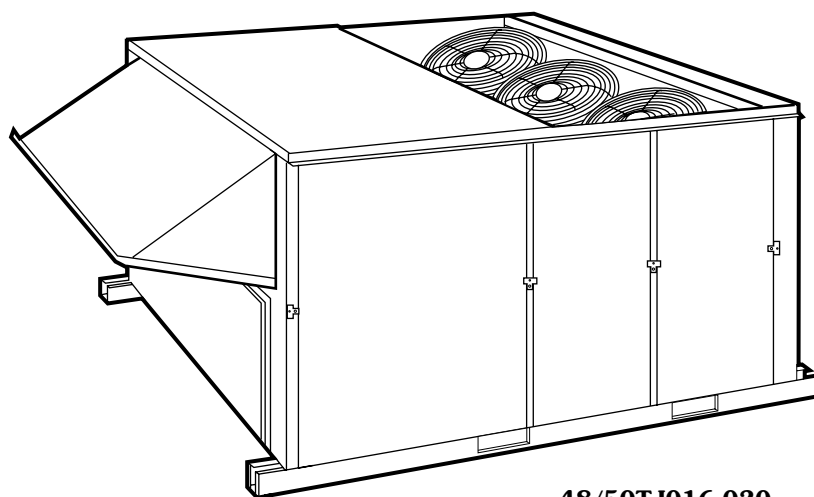




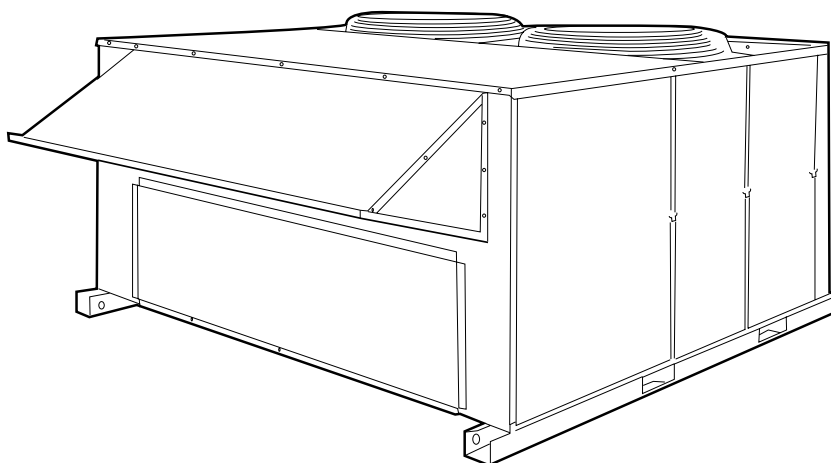
Product Data

48/50TJ016-028 Single-Package Rooftop Units 60 Hz

15 to 25 Nominal Tons



48/50TJ016,020



48/50TJ024,028

Standard Efficiency Rooftop Units with:

- Dual, electrically and mechanically independent refrigerant circuits
- Scroll compressors on each circuit
- TXV refrigerant metering devices
- Pre-painted galvanized steel cabinet for long life and quality appearance
- Non-corrosive, sloped condensate drain pans meet ASHRAE 62-99 (IAQ)
- Two-inch return air filters
- Heating options:
 - Natural gas (48TJ Only)
 - LP gas (48TJ Only)
 - Electric heat (50TJ Only)
 - Hydronic glycol heating coil (50TJ Only)
- Optional MoistureMi\$er™ dehumidification package

Features/Benefits

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

Durable, dependable construction

Designed for durability in any climate, the weather-resistant cabinets are constructed of galvanized steel, bonderized, and all exterior panels are coated with a 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. Totally enclosed condenser-fan motors

and permanently lubricated bearings provide additional unit dependability.

Easy installation

All units fit one size roof curb. The contractor can order and install the roof curb early in the construction stage, before decisions on size requirements are made.

All units feature 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 discharge configuration by using the horizontal supply/return adapter roof curbs.

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

Convenient duct openings in the unit basepans permit side-by-side or concentric duct connections (see Application data section on page 76) without requiring internal unit modification.

The non-corrosive sloped condensate 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.

Factory- and field-installed electric heaters are available in a wide range of capacities (50TJ). Gas heat is available on 48TJ units.

Indoor-air quality begins with Carrier rooftops

Sloped condensate pans minimize biological growth in rooftop units in accordance with ASHRAE (American Society of Heating, Refrigeration, and Air Conditioning Engineers) Standard 62. Two-in. 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 the standard units, and accessory enthalpy controls in conjunction with the optional economizers maximize building humidity control.

Exclusive MoistureMi\$er™ dehumidification package

The MoistureMi\$er dehumidification package is a result of recent advances by Carrier in controlling comfort levels. This factory-installed option significantly improves the dehumidification capability of the rooftop unit and helps control humidity levels in the building.

This option provides increased dehumidification by cooling the hot liquid refrigerant leaving the condenser coil. The MoistureMi\$er consists of a sub-cooling coil located on the leaving-air side of the evaporator coil. The location of this coil in the indoor airstream enhances the latent capacity of the 48/50TJ units by as much as 40%. Many buildings suffer from humidity damage or poor indoor air quality due to humid conditions. The improved latent capacity provided by the MoistureMi\$er option reduces the building's humidity, eliminating potential property damage and making the space more comfortable.

The MoistureMi\$er option makes the 48/50TJ unit the ideal IAQ (indoor-air quality) rooftop for hot and humid regions. The operation of the MoistureMi\$er package can be controlled by a field-installed, wall mounted humidistat or thermidstat. The circuit activates only when needed (using the accessory humidistat) as opposed to some dehumidification systems that operate continuously. The humidistat or thermidstat can be set for any humidity levels between 20% and 80% relative humidity.

Simple electrical connections

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

Thru-the-curb service connections allow power and control wiring to be routed through the curb, minimizing roof penetrations. Both power and control connections are made on the same side of the unit to simplify installation. In addition, color-coded wires permit easy tracing and diagnostics.

Integrated economizers and outdoor air

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

For units without economizer, year-round ventilation is enhanced by a manual outdoor-air damper. The damper can be preset to admit up to 25% outdoor air.

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Features/Benefits (cont)



In addition, the barometric relief damper or power exhaust accessory can be utilized to help maintain proper building pressure.

Quiet, efficient operation and dependable performance

Scroll compressors have vibration isolators for extremely quiet operation. Efficient fan and motor design permits operation at very low sound levels.

These units offer high energy efficiency and lower utility costs through part load operation using 2 stages of cooling. Each stage of cooling has its own scroll compressor and independent refrigerant circuit. Each circuit features a thermostatic expansion valve (TXV) for refrigerant metering.

Quiet and efficient operation is provided by belt-driven evaporator fans. The belt-driven evaporator-fan with variable-pitch pulleys allows adjustment to available static pressure to meet the job requirements of even the most demanding applications. A standard (low-medium static) and alternate (high static) drive is available for these units.

Gas heating units

Integrated gas unit controller (IGC) (48TJ models) — All ignition components are contained in the compact IGC which is easily accessible for servicing. The IGC control board, designed and manufactured exclusively for Carrier rooftop units, provides built-in diagnostic capability. An LED (light-emitting diode) simplifies troubleshooting by providing visual fault notification and system status confirmation.

The IGC also contains an exclusive anti-cycle protection for gas heat operation. After 4 continuous cycles on the unit high-temperature limit switch, the gas heat operation is disabled, and an error code is issued. This feature greatly improves reliability of the rooftop unit.

The IGC also contains burner control logic for accurate and dependable gas ignition. The LED is visible without removing the unit control box access panel. This LED fault-notification system reduces service person troubleshooting time and minimizes service costs. The IGC also maximizes heating efficiency by controlling evaporator-fan on and off delays.

Efficient, dependable operation —

Tubular, dimpled gas heat exchangers optimize heat transfer for improved efficiency. The tubular design permits hot gases to make multiple passes across the path of the supply air. The dimpled design creates a turbulent gas flow to maximize heating efficiency. The extra thick Alumagard™ heat exchanger coating provides corrosion resistance and ensures long life.

The unsightly appearance of flue stacks is eliminated and the effects of wind on heating operations are diminished by the induced draft combustion system. The inducer fan draws hot combustion gas through the heat exchanger at the optimum rate for the most effective heat transfer. The heat exchanger operates under negative pressure, preventing flue gas leakage into the indoor supply air.

During the Heating mode, the evaporator-fan relay automatically starts the evaporator fan after the heat exchanger warms up to a suitable temperature. The 30-second fan delay prevents cold air from entering the supply duct system when the conditioned space is calling for heat to maximize efficiency.

The direct-spark ignition system saves operating expense when compared to pilot ignition systems. No crossover tube is required, therefore no sooting or pilot fouling problems can occur.

All 48TJ standard units are designed for natural gas, but an accessory LP (liquid propane) conversion kit is available, if required.

Safety is built in — All 48TJ units have a flame rectification sensor to quickly sense the burner flame and ignite burners almost immediately. Fast shutdown is a certainty since the sensor reacts quickly to any flame outage or system failure. In the event of a shutdown, an error code is issued at the IGC board.

Safety is also assured due to the heating safety controls which will shut down the unit if there is a problem. If excessive temperatures develop, limit switches shut off the gas valve. After 4 continuous short cycles of the high-temperature limit switch, the IGC board locks out the gas heat cycle to prevent any further short cycles. This safety feature is provided exclusively on

Carrier rooftop units. The rollout switch also deenergizes the gas valve in the event of a flame rollout.

Carrier Apollo controls add reliability, efficiency, and simplification

The Apollo direct digital controls are ordered as a factory-installed option. Designed and manufactured exclusively by Carrier, the controls can be used to actively monitor and control all modes of operation, as well as to monitor evaporator-fan status, filter status, indoor-air quality (humidity and carbon dioxide), supply-air temperature, and outdoor-air temperature.

The Apollo communicating controls are factory-installed into the unit control box, and come equipped with built-in diagnostic capabilities. Light-emitting diodes (LEDs) simplify troubleshooting by indicating thermostat commands for both stages of heating and cooling, evaporator fan operation, and economizer operation. The Apollo communicating controls are designed to work specifically with the Carrier TEMP and VVT® (variable volume and temperature) thermostats. The Apollo controls, combined with Carrier thermostats, incorporate a 5-minute recycle delay timer between modes of operation to prevent short cycling.

The standard rooftop control system is readily adaptable to all conventional and programmable thermostats. In addition, units with the Apollo controls are suitable for integration into the CCN building control systems if required. This system gives these unit thermostats the flexibility to communicate with almost any thermostat or Carrier Comfort Network.

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, evaporator 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

Features/Benefits (cont)



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.

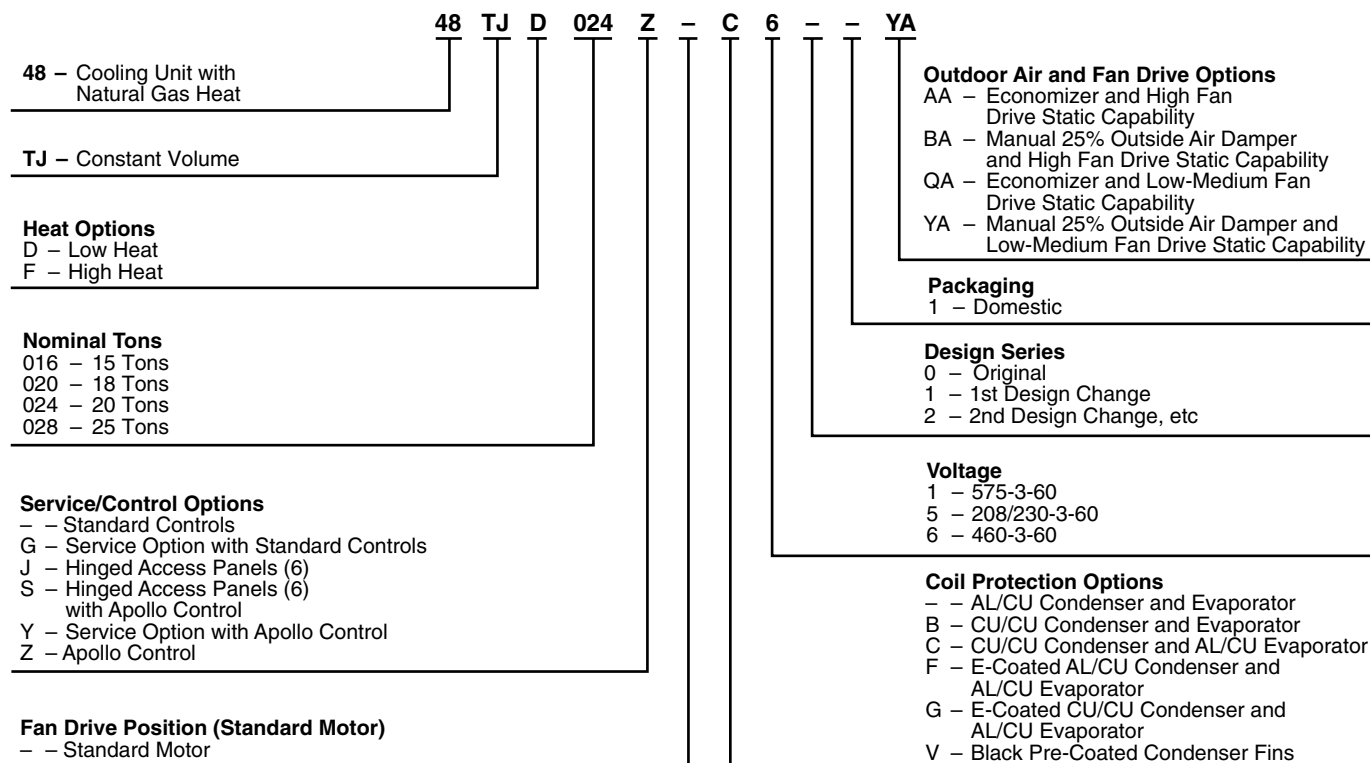
- An external, covered, 115-v Ground Fault Interrupt (GFI) receptacle is provided as a convenient power

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.

Model number nomenclature



LEGEND

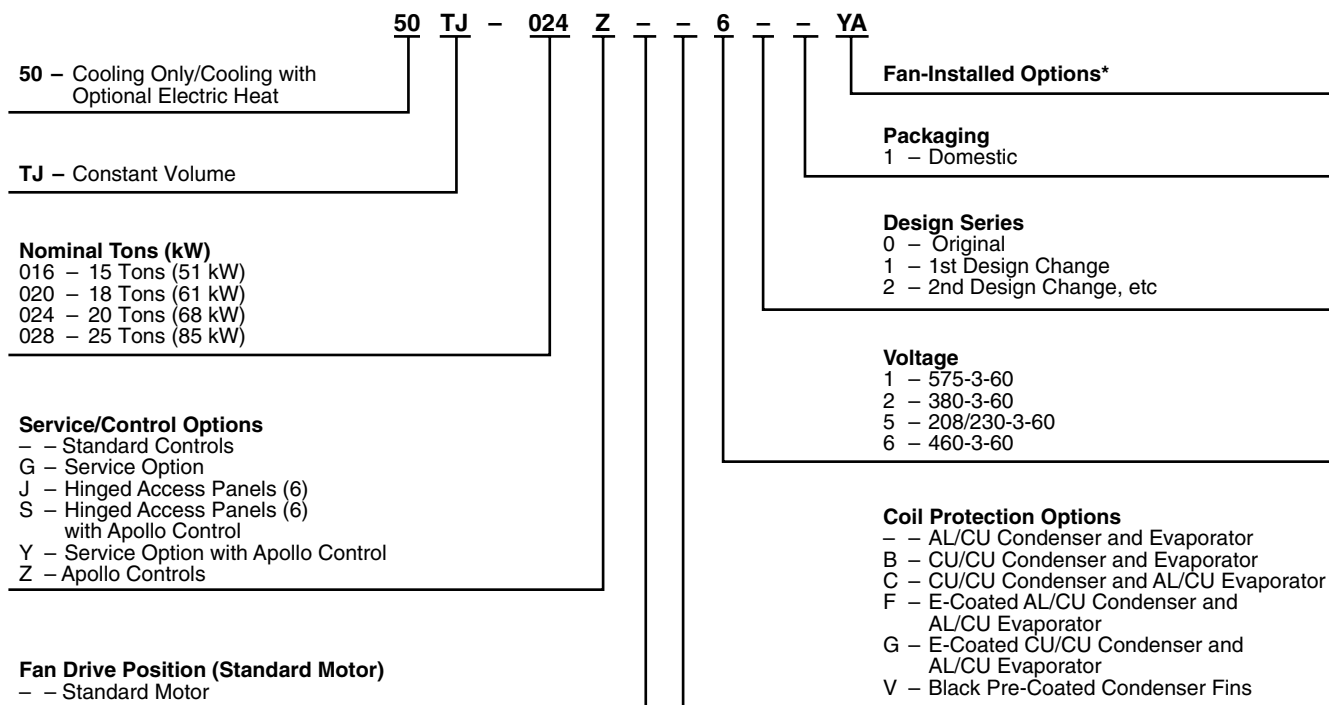
AL — Aluminum
CU — Copper

Quality Assurance



Approvals:
ISO 9002
EN 29002
BS5750 PART 2
ANSI/ASQC Q92

Model number nomenclature (cont)



LEGEND

AL — Aluminum
CU — Copper
FIOP — Factory-Installed Option

*Refer to 50TJ Price Pages for 50TJ FIOP code table or contact your local Carrier representative for more details.

Quality Assurance



Certificate No FM 21837

Approvals:

ISO 9002
 EN 29002
 BS5750 PART 2
 ANSI/ASQC Q92

ARI* capacity ratings



UNIT 48TJD	NOMINAL TONS	STANDARD CFM	NET COOLING CAPACITY (Btuh)	TOTAL WATTS	EER	SOUND RATING (Bels)	IPLV
016	15	5250	174,000	20,128	8.6	8.8	9.3
020	18	6200	188,000	21,619	8.7	8.8	9.5
024	20	6600	220,000	25,513	8.6	9.5	8.7
028	25	7200	268,000	31,068	8.6	9.5	9.2

UNIT 48TJF	NOMINAL TONS	STANDARD CFM	NET COOLING CAPACITY (Btuh)	TOTAL WATTS	EER	SOUND RATING (Bels)	IPLV
016	15	5250	174,000	20,154	8.6	8.8	9.3
020	18	6200	186,000	21,798	8.5	8.8	9.3
024	20	6600	218,000	25,719	8.5	9.5	8.5
028	25	7200	268,000	31,600	8.5	9.5	8.9

UNIT 50TJ	NOMINAL TONS	STANDARD CFM	NET COOLING CAPACITY (Btuh)	TOTAL WATTS	EER	SOUND RATING (Bels)	IPLV
016	15	5250	176,000	19,813	8.9	8.8	9.6
020	18	6200	188,000	21,298	8.8	8.8	9.8
024	20	6600	220,000	25,146	8.7	9.5	8.9
028	25	7200	268,000	30,858	8.7	9.5	9.3

LEGEND

Bels — Sound Levels (1 bel = 10 decibels)
db — Dry Bulb
EER — Energy Efficiency Ratio
IPLV — Integrated Part-Load Values
wb — Wet Bulb

*Air Conditioning and Refrigeration Institute.

NOTES:

1. Rated in accordance with ARI Standards 360-89 and 270-89.
2. The 48/50TJ028 is beyond the scope of the ARI Certification Program.
3. ARI ratings are net values, reflecting the effects of circulating fan heat.
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.



ARI HEATING CAPACITIES AND EFFICIENCIES — 48TJ016-028

UNIT 48TJ	HEATING INPUT (Btuh) Stage 2/Stage 1*	OUTPUT CAPACITY (Btuh)	TEMPERATURE RISE (F)	STEADY-STATE EFFICIENCY (%)	MINIMUM HEATING CFM
D016	230,000/172,000	186,000	15-45	81.0	3830
F016	300,000/225,000	243,000	30-60	81.0	3750
D020	275,000/206,000	223,000	15-45	81.0	4580
F020	360,000/270,000	292,000	20-50	81.0	5400
D024	275,000/206,000	223,000	15-45	81.0	4580
F024	360,000/270,000	292,000	20-50	81.0	5400
D028	275,000/206,000	223,000	15-45	81.0	4580
F028	360,000/270,000	292,000	20-50	81.0	5400

*All units are 2-stage heat.

NOTE: Minimum allowable temperature of mixed-air entering the heat exchanger during first-stage heating is 45 F. There is no minimum mixed-air temperature limitation during second-stage heating. For entering-air temperatures below 45 F both stages of heat must be energized together to minimize condensation issues and ensure proper unit operation.

AIR QUANTITY LIMITS

UNIT 48/50TJ	MINIMUM CFM	MAXIMUM CFM
016	4500	7,500
020	5400	9,000
024	6000	10,000
028	7000	11,250

LOW OUTDOOR TEMPERATURE OPERATING LIMITS (F)

UNITS	TEMPERATURE
All	40
016 and 020 with Low Ambient Kit	10
024 and 028 with Low Ambient Kit	25
All with Motormaster® Head Pressure Control	-20

ELECTRIC RESISTANCE HEATER DATA — 50TJ016-028

UNIT 50TJ	HEATER kW					HEATER STAGES	HEAT PER STAGE	MAXIMUM STAGES*	MINIMUM HEATING CFM	
	Unit Voltages								Cfm	L/s
	208	230	380	460	575					
016	26	34	20.3	32	—	2	50/50	2	4500	2124
	42	56	34.5	55	—	2	33/67	3		
	56	75	—	80	50	2	50/50	4		
020	26	34	—	32	—	2	50/50	2	5400	2549
	42	56	—	55	—	2	33/67	3		
	56	75	—	80	—	2	50/50	4		
024	26	34	20.3	32	—	2	50/50	2	6000	2832
	42	56	34.5	55	—	2	33/67	3		
	56	75	—	80	—	2	50/50	4		
028	26	34	20.3	32	—	2	50/50	2	7000	3304
	42	56	34.5	55	—	2	33/67	3		
	56	75	—	80	—	2	50/50	4		

*Maximum number of stages using accessory low-ambient kit or head pressure control device and low-ambient kit.

NOTE: Heaters are rated at 240, 480, and 600 v. Use the Multiplication Factors table below to determine heater capacity for your particular voltage.

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: 26.0 kW (at 240 v) heater on 208 v
 = 26.0 (.751 mult factor)
 = 19.5 kW capacity at 208 v.

Physical data (gas heating units)



UNIT 48TJ	016D/F		020D/F	024D/F	028D/F
	208/230, 460 v	575 v			
NOMINAL CAPACITY (tons)	15		18	20	25
OPERATING WEIGHT	For Operating Weights see page 12.				
COMPRESSOR/MANUFACTURER	Scroll/Copeland				
Quantity ... Model (Ckt 1 , Ckt 2)	2...ZR94KC	1...ZR108KC, 1...ZR94KC	1...ZR125KC, 1...ZR108KC	1...ZR125KC, 1...ZR108KC	1...ZR16M3, 1...ZR125KC
Number of Refrigerant Circuits	2	2	2	2	2
Oil (oz) (Ckt 1 , Ckt 2)	81, 81	106, 81	106, 106	106, 106	136, 106
Stages of Capacity Control (%)	50/50	55/45	55/45	55/45	60/40
REFRIGERANT TYPE	R-22				
Expansion Device	TXV				
Operating Charge (lb-oz)					
Circuit 1*	10-10	15-5	16-0	16-0	20-13
Circuit 2	10-10	12-3	13-6	13-6	13- 0
CONDENSER COIL	Cross-Hatched 3/8-in. Copper Tubes, Aluminum Lanced, Aluminum Pre-Coated, or Copper Plate Fins				
Rows...Fins/in.	2...17	3...15	3...15	3...15	4...15
Total Face Area (sq ft)	21.7	21.7	21.7	21.7	21.7
CONDENSER FAN	Propeller Type				
Nominal Cfm	10,500	10,500	14,200	14,200	14,200
Quantity...Diameter (in.)	3...22	3...22	2...30	2...30	2...30
Motor Hp...Rpm	1/2...1050	1/2...1050	1...1075	1...1075	1...1075
Watts Input (Total)	1100	1100	3400	3400	3400
EVAPORATOR COIL	Cross-Hatched 3/8-in. Copper Tubes, Aluminum Lanced or Copper Plate Fins, Face Split				
Rows...Fins/in.	2...17	3...15	3...15	3...15	4...15
Total Face Area (sq ft)	17.5	17.5	17.5	17.5	17.5
EVAPORATOR FAN	Centrifugal Type				
Quantity...Size (in.)	2...10 x 10	2...10 x 10	2...12 x 12	2...12 x 12	2...12 x 12
Type Drive	Belt	Belt	Belt	Belt	Belt
Nominal Cfm	6000	6000	7200	8000	10,000
Motor Hp	3.7	3.0	5	7.5	10
Motor Nominal Rpm	1725	1725	1745	1745	1740
Maximum Continuous Bhp	4.38	3.38	6.13	9.47 [208/230, 575 v] 10.33 [460 v]	11.50 [208/230, 575 v] 13.30 [460 v]
Motor Frame Size	56H	56H	184T	213T	215T
Nominal Rpm High/Low	—	—	—	—	—
Fan Rpm Range	891-1179	1159-1429	910-1095	1002-1225	1066-1283
Low-Medium Static	1227-1550	—	1069-1287	1193-1458	1332-1550
High Static	—	—	—	—	—
Motor Bearing Type	Ball	Ball	Ball	Ball	Ball
Maximum Allowable Rpm	1550	1550	1550	1550	1550
Motor Pulley Pitch Diameter	3.1/4.1	4.3/5.3	4.9/5.9	5.4/6.6	4.9/5.9
Low-Medium Static	—	—	—	—	—
High Static	3.7/4.7	—	4.9/5.9	5.4/6.6	4.9/5.9
Nominal Motor Shaft Diameter (in.)	7/8	7/8	1 1/8	1 3/8	1 3/8
Fan Pulley Pitch Diameter (in.)	6.0	6.4	9.4	9.4	8.0
Low-Medium Static	5.2	—	8.0	7.9	6.4
High Static	13/16	13/16	17/16	17/16	17/16
Nominal Fan Shaft Diameter (in.)	—	—	—	—	—
Belt, Quantity...Type...Length (in.)	1...BX...42	1...BX...45	1...BX...50	1...BX...53	2...BX...50
Low-Medium Static	13.5-15.5	13.5-15.5	13.3-14.8	14.6-15.4	14.6-15.4
High Static	—	—	—	—	—
Pulley Center Line Distance (in.)	48	44	37	37	36
Speed Change per Full Turn of Movable Pulley Flange (rpm)	55	—	34	44	45
Movable Pulley Maximum Full Turns From Closed Position	5	5	5	5	5
Factory Speed	3.5	3.5	3.5	3.5	3.5
Factory Speed Setting (rpm)	1035	1296	1002	1120	1182
Low-Medium Static	1389	—	1178	1328	1470
High Static	—	—	—	—	—
Fan Shaft Diameter at Pulley (in.)	13/16	13/16	17/16	17/16	17/16

LEGEND

Bhp — Brake Horsepower
TXV — Thermostatic Expansion Valve

*Circuit 1 uses the lower portion of the condenser coil and lower portion of the evaporator coils; and Circuit 2 uses the upper portion of both coils.

†Rollout switch is manual reset.

**The 48TJ028 unit requires 2-in. industrial-grade filters capable of handling face velocities up to 625 ft/min (such as American Air Filter no. 5700 or equivalent).

NOTE: The 48TJ016-028 units have a low-pressure switch (standard) located on the suction side.



UNIT 48TJ	016D/F	020D/F	024D/F	028D/F
FURNACE SECTION				
Rollout Switch Cutout Temp (F)†	190	190	190	190
Burner Orifice Diameter (in. ...drill size)				
Natural Gas	0.1285...30/0.136...29	0.1285...30/0.136...29	0.1285...30/0.136...29	0.1285...30/0.136...29
Thermostat Heat Anticipator Setting (amps)				
208/230, 575 v Stage 1	0.98	0.98	0.98	0.98
Stage 2	0.44	0.44	0.44	0.44
460 v Stage 1	0.80	0.80	0.80	0.80
Stage 2	0.44	0.44	0.44	0.44
Gas Input Stage 1	172,000/225,000	206,000/270,000	206,000/270,000	206,000/270,000
Stage 2	230,000/300,000	275,000/360,000	275,000/360,000	275,000/360,000
Efficiency (Steady-State) (%)	81	81	81	81
Temperature Rise Range	15-45/30-60	15-45/20-50	15-45/20-50	15-45/20-50
Manifold Pressure (in. wg)				
Natural Gas	3.3	3.3	3.3	3.3
Gas Valve Quantity	1	1	1	1
Gas Valve Pressure Range				
in. wg	5.5-13.5	5.5-13.5	5.5-13.5	5.5-13.5
psig	0.235-0.487	0.235-0.487	0.235-0.487	0.235-0.487
Field Gas Connection Size (in.-FPT)	3/4	3/4	3/4	3/4
HIGH-PRESSURE SWITCH (psig)				
Cutout	426			
Reset (Auto)	320			
LOW-PRESSURE SWITCH (psig)				
Cutout	27			
Reset (Auto)	44			
FREEZE PROTECTION THERMOSTAT (F)				
Opens	30 ± 5			
Closes	45 ± 5			
OUTDOOR-AIR INLET SCREENS				
Quantity...Size (in.)	Cleanable 2...20 x 25 x 1 1...20 x 20 x 1			
RETURN-AIR FILTERS				
Quantity...Size (in.)	Throwaway** 4...20 x 20 x 2 4...16 x 20 x 2			
POWER EXHAUST	1/2 Hp, 208/230-460 v Motor Direct Drive, Propeller-Fan (Factory-Wired for 460 v)			

LEGEND

Bhp — Brake Horsepower
TXV — Thermostatic Expansion Valve

*Circuit 1 uses the lower portion of the condenser coil and lower portion of the evaporator coils; and Circuit 2 uses the upper portion of both coils.

†Rollout switch is manual reset.

**The 48TJ028 unit requires 2-in. industrial-grade filters capable of handling face velocities up to 625 ft/min (such as American Air Filter no. 5700 or equivalent).

NOTE: The 48TJ016-028 units have a low-pressure switch (standard) located on the suction side.

Physical data (electric heating units) — English



UNIT 50TJ	016		020	024	028
	208/230, 380, 460 v	575 v			
NOMINAL CAPACITY (tons)	15		18	20	25
OPERATING WEIGHT	For Operating Weights see page 12.				
COMPRESSOR/MANUFACTURER	Scroll/Copeland				
Quantity...Model (Ckt 1, Ckt 2)	2...ZR94KC		1...ZR108KC, 1...ZR94KC	1...ZR125KC, 1...ZR108KC	1...ZR16M3, 1...ZR125KC
Number of Refrigerant Circuits	2		2	2	2
Oil (oz) (Ckt 1, Ckt 2)	81, 81		106, 81	106, 106	136, 106
Stages of Capacity Control (%)	50/50		55/45	55/45	60/40
REFRIGERANT TYPE	R-22				
Expansion Device	TXV				
Operating Charge (lb-oz)	10-10		15-5	16-0	20-13
Circuit 1*	10-10		12-3	13-6	13-0
Circuit 2					
CONDENSER COIL	Cross-Hatched ³ / ₈ -in. Copper Tubes, Aluminum Lanced, Aluminum Pre-Coated, or Copper Plate Fins				
Rows...Fins/in.	2...17		3...15	3...15	4...15
Total Face Area (sq ft)	21.7		21.7	21.7	21.7
CONDENSER FAN	Propeller Type				
Nominal Cfm	10,500		10,500	14,200	14,200
Quantity...Diameter (in.)	3...22		3...22	2...30	2...30
Motor Hp...Rpm	1/2...1050		1/2...1050	1...1075	1...1075
Watts Input (Total)	1100		1100	3400	3400
EVAPORATOR COIL	Cross-Hatched ³ / ₈ -in. Copper Tubes, Aluminum Lanced or Copper Plate Fins, Face Split				
Rows...Fins/in.	2...17		3...15	3...15	4...15
Total Face Area (sq ft)	17.5		17.5	17.5	17.5
EVAPORATOR FAN	Centrifugal Type				
Quantity...Size (in.)	2...10 x 10	2...10 x 10	2...12 x 12	2...12 x 12	2...12 x 12
Type Drive	Belt	Belt	Belt	Belt	Belt
Nominal Cfm	6000	6000	7200	8000	10,000
Motor Hp	3.7	3.0	5	7.5	10
Motor Nominal Rpm	1725	1725	1745	1745	1740
Maximum Continuous Bhp	4.38	3.38	6.13	9.47 [208/230, 575 v] 10.33 [380, 460 v]	11.50 [208/230, 575 v] 13.30 [380, 460 v]
Motor Frame Size	56H	56H	184T	213T	215T
Nominal Rpm High/Low	—	—	—	—	—
Fan Rpm Range	891-1179 1227-1550	1159-1429 —	910-1095 1069-1287	1002-1225 1193-1458	1066-1283 1332-1550
Motor Bearing Type	Ball	Ball	Ball	Ball	Ball
Maximum Allowable Rpm	1550	1550	1550	1550	1550
Motor Pulley Pitch Diameter	3.1/4.1	4.3/5.3	4.9/5.9	5.4/6.6	4.9/5.9
Min/Max (in.)	3.7/4.7	—	4.9/5.9	5.4/6.6	4.9/5.9
Nominal Motor Shaft Diameter (in.)	7/8	7/8	1 1/8	1 3/8	1 3/8
Fan Pulley Pitch Diameter (in.)	6.0	6.4	9.4	9.4	8.0
Nominal Fan Shaft Diameter (in.)	5.2	—	8.0	7.9	6.4
Belt, Quantity...Type...Length (in.)	13 1/16	13 1/16	17 1/16	17 1/16	17 1/16
Pulley Center Line Distance (in.)	1...BX...42	1...BX...45	1...BX...50	1...BX...53	2...BX...50
Speed Change per Full Turn of Movable Pulley Flange (rpm)	1...BX...42	—	1...BX...48	1...BX...50	2...BX...47
Movable Pulley Maximum Full Turns From Closed Position	13.5-15.5	13.5-15.5	13.3-14.8	14.6-15.4	14.6-15.4
Factory Speed	48	44	37	37	36
Factory Speed Setting (rpm)	55	—	34	44	45
Fan Shaft Diameter at Pulley (in.)	5	5	5	5	5
High Static	3.5	3.5	3.5	3.5	3.5
Low-Medium Static	1035	1296	1002	1120	1182
High Static	1389	—	1178	1328	1470
High Static	13 1/16	13 1/16	17 1/16	17 1/16	17 1/16
HIGH-PRESSURE SWITCH (psig)					
Cutout					
Reset (Auto)	426 320				
LOW-PRESSURE SWITCH (psig)					
Cutout					
Reset (Auto)	27 44				
FREEZE PROTECTION THERMOSTAT (F)					
Opens					
Closes	30 ± 5 45 ± 5				
OUTDOOR-AIR INLET SCREENS					
Quantity...Size (in.)	Cleanable 2...20 X 25 X 1 1...20 X 20 X 1				
RETURN-AIR FILTERS					
Quantity...Size (in.)	Throwaway† ...]20 x 20 x 2 4...16 x 20 x 2				
POWER EXHAUST	1/2 Hp, 208/230-460 v Motor Direct Drive, Propeller-Fan (Factory-Wired for 460 v)				

LEGEND

Bhp — Brake Horsepower
TXV — Thermostatic Expansion Valve

*Circuit 1 uses the lower portion of the condenser coil and lower portion of the evaporator coils; and Circuit 2 uses the upper portion of both coils.

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

NOTE: The 50TJ016-028 units have a low-pressure switch (standard) located on the suction side.

Physical data (electric heating units) — SI



UNIT 50TJ	016		020	024	028
	208/230, 380, 460 v	575 v			
NOMINAL CAPACITY (kW)	51		61	68	85
OPERATING WEIGHT	For Operating Weights see page 12.				
COMPRESSOR/MANUFACTURER	Scroll/Copeland				
Quantity...Model (Ckt 1, Ckt 2)	2...ZR94KC		1...ZR108KC, 1...ZR94KC	1...ZR125KC, 1...ZR108KC	1...ZR16M3, 1...ZR125KC
Number of Refrigerant Circuits	2		2	2	2
Oil (ml) (Ckt 1, Ckt 2)	2395, 2395		3135, 2395	3135, 3135	4022, 3135
Stages of Capacity Control %	50/50		55/45	55/45	60/40
REFRIGERANT TYPE	R-22				
Expansion Device	TXV				
Operating Charge (kg)	4.8		6.9	7.3	9.4
Circuit 1*	4.8		5.5	6.1	5.9
Circuit 2					
CONDENSER COIL	Cross-Hatched 3/8-in. Copper Tubes, Aluminum Lanced, Aluminum Pre-Coated, or Copper Plate Fins				
Rows...Fins/m	2...669		3...590	3...590	4...590
Total Face Area (sq m)	2.02		2.02	2.02	2.02
CONDENSER FAN	Propeller Type				
Nominal L/s	4956		4956	6700	6700
Quantity...Diameter (mm)	3...559		3...559	2...762	2...762
Motor BkW...r/s	0.37...14.3		0.37...14.3	0.75...17.9	0.75...17.9
Watts Input (Total)	1100		1100	3400	3400
EVAPORATOR COIL	Cross-Hatched 3/8-in. Copper Tubes, Aluminum Lanced or Copper Plate Fins, Face Split				
Rows...Fins/m	2...669		3...590	3...590	4...590
Total Face Area (sq m)	1.63		1.63	1.63	1.63
EVAPORATOR FAN	Centrifugal Type				
Quantity...Size (mm)	2...254 x 254	2...254 x 254	2...305 x 305	2...305 x 305	2...305 x 305
Type Drive	Belt	Belt	Belt	Belt	Belt
Nominal L/s	2832	2832	3398	3776	4720
Motor BkW	2.76	2.24	3.73	5.59	7.46
Motor Nominal R/s	28.75	28.75	29.08	29.08	29.00
Maximum Continuous BkW	3.27	2.52	4.57	7.06 [208/230, 575 v] 7.71 [380, 460 v]	8.58 [208/230, 575 v] 9.92 [380, 460 v]
Motor Frame Size	56H	56H	184T	213T	215T
Nominal Rpm High/Low	—	—	—	—	—
Fan R/s Range	Low-Medium Static 14.9-19.7 High Static 20.5-25.8	Low-Medium Static 19.3-23.8 High Static —	Low-Medium Static 15.2-18.3 High Static 17.8-21.5	Low-Medium Static 16.7-20.4 High Static 19.9-24.3	Low-Medium Static 17.8-21.4 High Static 22.2-25.8
Motor Bearing Type	Ball	Ball	Ball	Ball	Ball
Maximum Allowable R/s	25.8	25.8	25.8	25.8	25.8
Motor Pulley Pitch Diameter	Low-Medium Static 79/104 High Static 94/119	Low-Medium Static 109/135 High Static —	Low-Medium Static 124.5/149.9 High Static 124.5/149.9	Low-Medium Static 137/168 High Static 137/168	Low-Medium Static 124/150 High Static 125/150
Nominal Motor Shaft Diameter (mm)	22	22	28.6	35	35
Fan Pulley Pitch Diameter (mm)	Low-Medium Static 152 High Static 132	Low-Medium Static 163 High Static 30	Low-Medium Static 238.8 High Static 203.2	Low-Medium Static 239 High Static 201	Low-Medium Static 203 High Static 163
Nominal Fan Shaft Diameter (mm)	30	30	36.5	36.5	36.5
Belt, Quantity...Type...Length (mm)	Low-Medium Static 1...BX...1067 High Static 1...BX...1067	Low-Medium Static 1...BX...1143 High Static —	Low-Medium Static 1...BX...1270 High Static 1...BX...1219	Low-Medium Static 1...BX...1346 High Static 1...BX...1270	Low-Medium Static 2...BX...1270 High Static 2...BX...1194
Pulley Center Line Distance (mm)	343-394	343-394	338-376	371-391	371-391
Speed Change per Full Turn of Movable Pulley Flange (r/s)	Low-Medium Static 0.80 High Static 0.92	Low-Medium Static 0.73 High Static —	Low-Medium Static 0.62 High Static 0.57	Low-Medium Static 0.62 High Static 0.73	Low-Medium Static 0.60 High Static 0.75
Movable Pulley Maximum Full Turns From Closed Position	5	5	5	5	5
Factory Speed	3.5	3.5	3.5	3.5	3.5
Factory Speed Setting (r/s)	Low-Medium Static 17.3 High Static 23.2	Low-Medium Static 21.6 High Static —	Low-Medium Static 16.71 High Static 19.63	Low-Medium Static 18.7 High Static 21.1	Low-Medium Static 19.7 High Static 24.5
Fan Shaft Diameter at Pulley (mm)	30	30	36.5	36.5	36.5
HIGH-PRESSURE SWITCH (kPa)	2951				
Cutout	2206				
Reset (Auto)					
LOW-PRESSURE SWITCH (kPa)	186				
Cutout	303				
Reset (Auto)					
FREEZE PROTECTION THERMOSTAT (C)	-1				
Opens	7				
Closes					
OUTDOOR-AIR INLET SCREENS	Cleanable				
Quantity...Size (mm)	2...508 x 635 x 25 2...508 x 508 x 25				
RETURN-AIR FILTERS	Throwaway†				
Quantity...Size (mm)	4...508 x 508 x 50 4...406 x 508 x 50				
POWER EXHAUST	0.37 kW 208/230-460 v Motor Direct Drive, Propeller-Fan (Factory-Wired for 460 v)				

LEGEND

BkW — Brake Kilowatts
TXV — Thermostatic Expansion Valve

*Circuit 1 uses the lower portion of the condenser coil and lower portion of the evaporator coils; and Circuit 2 uses the upper portion of both coils.

