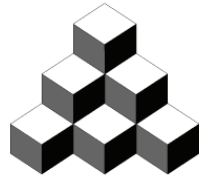




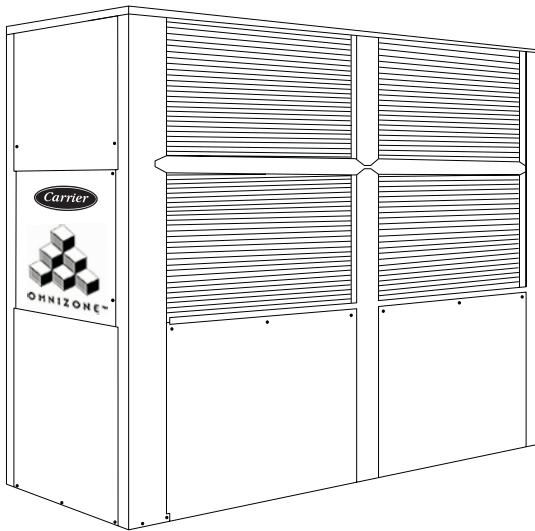
Product Data

OMNIZONE™ 50BV020-064 Remote Air-Cooled and Water-Cooled Indoor Self-Contained Systems and Water Source Heat Pumps

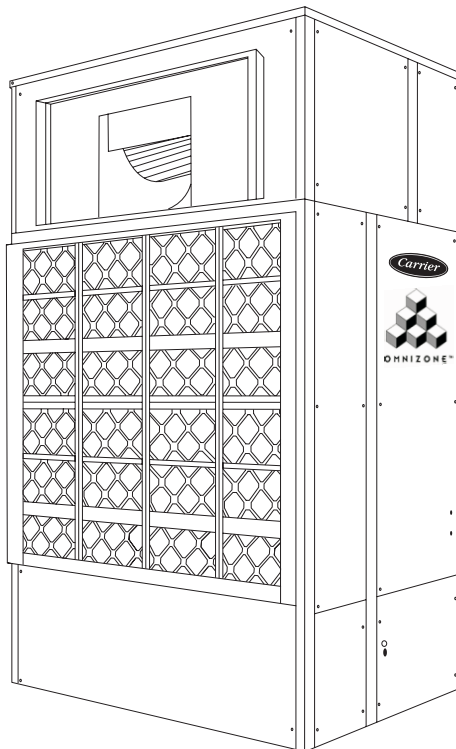
18 to 60 Nominal Tons



OMNIZONE™



50BVC,E,J,K,Q020-034
SINGLE PIECE OMNIZONE UNIT



50BVT,U,V,W,X034-064
MODULAR OMNIZONE UNIT

**ASHRAE
90.1
COMPLIANT**

Omnizone 50BV units offer:

- Available with R-22 or Puron® (R-410A) refrigerant
- High-boy modular units break down to fit through a standard, 36-in. doorway
- Either two or four high-efficiency scroll compressors for efficient part load control, quiet operation and system redundancy
- Suction and discharge Schrader valves on manifold gage connections

Features/Benefits

Omnizone 50BV units are self-contained, water-cooled indoor cooling units, remote air-cooled units, or water source heat pumps.

Flexible, efficient and economical

Units are available for constant volume (CV) or variable air volume (VAV) applications (with the exception of heat pumps) in both modular and single-piece construction. Single-piece units are completely factory wired, piped and charged, ready for installation.

Units with Puron (R-410A) refrigerant have EERs (Energy Efficiency Ratio) up to 14.8, while units with R-22 have EERs up to 14.6.

Units include a direct expansion evaporator coil, compressors, and water-cooled cleanable condensers (unless remote air-cooled). The VAV units include a single or multiple belt drive evaporator fan(s) with VFD (variable frequency drive) controlled motor and complete microprocessor control system. Optional water economizers and hot water heating may also be added.

Features/Benefits (cont)



These vertical package units offer flexible economical air conditioning for today's office environment.

Compressors are mounted on vibration isolators.

Each compressor is equipped with a coaxial tube-in-tube condenser for maximum heat transfer efficiency and performance. All condensers are rated at 450 psig operating refrigerant pressures (600 psig for Puron® refrigerant models) and 400 psig water-side pressures.

Evaporators are enhanced fin, rifled tube type for maximum performance. Large face areas ensure low airside pressure drops and reduced face velocities to prevent condensate carry over and maximum moisture removal.

Coils are either three or four rows deep depending on unit model and mounted in small area, sealed drain pans to inhibit condensate build-up levels.

Units contain either one or two forward curved high-pressure class II fan assemblies depending on the model size. Fans are double width, double inlet welded assemblies statically and dynamically balanced.

Three-phase evaporator-fan motor compatible with use on variable

frequency drive with thermal overload protection.

Puron refrigerant

Carrier's 50BVC, BVE, BVQ, BVJ, BVK units are available with the Puron refrigerant option. Puron refrigerant is a non-chlorine based (R-410A) refrigerant. Puron refrigerant characteristics, compared to R-22, have:

- Binary and near azeotropic mixture of 50% R-32 and 50% R-125.
- Higher efficiencies (50 to 60% higher operating pressures).
- Non-ozone depleting potential and low global warming potential.
- Virtually no glide. Unlike other alternative refrigerants, the two components in Puron refrigerant have virtually the same leak rates. Therefore, refrigerant can be added if necessary without recovering the charge.

Controls and sensors provide maximum control

Factory-mounted variable frequency drive is sized to handle full motor operating current at full load operation. The VFD is provided with duct static sensor, which is field-installed.

- Microprocessor control system, for VAV units only, with unit-mounted

display to control unit as stand alone, CCN (Carrier Comfort Network®) or network operation.

- Unit control panel with Off/Local/Remote switch, alarm indicator lights, and unit interface panel.

Safety features and easy servicing

Each compressor has its own independent refrigerant circuit and is protected by individual branch fusing. Additional protection is provided by thermal overloads and high and low pressure safety switches.

- High and low pressure switches on each circuit.
- Thermostatic expansion valves (TXV) on each circuit mounted outside the airstream.
- Stainless steel or insulated galvanized condensate pan.
- Single point electrical connections and piping connections.
- High discharge static pressure control standard for VAV units.

Quality and reliability are built in

All units are UL (Underwriters Laboratories) and UL, Canada listed.

All units come with a standard one-year product warranty.

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Model number nomenclature



50BV C 020 - B - 6 0 A - -

50BV – OMNIZONE™ Indoor Packaged Cooling Unit

Product Type

- C** – (CV) Cool Only, W/C, Single Piece
- E** – (CV) Cool Only, Remote A/C, Single Piece
- Q** – (CV) Heat Pump, W/C, Single Piece

- J** – (VAV) Cool Only, W/C, Single Piece
- K** – (VAV) Cool Only, Remote A/C, Single Piece

- T** – (CV) Cool Only, W/C, Modular
- U** – (CV) Cool Only, Remote A/C, Modular
- V** – (CV) Heat Pump, W/C, Modular

- W** – (VAV) Cool Only, W/C, Modular
- X** – (VAV) Cool Only, Remote A/C, Modular

Unit Size – Nominal Tons

- 50BVC, 50BVE, 50BVQ, 50BVJ, 50BVK
- 020** – 18 Tons **028** – 25 Tons
- 024** – 20 Tons **034** – 30 Tons

- 50BVT, 50BVU, 50BVV, 50BVW, 50BVX
- 034** – 30 Tons **054** – 50 Tons
- 044** – 40 Tons **064** – 60 Tons

Economizer and Hot Gas Reheat Options *

- – None
- A** – Water Economizer with 3-Way Valve Package and Controls
- B** – Water Economizer with Field-Supplied Valves and Controls
- C** – Hot Gas Reheat Coil (CV, W/C units only)
- D** – Hot Gas Reheat and Economizer with 3-Way Valve and Controls
- E** – Hot Gas Reheat and Economizer with Field-Supplied Valves and Controls

LEGEND

- A/C** — Air-Cooled
- CV** — Constant Volume
- VAV** — Variable Air Volume
- W/C** — Water-Cooled

*Economizer not available on remote A/C unit or units with hot water coil.
 †Horsepower ratings are per motor. Most 50BV units have two indoor-fan motors. See price pages for additional information.
 **BVC,E,Q may select -, B, C, or D only; 50BVJ,K may select C only; 50BVT,U,V,W,X (low-boy) may select C or D only; 50BVT,U,V,W,X (high-boy) may select D or E only.
 ††Refer to 50BV price pages or contact your local Carrier representative for a list of factory-installed options.

Factory-Installed Options††

Refrigerant

- A** – R-22
- B** – R-410A (50BVC, E, Q, J, K)

Design Changes

- 0** – Original Design (50BVC, E, Q, J, K)
- 1** – High-Boy Design (50BVT, U, V, W, X)
- 2** – Low-Boy Design (50BVT, U, V, W, X)
- X** – Original Design Special Order (50BVC, E, Q, J, K)
- Y** – High-Boy Design Special Order (50BVT, U, V, W, X)
- Z** – Low-Boy Design Special Order (50BVT, U, V, W, X)

Voltage

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

Airflow Configuration**

- – Front Return, Top Supply
- B** – Front Return, Rear Supply
- C** – Rear Return, Top Supply
- D** – Rear Return, Front Supply
- E** – Rear Return, Rear Supply

Indoor Motor and Drive Options †

Std (Hp)	Med Static (Hp)	High Static (Hp)
B – 1.5	M – 1.5	3 – 3
C – 2	N – 2	5 – 7.5
D – 3	P – 3	6 – 10
E – 5	R – 7.5	7 – 15
F – 7.5	S – 10	8 – 20
G – 10	T – 15	
H – 15	U – 20	
J – 20		

ARI* capacity ratings



UNIT	SIZE	AIRFLOW (CFM)	CAPACITY (Btuh)	EER
50BVC	020	7,200	215,900/224,750†	14.0/14.6†
	024	7,000	239,800/254,800†	13.8/14.4†
	028	10,000	288,200/313,200†	12.4/13.0†
	034	11,500	359,500/389,500†	14.4/14.8†
50BVE	020	7,200	215,300/215,300†	10.9/14.6†
	024	8,000	239,500/240,700†	10.6/14.4†
	028	9,000	299,200/305,000†	10.1/13.0†
	034	9,000	387,500/407,300†	10.3/14.8†
50BVQ	020	7,200	215,900/224,750†	14.0/14.6†
	024	7,450	241,600/254,800†	13.8/14.4†
	028	10,000	288,200/313,200†	12.4/13.0†
	034	11,000	359,900/389,500†	14.4/14.8†
50BVJ	020	7,200	215,900/224,750†	14.0/14.6†
	024	7,000	239,800/254,800†	13.8/14.4†
	028	10,000	288,200/313,200†	12.4/13.0†
	034	11,500	359,500/389,500†	14.4/14.8†
50BVK	020	7,200	215,300/215,300†	10.9/14.6†
	024	8,000	239,500/240,700†	10.6/14.4†
	028	9,000	299,200/305,000†	10.1/13.0†
	034	9,000	387,500/407,300†	10.3/14.8†
50BVT	034	9,000	385,000	14.0
	044	12,000	500,600	14.1
	054	15,000	651,600	14.6
	064	18,000	769,900	13.8
50BVU	034	9,000	379,000	10.1
	044	12,000	514,200	10.3
	054	15,000	634,800	10.3
	064	18,000	763,700	10.1
50BVV	034	9,000	385,000	14.0
	044	12,000	500,600	14.1
	054	15,000	651,600	14.6
	064	18,000	769,900	13.8
50BVW	034	9,000	385,000	14.0
	044	12,000	500,600	14.1
	054	15,000	651,600	14.6
	064	18,000	769,900	13.8
50BVX	034	9,000	379,000	10.1
	044	12,000	514,200	10.3
	054	15,000	634,800	10.3
	064	18,000	763,700	10.1

LEGEND

EER — Energy Efficiency Ratio

*Air Conditioning and Refrigeration Institute.

†R-22 unit rating/R-410A unit rating.

NOTE: Units rated in accordance with ARI 340/360 conditions.



**ARI Standard
340/360**

Physical data — 50BVC,E,J,K,Q units



UNIT 50BVC,E,J,K,Q	020	024	028	034
NOMINAL CAPACITY (Tons)	18	20	25	30
SHIPPING WEIGHT (lb) 50BVC,Q...50BVJ 50BVE...50BVK	1192...1227 1110...1145	1378...1413 1290...1325	1428...1473 1320...1365	1680...1725 1520...1565
COMPRESSOR Quantity Number of Refrigerant Circuits Oil (oz) Ckt 1...Ckt 2	Copeland Scroll			
	2 2 85...85	2 2 110...110	2 2 110...110	2 2 140...140
REFRIGERANT TYPE Expansion Device Operating Charge (lb) Ckt 1...Ckt 2	R-22 or R-410A			
	TXV 8.1...8.1	TXV 9.1...9.1	TXV 9.1...9.1	TXV 18.0...18.0
CONDENSER (50BVC,Q,J only) Quantity of Manifolds Nominal Flow Rate (gpm) Water Flow Range (gpm) Max Water Working Pressure (psig) Max Refrig Working Pressure (psig) Min Entering Water Temp (F) Max Entering Water Temp (F) Waterside Volume (gal.)	Tube-in-Tube Coaxial			
	2 54 36-72 400 450 (600*) 50 110 3.6	2 60 40-80 400 450 (600*) 50 110 4.0	2 75 50-100 400 450 (600*) 50 110 5.0	2 90 60-120 400 450 (600*) 50 110 6.0
EVAPORATOR COIL Rows...Fins/in. Total Face Area (sq ft)	3...14 18.1	3...14 18.1	3...14 18.1	3...14 22.0
EVAPORATOR FAN Quantity...Size Type Drive Nominal cfm Std Motor Qty...hp...Frame Size Alt 1 Motor Qty...hp...Frame Size Alt 2 Motor Qty...hp...Frame Size Alt 3 Motor Qty...hp...Frame Size Motor Nominal rpm (1.5, 2, 3, hp) Motor Nominal rpm (5 hp) Fan Drive rpm Range Std Fan Drive (1.5, 2, 3 hp) Std Fan Drive (5 hp) Med Static Fan Drive (1.5, 2, 3 hp) Motor Bearing Type Maximum Allowable rpm Motor Pulley Pitch Diameter Std Fan Drive (1.5, 2, 3 hp) Std Fan Drive (5 hp) Med Static Fan Drive (1.5, 2, 3 hp) Motor Shaft Diameter (in.) (1.5, 2 hp) Motor Shaft Diameter (in.) (3, 5 hp) Belt, Qty...Type...Length (in.) Std Fan Drive (1.5, 2 hp) Std Fan Drive (3 hp) Std Fan Drive (5 hp) Med Static Fan Drive (1.5, 2 hp) Med Static Fan Drive (3 hp) Pulley Center Line Distance (in.) Speed Change Per Full Turn of Moveable Pulley Flange (rpm) Std Fan Drive (1.5, 2, 3 hp) Std Fan Drive (5 hp) Med Static Fan Drive (1.5, 2, 3 hp) Fan Shaft Diameter (in.)	2...15x15 Belt 7200 2...1.5...56 2...2...56H 2...3...56HZ 2...5...56HZ — 1725 3450 753- 952 967-1290 872-1071 Ball 1300 3.7-4.7 2.9-3.9 4.3-5.3 5/8 7/8 1...B...39 2...B...39 2...BX...42 1...B...40 2...B...40 10.1...10.9 — 33 54 33 1	2...15x15 Belt 8000 2...2...56H 2...3...56HZ 2...5...56HZ — 1725 3450 753- 952 967-1290 872-1071 Ball 1300 3.7-4.7 2.9-3.9 4.3-5.3 5/8 7/8 1...B...39 2...B...39 2...BX...42 1...B...40 2...B...40 10.1...10.9 — 33 54 33 1	2...15x15 Belt 10,000 2...3...56HZ 2...5...56HZ — 1725 3450 753- 952 967-1290 872-1071 Ball 1300 3.7-4.7 2.9-3.9 4.3-5.3 — 7/8 2...B...39 2...BX...42 2...B...40 10.1...10.9 — 33 54 33 1	2...15x15 Belt 12,000 2...5...56HZ — — 3450 — 967-1290 — Ball 1300 — 2.9-3.9 — — 7/8 — — 2...BX...42 — — 10.1...10.9 — 54 — — 1
HIGH PRESSURE SWITCHES (psig) Cutout Reset (Auto)	380 (420*) ± 10 300 (420*) ± 15	380 (420*) ± 10 300 (420*) ± 15	380 (420*) ± 10 300 (420*) ± 15	380 (420*) ± 10 300 (420*) ± 15
LOW PRESSURE SWITCHES (psig) Cutout Reset (Auto)	20 (40*) ± 3 40 (60*) ± 5	20 (40*) ± 3 40 (60*) ± 5	20 (40*) ± 3 40 (60*) ± 5	20 (40*) ± 3 40 (60*) ± 5
REMOTE REFRIGERANT CONNECTIONS (50BVE,K Only) Discharge (Hot Gas) Connection (in.) Qty...Size Liquid Connection (in.) Qty...Size	2...1 ¹ / ₈ 2... ⁷ / ₈	2...1 ¹ / ₈ 2... ⁷ / ₈	2...1 ¹ / ₈ 2... ⁷ / ₈	2...1 ¹ / ₈ 2... ⁷ / ₈
RETURN AIR FILTERS Quantity...Size (in.)	4...20x34.5x1	4...20x34.5x1	4...20x34.5x1	4...30x34.5x1

LEGEND

TXV — Thermostatic Expansion Valve

*R-410A models.

Physical data — 50BVT,U,V,W,X units



UNIT 50BVT,U,V,W,X	034	044	054	064
NOMINAL CAPACITY (Tons)	30	40	50	60
SHIPPING WEIGHT (lb) 50BVT.V...50BVW 50BVU...50BVX	2585...2650 2425...2490	4680...4750 4440...4492	5400...5500 5140...5240	5450...5550 5190...5290
COMPRESSOR Quantity Number of Refrigerant Circuits Oil (oz) Circuit 1...Circuit 2 Circuit 3...Circuit 4	Copeland Scroll			
	2 2	4 4	4 4	4 4
	140...140 —	110...110 110...110	140...140 140...140	140...140 140...140
REFRIGERANT TYPE Expansion Device Operating Charge (lb) Circuit 1...Circuit 2 Circuit 3...Circuit 4	R-22			
	TXV 18.0...18.0 —	TXV 10.0...10.0 10.0...10.0	TXV 18.0...18.0 18.0...18.0	TXV 18.0...18.0 18.0...18.0
CONDENSER (50BVT,V,W only) Quantity of Manifolder Circuits Nominal Flow Rate (gpm) Water Flow Range (gpm) Max Water Working Pressure (psig) Max Refrig Working Pressure (psig) Min Entering Water Temp (F) Max Entering Water Temp (F) Waterside Volume (gal.)	Tube-in-Tube Coaxial			
	2 90 60-120 400 450 50 110 6.0	4 120 80-160 400 450 50 110 9.0	4 150 100-200 400 450 50 110 11.3	4 180 120-240 400 450 50 110 13.5
WATERSIDE ECONOMIZER COIL Rows...Fins/in. Total Face Area (sq ft)	3...10 23.2	3...10 46.4	3...10 46.4	3...10 46.4
EVAPORATOR COIL Rows...Fins/in. Total Face Area (sq ft)	4...12 23.2	3...12 46.4	4...12 46.4	4...12 46.4
EVAPORATOR FAN Quantity...Size Type Drive Nominal cfm Motor Option 1 Qty...hp...Frame Size Motor Option 2 Qty...hp...Frame Size Motor Option 3 Qty...hp...Frame Size Motor Option 4 Qty...hp...Frame Size Motor Nominal rpm Fan Drive rpm Range Standard (7.5 hp) Standard (10, 15, 20 hp), Med Static (7.5 hp) Med Static (10, 15, 20 hp), High Static (7.5 hp) High Static (10, 15, 20 hp) Motor Bearing Type Maximum Allowable rpm Motor Pulley Pitch Diameter Std Fan Drive (7.5 hp) Std Fan Drive (10, 15, 20 hp), Med Static (7.5 hp) Med Static Fan Drive (10, 15, 20 hp), High Static (7.5 hp) High Static Fan Drive (10, 15, 20 hp) Motor Shaft Diameter (in.) (7.5, 10 hp) Motor Shaft Diameter (in.) (15, 20 hp) Belt, Qty...Type...Length (in.) Std Fan Drive (7.5 hp) Std Fan Drive (10, 15, 20 hp), Med Static (7.5 hp) Med Static Fan Drive (10, 15, 20 hp), High Static (7.5 hp) High Static Fan Drive (10, 15, 20 hp) Pulley Center Line Distance (in.) Speed Change Per Full Turn of Moveable Pulley Flange (rpm) Std Fan Drive (7.5 hp) Std Fan Drive (10, 15, 20 hp), Med Static (7.5 hp) Med Static Fan Drive (10, 15, 20 hp), High Static (7.5 hp) High Static Fan Drive (10, 15, 20 hp) Fan Shaft Diameter (in.)	1...18x18 Belt 12,000 1...7.5...213T 1...10...215T 1...15...254T 1...20...256T 1750 780- 960 805- 991 960-1146 1119-1335 Ball 1450 5.2-6.4 4.8-6.0 5.8-7.0 5.8-7.0 3/8 1 5/8 2...B...48 2...B...46 2...B...48 2...B...45 10.2-11.4 36 31 31 36 1 7/16	2...18x18 Belt 16,000 2...7.5...213T 2...10...215T 2...15...254T — 1750 780- 960 805- 991 960-1146 1119-1335 Ball 1450 5.2-6.4 4.8-6.0 5.8-7.0 5.8-7.0 3/8 1 5/8 2...B...48 2...B...46 2...B...48 2...B...45 10.2-11.4 36 31 31 36 1 7/16	2...18x18 Belt 20,000 2...7.5...213T 2...10...215T 2...15...254T 2...20...256T 1750 780- 960 805- 991 960-1146 1119-1335 Ball 1450 5.2-6.4 4.8-6.0 5.8-7.0 5.8-7.0 3/8 1 5/8 2...B...48 2...B...46 2...B...48 2...B...45 10.2-11.4 36 31 31 36 1 7/16	2...18x18 Belt 24,000 2...7.5...213T 2...10...215T 2...15...254T 2...20...256T 1750 780- 960 805- 991 960-1146 1119-1335 Ball 1450 5.2-6.4 4.8-6.0 5.8-7.0 5.8-7.0 3/8 1 5/8 2...B...48 2...B...46 2...B...48 2...B...45 10.2-11.4 36 31 31 36 1 7/16
HIGH PRESSURE SWITCHES (psig) Cutout Reset (Auto)	380 ± 10 300 ± 15	380 ± 10 300 ± 15	380 ± 10 300 ± 15	380 ± 10 300 ± 15
LOW PRESSURE SWITCHES (psig) Cutout Reset (Auto)	20 ± 3 40 ± 5	20 ± 3 40 ± 5	20 ± 3 40 ± 5	20 ± 3 40 ± 5
REMOTE REFRIGERANT CONNECTIONS (50BVU,X Only) Discharge (Hot Gas) Connection (in.) Qty...Size Liquid Connection (in.) Qty...Size	2...1 1/8 2...7/8	4...1 1/8 4...7/8	4...1 1/8 4...7/8	4...1 1/8 4...7/8
RETURN AIR FILTERS Quantity...Size (in.)	8...17x27x4	16...17x27x4	16...17x27x4	16...17x27x4

LEGEND

TXV — Thermostatic Expansion Valve

Factory-installed options



Waterside economizer — A condenser water pre-cooling coil located before the direct expansion cooling coils allows the use of the condenser water to provide free cooling. When the condenser water temperature is less than an adjustable set point or more below the return-air temperature, condenser water is directed to the economizer coil to obtain free cooling. When free cooling is available the economizer coil functions as the first stage of cooling. The economizer coil valve can be modulated to control discharge-air temperature when the economizer can meet or exceed the cooling needs. If the economizer coil can not control the discharge-air temperature, stages of compressors are brought on to control the discharge-air temperature.

The waterside economizer option consists of the economizer coil, two three-way valves, vent and drain fittings and the required piping. The economizer coils are 4 or 8 row coils with 8 or 10 fins per inch and are chemically cleanable. The unit controller controls all required control logic and changeover.

Hot water coil — The hot water coil can be factory-installed on the inlet side of the direct expansion cooling coils with field piping connections on the side of the unit. The hot water coil requires separate in/out water connects.

NOTE: This option is not available for the 50BVT,U,V,W,X units with waterside economizer.

Hot gas reheat — When indoor air quality is a concern, a hot gas reheat coil can be ordered to help control humidity levels on constant volume units. Normally, bringing humidity levels down to acceptable levels requires cooling the air to relatively low temperatures producing uncomfortable

conditions in the space. This option uses hot refrigerant gas to reheat the air and is controlled by space humidity levels only operating when needed.

Energy management and alarm relay package — A 24-vac relay can be provided to remotely start and stop units with constant volume configuration. An additional relay is provided to close when a compressor malfunction is detected, providing remote signaling to a building automation system.

Cupronickel condenser — Cupronickel (Cu/Ni) condensers are available for higher corrosion protection.

Hot gas bypass — Hot gas bypass is available on constant volume units (standard on VAV units) for extended capacity operation and to prevent coil freezing at low load conditions.

Rubatex® insulated basepan — This option is available for additional sound deadening characteristics and corrosion protection in the compressor compartment.

Condensate overflow switch — A mechanical safety switch located in the unit's evaporator basepan provides protection against condensate overflow.

Extended range option — This option provides condensate protection on the condenser waterside for humid applications.

Freeze protection switch — Sensor provides evaporator coil protection against freezing.

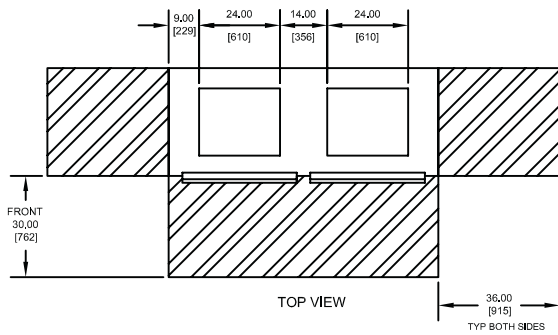
Blower orientation — To change the airflow direction, the blower orientation is rotated while the blower section remains in the same unit configuration (top, front, etc.).

Dimensions



50BVC,J,Q020-034

FRONT RETURN, TOP SUPPLY

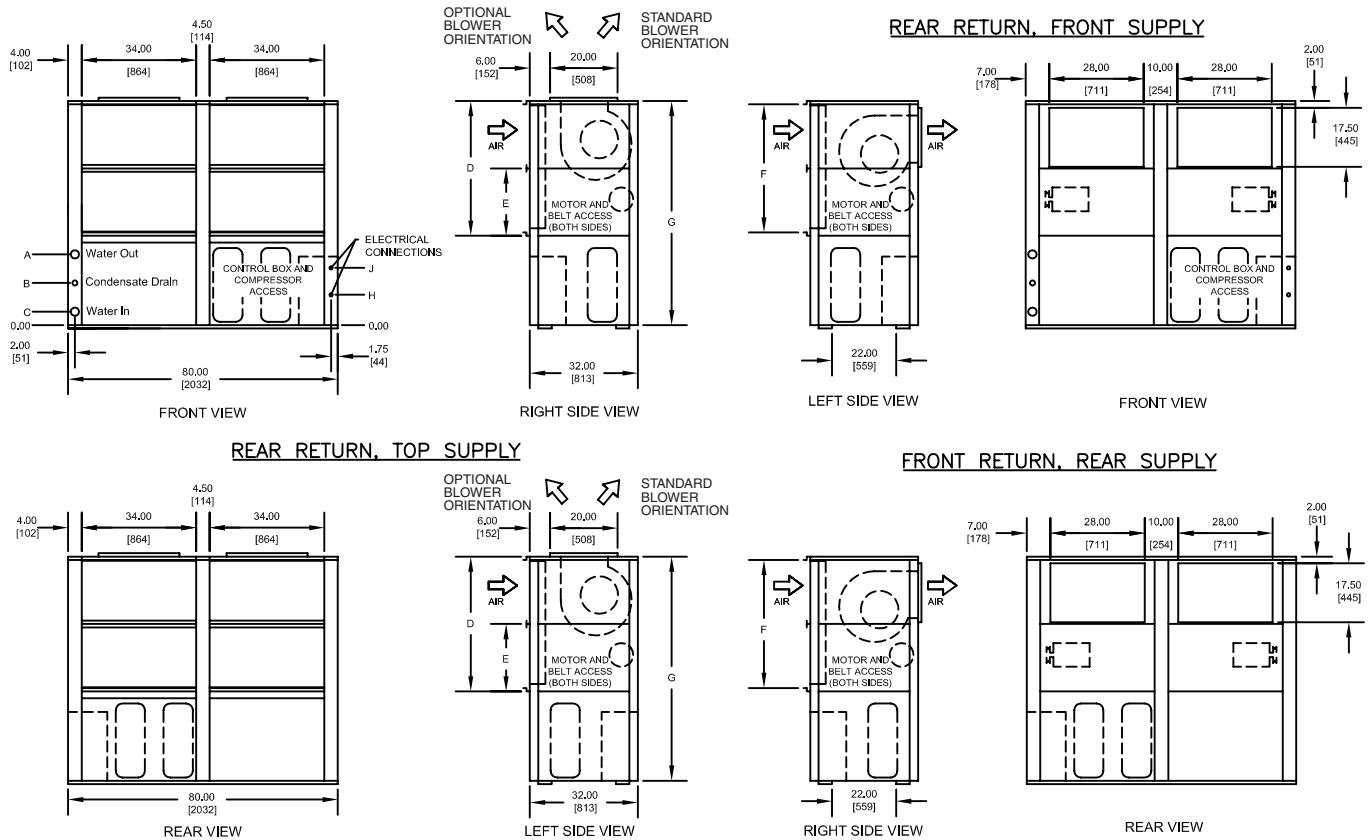


	50BV(C)(Q)(J) UNIT NOMINAL SIZE			
	020	024	028	034
A	14.75 [375]	14.75 [375]	14.75 [375]	15.00 [381]
B	8.50 [216]	8.75 [222]	8.75 [222]	9.00 [229]
C	2.75 [70]	2.75 [70]	2.75 [70]	3.50 [89]
D	40.00 [1016]	40.00 [1016]	40.00 [1016]	60.00 [1524]
E	20.00 [508]	20.00 [508]	20.00 [508]	30.00 [762]
F	38.00 [965]	38.00 [965]	38.00 [965]	58.00 [1473]
G	62.00 [1575]	66.50 [1689]	66.50 [1689]	86.50 [2197]
H	4.00 [101]	4.00 [101]	4.00 [101]	4.00 [101]
J	18.75 [476]	18.75 [476]	18.75 [476]	18.75 [476]
WATER CONN.	2" FPT	2" FPT	2" FPT	2" FPT
CONDENSATE CONN.	1-1/4" FPT	1-1/4" FPT	1-1/4" FPT	1-1/4" FPT
FILTER QTY. & SIZE	(4) 20 x 34-1/2 x 1"	(4) 20 x 34-1/2 x 1"	(4) 20 x 34-1/2 x 1"	(4) 30 x 34-1/2 x 1"

NOTES:

- Dimensions in inches [mm].
- VAV models (50BVJ) are rear return, top supply only.
- Compressor, controls, and condenser access are through front panels.
- Field power connections are 1-3/4 inches. Control connections are 7/8 inches.
- Optional blower orientation is selected in model number nomenclature as option 9 in FIOP section (digits 15 and 16).

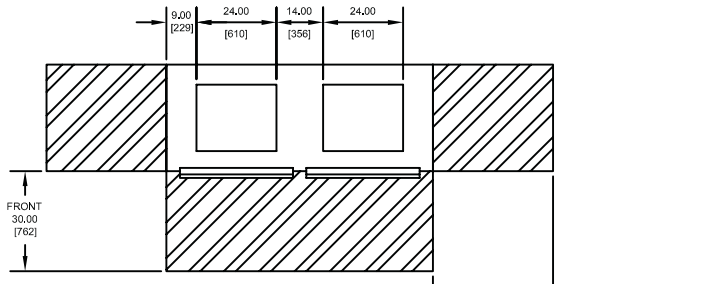
Shows recommended minimum service clearances.



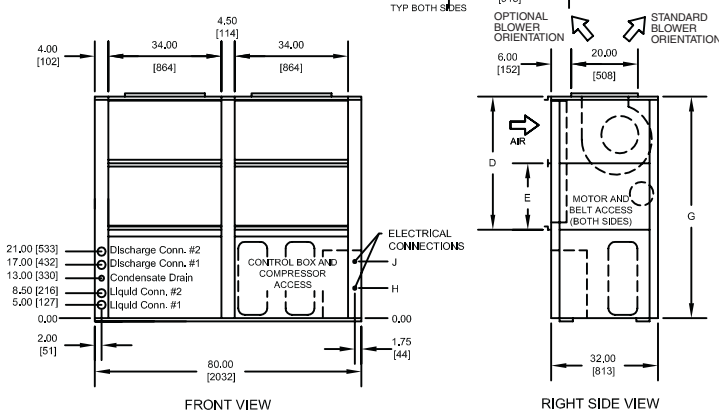
50BVE,K020-034

	50BV(E)(K) UNIT NOMINAL SIZE			
	020	024	028	034
D	40.00 [1016]	40.00 [1016]	40.00 [1016]	60.00 [1524]
E	20.00 [508]	20.00 [508]	20.00 [508]	30.00 [762]
F	38.00 [965]	38.00 [965]	38.00 [965]	58.00 [1473]
G	62.00 [1575]	66.50 [1689]	66.50 [1689]	86.50 [2197]
H	4.00 [101]	4.00 [101]	4.00 [101]	4.00 [101]
J	18.75 [476]	18.75 [476]	18.75 [476]	18.75 [476]
CONDENSATE CONN.	1-1/4" FPT	1-1/4" FPT	1-1/4" FPT	1-1/4" FPT
FILTER QTY. & SIZE	(4) 20 x 34-1/2 x 1"	(4) 20 x 34-1/2 x 1"	(4) 20 x 34-1/2 x 1"	(4) 30 x 34-1/2 x 1"

FRONT RETURN, TOP SUPPLY



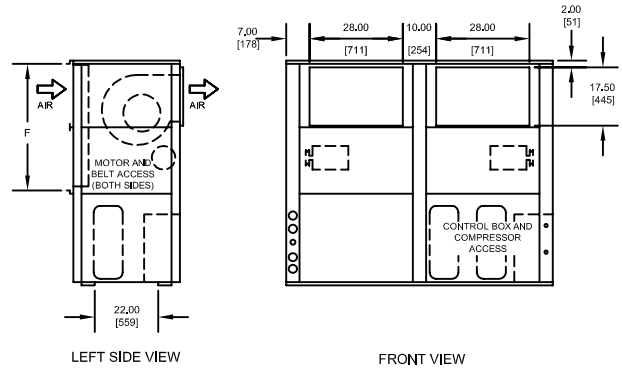
TOP VIEW



FRONT VIEW

RIGHT SIDE VIEW

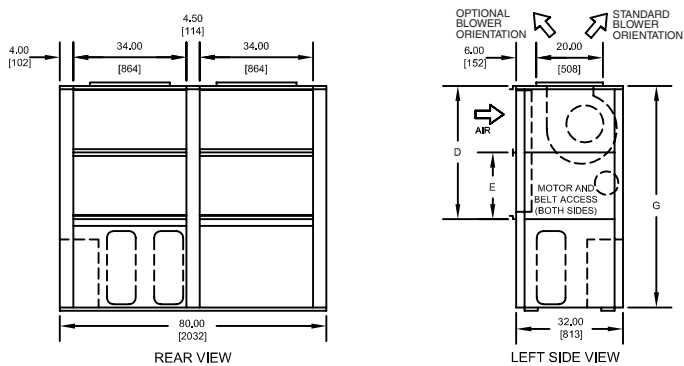
REAR RETURN, FRONT SUPPLY



LEFT SIDE VIEW

FRONT VIEW

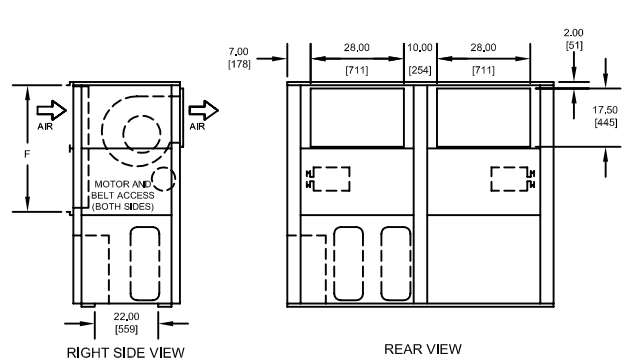
REAR RETURN, TOP SUPPLY



REAR VIEW

LEFT SIDE VIEW

FRONT RETURN, REAR SUPPLY



RIGHT SIDE VIEW

REAR VIEW

NOTES:

- Dimensions in inches [mm].
- VAV models (50BVK) are rear return, top supply only.
- Compressor, controls, and condenser access are through front panels.
- Field power connections are 1-3/4 inches. Control connections are 7/8 inches.
- Discharge (hot gas) connections are 1-1/8 in. OD.
- Liquid line connections are 7/8 in. OD.
- Optional blower orientation is selected in model number nomenclature as option 9 in FIOP section (digits 15 and 16).

RECOMMENDED CONDENSER MATCHES:

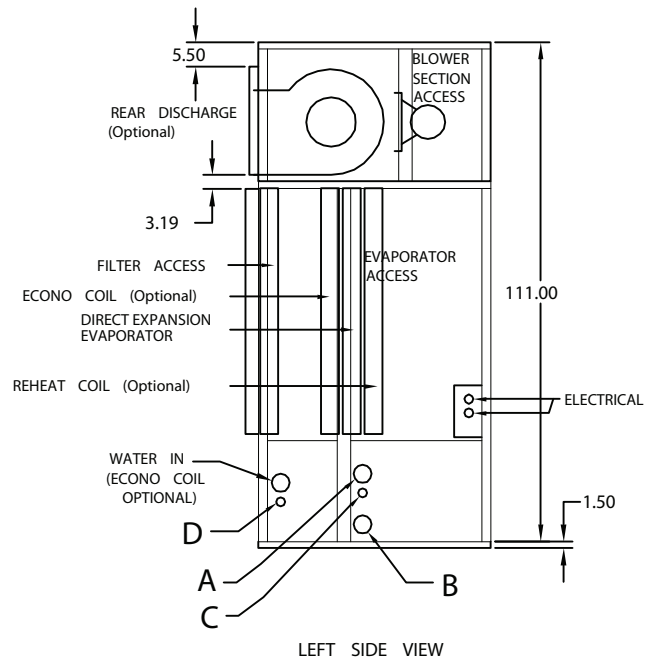
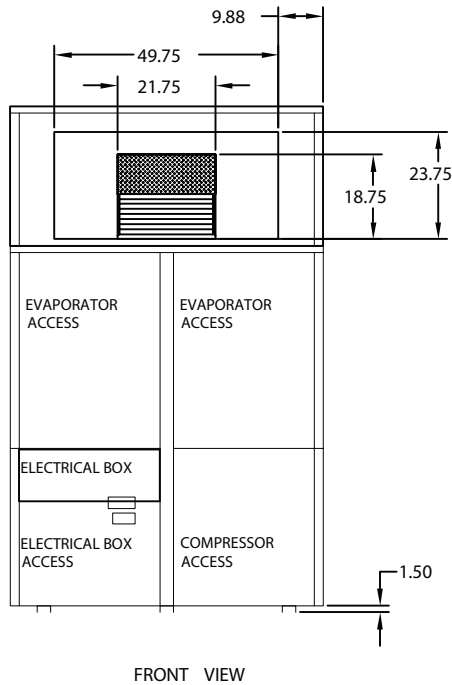
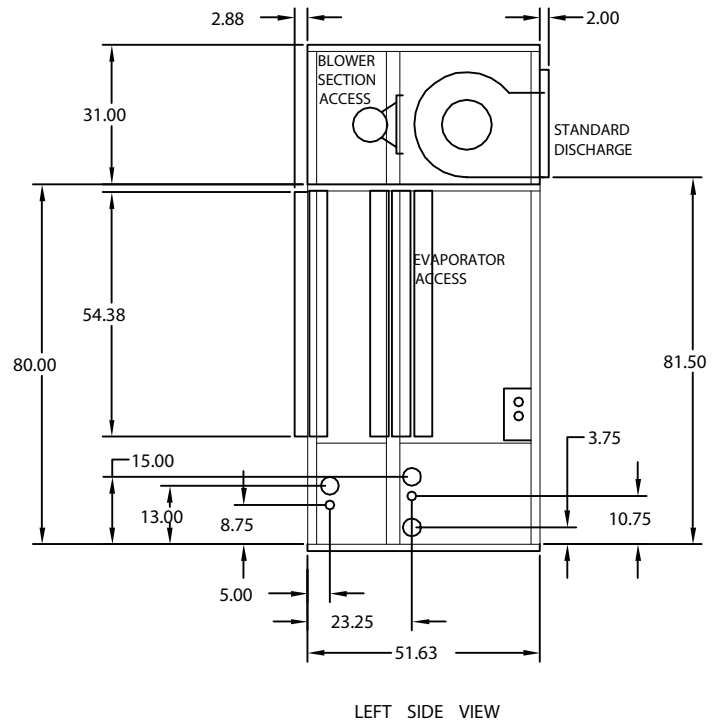
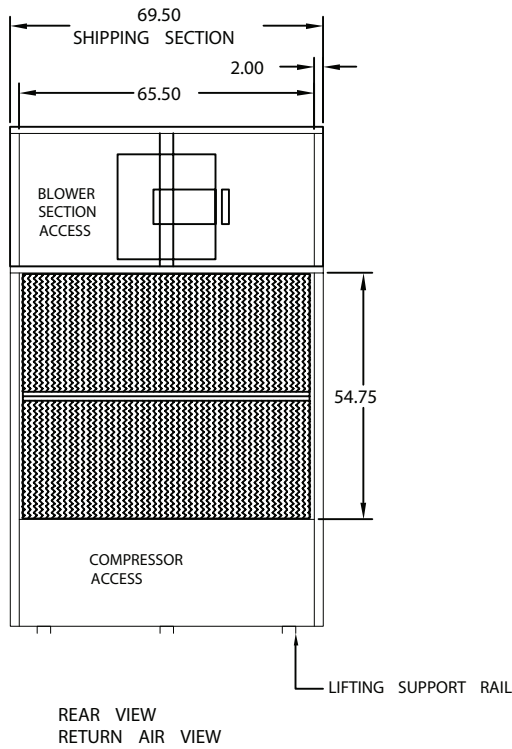
- 50BV020 → one (1) 09DK020 (50/50 split each)
- 50BV024 → one (1) 09DK024 (50/50 split each)
- 50BV028 → one (1) 09DK028 (50/50 split each)
- 50BV034 → one (1) 09DK034 (50/50 split each)

Shows recommended minimum service clearances.

Dimensions (cont)



50BVT,V,W034 (High-Boy)



NOTES:

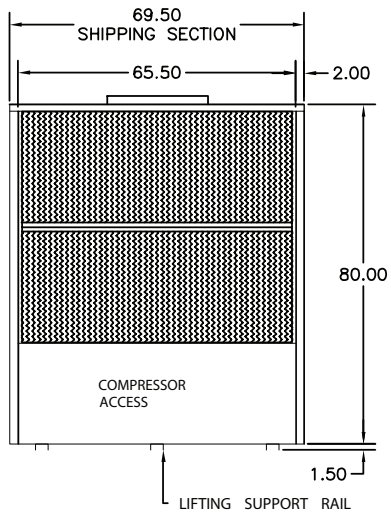
1. Dimensions in inches [mm].
2. All units are rear return airflow configuration.
3. Constant volume units are available with front or rear air supply.
4. Recommended minimum service clearances are as follows:
 - a. Front and rear — 30 [762]
 - b. Left or right side — 65 [1651] for coil removal
 - c. Side opposite coil removal — 20 [508]

CONNECTIONS

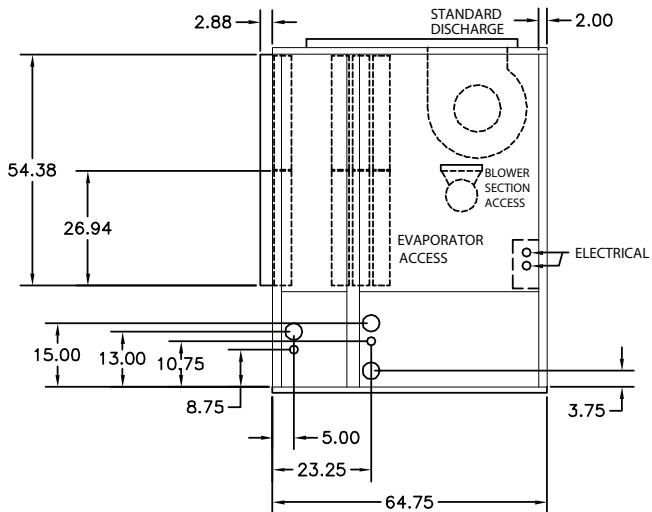
Label	Connection Name	Size
A	WATER OUT	2-1/2 in. FPT
B	WATER IN	2-1/2 in. FPT
C	CONDENSATE DRAIN	1-1/4 in. FPT
D	ECONOMIZER DRAIN	1-1/4 in. FPT

REPLACEMENT FILTERS : EIGHT (8) AT 17 x 27 x 4 INCHES.

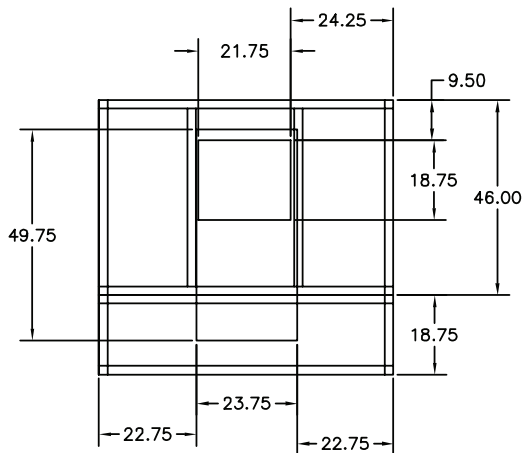
50BVT,V,W034 (Low-Boy)



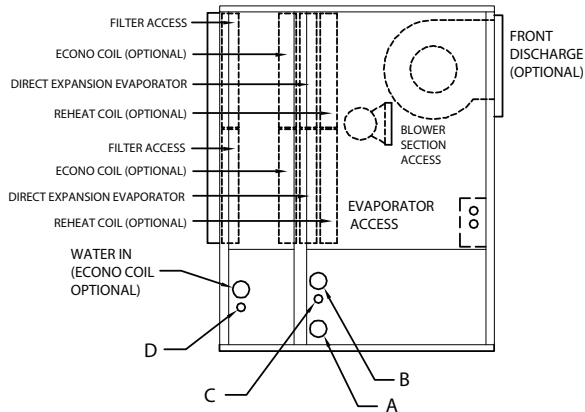
REAR VIEW
RETURN AIR VIEW



LEFT SIDE VIEW



TOP DISCHARGE
TOP VIEW



LEFT SIDE VIEW

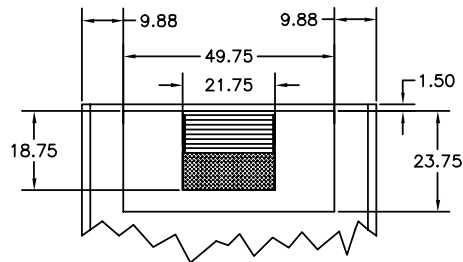
CONNECTIONS

A	WATER OUT	2-1/2 in. FPT
B	WATER IN	2-1/2 in. FPT
C	CONDENSATE DRAIN	1-1/4 in. FPT
D	ECONOMIZER DRAIN	1-1/4 in. FPT

REPLACEMENT FILTERS : EIGHT (8) AT 17 x 27 x 4 INCHES.

