60.2/ 64.5 74.5/ 81.0 87.7/ 96.0 101.8/112.6	35/ 35** 50/ 60** 70/ 70 80/ 90 90/100 110/125	32/ 32 47/ 50 57/ 61 70/ 76 82/ 90 95/105	200/200 214/216 222/225 233/239 244/251†† 255/264††
	460-3-60	414	508	9.6	70.0	0.6	2.6	— 6.0 11.5 14.0 23.0 25.5	— 7.2 13.8 16.8 27.7 30.7	15.2 24.2 32.5 36.2 49.8 53.6	20** 25** 35** 40** 50** 60**	15 23 31 34 47 50	92 99 106 109 120 123

See Legend on page 133.

50HJQ004-012 STANDARD MOTOR UNITS WITHOUT ELECTRICAL CONVENIENT OUTLET (cont)

UNIT 50HJQ	NOMINAL VOLTAGE (V-Ph-Hz)	VOLTAGE RANGE		COMPRESSOR (each)		OFM (each)	IFM	ELECTRIC HEAT*		POWER SUPPLY		MINIMUM UNIT DISCONNECT SIZE	
		Min	Max	RLA	LRA	FLA	FLA	kW†	FLA	MCA	MOCP	FLA	LRA
008 (7½ Tons)	208/230-3-60	187	254	12.4	88.0	1.4	7.5	— 7.8/10.4 12.0/16.0 18.6/24.8 24.0/32.0 31.8/42.4	— 21.7/ 25.0 33.3/ 38.5 51.6/ 59.7 66.6/ 77.0 88.3/102.0	38.2/ 38.2 65.3/ 69.5 79.8/ 86.3 102.7/112.8 121.5/134.5 148.6/165.7	40/ 40** 70/ 70** 80/ 90 110/125 125/150 150/175	40/ 40 65/ 69 79/ 85 100/109 117/129 142/158	242/242 264/267 275/281†† 294/302†† 309/319†† 330/344††
	460-3-60	414	508	6.4	44.0	0.7	3.4	— 13.9 16.5 27.8 33.0 41.7	— 16.7 19.8 33.4 39.7 50.2	19.2 40.1 44.0 61.0 68.8 82.0	20** 45** 45** 70 70 90	20 39 43 59 66 78	121 138 141 155 161 171
009 (8½ Tons)	208/230-3-60	187	254	13.9	105	1.4	7.5	— 7.8/10.4 12.0/16.0 18.6/24.8 24.0/32.0 31.8/42.4	— 21.7/ 25.0 33.3/ 38.5 51.6/ 59.7 66.6/ 77.0 88.3/102.0	41.3/ 41.3 68.4/ 72.5 82.9/ 89.4 105.8/115.9 124.5/137.5 151.7/168.8	45/ 45** 70/ 80** 90/ 90 110/125 125/150 175/175	43/43 68/72 82/88 103/112 120/132 145/161	276/276 298/301 309/315†† 328/336†† 343/353†† 364/378††
	460-3-60	414	508	7.9	55.0	0.7	3.4	— 13.9 16.5 27.8 33.0 41.7	— 16.7 19.8 33.4 39.7 50.2	22.3 43.2 47.0 64.0 71.9 85.0	25** 45** 50** 70 80 90	23 43 46 62 69 81	143 160 163 177 183 193
012 (10 Tons)	208/230-3-60	187	254	19.3	123.0	1.4	10.6	— 7.8/10.4 12.0/16.0 24.0/32.0 31.8/42.4 37.6/50.0	— 21.7/ 25.0 33.3/ 38.5 66.6/ 77.0 88.3/102.0 104.4/120.3	56.8/ 56.8 84.0/ 88.1 98.5/105.0 140.1/153.1 167.2/184.3 187.3/177.1	60/ 60** 90/ 90 100/110 150/175 175/200 200/200	60/ 60 85/ 89 98/104 136/148 161/177 180/198	337/337 358/362†† 370/375†† 403/414†† 425/439†† 441/457††
	460-3-60	414	508	10.0	62.0	0.7	4.8	— 16.5 27.8 33.0 41.7 50.0	— 19.8 33.4 39.7 50.2 60.1	28.7 53.5 70.5 78.3 91.5 88.8	30** 60** 80 80 100 100	30 53 69 76 88 99	170 189 203 209 220†† 230††

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning and Refrigeration
IFM — Indoor-Fan Motor
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps
MOCP — Maximum Overcurrent Protection
NEC — National Electrical Code
OFM — Outdoor-Fan Motor
RLA — Rated Load Amps

c UL us

*Heater capacity (kW) is based on heater voltage of 208 v, 240 v, or 480 v. If power distribution voltage to unit varies from rated heater voltage, heater kW will vary accordingly.
†Heaters are field installed only.
**Fuse or HACR circuit breaker.
††Electrical disconnect cannot be used if electric heater is installed.

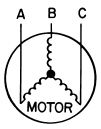
NOTES:

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.
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 percentage of voltage imbalance.

   % 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.

POWER EXHAUST ELECTRICAL DATA

POWER EXHAUST PART NO.	MCA (230 v)	MCA (460 v)	MCA (575 v)	MOCP (for separate power source)
CRPWREXH021A01	N/A	0.9	N/A	15
CRPWREXH022A01	3.3	N/A	1.32	15
CRPWREXH023A01	N/A	1.8	N/A	15
CRPWREXH028A01	1.7	N/A	0.68	15
CRPWREXH029A01	N/A	1.0	N/A	15
CRPWREXH030A01	1.6	N/A	0.64	15

N/A — Not available

NOTE: If a single power source is to be used, size wire to include power exhaust MCA and MOCP.

Check MCA and MOCP when power exhaust is powered through the unit. Determine the new MCA including the power exhaust using the following formula:

MCA New = MCA unit only + MCA of Power Exhaust

For example, using a 50TFQ006---5 unit with MCA = 35.6 and MOCP = 40, with CRPWREXH030A01 power exhaust.

MCA New = 35.6 amps + 1.6 amps = 37.2 amps

If the new MCA does not exceed the published MOCP, then MOCP would not change. The MOCP in this example is 40 amps and the MCA New is below 40; therefore the MOCP is acceptable. If "MCA New" is larger than the published MOCP, raise the MOCP to the next larger size. In all cases, the MOCP for the power exhaust should be 15 amps per NEC.

Electrical data — 50HJQ (cont)

50HJQ004-012 — STANDARD MOTOR UNITS WITH ELECTRICAL CONVENIENCE OUTLET

UNIT 50HJQ	NOMINAL VOLTAGE V-PH-Hz	VOLTAGE RANGE		COMPRESSOR		OFM	IFM	ELECTRIC HEAT*		POWER SUPPLY		MINIMUM UNIT DISCONNECT SIZE	
		Min	Max	RLA	LRA	FLA	FLA	kW†	FLA	MCA	MOCP	FLA	LRA
004 (3 Tons)	208/230-1-60	187	254	16.0	88.0	0.7	4.9	—/— 3.3/ 4.4 4.9/ 6.5 6.5/ 8.7 7.9/10.5 9.8/13.0	— 15.9/18.3 23.6/27.1 31.3/36.3 38.0/43.8 47.1/54.2	30.4/ 30.4 50.3/ 53.3 59.9/ 64.3 69.5/ 75.8 77.9/ 85.2 89.3/ 98.2	35/ 35** 60/ 60** 60/ 70 70/ 80 80/ 90 90/100	30/ 30 49/ 51 58/ 62 66/ 72 74/ 81 85/ 93	106/106 122/124 130/133 137/142 144/150†† 153/160††
	208/230-3-60	187	254	10.3	77.0	0.7	4.9	—/— 3.3/ 4.4 4.9/ 6.5 6.5/ 8.7 7.9/10.5 12.0/16.0	—/— 9.2/10.6 13.6/15.6 18.0/20.9 21.9/25.3 33.3/38.5	23.3/ 23.3 34.8/ 36.5 40.3/ 42.8 45.8/ 49.4 50.7/ 54.9 64.9/ 71.4	25/ 25** 35/ 40** 45/ 45** 50/ 50** 60/ 60** 70/ 80	24/ 24 34/ 36 39/ 42 45/ 48 49/ 53 62/ 68	95/ 95 104/106 109/111 113/116 117/120 128/134
	460-3-60	414	508	5.1	39.0	0.4	2.2	— 6.0 8.8 11.5 14.0	— 7.2 10.6 13.8 16.8	11.2 20.2 24.4 28.4 32.2	15** 25** 25** 30** 35**	11 20 24 27 31	48 55 59 62 65
005 (4 Tons)	208/230-1-60	187	254	18.3	109.0	0.7	4.9	—/— 3.3/ 4.4 6.5/ 8.7 9.8/13.0 13.1/17.4 15.8/21.0	—/— 15.9/18.3 31.3/36.3 47.1/54.2 63.0/72.5 76.0/87.5	33.3/ 33.0 53.2/ 56.2 72.4/ 78.7 92.2/101.0 112.0/123.9 128.3/142.7	35/ 35** 60/ 60 80/ 80 100/110 125/125 150/150	33/ 33 51/ 54 69/ 75 87/ 95 105/116 120/134	127/127 143/145 158/163†† 174/181†† 190/200†† 203/215††
	208/230-3-60	187	254	12.4	88.0	0.7	4.9	—/— 4.9/ 6.5 6.5/ 8.7 12.0/16.0 15.8/21.0	—/— 13.6/15.6 18.0/20.9 33.3/38.5 43.9/50.5	25.9/ 25.9 42.9/ 45.4 48.4/ 52.0 67.5/ 74.0 80.8/ 89.0	30/ 30** 45/ 50** 50/ 60** 70/ 80 90/ 90	26/ 26 42/ 44 47/ 50 65/ 71 77/ 84	106/106 120/122 124/127 139/145 150/157††
	460-3-60	414	508	6.4	44.0	0.4	2.2	— 6.0 11.5 14.0 23.0	— 7.2 13.8 16.8 27.7	12.8 21.8 30.0 33.8 47.4	15** 25** 35** 35** 50**	13 21 29 32 45	53 60 67 70 81
006 (5 Tons)	208/230-1-60	187	254	25.0	150.0	1.5	7.6	—/— 4.9/ 6.5 6.5/ 8.7 9.8/16.0 13.1/17.4 15.8/21.0	— 23.6/27.1 31.3/36.3 47.1/54.2 63.0/72.5 76.0/87.5	45.2/ 45.2 74.7/ 79.0 84.3/ 90.5 104.0/112.9 123.9/135.8 140.2/154.5	50/ 50** 80/ 80 90/100 110/125 125/150 150/175	45/ 45 72/ 76 81/ 86 99/107 117/128 132/145	193/193 216/220†† 224/229†† 240/247†† 256/265†† 269/280††
	208/230-3-60	187	254	17.3	123.0	1.5	5.8	—/— 4.9/ 6.5 7.9/10.5 12.0/16.0 15.8/21.0 19.9/26.5	—/— 13.6/15.6 21.9/25.3 33.3/38.5 43.9/50.5 55.2/63.8	33.7/ 33.7 50.7/ 53.2 61.1/ 65.4 75.4/ 81.9 88.6/ 96.9 102.7/113.5	35/ 35** 60/ 60** 70/ 70 80/ 90 90/100 110/125	34/ 34 49/ 52 59/ 63 72/ 78 84/ 92 97/107	173/173 186/188 194/198 206/211 216/223†† 228/236††
	460-3-60	414	508	9.0	62.0	0.8	2.6	— 6.0 11.5 14.0 23.0 25.5	— 7.2 13.8 16.8 27.7 30.7	16.1 25.1 33.3 37.1 50.7 53.7	20** 30** 35** 40** 60** 60**	16 24 32 35 48 51	95 102 108 111 122 125
007 (6 Tons)	208/230-3-60	187	254	20.5	156.0	1.4	5.8	—/— 4.9/ 6.5 7.9/10.5 12.0/16.0 15.8/21.0 19.9/26.5	—/— 13.6/15.6 21.9/25.3 33.3/38.5 43.9/50.5 55.2/63.8	37.6/ 37.6 54.6/ 57.1 65.0/ 69.3 79.3/ 85.8 92.5/100.8 106.6/117.4	40/ 40** 60/ 60** 70/ 70 80/ 90 100/110 110/125	37/ 37 53/ 55 63/ 66 76/ 82 88/ 95 101/111	205/205 219/221 227/230 238/243†† 249/255†† 260/269††
	460-3-60	414	508	9.6	70.0	0.6	2.6	— 6.0 11.5 14.0 23.0 25.5	— 7.2 13.8 16.8 27.7 30.7	17.4 26.4 34.6 38.4 52.0 55.8	20** 30** 35** 40** 60** 60**	17 26 33 37 49 53	99 106 113 116 127 130

See Legend on page 135.

50HJQ004-012 — STANDARD MOTOR UNITS WITH ELECTRICAL CONVENIENCE OUTLET (cont)

UNIT 50HJQ	NOMINAL VOLTAGE (V-Ph-Hz)	VOLTAGE RANGE		COMPRESSOR (each)		OFM (each)	IFM	ELECTRIC HEAT*		POWER SUPPLY		MINIMUM UNIT DISCONNECT SIZE	
		Min	Max	RLA	LRA	FLA	FLA	kW†	FLA	MCA	MOCP	FLA	LRA
008 (7½ Tons)	208/230-3-60	187	254	12.4	88.0	1.4	7.5	—	—	43.0/ 43.0	45/ 45**	46/ 46	247/247
								7.8/10.4	21.7/ 25.0	70.1/ 74.3	80/ 80	71/ 75	269/272
								12.0/16.0	33.3/ 38.5	84.6/ 91.1	90/100	84/ 90	280/285††
								18.6/24.8	51.6/ 59.7	107.5/117.6	110/125	105/115	298/307††
								24.0/32.0	66.6/ 77.0	126.3/139.3	150/150	122/134	313/324††
								31.8/42.4	88.3/102.0	153.4/170.5	175/175	147/163	335/349††
	460-3-60	414	508	6.4	44.0	0.7	3.4	—	—	21.4	25**	23	123
								13.9	16.7	42.3	45**	42	140
								16.5	19.8	46.1	50**	46	143
								27.8	33.4	63.1	70	61	157
								33.0	39.7	71.0	80	68	163
								41.7	50.2	84.1	90	80	174
009 (8½ Tons)	208/230-3-60	187	254	13.9	105	1.4	7.5	—	—	46.1/ 46.1	50/ 50**	49/ 49	281/281
								7.8/10.4	21.7/ 25.0	73.2/ 77.3	80/ 80	74/ 78	303/306
								12.0/16.0	33.3/ 38.5	87.7/ 94.2	90/100	87/ 93	314/319††
								18.6/24.8	51.6/ 59.7	110.6/120.7	125/125	108/118	332/341††
								24.0/32.0	66.6/ 77.0	129.3/142.3	150/150	126/138	347/358††
								31.8/42.4	88.3/102.0	156.5/173.6	175/175	151/166	369/383††
	460-3-60	414	508	7.9	55.0	0.7	3.4	—	—	24.5	25**	26	145
								13.9	16.7	45.3	50**	45	162
								16.5	19.8	49.2	50**	49	165
								27.8	33.4	66.2	70	64	179
								33.0	39.7	74.1	80	72	185
								41.7	50.2	87.2	90	84	196
012 (10 Tons)	208/230-3-60	187	254	19.3	123.0	1.4	10.6	—	—	61.6/ 61.6	70/ 70	65/ 65	341/341
								7.8/10.4	21.7/ 25.0	88.8/ 92.9	90/100	90/ 94	363/366††
								12.0/16.0	33.3/ 38.5	103.3/109.8	110/110	104/110	375/380††
								24.0/32.0	66.6/ 77.0	144.9/157.9	150/175	142/154	408/418††
								31.8/42.4	88.3/102.0	172.0/189.1	175/200	167/183	430/443††
								37.6/50.0	104.4/120.3	192.1/181.9	200/200	185/204	446/462††
	460-3-60	414	508	10.0	62.0	0.7	4.8	—	—	30.9	35**	33	172
								16.5	19.8	55.6	60**	55	191
								27.8	33.4	72.6	80	71	205
								33.0	39.7	80.5	90	78	211
								41.7	50.2	93.6	100	90	222††
								50.0	60.1	91.0	100	102	232††

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning and Refrigeration
IFM — Indoor-Fan Motor
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps
MOCP — Maximum Overcurrent Protection
NEC — National Electrical Code
OFM — Outdoor-Fan Motor
RLA — Rated Load Amps

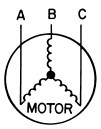
*Heater capacity (kW) is based on heater voltage of 208 v, 240 v, or 480 v. If power distribution voltage to unit varies from rated heater voltage, heater kW will vary accordingly.
†Heaters are field installed only.
**Fuse or HACR circuit breaker.
††Electrical disconnect cannot be used if electric heater is installed.

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.
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 percentage of voltage imbalance.

   % 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.

POWER EXHAUST ELECTRICAL DATA

POWER EXHAUST PART NO.	MCA (230 v)	MCA (460 v)	MCA (575 v)	MOCP (for separate power source)
CRPWREXH021A01	N/A	0.9	N/A	15
CRPWREXH022A01	3.3	N/A	1.32	15
CRPWREXH023A01	N/A	1.8	N/A	15
CRPWREXH028A01	1.7	N/A	0.68	15
CRPWREXH029A01	N/A	1.0	N/A	15
CRPWREXH030A01	1.6	N/A	0.64	15

N/A — Not available

NOTE: If a single power source is to be used, size wire to include power exhaust MCA and MOCP.

Check MCA and MOCP when power exhaust is powered through the unit. Determine the new MCA including the power exhaust using the following formula:

MCA New = MCA unit only + MCA of Power Exhaust

For example, using a 50TFQ006---5 unit with MCA = 35.6 and MOCP = 40, with CRPWREXH030A01 power exhaust.

MCA New = 35.6 amps + 1.6 amps = 37.2 amps

If the new MCA does not exceed the published MOCP, then MOCP would not change. The MOCP in this example is 40 amps and the MCA New is below 40; therefore the MOCP is acceptable. If "MCA New" is larger than the published MOCP, raise the MOCP to the next larger size. In all cases, the MOCP for the power exhaust should be 15 amps per NEC.

Electrical data — 50HJQ (cont)

50HJQ004-012 — HIGH-STATIC MOTOR UNITS WITHOUT ELECTRICAL CONVENIENCE OUTLET

UNIT 50HJQ	NOMINAL VOLTAGE V-PH-Hz	VOLTAGE RANGE		COMPRESSOR		OFM	IFM	ELECTRIC HEAT*		POWER SUPPLY		MINIMUM UNIT DISCONNECT SIZE	
		Min	Max	RLA	LRA	FLA	FLA	kW†	FLA	MCA	MOCP	FLA	LRA
004 (3 Tons)	208/230-3-60	187	254	10.3	77.0	0.7	5.8	—/—	—/—	19.4/ 19.4	20/20	19/ 19	120/120
								3.3/ 4.4	9.2/10.6	30.9/ 32.6	35/35	30/ 32	129/130
								4.9/ 6.5	13.6/15.6	36.4/ 38.9	40/40	35/ 37	133/135
								6.5/ 8.7	18.0/20.9	41.9/ 45.5	45/50	40/ 43	138/141
								7.9/10.5	21.9/25.3	46.8/ 51.0	50/60	45/ 48	142/145
								12.0/16.0	33.3/38.5	61.0/ 67.5	70/70	58/ 64	153/158
	460-3-60	414	508	5.1	39.0	0.4	2.6	—	—	9.4	15**	9	60
								6.0	7.2	18.4	20**	18	68
								8.8	10.6	22.6	25**	22	71
								11.5	13.8	26.6	30**	25	74
								14.0	16.8	30.4	35**	29	77
005 (4 Tons)	208/230-3-60	187	254	12.4	88.0	0.7	5.8	—/—	—/—	22.0/ 22.0	25/ 25	22/ 22	131/131
								4.9/ 6.5	13.6/15.6	39.0/ 41.5	40/ 45	37/ 40	144/146
								6.5/ 8.7	18.0/20.9	44.5/ 48.1	45/ 50	42/ 46	149/152
								12.0/16.0	33.3/38.5	63.6/ 70.1	70/ 80	60/ 66	164/169
								15.8/21.0	43.9/50.5	76.9/ 85.1	80/ 90	72/ 80	175/181††
	460-3-60	414	508	6.4	44.0	0.4	2.6	—	—	11.0	15**	11	65
								6.0	7.2	20.0	20**	19	73
								11.5	13.8	28.3	30**	27	79
								14.0	16.8	32.0	35**	30	82
								23.0	27.7	45.6	50**	43	93
006 (5 Tons)	208/230-3-60	187	254	17.3	123.0	1.5	7.5	—/—	—/—	30.6/ 30.6	35/ 35	30/ 30	187/187
								4.9/ 6.5	13.6/15.6	47.6/ 50.1	50/ 60	46/ 48	200/202
								7.9/10.5	21.9/25.3	58.0/ 62.3	60/ 70	55/ 59	209/212
								12.0/16.0	33.3/38.5	72.3/ 78.8	80/ 80	69/ 75	220/225
								15.8/21.0	43.9/50.5	85.5/ 93.8	90/100	81/ 88	231/237**
								19.9/26.5	55.2/63.8	99.6/110.4	100/125	94/104	242/251**
	460-3-60	414	508	8.4	70.0	0.8	3.4	—	—	14.7	15**	14	102
								6.0	7.2	23.7	25**	23	109
								11.5	13.8	32.0	35**	30	116
								14.0	16.8	35.7	40**	34	119
								23.0	27.7	49.3	50**	46	130
								25.5	30.7	52.3	60**	49	132
007 (6 Tons)	208/230-3-60	187	254	20.5	156.0	1.4	7.5	—/—	—/—	34.5/ 34.5	35/ 35	34/ 34	219/219
								4.9/ 6.5	13.6/15.6	51.5/ 54.0	60/ 60	49/ 52	233/235
								7.9/10.5	21.9/25.3	61.9/ 66.2	70/ 70	59/ 63	241/244
								12.0/16.0	33.3/38.5	76.2/ 82.7	80/ 90	72/ 78	252/258
								15.8/21.0	43.9/50.5	89.4/ 97.7	90/100	84/ 92	263/270**
								19.9/26.5	55.2/63.8	103.5/114.3	110/125	97/107	274/283**
	460-3-60	414	508	9.6	70.0	0.6	3.4	—	—	16.0	20**	16	107
								6.0	7.2	25.0	25**	24	114
								11.5	13.8	33.3	35**	32	120
								14.0	16.8	37.0	40**	35	123
								23.0	27.7	50.6	60**	47	134
								25.5	30.7	54.4	60**	51	137

See Legend on page 137.