†The 50TJ028 unit requires 2-in. industrial-grade filters capable of handling face velocities up to 3.2 m/s (such as American Air Filter no. 5700 or equivalent).

NOTE: The 50TJ016-028 units have a low-pressure switch (standard) located on the suction side.

Physical data (cont)



OPERATING AND RIGGING WEIGHTS

UNIT	BASE UNIT OPERATING WEIGHTS*							
	016		020		024		028	
	lb	kg	lb	kg	lb	kg	lb	kg
48TJD/F	1700	771	1800	816	1850	839	2000	907
50TJ	1550	703	1650	748	1700	771	1850	839

*Base unit weight does not include electric heaters, copper coils, economizer, power exhaust, barometric relief or crating. See Options and Accessories table below for more information.

NOTE: For 016 and 020 unit sizes add 75 lb (34 kg) for domestic crating. For 024 and 028 unit sizes add 135 lb (61 kg). For export crating add 500 lb (227 kg).

OPTIONS AND ACCESSORIES (Weight Adders)

OPTION/ ACCESSORY	OPTION/ACCESSORY WEIGHTS							
	016		020		024		028	
	lb	kg	lb	kg	lb	kg	lb	kg
Barometric Relief Damper	50	23	50	23	50	23	50	23
Power Exhaust	85	39	85	39	85	39	85	39
Electric Heater*	50	23	50	23	50	23	50	23
Economizer	110	50	110	50	110	50	110	50
Cu Condenser Coil	150	68	150	68	150	68	150	68
Cu Condenser and Evaporator Coils	280	127	280	127	280	127	280	127
Roof Curb (14-in. curb)	200	91	200	91	200	91	200	91
Horizontal Adapter Curb (Pre-Assembled)	250	113	250	113	250	113	250	113
MoistureMiSer™ Dehumidification Package	40	18	40	18	40	18	40	18
Horizontal Adapter Curb (Field-Assembled)	343	156	343	156	343	156	343	156
Hail Guard	60	27	60	27	60	27	60	27

LEGEND

Cu — Copper

*Electric heaters are available for 50TJ units only.

Options and accessories



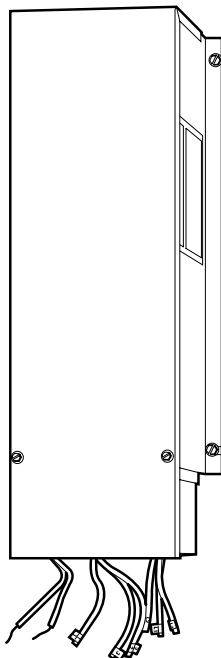
ITEM	OPTION*	ACCESSORY†
Apollo Direct Digital Communicating Controls	X	
MoistureMiSer™ Dehumidification Package	X	
Humidistat		X
Service Options	X	
Integrated Economizer	X	X
Electric Heat (50TJ016-028)**	X	
Enviro-Shield™ Condenser Coil Options	X	
Hail Guard Condenser Coil Grille		X
Alternate Drive	X	
LP (Liquid Propane) Conversion Kit (48TJ016-028)		X
Electronic Programmable Thermostat		X
25% Open Two-Position Damper		X
Barometric Relief Damper**		X
Roof Curbs		X
Horizontal Adapter Curb		X
Remote Control Panel		X
Thermostats and Subbases		X
Power Exhaust**		X
Low-Ambient Kit		X
Winter Start Time-Delay Relay		X
Motormaster® Head Pressure Control (016,020) (Speed Control)		X
Motormaster III Head Pressure Control (024,028) (Speed Control)		X
Time Guard™ II Control Circuit		X
Accusensor™ III Enthalpy Sensor		X
Hydronic Glycol Coil (50TJ016-028)		X

*Factory-installed.

†Field-installed.

**Not available with horizontal adapter curb (016-028).

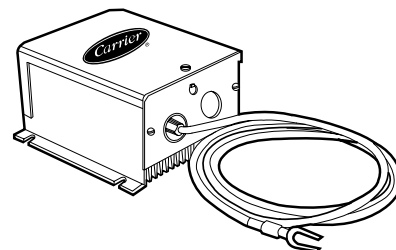
NOTE: Refer to 48/50TJ price pages or contact your local representative for accessory and option package information.



MOTORMASTER III CONTROL
(024,028)

HEAD PRESSURE CONTROL

The 48/50TJ016-028 standard units are designed to operate in cooling at outdoor temperatures down to 40 F (4.4 C). With accessory Motormaster control (016,020) (condenser-fan speed modulation), or Motormaster III control (024,028) (condenser fan speed modulation) units can operate at outdoor temperatures down to -20 F (-28.9 C). The head pressure controls, which mount in the condenser section, control the condenser-fan motor to maintain correct condensing temperature. Refer to Price pages or contact your local Carrier representative for appropriate accessory combinations for desired outdoor ambient temperature operation.

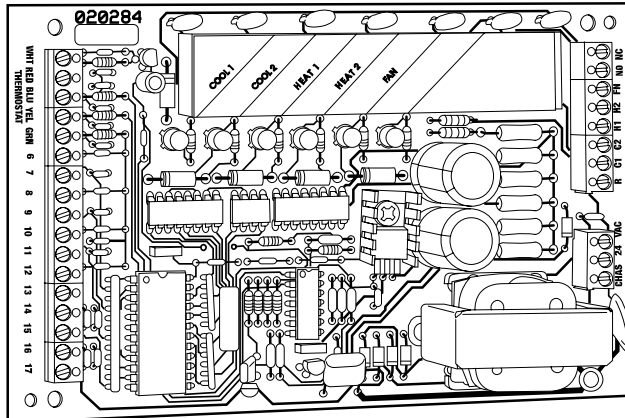


MOTORMASTER CONTROL
(016,020)

Options and accessories (cont)

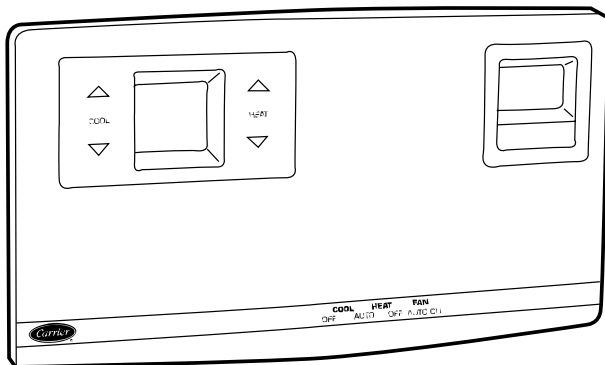


FACTORY-INSTALLED APOLLO COMMUNICATING CONTROLS



The Apollo direct digital controls are designed exclusively by Carrier, and are used to actively monitor and control all modes of operation as well as to monitor evaporator-fan status, filter status, supply-air temperature, outdoor-air temperature, and indoor-air quality. They are designed to work in conjunction with Carrier TEMP and VVT® (Variable Volume/Variable Temperature) system thermostats.

ELECTRONIC PROGRAMMABLE THERMOSTAT

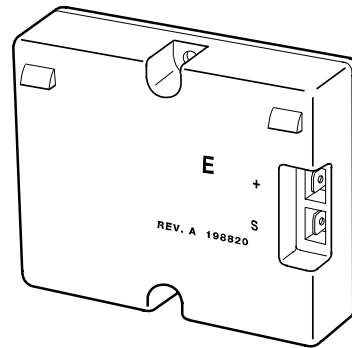


Carrier's electronic programmable thermostat provides efficient temperature control by allowing you to program heating and cooling set-backs and set ups with provisions for weekends and holidays. Accessory remote sensing package is also available to provide tamperproof control in high traffic spaces. Used in conjunction with factory-installed Apollo control, this thermostat provides a 5-minute recycle timer between modes of operation for short-cycle protection.

TIME GUARD® II CONTROL

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

ACCUSENSOR™ III (Enthalpy and Differential Enthalpy Control)

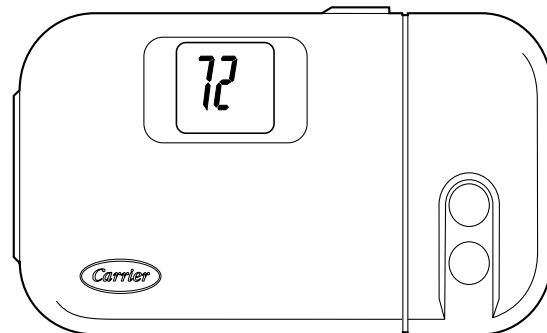


Accusensor economizer controls help provide efficient, economical economizer operation. The unit economizer provides the decision-making function internally, and requires one Accusensor III sensor for solid-state enthalpy sensing. A second Accusensor III sensor provides information for comparison of outdoor temperature and humidity to return-air temperature and humidity and determines the most economical mixture of air (purchased in addition to first solid-state enthalpy sensor for differential enthalpy sensing for all units).

LIQUID PROPANE (LP) CONVERSION KITS (48TJ016-028 Only)

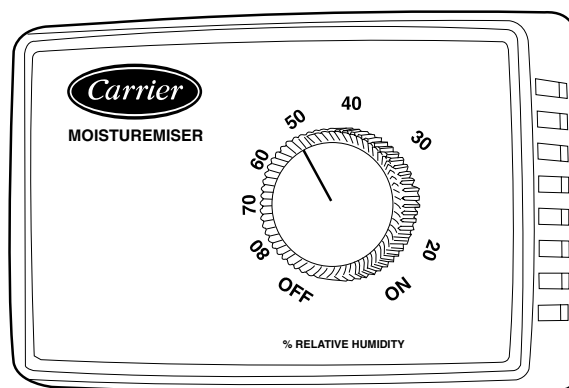
The LP conversion kit allows the unit to utilize a liquid propane fuel supply in areas where natural gas is unavailable, and permits the unit to be converted from natural gas to LP gas use. The single kit contains the orifices required for LP operation on both low and high heat modes.

CARRIER COMMERCIAL THERMOSTAT



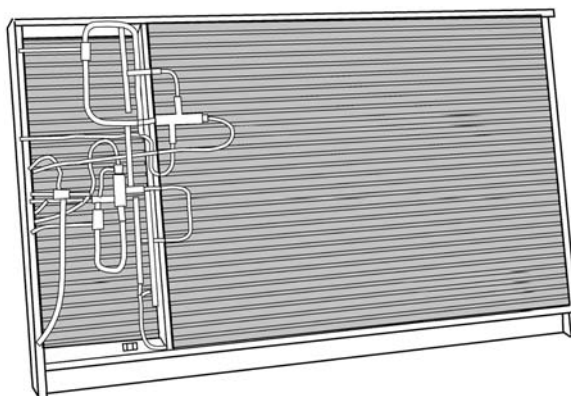
Designed specifically for use with Carrier commercial systems, this Carrier programmable thermostat features LED occupied/unoccupied displays and setback mode which can override continuous fan operation.

HUMIDISTAT



Field-installed, wall-mounted humidistat is used to control operation of the MoistureMi\$er dehumidification package. The humidistat controls the occupied space humidity at a user-selected setting between 20% and 80% relative humidity.

MOISTUREMISER™ DEHUMIDIFICATION PACKAGE

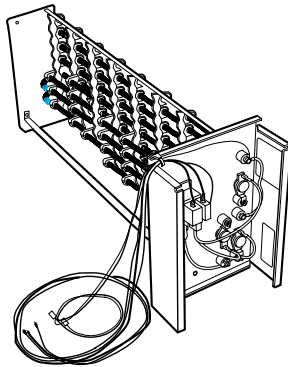


The MoistureMi\$er dehumidification package is a factory-installed option that provides increased dehumidification by cooling the hot liquid refrigerant leaving the condenser coil. The MoistureMi\$er package consists of a subcooling coil located on the leaving-air side of the evaporator coil. The location of this coil in the indoor airstream enhances the latent capacity of the 48/50TJ units by as much as 40%. The MoistureMi\$er package includes the subcooling coil and low-pressure switches, and operation can be controlled by a field-installed, wall-mounted humidistat or thermidstat.

Options and accessories (cont)

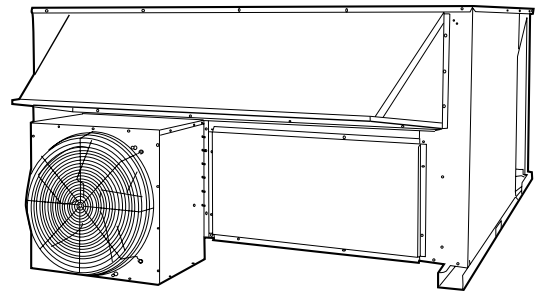


ELECTRIC HEATERS (50TJ016-028 Only)



Electric heaters (and single point kits) are available in a wide range of capacities for factory or field installation.

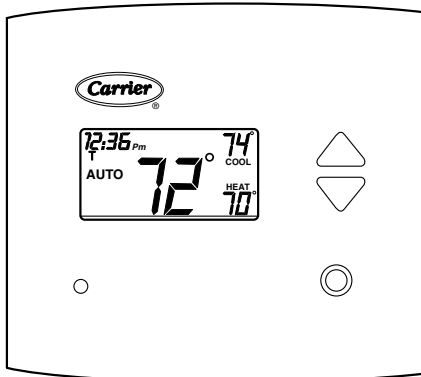
BAROMETRIC RELIEF/POWER EXHAUST



When used with accessory/optional economizer, the barometric relief or power exhaust accessory helps to relieve building overpressurization.

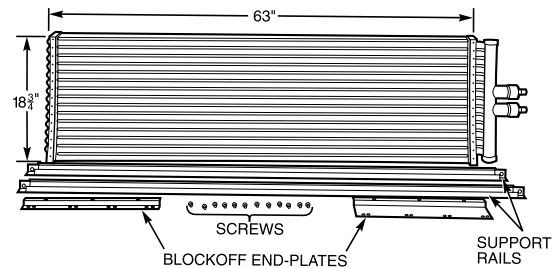
NOTE: This is not available with horizontal supply adapter curb.

CARRIER DEBONAIR® THERMOSTAT



Carrier's Debonair line of commercial programmable thermostats are wall-mounted, low-voltage thermostats which maintain room temperature by controlling operation of an HVAC (Heating, Ventilation, and Air-Conditioning) system. Separate heating and cooling set points and autochangeover capability allow occupied and unoccupied programming for energy savings.

GLYCOL COIL (50TJ016-028 Only)



Glycol coil is intended for add-on type applications or new work where a boiler system is available. Glycol coil and electric heat cannot be installed together.

ENVIRO-SHIELD™ CONDENSER COIL OPTIONS

Condenser coil options are available to match coil construction to site conditions for the best corrosion durability. Pre-coated coils provide protection in mild coastal environments. All copper coils are best suited for moderate coastal applications, while post-coated coils provide superior protection in severe coastal and industrial applications.

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	
E-Coated Cu/Cu				X		X

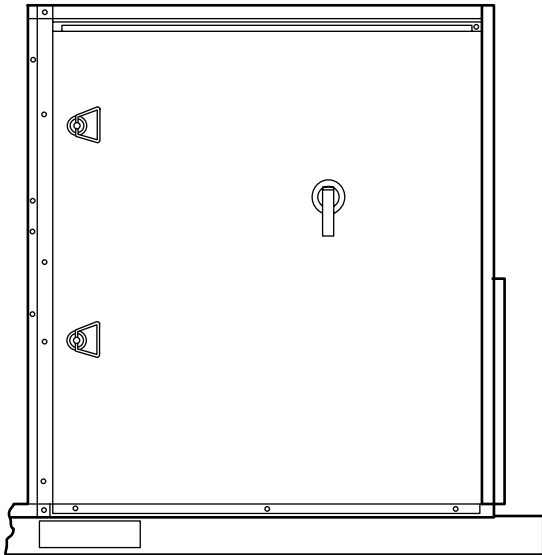
LEGEND

- 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.

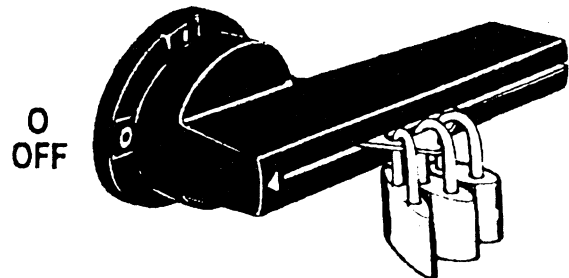
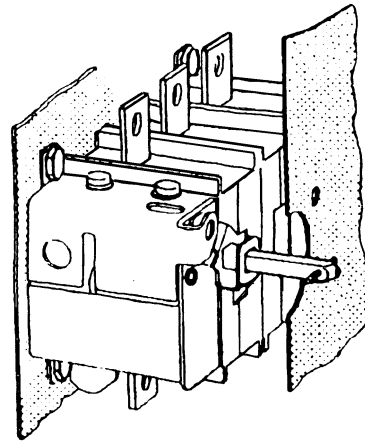
SERVICE OPTIONS

HINGED ACCESS PANELS

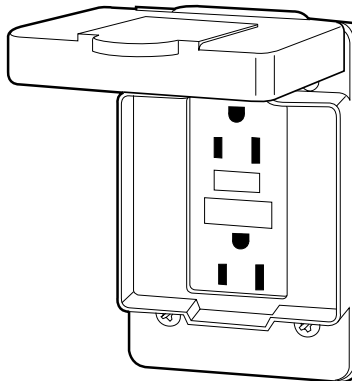


Factory-installed, internally-mounted, NEC (National Electrical Code) and UL (Underwriters' Laboratories) approved non-fused switch provides unit power shutoff with disconnect lock-out protection capability. The control box access door is interlocked with the non-fused disconnect. The non-fused disconnect must be in the OFF position to open this door. The switch is accessible from outside the unit.

UNIT MOUNTED DISCONNECT



CONVENIENCE OUTLET



Factory-installed, internally mounted and externally accessible 115-v female receptacle. Includes 15-amp GFI (Ground Fault Interrupter) receptacle with independent fuse protection. Voltage required to operate convenience outlet is provided by a field-installed transformer.

Base unit dimensions — 48TJ016,020



UNIT	STD UNIT WEIGHT		ECONOMIZER WEIGHT		CORNER A		CORNER B		CORNER C		CORNER D		DIM A		DIM B		DIM C	
	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg	ft-in.	mm	ft-in.	mm	ft-in.	mm
48TJD, TJF016	1700	771	110	50	411	186	381	173	438	199	471	213	3-3	991	3-5	1041	1-10	559
48TJD, TJF020	1800	816	110	50	422	192	397	180	452	205	503	228	3-2	965	3-6	1067	1-8	508

NOTES:
1. Refer to print for roof curb accessory dimensions.
2. Dimensions in () are in millimeters.

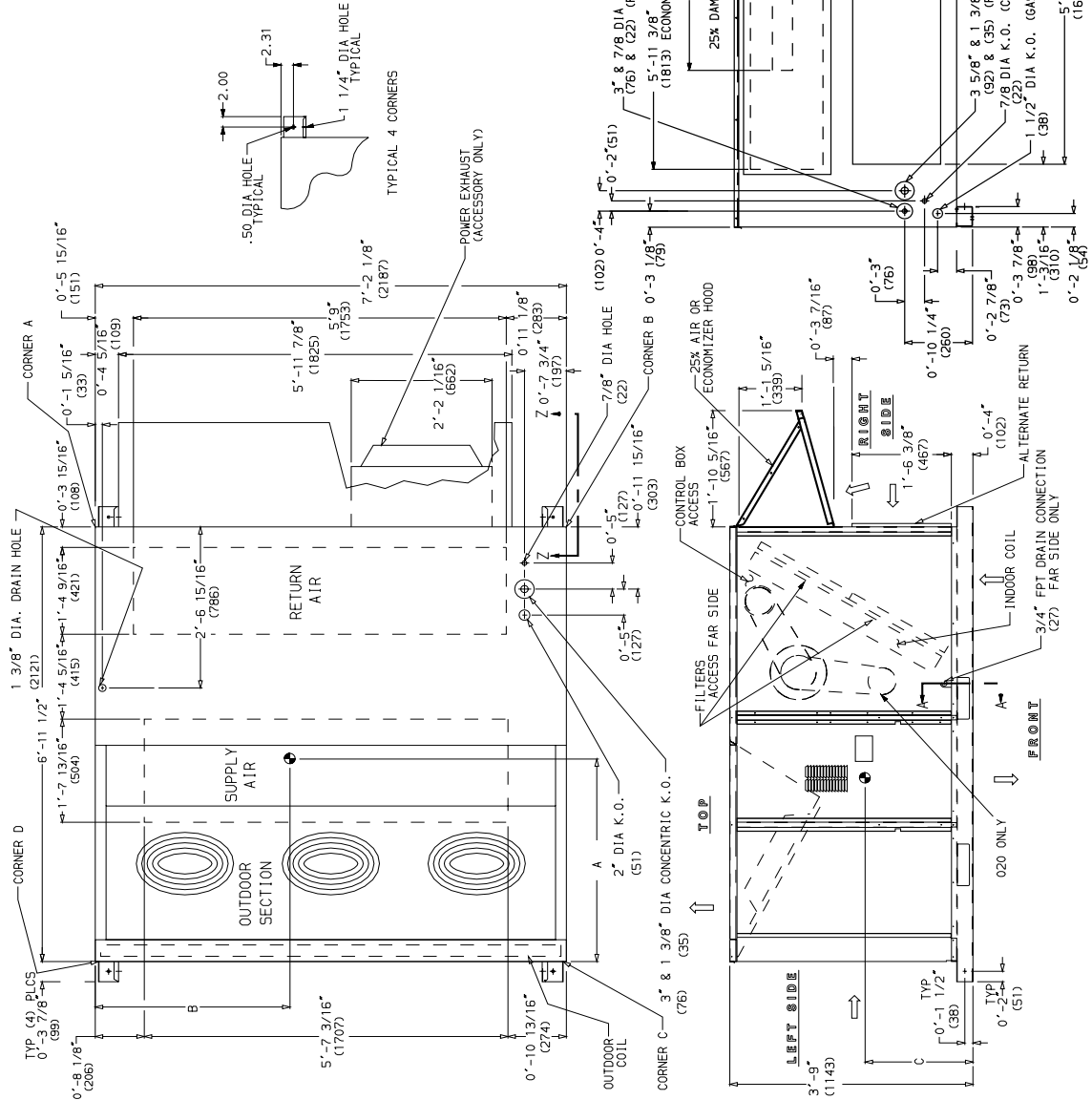
3. Center of Gravity.



4. Direction of airflow.

5. Ductwork to be attached to accessory roof curb only.

6. Minimum clearance:
• Rear: 7'-0" (2134) for coil removal. This dimension can be reduced to 4'-0" (1219) if conditions permit coil removal from the top.
• 4'-0" (1219) to combustible surfaces, all four sides (includes between units).
• Left side: 4'-0" (1219) for proper condenser coil airflow.
• Front: 4'-0" (1219) for control box access.
• Right side: 4'-0" (1219) for proper operation of damper and power exhaust if so equipped.
• Top: 6'-0" (1829) to assure proper condenser fan operation.
• Bottom: 14" (356) to combustible surfaces (when not using curb).
• Control box side: 3'-0" (914) to ungrounded surfaces, non-combustible.
• Control box side: 3'-6" (1067) to block or concrete walls, or other grounded surfaces.
• Local codes or jurisdiction may prevail.
7. With the exception of clearance for the condenser coil and the damper/power exhaust as stated in Note no. 6, a removable fence or barricade requires no clearance.
8. Dimensions are from outside of corner post. Allow 0'-5 1/16" (8) on each side for top cover drip edge.
9. See page 24 for service option details.



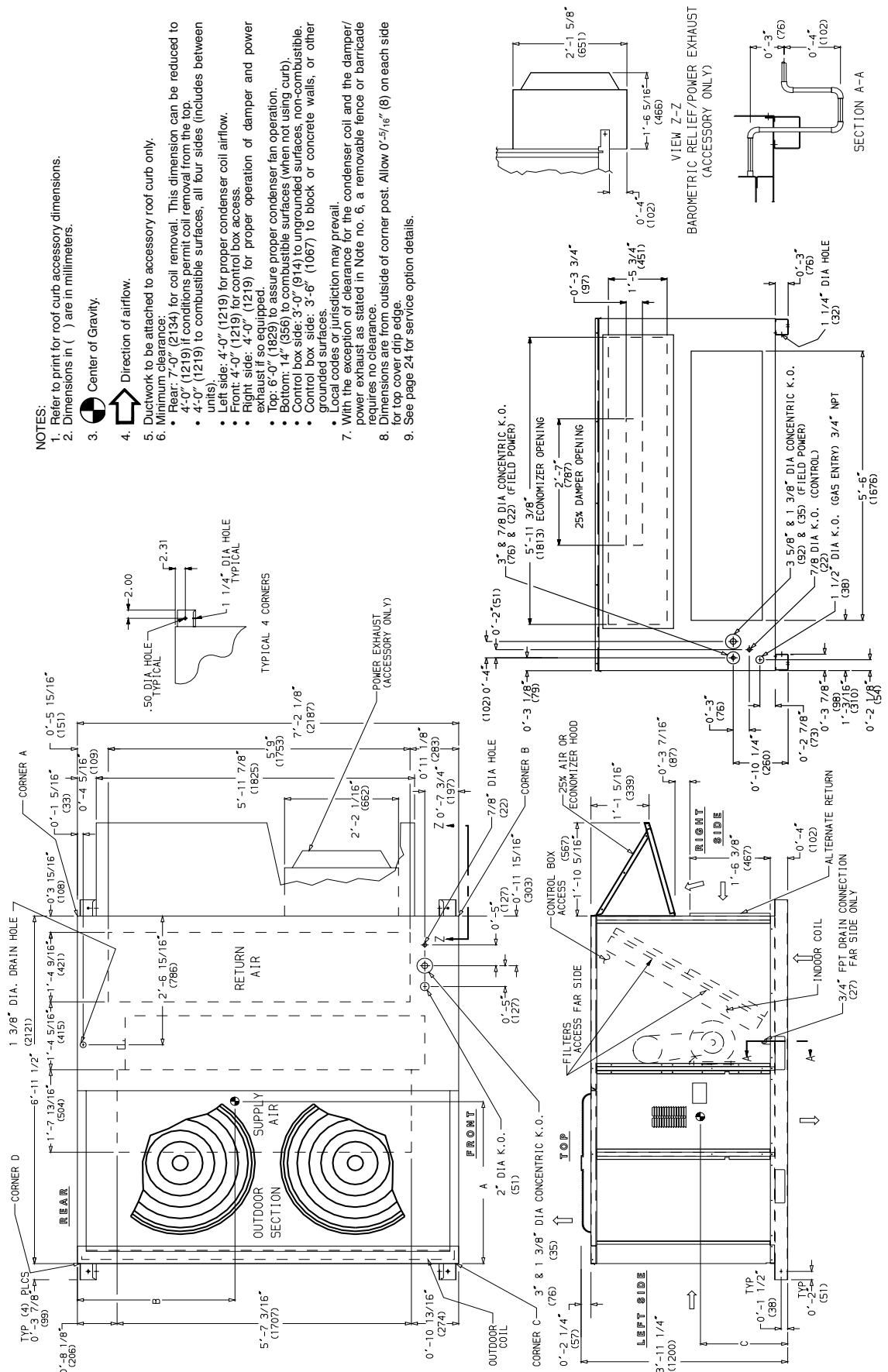
Base unit dimensions — 48TJ024,028



UNIT	STD UNIT WEIGHT		ECONOMIZER WEIGHT		CORNER A		CORNER B		CORNER C		CORNER D		DIM A		DIM B		DIM C	
	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg	ft-in.	mm	ft-in.	mm	ft-in.	mm
48TJD, TJF024	1850	839	110	50	441	200	408	185	474	215	526	239	3-2	965	3-5	1041	1-8	508
48TJD, TJF028	2000	907	110	50	451	204	426	193	562	255	562	255	3-1	940	3-7	1092	1-8	508

NOTES:

1. Refer to print for roof curb accessory dimensions.
2. Dimensions in () are in millimeters.
3. Center of Gravity.
4. Direction of airflow.
5. Ductwork to be attached to accessory roof curb only.
6. Minimum clearance:
 - Rear: 7'-0" (2134) for coil removal. This dimension can be reduced to 4'-0" (1219) if conditions permit coil removal from the top.
 - 4'-0" (1219) to combustible surfaces, all four sides (includes between units).
 - Left side: 4'-0" (1219) for proper condenser coil airflow.
 - Front: 4'-0" (1219) for control box access.
 - Right side: 4'-0" (1219) for proper operation of damper and power exhaust if so equipped.
 - Top: 6'-0" (1829) to assure proper condenser fan operation.
 - Bottom: 1'-4" (356) to combustible surfaces (when not using curb).
 - Control box side: 3'-0" (914) to ungrounded surfaces, non-combustible.
 - Control box side: 3'-6" (1067) to block or concrete walls, or other grounded surfaces.
7. With the exception of clearance for the condenser coil and the damper/power exhaust as stated in Note no. 6, a removable fence or barricade requires no clearance.
8. Dimensions are from outside of corner post. Allow 0'-5/16" (8) on each side for top cover drip edge.
9. See page 24 for service option details.



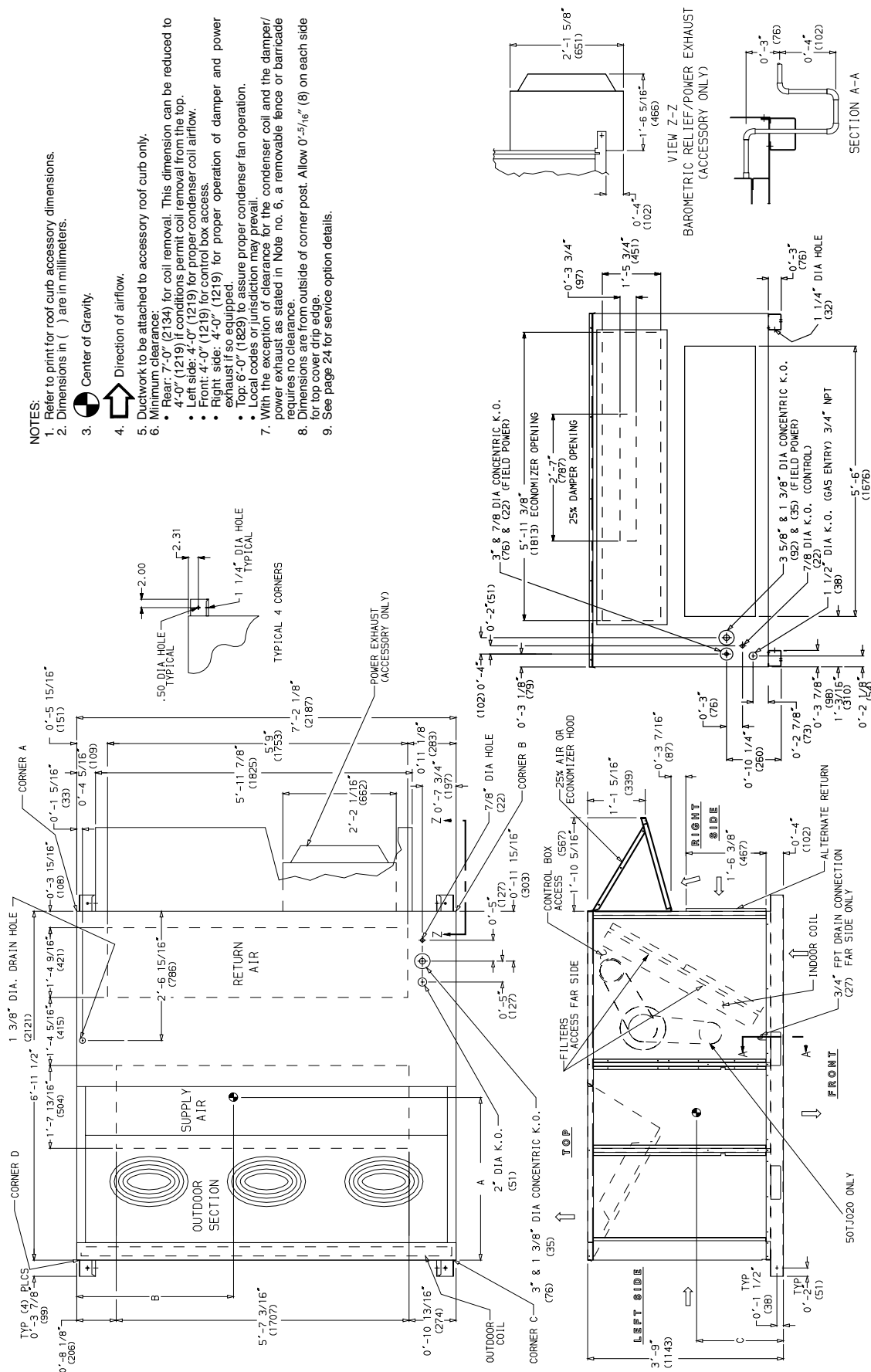
Base unit dimensions — 50TJ016,020



UNIT	STD UNIT WEIGHT		ECONOMIZER WEIGHT		CORNER A		CORNER B		CORNER C		CORNER D		DIM A		DIM B		DIM C	
	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg	ft-in.	mm	ft-in.	mm	ft-in.	mm
50TJ016	1550	703	110	50	391	177	365	166	384	174	410	186	3-5	1041	3-6	1067	1-10	559
50TJ020	1650	748	110	50	399	181	384	174	402	182	439	199	3-4	1016	3-6	1067	1-8	508

NOTES:

- Refer to print for roof curb accessory dimensions.
- Dimensions in () are in millimeters.
- Center of Gravity.
- Direction of airflow.
- Ductwork to be attached to accessory roof curb only.
- Minimum clearance:
 - Rear: 7'-0" (2134) for coil removal. This dimension can be reduced to 4'-0" (1219) if conditions permit coil removal from the top.
 - Left side: 4'-0" (1219) for proper condenser coil airflow.
 - Front: 4'-0" (1219) for control box access.
 - Right side: 4'-0" (1219) for proper operation of damper and power exhaust if so equipped.
 - Top: 6'-0" (1829) to assure proper condenser fan operation.
- With the exception of clearance for the condenser coil and the damper/power exhaust as stated in Note no. 6, a removable fence or barricade requires no clearance.
- Dimensions are from outside of corner post. Allow 0'-5 1/16" (8) on each side for top cover drip edge.
- See page 24 for service option details.



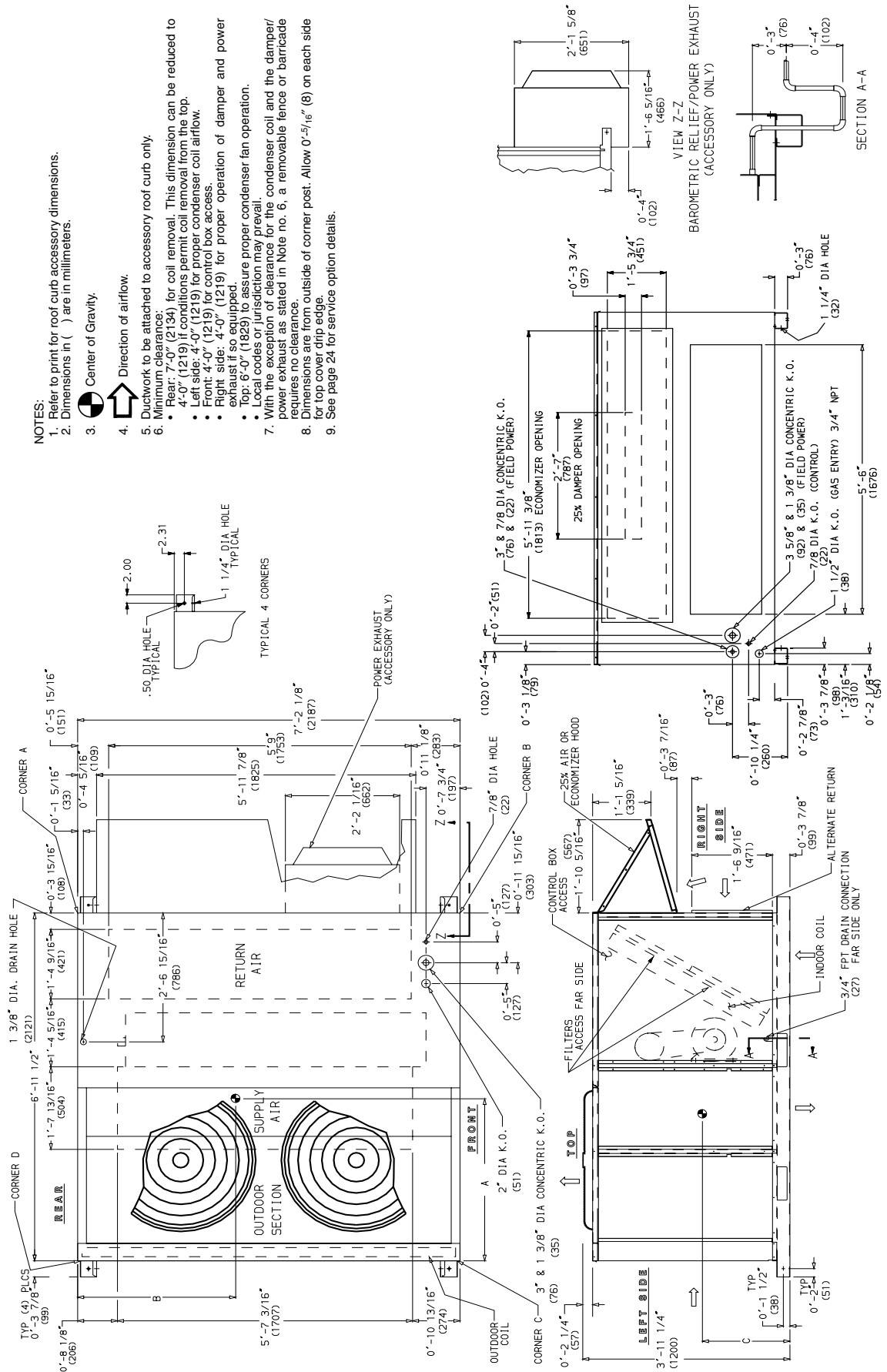
Base unit dimensions — 50TJ024,028



UNIT	STD UNIT WEIGHT		ECONOMIZER WEIGHT		CORNER A		CORNER B		CORNER C		CORNER D		DIM A		DIM B		DIM C	
	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg	ft-in.	mm	ft-in.	mm	ft-in.	mm
50TJ024	1700	771	110	50	419	190	394	179	425	193	463	210	3-4	1016	3-5	1041	1-8	508
50TJ028	1850	839	110	50	428	194	412	187	511	232	499	226	3-2	965	3-7	1092	1-8	508

NOTES:

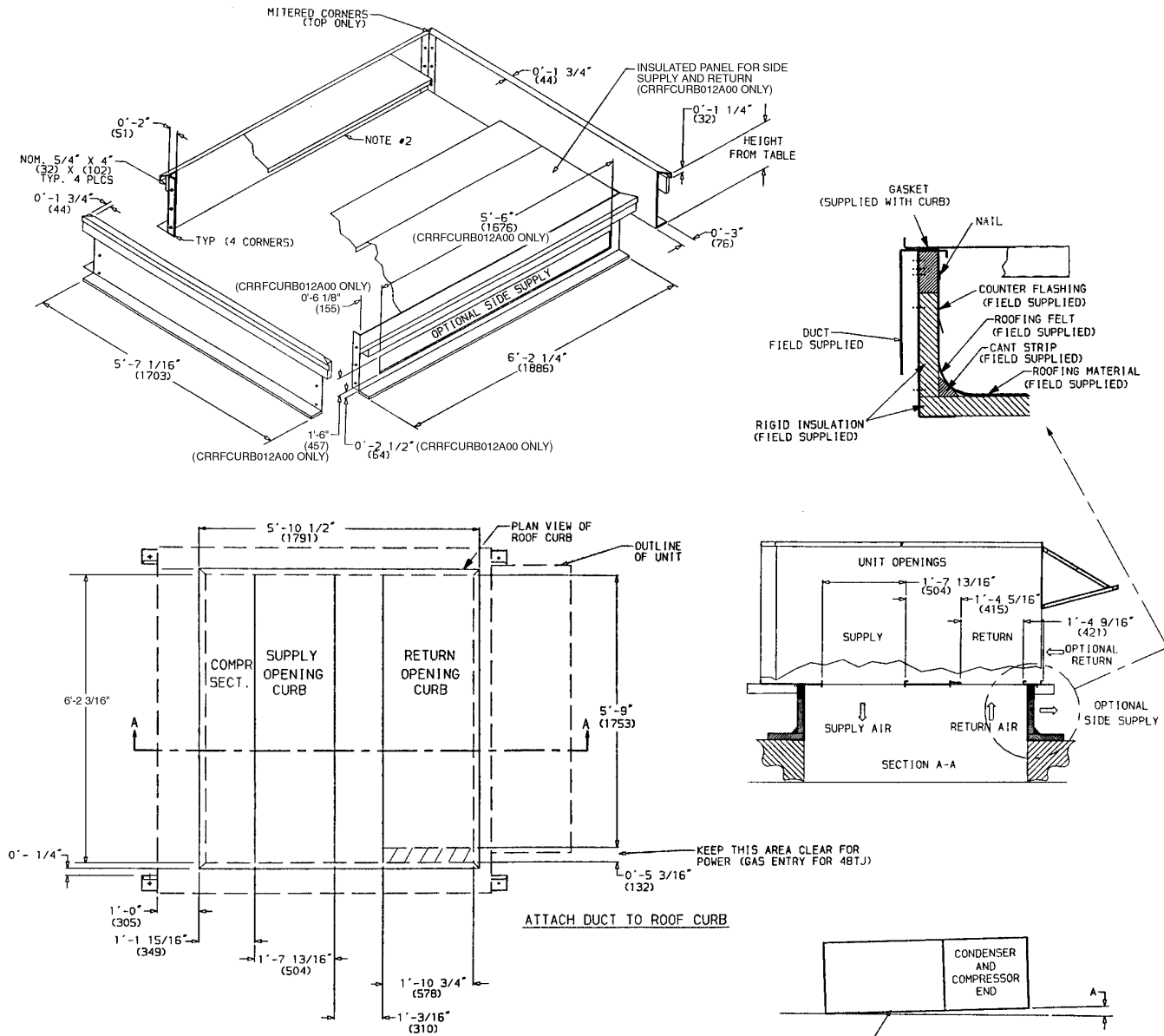
1. Refer to print for roof curb accessory dimensions.
2. Dimensions in () are in millimeters.
3. Center of Gravity.
4. Direction of airflow.
5. Ductwork to be attached to accessory roof curb only.
6. Minimum clearance:
 - Rear: 7'-0" (2134) for coil removal. This dimension can be reduced to 4'-0" (1219) if conditions permit coil removal from the top.
 - Left side: 4'-0" (1219) for proper condenser coil airflow.
 - Front: 4'-0" (1219) for control box access.
 - Right side: 4'-0" (1219) for proper operation of damper and power exhaust if so equipped.
 - Top: 6'-0" (1829) to assure proper condenser fan operation.
7. Local codes or jurisdiction may prevail.
8. With the exception of clearance for the condenser coil and the damper/power exhaust as stated in Note no. 6, a removable fence or barricade requires no clearance.
9. Dimensions are from outside of corner post. Allow 0'-3 1/16" (8) on each side for top cover drip edge.
10. See page 24 for service option details.