NOTES:

- Dimensions in inches [mm].
- All units are rear return airflow configuration.
- Recommended minimum service clearances are as follows:
 - Front and rear — 30 [762]
 - Left or right side — 65 [1651] for coil removal
 - Side opposite coil removal — 20 [508]

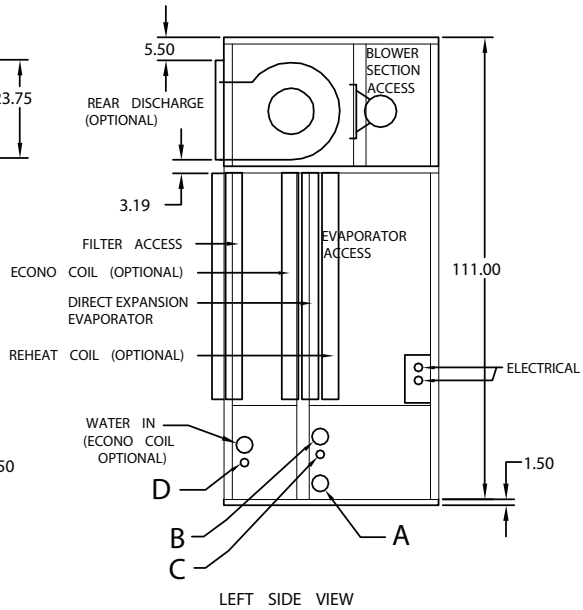
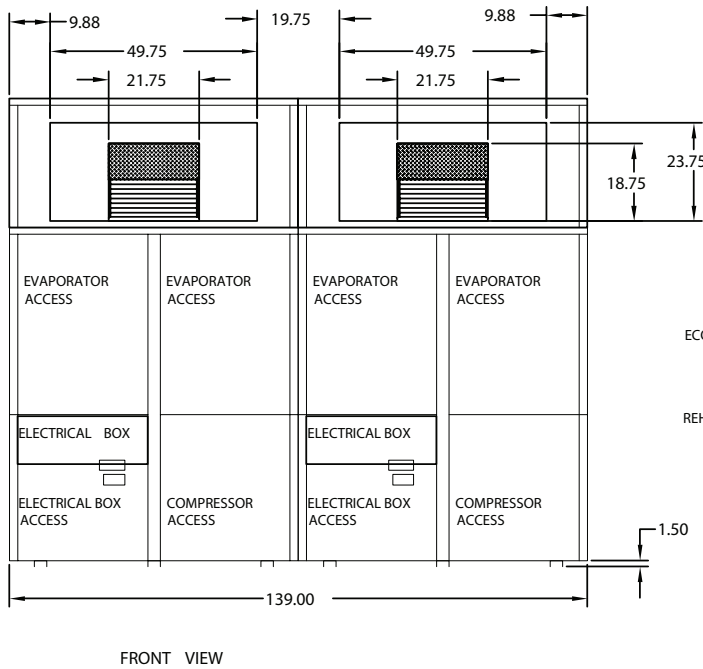
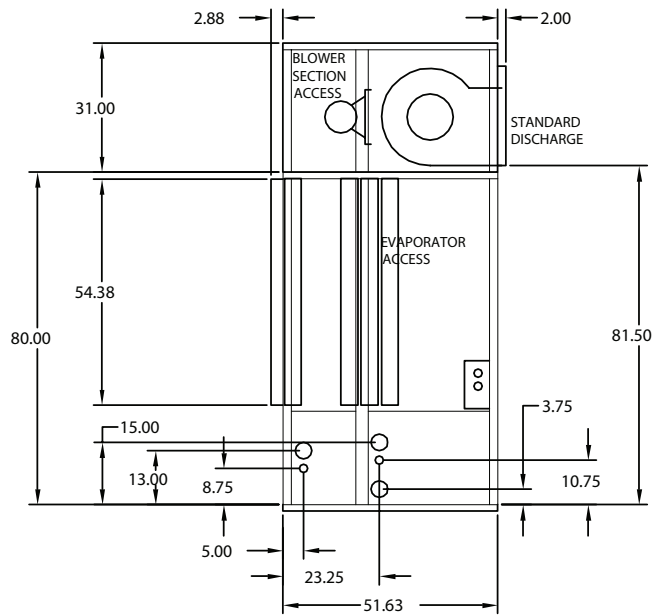
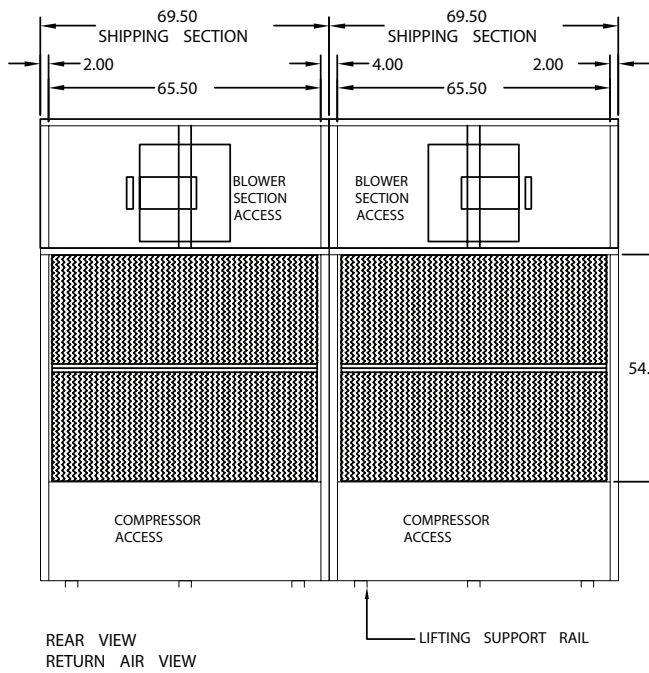


PARTIAL VIEW OF
FRONT DISCHARGE

Dimensions (cont)



50BVT,V,W044-064 (High-Boy)



NOTES:

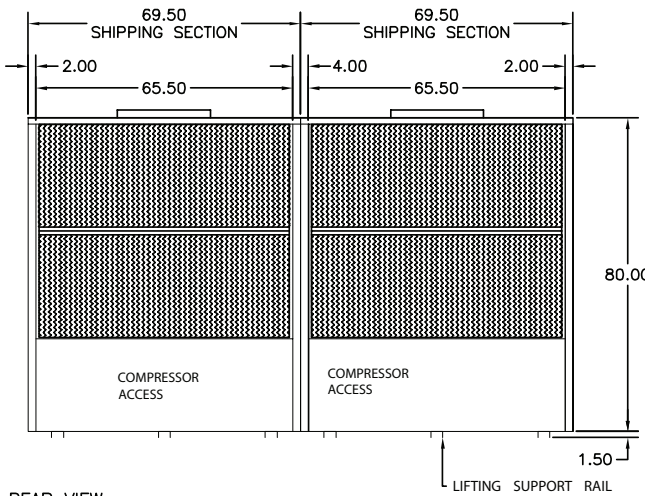
- Dimensions in inches [mm].
- All units are rear return airflow configuration.
- CV units are available with front or rear air supply.
- Recommended minimum service clearances are as follows:
 - Front and rear — 30 [762]
 - Left and right sides — 65 [1651] for coil removal

CONNECTIONS

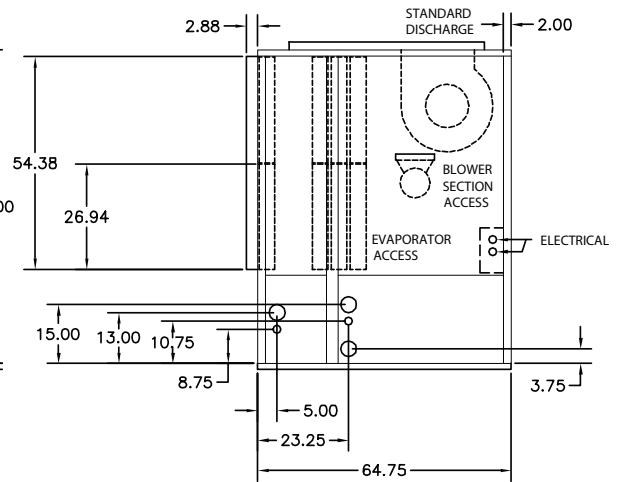
	UNIT SIZE	044	054	064
A	WATER OUT	2-1/2 in. FPT	3 in. FPT	3 in. FPT
B	WATER IN	2-1/2 in. FPT	3 in. FPT	3 in. FPT
C	CONDENSATE DRAIN	1-1/4 in. FPT	1-1/4 in. FPT	1-1/4 in. FPT
D	ECONOMIZER DRAIN	1-1/4 in. FPT	1-1/4 in. FPT	1-1/4 in. FPT

REPLACEMENT FILTERS : SIXTEEN (16) AT 17 x 27 x 4 INCHES.

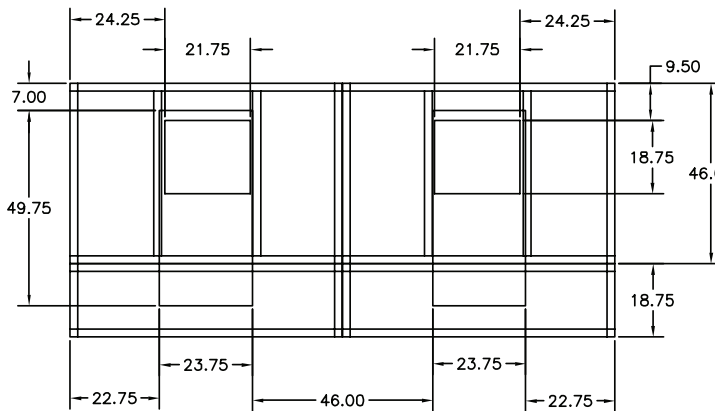
50BVT,V,W044-064 (Low-Boy)



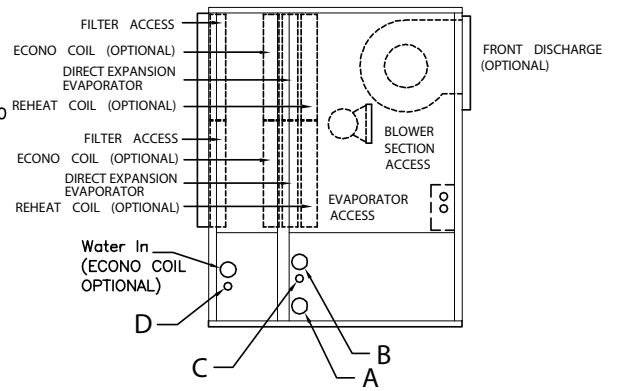
REAR VIEW
RETURN AIR VIEW



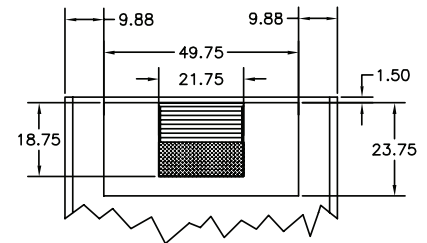
LEFT SIDE VIEW



TOP DISCHARGE
TOP VIEW



LEFT SIDE VIEW



PARTIAL VIEW OF
FRONT DISCHARGE

NOTES:

1. Dimensions in inches [mm].
2. All units are rear return airflow configuration.
3. Recommended minimum service clearances are as follows:
 - a. Front and rear — 30 [762]
 - b. Left and right sides — 65 [1651] for coil removal

CONNECTIONS

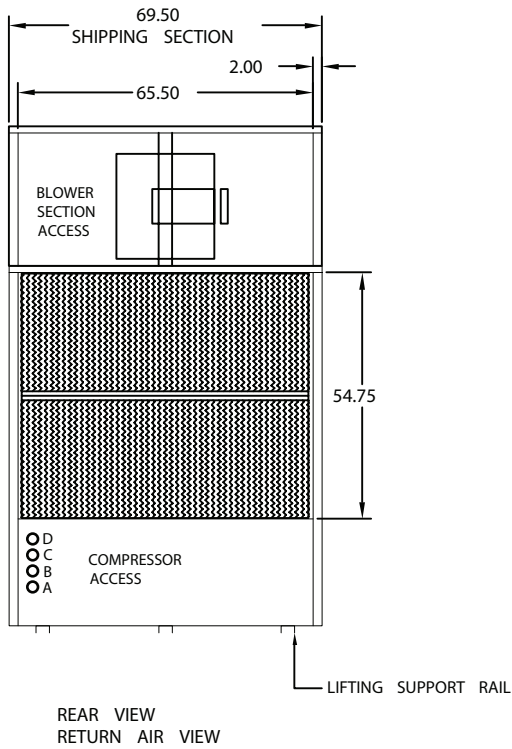
	UNIT SIZE	044	054	064
A	WATER OUT	2-1/2 in. FPT	3 in. FPT	3 in. FPT
B	WATER IN	2-1/2 in. FPT	3 in. FPT	3 in. FPT
C	CONDENSATE DRAIN	1-1/4 in. FPT	1-1/4 in. FPT	1-1/4 in. FPT
D	ECONOMIZER DRAIN	1-1/4 in. FPT	1-1/4 in. FPT	1-1/4 in. FPT

REPLACEMENT FILTERS : SIXTEEN (16) AT 17 x 27 x 4 INCHES.

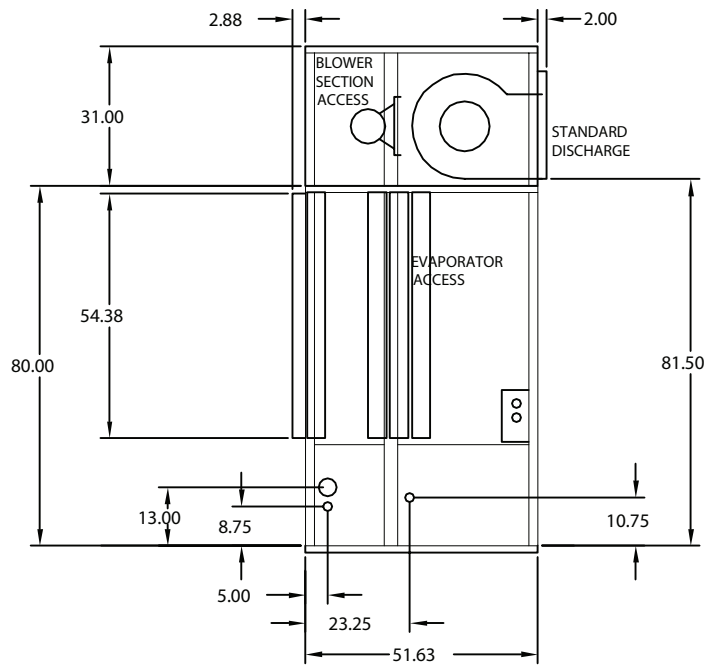
Dimensions (cont)



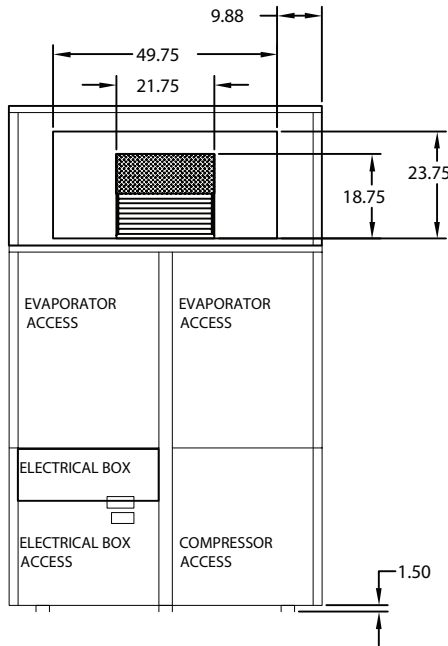
50BVU,X034 (High-Boy)



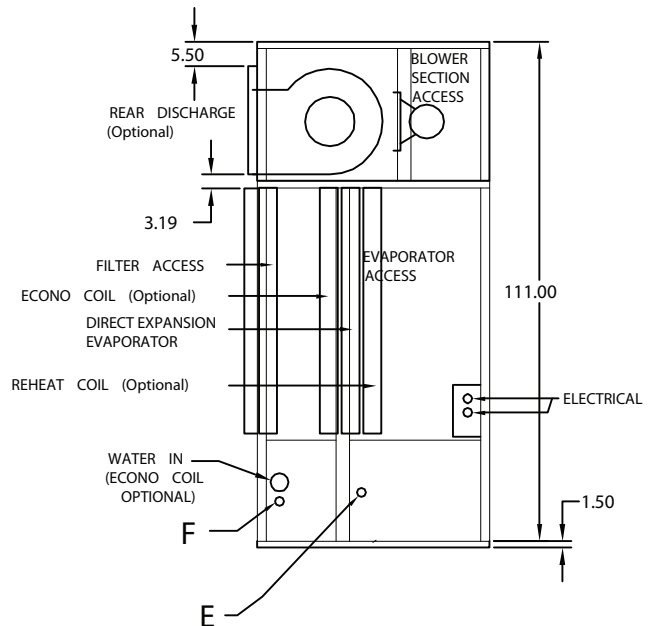
REAR VIEW
RETURN AIR VIEW



LEFT SIDE VIEW



FRONT VIEW



LEFT SIDE VIEW

NOTES:

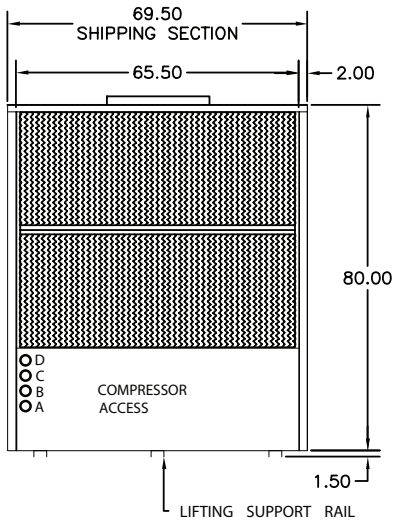
1. Dimensions in inches [mm].
2. All units are rear return airflow configuration.
3. Constant volume units are available with front or rear air supply.
4. Recommended condenser match is ONE (1) 09DK034 (50/50 split).
5. Use proper piping practice for remote refrigerant connections. Refer to Carrier System Design Manual Part 3.
6. Recommended minimum service clearances are as follows:
 - a. Front and rear — 30 [762]
 - b. Left or right side — 65 [1651] for coil removal
 - c. Side opposite coil removal — 20 [508]

CONNECTIONS

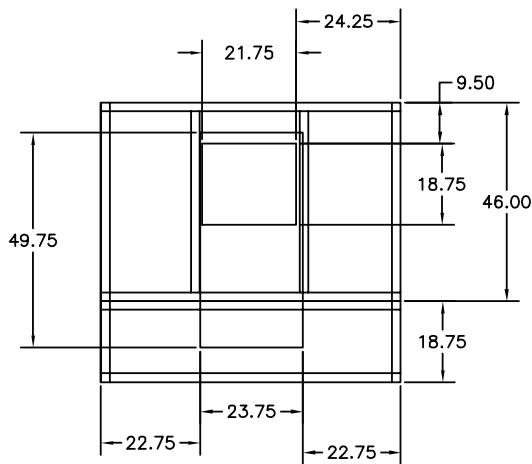
A	LIQUID LINE CIRCUIT 1	7/8 in. OD
B	LIQUID LINE CIRCUIT 2	7/8 in. OD
C	DISCHARGE LINE CIRCUIT 1	1-1/8 in. OD
D	DISCHARGE LINE CIRCUIT 2	1-1/8 in. OD
E	CONDENSATE DRAIN	1-1/4 in. FPT
F	ECONOMIZER DRAIN	1-1/4 in. FPT

REPLACEMENT FILTERS : EIGHT (8) AT 17 x 27 x 4 INCHES.

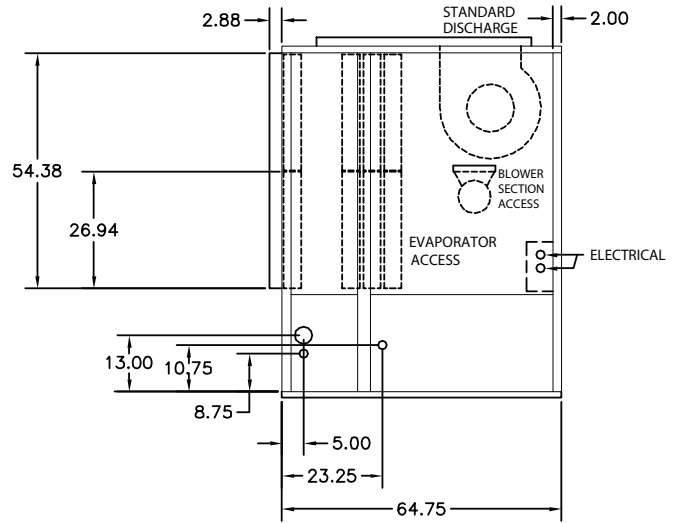
50BVU,X034 (Low-Boy)



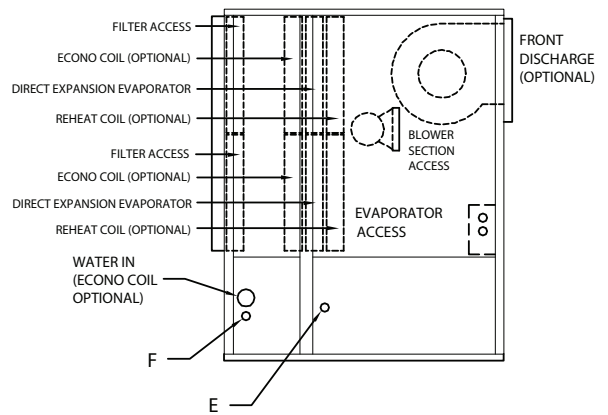
REAR VIEW
RETURN AIR VIEW



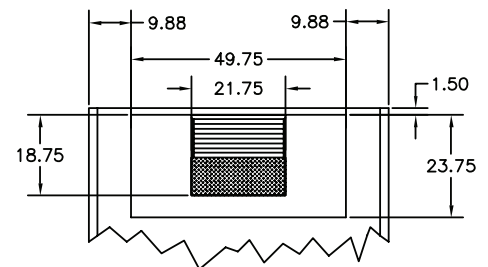
TOP DISCHARGE
TOP VIEW



LEFT SIDE VIEW



LEFT SIDE VIEW



PARTIAL VIEW OF
FRONT DISCHARGE

CONNECTIONS

A	LIQUID LINE CIRCUIT 1	7/8 in. OD
B	LIQUID LINE CIRCUIT 2	7/8 in. OD
C	DISCHARGE LINE CIRCUIT 1	1-1/8 in. OD
D	DISCHARGE LINE CIRCUIT 2	1-1/8 in. OD
E	CONDENSATE DRAIN	1-1/4 in. FPT
F	ECONOMIZER DRAIN	1-1/4 in. FPT

REPLACEMENT FILTERS : EIGHT (8) AT 17 x 27 x 4 INCHES.

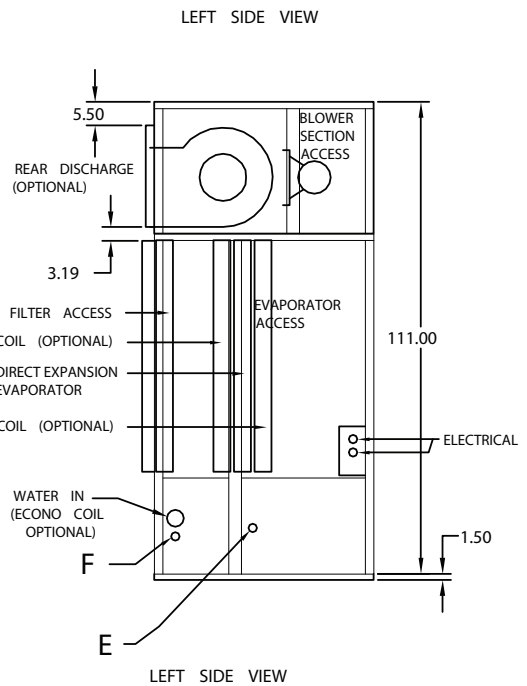
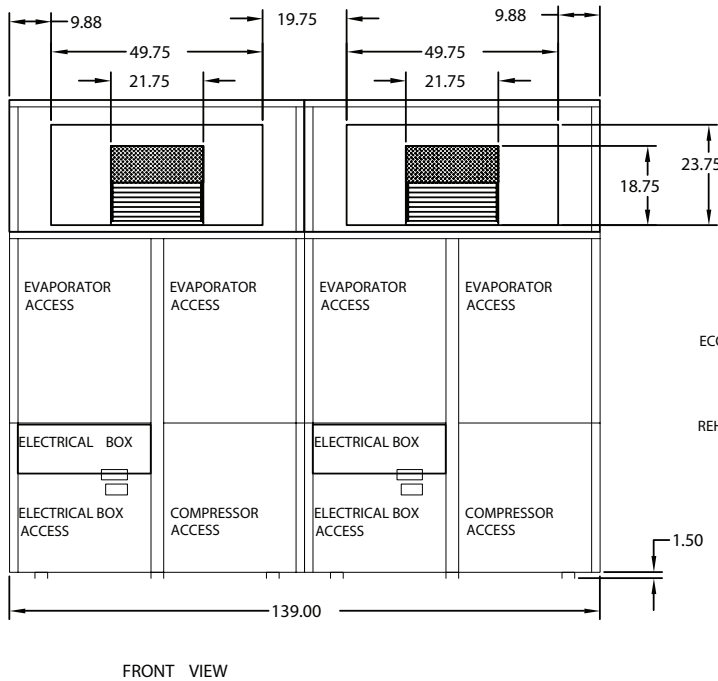
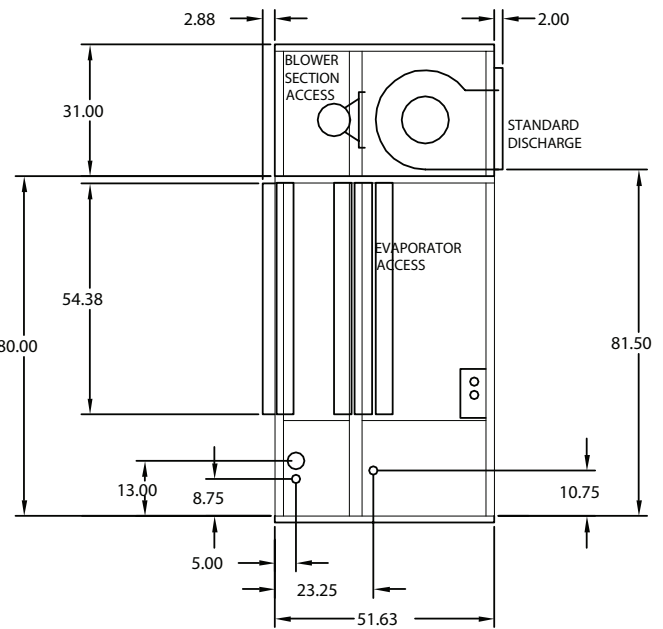
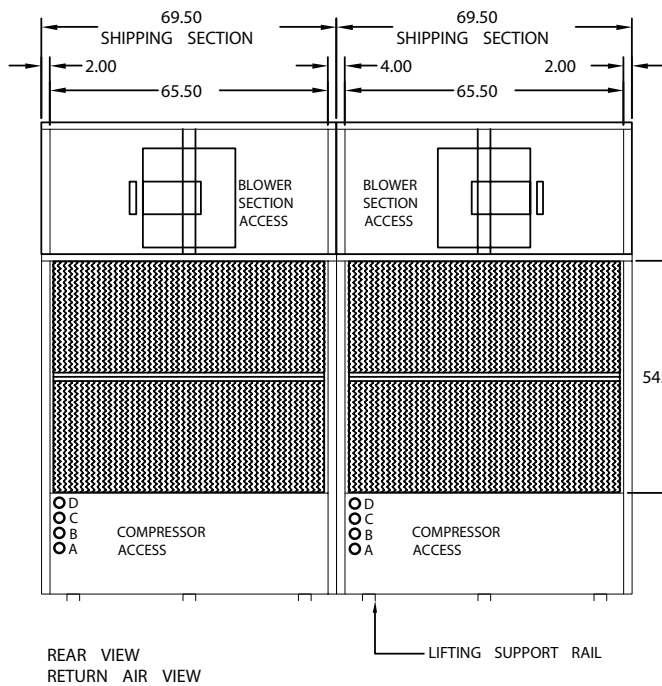
NOTES:

- Dimensions in inches [mm].
- All units are rear return airflow configuration.
- Recommended condenser match is ONE (1) 09DK034 (50/50 split).
- Use proper piping practice for remote refrigerant connections. Refer to Carrier System Design Manual Part 3.
- Recommended minimum service clearances are as follows:
 - Front and rear — 30 [762]
 - Left or right side — 65 [1651] for coil removal
 - Side opposite coil removal — 20 [508]

Dimensions (cont)



50BVU,X044-064 (High-Boy)



NOTES:

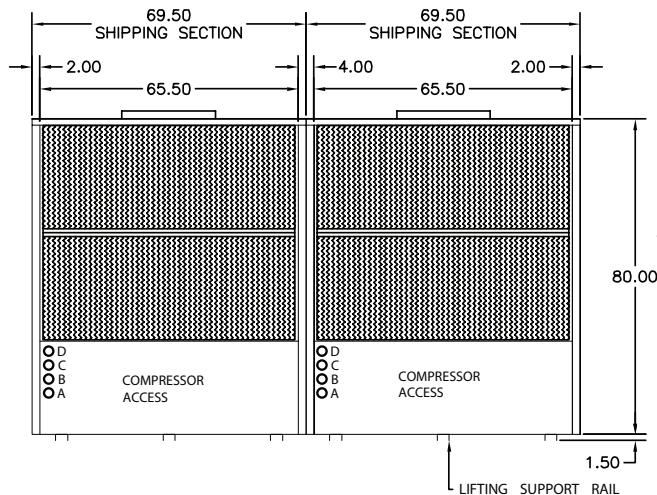
1. Dimensions in inches [mm].
2. All units are rear return airflow configuration.
3. CV units are available with front or rear air supply.
4. Use proper piping practice for remote refrigerant connections. Refer to Carrier System Design Manual Part 3.
5. Recommended minimum service clearances are as follows:
 - a. Front and rear — 30 [762]
 - b. Left and right sides — 65 [1651] for coil removal

CONNECTIONS

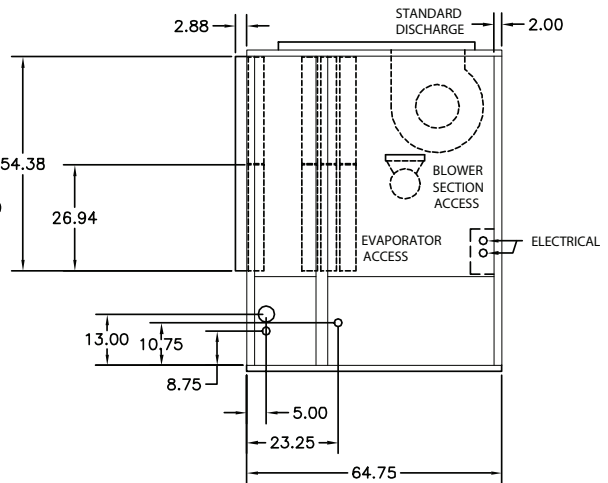
UNIT SIZE		044	054	064
A	LIQUID LINE CIRCUIT 1, 2	7/8 in. OD	7/8 in. OD	7/8 in. OD
B	LIQUID LINE CIRCUIT 3, 4	7/8 in. OD	7/8 in. OD	7/8 in. OD
C	DISCHARGE LINE CIRCUIT 1, 2	1-1/8 in. OD	1-1/8 in. OD	1-1/8 in. OD
D	DISCHARGE LINE CIRCUIT 3, 4	1-1/8 in. OD	1-1/8 in. OD	1-1/8 in. OD
E	CONDENSATE DRAIN	1-1/4 in. FPT	1-1/4 in. FPT	1-1/4 in. FPT
F	ECONOMIZER DRAIN	1-1/4 in. FPT	1-1/4 in. FPT	1-1/4 in. FPT

REPLACEMENT FILTERS : SIXTEEN (16) AT 17 x 27 x 4 INCHES.

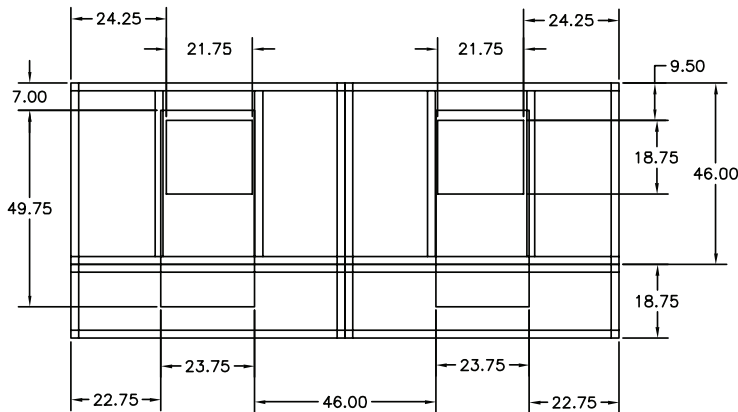
50BVU,X044-064 (Low-Boy)



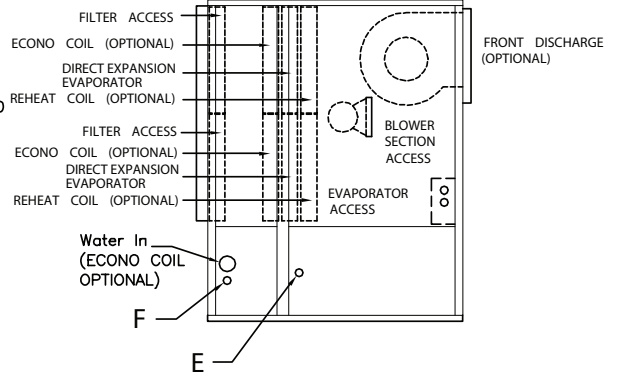
REAR VIEW
RETURN AIR VIEW



LEFT SIDE VIEW

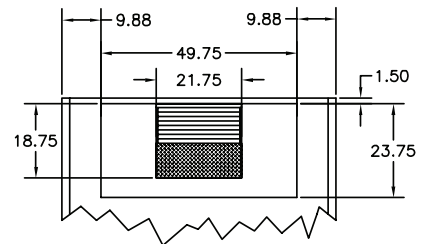


TOP DISCHARGE
TOP VIEW



LEFT SIDE VIEW

- NOTES:
1. Dimensions in inches [mm].
 2. All units are rear return airflow configuration.
 3. Use proper piping practice for remote refrigerant connections. Refer to Carrier System Design Manual Part 3.
 4. Recommended minimum service clearances are as follows:
 - a. Front and rear — 30 [762]
 - b. Left and right sides — 65 [1651] for coil removal



PARTIAL VIEW OF
FRONT DISCHARGE

CONNECTIONS

UNIT SIZE		044	054	064
A	LIQUID LINE CIRCUIT 1, 2	7/8 in. OD	7/8 in. OD	7/8 in. OD
B	LIQUID LINE CIRCUIT 3, 4	7/8 in. OD	7/8 in. OD	7/8 in. OD
C	DISCHARGE LINE CIRCUIT 1, 2	1-1/8 in. OD	1-1/8 in. OD	1-1/8 in. OD
D	DISCHARGE LINE CIRCUIT 3, 4	1-1/8 in. OD	1-1/8 in. OD	1-1/8 in. OD
E	CONDENSATE DRAIN	1-1/4 in. FPT	1-1/4 in. FPT	1-1/4 in. FPT
F	ECONOMIZER DRAIN	1-1/4 in. FPT	1-1/4 in. FPT	1-1/4 in. FPT

REPLACEMENT FILTERS : SIXTEEN (16) AT 17 x 27 x 4 INCHES.

Dimensions (cont)



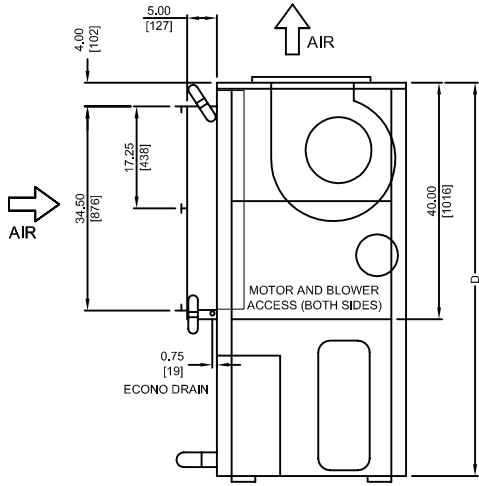
50BVC,J,Q020-028 WITH OPTIONAL WATERSIDE ECONOMIZER

NOTES:

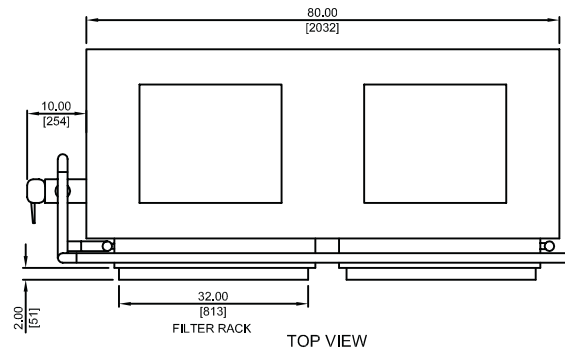
1. Dimensions in inches [mm].
2. Refer to base unit certified drawing for additional unit dimensions, service clearance, and alternate airflow configurations.

**FRONT RETURN, TOP SUPPLY
SHOWN**

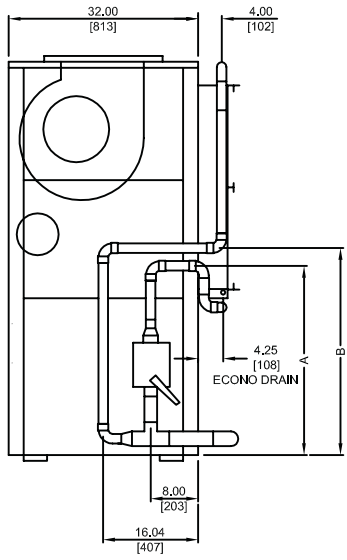
	50BV(C)(Q)(J) UNIT NOMINAL SIZE		
	020	024	028
A	28.00 [711]	32.00 [813]	32.00 [813]
B	31.00 [787.4]	35.00 [889]	35.00 [889]
C	17.50 [445]	18.75 [476]	18.75 [476]
D	62.00 [1575]	66.50 [1689]	66.50 [1689]
WATER CONN.	2" FPT	2" FPT	2" FPT
CONDENSATE CONN.	1-1/4" FPT	1-1/4" FPT	1-1/4" FPT
FILTER QTY. & SIZE	(4) 17 x 34-1/2 x 1"	(4) 17 x 34-1/2 x 1"	(4) 17 x 34-1/2 x 1"



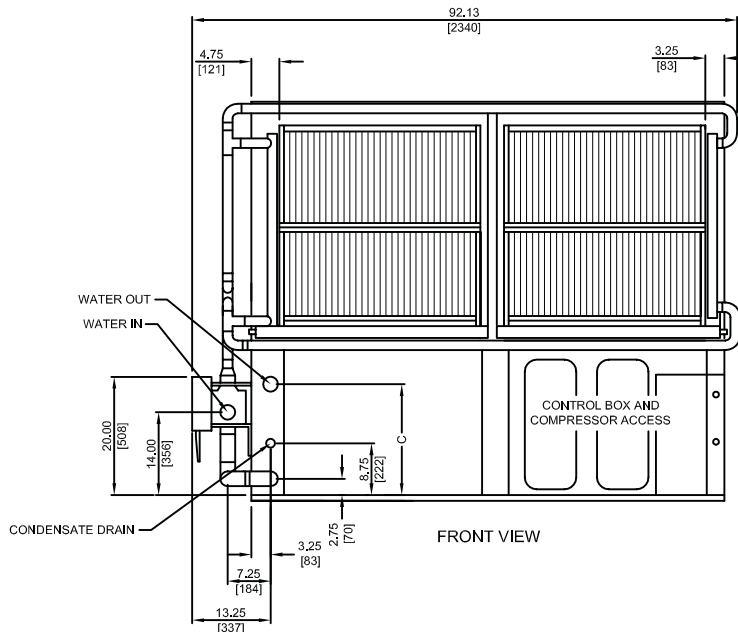
RIGHT SIDE VIEW



TOP VIEW



LEFT SIDE VIEW



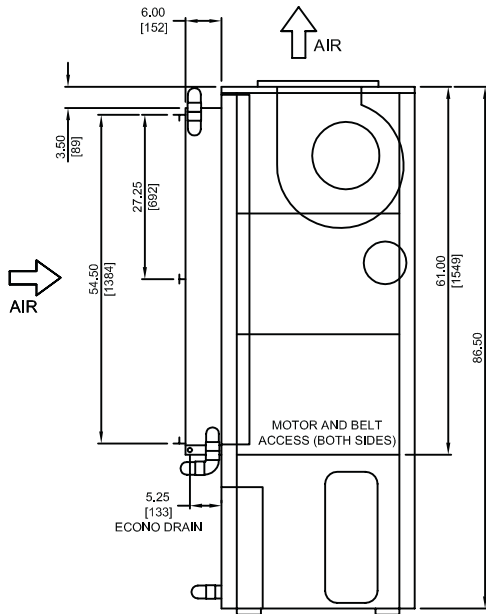
FRONT VIEW

50BVC,J,Q034 WITH OPTIONAL WATERSIDE ECONOMIZER

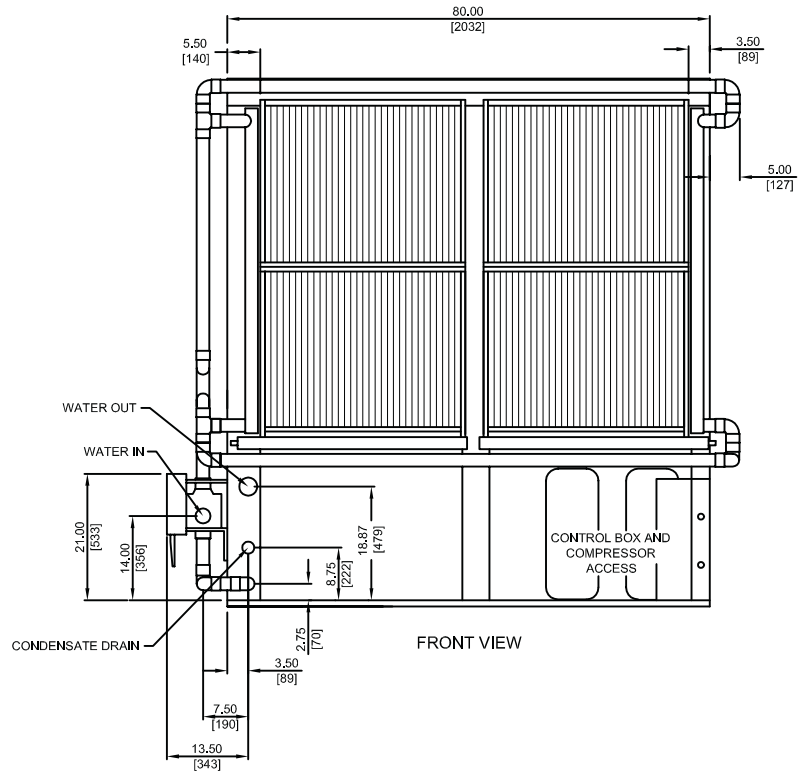
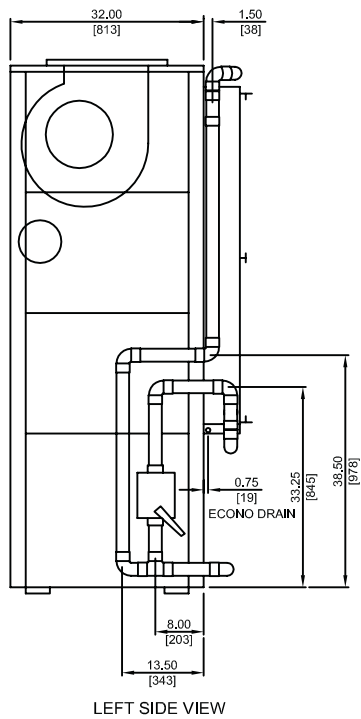
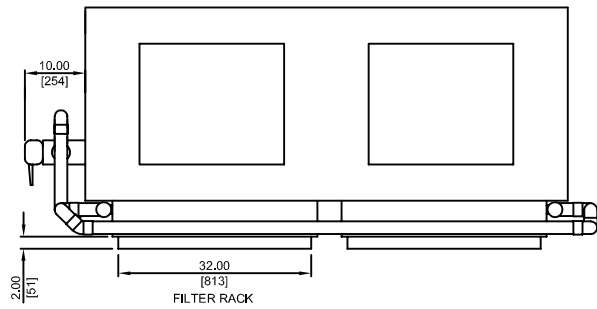
FRONT RETURN, TOP SUPPLY
SHOWN

NOTES:

1. Dimensions in inches [mm].
2. Refer to base unit certified drawing for additional unit dimensions, service clearances, and alternate airflow configurations.



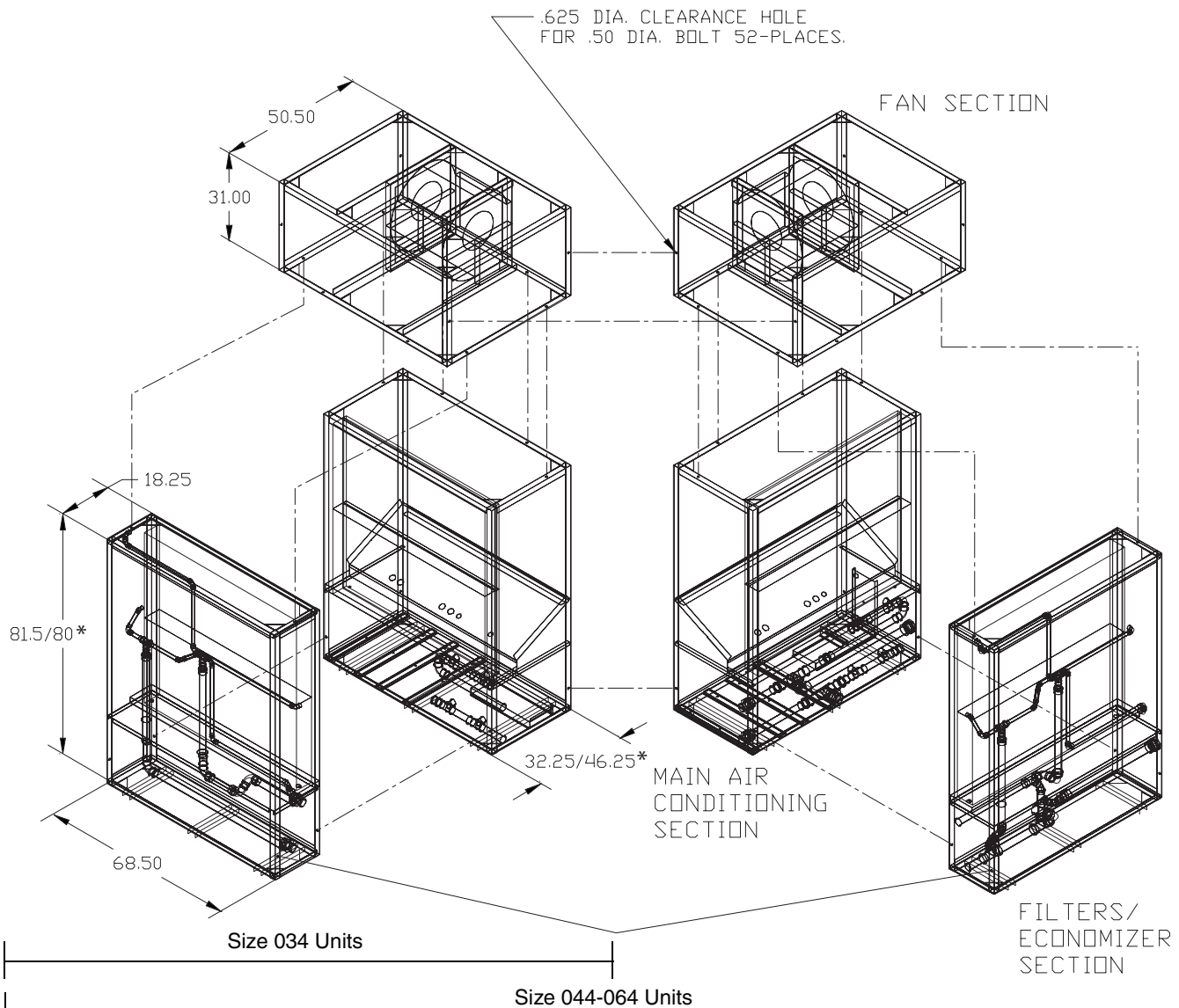
50BV(C)(Q)(J) 034	
DESCRIPTION	SIZE
WATER CONN.	2" FPT
CONDENSATE CONN.	1-1/4" FPT
FILTER QTY. & SIZE	(4) 27" x 34-1/2" x 1"



Dimensions (cont)



MODULAR SHIPPING WEIGHTS — 50BVT,U,V,W,X



SHIPPING WEIGHTS (lb)

50BVT,U,V,W,X UNIT	HIGH-BOY UNIT				LOW-BOY UNIT			
	034	044	054	064	034	044	054	064
MAIN AIR CONDITIONING SECTION (EACH)								
NUMBER OF SECTIONS	1	2	2	2	1	2	2	2
SECTION WEIGHT	1450	1175	1550	1575	2100	1825	2200	2225
REHEAT COIL OPTION	40	40	40	40	40	40	40	40
FILTER/ECONOMIZER SECTION (EACH)								
NUMBER OF SECTIONS	1	2	2	2	1	2	2	2
FILTER SECTION	310	310	310	310	310	310	310	310
ECONOMIZER OPTION	200	200	200	200	200	200	200	200
FAN SECTION (EACH)								
NUMBER OF SECTIONS	1	2	2	2	INCLUDED IN AIR CONDITIONING SECTION			
FAN SECTION	650	650	650	650				
TOTAL UNIT								
NUMBER OF SECTIONS	3	6	6	6	2	4	4	4
UNIT WITH OPTIONS	2650	4750	5500	5550	2650	4750	5500	5550

*High-boy/low-boy.