50HJQ004-012 — HIGH-STATIC MOTOR UNITS WITHOUT ELECTRICAL CONVENIENCE OUTLET (cont)

UNIT 50HJQ	NOMINAL VOLTAGE (V-Ph-Hz)	VOLTAGE RANGE		COMPRESSOR (each)		OFM (each)	IFM	ELECTRIC HEAT*		POWER SUPPLY		MINIMUM UNIT DISCONNECT SIZE	
		Min	Max	RLA	LRA	FLA	FLA	kW†	FLA	MCA	MOCP	FLA	LRA
008 (7½ Tons)	208/230-3-60	187	254	12.4	88.0	1.4	10.6	—	—	41.3/ 41.3	45/ 45**	44/ 44	267/267
								7.8/10.4	21.7/ 25.0	68.4/ 72.6	70/ 80	69/ 73	288/292
								12.0/16.0	33.3/ 38.5	82.9/ 89.4	90/ 90	82/ 88	300/305††
								18.6/24.8	51.6/ 59.7	105.8/115.9	110/125	103/113	318/336††
								24.0/32.0	66.6/ 77.0	124.6/137.6	125/150	121/132	333/344††
								31.8/42.4	88.3/102.0	151.7/168.8	175/175	145/169	355/369††
	460-3-60	414	508	6.4	44.0	0.7	4.8	—	—	20.6	25**	22	134
								13.9	16.7	41.5	45**	41	150
								16.5	19.8	45.4	50**	45	153
								27.8	33.4	62.4	70	60	167
								33.0	39.7	70.2	80	68	173
								41.7	50.2	83.4	90	80	184
009 (8½ Tons)	208/230-3-60	187	254	13.9	105	1.4	10.6	—	—	44.4/ 44.4	45/ 45**	47/ 47	301/301
								7.8/10.4	21.7/ 25.0	71.5/ 75.6	80/ 80	72/ 76	322/326
								12.0/16.0	33.3/ 38.5	86.0/ 92.5	90/100	85/ 91	334/339††
								18.6/24.8	51.6/ 59.7	108.9/119.0	110/125	106/116	352/360††
								24.0/32.0	66.6/ 77.0	127.6/140.6	150/150	124/136	367/378††
								31.8/42.4	88.3/102.0	154.8/171.9	175/175	149/164	389/403††
	460-3-60	414	508	7.9	55.0	0.7	4.8	—	—	23.7	25**	25	156
								13.9	16.7	44.6	45**	44	172
								16.5	19.8	48.4	50**	48	175
								27.8	33.4	65.4	70	63	189
								33.0	39.7	73.3	80	71	195
								41.7	50.2	86.4	90	83	206
012 (10 Tons)	208/230-3-60	187	254	19.3	123.0	1.4	15.0	—	—	61.2/ 61.2	70/ 70	65/ 65	360/360
								7.8/10.4	21.7/ 25.0	88.4/ 92.5	90/100	90/ 94	382/385††
								12.0/16.0	33.3/ 38.5	102.9/109.4	110/110	103/109	393/399††
								24.0/32.0	66.6/ 77.0	144.5/157.5	150/175	141/153	427/437††
								31.8/42.4	88.3/102.0	171.6/188.7	175/200	166/182	448/462††
								37.5/50.0	104.4/120.3	191.7/181.5	200/200	185/203	464/480††
	460-3-60	414	508	10.0	62.0	0.7	7.4	—	—	31.3	35**	33	181
								16.5	19.8	56.1	60**	56	201
								27.8	33.4	73.1	80	72	215
								33.0	39.7	80.9	90	79	221
								41.7	50.2	94.1	100	91	231††
								50.0	60.1	96.4	100	102	241††

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning and Refrigeration
IFM — Indoor-Fan Motor
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps
MOCP — Maximum Overcurrent Protection
NEC — National Electrical Code
OFM — Outdoor-Fan Motor
RLA — Rated Load Amps

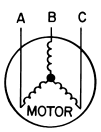
*Heater capacity (kW) is based on heater voltage of 208 v, 240 v, or 480 v. If power distribution voltage to unit varies from rated heater voltage, heater kW will vary accordingly.
†Heaters are field installed only.
**Fuse or HACR circuit breaker.
††Electrical disconnect cannot be used if electric heater is installed.

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.
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 percentage of voltage imbalance.

   % 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.

POWER EXHAUST ELECTRICAL DATA

POWER EXHAUST PART NO.	MCA (230 v)	MCA (460 v)	MCA (575 v)	MOCP (for separate power source)
CRPWREXH021A01	N/A	0.9	N/A	15
CRPWREXH022A01	3.3	N/A	1.32	15
CRPWREXH023A01	N/A	1.8	N/A	15
CRPWREXH028A01	1.7	N/A	0.68	15
CRPWREXH029A01	N/A	1.0	N/A	15
CRPWREXH030A01	1.6	N/A	0.64	15

N/A — Not available

NOTE: If a single power source is to be used, size wire to include power exhaust MCA and MOCP.

Check MCA and MOCP when power exhaust is powered through the unit. Determine the new MCA including the power exhaust using the following formula:

MCA New = MCA unit only + MCA of Power Exhaust

For example, using a 50TFQ006---5 unit with MCA = 35.6 and MOCP = 40, with CRPWREXH030A01 power exhaust.

MCA New = 35.6 amps + 1.6 amps = 37.2 amps

If the new MCA does not exceed the published MOCP, then MOCP would not change. The MOCP in this example is 40 amps and the MCA New is below 40; therefore the MOCP is acceptable. If "MCA New" is larger than the published MOCP, raise the MOCP to the next larger size. In all cases, the MOCP for the power exhaust should be 15 amps per NEC.

Electrical data — 50HJQ (cont)

50HJQ004-012 — HIGH-STATIC MOTOR UNITS WITH ELECTRICAL CONVENIENCE OUTLET

UNIT 50HJQ	NOMINAL VOLTAGE V-PH-Hz	VOLTAGE RANGE		COMPRESSOR		OFM	IFM	ELECTRIC HEAT*		POWER SUPPLY		MINIMUM UNIT DISCONNECT SIZE	
		Min	Max	RLA	LRA	FLA	FLA	kW†	FLA	MCA	MOCP	FLA	LRA
004 (3 Tons)	208/230-3-60	187	254	10.3	77.0	0.7	5.8	—/— 3.3/ 4.4 4.9/ 6.5 6.5/ 8.7 7.9/10.5 12.0/16.0	—/— 9.2/10.6 13.6/15.6 18.0/20.9 21.9/25.3 33.3/38.5	24.2/ 24.2 35.7/ 37.4 41.2/ 43.7 46.7/ 50.3 51.6/ 55.8 65.8/ 72.3	25/ 25 40/ 40 45/ 45 50/ 60 60/ 60 70/ 80	25/ 25 35/ 37 40/ 43 46/ 49 50/ 54 63/ 69	124/124 134/135 138/140 142/145 146/150 158/163
	460-3-60	414	508	5.1	39.0	0.4	2.6	— 6.0 8.8 11.5 14.0	— 7.2 10.6 13.8 16.8	11.6 20.6 24.8 28.8 33.6	15** 25** 25** 30** 35**	12 20 24 28 31	63 70 73 76 79
005 (4 Tons)	208/230-3-60	187	254	12.4	88.0	0.7	5.8	—/— 4.9/ 6.5 6.5/ 8.7 12.0/16.0 15.8/21.0	—/— 13.6/15.6 18.0/20.9 33.3/38.5 43.9/50.5	26.8/ 26.8 43.8/ 46.3 49.3/ 52.9 68.4/ 74.9 81.7/ 89.9	30/ 30 45/ 50 50/ 60 70/ 80 90/ 90	27/ 27 43/ 45 48/ 51 66/ 72 78/ 85	135/135 149/151 153/156 169/174 179/186††
	460-3-60	414	508	6.4	44.0	0.4	2.6	— 6.0 11.5 14.0 23.0	— 7.2 13.8 16.8 27.7	13.2 22.2 28.9 34.2 47.8	15** 25** 30** 35** 50**	13 22 28 33 45	68 75 80 84 95
006 (5 Tons)	208/230-3-60	187	254	17.3	123.0	1.5	7.5	—/— 4.9/ 6.5 7.9/10.5 12.0/16.0 15.8/21.0 19.9/26.5	—/— 13.6/15.6 21.9/25.3 33.3/38.5 43.9/50.5 55.2/63.8	35.4/ 35.4 52.4/ 54.9 62.8/ 67.1 77.1/ 83.6 90.3/ 98.6 104.4/115.2	40/ 40 60/ 60 70/ 70 80/ 90 100/100 110/125	36/ 36 51/ 54 61/ 65 74/ 80 86/ 94 99/109	192/192 205/207 213/217 225/230†† 235/242†† 247/255††
	460-3-60	414	508	8.4	70.0	0.8	3.4	— 6.0 11.5 14.0 23.0 25.5	— 7.2 13.8 16.8 27.7 30.7	16.9 25.9 34.1 37.9 51.5 54.5	20** 30** 35** 40** 60** 60**	17 25 33 36 49 52	104 111 118 121 132 134
007 (6 Tons)	208/230-3-60	187	254	20.5	156.0	1.4	7.5	—/— 4.9/ 6.5 7.9/10.5 12.0/16.0 15.8/21.0 19.9/26.5	—/— 13.6/15.6 21.9/25.3 33.3/38.5 43.9/50.5 55.2/63.8	39.3/ 39.3 56.3/ 58.8 66.7/ 71.0 81.0/ 87.5 94.2/102.5 108.3/119.1	40/ 40 60/ 60 70/ 80 90/ 90 100/110 110/125	39/ 39 55/ 57 65/ 68 78/ 84 90/ 97 103/113	224/224 238/240 246/249 257/262†† 268/274†† 279/288††
	460-3-60	414	508	9.6	70.0	0.6	3.4	— 6.0 11.5 14.0 23.0 25.5	— 7.2 13.8 16.8 27.7 30.7	18.2 27.2 35.4 39.2 52.8 56.6	20** 30** 40** 40** 60** 60**	18 26 34 37 50 53	109 116 123 126 136 139

See Legend on page 139.

50HJQ004-012 — HIGH-STATIC MOTOR UNITS WITH ELECTRICAL CONVENIENCE OUTLET (cont)

UNIT 50HJQ	NOMINAL VOLTAGE (V-Ph-Hz)	VOLTAGE RANGE		COMPRESSOR (each)		OFM (each)	IFM	ELECTRIC HEAT*		POWER SUPPLY		MINIMUM UNIT DISCONNECT SIZE	
		Min	Max	RLA	LRA	FLA	FLA	kW†	FLA	MCA	MOCP	FLA	LRA
008 (7½ Tons)	208/230-3-60	187	254	12.4	88.0	1.4	10.6	—	—	46.1/ 46.1	50/ 50**	49/ 49	271/271
								7.8/10.4	21.7/ 25.0	73.2/ 77.4	80/ 80	74/ 78	293/296
								12.0/16.0	33.3/ 38.5	87.7/ 94.2	90/100	88/ 94	305/310††
								18.6/24.8	51.6/ 59.7	110.6/120.7	125/125	109/118	323/331††
								24.0/32.0	66.6/ 77.0	129.4/142.4	150/150	126/138	338/348††
								31.8/42.4	88.3/102.0	156.5/173.6	175/175	159/167	360/373††
	460-3-60	414	508	6.4	44.0	0.7	4.8	—	—	22.8	25**	24	136
								13.9	16.7	43.7	45**	44	152
								16.5	19.8	47.5	50**	47	155
								27.8	33.4	64.5	70	63	169
								33.0	39.7	72.4	80	70	175
								41.7	50.2	85.5	90	82	186††
009 (8½ Tons)	208/230-3-60	187	254	13.9	105	1.4	10.6	—	—	49.2/ 49.2	50/ 50**	53/ 53	305/305
								7.8/10.4	21.7/ 25.0	76.3/ 80.4	80/ 90	78/ 81	327/330
								12.0/16.0	33.3/ 38.5	90.8/ 97.3	100/100	91/ 97	339/344††
								18.6/24.8	51.6/ 59.7	113.7/123.8	125/125	112/121	357/365††
								24.0/32.0	66.6/ 77.0	132.4/145.4	150/150	129/141	372/382††
								31.8/42.4	88.3/102.0	159.6/176.7	175/200	154/170	394/407††
	460-3-60	414	508	7.9	55.0	0.7	4.8	—	—	25.9	30**	27	158
								13.9	16.7	46.7	50**	47	174
								16.5	19.8	50.6	60**	50	177
								27.8	33.4	67.6	70	66	191
								33.0	39.7	75.5	80	73	197
								41.7	50.2	88.6	90	85	208††
012 (10 Tons)	208/230-3-60	187	254	19.3	123.0	1.4	15.0	—	—	66.0/ 66.0	70/ 70	70/ 70	365/365
								7.8/10.4	21.7/ 25.0	93.2/ 97.3	100/100	95/ 99	387/390††
								12.0/16.0	33.3/ 38.5	107.7/114.2	110/125	109/115	398/403††
								24.0/32.0	66.6/ 77.0	149.3/162.3	150/175	147/159	431/442††
								31.8/42.4	88.3/102.0	176.4/193.5	200/200	172/188	453/467††
								37.5/50.0	104.4/120.3	196.5/186.3	200/200	190/209	469/485††
	460-3-60	414	508	10.0	62.0	0.7	7.4	—	—	33.5	35**	36	183
								16.5	19.8	58.2	60**	58	203
								27.8	33.4	75.2	80	74	217
								33.0	39.7	83.1	90	81	223††
								41.7	50.2	96.2	100	93	234††
								50.0	60.1	93.6	100	105	243††

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning and Refrigeration
IFM — Indoor-Fan Motor
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps
MOCP — Maximum Overcurrent Protection
NEC — National Electrical Code
OFM — Outdoor-Fan Motor
RLA — Rated Load Amps

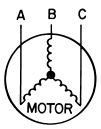
*Heater capacity (kW) is based on heater voltage of 208 v, 240 v, or 480 v. If power distribution voltage to unit varies from rated heater voltage, heater kW will vary accordingly.
†Heaters are field installed only.
**Fuse or HACR circuit breaker.
††Electrical disconnect cannot be used if electric heater is installed.

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.
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 percentage of voltage imbalance.

   % 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.

POWER EXHAUST ELECTRICAL DATA

POWER EXHAUST PART NO.	MCA (230 v)	MCA (460 v)	MCA (575 v)	MOCP (for separate power source)
CRPWREXH021A01	N/A	0.9	N/A	15
CRPWREXH022A01	3.3	N/A	1.32	15
CRPWREXH023A01	N/A	1.8	N/A	15
CRPWREXH028A01	1.7	N/A	0.68	15
CRPWREXH029A01	N/A	1.0	N/A	15
CRPWREXH030A01	1.6	N/A	0.64	15

N/A — Not available

NOTE: If a single power source is to be used, size wire to include power exhaust MCA and MOCP.

Check MCA and MOCP when power exhaust is powered through the unit. Determine the new MCA including the power exhaust using the following formula:

MCA New = MCA unit only + MCA of Power Exhaust

For example, using a 50TFQ006---5 unit with MCA = 35.6 and MOCP = 40, with CRPWREXH030A01 power exhaust.

MCA New = 35.6 amps + 1.6 amps = 37.2 amps

If the new MCA does not exceed the published MOCP, then MOCP would not change. The MOCP in this example is 40 amps and the MCA New is below 40; therefore the MOCP is acceptable. If "MCA New" is larger than the published MOCP, raise the MOCP to the next larger size. In all cases, the MOCP for the power exhaust should be 15 amps per NEC.

Electrical data — 50HJQ (cont)

50HJQ014,016

UNIT 50HJQ	VOLTAGE (3 PH, 60 Hz)	VOLTAGE RANGE		COMPRESSOR No. 1		COMPRESSOR No. 2		OUTDOOR FAN MOTOR		INDOOR FAN MOTOR		POWER EXHAUST		ELECTRIC HEAT*		POWER SUPPLY		DISCONNECT SIZING	
		Min	Max	RLA	LRA	RLA	LRA	Qty	FLA (ea)	Hp	FLA	FLA	LRA	FLA	kW	MCA	MOCP†	RLA	LRA
014	208/230	187	253	39.7	228	—	—	3	1.7	3.7	10.5/10.5	—	—	—/— 39/ 45 72/ 92 117/135	—/— 14/19 26/34 42/56	65/ 65 114/122 155/168 211/200	100/100 125/150 175/175 225/225	64/ 64 64/ 64 94/107 147/167	387/387
												4.6	18.8	—/— 39/ 45 72/ 82 117/135	—/— 14/19 26/34 42/56	70/ 70 119/126 159/173 216/205	100/100 125/150 175/175 225/225	69/ 69 69/ 69 100/112 152/173	406/406
	460	414	508	19.9	114	—	—	3	0.8	3.7	4.8	—	—	— 18 39 66	— 15 32 55	32 54 81 98	50 60 90 110	31 31 50 82	189
												2.3	6.0	— 18 39 66	— 15 32 55	34 57 83 100	50 70 90 110	34 34 53 84	195
	575	518	632	16.0	91	—	—	3	0.75	3.0	3.9	—	—	— 37	— 37	26 72	40 80	26 47	91
												2.1	4.8	— 37	— 37	28 75	40 80	28 50	96
016	208/230	187	253	28.2	160	28.2	160	3	1.7	5	15.8/158	—	—	—/— 72/ 82 117/135	—/— 26/34 42/56	84/ 84 174/187 231/219	110/110 175/200 250/225	89/ 89 101/112 153/173	499/485
												4.6	18.8	—/— 72/ 82 117/135	—/— 26/34 42/56	89/ 89 179/191 235/224	110/110 200/200 250/225	94/ 94 106/118 158/179	518/504
	460	414	508	14.1	80	14.1	80	3	0.8	5	7.9	—	—	— 39 66	— 32 55	42 91 108	50 100 110	44 54 85	238
												2.3	6.0	— 39 66	— 32 55	44 93 110	50 100 125	47 57 88	244
	575	518	632	11.3	64	11.3	64	3	0.75	5	6.0	—	—	— 50	— 50	34 96	40 100	35 64	165
												2.1	4.8	— 50	— 50	36 98	45 100	38 67	169

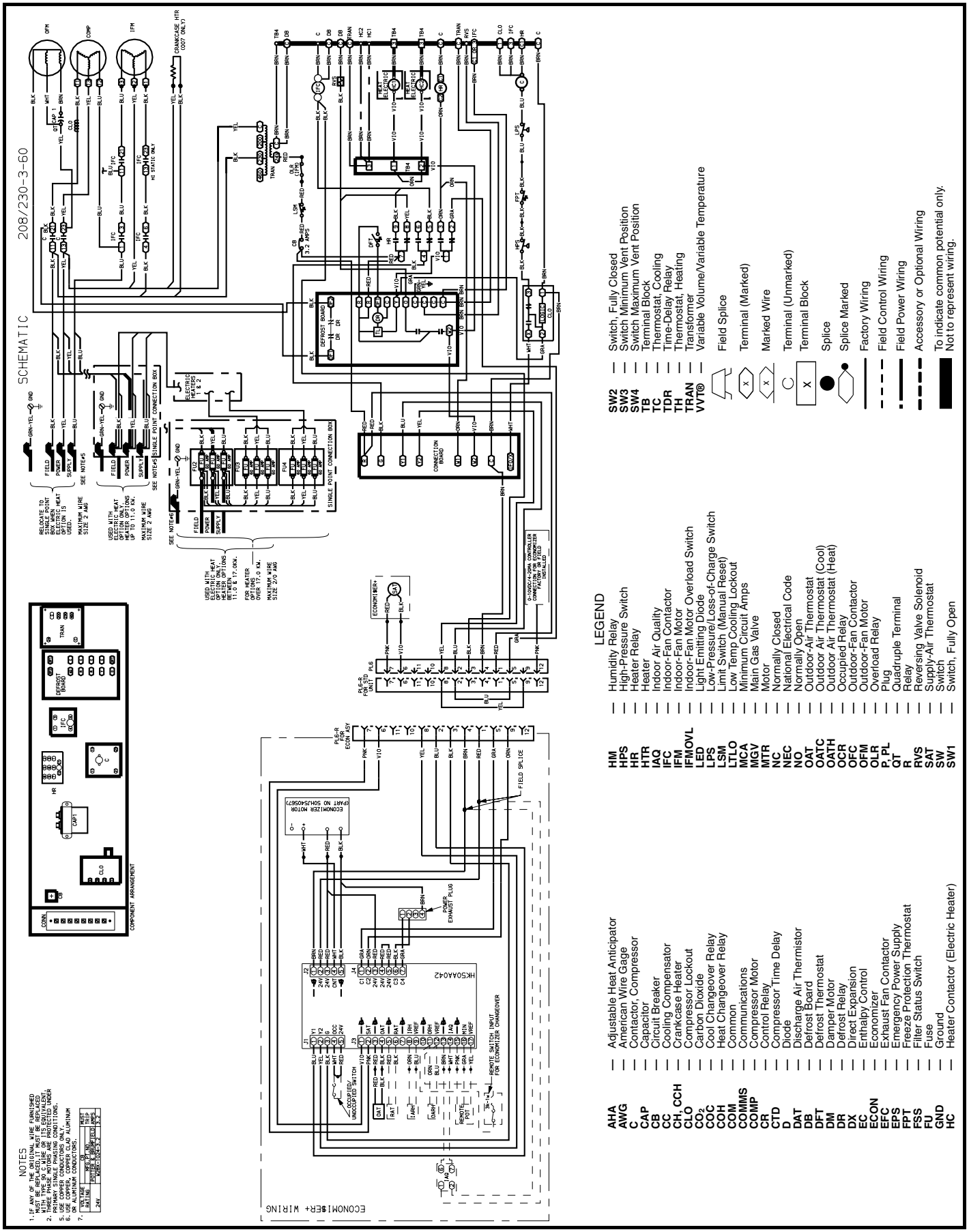
LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning and Refrigeration
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps
MOCP — Maximum Overcurrent Protection
NEC — National Electrical Code
RLA — Rated Load Amps

*Heater capacity (kW) is based on heater voltage of 208 v, 240 v, 480 v and 600 v. If power distribution voltage to unit varies from rated heater voltage, heater kW will vary accordingly.
†Fuse or HACR circuit breaker. This is the maximum size permissible; smaller fuse size may be used where conditions permit.