Accessory dimensions



HORIZONTAL AND VERTICAL ROOF CURBS AND HORIZONTAL ADAPTER CURB



NOTES:

1. Roof curb accessory is shipped unassembled.
2. Insulated panels, 1" thick neoprene coated, 1 1/2 lb density.
3. Dimensions in () are in millimeters.
4. Direction of airflow.
5. Roof curb: 16 ga. (VA03-56) steel.
6. A 90 degree elbow must be installed in the supply ductwork below the unit discharge for units equipped with electric heaters.

LEGEND
COMPR SECT. — Compressor Section

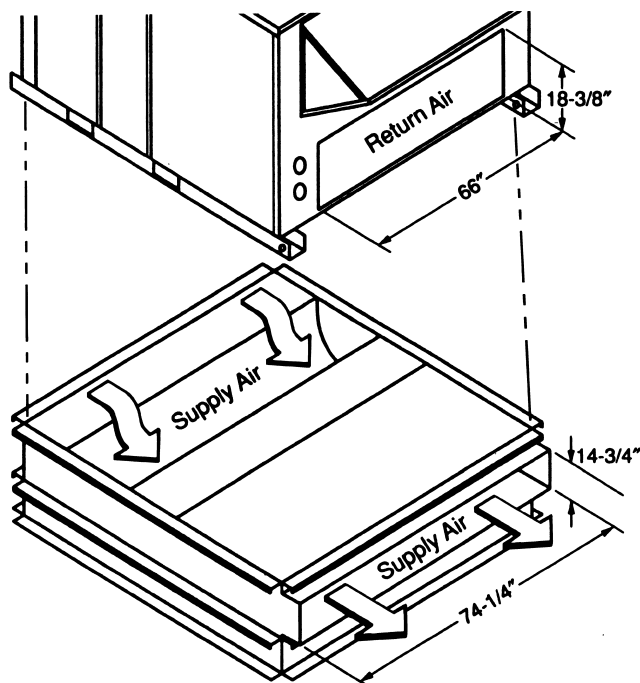
DIMENSIONS (degrees and inches)

UNIT	A		B	
	Deg.	in.	Deg.	in.
48/50TJ	.28	.45	.28	.43

UNIT LEVELING TOLERANCES*

*From edge of unit to horizontal.

HORIZONTAL SUPPLY/RETURN ADAPTER INSTALLATION

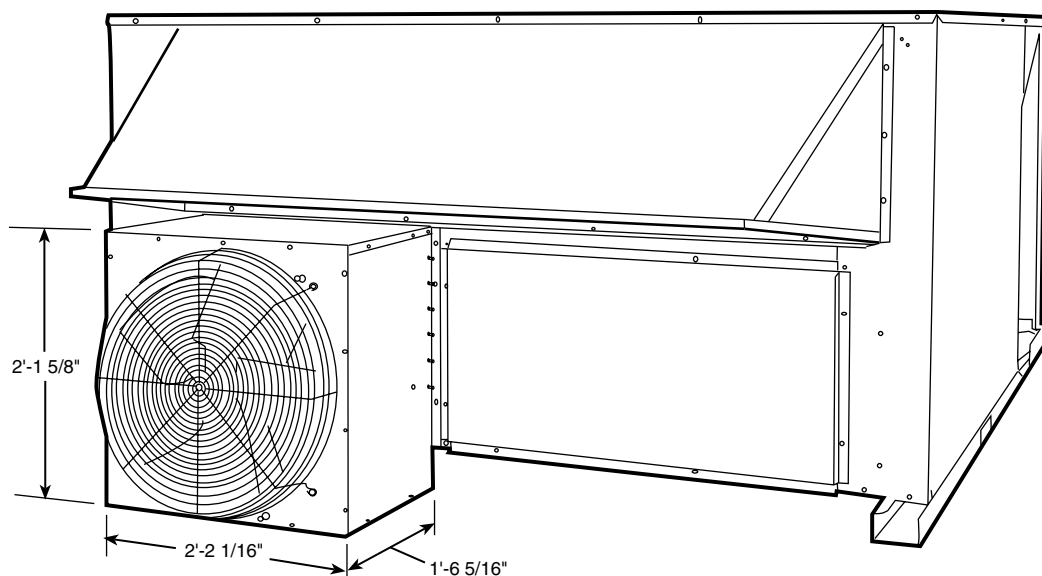


NOTE: CRRFCURB013A00 is a fully factory preassembled horizontal adapter and includes an insulated high static regain transition duct which substantially improves fan static performance.

The Barometric Relief Damper and Power Exhaust accessories are not available with the horizontal adapter.

ACCESSORY PACKAGE NO.	CURB HEIGHT	DESCRIPTION
CRRFCURB013A00	1'-11" (584)	Pre-Assembled, High Static, Horizontal Adapter

BAROMETRIC RELIEF/POWER EXHAUST

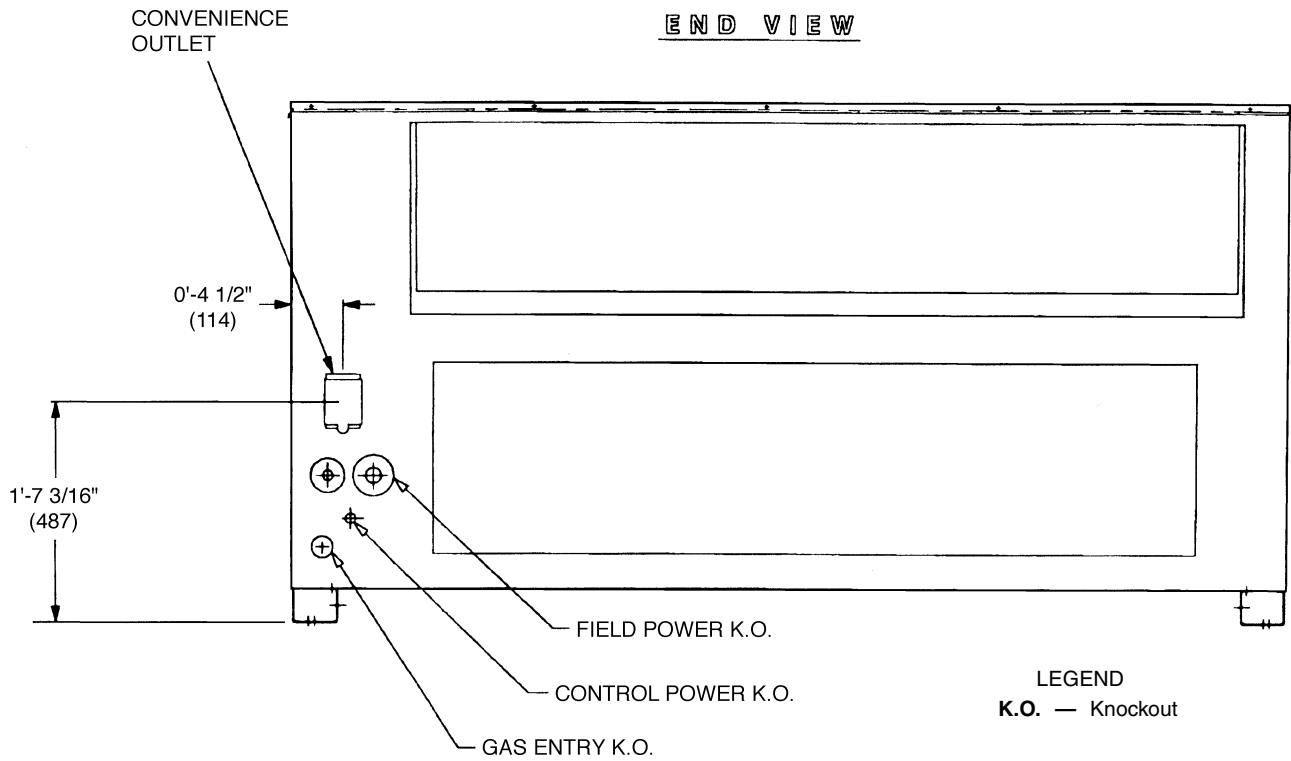


Accessory dimensions (cont)



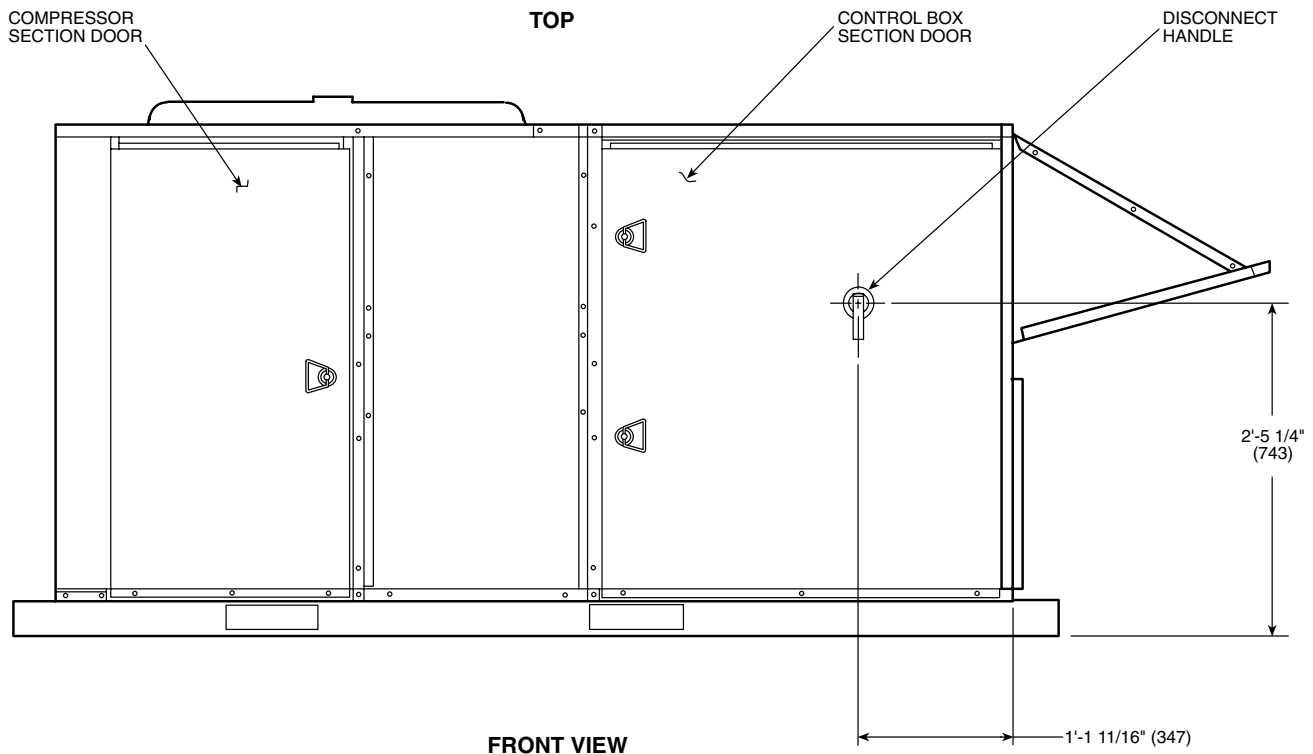
FACTORY-INSTALLED CONVENIENCE OUTLET

END VIEW



FACTORY-INSTALLED NON-FUSED DISCONNECT

TOP



Selection procedure (with 48TJF016 example)



I. Determine cooling and heating requirements at design conditions.

Given:

Required Cooling Capacity 170,000 Btuh
Sensible Heat Capacity 111,000 Btuh
Required Heating Capacity 200,000 Btuh
Condenser Entering Air Temp 95 F (Summer)
Evaporator Entering Air Temp 80 F edb,
67 F ewb
Evaporator Air Quantity 4,500 cfm
External Static Pressure 0.6 in. wg
Electrical Characteristics (V-Ph-Hz) 460-3-60
Vertical discharge unit with optional economizer required.

edb — Entering dry-bulb

ewb — Entering wet-bulb

II. Select unit based on required cooling capacity.

Enter Cooling Capacities table for 48TJ016 (page 26) at condenser entering temperature 95 F, evaporator air entering at 4,500 cfm and 67 F wb. The 48TJF016 unit will provide a total cooling capacity of 178,000 Btuh and a sensible heating capacity of 117,000 Btuh. For air entering evaporator at temperatures other than 80 F edb, calculate sensible heat capacity correction as required using the formula in the notes following the Cooling Capacities tables.

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

III. Select heating capacity of unit to provide design condition requirements.

In the ARI Heating Capacities and Efficiencies table (page 7) note that the 48TJF016 will provide an output capacity of 243,000 Btuh, which is adequate for the given application.

IV. Determine fan speed and power requirements at design conditions.

Before entering the Fan Performance tables, calculate the total static pressure required based on unit components. From the given and the Accessory/FIOP Static Pressure table on page 54 find:

External static pressure 0.60 in. wg

Economizer static pressure 0.04 in. wg

Total static pressure 0.64 in. wg

Enter the Fan Performance table 48TJF016 (page 44) at 4,500 cfm and 0.64 in. wg external static pressure. By interpolation, find that the rpm is 1017 and the watts are 1743.

V. Determine net cooling capacity.

Cooling capacities are gross capacities and do not include indoor (evaporator) fan motor (IFM) heat. Use the watts input power to the motor calculated in Section IV above.

IFM Watts = 1743

Determine net cooling capacity using the following formula:

$$\begin{aligned}\text{Net capacity} &= \text{Gross capacity} - \text{IFM heat} \\ &= 178,000 \text{ Btuh} - 1743 \text{ Watts} \\ &\quad \left(3.412 \frac{\text{Btuh}}{\text{Watts}} \right) \\ &= 178,000 \text{ Btuh} - 5947 \text{ Btuh} \\ &= 172,053 \text{ Btuh}\end{aligned}$$

$$\begin{aligned}\text{Net sensible capacity} &= 117,000 \text{ Btuh} - 5947 \text{ Btuh} \\ &= 111,053 \text{ Btuh}\end{aligned}$$

The calculations show that a 48TJF016 unit with the standard motor and standard low-medium static drive is the correct selection for the given conditions.

COOLING CAPACITIES — ENGLISH

48/50TJ016 (15 TONS)													
Temp (F) Air Entering Condenser (Edb)		Evaporator Air Quantity — Cfm/BF											
		4500/0.10				5250/0.12				6000/0.14			
		Evaporator Air — Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
75	TC	164	177	193	212	171	181	197	216	178	184	202	220
	SHC	164	146	124	100	171	157	132	105	178	169	140	111
	KW	13.6	14.0	14.4	15.0	13.9	14.2	14.6	15.1	14.1	14.3	14.7	15.2
85	TC	159	170	186	204	166	174	190	208	172	178	194	212
	SHC	159	142	120	98	166	152	129	102	172	163	137	107
	KW	14.8	15.2	15.6	16.1	15.1	15.3	15.8	16.3	15.3	15.5	15.9	16.5
95	TC	154	163	178	195	160	167	182	200	166	170	186	204
	SHC	153	139	117	94	160	148	126	100	166	158	133	104
	KW	16.1	16.4	16.9	17.4	16.3	16.6	17.0	17.6	16.6	16.7	17.2	17.7
105	TC	148	155	170	186	154	159	174	190	160	162	177	193
	SHC	147	135	114	91	154	144	122	96	160	155	130	101
	KW	17.5	17.6	18.2	18.7	17.7	17.8	18.3	18.8	17.9	17.9	18.5	18.9
115	TC	142	148	162	176	148	151	165	180	153	153	167	183
	SHC	142	131	111	88	148	140	118	93	153	150	126	97
	KW	18.9	19.0	19.5	20.0	19.1	19.1	19.7	20.2	19.3	19.2	19.8	20.2
118	TC	140	145	159	173	146	148	162	177	151	151	164	179
	SHC	140	130	110	87	146	139	117	92	151	148	125	96
	KW	19.3	19.4	19.9	20.4	19.5	19.5	20.0	20.6	19.7	19.6	20.2	20.6
120	TC	139	144	157	171	144	147	160	—	149	149	162	—
	SHC	139	129	109	86	144	139	116	—	149	147	124	—
	KW	19.6	19.6	20.2	20.6	19.8	19.8	20.2	—	20.0	19.9	20.4	—

48/50TJ016 (15 TONS) (cont)									
Temp (F) Air Entering Condenser (Edb)		Evaporator Air Quantity — Cfm/BF							
		6750/0.15				7500/0.16			
		Evaporator Air — Ewb (F)							
		57	62	67	72	57	62	67	72
75	TC	183	188	204	224	188	190.2	206	226
	SHC	183	176	147	116	188	185	157	120
	KW	14.3	14.4	14.9	15.4	14.4	14.5	14.9	15.4
85	TC	178	181	197	216	182	183	199	218
	SHC	178	172	144	112	182	180	151	117
	KW	15.5	15.6	16.1	16.6	15.6	15.7	16.1	16.7
95	TC	171	173	189	206	175	175	190	208
	SHC	171	168	141	109	175	175	147	113
	KW	16.7	16.8	17.3	17.8	16.9	16.9	17.4	17.9
105	TC	164	165	179	196	168	168	181	197
	SHC	164	163	137	105	168	168	143	109
	KW	18.1	18.1	18.5	19.1	18.3	18.2	18.6	19.1
115	TC	157	157	169	185	161	160	171	187
	SHC	157	156	133	102	161	160	140	106
	KW	19.5	19.4	19.9	20.4	19.6	19.5	19.9	20.4
118	TC	155	154	166	182	158	158	168	183
	SHC	155	154	131	100	158	158	138	105
	KW	19.9	19.8	20.2	20.8	20.1	19.9	20.4	20.8
120	TC	153	153	164	—	157	156	166	—
	SHC	153	153	130	—	157	156	137	—
	KW	20.2	20.0	20.4	—	20.4	20.2	20.6	—

LEGEND

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

NOTES:

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

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

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

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

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

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

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

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

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

COOLING CAPACITIES — ENGLISH (cont)

48/50TJ020 (18 TONS)

Temp (F) Air Entering Condenser (Edb)		Evaporator Air Quantity — Cfm/BF											
		5400/0.095				6000/0.105				7000/0.120			
		Evaporator Air — Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
75	TC	180	191	211	231	186	194	213	235	193	198	218	239
	SHC	180	165	138	111	186	173	145	115	193	187	155	121
	KW	14.3	14.6	15.2	15.7	14.5	14.7	15.3	15.9	14.8	14.9	15.4	16.0
85	TC	175	184	202	224	180	187	206	226	188	191	209	231
	SHC	175	161	135	108	180	170	142	112	188	183	152	119
	KW	15.5	15.8	16.3	16.9	15.7	15.9	16.5	17.1	16.0	16.1	16.6	17.2
95	TC	169	176	194	214	174	179	196	217	181	183	200	222
	SHC	169	158	132	105	174	166	138	109	181	178	149	115
	KW	16.8	17.0	17.5	18.2	17.0	17.1	17.7	18.3	17.3	17.3	17.8	18.5
105	TC	163	168	185	204	168	171	187	207	175	174	191	209
	SHC	163	154	128	102	168	162	135	106	175	174	145	112
	KW	18.2	18.3	18.8	19.4	18.4	18.4	18.9	19.6	18.6	18.6	19.1	19.7
115	TC	157	160	176	194	161	162	177	196	167	167	180	198
	SHC	157	150	125	99	161	157	131	102	167	167	141	108
	KW	19.6	19.6	20.1	20.7	19.8	19.8	20.3	20.9	20.1	20.0	20.4	21.0
118	TC	155	158	174	192	159	160	175	194	165	165	178	196
	SHC	155	149	124	98	159	156	130	101	165	165	140	107
	KW	20.1	19.9	20.4	21.1	20.2	20.0	20.5	21.1	20.5	20.3	20.7	21.3
120	TC	153	155	171	—	158	158	172	—	164	163	175	—
	SHC	153	147	123	—	158	155	129	—	164	162	139	—
	KW	20.4	20.3	20.9	—	20.5	20.5	20.9	—	20.8	20.7	21.1	—

48/50TJ020 (18 TONS) (cont)

Temp (F) Air Entering Condenser (Edb)		Evaporator Air Quantity — Cfm/BF							
		8000/0.140				9000/0.150			
		Evaporator Air — Ewb (F)							
		57	62	67	72	57	62	67	72
75	TC	200	202	221	243	206	206.6	223	245
	SHC	200	199	166	128	206	206	175	133
	KW	15.0	15.1	15.6	16.2	15.2	15.2	15.7	16.3
85	TC	194	194	213	234	199	199	215	237
	SHC	194	194	162	125	199	199	172	131
	KW	16.2	16.3	16.8	17.4	16.4	16.4	16.9	17.5
95	TC	187	187	203	224	192	192	205	226
	SHC	187	187	159	121	192	192	168	128
	KW	17.5	17.5	18.0	18.6	17.7	17.7	18.1	18.7
105	TC	180	180	193	213	185	184	194	215
	SHC	180	179	154	118	185	184	164	124
	KW	18.8	18.8	19.2	19.9	19.0	19.0	19.3	19.9
115	TC	172	172	182	200	177	176	183	203
	SHC	172	172	151	114	177	176	160	120
	KW	20.3	20.2	20.5	21.1	20.5	20.3	20.5	21.2
118	TC	170	170	180	198	174	174	181	200
	SHC	170	170	150	113	174	174	159	119
	KW	20.7	20.5	20.7	21.4	20.9	20.7	20.9	21.5
120	TC	169	168	177	—	173	172	178	—
	SHC	169	167	149	—	173	171	157	—
	KW	21.0	20.9	21.1	—	21.2	21.1	21.2	—

LEGEND

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

NOTES:

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

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

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

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

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

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

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

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

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

Performance data (cont)



COOLING CAPACITIES — ENGLISH (cont)

48/50TJ024 (20 TONS)													
Temp (F) Air Entering Condenser (Edb)		Evaporator Air Quantity — Cfm/BF											
		6,000/0.075				7,000/0.085				8,000/0.100			
		Evaporator Air — Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
75	TC	209	222	246	270	219	228	251	277	227	231	256	282
	SHC	209	190	160	130	219	205	171	136	227	219	182	143
	KW	15.7	16.0	16.6	17.2	15.9	16.2	16.8	17.4	16.2	16.3	16.9	17.6
85	TC	203	214	237	261	212	220	242	267	220	224	246	272
	SHC	203	186	157	126	212	201	168	133	220	215	179	140
	KW	17.0	17.3	17.9	18.5	17.3	17.5	18.1	18.7	17.5	17.6	18.2	18.9
95	TC	197	207	228	252	206	211	233	257	213	215	237	261
	SHC	197	182	153	123	206	196	164	130	213	210	175	136
	KW	18.5	18.7	19.3	19.8	18.8	18.9	19.4	20.1	19.0	19.0	19.6	20.2
105	TC	190	197	218	241	198	202	222	246	206	205	226	250
	SHC	190	178	149	119	198	192	160	126	206	204	171	133
	KW	20.1	20.1	20.6	21.3	20.3	20.2	20.8	21.5	20.5	20.4	21.0	21.7
115	TC	183	188	207	228	191	192	211	233	198	197	215	237
	SHC	183	173	145	117	191	187	156	122	198	197	166	128
	KW	21.8	21.7	22.1	22.8	22.0	21.9	22.3	22.9	22.2	22.0	22.4	23.1
125	TC	175	178	196	217	183	182	200	221	189	188	202	224
	SHC	175	168	141	111	183	181	152	117	189	188	162	125
	KW	23.6	23.2	23.7	24.3	23.8	23.4	23.8	24.4	23.9	23.6	23.9	24.6

48/50TJ024 (20 TONS) (cont)										
Temp (F) Air Entering Condenser (Edb)		Evaporator Air Quantity — Cfm/BF								
		9,000/0.110				10,000/0.120				
		Evaporator Air — Ewb (F)								
		57	62	67	72	57	62	67	72	
75	TC	234	235	259	286	240	240	262	289	
	SHC	234	231	193	149	240	240	203	156	
	KW	16.4	16.5	17.1	17.7	16.6	16.7	17.2	17.8	
85	TC	227	227	250	276	233	233	252	279	
	SHC	227	226	189	147	233	233	200	153	
	KW	17.7	17.8	18.4	19.0	17.9	18.0	18.5	19.2	
95	TC	220	220	239	265	225	225	241	267	
	SHC	220	219	185	143	225	225	195	149	
	KW	19.2	19.2	19.8	20.4	19.4	19.4	19.8	20.5	
105	TC	212	212	228	254	217	216	230	255	
	SHC	212	211	181	139	217	216	191	145	
	KW	20.7	20.7	21.1	21.8	20.9	20.9	21.3	21.9	
115	TC	203	203	217	240	208	207	218	242	
	SHC	203	203	177	135	208	207	186	141	
	KW	22.4	22.2	22.6	23.2	22.5	22.4	22.6	23.3	
125	TC	194	194	204	226	199	198	206	227	
	SHC	194	194	172	130	199	198	181	137	
	KW	24.1	23.8	24.1	24.7	24.2	23.9	24.2	24.8	

LEGEND

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

NOTES:

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

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

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

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

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

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

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

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

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

Interpolation is permissible.

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

COOLING CAPACITIES — ENGLISH (cont)

48/50TJ028 (25 TONS)

Temp (F) Air Entering Condenser (Edb)		Evaporator Air Quantity — Cfm/BF											
		7,000/0.05				8,000/0.06				9,000/0.07			
		Evaporator Air — Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
75	TC SHC kW	256	271	298	328	266	277	304	334	275	281	308	339
		255	232	195	158	266	250	208	167	275	265	223	177
		19.1	19.5	20.4	21.2	19.5	19.7	20.6	21.4	19.8	19.9	20.7	21.6
85	TC SHC kW	248	262	287	317	259	267	294	324	268	272	298	330
		248	227	191	155	259	244	203	162	268	259	216	170
		21.0	21.4	22.2	23.1	21.4	21.6	22.4	23.3	21.7	21.8	22.6	23.5
95	TC SHC kW	242	252	277	306	251	258	283	312	260	261	288	317
		242	223	187	150	251	240	199	158	260	254	210	165
		23.0	23.3	24.1	25.1	23.4	23.6	24.4	25.3	23.7	23.8	24.5	25.5
105	TC SHC kW	234	241	266	293	243	247	272	299	251	252	275	302
		234	218	182	146	243	233	195	153	251	246	205	161
		25.1	25.3	26.1	27.0	25.5	25.6	26.4	27.4	25.8	25.8	26.5	27.5
115	TC SHC kW	226	231	254	279	235	236	259	284	242	241	261	288
		226	212	178	141	235	228	189	148	242	238	201	156
		27.4	27.4	28.3	29.1	27.7	27.7	28.5	29.3	28.0	27.9	28.6	29.5
121	TC SHC kW	221	224	246	—	229	229	251	—	236	235	253	—
		221	209	175	—	229	223	186	—	236	233	197	—
		28.7	28.7	29.6	—	29.1	29.0	29.8	—	29.3	29.2	29.9	—

48/50TJ028 (25 TONS) (cont)

Temp (F) Air Entering Condenser (Edb)		Evaporator Air Quantity — Cfm/BF							
		10,000/0.08				11,250/0.09			
		Evaporator Air — Ewb (F)							
		57	62	67	72	57	62	67	72
75	TC	283	286	312	342	292	293	316	346
	SHC	283	279	235	184	292	291	249	197
	KW	20.0	20.2	20.9	21.8	20.3	20.4	21.0	21.9
85	TC	275	278	303	334	283	284	306	337
	SHC	275	271	226	177	283	283	243	189
	KW	22.0	22.0	22.8	23.7	22.3	22.3	22.9	23.9
95	TC	267	267	291	321	275	274	294	326
	SHC	267	263	222	172	275	274	236	181
	KW	24.0	24.0	24.7	25.7	24.3	24.3	24.9	25.8
105	TC	258	257	279	307	265	264	282	311
	SHC	258	255	217	167	265	264	230	175
	KW	26.1	26.1	26.7	27.7	26.4	26.3	26.9	27.9
115	TC	248	247	264	291	255	253	267	294
	SHC	248	247	211	162	255	253	225	170
	KW	28.2	28.2	28.8	29.7	28.6	28.4	29.0	29.9
121	TC	242	240	256	—	249	246	258	—
	SHC	242	240	208	—	249	246	221	—
	KW	29.6	29.5	30.1	—	29.9	29.7	30.2	—

LEGEND

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

NOTES:

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

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

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

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

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

- 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.

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

Interpolation is permissible.

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

Performance data (cont)



COOLING CAPACITIES — ENGLISH (cont)

48/50TJ016 (15 TONS) — UNITS WITH MOISTUREMISER™ OPTION

Temp (F) Air Entering Condenser (Edb)		Evaporator Air Quantity — Cfm/BF														
		4500/0.12			5250/0.14			6000/0.15			6750/0.18			7500/0.18		
		Evaporator Air — Ewb (F)														
		62	67	72	62	67	72	62	67	72	62	67	72	62	67	72
75	TC SHC kW	—	183	202	—	185	207	—	190	211	—	196	216	181	198	218
		—	106	82	—	114	87	—	122	92	—	129	96	169	138	100
		—	14.0	14.6	—	14.4	14.8	—	14.6	14.9	—	14.5	15.0	14.1	14.6	15.1
85	TC SHC kW	—	174	192	—	178	196	—	182	200	171	187	204	173	189	207
		—	98	74	—	106	78	—	113	82	151	120	86	158	127	91
		—	15.2	15.8	—	15.2	15.9	—	15.4	15.9	15.2	15.8	16.0	15.2	15.8	16.3
95	TC SHC kW	—	164	181	—	168	185	—	171	190	160	174	192	160	178	194
		—	90	65	—	98	69	—	104	73	142	111	77	150	118	80
		—	16.2	16.7	—	16.4	16.8	—	16.4	17.0	16.1	16.3	17.1	16.1	16.7	17.1
105	TC SHC kW	—	153	168	—	158	174	—	161	177	148	163	179	151	165	181
		—	82	56	—	89	60	—	96	64	131	102	67	141	108	71
		—	17.2	17.8	—	17.4	18.1	—	17.5	18.1	17.2	17.6	18.0	17.2	17.6	18.3
115	TC SHC kW	—	142	156	—	145	161	—	148	163	137	150	166	139	152	167
		—	73	47	—	79	50	—	85	54	122	91	57	130	97	60
		—	18.3	18.8	—	18.6	19.0	—	18.7	19.1	18.2	18.8	19.3	18.4	18.9	19.4
118	TC SHC kW	—	138	152	—	142	156	—	144	159	133	146	161	135	148	163
		—	70	44	—	76	47	—	82	50	119	87	53	126	93	56
		—	18.7	19.2	—	18.8	19.4	—	19.0	19.5	18.6	19.0	19.7	18.6	19.2	19.7
120	TC SHC kW	—	136	150	—	140	—	—	142	—	131	144	—	133	146	160
		—	68	42	—	74	—	—	80	—	117	85	—	124	91	54
		—	18.9	19.3	—	19.0	—	—	19.1	—	18.6	19.2	—	18.8	19.3	19.8
125	TC SHC kW	—	—	—	—	—	—	—	—	—	—	—	—	—	—	152
		—	—	—	—	—	—	—	—	—	—	—	—	—	—	48
		—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.3

LEGEND

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

NOTES:

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

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

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

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

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

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

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

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

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



COOLING CAPACITIES — ENGLISH (cont)

48/50TJ020 (18 TONS) — UNITS WITH MOISTUREMISER™ OPTION

Temp (F) Air Entering Condenser (Edb)		Evaporator Air Quantity — Cfm/BF														
		5400/0.095			6000/0.105			7000/0.12			8000/0.14			9000/0.15		
		Evaporator Air — Ewb (F)														
		62	67	72	62	67	72	62	67	72	62	67	72	62	67	72
75	TC	—	201	221	—	204	226	—	210	231	—	213	235	196	215	237
	SHC	—	120	92	—	126	96	—	137	102	—	147	108	196	157	114
	kW	—	14.7	15.3	—	14.8	15.5	—	15.0	15.7	—	15.2	15.8	14.8	15.3	15.9
85	TC	—	191	212	—	195	215	—	200	221	—	203	224	186	205	227
	SHC	—	112	83	—	118	87	—	129	94	—	138	100	186	148	105
	kW	—	16.3	16.6	—	16.4	17.2	—	16.6	17.4	—	16.8	17.1	15.8	16.6	17.4
95	TC	—	180	201	—	183	202	—	187	208	—	191	210	175	193	212
	SHC	—	103	74	—	109	78	—	119	84	—	129	89	175	138	95
	kW	—	16.8	17.8	—	16.9	17.4	—	17.1	17.8	—	17.3	18.0	16.9	17.4	17.8
105	TC	—	169	186	—	171	190	—	175	193	161	177	197	164	180	200
	SHC	—	94	65	—	100	68	—	109	74	155	119	80	164	127	85
	kW	—	18.1	18.5	—	18.2	18.7	—	18.3	19.0	17.8	18.3	19.0	17.9	18.5	19.4
115	TC	—	156	174	—	159	176	—	163	179	149	165	182	153	166	185
	SHC	—	84	55	—	90	58	—	99	63	146	108	69	152	117	74
	kW	—	19.1	19.6	—	19.2	19.8	—	19.5	20.0	18.9	19.7	20.1	19.1	19.6	20.2
117	TC	—	154	171	—	156	174	—	159	177	146	162	179	150	163	181
	SHC	—	82	53	—	88	56	—	97	61	143	106	66	150	115	71
	kW	—	19.3	20.0	—	19.4	20.1	—	19.6	20.3	19.2	19.7	20.4	19.4	19.9	20.5
120	TC	—	150	—	—	152	—	—	155	—	143	157	—	146	159	—
	SHC	—	79	—	—	84	—	—	94	—	140	102	—	146	111	—
	kW	—	19.7	—	—	19.8	—	—	19.9	—	19.6	20.0	—	19.7	20.1	—
125	TC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	SHC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	kW	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

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

NOTES:

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

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

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

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

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

- 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.

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	

Performance data (cont)



COOLING CAPACITIES — ENGLISH (cont)

48/50TJ024 (20 TONS) — UNITS WITH MOISTUREMISER™ OPTION

Temp (F) Air Entering Condenser (Edb)		Evaporator Air Quantity — Cfm/BF														
		6,000/0.07			7,000/0.09			8,000/0.1			9,000/0.11			10,000/0.12		
		Evaporator Air — Ewb (F)														
		62	67	72	62	67	72	62	67	72	62	67	72	62	67	72
75	TC SHC kW	—	237	261	—	249	269	—	254	274	—	252	279	230	255	283
		—	141	111	—	155	118	—	166	125	—	175	132	228	186	139
		—	16.2	16.9	—	17.3	17.1	—	17.2	17.3	—	16.7	17.5	16.3	16.9	17.6
85	TC SHC kW	—	227	251	—	233	257	—	238	263	—	241	267	220	243	269
		—	133	103	—	145	110	—	157	117	—	166	123	220	177	129
		—	17.5	18.2	—	17.8	18.3	—	18.0	18.5	—	18.6	18.7	17.4	17.7	18.3
95	TC SHC kW	—	215	238	—	221	246	—	224	249	207	228	254	211	231	256
		—	125	94	—	136	102	—	147	108	199	158	114	210	167	120
		—	18.7	19.0	—	18.8	19.6	—	18.6	19.6	18.6	19.3	19.9	19.1	19.4	20.1
105	TC SHC kW	—	205	227	—	208	230	—	214	237	195	213	241	198	217	241
		—	117	86	—	128	92	—	138	99	188	147	104	198	156	110
		—	20.2	20.9	—	20.0	20.3	—	20.7	21.3	19.8	19.9	21.2	19.9	20.6	20.9
115	TC SHC kW	—	190	211	—	195	217	—	197	219	183	203	222	186	204	227
		—	108	77	—	119	82	—	127	88	176	138	94	186	147	99
		—	21.2	22.1	—	21.6	22.2	—	21.2	22.1	21.1	22.1	22.1	21.3	21.9	22.6
125	TC SHC kW	—	176	196	—	179	198	—	183	204	169	183	207	172	185	207
		—	97	65	—	107	70	—	116	76	165	124	81	172	133	86
		—	22.8	23.4	—	22.8	22.9	—	23.0	23.7	22.5	22.8	24.1	22.7	22.9	23.9

LEGEND

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

NOTES:

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

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

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

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

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

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

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

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

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	

COOLING CAPACITIES — ENGLISH (cont)

48/50TJ028 (25 TONS) — UNITS WITH MOISTUREMISER™ OPTION

Temp (F) Air Entering Condenser (Edb)		Evaporator Air Quantity — Cfm/BF														
		7,000/0.05			8,000/0.06			9,000/0.07			10,000/0.08			11,250/0.09		
		Evaporator Air — Ewb (F)														
		62	67	72	62	67	72	62	67	72	62	67	72	62	67	72
75	TC	—	287	325	—	301	332	—	300	331	272	299	336	278	304	341
	SHC	—	175	139	—	191	148	—	204	156	259	214	163	276	228	177
	kW	—	20.6	22.4	—	21.7	22.7	—	21.0	22.0	19.7	20.4	22.2	19.9	20.6	22.4
85	TC	—	268	298	—	277	306	—	281	312	259	286	317	265	289	321
	SHC	—	161	123	—	173	130	—	186	138	244	197	145	262	213	157
	kW	—	21.5	22.4	—	22.0	22.7	—	22.0	22.9	21.1	22.2	23.1	21.7	22.1	23.3
95	TC	—	253	286	—	261	290	—	269	296	244	271	301	250	275	307
	SHC	—	149	111	—	161	117	—	173	124	231	184	131	246	199	140
	kW	—	23.1	24.9	—	23.6	24.5	—	24.2	24.9	23.1	24.2	25.2	23.4	24.5	25.4
105	TC	—	240	266	—	247	273	—	249	277	229	254	280	234	256	285
	SHC	—	136	97	—	148	103	—	158	111	217	169	115	231	182	122
	kW	—	25.1	26.0	—	25.6	26.6	—	25.3	26.5	25.0	25.7	26.5	25.1	25.7	26.7
115	TC	—	222	248	—	228	253	210	232	257	213	233	263	215	239	265
	SHC	—	122	82	—	133	88	188	144	94	201	153	100	212	166	107
	kW	—	26.8	27.8	—	27.0	28.1	26.6	27.4	28.1	26.7	27.3	28.8	26.7	27.9	28.7
121	TC	—	212	—	—	218	—	197	221	—	201	224	—	203	225	—
	SHC	—	113	—	—	124	—	177	134	—	190	143	—	201	156	—
	kW	—	28.2	—	—	28.5	—	27.7	28.6	—	27.9	28.9	—	28.0	28.9	—
125	TC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	SHC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	kW	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

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

NOTES:

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

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

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

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

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

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

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

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

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	

Performance data (cont)



COOLING CAPACITIES — SI

50TJ016 (51 kW)													
Temp (C) Air Entering Condenser (Edb)		Evaporator Air Quantity — L/s / BF											
		2124/0.10				2478/0.12				2832/0.14			
		Evaporator Air — Ewb (C)											
		14	17	19	22	14	17	19	22	14	17	19	22
24	TC	48.0	51.7	56.5	62.1	50.2	53.1	57.8	63.3	52.1	54.0	59.2	64.5
	SHC	48.0	42.8	36.2	29.4	50.2	46.0	38.7	30.9	52.1	49.4	41.0	32.6
	kW	13.6	14.0	14.4	15.0	13.9	14.2	14.6	15.1	14.1	14.3	14.7	15.2
29	TC	46.5	49.7	54.5	59.8	48.7	51.0	55.7	60.9	50.5	52.2	56.8	62.1
	SHC	46.5	41.7	35.3	28.6	48.7	44.7	37.9	30.0	50.5	47.8	40.0	31.4
	kW	14.8	15.2	15.6	16.1	15.1	15.3	15.8	16.3	15.3	15.5	15.9	16.5
35	TC	45.0	47.6	52.3	57.3	46.9	49.0	53.4	58.6	48.7	49.8	54.4	59.8
	SHC	45.0	40.8	34.4	27.7	46.9	43.4	36.9	29.2	48.7	46.4	39.1	30.4
	kW	16.1	16.4	16.9	17.4	16.3	16.6	17.0	17.6	16.6	16.7	17.2	17.7
40.5	TC	43.3	45.5	49.9	54.6	45.2	46.7	51.0	55.7	46.8	47.5	51.8	56.5
	SHC	43.2	39.4	33.5	26.7	45.2	42.3	35.7	28.2	46.8	45.4	38.0	29.5
	kW	17.5	17.6	18.2	18.7	17.7	17.8	18.3	18.8	17.9	17.9	18.5	18.9
46	TC	41.6	43.3	47.3	51.7	43.3	44.3	48.3	52.7	44.8	44.9	49.0	53.6
	SHC	41.6	38.3	32.5	25.7	43.3	41.1	34.7	27.1	44.8	43.9	36.9	28.5
	kW	18.9	19.0	19.5	20.0	19.1	19.1	19.7	20.2	19.3	19.2	19.8	20.2
48	TC	41.0	42.6	46.5	50.8	42.7	43.5	47.5	51.8	44.1	44.2	48.1	52.5
	SHC	41.0	38.0	32.1	25.4	42.7	40.8	34.3	26.8	44.1	43.5	36.6	28.1
	kW	19.3	19.4	19.9	20.4	19.5	19.5	20.0	20.6	19.7	19.6	20.2	20.6
49	TC	40.6	42.1	46.0	50.2	42.3	43.0	46.9	—	43.7	43.7	47.5	—
	SHC	40.6	37.7	31.9	25.2	42.3	40.6	34.1	—	43.7	43.1	36.3	—
	kW	19.6	19.6	20.2	20.6	19.8	19.8	20.2	—	20.0	19.9	20.4	—

50TJ016 (51 kW) (cont)										
Temp (C) Air Entering Condenser (Edb)		Evaporator Air Quantity — L/s / BF								
		3186/0.15					3540/0.16			
		Evaporator Air — Ewb (C)								
		14	17	19	22	14	17	19	22	
24	TC SHC kW	53.7	55.1	59.8	65.6	55.0	55.7	60.4	66.2	
		53.7	51.6	43.1	33.9	55.0	54.1	45.9	35.2	
		14.3	14.4	14.9	15.4	14.4	14.5	14.9	15.4	
29	TC SHC kW	52.1	52.9	57.7	63.3	53.4	53.7	58.3	63.9	
		52.1	50.4	42.1	32.7	53.4	52.7	44.2	34.3	
		15.5	15.6	16.1	16.6	15.6	15.7	16.1	16.7	
35	TC SHC kW	50.2	50.6	55.3	60.4	51.4	51.4	55.8	60.9	
		50.2	49.2	41.2	31.9	51.4	51.2	43.1	33.1	
		16.7	16.8	17.3	17.8	16.9	16.9	17.4	17.9	
40.5	TC SHC kW	48.2	48.3	52.4	57.3	49.4	49.3	52.9	57.8	
		48.2	47.6	40.1	30.8	49.4	49.2	42.0	32.0	
		18.1	18.1	18.5	19.1	18.3	18.2	18.6	19.1	
46	TC SHC kW	46.0	45.9	49.6	54.3	47.1	47.0	50.0	54.7	
		46.0	45.8	38.9	29.8	47.1	46.9	41.0	31.0	
		19.5	19.4	19.9	20.4	19.6	19.5	19.9	20.4	
48	TC SHC kW	45.4	45.2	48.7	53.2	46.4	46.2	49.1	53.6	
		45.4	45.2	38.5	29.4	46.4	46.2	40.6	30.6	
		19.9	19.8	20.2	20.8	20.1	19.9	20.4	20.8	
49	TC SHC kW	44.9	44.7	48.1	—	46.0	45.8	48.5	—	
		44.9	44.7	38.2	—	46.0	45.6	40.3	—	
		20.2	20.0	20.4	—	20.4	20.2	20.6	—	

LEGEND

BF — Bypass Factor
Edb — Entering Dry-Bulb Temperature (C)
Ewb — Entering Wet-Bulb Temperature (C)
kW — Compressor Input (kW)
ldb — Leaving Dry-Bulb Temperature (C)
lwb — Leaving Wet-Bulb Temperature (C)
SHC — Sensible Heat Capacity (kW)
TC — Total Capacity (kW)

NOTES:

- Ratings are gross, and do not account for the effects of the evaporator-fan motor power and heat.
- Direct interpolation is permissible. Do not extrapolate.
- SHC is based on 26.7 C db temperature of air entering the unit. At any other temperature, correct the SHC read from the table of cooling capacities as follows:

Corrected SHC_{kW}

$$= \text{SHC} + [1.23 \times 10^{-3} \times (1 - \text{BF}) \times (\text{C}_{\text{db}} - 26.7) \times \text{L/s}]$$

Observe the rule of sign. Above 26.7 C, SHC correction will be positive; add it to SHC. Below 26.7 C, SHC correction will be negative; subtract it from SHC.