NOTE: Low-boy depths exceed 36 in. which will prevent the unit from fitting through a standard, 36 in. doorway.

Selection procedure



Please use Carrier's VPACBuilder performance and selection software to perform unit selections at a variety of actual operating conditions. Performance at typical

standard operating conditions are incorporated in the following performance tables.

Performance data

GROSS COOLING CAPACITIES 50BVC,J,Q020 (R-22)

EWT (F)	GPM	PRESSURE DROP			AIR ENTERING EVAPORATOR — CFM/BF											
		Ft	PSIG		5400/0.03				7200/0.07				9000/0.11			
					Air Entering Evaporator — Ewb (F)											
					72	67	62	57	72	67	62	57	72	67	62	57
65	27.0	5.9	2.6	TC	241.3	222.7	205.2	199.8	246.4	232.2	219.8	218.7	250.2	238.6	231.4	231.6
				SHC	122.8	153.7	183.8	199.8	134.0	175.3	215.2	218.7	145.1	196.5	231.4	231.6
				kW	11.83	11.43	11.00	10.88	12.05	11.62	11.33	11.30	12.17	11.77	11.59	11.60
	36.0	8.7	3.8	TC	244.2	225.0	206.9	201.1	253.6	234.8	250.2	238.6	255.9	241.6	234.7	233.8
				SHC	123.9	154.7	184.3	201.1	136.6	176.2	145.1	196.5	147.3	197.6	230.6	233.8
				kW	11.49	11.08	10.71	10.59	11.73	11.29	12.17	11.77	11.85	11.44	11.28	11.27
	45.0	13.5	5.9	TC	245.8	226.2	207.8	201.8	231.4	231.6	255.9	241.6	259.2	243.2	235.9	235.0
				SHC	124.5	155.3	184.8	201.8	131.4	176.6	147.3	197.6	148.4	198.1	231.8	235.0
				kW	11.31	10.91	10.54	10.42	11.59	11.60	11.85	11.44	11.67	11.26	11.10	11.09
	54.0	17.0	7.4	TC	246.7	227.0	208.4	202.2	234.7	233.8	259.2	243.2	261.2	244.2	236.7	235.7
				SHC	124.8	155.6	185.1	202.2	130.6	176.8	148.4	198.1	149.1	198.5	232.5	235.7
				kW	11.20	10.80	10.44	10.32	11.28	11.27	11.67	11.26	11.56	11.15	10.99	10.97
75	36.0	8.7	3.8	TC	232.9	217.0	199.9	195.5	235.9	235.0	261.2	244.2	237.4	229.9	226.5	226.5
				SHC	119.7	151.3	181.0	195.5	131.8	176.0	149.1	198.5	141.0	193.6	226.5	226.5
				kW	12.50	12.12	11.79	11.71	11.10	11.09	11.56	11.15	12.76	12.45	12.32	12.32
	45.0	13.5	5.9	TC	232.7	218.4	206.0	196.4	236.7	235.7	215.9	214.8	241.9	232.9	227.9	227.9
				SHC	119.6	151.9	186.1	196.4	132.5	176.7	111.5	198.5	142.6	194.9	227.9	227.9
				kW	12.31	11.92	11.90	11.50	10.99	10.97	11.87	11.85	12.56	12.26	12.12	12.12
	54.0	17.0	7.4	TC	237.6	219.3	201.7	196.8	244.0	228.8	216.7	215.5	244.5	234.9	228.7	228.8
				SHC	121.4	152.3	181.9	196.8	132.9	173.6	212.2	215.5	143.5	195.8	228.7	228.8
				kW	12.21	11.79	11.45	11.37	12.37	11.99	11.74	11.72	12.45	12.14	11.98	11.98
	63.0	21.8	9.5	TC	238.2	220.0	202.2	197.2	245.9	229.5	217.2	216.0	245.9	236.0	229.3	229.4
				SHC	121.6	152.6	182.2	197.2	133.6	173.9	212.6	216.0	143.9	196.1	229.3	229.4
				kW	12.10	11.70	11.38	11.29	12.28	11.90	11.66	11.64	12.37	12.05	11.89	11.89
85	36.0	8.7	3.8	TC	210.5	201.8	192.3	189.1	214.1	208.0	207.1	206.2	213.1	209.1	209.4	209.4
				SHC	111.4	144.9	177.5	189.1	122.5	165.8	203.6	206.2	132.9	186.1	209.4	209.4
				kW	13.62	13.36	13.09	13.02	13.74	13.50	13.40	13.37	13.77	13.57	13.54	13.54
	45.0	13.5	5.9	TC	215.2	205.5	193.5	190.1	217.8	211.2	208.3	207.5	217.0	212.9	212.8	213.3
				SHC	113.1	146.5	178.2	190.1	123.8	167.1	205.1	207.5	134.2	187.6	212.8	213.3
				kW	13.41	13.15	12.86	12.80	13.53	13.29	13.14	13.13	13.58	13.36	13.33	13.33
	54.0	17.0	7.4	TC	217.8	207.7	194.3	190.7	221.3	213.7	209.1	208.4	220.0	215.2	215.3	215.9
				SHC	114.1	147.4	178.4	190.7	125.1	168.1	205.9	208.4	135.2	188.8	215.3	215.9
				kW	13.27	13.01	12.72	12.66	13.39	13.15	12.98	12.97	13.44	13.23	13.19	13.19
	63.0	21.8	9.5	TC	219.8	209.3	194.8	191.2	223.6	215.9	209.7	208.9	222.4	217.5	217.3	217.8
				SHC	114.8	148.0	178.6	191.2	125.9	168.9	206.5	208.9	135.9	189.5	217.3	217.8
				kW	13.17	12.92	12.62	12.56	13.30	13.06	12.88	12.87	13.36	13.13	13.09	13.09
95	45.0	13.5	5.9	TC	186.4	182.1	184.7	183.1	188.9	186.4	188.1	188.8	187.1	188.0	187.7	187.5
				SHC	102.7	137.0	173.9	183.1	113.9	158.4	188.1	188.8	124.6	176.8	187.7	187.5
				kW	14.59	14.40	14.31	14.26	14.68	14.50	14.48	14.48	14.71	14.59	14.57	14.57
	54.0	17.0	7.4	TC	190.1	184.9	185.9	183.9	190.3	189.4	190.4	191.5	191.4	190.7	190.8	190.6
				SHC	104.1	138.1	173.5	183.9	114.4	159.4	190.4	191.5	125.9	177.9	190.8	190.6
				kW	14.47	14.26	14.14	14.10	13.95	14.37	14.33	14.34	14.59	14.46	14.43	14.43
	63.0	21.8	9.5	TC	191.9	186.7	186.6	184.0	192.7	191.5	193.0	193.7	192.3	193.4	192.8	192.6
				SHC	104.7	138.7	174.0	184.0	115.3	160.0	193.0	193.7	126.0	179.8	192.8	192.6
				kW	14.38	14.17	14.03	13.98	13.86	14.28	14.24	14.24	14.50	14.37	14.33	14.34
	72.0	28.4	12.3	TC	200.1	191.8	187.1	184.4	196.0	192.9	194.2	194.7	193.8	194.8	194.6	194.2
				SHC	107.1	140.2	174.2	184.4	116.3	160.5	193.4	194.7	126.4	180.3	194.6	194.2
				kW	14.37	14.14	13.95	13.90	14.40	14.21	14.17	14.17	14.44	14.30	14.26	14.27

LEGEND

- BF — Bypass Factor
- Ewb — Entering Wet Bulb
- EWT — Entering Water Temperature
- kW — Compressor Motor Power Input (kilowatts)
- SHC — Sensible Heating Capacity (1000 Btu/h)
- TC — Total Capacity (1000 Btu/h), Gross
- VAV — Variable Air Volume

NOTES:

1. Minimal airflow for VAV units is 50% of nominal airflow.
2. Shaded area represents nominal capacity.
3. Performance data based on ARI conditions with entering air at 80 F dry bulb and 67 F wet bulb.

Performance data (cont)



GROSS COOLING CAPACITIES (cont) 50BVC,J,Q020 (R-410A)

EWT (F)	GPM	PRESSURE DROP		AIR ENTERING EVAPORATOR — CFM/BF												
				5400/0.03				7200/0.07				9000/0.11				
		Ft	PSIG	Air Entering Evaporator - Ewb (F)												
				72	67	62	57	72	67	62	57	72	67	62	57	
65	27	5.9	2.6	TC	255.49	235.42	216.23	208.16	265.37	245.51	228.76	227.13	273.05	253.13	243.07	242.08
				TSC	127.55	158.32	187.18	208.16	137.95	176.31	215.68	227.13	150.19	196.23	238.63	242.08
				kW	10.82	10.55	10.29	10.18	10.97	10.69	10.46	10.44	11.08	10.80	10.65	10.65
	36	8.7	3.8	TC	256.00	235.80	216.63	208.03	267.26	247.01	229.90	228.18	274.56	254.23	243.83	242.78
				TSC	127.05	157.54	186.81	208.03	138.90	177.28	216.73	228.18	150.24	195.96	239.10	242.78
				kW	10.63	10.38	10.13	10.03	10.79	10.52	10.30	10.28	10.88	10.62	10.48	10.47
	45	13.5	5.8	TC	256.48	236.19	217.04	208.15	268.30	247.92	230.52	228.73	275.71	255.16	244.55	243.47
				TSC	127.06	157.46	186.80	208.15	139.37	177.86	217.23	228.73	150.79	196.52	239.83	243.47
				kW	10.52	10.28	10.04	9.94	10.68	10.42	10.21	10.18	10.77	10.51	10.38	10.37
	54	17	7.4	TC	257.09	236.65	217.39	208.43	268.87	248.29	230.85	228.99	276.35	255.67	244.91	243.82
				TSC	127.29	157.73	187.06	208.43	139.54	177.89	217.41	228.99	150.96	196.65	240.13	243.82
				kW	10.46	10.22	9.98	9.89	10.61	10.36	10.15	10.12	10.70	10.45	10.31	10.31
75	36	8.7	3.8	TC	244.12	225.11	207.47	200.55	254.46	235.47	220.86	219.69	260.99	241.98	233.65	233.15
				TSC	122.30	152.66	183.08	200.55	134.50	172.91	212.89	219.69	145.75	191.52	230.77	233.15
				kW	11.84	11.58	11.34	11.25	11.98	11.71	11.52	11.50	12.07	11.80	11.68	11.69
	45	13.5	5.8	TC	245.09	225.88	207.72	201.01	255.46	236.27	221.44	220.19	262.09	242.87	234.69	234.47
				TSC	122.75	153.11	182.35	201.01	134.81	173.17	213.26	220.19	146.07	191.74	234.13	234.47
				kW	11.73	11.47	11.24	11.16	11.86	11.61	11.42	11.40	11.96	11.69	11.59	11.58
	54	17	7.4	TC	246.13	226.71	208.70	201.64	256.02	236.72	221.74	220.42	262.70	243.37	234.88	234.90
				TSC	123.52	153.96	184.46	201.64	134.89	173.18	213.38	220.42	146.10	191.69	234.88	234.90
				kW	11.66	11.41	11.18	11.10	11.79	11.54	11.35	11.33	11.88	11.62	11.50	11.51
	63	21.8	9.4	TC	246.54	227.01	208.93	201.80	256.49	237.09	222.01	220.65	263.22	243.79	235.19	235.21
				TSC	123.66	154.08	184.58	201.80	135.05	173.33	213.57	220.65	146.28	191.85	235.19	235.21
				kW	11.61	11.36	11.14	11.05	11.74	11.49	11.30	11.28	11.83	11.57	11.46	11.46
85	36	8.7	3.8	TC	231.80	214.07	197.82	192.94	240.37	222.75	211.21	210.14	246.08	228.66	222.24	222.26
				TSC	118.13	148.63	178.34	192.94	129.40	167.64	207.18	210.14	140.47	188.72	222.24	222.26
				kW	13.17	12.91	12.68	12.61	13.30	13.03	12.87	12.86	13.38	13.13	13.03	13.03
	45	13.5	5.8	TC	232.39	214.49	198.12	193.03	241.63	223.75	211.95	210.87	247.47	229.76	223.15	223.17
				TSC	117.94	148.22	177.88	193.03	129.98	168.24	207.91	210.87	141.15	189.45	223.15	223.17
				kW	13.05	12.79	12.57	12.51	13.18	12.92	12.76	12.75	13.26	13.01	12.91	12.91
	54	17	7.4	TC	233.12	215.06	198.55	193.39	242.34	224.32	212.34	211.23	248.25	230.38	223.61	223.63
				TSC	118.30	148.57	178.25	193.39	130.18	168.39	208.23	211.23	141.33	189.62	223.61	223.63
				kW	12.97	12.72	12.51	12.44	13.10	12.84	12.69	12.67	13.18	12.93	12.84	12.84
	63	21.8	9.4	TC	233.53	215.39	198.79	193.56	242.87	224.75	212.64	211.52	248.83	230.86	223.98	223.99
				TSC	118.42	148.66	178.33	193.56	130.38	168.58	208.51	211.52	141.55	189.77	223.98	223.99
				kW	12.92	12.67	12.46	12.39	13.04	12.79	12.63	12.62	13.12	12.88	12.78	12.78
95	45	13.5	5.8	TC	218.64	202.14	187.30	184.26	226.62	210.12	201.09	200.41	231.67	216.05	211.36	211.37
				TSC	112.85	143.09	171.86	184.26	124.73	162.84	198.24	200.41	135.81	185.08	211.36	211.37
				kW	14.50	14.25	14.05	14.00	14.62	14.37	14.24	14.23	14.70	14.46	14.39	14.39
	54	17	7.4	TC	219.44	202.77	187.79	184.68	227.44	210.78	201.58	200.87	232.57	216.77	211.93	211.94
				TSC	113.24	143.47	172.27	184.68	124.99	163.07	198.65	200.87	136.08	185.37	211.93	211.94
				kW	14.42	14.18	13.97	13.93	14.54	14.29	14.16	14.15	14.61	14.38	14.31	14.31
	63	21.8	9.4	TC	219.93	203.16	188.09	184.91	228.03	211.25	201.93	201.20	233.20	217.28	212.34	212.36
				TSC	113.40	143.61	172.41	184.91	125.20	163.26	198.97	201.20	136.31	185.61	212.34	212.36
				kW	14.36	14.12	13.92	13.88	14.48	14.24	14.11	14.10	14.55	14.32	14.25	14.25
	72	28.4	12.3	TC	220.31	203.47	188.31	185.08	228.46	211.60	202.19	201.45	233.67	217.66	212.65	212.66
				TSC	113.54	143.74	172.54	185.08	125.35	163.40	199.20	201.45	136.46	185.79	212.65	212.66
				kW	14.32	14.08	13.88	13.84	14.43	14.19	14.07	14.06	14.51	14.28	14.21	14.21

LEGEND

- BF — Bypass Factor
- Ewb — Entering Wet Bulb
- EWT — Entering Water Temperature
- kW — Compressor Motor Power Input (kilowatts)
- TC — Total Capacity (1000 Btuh), Gross
- TSC — Total Sensible Capacity (1000 Btuh)
- VAV — Variable Air Volume

NOTES:

1. Minimal airflow for VAV units is 50% of nominal airflow.
2. Shaded area represents nominal capacity.
3. Performance data based on ARI conditions with entering air at 80 F dry bulb and 67 F wet bulb.



GROSS COOLING CAPACITIES (cont)
50BVC,J,Q024 (R-22)

EWT (F)	GPM	PRESSURE DROP		AIR ENTERING EVAPORATOR — CFM/BF												
				6000/0.06				8000/0.09				10,000/0.12				
		Ft	PSIG	Air Entering Evaporator — Ewb (F)												
				72	67	62	57	72	67	62	57	72	67	62	57	
65	30.0	3.7	1.6	TC	271.0	250.4	230.6	224.1	279.4	261.0	246.7	245.1	281.3	268.6	260.9	259.8
				SHC	136.6	170.7	203.9	224.1	149.2	193.4	239.0	245.1	160.6	216.3	255.6	259.8
				kW	13.27	12.83	12.42	12.28	13.47	13.03	12.74	12.70	13.60	13.20	13.03	13.01
	40.0	6.1	2.6	TC	274.0	252.2	231.3	224.2	286.0	264.3	281.3	268.6	290.2	272.2	263.7	262.5
				SHC	136.4	169.8	201.9	224.2	151.5	194.5	160.6	216.3	163.7	217.6	258.1	262.5
				kW	12.82	12.41	12.03	11.90	13.08	12.64	13.60	13.20	13.20	12.79	12.62	12.61
	50.0	8.8	3.8	TC	275.8	253.6	232.2	225.0	260.9	259.8	290.2	272.2	294.1	274.1	265.2	263.9
				SHC	137.0	170.4	202.3	225.0	255.6	259.8	163.7	217.6	165.0	218.2	259.6	263.9
				kW	12.59	12.20	11.83	11.70	13.03	13.01	13.20	12.79	12.97	12.57	12.40	12.39
	60.0	12.8	5.5	TC	276.9	254.4	232.8	225.5	263.7	262.5	294.1	274.1	293.3	275.5	266.4	265.0
				SHC	137.5	170.7	202.5	225.5	258.1	262.5	165.0	218.2	165.0	219.1	260.5	265.0
				kW	12.45	12.07	11.70	11.58	12.62	12.61	12.97	12.57	12.84	12.44	12.28	12.25
75	40.0	6.1	2.6	TC	264.5	243.6	223.9	218.3	265.2	263.9	293.3	275.5	268.7	258.4	255.3	254.5
				SHC	132.8	165.9	198.4	218.3	259.6	263.9	165.0	219.1	156.8	213.5	251.1	254.5
				kW	13.94	13.55	13.17	13.07	12.40	12.39	12.84	12.44	14.23	13.91	13.76	13.75
	50.0	8.8	3.8	TC	266.4	245.3	225.1	219.1	266.4	265.0	243.2	241.8	271.3	261.8	257.1	256.2
				SHC	133.5	166.8	198.9	219.1	260.5	265.0	237.8	241.8	157.8	215.0	252.9	256.2
				kW	13.70	13.31	12.96	12.85	12.28	12.25	13.28	13.26	14.01	13.68	13.53	13.52
	60.0	12.8	5.5	TC	267.7	246.3	225.8	219.8	272.4	258.2	244.0	242.6	275.8	264.4	258.2	257.3
				SHC	134.0	167.1	199.2	219.8	147.4	193.2	238.6	242.6	159.3	216.0	253.8	257.3
				kW	13.55	13.17	12.82	12.72	13.75	13.38	13.13	13.11	13.86	13.54	13.38	13.37
	70.0	17.4	7.5	TC	268.5	246.9	226.3	220.2	274.2	259.1	244.8	243.2	277.8	265.8	258.9	258.0
				SHC	134.4	167.3	199.4	220.2	148.0	193.6	238.9	243.2	160.0	216.5	254.7	258.0
				kW	13.44	13.08	12.73	12.63	13.64	13.28	13.04	13.01	13.76	13.43	13.27	13.26
85	40.0	6.1	2.6	TC	250.4	234.0	216.1	211.7	238.7	231.3	229.9	230.2	240.2	234.9	234.4	234.7
				SHC	127.5	161.9	195.5	211.7	135.8	183.1	225.9	230.2	147.4	205.1	234.4	234.7
				kW	15.20	14.87	14.55	14.46	15.22	14.97	14.85	14.84	15.30	15.07	15.02	15.02
	50.0	8.8	3.8	TC	253.3	236.0	217.5	212.8	243.7	235.6	234.0	233.6	244.2	240.3	239.5	239.5
				SHC	128.5	162.6	196.2	212.8	137.4	184.7	229.3	233.6	148.7	207.1	239.5	239.5
				kW	14.94	14.60	14.29	14.21	15.02	14.73	14.60	14.57	15.09	14.82	14.76	14.77
	60.0	12.8	5.5	TC	256.5	237.0	218.2	213.5	252.2	242.3	235.7	234.6	249.5	243.2	242.4	242.4
				SHC	129.7	163.2	196.4	213.5	139.7	186.4	230.9	234.6	150.5	208.1	242.4	242.4
				kW	14.77	14.43	14.13	14.05	14.88	14.58	14.41	14.39	14.95	14.66	14.60	14.60
	70.0	17.4	7.5	TC	250.1	235.7	219.7	215.0	255.1	243.8	236.5	235.2	252.4	245.3	244.2	244.3
				SHC	128.6	163.8	199.1	215.0	140.8	187.0	231.5	235.2	151.5	209.2	244.2	244.3
				kW	14.62	14.32	14.03	13.96	14.77	14.46	14.30	14.27	14.84	14.57	14.47	14.48
95	50.0	8.8	3.8	TC	214.6	207.7	208.0	206.3	216.8	212.5	212.7	213.4	211.8	211.4	211.4	211.3
				SHC	115.7	152.7	193.5	206.3	127.6	175.7	211.0	213.4	138.3	195.2	211.4	211.3
				kW	16.18	15.94	15.78	15.72	16.28	16.07	15.99	15.99	16.28	16.15	16.11	16.11
	60.0	12.8	5.5	TC	218.0	210.6	210.3	207.1	221.0	215.9	215.1	214.7	215.1	215.9	215.2	215.1
				SHC	116.9	153.7	194.5	207.1	129.0	176.8	213.2	214.7	139.1	197.5	215.2	215.1
				kW	16.03	15.78	15.60	15.55	16.13	15.91	15.81	15.81	16.14	15.99	15.94	15.95
	70.0	17.4	7.5	TC	223.1	213.9	211.0	207.7	219.8	215.1	216.2	218.6	217.8	218.2	217.7	217.6
				SHC	118.5	154.8	194.9	207.7	129.0	177.1	213.9	218.6	140.0	198.6	217.7	217.6
				kW	15.93	15.68	15.48	15.43	16.00	15.80	15.70	15.70	16.05	15.88	15.83	15.84
	80.0	22.8	9.9	TC	225.2	215.4	211.5	208.1	223.7	219.2	218.9	219.6	220.0	219.8	219.8	219.5
				SHC	119.3	155.5	195.2	208.1	130.1	178.1	215.6	219.6	140.7	199.6	219.8	219.5
				kW	15.85	15.60	15.40	15.35	15.94	15.72	15.63	15.62	15.97	15.80	15.75	15.76

LEGEND

- BF** — Bypass Factor
- Ewb** — Entering Wet Bulb
- EWT** — Entering Water Temperature
- kW** — Compressor Motor Power Input (kilowatts)
- SHC** — Sensible Heating Capacity (1000 Btuh)
- TC** — Total Capacity (1000 Btuh), Gross
- VAV** — Variable Air Volume

NOTES:

1. Minimal airflow for VAV units is 50% of nominal airflow.
2. Shaded area represents nominal capacity.
3. Performance data based on ARI conditions with entering air at 80 F dry bulb and 67 F wet bulb.

Performance data (cont)



GROSS COOLING CAPACITIES (cont) 50BVC,J,Q024 (R-410A)

EWT (F)	GPM	PRESSURE DROP		AIR ENTERING EVAPORATOR — CFM/BF												
				6000/0.06				8000/0.09				10,000/0.12				
		Ft	PSIG	Air Entering Evaporator - Ewb (F)												
				72	67	62	57	72	67	62	57	72	67	62	57	
65	30	3.7	1.6	TC	289.86	267.27	245.87	235.57	301.78	279.30	259.39	257.56	309.99	287.50	275.08	273.73
				TSC	142.89	176.94	209.83	235.57	154.94	197.33	239.56	257.56	167.15	217.34	268.83	273.73
				kW	11.00	10.79	10.58	10.50	11.12	10.91	10.72	10.70	11.21	10.99	10.86	10.85
	40	6.1	2.6	TC	290.46	267.53	246.00	235.19	304.13	281.16	260.79	258.82	312.63	289.60	276.73	275.33
				TSC	142.07	175.67	208.17	235.19	156.11	198.53	240.86	258.82	168.53	218.81	270.47	275.33
				kW	10.77	10.58	10.39	10.31	10.90	10.69	10.51	10.49	10.97	10.77	10.65	10.64
	50	8.8	3.8	TC	291.66	268.49	246.74	235.76	305.23	282.01	261.39	259.26	313.88	290.57	277.39	275.95
				TSC	142.72	176.34	208.85	235.76	156.43	198.78	241.07	259.26	168.79	219.04	271.00	275.95
				kW	10.64	10.46	10.28	10.20	10.76	10.57	10.40	10.38	10.84	10.64	10.52	10.52
	60	12.8	5.5	TC	292.23	268.89	247.06	235.93	306.00	282.61	261.83	259.63	314.73	291.25	277.89	276.42
				TSC	142.89	176.45	208.92	235.93	156.72	199.05	241.35	259.63	169.16	219.35	271.47	276.42
				kW	10.56	10.38	10.21	10.13	10.68	10.49	10.32	10.30	10.75	10.56	10.44	10.44
75	40	6.1	2.6	TC	277.78	256.23	236.25	228.33	289.61	268.09	251.11	249.15	297.18	275.63	265.35	264.31
				TSC	137.43	171.03	205.49	228.33	150.63	192.66	240.10	249.15	162.74	212.60	260.27	264.31
				kW	12.19	12.00	11.82	11.76	12.31	12.11	11.96	11.94	12.38	12.18	12.08	12.08
	50	8.8	3.8	TC	278.72	256.96	236.13	227.77	291.25	269.38	252.08	250.12	299.00	277.09	266.57	265.53
				TSC	137.66	171.19	203.94	227.77	151.61	193.77	241.12	250.12	163.94	213.95	261.58	265.53
				kW	12.05	11.87	11.70	11.63	12.17	11.98	11.83	11.81	12.24	12.04	11.94	11.94
	60	12.8	5.5	TC	279.73	257.74	236.74	228.29	292.05	270.00	252.54	250.47	299.89	277.79	267.06	265.99
				TSC	138.28	171.84	204.62	228.29	151.81	193.90	241.27	250.47	164.12	214.06	261.95	265.99
				kW	11.97	11.79	11.62	11.56	12.07	11.89	11.75	11.73	12.14	11.95	11.86	11.86
	70	17.4	7.5	TC	280.17	258.07	236.98	228.43	292.64	270.46	252.88	250.76	300.55	278.31	267.45	266.36
				TSC	138.39	171.91	204.67	228.43	152.03	194.11	241.50	250.76	164.35	214.27	262.30	266.36
				kW	11.90	11.73	11.56	11.50	12.01	11.83	11.69	11.67	12.08	11.89	11.80	11.80
85	40	6.1	2.6	TC	263.51	243.52	225.11	218.76	265.69	254.14	239.99	238.91	265.21	260.75	252.59	252.62
				TSC	132.17	165.58	200.17	218.76	142.49	187.54	233.87	238.91	152.24	208.51	252.59	252.62
				kW	13.78	13.59	13.42	13.37	13.81	13.69	13.56	13.54	13.81	13.75	13.67	13.67
	50	8.8	3.8	TC	264.91	244.61	225.92	219.39	270.56	255.37	240.71	239.70	269.83	262.09	253.61	253.63
				TSC	132.79	166.17	200.75	219.39	144.21	188.01	234.00	239.70	153.81	208.68	253.61	253.63
				kW	13.63	13.45	13.29	13.24	13.69	13.54	13.41	13.41	13.69	13.60	13.53	13.53
	60	12.8	5.5	TC	265.75	245.27	226.38	219.72	272.99	256.16	241.17	240.20	272.73	262.94	254.27	254.29
				TSC	133.09	166.40	200.99	219.72	145.07	188.33	234.01	240.20	154.81	208.77	254.23	254.29
				kW	13.54	13.36	13.20	13.15	13.61	13.45	13.32	13.31	13.61	13.51	13.43	13.43
	70	17.4	7.5	TC	266.35	245.71	226.71	219.96	275.42	256.71	241.45	240.54	274.63	263.54	254.82	254.75
				TSC	133.26	166.61	201.17	219.96	145.89	188.55	233.89	240.54	155.47	208.86	254.23	254.75
				kW	13.47	13.29	13.14	13.09	13.55	13.39	13.26	13.25	13.55	13.44	13.37	13.37
95	50	8.8	3.8	TC	220.24	225.61	213.77	209.57	213.51	221.05	227.70	227.97	211.53	218.64	222.61	222.50
				TSC	116.20	158.06	193.99	209.57	124.26	174.51	222.67	227.97	133.86	194.12	222.61	222.50
				kW	15.09	15.17	15.05	15.02	15.02	15.10	15.19	15.18	15.00	15.07	15.12	15.12
	60	12.8	5.5	TC	219.69	227.09	214.39	210.13	216.70	223.41	229.66	228.62	214.80	221.06	225.60	225.71
				TSC	116.16	158.90	194.46	210.13	125.37	175.41	225.37	228.62	134.99	195.14	225.60	225.71
				kW	14.99	15.08	14.96	14.92	14.95	15.03	15.09	15.08	14.94	15.00	15.05	15.05
	70	17.4	7.5	TC	222.15	228.93	214.80	210.43	219.10	225.31	230.18	229.07	217.20	223.19	227.74	227.97
				TSC	117.05	159.60	194.67	210.43	126.20	176.16	225.69	229.07	135.81	196.11	227.74	227.97
				kW	14.95	15.02	14.89	14.86	14.91	14.98	15.02	15.01	14.89	14.96	15.00	15.00
	80	22.8	9.9	TC	223.96	230.27	215.11	210.66	220.87	226.83	230.54	229.39	219.01	224.75	229.32	229.64
				TSC	117.70	160.16	194.85	210.66	126.82	176.76	225.92	229.39	136.42	196.84	229.32	229.64
				kW	14.91	14.98	14.85	14.81	14.87	14.94	14.97	14.96	14.86	14.92	14.96	14.96

LEGEND

- BF** — Bypass Factor
- Ewb** — Entering Wet Bulb
- EWT** — Entering Water Temperature
- kW** — Compressor Motor Power Input (kilowatts)
- TC** — Total Capacity (1000 Btuh), Gross
- TSC** — Total Sensible Capacity (1000 Btuh)
- VAV** — Variable Air Volume

NOTES:

1. Minimal airflow for VAV units is 50% of nominal airflow.
2. Shaded area represents nominal capacity.
3. Performance data based on ARI conditions with entering air at 80 F dry bulb and 67 F wet bulb.



GROSS COOLING CAPACITIES (cont)
50BVC,J,Q028 (R-22)

EWT (F)	GPM	PRESSURE DROP		AIR ENTERING EVAPORATOR — CFM/BF												
				7500/0.08				10,000/0.12				12,500/0.17				
				Air Entering Evaporator — Ewb (F)												
				72	67	62	57	72	67	62	57	72	67	62	57	
65	37.5	5.4	2.3	TC	329.6	314.0	292.5	284.4	337.2	325.3	310.6	308.6	333.4	328.5	325.0	323.7
				SHC	164.9	210.2	253.9	284.4	179.3	237.6	293.5	308.6	191.2	261.3	317.3	323.7
				kW	17.72	17.05	16.47	16.25	18.04	17.42	16.94	16.90	18.22	17.63	17.36	17.33
	50.0	8.8	3.8	TC	338.6	318.9	296.4	287.5	343.0	331.3	315.0	312.4	345.0	337.4	329.8	328.3
				SHC	168.3	212.3	255.5	287.5	182.1	239.7	295.9	312.4	195.1	264.9	321.4	328.3
				kW	17.23	16.57	16.01	15.79	17.56	16.92	16.47	16.40	17.75	17.16	16.84	16.82
	62.5	13.9	6.0	TC	343.6	321.8	298.8	290.8	348.9	334.4	317.7	314.7	352.0	338.0	332.9	330.9
				SHC	170.1	213.5	256.3	286.6	184.1	240.7	297.8	314.7	197.4	288.5	322.3	330.9
				kW	16.96	16.30	15.75	15.57	17.30	16.64	16.20	16.12	17.48	17.91	16.60	16.54
	75.0	19.5	8.5	TC	346.8	323.5	300.1	290.7	351.8	336.4	319.3	316.2	354.5	344.8	334.4	332.7
				SHC	171.0	213.8	256.3	287.7	185.0	241.4	299.0	316.2	198.2	267.2	324.9	332.7
				kW	16.75	16.13	15.58	15.37	17.14	16.47	16.02	15.95	17.33	16.72	16.40	16.36
75	50.0	8.8	3.8	TC	311.8	301.3	283.3	276.7	315.7	307.0	301.6	300.0	316.4	311.1	310.2	310.5
				SHC	158.4	204.8	249.9	276.7	172.5	230.4	288.1	300.0	185.6	256.1	303.5	310.5
				kW	18.66	18.13	17.61	17.47	18.91	18.38	18.05	18.01	19.07	18.57	18.40	18.39
	62.5	13.9	6.0	TC	318.1	306.0	285.3	278.4	321.7	312.1	304.0	302.2	322.9	317.1	315.5	315.3
				SHC	160.7	206.8	250.3	278.4	174.5	232.4	289.8	302.2	187.8	258.0	309.0	315.3
				kW	18.37	17.81	17.30	17.16	18.64	18.10	17.72	17.68	18.80	18.28	18.09	18.09
	75.0	19.5	8.5	TC	321.4	323.3	286.7	279.6	324.5	316.1	305.5	303.5	326.8	320.8	318.7	318.6
				SHC	161.9	213.6	250.9	279.6	175.5	234.0	290.7	303.5	189.1	259.1	311.2	318.6
				kW	18.19	16.12	17.11	16.98	18.47	17.92	17.51	17.47	18.63	18.10	17.91	17.89
	87.5	26.5	11.5	TC	329.5	309.6	287.2	279.9	327.9	318.4	306.5	303.4	329.9	323.2	320.8	320.2
				SHC	164.4	207.8	250.6	279.9	176.6	234.8	290.8	303.4	190.1	259.8	313.1	320.2
				kW	18.04	17.46	16.97	16.83	18.34	17.79	17.38	17.38	18.50	17.98	17.77	17.76
85	50.0	8.8	3.8	TC	285.2	276.5	271.1	266.2	277.6	275.6	276.0	276.0	279.8	280.8	279.7	279.6
				SHC	148.3	193.9	243.4	266.2	159.5	218.9	270.8	276.0	173.6	244.2	279.7	279.6
				kW	20.33	19.87	19.49	19.37	20.46	20.05	19.86	19.85	20.57	20.25	20.12	20.13
	62.5	13.9	6.0	TC	291.4	281.7	273.1	267.8	286.0	281.8	281.2	281.3	284.7	287.2	285.9	285.8
				SHC	150.6	196.1	244.5	267.8	162.4	220.9	275.5	281.2	175.1	246.8	285.9	285.8
				kW	20.02	19.55	19.15	19.03	20.16	19.74	19.53	19.52	20.30	19.93	19.80	19.80
	75.0	19.5	8.5	TC	295.5	284.5	274.3	268.9	290.8	285.6	285.3	285.1	290.2	290.8	289.9	289.8
				SHC	152.1	197.3	245.0	268.9	164.0	222.3	277.3	285.1	176.9	248.1	289.9	289.8
				kW	19.81	19.35	18.94	18.82	19.96	19.54	19.34	19.30	20.10	19.72	19.59	19.60
	87.5	26.5	11.5	TC	298.3	286.8	275.1	269.6	292.5	288.2	287.5	287.6	293.1	293.4	292.4	292.3
				SHC	153.1	198.3	245.2	269.6	164.5	223.2	278.8	287.6	177.9	249.2	292.4	292.3
				kW	19.67	19.21	18.79	18.67	19.83	19.41	19.19	19.16	19.99	19.58	19.45	19.45
95	62.5	13.9	6.0	TC	248.8	246.2	250.3	249.6	241.1	244.9	245.7	245.2	241.1	246.2	245.7	245.7
				SHC	135.4	182.2	233.6	249.6	147.3	207.6	245.7	245.2	161.8	228.0	245.7	245.7
				kW	21.77	21.39	21.18	21.13	21.88	21.55	21.41	21.42	21.97	21.71	21.67	21.67
	75.0	19.5	8.5	TC	253.4	250.9	253.6	253.3	244.8	249.1	249.9	249.9	246.3	251.2	251.2	250.8
				SHC	137.1	184.1	235.6	253.3	148.5	209.4	249.9	249.9	163.4	231.0	251.2	250.8
				kW	21.58	21.20	20.97	20.90	21.71	21.36	21.22	21.22	21.79	21.52	21.47	21.47
	87.5	26.5	11.5	TC	257.2	253.9	255.9	255.7	249.6	251.8	252.7	253.0	249.8	254.6	254.8	254.2
				SHC	138.4	185.2	236.8	255.7	150.1	210.4	251.2	253.0	164.6	232.7	254.8	254.2
				kW	21.45	21.06	20.82	20.74	21.58	21.21	21.09	21.08	21.66	21.39	21.31	21.33
	100.0	34.6	15.0	TC	259.8	256.0	257.8	257.3	252.6	254.3	255.3	255.4	252.5	257.1	256.8	256.7
				SHC	139.3	185.9	237.8	257.3	151.1	211.4	255.3	255.4	165.4	233.8	256.8	256.7
				kW	21.35	20.96	20.71	20.63	20.49	21.11	20.97	20.97	21.57	21.29	21.23	21.23

LEGEND

- BF — Bypass Factor
- Ewb — Entering Wet Bulb
- EWT — Entering Water Temperature
- kW — Compressor Motor Power Input (kilowatts)
- SHC — Sensible Heating Capacity (1000 Btuh)
- TC — Total Capacity (1000 Btuh), Gross
- VAV — Variable Air Volume

NOTES:

1. Minimal airflow for VAV units is 50% of nominal airflow.
2. Airflow over 10,500 cfm results in face velocity of 690 fpm, which could result in water (condensation) blowing off coil.
3. Shaded area represents nominal capacity.
4. Performance data based on ARI conditions with entering air at 80 F dry bulb and 67 F wet bulb.

Performance data (cont)



GROSS COOLING CAPACITIES (cont) 50BVC,J,Q028 (R-410A)

EWT (F)	GPM	PRESSURE DROP			AIR ENTERING EVAPORATOR — CFM/BF											
					7500/0.08				10,000/0.12				12,500/0.17			
					Air Entering Evaporator - Ewb (F)											
					72	67	62	57	72	67	62	57	72	67	62	57
65	37.5	5.4	2.3	TC	360.07	332.24	305.75	293.68	376.14	348.30	324.77	321.76	386.15	358.31	343.03	341.26
				TSC	175.00	216.56	256.39	293.68	192.09	243.88	301.16	321.76	207.26	268.42	334.17	341.26
				kW	15.26	14.94	14.64	14.51	15.45	15.13	14.85	14.82	15.58	15.24	15.06	15.05
	50	8.8	3.8	TC	362.48	334.13	307.36	294.65	379.05	350.61	326.39	323.21	389.39	360.91	344.98	343.11
				TSC	175.87	217.37	257.27	294.65	193.12	244.82	301.59	323.21	208.36	269.43	335.87	343.11
				kW	14.98	14.68	14.40	14.28	15.16	14.86	14.60	14.56	15.28	14.97	14.79	14.78
	62.5	13.9	6.0	TC	363.87	335.20	308.21	297.27	380.70	351.92	327.34	324.03	391.23	362.39	346.08	344.16
				TSC	176.38	217.83	257.66	291.24	193.70	245.35	301.99	324.03	208.99	270.01	336.84	344.16
				kW	14.81	14.53	14.26	14.16	14.99	14.70	14.45	14.42	15.11	14.81	14.63	14.62
75	19.5	8.4	TC	364.76	335.90	308.75	297.64	381.76	352.77	327.92	324.56	392.42	363.34	346.78	344.83	
			TSC	176.71	218.13	257.91	291.61	194.08	245.69	302.10	324.56	209.40	270.38	337.46	344.83	
			kW	14.71	14.43	14.17	14.07	14.88	14.60	14.35	14.32	15.00	14.70	14.53	14.52	
75	50	8.8	3.8	TC	345.39	318.77	293.71	284.07	356.20	333.53	312.64	310.43	354.44	342.71	330.07	328.69
				TSC	169.60	210.80	253.46	284.07	185.08	237.94	297.30	310.43	196.44	262.49	322.80	328.69
				kW	16.81	16.51	16.23	16.13	16.95	16.68	16.44	16.42	16.95	16.78	16.63	16.63
	62.5	13.9	6.0	TC	346.94	320.00	294.60	284.74	360.54	335.01	313.75	311.39	359.21	344.37	331.33	329.90
				TSC	170.17	211.33	253.53	284.74	186.60	238.54	298.02	311.39	198.13	263.01	323.91	329.90
				kW	16.64	16.35	16.08	15.98	16.80	16.51	16.28	16.25	16.81	16.61	16.46	16.46
	75	19.5	8.4	TC	347.95	320.79	295.10	285.17	362.69	335.96	314.18	312.04	362.20	345.44	332.15	330.68
				TSC	170.54	211.66	253.70	285.17	187.36	238.92	297.07	312.04	199.16	263.43	324.62	330.68
				kW	16.53	16.24	15.98	15.88	16.70	16.40	16.17	16.15	16.71	16.50	16.35	16.35
87.5	26.5	11.5	TC	348.66	321.34	295.49	285.47	363.89	336.63	314.70	312.47	364.32	346.18	332.71	331.22	
			TSC	170.80	211.90	253.68	285.47	187.78	239.19	297.36	312.47	199.90	263.71	325.12	331.22	
			kW	16.45	16.17	15.91	15.82	16.63	16.33	16.10	16.08	16.64	16.42	16.28	16.27	
85	50	8.8	3.8	TC	303.75	301.81	279.51	272.19	296.79	302.80	297.89	296.18	292.67	302.36	305.70	306.65
				TSC	154.39	203.66	247.86	272.19	164.44	225.67	289.99	296.18	175.71	249.87	299.51	306.65
				kW	18.57	18.53	18.26	18.18	18.50	18.58	18.48	18.46	18.46	18.56	18.60	18.62
	62.5	13.9	6.0	TC	308.18	303.24	280.59	273.01	302.59	308.00	299.04	297.33	298.44	306.33	309.96	311.14
				TSC	156.00	204.25	248.45	273.01	166.44	227.79	290.69	297.33	177.64	251.47	303.54	311.14
				kW	18.44	18.35	18.10	18.02	18.38	18.44	18.31	18.29	18.34	18.43	18.46	18.48
	75	19.5	8.4	TC	311.93	304.15	281.29	273.54	306.20	310.84	299.74	298.06	302.33	309.43	312.75	314.01
				TSC	157.36	204.63	248.83	273.54	167.69	228.93	291.12	298.06	178.94	252.75	306.04	314.01
				kW	18.35	18.25	17.99	17.91	18.30	18.35	18.19	18.18	18.27	18.33	18.37	18.38
87.5	26.5	11.5	TC	314.54	304.81	281.77	273.90	308.97	312.86	300.30	298.57	305.01	311.61	316.63	315.26	
			TSC	158.31	204.90	249.09	273.90	168.58	229.75	291.48	298.57	179.84	253.65	307.82	315.26	
			kW	18.29	18.17	17.92	17.84	18.24	18.28	18.12	18.10	18.21	18.27	18.33	18.28	
95	62.5	13.9	6.0	TC	236.92	254.52	264.14	259.52	228.88	247.11	256.17	257.57	224.82	238.98	242.17	242.13
				TSC	130.19	183.60	239.36	259.52	140.62	205.73	252.53	257.57	151.99	227.39	242.17	242.13
				kW	20.00	20.22	20.31	20.25	19.90	20.12	20.23	20.25	19.87	20.02	20.06	20.06
	75	19.5	8.4	TC	239.78	257.76	264.96	260.17	232.66	250.30	259.05	257.52	220.16	233.29	238.74	239.52
				TSC	131.17	184.93	239.77	260.17	141.91	207.02	259.05	257.52	151.57	223.80	238.74	239.52
				kW	19.95	20.14	20.20	20.14	19.84	20.05	20.14	20.13	19.71	19.87	19.92	19.92
	87.5	26.5	11.5	TC	235.86	255.71	265.74	260.87	227.66	245.98	257.60	259.05	222.74	236.21	241.86	242.67
				TSC	130.22	184.59	240.69	260.87	140.97	207.06	253.64	259.05	152.45	225.94	241.86	242.67
				kW	19.82	20.03	20.12	20.07	19.71	19.93	20.04	20.07	19.66	19.83	19.88	19.87
100	34.6	15.0	TC	237.93	257.48	266.16	261.20	229.67	249.71	259.00	260.92	224.77	241.20	244.91	245.07	
			TSC	130.94	185.31	240.93	261.20	141.65	207.64	254.46	260.92	153.09	229.51	244.91	245.07	
			kW	19.79	19.99	20.06	20.01	19.68	19.90	20.00	20.03	19.64	19.80	19.85	19.84	

LEGEND

- BF — Bypass Factor
- Ewb — Entering Wet Bulb
- EWT — Entering Water Temperature
- kW — Compressor Motor Power Input (kilowatts)
- TC — Total Capacity (1000 Btuh), Gross
- TSC — Total Sensible Capacity (1000 Btuh)
- VAV — Variable Air Volume

NOTES:

1. Minimal airflow for VAV units is 50% of nominal airflow.
2. Shaded area represents nominal capacity.
3. Performance data based on ARI conditions with entering air at 80 F dry bulb and 67 F wet bulb.