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 Canadian units may be fuse or circuit breaker.
2. MCA calculation for units with electric heaters over 50 kW = (1.25 x IFM amps) + (1.00 x heater FLA).

Typical wiring schematics — 50HJQ (50HJQ004 208/230 v shown)



AHA	—	Adjustable Heat Anticipator	HM	—	Humidity Relay
AWG	—	American Wire Gage	HPS	—	High-Pressure Switch
C	—	Contactor, Compressor	HR	—	Heater Relay
CAP	—	Capacitor	HTR	—	Heater
CB	—	Circuit Breaker	IAQ	—	Indoor Air Quality
CC	—	Cooling Compensator	IFC	—	Indoor-Fan Contactor
CH, CCH	—	Crankcase Heater	IFM	—	Indoor-Fan Motor
CLO	—	Compressor Lockout	IFMOVL	—	Indoor-Fan Motor Overload Switch
CO_2	—	Carbon Dioxide	LED	—	Light Emitting Diode
COC	—	Cool Changeover Relay	LPS	—	Low-Pressure/Loss-of-Charge Switch
COH	—	Heat Changeover Relay	LSM	—	Limit Switch (Manual Reset)
COM	—	Common	LTLO	—	Low Temp Cooling Lockout
COMMS	—	Communications	MCA	—	Minimum Circuit Amps
COMP	—	Compressor Motor	MGV	—	Main Gas Valve
CR	—	Control Relay	MTR	—	Motor
CTD	—	Compressor Time Delay	NC	—	Normally Closed
D	—	Diode	NEC	—	National Electrical Code
DAT	—	Discharge Air Thermistor	NO	—	Normally Open
DB	—	Defrost Board	OAT	—	Outdoor-Air Thermostat
DFT	—	Defrost Thermostat	OATC	—	Outdoor Air Thermostat (Cool)
DM	—	Damper Motor	OATH	—	Outdoor Air Thermostat (Heat)
DR	—	Defrost Relay	OCR	—	Occupied Relay
DX	—	Direct Expansion	OFC	—	Outdoor-Fan Contactor
EC	—	Enthalpy Control	OFM	—	Outdoor-Fan Motor
ECON	—	Economizer	OLR	—	Overload Relay
EFC	—	Exhaust Fan Contactor	P, PL	—	Plug
EPS	—	Emergency Power Supply	QT	—	Quadruple Terminal
FPT	—	Freeze Protection Thermostat	R	—	Relay
FSS	—	Filter Status Switch	RVS	—	Reversing Valve Solenoid
FU	—	Fuse	SAT	—	Supply-Air Thermostat
GND	—	Ground	SW	—	Switch
HC	—	Heater Contactor (Electric Heater)	SW1	—	Switch, Fully Open
			SW2	—	Switch, Fully Closed
			SW3	—	Switch Minimum Vent Position
			SW4	—	Switch Maximum Vent Position
			TB	—	Terminal Block
			TC	—	Thermostat, Cooling
			TDR	—	Time-Delay Relay
			TH	—	Thermostat, Heating
			TRAN	—	Transformer
			VVT®	—	Variable Volume/Variable Temperature

Field Splice

Terminal (Marked)

Marked Wire

Terminal (Unmarked)

Terminal Block

Splice

Splice Marked

Factory Wiring

Field Control Wiring

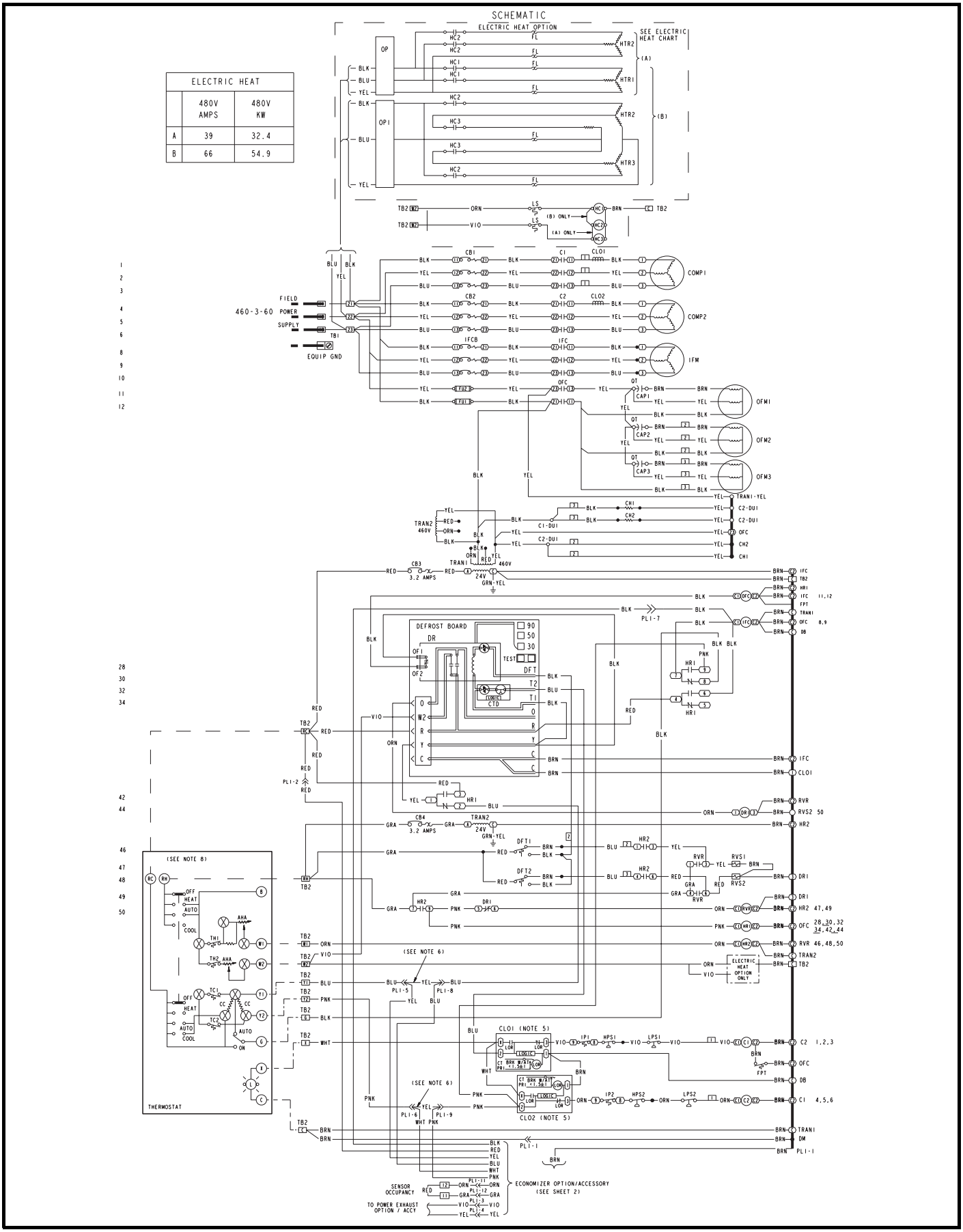
Field Power Wiring

Accessory or Optional Wiring

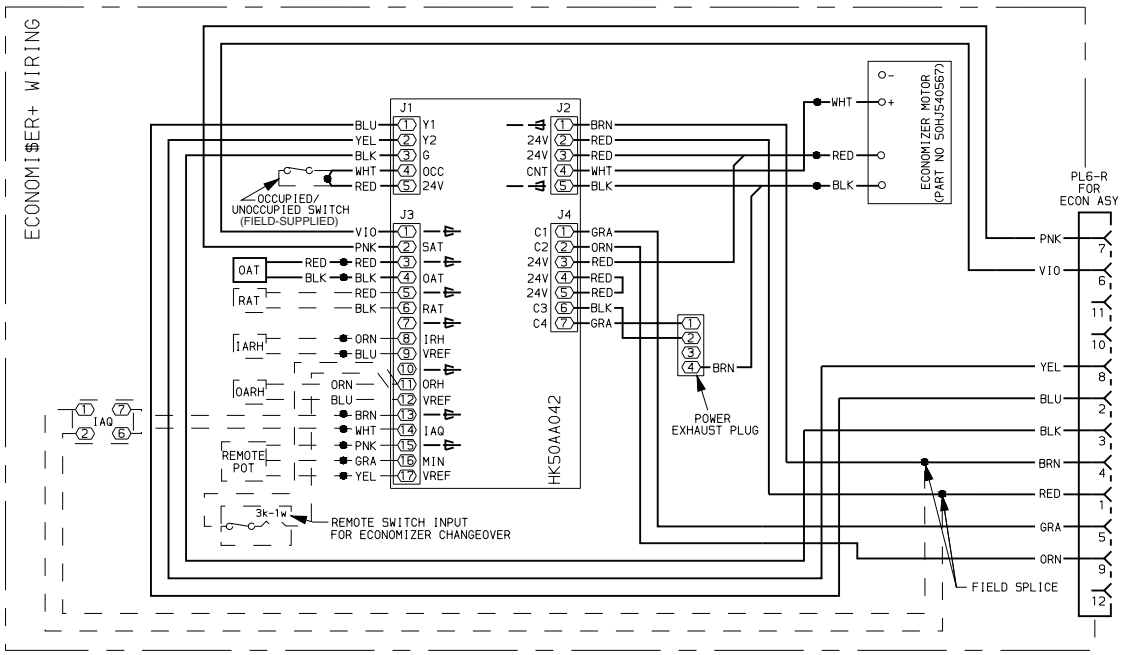
To indicate common potential only. Not to represent wiring.

50HJQ

Typical wiring schematics — 50HJQ (50HJQ016 460 v shown)



ECONOMI$ER+ WIRING — 50HJQ004-012 UNITS

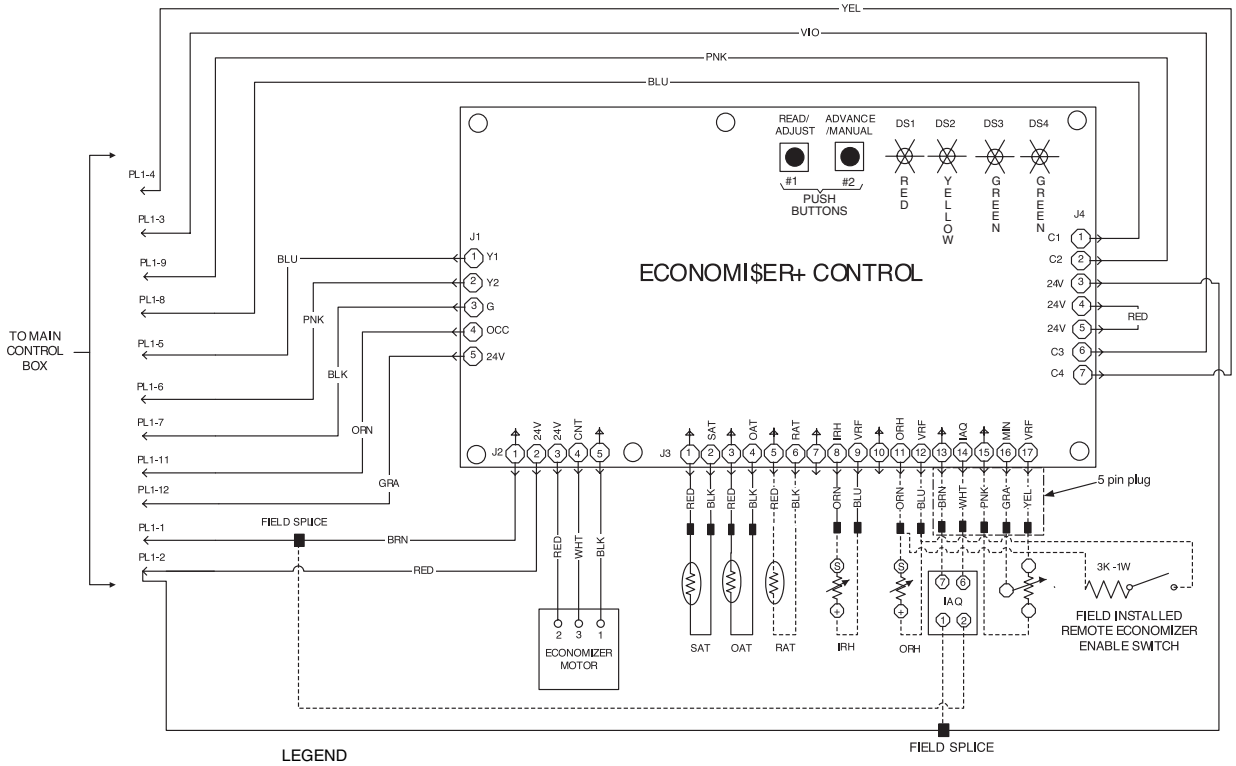


LEGEND

ECON — Economizer
IAQ — Indoor Air Quality (4 to 20 mA)
IARH — Indoor Air Relative Humidity (Signal)
IRH — Indoor Air Relative Humidity (Sensor)
OARH — Outdoor Air Relative Humidity (Signal)
OAT — Outdoor-Air Temperature
ORH — Outdoor Air Relative Humidity (Sensor)
POT — Potentiometer
RAT — Return-Air Temperature
SAT — Supply-Air Temperature

NOTES:
1. Terminals 13-17 are wired to 5-pin plug assembly (P/N CRE+PLUG001A00).
2. Pin numbers are not printed on the controller. They are provided in this book as a reference.

ECONOMI$ER+ WIRING — 50HJQ014,016 UNITS



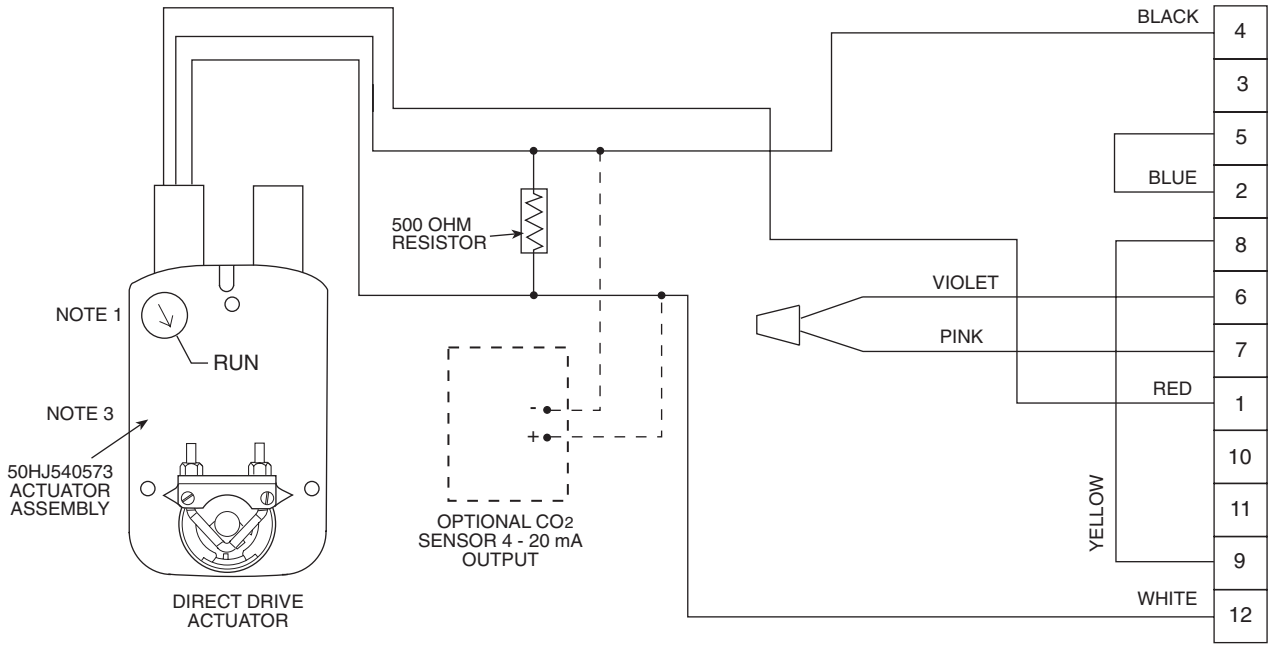
LEGEND

IAQ — Indoor Air Quality(4 to 20 mA)
IRH — Indoor Air Relative Humidity
OAT — Outdoor-Air Temperature
ORH — Outdoor Air Relative Humidity
RAT — Return-Air Temperature
SAT — Supply-Air Temperature

NOTE: Terminals 13-17 are wired to 5-pin plug assembly (P/N CRE+PLUG001A00).

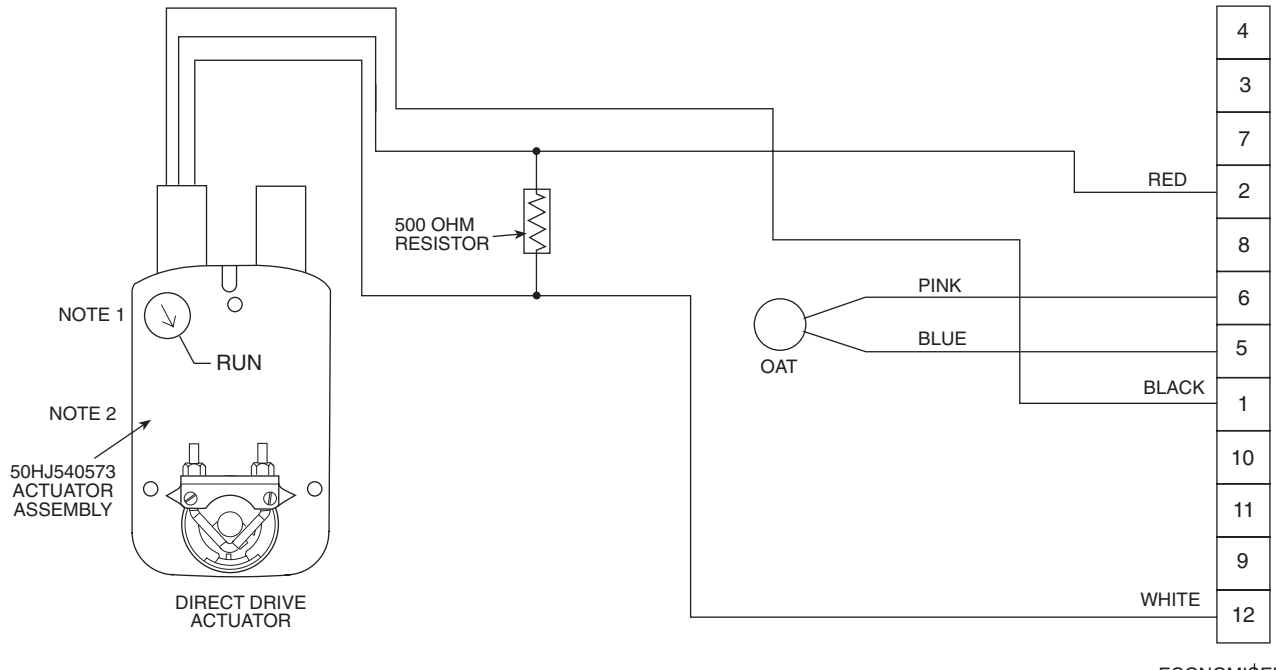
Typical wiring schematics — 50HJQ (cont)

ECONOMI$ER2 WIRING — 50HJQ004-012 UNITS



NOTES:
1. Switch on actuator must be in run position for economizer to operate.
2. PremierLink™ control requires that the standard 50HJ540569 outside-air sensor be replaced by either the CROASENR001A00 dry bulb sensor or HH57A077 enthalpy sensor.
3. 50HJ540573 actuator consists of the 50HJ540567 actuator and a harness with 500-ohm resistor.