4. Formulas:

$$\text{C}_{\text{ldb}} = \text{C}_{\text{edb}} - \frac{\text{SHC}_{\text{kW}} \times 1000}{1.23 \times \text{L/s}}$$

Leaving wet bulb = wet bulb temperature corresponding to enthalpy of air leaving coil (h_{lwb}).

$$h_{\text{lwb}} = h_{\text{ewb}} - \frac{\text{TC}_{\text{kW}} \times 1000}{1.20 \times \text{L/s}}$$

Where h_{ewb} is enthalpy of air entering evaporator coil (kJ/kg).

COOLING CAPACITIES — SI (cont)

50TJ020 (61 kW)													
Temp (C) Air Entering Condenser (Edb)		Evaporator Air Quantity — L/s / BF											
		2548.8/0.095				2832/0.105				3304/0.120			
		Evaporator Air — Ewb (C)											
		14	17	19	22	14	17	19	22	14	17	19	22
24	TC	52.7	56.0	61.8	67.7	54.4	56.9	62.5	68.9	56.7	58.0	64.0	70.0
	SHC	52.7	48.3	40.6	32.6	54.4	50.7	42.4	33.8	56.7	54.8	45.5	35.6
	kW	14.3	14.6	15.2	15.7	14.5	14.7	15.3	15.9	14.8	14.9	15.4	16.0
29	TC	51.2	53.8	59.2	65.6	52.8	54.8	60.2	66.2	55.0	55.9	61.4	67.7
	SHC	51.2	47.3	39.6	31.7	52.8	49.8	41.5	32.9	55.0	53.7	44.6	34.7
	kW	15.5	15.8	16.3	16.9	15.7	15.9	16.5	17.1	16.0	16.1	16.6	17.2
35	TC	49.6	51.7	56.9	62.8	51.0	52.4	57.5	63.6	53.1	53.5	58.6	65.0
	SHC	49.6	46.2	38.6	30.8	51.0	48.7	40.5	32.0	53.1	52.3	43.5	33.8
	kW	16.8	17.0	17.5	18.2	17.0	17.1	17.7	18.3	17.3	17.3	17.8	18.5
40.5	TC	47.8	49.2	54.2	59.7	49.2	50.0	54.8	60.7	51.1	51.1	55.8	61.4
	SHC	47.8	45.1	37.6	29.8	49.2	47.3	39.5	30.9	51.1	50.8	42.4	32.7
	kW	18.2	18.3	18.8	19.4	18.4	18.4	18.9	19.6	18.6	18.6	19.1	19.7
46	TC	45.9	46.8	51.4	56.8	47.2	47.4	52.0	57.4	49.0	48.8	52.7	58.0
	SHC	45.9	43.8	36.5	29.1	47.2	46.1	38.3	29.8	49.0	48.8	41.3	31.7
	kW	19.6	19.6	20.1	20.7	19.8	19.8	20.3	20.9	20.1	20.0	20.4	21.0
47	TC	45.3	46.3	50.8	56.2	46.5	46.9	51.4	56.8	48.4	48.3	52.1	57.5
	SHC	45.3	43.5	36.3	28.8	46.5	45.8	38.1	29.7	48.4	48.3	41.1	31.5
	kW	20.1	19.9	20.4	21.1	20.2	20.0	20.5	21.1	20.5	20.3	20.7	21.3
49	TC	44.9	45.4	50.0	—	46.2	46.1	50.5	—	48.0	47.6	51.2	—
	SHC	44.9	43.2	36.0	—	46.2	45.3	37.7	—	48.0	47.6	40.8	—
	kW	20.4	20.3	20.9	—	20.5	20.5	20.9	—	20.8	20.7	21.1	—

50TJ020 (61 kW) (cont)										
Temp (C) Air Entering Condenser (Edb)		Evaporator Air Quantity — L/s / BF								
		3776/0.140					4248/0.150			
		Evaporator Air — Ewb (C)								
		14	17	19	22	14	17	19	22	
24	TC	58.6	59.1	64.8	71.2	60.2	60.5	65.3	71.8	
	SHC	58.6	58.2	48.5	37.4	60.2	60.5	51.2	39.1	
	kW	15.0	15.1	15.6	16.2	15.2	15.2	15.7	16.3	
29	TC	56.8	56.9	62.4	68.6	58.4	58.4	62.9	69.4	
	SHC	56.8	56.7	47.5	36.7	58.4	58.4	50.3	38.2	
	kW	16.2	16.3	16.8	17.4	16.4	16.4	16.9	17.5	
35	TC	54.9	54.7	59.6	65.6	56.3	56.3	60.1	66.2	
	SHC	54.9	54.7	46.5	35.6	56.3	56.2	49.1	37.4	
	kW	17.5	17.5	18.0	18.6	17.7	17.7	18.1	18.7	
40.5	TC	52.8	52.7	56.5	62.3	54.2	54.0	56.9	62.8	
	SHC	52.8	52.6	45.2	34.6	54.2	53.9	48.0	36.2	
	kW	18.8	18.8	19.2	19.9	19.0	19.0	19.3	19.9	
46	TC	50.5	50.3	53.4	58.6	51.8	51.6	53.6	59.5	
	SHC	50.5	50.3	44.1	33.5	51.8	51.5	46.8	35.2	
	kW	20.3	20.2	20.5	21.1	20.5	20.3	20.5	21.2	
47	TC	49.9	49.8	52.7	58.0	51.1	51.0	53.1	58.6	
	SHC	49.9	49.8	43.8	33.2	51.1	51.0	46.5	34.9	
	kW	20.7	20.5	20.7	21.4	20.9	20.7	20.9	21.5	
49	TC	49.4	49.1	51.8	—	50.6	50.3	52.1	—	
	SHC	49.4	49.0	43.5	—	50.6	50.2	46.1	—	
	kW	21.0	20.9	21.1	—	21.2	21.1	21.2	—	

LEGEND

BF	—	Bypass Factor
Edb	—	Entering Dry-Bulb Temperature (C)
Ewb	—	Entering Wet-Bulb Temperature (C)
kW	—	Compressor Input (kW)
ldb	—	Leaving Dry-Bulb Temperature (C)
lwb	—	Leaving Wet-Bulb Temperature (C)
SHC	—	Sensible Heat Capacity (kW)
TC	—	Total Capacity (kW)

NOTES:

- Ratings are gross, and do not account for the effects of the evaporator-fan motor power and heat.
- Direct interpolation is permissible. Do not extrapolate.
- SHC is based on 26.7 C db temperature of air entering the unit. At any other temperature, correct the SHC read from the table of cooling capacities as follows:

Corrected SHC_{kW}

$$= \text{SHC} + [1.23 \times 10^{-3} \times (1 - \text{BF}) \times (\text{C}_{\text{db}} - 26.7) \times \text{L/s}]$$

Observe the rule of sign. Above 26.7 C, SHC correction will be positive; add it to SHC. Below 26.7 C, SHC correction will be negative; subtract it from SHC.

4. Formulas:

$$\text{C}_{\text{ldb}} = \text{C}_{\text{edb}} - \frac{\text{SHC}_{\text{kW}} \times 1000}{1.23 \times \text{L/s}}$$

Leaving wet bulb = wet bulb temperature corresponding to enthalpy of air leaving coil (h_{lwb}).

$$h_{\text{lwb}} = h_{\text{ewb}} - \frac{\text{TC}_{\text{kW}} \times 1000}{1.20 \times \text{L/s}}$$

Where h_{ewb} is enthalpy of air entering evaporator coil (kJ/kg).

Performance data (cont)



COOLING CAPACITIES — SI (cont)

50TJ024 (68 kW)													
Temp (C) Air Entering Condenser (Edb)		Evaporator Air Quantity — L/s / BF											
		2832/0.075				3304/0.085				3776/0.100			
		Evaporator Air — Ewb (C)											
		14	17	19	22	14	17	19	22	14	17	19	22
24	TC	61.1	65.0	72.1	79.1	64.1	66.8	73.5	81.2	66.5	67.7	75.0	82.6
	SHC	61.1	55.7	46.9	37.9	64.1	60.1	50.2	40.0	66.5	64.2	53.4	41.9
	kW	15.7	16.0	16.6	17.2	15.9	16.2	16.8	17.4	16.2	16.3	16.9	17.6
29	TC	59.5	62.8	69.4	76.5	62.2	64.5	70.9	78.2	64.6	65.6	72.1	79.7
	SHC	59.5	54.6	45.9	36.9	62.2	59.0	49.2	39.0	64.6	62.9	52.5	41.0
	kW	17.0	17.3	17.9	18.5	17.3	17.5	18.1	18.7	17.5	17.6	18.2	18.9
35	TC	57.6	60.5	66.8	73.8	60.3	61.8	68.3	75.3	62.5	62.9	69.4	76.5
	SHC	57.6	53.3	44.8	35.9	60.3	57.5	48.1	38.0	62.5	61.4	51.3	39.9
	kW	18.5	18.7	19.3	19.8	18.8	18.9	19.4	20.1	19.0	19.0	19.6	20.2
40.5	TC	55.6	57.8	63.9	70.6	58.2	59.1	65.0	72.1	60.3	60.2	66.2	73.2
	SHC	55.6	52.0	43.6	34.8	58.2	56.2	46.9	36.9	60.3	59.8	50.0	38.8
	kW	20.1	20.1	20.6	21.3	20.3	20.2	20.8	21.5	20.5	20.4	21.0	21.7
46	TC	53.5	55.1	60.7	66.8	55.9	56.3	61.9	68.3	57.9	57.8	62.9	69.4
	SHC	53.5	50.8	42.4	34.1	55.9	54.8	45.7	35.7	57.9	57.7	48.8	37.6
	kW	21.8	21.7	22.1	22.8	22.0	21.9	22.3	22.9	22.2	22.0	22.4	23.1
52	TC	51.2	52.3	57.5	63.6	53.5	53.4	58.5	64.8	55.3	55.1	59.2	65.6
	SHC	51.2	49.3	41.2	32.4	53.5	53.1	44.4	34.3	55.3	55.1	47.5	36.5
	kW	23.6	23.2	23.7	24.3	23.8	23.4	23.8	24.4	23.9	23.6	23.9	24.6

50TJ024 (68 kW) (cont)									
Temp (C) Air Entering Condenser (Edb)		Evaporator Air Quantity — L/s / BF							
		4248/0.110				4720/0.120			
		Evaporator Air — Ewb (C)							
		14	17	19	22	14	17	19	22
24	TC	68.5	68.9	75.9	83.8	70.3	70.3	76.8	84.7
	SHC	68.5	67.7	56.5	43.8	70.3	70.3	59.6	45.8
	kW	16.4	16.5	17.1	17.7	16.6	16.7	17.2	17.8
29	TC	66.6	66.5	73.2	80.9	68.3	68.3	73.8	81.7
	SHC	66.6	66.2	55.4	42.9	68.3	68.3	58.5	44.7
	kW	17.7	17.8	18.4	19.0	17.9	18.0	18.5	19.2
35	TC	64.4	64.5	70.0	77.6	66.0	65.9	70.6	78.2
	SHC	64.4	64.2	54.3	41.8	66.0	65.9	57.1	43.6
	kW	19.2	19.2	19.8	20.4	19.4	19.4	19.8	20.5
40.5	TC	62.0	62.1	66.8	74.4	63.5	63.3	67.4	74.7
	SHC	62.0	61.7	53.0	40.6	63.5	63.3	55.9	42.4
	kW	20.7	20.7	21.1	21.8	20.9	20.9	21.3	21.9
46	TC	59.6	59.4	63.6	70.3	61.0	60.7	63.9	70.9
	SHC	59.6	59.4	51.8	39.5	61.0	60.6	54.4	41.2
	kW	22.4	22.2	22.6	23.2	22.5	22.4	22.6	23.3
52	TC	56.9	56.7	59.8	66.2	58.2	57.9	60.3	66.5
	SHC	56.9	56.7	50.4	38.1	58.2	57.9	53.1	40.0
	kW	24.1	23.8	24.1	24.7	24.2	23.9	24.2	24.8

LEGEND

BF — Bypass Factor
Edb — Entering Dry-Bulb Temperature (C)
Ewb — Entering Wet-Bulb Temperature (C)
kW — Compressor Input (kW)
ldb — Leaving Dry-Bulb Temperature (C)
lwb — Leaving Wet-Bulb Temperature (C)
SHC — Sensible Heat Capacity (kW)
TC — Total Capacity (kW)

NOTES:

1. Ratings are gross, and do not account for the effects of the evaporator-fan motor power and heat.
2. Direct interpolation is permissible. Do not extrapolate.
3. SHC is based on 26.7 C db temperature of air entering the unit. At any other temperature, correct the SHC read from the table of cooling capacities as follows:

Corrected SHC_{kW}

$$= \text{SHC} + [1.23 \times 10^{-3} \times (1 - \text{BF}) \times (\text{C}_{\text{db}} - 26.7) \times \text{L/s}]$$

Observe the rule of sign. Above 26.7 C, SHC correction will be positive; add it to SHC. Below 26.7 C, SHC correction will be negative; subtract it from SHC.

4. Formulas:

$$\text{C}_{\text{ldb}} = \text{C}_{\text{edb}} - \frac{\text{SHC}_{\text{kW}} \times 1000}{1.23 \times \text{L/s}}$$

Leaving wet bulb = wet bulb temperature corresponding to enthalpy of air leaving coil (h_{lwb}).

$$h_{\text{lwb}} = h_{\text{ewb}} - \frac{\text{TC}_{\text{kW}} \times 1000}{1.20 \times \text{L/s}}$$

Where h_{ewb} is enthalpy of air entering evaporator coil (kJ/kg).

COOLING CAPACITIES — SI (cont)

50TJ028 (85 kW)

Temp (C) Air Entering Condenser (Edb)		Evaporator Air Quantity — L/s / BF											
		3304/0.05				3776/0.06				4248/0.07			
		Evaporator Air — Ewb (C)											
		14	17	19	22	14	17	19	22	14	17	19	22
24	TC	74.9	79.4	87.3	96.1	77.9	81.2	89.1	97.9	80.6	82.3	90.2	99.3
	SHC	74.9	68.0	57.2	46.4	77.9	73.2	60.9	48.8	80.6	77.6	65.2	51.8
	kW	19.1	19.5	20.4	21.2	19.5	19.7	20.6	21.4	19.8	19.9	20.7	21.6
29	TC	72.8	76.8	84.1	92.9	75.9	78.2	86.1	94.9	78.5	79.7	87.3	96.7
	SHC	72.8	66.6	56.0	45.4	75.9	71.5	59.5	47.5	78.5	75.9	63.2	49.7
	kW	21.0	21.4	22.2	23.1	21.4	21.6	22.4	23.3	21.7	21.8	22.6	23.5
35	TC	70.8	73.8	81.2	89.7	73.6	75.6	82.9	91.4	76.1	76.5	84.4	92.9
	SHC	70.8	65.3	54.8	44.0	73.6	70.2	58.3	46.2	76.1	74.4	61.6	48.3
	kW	23.0	23.3	24.1	25.1	23.4	23.6	24.4	25.3	23.7	23.8	24.5	25.5
40.5	TC	68.6	70.6	77.9	85.8	71.3	72.4	79.7	87.6	73.5	73.8	80.6	88.5
	SHC	68.6	63.8	53.4	42.7	71.3	68.3	57.0	44.8	73.5	72.1	60.2	47.3
	kW	25.1	25.3	26.1	27.0	25.5	25.6	26.4	27.4	25.8	25.8	26.5	27.5
46	TC	66.3	67.8	74.4	81.7	68.8	69.1	75.9	83.2	70.9	70.6	76.5	84.4
	SHC	66.3	62.2	52.1	41.3	68.8	66.7	55.5	43.3	70.9	69.7	58.8	45.6
	kW	27.4	27.4	28.3	29.1	27.7	27.7	28.5	29.3	28.0	27.9	28.6	29.5
49	TC	64.8	65.7	72.1	—	67.2	67.1	73.5	—	69.3	68.8	74.1	—
	SHC	64.8	61.1	51.1	—	67.2	65.3	54.5	—	69.3	68.2	57.8	—
	kW	28.7	28.7	29.6	—	29.1	29.0	29.8	—	29.3	29.2	29.9	—

50TJ028 (85 kW) (cont)

Temp (C) Air Entering Condenser (Edb)		Evaporator Air Quantity — L/s / BF							
		4720/0.08				5310/0.09			
		Evaporator Air — Ewb (C)							
		14	17	19	22	14	17	19	22
24	TC	82.9	83.8	91.4	100.2	85.5	85.8	92.6	101.4
	SHC	82.9	81.7	68.8	53.9	85.5	85.3	73.0	57.8
	kW	20.0	20.2	20.9	21.8	20.3	20.4	21.0	21.9
29	TC	80.7	81.5	88.8	97.9	83.0	83.2	89.7	98.7
	SHC	80.7	79.4	66.3	51.8	83.0	82.9	71.2	55.4
	kW	22.0	22.0	22.8	23.7	22.3	22.3	22.9	23.9
35	TC	78.2	78.2	85.3	94.1	80.5	80.3	86.1	95.5
	SHC	78.2	77.1	65.0	50.2	80.5	80.3	69.3	53.1
	kW	24.0	24.0	24.7	25.7	24.3	24.3	24.9	25.8
40.5	TC	75.5	75.3	81.7	90.0	77.6	77.4	82.6	91.1
	SHC	75.5	74.7	63.5	48.8	77.6	77.4	67.5	51.2
	kW	26.1	26.1	26.7	27.7	26.4	26.3	26.9	27.9
46	TC	72.8	72.4	77.4	85.3	74.8	74.1	78.2	86.1
	SHC	72.8	72.4	61.9	47.4	74.8	74.1	65.9	49.8
	kW	28.2	28.2	28.8	29.7	28.6	28.4	29.0	29.9
49	TC	71.0	70.3	75.0	—	73.0	72.1	75.6	—
	SHC	71.0	70.3	60.9	—	73.0	72.1	64.8	—
	kW	29.6	29.5	30.1	—	29.9	29.7	30.2	—

LEGEND

BF — Bypass Factor
Edb — Entering Dry-Bulb Temperature (C)
Ewb — Entering Wet-Bulb Temperature (C)
kW — Compressor Input (kW)
ldb — Leaving Dry-Bulb Temperature (C)
lwb — Leaving Wet-Bulb Temperature (C)
SHC — Sensible Heat Capacity (kW)
TC — Total Capacity (kW)

NOTES:

- Ratings are gross, and do not account for the effects of the evaporator-fan motor power and heat.
- Direct interpolation is permissible. Do not extrapolate.
- SHC is based on 26.7 C db temperature of air entering the unit. At any other temperature, correct the SHC read from the table of cooling capacities as follows:

Corrected SHC_{kW}

$$= \text{SHC} + [1.23 \times 10^{-3} \times (1 - \text{BF}) \times (\text{C}_{\text{db}} - 26.7) \times \text{L/s}]$$

Observe the rule of sign. Above 26.7 C, SHC correction will be positive; add it to SHC. Below 26.7 C, SHC correction will be negative; subtract it from SHC.

4. Formulas:

$$\text{C}_{\text{ldb}} = \text{C}_{\text{edb}} - \frac{\text{SHC}_{\text{kW}} \times 1000}{1.23 \times \text{L/s}}$$

Leaving wet bulb = wet bulb temperature corresponding to enthalpy of air leaving coil (h_{lwb}).

$$h_{\text{lwb}} = h_{\text{ewb}} - \frac{\text{TC}_{\text{kW}} \times 1000}{1.20 \times \text{L/s}}$$

Where h_{ewb} is enthalpy of air entering evaporator coil (kJ/kg).

Performance data (cont)



COOLING CAPACITIES — SI (cont)

50TJ016 (51 kW) — UNITS WITH MOISTUREMISER™ OPTION

Temp (C) Air Entering Condenser (Edb)		Evaporator Air Quantity — L/s / BF														
		2124/0.12			2478/0.14			2832/0.15			3186/0.18			3540/0.18		
		Evaporator Air — Ewb (C)														
		17	19	22	17	19	22	17	19	22	17	19	22	17	19	22
24	TC SHC kW	—	53.6	59.2	—	54.1	60.6	—	55.6	61.9	—	57.3	63.1	53.2	58.0	63.8
		—	31.1	24.0	—	33.4	25.4	—	35.6	27.0	—	37.8	28.2	49.5	40.5	29.4
		—	14.0	14.6	—	14.4	14.8	—	14.6	14.9	—	14.5	15.0	14.1	14.6	15.1
29	TC SHC kW	—	51.1	56.3	—	52.2	57.5	—	53.5	58.5	50.1	54.8	59.7	50.5	55.4	60.6
		—	28.7	21.6	—	31.1	22.8	—	33.1	23.9	44.2	35.2	25.1	46.4	37.2	26.6
		—	15.2	15.8	—	15.2	15.9	—	15.4	15.9	15.2	15.8	16.0	15.2	15.8	16.3
35	TC SHC kW	—	48.1	53.0	—	49.3	54.3	—	50.2	55.7	46.8	51.0	56.4	46.9	52.1	56.8
		—	26.4	19.1	—	28.6	20.4	—	30.6	21.5	41.6	32.5	22.7	43.9	34.5	23.6
		—	16.2	16.7	—	16.4	15.8	—	16.4	17.0	16.1	16.3	17.1	16.1	16.7	17.1
40.5	TC SHC kW	—	44.8	49.3	—	46.3	51.0	—	47.1	51.7	43.5	47.9	52.4	44.2	48.2	53.0
		—	23.9	16.5	—	25.9	17.7	—	28.0	18.8	38.5	29.9	19.7	41.5	31.6	20.7
		—	17.2	17.8	—	17.4	18.1	—	17.5	18.1	17.2	17.6	18.0	17.2	17.6	18.3
46	TC SHC kW	—	41.6	45.8	—	42.6	47.2	—	43.3	47.9	40.2	44.0	48.7	40.6	44.4	48.9
		—	21.3	13.7	—	23.0	14.7	—	25.0	15.7	35.9	26.7	16.7	38.0	28.5	17.5
		—	18.3	18.8	—	18.6	19.0	—	18.7	19.1	18.2	18.8	19.3	18.4	18.9	19.4
48	TC SHC kW	—	40.5	44.7	—	41.5	45.7	—	42.2	46.5	38.9	42.9	47.2	39.5	43.4	47.7
		—	20.4	12.9	—	22.2	13.8	—	24.0	14.7	34.7	25.6	15.6	37.0	27.4	16.5
		—	18.7	19.2	—	18.8	19.4	—	19.0	19.5	18.6	19.0	19.7	18.6	19.2	19.7
49	TC SHC kW	—	39.8	43.9	—	40.9	—	—	41.5	—	38.4	42.2	—	38.9	42.7	—
		—	19.8	12.3	—	21.6	—	—	23.3	—	34.1	25.0	—	36.3	26.7	—
		—	18.9	19.3	—	19.0	—	—	19.1	—	18.6	19.2	—	18.8	19.3	—
52	TC SHC kW	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

BF — Bypass Factor
Edb — Entering Dry-Bulb Temperature (C)
Ewb — Entering Wet-Bulb Temperature (C)
kW — Compressor Input (kW)
ldb — Leaving Dry-Bulb Temperature (C)
lwb — Leaving Wet-Bulb Temperature (C)
SHC — Sensible Heat Capacity (kW)
TC — Total Capacity (kW)

NOTES:

1. Ratings are gross, and do not account for the effects of the evaporator-fan motor power and heat.
2. Direct interpolation is permissible. Do not extrapolate.
3. SHC is based on 26.7 C db temperature of air entering the unit. At any other temperature, correct the SHC read from the table of cooling capacities as follows:

Corrected SHC_{kW}

$$= \text{SHC} + [1.23 \times 10^{-3} \times (1 - \text{BF}) \times (\text{C}_{\text{db}} - 26.7) \times \text{L/s}]$$

Observe the rule of sign. Above 26.7 C, SHC correction will be positive; add it to SHC. Below 26.7 C, SHC correction will be negative; subtract it from SHC.

4. Formulas:

$$\text{C}_{\text{ldb}} = \text{C}_{\text{edb}} - \frac{\text{SHC}_{\text{kW}} \times 1000}{1.23 \times \text{L/s}}$$

Leaving wet bulb = wet bulb temperature corresponding to enthalpy of air leaving coil (h_{lwb}).

$$h_{\text{lwb}} = h_{\text{ewb}} - \frac{\text{TC}_{\text{kW}} \times 1000}{1.20 \times \text{L/s}}$$

Where h_{ewb} is enthalpy of air entering evaporator coil (kJ/kg).

COOLING CAPACITIES — SI (cont)

50TJ020 (61 kW) — UNITS WITH MOISTUREMISER™ OPTION

Temp (C) Air Entering Condenser (Edb)		Evaporator Air Quantity — L/s / BF														
		2548.8/0.095			2832/0.105			3304/0.12			3776/0.14			4248/0.15		
		Evaporator Air — Ewb (C)														
		17	19	22	17	19	22	17	19	22	17	19	22	17	19	22
24	TC	—	59.0	64.9	—	59.8	66.1	—	61.5	67.6	—	62.4	68.8	57.3	63.1	69.6
	SHC	—	35.1	26.9	—	36.9	28.1	—	40.1	30.0	—	43.2	31.8	57.3	46.1	33.5
	kW	—	14.7	15.3	—	14.8	15.5	—	15.0	15.7	—	15.2	15.8	14.8	15.3	15.9
29	TC	—	56.0	62.2	—	57.2	63.1	—	58.5	64.8	—	59.6	65.6	54.4	60.1	66.6
	SHC	—	32.7	24.4	—	34.6	25.6	—	37.7	27.5	—	40.5	29.2	54.4	43.4	30.9
	kW	—	16.3	16.6	—	16.4	17.2	—	16.6	17.4	—	16.8	17.1	15.8	16.6	17.4
35	TC	—	52.7	58.8	—	53.5	59.1	—	54.7	61.0	—	55.9	61.6	51.4	56.6	62.3
	SHC	—	30.2	21.8	—	32.0	22.8	—	34.9	24.6	—	37.9	26.2	51.3	40.5	27.9
	kW	—	16.8	17.8	—	16.9	17.4	—	17.1	17.8	—	17.3	18.0	16.9	17.4	17.8
40.5	TC	—	49.5	54.6	—	50.2	55.8	—	51.2	56.6	47.2	52.0	57.7	48.2	52.6	58.7
	SHC	—	27.4	19.0	—	29.2	20.0	—	32.1	21.6	45.4	34.9	23.3	48.1	37.3	24.8
	kW	—	18.1	18.5	—	18.2	18.7	—	18.3	19.0	17.8	18.3	19.0	17.9	18.5	19.4
46	TC	—	45.8	50.9	—	46.5	51.7	—	47.6	52.5	43.6	48.4	53.3	44.7	48.7	54.3
	SHC	—	24.7	16.1	—	26.3	17.0	—	29.1	18.6	42.7	31.7	20.2	44.6	34.3	21.6
	kW	—	19.1	19.6	—	19.2	19.8	—	19.5	20.0	18.9	19.7	20.1	19.1	19.6	20.2
47	TC	—	45.0	50.2	—	45.7	50.9	—	46.6	51.8	42.9	47.3	52.4	43.9	47.9	53.1
	SHC	—	24.0	15.5	—	25.7	16.3	—	28.4	17.8	41.9	31.0	19.3	43.9	33.6	20.8
	kW	—	19.3	20.0	—	19.4	20.1	—	19.6	20.3	19.2	19.7	20.4	19.4	19.9	20.5
49	TC	—	43.9	—	—	44.5	—	—	45.4	—	41.8	46.1	—	42.8	46.6	—
	SHC	—	23.1	—	—	24.7	—	—	27.5	—	40.9	30.0	—	42.7	32.5	—
	kW	—	19.7	—	—	19.8	—	—	19.9	—	19.6	20.0	—	19.7	20.1	—
52	TC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	SHC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	kW	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

BF	—	Bypass Factor
Edb	—	Entering Dry-Bulb Temperature (C)
Ewb	—	Entering Wet-Bulb Temperature (C)
kW	—	Compressor Input (kW)
ldb	—	Leaving Dry-Bulb Temperature (C)
lwb	—	Leaving Wet-Bulb Temperature (C)
SHC	—	Sensible Heat Capacity (kW)
TC	—	Total Capacity (kW)

NOTES:

- Ratings are gross, and do not account for the effects of the evaporator-fan motor power and heat.
- Direct interpolation is permissible. Do not extrapolate.
- SHC is based on 26.7 C db temperature of air entering the unit. At any other temperature, correct the SHC read from the table of cooling capacities as follows:

Corrected SHC_{kW}

$$= \text{SHC} + [1.23 \times 10^{-3} \times (1 - \text{BF}) \times (\text{C}_{\text{db}} - 26.7) \times \text{L/s}]$$

Observe the rule of sign. Above 26.7 C, SHC correction will be positive; add it to SHC. Below 26.7 C, SHC correction will be negative; subtract it from SHC.

4. Formulas:

$$\text{C}_{\text{ldb}} = \text{C}_{\text{edb}} - \frac{\text{SHC}_{\text{kW}} \times 1000}{1.23 \times \text{L/s}}$$

Leaving wet bulb = wet bulb temperature corresponding to enthalpy of air leaving coil (h_{lwb}).

$$h_{\text{lwb}} = h_{\text{ewb}} - \frac{\text{TC}_{\text{kW}} \times 1000}{1.20 \times \text{L/s}}$$

Where h_{ewb} is enthalpy of air entering evaporator coil (kJ/kg).

Performance data (cont)



COOLING CAPACITIES — SI (cont)

50TJ024 (68 kW) — UNITS WITH MOISTUREMISER™ OPTION

Temp (C) Air Entering Condenser (Edb)		Evaporator Air Quantity — L/s / BF														
		2832/0.07			3304/0.085			3776/0.095			4248/0.105			4720/0.12		
		Evaporator Air — Ewb (C)														
		17	19	22	17	19	22	17	19	22	17	19	22	17	19	22
24	TC	—	69.4	76.5	—	73.0	78.9	—	74.3	80.4	—	73.7	81.8	67.3	74.8	82.8
	SHC	—	41.2	32.4	—	45.4	34.7	—	48.6	36.7	—	51.3	38.7	66.8	54.4	40.7
	KW	—	16.2	16.9	—	17.3	17.1	—	17.2	17.3	—	16.7	17.5	16.3	16.9	17.6
29	TC	—	66.4	73.6	—	68.2	75.3	—	69.6	77.0	—	70.5	78.2	64.4	71.1	78.9
	SHC	—	39.0	30.2	—	42.6	32.2	—	46.0	34.3	—	48.7	36.2	64.4	51.7	37.9
	KW	—	17.5	18.2	—	17.8	18.3	—	18.0	18.5	—	18.6	18.7	17.4	17.7	18.3
35	TC	—	63.1	69.9	—	64.7	71.9	—	65.6	72.9	60.6	66.9	74.4	61.7	67.6	75.1
	SHC	—	36.7	27.6	—	39.9	29.7	—	43.0	31.6	58.2	46.2	33.5	61.6	49.0	35.3
	KW	—	18.7	19.0	—	18.8	19.6	—	18.6	19.6	18.6	19.3	19.9	19.1	19.4	20.1
40.5	TC	—	59.9	66.6	—	60.8	67.3	—	62.7	69.6	57.2	62.3	70.5	58.0	63.5	70.5
	SHC	—	34.3	25.1	—	37.4	26.9	—	40.5	29.0	55.1	43.1	30.6	58.0	45.8	32.1
	KW	—	20.2	20.9	—	20.0	20.3	—	20.7	21.3	19.8	19.9	21.2	19.9	20.6	20.9
46	TC	—	55.7	61.9	—	57.2	63.5	—	57.7	64.3	53.5	59.5	65.2	54.5	59.7	66.4
	SHC	—	31.5	22.6	—	34.8	24.1	—	37.3	25.7	51.7	40.5	27.4	54.4	43.0	29.1
	KW	—	21.2	22.1	—	21.6	22.2	—	21.2	22.1	21.1	22.1	22.1	21.3	21.9	22.6
52	TC	—	51.7	57.5	—	52.6	58.0	—	53.7	59.7	49.4	53.6	60.6	50.4	54.2	60.7
	SHC	—	28.5	19.1	—	31.3	20.4	—	34.1	22.4	48.4	36.4	23.6	50.4	39.1	25.2
	KW	—	22.8	23.4	—	22.8	22.9	—	23.0	23.7	22.5	22.8	24.1	22.7	22.9	23.9

LEGEND

BF	—	Bypass Factor
Edb	—	Entering Dry-Bulb Temperature (C)
Ewb	—	Entering Wet-Bulb Temperature (C)
kW	—	Compressor Input (kW)
ldb	—	Leaving Dry-Bulb Temperature (C)
lwb	—	Leaving Wet-Bulb Temperature (C)
SHC	—	Sensible Heat Capacity (kW)
TC	—	Total Capacity (kW)

NOTES:

1. Ratings are gross, and do not account for the effects of the evaporator-fan motor power and heat.
2. Direct interpolation is permissible. Do not extrapolate.
3. SHC is based on 26.7 C db temperature of air entering the unit. At any other temperature, correct the SHC read from the table of cooling capacities as follows:

Corrected SHC_{kW}

$$= \text{SHC} + [1.23 \times 10^{-3} \times (1 - \text{BF}) \times (\text{C}_{\text{db}} - 26.7) \times \text{L/s}]$$

Observe the rule of sign. Above 26.7 C, SHC correction will be positive; add it to SHC. Below 26.7 C, SHC correction will be negative; subtract it from SHC.

4. Formulas:

$$\text{C}_{\text{ldb}} = \text{C}_{\text{edb}} - \frac{\text{SHC}_{\text{kW}} \times 1000}{1.23 \times \text{L/s}}$$

Leaving wet bulb = wet bulb temperature corresponding to enthalpy of air leaving coil (h_{lwb}).

$$h_{\text{lwb}} = h_{\text{ewb}} - \frac{\text{TC}_{\text{kW}} \times 1000}{1.20 \times \text{L/s}}$$

Where h_{ewb} is enthalpy of air entering evaporator coil (kJ/kg).

COOLING CAPACITIES — SI (cont)

50TJ028 (85 kW) — UNITS WITH MOISTUREMISER™ OPTION

Temp (C) Air Entering Condenser (Edb)		Evaporator Air Quantity — L/s / BF														
		3304/0.05			3776/0.06			4248/0.07			4720/0.08			5310/0.09		
		Evaporator Air — Ewb (C)														
		17	19	22	17	19	22	17	19	22	17	19	22	17	19	22
24	TC	—	84.2	95.2	—	88.2	97.3	—	87.9	97.1	79.8	87.6	98.4	81.5	89.0	99.8
	SHC	—	51.2	40.7	—	55.9	43.3	—	59.7	45.7	75.9	62.6	47.8	80.7	66.8	51.8
	kW	—	20.6	22.4	—	21.7	22.7	—	21.0	22.0	19.7	20.4	22.2	19.9	20.6	22.4
29	TC	—	78.6	87.4	—	81.2	89.6	—	82.3	91.5	75.9	83.8	92.8	77.8	84.7	93.9
	SHC	—	47.2	36.0	—	50.8	38.2	—	54.6	40.4	71.6	57.7	42.5	76.9	62.3	46.0
	kW	—	21.5	22.4	—	22.0	22.7	—	22.0	22.9	21.1	22.2	23.1	21.7	22.1	23.3
35	TC	—	74.2	83.8	—	76.6	85.0	—	78.7	86.8	71.6	79.5	88.2	73.1	80.5	89.9
	SHC	—	43.7	32.7	—	47.2	34.4	—	50.7	36.3	67.8	53.9	38.3	72.0	58.2	41.0
	kW	—	23.1	24.9	—	23.6	24.5	—	24.2	24.9	23.1	24.2	25.2	23.4	24.5	25.4
40.5	TC	—	70.2	78.0	—	72.4	80.1	—	72.9	81.1	67.1	74.6	82.1	68.5	75.1	83.4
	SHC	—	39.9	28.4	—	43.5	30.3	—	46.3	32.4	63.5	49.7	33.7	67.6	53.2	35.9
	kW	—	25.1	26.0	—	25.6	26.6	—	25.3	26.5	25.0	25.7	26.5	25.1	25.7	26.7
46	TC	—	65.1	72.5	—	66.7	74.2	61.4	67.9	75.2	62.3	68.4	76.9	62.9	70.0	77.6
	SHC	—	35.8	24.2	—	38.9	25.8	55.2	42.3	27.6	58.8	44.8	29.3	62.2	48.8	31.4
	kW	—	26.8	27.8	—	27.0	28.1	26.6	27.4	28.1	26.7	27.3	28.8	26.7	27.9	28.7
49	TC	—	62.1	—	—	63.8	—	57.9	64.7	—	58.8	65.6	—	59.5	66.0	—
	SHC	—	33.0	—	—	36.2	—	51.9	39.2	—	55.5	42.0	—	58.8	45.7	—
	kW	—	28.2	—	—	28.5	—	27.7	28.6	—	27.9	28.9	—	28.0	28.9	—
52	TC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	SHC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	kW	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

BF	—	Bypass Factor
Edb	—	Entering Dry-Bulb Temperature (C)
Ewb	—	Entering Wet-Bulb Temperature (C)
kW	—	Compressor Input (kW)
ldb	—	Leaving Dry-Bulb Temperature (C)
lwb	—	Leaving Wet-Bulb Temperature (C)
SHC	—	Sensible Heat Capacity (kW)
TC	—	Total Capacity (kW)

NOTES:

- Ratings are gross, and do not account for the effects of the evaporator-fan motor power and heat.
- Direct interpolation is permissible. Do not extrapolate.
- SHC is based on 26.7 C db temperature of air entering the unit. At any other temperature, correct the SHC read from the table of cooling capacities as follows:
Corrected SHC_{kW}
= SHC + [1.23 x 10⁻³ x (1 - BF) x (C_{db} - 26.7) x L/s]
Observe the rule of sign. Above 26.7 C, SHC correction will be positive; add it to SHC. Below 26.7 C, SHC correction will be negative; subtract it from SHC.