GROSS COOLING CAPACITIES (cont)
50BVC,J,Q034 (R-22)

EWT (F)	GPM	PRESSURE DROP		AIR ENTERING EVAPORATOR — CFM/BF												
				9000/0.04				12,000/0.08				15,000/0.12				
		Ft	PSIG	Air Entering Evaporator — Ewb (F)												
				72	67	62	57	72	67	62	57	72	67	62	57	
65	45.0	6.2	2.7	TC	402.4	384.0	362.0	350.1	451.3	426.0	396.0	386.8	433.1	410.0	399.8	395.1
				SHC	204.2	261.1	314.3	342.2	231.9	299.0	360.9	386.8	246.5	326.8	399.8	395.1
				kW	22.17	21.54	21.01	20.73	22.73	22.09	21.47	21.28	22.80	22.15	21.80	21.85
	60.0	10.9	4.7	TC	410.7	388.7	367.6	354.8	430.4	406.2	433.1	410.0	442.7	418.4	403.0	400.6
				SHC	207.4	263.0	317.1	346.7	229.8	298.5	366.5	386.8	249.8	330.2	387.6	400.6
				kW	21.48	21.03	20.31	20.05	21.81	21.18	22.80	22.15	22.06	21.42	21.07	20.97
	75.0	17.0	7.4	TC	415.2	393.0	370.7	359.5	439.8	415.1	442.7	418.4	446.4	422.7	406.7	404.0
				SHC	209.1	265.0	318.7	359.5	239.8	298.5	366.5	386.8	251.1	332.0	390.7	404.0
				kW	21.09	20.48	19.94	19.67	21.80	21.85	22.06	21.42	21.68	21.02	20.69	20.57
	90.0	24.5	10.6	TC	419.5	393.4	372.2	360.9	403.0	400.6	446.4	422.7	449.9	426.8	408.5	406.3
				SHC	210.7	264.9	319.4	360.9	237.6	298.5	366.5	386.8	252.3	333.6	394.0	406.3
				kW	20.83	20.22	19.70	19.43	21.07	20.97	21.68	21.02	21.43	20.76	20.39	20.44
75	60.0	10.9	4.7	TC	387.4	368.6	350.1	341.9	406.7	404.0	449.9	426.8	415.7	394.5	382.3	380.9
				SHC	198.6	254.5	308.4	341.9	239.7	298.5	366.5	386.8	240.5	320.4	370.2	380.9
				kW	23.41	22.90	22.45	22.27	20.69	20.57	21.43	20.76	24.00	23.42	23.11	23.07
	75.0	17.0	7.4	TC	392.9	372.8	353.9	345.1	408.5	406.3	436.0	417.3	420.4	399.9	386.5	386.0
				SHC	200.6	256.2	310.2	345.1	239.0	298.5	366.5	386.8	242.1	322.6	375.1	386.0
				kW	22.99	22.48	22.01	21.81	20.39	20.44	22.30	22.26	21.49	23.00	22.65	22.63
	90.0	24.5	10.6	TC	396.4	373.8	355.9	346.9	413.5	392.0	437.8	418.4	426.5	403.4	390.0	388.2
				SHC	201.9	256.3	311.2	346.8	223.8	292.5	366.0	386.8	244.2	324.0	376.5	388.2
				kW	22.72	22.18	21.74	21.52	23.03	22.51	22.02	21.97	23.25	22.69	22.40	22.34
	105.0	33.3	14.4	TC	398.9	378.0	357.7	345.3	415.6	393.4	437.4	417.3	428.7	406.1	391.4	390.8
				SHC	202.9	258.4	312.2	345.3	224.6	293.0	365.9	386.8	244.9	325.1	379.1	390.8
				kW	22.53	22.02	21.55	21.32	22.85	22.30	21.83	21.78	23.07	22.49	22.17	22.15
85	60.0	10.9	4.7	TC	356.2	341.0	326.4	320.0	371.3	354.8	342.1	341.2	381.7	364.4	356.6	356.3
				SHC	187.1	242.8	296.8	320.0	208.9	277.3	332.3	341.2	228.7	308.5	347.8	356.3
				kW	25.70	25.31	24.99	24.86	26.01	25.59	25.30	25.28	26.21	25.78	25.58	25.57
	75.0	17.0	7.4	TC	361.1	346.7	330.9	323.7	373.7	357.5	344.5	343.0	389.1	371.5	365.9	362.0
				SHC	188.9	245.2	298.7	323.7	210.4	279.0	333.4	343.0	231.4	311.2	365.9	362.0
				kW	25.21	24.83	24.54	24.36	25.48	25.05	24.78	24.74	25.71	25.27	25.10	25.09
	90.0	24.5	10.6	TC	365.8	349.1	333.7	325.6	374.7	361.5	347.8	346.1	391.9	376.0	369.7	365.4
				SHC	190.8	246.4	300.6	325.6	210.7	280.6	336.2	346.1	232.2	312.9	369.7	365.4
				kW	24.88	24.49	24.19	24.04	23.58	24.73	24.45	24.41	25.42	24.94	24.77	24.75
	105.0	33.3	14.4	TC	366.7	351.3	340.6	327.4	377.9	364.2	349.7	348.7	395.9	378.7	367.9	367.5
				SHC	191.1	247.4	308.9	327.4	211.8	281.7	337.8	348.7	233.6	314.1	358.8	367.5
				kW	24.69	24.27	24.02	24.02	23.34	24.50	24.22	24.19	25.21	24.71	24.48	24.47
95	75.0	17.0	7.4	TC	322.4	312.2	300.9	297.8	332.7	321.3	313.9	313.3	347.9	334.7	330.8	330.7
				SHC	175.0	231.1	283.6	297.8	196.1	264.6	306.7	313.3	217.3	296.9	330.8	330.7
				kW	27.84	27.50	27.22	27.15	28.05	27.71	27.50	27.51	28.31	27.92	27.83	27.83
	90.0	24.5	10.6	TC	326.8	316.7	304.3	301.3	337.2	326.3	317.8	317.1	353.1	339.6	335.3	335.1
				SHC	176.6	233.0	285.6	301.3	197.6	266.4	310.3	317.1	219.0	299.1	335.3	335.1
				kW	27.50	27.18	26.89	26.83	27.73	27.39	27.17	27.18	27.96	27.58	27.48	27.48
	105.0	33.3	14.4	TC	330.3	320.1	306.8	303.6	338.8	329.4	319.9	320.0	356.7	343.3	338.2	338.0
				SHC	177.9	234.4	286.8	303.6	198.2	267.8	312.8	320.0	220.2	300.5	338.2	338.0
				kW	27.28	26.96	26.67	26.62	26.44	27.18	26.93	26.93	27.72	27.35	27.24	27.23
	120.0	43.5	18.9	TC	332.7	323.4	308.5	304.6	344.4	332.3	322.2	321.9	359.7	0.0	330.6	330.0
				SHC	178.7	235.8	287.7	304.6	200.2	268.9	315.0	321.9	221.3	0.0	330.6	330.0
				kW	27.11	26.79	26.52	26.46	27.33	27.00	26.77	26.76	27.54	0.00	26.97	26.98

LEGEND

- BF** — Bypass Factor
- Ewb** — Entering Wet Bulb
- EWT** — Entering Water Temperature
- kW** — Compressor Motor Power Input (kilowatts)
- SHC** — Sensible Heating Capacity (1000 Btuh)
- TC** — Total Capacity (1000 Btuh), Gross
- VAV** — Variable Air Volume

NOTES:

1. Minimal airflow for VAV units is 50% of nominal airflow.
2. Shaded area represents nominal capacity.
3. Performance data based on ARI conditions with entering air at 80 F dry bulb and 67 F wet bulb.

Performance data (cont)



GROSS COOLING CAPACITIES (cont) 50BVC,J,Q034 (R-410A)

EWT (F)	GPM	PRESSURE DROP		AIR ENTERING EVAPORATOR — CFM/BF												
				9000/0.04				12,000/0.08				15,000/0.12				
		Ft	Psig	Air Entering Evaporator - Ewb (F)												
				72	67	62	57	72	67	62	57	72	67	62	57	
65	45	6.2	2.7	TC	452.76	437.91	404.01	379.57	472.69	455.50	427.13	414.14	478.87	463.19	441.30	439.80
				TSC	222.86	283.88	334.11	371.97	244.46	317.91	383.58	414.14	262.35	347.92	425.88	439.80
				kW	20.98	20.35	19.79	19.38	21.32	20.80	20.19	19.96	21.54	21.02	20.50	20.48
	60	10.9	4.7	TC	464.09	440.78	406.27	380.97	479.14	460.25	429.96	416.31	486.00	468.61	447.48	443.58
				TSC	226.86	284.79	334.83	373.23	246.84	319.95	385.04	416.31	264.83	350.13	427.11	443.58
				kW	20.59	20.02	19.45	19.05	20.95	20.43	19.83	19.61	21.17	20.66	20.13	20.06
	75	17	7.4	TC	471.00	442.35	407.44	381.57	482.13	463.51	431.56	417.53	489.99	471.66	449.29	445.14
				TSC	229.10	285.01	334.87	373.66	247.93	321.34	385.85	417.53	266.22	351.37	428.21	445.14
				kW	20.39	19.80	19.25	18.86	20.74	20.21	19.63	19.40	20.96	20.44	19.92	19.84
	90	24.5	10.6	TC	472.91	443.43	408.26	381.96	484.38	465.20	432.58	418.31	492.50	473.56	450.44	446.14
				TSC	229.82	285.49	335.28	374.43	248.76	322.07	386.37	418.31	267.09	352.15	428.80	446.14
				kW	20.25	19.67	19.13	18.73	20.60	20.07	19.50	19.27	20.81	20.31	19.79	19.71
75	60	10.9	4.7	TC	434.26	420.28	389.38	367.87	439.29	429.03	411.26	401.13	443.34	433.46	419.59	420.43
				TSC	215.10	275.23	325.88	360.09	232.43	306.75	375.48	401.12	250.05	336.03	403.82	420.43
				kW	22.78	22.29	21.70	21.35	23.07	22.60	22.08	21.91	23.24	22.80	22.43	22.37
	75	17	7.4	TC	437.60	422.82	390.82	368.90	443.79	432.51	413.09	402.53	448.38	437.27	422.59	423.33
				TSC	216.41	276.39	326.65	361.12	234.05	308.21	376.43	402.53	251.79	337.55	406.47	423.33
				kW	22.56	22.07	21.49	21.14	22.85	22.38	21.86	21.68	23.03	22.58	22.21	22.14
	90	24.5	10.6	TC	440.21	424.68	391.74	369.54	446.71	434.77	414.24	403.42	451.53	440.47	424.61	425.19
				TSC	217.39	277.21	327.10	361.74	234.99	309.16	377.02	403.42	252.88	338.88	408.31	425.19
				kW	22.41	21.93	21.35	21.01	22.71	22.24	21.72	21.54	22.89	22.43	22.06	22.00
	105	33.3	14.4	TC	442.05	422.50	392.56	370.41	448.53	436.35	415.04	404.03	452.88	442.15	425.93	426.44
				TSC	218.09	277.10	328.46	362.91	235.65	309.82	377.42	404.03	253.33	339.56	409.48	426.44
				kW	22.31	21.80	21.26	20.92	22.61	22.15	21.62	21.44	22.80	22.33	21.96	21.90
85	60	10.9	4.7	TC	387.13	383.19	370.85	351.50	385.25	385.45	376.67	376.55	385.40	386.49	380.29	381.84
				TSC	197.35	259.22	316.72	351.50	213.27	288.83	357.47	376.55	230.31	317.73	369.77	381.84
				kW	25.10	24.70	24.23	23.88	25.32	24.93	24.54	24.47	25.44	25.06	24.83	24.80
	75	17	7.4	TC	390.44	386.08	372.52	352.72	390.74	389.88	380.03	379.72	390.73	391.46	384.46	385.97
				TSC	198.70	260.55	317.71	352.72	215.22	290.64	359.29	379.72	232.13	319.59	373.44	385.97
				kW	24.88	24.47	23.99	23.66	25.11	24.72	24.32	24.24	25.25	24.85	24.61	24.58
	90	24.5	10.6	TC	393.81	388.47	373.59	353.45	394.42	392.70	382.47	381.81	395.08	394.72	387.14	388.59
				TSC	199.97	261.59	318.25	353.45	216.51	291.80	360.80	381.81	233.62	320.79	375.79	388.59
				kW	24.73	24.33	23.85	23.51	24.97	24.57	24.18	24.09	25.10	24.71	24.46	24.43
	105	33.3	14.4	TC	396.21	390.17	374.32	353.96	396.78	394.70	385.57	383.52	397.77	396.81	388.99	390.38
				TSC	200.84	262.33	318.60	353.96	217.34	292.62	363.09	383.52	234.54	321.57	377.40	390.38
				kW	24.63	24.23	23.74	23.41	24.88	24.47	24.07	23.98	25.00	24.62	24.36	24.33
95	75	17	7.4	TC	326.20	335.71	335.85	332.42	320.12	331.39	330.06	332.76	318.30	325.38	327.60	328.22
				TSC	175.14	239.17	299.56	332.42	190.64	267.04	320.83	332.76	207.37	292.19	327.59	328.22
				kW	27.31	27.02	26.70	26.51	27.44	27.15	26.92	26.90	27.54	27.23	27.15	27.13
	90	24.5	10.6	TC	327.86	338.02	337.68	334.01	324.16	335.01	333.23	335.87	322.44	329.27	331.29	331.99
				TSC	175.81	240.23	300.61	334.01	192.03	268.52	323.58	335.87	208.80	293.84	331.29	331.99
				kW	27.19	26.87	26.54	26.36	27.32	27.02	26.78	26.76	27.42	27.10	27.02	27.00
	105	33.3	14.4	TC	330.80	340.22	340.41	335.55	327.14	337.83	335.44	338.05	325.43	332.20	333.90	334.61
				TSC	176.87	241.17	302.12	335.55	193.06	269.61	325.62	338.05	209.83	295.04	333.89	334.61
				kW	27.09	26.77	26.45	26.25	27.24	26.93	26.68	26.66	27.33	27.01	26.92	26.90
	120	43.5	18.8	TC	332.97	342.02	341.84	336.66	329.35	339.67	336.98	339.63	327.66	334.43	335.78	336.59
				TSC	177.66	241.92	302.86	336.66	193.82	270.34	326.94	339.63	210.58	296.01	335.78	336.59
				kW	27.02	26.71	26.37	26.17	27.18	26.86	26.61	26.58	27.27	26.95	26.85	26.83

LEGEND

- BF — Bypass Factor
- Ewb — Entering Wet Bulb
- EWT — Entering Water Temperature
- kW — Compressor Motor Power Input (kilowatts)
- TC — Total Capacity (1000 Btuh), Gross
- TSC — Total Sensible Capacity (1000 Btuh)
- VAV — Variable Air Volume

NOTES:

1. Minimal airflow for VAV units is 50% of nominal airflow.
2. Shaded area represents nominal capacity.
3. Performance data based on ARI conditions with entering air at 80 F dry bulb and 67 F wet bulb.



GROSS COOLING CAPACITIES (cont)
50BVE,K020 WITH 09DK020 CONDENSER (R-22)

TEMP(F) AIR ENTERING CONDENSER (Edb)		AIR ENTERING EVAPORATOR — CFM/BF											
		5400/0.03				7200/0.07				9000/0.11			
		Air Entering Evaporator — Ewb (F)											
		72	67	62	57	72	67	62	57	72	67	62	57
65	TC	249.7	234.4	210.0	203.3	260.7	240.2	225.1	223.5	267.8	247.5	239.0	237.9
	SHC	126.0	160.6	185.8	203.3	139.1	178.3	218.8	223.5	151.5	200.0	234.5	237.9
	KW	12.04	11.70	11.14	10.98	12.30	11.81	11.47	11.44	12.47	11.98	11.78	11.76
75	TC	241.9	222.4	203.9	198.3	252.3	232.5	219.2	217.9	258.8	239.4	231.5	231.5
	SHC	123.0	153.6	183.2	198.3	136.2	175.5	214.5	217.9	148.4	197.4	231.5	231.5
	KW	13.23	12.77	12.35	12.23	13.49	13.00	12.70	12.67	13.65	13.17	12.98	12.98
85	TC	233.5	214.8	197.0	192.8	243.3	224.3	212.4	211.4	249.1	230.7	224.5	224.5
	SHC	119.9	150.3	179.8	192.8	133.0	172.5	208.7	211.4	145.1	194.2	224.5	224.5
	KW	14.64	14.16	13.72	13.62	14.90	14.40	14.10	14.08	15.06	14.56	14.41	14.41
95	TC	224.5	206.5	189.7	186.6	233.4	215.3	205.2	204.3	238.8	221.5	215.8	216.6
	SHC	116.6	146.9	176.4	186.6	129.6	169.2	202.2	204.3	141.7	191.0	215.8	216.6
	KW	16.21	15.71	15.26	15.18	16.47	15.96	15.67	15.65	16.62	16.12	15.97	15.99
105	TC	214.7	197.5	182.0	180.0	222.8	205.5	197.4	196.7	227.8	211.8	208.1	208.1
	SHC	113.0	143.2	172.5	180.0	125.9	165.7	194.9	196.7	138.0	187.4	208.1	208.1
	KW	17.95	17.43	16.97	16.91	18.21	17.67	17.42	17.40	18.36	17.86	17.75	17.75
115	TC	204.3	187.8	174.0	172.8	211.4	195.1	188.4	188.4	216.0	201.3	198.9	198.9
	SHC	109.2	139.3	168.6	172.8	122.0	162.1	188.4	188.4	134.1	183.6	198.9	198.9
	KW	19.91	19.36	18.92	18.88	20.15	19.59	19.38	19.38	20.31	19.81	19.72	19.72
125	TC	193.0	177.2	0.0	164.8	199.3	184.2	179.2	179.2	203.5	190.5	189.0	189.0
	SHC	105.2	135.3	0.0	164.8	117.9	158.5	179.2	179.2	130.0	178.9	189.0	189.0
	KW	22.11	21.52	0.00	21.07	22.33	21.76	21.58	21.58	22.50	22.01	21.95	21.95

50BVE,K024 WITH 09DK024 CONDENSER (R-22)

TEMP(F) AIR ENTERING CONDENSER (Edb)		AIR ENTERING EVAPORATOR — CFM/BF											
		6000/0.06				8000/0.09				10,000/0.12			
		Air Entering Evaporator — Ewb (F)											
		72	67	62	57	72	67	62	57	72	67	62	57
65	TC	278.8	256.2	234.3	226.7	289.0	266.8	249.8	248.0	297.0	274.6	265.2	263.8
	SHC	139.5	173.2	205.6	226.7	152.0	194.7	239.4	248.0	164.9	216.7	259.0	263.8
	KW	13.79	13.30	12.83	12.66	13.94	13.53	13.15	13.11	14.19	13.69	13.49	13.46
75	TC	270.1	248.4	227.1	220.7	279.8	258.2	243.5	241.7	287.0	265.7	257.8	256.5
	SHC	136.2	169.7	201.8	220.7	148.8	191.4	237.1	241.7	161.5	213.7	252.3	256.5
	KW	15.08	14.59	14.13	13.98	15.29	14.80	14.48	14.44	15.46	14.97	14.79	14.77
85	TC	260.2	239.3	220.0	214.9	269.9	249.0	236.4	234.9	276.6	256.4	249.8	248.8
	SHC	132.1	165.5	199.0	214.9	145.3	188.0	231.1	234.9	157.9	210.9	245.3	248.8
	KW	16.55	16.04	15.58	15.46	16.78	16.28	15.98	15.94	16.96	16.46	16.29	16.27
95	TC	250.4	230.4	212.4	208.6	259.4	239.5	228.5	227.4	265.5	246.5	240.6	240.6
	SHC	128.6	161.8	195.5	208.6	141.6	184.5	224.3	227.4	154.2	207.5	240.6	240.6
	KW	18.19	17.65	17.19	17.10	18.43	17.90	17.61	17.58	18.60	18.09	17.92	17.93
105	TC	240.2	221.1	204.3	201.8	248.5	229.6	220.4	219.4	254.0	236.1	231.9	231.9
	SHC	124.8	157.9	191.2	201.8	137.8	180.7	216.7	219.4	150.3	203.4	231.9	231.9
	KW	19.99	19.44	18.96	18.90	20.25	19.69	19.42	19.39	20.40	19.88	19.76	19.76
115	TC	229.5	211.3	195.9	194.5	237.1	219.2	211.1	211.0	242.0	225.6	222.4	222.4
	SHC	120.9	153.9	187.1	194.5	133.8	176.9	210.9	211.0	146.2	199.7	222.4	222.4
	KW	22.02	21.45	20.98	20.94	22.27	21.70	21.44	21.44	22.41	21.89	21.80	21.80
125	TC	218.4	201.1	187.8	186.9	225.1	208.3	202.2	202.2	229.6	214.8	212.6	212.6
	SHC	117.0	150.0	183.4	186.9	129.7	173.1	202.2	202.2	142.0	195.6	212.6	212.6
	KW	24.34	23.74	23.31	23.28	24.58	23.99	23.78	23.79	24.73	24.21	24.13	24.13

LEGEND

- BF** — Bypass Factor
- Edb** — Entering Dry Bulb
- Ewb** — Entering Wet Bulb
- KW** — Compressor Motor Power Input (kilowatts)
- SHC** — Sensible Heating Capacity (1000 Btuh)
- TC** — Total Capacity (1000 Btuh), Gross
- VAV** — Variable Air Volume

NOTES:

1. Minimal airflow for VAV units is 50% of nominal airflow.
2. Shaded area represents nominal capacity.
3. Performance data based on ARI conditions with entering air at 80 F dry bulb and 67 F wet bulb.

Performance data (cont)



GROSS COOLING CAPACITIES (cont) 50BVE,K020 WITH 09AW020 CONDENSER (R-410A)

TEMP (F) AIR ENTERING CONDENSER (Edb)		AIR ENTERING EVAPORATOR — CFM/BF											
		5400/0.03				7200/0.07				9000/0.11			
		Air Entering Evaporator — Ewb (F)											
		72	67	62	57	72	67	62	57	72	67	62	57
65	TC	260.4	239.3	219.2	210.0	270.1	249.6	230.7	229.4	278.7	257.9	246.5	245.3
	SHC	129.5	160.1	189.2	210.0	139.6	177.9	214.0	229.4	152.1	198.0	241.6	245.3
	kW	13.04	12.66	12.32	12.19	13.33	12.93	12.63	12.61	13.45	13.05	12.87	12.86
75	TC	247.9	228.3	209.0	202.1	258.5	239.0	223.2	221.7	265.2	245.7	236.6	235.8
	SHC	123.9	154.3	182.0	202.1	135.8	174.2	214.5	221.7	147.0	192.6	232.7	235.8
	kW	14.44	14.05	13.73	13.61	14.66	14.25	13.99	13.98	14.80	14.39	14.24	14.23
85	TC	236.1	217.6	200.3	194.6	245.8	227.5	214.5	213.2	251.9	233.6	226.1	226.2
	SHC	119.3	149.5	178.9	194.6	131.5	169.8	210.2	213.2	142.7	189.7	226.1	226.2
	kW	15.90	15.51	15.22	15.12	16.07	15.68	15.47	15.46	16.20	15.82	15.69	15.69
95	TC	223.9	206.7	190.7	186.9	232.4	215.3	204.9	204.0	237.6	221.5	215.7	215.7
	SHC	114.8	145.0	173.7	186.9	126.7	164.9	201.6	204.0	137.8	187.6	215.7	215.7
	kW	17.40	17.04	16.79	16.74	17.57	17.20	17.05	17.04	17.68	17.33	17.25	17.25
105	TC	210.8	195.0	180.3	178.4	218.2	202.5	194.2	194.0	222.7	208.1	204.4	204.5
	SHC	110.0	140.2	168.1	178.4	121.8	159.8	193.4	194.0	132.7	181.4	204.4	204.5
	kW	18.99	18.66	18.48	18.46	19.12	18.79	18.71	18.70	19.22	18.92	18.88	18.87
115	TC	196.7	182.3	170.1	169.1	202.8	188.9	183.0	183.0	206.6	193.8	192.1	192.1
	SHC	104.9	135.0	164.9	169.1	116.5	156.9	183.0	183.0	127.3	175.2	192.1	192.1
	kW	20.62	20.35	20.26	20.27	20.72	20.48	20.43	20.43	20.80	20.57	20.56	20.55
125	TC	180.8	168.0	158.9	158.3	185.8	174.0	170.3	170.3	188.9	178.9	178.0	178.1
	SHC	99.2	129.2	156.8	158.3	110.7	151.2	170.3	170.3	121.4	170.8	178.0	178.1
	kW	22.29	22.11	22.14	22.15	22.34	22.19	22.21	22.20	22.38	22.24	22.27	22.26

50BVE,K024 WITH 09AW020 CONDENSER (R-410A)

TEMP (F) AIR ENTERING CONDENSER (Edb)		AIR ENTERING EVAPORATOR — CFM/BF											
		6000/0.06				8000/0.09				10,000/0.12			
		Air Entering Evaporator — Ewb (F)											
		72	67	62	57	72	67	62	57	72	67	62	57
65	TC	287.6	264.7	242.9	233.0	298.4	275.9	256.2	254.4	306.6	284.1	271.9	270.5
	SHC	142.1	175.9	208.9	233.0	153.7	195.9	239.4	254.4	165.9	215.9	266.0	270.5
	kW	13.02	12.61	12.22	12.05	13.23	12.81	12.45	12.42	13.38	12.96	12.73	12.71
75	TC	274.0	252.7	231.8	224.4	286.7	265.2	248.2	246.5	294.3	272.7	262.7	261.7
	SHC	135.9	169.3	201.3	224.4	150.0	192.1	238.4	246.5	162.4	212.4	258.1	261.7
	kW	14.64	14.22	13.82	13.68	14.91	14.47	14.13	14.10	15.06	14.62	14.41	14.40
85	TC	262.8	242.4	223.4	217.1	273.6	253.2	238.8	237.4	280.4	259.9	251.4	251.5
	SHC	132.0	165.2	199.3	217.1	145.3	187.1	233.9	237.4	157.5	208.3	251.4	251.5
	kW	16.49	16.04	15.64	15.51	16.73	16.27	15.96	15.93	16.89	16.42	16.24	16.24
95	TC	250.2	230.9	213.1	208.8	260.0	240.7	228.8	227.8	266.1	247.0	240.7	240.8
	SHC	127.2	160.3	193.6	208.8	140.6	182.3	224.9	227.8	152.7	205.4	240.7	240.8
	kW	18.48	18.02	17.60	17.50	18.72	18.25	17.97	17.94	18.88	18.40	18.25	18.25
105	TC	236.8	218.7	202.3	199.9	245.6	227.4	218.1	217.4	251.0	233.8	229.2	229.2
	SHC	122.4	155.3	187.5	199.9	135.6	177.2	215.2	217.4	147.7	201.2	229.2	229.2
	kW	20.65	20.16	19.74	19.68	20.89	20.39	20.15	20.13	21.04	20.57	20.44	20.44
115	TC	222.4	205.5	191.6	190.1	229.9	213.1	205.9	205.9	234.5	219.1	216.5	216.5
	SHC	117.2	150.0	184.9	190.1	130.2	172.4	205.9	205.9	142.1	194.6	216.5	216.5
	kW	23.00	22.50	22.10	22.06	23.24	22.72	22.51	22.51	23.39	22.90	22.83	22.83
125	TC	205.8	190.7	179.8	179.0	211.8	197.8	192.8	192.8	215.6	203.3	201.9	201.9
	SHC	111.2	144.0	177.2	179.0	123.9	168.6	192.8	192.8	135.5	190.7	201.9	201.9
	kW	25.65	25.08	24.70	24.67	25.88	25.35	25.16	25.16	26.02	25.56	25.50	25.50

LEGEND

- BF — Bypass Factor
- Edb — Entering Dry Bulb
- Ewb — Entering Wet Bulb
- kW — Compressor Motor Power Input (kilowatts)
- SHC — Sensible Heating Capacity (1000 Btuh)
- TC — Total Capacity (1000 Btuh), Gross
- VAV — Variable Air Volume

NOTES:

1. Minimal airflow for VAV units is 50% of nominal airflow.
2. Shaded area represents nominal capacity.
3. Performance data based on ARI conditions with entering air at 80 F dry bulb and 67 F wet bulb.



GROSS COOLING CAPACITIES (cont)
50BVE,K028 WITH 09DK028 CONDENSER (R-22)

TEMP(F) AIR ENTERING CONDENSER (Edb)		AIR ENTERING EVAPORATOR — CFM/BF											
		7500/0.08				10,000/0.12				12,500/0.17			
		Air Entering Evaporator — Ewb (F)											
		72	67	62	57	72	67	62	57	72	67	62	57
65	TC	349.1	325.6	301.0	290.3	363.5	339.3	320.8	317.5	371.2	348.5	337.1	335.2
	SHC	172.0	215.1	257.3	290.3	189.4	243.0	300.4	317.5	204.3	269.1	327.0	335.2
	KW	17.79	17.16	16.53	16.28	18.23	17.53	17.04	16.94	18.51	17.79	17.47	17.42
75	TC	338.0	313.6	289.8	281.6	350.7	327.1	309.6	305.9	358.1	335.6	326.1	324.3
	SHC	168.0	210.1	252.5	281.6	184.9	238.6	293.0	305.9	199.9	264.9	317.1	324.3
	KW	19.57	18.90	18.28	18.09	19.96	19.27	18.79	18.70	20.17	19.50	19.24	19.19
85	TC	326.7	302.7	279.9	273.2	338.3	315.6	299.6	297.9	346.0	323.9	315.8	314.3
	SHC	163.9	205.4	248.4	273.2	180.7	234.3	286.5	297.9	195.9	261.0	307.8	314.3
	KW	21.60	20.90	20.27	20.09	21.97	21.28	20.81	20.76	22.20	21.52	21.28	21.24
95	TC	315.2	291.9	270.3	264.9	326.7	304.1	289.9	288.5	333.6	312.3	305.3	304.1
	SHC	159.6	200.9	243.7	264.9	176.5	229.7	280.5	288.5	191.8	257.4	298.5	304.1
	KW	23.90	23.15	22.51	22.36	24.27	23.53	23.08	23.04	24.50	23.79	23.57	23.53
105	TC	303.2	280.5	260.7	256.2	313.6	291.7	280.0	278.5	320.1	299.7	293.0	293.0
	SHC	155.4	196.3	240.0	256.2	172.0	225.0	273.7	278.5	187.3	252.5	293.0	293.0
	KW	26.46	25.67	25.04	24.89	26.82	26.05	25.66	25.60	27.06	26.33	26.09	26.09
115	TC	289.3	267.4	249.4	246.6	298.7	277.8	268.4	267.2	304.8	285.9	280.6	280.6
	SHC	150.3	191.0	234.4	246.6	167.0	220.0	263.1	267.2	182.3	247.4	280.6	280.6
	KW	29.31	28.50	27.86	27.78	29.65	28.86	28.53	28.50	29.91	29.18	28.97	28.97
125	TC	272.9	252.3	236.5	234.9	281.8	262.2	254.1	253.9	287.4	270.0	266.6	266.7
	SHC	144.5	185.5	227.0	234.9	161.3	214.6	253.3	253.9	176.6	240.5	266.6	266.7
	KW	32.46	31.61	30.98	30.92	32.83	32.01	31.67	31.67	33.08	32.33	32.21	32.21

50BVE,K034 WITH 09DK034 CONDENSER (R-22)

TEMP(F) AIR ENTERING CONDENSER (Edb)		AIR ENTERING EVAPORATOR — CFM/BF											
		9000/0.04				12,000/0.08				15,000/0.12			
		Air Entering Evaporator — Ewb (F)											
		72	67	62	57	72	67	62	57	72	67	62	57
65	TC	465.7	428.2	393.0	371.6	489.6	451.5	416.7	406.9	503.9	465.4	437.1	433.7
	SHC	228.5	280.3	329.7	362.9	252.6	318.8	381.5	406.9	273.7	352.4	420.4	433.7
	KW	23.19	22.21	21.51	21.11	23.51	22.70	21.98	21.78	23.83	22.98	22.39	22.32
75	TC	444.0	419.0	377.2	357.2	474.2	437.1	403.9	396.6	487.9	450.5	425.5	422.2
	SHC	216.1	279.6	316.1	347.1	246.9	312.9	375.2	396.6	268.1	346.5	409.7	422.2
	KW	25.38	24.83	24.13	23.59	26.06	25.23	24.53	24.38	26.37	25.52	24.99	24.91
85	TC	436.8	401.9	368.7	353.0	457.7	421.9	390.5	385.2	470.7	434.7	412.8	410.0
	SHC	217.2	268.9	317.6	344.1	241.0	306.5	368.2	385.2	262.1	340.1	398.6	410.0
	KW	28.52	27.68	26.92	26.58	29.05	28.16	27.42	27.30	29.38	28.47	27.96	27.89
95	TC	421.0	387.5	355.7	339.9	440.3	405.9	376.8	373.0	452.5	417.9	399.1	396.4
	SHC	211.3	262.5	311.1	339.9	234.8	300.1	360.4	373.0	255.9	333.4	385.4	396.4
	KW	31.83	30.91	30.09	29.68	32.35	31.40	30.62	30.52	32.71	31.74	31.22	31.16
105	TC	403.2	371.5	341.2	328.2	421.9	389.1	363.0	360.3	435.3	400.3	384.3	381.9
	SHC	204.0	255.0	303.2	328.2	228.3	293.2	351.3	360.3	249.9	326.4	372.7	381.9
	KW	35.40	34.42	33.52	33.11	35.96	34.93	34.14	34.06	36.71	35.31	34.78	34.72
115	TC	386.0	355.5	327.0	317.5	402.5	371.4	349.3	346.9	415.4	381.5	368.9	367.0
	SHC	198.1	248.9	297.2	317.5	221.5	286.0	338.6	346.9	243.3	319.3	359.0	367.0
	KW	39.34	38.27	37.30	36.96	39.93	38.82	38.07	37.98	40.28	39.19	38.72	38.67
125	TC	367.0	338.0	311.6	305.9	382.2	352.9	333.9	332.2	390.9	361.6	351.1	351.2
	SHC	191.1	241.6	289.2	305.9	214.4	278.6	325.2	332.2	235.1	311.7	351.1	351.2
	KW	43.65	42.50	41.42	41.20	44.31	43.09	42.31	42.25	44.65	43.43	43.01	43.02

LEGEND

- BF** — Bypass Factor
- Edb** — Entering Dry Bulb
- Ewb** — Entering Wet Bulb
- KW** — Compressor Motor Power Input (kilowatts)
- SHC** — Sensible Heating Capacity (1000 Btuh)
- TC** — Total Capacity (1000 Btuh), Gross
- VAV** — Variable Air Volume

NOTES:

1. Minimal airflow for VAV units is 50% of nominal airflow.
2. Shaded area represents nominal capacity.
3. Performance data based on ARI conditions with entering air at 80 F dry bulb and 67 F wet bulb.

Performance data (cont)



GROSS COOLING CAPACITIES (cont) 50BVE,K028 WITH 09AW025 CONDENSER (R-410A)

TEMP (F) AIR ENTERING CONDENSER (Edb)		AIR ENTERING EVAPORATOR — CFM/BF											
		7500/0.08				10,000/0.12				12,500/0.17			
		Air Entering Evaporator — Ewb (F)											
		72	67	62	57	72	67	62	57	72	67	62	57
65	TC	363.3	334.2	306.9	293.7	380.6	351.3	326.1	322.8	391.6	362.1	345.3	343.3
	SHC	176.2	217.4	257.1	293.7	193.7	245.1	301.5	322.8	209.1	269.9	336.1	343.3
	kW	17.03	16.51	16.03	15.81	17.35	16.81	16.36	16.30	17.56	17.01	16.70	16.67
75	TC	348.7	320.9	294.6	284.3	364.6	336.6	314.2	311.7	374.6	346.4	332.5	330.9
	SHC	170.8	211.7	253.6	284.3	188.0	239.2	297.5	311.7	203.4	263.8	324.8	330.9
	kW	19.09	18.53	18.03	17.83	19.41	18.84	18.40	18.35	19.62	19.04	18.76	18.73
85	TC	333.3	306.8	282.8	274.3	347.8	321.2	301.8	299.9	356.9	330.1	318.9	317.8
	SHC	165.2	205.8	249.7	274.3	182.2	233.0	292.3	299.9	197.4	258.5	312.9	317.8
	kW	21.33	20.75	20.23	20.05	21.66	21.06	20.64	20.60	21.86	21.26	21.01	20.98
95	TC	317.2	292.0	269.5	263.5	330.2	305.0	289.0	287.4	338.4	313.5	303.8	303.9
	SHC	159.3	199.6	242.7	263.5	176.1	226.6	282.7	287.4	191.1	254.6	303.8	303.9
	kW	23.75	23.14	22.60	22.46	24.08	23.45	23.07	23.03	24.29	23.66	23.43	23.43
105	TC	300.0	276.3	255.3	251.9	311.7	287.9	275.1	274.0	319.0	296.3	289.0	289.1
	SHC	153.1	193.2	235.0	251.9	169.6	219.9	270.3	274.0	184.6	249.6	289.0	289.1
	kW	26.36	25.71	25.15	25.06	26.68	26.03	25.68	25.65	26.89	26.25	26.06	26.06
115	TC	281.6	259.5	241.2	239.3	291.8	269.7	259.3	259.4	298.1	277.4	273.0	273.0
	SHC	146.5	186.2	230.1	239.3	162.8	213.9	259.3	259.4	177.6	241.8	273.0	273.0
	kW	29.15	28.47	27.92	27.86	29.47	28.78	28.47	28.47	29.68	29.03	28.89	28.89
125	TC	261.0	240.8	226.5	225.2	269.5	250.0	243.0	243.0	274.7	257.1	255.0	255.0
	SHC	139.1	178.8	222.3	225.2	155.2	208.0	243.0	243.0	169.9	235.2	255.0	255.0
	kW	32.23	31.46	30.95	30.91	32.57	31.81	31.54	31.54	32.77	32.09	32.00	32.00

50BVE,K034 WITH 09AW030 CONDENSER (R-410A)

TEMP (F) AIR ENTERING CONDENSER (Edb)		AIR ENTERING EVAPORATOR — CFM/BF											
		9000/0.04				12,000/0.08				15,000/0.12			
		Air Entering Evaporator — Ewb (F)											
		72	67	62	57	72	67	62	57	72	67	62	57
65	TC	480.1	441.5	405.8	380.3	505.3	465.9	430.5	416.6	521.0	481.8	449.1	444.6
	SHC	232.5	284.5	333.9	372.1	256.3	322.1	385.2	416.6	277.0	355.6	427.9	444.6
	kW	23.74	22.80	21.97	21.39	24.37	23.39	22.54	22.22	24.77	23.78	22.98	22.88
75	TC	461.7	424.9	390.7	368.8	484.8	447.5	413.9	403.0	499.3	462.0	432.7	429.5
	SHC	225.5	277.2	326.5	360.7	249.0	314.5	376.8	403.0	269.5	347.5	417.2	429.5
	kW	26.33	25.37	24.50	23.97	26.96	25.96	25.09	24.81	27.36	26.34	25.57	25.49
85	TC	442.4	407.4	374.8	354.1	463.5	428.1	396.4	388.7	476.7	441.3	416.7	413.6
	SHC	218.2	269.6	318.7	354.1	241.2	306.4	368.2	388.7	261.7	339.4	401.4	413.6
	kW	29.19	28.19	27.31	26.76	29.80	28.78	27.89	27.68	30.19	29.16	28.45	28.37
95	TC	422.1	389.1	358.1	341.2	440.7	407.3	378.2	373.1	453.0	419.5	399.2	396.6
	SHC	210.6	261.8	310.6	341.2	232.6	297.4	358.1	373.1	253.5	330.5	386.1	396.6
	kW	32.30	31.29	30.38	29.90	32.89	31.85	30.97	30.82	33.28	32.22	31.60	31.52
105	TC	400.4	369.4	340.4	327.3	417.5	386.2	359.9	357.3	428.1	396.8	380.7	378.7
	SHC	202.5	253.3	302.0	327.3	224.8	289.3	348.3	357.3	245.1	321.7	369.9	378.7
	kW	35.69	34.67	33.74	33.34	36.28	35.22	34.36	34.27	36.65	35.57	35.03	34.97
115	TC	377.2	348.3	321.7	312.2	392.0	363.1	342.0	339.6	401.2	372.6	359.0	359.0
	SHC	193.9	244.5	292.5	312.2	215.8	279.9	331.2	339.6	235.9	312.6	359.0	359.0
	kW	39.40	38.35	37.43	37.11	39.96	38.88	38.13	38.04	40.31	39.23	38.73	38.73
125	TC	350.5	324.5	300.7	295.1	362.8	337.0	321.3	319.6	370.2	345.6	336.5	336.6
	SHC	184.1	234.6	281.9	295.1	205.6	269.4	313.0	319.6	225.4	301.0	336.5	336.6
	kW	43.54	42.44	41.50	41.29	44.11	42.96	42.31	42.24	44.46	43.33	42.94	42.94

LEGEND

- BF — Bypass Factor
- Edb — Entering Dry Bulb
- Ewb — Entering Wet Bulb
- kW — Compressor Motor Power Input (kilowatts)
- SHC — Sensible Heating Capacity (1000 Btuh)
- TC — Total Capacity (1000 Btuh), Gross
- VAV — Variable Air Volume

NOTES:

1. Minimal airflow for VAV units is 50% of nominal airflow.
2. Shaded area represents nominal capacity.
3. Performance data based on ARI conditions with entering air at 80 F dry bulb and 67 F wet bulb.



GROSS COOLING CAPACITIES (cont)
50BVT,V,W034

EWT (F)	GPM	PRESSURE DROP		AIR ENTERING EVAPORATOR — CFM/BF												
				9000/0.04				12,000/0.06				15,000/0.08				
		Ft	PSIG	Air Entering Evaporator — Ewb (F)												
				72	67	62	57	72	67	62	57	72	67	62	57	
65	45.0	4.9	2.1	TC	423.5	398.9	374.6	355.5	440.9	415.9	390.9	384.5	450.1	430.3	406.8	406.6
				SHC	212.4	267.5	320.6	345.4	235.8	305.7	370.0	384.5	256.7	341.9	394.5	406.6
				kW	21.62	21.01	20.48	20.16	22.00	21.38	20.82	20.70	18.28	21.64	21.20	21.14
	60.0	8.7	3.8	TC	429.4	404.4	378.8	358.3	448.9	422.1	450.1	430.3	459.4	433.1	409.2	408.9
				SHC	214.3	269.5	322.1	349.3	238.2	307.5	341.9	384.5	260.3	343.6	396.8	408.9
				kW	18.43	20.27	19.73	19.44	21.24	20.64	18.28	21.64	18.78	20.86	20.45	20.38
	75.0	13.6	5.9	TC	442.7	412.5	381.0	359.1	406.8	406.6	459.4	433.1	462.4	435.5	411.1	410.7
				SHC	217.8	271.1	321.1	350.3	394.5	406.6	260.3	343.6	261.3	344.5	398.6	410.7
				kW	20.44	19.85	19.32	19.01	21.20	21.14	18.78	20.86	18.45	20.44	20.05	19.97
90.0	19.5	8.5	TC	441.4	413.4	382.2	360.3	409.2	408.9	462.4	435.5	464.7	436.9	412.1	411.7	
			SHC	217.7	272.0	322.2	351.5	396.8	408.9	261.3	344.5	262.1	345.0	399.6	411.7	
			kW	20.18	19.64	19.07	18.78	20.45	20.38	18.45	20.44	20.80	20.19	19.81	19.74	
75	60.0	8.7	3.8	TC	420.4	394.5	367.7	349.7	411.1	410.7	464.7	436.9	447.0	421.4	399.5	399.6
				SHC	210.8	265.2	316.8	341.2	398.6	410.7	262.1	345.0	256.0	338.9	387.4	399.6
				kW	22.94	22.39	21.92	21.66	20.05	19.97	20.80	20.19	23.51	22.94	22.56	22.52
	75.0	13.6	5.9	TC	423.9	397.6	370.0	352.7	412.1	411.7	388.3	382.0	449.2	424.2	401.8	401.7
				SHC	212.0	266.4	317.6	339.0	399.6	411.7	368.1	382.0	256.9	340.1	389.7	401.7
				kW	22.44	21.92	21.44	21.21	19.81	19.74	21.76	21.66	21.26	22.43	22.09	22.03
	90.0	19.5	8.5	TC	434.6	402.3	371.8	350.8	441.8	415.3	389.8	383.2	451.6	425.9	403.1	402.9
				SHC	213.3	264.9	314.3	341.1	235.7	304.8	368.9	383.2	257.7	340.8	391.0	402.9
				kW	22.11	21.58	21.54	20.89	22.46	21.94	21.47	21.37	20.94	22.13	21.80	21.74
105.0	26.6	11.5	TC	422.9	397.3	372.2	353.4	443.1	416.2	390.8	384.1	453.7	427.1	404.1	404.0	
			SHC	212.1	266.8	319.4	344.8	236.1	305.2	369.4	384.1	258.3	341.3	391.8	404.0	
			kW	21.93	21.42	20.95	20.71	22.25	21.73	21.27	21.17	22.47	21.93	21.59	21.53	
85	60.0	8.7	3.8	TC	403.0	379.9	355.2	337.7	421.2	397.3	373.4	369.4	429.8	406.6	386.9	387.4
				SHC	204.6	259.4	311.1	337.7	228.3	297.3	360.2	369.4	250.2	333.3	375.3	387.4
				kW	25.50	25.04	24.57	24.24	25.83	25.34	24.88	24.83	26.02	25.52	25.18	25.17
	75.0	13.6	5.9	TC	405.7	382.1	357.5	340.0	423.2	400.4	376.2	371.7	432.8	409.9	389.5	390.1
				SHC	205.7	260.4	312.5	340.0	229.1	298.6	361.6	371.7	251.3	334.5	378.1	390.1
				kW	24.88	24.45	24.01	23.82	24.15	24.73	24.32	24.26	24.29	24.90	24.59	24.58
	90.0	19.5	8.5	TC	407.7	383.8	359.2	340.7	425.7	402.3	377.6	373.1	435.7	412.1	391.3	391.9
				SHC	206.4	261.1	313.2	340.7	230.0	299.6	362.3	373.1	252.3	335.4	379.6	391.9
				kW	24.50	24.09	23.68	23.42	23.70	24.36	23.96	23.90	23.88	24.52	24.24	24.22
105.0	26.6	11.5	TC	409.1	385.0	360.3	341.5	427.3	403.6	379.3	374.0	437.5	413.5	392.4	393.0	
			SHC	207.0	261.6	313.7	341.5	230.5	300.2	363.4	374.0	252.9	335.9	380.8	393.0	
			kW	24.25	23.84	23.44	23.20	23.41	24.11	23.72	23.65	23.59	24.27	23.98	23.97	
95	75.0	13.6	5.9	TC	388.9	367.6	344.1	329.1	406.5	384.6	360.3	359.2	414.0	394.1	375.4	375.9
				SHC	199.4	254.3	305.8	329.1	223.2	292.3	351.4	359.2	244.8	328.3	362.8	375.9
				kW	27.78	27.38	26.93	26.66	28.10	27.64	27.22	27.19	28.28	27.83	27.51	27.50
	90.0	19.5	8.5	TC	390.9	369.7	345.8	330.4	407.8	386.7	363.2	361.1	416.4	395.9	377.3	377.8
				SHC	200.2	255.2	306.6	330.4	223.7	293.2	353.7	361.1	245.8	329.1	366.5	377.8
				kW	27.37	26.98	26.54	26.29	27.44	27.24	26.83	26.79	27.25	27.40	27.11	27.10
	105.0	26.6	11.5	TC	392.7	371.1	346.9	331.2	409.8	388.3	364.2	362.2	418.5	397.6	378.9	379.3
				SHC	200.8	255.8	307.1	331.2	224.4	293.9	354.2	362.2	246.5	329.8	368.0	379.3
				kW	27.10	26.70	26.28	26.04	27.17	26.95	26.55	26.52	26.93	27.11	26.82	26.81
120.0	34.7	15.0	TC	394.0	372.1	347.8	331.8	411.3	389.7	365.2	363.1	420.1	398.3	379.7	380.3	
			SHC	201.3	256.2	307.5	331.8	224.9	294.3	354.9	363.1	247.0	330.0	368.7	380.3	
			kW	26.89	26.50	26.09	25.86	26.96	26.74	26.36	26.32	26.69	26.89	26.62	26.61	

LEGEND

- BF** — Bypass Factor
- Ewb** — Entering Wet Bulb
- EWT** — Entering Water Temperature
- kW** — Compressor Motor Power Input (kilowatts)
- SHC** — Sensible Heating Capacity (1000 Btuh)
- TC** — Total Capacity (1000 Btuh), Gross
- VAV** — Variable Air Volume

NOTES:

1. Minimal airflow for VAV units is 50% of nominal airflow.
2. Shaded area represents nominal capacity.
3. Performance data based on ARI conditions with entering air at 80 F dry bulb and 67 F wet bulb.