ECONOMI$ER2 WIRING — 50HJQ014,016 UNITS

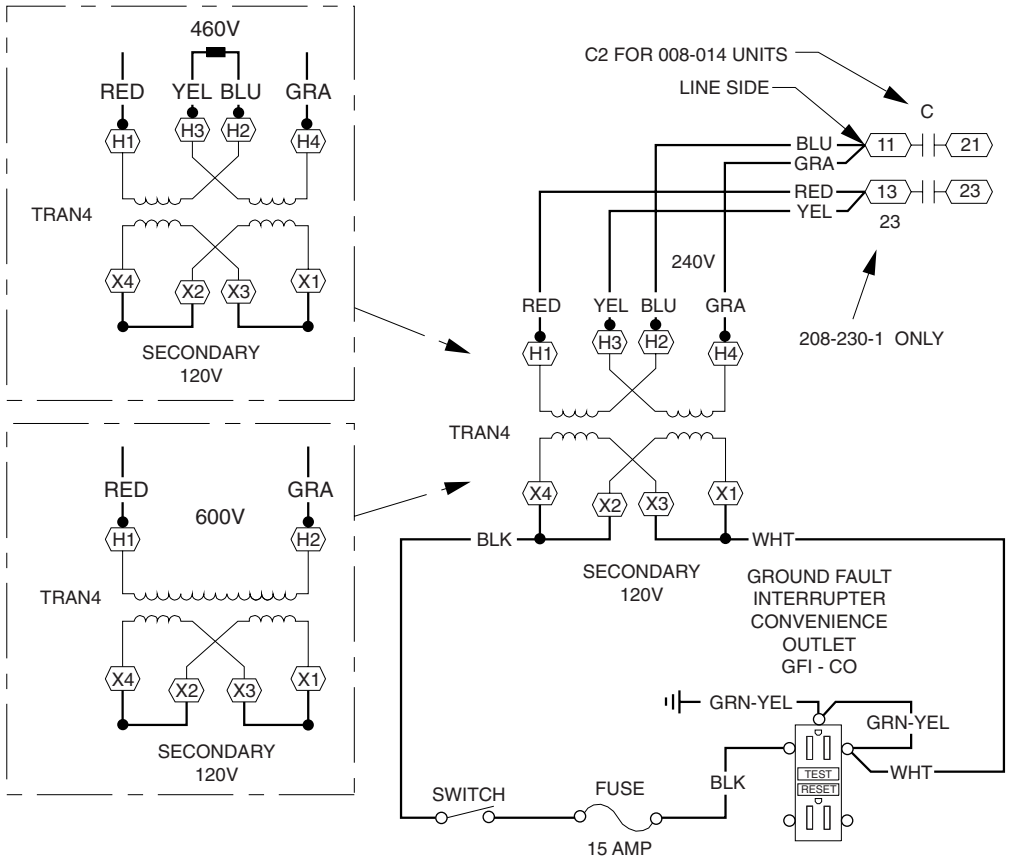


LEGEND

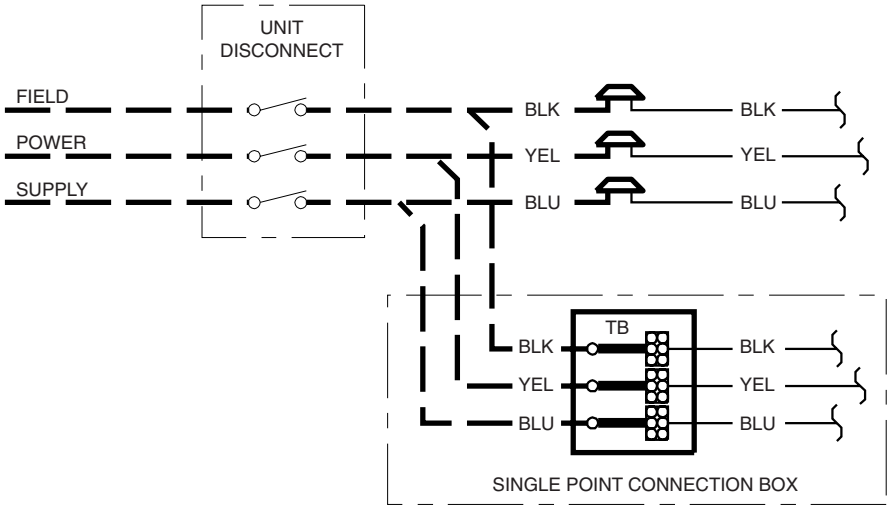
OAT — Outdoor Air Temperature Sensor

NOTES:
1. Switch on actuator must be in run position for economizer to operate.
2. 50HJ540573 actuator consists of the 50HJ540567 actuator and a harness with 500-ohm resistor.

CONVENIENCE OUTLET (OPTIONAL) — 50HJQ004-012



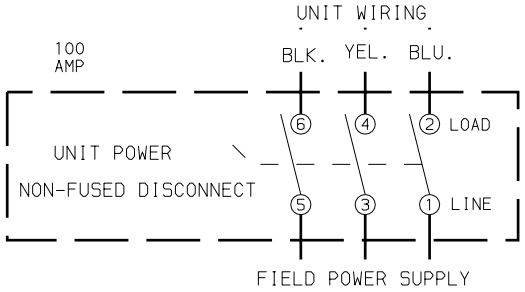
NON-FUSED DISCONNECT (OPTIONAL) — 50HJQ004-012

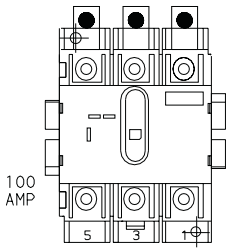


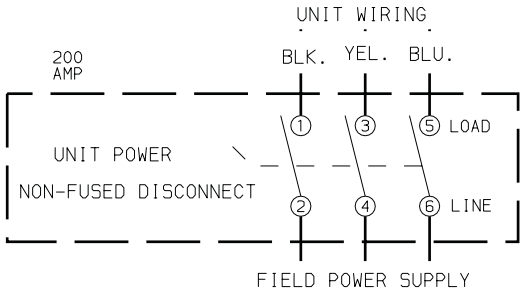
NOTE: Use copper conductors only.

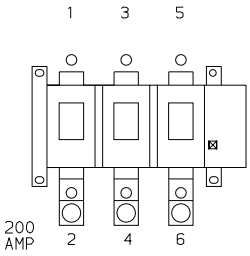
Typical wiring schematics — 50HJQ (cont)

NON-FUSED DISCONNECT (OPTIONAL) — 50HJQ014,016





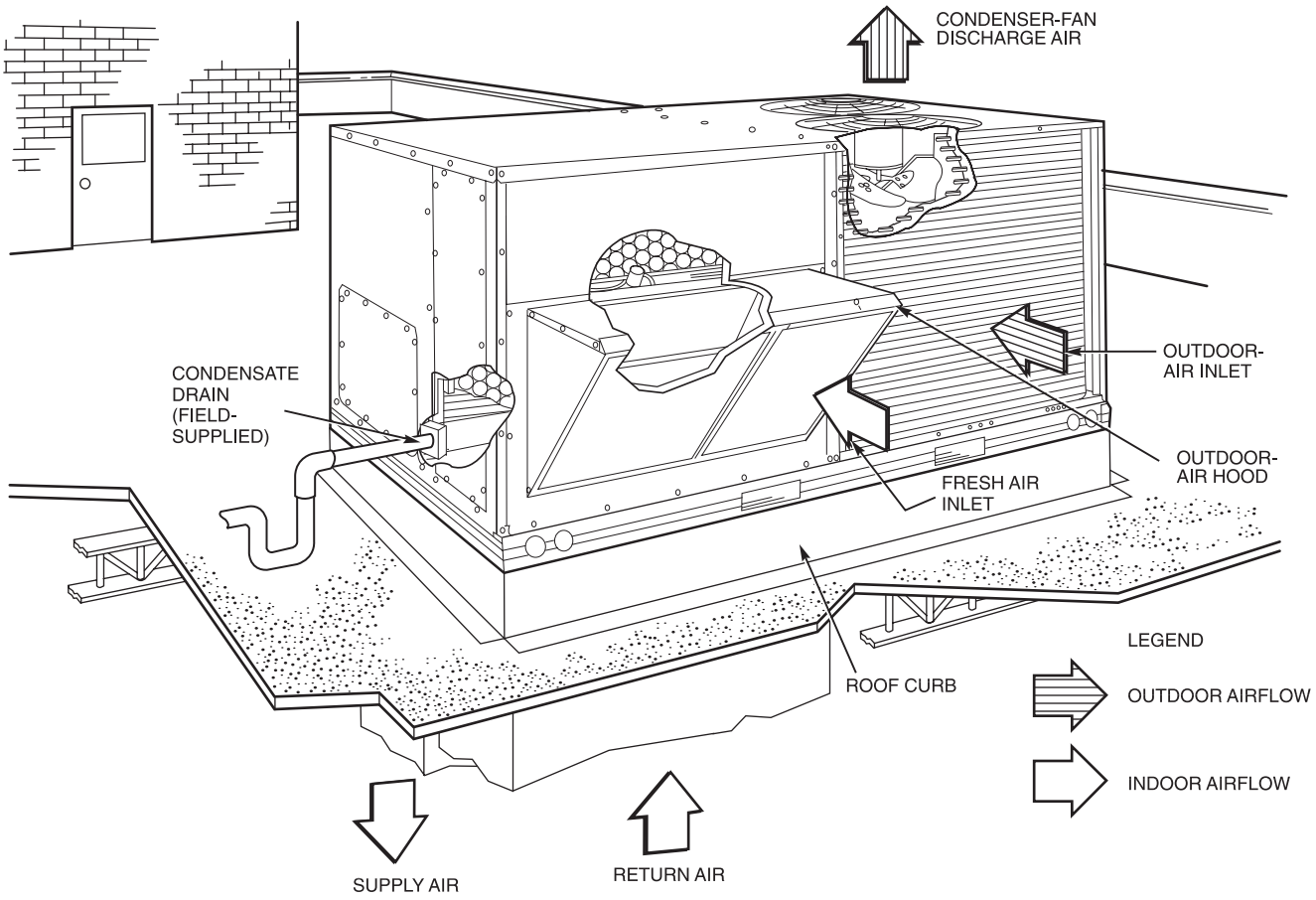




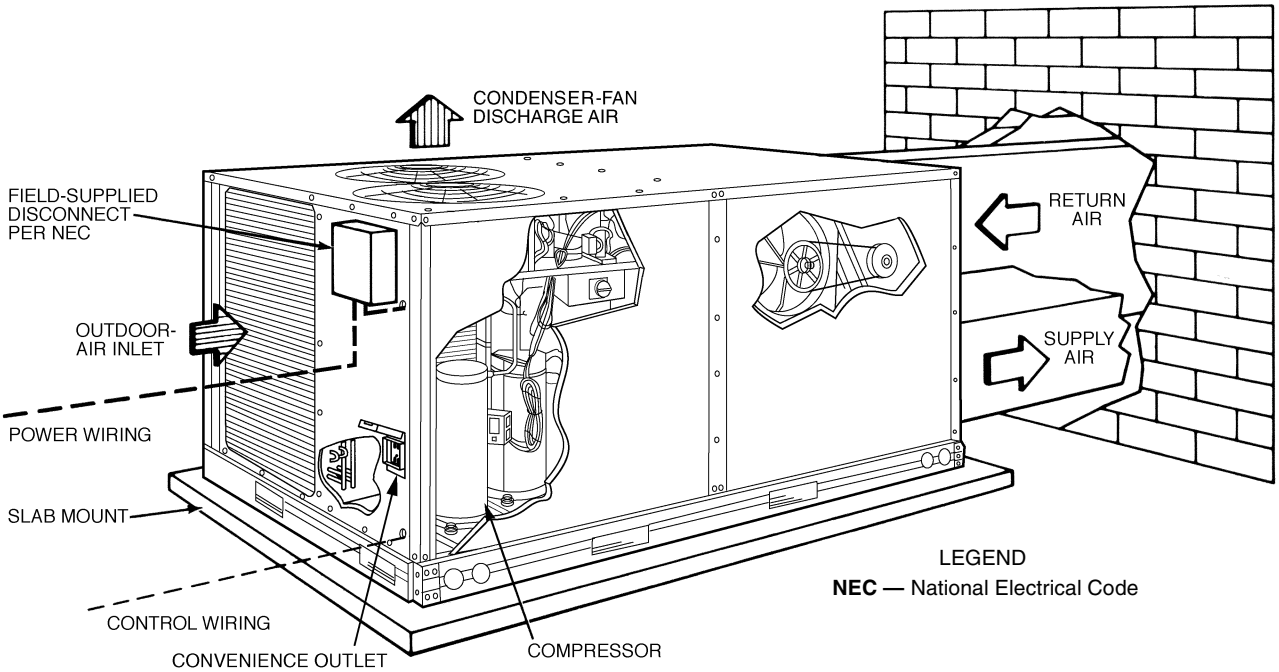
→ NOTES:
1. If the Non-Fused Disconnect Service Option is ordered for size 014 and 016 units, the Non-Fused Disconnect will be factory-installed.
2. The Disconnect takes the place of TB-1 as shown on the unit wiring diagram label and the component arrangement label.

Typical piping and wiring — 50HJQ004-012

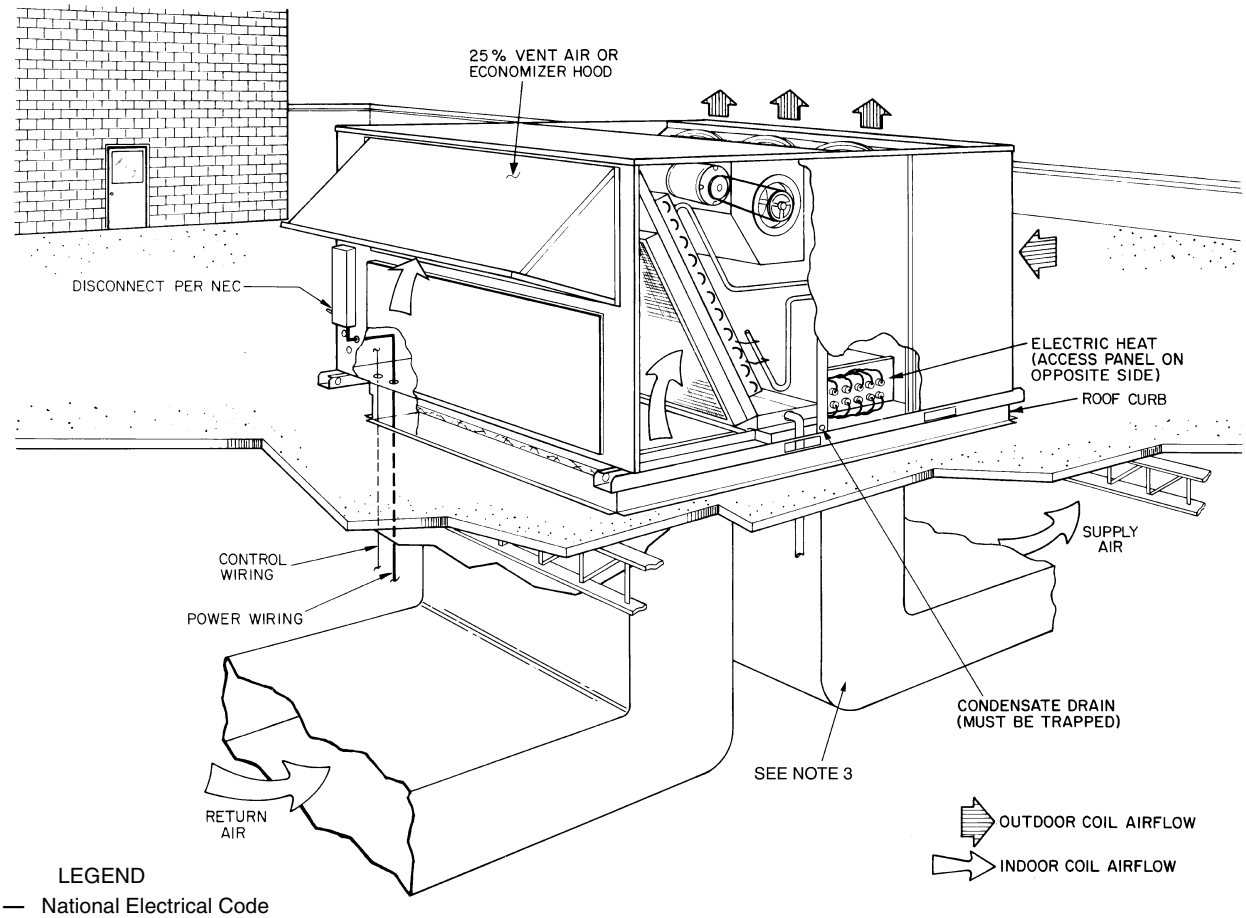
VERTICAL DISCHARGE DUCTING



HORIZONTAL DISCHARGE DUCTING



Typical piping and wiring — 50HJQ014,016



LEGEND

NEC — National Electrical Code

NOTES:
1. Illustration shown is a general guide only and is not intended to include all details for any specific installation.
2. Installation must comply with all applicable codes.
3. A 90-degree elbow **must** be installed on the supply ductwork below the unit discharge for units equipped with electric heat.

Guide specifications — 50HJQ004-012

Packaged Rooftop Air-to-Air Heat Pump — Constant Volume Application

HVAC Guide Specifications

→ Size Range: **3 to 10 Tons, Nominal (Cooling)**
34,800 to 114,000 Btuh, Nominal (Heating)
4 to 50 kW Nominal (Electric Heating)

Carrier Model Number: **50HJQ**

Part 1 — General

1.01 SYSTEM DESCRIPTION

Outdoor rooftop mounted, electrically controlled air-to-air heat pump unit utilizing a scroll 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. Designed in accordance with UL Standard 1995. Units shall be Energy Star qualified.

B. Unit shall be designed to conform to ASHRAE 15, latest revision.

C. Unit shall be UL-tested and certified in accordance with ANSI Z21.47 Standards and UL-listed and certified under Canadian standards as a total package for safety requirements.

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 500-hour salt spray exposure per ASTM B117 (scribed specimen).

G. Unit shall be designed in accordance with ISO 9001:2000, and shall be manufactured in a facility registered to ISO 9001:2000.

H. Each unit shall be subjected to a completely automated run testing on the assembly line. Units contain a factory-supplied printout indicating tested pressures, amperages, data, and inspectors; providing certification of the unit status at the time of manufacture.

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:

Factory assembled, single-piece heat pump unit. 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, and shall be bonderized and coated with a prepainted baked enamel finish on all externally exposed surfaces.
2. Evaporator fan compartment interior cabinet surfaces shall be insulated with a minimum $^1/_2$-in. thick, 1 lb density, flexible fiberglass insulation, neoprene coated on the air side. Aluminum foil-faced fiberglass insulation shall be used in the gas heat compartment.
3. Cabinet panels shall be easily removable for servicing.
4. Holes shall be provided in the base rails for rigging shackles to facilitate maneuvering and overhead rigging.
5. Unit shall have a factory-installed, sloped condensate drain pan made of a non-corrosive material, providing a minimum $^3/_4$-in-14 NPT connection with both vertical and horizontal drains, and shall comply with ASHRAE Standard 62.
6. Unit shall have a factory-installed filter access panel to provide filter access with tool-less removal.
7. Unit shall have standard thru-the-bottom power connection capability (accessory kit is required).

C. Fans:

1. Indoor Fan:
   a. Fan shall be direct or belt driven as shown on the equipment drawings. Belt drive shall include an adjustable-pitch motor pulley.
   b. Fan wheel shall be double-inlet type with forward-curved blades.
   c. Bearings shall be sealed, permanently lubricated ball-bearing type for longer life and lower maintenance.
2. Indoor fan shall be made from steel with a corrosion-resistant finish and shall be dynamically balanced.
3. Outdoor fan shall be of the direct-driven (with totally enclosed motors) propeller type and shall discharge air vertically.
4. Outdoor 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 scroll-type.
2. Factory mounted on rubber grommets and internally spring mounted for vibration isolation.

3. On dual electrically and mechanically independent circuits (008,012).

E. Coils:

1. Standard indoor and outdoor coils shall have copper or aluminum plate fins mechanically bonded to seamless internally grooved copper tubes with all joints brazed.
2. Testing:
   a. Evaporator and condenser coils shall be qualified to UL 1995 burst test at 2,200 psi.
   b. Evaporator and condenser coils shall be leak tested to 150 psig and pressure tested to 400 psig.
3. Coils:
   a. Copper-fin coils shall be constructed of copper fins mechanically bonded to copper tubes and copper tube sheets. Galvanized steel tube sheets shall not be acceptable. A polymer strip shall prevent coil assembly from contacting the sheet metal coil pan to minimize potential for galvanic corrosion between coil and pan. All copper construction shall provide protection in moderate coastal environments.
   b. E-Coated aluminum-fin coils shall have a flexible epoxy polymer coating uniformly applied to all coil surface areas without material bridging between fins. Coating process shall ensure complete coil encapsulation. Color shall be high gloss black with gloss — 60 deg of 65 to 90% per ASTM D523-89. Uniform dry film thickness from 0.8 to 1.2 mil on all surface areas including fin edges. Superior hardness characteristics of 2H per ASTM D3363-92A and cross-hatch adhesion of 4B-5B per ASTM D3359-93. Impact resistance shall be up to 160 in.-lb (ASTM D2794-93). Humidity and water immersion resistance shall be up to minimum 1000 and 250 hours respectively (ASTM D2247-92 and ASTM D870-92). Corrosion durability shall be confirmed through testing to be no less than 1000 hours salt spray per ASTM B117-90. Coil construction shall be aluminum fins mechanically bonded to copper tubes.
   c. E-Coated copper-fin coils shall have a flexible epoxy polymer coating uniformly applied to all coil surface areas without material bridging between fins. Coating process shall ensure complete coil encapsulation. Color shall be high gloss black with gloss — 60 deg of 65 to 90% per ASTM D523-89. Uniform dry film thickness from 0.8 to 1.2 mil on all surface areas including fin edges. Superior hardness characteristics of 2H per ASTM D3363-92A and cross-hatch adhesion of 4B-5B per ASTM D3359-93. Impact resistance shall be up to 160 in.-lb (ASTM D2794-93). Humidity and water immersion resistance shall be up to minimum 1000 and 250 hours respectively (ASTM D2247-92 and ASTM D870-92). Corrosion durability shall be confirmed through testing to be no less than 1000 hours salt spray per ASTM B117-90. Coil construction shall be copper fins mechanically bonded to copper tubes with copper tube sheets. Galvanized steel tube sheets shall not be acceptable. A polymer strip shall prevent coil assembly from contacting sheet metal coil pan to maintain coating integrity and minimize corrosion potential between coil and pan.
   d. Optional pre-coated aluminum-fin coils shall have a durable epoxy-phenolic coating to provide protection in mildly corrosive coastal environments. Coating shall be applied to the aluminum fin stock prior to the fin stamping process to create an inert barrier between the aluminum fin and copper tube. Epoxy-phenolic barrier shall minimum galvanic action between dissimilar metals.