4. Formulas:

$$C_{ldb} = C_{edb} - \frac{SHC_{kW} \times 1000}{1.23 \times L/s}$$

Leaving wet bulb = wet bulb temperature corresponding to enthalpy of air leaving coil (h_{lwb}).

$$h_{lwb} = h_{ewb} - \frac{TC_{kW} \times 1000}{1.20 \times L/s}$$

Where h_{ewb} is enthalpy of air entering evaporator coil (kJ/kg).

Performance data (cont)



GLYCOL HEATING PERFORMANCE

GLYCOL COIL (50TJ016-028)																			
Temperature Entering Condenser		Air Entering Evaporator — Cfm																	
		4400						5400						7200					
		Percent Glycol																	
		25			50			25			50			25			50		
Edb	Ewt	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	347	37	115	327	37	111	405	43	107	381	43	104
	180	255	27	108	237	27	105	285	30	104	264	30	101	332	35	98	306	35	95
	160	200	21	97	181	21	93	223	24	94	202	23	90	259	27	89	233	27	85
70	200	274	29	127	257	29	124	306	32	123	287	33	119	357	38	116	333	38	113
	180	218	23	116	201	23	112	244	26	112	224	26	109	284	30	107	259	30	104
	160	164	17	104	146	17	100	183	19	101	162	19	98	212	22	97	187	22	94
80	200	249	26	132	233	27	129	279	30	128	260	30	125	325	34	122	302	34	119
	180	194	21	121	177	20	117	217	23	117	197	23	114	252	26	113	228	27	109
	160	140	15	109	123	14	106	156	16	107	136	16	103	180	18	103	156	19	100

GLYCOL COIL (50TJ016-028) (cont)								
Temperature Entering Condenser		Air Entering Evaporator — Cfm						
		9000						
		Percent Glycol						
		25			50			
Edb	Ewt	Cap	Gpm	Ldb	Cap	Gpm	Ldb	
55	200	453	48	102	425	48	99	
	180	371	39	93	342	39	90	
	160	290	31	85	260	30	82	
70	200	400	42	111	372	42	108	
	180	317	34	103	287	33	100	
	160	237	25	94	208	24	91	
80	200	364	39	118	337	38	115	
	180	281	30	109	254	29	106	
	160	201	21	101	173	20	78	

GLYCOL COIL RATINGS (50TJ016-028)										
Entering Fluid Temp (F)	Cfm									
	4,000		5,000		6,000		8,000		10,000	
	Gpm	ΔP*	Gpm	ΔP*	Gpm	ΔP*	Gpm	ΔP*	Gpm	ΔP*
200	27	1.2	31	1.5	35	1.8	41	2.4	47	2.9
180	22	0.9	25	1.1	27	1.3	32	1.6	36	2.0
160	16	0.6	19	0.7	20	0.8	24	1.0	27	1.2

LEGEND

- Cap — Btuh × 1000
- Edb — Entering Dry Bulb Temperature (F)
- Ewt — Entering Water Temperature (F)
- Gpm — Gallons Per Minute
- Ldb — Leaving Dry-Bulb Temperature (F)

*ΔP is the fluid pressure in ft of head.

NOTES:

1. 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.
2. Water Δ = 20 F.

FAN PERFORMANCE — 48TJ016-028 UNITS

48TJD016 (15 TONS) LOW HEAT UNITS*

Airflow (Cfm)	Available External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			1.0			1.2		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
4500	809	1.53	1317	906	1.74	1502	994	1.96	1690	1078	2.18	1882	1156	2.41	2077	1230	2.64	2275
4800	850	1.76	1516	942	1.98	1706	1027	2.20	1899	1107	2.43	2094	1183	2.66	2293	1255	2.89	2495
5100	892	2.01	1733	979	2.24	1928	1061	2.46	2125	1138	2.70	2325	1211	2.93	2528	1281	3.17	2733
5400	934	2.28	1970	1017	2.52	2169	1096	2.75	2371	1170	2.99	2575	1241	3.22	2781	1309	3.47	2990
5700	976	2.58	2225	1056	2.82	2429	1132	3.06	2635	1204	3.30	2843	1272	3.54	3053	1338	3.79	3266
6000	1019	2.90	2500	1096	3.14	2709	1168	3.38	2919	1238	3.63	3131	1304	3.88	3345	1368	4.13	3562
6300	1063	3.24	2795	1136	3.49	3008	1206	3.74	3223	1273	3.99	3439	1337	4.24	3657	—	—	—
6600	1106	3.61	3111	1177	3.86	3329	1244	4.11	3547	1309	4.37	3767	—	—	—	—	—	—
6900	1150	4.00	3448	1218	4.26	3670	—	—	—	—	—	—	—	—	—	—	—	—
7200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

48TJD016 (15 TONS) LOW HEAT UNITS* (cont)

Airflow (Cfm)	Available External Static Pressure (in. wg)														
	1.4			1.6			1.8			1.9			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
4500	1301	2.87	2477	1369	3.11	2683	1434	3.35	2891	1497	3.47	2997	1497	3.60	3103
4800	1324	3.13	2700	1390	3.37	2909	1454	3.62	3120	1515	3.74	3226	1515	3.87	3334
5100	1349	3.41	2942	1413	3.66	3153	1475	3.90	3367	1535	4.03	3475	1535	4.16	3584
5400	1374	3.71	3202	1437	3.96	3416	1498	4.21	3633						
5700	1402	4.04	3481	1463	4.29	3699									
6000															
6300															
6600															
6900															
7200															
7500															

LEGEND

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

*Standard low-medium static drive range is 891 to 1179 rpm (for 208/230 and 460-v units) or 1159 to 1429 rpm (for 575-v units). Alternate high-static drive range is 1227 to 1550 (for 208/230 and 460-v units). The alternate high-static drive is not available for 48TJ016 575-v units. Other rpms require a field-supplied drive.

NOTES:

- Maximum continuous bhp is 4.38 (208/230 and 460 v) or 3.38 (575 v) and the maximum continuous watts are 3775 (208/230 and 460 v) or 3065 (575 v). Do not adjust

motor rpm such that motor maximum bhp and/or watts is exceeded at the maximum operating cfm.

- Static pressure losses (i.e., economizer) must be added to external static pressure before entering Fan Performance table.
- Interpolation is permissible. Do not extrapolate.
- Fan performance is based on wet coils, clean filters, and casing losses. See Accessory/FIOF Static Pressure table on page 53.
- Extensive motor and drive testing on these units ensures that the full horsepower and watts range of the motor can be utilized with confidence. Using your fan motors up to the watts or bhp rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
- Use of a field-supplied motor may affect wiring size. Contact your Carrier representative for details.

48TJD020 AND 024 (18 AND 20 TONS) LOW HEAT UNITS*

Airflow (Cfm)	Available External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			1.0			1.2		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
5,500	755	2.27	1908	831	2.58	2171	901	2.91	2443	968	3.24	2723	1031	3.58	3009	1091	3.93	3302
6,000	810	2.72	2287	881	3.04	2556	947	3.37	2833	1010	3.71	3116	1070	4.05	3406	1127	4.40	3702
6,500	866	3.22	2710	932	3.55	2985	994	3.88	3266	1054	4.23	3554	1111	4.57	3847	1166	4.93	4146
7,000	923	3.78	3177	985	4.11	3458	1044	4.45	3744	1100	4.80	4036	1155	5.15	4333	1207	5.51	4635
7,500	980	4.39	3690	1038	4.73	3976	1094	5.07	4267	1148	5.43	4564	1200	5.78	4864	1250	6.15	5170
8,000	1038	5.06	4251	1093	5.40	4542	1146	5.75	4838	1197	6.11	5138	1246	6.47	5443	1294	6.84	5752
8,500	1096	5.78	4859	1148	6.13	5156	1198	6.49	5456	1247	6.85	5761	1294	7.22	6070	1340	7.59	6382
9,000	1154	6.56	5517	1204	6.92	5818	1251	7.28	6123	1298	7.65	6432	1343	8.02	6745	1388	8.40	7062
9,500	1213	7.40	6224	1260	7.77	6531	1306	8.13	6840	1350	8.51	7154	1394	8.88	7471	1436	9.26	7791
10,000	1272	8.30	6983	1317	8.67	7294	1360	9.05	7608	1403	9.43	7926	1445	9.81	8247	1486	10.19	8570

48TJD020 AND 024 (18 AND 20 TONS) LOW HEAT UNITS* (cont)

Airflow (Cfm)	Available External Static Pressure (in. wg)														
	1.4			1.6			1.8			1.9			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
5,500	1149	4.28	3602	1204	4.65	3907	1258	5.02	4217	1284	5.20	4375	1309	5.39	4533
6,000	1183	4.76	4003	1236	5.13	4310	1288	5.50	4622	1313	5.68	4780	1337	5.87	4939
6,500	1219	5.29	4450	1270	5.66	4759	1320	6.03	5073	1344	6.22	5232	1368	6.41	5391
7,000	1258	5.88	4942	1307	6.25	5253	1355	6.62	5569	1378	6.81	5729	1402	7.00	5890
7,500	1299	6.52	5480	1346	6.89	5794	1392	7.27	6113	1415	7.46	6273	1437	7.65	6435
8,000	1341	7.21	6065	1387	7.59	6383	1392	7.97	6704	1453	8.16	6866	1475	8.36	7028
8,500	1385	7.97	6699	1429	8.35	7019	1472	8.73	7343	1493	8.93	7506	1514	9.12	7670
9,000	1431	8.78	7382	1473	9.15	7705	1515	9.55	8032	1535	9.75	8196	—	—	—
9,500	1478	9.65	8114	1519	10.04	8441	—	—	—	—	—	—	—	—	—
10,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

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

*Standard low-medium static drive range for the 020 size is 910 to 1095 rpm. Standard low-medium static drive range for the 024 size is 1002 to 1225 rpm. Alternate high-static drive range for the 020 size is 1069 to 1287. Alternate high-static drive range for the 024 size is 1193 to 1458 rpm. Other rpms require a field-supplied drive.

NOTES:

- Maximum continuous bhp for the 020 size is 6.13. Maximum continuous bhp for the 024 size is 9.47 (208/230, 575 v) or 10.33 (460 v). The maximum continuous watts for the 020 size is 5180. The maximum continuous watts for the 024 size is 7915 (208/230, 575 v) or 8640 (460 v). Do not adjust motor rpm such that motor maximum bhp and/or watts is exceeded at the maximum operating cfm.

- Static pressure losses (i.e., economizer) must be added to external static pressure before entering Fan Performance table.
- Interpolation is permissible. Do not extrapolate.
- Fan performance is based on wet coils, clean filters, and casing losses. See Accessory/FIOF Static Pressure table on page 53.
- Extensive motor and drive testing on these units ensures that the full horsepower and watts range of the motor can be utilized with confidence. Using your fan motors up to the watts or bhp rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
- Use of a field-supplied motor may affect wiring size. Contact your Carrier representative for details.

Performance data (cont)



FAN PERFORMANCE — 48TJ016-028 UNITS (cont)

48TJD028 (25 TONS) LOW HEAT UNITS*																		
Airflow (Cfm)	Available External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			1.0			1.2		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
7,000	941	3.35	2,769	1002	3.80	3,140	1061	4.27	3528	1117	4.76	3,934	1171	5.27	4,356	1224	5.80	4,794
7,500	999	4.05	3,348	1057	4.53	3,742	1112	5.02	4152	1166	5.54	4,579	1218	6.07	5,020	1268	6.63	5,478
8,000	1058	4.85	4,007	1113	5.35	4,424	1165	5.87	4856	1216	6.41	5,304	1266	6.97	5,766	1314	7.55	6,243
8,500	1117	5.74	4,750	1169	6.28	5,190	1219	6.83	5645	1268	7.40	6,114	1315	7.98	6,597	1361	8.58	7,094
9,000	1177	6.75	5,583	1226	7.31	6,047	1274	7.89	6524	1320	8.48	7,015	1365	9.09	7,520	1410	9.72	8,037
9,500	1237	7.98	6,511	1284	8.46	6,999	1329	9.07	7499	1374	9.69	8,012	1417	10.33	8,538	1459	10.98	9,076
10,000	1297	9.12	7,450	1342	9.74	8,051	1385	10.37	8574	1428	11.02	9,110	1469	11.68	9,657	1510	12.36	10,217
10,500	1358	10.49	8,674	1400	11.14	9,209	1442	11.80	9755	1483	12.47	10,314	1523	13.16	10,883	—	—	—
11,000	1418	12.00	9,919	1459	12.67	10,478	—	—	—	—	—	—	—	—	—	—	—	—
11,250	1449	12.80	10,585	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

48TJD028 (25 TONS) LOW HEAT UNITS* (cont)									
Airflow (Cfm)	Available External Static Pressure (in. wg)								
	1.4			1.6			1.8		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
7,000	1274	6.35	5248	1323	6.92	5,718	1371	5.54	6204
7,500	1316	7.20	6960	1364	7.79	6,437	1410	6.41	6939
8,000	1360	8.14	6734	1406	8.76	7,239	1450	7.40	7759
8,500	1406	9.20	7605	1449	9.83	8,129	1492	8.48	8666
9,000	1453	10.36	8568	1495	11.02	9,111	1536	9.69	9667
9,500	1501	11.64	9627	1541	12.32	10,190	—	—	—
10,000	—	—	—	—	—	—	—	—	—
10,500	—	—	—	—	—	—	—	—	—
11,000	—	—	—	—	—	—	—	—	—
11,250	—	—	—	—	—	—	—	—	—

LEGEND

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

*Standard low-medium static drive range is 1066 to 1283 rpm. Alternate high-static drive range is 1332 to 1550. Other rpms require a field-supplied drive.

NOTES:

1. Maximum continuous bhp is 11.50 (208/230, 575 v) or 13.30 (460 v) and the maximum continuous watts are 9510 (208/230, 575 v) or 11,000 (460 v). Do not adjust motor rpm such that motor maximum bhp and/or watts is exceeded at the maximum operating cfm.

- Static pressure losses (i.e., economizer) must be added to external static pressure before entering Fan Performance table.
- Interpolation is permissible. Do not extrapolate.
- Fan performance is based on wet coils, clean filters, and casing losses. See Accessory/FIOP Static Pressure table on page 53.
- Extensive motor and drive testing on these units ensures that the full horsepower and watts range of the motor can be utilized with confidence. Using your fan motors up to the watts or bhp rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
- Use of a field-supplied motor may affect wiring size. Contact your Carrier representative for details.

48TJF016 (15 TONS) HIGH HEAT UNITS*																		
Airflow (Cfm)	Available External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			1.0			1.2		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
4500	819	1.55	1335	914	1.76	1518	1001	1.98	1705	1083	2.20	1894	1160	2.42	2088	1234	2.65	2284
4800	861	1.78	1538	951	2.00	1726	1035	2.22	1916	1113	2.45	2110	1188	2.68	2307	1259	2.91	2507
5100	904	2.04	1759	989	2.26	1952	1069	2.49	2147	1145	2.72	2345	1218	2.95	2545	1287	3.17	2749
5400	947	2.32	1999	1028	2.55	2197	1105	2.78	2396	1179	3.01	2598	1248	3.25	2802	1315	3.49	3009
5700	990	2.62	2259	1068	2.85	2461	1142	3.09	2665	1213	3.33	2871	1280	3.57	3079	1345	3.81	3289
6000	1034	2.94	2539	1109	3.18	2745	1180	3.42	2953	1248	3.67	3163	1313	3.91	3375	1376	4.16	3589
6300	1078	3.29	2840	1150	3.54	3050	1218	3.78	3262	1284	4.03	3476	1348	4.28	3692	—	—	—
6600	1123	3.67	3161	1192	3.91	3376	1258	4.16	3592	—	—	—	—	—	—	—	—	—
6900	1167	4.06	3504	1234	4.32	3723	—	—	—	—	—	—	—	—	—	—	—	—
7200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

48TJF016 (15 TONS) HIGH HEAT UNITS* (cont)															
Airflow (Cfm)	Available External Static Pressure (in. wg)														
	1.4			1.6			1.8			1.9			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
4500	1304	2.88	2484	1371	3.12	2688	1435	3.36	2895	1467	3.48	2999	1497	3.60	3104
4800	1327	3.14	2711	1393	3.38	2917	1456	3.62	3126	1486	3.75	3232	1517	3.87	3338
5100	1353	3.43	2955	1417	3.67	3165	1478	3.92	3377	1508	4.04	3484	1537	4.16	3592
5400	1380	3.73	3219	1442	3.98	3432	1502	4.23	3646	1531	4.35	3755	—	—	—
5700	1408	4.06	3503	1468	4.31	3718	—	—	—	—	—	—	—	—	—
6000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6300	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

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

*Standard low-medium static drive range is 891 to 1179 rpm (for 208/230-460-v units) or 1159 to 1429 rpm (for 575-v units). Alternate high-static drive range is 1227 to 1550 (for 208/230-460-v units). The alternate high-static drive is not available for 48TJ016 575-v units. Other rpms require a field-supplied drive.

NOTES:

1. Maximum continuous bhp is 4.38 (208/230 and 460 v) or 3.38 (575 v) and the maximum continuous watts are 3775 (208/230 and 460 v) or 3065 (575 v). Do not adjust motor rpm such that motor maximum bhp and/or watts is exceeded at the maximum operating cfm.

- Static pressure losses (i.e., economizer) must be added to external static pressure before entering Fan Performance table.
- Interpolation is permissible. Do not extrapolate.
- Fan performance is based on wet coils, clean filters, and casing losses. See Accessory/FIOP Static Pressure table on page 53.
- Extensive motor and drive testing on these units ensures that the full horsepower and watts range of the motor can be utilized with confidence. Using your fan motors up to the watts or bhp rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
- Use of a field-supplied motor may affect wiring size. Contact your Carrier representative for details.

FAN PERFORMANCE — 48TJ016-028 UNITS (cont)

48TJF020 and 024 (18 AND 20 TONS) HIGH HEAT UNITS*

Airflow (Cfm)	Available External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			1.0			1.2		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
5,500	795	2.43	2043	866	2.74	2306	934	3.07	2578	998	3.40	2856	1059	3.74	3142	1117	4.08	3434
6,000	854	2.92	2452	921	3.24	2722	984	3.57	3098	1044	3.90	3281	1102	4.25	3570	1158	4.60	3865
6,500	914	3.46	2909	977	3.79	3184	1036	4.12	3465	1093	4.46	3752	1148	4.81	4045	1201	5.16	4343
7,000	975	4.06	3414	1034	4.39	3695	1090	4.73	3981	1144	5.08	4272	1196	5.43	4569	1246	5.79	4870
7,500	1037	4.72	3969	1092	5.06	4255	1145	5.41	4546	1196	5.76	4842	1256	6.12	5142	1294	6.48	5447
8,000	1099	5.44	4575	1150	5.79	4866	1201	6.14	5162	1249	6.50	5462	1297	6.86	5766	1343	7.22	6075
8,500	1161	6.22	5232	1210	6.57	5529	1258	6.93	5829	1304	7.29	6134	1349	7.66	6443	1393	8.03	6755
9,000	1223	7.07	5943	1270	7.43	6245	1315	7.79	6550	1360	8.16	6869	1403	8.53	7171	1445	8.90	7487
9,500	1286	7.98	6708	1331	8.34	7014	1374	8.71	7324	1416	9.08	7638	1457	9.46	7954	1498	9.84	8274
10,000	1349	8.95	7528	1392	9.32	7839	1433	9.70	8154	1473	10.07	8471	—	—	—	—	—	—

48TJF020 and 024 (18 AND 20 TONS) HIGH HEAT UNITS* (cont)

Airflow (Cfm)	Available External Static Pressure (in. wg)														
	1.4			1.6			1.8			1.9			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
5,500	1173	4.44	3732	1227	4.80	4036	1279	5.17	4345	1304	5.35	4502	1329	5.54	4629
6,000	1211	4.95	4165	1263	5.32	4471	1313	5.69	4782	1337	5.87	4939	1361	6.06	5097
6,500	1252	5.53	4646	1302	5.89	4954	1350	6.26	5267	1373	6.56	5425	1396	6.84	5584
7,000	1295	6.16	5176	1343	6.52	5487	1389	6.90	5802	1412	7.09	5961	1434	7.28	6121
7,500	1340	6.85	5756	1386	7.22	6070	1431	7.60	6387	1452	7.79	6547	1474	7.98	6709
8,000	1388	7.60	6388	1431	7.97	6704	1474	8.35	7024	1495	8.54	7186	1516	8.74	7348
8,500	1436	8.41	7071	1478	8.79	7390	1520	9.17	7713	1540	9.37	7876	—	—	—
9,000	1486	9.28	7807	1527	9.67	8130	—	—	—	—	—	—	—	—	—
9,500	1538	10.22	8597	—	—	—	—	—	—	—	—	—	—	—	—
10,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

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

*Standard low-medium static drive range for the 020 size is 910 to 1095 rpm. Standard low-medium static drive range for the 024 size is 1002 to 1225 rpm. Alternate high-static drive range for the 020 size is 1069 to 1287. Alternate high-static drive range for the 024 size is 1193 to 1458 rpm. Other rpms require a field-supplied drive.

NOTES:

- Maximum continuous bhp for the 020 size is 6.13. Maximum continuous bhp for the 024 size is 9.47 (208/230, 575 v) or 10.33 (460 v). The maximum continuous watts for the 020 size is 5180. The maximum continuous watts for the 024 size is 7915

- Do not adjust motor rpm such that motor maximum bhp and/or watts is exceeded at the maximum operating cfm.
- Static pressure losses (i.e., economizer) must be added to external static pressure before entering Fan Performance table.
- Interpolation is permissible. Do not extrapolate.
- Fan performance is based on wet coils, clean filters, and casing losses. See Accessory/FIOF Static Pressure table on page 53.
- Extensive motor and drive testing on these units ensures that the full horsepower and watts range of the motor can be utilized with confidence. Using your fan motors up to the watts or bhp rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
- Use of a field-supplied motor may affect wiring size. Contact your Carrier representative for details.

48TJF028 (25 TONS) HIGH HEAT UNITS*

Airflow (Cfm)	Available External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			1.0			1.2		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
7,000	992	4.05	3,348	1051	4.44	3,668	1106	4.83	3995	1160	5.24	4331	1212	5.65	4675	1262	6.08	5026
7,500	1055	4.77	3,947	1110	5.17	4,277	1162	5.58	4615	1214	6.00	4960	1263	6.43	5312	1311	6.86	5672
8,000	1118	5.58	4,610	1170	5.99	4,950	1220	6.41	5298	1268	6.84	5653	1315	7.27	6014	1361	7.72	6382
8,500	1182	6.46	5,339	1231	6.88	5,690	1278	7.31	6047	1324	7.75	6411	1369	8.20	6782	1413	8.66	7158
9,000	1246	7.42	6,136	1292	7.86	6,498	1337	8.30	6865	1381	8.75	7239	1424	9.21	7618	1466	9.68	8003
9,500	1310	8.47	7,005	1354	8.92	7,377	1397	9.38	7754	1439	9.84	8137	1480	10.31	8525	1520	10.79	8918
10,000	1374	9.61	7,947	1416	10.07	8,329	1457	10.54	8715	1497	11.02	9107	1537	11.50	9504	—	—	—
10,500	1439	10.84	8,964	1479	11.32	9,356	1518	11.79	9752	—	—	—	—	—	—	—	—	—
11,000	1503	12.17	10,059	1542	12.65	10,460	—	—	—	—	—	—	—	—	—	—	—	—
11,250	1536	12.86	10,636	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

48TJF028 (25 TONS) HIGH HEAT UNITS* (cont)

Airflow (Cfm)	Available External Static Pressure (in. wg)								
	1.4			1.6			1.8		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
7,000	1311	6.51	5385	1359	6.96	5751	1405	7.40	6124
7,500	1358	7.30	6039	1403	7.76	6412	1448	8.24	6792
8,000	1406	8.17	6767	1450	8.63	7137	1492	9.17	7524
8,500	1456	9.12	7541	1498	9.59	7929	1539	10.11	8323
9,000	1507	10.15	8393	1548	10.63	8790	—	—	—
9,500	—	—	—	—	—	—	—	—	—
10,000	—	—	—	—	—	—	—	—	—
10,500	—	—	—	—	—	—	—	—	—
11,000	—	—	—	—	—	—	—	—	—
11,250	—	—	—	—	—	—	—	—	—

LEGEND

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

*Standard low-medium static drive range is 1066 to 1283 rpm. Alternate high-static drive range is 1332 to 1550. Other rpms require a field-supplied drive.

NOTES:

- Maximum continuous bhp is 11.50 (208/230, 575 v) or 13.30 (460 v) and the maximum continuous watts are 9510 (208/230, 575 v) or 11,000 (460 v). Do not adjust motor rpm such that motor maximum bhp and/or watts is exceeded at the maximum operating cfm.
- Static pressure losses (i.e., economizer) must be added to external static pressure before entering Fan Performance table.

- Interpolation is permissible. Do not extrapolate.
- Fan performance is based on wet coils, clean filters, and casing losses. See Accessory/FIOF static pressure table on page 53.
- Extensive motor and drive testing on these units ensures that the full horsepower and watts range of the motor can be utilized with confidence. Using your fan motors up to the watts or bhp rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
- Use of a field-supplied motor may affect wiring size. Contact your Carrier representative for details.

Performance data (cont)



FAN PERFORMANCE — 50TJ016-028 UNITS — ENGLISH

50TJ016 (15 TONS)*

Airflow (Cfm)	Available External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			1.0			1.2		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
4500	684	1.28	1102	791	1.49	1283	887	1.70	1466	977	1.92	1652	1061	2.13	1841	1139	2.36	2034
4800	715	1.47	1265	817	1.68	1451	910	1.90	1638	997	2.12	1828	1078	2.34	2021	1155	2.57	2217
5100	747	1.67	1442	844	1.89	1633	934	2.12	1825	1018	2.34	2019	1097	2.57	2216	1171	2.80	2416
5400	779	1.90	1635	872	2.12	1831	959	2.35	2027	1040	2.58	2226	1117	2.81	2426	1189	3.05	2629
5700	812	2.14	1844	901	2.37	2044	985	2.60	2245	1063	2.84	2448	1138	3.07	2652	1209	3.31	2858
6000	845	2.40	2068	931	2.64	2273	1011	2.87	2478	1087	3.11	2685	1160	3.35	2893	1229	3.60	3103
6300	878	2.68	2309	961	2.92	2518	1039	3.16	2728	1112	3.41	2939	1183	3.65	3151	1250	3.90	3365
6600	912	2.98	2566	992	3.22	2780	1067	3.47	2994	1138	3.72	3209	1207	3.97	3425	1273	4.22	3642
6900	946	3.29	2841	1023	3.55	3059	1096	3.80	3277	1165	4.05	3496	1232	4.31	3716	—	—	—
7200	981	3.63	3133	1055	3.89	3355	1125	4.15	3578	—	—	—	—	—	—	—	—	—
7500	1016	3.99	3443	1087	4.25	3669	—	—	—	—	—	—	—	—	—	—	—	—

50TJ016 (15 TONS)* (cont)

Airflow (Cfm)	Available External Static Pressure (in. wg)														
	1.4			1.6			1.8			1.9			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
4500	1214	2.59	2230	1285	2.82	2430	1353	3.05	2633	1386	3.17	2736	1418	3.29	2839
4800	1228	2.80	2417	1297	3.04	2619	1364	3.27	2825	1396	3.40	2928	1428	3.52	3033
5100	1243	3.04	2618	1311	3.27	2823	1376	3.51	3031	1408	3.64	3136	1439	3.76	3242
5400	1259	3.29	2835	1326	3.53	3043	1390	3.77	3254	1421	3.90	3360	1452	4.02	3467
5700	1277	3.56	3067	1342	3.80	3278	1405	4.05	3492	1435	4.17	3600	1466	4.30	3708
6000	1295	3.84	3316	1359	4.09	3530	1421	4.34	3746	—	—	—	—	—	—
6300	1315	4.15	3580	—	—	—	—	—	—	—	—	—	—	—	—
6600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

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

*Standard low-medium static drive range is 891 to 1179 rpm (for 208/230-460-v units) or 1159 to 1429 rpm (for 575-v units). Alternate high-static drive range is 1227 to 1550 (for 208/230-460-v units). The alternate high-static drive is not available for 50TJ016 575-v units. Other rpms require a field-supplied drive.

NOTES:

1. Maximum continuous bhp is 4.38 (208/230-460 v) or 3.38 (575 v) and the maximum continuous watts are 3775 (208/230-460 v) or 3065 (575 v). Do not adjust motor rpm such that motor maximum bhp and/or watts is exceeded at the maximum operating cfm.

2. Static pressure losses (i.e., economizer) must be added to external static pressure before entering Fan Performance table.
3. Interpolation is permissible. Do not extrapolate.
4. Fan performance is based on wet coils, clean filters, and casing losses. See page 54 for accessory/FIOP static pressure information.
5. Extensive motor and drive testing on these units ensures that the full horsepower and watts range of the motor can be utilized with confidence. Using your fan motors up to the watts or bhp rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
6. Use of a field-supplied motor may affect wiring size. Contact your Carrier representative for details. For additional information on motor performance, refer to Evaporator-Fan Motor Performance table on page 56.



FAN PERFORMANCE — 50TJ016-028 UNITS — ENGLISH (cont)

50TJ020, 024 (18 and 20 TONS)*

Airflow (Cfm)	Available External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			1.0			1.2		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
5,500	682	1.99	1675	760	2.29	1922	832	2.59	2177	901	2.90	2441	965	3.22	2712	1027	3.56	2990
6,000	730	2.38	2005	802	2.68	2257	871	2.99	2516	935	3.31	2783	997	3.63	3057	1056	3.97	3337
6,500	778	2.82	2373	846	3.13	2630	911	3.44	2893	972	3.76	3164	1031	4.09	3440	1087	4.43	3722
7,000	828	3.31	2780	892	3.62	3042	953	3.94	3310	1011	4.26	3583	1067	4.59	3863	1121	4.93	4148
7,500	878	3.84	3227	938	4.15	3494	996	4.48	3766	1051	4.81	4043	1105	5.14	4326	1156	5.49	4613
8,000	928	4.42	3715	985	4.74	3986	1040	5.07	4263	1093	5.40	4544	1144	5.74	4830	1194	6.09	5120
8,500	979	5.05	4245	1033	5.38	4521	1085	5.71	4801	1136	6.05	5086	1185	6.39	5375	1232	6.74	5669
9,000	1030	5.73	4817	1082	6.06	5098	1131	6.40	5382	1180	6.74	5671	1227	7.09	5964	1272	7.44	6260
9,500	1082	6.46	5433	1131	6.80	5718	1178	7.14	6007	1225	7.49	6299	1270	7.84	6595	1313	8.20	6895
10,000	1134	7.25	6093	1180	7.59	6382	1226	7.94	6675	1270	8.29	6971	1313	8.65	7271	1356	9.01	7574

50TJ020, 024 (18 and 20 TONS)* (cont)

Airflow (Cfm)	Available External Static Pressure (in. wg)														
	1.4			1.6			1.8			1.9			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
5,500	1086	3.89	3275	1142	4.24	3567	1197	4.59	3864	1223	4.77	4015	1249	4.96	4167
6,000	1112	4.31	3623	1167	4.66	3915	1219	5.01	4213	1245	5.19	4364	1270	5.37	4516
6,500	1142	4.77	4010	1194	5.12	4304	1245	5.47	4602	1270	5.65	4754	1294	5.83	4906
7,000	1173	5.28	4438	1224	5.63	4733	1273	5.98	5033	1296	6.17	5184	1320	6.35	5337
7,500	1207	5.83	4906	1255	6.19	5203	1302	6.55	5504	1326	6.73	5657	1348	6.91	5810
8,000	1242	6.44	5415	1289	6.80	5714	1334	7.16	6018	1357	7.34	6171	1379	7.52	6325
8,500	1279	7.10	5966	1324	7.45	6268	1368	7.82	6573	1389	8.00	6728	1411	8.18	6883
9,000	1317	7.80	6561	1360	8.16	6865	1403	8.53	7173	1424	8.71	7328	1445	8.90	7484
9,500	1356	8.56	7198	1398	8.93	7505	1440	9.29	7815	1460	9.48	7972	1480	9.67	8129
10,000	1397	9.37	7881	1438	9.74	8190	1477	10.11	8503	—	—	—	—	—	—

LEGEND

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

*Standard low-medium static drive range for the 020 size is 910 to 1095 rpm. Standard low-medium static drive range for the 024 size is 1002 to 1225 rpm. Alternate high-static drive range for the 020 size is 1069 to 1287. Alternate high-static drive range for the 024 size is 1193 to 1458 rpm. Other rpms require a field-supplied drive.

NOTES:

1. Maximum continuous bhp for the 020 size is 6.13. Maximum continuous bhp for the 024 size is 9.47 (208/230, 575 v) or 10.33 (380, 460 v). The maximum continuous watts for the 020 size is 5180. The maximum continuous watts for the 024 size is 7915 (208/230, 575 v) or 8640 (380, 460 v). Do not adjust motor rpm such that motor maximum bhp and/or watts is exceeded at the maximum operating cfm.

2. Static pressure losses (i.e., economizer) must be added to external static pressure before entering Fan Performance table.
3. Interpolation is permissible. Do not extrapolate.
4. Fan performance is based on wet coils, clean filters, and casing losses. See page 54 for accessory/FIOF static pressure information.
5. Extensive motor and drive testing on these units ensures that the full horsepower and watts range of the motor can be utilized with confidence. Using your fan motors up to the watts or bhp rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
6. Use of a field-supplied motor may affect wiring size. Contact your Carrier representative for details. For additional information on motor performance, refer to Evaporator-Fan Motor Performance table on page 56.

Performance data (cont)



FAN PERFORMANCE — 50TJ016-028 UNITS — ENGLISH (cont)

50TJ028 (25 TONS)*																		
Airflow (Cfm)	Available External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			1.0			1.2		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
7,000	845	3.26	2693	909	3.60	2979	969	3.96	3272	1028	4.32	3574	1083	4.70	3883	1137	5.08	4,200
7,500	896	3.82	3156	956	4.17	3450	1014	4.54	3752	1069	4.91	4060	1123	5.29	4375	1174	5.68	4,698
8,000	948	4.43	3667	1005	4.80	3969	1060	5.17	4278	1112	5.56	4593	1163	5.94	4915	1213	6.34	5,243
8,500	1001	5.11	4226	1054	5.49	4537	1106	5.87	4853	1156	6.26	5175	1205	6.66	5504	1253	7.06	5,838
9,000	1053	5.85	4836	1104	6.23	5155	1154	6.63	5478	1202	7.02	5808	1248	7.43	6142	1294	7.84	6,483
9,500	1106	6.65	5498	1155	7.04	5824	1202	7.44	6155	1248	7.85	6492	1293	8.26	6833	1336	8.68	7,179
10,000	1159	7.52	6214	1206	7.92	6547	1251	8.33	6886	1295	8.74	7229	1338	9.16	7577	1380	9.59	7,929
10,500	1213	8.45	6984	1257	8.86	7325	1300	9.28	7671	1342	9.70	8020	1384	10.13	8375	1424	10.56	8,733
11,000	1266	9.45	7810	1309	9.87	8159	1350	10.29	8511	1391	10.73	8868	1431	11.16	9229	1470	11.60	9,594
11,250	1293	9.97	8245	1334	10.40	8597	1375	10.83	8953	1415	11.26	9313	1454	11.70	9677	1493	12.15	10,045

50TJ028 (25 TONS)* (cont)									
Airflow (Cfm)	Available External Static Pressure (in. wg)								
	1.4			1.6			1.8		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
7,000	1189	5.47	4,524	1239	5.87	4,854	1288	6.26	5,191
7,500	1224	6.08	5,026	1272	6.48	5,362	1320	6.87	5,703
8,000	1261	6.75	5,577	1307	7.16	5,917	1353	7.47	6,263
8,500	1299	7.47	6,177	1344	7.89	6,523	1388	8.26	6,873
9,000	1338	8.26	6,828	1382	8.68	7,179	1424	9.07	7,534
9,500	1379	9.11	7,530	1421	9.54	7,887	1462	9.94	8,247
10,000	1421	10.02	8,286	1461	10.46	8,648	1501	10.83	9,014
10,500	1464	11.00	9,096	1503	11.45	9,464	1541	11.83	9,835
11,000	1508	12.05	9,963	1546	12.50	10,336	—	—	—
11,250	1530	12.60	10,417	—	—	—	—	—	—

LEGEND

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

*Standard low-medium static drive range is 1066 to 1283 rpm. Alternate high-static drive range is 1332 to 1550. Other rpms require a field-supplied drive.

NOTES:

- Maximum continuous bhp is 11.50 (208/230, 575 v) or 13.30 (380, 460 v) and the maximum continuous watts are 9510 (208/230, 575 v) or 11,000 (380, 460 v). Do not adjust motor rpm such that motor maximum bhp and/or watts is exceeded at the maximum operating cfm.

- Static pressure losses (i.e., economizer) must be added to external static pressure before entering Fan Performance table.
- Interpolation is permissible. Do not extrapolate.
- Fan performance is based on wet coils, clean filters, and casing losses. See page 54 for accessory/FLOP static pressure information.
- Extensive motor and drive testing on these units ensures that the full horsepower and watts range of the motor can be utilized with confidence. Using your fan motors up to the watts or bhp rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
- Use of a field-supplied motor may affect wiring size. Contact your Carrier representative for details. For additional information on motor performance, refer to Evaporator-Fan Motor Performance table on page 56.

FAN PERFORMANCE — 50TJ016-028 UNITS — SI

50TJ016 (51 kW)*

Airflow (L/s)	Available External Static Pressure (Pa)																	
	50			100			149			199			249			299		
	r/s	BkW	kW	r/s	BkW	kW	r/s	BkW	kW	r/s	BkW	kW	r/s	BkW	kW	r/s	BkW	kW
2124	11.4	0.95	1.10	13.2	1.10	1.28	14.8	1.26	1.47	16.3	1.42	1.65	17.7	1.58	1.84	19.0	1.75	2.03
2266	11.9	1.09	1.26	13.6	1.24	1.45	15.2	1.41	1.64	16.6	1.57	1.83	18.0	1.73	2.02	19.2	1.90	2.22
2408	12.4	1.24	1.44	14.1	1.40	1.63	15.6	1.57	1.83	17.0	1.73	2.02	18.3	1.90	2.22	19.5	2.07	2.42
2549	13.0	1.40	1.64	14.5	1.57	1.83	16.0	1.74	2.03	17.3	1.91	2.23	18.6	2.08	2.43	19.8	2.26	2.63
2691	13.5	1.58	1.84	15.0	1.75	2.04	16.4	1.93	2.25	17.7	2.10	2.45	19.0	2.28	2.65	20.1	2.45	2.86
2833	14.1	1.77	2.07	15.5	1.95	2.27	16.9	2.13	2.48	18.1	2.30	2.69	19.3	2.48	2.89	20.5	2.66	3.10
2974	14.6	1.98	2.31	16.0	2.16	2.52	17.3	2.34	2.73	18.5	2.52	2.94	19.7	2.70	3.15	20.8	2.89	3.36
3116	15.2	2.20	2.57	16.5	2.39	2.78	17.8	2.57	2.99	19.0	2.75	3.21	20.1	2.94	3.43	21.2	3.13	3.64
3257	15.8	2.44	2.84	17.0	2.62	3.06	18.3	2.81	3.28	19.4	3.00	3.50	20.5	3.19	3.72	—	—	—
3399	16.3	2.69	3.13	17.6	2.88	3.36	18.8	3.07	3.58	—	—	—	—	—	—	—	—	—
3541	16.9	2.95	3.44	18.1	3.15	3.67	—	—	—	—	—	—	—	—	—	—	—	—

50TJ016 (51 kW)* (cont)

Airflow (L/s)	Available External Static Pressure (Pa)														
	349			399			448			473			498		
	r/s	BkW	kW	r/s	BkW	kW	r/s	BkW	kW	r/s	BkW	kW	r/s	BkW	kW
2124	20.2	1.91	2.23	21.4	2.08	2.43	22.6	2.26	2.63	23.1	2.35	2.74	23.6	2.44	2.84
2266	20.5	2.07	2.42	21.6	2.25	2.62	22.7	2.42	2.82	23.3	2.51	2.93	23.8	2.60	3.03
2408	20.7	2.25	2.62	21.8	2.42	2.82	22.9	2.60	3.03	23.5	2.69	3.14	24.0	2.78	3.24
2549	21.0	2.43	2.83	22.1	2.61	3.04	23.2	2.79	3.25	23.7	2.88	3.36	24.2	2.97	3.47
2691	21.3	2.63	3.07	22.4	2.81	3.28	23.4	3.00	3.49	23.9	3.09	3.60	24.4	3.18	3.71
2833	21.6	2.84	3.32	22.7	3.03	3.53	23.7	3.21	3.75	—	—	—	—	—	—
2974	21.9	3.07	3.58	—	—	—	—	—	—	—	—	—	—	—	—
3116	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3257	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3399	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3541	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

BkW — Brake Kilowatts
FIOP — Factory-Installed Option
kW — Input Kilowatts to Motor

*Standard low-medium static drive range is 14.4 to 19.7 r/s (for 208/230-460-v units) or 19.3 to 23.8 (for 575-v units). Alternate high-static drive range is 20.5 to 25.8 r/s (for 208/230-460-v units). The alternate high-static drive is not available for 50TJ016 575-v units. Other r/s require a field-supplied drive.