Performance data (cont)



GROSS COOLING CAPACITIES (cont) 50BVT,V,W044

EWT (F)	GPM	PRESSURE DROP		AIR ENTERING EVAPORATOR — CFM/BF												
				12,000/0.01				16,000/0.03				20,000/0.05				
		Ft	PSIG	Air Entering Evaporator — Ewb (F)												
				72	67	62	57	72	67	62	57	72	67	62	57	
65	60.0	3.8	1.6	TC	556.2	527.1	497.1	476.1	572.1	551.5	517.2	516.4	580.1	561.2	542.0	540.0
				SHC	284.1	359.5	432.1	476.1	312.9	412.5	503.5	516.4	340.5	459.9	522.1	540.0
				kW	30.41	29.45	28.57	28.06	22.97	29.98	29.19	29.08	22.98	30.33	29.83	30.00
	80.0	6.7	2.9	TC	571.5	539.0	506.4	482.9	590.9	558.6	580.1	561.2	600.6	571.1	550.2	546.9
				SHC	289.7	364.7	436.5	482.9	320.0	415.9	340.5	459.9	347.8	463.8	520.1	546.9
				kW	29.40	28.50	27.67	27.17	29.98	29.05	22.98	30.33	25.39	29.35	28.95	28.85
	100.0	10.3	4.5	TC	577.8	543.8	510.4	486.0	542.0	540.0	600.6	571.1	608.2	577.2	553.2	552.7
				SHC	292.1	366.7	438.4	486.0	522.1	540.0	347.8	463.8	350.4	465.4	540.9	552.7
				kW	28.88	27.99	27.17	26.69	29.83	30.00	25.39	29.35	24.96	28.84	28.41	28.29
	120.0	15.0	6.5	TC	581.6	546.7	512.6	487.2	550.2	546.9	608.2	577.2	613.5	581.0	556.2	555.6
				SHC	293.6	368.0	439.5	487.2	520.1	546.9	350.4	465.4	352.2	466.6	543.8	555.6
				kW	28.54	27.67	26.87	26.42	28.95	28.85	24.96	28.84	29.46	28.50	28.07	27.96
75	80.0	6.7	2.9	TC	546.1	515.8	484.6	467.1	553.2	552.7	613.5	581.0	571.1	542.5	525.5	525.9
				SHC	279.9	354.7	426.1	467.1	540.9	552.7	352.2	466.6	337.6	453.8	525.5	525.9
				kW	31.85	30.96	30.17	29.75	28.41	28.29	29.46	28.50	32.71	31.77	31.30	31.34
	100.0	10.3	4.5	TC	551.5	521.2	490.4	470.7	556.2	555.6	507.2	506.9	577.0	549.0	530.5	531.1
				SHC	282.0	357.0	428.9	470.7	543.8	555.6	496.2	506.9	339.7	456.1	526.7	531.1
				kW	31.27	30.39	29.62	29.21	28.07	27.96	30.21	30.12	32.14	31.20	30.78	30.74
	120.0	15.0	6.5	TC	555.9	524.8	493.3	472.8	573.3	543.6	510.1	509.7	582.4	553.7	534.6	536.0
				SHC	283.7	358.5	430.2	472.8	513.7	409.8	498.9	509.7	341.5	457.8	525.2	536.0
				kW	30.89	30.04	29.28	28.87	27.67	30.51	29.85	29.75	31.74	30.83	30.40	30.34
	140.0	20.4	8.8	TC	558.6	527.2	495.8	474.4	576.8	545.8	512.0	511.6	586.9	557.1	536.7	536.5
				SHC	284.7	359.6	431.4	474.4	514.9	410.6	500.7	511.6	343.1	459.0	525.7	536.5
				kW	30.63	29.79	29.05	28.65	31.17	30.31	29.61	29.51	31.44	30.56	30.19	30.12
85	80.0	6.7	2.9	TC	513.7	487.8	458.6	447.7	525.8	502.7	476.7	477.1	533.0	505.9	496.4	497.0
				SHC	267.7	342.8	413.9	447.7	296.9	393.3	467.5	477.1	324.8	440.8	496.4	497.0
				kW	34.64	33.91	33.19	32.95	35.14	34.33	33.78	33.73	35.41	34.55	34.28	34.29
	100.0	10.3	4.5	TC	519.1	493.9	464.5	452.0	532.7	509.7	482.2	482.9	540.2	514.0	503.0	503.4
				SHC	269.8	345.3	416.7	452.0	299.4	396.0	473.1	482.9	327.2	444.4	503.0	503.4
				kW	31.34	30.31	29.54	29.13	31.76	30.62	30.08	30.04	34.78	33.88	33.56	33.57
	120.0	15.0	6.5	TC	525.5	498.2	468.0	454.5	539.1	513.7	485.7	486.6	546.5	519.1	507.4	507.9
				SHC	272.2	347.2	418.3	454.5	301.5	397.7	476.2	486.6	329.3	446.5	507.4	507.9
				kW	33.59	32.78	32.13	31.88	34.09	33.22	32.66	32.61	34.35	33.48	33.14	33.15
	140.0	20.4	8.8	TC	528.2	500.6	470.3	456.5	543.1	516.8	488.2	488.9	550.6	523.4	510.5	510.9
				SHC	273.2	348.2	419.4	456.5	302.9	398.9	478.6	488.9	330.7	448.6	510.5	510.9
				kW	30.60	29.79	29.05	28.65	31.17	30.31	29.61	29.51	31.44	30.56	30.19	30.12
95	100.0	10.3	4.5	TC	483.5	461.6	434.8	427.3	492.0	472.3	453.2	453.2	496.8	473.5	468.3	468.7
				SHC	256.6	331.9	403.0	427.3	285.1	381.2	440.0	453.2	312.6	427.7	468.3	468.7
				kW	37.29	36.56	35.89	35.73	37.66	36.91	36.49	36.45	37.88	37.11	36.94	36.95
	120.0	15.0	6.5	TC	486.7	465.9	438.6	430.4	496.1	477.5	457.0	456.0	502.1	478.8	472.9	473.3
				SHC	257.8	333.6	404.7	430.4	286.6	383.3	437.5	456.0	314.4	429.6	472.9	473.3
				kW	35.00	34.11	33.46	33.29	35.24	34.46	33.99	33.99	37.40	36.65	36.47	36.48
	140.0	20.4	8.8	TC	490.9	469.0	441.0	432.8	500.4	481.2	459.4	459.9	506.7	482.5	476.2	476.6
				SHC	259.3	334.9	405.8	432.8	288.1	384.8	451.8	459.9	316.0	431.1	476.2	476.6
				kW	34.64	33.79	33.16	32.99	34.91	34.15	33.71	33.68	37.08	36.34	36.15	36.16
	160.0	26.7	11.6	TC	493.4	471.1	443.5	434.6	503.7	483.7	461.4	461.9	510.1	485.4	478.4	478.9
				SHC	260.2	335.8	406.9	434.6	289.2	385.8	449.9	461.9	317.2	432.3	478.4	478.9
				kW	34.37	33.57	32.94	32.77	34.63	33.93	33.53	33.44	36.84	36.12	35.93	35.93

LEGEND

- BF — Bypass Factor
- Ewb — Entering Wet Bulb
- EWT — Entering Water Temperature
- kW — Compressor Motor Power Input (kilowatts)
- SHC — Sensible Heating Capacity (1000 Btuh)
- TC — Total Capacity (1000 Btuh), Gross
- VAV — Variable Air Volume

NOTES:

1. Minimal airflow for VAV units is 50% of nominal airflow.
2. Shaded area represents nominal capacity.
3. Performance data based on ARI conditions with entering air at 80 F dry bulb and 67 F wet bulb.



GROSS COOLING CAPACITIES (cont)
50BVT,V,W054

EWT (F)	GPM	PRESSURE DROP		AIR ENTERING EVAPORATOR — CFM/BF												
				15,000/0.03				20,000/0.05				25,000/0.07				
		Ft	PSIG	Air Entering Evaporator — Ewb (F)												
				72	67	62	57	72	67	62	57	72	67	62	57	
65	75.0	3.4	1.5	TC	711.3	667.8	623.8	586.8	760.5	711.8	663.3	648.0	776.9	729.6	683.5	683.4
				SHC	357.8	449.5	537.0	586.8	402.4	517.4	624.3	648.0	439.5	579.5	664.5	683.4
				kW	36.58	35.66	34.84	34.24	37.13	36.22	35.39	35.13	37.41	36.58	35.93	35.84
	100.0	6.0	2.6	TC	732.6	682.0	634.4	595.5	764.4	713.6	663.3	648.0	776.0	735.6	688.3	688.1
				SHC	364.8	454.3	540.5	587.2	405.0	519.7	624.3	648.0	440.3	582.6	669.9	688.1
				kW	35.39	34.61	33.82	33.30	36.00	35.12	34.41	34.58	37.41	36.58	35.75	34.77
	125.0	9.3	4.0	TC	744.8	692.5	641.3	601.6	768.5	716.6	663.3	648.0	776.0	735.6	688.3	688.1
				SHC	368.2	457.2	542.0	587.5	404.5	518.4	624.3	648.0	442.4	584.5	673.1	691.4
				kW	34.90	34.06	33.23	32.76	35.93	35.84	35.39	35.13	37.41	36.58	35.93	35.84
	150.0	13.5	5.9	TC	740.5	688.0	639.2	599.9	768.3	716.6	663.3	648.0	776.0	735.6	688.3	688.1
				SHC	367.7	456.8	542.7	583.9	402.4	517.4	624.3	648.0	439.5	579.5	664.5	683.4
				kW	34.59	33.73	32.92	32.44	34.87	34.77	34.04	34.92	37.41	36.58	35.93	35.88
75	100.0	6.0	2.6	TC	710.6	663.5	619.7	582.4	760.9	711.4	663.3	648.0	776.9	729.6	683.5	683.4
				SHC	356.5	446.1	533.5	582.4	402.4	517.4	624.3	648.0	439.5	579.5	664.5	683.4
				kW	38.18	37.46	36.79	36.24	34.31	34.22	33.15	34.59	38.98	38.21	37.66	37.59
	125.0	9.3	4.0	TC	714.8	667.0	622.6	585.2	763.3	713.6	663.3	648.0	776.0	735.6	688.3	688.1
				SHC	358.2	447.9	535.0	585.2	402.4	517.4	624.3	648.0	439.5	579.5	664.5	683.4
				kW	37.50	36.78	36.10	35.61	33.97	33.88	33.15	34.59	38.98	38.21	37.66	37.59
	150.0	13.5	5.9	TC	718.1	669.8	624.4	586.6	765.3	716.6	663.3	648.0	776.0	735.6	688.3	688.1
				SHC	359.5	449.1	536.0	586.6	402.4	517.4	624.3	648.0	439.5	579.5	664.5	683.4
				kW	37.07	36.30	35.69	35.22	37.53	36.78	36.09	35.91	34.37	37.09	36.56	36.49
	175.0	18.4	8.0	TC	719.9	672.0	625.3	587.6	762.8	716.6	663.3	648.0	776.0	735.6	688.3	688.1
				SHC	360.1	450.1	536.5	587.6	402.4	517.4	624.3	648.0	439.5	579.5	664.5	683.4
				kW	36.74	36.07	35.43	34.96	37.23	36.48	35.82	35.63	34.06	36.79	36.26	36.20
85	100.0	6.0	2.6	TC	683.9	641.4	599.5	567.3	712.9	670.0	625.2	618.8	728.7	687.5	651.4	650.5
				SHC	346.5	436.8	523.8	567.3	386.6	502.0	605.1	618.8	424.2	563.6	616.1	650.5
				kW	41.62	41.08	40.53	40.00	42.02	41.44	40.87	40.78	42.24	41.68	41.20	41.19
	125.0	9.3	4.0	TC	690.0	646.1	603.9	570.3	719.4	675.3	630.8	622.4	735.5	693.6	656.4	654.6
				SHC	348.8	438.9	526.0	570.3	389.0	504.2	608.4	622.4	426.4	566.1	619.6	654.6
				kW	40.74	40.20	39.69	39.24	41.08	40.55	40.01	39.90	41.36	40.77	40.32	40.47
	150.0	13.5	5.9	TC	694.2	649.4	606.7	573.6	723.9	679.0	634.3	625.0	736.3	697.6	657.5	657.8
				SHC	350.4	440.2	527.3	573.6	390.6	505.8	610.6	625.0	427.0	567.8	639.5	657.8
				kW	40.16	39.66	39.17	38.97	40.59	39.97	39.48	39.37	38.86	40.19	39.79	39.75
	175.0	18.4	8.0	TC	695.9	651.6	608.6	573.6	727.0	681.6	637.2	626.6	739.0	700.3	659.6	659.7
				SHC	351.1	441.2	528.0	573.6	391.6	506.8	612.0	626.6	427.8	568.8	641.3	659.7
				kW	39.84	39.28	38.82	38.46	40.22	39.59	39.12	39.01	38.32	39.85	39.42	39.38
95	125.0	9.3	4.0	TC	653.6	616.1	579.7	553.6	687.9	648.7	606.3	602.7	702.1	664.7	631.8	631.9
				SHC	335.8	426.8	514.8	553.6	377.7	493.4	592.9	602.7	415.3	554.6	617.3	631.9
				kW	44.79	44.34	43.90	43.39	45.24	44.74	44.23	44.18	45.39	44.93	44.53	44.53
	150.0	13.5	5.9	TC	658.1	619.8	583.4	555.9	693.6	652.6	609.1	605.4	706.3	668.2	634.6	635.0
				SHC	337.4	428.4	516.6	555.9	379.9	495.1	594.8	605.4	416.6	556.1	618.1	635.0
				kW	44.16	43.73	43.33	42.84	44.57	44.10	43.62	43.56	44.72	44.27	43.91	43.89
	175.0	18.4	8.0	TC	670.4	628.2	586.3	557.5	696.4	655.9	610.7	607.2	706.8	671.3	636.7	637.4
				SHC	341.4	431.1	517.2	557.5	380.7	496.5	595.9	607.2	416.9	557.4	620.7	637.4
				kW	43.82	43.37	42.93	42.45	44.16	43.66	43.21	43.16	43.09	43.83	43.48	43.47
	200.0	24.1	10.4	TC	663.6	624.2	587.1	558.4	698.9	658.0	612.6	608.6	709.6	673.7	639.0	639.2
				SHC	339.5	430.2	518.5	558.4	381.6	497.4	597.1	608.6	417.9	558.5	622.9	639.2
				kW	43.42	43.03	42.66	42.21	43.83	43.34	42.93	42.87	42.74	43.51	43.18	43.17

LEGEND

- BF — Bypass Factor
- Ewb — Entering Wet Bulb
- EWT — Entering Water Temperature
- kW — Compressor Motor Power Input (kilowatts)
- SHC — Sensible Heating Capacity (1000 Btuh)
- TC — Total Capacity (1000 Btuh), Gross
- VAV — Variable Air Volume

NOTES:

1. Minimal airflow for VAV units is 50% of nominal airflow.
2. Shaded area represents nominal capacity.
3. Performance data based on ARI conditions with entering air at 80 F dry bulb and 67 F wet bulb.

Performance data (cont)



GROSS COOLING CAPACITIES (cont) 50BVT,V,W064

EWT (F)	GPM	PRESSURE DROP		AIR ENTERING EVAPORATOR — CFM/BF												
				18,000/0.04				24,000/0.06				30,000/0.08				
		Ft	PSIG	Air Entering Evaporator — Ewb (F)												
				72	67	62	57	72	67	62	57	72	67	62	57	
65	90.0	4.9	2.1	TC	847.0	797.7	749.3	711.0	881.8	831.8	781.7	768.9	900.1	860.6	813.7	813.2
				SHC	424.7	535.0	641.3	690.8	471.6	611.3	740.1	768.9	513.4	683.8	789.0	813.2
				kW	43.24	42.02	40.95	40.33	43.99	42.76	41.64	41.39	36.57	43.29	42.41	42.29
	120.0	8.7	3.8	TC	858.9	808.9	757.5	716.6	897.8	844.1	900.1	860.6	918.8	866.3	818.4	817.9
				SHC	428.5	539.0	644.2	698.7	476.4	615.0	513.4	683.8	520.6	687.2	793.7	817.9
				kW	36.87	40.54	39.47	38.89	42.47	41.27	36.57	43.29	37.55	41.72	40.90	40.76
	150.0	13.6	5.9	TC	885.4	825.1	762.0	718.3	813.7	813.2	918.8	866.3	924.7	871.0	822.1	821.4
				SHC	435.6	542.2	642.1	700.6	789.0	813.2	520.6	687.2	522.6	689.1	797.2	821.4
				kW	40.88	39.70	38.63	38.02	42.41	42.29	37.55	41.72	36.91	40.87	40.09	39.95
	180.0	19.5	8.5	TC	882.7	826.8	764.3	720.5	818.4	817.9	924.7	871.0	929.3	873.7	824.2	823.3
				SHC	435.4	543.9	644.5	702.9	793.7	817.9	522.6	689.1	524.1	690.0	799.2	823.3
				kW	40.36	39.28	38.15	37.56	40.90	40.76	36.91	40.87	41.60	40.38	39.62	39.47
75	120.0	8.7	3.8	TC	840.8	789.0	735.4	699.4	822.1	821.4	929.3	873.7	894.0	842.7	798.9	799.2
				SHC	421.7	530.4	633.5	682.3	797.2	821.4	524.1	690.0	512.0	677.8	774.9	799.2
				kW	45.87	44.78	43.85	43.32	40.09	39.95	41.60	40.38	47.02	45.87	45.13	45.05
	150.0	13.6	5.9	TC	847.9	795.2	739.9	705.4	824.2	823.3	776.7	764.0	898.4	848.3	803.5	803.3
				SHC	424.0	532.8	635.3	678.1	799.2	823.3	736.2	764.0	513.7	680.2	779.4	803.3
				kW	44.89	43.85	42.88	42.41	39.62	39.47	43.52	43.32	42.52	44.86	44.17	44.06
	180.0	19.5	8.5	TC	869.3	804.6	743.6	701.6	883.7	830.6	779.6	766.5	903.2	851.8	806.2	805.8
				SHC	426.6	529.9	628.6	682.3	471.3	609.6	737.8	766.5	515.4	681.6	782.0	805.8
				kW	44.23	43.17	43.07	41.78	44.92	43.88	42.94	42.74	41.88	44.25	43.60	43.49
	210.0	26.6	11.5	TC	845.9	794.6	744.4	706.9	886.2	832.5	781.6	768.1	907.4	854.1	808.2	807.9
				SHC	424.2	533.5	638.7	689.6	472.3	610.4	738.8	768.1	516.6	682.5	783.6	807.9
				kW	43.86	42.85	41.89	41.41	44.50	43.47	42.54	42.34	44.94	43.86	43.18	43.07
85	120.0	8.7	3.8	TC	806.0	759.9	710.3	675.3	842.4	794.6	746.8	738.9	859.6	813.3	773.9	774.7
				SHC	409.2	518.8	622.2	675.3	456.7	594.6	720.3	738.8	500.3	666.6	750.7	774.7
				kW	51.00	50.07	49.13	48.48	51.67	50.68	49.77	49.66	52.05	51.05	50.37	50.35
	150.0	13.6	5.9	TC	811.4	764.3	715.1	680.0	846.4	800.9	752.4	743.4	865.5	819.8	779.1	780.2
				SHC	411.3	520.8	624.9	680.0	458.3	597.2	723.1	743.4	502.6	669.1	756.3	780.2
				kW	49.75	48.90	48.03	47.65	48.30	49.47	48.65	48.52	48.58	49.81	49.18	49.16
	180.0	19.5	8.5	TC	815.4	767.6	718.4	681.4	851.3	804.6	755.1	746.1	871.3	824.2	782.6	783.7
				SHC	412.9	522.3	626.4	681.4	460.0	599.3	724.6	746.1	504.6	670.8	759.3	783.7
				kW	49.00	48.19	47.35	46.85	47.41	48.73	47.93	47.80	47.75	49.05	48.47	48.45
	210.0	26.6	11.5	TC	818.2	769.9	720.5	683.0	854.5	807.3	758.6	748.1	875.0	827.0	784.8	786.0
				SHC	414.0	523.3	627.4	683.0	461.1	600.3	726.7	748.1	505.8	671.9	761.7	786.0
				kW	48.50	47.68	46.88	46.40	46.82	48.21	47.44	47.31	47.18	48.54	47.96	47.93
95	150.0	13.6	5.9	TC	777.8	735.3	688.3	658.2	812.9	769.2	720.6	718.4	827.9	788.2	750.8	751.7
				SHC	398.8	508.6	611.5	658.2	446.4	584.5	702.8	718.4	489.7	656.6	725.5	751.7
				kW	55.56	54.75	53.86	53.33	56.19	55.29	54.43	54.38	56.56	55.66	55.02	55.01
	180.0	19.5	8.5	TC	781.8	739.5	691.6	660.7	815.6	773.5	726.4	722.2	832.9	791.9	754.7	755.7
				SHC	400.3	510.3	613.1	660.7	447.5	586.3	707.4	722.2	491.6	658.2	732.9	755.7
				kW	54.74	53.95	53.08	52.59	54.88	54.47	53.65	53.58	54.49	54.81	54.21	54.20
	210.0	26.6	11.5	TC	785.4	742.3	693.9	662.4	819.6	776.6	728.3	724.3	836.9	795.2	757.8	758.6
				SHC	401.6	511.5	614.2	662.4	448.8	587.7	708.3	724.3	493.0	659.6	736.0	758.6
				kW	54.20	53.39	52.56	52.09	54.33	53.89	53.10	53.03	53.85	54.23	53.64	53.63
	240.0	34.7	15.0	TC	788.0	744.2	695.5	663.6	822.6	779.3	730.4	726.1	840.2	796.6	759.5	760.6
				SHC	402.6	512.3	615.0	663.6	449.9	588.6	709.7	726.1	494.1	660.1	737.4	760.6
				kW	53.78	52.99	52.18	51.72	53.91	53.48	52.71	52.64	53.38	53.79	53.23	53.22

LEGEND

BF — Bypass Factor
Ewb — Entering Wet Bulb
EWT — Entering Water Temperature
kW — Compressor Motor Power Input (kilowatts)
SHC — Sensible Heating Capacity (1000 Btuh)
TC — Total Capacity (1000 Btuh), Gross
VAV — Variable Air Volume

NOTES:

- Minimal airflow for VAV units is 50% of nominal airflow.
- Shaded area represents nominal capacity.
- Performance data based on ARI conditions with entering air at 80 F dry bulb and 67 F wet bulb.



GROSS COOLING CAPACITIES (cont)
50BVU,X034 WITH 09DK034 CONDENSER

TEMP (F) AIR ENTERING CONDENSER (Edb)		AIR ENTERING EVAPORATOR — CFM/BF											
		9,000/0.04				12,000/0.06				15,000/0.08			
		Air Entering Evaporator — Ewb (F)											
		72	67	62	57	72	67	62	57	72	67	62	57
65	TC	457.2	421.6	388.3	365.9	480.2	444.0	409.9	400.1	493.9	456.9	428.7	426.1
	SHC	225.3	277.4	327.4	357.3	250.0	317.2	380.0	400.1	272.4	353.3	416.2	426.1
	KW	22.18	21.45	21.11	20.41	22.67	21.91	21.22	21.12	22.96	22.16	21.60	21.55
75	TC	442.7	408.4	376.3	356.6	464.1	429.5	396.3	389.1	477.6	442.1	416.7	414.2
	SHC	219.3	271.2	320.9	347.4	243.7	310.5	372.1	389.1	266.6	347.0	404.6	414.2
	KW	24.62	23.89	23.39	22.90	25.08	24.63	23.65	23.55	25.36	24.91	24.08	24.02
85	TC	426.3	394.3	362.6	345.1	447.9	414.6	383.2	377.6	460.8	426.6	404.4	402.0
	SHC	212.4	264.3	313.4	340.3	237.9	304.5	365.4	377.6	260.8	341.0	392.9	402.0
	KW	27.88	26.74	26.00	25.59	27.96	27.21	26.45	26.33	28.26	27.60	26.95	26.89
95	TC	409.4	379.0	348.4	331.7	430.9	398.2	369.1	365.9	443.0	410.1	390.8	388.8
	SHC	205.3	256.7	305.0	331.7	231.8	297.7	357.1	365.9	254.7	334.5	380.1	388.8
	KW	30.71	29.78	29.02	28.62	31.14	30.28	29.53	29.45	31.48	30.64	30.09	30.05
105	TC	396.6	366.5	336.6	323.8	413.0	381.6	355.1	353.3	424.2	392.0	376.6	374.7
	SHC	202.3	253.7	302.0	323.8	225.5	291.2	347.3	353.3	248.5	327.6	366.5	374.7
	KW	34.17	33.09	32.42	31.88	34.64	33.69	32.91	32.86	35.00	33.91	33.53	33.48
115	TC	378.8	350.2	322.1	312.4	394.0	364.5	341.7	340.0	404.2	374.0	362.1	359.8
	SHC	195.8	247.0	295.1	312.4	218.9	284.4	334.0	340.0	241.8	320.3	349.8	359.8
	KW	37.97	36.70	36.06	35.58	38.46	37.20	36.69	36.64	38.83	37.56	37.36	37.28
125	TC	360.0	332.4	307.2	299.7	374.1	346.2	327.3	325.6	382.9	354.8	344.0	344.1
	SHC	188.8	239.5	287.6	299.7	212.1	277.2	319.1	325.6	234.7	312.7	344.0	344.1
	KW	42.10	41.03	39.58	39.78	42.68	41.21	40.82	40.78	43.03	41.57	41.49	41.48

50BVU,X044 WITH TWO 09DK024 CONDENSERS

TEMP (F) AIR ENTERING CONDENSER (Edb)		AIR ENTERING EVAPORATOR — CFM/BF											
		12,000/0.01				16,000/0.03				20,000/0.05			
		Air Entering Evaporator — Ewb (F)											
		72	67	62	57	72	67	62	57	72	67	62	57
65	TC	622.1	573.9	528.5	503.0	650.5	601.8	558.9	551.5	669.1	620.3	590.6	587.5
	SHC	309.8	380.0	447.2	498.3	341.6	433.5	525.7	551.5	371.3	482.1	576.9	587.5
	KW	32.73	32.09	30.34	29.76	33.50	32.97	31.06	30.88	34.05	32.68	31.90	31.82
75	TC	601.4	554.4	511.2	487.4	632.0	581.1	541.5	535.9	645.7	598.7	572.5	569.9
	SHC	301.4	371.4	438.8	487.4	334.9	425.1	517.4	535.9	363.4	474.0	560.9	569.9
	KW	35.98	35.04	33.50	32.87	38.00	35.38	34.29	34.13	37.27	35.90	35.14	35.07
85	TC	582.7	535.2	493.9	473.6	609.0	559.8	522.9	519.6	621.3	574.7	554.4	551.6
	SHC	294.1	363.0	430.5	473.6	326.6	416.4	506.4	519.6	355.0	465.1	542.2	551.6
	KW	40.41	38.23	37.03	36.45	41.34	38.96	37.86	37.76	40.92	39.77	38.80	38.71
95	TC	557.3	514.2	475.3	458.7	585.1	537.6	505.3	502.5	595.3	552.1	534.6	532.9
	SHC	284.3	354.0	421.7	458.7	318.0	407.4	495.1	502.5	346.0	457.5	525.3	532.9
	KW	43.57	42.13	40.79	40.40	45.11	42.90	41.88	41.78	44.89	43.40	42.81	42.75
105	TC	537.2	492.9	455.7	443.0	556.1	514.6	486.1	483.9	569.0	527.9	512.5	512.6
	SHC	276.7	344.9	412.6	443.0	307.7	398.1	477.5	483.9	337.1	450.3	512.5	512.6
	KW	48.54	46.28	45.23	44.78	48.77	47.16	46.23	46.17	49.23	47.71	47.17	47.17
115	TC	512.7	470.4	434.6	426.0	533.7	490.0	466.3	464.3	541.2	502.9	492.3	491.4
	SHC	267.5	335.5	402.9	426.0	299.7	388.4	458.8	464.3	327.6	439.8	492.3	491.4
	KW	53.49	51.31	50.00	49.53	54.51	52.07	51.15	51.09	54.07	52.54	52.32	52.12
125	TC	484.1	447.2	413.4	408.0	501.9	464.0	445.5	444.0	513.0	476.8	468.6	468.5
	SHC	257.0	326.0	393.3	408.0	288.7	377.9	440.6	444.0	318.2	428.8	468.6	468.5
	KW	58.20	55.97	55.30	55.08	58.90	56.65	56.62	56.50	59.36	57.83	57.34	57.49

LEGEND

- BF** — Bypass Factor
- Edb** — Entering Dry Bulb
- Ewb** — Entering Wet Bulb
- KW** — Compressor Motor Power Input (kilowatts)
- SHC** — Sensible Heating Capacity (1000 Btuh)
- TC** — Total Capacity (1000 Btuh), Gross
- VAV** — Variable Air Volume

NOTES:

1. Minimal airflow for VAV units is 50% of nominal airflow.
2. Shaded area represents nominal capacity.
3. Performance data based on ARI conditions with entering air at 80 F dry bulb and 67 F wet bulb.

Performance data (cont)



GROSS COOLING CAPACITIES (cont) 50BVU,X054 WITH TWO 09DK028 CONDENSERS

TEMP (F) AIR ENTERING CONDENSER (Edb)		AIR ENTERING EVAPORATOR — CFM/BF											
		15,000/0.03				20,000/0.05				25,000/0.07			
		Air Entering Evaporator — Ewb (F)											
		72	67	62	57	72	67	62	57	72	67	62	57
65	TC	768.3	708.4	646.7	611.0	804.9	742.7	684.5	668.0	828.8	766.7	718.2	714.3
	SHC	379.5	466.9	547.9	593.4	420.0	531.9	637.1	668.0	458.2	594.4	701.7	714.3
	KW	38.76	37.80	36.50	35.90	39.43	38.24	37.18	36.89	39.89	38.70	37.82	37.74
75	TC	736.0	682.4	625.6	589.4	776.9	719.0	662.4	650.3	799.6	740.5	697.6	694.2
	SHC	365.3	453.5	535.1	583.6	409.6	521.9	625.5	650.3	448.4	584.5	681.7	694.2
	KW	44.45	41.32	40.22	39.53	43.10	42.10	40.89	40.71	46.15	42.40	41.56	41.50
85	TC	713.6	659.9	605.7	573.0	747.8	691.4	640.0	630.8	769.2	712.5	675.8	672.2
	SHC	357.7	444.7	526.7	573.0	399.1	510.8	613.6	630.8	438.0	573.6	658.9	672.2
	KW	48.62	45.64	44.48	43.77	49.29	46.24	45.18	44.97	47.98	46.72	45.91	45.84
95	TC	687.2	634.8	582.2	555.8	719.8	663.7	615.7	610.4	736.7	683.4	657.4	648.9
	SHC	347.8	434.0	515.3	555.8	389.2	499.6	598.9	610.4	427.0	562.0	617.7	648.9
	KW	51.67	50.09	49.17	48.55	52.77	51.11	49.98	49.84	52.90	51.36	50.95	50.69
105	TC	658.3	608.2	558.1	537.8	689.3	634.4	590.9	588.2	702.5	651.5	625.5	624.0
	SHC	337.6	423.5	504.5	537.8	378.4	487.8	579.1	588.2	415.5	549.4	619.4	624.0
	KW	57.12	55.23	54.41	53.91	58.59	56.51	55.31	55.26	58.36	57.05	55.94	56.21
115	TC	630.0	578.1	531.5	516.4	656.0	602.5	565.7	563.4	666.7	618.9	597.3	597.4
	SHC	327.1	411.0	491.5	516.4	366.8	475.4	555.3	563.4	403.6	536.5	597.3	597.4
	KW	64.51	61.71	60.28	59.84	64.83	62.52	61.32	61.27	64.50	62.39	62.37	62.37
125	TC	597.4	547.3	503.1	493.4	620.6	568.7	545.1	537.1	629.4	584.6	568.1	568.2
	SHC	315.1	398.4	477.4	493.4	354.6	462.1	513.5	537.1	391.4	522.4	568.1	568.2
	KW	71.02	68.36	66.78	66.41	71.25	69.13	67.77	67.97	71.30	68.89	69.10	69.10

50BVU,X064 WITH TWO 09DK034 CONDENSERS

TEMP (F) AIR ENTERING CONDENSER (Edb)		AIR ENTERING EVAPORATOR — CFM/BF											
		18,000/0.04				24,000/0.06				30,000/0.08			
		Air Entering Evaporator — Ewb (F)											
		72	67	62	57	72	67	62	57	72	67	62	57
65	TC	914.4	843.3	776.6	731.7	958.8	886.8	818.9	798.9	986.3	912.7	856.2	850.8
	SHC	450.5	554.9	654.7	714.6	498.6	632.8	758.3	798.9	543.4	704.8	831.6	850.8
	KW	44.36	42.89	42.23	40.81	45.32	43.79	42.43	42.21	45.88	44.31	43.18	43.07
75	TC	885.3	816.8	752.6	713.1	928.0	858.9	792.8	778.1	955.3	884.1	833.5	828.2
	SHC	438.6	542.4	641.9	694.9	487.3	621.0	744.4	778.1	533.1	694.0	809.3	828.2
	KW	49.24	47.78	46.77	45.80	50.17	49.25	47.31	47.10	50.73	49.83	48.15	48.03
85	TC	857.6	792.0	727.5	689.1	895.8	829.1	766.3	755.3	923.5	852.5	808.7	804.1
	SHC	428.7	532.6	630.7	689.1	475.8	609.0	730.7	755.3	522.2	681.7	785.9	804.1
	KW	55.00	53.63	52.05	51.26	55.92	54.60	52.90	52.66	57.66	54.87	53.89	53.77
95	TC	826.7	763.7	700.6	669.4	861.7	796.4	738.1	731.4	886.0	820.2	781.6	777.5
	SHC	417.2	520.6	617.4	669.4	463.7	595.6	714.6	731.4	509.4	669.1	760.1	777.5
	KW	61.38	59.61	58.14	57.51	62.29	60.55	59.05	58.88	62.97	61.28	60.18	60.08
105	TC	787.2	728.2	670.0	643.4	828.6	763.2	710.1	706.4	852.1	783.2	753.1	749.2
	SHC	399.2	501.1	597.8	643.4	452.0	582.3	694.4	706.4	498.0	654.8	733.1	749.2
	KW	68.13	66.01	64.73	63.60	69.64	67.37	65.82	65.71	70.24	68.01	67.07	66.96
115	TC	756.8	699.0	645.1	623.8	791.7	728.3	683.2	679.8	808.4	748.0	724.3	719.6
	SHC	390.8	493.1	589.9	623.8	439.1	568.5	668.2	679.8	483.6	640.6	699.1	719.6
	KW	75.84	73.90	71.38	71.45	77.06	74.86	73.39	73.27	77.66	75.13	74.72	74.51
125	TC	719.7	664.5	612.9	599.1	752.9	691.6	653.9	651.0	765.9	708.8	688.3	688.2
	SHC	377.1	478.4	574.0	599.1	425.8	554.2	640.3	651.0	469.5	625.2	688.3	688.2
	KW	84.18	82.03	80.04	79.55	85.27	83.12	81.64	81.55	86.07	82.99	83.03	82.98

LEGEND

- BF — Bypass Factor
- Edb — Entering Dry Bulb
- Ewb — Entering Wet Bulb
- KW — Compressor Motor Power Input (kilowatts)
- SHC — Sensible Heating Capacity (1000 Btuh)
- TC — Total Capacity (1000 Btuh), Gross
- VAV — Variable Air Volume

NOTES:

1. Minimal airflow for VAV units is 50% of nominal airflow.
2. Shaded area represents nominal capacity.
3. Performance data based on ARI conditions with entering air at 80 F dry bulb and 67 F wet bulb.



**COOLING WITH WATERSIDE ECONOMIZER
50BVC,J,Q020**

EWT (F)	GPM		AIR ENTERING EVAPORATOR — Cfm/BF											
			4500/0.15				7200/0.22				9000/0.25			
			Air Entering Evaporator — Ewb (F)											
			72	67	62	57	72	67	62	57	72	67	62	57
45	27.0	TC	191.4	148.8	120.6	117.2	223.3	177.4	155.5	155.5	233.2	192.3	174.8	174.8
		SHC	92.8	104.1	118.8	117.2	116.2	138.5	155.5	155.5	127.8	159.1	174.8	174.8
	45.0	TC	222.1	172.0	131.3	124.3	271.0	210.4	170.0	170.0	293.2	228.9	194.4	194.4
		SHC	104.7	113.5	123.4	124.3	133.2	151.1	170.0	170.0	148.5	172.7	194.4	194.4
	54.0	TC	231.1	178.7	134.2	126.2	286.6	222.1	174.0	174.0	312.1	242.5	199.8	199.8
		SHC	108.3	116.3	124.7	126.2	139.0	155.7	174.0	174.0	155.2	177.9	199.8	199.8
72.0	TC	242.7	187.4	139.1	128.6	306.7	237.0	184.9	179.3	337.4	261.2	207.1	207.1	
	SHC	113.1	120.0	126.9	128.6	146.6	161.7	180.0	179.3	164.5	185.2	207.1	207.1	
55	27.0	TC	124.5	90.1	84.1	84.1	143.9	111.7	111.7	111.7	152.8	125.7	125.7	125.7
		SHC	69.2	82.0	84.1	84.1	89.9	111.7	111.7	111.7	102.0	125.7	125.7	125.7
	45.0	TC	147.5	100.0	89.1	89.1	179.2	128.1	122.0	122.0	190.1	143.5	139.5	139.5
		SHC	77.0	85.6	89.1	89.1	101.3	120.6	122.0	122.0	113.7	141.7	139.5	139.5
	54.0	TC	153.4	103.2	90.4	90.4	189.5	132.7	124.8	124.8	205.4	148.7	143.4	143.4
		SHC	79.1	86.8	90.4	90.4	104.7	122.2	124.8	124.8	118.6	143.5	143.4	143.4
72.0	TC	161.9	107.9	92.1	92.1	203.3	139.3	128.5	128.5	222.6	156.4	148.5	148.5	
	SHC	82.1	88.5	92.1	92.1	109.3	124.6	128.5	128.5	124.3	146.2	148.5	148.5	
65	27.0	TC	57.1	50.6	50.6	50.6	70.6	67.4	67.4	67.4	75.8	75.8	75.8	75.8
		SHC	48.1	50.6	50.6	50.6	67.7	67.4	67.4	67.4	75.8	75.8	75.8	75.8
	45.0	TC	64.8	53.6	53.6	53.6	80.9	73.5	73.5	73.5	89.5	84.1	84.1	84.1
		SHC	50.4	53.6	53.6	53.6	70.7	73.5	73.5	73.5	82.9	84.1	84.1	84.1
	54.0	TC	67.3	54.4	54.4	54.4	84.1	75.1	75.1	75.1	93.1	86.4	86.4	86.4
		SHC	51.2	54.4	54.4	54.4	71.7	75.1	75.1	75.1	84.0	86.4	86.4	86.4
72.0	TC	71.1	55.4	55.4	55.4	89.5	77.3	77.3	77.3	99.2	89.4	89.4	89.4	
	SHC	52.3	55.4	55.4	55.4	73.3	77.3	77.3	77.3	85.8	89.4	89.4	89.4	
75	27.0	TC	16.9	16.9	16.9	16.9	22.6	22.6	22.6	22.6	25.4	25.4	25.4	25.4
		SHC	16.9	16.9	16.9	16.9	22.6	22.6	22.6	22.6	25.4	25.4	25.4	25.4
	45.0	TC	17.9	17.9	17.9	17.9	24.6	24.6	24.6	24.6	28.1	28.1	28.1	28.1
		SHC	17.9	17.9	17.9	17.9	24.6	24.6	24.6	24.6	28.1	28.1	28.1	28.1
	54.0	TC	18.2	18.2	18.2	18.2	25.1	25.1	25.1	25.1	28.9	28.9	28.9	28.9
		SHC	18.2	18.2	18.2	18.2	25.1	25.1	25.1	25.1	28.9	28.9	28.9	28.9
72.0	TC	18.5	18.5	18.5	18.5	25.8	25.8	25.8	25.8	29.9	29.9	29.9	29.9	
	SHC	18.5	18.5	18.5	18.5	25.8	25.8	25.8	25.8	29.9	29.9	29.9	29.9	

50BVC,J,Q024

EWT (F)	GPM		AIR ENTERING EVAPORATOR — Cfm/BF											
			5000/0.17				8000/0.24				10,000/0.27			
			Air Entering Evaporator — Ewb (F)											
			72	67	62	57	72	67	62	57	72	67	62	57
45	30.0	TC	206.7	160.9	127.4	127.4	240.8	191.6	168.5	168.5	251.9	207.4	189.2	189.2
		SHC	100.6	113.2	127.4	127.4	125.8	150.5	168.5	168.5	138.6	172.8	189.2	189.2
	50.0	TC	239.3	185.3	141.9	135.2	291.9	226.7	184.1	184.1	315.5	246.5	210.0	210.0
		SHC	113.1	123.1	134.4	135.2	144.0	163.9	184.1	184.1	160.5	187.3	210.0	210.0
	60.0	TC	248.9	192.5	145.3	137.3	307.5	238.2	188.4	188.4	334.6	259.7	215.9	215.9
		SHC	116.9	126.1	135.9	137.3	149.8	168.4	188.4	188.4	167.2	192.3	215.9	215.9
80.0	TC	260.6	201.9	150.0	139.9	328.4	254.7	199.2	194.0	360.8	279.0	223.7	223.7	
	SHC	121.7	130.0	138.0	139.9	157.6	175.0	195.5	194.0	176.8	199.8	223.7	223.7	
55	30.0	TC	134.6	97.3	91.4	91.4	155.5	121.1	121.1	121.1	164.7	136.0	136.0	136.0
		SHC	75.2	89.5	91.4	91.4	97.7	121.1	121.1	121.1	110.7	136.0	136.0	136.0
	50.0	TC	158.9	107.8	96.9	96.9	192.5	138.1	132.1	132.1	204.5	150.8	150.8	150.8
		SHC	83.5	93.2	96.9	96.9	109.6	131.1	132.1	132.1	123.1	150.8	150.8	150.8
	60.0	TC	165.4	111.3	98.3	98.3	202.9	142.7	135.1	135.1	220.5	160.0	154.9	154.9
		SHC	85.7	94.5	98.3	98.3	113.0	132.8	135.1	135.1	128.3	155.8	154.9	154.9
80.0	TC	173.9	116.1	100.2	100.2	218.0	149.6	139.1	139.1	238.6	167.8	160.4	160.4	
	SHC	88.7	96.2	100.2	100.2	118.0	135.2	139.1	139.1	134.2	158.6	160.4	160.4	
65	30.0	TC	61.6	55.1	55.1	55.1	76.1	73.0	73.0	73.0	82.0	82.0	82.0	82.0
		SHC	52.5	55.1	55.1	55.1	73.7	73.0	73.0	73.0	82.0	82.0	82.0	82.0
	50.0	TC	69.8	58.3	58.3	58.3	86.9	79.5	79.5	79.5	96.1	90.9	90.9	90.9
		SHC	54.9	58.3	58.3	58.3	76.9	79.5	79.5	79.5	90.0	90.9	90.9	90.9
	60.0	TC	72.3	59.1	59.1	59.1	90.5	81.3	81.3	81.3	100.2	93.3	93.3	93.3
		SHC	55.6	59.1	59.1	59.1	77.9	81.3	81.3	81.3	91.3	93.3	93.3	93.3
80.0	TC	76.4	60.2	60.2	60.2	95.8	83.7	83.7	83.7	106.1	96.5	96.5	96.5	
	SHC	56.9	60.2	60.2	60.2	79.5	83.7	83.7	83.7	93.0	96.5	96.5	96.5	
75	30.0	TC	18.4	18.4	18.4	18.4	24.4	24.4	24.4	24.4	27.5	27.5	27.5	27.5
		SHC	18.4	18.4	18.4	18.4	24.4	24.4	24.4	24.4	27.5	27.5	27.5	27.5
	50.0	TC	19.5	19.5	19.5	19.5	26.6	26.6	26.6	26.6	30.4	30.4	30.4	30.4
		SHC	19.5	19.5	19.5	19.5	26.6	26.6	26.6	26.6	30.4	30.4	30.4	30.4
	60.0	TC	19.8	19.8	19.8	19.8	27.2	27.2	27.2	27.2	31.2	31.2	31.2	31.2
		SHC	19.8	19.8	19.8	19.8	27.2	27.2	27.2	27.2	31.2	31.2	31.2	31.2
80.0	TC	20.1	20.1	20.1	20.1	28.0	28.0	28.0	28.0	32.3	32.3	32.3	32.3	
	SHC	20.1	20.1	20.1	20.1	28.0	28.0	28.0	28.0	32.3	32.3	32.3	32.3	

LEGEND

- BF — Bypass Factor
- Ewb — Entering Wet Bulb
- EWT — Entering Water Temperature
- SHC — Sensible Heating Capacity (1000 Btu/h)
- TC — Total Capacity (1000 Btu/h), Gross
- VAV — Variable Air Volume

NOTE:

1. Minimal airflow for VAV units is 50% of nominal airflow.
2. Performance data based on ARI conditions with entering air at 80 F dry bulb and 67 F wet bulb.

Performance data (cont)



COOLING WITH WATERSIDE ECONOMIZER (cont) 50BVC,J,Q028

EWT (F)	GPM		AIR ENTERING EVAPORATOR — Cfm/BF											
			6250/0.20				10,000/0.27				12,500/0.31			
			Air Entering Evaporator — Ewb (F)											
			72	67	62	57	72	67	62	57	72	67	62	57
45	37.5	TC	242.8	188.7	151.7	151.7	282.4	224.4	199.2	199.2	300.2	241.9	223.0	223.0
		SHC	119.0	134.8	151.7	151.7	148.9	179.0	199.2	199.2	165.7	205.0	223.0	223.0
	62.5	TC	279.1	215.9	166.8	160.9	338.6	262.6	217.1	217.1	365.5	284.9	246.7	246.7
		SHC	132.8	145.6	160.7	160.9	168.7	193.4	217.1	217.1	188.0	220.8	246.7	246.7
	75.0	TC	289.9	224.3	171.0	163.4	355.4	274.9	222.1	222.1	385.7	290.0	253.4	253.4
		SHC	137.0	149.1	162.6	163.4	174.8	198.2	222.1	222.1	195.1	226.2	253.4	253.4
	100.0	TC	303.4	234.9	175.9	166.6	378.0	293.4	228.6	228.6	413.9	321.4	262.3	262.3
		SHC	142.4	153.5	164.7	166.6	183.2	205.5	228.6	228.6	205.2	234.7	262.3	262.3
55	37.5	TC	160.2	114.8	108.8	108.8	181.7	143.1	143.1	143.1	193.5	160.3	160.3	160.3
		SHC	90.2	107.3	108.8	108.8	115.9	143.1	143.1	143.1	131.6	160.3	160.3	160.3
	62.5	TC	185.6	126.4	115.3	115.3	222.7	161.1	155.8	155.8	240.7	177.1	177.1	177.1
		SHC	98.8	111.4	115.3	115.3	129.0	156.2	155.8	155.8	146.6	177.1	177.1	177.1
	75.0	TC	192.4	130.1	117.0	117.0	234.8	166.1	159.2	159.2	254.1	181.8	181.8	181.8
		SHC	101.1	112.8	117.0	117.0	133.0	158.0	159.2	159.2	150.6	181.8	181.8	181.8
	100.0	TC	202.4	135.3	119.3	119.3	250.5	173.5	163.8	163.8	273.3	193.9	188.1	188.1
		SHC	104.5	114.6	119.3	119.3	138.2	160.6	163.8	163.8	156.9	187.9	188.1	188.1
65	37.5	TC	72.4	65.6	65.6	65.6	89.5	86.3	86.3	86.3	96.7	96.7	96.7	96.7
		SHC	62.9	65.6	65.6	65.6	88.2	86.3	86.3	86.3	96.7	96.7	96.7	96.7
	62.5	TC	81.2	69.4	69.4	69.4	101.1	93.8	93.8	93.8	111.8	106.7	106.7	106.7
		SHC	65.5	69.4	69.4	69.4	91.5	93.8	93.8	93.8	107.2	106.7	106.7	106.7
	75.0	TC	84.3	70.4	70.4	70.4	104.8	95.9	95.9	95.9	115.8	109.5	109.5	109.5
		SHC	66.4	70.4	70.4	70.4	92.6	95.9	95.9	95.9	108.3	109.5	109.5	109.5
	100.0	TC	88.6	71.7	71.7	71.7	110.7	98.6	98.6	98.6	122.5	113.2	113.2	113.2
		SHC	67.7	71.7	71.7	71.7	94.3	98.6	98.6	98.6	110.3	113.2	113.2	113.2
75	37.5	TC	21.9	21.9	21.9	21.9	28.9	28.9	28.9	28.9	32.4	32.4	32.4	32.4
		SHC	21.9	21.9	21.9	21.9	28.9	28.9	28.9	28.9	32.4	32.4	32.4	32.4
	62.5	TC	23.2	23.2	23.2	23.2	31.4	31.4	31.4	31.4	35.7	35.7	35.7	35.7
		SHC	23.2	23.2	23.2	23.2	31.4	31.4	31.4	31.4	35.7	35.7	35.7	35.7
	75.0	TC	23.5	23.5	23.5	23.5	32.1	32.1	32.1	32.1	36.6	36.6	36.6	36.6
		SHC	23.5	23.5	23.5	23.5	32.1	32.1	32.1	32.1	36.6	36.6	36.6	36.6
	100.0	TC	23.9	23.9	23.9	23.9	32.9	32.9	32.9	32.9	37.8	37.8	37.8	37.8
		SHC	23.9	23.9	23.9	23.9	32.9	32.9	32.9	32.9	37.8	37.8	37.8	37.8

50BVC,J,Q034

EWT (F)	GPM		AIR ENTERING EVAPORATOR — Cfm/BF											
			7500/0.15				12,000/0.22				15,000/0.26			
			Air Entering Evaporator — Ewb (F)											
			72	67	62	57	72	67	62	57	72	67	62	57
45	45.0	TC	260.8	203.2	175.1	175.1	291.0	239.0	224.2	224.2	304.3	257.8	247.8	247.8
		SHC	133.3	155.7	175.1	175.1	165.8	209.2	224.2	224.2	184.8	241.5	247.8	247.8
	75.0	TC	314.8	242.4	191.5	191.5	371.4	290.0	254.1	254.1	398.1	312.9	286.0	286.0
		SHC	152.9	170.9	191.5	191.5	192.9	227.9	254.1	254.1	215.5	261.2	286.0	286.0
	90.0	TC	332.2	256.6	201.3	196.1	398.4	308.2	263.0	263.0	428.0	334.7	297.6	297.6
		SHC	159.5	176.5	197.6	196.1	202.4	234.7	263.0	263.0	225.7	269.2	297.6	297.6
	120.0	TC	356.4	275.8	210.0	202.3	436.9	336.5	275.2	275.2	473.4	366.9	313.9	313.9
		SHC	168.9	184.3	201.3	202.3	216.2	245.5	275.2	275.2	241.5	281.3	313.9	313.9
55	45.0	TC	169.0	126.3	126.3	126.3	192.1	162.1	162.1	162.1	203.3	179.4	179.4	179.4
		SHC	102.6	126.3	126.3	126.3	134.5	162.1	162.1	162.1	153.6	179.4	179.4	179.4
	75.0	TC	209.7	146.2	137.8	137.8	242.0	183.3	183.3	183.3	257.9	206.5	206.5	206.5
		SHC	115.8	134.9	137.8	137.8	150.0	183.3	183.3	183.3	170.2	206.5	206.5	206.5
	90.0	TC	221.8	151.9	141.0	141.0	265.4	189.5	189.5	189.5	278.1	214.8	214.8	214.8
		SHC	119.9	136.9	141.0	141.0	157.5	189.5	189.5	189.5	176.5	214.8	214.8	214.8
	120.0	TC	237.9	160.6	145.3	145.3	290.1	205.4	198.1	198.1	315.1	226.1	226.1	226.1
		SHC	125.4	140.0	145.3	145.3	165.5	197.3	198.1	198.1	188.3	226.1	226.1	226.1
65	45.0	TC	80.9	76.4	76.4	76.4	98.4	98.4	98.4	98.4	109.0	109.0	109.0	109.0
		SHC	75.7	76.4	76.4	76.4	98.4	98.4	98.4	98.4	109.0	109.0	109.0	109.0
	75.0	TC	93.7	83.2	83.2	83.2	115.6	110.9	110.9	110.9	125.1	125.1	125.1	125.1
		SHC	79.5	83.2	83.2	83.2	111.7	110.9	110.9	110.9	125.1	125.1	125.1	125.1
	90.0	TC	98.0	85.1	85.1	85.1	121.5	114.6	114.6	114.6	130.0	130.0	130.0	130.0
		SHC	80.7	85.1	85.1	85.1	113.4	114.6	114.6	114.6	130.0	130.0	130.0	130.0
	120.0	TC	105.0	87.6	87.6	87.6	130.4	119.6	119.6	119.6	143.9	136.7	136.7	136.7
		SHC	82.8	87.6	87.6	87.6	116.0	119.6	119.6	119.6	136.0	136.7	136.7	136.7
75	45.0	TC	25.7	25.7	25.7	25.7	33.1	33.1	33.1	33.1	36.7	36.7	36.7	36.7
		SHC	25.7	25.7	25.7	25.7	33.1	33.1	33.1	33.1	36.7	36.7	36.7	36.7
	75.0	TC	27.9	27.9	27.9	27.9	37.3	37.3	37.3	37.3	42.1	42.1	42.1	42.1
		SHC	27.9	27.9	27.9	27.9	37.3	37.3	37.3	37.3	42.1	42.1	42.1	42.1
	90.0	TC	28.5	28.5	28.5	28.5	38.5	38.5	38.5	38.5	43.7	43.7	43.7	43.7
		SHC	28.5	28.5	28.5	28.5	38.5	38.5	38.5	38.5	43.7	43.7	43.7	43.7
	120.0	TC	29.3	29.3	29.3	29.3	40.1	40.1	40.1	40.1	45.9	45.9	45.9	45.9
		SHC	29.3	29.3	29.3	29.3	40.1	40.1	40.1	40.1	45.9	45.9	45.9	45.9

LEGEND

- BF — Bypass Factor
- Ewb — Entering Wet Bulb
- EWT — Entering Water Temperature
- SHC — Sensible Heating Capacity (1000 Btuh)
- TC — Total Capacity (1000 Btuh), Gross
- VAV — Variable Air Volume

NOTE:

1. Minimal airflow for VAV units is 50% of nominal airflow.
2. Performance data based on ARI conditions with entering air at 80 F dry bulb and 67 F wet bulb.