F. Heating Section:

1. May be equipped with field-installed electric resistance heater(s) of the characteristics shown in the equipment schedule.
2. Heater elements shall be open wire, adequately supported and insulated with ceramic bushings.

G. Refrigerant Components:

Refrigerant circuit components shall include:

1. Fixed orifice metering system (Acutrol™ device).
2. Refrigerant filter drier.
3. Reversing valve.
4. Service gage connections on suction, discharge, and liquid lines.

H. 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.
3. Filter section should use only one size filter.
4. Filters shall be accessible through an access panel with “no-tool” removal.

I. Controls and Safeties:

1. Unit Controls:

   Unit shall be complete with self-contained low-voltage control circuit protected by a fuse on the 24-v transformer side (008-012 units have a resettable circuit breaker).

2. Safeties:
   a. Unit shall incorporate a solid-state compressor protector which provides anti-cycle reset capability at the space thermostat, should any of the following standard safety devices trip and shut off compressor.
      1) Compressor overtemperature, overcurrent.
      2) Loss-of-charge/low-pressure switch.
      3) Freeze-protection thermostat, evaporator coil.
      4) High-pressure switch.
      5) Automatic reset motor thermal overload protector.

      The lockout protection shall be easily disconnected at the control board, if necessary.
   b. Heating section shall be provided with the following minimum protections:
      1) High-temperature limit switches.
      2) Overcurrent protection.
   c. Unit shall incorporate an outdoor coil defrost system to prevent excessive frost accumulation during heating duty, and shall be controlled as follows:
      1) Defrost shall be initiated on the basis of time and coil temperature.
      2) A 30/50/90-minute timer shall activate defrost cycle only if the coil temperature is low enough to indicate a heavy frost condition.
      3) Defrost cycle shall terminate when defrost thermostats are satisfied and shall have a positive termination time of 10 minutes.

J. Operating Characteristics:
   1. Unit shall be capable of starting and running at 125 F ambient outdoor temperature, meeting maximum load criteria of ARI Standard 210/240 or 360 at ± 10% voltage.
   2. Compressor with standard controls shall be capable of operation down to 25 F (in cooling mode) ambient outdoor temperature.
   3. Compressor with standard controls shall be capable of operation down to –20 F (in heating mode) ambient outdoor temperature.
   4. Unit shall be capable of simultaneous heating duty and defrost cycle operation when using accessory electric heaters.

K. Electrical Requirements:

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

L. Motors:
   1. Compressor motors shall be cooled by refrigerant gas passing through motor windings and shall have line break thermal and current overload protection.
   2. Indoor-fan motor shall have permanently lubricated bearings and inherent automatic-reset thermal overload protection.
   3. Totally enclosed outdoor-fan motor shall have permanently lubricated bearings, and inherent automatic-reset thermal overload protection.

M. Special Features:

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

   * 1. Carrier PremierLink™ Controls:
      a. Shall be available as a factory-installed or as a field-installed accessory.
      b. Shall work with CCN and ComfortVIEW™ software.
      c. Shall be compatible with *Comfort*Link™ controllers.
      d. Shall be ASHRAE 62-2001 compliant.
      e. Shall accept a CO_2 sensor in the conditioned space — Demand Control Ventilation (DCV) Ready.
      f. Shall have baud communication rate of 38.4K or faster.
      g. Shall be Internet Ready.
      h. Shall include an integrated economizer controller.
      i. If an EconoMi$er2 with the 4 to 20 mA actuator is specified, then no microprocessor control is required.
   2. Roof Curbs (Horizontal and Vertical):
      a. Formed galvanized steel with wood nailer strip and shall be capable of supporting entire unit weight.
      b. Permits installation and securing of ductwork to curb prior to mounting unit on the curb.
   * 3. Integrated Economizers:
      a. Integrated integral modulating type capable of simultaneous economizer and compressor operation. During economizer operation, up to two compressors on sizes 008-012 will operate.
      b. Available as a factory-installed option in vertical supply/return configuration only. (Available as a field-installed accessory for horizontal and/or vertical supply return configurations.)
      c. Includes all hardware and controls to provide cooling with outdoor air.
      d. Equipped with low-leakage dampers, not to exceed 2% leakage at 1 in. wg pressure differential.
      e. Capable of introducing up to 100% outdoor air.

f. EconoMi$er+ and EconoMi$er2 shall be equipped with a barometric relief damper capable of relieving up to 100% return air.

g. Designed to close damper(s) during loss-of-power situations with spring return built into motor.

h. Dry bulb outdoor-air temperature sensor shall be provided as standard. Outdoor air sensor set point is adjustable and shall range from 45 to 70 F. For the EconoMi$er+, the return air sensor, indoor humidity sensor, and outdoor humidity sensor shall be provided as field-installed accessories to provide enthalpy control, differential enthalpy control, and differential dry bulb temperature control. For the EconoMi$er2, the enthalpy, differential temperature (adjustable), and differential enthalpy control shall be provided as field-installed accessories.

i. The EconoMi$er+ and EconoMi$er2 shall have a gear-driven parallel blade design.

j. EconoMi$er+ microprocessor control shall provide control of internal building pressure through its accessory power exhaust function. Factory set at 100%, with a range of 0% to 100%.

k. EconoMi$er2 shall be capable of control from a 4 to 20 mA signal through optional 4 to 20 mA design without microprocessor control (required for PremierLink™ or third party control interface).

l. EconoMi$er+ Microprocessor Occupied Minimum Damper Position Setting maintains the minimum airflow into the building during occupied period providing design ventilation rate for full occupancy (damper position during heating). A remote potentiometer may be used to override the set point.

m. EconoMi$er+ Microprocessor Unoccupied Minimum Damper Position Setting maintains the minimum airflow into the building during unoccupied period providing base ventilation rate for demand control ventilation. The demand control ventilation position shall be set in the EconoMi$er+ software through configuration input. The EconoMi$er+ damper shall modulate between unoccupied and occupied minimum damper positions for demand control ventilation.

n. EconoMi$er+ Microprocessor Maximum Damper Position Setting — Setting the maximum position of the damper prevents the introduction of large amounts of hot or cold air into the space.

o. EconoMi$er+ Microprocessor IAQ control modulates the outdoor-air damper to provide ventilation based on the optional 2 to 10 vdc CO_2 sensor input.

p. Compressor lockout sensor (opens at 35 F, closes at 50 F).

4. Manual Outdoor-Air Damper:

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

* 5. 100% Two-Position Damper:

   a. Two-position damper package shall include single blade damper and motor. Admits up to 100% outdoor air.

   b. Damper shall close upon indoor (evaporator) fan shutoff.

   c. Designed to close damper during loss of power situations.

   d. Equipped with 15% barometric relief damper.

* 6. 25% Two-Position Damper:

   a. Two-position damper package shall include single blade damper and motor. Admits up to 25% outdoor air.

   b. Damper shall close upon indoor fan shutoff.

* 7. 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 condenser-fan speed modulation or condenser-fan cycling and wind baffles.

8. Electric Resistance Heaters:

   a. Open wire nichrome elements with all necessary safety operating controls.

   b. UL listed and indicated on basic unit information plate.

   c. Available in multiples to match heating requirements.

   d. Single point kits available for each heater when required.

* 9. Electronic Programmable Thermostat:

   Capable of using deluxe full-featured electronic thermostat. Shall use built-in compressor cycle delay control for both heating and cooling duty. Capable of working with Carrier direct digital controls.

*10. Thermostat and Subbase:

   Provides staged cooling and heating automatic (or manual) changeover, fan control, and indicator light.

*11. Outdoor Coil Hail Guard Assembly:

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

12. Unit-Mounted, Non-Fused Disconnect Switch:

    Shall be factory-installed, internally mounted. NEC and UL approved non-fused switch shall provide unit power shutoff. Shall be accessible from outside the unit and shall provide power off lockout capability.

13. Convenience Outlet:

    Shall be factory-installed and internally mounted with easily accessible 115-v female receptacle. Shall include 15 amp GFI receptacle with independent fuse protection. Voltage required to operate convenience outlet shall be provided by a factory-installed step-down transformer. Shall be accessible from outside the unit.

14. Outdoor Coil Grille:

    The grille protects the outdoor coil from damage by large objects without increasing unit clearances.

15. Compressor Cycle Delay:

    Unit shall be prevented from restarting for minimum of 5 min. after shutdown.

16. Thru-the-Bottom Utility Connectors:

    Kit shall provide connectors to permit electrical connections to be brought to the unit through the basepan.

17. Fan/Filter Status Switch:

    Provides status of indoor (evaporator) fan (ON/OFF) or filter (CLEAN/DIRTY). Status shall be displayed over communication bus when used with direct digital controls or with an indicator light at the thermostat.

18. Energy$Recycler:

    The package shall be an outdoor rooftop or surface mounted, electronically controlled, air-to-air heat pump unit utilizing a hermetic compressor for cooling and heating duty.

    The Energy$Recycler shall recover energy from building exhaust air and pre-condition ventilation air to allow higher ventilation requirements and minimizing energy cost.

    This option shall be available with the following:

    a. A mounting kit for the Energy$Recycler for cantilever mounting off of the rooftop unit with out the use of a slab or a roof curb.
    b. A supplementary supply air fan kit to provide increased air movement into the 62AQ unit.
    c. A field-installed 460 v to 208/230 v transformer to provide power when the Energy$Recycler is used with a 460 v rooftop unit.

19. Power Exhaust Accessory for EconoMi$er+ or EconoMi$er2:

    Power exhaust shall be used in conjunction with EconoMi$er+ or EconoMi$er2 to provide system exhaust of up to 100% of return air (vertical only). The power exhaust is a field-installed accessory (separate vertical and horizontal design).

    NOTE: Horizontal power exhaust is intended to mount in return ductwork.

    As the outdoor-air damper opens and closes, *both* propeller fans are energized and de-energized through the EconoMi$er+ controller. The set point is factory set at 100% of outdoor-air, and is adjustable 0 to 100% to meet specific job requirements. Available in 208/230-1-60 v or 460-3-60 v. An LED light on the controller indicates when the power exhaust is operating.

    For the EconoMi$er2, the power exhaust shall be controlled by the PremierLink or third party controls.

20. Outdoor Air Enthalpy Sensor (EconoMi$er2):

    The outdoor air enthalpy sensor shall be used with the EconoMi$er2 device to provide single enthalpy control. When used in conjunction with a return air enthalpy sensor, the PremierLink control will provide differential enthalpy control. The sensor allows the PremierLink control to determine if outside air is suitable for free cooling.

21. Return Air Enthalpy Sensor (EconoMi$er2):

    The return air enthalpy sensor shall be used with the EconoMi$er2 device. When used in conjunction with an outdoor air enthalpy sensor, the EconoMi$er2 device will provide differential enthalpy control.

22. Return Air Temperature Sensor (EconoMi$er2):

    The return air temperature sensor shall be used with the EconoMi$er2 device. When used in conjunction with the standard outdoor air temperature sensor, the EconoMi$er2 device will provide differential temperature control.

23. Outdoor Air/Return Air Temperature Sensor (adjustable) (EconoMi$er2):

    Optional sensor uses the PremierLink control to control outdoor air damper and compressor operation.

24. Indoor Air Quality (CO_2) Sensor (EconoMi$er2):

    a. Shall have the ability to provide demand ventilation indoor air quality (IAQ) control through the EconoMi$er2 with an IAQ sensor.
    b. The IAQ sensor shall be available in duct mount, wall mount, and wall mount with LED display. The set point shall have adjustment capability.
    c. Requires EconoMi$er2, PremierLink or Apollo control options.

25. Outdoor Air Humidity Sensor (EconoMi$er+):

    The outdoor air humidity sensor is used to sense outdoor air humidity for the EconoMi$er+ device. The outdoor air humidity sensor, in conjunction with the standard outdoor air temperature sensor, shall be used with the EconoMi$er+ device to provide outdoor enthalpy. Outdoor air enthalpy shall be calculated by the EconoMi$er+ device from the outdoor air temperature and humidity readings. When the outdoor air humidity sensor is installed, the EconoMi$er+ can perform Outdoor Air Enthalpy control. With the additional installation of an accessory return air temperature sensor and return air humidity sensor, differential enthalpy control can also be performed.

26. Return Air Humidity Sensor (EconoMi$er+):

    The return air humidity sensor is used to sense return air humidity for the EconoMi$er+ device. The return air humidity sensor, in conjunction with the accessory return air temperature sensor, shall be used with the EconoMi$er+ device to provide return air enthalpy. Return air enthalpy shall be calculated by the EconoMi$er+ device from the return air temperature and humidity readings. With the additional installation of an accessory return air temperature sensor and outdoor air humidity sensor, differential enthalpy control can also be performed.

27. Return Air Temperature Sensor (EconoMi$er+):

    The return air temperature sensor is used to sense return air temperature for the EconoMi$er+ device. When the return air temperature sensor is installed, the EconoMi$er+ can perform Differential Temperature control. The return air temperature sensor, in conjunction with the accessory return air humidity sensor, shall be used with the EconoMi$er+ device to provide return air enthalpy. Return air enthalpy shall be calculated by the EconoMi$er+ device from the return air temperature and humidity readings. With the additional installation of an accessory return air humidity sensor and outdoor air humidity sensor, differential enthalpy control can also be performed.

28. EconoMi$er+ 5-Pin Plug Assembly:

    The EconoMi$er+ 5-pin plug assembly shall provide a wiring connection to the EconoMi$er+ control board for a CO_2 sensor or a field-supplied remote potentiometer. The accessory plug is required when using a CO_2 sensor or a remote potentiometer.

29. Indoor Air Quality (CO_2) Room Sensor (EconoMi$er+):

    Sensor shall have the ability to provide demand ventilation control through the EconoMi$er+. The IAQ sensor shall be wall mounted with an LED display in parts per million. The set point shall have adjustment capability. The accessory 5-Pin Plug assembly is required to wire this device to the EconoMi$er+ control board.

30. Return Air CO_2 Sensor (EconoMi$er+):

    Sensor shall have the ability to provide demand ventilation control through the EconoMi$er+. The IAQ sensor shall be duct mounted. The set point shall have adjustment capability. The accessory 5-Pin Plug assembly is required to wire this device to the EconoMi$er+ control board.

31. Power Exhaust Auxiliary Transformer:

    Field-installed 460 v or 575 v to 230 v transformer to provide power to the 230 v power exhaust when attached to a 460 v or 575 v rooftop unit.

32. Ultra-Violet Germicidal Lamps:

    Ultra-violet germicidal lamps are designed to eliminate odor-causing mold and fungus that may develop in the wet area of the indoor section of the unit. The high output, low temperature germicidal lamps are field installed in the indoor section of the unit, aimed at the indoor coil and condensate pan. The short wave-length ultra-violet light inhibits and kills mold, fungus and microbial growth. The lamps have an output rating at 45 F in 400 fpm airflow of 120 microwatts/cm^2 at 1 meter.

33. Hinged Panel Option:

    Hinged panel option provide hinged access panels for the filter, compressor, evaporator fan, and control box areas. Filter hinged panels permit tool-less entry for changing filters. Each hinged panel is permanently attached to the rooftop unit.

34. Emergency Heat Control Package:

    When mechanical heating is locked out, auxiliary heat shall be activated when necessary.

Guide specifications — 50HJQ014,016

Packaged Rooftop Air-to-Air Heat Pump — Constant Volume Application

HVAC Guide Specifications

→ Size Range: **13 and 15 Tons, Nominal (Cooling)**
136,000 to 172,000 Btuh, Nominal (Heating)
19 to 50 kW Nominal (Electric Heating)

Carrier Model Number:
50HJQ

Part 1 — General

1.01 SYSTEM DESCRIPTION

Outdoor rooftop mounted, electrically controlled air-to-air heat pump unit utilizing reciprocating, semi-hermetic compressor(s) for cooling duty and electric resistance coils for heating duty. Unit shall discharge supply air vertically or horizontally (with horizontal supply/return adapter assembly or roof curb) 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. Designed in accordance with UL Standard 1995. Units shall be Energy Star qualified.

B. Unit shall be designed to conform to ASHRAE 15, latest revision.

C. Unit shall be UL-tested and certified in accordance with ANSI Z21.47 Standards and UL-listed and certified under Canadian standards as a total package for safety requirements.

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 500-hour salt spray exposure per ASTM B117 (scribed specimen).

G. Unit shall be designed in accordance with ISO 9001:2000, and shall be manufactured in a facility registered to ISO 9001:2000.

H. Each unit shall be subjected to a completely automated run testing on the assembly line. Units contain a factory-supplied printout indicating tested pressures, amperages, data, and inspectors; providing certification of the unit status at the time of manufacture.

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:

Factory assembled, single-piece heat pump unit. 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, and shall be bonderized and coated with a prepainted baked enamel finish on all externally exposed surfaces.
2. Indoor fan compartment interior cabinet surfaces shall be insulated with a minimum 1/2-in. thick, 1 lb. density, flexible fiberglass insulation, neoprene coated on the air side. Aluminum foil-faced fiberglass insulation shall be used in the gas heat compartment.
3. Cabinet panels shall be easily removable for servicing.
4. Holes shall be provided in the base rails for rigging shackles to facilitate maneuvering and overhead rigging.
5. Unit shall have a factory-installed, sloped condensate drain pan made of a non-corrosive material, providing a minimum 3/4-in. 14 NPT connection with both vertical and horizontal drains, and shall comply with ASHRAE Standard 62.
6. Unit shall have a factory-installed filter access panel to provide filter access with tool-less removal.
7. Unit shall have standard thru-the-bottom gas and power connection capability (accessory kit is required).

C. Fans:

1. Indoor Fan:
   a. Fan shall be belt driven with an adjustable-pitch motor pulley. The standard fan drive shall have a factory-installed low-medium static pressure fan drive. The alternate fan drive option shall have a factory-installed high-static pressure fan drive.
   b. Fan wheel shall be double-inlet type with forward-curved blades.
   c. Bearings shall be sealed, permanently lubricated ball-bearing type for longer life and lower maintenance.
   d. Bearings shall be pillow block type (016 only).
2. Indoor fan shall be made from steel with a corrosion-resistant finish and shall be dynamically balanced.

3. Outdoor fan shall be of the direct-driven (with totally enclosed motors) propeller type and shall discharge air vertically.
4. Outdoor fan shall have aluminum blades riveted to corrosion-resistant steel spiders and shall be dynamically balanced.

D. Compressor(s):
1. Reciprocating semi-hermetic compressors with factory-installed crankcase heaters.
2. Factory mounted on rubber grommets and internally spring mounted for vibration isolation.
3. On independent circuits (016).
4. The size 014 unit semi-hermetic compressor shall be equipped with an electric unloader for capacity control.

E. Coils:
1. Standard indoor and outdoor coils shall have copper or aluminum plate fins mechanically bonded to seamless internally grooved copper tubes with all joints brazed.
2. Coils shall be leak tested at 150 psig (1034 kPa) and pressure tested at 450 psig (3103 kPa).
3. Coils:
   a. Copper-fin coils shall be constructed of copper fins mechanically bonded to copper tubes and copper tube sheets. Galvanized steel tube sheets shall not be acceptable. A polymer strip shall prevent coil assembly from contacting the sheet metal coil pan to minimize potential for galvanic corrosion between coil and pan. All copper construction shall provide protection in moderate coastal environments.
   b. E-Coated aluminum-fin coils shall have a flexible epoxy polymer coating uniformly applied to all coil surface areas without material bridging between fins. Coating process shall ensure complete coil encapsulation. Color shall be high gloss black with gloss — 60 deg of 65 to 90% per ASTM D523-89. Uniform dry film thickness from 0.8 to 1.2 mil on all surface areas including fin edges. Superior hardness characteristics of 2H per ASTM D3363-92A and cross-hatch adhesion of 4B-5B per ASTM D3359-93. Impact resistance shall be up to 160 in.-lb (ASTM D2794-93). Humidity and water immersion resistance shall be up to minimum 1000 and 250 hours respectively (ASTM D2247-92 and ASTM D870-92). Corrosion durability shall be confirmed through testing to be no less than 1000 hours salt spray per ASTM B117-90. Coil construction shall be aluminum fins mechanically bonded to copper tubes.
   c. E-Coated copper-fin coils shall have a flexible epoxy polymer coating uniformly applied to all coil surface areas without material bridging between fins. Coating process shall ensure complete coil encapsulation. Color shall be high gloss black with gloss — 60 deg of 65 to 90% per ASTM D523-89. Uniform dry film thickness from 0.8 to 1.2 mil on all surface areas including fin edges. Superior hardness characteristics of 2H per ASTM D3363-92A and cross-hatch adhesion of 4B-5B per ASTM D3359-93. Impact resistance shall be up to 160 in.-lb (ASTM D2794-93). Humidity and water immersion resistance shall be up to minimum 1000 and 250 hours respectively (ASTM D2247-92 and ASTM D870-92). Corrosion durability shall be confirmed through testing to be no less than 1000 hours salt spray per ASTM B117-90. Coil construction shall be copper fins mechanically bonded to copper tubes with copper tube sheets. Galvanized steel tube sheets shall not be acceptable. A polymer strip shall prevent coil assembly from contacting sheet metal coil pan to maintain coating integrity and minimize corrosion potential between coil and pan.
   d. Optional pre-coated aluminum-fin coils shall have a durable epoxy-phenolic coating to provide protection in mildly corrosive coastal environments. Coating shall be applied to the aluminum fin stock prior to the fin stamping process to create an inert barrier between the aluminum fin and copper tube. Epoxy-phenolic barrier shall minimize galvanic action between dissimilar metals.

F. Heating Section:
1. May be equipped with field-installed electric resistance heater(s) of the characteristics shown in the equipment schedule.
2. Heater elements shall be open wire, adequately supported and insulated with ceramic bushings.