NOTES:

- Maximum continuous bkW is 3.27 (208/230-460 v) or 2.52 (575 v) and the maximum continuous watts are 3775 (208/230-460 v) or 3065 (575 v). Do not adjust motor speed such that motor maximum bkW and/or watts is exceeded at the maximum operating L/s.

- Static pressure losses (i.e., economizer) must be added to external static pressure before entering Fan Performance table.
- Interpolation is permissible. Do not extrapolate.
- Fan performance is based on wet coils, clean filters, and casing losses. See page 54 for accessory/FIOP static pressure information.
- Extensive motor and drive testing on these units ensures that the full brake kilowatt and watts range of the motor can be utilized with confidence. Using your fan motors up to the watts or bkW rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
- Use of a field-supplied motor may affect wiring size. Contact your Carrier representative for details. For additional information on motor performance, refer to Evaporator-Fan Motor Performance table on page 56.

Performance data (cont)



FAN PERFORMANCE — 50TJ016-028 UNITS — SI (cont)

50TJ020,024 (61 and 68 kW)*

Airflow (L/s)	Available External Static Pressure (Pa)																	
	50			100			149			199			249			299		
	r/s	BkW	kW	r/s	BkW	kW	r/s	BkW	kW	r/s	BkW	kW	r/s	BkW	kW	r/s	BkW	kW
2833	12.2	1.76	2.01	13.4	1.99	2.26	14.5	2.21	2.52	15.6	2.45	2.78	16.6	2.69	3.06	17.6	2.94	3.34
3069	13.0	2.09	2.37	14.1	2.31	2.63	15.2	2.55	2.89	16.2	2.78	3.16	17.2	3.03	3.44	18.1	3.28	3.72
3305	13.8	2.45	2.78	14.9	2.68	3.04	15.9	2.91	3.31	16.8	3.15	3.58	17.8	3.40	3.86	18.7	3.65	4.15
3541	14.6	2.84	3.23	15.6	3.07	3.49	16.6	3.31	3.77	17.5	3.56	4.04	18.4	3.81	4.33	19.3	4.06	4.61
3777	15.5	3.27	3.72	16.4	3.51	3.99	17.3	3.75	4.26	18.2	4.00	4.54	19.1	4.25	4.83	19.9	4.51	5.12
4013	16.3	3.74	4.24	17.2	3.98	4.52	18.1	4.22	4.80	18.9	4.48	5.09	19.7	4.73	5.38	20.5	4.99	5.67
4249	17.2	4.24	4.82	18.0	4.49	5.10	18.9	4.74	5.38	19.7	4.99	5.67	20.4	5.25	5.96	21.2	5.51	6.26
4485	18.0	4.78	5.43	18.8	5.03	5.72	19.6	5.29	6.01	20.4	5.54	6.30	21.2	5.80	6.60	21.9	6.07	6.90
4721	18.9	5.36	6.09	19.7	5.62	6.38	20.4	5.87	6.68	21.2	6.13	6.97	21.9	6.40	7.27	22.6	6.67	7.57

50TJ020,024 (61 and 68 kW)* (cont)

Airflow (Cfm)	Available External Static Pressure (Pa)														
	349			399			448			473			498		
	r/s	BkW	kW	r/s	BkW	kW	r/s	BkW	kW	r/s	BkW	kW	r/s	BkW	kW
2833	18.5	3.19	3.62	19.4	3.45	3.92	20.3	3.71	4.21	20.8	3.84	4.36	21.2	3.97	4.52
3069	19.0	3.53	4.01	19.9	3.79	4.30	20.7	4.05	4.60	21.2	4.18	4.75	21.6	4.32	4.91
3305	19.6	3.91	4.44	20.4	4.16	4.73	21.2	4.43	5.03	21.6	4.56	5.18	22.0	4.70	5.34
3541	20.1	4.32	4.91	20.9	4.58	5.20	21.7	4.84	5.50	22.1	4.98	5.66	22.5	5.11	5.81
3777	20.7	4.77	5.41	21.5	5.03	5.71	22.2	5.30	6.02	22.6	5.43	6.17	23.0	5.57	6.32
4013	21.3	5.25	5.97	22.1	5.52	6.27	22.8	5.78	6.57	23.2	5.92	6.73	23.5	6.06	6.88
4249	21.9	5.77	6.56	22.7	6.04	6.86	23.4	6.31	7.17	23.7	6.45	7.33	24.1	6.59	7.48
4485	22.6	6.33	7.20	23.3	6.60	7.51	24.0	6.88	7.82	24.3	7.02	7.97	24.7	7.15	8.13
4721	23.3	6.93	7.88	24.0	7.21	8.19	24.6	7.48	8.50	—	—	—	—	—	—

LEGEND

BkW — Brake Horsepower
FIOP — Factory-Installed Option
kW — Input Kilowatts to Motor

*Standard low-medium static drive range for the 020 size is 15.2 to 18.3 r/s. Standard low-medium static drive range for the 024 size is 16.7 to 20.4 r/s. Alternate high-static drive range for the 020 size is 17.8 to 21.5 r/s. Alternate high-static drive range for the 024 size is 19.9 to 24.3 r/s. Other r/s require a field-supplied drive.

NOTES:

- Maximum continuous bkW for the 020 size is 4.57. Maximum continuous bkW for the 024 size is 7.06 (208/230, 575 v) or 7.71 (380, 460 v). The maximum continuous watts for the 020 size is 5180. The maximum continuous watts for the 024 size is 7915 (208/230, 575 v) or 8640 (380, 460 v). Do not adjust motor speed such that motor maximum bkW and/or watts is exceeded at the maximum operating L/s.

- Static pressure losses (i.e., economizer) must be added to external static pressure before entering Fan Performance table.
- Interpolation is permissible. Do not extrapolate.
- Fan performance is based on wet coils, clean filters, and casing losses. See page 55 for accessory/FIOP static pressure information.
- Extensive motor and drive testing on these units ensures that the full brake kilowatt and watts range of the motor can be utilized with confidence. Using your fan motors up to the watts or bkW rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
- Use of a field-supplied motor may affect wiring size. Contact your Carrier representative for details. For additional information on motor performance, refer to Evaporator-Fan Motor Performance table on page 56.

FAN PERFORMANCE — 50TJ016-028 UNITS — SI (cont)

50TJ028 (85 kW)*																		
Airflow (L/s)	Available External Static Pressure (Pa)																	
	50			100			149			199			249			299		
	r/s	BkW	kW	r/s	BkW	kW	r/s	BkW	kW	r/s	BkW	kW	r/s	BkW	kW	r/s	BkW	kW
3305	14.1	2.41	2009	15.1	2.67	2222	16.2	2.93	2441	17.1	3.20	2666	18.1	3.48	2897	19.0	3.76	3133
3541	14.9	2.82	2355	15.9	3.09	2574	16.9	3.36	2799	17.8	3.63	3029	18.7	3.92	3264	19.6	4.20	3504
3777	15.8	3.28	2735	16.7	3.55	2961	17.7	3.83	3191	18.5	4.11	3427	19.4	4.40	3667	20.2	4.69	3911
4013	16.7	3.78	3153	17.6	4.06	3384	18.4	4.34	3620	19.3	4.63	3861	20.1	4.93	4106	20.9	5.22	4355
4249	17.6	4.33	3608	18.4	4.61	3845	19.2	4.90	4087	20.0	5.20	4332	20.8	5.50	4582	21.6	5.80	4836
4485	18.4	4.92	4102	19.2	5.21	4345	20.0	5.51	4592	20.8	5.81	4843	21.5	6.12	5097	22.3	6.43	5356
4721	19.3	5.56	4635	20.1	5.86	4884	20.8	6.16	5137	21.6	6.47	5393	22.3	6.78	5652	23.0	7.10	5915
4957	20.2	6.25	5210	20.9	6.56	5464	21.7	6.87	5722	22.4	7.18	5983	23.1	7.50	6248	23.7	7.82	6515
5193	21.1	6.99	5826	21.8	7.30	6086	22.5	7.62	6349	23.2	7.94	6616	23.8	8.26	6885	24.5	8.59	7157
5311	21.5	7.38	6151	22.2	7.69	6413	22.9	8.01	6679	23.6	8.34	6948	24.2	8.66	7219	24.9	8.99	7494

50TJ028 (85 kW)* (cont)									
Airflow (L/s)	Available External Static Pressure (Pa)								
	349			399			448		
	r/s	BkW	kW	r/s	BkW	kW	r/s	BkW	kW
3305	19.8	4.05	3375	20.7	4.34	3621	21.5	3.63	3873
3541	20.4	4.50	3750	21.2	4.80	4000	22.0	4.11	4255
3777	21.0	4.99	4161	21.8	5.30	4414	22.5	4.63	4673
4013	21.6	5.53	4608	22.4	5.84	4866	23.1	5.20	5128
4249	22.3	6.11	5094	23.0	6.42	5355	23.7	5.81	5621
4485	23.0	6.74	5618	23.7	7.06	5883	24.4	6.47	6153
4721	23.7	7.42	6182	24.4	7.74	6451	25.0	7.18	6724
4957	24.4	8.14	6786	25.1	8.47	7060	25.7	7.94	7337
5193	25.1	8.92	7432	25.8	9.25	7710	—	—	—
5311	25.5	9.32	7771	—	—	—	—	—	—

LEGEND

BkW — Brake Kilowatts
FIOF — Factory-Installed Option
kW — Input Kilowatts to Motor

*Standard low-medium static drive range is 17.8 to 21.4 r/s. Alternate high static drive range is 22.2 to 25.8 r/s. Other r/s require a field-supplied drive.

NOTES:

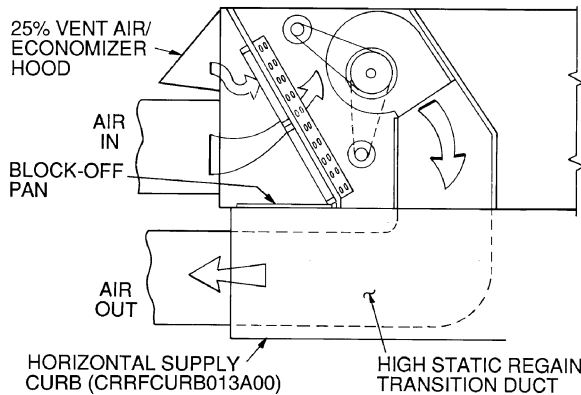
- Maximum continuous bkW is 8.58 (208/230, 575 v) or 9.92 (380, 460 v) and the maximum continuous watts are 9510 (208/230, 575 v) or 11,000 (380, 460 v). Do not adjust motor speed such that motor maximum bkW and/or watts is exceeded at the maximum operating L/s.

- Static pressure losses (i.e., economizer) must be added to external static pressure before entering Fan Performance table.
- Interpolation is permissible. Do not extrapolate.
- Fan performance is based on wet coils, clean filters, and casing losses. See page 55 for accessory/FIOF static pressure information.
- Extensive motor and drive testing on these units ensures that the full brake kilowatt and watts range of the motor can be utilized with confidence. Using your fan motors up to the watts or bkW rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
- Use of a field-supplied motor may affect wiring size. Contact your Carrier representative for details. For additional information on motor performance, refer to Evaporator-Fan Motor Performance table on page 56.

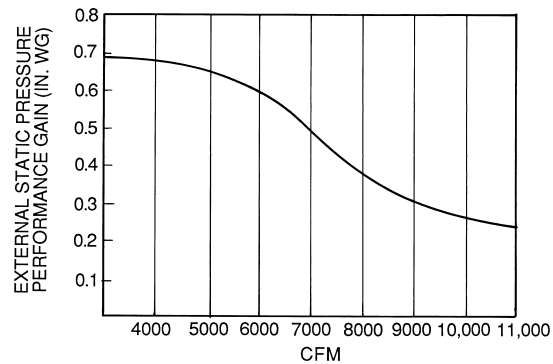
Performance data (cont)



HORIZONTAL SUPPLY/RETURN FAN PERFORMANCE WITH CRRFCURB013A00 HIGH STATIC REGAIN ADAPTER



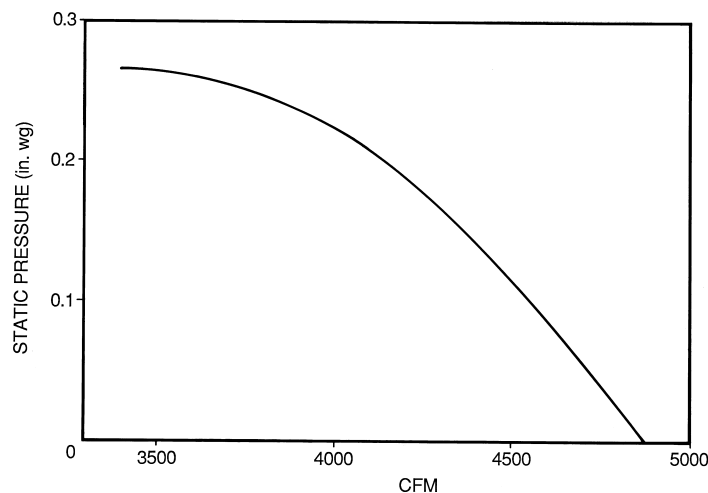
NOTE: The CRRFCURB013A00 high static regain adapter accessory may be used to provide horizontal supply/return.



NOTE: The CRRFCURB013A00 horizontal supply/return adapter accessory improves 48/50TJ016-028 fan performance by increasing external static pressure by amount shown above. To convert from in. wg to Pa use the following formula:

$$\text{in. wg} \times 249.1 = \text{Pa}$$

FAN PERFORMANCE USING ACCESSORY POWER EXHAUST (48/50TJ016-028)



ALTITUDE COMPENSATION* — 48TJ016-028

ELEVATION (ft)	NATURAL GAS ORIFICE SIZE†	
	Low Heat	High Heat
0-3,000	30	29
3,000- 7,000	31	30
7,000- 9,000	32	31
9,000-10,000	33	31
above 10,000	35	32

*Includes a 4% input reduction per each 1,000 feet.
†Orifices available through your Carrier dealer.

ALTITUDE DERATING FACTOR* — 48TJ016-028

ELEVATION (ft)	MAXIMUM HEATING VALUE (Btu/ft³)
0-2,000	1,100
2,001-3,000	1,050
3,001-4,000	1,000
4,001-5,000	950
5,001-6,000	900

*Derating of the unit is not required unless the heating value of the gas exceeds the values listed in the table above, or if the elevation exceeds 6000 ft. Derating conditions must be 4% per thousand ft above sea level. For example, at 4000 ft, if the heating value of the gas exceeds 1000 Btu/ft³, the unit will require a 16% derating. For elevations above 6000 ft, the same formula applies. For example, at 7000 ft, the unit will require a 28% derating of the maximum heating value per the National Fuel Gas Code.



ALTITUDE COMPENSATION — 48TJ016-028 (LP Gas Units)

ELEVATION (ft)	LIQUID PROPANE ORIFICE SIZE
	Low Heat and High Heat
0-2,000	36
2,000	37
3,000	38
4,000	38
5,000	39
6,000	40
7,000	41
8,000	41
9,000	42
10,000	43

OUTDOOR SOUND POWER

UNIT 48/50TJ	SOUND RATING (60 Hz)	A-WEIGHTED (dB)	OCTAVE BANDS							
			63	125	250	500	1000	2000	4000	8000
016	8.8 Bels	87.8	90.8	88.7	86.4	84.3	83.5	78.4	75.6	66.8
020	8.8 Bels	87.8	90.8	88.7	86.4	84.3	83.5	78.4	75.6	66.8
024	9.5 Bels	94.1	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3
028	9.5 Bels	94.1	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3

LEGEND

Bels — Sound Levels (1 bel = 10 decibels)

ACCESSORY/FIOP STATIC PRESSURE (in. wg)* — 48TJ016-028

COMPONENT	CFM							
	4500	5000	5400	6000	7200	7500	9000	10,000
Economizer	0.040	0.050	0.060	0.070	0.090	0.100	0.110	0.120
MoistureMiSer™ Dehumidification	0.045	0.048	0.060	0.071	0.103	0.111	0.160	0.197

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 (cont)



ACCESSORY/FIOP STATIC PRESSURE (in. wg)* — 50TJ016 — ENGLISH

COMPONENT	CFM				
	4500	5000	6000	7200	7500
Economizer	0.04	0.05	0.07	0.09	0.10
Glycol Coil	0.22	0.26	0.35	0.44	0.46
Electric Heat (kW) 26/34	0.06	0.07	0.09	0.11	0.12
32	0.06	0.07	0.09	0.11	0.12
42/56	0.07	0.08	0.12	0.16	0.17
50	0.09	0.10	0.15	0.20	0.21
55	0.07	0.08	0.12	0.15	0.17
56/75	0.09	0.10	0.15	0.20	0.21
80	0.09	0.10	0.15	0.20	0.21

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 (Pa)* — 50TJ016 — SI

COMPONENT	L/s				
	2124	2361	2833	3399	3541
Economizer	10	12	17	22	25
Glycol Coil	55	65	87	110	115
Electric Heat (kW) 26/34	15	17	22	27	30
32	15	17	22	27	30
42/56	17	20	30	40	42
50	22	25	37	50	52
55	17	20	30	37	42
56/75	22	25	37	50	52
80	22	25	37	50	52

LEGEND

FIOP — Factory-Installed Option

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

ACCESSORY/FIOP STATIC PRESSURE (in. wg)* — 50TJ020-028 — ENGLISH

COMPONENT	CFM					
	5400	6000	7200	9000	10,000	11,250
Economizer	0.06	0.07	0.09	0.11	0.12	0.14
Glycol Coil	0.30	0.35	0.44	0.58	0.66	0.77
Electric Heat (kW) 26/34	0.08	0.09	0.11	0.15	0.17	0.20
32	0.08	0.09	0.11	0.15	0.17	0.20
42/56	0.11	0.12	0.15	0.19	0.21	0.24
55	0.11	0.12	0.15	0.19	0.21	0.24
56/75	0.14	0.15	0.20	0.24	0.26	0.29
80	0.14	0.15	0.20	0.24	0.26	0.29

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 (Pa)* — 50TJ020-028 — SI

COMPONENT	L/s					
	2549	2833	3399	4249	4721	5311
Economizer	15	17	22	27	30	35
Glycol Coil	75	87	110	144	164	192
Electric Heat (kW)						
26/34	20	22	27	37	42	50
32	20	22	27	37	42	50
42/56	27	30	37	47	52	60
55	27	30	37	47	52	60
56/75	35	37	50	60	65	72
80	35	37	50	60	65	72

LEGEND

FIOP — Factory-Installed Option

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

FAN RPM AT MOTOR PULLEY SETTINGS* — ENGLISH

UNIT 48/50TJ	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
016 (208/230, 380, 460 v)†	††	††	1179	1150	1121	1093	1064	1035	1006	978	949	920	891
016 (208/230, 380, 460 v)**	††	††	1559	1522	1488	1455	1422	1389	1356	1323	1289	1256	1227
016 (575 v)†	††	††	1429	1403	1376	1349	1323	1296	1269	1242	1215	1188	1159
020†	††	††	1095	1077	1058	1040	1021	1002	984	965	947	928	910
020**	††	††	1287	1265	1243	1222	1200	1178	1156	1134	1112	1091	1069
024†	††	††	1225	1209	1187	1165	1143	1120	1098	1076	1053	1031	1002
024**	††	††	1458	1434	1407	1381	1354	1328	1301	1275	1248	1222	1193
028†	††	††	1283	1269	1247	1225	1203	1182	1160	1138	1116	1095	1066
028**	††	††	—	—	1551	1524	1497	1470	1443	1415	1388	1361	1332

*Approximate fan rpm shown.

†Indicates standard drive package.

**Indicates alternate drive package.

††Due to belt and pulley size, pulley cannot be set to this number of turns open.

FAN R/S AT MOTOR PULLEY SETTINGS* — SI

UNIT 50TJ	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
016 (208/230, 380, 460 v)†	††	††	19.65	19.17	18.68	18.22	17.73	17.25	16.77	16.30	15.82	15.33	14.85
016 (208/230, 380, 460 v)**	††	††	25.98	25.37	24.80	24.25	23.70	23.15	22.60	22.05	21.48	20.93	20.45
016 (575 v)†	††	††	23.82	23.38	22.93	22.48	22.05	21.60	21.15	20.70	20.25	19.80	19.32
020†	††	††	18.25	17.95	17.64	17.33	17.02	16.71	16.40	16.09	15.78	15.47	15.16
020**	††	††	21.45	21.09	20.72	20.36	19.99	19.63	19.27	18.90	18.54	18.18	17.81
024†	††	††	20.42	20.15	19.78	19.42	19.05	18.67	18.30	17.93	17.55	17.18	16.70
024**	††	††	24.30	23.90	23.45	23.02	22.57	22.13	21.68	21.25	20.80	20.37	19.88
028†	††	††	21.38	21.15	20.78	20.42	20.05	19.70	19.33	18.97	18.60	18.25	17.77
028**	††	††	—	—	25.85	25.40	24.95	24.50	24.05	23.58	23.13	22.68	22.20

*Approximate fan rpm shown.

†Indicates standard drive package.

**Indicates alternate drive package.

††Due to belt and pulley size, pulley cannot be set to this number of turns open.

Performance data (cont)



EVAPORATOR-FAN MOTOR PERFORMANCE

UNIT 48/50TJ	UNIT VOLTAGE	MAXIMUM ACCEPTABLE CONTINUOUS BHP*	MAXIMUM ACCEPTABLE CONTINUOUS BkW*	MAXIMUM ACCEPTABLE OPERATING WATTS	MAXIMUM AMP DRAW
016	208/230	4.38	3.27	3,775	10.5
	380†, 460	4.38	3.27	3,775	4.8
	575	3.38	2.52	3,065	3.9
020	208/230	6.13	4.57	5,180	15.8
	380†, 460				7.9
	575				6.0
024	208/230	9.47	7.06	7,915	22.0
	380†, 460	10.33	7.71	8,640	13.0
	575	9.47	7.06	7,915	10.0
028	208/230	11.50	8.58	9,510	28.0
	380†, 460	13.30	9.92	11,000	14.6
	575	11.50	8.58	9,510	13.0

LEGEND

BHP — Brake Horsepower
BkW — Brake Kilowatts

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

†50TJ units only.

NOTE: 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.

EVAPORATOR-FAN MOTOR EFFICIENCY

UNIT 48/50TJ	MOTOR EFFICIENCY (%)
016 (3.0 Hp)	81.7
016 (3.7 Hp)	85.8
020 (5 Hp)	87.5
024 (7.5 Hp)	88.5
028 (10 Hp)	89.5

NOTE: 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.

Electrical data — 48TJ016-028



UNIT 48TJ	NOMINAL VOLTAGE (3 Ph, 60 Hz)	VOLTAGE RANGE		COMPRESSOR				OFM			IFM		POWER EXHAUST		COMBUSTION FAN MOTOR	POWER SUPPLY	
		Min	Max	RLA	LRA	RLA	LRA										
016 (15 Tons)	208/230	187	253	28.8	195	28.8	195	3	0.5	1.7	3.7	10.5/11.0	—	—	0.57	81/81	100/100
													4.6	18.8	0.57	85/86	110/110
	460	414	508	14.7	95	14.7	95	3	0.5	0.8	3.7	4.8	—	—	0.30	40	50
													2.3	6.0	0.30	43	50
	575	518	633	10.8	80	10.8	80	3	0.5	0.8	3.0	3.9	—	—	0.57	30	40
													2.1	4.8	0.57	32	40
020 (18 Tons)	208/230	187	253	30.1	225	28.8	195	3	0.5	1.7	5.0	15.8/15.8	—	—	0.57	87/87	110/110
													4.6	18.8	0.57	92/92	110/110
	460	414	508	15.5	114	14.7	95	3	0.5	0.8	5.0	7.9	—	—	0.30	44	50
													2.3	6.0	0.30	47	60
	575	518	633	12.1	80	10.8	80	3	0.5	0.8	5.0	6.0	—	—	0.57	34	40
													2.1	4.8	0.57	36	40
024 (20 Tons)	208/230	187	253	37.8	239	30.1	225	2	1	6.6	7.5	25.0/25.0	—	—	0.57	116/116	150/150
													4.6	18.8	0.57	120/120	150/150
	460	414	508	17.2	125	15.5	114	2	1	3.3	7.5	13.0	—	—	0.30	57	70
													2.3	6.0	0.30	59	70
	575	518	633	12.4	80	12.1	80	2	1	3.4	7.5	10.0	—	—	0.57	44	50
													2.1	4.8	0.57	46	50
028 (25 Tons)	208/230	187	253	41.0	350	37.8	239	2	1	6.6	10.0	28.0/28.0	—	—	0.57	130/130	150/150
													4.6	18.8	0.57	135/135	175/175
	460	414	508	21.8	158	17.2	125	2	1	3.3	10.0	14.6	—	—	0.30	66	80
													2.3	6.0	0.30	68	80
	575	518	633	17.3	125	12.4	80	2	1	3.4	10.0	13.0	—	—	0.57	54	70
													2.1	4.8	0.57	56	70

LEGEND

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

*Fuse or HACR circuit breaker.



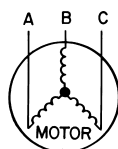
NOTES:

- 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. Canadian units may be fuse or circuit breaker.
- 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 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 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.

Electrical data — 50TJ016-028



UNIT 50TJ	NOMINAL VOLTAGE (3 Ph, 60 Hz)	VOLTAGE RANGE		COMPRESSOR				OFM			IFM		POWER EXHAUST		ELECTRIC HEAT*		POWER SUPPLY		
				No. 1		No. 2													
		Min	Max	RLA	LRA	RLA	LRA	Qty	Hp	FLA (ea)	Hp	FLA	FLA	LRA	kW	FLA	MCA	MOCP*	
016 (15 Tons)	208/230	187	253	28.8	195	28.8	195	3	0.5	1.7	3.7	10.5/11.0	— 4.6	— 18.8	— —	— —	81/81 85/86	100/100 110/110	
													— 4.6	— 18.8	26/34 26/34	71/82 71/82	102/116 108/122	110/125 110/125	
													— 4.6	— 18.8	42/56 42/56	117/135 117/135	159/149 165/155	175/175 175/175	
													— 4.6	— 18.8	56/75 56/75	156/180 156/180	169/194 175/200	200/225 200/225	
	380	342	418	15.0	123	15.0	123	3	0.5	1.7	3.7	3.9	— 2.3	— 6.0	— —	— —	43 45	50 60	
													— 2.3	— 6.0	20 20	30 30	43 46	50 60	
													— 2.3	— 6.0	35 35	52 52	70 73	80 80	
													— 2.3	— 6.0	— —	— —	40 43	50 50	
	460	414	508	14.7	95	14.7	95	3	0.5	0.8	3.7	4.8	— 2.3	— 6.0	— —	— —	40 43	50 50	
													— 2.3	— 6.0	32 32	39 39	55 58	60 60	
													— 2.3	— 6.0	55 55	66 66	72 75	80 80	
													— 2.3	— 6.0	80 80	96 96	102 105	110 110	
	575	518	633	10.8	80	10.8	80	3	0.5	0.75	3.0	3.9	— 2.1	— 4.8	— —	— —	30 32	40 40	
													— 2.1	— 4.8	50 50	48 48	65 67	70 70	
	020 (18 Tons)	208/230	187	253	30.1	225	28.8	195	3	0.5	1.7	5.0	15.8/15.8	— 4.6	— 18.8	— —	— —	87/87 92/92	110/110 110/110
														— 4.6	— 18.8	26/34 26/34	71/82 71/82	109/122 114/128	110/125 125/150
														— 4.8	— 18.8	42/56 42/56	117/135 117/135	166/155 172/161	175/175 175/175
— 4.6														— 18.8	56/75 56/75	156/180 156/180	176/200 182/206	200/225 200/225	
460		414	508	15.5	114	14.7	95	3	0.5	0.8	5.0	7.9	— 2.3	— 6.0	— —	— —	44 47	50 60	
													— 2.3	— 6.0	32 32	39 39	59 61	60 70	
													— 2.3	— 6.0	55 55	66 66	76 79	90 90	
													— 2.3	— 6.0	80 80	96 96	106 109	125 125	
575		518	633	12.1	80	10.8	80	3	0.5	0.75	5.0	6.0	— 2.1	— 4.8	— —	— —	34 36	40 40	
024 (20 Tons)		208/230	187	253	37.8	239	30.1	225	2	1	6.6	7.5	25.0/25.0	— 4.6	— 18.8	— —	— —	116/116 120/120	150/150 150/150
														— 4.6	— 18.8	26/34 26/34	71/82 71/82	120/134 126/140	150/150 150/150
														— 4.6	— 18.8	42/56 42/56	117/135 117/135	178/166 183/172	200/175 200/175
	— 4.6													— 18.8	56/75 56/75	156/180 156/180	187/211 193/217	200/225 200/225	
	380	342	418	21.2	145	16.7	140	2	1	3.9	7.5	15.0	— 2.3	— 6.0	— —	— —	66 68	80 80	
													— 2.3	— 6.0	20 20	30 30	66 68	80 80	
													— 2.3	— 6.0	35 35	52 52	84 87	90 90	
													— 2.3	— 6.0	— —	— —	57 59	70 70	
	460	414	508	17.2	125	15.5	114	2	1	3.3	7.5	13.0	— 2.3	— 6.0	— 32	— 39	57 65	70 70	
													— 2.3	— 6.0	32 32	39 39	68 68	80 80	
													— 2.3	— 6.0	55 55	66 66	82 85	90 90	
													— 2.3	— 6.0	80 80	96 96	112 115	125 125	
	575	518	633	12.4	80	12.1	80	2	1	3.4	7.5	10.0	— 2.1	— 4.8	— —	— —	44 46	50 50	

UNIT 50TJ	NOMINAL VOLTAGE (3 Ph, 60 Hz)	VOLTAGE RANGE		COMPRESSOR				OFM			IFM		POWER EXHAUST		ELECTRIC HEAT*		POWER SUPPLY	
				No. 1		No. 2												
		Min	Max	RLA	LRA	RLA	LRA	Qty	Hp	FLA (ea)	Hp	FLA	FLA	LRA	kW	FLA	MCA	MOCPT†
028 (25 Tons)	208/230	187	253	41.0	350	37.8	239	2	1	6.6	10.0	28.0/28.0	— 4.6	— 18.8	— —	— —	130/130 135/135	150/150 175/175
													— 4.6	— 18.8	26/34 26/34	71/82 71/82	130/138 135/143	150/150 175/175
													— 4.6	— 18.8	42/56 42/56	117/135 117/135	181/170 187/176	200/175 200/200
													— 4.6	— 18.8	56/75 56/75	156/180 156/180	191/215 197/221	200/225 200/225
													— 2.3	— 6.0	— —	— —	73 76	90 90
	380	342	418	21.8	151	21.2	145	2	1	3.9	10.0	17.0	— 2.3	— 6.0	20 20	30 30	73 76	90 90
													— 2.3	— 6.0	35 35	52 52	87 90	90 90
													— 2.3	— 6.0	— —	— —	66 68	80 80
	460	414	508	21.8	158	17.2	125	2	1	2.8	10.0	14.6	— 2.3	— 6.0	32 32	39 39	67 70	80 80
													— 2.3	— 6.0	55 55	66 66	84 87	90 100
													— 2.3	— 6.0	80 80	96 96	114 117	125 125
													— 2.1	— 4.8	— —	— —	54 56	70 70
													— 2.3	— 6.0	— —	— —	— —	— —

LEGEND AND NOTES FOR ELECTRICAL DATA TABLES PAGES 57-59

LEGEND

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

*Heater capacity (kW) is based on heater voltage of 208 v, 240 v, 380 v, 480 v, and 600 v. Heaters are rated at 240 v, 480 v, or 600 v. If power distribution voltage to unit varies from rated heater voltage, heater kW will vary accordingly. To determine heater capacity at actual unit voltage, multiply 240 v, 480 v, or 600 v capacity by multipliers found in table on page 7.

†Fuse or HACR circuit breaker.

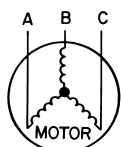
NOTES:

- 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.
- 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 voltage imbalance.

$$\begin{aligned} \% \text{ Voltage Imbalance} &= 100 \times \frac{7}{457} \\ &= 1.53\% \end{aligned}$$

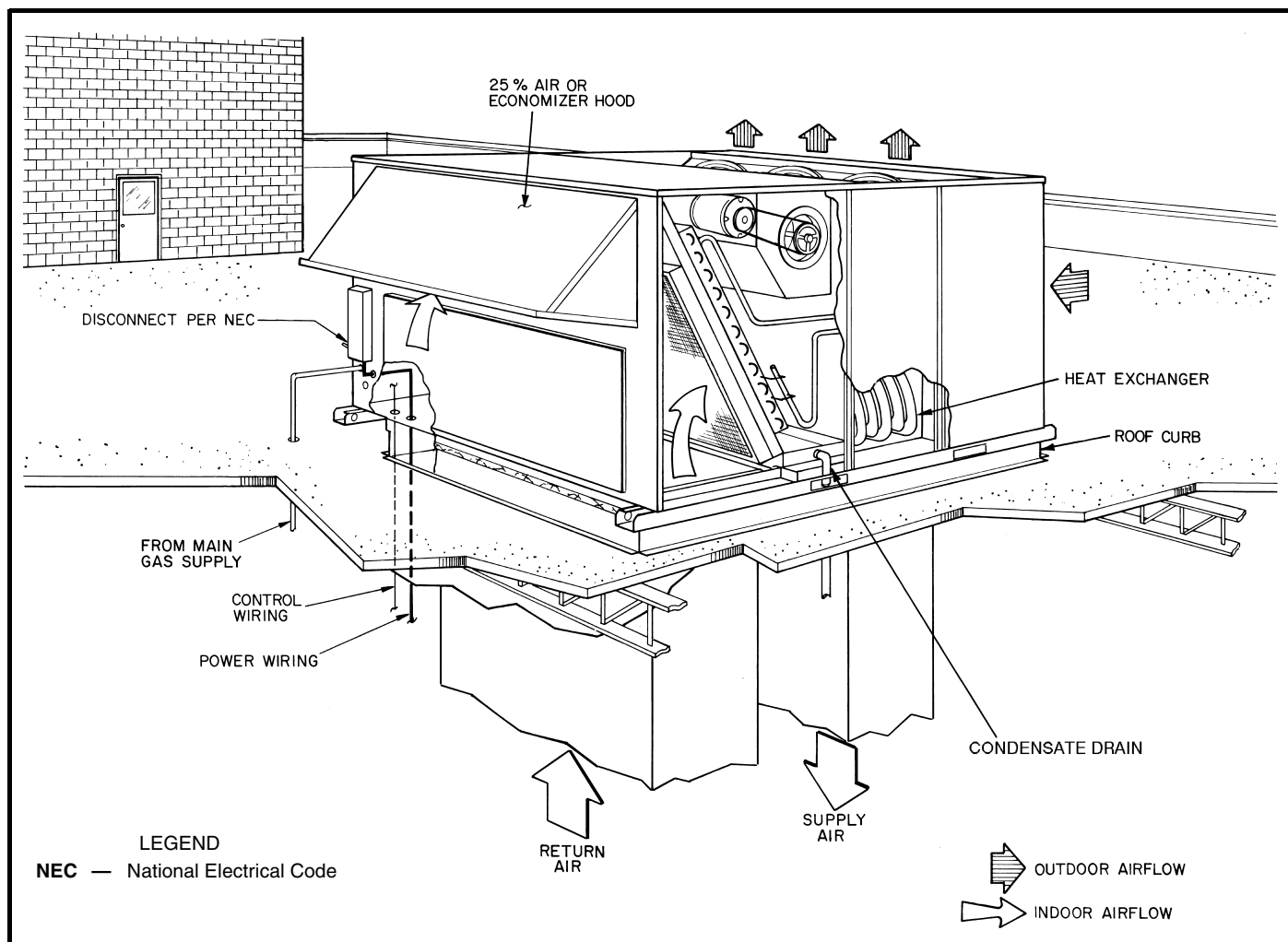
This amount of phase imbalance is satisfactory as it is below the maximum allowable 2%.

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

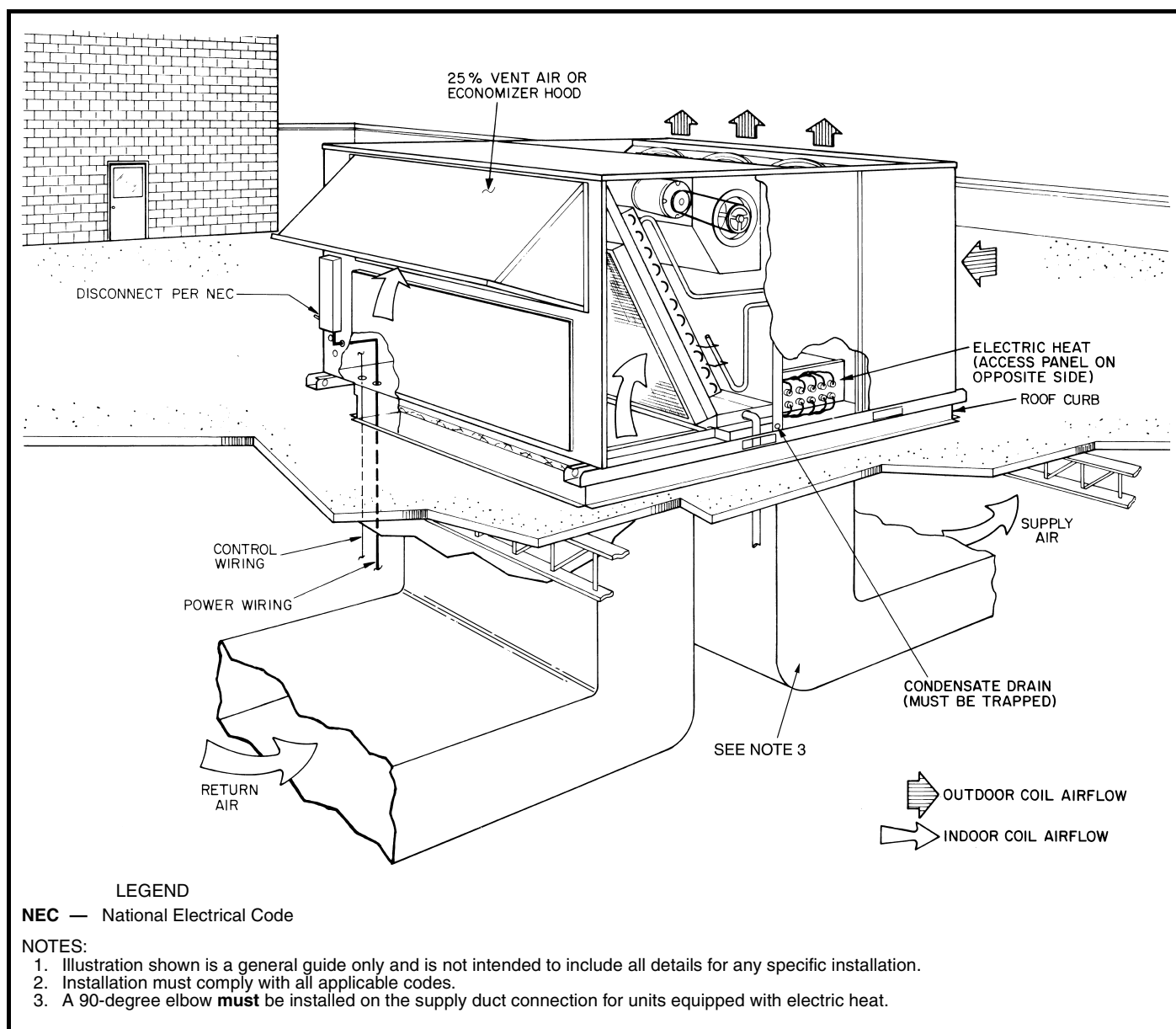
- MCA calculation for 50TJ016-028 units with electric heaters over 50 kW = (1.25 x IFM amps) + (1.00 x heater FLA).