COOLING WITH WATERSIDE ECONOMIZER (cont)
50BVT,V,W034

EWT (F)	GPM		AIR ENTERING EVAPORATOR — Cfm/BF											
			7500/0.11				12,000/0.16				15,000/0.18			
			Air Entering Evaporator — Ewb (F)											
			72	67	62	57	72	67	62	57	72	67	62	57
45	45.0	TC	308.6	242.7	203.7	202.9	359.7	294.6	268.5	268.6	380.0	318.9	300.5	300.7
		SHC	161.3	182.8	203.1	202.9	206.1	246.7	268.5	268.6	230.8	281.0	300.5	300.7
	75.0	TC	365.6	284.6	223.3	217.6	450.4	353.3	298.6	298.8	487.5	387.6	340.8	341.0
		SHC	183.3	200.6	216.3	217.6	238.8	272.7	298.6	298.8	268.4	313.3	340.8	341.0
	90.0	TC	382.3	297.2	228.8	221.5	479.4	373.3	307.7	307.3	523.1	410.4	352.5	352.7
		SHC	189.9	205.9	219.9	221.5	249.6	281.4	307.4	307.3	281.3	323.5	352.5	352.7
	120.0	TC	404.8	314.2	236.7	226.6	520.5	405.4	322.8	318.6	574.7	448.0	368.3	368.5
		SHC	199.0	213.0	224.9	226.6	265.2	294.7	319.0	318.6	300.4	340.3	368.3	368.5
55	45.0	TC	200.5	151.2	146.0	146.0	233.7	193.4	193.5	193.6	249.6	216.6	216.7	216.9
		SHC	122.4	143.3	146.0	146.0	161.9	193.4	193.5	193.6	184.3	216.6	216.7	216.9
	75.0	TC	240.5	168.4	156.3	156.3	292.8	220.4	215.0	215.1	315.8	247.5	245.5	245.7
		SHC	136.2	152.6	156.3	156.3	182.7	213.2	215.0	215.1	208.8	245.9	245.5	245.7
	90.0	TC	252.4	174.9	159.0	159.1	312.9	228.8	221.0	221.1	339.8	257.7	253.8	253.9
		SHC	140.4	155.6	159.0	159.1	189.5	218.1	221.0	221.1	216.8	253.0	253.8	253.9
	120.0	TC	268.7	183.1	162.5	162.6	341.5	240.5	228.9	229.0	375.3	273.2	264.9	265.0
		SHC	146.2	159.1	162.5	162.6	199.2	225.0	228.9	229.0	228.7	262.7	264.9	265.0
65	45.0	TC	93.6	88.1	88.1	88.2	118.4	117.0	117.1	117.1	131.0	131.1	131.2	131.3
		SHC	85.0	88.1	88.1	88.2	116.4	117.0	117.1	117.1	131.0	131.1	131.2	131.3
	75.0	TC	106.8	94.2	94.2	94.3	136.1	129.8	129.9	129.9	152.2	148.3	148.4	148.5
		SHC	90.7	94.2	94.2	94.3	126.7	129.8	129.9	129.9	147.0	148.3	148.4	148.5
	90.0	TC	111.1	95.8	95.8	95.9	141.7	133.3	133.4	133.5	159.1	153.2	153.3	153.4
		SHC	92.2	95.8	95.8	95.9	129.7	133.3	133.4	133.5	150.9	153.2	153.3	153.4
	120.0	TC	117.1	97.9	97.9	97.9	151.6	138.0	138.1	138.1	169.0	159.8	159.9	160.0
		SHC	94.4	97.9	97.9	97.9	134.4	138.0	138.1	138.1	156.3	159.8	159.9	160.0
75	45.0	TC	29.5	29.5	29.6	29.6	39.3	39.3	39.3	39.3	44.0	44.0	44.1	44.1
		SHC	29.5	29.5	29.6	29.6	39.3	39.3	39.3	39.3	44.0	44.0	44.1	44.1
	75.0	TC	31.5	31.5	31.6	31.6	43.5	43.5	43.5	43.6	49.7	49.8	49.8	49.8
		SHC	31.5	31.5	31.6	31.6	43.5	43.5	43.5	43.6	49.7	49.8	49.8	49.8
	90.0	TC	32.1	32.1	32.1	32.1	44.7	44.7	44.7	44.7	51.4	51.4	51.4	51.5
		SHC	32.1	32.1	32.1	32.1	44.7	44.7	44.7	44.7	51.4	51.4	51.4	51.5
	120.0	TC	32.7	32.7	32.7	32.8	46.2	46.2	46.2	46.3	53.5	53.6	53.6	53.6
		SHC	32.7	32.7	32.7	32.8	46.2	46.2	46.2	46.3	53.5	53.6	53.6	53.6

50BVT,V,W044

EWT (F)	GPM		AIR ENTERING EVAPORATOR — Cfm/BF											
			10,000/0.08				16,000/0.12				20,000/0.13			
			Air Entering Evaporator — Ewb (F)											
			72	67	62	57	72	67	62	57	72	67	62	57
45	60.0	TC	441.6	347.8	290.0	287.0	516.4	425.0	385.0	385.2	545.0	461.4	433.4	433.6
		SHC	228.0	256.6	286.2	287.0	292.0	349.2	385.0	385.2	327.0	400.0	433.4	433.6
	100.0	TC	529.4	412.0	320.0	308.2	660.0	518.4	432.8	431.0	716.2	571.4	496.0	496.2
		SHC	262.6	284.0	304.8	308.2	344.4	389.6	431.4	431.0	387.6	449.8	496.0	496.2
	120.0	TC	554.0	430.4	327.8	313.4	705.2	549.2	448.4	443.2	772.6	607.0	513.2	513.4
		SHC	272.6	291.8	309.8	313.4	361.4	403.0	442.6	443.2	408.4	465.6	513.2	513.4
	160.0	TC	586.4	454.8	341.6	320.0	768.6	598.4	470.4	459.2	854.2	665.2	541.4	536.6
		SHC	286.0	302.2	317.6	320.0	386.0	423.4	457.0	459.2	439.0	491.0	536.6	536.6
55	60.0	TC	288.0	216.4	207.0	207.0	338.2	279.4	278.4	278.6	362.2	313.4	313.6	313.8
		SHC	172.2	201.4	207.0	207.0	229.0	278.4	278.4	278.6	262.0	313.4	313.6	313.8
	100.0	TC	349.0	244.0	221.2	221.4	429.4	321.4	310.0	310.2	462.8	362.6	357.2	357.4
		SHC	193.4	215.0	221.2	221.4	261.0	304.4	310.0	310.2	298.6	354.8	357.2	357.4
	120.0	TC	366.8	253.0	224.8	225.0	460.6	334.2	318.6	318.8	501.8	379.6	369.4	369.6
		SHC	199.8	218.6	224.8	225.0	271.8	311.6	318.6	318.8	311.8	365.0	369.4	369.6
	160.0	TC	390.8	265.0	229.4	229.6	505.4	354.2	329.8	330.0	558.4	403.0	385.6	385.8
		SHC	208.4	223.6	229.4	229.6	287.2	322.4	329.8	330.0	331.0	378.6	385.6	385.8
65	60.0	TC	134.6	125.0	125.2	125.2	171.6	168.6	168.6	168.6	190.2	190.0	190.0	190.2
		SHC	119.4	125.0	125.2	125.2	166.2	168.6	168.6	168.6	189.8	190.0	190.0	190.2
	100.0	TC	155.0	133.4	133.4	133.4	199.0	187.2	187.2	187.2	223.6	215.8	215.8	216.0
		SHC	127.2	133.4	133.4	133.4	180.6	187.2	187.2	187.2	211.2	215.8	215.8	216.0
	120.0	TC	161.4	135.4	135.4	135.6	209.0	192.2	192.2	192.4	234.6	223.0	223.2	223.2
		SHC	129.6	135.4	135.4	135.6	185.4	192.2	192.2	192.4	216.8	223.0	223.2	223.2
	160.0	TC	170.4	138.2	138.2	138.2	224.6	198.8	198.8	199.0	251.8	232.6	232.8	232.8
		SHC	132.6	138.2	138.2	138.2	191.6	198.8	198.8	199.0	225.4	232.6	232.8	232.8
75	60.0	TC	42.0	42.0	42.0	42.0	56.6	56.6	56.6	56.6	63.8	63.8	63.8	63.8
		SHC	42.0	42.0	42.0	42.0	56.6	56.6	56.6	56.6	63.8	63.8	63.8	63.8
	100.0	TC	44.6	44.6	44.6	44.6	62.8	62.8	62.8	62.8	72.4	72.4	72.4	72.4
		SHC	44.6	44.6	44.6	44.6	62.8	62.8	62.8	62.8	72.4	72.4	72.4	72.4
	120.0	TC	45.4	45.4	45.4	45.4	64.4	64.4	64.4	64.4	74.8	74.8	74.8	74.8
		SHC	45.4	45.4	45.4	45.4	64.4	64.4	64.4	64.4	74.8	74.8	74.8	74.8
	160.0	TC	46.2	46.2	46.2	46.2	66.6	66.6	66.6	66.6	77.8	78.0	78.0	78.0
		SHC	46.2	46.2	46.2	46.2	66.6	66.6	66.6	66.6	77.8	78.0	78.0	78.0

LEGEND

- BF — Bypass Factor
- Ewb — Entering Wet Bulb
- EWT — Entering Water Temperature
- SHC — Sensible Heating Capacity (1000 Btu/h)
- TC — Total Capacity (1000 Btu/h), Gross
- VAV — Variable Air Volume

NOTE:

1. Minimal airflow for VAV units is 50% of nominal airflow.
2. Performance data based on ARI conditions with entering air at 80 F dry bulb and 67 F wet bulb.

Performance data (cont)



COOLING WITH WATERSIDE ECONOMIZER (cont) 50BVT,V,W054

EWT (F)	GPM		AIR ENTERING EVAPORATOR — Cfm/BF											
			12,500/0.10				20,000/0.13				25,000/0.16			
			Air Entering Evaporator — Ewb (F)											
			72	67	62	57	72	67	62	57	72	67	62	57
45	75.0	TC	533.2	419.6	351.2	348.4	622.4	511.2	464.2	464.4	657.4	554.0	520.8	521.0
		SHC	277.0	312.8	348.2	348.4	354.0	423.6	464.2	464.4	396.6	483.6	520.8	521.0
	125.0	TC	633.6	493.2	384.8	373.2	784.6	616.0	516.8	517.0	850.2	677.2	592.0	592.2
		SHC	316.0	344.0	370.2	373.2	412.8	469.6	516.8	517.0	464.4	540.6	592.0	592.2
	150.0	TC	662.8	515.2	394.4	379.8	836.8	651.6	535.6	531.8	914.8	718.0	612.4	612.8
		SHC	327.8	353.2	376.2	379.8	432.4	485.2	532.4	531.8	488.0	558.8	612.4	612.8
200.0	TC	701.8	544.6	409.4	388.2	910.2	708.8	561.2	551.2	1008.0	785.6	642.4	640.2	
	SHC	343.6	365.8	385.2	388.2	460.6	508.8	550.2	551.2	522.6	588.8	641.4	640.2	
55	75.0	TC	346.4	260.8	250.6	250.6	404.8	335.0	334.6	334.8	433.2	375.4	375.6	375.8
		SHC	209.4	245.0	250.6	250.6	277.4	334.6	334.6	334.8	316.6	375.4	375.6	375.8
	125.0	TC	417.2	292.0	268.0	268.2	510.4	383.2	372.0	372.0	550.0	431.2	426.4	426.6
		SHC	233.8	261.2	268.0	268.2	314.6	367.2	372.0	372.0	359.6	425.4	426.4	426.6
	150.0	TC	438.2	303.0	272.6	272.6	546.4	398.2	382.2	382.4	594.2	450.4	440.8	441.2
		SHC	241.4	266.0	272.6	272.6	326.8	375.8	382.2	382.4	374.4	438.2	440.8	441.2
200.0	TC	466.6	317.4	278.4	278.4	597.8	421.0	396.0	396.2	658.6	477.4	460.2	460.6	
	SHC	251.6	272.0	278.4	278.4	344.6	388.8	396.0	396.2	396.2	454.4	460.2	460.6	
65	75.0	TC	161.6	151.2	151.4	151.4	205.2	202.2	202.4	202.4	227.0	227.2	227.4	227.4
		SHC	145.2	151.2	151.4	151.4	200.4	202.2	202.4	202.4	227.0	227.2	227.4	227.4
	125.0	TC	185.4	161.6	161.6	161.6	237.0	224.6	224.6	224.8	265.6	257.6	257.8	257.8
		SHC	154.8	161.6	161.6	161.6	218.0	224.6	224.6	224.8	253.8	257.6	257.8	257.8
	150.0	TC	192.8	164.2	164.2	164.4	247.8	230.6	230.8	230.8	278.0	266.2	266.4	266.6
		SHC	157.6	164.2	164.2	164.4	223.8	230.6	230.8	230.8	260.6	266.2	266.4	266.6
200.0	TC	203.4	167.6	167.6	167.8	265.8	238.6	238.8	239.0	296.6	277.6	277.8	278.0	
	SHC	161.4	167.6	167.6	167.8	231.4	238.6	238.8	239.0	270.6	277.6	277.8	278.0	
75	75.0	TC	50.6	50.8	50.8	50.8	67.8	67.8	68.0	68.0	76.2	76.4	76.4	76.4
		SHC	50.6	50.8	50.8	50.8	67.8	67.8	68.0	68.0	76.2	76.4	76.4	76.4
	125.0	TC	54.0	54.0	54.2	54.2	75.2	75.2	75.4	75.4	86.4	86.4	86.4	86.6
		SHC	54.0	54.0	54.2	54.2	75.2	75.2	75.4	75.4	86.4	86.4	86.4	86.6
	150.0	TC	55.0	55.0	55.0	55.0	77.2	77.4	77.4	77.4	89.2	89.2	89.4	89.4
		SHC	55.0	55.0	55.0	55.0	77.2	77.4	77.4	77.4	89.2	89.2	89.4	89.4
200.0	TC	56.0	56.0	56.0	56.0	79.8	80.0	80.0	80.0	93.0	93.0	93.2	93.2	
	SHC	56.0	56.0	56.0	56.0	79.8	80.0	80.0	80.0	93.0	93.0	93.2	93.2	

50BVT,V,W064

EWT (F)	GPM		AIR ENTERING EVAPORATOR — Cfm/BF											
			15,000/0.11				24,000/0.16				30,000/0.18			
			Air Entering Evaporator — Ewb (F)											
			72	67	62	57	72	67	62	57	72	67	62	57
45	90.0	TC	617.2	485.4	407.4	405.8	719.4	589.2	537.0	537.2	760.0	637.8	601.0	601.4
		SHC	322.6	365.6	406.2	405.8	412.2	493.4	537.0	537.2	461.6	562.0	601.0	601.4
	150.0	TC	731.2	569.2	446.6	435.2	900.8	706.6	597.2	597.6	975.0	775.2	681.6	682.0
		SHC	366.6	401.2	432.6	435.2	477.6	545.4	597.2	597.6	536.8	626.6	681.6	682.0
	180.0	TC	764.6	594.4	457.6	443.0	958.8	746.6	615.4	614.6	1046.2	820.8	705.0	705.4
		SHC	379.8	411.8	439.8	443.0	499.2	562.8	614.8	614.6	562.6	647.0	705.0	705.4
240.0	TC	809.6	628.4	473.4	453.2	1041.0	810.8	645.6	637.2	1149.4	896.0	736.6	737.0	
	SHC	398.0	426.0	449.8	453.2	530.4	589.4	638.0	637.2	600.8	680.6	736.6	737.0	
55	90.0	TC	401.0	302.4	292.0	292.0	467.4	386.8	387.0	387.2	499.2	433.2	433.4	433.8
		SHC	244.8	286.6	292.0	292.0	323.8	386.8	387.0	387.2	368.6	433.2	433.4	433.8
	150.0	TC	481.0	336.8	312.6	312.6	585.6	440.8	430.0	430.2	631.6	495.0	491.0	491.4
		SHC	272.4	305.2	312.6	312.6	365.4	426.4	430.0	430.2	417.6	491.8	491.0	491.4
	180.0	TC	504.8	349.8	318.0	318.2	625.8	457.6	442.0	442.2	679.6	515.4	507.6	507.8
		SHC	280.8	311.2	318.0	318.2	379.0	436.2	442.0	442.2	433.6	506.0	507.6	507.8
240.0	TC	537.4	366.2	325.0	325.2	683.0	481.0	457.8	458.0	750.6	546.4	529.8	530.0	
	SHC	292.4	318.2	325.0	325.2	398.4	450.0	457.8	458.0	457.4	525.4	529.8	530.0	
65	90.0	TC	187.2	176.2	176.2	176.4	236.8	234.0	234.2	234.2	262.0	262.2	262.4	262.6
		SHC	170.0	176.2	176.2	176.4	232.8	234.0	234.2	234.2	262.0	262.2	262.4	262.6
	150.0	TC	213.6	188.4	188.4	188.6	272.2	259.6	259.8	259.8	304.4	296.6	296.8	297.0
		SHC	181.4	188.4	188.4	188.6	253.4	259.6	259.8	259.8	294.0	296.6	296.8	297.0
	180.0	TC	222.2	191.6	191.6	191.8	283.4	266.6	266.8	267.0	318.2	306.4	306.6	306.8
		SHC	184.4	191.6	191.6	191.8	259.4	266.6	266.8	267.0	301.8	306.4	306.6	306.8
240.0	TC	234.2	195.8	195.8	195.8	303.2	276.0	276.2	276.2	338.0	319.6	319.8	320.0	
	SHC	188.8	195.8	195.8	195.8	268.8	276.0	276.2	276.2	312.6	319.6	319.8	320.0	
75	90.0	TC	59.0	59.0	59.2	59.2	78.6	78.6	78.6	78.6	88.0	88.0	88.2	88.2
		SHC	59.0	59.0	59.2	59.2	78.6	78.6	78.6	78.6	88.0	88.0	88.2	88.2
	150.0	TC	63.0	63.0	63.2	63.2	87.0	87.0	87.0	87.2	99.4	99.6	99.6	99.6
		SHC	63.0	63.0	63.2	63.2	87.0	87.0	87.0	87.2	99.4	99.6	99.6	99.6
	180.0	TC	64.2	64.2	64.2	64.2	89.4	89.4	89.4	89.4	102.8	102.8	102.8	103.0
		SHC	64.2	64.2	64.2	64.2	89.4	89.4	89.4	89.4	102.8	102.8	102.8	103.0
240.0	TC	65.4	65.4	65.4	65.6	92.4	92.4	92.4	92.6	107.0	107.2	107.2	107.2	
	SHC	65.4	65.4	65.4	65.6	92.4	92.4	92.4	92.6	107.0	107.2	107.2	107.2	

LEGEND

- BF — Bypass Factor
- Ewb — Entering Wet Bulb
- EWT — Entering Water Temperature
- SHC — Sensible Heating Capacity (1000 Btu/h)
- TC — Total Capacity (1000 Btu/h), Gross
- VAV — Variable Air Volume

NOTE:

1. Minimal airflow for VAV units is 50% of nominal airflow.
2. Performance data based on ARI conditions with entering air at 80 F dry bulb and 67 F wet bulb.



Heating capacities, hot water coil ratings, and steam coil ratings

Refer to Carrier's electronic catalog (e-cat) for rating information.

EVAPORATOR FAN PERFORMANCE 50BVC,E,Q020

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
4500	—	—	—	—	—	—	<i>623</i>	<i>459</i>	<i>0.52</i>	—	—	—	—	—	—
5000	—	—	—	—	—	—	<i>638</i>	<i>545</i>	<i>0.61</i>	—	—	—	—	—	—
5500	—	—	—	—	—	—	<i>655</i>	<i>641</i>	<i>0.72</i>	<i>725</i>	<i>755</i>	<i>0.85</i>	—	—	—
6000	—	—	—	<i>608</i>	<i>641</i>	<i>0.72</i>	<i>676</i>	<i>755</i>	<i>0.85</i>	<i>742</i>	<i>878</i>	<i>0.99</i>	807	1001	1.13
6500	—	—	—	<i>636</i>	<i>755</i>	<i>0.85</i>	<i>699</i>	<i>878</i>	<i>0.99</i>	761	1010	1.14	821	1142	1.29
7000	<i>604</i>	<i>774</i>	<i>0.87</i>	<i>666</i>	<i>906</i>	<i>1.02</i>	<i>726</i>	<i>1029</i>	<i>1.16</i>	784	1170	1.32	841	1311	1.48
7500	<i>634</i>	<i>916</i>	<i>1.03</i>	<i>693</i>	<i>1057</i>	<i>1.19</i>	<i>750</i>	<i>1189</i>	<i>1.34</i>	805	1330	1.50	858	1480	1.67
8000	<i>667</i>	<i>1085</i>	<i>1.22</i>	723	1226	1.38	777	1377	1.55	829	1526	1.72	880	1676	1.89
8500	<i>700</i>	<i>1273</i>	<i>1.43</i>	753	1423	1.60	804	1573	1.77	853	1732	1.95	902	1836	2.13
9000	<i>735</i>	<i>1480</i>	<i>1.67</i>	785	1638	1.84	833	1745	2.02	881	1908	2.21	927	2071	2.40

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
4500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6500	881	1283	1.44	—	—	—	—	—	—	—	—	—	—	—	—
7000	897	1451	1.63	951	1601	1.80	—	—	—	—	—	—	—	—	—
7500	911	1629	1.83	963	1727	2.00	1014	1881	2.18	—	—	—	—	—	—
8000	930	1781	2.07	979	1935	2.24	1028	2098	2.43	1076	2260	2.62	1124	2422	2.81
8500	950	1989	2.31	997	2152	2.50	1043	2323	2.69	1089	2485	2.88	1134	2697	3.09
9000	973	2233	2.59	1018	2404	2.79	1062	2576	2.99	1106	2779	3.18	1149	2960	3.39

LEGEND

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

NOTES:

- Units are available with the following motor and drive combinations: 1.5, 2, 3, 5 HP standard drive; 1.5, 2, 3 HP medium-static drive.
For 1.5, 2, 3 HP standard drives, the drive range is 753 to 952 rpm.
For medium static drives, the drive range is 872 to 1071 rpm. For 5 HP standard drives, the drive range is 967 to 1290 rpm.

- Italics* indicates field-supplied drive required.
- Do not operate in shaded area.
- Static pressure losses must be applied to external static pressure before entering the fan performance table.
- Interpolation is permitted, extrapolation is not.
- Fan performance is based on filter, unit casing and wet coil losses.
- Bhp values are *per fan*. Watts values are *per motor*. Unit has two supply fans and two motors.

Performance data (cont)



EVAPORATOR FAN PERFORMANCE (cont) 50BVC,E,Q024

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
5,000	—	—	—	—	—	—	<i>638</i>	<i>545</i>	<i>0.61</i>	—	—	—	—	—	—
5,500	—	—	—	—	—	—	<i>655</i>	<i>641</i>	<i>0.72</i>	<i>725</i>	<i>755</i>	<i>0.85</i>	—	—	—
6,000	—	—	—	<i>608</i>	<i>641</i>	<i>0.72</i>	<i>676</i>	<i>755</i>	<i>0.85</i>	<i>742</i>	<i>878</i>	<i>0.99</i>	807	1001	1.13
6,500	—	—	—	<i>636</i>	<i>755</i>	<i>0.85</i>	<i>699</i>	<i>878</i>	<i>0.99</i>	761	1010	1.14	821	1142	1.29
7,000	<i>604</i>	<i>774</i>	<i>0.87</i>	<i>666</i>	<i>906</i>	<i>1.02</i>	<i>726</i>	<i>1029</i>	<i>1.16</i>	784	1170	1.32	841	1311	1.48
7,500	<i>634</i>	<i>916</i>	<i>1.03</i>	<i>693</i>	<i>1057</i>	<i>1.19</i>	<i>750</i>	<i>1189</i>	<i>1.34</i>	805	1330	1.50	858	1480	1.67
8,000	<i>667</i>	<i>1085</i>	<i>1.22</i>	<i>723</i>	<i>1226</i>	<i>1.38</i>	777	1377	1.55	829	1526	1.72	880	1676	1.89
8,500	<i>700</i>	<i>1273</i>	<i>1.43</i>	753	1423	1.60	804	1573	1.77	853	1732	1.95	902	1836	2.13
9,000	<i>735</i>	<i>1480</i>	<i>1.67</i>	785	1638	1.84	833	1745	2.02	881	1908	2.21	927	2071	2.40
9,500	769	1713	1.93	816	1827	2.12	863	1989	2.31	908	2152	2.50	952	2323	2.69
10,000	802	1908	2.21	848	2080	2.41	892	2251	2.61	936	2422	2.81	978	2624	3.01

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
5,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5,500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6,500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7,000	881	1283	1.44	—	—	—	—	—	—	—	—	—	—	—	—
7,500	897	1451	1.63	951	1601	1.80	—	—	—	—	—	—	—	—	—
8,000	911	1629	1.83	963	1727	2.00	1014	1881	2.18	—	—	—	—	—	—
8,500	930	1781	2.07	979	1935	2.24	1028	2098	2.43	1076	2260	2.62	1124	2422	2.81
9,000	950	1989	2.31	997	2152	2.50	1043	2323	2.69	1089	2485	2.88	1134	2697	3.09
9,500	973	2233	2.59	1018	2404	2.79	1062	2576	2.99	1106	2779	3.18	1149	2960	3.39
9,500	996	2494	2.89	1039	2697	3.09	1081	2879	3.30	1123	3060	3.51	1165	3251	3.73
10,000	1020	2806	3.22	1061	2988	3.42	1102	3178	3.64	1142	3360	3.85	1182	3559	4.08

LEGEND

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

NOTES:

- Units are available with the following motor and drive combinations: 2, 3, and 5 HP standard drive; 2, 3 HP medium static drive. For 2, 3 HP standard drives, the drive range is 753 to 952 rpm. For medium static drives, the drive range is 872 to 1071 rpm. For 5 HP standard drives, the drive range is 967 to 1290 rpm.
- Italics** indicates field-supplied drive required.
- Do not operate in shaded area.
- Static pressure losses must be applied to external static pressure before entering the fan performance table.
- Interpolation is permitted, extrapolation is not.
- Fan performance is based on filter, unit casing and wet coil losses.
- Bhp values are *per fan*. Watts values are *per motor*. Unit has two supply fans and two motors.



EVAPORATOR FAN PERFORMANCE (cont)
50BVC,E,Q028

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
6,250	—	—	—	624	678	0.79	689	797	0.92	753	917	1.06	815	1045	1.21
7,000	604	751	0.87	666	880	1.02	726	999	1.16	784	1136	1.32	841	1273	1.48
7,500	634	889	1.03	693	1027	1.19	750	1155	1.34	805	1291	1.50	858	1437	1.67
8,000	667	1054	1.22	723	1191	1.38	777	1337	1.55	829	1482	1.72	880	1627	1.89
8,500	700	1237	1.43	753	1382	1.60	804	1528	1.77	853	1682	1.95	902	1836	2.13
9,000	735	1437	1.67	785	1591	1.84	833	1745	2.02	881	1908	2.21	927	2071	2.40
9,500	769	1664	1.93	816	1827	2.12	863	1989	2.31	908	2152	2.50	952	2323	2.69
10,000	802	1908	2.21	848	2080	2.41	892	2251	2.61	936	2422	2.81	978	2624	3.01
10,500	835	2179	2.53	879	2350	2.73	921	2531	2.93	963	2742	3.14	1004	2924	3.35
11,000	870	2467	2.86	912	2688	3.08	952	2870	3.29	992	3060	3.51	1032	3251	3.73
11,500	904	2824	3.24	944	3015	3.46	983	3206	3.67	1022	3405	3.90	1060	3605	4.13
12,000	937	3169	3.63	976	3369	3.86	1014	3569	4.09	1051	3777	4.33	1088	3985	4.57
12,500	972	3550	4.07	1010	3759	4.31	1046	3967	4.55	1082	4184	4.80	—	—	—

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
6,250	877	1173	1.36	—	—	—	—	—	—	—	—	—	—	—	—
7,000	897	1410	1.63	951	1555	1.80	—	—	—	—	—	—	—	—	—
7,500	911	1582	1.83	963	1727	2.00	1014	1881	2.18	—	—	—	—	—	—
8,000	930	1781	2.07	979	1935	2.24	1028	2098	2.43	1076	2260	2.62	1124	2422	2.81
8,500	950	1989	2.31	997	2152	2.50	1043	2323	2.69	1089	2485	2.88	1134	2697	3.09
9,000	973	2233	2.59	1018	2404	2.79	1062	2576	2.99	1106	2779	3.18	1149	2960	3.39
9,500	996	2494	2.89	1039	2697	3.09	1081	2879	3.30	1123	3060	3.51	1165	3251	3.73
10,000	1020	2806	3.22	1061	2988	3.42	1102	3178	3.64	1142	3360	3.85	1182	3559	4.08
10,500	1044	3106	3.56	1084	3296	3.78	1123	3496	4.01	1161	3686	4.23	1200	3886	4.45
11,000	1070	3451	3.95	1109	3641	4.17	1146	3840	4.40	1184	4049	4.64	1220	4248	4.87
11,500	1097	3804	4.36	1134	4012	4.60	1170	4221	4.84	1206	—	—	—	—	—
12,000	1124	4193	4.81	—	—	—	—	—	—	—	—	—	—	—	—
12,500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

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

NOTES:

- Units are available with 3 or 5 HP standard drive or 3 HP medium static drive.
For standard drives, the drive range is 753 to 952 rpm. For medium static drives, the drive range is 872 to 1071 rpm. 5 HP standard drives have drive range of 967 to 1290 rpm.

- Italics** indicates field-supplied drive required.
- Do not operate in shaded area.
- Static pressure losses must be applied to external static pressure before entering the fan performance table.
- Interpolation is permitted, extrapolation is not.
- Fan performance is based on filter, unit casing and wet coil losses.
- Bhp values are *per fan*. Watts values are *per motor*. Unit has two supply fans and two motors.

Performance data (cont)



EVAPORATOR FAN PERFORMANCE (cont) 50BVC,E,Q034

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
9,000	639	1187	1.36	693	1334	1.53	745	1490	1.71	795	1646	1.89	843	1802	2.07
9,500	665	1362	1.56	717	1518	1.74	766	1674	1.92	814	1839	2.11	861	2004	2.30
10,000	693	1555	1.78	743	1720	1.97	791	1894	2.17	836	2058	2.36	881	2232	2.56
10,500	721	1775	2.03	769	1949	2.23	815	2122	2.43	859	2296	2.63	902	2478	2.84
11,000	749	2004	2.30	795	2186	2.51	840	2369	2.71	882	2551	2.92	924	2742	3.14
11,500	777	2259	2.59	822	2451	2.81	864	2642	3.03	906	2833	3.25	946	3024	3.47
12,000	805	2533	2.90	848	2733	3.13	889	2933	3.36	929	3133	3.59	968	3333	3.82
12,500	835	2842	3.26	877	3042	3.49	917	3251	3.73	955	3460	3.97	993	3668	4.20
13,000	865	3169	3.63	905	3378	3.87	944	3596	4.12	981	3813	4.37	1018	4021	4.61
13,500	894	3514	4.03	933	3741	4.29	971	3958	4.54	1007	4184	4.80	—	—	—
14,000	924	3895	4.46	961	4121	4.72	998	4356	4.99	—	—	—	—	—	—

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
9,000	890	1958	2.24	936	2122	2.43	982	2296	2.63	1026	2460	2.82	1071	2642	3.03
9,500	906	2168	2.48	950	2341	2.68	994	2515	2.88	1037	2688	3.08	1079	2870	3.29
10,000	925	2405	2.76	967	2578	2.96	1009	2760	3.16	1051	2942	3.37	1092	3124	3.58
10,500	944	2660	3.05	986	2842	3.26	1026	3024	3.47	1066	3215	3.68	1105	3405	3.90
11,000	965	2924	3.35	1004	3115	3.57	1043	3315	3.80	1082	3505	4.02	1120	3705	4.25
11,500	985	3224	3.69	1024	3414	3.91	1062	3614	4.14	1099	3813	4.37	1136	4021	4.61
12,000	1006	3532	4.05	1044	3732	4.28	1080	3940	4.52	1117	4148	4.75	1152	4356	4.99
12,500	1030	3877	4.44	1066	4085	4.68	1102	4302	4.93	—	—	—	—	—	—
13,000	1053	4239	4.86	—	—	—	—	—	—	—	—	—	—	—	—
13,500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
14,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

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

NOTES:

- Unit is available with 5 HP standard drive only. The drive range is 967 to 1290 rpm.
- Italics** indicates field-supplied drive required.

- Do not operate in shaded area.
- Static pressure losses must be applied to external static pressure before entering the fan performance table.
- Interpolation is permitted, extrapolation is not.
- Fan performance is based on filter, unit casing and wet coil losses.
- Bhp values are *per fan*. Watts values are *per motor*. Unit has two supply fans and two motors.



EVAPORATOR FAN PERFORMANCE (cont)
50BVT,U,V034

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
9,000	<i>564</i>	<i>3,167</i>	<i>3.76</i>	<i>605</i>	<i>3,483</i>	<i>4.13</i>	<i>645</i>	<i>3,798</i>	<i>4.51</i>	<i>683</i>	<i>4,112</i>	<i>4.88</i>	<i>718</i>	<i>4,392</i>	<i>5.21</i>
9,500	<i>590</i>	<i>3,666</i>	<i>4.35</i>	<i>629</i>	<i>3,999</i>	<i>4.74</i>	<i>667</i>	<i>4,331</i>	<i>5.14</i>	<i>704</i>	<i>4,671</i>	<i>5.54</i>	<i>738</i>	<i>4,977</i>	<i>5.90</i>
10,000	<i>617</i>	<i>4,226</i>	<i>5.01</i>	<i>655</i>	<i>4,584</i>	<i>5.44</i>	<i>691</i>	<i>4,933</i>	<i>5.85</i>	<i>726</i>	<i>5,282</i>	<i>6.27</i>	<i>761</i>	<i>5,654</i>	<i>6.71</i>
10,500	<i>643</i>	<i>4,820</i>	<i>5.72</i>	<i>678</i>	<i>5,194</i>	<i>6.16</i>	<i>713</i>	<i>5,583</i>	<i>6.62</i>	<i>747</i>	<i>5,963</i>	<i>7.07</i>	780	6,263	7.51
11,000	<i>669</i>	<i>5,503</i>	<i>6.53</i>	<i>704</i>	<i>5,901</i>	<i>7.00</i>	<i>737</i>	<i>6,298</i>	<i>7.47</i>	<i>770</i>	<i>6,612</i>	<i>7.93</i>	802	7,005	8.40
11,500	<i>696</i>	<i>6,236</i>	<i>7.40</i>	<i>729</i>	<i>6,577</i>	<i>7.89</i>	<i>761</i>	<i>6,987</i>	<i>8.38</i>	792	7,388	8.86	823	7,798	9.36
12,000	<i>722</i>	<i>6,952</i>	<i>8.34</i>	<i>754</i>	<i>7,380</i>	<i>8.85</i>	784	7,798	9.36	815	8,225	9.87	845	8,510	10.38
12,500	<i>750</i>	<i>7,816</i>	<i>9.38</i>	780	8,260	9.91	810	8,561	10.44	839	8,990	10.97	868	9,427	11.50
13,000	<i>777</i>	<i>8,595</i>	<i>10.49</i>	806	9,050	11.04	835	9,504	11.59	863	9,949	12.14	891	10,403	12.69
13,500	804	9,572	11.68	832	10,043	12.25	860	10,514	12.83	887	10,985	13.40	914	11,447	13.96
14,000	832	10,634	12.97	859	11,122	13.57	886	11,610	14.16	912	12,097	14.76	938	12,585	15.35
14,500	859	11,747	14.33	885	12,217	14.90	911	12,756	15.56	936	13,260	16.18	962	13,765	16.79
15,000	886	12,953	15.80	911	13,474	16.44	936	13,996	17.07	961	14,517	17.71	986	15,038	18.34

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
9,000	<i>751</i>	<i>4,663</i>	<i>5.53</i>	785	4,933	5.85	817	5,212	6.18	849	5,512	6.54	881	5,804	6.89
9,500	<i>771</i>	<i>5,264</i>	<i>6.25</i>	802	5,574	6.61	834	5,866	6.96	864	6,166	7.31	895	6,394	7.67
10,000	792	5,963	7.07	822	6,272	7.44	852	6,498	7.80	882	6,804	8.16	911	7,118	8.54
10,500	812	6,603	7.92	841	6,926	8.31	870	7,240	8.69	899	7,563	9.07	927	7,885	9.46
11,000	833	7,388	8.86	861	7,720	9.26	889	8,051	9.66	917	8,253	10.07	944	8,578	10.46
11,500	854	8,199	9.84	882	8,441	10.30	909	8,784	10.72	936	9,127	11.13	962	9,469	11.55
12,000	874	8,921	10.88	903	9,332	11.38	930	9,701	11.83	955	10,060	12.27	981	10,420	12.71
12,500	896	9,855	12.02	924	10,283	12.54	951	10,702	13.06	976	11,079	13.51	1001	11,456	13.97
13,000	919	10,857	13.24	945	11,302	13.79	972	11,747	14.33	997	12,166	14.84	1022	12,551	15.31
13,500	941	11,918	14.54	967	12,380	15.10	993	12,850	15.67	1018	13,303	16.23	1042	13,722	16.74
14,000	964	13,064	15.94	990	13,551	16.53	1015	14,030	17.11	1040	14,517	17.71	1064	14,979	18.27
14,500	987	14,269	17.41	1011	14,765	18.01	1036	15,261	18.62	1060	15,765	19.23	1084	16,260	19.83
15,000	1010	15,560	18.98	1034	16,081	19.62	—	—	—	—	—	—	—	—	—

LEGEND

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

NOTES:

- Unit is available with the following motor and drive combinations:
 7.5, 10, 15, 20 HP standard drive; 7.5, 10, 15, 20 HP medium-static drive; 7.5, 10, 15, 20 HP high-static drive.
 For 7.5 HP standard drives, the drive range is 780 to 960 rpm. For 10, 15, 20 HP standard and 7.5 HP medium-static drives, the drive range is 805 to 991 rpm. For 10, 15, 20 HP medium-static and 7.5 HP

high-static drives the drive range is 960 to 1146 rpm. For 10, 15, 20 HP high-static drives the drive range is 1119 to 1335 rpm.

- Italics** indicates field-supplied drive required.
- Do not operate in shaded area.
- Static pressure losses must be applied to external static pressure before entering the fan performance table.
- Interpolation is permitted, extrapolation is not.
- Fan performance is based on filter, unit casing and wet coil losses.
- This unit has one supply fan and one fan motor.

Performance data (cont)



EVAPORATOR FAN PERFORMANCE (cont) 50BVT,U,V034 (cont)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	2.2			2.4			2.6			2.8			3.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
9,000	912	6,095	7.23	943	6,324	7.59	974	6,629	7.95	1005	6,943	8.33	1035	7,266	8.72
9,500	925	6,690	8.03	955	6,996	8.39	984	7,310	8.77	1013	7,624	9.15	1042	7,955	9.54
10,000	940	7,423	8.91	969	7,746	9.29	997	8,060	9.67	1025	8,253	10.07	1053	8,578	10.46
10,500	955	8,199	9.84	982	8,390	10.23	1010	8,715	10.63	1037	9,041	11.03	1063	9,375	11.44
11,000	971	8,913	10.87	998	9,238	11.27	1024	9,572	11.68	1050	9,915	12.09	1076	10,257	12.51
11,500	988	9,812	11.97	1014	10,155	12.39	1040	10,506	12.82	1065	10,848	13.23	1090	11,207	13.67
12,000	1006	10,771	13.14	1031	11,130	13.58	1056	11,490	14.02	1080	11,849	14.45	1104	12,217	14.90
12,500	1025	11,824	14.42	1050	12,191	14.87	1074	12,568	15.33	1097	12,944	15.79	1121	13,320	16.25
13,000	1045	12,936	15.78	1069	13,320	16.25	1092	13,714	16.73	1115	14,098	17.20	1138	14,492	17.68
13,500	1065	14,124	17.23	1088	14,526	17.72	1110	14,927	18.21	1133	15,329	18.70	1155	15,731	19.19
14,000	1086	15,397	18.78	1108	15,816	19.29	1131	16,235	19.80	—	—	—	—	—	—
14,500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
15,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	3.2			3.4			3.6			3.8			4.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
9,000	1065	7,606	9.13	1095	7,946	9.53	—	—	—	—	—	—	—	—	—
9,500	1071	8,286	9.94	1100	8,493	10.36	1128	8,835	10.78	1157	9,195	11.22	1185	9,564	11.67
10,000	1081	8,904	10.86	1108	9,247	11.28	1136	9,598	11.71	1163	9,958	12.15	1190	10,326	12.60
10,500	1090	9,718	11.85	1116	10,060	12.27	1143	10,411	12.70	1169	10,771	13.14	1195	11,139	13.59
11,000	1102	10,608	12.94	1127	10,959	13.37	1153	11,319	13.81	1178	11,678	14.25	1203	12,046	14.69
11,500	1115	11,558	14.10	1139	11,918	14.54	1164	12,286	14.99	1188	12,653	15.43	1212	13,038	15.90
12,000	1128	12,585	15.35	1152	12,953	15.80	1176	13,329	16.26	1200	13,705	16.72	1223	14,090	17.19
12,500	1144	13,697	16.71	1167	14,073	17.17	1190	14,457	17.64	1213	14,850	18.12	1236	15,235	18.58
13,000	1160	14,876	18.15	1183	15,269	18.63	1205	15,662	19.11	1227	16,064	19.60	—	—	—
13,500	1177	16,132	19.68	—	—	—	—	—	—	—	—	—	—	—	—
14,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
14,500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
15,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

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

NOTES:

- Unit is available with the following motor and drive combinations:
 7.5, 10, 15, 20 HP standard drive; 7.5, 10, 15, 20 HP medium-static drive; 7.5, 10, 15, 20 HP high-static drive.
 For 7.5 HP standard drives, the drive range is 780 to 960 rpm. For 10, 15, 20 HP standard and 7.5 HP medium-static drives, the drive range is 805 to 991 rpm. For 10, 15, 20 HP medium-static and 7.5 HP

high-static drives the drive range is 960 to 1146 rpm. For 10, 15, 20 HP high-static drives the drive range is 1119 to 1335 rpm.

- Italics** indicates field-supplied drive required.
- Do not operate in shaded area.
- Static pressure losses must be applied to external static pressure before entering the fan performance table.
- Interpolation is permitted, extrapolation is not.
- Fan performance is based on filter, unit casing and wet coil losses.
- This unit has one supply fan and one fan motor.



EVAPORATOR FAN PERFORMANCE (cont)
50BVT,U,V044

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
12,000	403	1057	1.25	461	1271	1.51	512	1458	1.73	561	1644	1.95	608	1838	2.18
12,500	413	1173	1.39	470	1395	1.66	519	1591	1.89	567	1785	2.12	613	1980	2.35
13,000	423	1280	1.52	478	1520	1.80	527	1723	2.04	573	1927	2.29	618	2130	2.53
13,500	436	1422	1.69	489	1661	1.97	537	1883	2.23	582	2086	2.47	626	2297	2.73
14,000	446	1546	1.83	498	1803	2.14	546	2033	2.41	589	2253	2.67	632	2465	2.92
14,500	459	1706	2.02	509	1962	2.33	557	2209	2.62	599	2438	2.89	640	2658	3.15
15,000	469	1847	2.19	518	2121	2.52	565	2385	2.83	607	2614	3.10	647	2843	3.37
16,000	495	2200	2.61	541	2482	2.94	585	2772	3.29	627	3036	3.60	665	3272	3.88
17,000	518	2570	3.05	562	2878	3.41	604	3176	3.77	645	3474	4.12	681	3736	4.43
17,500	531	2781	3.30	573	3097	3.67	614	3404	4.04	654	3710	4.40	691	3990	4.73
18,000	543	3001	3.56	584	3325	3.94	625	3640	4.32	664	3955	4.69	700	4252	5.04
19,000	568	3474	4.12	607	3815	4.53	646	4147	4.92	684	4488	5.32	720	4820	5.72
19,500	580	3728	4.42	619	4077	4.84	657	4418	5.24	693	4767	5.66	729	5107	6.06

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
12,000	654	2042	2.42	700	2262	2.68	745	2640	3.13	—	—	—	—	—	—
12,500	657	2183	2.59	702	2403	2.85	745	2640	3.13	—	—	—	—	—	—
13,000	661	2341	2.78	704	2561	3.04	746	2790	3.31	—	—	—	—	—	—
13,500	668	2517	2.99	709	2737	3.25	750	2974	3.53	791	3220	3.82	—	—	—
14,000	673	2693	3.19	713	2913	3.46	753	3150	3.74	792	3395	4.03	—	—	—
14,500	680	2886	3.42	719	3115	3.69	758	3351	3.98	796	3605	4.28	834	3859	4.33
15,000	686	3079	3.65	724	3316	3.93	762	3553	4.21	799	3806	4.52	836	4069	4.57
16,000	702	3518	4.17	739	3771	4.47	774	4016	4.76	810	4278	5.08	844	4540	5.11
17,000	717	3990	4.73	752	4252	5.04	786	4514	5.36	820	4785	5.68	853	5055	5.70
17,500	726	4252	5.04	760	4523	5.37	794	4793	5.69	827	5064	6.01	859	5353	6.02
18,000	735	4523	5.37	768	4802	5.70	801	5072	6.02	833	5371	6.37	865	5662	6.37
19,000	753	5107	6.06	785	5415	6.42	816	5707	6.77	848	5998	7.12	878	6298	7.09
19,500	762	5433	6.45	794	5733	6.80	825	6033	7.16	855	6263	7.51	885	6568	7.48

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	2.2			2.4			2.6			2.8			3.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
12,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12,500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
13,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
13,500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
14,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
14,500	871	4130	4.90	—	—	—	—	—	—	—	—	—	—	—	—
15,000	872	4340	5.15	—	—	—	—	—	—	—	—	—	—	—	—
16,000	879	4811	5.71	913	5099	6.05	947	5415	6.42	980	5724	6.79	—	—	—
17,000	886	5353	6.35	919	5645	6.70	951	5945	7.05	983	6254	7.42	1015	6507	7.81
17,500	891	5645	6.70	923	5936	7.04	955	6245	7.41	986	6481	7.78	1017	6795	8.15
18,000	897	5945	7.05	928	6245	7.41	959	6481	7.78	989	6786	8.14	1020	7109	8.53
19,000	908	6525	7.83	938	6830	8.19	968	7135	8.56	997	7449	8.94	1027	7772	9.32
19,500	915	6865	8.24	944	7170	8.60	973	7484	8.98	1002	7807	9.37	1031	8129	9.75

LEGEND

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

NOTES:

- Unit is available with the following motor and drive combinations:
7.5, 10, 15 HP standard drive; 7.5, 10, 15 HP medium-static drive;
7.5, 10, 15 HP high-static drive.
For 7.5 HP standard drives, the drive range is 780 to 960 rpm. For
10, 15 HP standard and 7.5 HP medium-static drives, the drive
range is 805 to 991 rpm. For 10, 15 HP medium-static and 7.5 HP

high-static drives the drive range is 960 to 1146 rpm. For 10, 15 HP
high-static drives the drive range is 1119 to 1335 rpm.