G. Refrigerant Components:

Refrigerant circuit components shall include:
1. Fixed orifice metering system (Acutrol™ device).
2. Refrigerant filter drier.
3. Reversing valve.
4. Service gage connections on suction, discharge, and liquid lines.

H. 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.
3. Filter section should use only one size filter.

4. Filters shall be accessible through an access panel with "no-tool" removal.

I. Controls and Safeties:

1. Unit Controls:

   Unit shall be complete with self-contained low-voltage control circuit protected by a resettable circuit breaker on the 24-v transformer side.

2. Safeties:

   a. Unit shall incorporate a solid-state compressor protector which provides anti-cycle reset capability at the space thermostat, should any of the following standard safety devices trip and shut off compressor.
      1) Compressor overtemperature, overcurrent.
      2) Loss-of-charge/low-pressure switch.
      3) Freeze-protection thermostat, evaporator coil.
      4) High-pressure switch.
      5) Automatic reset motor thermal overload protector.

      The lockout protection shall be easily disconnected at the control board, if necessary.

   b. Heating section shall be provided with the following minimum protections:
      1) High-temperature limit switches.
      2) Overcurrent protection.

   c. Unit shall incorporate an outdoor coil defrost system to prevent excessive frost accumulation during heating duty, and shall be controlled as follows:
      1) Defrost shall be initiated on the basis of time and coil temperature.
      2) A 30/50/90-minute timer shall activate defrost cycle only if the coil temperature is low enough to indicate a heavy frost condition.
      3) Defrost cycle shall terminate when defrost thermostats are satisfied and shall have a positive termination time of 10 minutes.

J. Operating Characteristics:

1. Unit shall be capable of starting and running at 125 F ambient outdoor temperature, meeting maximum load criteria of ARI Standard 210/240 or 360 at ± 10% voltage.
2. Compressor with standard controls shall be capable of operation down to 40 F (in cooling mode) ambient outdoor temperature.
3. Compressor with standard controls shall be capable of operation down to –20 F (in heating mode) ambient outdoor temperature.
4. Unit shall be capable of simultaneous heating duty and defrost cycle operation when using accessory electric heaters.

K. Electrical Requirements:

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

L. Motors:

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

M. Special Features:

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

* 1. Carrier PremierLink™ Controls:

   a. Shall be available as a factory-installed or as a field-installed accessory.
   b. Shall work with CCN and ComfortVIEW™ software.
   c. Shall be compatible with *Comfort*Link™ controllers.
   d. Shall be ASHRAE 62-2001 compliant.
   e. Shall accept a CO_2 sensor in the conditioned space — Demand Control Ventilation (DCV) Ready.
   f. Shall have baud communication rate of 38.4K or faster.
   g. Shall be Internet Ready.
   h. Shall include an integrated economizer controller.

2. Roof Curbs (Horizontal and Vertical):

   a. Formed galvanized steel with wood nailer strip and shall be capable of supporting entire unit weight.
   b. Permits installation and securing of ductwork to curb prior to mounting unit on the curb.

3. Horizontal Adapter Roof Curb:

   Includes factory-assembled adapter and duct.

   NOTE: Power exhaust and barometric relief must be mounted in the return ductwork when used in conjunction with this accessory.

* 4. Integrated Economizers:

   a. Integrated integral modulating type capable of simultaneous economizer and compressor operation.

b. Available as a factory-installed option in vertical supply/return configuration only. (Available as a field-installed accessory for horizontal and/or vertical supply return configurations.)

c. Includes all hardware and controls to provide cooling with outdoor air.

d. Equipped with low-leakage dampers, not to exceed 2% leakage at 1 in. wg pressure differential.

e. Capable of introducing up to 100% outdoor air.

f. EconoMi$er+ and EconoMi$er2 shall be equipped with a barometric relief damper.

g. Designed to close damper(s) during loss-of-power situations with spring return built into motor.

h. Dry bulb outdoor-air temperature sensor shall be provided as standard. Outdoor air sensor set point is adjustable and shall range from 45 to 70 F. For the EconoMi$er+, the return air sensor, indoor humidity sensor, and outdoor humidity sensor shall be provided as field-installed accessories to provide enthalpy control, differential enthalpy control, and differential dry bulb temperature control. For the EconoMi$er2, the enthalpy, differential temperature (adjustable), and differential enthalpy control shall be provided as field-installed accessories.

i. The EconoMi$er+ and EconoMi$er2 shall have a gear-driven parallel blade design.

j. EconoMi$er+ microprocessor control shall provide control of internal building pressure through its accessory power exhaust function. Factory set at 100%, with a range of 0% to 100%.

k. EconoMi$er2 shall be capable of control from a 4 to 20 mA signal through optional 4 to 20 mA design without microprocessor control (required for PremierLink™ or third party control interface).

l. EconoMi$er+ Microprocessor Occupied Minimum Damper Position Setting maintains the minimum airflow into the building during occupied period providing design ventilation rate for full occupancy (damper position during heating). A remote potentiometer may be used to override the set point.

m. EconoMi$er+ Microprocessor Unoccupied Minimum Damper Position Setting maintains the minimum airflow into the building during unoccupied period providing base ventilation rate for demand control ventilation. The demand control ventilation position shall be set in the EconoMi$er+ software through configuration input. The EconoMi$er+ damper shall modulate between unoccupied and occupied minimum damper positions for demand control ventilation.

n. EconoMi$er2 Microprocessor Maximum Damper Position Setting — Setting the maximum position of the damper prevents the introduction of large amounts of hot or cold air into the space.

o. EconoMi$er+ Microprocessor IAQ control modulates the outdoor-air damper to provide ventilation based on the optional 2 to 10 vdc CO_2 sensor input.

p. Compressor lockout sensor (opens at 35 F, closes at 50 F).

5. Barometric Relief Damper:

   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. Manual Outdoor-Air Damper:

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

* 7. 25% Two-Position Damper:

   a. Two-position damper package shall include single blade damper and motor. Admits up to 25% outdoor air.

   b. Damper shall close upon indoor fan shutoff.

* 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 condenser-fan speed modulation or condenser-fan cycling and wind baffles.

9. Electric Resistance Heaters:

   a. Open wire nichrome elements with all necessary safety operating controls.

   b. UL listed and indicated on basic unit information plate.

   c. Available in multiples to match heating requirements.

   d. Single point kits available for each heater when required.

*10. Electronic Programmable Thermostat:

   Capable of using deluxe full-featured electronic thermostat. Shall use built-in compressor cycle delay control for both heating and cooling duty. Capable of working with Carrier direct digital controls.

*11. Thermostat and Subbase:

   Provides staged cooling and heating automatic (or manual) changeover, fan control, and indicator light.

12. Unit-Mounted, Non-Fused Disconnect Switch:

    Shall be factory-installed, internally mounted. NEC and UL approved non-fused switch shall provide unit power shutoff. Shall be accessible from outside the unit and shall provide power off lockout capability.

13. Convenience Outlet:

    Shall be factory-installed and internally mounted with easily accessible 115-v female receptacle. Shall include 15 amp GFI receptacle with independent fuse protection. Voltage required to operate convenience outlet shall be provided by a factory-installed step-down transformer. Shall be accessible from outside the unit.

14. Compressor Cycle Delay:

    Unit shall be prevented from restarting for minimum of 5 min. after shutdown.

15. Fan/Filter Status Switch:

    Provides status of indoor (evaporator) fan (ON/OFF) or filter (CLEAN/DIRTY). Status shall be displayed over communication bus when used with direct digital controls or with an indicator light at the thermostat.

16. Power Exhaust:

    Package shall include an exhaust (propeller style) fan, 1/2 Hp 208-230, 460 v (factory-wired for 460 v) direct drive motor, and damper for vertical flow units with economizer to control over-pressurization of building. Power Exhaust package must be field-installed in return-air ductwork when used with optional side return connections.

17. Outdoor Air Enthalpy Sensor (EconoMi$er2):

    The outdoor air enthalpy sensor shall be used with the EconoMi$er2 device to provide single enthalpy control. When used in conjunction with a return air enthalpy sensor, the PremierLink control will provide differential enthalpy control. The sensor allows the PremierLink controller to determine if outside air is suitable for free cooling.

18. Return Air Enthalpy Sensor (EconoMi$er2):

    The return air enthalpy sensor shall be used with the EconoMi$er2 device. When used in conjunction with an outdoor air enthalpy sensor, the EconoMi$er2 device will provide differential enthalpy control.

19. Return Air Temperature Sensor (EconoMi$er2):

    The return air temperature sensor shall be used with the EconoMi$er2 device. When used in conjunction with the standard outdoor air temperature sensor, the EconoMi$er2 device will provide differential temperature control.

20. Indoor Air Quality (CO_2) Sensor (EconoMi$er2):

    a. Shall have the ability to provide demand ventilation indoor air quality (IAQ) control through the economizer with an IAQ sensor.

    b. The IAQ sensor shall be available in duct mount, wall mount, and wall mount with LED display. The set point shall have adjustment capability.

21. Outdoor Air Humidity Sensor (EconoMi$er+):

    The outdoor air humidity sensor is used to sense outdoor air humidity for the EconoMi$er+ device. The outdoor air humidity sensor, in conjunction with the standard outdoor air temperature sensor, shall be used with the EconoMi$er+ device to provide outdoor enthalpy. Outdoor air enthalpy shall be calculated by the EconoMi$er+ device from the outdoor air temperature and humidity readings. When the outdoor air humidity sensor is installed, the EconoMi$er+ can perform Outdoor Air Enthalpy control. With the additional installation of an accessory return air temperature sensor and return air humidity sensor, differential enthalpy control can also be performed.

22. Return Air Humidity Sensor (EconoMi$er+):

    The return air humidity sensor is used to sense return air humidity for the EconoMi$er+ device. The return air humidity sensor, in conjunction with the accessory return air temperature sensor, shall be used with the EconoMi$er+ device to provide return air enthalpy. Return air enthalpy shall be calculated by the EconoMi$er+ device from the return air temperature and humidity readings. With the additional installation of an accessory return air temperature sensor and outdoor air humidity sensor, differential enthalpy control can also be performed.

23. Return Air Temperature Sensor (EconoMi$er+):

    The return air temperature sensor is used to sense return air temperature for the EconoMi$er+ device. When the return air temperature sensor is installed, the EconoMi$er+ can perform Differential Temperature control. The return air temperature sensor, in conjunction with the accessory return air humidity sensor, shall be used with the EconoMi$er+ device to provide return air enthalpy. Return air enthalpy shall be calculated by the EconoMi$er+ device from the return air temperature and humidity readings. With the additional installation of an accessory return air humidity sensor and outdoor air humidity sensor, differential enthalpy control can also be performed.

24. EconoMi$er+ 5-Pin Plug Assembly:

    The EconoMi$er+ 5-pin plug assembly shall provide a wiring connection to the EconoMi$er+ control board for a CO_2 sensor or a field-supplied remote potentiometer. The accessory plug is required when using a CO_2 sensor or a remote potentiometer.

25. Indoor Air Quality (CO_2) Room Sensor (EconoMi$er+):

    Sensor shall have the ability to provide demand ventilation control through the EconoMi$er+. The IAQ sensor shall be wall mounted with an LED display in parts per million. The set point shall have adjustment capability. The accessory 5-Pin Plug assembly is required to wire this device to the EconoMi$er+ control board.

26. Return Air CO_2 Sensor (EconoMi$er+):

    Sensor shall have the ability to provide demand ventilation control through the EconoMi$er+. The IAQ sensor shall be duct mounted. The set point shall have adjustment capability. The accessory 5-Pin Plug assembly is required to wire this device to the EconoMi$er+ control board.

27. Ultra-Violet Germicidal Lamps:

    Ultra-violet germicidal lamps are designed to eliminate odor causing mold and fungus that may develop in the wet area of the indoor section of the unit. The high output, low temperature germicidal lamps are field installed in the indoor section of the unit, aimed at the indoor coil and condensate pan. The short wavelength ultra-violet light inhibits and kills mold, fungus and microbial growth. The lamps have an output rating at 45 F in 400 fpm airflow of 120 microwatts/cm^2 at 1 meter.

28. Hinged Panel Option:

    Hinged panel option provide hinged access panels for the filter, compressor, indoor fan, and control box areas. Filter hinged panels permit tool-less entry for changing filters. Each hinged panel is permanently attached to the rooftop unit.

29. Emergency Heat Control Package:

    When mechanical heating is locked out, auxiliary heat shall be activated when necessary.

30. Glycol Coil:

    Coil shall be 2-row copper tube ($1/2$-in. OD) with aluminum plate fins (15 fins/in.) and 1.625 in. OD copper headers. Input and output connections shall be 1.625 in. ODM copper stubs for sweat connection. Coil shall be furnished with suitable support rails, end plates, and hardware for ready field installation in the heater compartment.

31. Winter Start Time Delay:

    Used in conjunction with the accessory low ambient kit or head pressure control device, the kit permits operation in cooling at lower outdoor temperatures. See price pages for more information.

32. Alternate Drive:

    Alternate drive shall provide higher static drive capability to enhance indoor fan performance rpm range.

33. Stainless Steel Condensate Pan:

    Stainless steel condensate pans shall be available for condensate collection.

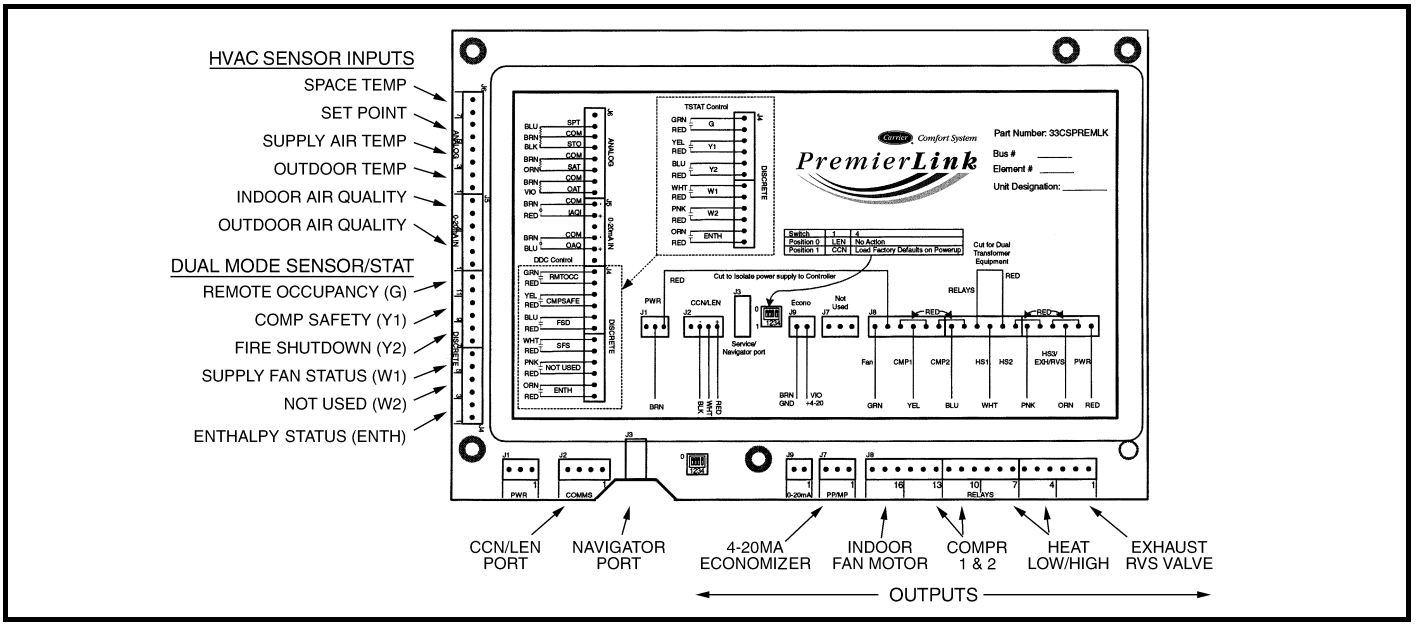
Controls

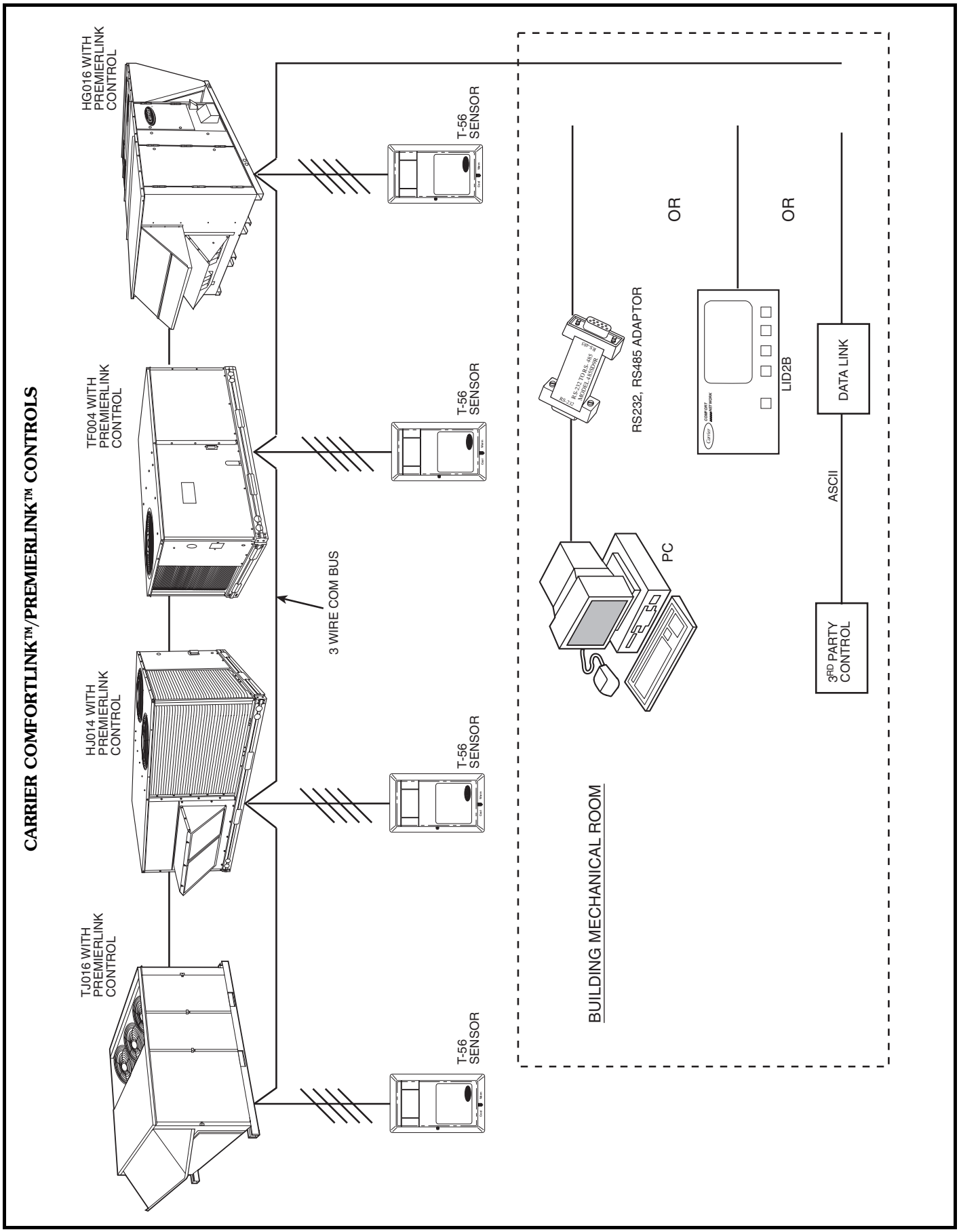
PremierLink™ Direct Digital controls — The PremierLink Direct Digital Controls (DDC) requires the use of a Carrier electronic thermostat or a CCN connection for time broadcast to initiate its internal timeclock. This is necessary for broadcast of time of day functions (occupied/unoccupied).