Typical piping and wiring — 48TJ016-028 (48TJ016 shown)



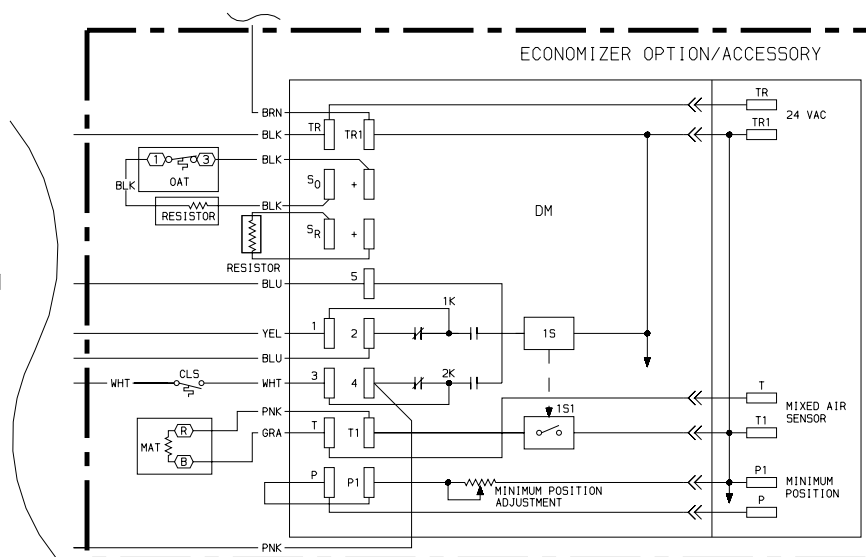
Typical piping and wiring — 50TJ016-028 (50TJ016 shown)





FROM WIRE DIAGRAM
SHEET 1

FROM WIRE DIAGRAM
SHEET 1



LEGEND

AHA — Adjustable Heat Anticipator
C — Contactor, Compressor
CAP — Capacitor
CB — Circuit Breaker
CC — Cooling Compensator
CLO — Compressor Lockout
CLS — Compressor Lockout Switch
COMP — Compressor Motor
CR — Control Relay
CT — Current Transformer
DM — Damper Motor
DU — Dummy Terminal
EC — Enthalpy Control
EQUIP — Equipment
FPT — Freeze Protection Thermostat
FU — Fuse
GND — Ground
HPS — High-Pressure Switch
HS — Hall Effect Sensor

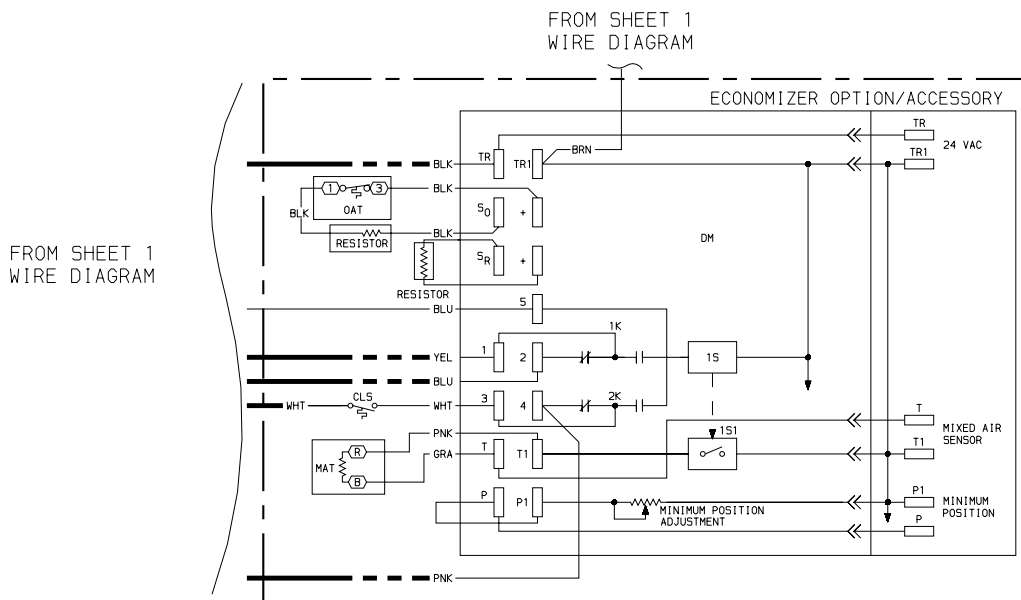
HV — High Voltage
I — Ignitor
IDM — Induced-Draft Motor
IFC — Indoor-Fan Contactor
IFM — Indoor-Fan Motor
IGC — Integrated Gas Unit Controller
L — Light
LOR — Lockout Relay
LPS — Low-Pressure Switch
LS — Limit Switch
MAT — Mixed-Air Thermostat
MGV — Main Gas Valve
OAT — Outdoor-Air Thermostat
OFC — Outdoor-Fan Contactor
OFM — Outdoor-Fan Motor
PL — Plug Assembly
PRI — Primary
QT — Quadruple Terminal
R — Relay

RS — Rollout Switch
SW — Switch
TB — Terminal Block
TC — Thermostat, Cooling
TH — Thermostat, Heating
TRAN — Transformer
 Terminal (Marked)
 Terminal (Unmarked)
 Terminal Block
 Splice
 Factory Wiring
 Field Wiring
 To indicate common potential only, not to represent wiring.

NOTES:

1. Compressor and/or fan motor(s) thermally protected. Three-phase motors protected against primary single-phasing conditions.
2. If any of the original wire furnished must be replaced, it must be replaced with Type 90° C or its equivalent.
3. Jumpers are omitted when unit is equipped with economizer.
4. On 208/230-v unit TRAN1 is factory wired to ORN lead for 230-v power supply. If unit is to run on 208-v power supply, TRAN1 must be rewired as follows: Disconnect the BLK wire on TRAN1 and connect it to 208-v RED wire and insulate 230-v ORN wire.
5. The CLO locks out the compressor to prevent short cycling on compressor overload and safety devices. Before replacing CLO, check these devices.
6. Number(s) indicate the line location of used contacts. A bracket over (2) numbers signifies a single pole, double-throw contact. An underlined number signifies a normally closed contact. Plain (no line) number signifies a normally open contact.





LEGEND

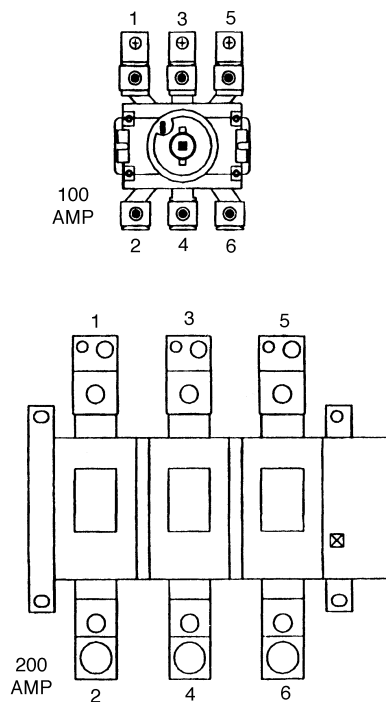
AHA — Adjustable Heat Anticipator
BKR W/AT — Breaks with Amp Turns
C — Contactor, Compressor
CAP — Capacitor
CB — Circuit Breaker
CC — Cooling Compensator
CLO — Compressor Lockout
CLS — Compressor Lockout Switch
COMP — Compressor Motor
CT — Current Transformer
DM — Damper Motor
EQUIP — Equipment
FL — Fuse Link
FPT — Freeze Protection Thermostat
FU — Fuse
GND — Ground
HC — Heater Contactor
HPS — High-Pressure Switch
HTR — Heater

IFC — Indoor-Fan Contactor
IFM — Indoor-Fan Motor
IGC — Integrated Gas Unit Controller
IFR — Indoor-Fan Relay
L — Light
LOR — Lockout Relay
LPS — Low-Pressure Switch
LS — Limit Switch
MAT — Mixed-Air Thermostat
OAT — Outdoor-Air Thermostat
OFC — Outdoor-Fan Contactor
OFM — Outdoor-Fan Motor
OP — Overload Protector
PL — Plug Assembly
PRI — Primary
QT — Quadruple Terminal
SW — Switch
TB — Terminal Block
TC — Thermostat, Cooling

TH — Thermostat, Heating
TRAN — Transformer
 Terminal (Marked)
 Terminal (Unmarked)
 Terminal Block
 Splice
 Factory Wiring
 Field Wiring
 To indicate common potential only, not to represent wiring.
 Option/Accessory Wiring

NOTES:

- Compressor and/or fan motor(s) thermally protected. Three-phase motors protected against primary single-phasing conditions.
- If any of the original wire furnished must be replaced, it must be replaced with Type 90° C or its equivalent.
- Jumpers are omitted when unit is equipped with economizer.
- The CLO locks out the compressor to prevent short cycling on compressor overload and safety devices. Before replacing CLO, check these devices.
- Number(s) indicates the line location of used contacts. A bracket over (2) numbers signifies a single pole, double-throw contact. An underlined number signifies a normally closed contact. Plain (no line) number signifies a normally open contact.



1. If the Non-Fused Disconnect Service Option is ordered for size 016-028 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.

Operating sequence

Cooling, units without economizer — When thermostat calls for cooling, terminals G and Y1 are energized. The indoor (evaporator) fan contactor (IFC) and compressor contactor no. 1 (C1) are energized, and evaporator-fan motor (IFM), compressor no. 1 and condenser fan(s) start. The condenser-fan motor(s) runs continuously while unit is cooling. When the thermostat calls for a second stage of cooling by energizing Y2, compressor contactor no. 2 (C2) is energized and compressor no. 2 starts.

Heating, units without economizer (48TJ016-028)

NOTE: The 48TJ016-028 units have 2 stages of heat.

When the thermostat calls for heating, power is sent to W on the IGC (integrated gas unit controller) board. An LED (light-emitting diode) on the IGC board will be on during normal operation. A check is made to ensure that the rollout switch and limit switch are closed. The induced-draft motor is then energized, and when speed is proven with the hall effect sensor on the motor, the ignition activation period begins. The burners will ignite within 5 seconds.

If the burners do not light, there is a 22-second delay before another 5-second attempt. If the burners still do not light, this sequence is repeated for 15 minutes. After the 15 minutes have elapsed, if the burners still have not lighted, heating is locked out. To reset the control, break 24-v power to the thermostat.

When ignition occurs the IGC board will continue to monitor the condition of the rollout and limit switches, the hall effect sensor, as well as the flame sensor. If the unit is controlled through a room thermostat set for fan auto., 45 seconds after ignition occurs, the indoor-fan motor will be energized. If for some reason the overtemperature limit opens prior to the start of the indoor fan blower, on the next attempt, the 45-second delay will be shortened to 5 seconds less than the time from initiation of heat to when the limit tripped. Gas will not be interrupted to the burners and heating will continue. Once modified, the fan on delay will not change back to 45 seconds unless power is reset to the control.

When additional heat is required, W2 closes and initiates power to the second stage of the main gas valve. When the thermostat is satisfied, W1 and W2 open and the gas valve closes, interrupting the flow of gas to the main burners. If the call for W1 lasted less than 1 minute, the heating cycle will not terminate until 1 minute after W1 became active. If the unit is controlled through a room thermostat set for fan auto., the indoor-fan motor will continue to operate for an additional 45 seconds then stop. If the overtemperature limit opens after the indoor motor is stopped within 10 minutes of W1 becoming inactive, on the next cycle the

time will be extended by 15 seconds. The maximum delay is 3 minutes. Once modified, the fan off delay will not change back to 45 seconds unless power is reset to the control.

An LED indicator is provided on the IGC to monitor operation. The IGC is located by removing the side panel and viewing the IGC through the view port located in the control box access panel. During normal operation, the LED is continuously on.

Heating, units without economizer (50TJ016-028, if accessory or optional heater is installed) — Upon a call for heating through terminal W1, IFC and heater contactor no. 1 (HC1) are energized. On units equipped for 2 stages of heat, when additional heat is needed, HC2 is energized through W2.

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

Upon a first call for cooling, when outdoor ambient is below the temperature control setting ($75\text{ F} \pm 2^\circ\text{ F}$ [$24\text{ C} \pm 2^\circ\text{ C}$]), the evaporator fan starts and the economizer opens to maintain 53 F (12 C) leaving-air temperature (mixed air temperature set point). The compressors remain off.

Upon a second-stage call for cooling, compressor no. 1 is energized and mechanical cooling is integrated with economizer cooling. If the outdoor-air temperature drops below 50 F (10 C), a cooling lockout switch prevents the compressors from running.

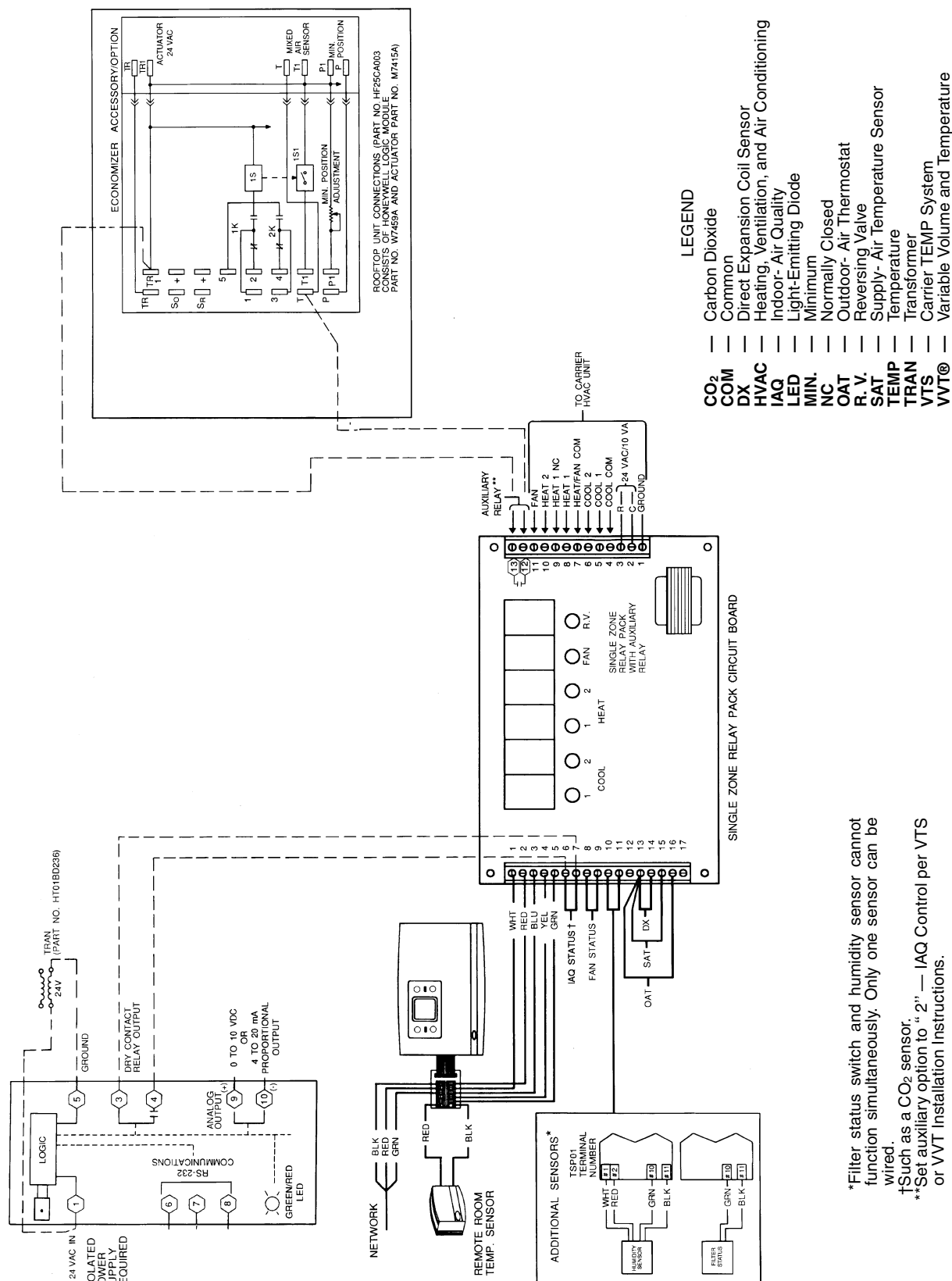
NOTE: In the economizer mode, only compressor no. 1 is enabled. Compressor no. 2 does not operate with the economizer.

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

Freeze protection thermostats (FPT) are located on the evaporator coil. They detect frost build-up and turn the compressors off to prevent coil freeze-up. Once frost has melted, the compressors can be reenergized. This requires a manual reset of power to the unit.

Heating, units with economizer — Outdoor-air damper stays at VENT position while evaporator fan is operating. Refer to Heating, Units Without Economizer (48TJ016-028) and Heating, Units Without Economizer (50TJ016-028, If Accessory or Optional Heater is Installed) sections on this page for remainder of operating sequence.

INDOOR-AIR QUALITY AND APOLLO CONTROLS WIRING

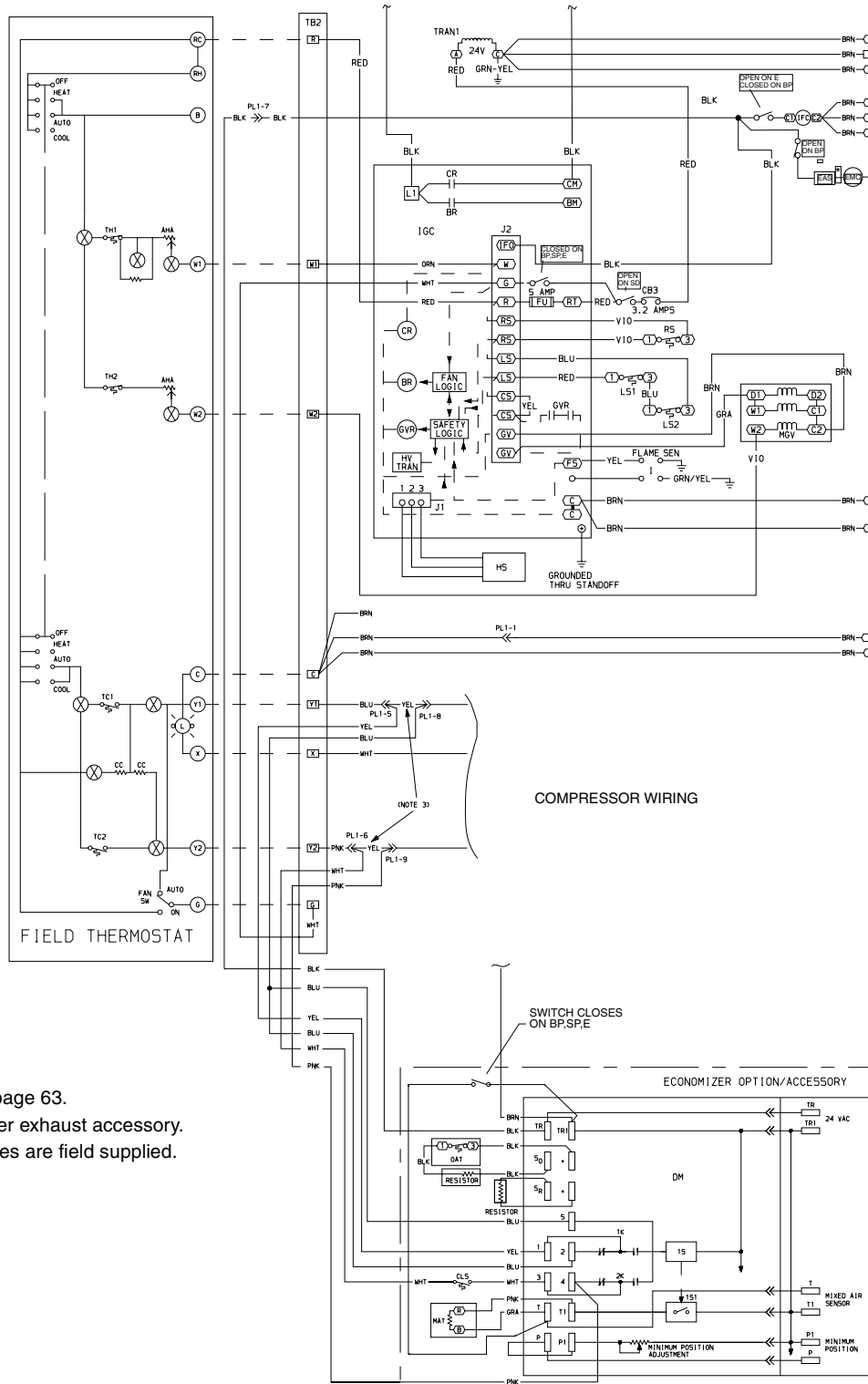


*Filter status switch and humidity sensor cannot function simultaneously. Only one sensor can be wired.

†Such as a CO₂ sensor.
 **Set auxiliary option to "2" — IAQ Control per VTS or VVT Installation Instructions.

Set auxiliary option to "2" — IAQ Control per VTS or VVT Installation Instructions.

TYPICAL SMOKE CONTROL/FIRE SHUTDOWN WIRING — 48TJ016-028



See Legend on page 63.

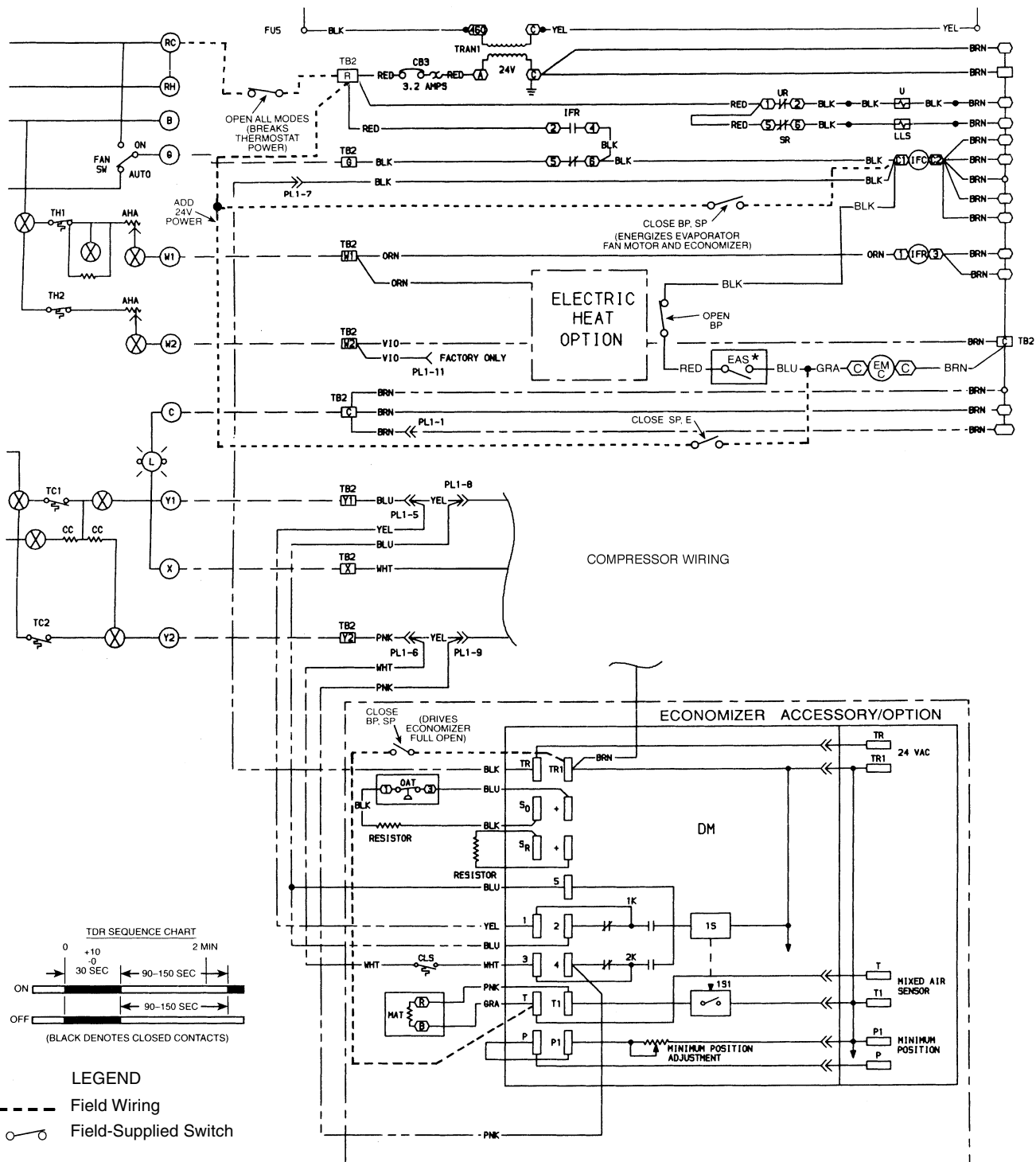
*Included in power exhaust accessory.

NOTE: All switches are field supplied.

OPERATING MODES

BP — Building Pressurization:	Evaporator fan on, economizer energized to fully open position, power exhaust disabled.
E — Evacuation:	Evaporator fan off, economizer energized to fully open position, power exhaust on (open).
SD — Complete Unit Shutdown:	Breaks 24-v power to the thermostat.
SP — Smoke Purge:	Evaporator fan on, economizer energized to fully open position, power exhaust on.

TYPICAL SMOKE CONTROL/FIRE SHUTDOWN WIRING — 50TJ016-028



See Legend on page 65.

*Included in power exhaust accessory.

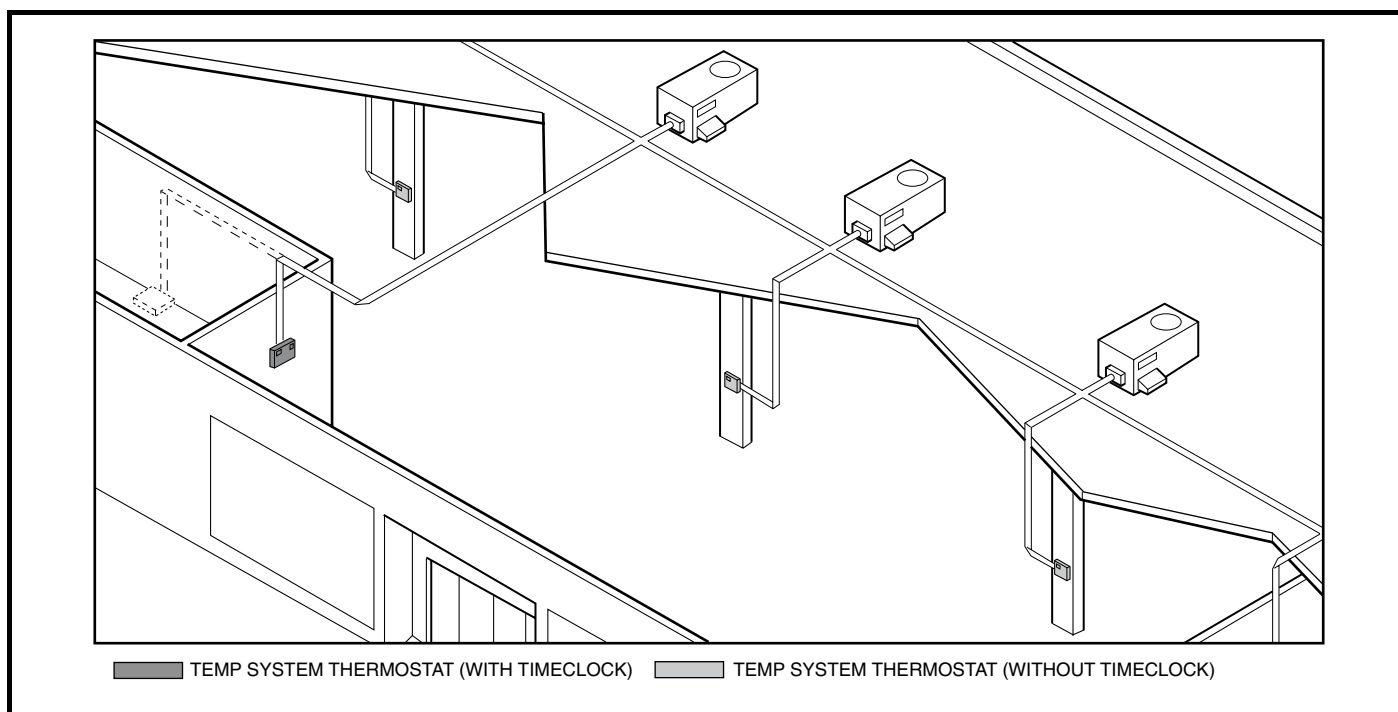
TEMP systems

A TEMP System is a network of communicating Carrier TEMP System Thermostats and rooftop, factory-mounted Apollo direct digital controls, each serving its own zone and heating/cooling unit. Networking allows your building manager to easily access each of your systems from a single location...whether they are in the same building or located throughout town.

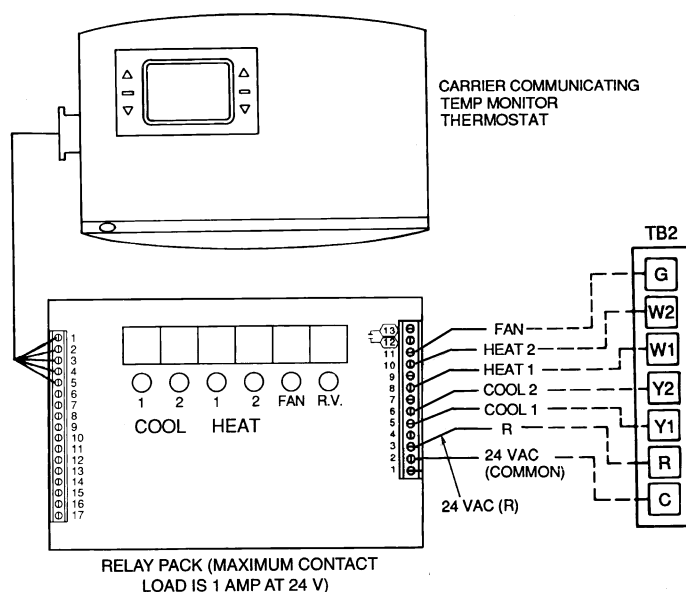
The TEMP System's inherently flexible, modular base design supports the **exact** number of independent, single zone systems you require...no more, no less, no compromises.

Ideal for department stores, small office buildings, fast food chains, schools, and hotels, a TEMP System is a cost-effective way to maintain comfortable building environments.

NOTE: Unit temperature rise must not be exceeded for proper unit operation.



STANDARD UNIT TYPICAL FIELD THERMOSTAT WIRING



Controls (cont)

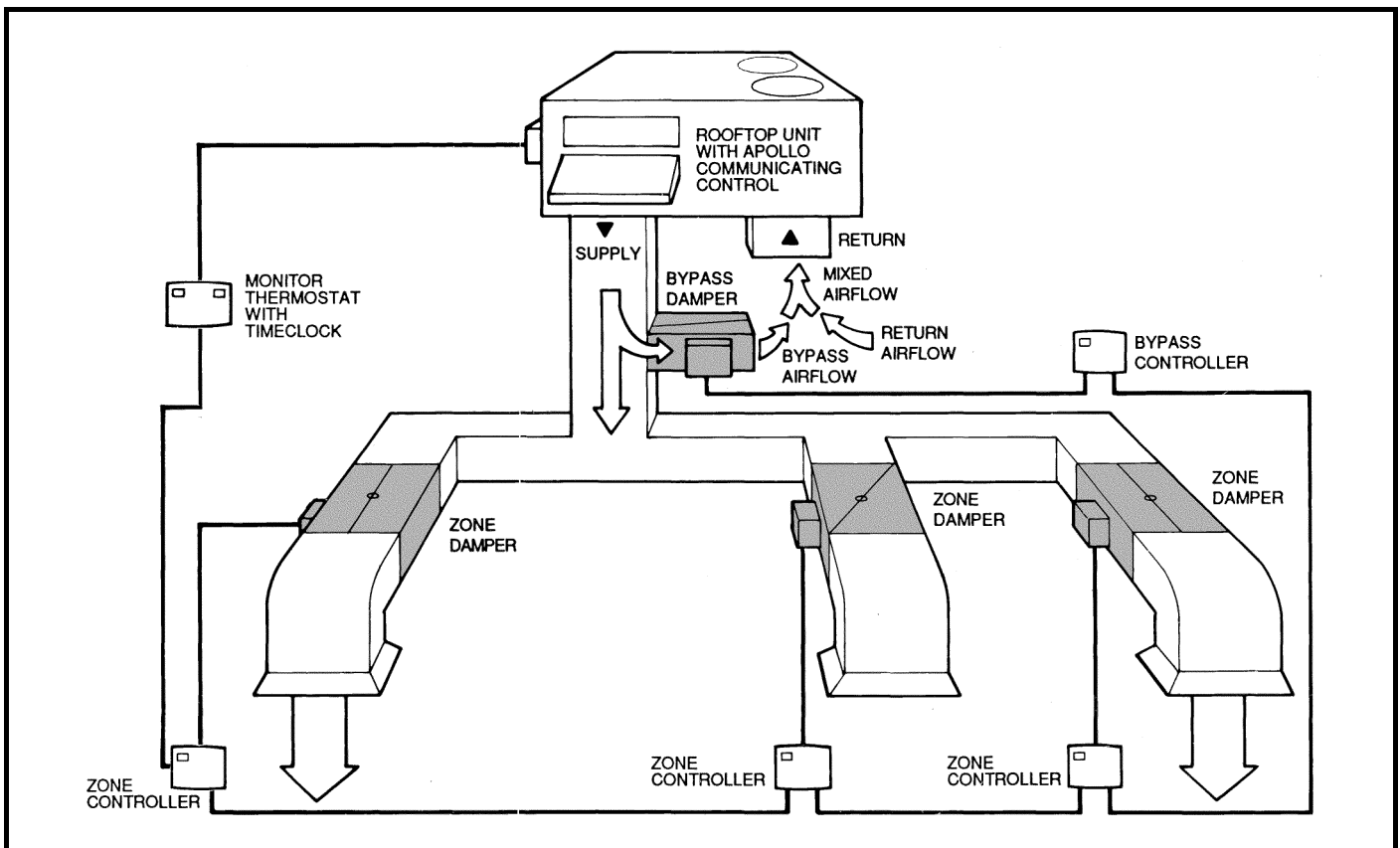


Variable Volume/Variable Temperature VVT® Systems

VVT Systems are dedicated to total building comfort. Carrier thermostats, zone dampers, and HVAC equipment with factory-mounted direct digital controls continually monitor and adjust their operation to ensure uninterrupted and personalized comfort for all occupants.

Through the use of communicating electronic controls, VVT Systems are able to provide the comfort of a multiple zone system while using the installation, operating and maintenance economics of single zone equipment...virtually putting an end to the cost vs comfort compromise.

NOTE: Unit temperature rise must not be exceeded for proper unit operation.



VVT® application guidelines

General — The VVT system is a zoning system that allows a single-zone heating/cooling system to operate as a multiple-zone system. For this system to function correctly and not adversely affect the reliability of the heating/cooling system, the information provided here must be followed.

There are two parts of the VVT system installation that are important for successful operation: the bypass damper and the HVAC (Heating, Ventilation, and Air-Conditioning) equipment configuration settings. The following information will provide important details for these two items as well as specific instructions for the 48/50TJ rooftop units. This information is intended as a supplement to the Installation Instructions shipped with both the 33CS system controls and the 48/50TJ rooftop equipment.

Bypass damper — The bypass damper and controller serve to accomplish two functions in the VVT system. First, the bypass damper keeps supply duct pressure and velocity down at partial load. This permits the VVT system to utilize standard low-velocity, low-pressure supply ductwork, duct insulation, and duct sealing methods. Without the bypass damper, the restriction of the zone dampers that are closing at partial loads would cause duct static pressure to climb, adding stress to all supply duct materials. Accompanying velocity and noise would create problems in the conditioned space.

Second, when the bypass damper is set up correctly, it ensures that the airflow through the HVAC equipment remains above the minimum required levels. (See capacity ratings on page 7 for minimum heating cfm required for proper operation of the rooftop heating system. These minimum heating cfm levels must be maintained during all phases of heating operation. The heating cfm values take precedence over listed minimum cooling cfm values.) This permits the use of constant volume rooftop units on VVT applications. Without the bypass damper, the restriction of the zone dampers that are closing at partial loads will reduce the airflow through the unit to below the minimum levels.

The installer is responsible for ensuring that the bypass controller is configured and the system is balanced so that the minimum airflow is higher than 300 cfm/ton (40 L/s per kW). To accomplish proper configuration set the System Setup Enable Function (Category 5, option 7) to ON. This will close the bypass damper and force all of the zone dampers to open. The air balance should be completed after the zones minimum airflow has been set, verifying the total airflow through the equipment is above the minimum airflow level.

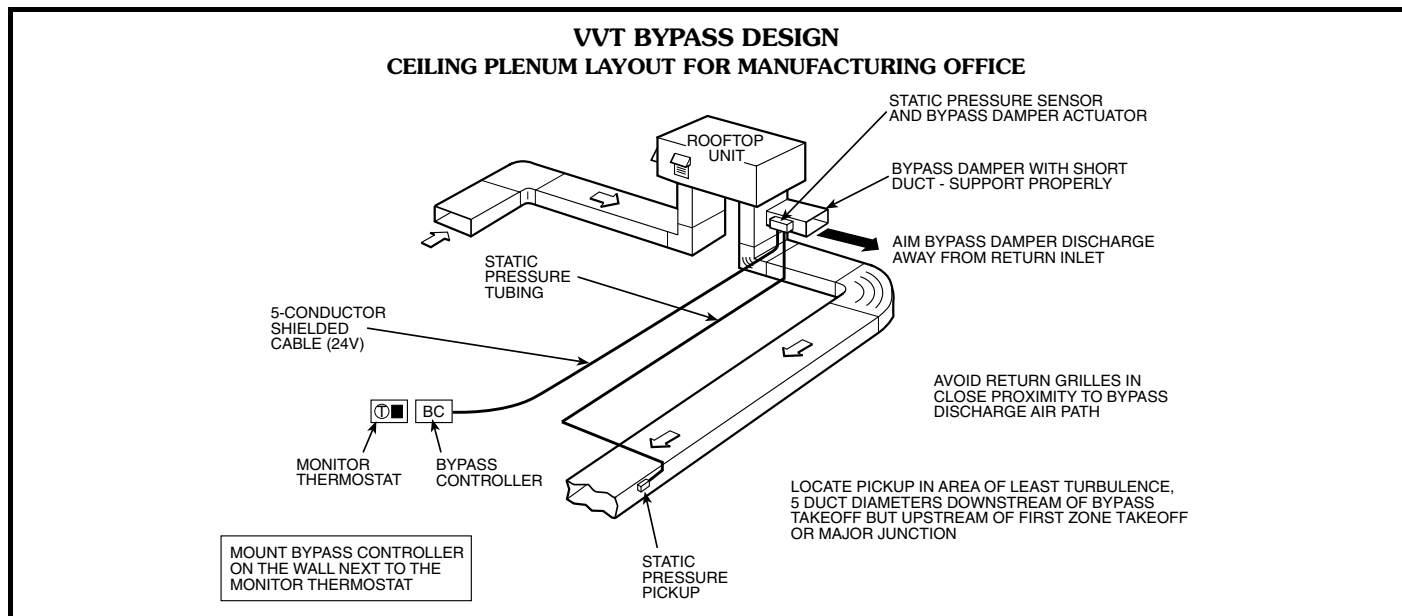
VVT bypass design layout — Particular attention must be given to bypass duct layout. It has been a source of VVT system operating problems when neglected. Proper layout consists of the five factors:

1. Proper location of the bypass
2. Adequately sizing the bypass
3. Avoiding short-circuiting of supply and return air
4. Proper location of the static pickup
5. Facilitating the mixing of bypass air with return air

The recommended location of the bypass damper is for it to duct the bypass air either into the ceiling plenum or into unoccupied spaces. See figure below for a typical installation. This method of installation prevents interference with intended fresh air intake through the unit and economizer operation.

It is highly recommended that the bypass damper is **not** ducted between the rooftop unit's supply duct and the return duct as shown in the diagram below. This type of installation may result in the return duct becoming pressurized causing many problems such as:

- Preventing intended fresh intake for ventilation from entering the unit.
- Preventing proper operation of the economizer and causing mechanical cooling to energize needlessly.
- Preventing proper mixing of bypass air and return air resulting in low return temperatures in cooling, and high return temperature in heating.



Controls (cont)



If the diversity within the space does not vary much, then bypass can be installed as shown in the diagram below successfully. Care must be taken to ensure that maximum bypass air at part load conditions does not exceed 25% of the full load airflow.

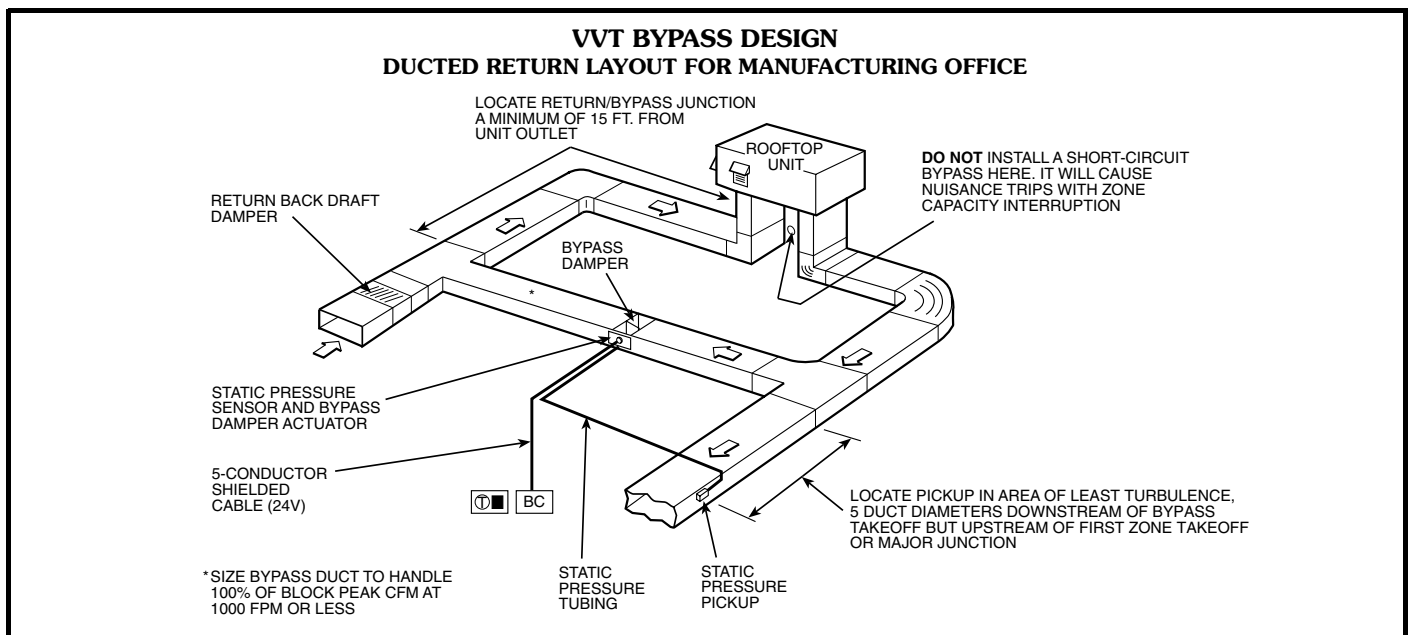
The bypass junction *must be* installed with sufficient duct length between it and the unit to allow complete mixing of the bypass air and the return air. Without adequate mixing, comfort control will be lost as the equipment will be cycled off and equipment failures may result if left at the extremes. When the HVAC equipment uses an economizer, a back-draft damper needs to be installed between the connection of the bypass duct and the closet room return air grille.