- Italics** indicates field-supplied drive required.
- Do not operate in shaded area.
- Static pressure losses must be applied to external static pressure before entering the fan performance table.
- Interpolation is permitted, extrapolation is not.
- Fan performance is based on filter, unit casing and wet coil losses.
- Bhp values are *per fan*. Watts values are *per motor*. Unit has two supply fans and two motors.

Performance data (cont)



EVAPORATOR FAN PERFORMANCE (cont) 50BVT,U,V054

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
15,000	489	1953	2.32	537	2227	2.64	582	2473	2.93	623	2711	3.22	663	2939	3.49
16,000	513	2315	2.75	559	2596	3.08	603	2878	3.41	642	3132	3.72	680	3369	4.00
17,000	540	2728	3.24	583	3027	3.59	624	3325	3.94	663	3605	4.28	699	3868	4.59
18,000	564	3167	3.76	605	3483	4.13	645	3798	4.51	683	4112	4.88	718	4392	5.21
18,500	578	3413	4.05	618	3745	4.44	657	4069	4.83	694	4392	5.21	729	4680	5.55
19,000	590	3666	4.35	629	3999	4.74	667	4331	5.14	704	4671	5.54	738	4977	5.90
19,500	604	3938	4.67	642	4278	5.08	679	4628	5.49	715	4968	5.89	749	5299	6.29
20,000	617	4226	5.01	655	4584	5.44	691	4933	5.85	726	5282	6.27	761	5654	6.71
20,500	629	4505	5.34	665	4872	5.78	701	5238	6.21	736	5618	6.67	770	5980	7.09
21,000	643	4820	5.72	678	5194	6.16	713	5583	6.62	747	5963	7.07	780	6263	7.51
22,000	669	5503	6.53	704	5901	7.00	737	6298	7.47	770	6612	7.93	802	7005	8.40
23,000	696	6236	7.40	729	6577	7.89	761	6987	8.38	792	7388	8.86	823	7798	9.36
24,000	722	6952	8.34	754	7380	8.85	784	7798	9.36	815	8225	9.87	845	8510	10.38

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
15,000	701	3167	3.76	739	3413	4.05	777	3658	4.34	814	3,911	4.64	850	4,174	4.95
16,000	717	3623	4.30	753	3868	4.59	789	4121	4.89	824	4,383	5.20	858	4,654	5.52
17,000	734	4121	4.89	769	4383	5.20	803	4645	5.51	837	4,915	5.83	870	5,194	6.16
18,000	751	4663	5.53	785	4933	5.85	817	5212	6.18	849	5,512	6.54	881	5,804	6.89
18,500	762	4968	5.89	794	5247	6.22	826	5548	6.58	857	5,839	6.93	889	6,130	7.27
19,000	771	5264	6.25	802	5574	6.61	834	5866	6.96	864	6,166	7.31	895	6,394	7.67
19,500	781	5618	6.67	812	5919	7.02	843	6219	7.38	873	6,446	7.73	903	6,743	8.09
20,000	792	5963	7.07	822	6272	7.44	852	6498	7.80	882	6,804	8.16	911	7,118	8.54
20,500	801	6307	7.48	831	6542	7.85	860	6856	8.23	890	7,170	8.60	918	7,484	8.98
21,000	812	6603	7.92	841	6926	8.31	870	7240	8.69	899	7,563	9.07	927	7,885	9.46
22,000	833	7388	8.86	861	7720	9.26	889	8051	9.66	917	8,253	10.07	944	8,578	10.46
23,000	854	8199	9.84	882	8441	10.30	909	8784	10.72	936	9,127	11.13	962	9,469	11.55
24,000	874	8921	10.88	903	9332	11.38	930	9701	11.83	955	10,060	12.27	981	10,420	12.71


LEGEND

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

NOTES:

- Unit is available with the following motor and drive combinations: 7.5, 10, 15, 20 HP standard drive; 7.5, 10, 15, 20 HP medium-static drive; 7.5, 10, 15, 20 HP high-static drive.
 For 7.5 HP standard drives, the drive range is 780 to 960 rpm. For 10, 15, 20 HP standard and 7.5 HP medium-static drives, the drive range is 805 to 991 rpm. For 10, 15, 20 HP medium-static and 7.5 HP

high-static drives the drive range is 960 to 1146 rpm. For 10, 15, 20 HP high-static drives the drive range is 1119 to 1335 rpm.

- Italics** indicates field-supplied drive required.
-  Do not operate in shaded area.
- Static pressure losses must be applied to external static pressure before entering the fan performance table.
- Interpolation is permitted, extrapolation is not.
- Fan performance is based on filter, unit casing and wet coil losses.
- Bhp values are *per fan*. Watts values are *per motor*. Unit has two supply fans and two motors.



EVAPORATOR FAN PERFORMANCE (cont)
50BVT,U,V054 (cont)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	2.2			2.4			2.6			2.8			3.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
15,000	886	4,444	5.27	922	4,741	5.62	958	5,046	5.99	993	5,380	6.38	—	—	—
16,000	893	4,924	5.84	927	5,212	6.18	961	5,539	6.57	994	5,857	6.95	—	—	—
17,000	903	5,495	6.52	935	5,795	6.87	967	6,095	7.23	999	6,341	7.61	1031	6,664	8.00
18,000	912	6,095	7.23	943	6,324	7.59	974	6,629	7.95	1005	6,943	8.33	1035	7,266	8.72
18,500	919	6,359	7.63	950	6,664	8.00	980	6,970	8.36	1010	7,284	8.74	1039	7,606	9.13
19,000	925	6,690	8.03	955	6,996	8.39	984	7,310	8.77	1013	7,624	9.15	1042	7,955	9.54
19,500	932	7,048	8.46	962	7,362	8.83	991	7,676	9.21	1019	7,999	9.60	1047	8,330	9.99
20,000	940	7,423	8.91	969	7,746	9.29	997	8,060	9.67	1025	8,253	10.07	1053	8,578	10.46
20,500	946	7,798	9.36	975	8,121	9.74	1003	8,304	10.13	1030	8,630	10.53	1057	8,955	10.92
21,000	955	8,199	9.84	982	8,390	10.23	1010	8,715	10.63	1037	9,041	11.03	1063	9,375	11.44
22,000	971	8,913	10.87	998	9,238	11.27	1024	9,572	11.68	1050	9,915	12.09	1076	10,257	12.51
23,000	988	9,812	11.97	1014	10,155	12.39	1040	10,506	12.82	1065	10,848	13.23	1090	11,207	13.67
24,000	1006	10,771	13.14	1031	11,130	13.58	1056	11,490	14.02	1080	11,849	14.45	1104	12,217	14.90

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	3.2			3.4			3.6			3.8			4.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
15,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
16,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
17,000	1062	7,005	8.40	1093	7,353	8.82	—	—	—	—	—	—	—	—	—
18,000	1065	7,606	9.13	1095	7,946	9.53	—	—	—	—	—	—	—	—	—
18,500	1069	7,946	9.53	1098	8,286	9.94	1127	8,501	10.37	1156	8,861	10.81	—	—	—
19,000	1071	8,286	9.94	1100	8,493	10.36	1128	8,835	10.78	1157	9,195	11.22	1185	9,564	11.67
19,500	1076	8,518	10.39	1104	8,861	10.81	1132	9,212	11.24	1159	9,572	11.68	1187	9,932	12.12
20,000	1081	8,904	10.86	1108	9,247	11.28	1136	9,598	11.71	1163	9,958	12.15	1190	10,326	12.60
20,500	1084	9,298	11.34	1112	9,641	11.76	1138	9,992	12.19	1165	10,343	12.62	1191	10,711	13.07
21,000	1090	9,718	11.85	1116	10,060	12.27	1143	10,411	12.70	1169	10,771	13.14	1195	11,139	13.59
22,000	1102	10,608	12.94	1127	10,959	13.37	1153	11,319	13.81	1178	11,678	14.25	1203	12,046	14.69
23,000	1115	11,558	14.10	1139	11,918	14.54	1164	12,286	14.99	1188	12,653	15.43	1212	13,038	15.90
24,000	1128	12,585	15.35	1152	12,953	15.80	1176	13,329	16.26	1200	13,705	16.72	1223	14,090	17.19

LEGEND

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

NOTES:

- Unit is available with the following motor and drive combinations: 7.5, 10, 15, 20 HP standard drive; 7.5, 10, 15, 20 HP medium-static drive; 7.5, 10, 15, 20 HP high-static drive.
For 7.5 HP standard drives, the drive range is 780 to 960 rpm. For 10, 15, 20 HP standard and 7.5 HP medium-static drives, the drive range is 805 to 991 rpm. For 10, 15, 20 HP medium-static and 7.5 HP

high-static drives the drive range is 960 to 1146 rpm. For 10, 15, 20 HP high-static drives the drive range is 1119 to 1335 rpm.

- Italics** indicates field-supplied drive required.
- Do not operate in shaded area.
- Static pressure losses must be applied to external static pressure before entering the fan performance table.
- Interpolation is permitted, extrapolation is not.
- Fan performance is based on filter, unit casing and wet coil losses.
- Bhp values are *per fan*. Watts values are *per motor*. Unit has two supply fans and two motors.

Performance data (cont)



EVAPORATOR FAN PERFORMANCE (cont) 50BVT,U,V064

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	0.2			0.4			0.6			0.8			1.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
18,000	564	3,167	3.76	605	3,483	4.13	645	3,798	4.51	683	4,112	4.88	718	4,392	5.21
19,000	590	3,666	4.35	629	3,999	4.74	667	4,331	5.14	704	4,671	5.54	738	4,977	5.90
20,000	617	4,226	5.01	655	4,584	5.44	691	4,933	5.85	726	5,282	6.27	761	5,654	6.71
21,000	643	4,820	5.72	678	5,194	6.16	713	5,583	6.62	747	5,963	7.07	780	6,263	7.51
22,000	669	5,503	6.53	704	5,901	7.00	737	6,298	7.47	770	6,612	7.93	802	7,005	8.40
23,000	696	6,236	7.40	729	6,577	7.89	761	6,987	8.38	792	7,388	8.86	823	7,798	9.36
24,000	722	6,952	8.34	754	7,380	8.85	784	7,798	9.36	815	8,225	9.87	845	8,510	10.38
25,000	750	7,816	9.38	780	8,260	9.91	810	8,561	10.44	839	8,990	10.97	868	9,427	11.50
26,000	777	8,595	10.49	806	9,050	11.04	835	9,504	11.59	863	9,949	12.14	891	10,403	12.69
27,000	804	9,572	11.68	832	10,043	12.25	860	10,514	12.83	887	10,985	13.40	914	11,447	13.96
28,000	832	10,634	12.97	859	11,122	13.57	886	11,610	14.16	912	12,097	14.76	938	12,585	15.35
29,000	859	11,747	14.33	885	12,251	14.94	911	12,756	15.56	936	13,260	16.18	962	13,765	16.79

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	1.2			1.4			1.6			1.8			2.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
18,000	751	4,663	5.53	785	4,933	5.85	817	5,212	6.18	849	5,512	6.54	881	5,804	6.89
19,000	771	5,264	6.25	802	5,574	6.61	834	5,866	6.96	864	6,166	7.31	895	6,394	7.67
20,000	792	5,963	7.07	822	6,272	7.44	852	6,498	7.80	882	6,804	8.16	911	7,118	8.54
21,000	812	6,603	7.92	841	6,926	8.31	870	7,240	8.69	899	7,563	9.07	927	7,885	9.46
22,000	833	7,388	8.86	861	7,720	9.26	889	8,051	9.66	917	8,253	10.07	944	8,578	10.46
23,000	854	8,199	9.84	882	8,441	10.30	909	8,784	10.72	936	9,127	11.13	962	9,469	11.55
24,000	874	8,921	10.88	903	9,332	11.38	930	9,701	11.83	955	10,060	12.27	981	10,420	12.71
25,000	896	9,855	12.02	924	10,283	12.54	951	10,702	13.06	976	11,079	13.51	1001	11,456	13.97
26,000	919	10,857	13.24	945	11,302	13.79	972	11,747	14.33	997	12,166	14.84	1022	12,551	15.31
27,000	941	11,918	14.54	967	12,380	15.10	993	12,850	15.67	1018	13,303	16.23	1042	13,722	16.74
28,000	964	13,064	15.94	990	13,551	16.53	1015	14,030	17.11	1040	14,517	17.71	1064	14,979	18.27
29,000	987	14,269	17.41	1011	14,765	18.01	1036	15,261	18.62	1060	15,765	19.23	1084	16,260	19.83


LEGEND

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

NOTES:

- Unit is available with the following motor and drive combinations:
 7.5, 10, 15, 20 HP standard drive; 7.5, 10, 15, 20 HP medium-static drive; 7.5, 10, 15, 20 HP high-static drive.
 For 7.5 HP standard drives, the drive range is 780 to 960 rpm. For 10, 15, 20 HP standard and 7.5 HP medium-static drives, the drive range is 805 to 991 rpm. For 10, 15, 20 HP medium-static and 7.5 HP

high-static drives the drive range is 960 to 1146 rpm. For 10, 15, 20 HP high-static drives the drive range is 1119 to 1335 rpm.

- Italics** indicates field-supplied drive required.
-  Do not operate in shaded area.
- Static pressure losses must be applied to external static pressure before entering the fan performance table.
- Interpolation is permitted, extrapolation is not.
- Fan performance is based on filter, unit casing and wet coil losses.
- Bhp values are *per fan*. Watts values are *per motor*. Unit has two supply fans and two motors.



EVAPORATOR FAN PERFORMANCE (cont)
50BVT,U,V064 (cont)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	2.2			2.4			2.6			2.8			3.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
18,000	912	6,095	7.23	943	6,324	7.59	974	6629	7.95	1005	6943	8.33	1035	7266	8.72
19,000	925	6,690	8.03	955	6,996	8.39	984	7310	8.77	1013	7624	9.15	1042	7955	9.54
20,000	940	7,423	8.91	969	7,746	9.29	997	8060	9.67	1025	8253	10.07	1053	8578	10.46
21,000	955	8,199	9.84	982	8,390	10.23	1010	8715	10.63	1037	9041	11.03	1063	9375	11.44
22,000	971	8,913	10.87	998	9,238	11.27	1024	9572	11.68	1050	9915	12.09	1076	10257	12.51
23,000	988	9,812	11.97	1014	10,155	12.39	1040	10506	12.82	1065	10848	13.23	1090	11207	13.67
24,000	1006	10,771	13.14	1031	11,130	13.58	1056	11490	14.02	1080	11849	14.45	1104	12217	14.90
25,000	1025	11,824	14.42	1050	12,191	14.87	1074	12568	15.33	1097	12944	15.79	1121	13320	16.25
26,000	1045	12,936	15.78	1069	13,320	16.25	1092	13714	16.73	1115	14098	17.20	1138	14492	17.68
27,000	1065	14,124	17.23	1088	14,526	17.72	1110	14927	18.21	1133	15329	18.70	1155	15731	19.19
28,000	1086	15,397	18.78	1108	15,816	19.29	1131	16235	19.80	—	—	—	—	—	—
29,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)														
	3.2			3.4			3.6			3.8			4.0		
	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp	Rpm	Watts	Bhp
18,000	1065	7606	9.13	1095	7946	9.53	—	—	—	—	—	—	—	—	—
19,000	1071	8286	9.94	1100	8493	10.36	1128	8835	10.78	1157	9195	11.22	1185	9564	11.67
20,000	1081	8904	10.86	1108	9247	11.28	1136	9598	11.71	1163	9958	12.15	1190	10326	12.60
21,000	1090	9718	11.85	1116	10060	12.27	1143	10411	12.70	1169	10771	13.14	1195	11139	13.59
22,000	1102	10608	12.94	1127	10959	13.37	1153	11319	13.81	1178	11678	14.25	1203	12046	14.69
23,000	1115	11558	14.10	1139	11918	14.54	1164	12286	14.99	1188	12653	15.43	1212	13038	15.90
24,000	1128	12585	15.35	1152	12953	15.80	1176	13329	16.26	1200	13705	16.72	1223	14090	17.19
25,000	1144	13697	16.71	1167	14073	17.17	1190	14457	17.64	1213	14850	18.12	1236	15235	18.58
26,000	1160	14876	18.15	1183	15269	18.63	1205	15662	19.11	1227	16064	19.60	—	—	—
27,000	1177	16132	19.68	—	—	—	—	—	—	—	—	—	—	—	—
28,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
29,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

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

NOTES:

- Unit is available with the following motor and drive combinations:
 7.5, 10, 15, 20 HP standard drive; 7.5, 10, 15, 20 HP medium-static drive; 7.5, 10, 15, 20 HP high-static drive.
 For 7.5 HP standard drives, the drive range is 780 to 960 rpm. For 10, 15, 20 HP standard and 7.5 HP medium-static drives, the drive range is 805 to 991 rpm. For 10, 15, 20 HP medium-static and 7.5 HP

high-static drives the drive range is 960 to 1146 rpm. For 10, 15, 20 HP high-static drives the drive range is 1119 to 1335 rpm.

- Italics** indicates field-supplied drive required.
- Do not operate in shaded area.
- Static pressure losses must be applied to external static pressure before entering the fan performance table.
- Interpolation is permitted, extrapolation is not.
- Fan performance is based on filter, unit casing and wet coil losses.
- Bhp values are *per fan*. Watts values are *per motor*. Unit has two supply fans and two motors.

Electrical data



50BVC,E,J,K,Q UNITS

UNIT SIZE 50BVC,E,J,K,Q	NOMINAL VOLTAGE (3 Ph, 60 Hz)	VOLTAGE RANGE		COMPRESSOR				INDOOR FAN MOTOR			POWER SUPPLY		DISCONNECT SIZE	
				No. 1		No. 2		Qty	HP (ea)	FLA (ea)	MCA	MOCP	FLA	
		Min	Max	RLA	LRA	RLA	LRA							
020	208/230	187	253	32.9	195	32.9	195	2	1.5	5.0	84.0	110	75.8	
								2	2	6.4	86.8	110	78.6	
								2	3	9.0	92.0	110	83.8	
								2	5	12.2	98.4	110	90.2	
	460	414	506	16.5	95	16.5	95	2	1.5	2.5	42.1	50	38.0	
								2	2	3.2	43.5	50	39.4	
								2	3	4.5	46.1	50	42.0	
								2	5	6.1	49.3	50	45.2	
	575	518	633	13.6	80	13.6	80	2	1.5	2.0	34.6	45	31.2	
								2	2	2.0	34.6	45	31.2	
								2	3	3.6	37.8	45	34.4	
								2	5	5.4	41.4	45	38.0	
024	208/230	187	253	33.6	225	33.6	225	2	2	6.4	88.4	120	80.0	
								2	3	9.0	93.6	120	85.2	
								2	5	12.2	100.0	120	91.6	
								2	2	3.2	48.3	60	43.6	
	460	414	506	18.6	114	18.6	114	2	3	4.5	50.85	60	46.2	
								2	5	6.1	54.05	60	49.4	
								2	2	2.0	34.6	45	31.2	
								2	3	3.6	37.8	45	34.4	
	575	518	633	13.6	80	13.6	80	2	5	5.4	41.4	45	38.0	
								2	3	3.6	37.8	45	34.4	
028	208/230	187	253	53.6	245	53.6	245	2	3	9.0	138.6	190	125.2	
								2	5	12.2	145.0	190	131.6	
	460	414	506	20.7	125	20.7	125	2	3	4.5	55.6	70	50.4	
								2	5	6.1	58.8	70	53.6	
	575	518	633	16.4	100	16.4	100	2	3	3.6	44.1	60	40.0	
								2	5	5.4	47.7	60	43.6	
	034	208/230	187	253	59.1	425	59.1	425	2	5	12.2	157.4	200	142.6
		460	414	506	26.4	187	26.4	187	2	5	6.1	71.6	90	65.0
575		518	633	20.5	148	20.5	148	2	5	5.4	56.9	70	51.8	

LEGEND

- FLA** — Full Load Amps
- HP** — Horsepower
- LRA** — Locked Rotor Amps
- MCA** — Minimum Circuit Amps
- MOCP** — Maximum Overcurrent Protection
- RLA** — Rated Load Amps



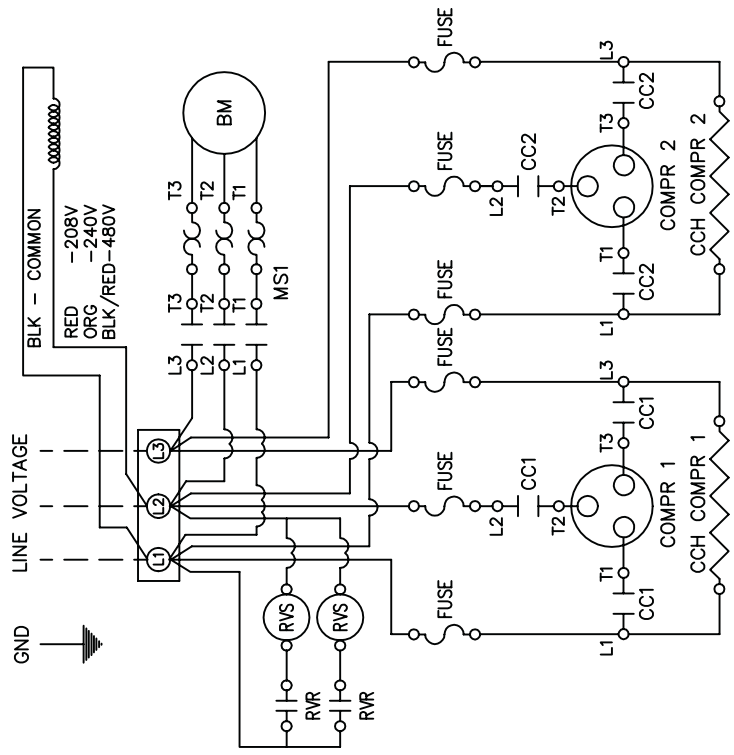
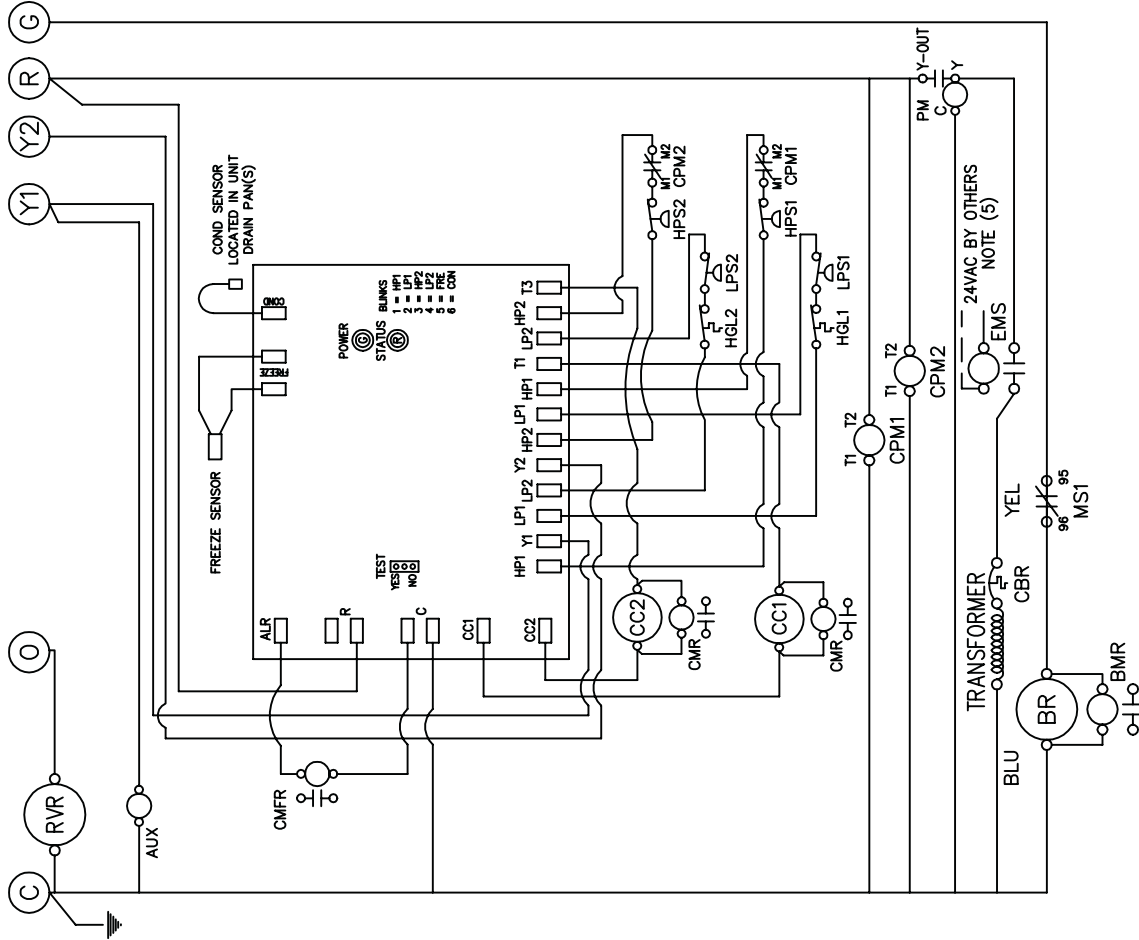
50BVT,U,V,W,X UNITS

UNIT SIZE 50BVT,U,V,W,X	NOMINAL VOLTAGE (3 Ph, 60 Hz)	VOLTAGE RANGE		COMPRESSOR				INDOOR FAN MOTOR			POWER SUPPLY		DISCONNECT SIZE
				No. 1 / No. 2		No. 3 / No. 4		Qty	HP (ea)	FLA (ea)	MCA	MOCP	FLA
		Min	Max	RLA	LRA	RLA	LRA						
034	208/230	187	253	62.2	376	—	—	1	7.5	19.4	159.4	200	143.8
								1	10	25.8	165.8	225	150.2
								1	15	38.6	178.6	225	163.0
								1	20	49.6	189.6	250	174.0
	460	414	506	27.6	178	—	—	1	7.5	9.7	71.8	90	64.9
								1	10	12.9	75.0	100	68.1
								1	15	19.3	81.4	100	74.5
								1	20	24.8	86.9	110	80.0
	575	518	633	20.5	148	—	—	1	7.5	7.8	53.9	70	48.8
								1	10	10.3	56.4	70	51.3
								1	15	15.4	61.5	80	56.4
								1	20	19.8	65.9	80	60.8
044	208/230	187	253	42.0	239	42.0	239	2	7.5	19.4	217.3	250	206.8
								2	10	25.8	230.1	250	219.6
								2	15	38.6	255.7	250	245.2
								2	20	49.6	277.4	300	265.6
	460	414	506	19.2	125	19.2	125	2	7.5	9.7	101.0	110	96.2
								2	10	12.9	107.4	125	102.6
								2	15	19.3	120.2	125	115.4
								2	20	24.8	145.7	150	140.0
	575	518	633	12.4	80	12.4	80	2	7.5	7.8	68.3	80	65.2
								2	10	10.3	73.3	80	70.2
								2	15	15.4	83.5	90	80.4
								2	20	19.8	90.0	100	97.6
054	208/230	187	253	47.1	318	47.1	318	2	7.5	19.4	239.0	250	227.2
								2	10	25.8	251.8	250	240.0
								2	15	38.6	277.4	300	265.6
								2	20	49.6	299.4	300	287.6
	460	414	506	22.6	158	22.6	158	2	7.5	9.7	115.5	125	109.8
								2	10	12.9	121.9	125	116.2
								2	15	19.3	134.7	150	129.0
								2	20	24.8	145.7	150	140.0
	575	518	633	17.3	125	17.3	125	2	7.5	7.8	89.1	100	84.8
								2	10	10.3	94.1	110	89.8
								2	15	15.4	104.3	110	100.0
								2	20	19.8	113.1	125	108.8
064	208/230	187	253	62.2	376	62.2	376	2	7.5	19.4	303.2	350	287.6
								2	10	25.8	316.0	350	300.4
								2	15	38.6	341.6	400	326.0
								2	20	49.6	363.6	400	348.0
	460	414	506	27.6	178	27.6	178	2	7.5	9.7	136.7	150	129.8
								2	10	12.9	143.1	150	136.2
								2	15	19.3	155.9	150	149.0
								2	20	24.8	166.9	175	160.0
	575	518	633	20.5	148	20.5	148	2	7.5	7.8	102.7	110	97.6
								2	10	10.3	107.7	125	102.6
								2	15	15.4	117.9	125	112.8
								2	20	19.8	126.7	125	121.6

LEGEND

- | | |
|--------------------------------|--|
| FLA — Full Load Amps | MCA — Minimum Circuit Amps |
| HP — Horsepower | MOCP — Maximum Overcurrent Protection |
| LRA — Locked Rotor Amps | RLA — Rated Load Amps |

50BVT,U,V034 CONSTANT VOLUME WIRING SCHEMATIC



- LEGEND**
- #1 — First Stage
 - #2 — Second Stage
 - AUX — Auxiliary Relay
 - BM — Blower Motor
 - BMR — Blower Monitor Relay
 - BR — Blower Relay
 - CC — Compressor Contactor
 - CCH — Crankcase Heater (When Supplied)
 - CMFR — Compressor Multifunction Relay
 - CMR — Compressor Monitor Relay
 - CPM — Compressor Protection Module
 - EMS — Energy Management System Relay
 - HGL — Hot Gas Limit
 - HPS — High-Pressure Switch
 - LPS — Low-Pressure Switch
 - MS — Motor Starter
 - NEC — National Electric Code
 - NFPA — National Fire Protection Agency
 - PM — Phase Monitor
 - RVR — Reversing Valve Relay (Heat Pumps Only)
 - RVS — Reversing Valve Solenoid (Heat Pumps Only)

- NOTES:**
1. See unit nameplate for electrical rating.
 2. All field wiring must be in accordance with NEC-NFPA #70.
 3. 208/230V units are factory wired for 208V operation. For 230V operation, remove ORG lead and replace with RED lead. Cap all unused leads.
 4. Check phase rotation on all scroll compressor units. Reverse rotation will damage the compressor and void unit warranty.
 5. For alternate EMS coil voltages consult factory.
 6. Control board includes built in: 30-60 second random start
5-minute delay on break
90-second low pressure bypass
5-second delay for second stage
 7. Setting the test mode jumper to YES reduces all time delays to 5 seconds.

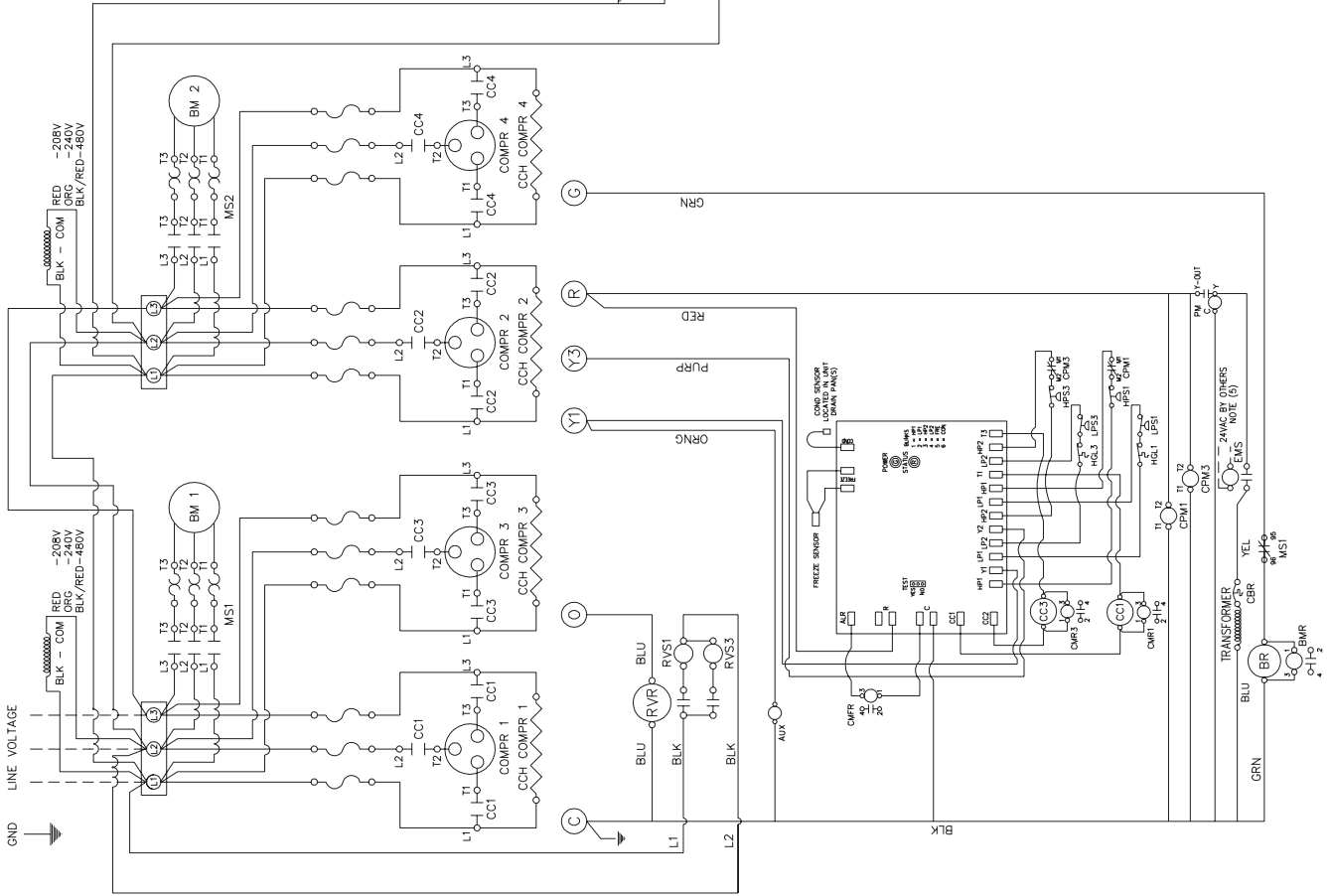
Typical control wiring schematics (cont)



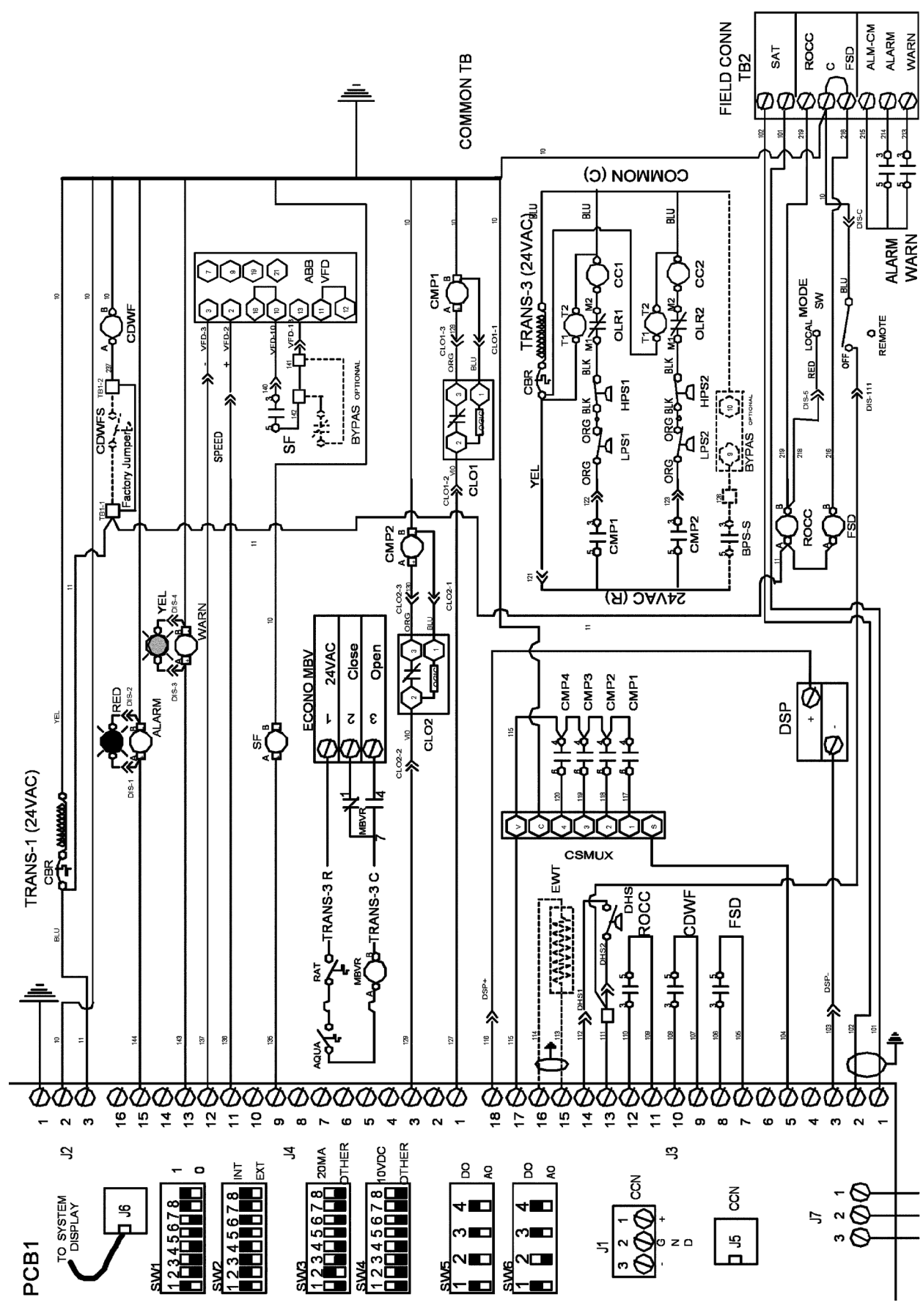
50BVT,U,V044-064 CONSTANT VOLUME WIRING SCHEMATIC

LEGEND	
AUX	Auxiliary
BM	Blower Motor
BMR	Blower Motor Monitor Relay
BR	Blower Relay
CBR	24V Circuit Breakers
CC	Compressor Contactor
CCH	Crankcase Heater (When Supplied)
CMFR	Compressor Malfunction Relay
CMR	Compressor Monitor Relay
CPM	Compressor Protection Module (Except MA480)
EMS	Energy Management System Relay
HGL	Hot Gas Limit
HPS	High Pressure Switch (380 psig)
LPS	Low Pressure Switch (20 psig)
MS	Motor Starter
NEC	National Electric Code
NFPA	National Fire Protection Agency
RVR	Reversing Valve Relay (Heat Pumps Only)
FV	Reversing Valve Solenoid (Heat Pumps Only)
---	Factory Wire
- - -	Field Wire

- NOTES:**
1. SEE UNIT NAMEPLATE FOR ELECTRICAL RATING.
 2. ALL FIELD WIRING MUST BE IN ACCORDANCE WITH NEC-N.F.P.A. #70.
 3. REMOVE ORG. LEAD AND REPLACE IT WITH RED LEAD. CAP ALL UNUSED LEADS.
 4. CHECK PHASE ROTATION ON ALL SCROLL COMPRESSOR UNITS. REVERSE ROTATION WILL DAMAGE THE COMPRESSOR AND VOID UNIT WARRANTY.
 5. FOR ALTERNATE EMS COIL VOLTAGES, CONSULT FACTORY.



50BVJ.K020-034 VARIABLE AIR VOLUME LOW VOLTAGE SCHEMATIC



LEGEND
 — Unit Wiring
 - - - Field Wiring

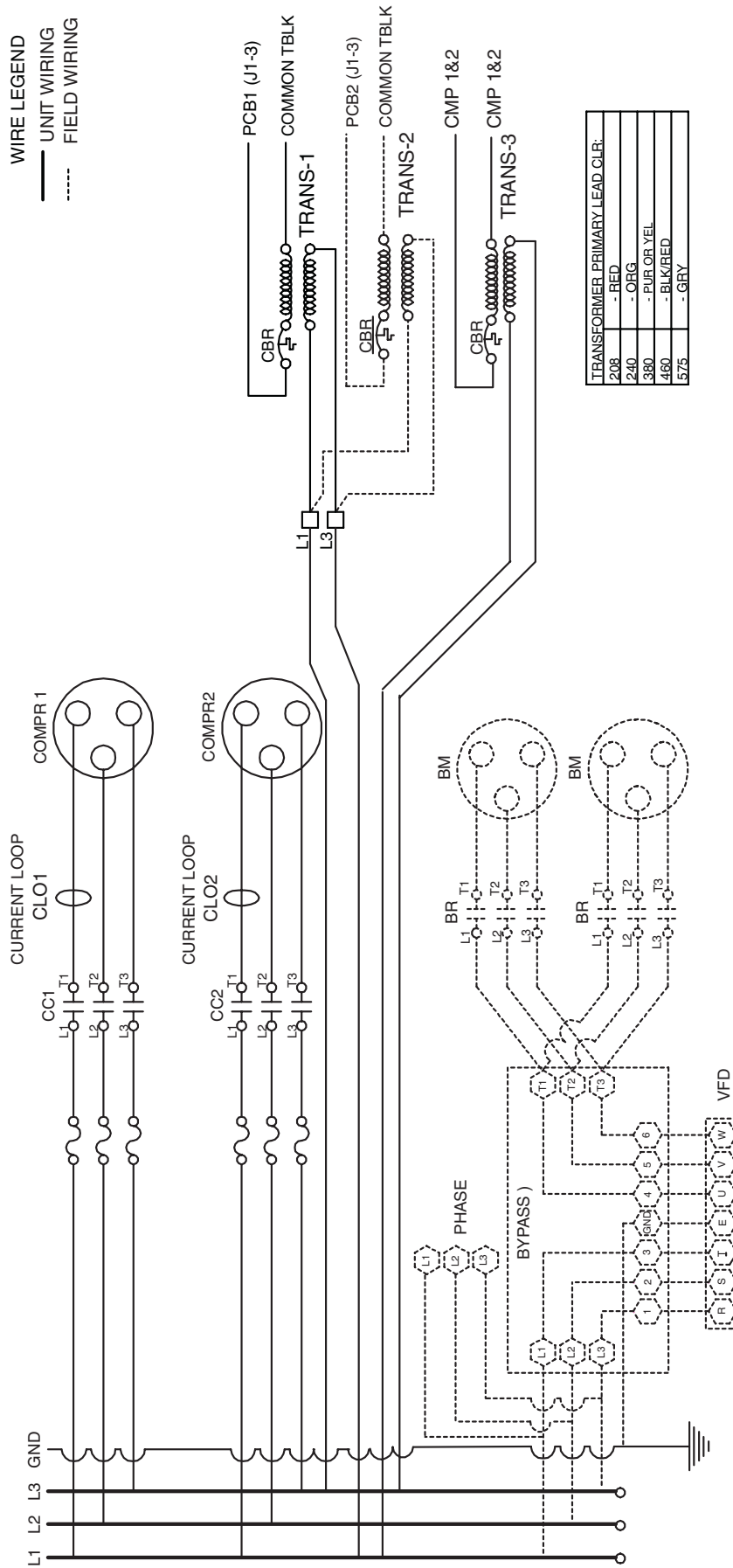
NOTE: Jumper installed for this device when not supplied.

TO PCB2 (J7)

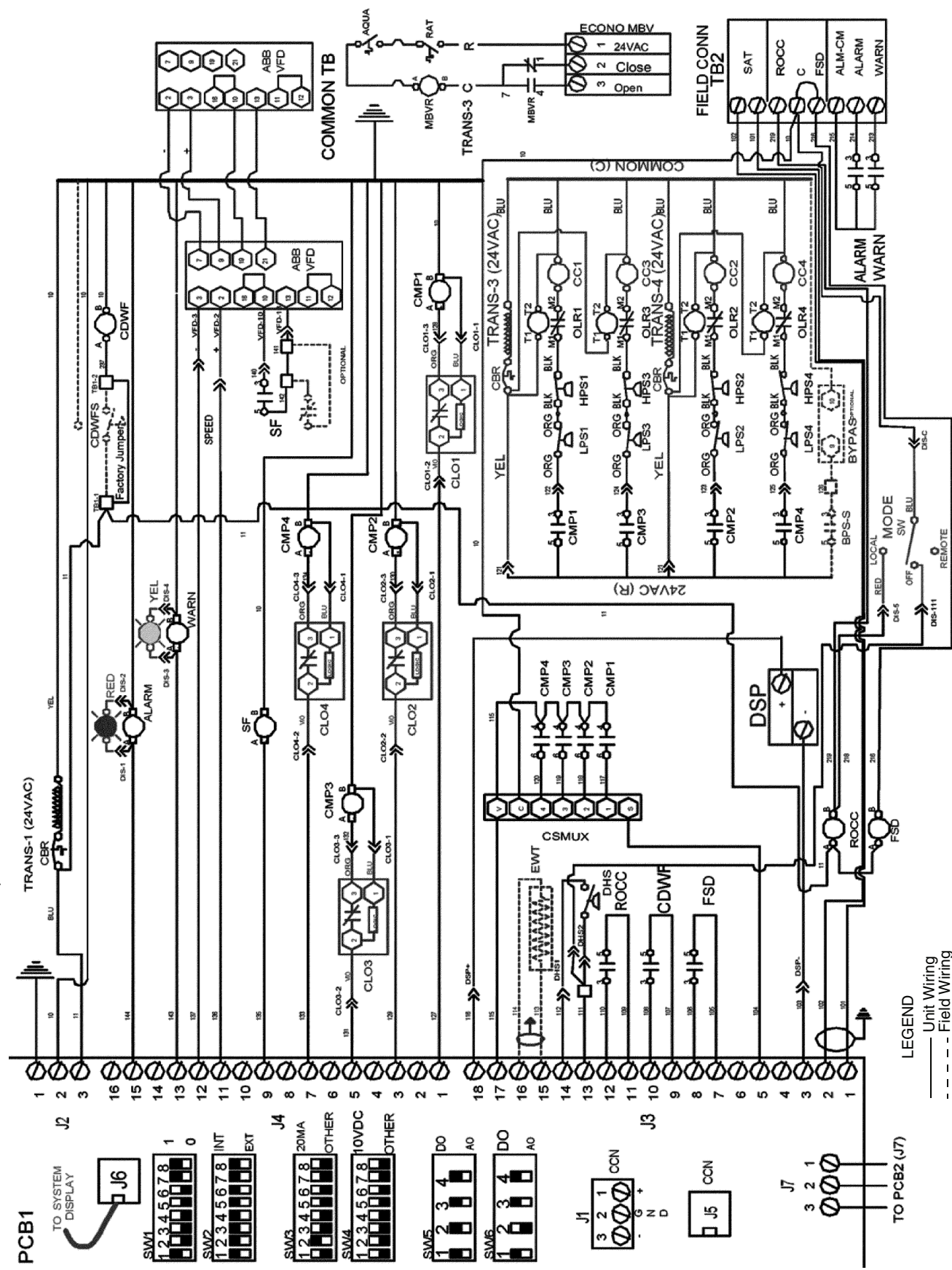
Typical control wiring schematics (cont)



50BVJ,K020-034 VARIABLE AIR VOLUME HIGH VOLTAGE SCHEMATIC



50BVW.X034-064 VARIABLE AIR VOLUME LOW VOLTAGE SCHEMATIC



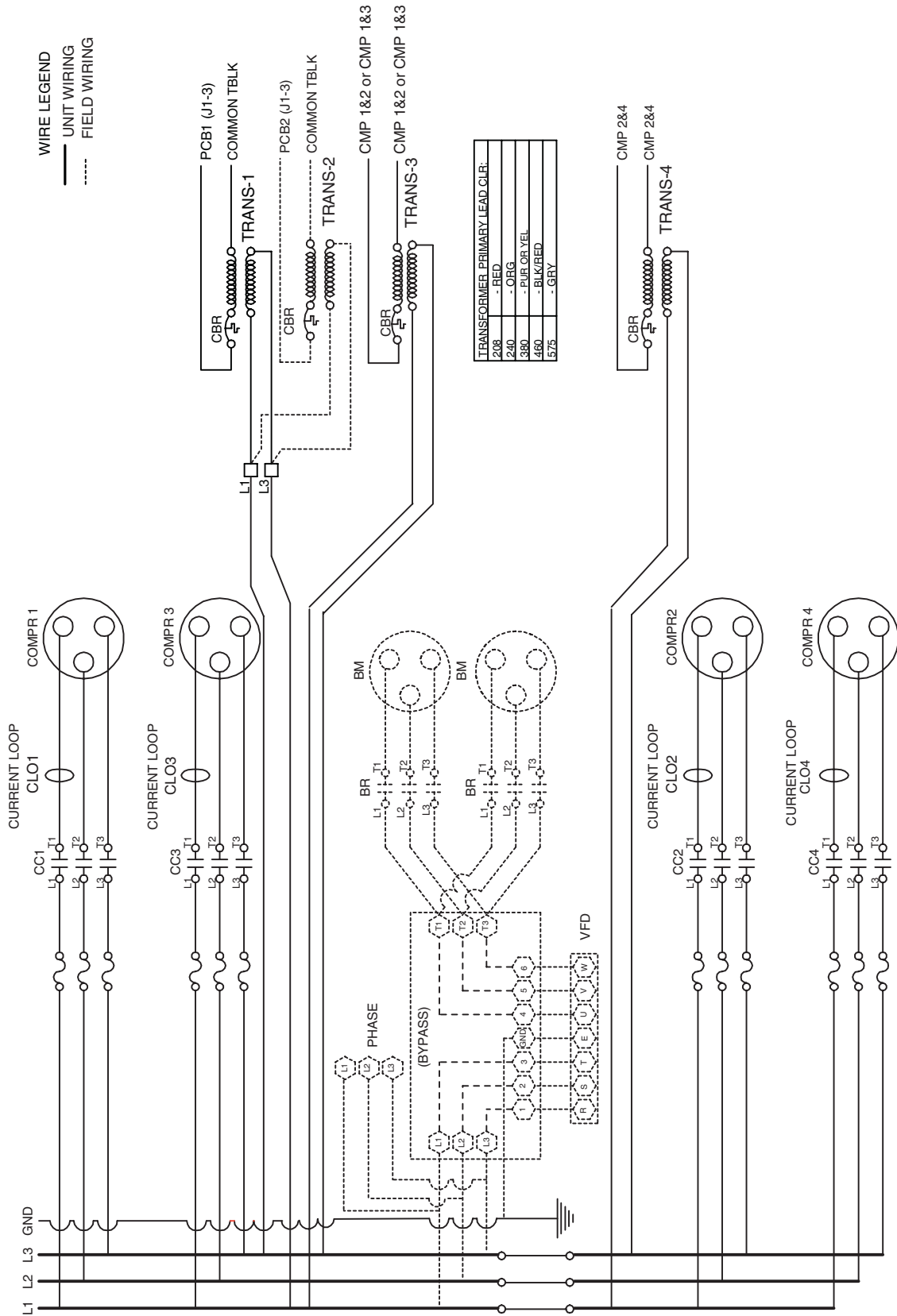
LEGEND
 — Unit Wiring
 - - - Field Wiring

NOTE: Jumper installed for this device when not supplied.