PremierLink Features:

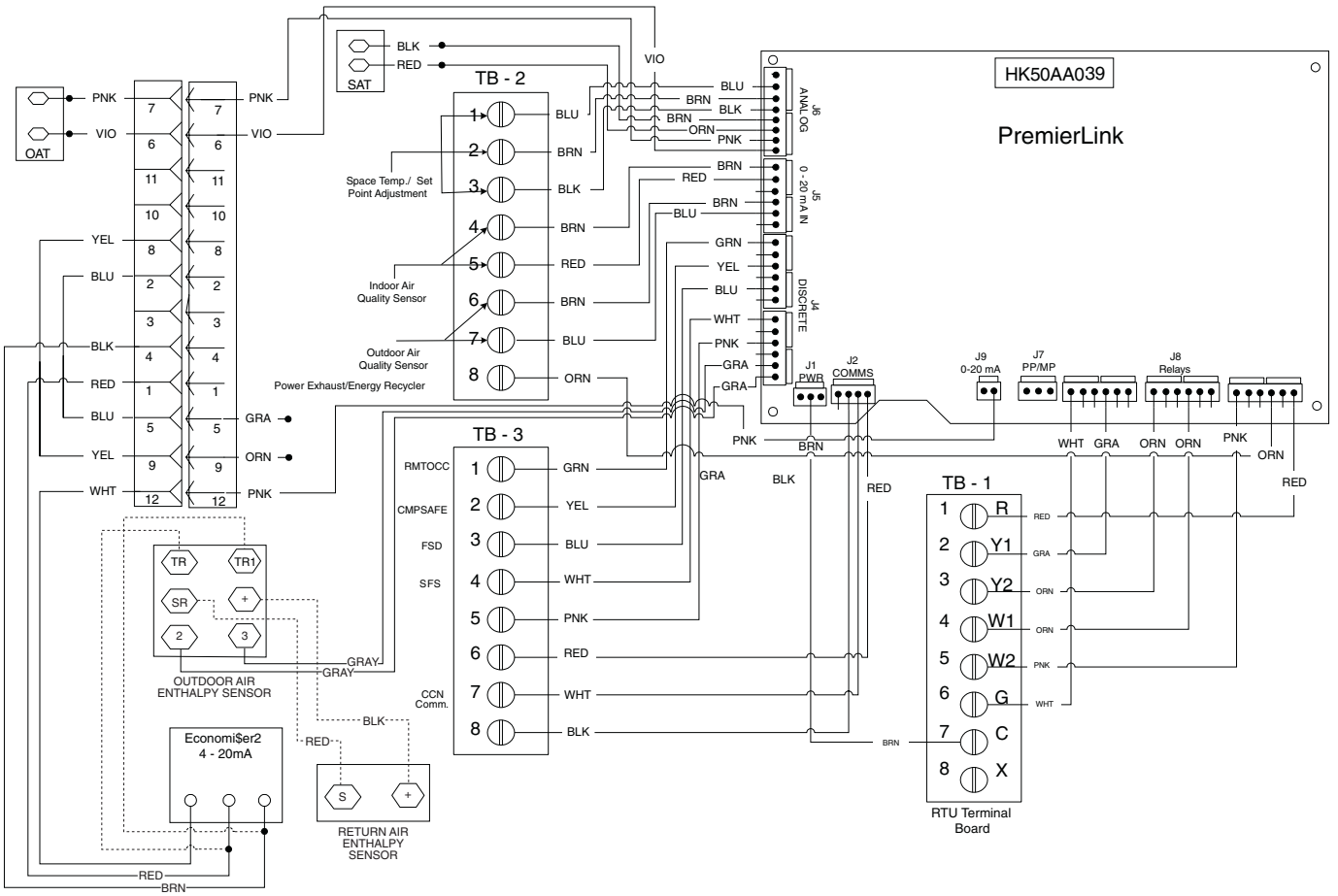
- Equipment Control Functions
  - Cooling Stages
  - Heating Stages
  - Indoor-Fan Motor
  - 4-Way Valve
- EconoMi$er2 Control Functions
  - Dry Bulb Control
  - Enthalpy Control
  - Differential Enthalpy
  - Power Exhaust
- Advanced Control Functions
  - Smoke Detection
  - Optimal Start (90.1)
  - Unoccupied Free Cool
  - Smart Staging and Optimal Staging
- Network Protocol
  - CCN
  - Internet Ready 38.4 baud rate
- Diagnostics/Advanced Service Features
  - Diagnostics
  - Onboard display
- Scheduling
  - Via Communicating Stat
- User Interface
  - Navigator (LEN protocol)
  - LID2B (CCN)
  - PC with Carrier software (CCN)

DESCRIPTION	STATUS	UNITS	POINT	LIMITS	ACCESS
Space Temperature	xxx.x	dF	SPT	-40.0 to 245.0 dF	R/W
Supply Air Temperature	xxx.x	dF	SAT	-40.0 to 245.0 dF	R/W
Outside Air Temperature	xxx.x	dF	OAT	-40.0 to 245.0 dF	R/W
Control Setpoint	xxx.x	dF	CLSP		R
Cooling % Total Capacity	xxx	%	CCAP	0 to 100 %	R
Heating % Total Capacity	xxx	%	HCAP	0 to 100 %	R
EconoMi$er2 Active	No/Yes		ECOS	0 to 1	R
Supply Fan Relay	Off/On		SF	0 to 1	R/W
Supply Fan Status	Off/On		SFS	0 to 1	R
Economizer Position	xxx.x	%	ECONPOS	0.0 to 100.0 %	R/W
Current Min Damper Pos	xxx.x	%	IQMP	0.0 to 100.0 %	R
Filter Status	Clean/Dirty		FLTS	0 to 1	R/W
Remote Occupied Mode	Off/On		RMTOCC	0 to 1	R/W
Heat Stage 1	Off/On		HS1	0 to 1	R
Heat Stage 2	Off/On		HS2	0 to 1	R
Heat 3/Exhaust/Rev Valve	Off/On		H3_EX_RV	0 to 1	R
Enthalpy	Low/High		ENTH	0 to 1	R/W
Indoor Air Quality	xxxx.x		IAQI	0.0 to 5000.0	R/W
Indoor Air Quality Setpt	xxxx.x		IAQS	0.0 to 5000.0	R
Outdoor Air Quality	xxxx.x		OAQ	0.0 to 5000.0	R/W
Fire Shutdown	Normal/Alarm		FSD	0 to 1	R/W
SPT Offset	xx.x	^F	STO	-15.0 to 15.0 ^F	R/W
Compressor 1	Off/On		CMP1	0 to 1	R
Compressor 2	Off/On		CMP2	0 to 1	R
Compressor Safety	Off/On		CMPSAFE	0 to 1	R




CARRIER COMFORTLINK™/PREMIERLINK™ CONTROLS
HG016 WITH PREMIERLINK CONTROL
TF004 WITH PREMIERLINK CONTROL
HJ014 WITH PREMIERLINK CONTROL
TJ016 WITH PREMIERLINK CONTROL
T-56 SENSOR
T-56 SENSOR
T-56 SENSOR
T-56 SENSOR
3 WIRE COM BUS
BUILDING MECHANICAL ROOM
PC
RS232, RS485 ADAPTOR
OR
OR
LID2B
ASCII
DATA LINK
3RD PARTY CONTROL

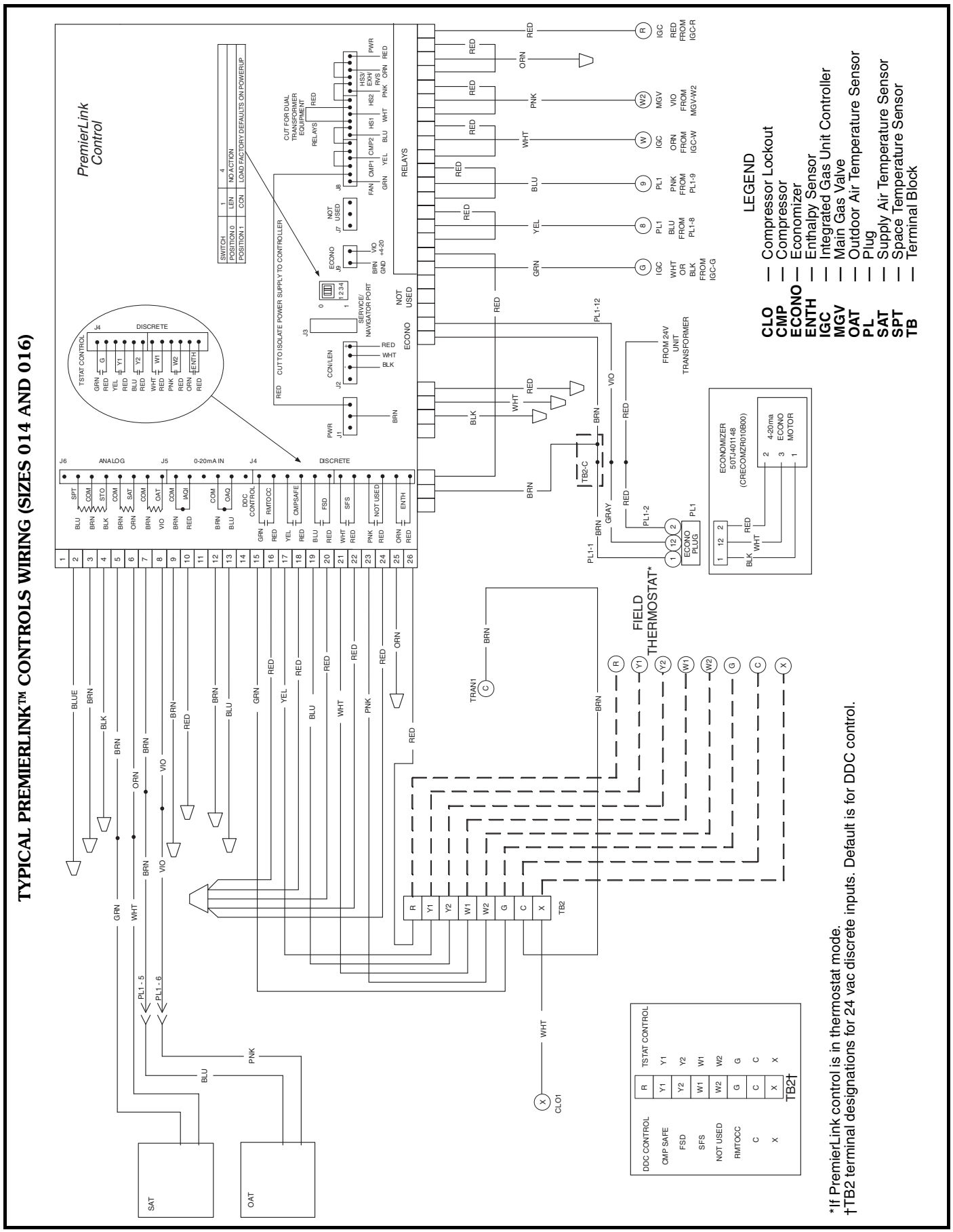
TYPICAL PREMIERLINK™ CONTROLS WIRING (SIZES 004 TO 012)



LEGEND

COMMS — Communications
OAT — Outdoor Air Temperature Sensor
PWR — Power
RTU — Rooftop Unit
SAT — Supply Air Temperature Sensor
TB — Terminal Block

TYPICAL PREMIERLINK™ CONTROLS WIRING (SIZES 014 AND 016)



Sequence of operation — 50TFQ004-012 and 50HJQ004-012

Cooling, units without economizer — When thermostat calls for cooling, terminals G and Y1 are energized. The indoor-fan contactor (IFC), reversing valve solenoid (RVS1 for sizes 004-007) (RVS1 and RVS2 for sizes 008-012) and compressor contactor are energized and indoor-fan motor, compressor, and outdoor fan starts. The outdoor fan motor runs continuously while unit is cooling.

Heating, units without economizer — Upon a request for heating from the space thermostat, terminal W1 will be energized with 24 v. The IFC, outdoor-fan contactor (OFC), C1, and C2 will be energized. The indoor fan, outdoor fans, and compressor no. 1, and compressor no. 2 are energized and reversing valves are deenergized and switch position.

If the space temperature continues to fall while W1 is energized, W2 will be energized with 24 v, and the heater contactor(s) (HC) will be energized, which will energize the electric heater(s).

When the space thermostat is satisfied, W2 will be deenergized first, and the electric heater(s) will be deenergized.

Upon a further rise in space temperature, W1 will be deenergized.

**Cooling, units with EconoMi$er+ —** For EconoMi$er+ operation, there must be a thermostat call for the fan (G). This will move the damper to its minimum position.

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

On the initial power to the EconoMi$er+ board, it will take the damper up to $2^1/_2$ minutes before it begins to position itself. With subsequent fan signal (G) to the board, the change in damper position will take up to 30 seconds to initiate. Damper movement from full closed to full open (or vice versa) will take $2^1/_2$ minutes.

If the damper is in the process of a change (for example going to 100% open) and the signal (G) is turned off, the damper will continue to open to 100% before it closes (due to no fan signal [G]).

If free cooling can be used as determined from the appropriate changeover command (switch, dry bulb, enthalpy curve, differential dry bulb, or differential enthalpy), then the control will modulate the dampers open to main the supply air temperature set point plus 2° F.

If there is a further demand for cooling (cooling second stage — Y2 is energized), then the control set point for the leaving air will be set at the supply air set point to increase the cooling capacity. If this cannot satisfy the load then the control will bring on compressor stages as needed to maintain the supply air temperature set point and the reversing valves will be energized. The EconoMi$er+ damper will be locked open at 100% or the maximum damper position set point.

To ensure that there is oil return, the compressors will operate for at least 3 minutes. If, during this period, the leaving temperature drops below the set point by 5 F, then the EconoMi$er+ dampers will be closed to 60% until the compressor is turned off to avoid cold leaving-air temperatures.

If the conditions are not suitable for free cooling then the EconoMi$er+ dampers will be closed to the minimum ventilation position.

Compressor stages will be used to cool the air. If the control is configured for direct control by Y1 and Y2, then the stages will sequence based on the demand of Y1 and Y2 and the reversing valves will be energized. If the control is configured for leaving-air temperature control, then Y1 will maintain the leaving-air temperature at the supply air set point plus 2° F. If Y1 and Y2 are closed, then the leaving air will be controlled to the supply air set point. If Y2 is closed and Y1 is open, then control will shut down and indicate an error due to a thermostat failure or improper wiring of the thermostat.

If the unit is in the unoccupied mode, then the control of the temperature will depend on the unoccupied free cooling configuration: no unoccupied cooling, unoccupied free cooling with any mechanical cooling, or unoccupied free and mechanical cooling. If free cooling is enabled, then the control will check if free cooling can be used. The EconoMi$er+ will then control to the leaving air temperature set point plus 2° F for a Y1 command, or the leaving air temperature set point for a Y1 and Y2 command. If mechanical cooling is allowed to be used, then the control will then bring on additional stages of mechanical cooling if free cooling cannot satisfy the load.

If the EconoMi$er+ control:

- is in the occupied mode
- is configured to use demand ventilation
- cannot use free cooling
- has return air or space CO_2 levels below the IAQ Differential Control Point Lower Limit,

then the EconoMi$er+ damper position will be set to the IAQ Minimum Position Damper Set Point. If the CO_2 level rises above the IAQ Differential Control Point Lower Limit, then the dampers will modulate open in a linear relationship until the return air or space CO_2 levels are at or above the IAQ Differential Control Point Upper Limit. The damper position will be at the Occupied Minimum EconoMi$er+ set point.

When the EconoMi$er+ is being used for free cooling and the position exceeds the power exhaust set point, then the control will turn on the appropriate power exhaust fans.

Heating, units with EconoMi$er+ — When the room temperature calls for heat through terminal W1, the indoor (evaporator) fan contactor (IFC) and heater contactor no. 1 (HC1) are energized and the reversing valve(s) deenergize and switches position. 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. When the thermostat is satisfied, the damper moves to the fully closed position.

Cooling, units with EconoMi$er2, PremierLink™ control and a thermostat — When free cooling is not available, the compressors will be controlled by the PremierLink control in response to the Y1 and Y2 inputs from the thermostat.

The PremierLink control will use the following information to determine if free cooling is available:

- Indoor fan has been on for at least 30 seconds.
- The SPT, SAT, and OAT inputs must have valid readings.
- OAT must be less than 75 F.
- OAT must be less than SPT.
- Enthalpy must be LOW (may be jumpered if an enthalpy sensor not available).
- Economizer position is NOT forced.

Pre-cooling occurs when the is no call from the thermostat except G. Pre-cooling is defined as the economizer modulates to provide 70 F supply air.

When free cooling is available the PremierLink control will control the compressors, energize the reversing valve(s) and economizer to provide a supply-air temperature determined to meet the Y1 and Y2 calls from the thermostat.

If optional power exhaust is installed, as the outdoor-air damper opens and closes, the power exhaust fans will be energized and deenergized.

If field-installed accessory CO_2 sensors are connected to the PremierLink control, a PID-controlled demand ventilation strategy will begin to operate. As the CO_2 level in the zone increases above the CO_2 set point, the minimum position of the damper will be increased proportionally. As the CO_2 level decreases because of the increase in fresh air, the outdoor-air damper will be proportionally closed.

Heating, units with EconoMi$er2, PremierLink control and a thermostat — When the thermostat calls for heating, terminal W1 is energized. The PremierLink control will move the economizer damper to the minimum position if there is a call for G and closed if there is a call for W1 without G. In order to prevent thermostat from short cycling, the unit is locked into the heating mode for at least 10 minutes when W1 is energized. The reversing valve solenoid(s) deenergizes and switches position.

On units equipped for two stages of heat, when additional heat is needed, W2 is energized and the electric heat (if used) comes on. When the thermostat is satisfied and W1 is deenergized, the IFM stops.

Cooling, units with EconoMi$er2, PremierLink control and a room sensor — When free cooling is not available, the compressors will be controlled by the PremierLink controller using a PID Error reduction calculation.

The PremierLink controller will use the following information to determine if free cooling is available:

- Indoor fan has been on for at least 30 seconds.
- The SPT, SAT, and OAT inputs must have valid readings.
- OAT must be less than 75 F.
- OAT must be less than SPT.
- Enthalpy must be LOW (may be jumpered if and enthalpy sensor is not available).
- Economizer position is NOT forced.

When free cooling is available, the outdoor-air damper is positioned through the use of a Proportional Integral (PID) control process to provide a calculated supply-air temperature into the zone. The supply air will maintain the space temperature between the heating and cooling set points.

The PremierLink control will integrate the compressors stages with the economizer based on similar logic as the three routines listed in the previous section. The SASP will float up and down based on the error reduction calculations that compare space temperature and space set point. The reversing valves will be energized.

If an optional power exhaust is installed, as the outdoor-air damper opens and closes, the power exhaust fans will be energized and deenergized.

If field-installed accessory CO_2 sensors are connected to the PremierLink control, a PID-controlled demand ventilation strategy will begin to operate. As the CO_2 level in the zone increases above the CO_2 set point, the minimum position of the damper will be increased proportionally. As the CO_2 level decreases because of the increase in fresh air, the outdoor-air damper will be proportionally closed.

Heating, unit with EconoMi$er2, PremierLink control and a room sensor — Every 40 seconds the controller will calculate the required heat stages (maximum of 3) to maintain Supply Air Temperature (SAT) if the following qualifying conditions are met:

- Indoor fan has been on for at least 30 seconds.
- COOL mode is not active.
- OCCUPIED, TEMP.COMPENSATED START or HEAT mode is active.
- SAT reading is available.
- Fire shutdown mode is not active.

If all of the above conditions are met, the number of heat stages is calculated; otherwise the required number of heat stages will be set to 0.

If the PremierLink controller determines that heat stages are required, the economizer damper will be moved to minimum position if occupied and closed if unoccupied.

Defrost (50TFQ004-007 and 50HJQ004-007) — As frost builds up on the outdoor coil, the coil temperature drops below 28 F. When this outdoor-coil temperature drop is sensed by the defrost thermostat (DFT) and the defrost timer is at the end of a timed period (adjustable at 30, 50, or 90 minutes), the unit operates in a defrost cycle controlled by the defrost timer and thermostat. During this cycle, the reversing valve solenoid (RVS) is energized and the outdoor fan shuts off. The electric heaters (if installed) will be energized.

The unit continues to defrost until the coil temperature as measured by DFT reaches 65 F, or the duration of defrost cycle completes a 10-minute period.

At the end of the defrost cycle, the electric heaters (if installed) and the reversing valve will be deenergized, and the outdoor-fan motor will be energized. The unit will now operate in the Heating mode.

If the thermostat is satisfied during a defrost cycle, the unit will continue in the Defrost mode until the time or temperature constraints are satisfied.

Defrost (50TFQ008-012 and 50HJQ008-012) — When the temperature of the outdoor coil drops below 28 F as sensed by the defrost thermostat (DFT2) and the defrost timer is at the end of a timed period (adjustable at 30, 50, or 90 minutes), reversing valve solenoids (RVS1 and RVS2) are energized and the OFC is deenergized. This switches the position of the reversing valves and shuts off the outdoor fan. The electric heaters (if installed) will be energized.

The unit continues to defrost until the coil temperature as measured by DFT2 reaches 65 F, or the duration of defrost cycle completes a 10-minute period.

During the Defrost mode, if circuit 1 defrosts first, RVS1 will oscillate between Heating and Cooling modes until the Defrost mode is complete.

At the end of the defrost cycle, the electric heaters (if installed) will be deenergized; the reversing valves switch and the outdoor-fan motor will be energized. The unit will now operate in the Heating mode.

If the space thermostat is satisfied during a defrost cycle, the unit will continue in the Defrost mode until the time or temperature constraints are satisfied.

Automatic changeover — When the system selection switch is set at AUTO. position, unit automatically changes from heating operation to cooling operation when the temperature of the conditioned space rises to the cooling level setting. When the temperature of the conditioned space falls to the heating level setting, unit automatically changes from cooling to heating operation (with a 3° F deadband in between).

Continuous air circulation — Turn unit power on. Set system control at OFF position. Set fan switch at ON position. The indoor-fan contactor is energized through the thermostat switch and the indoor fan runs continuously.

Cycle-LOC™ protection — If unit operation is interrupted by an open high-pressure switch, low-pressure switch, indoor coil freezestat, or by compressor internal line-break device (overcurrent or overtemperature), and compressor is calling for either cooling or heating, Cycle-LOC protection device simultaneously locks out unit and lights a warning light on the thermostat. Restart the unit by manually turning thermostat to OFF and then to ON position. If any of the protective devices opens again, the unit continues to lock out until corrective action is taken.

NOTE: If the unit fails to operate due to compressor overcurrent condition, restart by manually resetting circuit breakers at the unit. Restart cannot be accomplished at the room thermostat.

Emergency heat — If compressor is inoperative due to a tripped safety device (high or low pressure, indoor coil freezestat, overcurrent, or overtemperature), the Cycle-LOC device locks out the compressor and lights a warning light on the room thermostat. When the switch is on (thermostat is set to the EM HT position), compressor circuit and outdoor thermostats are bypassed, and the second stage of thermostat energizes the indoor blower and the electric resistance heaters.

Sequence of operation — 50HJQ014,016

Cooling, units without economizer — With unit main power on, set thermostat to COOL position and desired room temperature. Set fan switch at AUTO. (on demand) or ON (continuous) position.

On a rise in room temperature, cooling contactor no. 1 in the thermostat closes. The indoor and outdoor fan motors start. If the 5-minute compressor time-delay (CTD) on the defrost board (DB) is satisfied, then compressor no. 1 (50HJQ016) or unloaded compressor (50HJQ014) contactor is energized and compressor will start. Compressor cycles on demand of the thermostat to satisfy room conditions. Each time the cooling contactor no. 1 opens, the CTD starts the 5-minute delay.