Bypass controller considerations — Besides considering the minimum and maximum cfm's required, as in the system design guidelines, the following are a few system concerns to consider when designing a bypass damper in a VVT® system.

1. The maximum amount of air being bypassed should match an equivalent amount of cfm of unconditioned air based on the ability of the system to unload. For example: If the equipment has two compressors and one unloader, then the refrigeration portion of the equipment is capable of unloading to about 25% of unit capacity. Therefore the designer should make sure the system will use 25% of the system cfm for comfort conditioning and bypass 75% of the conditioned air before energizing the compressors. This will ensure that the system will have enough return air mixing with the bypassed air to keep the compressor running. Make sure that the compressor does not cycle too frequently based on the leaving air temperature limits since this could lessen the reliability of the compressors. The heating equipment will only be able to unload 50%. The system may be designed to cycle based on the leaving air temperature limits depending on the rise designed in the heat exchanger and the amount of outside air being brought in. Although this

is not efficient, the equipment reliability should not be a problem.

2. Be sure to verify the pressure drop across the bypass when in full bypass. The bypass should maintain the system pressure without causing 100% of the air to be bypassed. Tables are provided in the Comfort Systems Controls manual which will indicate the sound and performance criteria of Carrier dampers. Calculate bypass of 4500 cfm on a unit with a nominal airflow of 6000 cfm and external static pressure of 0.50 in. wg. The ZD-16 has two entries in the table of 1475 and 1574. Three ZD-16 dampers in parallel could be used for the job. The 16-in. damper will not operate full open to produce these results, so it will be necessary to balance the system and set the maximum damper position to achieve these results in the field.
3. These airflows were tested at 0.50 in. wg and provided NC levels of 42 and 44 respectively. A noise criteria of around 40 would be acceptable for a ducted bypass with internally lined duct but probably not for externally lined ducts since the noise could be transmitted to the return registers. Duct design is important to consider in bypass design since improper noise levels can require the use of other dampers to achieve the same bypassed cfm with reduced noise. For the example above, two 35D, 16-in. dampers can move the same air at a NC level of 29.5 Radiated. These dampers can be ordered with sound attenuators to lessen radiated noise also. Use the damper test criteria to make the selection.
4. If designing a system with an economizer, be sure to include power exhaust on the equipment to prevent conditioned air from migrating out the return registers into the space in a over pressure condition. This condition can be identified since the doors will most likely stand open. The same condition can occur if there is a large exhaust system in the building for labs or restrooms.



Monitor thermostat configuration — The monitor thermostat controls the operation of its own zone and of each associated zone controller. The monitor thermostat determines system operation from the information received from each device that it controls. The monitor thermostat must be configured for proper control of the system. Part of the configuration is Category 4.0, which deals with HVAC settings. The Category 4.0 HVAC Equipment table shows the default settings for this category.

NOTE: In the majority of cases only categories 4.5, 4.6, 4.7, 4.8 and 4.15 will require changing by the installer.

Leaving-air temperature (LAT) monitoring must be always used. This function prevents the HVAC equipment from operating in a range that will cause equipment safety trips, leading to shortened equipment life.

The Constant Volume Electric Cooling/Heating and the Constant Volume Electric Cooling/Gas Heating tables provide the recommended cooling and heating limits that the monitor thermostat configures for 4.5, First Stage Cooling Limit; 4.6, Second Stage Cooling Limit; 4.7, First Stage Heating Limit; and 4.8, Second Stage Heating Limit.

There are tradeoffs involved in the selection of the system mode demand, monitor thermostat configurations 4.15. Lower setting levels tend to improve comfort but tend to increase operating costs and reduce equipment reliability. Buildings that have large core areas that are likely to make a call when others are not should use lower system mode demand levels. For buildings with zones that have more similar load patterns from zone to zone, or smaller zones or more uniformly sized zones, a higher setting should be used.

CATEGORY 4.0 HVAC EQUIPMENT — DEFAULT SETTINGS

SETTING	DESCRIPTION	CURRENT DEFAULT
4.1	Fan Operation	Off
4.2	Time Guard® Device between modes	On
4.3	Time Guard Device Override	Off
4.4	LAT Monitoring	On
4.5	First Stage Cooling Limit (F)	70 F
4.6	Second Stage Cooling Limit	60 F
4.7	First Stage Heating Limit	97 F
4.8	Second Stage Heating Limit	110 F
4.9	Auxiliary Relay (0= No Control, 1=Occupied Schedule, 2=IAQ, 3=Reversing Valve, 4=Economizer)	0
4.10	Optimize Staging	On
4.11	Cooling Temperature lockout	On
4.12	Cooling Lockout Set Point	45 F
4.13	Heating Temperature Lockout	Off
4.14	Heating Lockout Set Point	60 F
4.15	System Mode Demand	3
4.16	System Mode Re-Select (minutes)	30
4.17	Minimum Heat Run Time	5
4.18	Minimum Cool Run Time	3
4.19	Pre-occupancy Purge	Off
4.20	Fan Switch (0=Thermostat Switch Position, 1=Fan Switch On, 2=Fan Switch Off)	0
4.21	Cool Switch (0=Thermostat Switch Position, 1=Cool Switch Auto, 2=Cool Switch Off)	0
4.22	Heat Switch (0=Thermostat Switch Position, 1=Heat Switch Auto, 2=Heat Switch Off)	0

DX coil sensor installation — The use of a DX coil sensor is recommended. The DX temperature sensor should be installed in the ductwork as close to the equipment as possible. Care must be taken not to have the sensor within “line of site” of the equipment’s heating elements. Radiation from the heat can cause the sensor to read an elevated reading.

The majority of the units referred to by these application guidelines are two compressor units. The monitor thermostat has the ability to read only one DX coil sensor, which can only be installed within the equipment on a single compressor unit. All of the LAT settings have been determined assuming supply duct temperatures versus coil temperatures. Be sure the DX coil sensor option is turned on. Category 5.6 under the monitor configurations, should be ON.

48/50TJ application guidelines — The 48/50TJ units are constant volume units and will require the use a bypass damper and controller. Refer to page 73 for details regarding the use and installation of the bypass damper.

These units use a TXV metering device. Use of optional, factory-installed hot gas bypass (HGBP) is recommended for VVT applications to aid in low load performance operation.

Electrical connection from the VVT® system to the units will be the typical thermostat connections from the relay pack to the unit.

Refer to the tables below for LAT set points.

CONSTANT VOLUME (CV) ELECTRIC COOLING/HEATING

UNIT 50TJ	HEATER KW	CATEGORY 4.0 HVAC SETTINGS							
		4.5		4.6		4.7		4.8	
		F	C	F	C	F	C	F	C
016	32	60	15.6	59	15.0	93	33.9	107	41.7
	55	60	15.6	59	15.0	95	35.0	126	52.2
	80	60	15.6	59	15.0	114	45.6	147	63.9
020	32	70	21.1	59	15.0	93	33.9	107	41.7
	55	70	21.1	59	15.0	103	39.4	126	52.2
	80	70	21.1	59	15.0	114	45.6	147	63.9
024	32	70	21.1	60	15.6	93	33.9	107	41.7
	55	70	21.1	60	15.6	103	39.4	126	52.2
	80	70	21.1	60	15.6	114	45.6	147	63.9
028	32	70	21.1	59	15.0	90	32.2	100	37.8
	55	70	21.1	59	15.0	97	36.1	115	46.1
	80	70	21.1	59	15.0	108	42.2	135	57.8

CONSTANT VOLUME ELECTRIC COOLING/GAS HEATING (F)

UNIT	CATEGORY 4.0 HVAC SETTINGS			
	4.5	4.6	4.7	4.8
48TJD016	60	59	112	125
48TJF016	60	59	123	140
48TJD020	70	59	112	125
48TJF020	70	59	116	130
48TJD024	70	60	112	125
48TJF024	70	60	116	130
48TJD028	70	59	112	125
48TJF028	70	59	116	130

Application data



Ductwork

Ductwork should be attached to the curb on all units. Interior installation may proceed before unit is set in place on roof. If ductwork will be attached to the unit, do not drill in condensate drain pan area — leaks may result. See figures on page 77 for information on field-installed concentric ductwork when applicable.

Electric heat (50TJ016-028 only)

On 50TJ016-028 units with electric heat, a field-supplied 90-degree elbow **must** be installed on the supply ductwork below the unit discharge connection.

Thru-the-curb service connections

Roof curb connections allow field power wires, control wires, and gas supply (48TJ) to enter through the roof curb opening.

Thermostat

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

Heating-to-cooling changeover

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

Airflow

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

Maximum airflow

To minimize the possibility of condensate blow-off from evaporator, airflow through units should not exceed 500 cfm/nominal ton (67.1 L/s per kW) on size 016-024 units, and 11,250 cfm (5311 L/s) on size 028 units.

Minimum airflow

The minimum airflow for cooling is 300 cfm/nominal ton (40 L/s per kW) on size 016-024 units and 280 nominal cfm/ton (38 L/s per kW) on size 028 units. Refer to ARI Heating Capacities and Efficiencies table on page 7 for minimum airflow cfm for heating on size 016-028 units.

IMPORTANT: The minimum heating cfm must be maintained to ensure proper operation in the Heating mode. The minimum heating cfm value takes precedence over the minimum cooling cfm value.

Minimum ambient cooling operation temperature

Units are designed to operate at outdoor temperatures down to 40 F (4.4 C). To operate at lower outdoor-air temperatures, see Price Pages or contact your local Carrier representative for appropriate accessory combinations for specific applications.

Maximum operating outdoor-air temperature

For cooling, this temperature is 120 F (49 C) for 016 and 020 sizes, 125 F (52 C) for 024 size, and 121 F (49 C) for 028 size. Refer to the Cooling Capacity tables on pages 26-41 for further details.

High altitude (48TJ016-028 only)

A change to the gas orifice may be required at high altitudes. Refer to Altitude Compensation charts on pages 52 and 53.

Minimum temperature (48TJ016-028 only)

Air entering the heat exchanger in heating must be a minimum of 50 F (10 C) continuous and 45 F (7.2 C) intermittent. A field-supplied outdoor-air temperature control must be used to initiate both stages of heat whenever the entering air temperature is less than 45 F.

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 extreme 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.

Apollo direct digital communicating controls

The Apollo direct digital controls must be used with either a Carrier master or monitor thermostat.

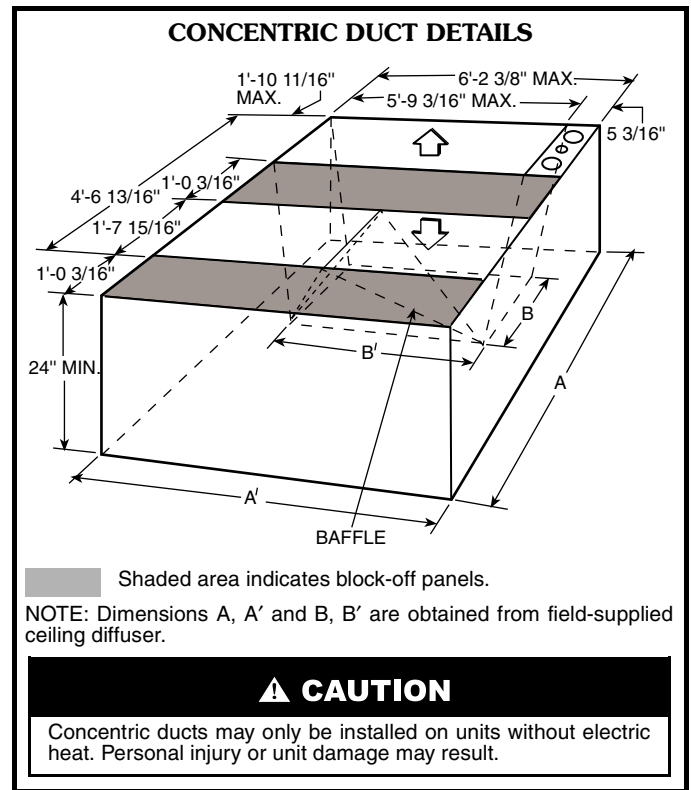
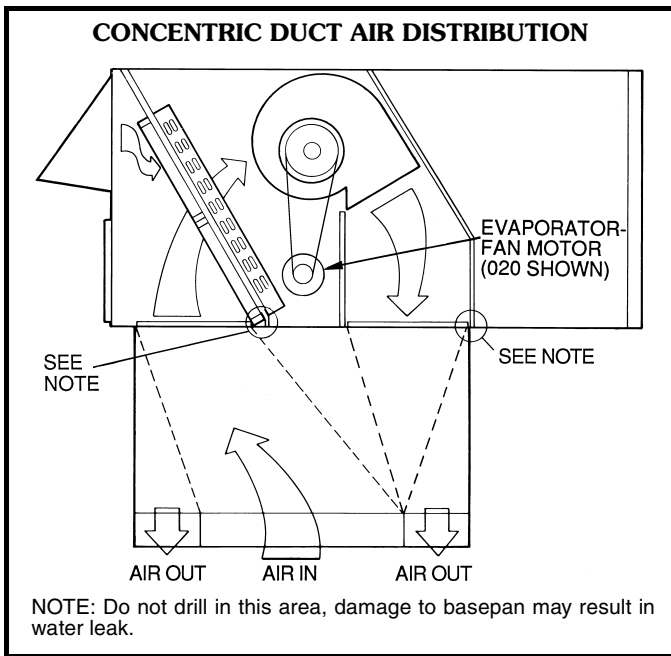
Field-supplied fan drives

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 (Enviro-Shield™)

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.



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.

MoistureMi\$er™ dehumidification package

This option provides greater dehumidification by further subcooling the hot liquid refrigerant leaving the condenser coil. The MoistureMi\$er package consists of a subcooling coil located on the leaving-air side of the evaporator coil. The location of the coil in the indoor stream enhances the latent capacity of the 48/50TJ rooftop units by up to 40%.

Many buildings suffer damage or have poor indoor-air quality due to overly humid conditions. Building humidity must be controlled for the following reasons:

1. Indoor-air quality:

Humidity is a major factor in the growth and propagation of mold and mildew in a building. The mold

and mildew can spread quickly and grow in carpets and ductwork and on walls, and often causes cases of Sick Building Syndrome. This syndrome can lead to employee absenteeism due to illness, lower worker productivity, and increased health care costs. The American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) recommends that relative humidity levels in buildings be maintained below 70%.

2. Comfort levels:

High humidity levels cause the occupied space to become uncomfortable because humidity interferes with the body's natural cooling process (evaporation at the skin surface).

3. Humidity damage:

Humidity causes property damage such as stained wallpaper and ceiling tiles. Humidity can also damage books and artwork and create strong odors in carpets. In addition, humidity can contribute to unacceptable product quality in industrial processes.

4. Improper ventilation:

Buildings in hot and humid geographical areas cannot be properly ventilated due to high humidity levels outdoors, resulting in poor indoor air quality.

5. Equipment inefficiency:

Humidity can cause the inefficient operation of refrigerators and freezers.

Application data (cont)



6. Increased energy costs:

Because of high humidity levels and less comfortable conditions, thermostat set points are lowered to force HVAC equipment to run longer and work harder to lower the humidity levels. Also, in an attempt to control humidity, system designers typically oversize HVAC equipment and add reheat capability to achieve the desired latent capacity. This results in higher initial equipment costs as well as increased energy expenses throughout the life of the unit.

Applications — There are many different rooftop unit applications that are susceptible to problems caused by high humidity levels. Some common applications include:

- Restaurants:

The kitchen areas of restaurants have many humidity producing activities such as dish washing and cooking.

- Supermarkets:

High humidity levels cause inefficiency in operation of refrigeration and freezer systems.

- Museums and Libraries:

Humidity can damage books and artwork.

- Gymnasiums, Locker Room, and Health Clubs:

Shower areas and human perspiration can cause uncomfortable high-humidity occupied space conditions.

- Hot and Humid Climates:

The southeastern United States is a good example for this application. The MoistureMi\$er™ dehumidification package becomes particularly useful when increased amounts of the hot and humid outdoor air needs to be brought into the building for proper ventilation.

MoistureMi\$er dehumidification package design effects — To fully understand the operation of the MoistureMi\$er dehumidification package, refer to the pressure-enthalpy curve and analyze the MoistureMi\$er™ package effects on the refrigerant in the rooftop unit. The pressure-enthalpy curve shows the refrigerant cycle for a 50TJ rooftop unit.

Standard unit refrigerant cycle — At point no. 1 in the pressure-enthalpy curve, the vapor leaving the compressor at a high pressure and a high temperature enters the condenser. The condenser removes heat from the refrigerant, lowers its temperature, and changes it to a liquid. At point no. 2, the liquid leaves the condenser and enters the Thermostatic Expansion Valve (TXV) that lowers the pressure of the refrigerant. At point no. 3, the liquid enters the evaporator coil where the refrigerant increases in temperature and changes back to a vapor. At point no. 4, the vapor leaves the evaporator and reenters the compressor.

Refrigerant cycle using the MoistureMi\$er dehumidification package — When a subcooler coil is added to the rooftop unit, the refrigerant is affected in such a way that the unit

latent capacity is increased. The refrigerant cycle follows the same path from point no. 1 to point no. 2 as the standard refrigerant cycle without a subcooler (see pressure-enthalpy curve). However, at point no. 2, the liquid refrigerant enters the subcooler coil where the temperature is lowered further. At point no. 2A, this subcooled liquid enters the TXV, which drops the pressure of the liquid. At point no. 2B, saturated liquid and vapor enters the evaporator. The improved refrigeration effect can now be seen between point no. 2B and point no. 3. The increase in the total refrigeration effect is the additional enthalpy gained from point no. 2B and point no. 3. However, the subcooler coil rejects this added refrigeration effect to the air downstream of the evaporator coil, thus maximizing the overall latent effect. This improved latent effect is a direct result of the addition of the MoistureMi\$er subcooler coil to the refrigerant cycle.

Latent capacity effects — Refer to the Psychrometric chart to see how the sensible heat factor decreases when the optional MoistureMi\$er dehumidification package is installed. The chart contains data for the 50TJ unit operation, both with and without the MoistureMi\$er at 1750 cfm. Point no. 1 on the chart represents the return-air dry bulb (80 F) and wet bulb (67 F) conditions. Point no. 2 represents the supply-air conditions for the standard 50TJ rooftop unit without the MoistureMi\$er dehumidification package. Point no. 3 represents the supply-air conditions for a 50TJ rooftop unit with the MoistureMi\$er package. By connecting point no. 1 and point no. 2 on the chart and finding the intersection on the sensible heat factor scale, the sensible heat factor is 0.73. Connect point no. 1 and point no. 3 and see that the sensible heat factor is 0.58. This is a 17.5% increase in latent capacity for the given conditions. This increase in latent capacity allows the 50TJ rooftop units to remove more moisture from the conditions space; thus lowering the humidity levels.

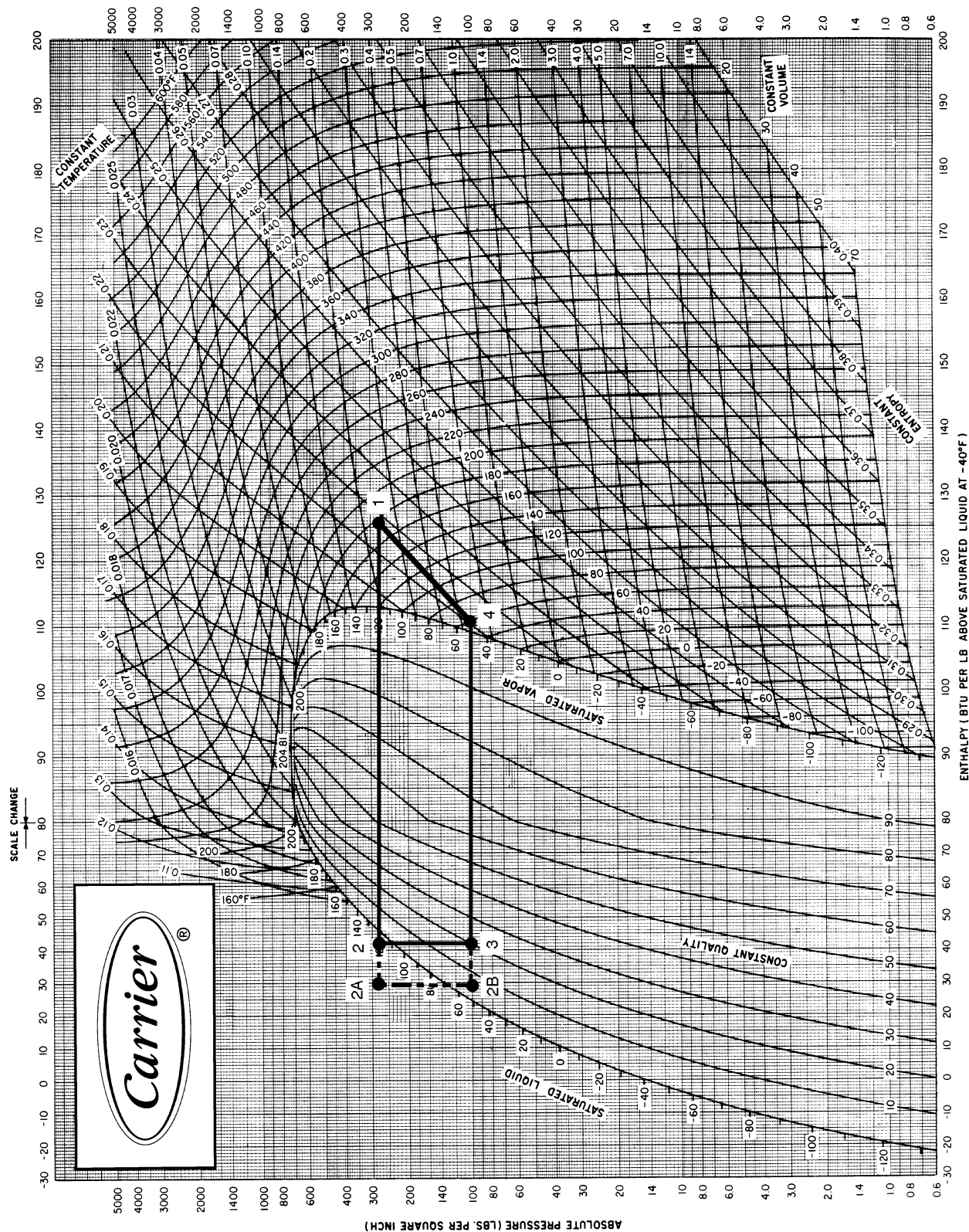
MoistureMi\$er dehumidification package operating performance — MoistureMi\$er dehumidification package operation does not affect the electrical data. The electrical data remains the same either with or without the MoistureMi\$er package.

The operating and shipping weights will be slightly increased with the addition of the MoistureMi\$er subcooler. See MoistureMi\$er package weights in the Physical Data table for added base unit weight with this option.

Refer to cooling performance data, both with and without the MoistureMi\$er dehumidification package. Note the greatly improved latent capacity with the MoistureMi\$er dehumidification package.

Static pressure is also slightly affected by the addition of the MoistureMi\$er dehumidification package. See Static Pressure Drop table when using this option.

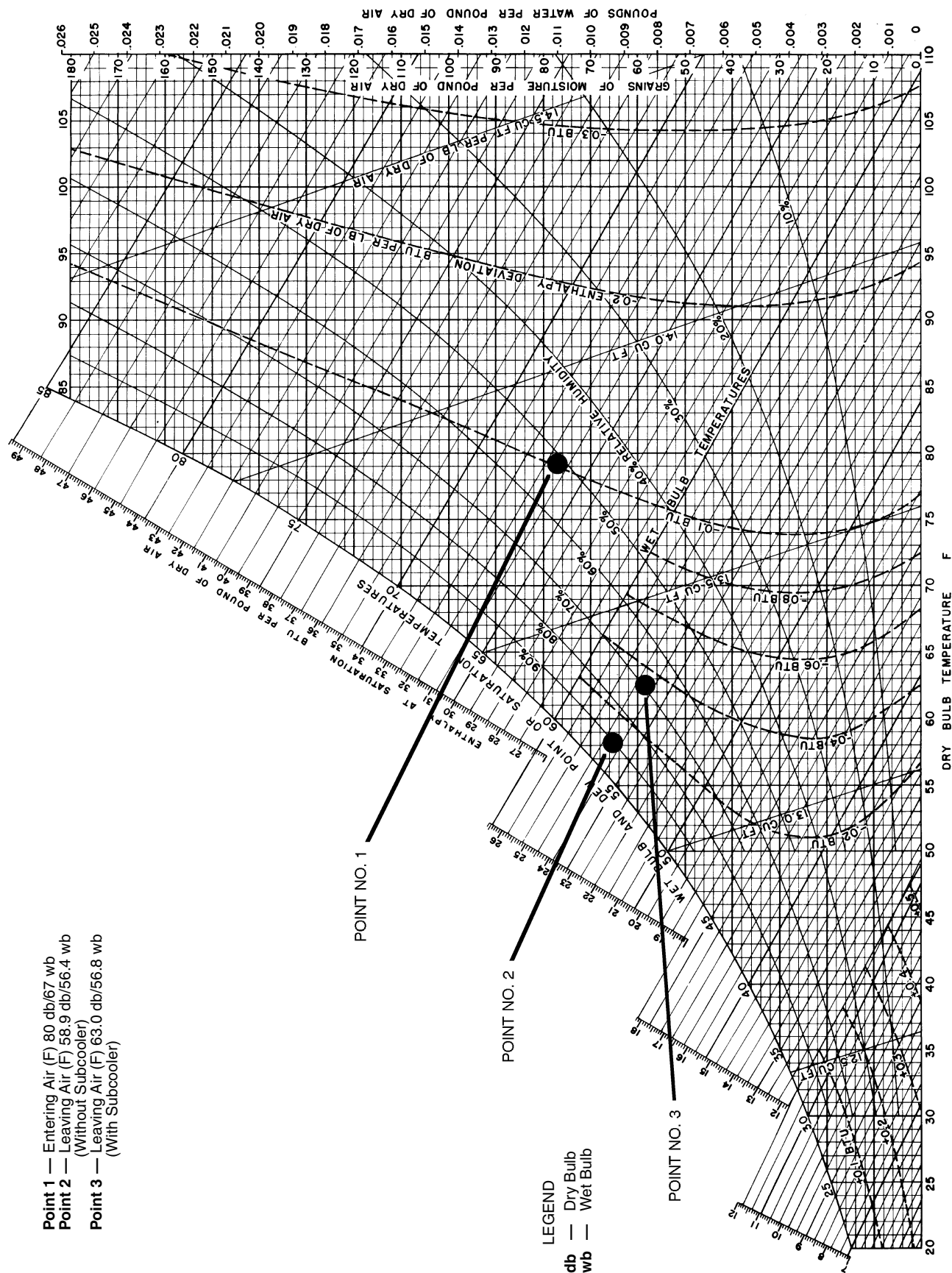
PRESSURE ENTHALPY CURVE



NOTE: Numbers 1 through 4 indicate point numbers referred to in MoistureMiSer™ Dehumidification Package Design Effects section.

PSYCHROMETRIC CHART

- Point 1** — Entering Air (F) 80 db/67 wb
Point 2 — Leaving Air (F) 58.9 db/56.4 wb
 (Without Subcooler)
Point 3 — Leaving Air (F) 63.0 db/56.8 wb
 (With Subcooler)



Packaged Rooftop Electric Cooling Unit with Gas, Electric, or Glycol Heat — Constant Volume Application

HVAC Guide Specifications

Size Range: **15 to 25 Tons, Nominal (Cooling)**
172,000 to 360,000 Btuh, Nominal (Input Heating) (Gas Units)
26 to 80 kW (Electric Heat)
123,000 to 405,000 Btuh (Glycol Heating)

Carrier Model Numbers: **48TJD, 48TJF**
50TJ

Part 1 — General

1.01 SYSTEM DESCRIPTION

Unit is an outdoor rooftop mounted, electrically controlled heating and cooling unit utilizing scroll hermetic compressors for cooling duty and gas combustion for heating duty. Supply air shall be discharged downward or horizontally (with horizontal supply/return curb adapter assembly), as shown on contract drawings. Standard unit shall include a manual outdoor-air inlet.

1.02 QUALITY ASSURANCE

- A. Unit (016-024) shall be rated in accordance with ARI Standards 270 and 360 and all units shall be designed in accordance with UL Standard 1995.

NOTE: The 48/50TJ028 is beyond the scope of the ARI certification program.

- B. Unit shall be designed to conform to ASHRAE 15.
- C. Unit shall be ETL and ETL, Canada tested and certified in accordance with ANSI Z21.47 Standards as a total package.
- 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 manufactured in a facility registered to ISO 9002/BS5750, Part 2.

1.03 DELIVERY, STORAGE, AND HANDLING

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

Part 2 — Products

2.01 EQUIPMENT (STANDARD)

A. General:

The 48/50TJ unit shall be a factory assembled, single-piece heating and cooling 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:

- Unit cabinet shall be constructed of galvanized steel, bonderized and coated with a prepainted baked enamel finish.

- Indoor blower compartment interior surfaces shall be insulated with a minimum $\frac{1}{2}$ -in. (13 mm) thick, 1 lb (.45 kg) density neoprene coated, fiberglass insulation coated on the air side. Aluminum foil-faced fiberglass insulation shall be used in the gas heat compartment.
- Cabinet panels shall be easily removable for servicing.
- Filters shall be accessible through an access panel.
- Holes shall be provided in the base rails for rigging shackles to facilitate overhead rigging.
- Unit shall have a factory-installed internal condensate drain connection and a sloped condensate pan.
- Condensate pan material shall be fabricated of minimum spangle steel with a hot-dipped zinc coating of 5%.

C. Fans:

- Indoor blower (evaporator fan):
 - Fan shall be belt driven. Belt drive shall include an adjustable 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.
 - Fan wheel shall be made from steel with a corrosion resistant finish. It shall be a dynamically balanced, double-inlet type with forward-curved blades. The fan wheel shall be a Class I design.
- Condenser fans shall be of the direct-driven propeller type, with corrosion-resistant blades riveted to corrosion-resistant steel supports. They shall be dynamically balanced and discharge air upwards.
- Induced-draft blower shall be of the direct-driven, single inlet, forward-curved, centrifugal type. It shall be made from steel with a corrosion-resistant finish and shall be dynamically balanced.

D. Compressor(s):

- Fully hermetic, scroll type, internally protected.
- Factory spring-shock mounted and internally spring mounted for vibration isolation.
- On electrically and mechanically independent refrigerant circuits.
- All compressors shall have 70 W crankcase heaters (size 028 only).

E. Coils:

- Standard evaporator and condenser coils shall have copper or aluminum plate fins mechanically bonded to seamless internally grooved copper tubes with all joints brazed.
- 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.

3. 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.
4. 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.
5. 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.

F. Heating Section (48 Series Units):

1. Induced-draft combustion type with energy saving direct-spark ignition system and redundant main gas valve.
2. The heat exchanger shall be of the tubular-section type constructed of a minimum of 20-gage steel coated with a nominal 1.2 mil aluminum-silicone alloy for corrosion resistance.
3. Burners shall be of the in-shot type constructed of aluminum-coated steel.
4. All gas piping shall enter the unit at a single location.

G. Refrigerant Components:

Refrigerant circuit components shall include:

1. Thermostatic expansion valve (TXV).
2. Filter driers.
3. Gage port and connections on suction, discharge, and liquid lines.

H. Filter Section:

Standard filter section shall consist of 2 sizes of factory-installed 2-in. (51 mm) thick throwaway fiberglass filters of commercially available sizes. Filters shall be approximately 10% efficient with an airside pressure drop of approximately 0.07 in. wg (clean).

I. Controls and Safeties:

1. Unit Controls:

- a. Economizer control (optional).
- b. Capacity control (2-step).
- c. Unit shall be complete with self-contained low-voltage control circuit.

2. Safeties:

- a. Unit shall incorporate a solid-state compressor lockout which provides reset capability at the space thermostat, should any of the following safety devices trip and shut off compressor:
 - 1) Compressor lockout protection provided for either internal or external overload.
 - 2) Low-pressure switch.
 - 3) Freezestats (evaporator coil).
 - 4) High-pressure switch.
- b. Supply-air thermostat shall be located in the unit.
- c. Heating section (48 Series) shall be provided with the following minimum protections:
 - 1) High-temperature limit switch.
 - 2) Induced-draft motor speed sensor.
 - 3) Flame rollout switch.
 - 4) Flame proving controls.
 - 5) Redundant gas valve.

J. Operating Characteristics:

1. Unit shall be capable of starting and running at 120 F (49 C) ambient outdoor temperature per maximum load criteria of ARI Standard 360.
2. Unit with standard controls will operate in cooling down to an outdoor ambient temperature of 40 F (4.4 C).
3. Unit shall be provided with fan time delay to prevent cold air delivery.

K. Electrical Requirements:

All unit power wiring shall enter unit cabinet at a single 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. All fan motors shall have permanently lubricated, sealed bearings and inherent automatic-reset thermal overload protection or manual reset calibrated circuit breakers.
3. All indoor-fan motors 5 hp and larger shall meet the minimum efficiency requirements as established by the Energy Policy Act of 1992 (EPACT) effective October 24, 1997.

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. Direct Digital Communicating Controls:
 - a. Shall be available as a factory-installed option.
 - b. Shall actively monitor all modes of operation, as well as evaporator-fan status, filter status, indoor-air quality, supply-air temperature, and outdoor-air temperature.
 - c. Shall work with Carrier TEMP and VVT® systems.
 - d. Shall have built-in diagnostics for thermostat commands for both staged heating and cooling, evaporator-fan operation, and economizer operation.
 - e. Shall be equipped with a 5-minute time delay between modes of operation.
- 2. Roof Curbs (Horizontal and Vertical):
 - a. Formed of 16-gage galvanized steel with wood nailer strip and shall be capable of supporting entire unit weight.
 - b. Permits installing and securing ductwork to curb prior to mounting unit on the curb.
- 3. Horizontal Adapter Roof Curb:

Includes factory-assembled adapter and duct and substantially improves evaporator fan static performance.
- * 4. Integrated Economizer:
 - a. Integrated type capable of simultaneous economizer and compressor operation to provide cooling with outdoor air.
 - b. Equipped with low-leakage dampers not to exceed 3% leakage, at 1.0 in. wg (249 Pa) pressure differential.
 - c. Capable of introducing up to 100% outdoor air.
 - d. Equipped with dry-bulb temperature control to govern economizer changeover. Factory set at 75 F and adjustable from 20 to 90 F.
 - e. Equipped with a mixed-air sensor (MAT) that controls the economizer to a 55° F (30.5° C) control point.
 - f. Shall fit an outdoor-air opening of 17.75-in. high and 71.38-in. long (8.8 sq ft).
- 5. Two-Position Damper:

Two-position damper package shall include single blade damper and motor. Admits up to 25% outdoor air, and shall close upon unit shutoff. Damper shall cover 3.8-in. high by 17.75-in. wide (117.8 sq in.) opening in the return air upper panel.
- 6. Accessory Compressor Cycle Delay:

Compressor shall be prevented from restarting for a minimum of 5 minutes after shutdown.
- * 7. Thermostats and Subbases:

To provide staged heating and cooling in addition to automatic (or manual) changeover and fan control.
- * 8. Barometric Relief Damper Package:
 - a. Package shall include damper, seals, hardware, and hoods to relieve excess internal pressure.
 - b. Damper shall close due to gravity upon unit shutdown.
- * 9. Power Exhaust:

Package shall include an exhaust (propeller style) fan, 1/2 Hp 208-230, 460 v (factory-wired for 460 v) motor, and damper for vertical flow units with economizer to control overpressurization of building.
- 10. Head Pressure Control Package:

Consists of an accessory outdoor-air package and a solid-state control with condenser coil temperature sensor for controlling condenser-fan motor speed to maintain condensing temperature between 90 F (32.2 C) and 100 F (43.3 C) at outdoor ambient temperature down to -20 F (-29.8 C).
- 11. Low-Ambient Kits:

When used, allows units to operate at lower outdoor ambient temperatures.
- * 12. Enthalpy Sensor:
 - a. For use with economizer only.
 - b. Capable of comparing heat content (temperature and humidity) of outdoor air and indoor air and controlling economizer cut-in point at the most economical level.

NOTE: Two accessory enthalpy sensors are required for differential enthalpy control.
- 13. Dehumidification Package:

The dehumidification package is a factory-installed option that provides increased dehumidification by further subcooling the hot liquid refrigerant leaving the condenser coil. The package consists of a single row, 0.375 to 12.25 sq ft subcooling coil located on the leaving airside of the evaporator coil. The location of this coil in the indoor air-stream greatly enhances the latent capacity of the 48/50TJ units.

The package shall be equipped with low pressure switch(es) and TXVs. Low pressure switch(es) prevents evaporator coil freeze-up and TXVs assure a positive superheat condition. If the operation of the subcooling coil is controlled by a field-installed wall-mounted humidistat, the dehumidification circuit will then operate only when needed. Optional field connections for the humidistat are made in the low voltage compartment of the unit control box.
- 14. Humidistat:

Field-installed, wall-mounted humidistat is used to control activation of the dehumidification package. The humidistat can be set for humidity levels between 20% and 80% relative humidity.
- * 15. Electronic Programmable Thermostat:

Capable of using deluxe full-featured electronic thermostat.
- 16. Winter Start Time-Delay Relay:

Used in conjunction with the accessory low-ambient kit or head pressure control device, permits operation in cooling at lower outdoor ambient temperatures. See price pages for more information.

17. Liquid Propane Conversion Kit (48 Series):

A single kit for both low and high heat applications shall contain size 36 spuds and instructions to convert a standard natural gas unit for use with liquid propane.

18. Service Options:

- a. Hinged access panels for the filter, compressors, evaporator fan, and control box areas. Filter hinged access panels permit tool-less entry for changing filters. Evaporator fan hinged access panel shall be field-convertible to a tool-less entry by removing and discarding screws. Each external hinged access panel shall be permanently attached to the rooftop unit.
- b. Convenience outlet: Shall be factory-installed and internally-mounted with an externally accessible 115-v, 15-amp GFI, female receptacle with hinged cover. Voltage required to operate convenience outlet shall be provided by a field-installed separate branch circuit.
- c. Non-fused disconnect switch: Shall be factory-installed, internally-mounted. The NEC and UL approved non-fuse switch shall provide unit power shutoff. The control access door shall be interlocked with the non-fused disconnect. The disconnect switch must be in the OFF position to open the control box access door. Shall be accessible from outside the unit and shall provide power off lockout capability.

19. Electric Heater Package (50 Series Units Only):

- a. Fully assembled for installation. The packages are designed in accordance with UL safety Standard 1995 and listed by ETL. Heater construction approved by UL 5306.
- b. Heater element open coil resistance wire, nickel-chrome alloy, 0.29 inches inside diameter, strung through ceramic insulators mounted on metal frame. Coil ends are staked and welded to terminal screw slots.

- c. Heater assemblies are provided with integral fusing for protection of internal heater circuits not exceeding 48 amps each.
- d. Auto reset thermo limit controls, magnetic heater contactors (24 v coil) and terminal block all mounted in electric heater control box (minimum 18 ga. galvanized steel) attached to end of heater assembly.
- e. Certain models (208-230/3/60, 42/56 and 56/75 kW) require an additional heater control box that contains a field power terminal block, a field power wiring fuse block and fuses (125 A, 250 V, class K5 or RK%); included with the electric heater assembly package.
- f. All power wiring leads are 10 AWG and control wiring leads are 18 AWG, both rated at 105 deg. C.

20. Glycol Coil (50 Series Units Only):

Coil shall be 2-row copper tube (1/2-in. OD) with aluminum plate fins (590 fins/m; 15 fins/in.) and (41.28 mm; 1.625 in. OD) copper headers. Input and output connections shall be 41.28 mm; 1.625 in. ODM) copper stubs for sweat connections. Coil shall be furnished with suitable support rails, end plates, and hardware for ready field installation in heater compartment.

21. Alternate Drive:

Shall provide higher static drive capability to enhance evaporator-fan performance rpm range.

22. Hail Guard, Condenser Coil Grille:

Shall protect the condenser coil from hail, flying debris, and damage by large objects without increasing unit clearances.