On 50HJQ016 units, with an additional rise in room temperature, cooling contactor no. 2 in the thermostat closes, energizing compressor contactor no. 2. Compressor no. 2 starts and cycles on demand of the thermostat to satisfy the occupied space demands.

On 50HJQ014 units, compressor runs fully loaded on a call for second-stage cooling.

Cooling, units with economizer — Upon a call for cooling, when outdoor ambient temperature is above the temperature control setting, the indoor and outdoor fans and compressor(s) 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 indoor 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 (50HJQ016) or loaded compressor (50HJQ014) is energized and mechanical cooling is integrated with economizer cooling. Compressor no. 2 (50HJQ016) is locked out. If the air temperature is below 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 indoor coil. It detects frost build-up and turns off the compressor(s), allowing the coil to clear. Once frost has melted, the compressor can be reenergized.

Heating, units without economizer — With unit main power on, set thermostat at HEAT position and desired room temperature. Set fan switch at AUTO. (on demand) or ON (continuous) position.

On a drop in room temperature, heating contactor no. 1 in the thermostat closes, energizing heat relay (HR), reversing valve relay (RVR), reversing valve solenoids (RVS1 and RVS2) and compressor no. 2 contactor. Compressor (size 014) or compressor no. 2 (size 016) and indoor and outdoor fan motors start. If the 5-minute CTD on the DB is satisfied, then compressor no. 1 contactor is energized and compressor no. 1 will start.

Controls (cont)

On units equipped with electric heat, when additional heat is needed, heating contactor no. 2 in the thermostat closes, energizing W2.

Heating, units with economizer — With unit main power on, set thermostat at HEAT position and desired room temperature. Set fan switch at AUTO. (on demand) or ON (continuous) position.

On a drop in room temperature, heating contactor no. 1 in the thermostat closes, energizing heat relay (HR), reversing valve relay (RVR), reversing valve solenoids (RVS1 and RVS2) and compressor no. 2 contactor. Compressor no. 2 (016) and indoor and outdoor fan motors (014,016) start. If the 5-minute CTD on the DB is satisfied, then compressor (014) or compressor no. 1 (016) contactor is energized and compressor (014) or compressor no. 1 (016) will start. The outdoor-air damper stays at vent position while the indoor fan is operating.

On units equipped with electric heat, when additional heat is needed, heating contactor no. 2 in the thermostat closes, energizing W2.

Defrost cycle — When the temperature of the outdoor coil drops below 28 F as sensed by the defrost thermostat (DFT1 or DFT2), the defrost timer starts. At the end of a timed period (field set at 30, 50, or 90 minutes), the defrost cycle will begin. The defrost board energizes terminals O and W2, energizes the defrost relay (DR), deenergizes the reversing valve solenoids (RVS1 and RVS2), and energizes the electric heat. The outdoor-fan motor will stop.

The unit continues to defrost either until the coil temperature as measured by DFT1 or DFT2 reaches 65 F, or until unit completes a 10-minute defrost cycle.

During the defrost mode, when a circuit defrosts, RVS will oscillate between heating and cooling modes until defrost mode is complete. This will prevent the head pressure from getting too high.

At the end of the defrost cycle, the electric heaters (if applicable) will be deenergized, the reversing valve solenoids will be energized, and the outdoor fans will start.

Application data

Outdoor installation — Units approved for outdoor installation only.

Ductwork — 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.

**Horizontal EconoMi$er2 —** A field-installed accessory is available for horizontal discharge applications. Field-installed power exhaust accessory also available for vertical or horizontal EconoMi$er2 applications.

Thru-the-bottom power connections — For applications requiring thru-the-bottom connections, Carrier accessory thru-the-bottom package must be purchased to ensure proper connections.

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. A two-stage thermostat is required for all 50HJQ008-016 units.

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 indoor coil, airflow through units should not exceed 500 cfm/ton.

Minimum airflow — For cooling, minimum airflow is 300 cfm/ton. For 50TFQ units with electric heating, required minimum cfm is 900 for 50TFQ004; 1200 for 50TFQ005; 1500 for 50TFQ006; 1800 for 50TFQ007; 2250 for 50TFQ008; 2500 for 50TFQ009; and 3000 for 50TFQ012, with the following exceptions:

UNIT 50TFQ	UNIT VOLTAGE	HEATER kW	UNIT CONFIGURATION	REQUIRED MINIMUM CFM
012	208/230	42.4	Horizontal	3200
	208/230	50.0	Horizontal	3200
	460	50.0	Horizontal or Vertical	3200
008-012	575	17.0	Horizontal or Vertical	2800
		34.0		2350

For 50HJQ units with electric heating, required minimum cfm is 900 for 50HJQ004; 1200 for 50HJQ005; 1500 for 50HJQ006; 1700 for 50HJQ007; 2250 for 50HJQ008; 2500 for 50HJQ009; 3000 for 50HJQ012; 3900 for 50HJQ014; and 4500 for 50HJQ016, with the following exceptions:

UNIT 50HJQ	UNIT VOLTAGE	HEATER kW	UNIT CONFIGURATION	REQUIRED MINIMUM CFM
012	208/230	50.0	Horizontal or Vertical	3250
	460	50.0	Horizontal or Vertical	3400

Minimum ambient cooling operating temperature — The minimum temperature for standard size 004-012 units is 25 F. With accessory Motormaster® I, II, or IV control, units can operate at outdoor temperatures down to –20 F.

Unit sizes 014 and 016 are designed to operate at outdoor temperatures down to 40 F (4.4 C). With accessory Motormaster I control, units can operate at outdoor temperatures down to –20 F.

Application data (cont)

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.

Condensate drain pan

A sloped condensate drain pan is supplied on all units. The condensate pan must be externally trapped. Condensate drains are located on both the bottom and end of the unit.

Motor data

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 tables and the notes following each Fan Performance table can be utilized with extreme confidence.

Using Carrier motors to the values listed in the Physical Data, Fan Performance, and Evaporator-Fan Motor Data tables *will not* result in nuisance tripping or premature motor failure. In addition, the unit warranty will not be affected.

Carrier PremierLink™ controls

The Carrier PremierLink controls can be used with any thermostat.

Field-supplied fan drives

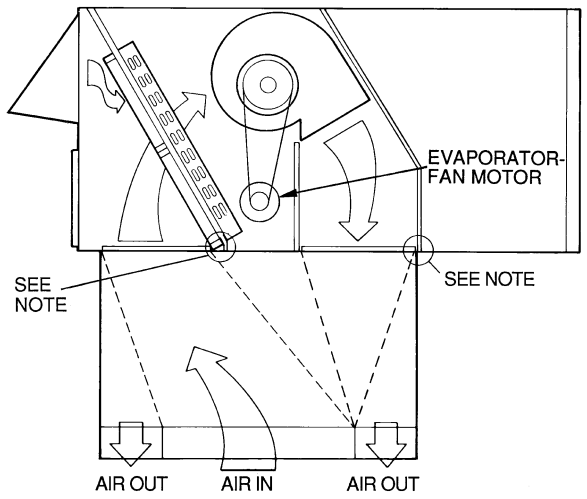
If the factory drive sets must be changed to obtain other wheel speeds, consult the nearest Browning Manufacturing Co. sales office with the required new wheel speed and the data from Physical Data tables (center distances, motor and fan shaft diameters, motor horsepower) for a modified drive set selection. For minor speed changes, the fan sheave size should be changed. (Do not reduce the size of the motor sheave; this will result in reduced belt horsepower ratings and reduced belt life.)

Condenser coil protection

Pre-coated aluminum-fin coils have a durable epoxy-phenolic coating applied to the fin prior to the fin stamping process to provide protection in mildly corrosive coastal environments. Pre-coated coils have an inert barrier between the aluminum fin and copper tube. This barrier electrically disconnects the dissimilar metals to minimize the potential for galvanic corrosion. This economical option provides substantial corrosion protection beyond the standard uncoated coil construction.

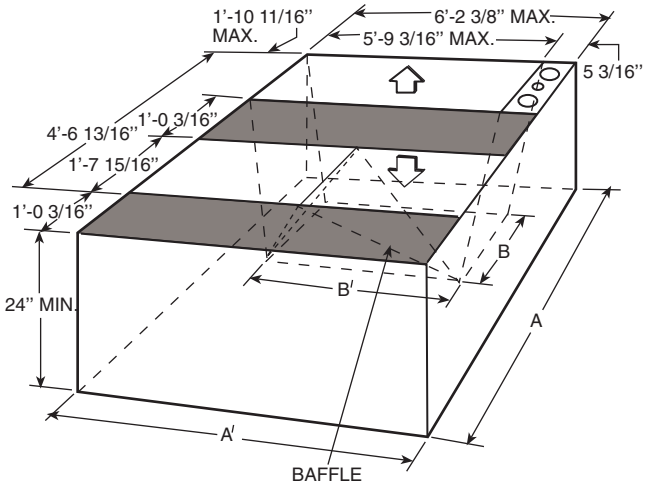
Copper-fin coils provide increased corrosion resistance in moderate coastal environments where industrial air pollution is not present. All copper coils eliminate bi-metallic construction to eliminate the potential for galvanic corrosion. Application in industrial environments is not recommended due to potential attack from sulfur, sulfur oxide, nitrogen oxides, carbon and several other industrial airborne contaminants. In moderate seacoast environments, copper-fin coils have extended life compared to standard or pre-coated aluminum-fin coils.

CONCENTRIC DUCT DISTRIBUTION — 50HJQ014,016



NOTE:
1. Do not drill in this area, damage to basepan may result in water leak.
2. A 90-degree elbow must be provided in the supply ductwork to comply with UL (Underwriters' Laboratories) codes for use with electric heat.

CONCENTRIC DUCT DETAILS — 50HJQ014,016



Shaded area indicates block-off panels.

NOTE: Dimensions A, A′ and B, B′ are obtained from field-supplied ceiling diffuser.

⚠ CAUTION

Concentric ducts may only be installed on units without electric heat. Personal injury or unit damage may result.

Application data (cont)

E-Coated aluminum-fin coils undergo a precisely controlled scientific process that bonds an impermeable epoxy coating to the specially prepared fin coil surface. E-Coating produces a smooth, consistent coating that is less brittle, more resilient and more durable than previous postcoating processes. E-Coated aluminum-fin coils offer economical protection and improved coil life in many contaminated environments.

E-Coated copper-fin coils provide maximum protection in virtually all environments, this option combines the continuous, impenetrable barrier of the E-Coating process with the natural resistance of an all-copper construction. E-Coated copper-fin coil assemblies ensure long life, even in environments that combine harsh coastal conditions with industrial contamination.

EconoMi$er+

The EconoMi$er+ factory-installed economizer package includes a gear-driven damper system that modulates the return air and outdoor air supply to the rooftop unit in order to take advantage of "free cooling" with outdoor air when conditions are suitable. The system utilizes the latest technology available for integrating the use of outdoor air for cooling with mechanical cooling for 3 through 15-ton rooftop units. The EconoMi$er+ microprocessor-based controller optimizes and enhances rooftop operation through reduced energy consumption, optimal zone comfort, and efficient equipment cycling. This is accomplished by operating the compressors when the outdoor air temperature is too warm, integrating the compressors with outdoor air when free cooling is available, and locking out the compressor when outdoor air temperature is too cold. The detailed sequence of operation is described in the controls section with a brief description of selected application items here.

Thermostat interface — The EconoMi$er+ control was designed to work with conventional thermostats that have Y1 (cooling stage 1), Y2 (cooling stage 2), W1 (heat stage 1), W2 (heat stage 2), and G (fan). In addition, the EconoMi$er+ will support an occupied/unoccupied switch (typically integrated into the thermostat or thermidistat). When the switch is closed, it provides a 24 vac signal to the unit for occupied mode, and provides no signal to indicate unoccupied mode. The EconoMi$er+ control can be configured to allow different minimum economizer damper positions and to allow the use of mechanical cooling in the occupied mode.

Control features — One of the major benefits of the EconoMi$er+ controller is the superior functionality that is provided for rooftop unit operation. EconoMi$er+ control features are included as follows:

Remote enable control — The EconoMi$er+ controller can be used with a field-supplied and field-installed control switch that will enable and disable the EconoMi$er+ in conjunction with an energy management system.

Demand control ventilation (DCV) — The EconoMi$er+ has DCV capability when using an IAQ sensor. This sensor is typically installed in the return duct or occupied space. When implementing a DCV control scheme with the EconoMi$er+, the control algorithm will modulate the position of the damper between two user-configured damper positions, Minimum IAQ Position and occupied minimum position. Design airflow rates for these two damper positions should be such that when the damper is at the IAQ minimum position, enough fresh ventilation air will be brought in to remove contaminants and CO_2 generated by sources other than people (i.e., since in unoccupied mode). The occupied minimum position design airflow rate should be sufficient to satisfy ventilation requirements for removing CO_2 from all sources including people at the maximum occupancy.

IAQ sensors — EconoMi$er+ can be utilized with any IAQ (CO_2) sensor that provides a 2 to 10 vdc output. The controller will modulate the outdoor air damper to provide ventilation based on the sensor output and the IAQ setting of the controller. When used, an IAQ sensor will modulate the damper from the minimum position (base ventilation rate based on CO_2 levels) to maximum position (full occupancy ventilation rate).

Damper operation — The EconoMi$er+ allows the damper to be configured for three adjustable damper positions including maximum position, and occupied/unoccupied minimum positions. The three (3) position damper capability is a unique feature of EconoMi$er+ and includes operation flexibility as follows:

Maximum Position: This adjustable position allows up to 100% outdoor air through the rooftop unit when conditions are appropriate.

Minimum Occupied Position: This adjustable position allows a minimum ventilation airflow rate through the unit during occupied periods.

Minimum Unoccupied Position: A minimum unoccupied position is provided for unoccupied periods or for a second minimum damper position (i.e., during occupied mode) when using an IAQ sensor for DCV. This is also referred to as the IAQ Minimum position (see DCV and control section for sequence).

CONDENSER COIL PROTECTION APPLICATIONS

DESCRIPTION (*Enviro-Shield™* Option)	ENVIRONMENT*					
	Standard, Non-Corrosive	Mild Coastal	Moderate Coastal	Severe Coastal	Industrial	Combined Coastal and Industrial
Standard, Al/Cu	X					
Pre-Coated Al/Cu		X				
Cu/Cu			X			
E-Coated Al/Cu					X	X
E-Coated Cu/Cu				X		

LEGEND

Al/Cu — Aluminum Fin with Copper Tube Coil
Cu/Cu — Copper Fin with Copper Tube Coil
Enviro-Shield — Family of Coil Protection Options
E-Coated — Extremely Flexible and Durable Epoxy Coating Uniformly Applied to the Coil Surfaces
Pre-Coated — Epoxy Coating Applied to Fin Stock Material

*See "Selection Guide: Environmental Corrosion Protection" Catalog No. 811-217 for more information

Compressor staging — The EconoMi$er+ is an integrated economizer and has the ability to utilize simultaneous outdoor air and compressors. The EconoMi$er+ can be configured to support economizer and compressor operation for up to 4 compressors. Only one or two compressor operation is available with 3 to 12½ ton units. Compressor staging applications that can be configured include unit operation for high sensible or high latent loads for units with more than 2 compressors. In addition, the control can be set-up to control the leaving air temperature using the Y1 and Y2 calls as a low cool and high cool demand based on the supply air set point and the rate of change of supply air temperature, which can be configured in the EconoMi$er+ controller.

Changeover strategies — The EconoMi$er+ controller can be configured to accommodate all available economizer control strategies that place the rooftop unit in economizer mode including:

Switch — Used when a remote signal from an energy management system will enable and disable the EconoMi$er+ (remote enable control).

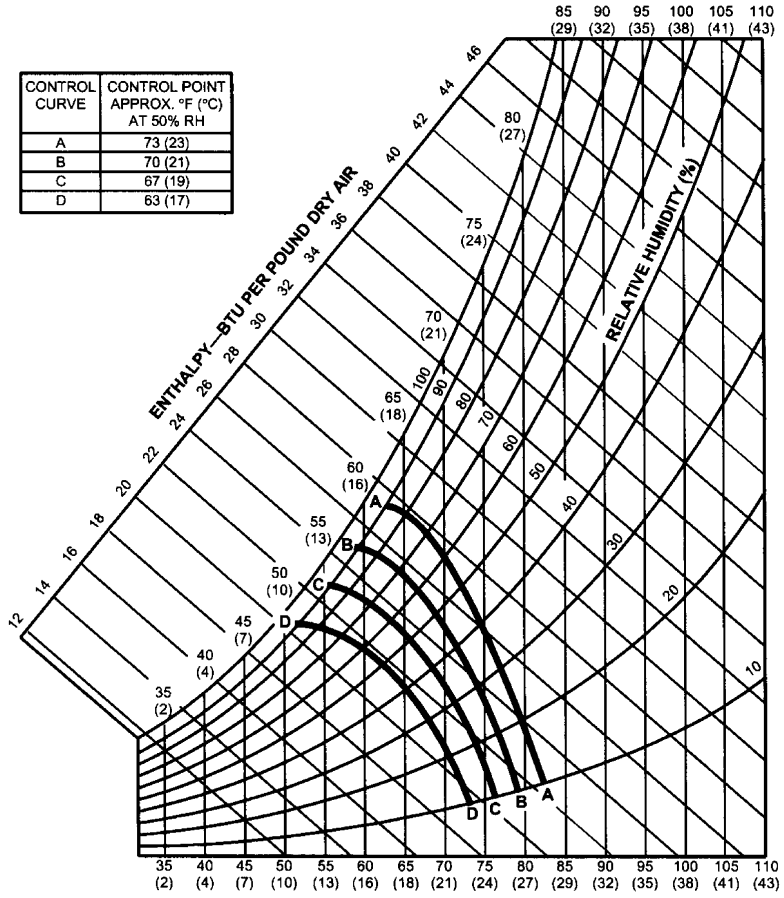
Outdoor dry bulb — EconoMi$er+ will be enabled based on the outside air temperature. This is provided standard with the EconoMi$er+.

Differential dry bulb — EconoMi$er+ will be enabled whenever the outside air temperature is lower than the return-air temperature.

Outside air enthalpy — EconoMi$er+ will be enabled based on the outside air enthalpy curves as shown in the EconoMi$er+ Changeover diagram below. The A, B, C, and D curves shown have been in use for many years and have been included as part of the latest ASHRAE 90.1 energy efficiency code. The curves are designed to take into consideration both outdoor temperature and humidity. These curves are used to set up the EconoMi$er+ controller to use the EconoMi$er+ for free cooling when the conditions to the left of the curve exist. When the conditions are to the right of the curve, then outdoor air cooling will not be used and the outdoor air damper position will be set at the minimum position.

ECONOMIZER CHANGEOVER CURVES

CONTROL CURVE	CONTROL POINT APPROX. °F (°C) AT 50% RH
A	73 (23)
B	70 (21)
C	67 (19)
D	63 (17)



Application data (cont)

Deciding which curve is used is a function of the outdoor climate and the type of economizer utilized. Since EconoMi$er+ is a fully integrated economizer, the range where outdoor air can be utilized for free cooling is expanded and the A and B curves may be used. The control point table in the EconoMi$er+ Changeover diagram below provides assistance for whether the A and B curves will be suitable. In general terms, a hot and humid climate may be a reason not to use the A curve, while a cooler climate might be more applicable for using the A or B curve.

The EconoMi$er+ has expanded outdoor air capability. For a changeover economizer which cannot utilize simultaneous economizer and compression, both A and B curves would potentially be undesirable since the temperature and humidity levels are too high without compression assistance to provide effective cooling. Therefore, most changeover economizers utilize the D curve.

Differential enthalpy — The EconoMi$er+ will be enabled based on the comparison of the enthalpy of the return air and outside air. When the outside air enthalpy is lower than he return side, the unit will be in economizer mode.

Using the EconoMi$er+ controller for implementing different control changeover strategies requires the use of different combinations of dry bulb and humidity sensors as outlined in the EconoMi$er+ Sensor Usage table.

→ ECONOMIZER SENSOR USAGE CHART

REQUIRED CHANGEOVER		PROVIDED WITH ECONOMI$ER+	FIELD INSTALLED SENSOR(S) REQUIRED
Single Dry Bulb Control		(1) CRTEMPSN001B00	None Required
Differential Dry Bulb Control		(1) CRTEMPSN001B00	(1) CRTEMPSN001B00
Single Enthalpy Control		(1) CRTEMPSN001B00	(1) CRHUMDSN001C00
Differential Enthalpy Control		(1) CRTEMPSN001B00	(1) CRTEMPSN001B00 (2) CRHUMDSN001C00
To Add CO_2 DCV Control with Above	**Wall Mount**	Not Applicable	(1) 33ZCSENCO2 (1) CRE+PLUG001A00
	Duct Mount		(1) 33ZCSENCO2 (1) CRE+PLUG001A00 (1) 33ZCASPCO2 or (1) CRCBDIOX002A00 (1) CRE+PLUG001A00

NOTES:
1. EconoMi$er+ is provided with a standard outdoor air sensor and supply air sensor.
2. CRTEMPSN001B00 — Dry bulb temperature sensor used for single dry bulb changeover or in combination with a humidity sensor for enthalpy changeover.

   CRHUMDSN001B00 — Humidity sensor used in combination with dry bulb sensor, CRTEMPSN001B00, to implement enthalpy changeover.

CRE+PLUG001A00 — 5-Pin connector plug required when an Indoor Air Quality Sensor (CO_2 sensor) is used with EconoMi$er+.

33ZCSENCO2 — Adjustable CO_2 space sensor used for wall mount or duct mount applications.

33ZCASPCO2 — Aspirator box used with 33ZCSENCO2 CO_2 space sensor for duct mount applications.

CRCBDIOX002A00 — Adjustable CO_2 space sensor used for duct mount applications (aspirator box not required).

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