Typical control wiring schematics (cont)



50BWW,X034-064 VARIABLE AIR VOLUME HIGH VOLTAGE SCHEMATIC





LEGEND AND NOTES FOR VARIABLE AIR VOLUME WIRING SCHEMATICS

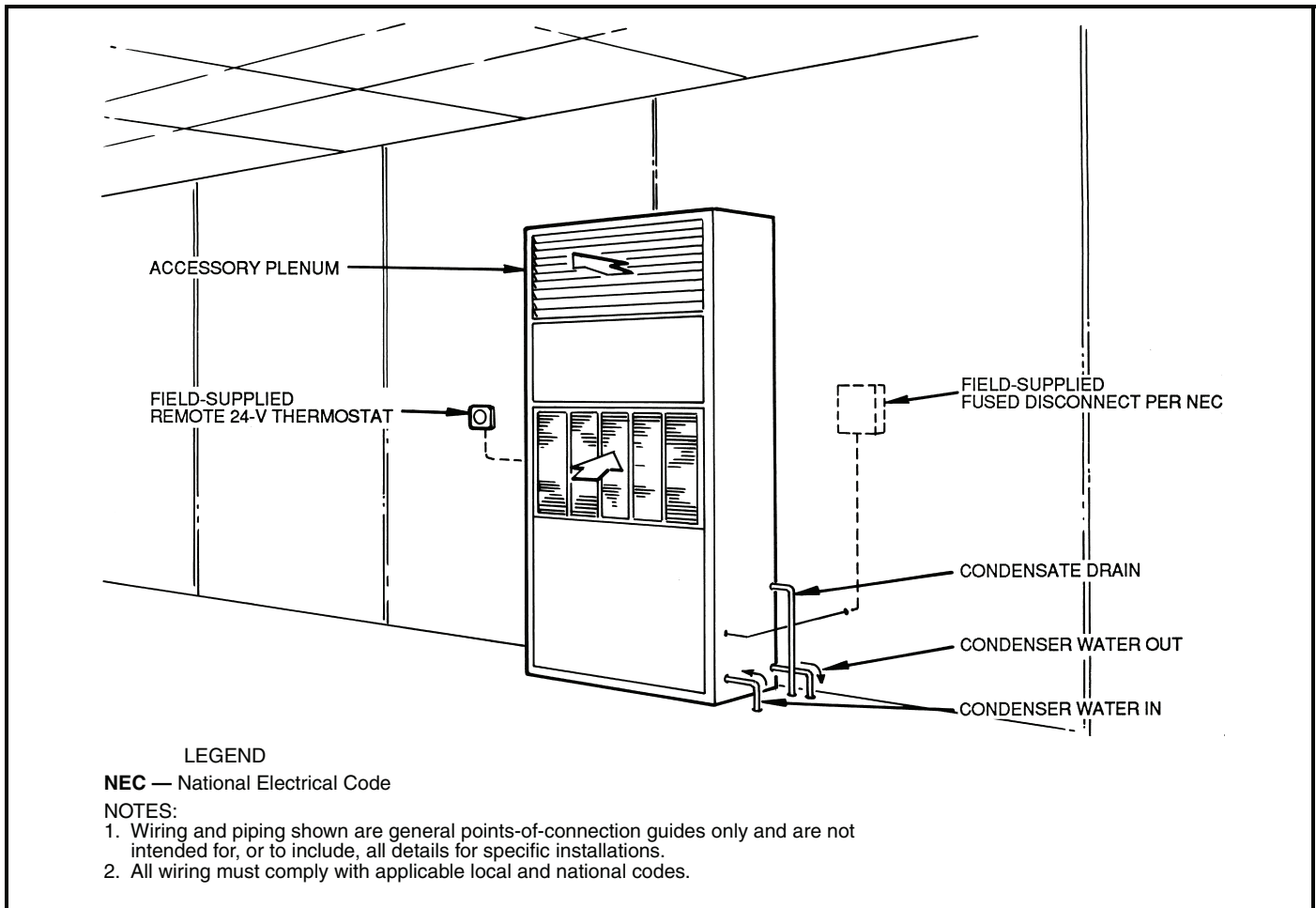
LEGEND

ALARM	— Unit Alarm Relay (Critical Fault)	GND	— Ground
ALM-CM	— Alarm/Warning Relay Common	HPS	— High Refrigerant Pressure Switch
AO	— Analog Output	LPS	— Low Refrigerant Pressure Switch
AQUA	— Aquastat	MBVR	— Motorized Ball Valve Relay
BM	— Blower Motor	OLR	— Compressor Motor Protector
BPS-S	— Fan Start/Stop Relay (VFD Bypass Mode)	PCB1	— Unit Control Board
BR	— Blower Relay	PCB2,3	— I/O Expansion Board
BYPAS	— VFD Bypass Control	PHASE	— Phase/Rotation Monitor
CBR	— Circuit Breaker	RAT	— Return Air Thermostat
CC	— Compressor Contactor	ROCC	— Remote Occupancy
CDWF	— Condenser Waterflow Relay	SAT	— Supply Air Temp. Sensor
CDWFS	— Condenser Waterflow Switch	SF	— Supply Fan Start/Stop Relay
CLO	— Compressor Lockout Control	SPEED	— 0-10 VDC Signal Isolator for VFD
CMP	— Compressor Control Relay	SW	— Switch
COMPR	— Compressor	TB	— Terminal Block
CSMUX	— Signal Multiplexer-Comp Status	TB2	— Terminal Block for Field Connections
DHS	— Duct High Static Limit Switch	TBLK	— Terminal Block
DIS	— Discrete Input Switch	TRANS	— Transformer
DO	— Digital Output	VFD	— Variable Frequency Drive
DSP	— Duct Static Pressure Transducer	WARN	— Unit Warning Relay (Non-Critical Fault)
ECONO	— Economizer Valve/Damper Control		
EWT	— Entering Water Temp. Sensor		
FSD	— Fire Alarm/Shutdown		

NOTES:

1. Partial wiring shown on both power and control diagrams.
2. Class 2 transformer TRANS-1 is wired into separate circuit. Do not interconnect other transformers or circuits; circuit separation or compressor transformers from low voltage control panel transformers shall be maintained.
3. Shielded wire shall have drain wire connected to VFD ground screw. The floating end of the drain wire shall be insulated.
4. Shielded wire shall have drain wire connected to the control panel, adjacent to the PCB. The floating end of the drain wire shall be insulated.

Typical piping and wiring



Application data



Location

For best results, the unit must be properly located and installed indoors. Selected location should not be adjacent to an acoustically sensitive location such as a conference room or executive office. The best location is a mechanical room, next to elevators, restrooms or stairways. The mechanical room should be constructed to help isolate the transmission of acoustical energy.

Unit isolation

Unit compressors are internally isolated and the compressor compartment is lined with acoustical insulation. If additional vibration isolation is desired, rubber shear pads are recommended under the four corners of the unit. Spring isolation is not recommended.

Ductwork

The supply duct should be properly supported and the aspect ratio as close to square as possible. The duct should be sized for a maximum of 2000 ft/min. velocity in areas outside the equipment room. The duct should be lined with acoustical insulation for a minimum of 10 ft beyond the equipment room. A flexible duct connection should be used on the connection to the unit to prevent transmission of any unit vibrations into the duct. Refer to the Carrier System Design Manual or ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers) Standards for recommended duct connection to unit with 2 fans.

NOTE: VAV units must use a “pair of pants” configuration.

A return duct may be attached to the unit, but is not necessary. The return to the unit should prevent line of sight visibility to the space. Insulated return duct is also recommended. The maximum velocity should not exceed 1000 ft/min. over occupied spaces. An adequate return area is essential for proper unit operation.

Piping

Recommended system piping configuration includes a reverse return system to minimize balancing. A strainer is recommended at the inlet to each unit to prevent sediments from plugging the condensers. Pressure gages are also recommended before the strainer and at the unit outlet to check any potential condenser fouling. Gate type isolation valves are also recommended at each unit to allow service without the need to drain the entire system.

Condenser head pressure control

When tower bypass control is not used and the unit will be required to operate with entering water temperatures below 55 F, a water regulating valve is required. The valve should be located on the water leaving side of the unit condenser. The valve is controlled by the refrigerant pressure of compressor number 1, using the refrigerant service gage port connection.

Operational limits

Airflow: 200 to 500 cfm/ton
Air Temperature Cooling: Max 90 F, Min 70 F
Water Flow: 1.5 to 4.0 gpm/ton
Water Temperature: Max 105 F, Min 55 F

Water quality

A good water quality program will ensure years of trouble free unit operation. To establish the best program, a water treatment specialist should be consulted. As a guideline, the following recommendations are made.

Suspended solids over 25 Microns (max):	200 ppm
Chlorides (max):	200 ppm
Carbon Dioxide (max):	20 ppm
PH:	5.5
Sulfides:	< 0.1
Oxygen (max):	1.0 ppm

Four independent circuit operation

Units have four compressors, each fully independent. Four-stage control is possible with a thermostat that will allow four stages of cooling. Most likely, the fourth stage can be controlled by outdoor air temperature to provide an addition stage with higher outdoor air temperature. When staging the compressors, always stage the circuits such that the first compressor operating is the bottom circuit of the evaporator coil. After that, proceed up the coil in sequence.

Operation with dry cooler

The unit may be operated on a system that uses a dry cooler rather than a cooling tower. In this case, the saturated condensing temperature must be kept below 130 F for proper unit operation. If ethylene glycol is used in the system, the capacity must be adjusted for the solution concentration.

Operation on ethylene glycol

When the unit will be operated in a system that will use ethylene glycol to prevent freezing, the following table can be used to estimate system performance. Solution concentrations above 40% are not recommended. Capacity and pressure drop from the selection tables are multiplied by the percent factors in the table below.

% EG	% Capacity	% Pressure
0	100	100
10	98.8	104
20	97.2	108
30	95.6	114
40	95.6	124

LEGEND

EG — Ethylene Glycol

NOTE: Pressure drop is based on 85 F entering water with 10 F water temperature rise.

Refrigerant piping

For applications with condensers located above the cooling unit, hot gas loops above condenser prevent liquid in condenser from draining at shutdown. Loops and check valves in discharge line prevent oil and condenser refrigerant from draining to compressor at shutdown. If condenser is below the cooling unit, loop at condenser may be omitted. If piping runs prevent drainback, loops may be omitted.

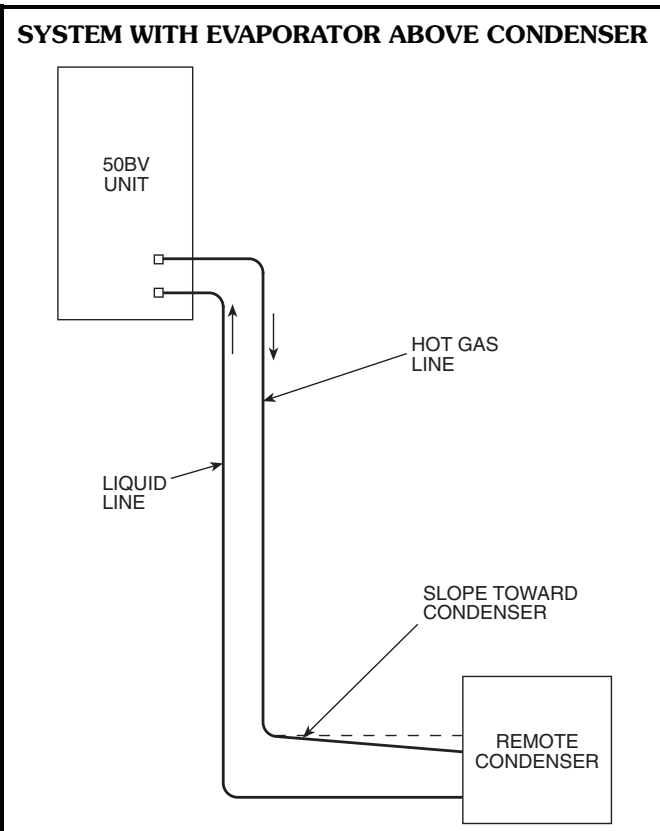
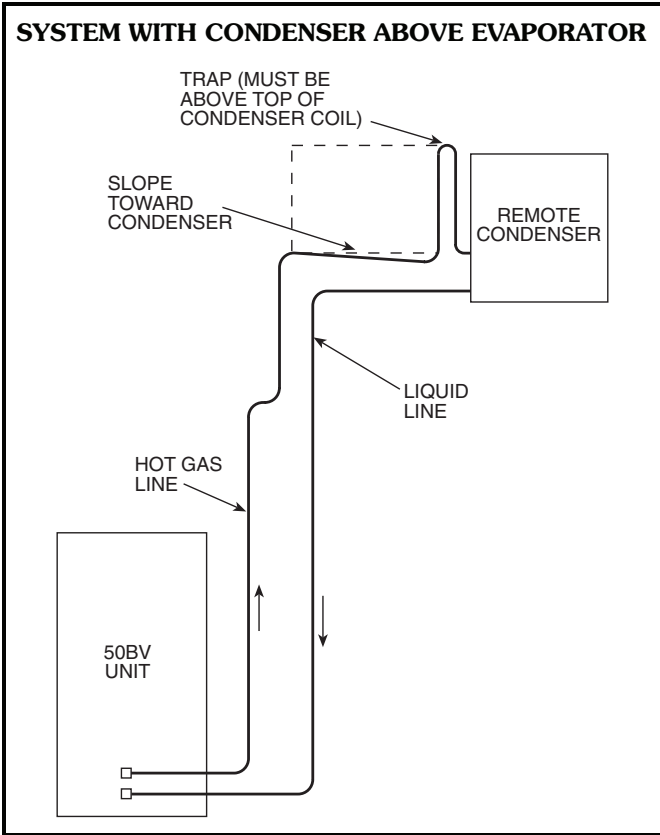
Regardless of remote condenser location, a check valve must be installed in the discharge line in each refrigerant circuit, downstream from the hot-gas muffler, as close to

Application data (cont)



compressor as possible. The check valve prevents migration of refrigerant back to the compressor.

Refrigerant piping OD should not be smaller than unit connection size.



Liquid lift

The amount of liquid lift available before refrigerant flashing occurs depends on the amount of liquid subcooling in the system.

All 09AW and 09D condensers have positive subcooling when applied with optimum charge. With subcooling, it is possible to overcome an appreciable friction drop and/or static head (due to elevation of the liquid metering device above the condenser).

When 09AW and 09D condensers are applied with minimum charge, no positive subcooling in condenser is realized; therefore, if subcooling is required it must be obtained by external means.

The average amount of liquid lift available from 09DK and 09D condensers is shown in accompanying table.

Winter start modifications

When starting 09D air-cooled units under low-ambient temperature conditions, the compressor may pull suction pressure down below low-pressure switch cutout setting causing the compressor to shut off. At extremely low ambient temperatures, the low-pressure switch may be open during the off cycle, preventing the compressor from starting. In these cases, winter start control is required.

**AVAILABLE LIQUID LIFT (ft)*
(R-22 AND R-410A)**

UNIT	REFRIGERANT	TEMPERATURE DIFFERENCE (F)†	
		20	30
09DK020	R-22	77	67
09DK024	R-22	78	68
09DK028	R-22	78	68
09DK034	R-22	80	70
09AW020	R-410A	75	71
09AW025	R-410A	n/a	n/a
09AW030	R-410A	n/a	n/a

*Allows 7 psig drop for liquid line accessories and 2 F liquid line loss, with optimum charge.

†Condensing Temperature — Entering-Air Temperature (dry bulb).

NOTE: Data is based on 15 F subcooling.

CONDENSER USAGE

50BV UNIT	CONDENSER QUANTITY REQUIRED						
	09DK				09AW		
	020	024	028	034	020	025	030
020	1				1		
024		1			1		
028			1			1	
034				1			1
044		2			2		
054			2			2	
064				2			2

NOTE: Where there are no quantities of condensers listed, the combination is not recommended. See Application Data literature for more information on condenser combinations.



RECOMMENDED LINE SIZES (in.) (R-22)

50BV UNIT SIZE	CIRCUIT	UNIT CONNECT SIZE		LENGTH OF RUN (ft)											
				0 to 25		26 to 50		51 to 75		76 to 100		101 to 125		126 to 150	
		HG	LIQ	HG	LIQ	HG	LIQ	HG	LIQ	HG	LIQ	HG	LIQ	HG	LIQ
020	1	1/2	1/2	7/8	1/2	7/8	1/2	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8	1 3/8	5/8
	2	1 1/8	7/8	7/8	1/2	7/8	1/2	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8	1 3/8	5/8
024	1	1/2	1/2	7/8	1/2	7/8	5/8	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8
	2	1 1/8	7/8	7/8	1/2	7/8	5/8	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8
028	1	1/2	1/2	7/8	5/8	1 1/8	5/8	1 1/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	7/8
	2	1 1/8	7/8	7/8	5/8	1 1/8	5/8	1 1/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	7/8
034	1	1/2	1/2	1 1/8	5/8	1 1/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	7/8	1 3/8	7/8
	2	1 1/8	7/8	1 1/8	5/8	1 1/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	7/8	1 3/8	7/8
044	1	1/2	1/2	1 1/8	5/8	1 3/8	5/8	1 3/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8
	2	1 1/8	7/8	1 1/8	5/8	1 3/8	5/8	1 3/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8
054	1	1 1/8	7/8	1 3/8	5/8	1 3/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	1 1/8
	2	1 1/8	7/8	1 3/8	5/8	1 3/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	1 1/8
	3	1 1/8	7/8	1 3/8	5/8	1 3/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	1 1/8
	4	1 1/8	7/8	1 3/8	5/8	1 3/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	1 1/8
064	1	1 1/8	7/8	1 3/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	1 1/8	1 5/8	1 1/8
	2	1 1/8	7/8	1 3/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	1 1/8	1 5/8	1 1/8
	3	1 1/8	7/8	1 3/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	1 1/8	1 5/8	1 1/8
	4	1 1/8	7/8	1 3/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	1 1/8	1 5/8	1 1/8

LEGEND

HG — Hot Gas
LIQ — Liquid

NOTE: Liquid line solenoid valves installed on indoor unit are always recommended but not mandatory unless refrigerant lines exceed 75 ft. When refrigerant lines exceed 100 ft, a suction line accumulator is also recommended.

RECOMMENDED LINE SIZES (in.) (R-410A)

50BV UNIT SIZE	CIRCUIT	UNIT CONNECT SIZE		LENGTH OF RUN (ft)											
				0 to 25		26 to 50		51 to 75		76 to 100		101 to 125		126 to 150	
		HG	LIQ	HG	LIQ	HG	LIQ	HG	LIQ	HG	LIQ	HG	LIQ	HG	LIQ
020	1	1/2	1/2	5/8	1/2	7/8	1/2	7/8	5/8	7/8	5/8	7/8	5/8	7/8	5/8
	2	1 1/8	7/8	5/8	1/2	7/8	1/2	7/8	5/8	7/8	5/8	7/8	5/8	7/8	5/8
024	1	1/2	1/2	5/8	1/2	7/8	1/2	7/8	5/8	7/8	5/8	7/8	5/8	7/8	5/8
	2	1 1/8	7/8	5/8	1/2	7/8	1/2	7/8	5/8	7/8	5/8	7/8	5/8	7/8	5/8
028	1	1/2	1/2	7/8	1/2	7/8	5/8	7/8	5/8	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8
	2	1 1/8	7/8	7/8	1/2	7/8	5/8	7/8	5/8	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8
034	1	1/2	1/2	7/8	1/2	7/8	5/8	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8
	2	1 1/8	7/8	7/8	1/2	7/8	5/8	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8
044	1	1/2	1/2	7/8	5/8	1 1/8	5/8	1 1/8	5/8	1 1/8	7/8	1 3/8	7/8	1 3/8	7/8
	2	1 1/8	7/8	7/8	5/8	1 1/8	5/8	1 1/8	5/8	1 1/8	7/8	1 3/8	7/8	1 3/8	7/8
054	1	1 1/8	7/8	1 1/8	5/8	1 1/8	5/8	1 3/8	7/8	1 3/8	7/8	1 3/8	7/8	1 3/8	7/8
	2	1 1/8	7/8	1 1/8	5/8	1 1/8	5/8	1 3/8	7/8	1 3/8	7/8	1 3/8	7/8	1 3/8	7/8
	3	1 1/8	7/8	1 1/8	5/8	1 1/8	5/8	1 3/8	7/8	1 3/8	7/8	1 3/8	7/8	1 3/8	7/8
	4	1 1/8	7/8	1 1/8	5/8	1 1/8	5/8	1 3/8	7/8	1 3/8	7/8	1 3/8	7/8	1 3/8	7/8
064	1	1 1/8	7/8	1 1/8	5/8	1 1/8	5/8	1 3/8	7/8	1 6/8	7/8	1 6/8	7/8	1 6/8	7/8
	2	1 1/8	7/8	1 1/8	5/8	1 1/8	5/8	1 3/8	7/8	1 6/8	7/8	1 6/8	7/8	1 6/8	7/8
	3	1 1/8	7/8	1 1/8	5/8	1 1/8	5/8	1 3/8	7/8	1 6/8	7/8	1 6/8	7/8	1 6/8	7/8
	4	1 1/8	7/8	1 1/8	5/8	1 1/8	5/8	1 3/8	7/8	1 6/8	7/8	1 6/8	7/8	1 6/8	7/8

LEGEND

HG — Hot Gas
LIQ — Liquid

NOTE: Liquid line solenoid valves installed on indoor unit are always recommended but not mandatory unless refrigerant lines exceed 75 ft. When refrigerant lines exceed 100 ft, a suction line accumulator is also recommended.

Sequence of operation, CV units

The following sequence of operation applies to constant volume units.

Cooling is initiated when the set point in the remote thermostat is not met (space temperature is higher than set point). The unit sequence of operation is as follows:

The 50BV units can be remotely authorized to be controlled by the thermostat through the optional Energy Management System relay (EMS). The coil is powered by the energy management (building automation) system whose contacts are in series with the 'R' 24 VAC terminal with potential across 'C' (transformer common). With this terminal open power will be interrupted to the thermostat. Closure of this contact will allow 50BV unit to operate from the thermostat.

Contact closure at the 'G' terminal will provide power to the supply fan contactor energizing the supply fan. The supply fan will be off during unoccupied schedule, depending upon the features of the thermostat used. The 'O' terminal energizes the reversing valve (heat pump units only). Typically 'Y1' will also be energized at this time for cooling operation. The second stage of cooling 'Y2' will be initialized after a minimum run time and there is a differential from set point plus a deadband or a proportional plus integral calculation based upon demand and length of time space temperature is greater than set point. Additional assurance is provided by a delay on make timer in the second-stage compressor contactor circuit to avoid dual compressor in-rush starting current.

Heating mode (heat pump models only) follows the same sequence as above except that the reversing valve is not energized.

Water economizer cooling — The unit diverts condenser inlet waterflow through an optional economizer coil to precool evaporator entering airflow. If the entering water temperature is colder than the setting on the Aquastat and the return-air temperature is warmer than the setting on the return air thermostat, the two-position diverting valve will direct water to the economizer coil.

Economizer water flow is in series with the condensers allowing compressor operation while the economizer is operating.

Sequence of operation, VAV units

The following control sequence of operation for the variable air volume units describes the various sequences that occur depending upon the way an operation is triggered and which software control points are involved.

Supply fan — The supply fan can be activated in any of the following ways:

- Unoccupied space or return air temperature demand
- Unoccupied linkage demand
- Local time schedule (TIMCLOCK software point)
- Remote Occupancy (ROCC software point)
- By placing the remote-off-local switch in the Local mode.
- Enabled by schedule

Once one of the above conditions exists, either TIMCLOCK or ROCC indicates ON or Enable. The software point OKFAN will turn on followed by the points TRMCT for air terminal control and PUMP and TOWER to request condenser water flow and temperature control. Approximately 20 to 30 seconds later the supply fan (SF) point will turn ON and the VFD output SPEED will increase. The SPEED point will output a signal, determined by a PID calculation, based on the duct static pressure DSP input and the supply static pressure set point in SETPT05.

Once the supply fan is running and the static pressure increases above the supply fan status set point in SETPT01, the supply fan status point (SFS) will indicate ON and the software point SF_SFS will indicate TRUE.

Enabled by unoccupied demand — A software point "Space Control Point" will display the current value of the sensor used to determine unoccupied demand. The EWT (entering water temperature) sensor provides this function for the 50BV unit. The display is based on the sensors installed and the configuration of these sensors in the custom configuration, or the status of linkage.

If there is no RAS (remote air sensor) connected to the EWT input, the Space Control Point will display a default value of 75 F. This value is above the default occupied cooling set point and below the unoccupied cooling set point. If this condition exists, supply air reset from a sensor and unoccupied unit operation will not occur.

If the unit is configured to use an RAS sensor for the Space Control Point or if linkage is active and the space has unoccupied demand, the software point OKFAN will turn on followed by the software points TRMCT for air terminal control and PUMP and TOWER to request condenser water flow and temperature control. Approximately 20 to 30 seconds later the SF point will turn ON and then the VFD output SPEED will increase. If unoccupied demand is the reason the fan is on, a control force will appear next to the OKFAN point. Otherwise there should not be a force on that point.

If the fan is running due to unoccupied heating or cooling demand, either the space temperature (if installed), return air temperature or average linkage temperature must rise or drop to within halfway between the occupied and unoccupied set points in order for the fan to turn back off.

Enabled by switching to local mode — When the switch is placed in the local mode the ROCC point will indicate enable. If ROCC is ENABLED a software routine will override the occupancy schedule so that TIMCLOCK will also turn on. When ROCC is turned off the TIMCLOCK point will turn off within 60 seconds.

Supply fan shutdown — If the unoccupied demand is satisfied and TIMCLOCK and ROCC are off and disabled, OKFAN will turn off, SF_SFS will turn off, Tower and PUMP will turn off, and then 5 minutes later the SF point will turn off and the VFD speed will go to 0%.



During the 5-minute delay, the cooling and heating routines become disabled. This delay allows a compressor that may have just started to run for its 5-minute minimum on time with the supply fan on. For example, if the staging routine had just started compressor no. 3 at the time the OK FAN point changed to OFF, the cooling routine would become disabled and compressor no. 1 and 2 would shut off right away. Compressor no. 3 would continue to run for its minimum on time of 5 minutes. The fan continues running until all compressors meet the minimum on time and run with a load, preventing them from shutting down due to a safety.

Compressor cooling — If the fan is on and there is no demand for Heat, the equipment mode (MODE) will be COOL, and Cooling (COOLOK) will switch to ENABLE.

Compressor cooling (COMPRES) triggers the compressor staging routine that controls the number of compressors energized. Units are equipped with 4 compressors piped in separate refrigerant circuits, and staged On/Off in a fixed sequential manner (compressor no. 1 through compressor no. 4). The compressor control routine uses a PID calculation to determine the percentage of cooling required, from 1 to 100%. Demand for the PID calculation is determined from the supply air temperature and the supply air set point (SETPT06).

Compressor cooling (COMPRES) will be turned off for any of the following reasons:

- There is no condenser water flow (CDWF is Off)
- MODE changes to heat
- OKFAN turns off during normal shut down

During normal compressor operation the minimum on time is 5 minutes and the minimum off time is 5 minutes.

Water economizer cooling — The unit diverts condenser inlet waterflow through an optional economizer coil to precool evaporator entering airflow. If the entering water temperature is colder than the setting on the aquastat and the return air temperature is warmer than the setting on the return air thermostat, the two-position diverting valve will direct water to the economizer coil.

Economizer water flow is in series with the condensers, allowing compressor operation while the economizer is operating.

NOTE: The return-air thermostat (RAT) is separate from the RAS sensor.

Cooling reset — The 5000-ohm temperature sensor will be used as the space control point. If this variable goes below the Occupied High set point in the HEAT/COOL MODE AND RESET set point (SETPT03), then for each degree that the space control point is below the set point value the supply air set point will be reset by the value configured in the custom configuration RESET RATIO.

Guide specifications — 50BVC,E,Q units



Indoor Packaged Unit Constant Volume Application

HVAC Guide Specifications

Size Range: **18 to 30 Tons**

Carrier Model Number:

50BVC — Water-Cooled Packaged Cooling Unit

50BVE — Remote Air-Cooled Packaged Cooling Unit

50BVQ — Water-Cooled Vertical Heat Pump

Part 1 — General

1.01 SYSTEM DESCRIPTION

Units shall be water-cooled, cooling only; remote air-cooled, cooling only; or water-cooled heat pump series self-contained packaged air conditioning units. Capacities, models, and unit arrangement shall be as shown on the unit schedule and the contract drawings.

1.02 QUALITY ASSURANCE

- A. Units shall be listed for UL and UL, Canada. Units shall conform to ANSI/UL standard 1995. Unit shall be accepted for use in the City of New York by the Department of Buildings (MEA).
- B. Each unit shall be completely factory assembled, piped, wired, and tested. Units shall be leak tested and charged with a full operating charge of R-22 or R-410A refrigerant. Remote air-cooled models shall be shipped with a nitrogen holding charge.
- C. Factory test shall include, but not be limited to: complete run check of all electrical components and safeties, including proper control sequencing; pressure test of refrigerant coils and condensers; leak check of completed refrigerant circuits; leak check of completed water circuit (water-cooled units only); compressor run check.

Part 2 — Products

2.01 EQUIPMENT

A. General:

The unit shall be factory assembled. Water-cooled units shall be built for an entering water temperature range from 55 to 105 F. Air-cooled units shall be built for an entering air temperature range of 70 to 90 F. Contained within the unit enclosure shall be all factory wiring, piping, controls, refrigerant charge (R-22 or R-410A), and special features required prior to field start-up.

B. Unit Cabinet:

1. Unit shall be post and panel construction. Unit exterior panels shall be 18 gage G90 galvanized steel for corrosion protection (unpainted).
2. Interior of the unit shall be insulated with 1/2-in. thick, dual density, coated fiberglass.
3. Two blower and two compressor compartment access panels shall be removable with supply and return ductwork in place. A duct collar shall

be provided on the supply air opening of all units.

4. Units shall have an insulated divider panel between the air-handling section and the compressor section to minimize the transmission of compressor noise, and to permit operational service testing without air bypass.

5. Units shall have a stainless steel condensate drain pan.

C. Evaporator:

1. The direct expansion coil shall be a minimum of 3 rows and fabricated from 3/8-in. or 3/4-in. OD seamless copper tubing, mechanically bonded to rippled and corrugated aluminum fins.
2. Each individual evaporator coil shall be removable for replacement without disturbing the remaining refrigerant circuits.
3. Each evaporator coil circuit shall be fed by an adjustable thermostatic expansion valve, with external equalizer, sized to provide efficient operation at full and part load operating points in the cooling and heating (heat pump only) modes.

D. Supply Fan:

1. Supply fans shall be double-width double-inlet (DWDI) forward-curved type with dynamically balanced wheels.
2. The housings and wheels shall be designed for quiet low velocity operation.
3. Fan motors shall be 1725 or 3450 rpm, 56 frame sealed ball bearing type. Motors shall be permanently lubricated and have thermal overload protection.
4. The drive shall include a fixed pitch blower sheave and variable pitch motor sheave with sized for 115% of the fan brake horsepower.
5. Units shall be available with factory-installed optional blower orientation. See unit certified drawing for details.
6. Airflow configurations shall include front return, top supply; front return, rear supply; rear return, top supply; and rear return, front supply.

E. Reverse Cycle Operation (Heat Pump Only):

Heat pump units shall be equipped with reversing valves to allow operation in the reverse cycle heating mode.

F. Refrigeration Circuit:

1. Each unit shall contain multiple independent refrigeration circuits.
2. Each circuit shall include a high-efficiency heavy-duty scroll compressor.
3. Each circuit shall have high and low pressure cutouts.
4. Each circuit shall be dehydrated and factory charged with R-22 or R-410A. Remote



air-cooled units will be shipped with a nitrogen holding charge only.

5. Suction and discharge Schrader valves shall be provided for manifold gage connections to facilitate servicing.
6. Optional hot gas bypass shall be provided to allow unit operation under extended operating conditions to avoid coil freeze-up.

G. Compressors:

1. Each unit shall have multiple high-efficiency scroll compressors with internal or external motor protection and a time delay to prevent short cycling and simultaneous starting of compressors following a power failure.
2. Each compressor shall be on an independent refrigerant circuit.
3. The compressors shall be mounted on rubber isolators.

H. Water-Cooled Condensers:

1. All condensers shall be coaxial tube-in-tube for maximum heat transfer efficiency and performance.
2. Inner water tubes shall be either standard copper or optional cupronickel with large internal diameters for reduced waterside pressure drops.
3. Outer tubes shall be steel, painted for corrosion protection.
4. All condensers shall be rated at 450 psig (600 psig for R-410A models) operating refrigerant pressures and 400 psig waterside pressures.
5. Units shall be rated down to 50 F without the use of water regulating valves.

I. Filter Section:

The unit shall be supplied with 1-in. thick, 30% efficiency filters.

J. Electrical:

1. Each unit shall be wired and tested at the factory prior to shipment.
2. Wiring shall comply with NEC requirements and shall conform with all applicable UL standards.
3. The units shall have a single point power connection. Control power shall be supplied through a factory-installed, low voltage control circuit transformer with an integral resettable circuit breaker.

4. A terminal block shall be provided for the main power connection.

K. Special Features:

1. Waterside Economizer:

- a. Shall function as first stage of cooling when free cooling is available. Economizer coil valve can be modulated to control discharge-air temperature when the economizer can meet or exceed cooling needs.
- b. Consists of the economizer coil, two 3-way valves, vent and drain fittings and the required piping. Economizer coils are 4 or 8 row coils with 8 or 10 fins per inch and are chemically cleanable. The unit controller controls all required control logic and changeover.

2. Hot water coil shall be factory-installed on the inlet side of the direct expansion cooling coils with field piping connections on the side of the unit.
3. Hot gas reheat shall help control humidity levels.
4. Energy management and alarm 24-vac relay package shall be provided to remotely start and stop units with constant volume configuration. An additional relay is provided to close when a compressor malfunction is detected, providing remote signaling to a building automation system.
5. Cupronickel condenser shall provide higher corrosion protection.
6. Hot gas bypass shall provide extended capacity operation and to prevent coil freezing at low load conditions.
7. Insulated basepan shall provide additional sound deadening characteristics and corrosion protection in the compressor compartment with Rubatex® insulation.
8. Condensate overflow switch shall provide protection against condensate overflow. The mechanical safety switch shall be located in the unit's evaporator basepan.
9. Extended range option shall provide condensate protection on the condenser waterside for humid applications.
10. Freeze protection switch shall provide evaporator coil protection against freezing.

Guide specifications — 50BVJ,K units



Indoor Packaged Unit Variable Air Volume Application

HVAC Guide Specifications

Size Range: **18 to 30 Tons**

Carrier Model Number:

50BVJ — Water-Cooled Packaged Cooling Unit

50BVK — Remote Air-Cooled Packaged Cooling Unit

Part 1 — General

1.01 SYSTEM DESCRIPTION

Units shall be water-cooled, cooling only or remote air-cooled, cooling only self-contained packaged air conditioning units. Capacities, models, and unit arrangement shall be as shown on the unit schedule and the contract drawings.

1.02 QUALITY ASSURANCE

- A. Units shall be listed for UL and UL, Canada. Units shall conform to ANSI/UL standard 1995. Unit shall be accepted for use in the City of New York by the Department of Buildings (MEA).
- B. Each unit shall be completely factory assembled, piped, wired, and tested. Water-cooled units shall be leak tested and charged with a full operating charge of R-22 or R-410A refrigerant. Remote air-cooled models shall be shipped with a nitrogen holding charge.
- C. Factory test shall include, but not be limited to: complete run check of all electrical components and safeties, including proper control sequencing; pressure test of refrigerant coils and condensers; leak check of completed refrigerant circuits; leak check of completed water circuit (water-cooled units only); compressor run check.

Part 2 — Products

2.01 EQUIPMENT

A. General:

The unit shall be factory assembled. Water-cooled units shall be built for an entering water temperature range from 55 to 105 F. Air-cooled units shall be built for an entering air temperature range of 70 to 90 F. Contained within the unit enclosure shall be all factory wiring, piping, controls, refrigerant charge (R-22 or R-410A), and special features required prior to field start-up.

B. Cabinet:

1. Unit shall be post and panel construction. Unit exterior panels shall be 18 gage G90 galvanized steel for corrosion protection (unpainted).
2. Interior of the unit shall be insulated with 1/2-in. thick, dual density, coated fiberglass.
3. Two blower and two compressor compartment access panels shall be removable with supply and return ductwork in place. A duct collar shall be provided on the supply-air opening of all units.

4. Units shall have an insulated divider panel between the air-handling section and the compressor section to minimize the transmission of compressor noise, and to permit operational service testing without air bypass.
5. Units shall have a stainless steel condensate drain pan.

C. Evaporator Coil:

1. The direct expansion coil shall be a minimum of 3 rows and fabricated from 3/8-in. or 1/2-in. OD seamless copper tubing, mechanically bonded to rippled and corrugated aluminum fins.
2. Each individual evaporator coil shall be removable for replacement without disturbing the remaining refrigerant circuits.
3. Each evaporator coil circuit shall be fed by an adjustable thermostatic expansion valve, with external equalizer, sized to provide efficient operation at full and part load operating points in the cooling mode.

D. Supply Fan:

1. Supply fans shall be double-width double-inlet (DWDI) forward-curved type with dynamically balanced wheels.
2. The housings and wheels shall be designed for quiet low velocity operation.
3. Fan motors shall be 1725 or 3450 rpm, 56 frame sealed ball bearing type. Motors shall be permanently lubricated and have thermal overload protection. Motors shall be compatible with variable frequency drive (VFD).
4. The drive shall include a fixed pitch blower sheave and variable pitch motor sheave with multiple matched belts, sized for 115% of the fan brake horsepower, and to provide maximum static capability in stable fan operation and when applied with variable frequency drive (VFD).
5. Units shall be available with factory-installed optional blower orientation. See unit certified drawings for details.
6. Airflow configuration shall be rear return, top supply.

E. Supply Fan Capacity Control/Variable Frequency:

Variable frequency drive (VFD) shall include:

1. Factory-installed VFD motor control device, provided with a NEMA Type 1 enclosure, and factory-mounted, wired and tested. The VFD shall control motor speed to maintain set point static pressure at the supply duct sensor location.
2. Digital display keyboard module, mounted on unit control panel.
3. Factory-mounted duct pressure sensing controller: differential pressure transducer, 2 to 10 vdc output to unit control module, with

adjustable set point range (0.0 to 5.0 in. wg [0 to 1246 Pa]), adjust via unit control keypad.

4. Low pressure reference tube factory installed.

F. Refrigeration Circuit:

1. Each unit shall contain multiple independent refrigeration circuits.
2. Each circuit shall include a high-efficiency heavy-duty scroll compressor.
3. Each circuit shall have high and low pressure cutouts.
4. Each circuit shall be dehydrated and factory charged with R-22 or R-410A (water-cooled units). Remote air-cooled units will be shipped with a nitrogen holding charge only.
5. Suction and discharge Schrader valves shall be provided for manifold gage connections to facilitate servicing.
6. Hot gas bypass shall be provided on all variable air volume units to allow unit operation under extended operating conditions to avoid coil freeze-up.

G. Compressors:

1. Each unit shall have multiple high-efficiency scroll compressors with internal or external motor protection and a time delay to prevent short cycling and simultaneous starting of compressors following a power failure.
2. Each compressor shall be on an independent refrigerant circuit.
3. The compressors shall be mounted on rubber isolators.

H. Water-Cooled Condensers:

1. All condensers shall be coaxial tube-in-tube for maximum heat transfer efficiency and performance.
2. Inner water tubes shall be either standard copper or optional cupronickel with large internal diameters for reduced waterside pressure drops.
3. Outer tubes shall be steel, painted for corrosion protection.
4. All condensers shall be rated at 450 psig (600 psig for R-410A models) operating refrigerant pressures and 400 psig waterside pressures.
5. Units shall be rated down to 50 F without the use of water regulating valves.

I. Filter Section:

The unit shall be supplied with 1-in. thick, 30% efficiency filters.

J. Electrical:

1. Each unit shall be wired and tested at the factory prior to shipment.
2. Wiring shall comply with NEC requirements and shall conform with all applicable UL standards.

3. The units shall have a single point power connection. Control power shall be supplied through a factory-installed, low voltage control circuit transformer with an integral resettable circuit breaker.

4. A terminal block shall be provided for the main power connection.

K. Controls, Safeties, and Diagnostics:

1. Control shall be accomplished through the use of a factory-installed, microprocessor-based control system and associated electronic and electrical hardware. Control system shall determine control sequences through monitoring the following operational variables:

- a. Day and time.
- b. Schedule (Unoccupied/Occupied).
- c. Set points (Unoccupied/Occupied, Duct Pressure, others).
- d. Space temperature.
- e. Outdoor-air temperature.
- f. Unit supply-air temperature.
- g. Unit return-air temperature.
- h. Supply-air fan status.
- i. Accessory and/or field-supplied sensors, function switches and/or signals.

2. Controls shall be capable of performing the following functions:

- a. Capacity control based on discharge-air temperature and compensated by rate of change of return-air temperature (VAV [variable air volume]). Capacity control shall be accomplished through the use of compressor staging.
- b. Perform a quick test to check the status of all input and output signals to the control system using diagnostic display module.
- c. Supply fan volume control shall control output from a variable frequency drive to maintain duct static pressure at user-configured set point.
- d. Alerts and Alarms: Control shall continuously monitor all sensor inputs and control outputs to ensure safe and proper system operation. Alerts shall be generated whenever sensor conditions have gone outside user-configured criteria for acceptability. Alarms shall be initiated when unit control detects that a sensor input value is outside its valid range (indicating a defective device or connection that prevents full unit operation), that an output has not functioned as expected, or that a safety device has tripped. Twelve alerts and 40 alarms shall be available. Current alarms shall be maintained in STATUS function; up to 9 (current or reset) shall be stored in HISTORY function for recall.

Guide specifications — 50BVJ,K units (cont)



- e. Display in Metric units: Display may be configured to display data in Metric or English (Imperial) units of measure.
 - 3. Keypad/Display Module (HSIO): Module shall provide hardware necessary for human interface with the unit integrated system controls. Module shall contain a keypad and display for interactive communication. Display shall be two-line, backlit alphanumeric liquid crystal display (LCD). Each line of the LCD shall display up to 24-character (with expanded scrolling display capability). Keypad shall contain 12 numeric keys, 6 function keys, and 4 operative keys. Module shall contain RJ-14 data cable connection for simple installation and to facilitate remote location installation. Module shall be powered by unit's 24-v control circuit.
- L. Special Features:
- 1. Waterside Economizer:
 - a. Shall function as first stage of cooling when free cooling is available. Economizer coil valve can be modulated to control discharge-air temperature when the economizer can meet or exceed cooling needs.
 - b. Consists of the economizer coil, two 3-way valves, vent and drain fittings and the required piping. Economizer coils are 4 or 8 row coils with 8 or 10 fins per inch and are chemically cleanable. The unit controller controls all required control logic and changeover.
 - 2. Hot water coil shall be factory-installed on the inlet side of the direct expansion cooling coils with field piping connections on the side of the unit.
 - 3. Energy management and alarm 24-vac relay package shall be provided to remotely start and stop units with constant volume configuration. An additional relay is provided to close when a compressor malfunction is detected, providing remote signaling to a building automation system.
 - 4. Cupronickel condenser shall provide higher corrosion protection.
 - 5. Insulated basepan shall provide additional sound deadening characteristics and corrosion protection in the compressor compartment with Rubatex® insulation.
 - 6. Condensate overflow switch shall provide protection against condensate overflow. The mechanical safety switch shall be located in the unit's evaporator basepan.
 - 7. Extended range option shall provide condensate protection on the condenser waterside for humid applications.
 - 8. Freeze protection switch shall provide evaporator coil protection against freezing.

Guide specifications — 50BVT,U,V units



Indoor Packaged Unit Constant Volume Application

HVAC Guide Specifications

Size Range: **30 to 60 Tons**

Carrier Model Number:

50BVT — Water-Cooled Packaged Cooling Unit

50BVU — Remote Air-Cooled Packaged Cooling Unit

50BVV — Water-Cooled Vertical Heat Pump

Part 1 — General

1.01 SYSTEM DESCRIPTION

Units shall be water-cooled, cooling only; remote air-cooled, cooling only; or water-cooled heat pump self-contained packaged air-conditioning units. Capacities, models, and unit arrangement shall be as shown on the unit schedule and the contract drawings.

1.02 QUALITY ASSURANCE

- A. Units shall be listed for UL and UL, Canada. Units shall conform to ANSI/UL standard 1995. Unit shall be accepted for use in the City of New York by the Department of Buildings (MEA).
- B. Each unit shall be completely factory assembled, piped, wired, and tested. Units shall be leak tested and charged with a full operating charge of R-22 refrigerant. Remote air-cooled models shall be shipped with a nitrogen holding charge.
- C. Units shall then be disassembled into their individual modules for shipping and assembly on site.
- D. Factory test shall include, but not be limited to: complete run check of all electrical components and safeties, including proper control sequencing; pressure test of refrigerant coils and condensers; leak check of completed refrigerant circuits; leak check of completed water circuit (water-cooled units only); compressor run check.

Part 2 — Products

2.01 EQUIPMENT

A. General:

The unit shall be comprised of two distinct modules: the main air-conditioning section and the filter/pre-cooling coil section. Water-cooled units shall be built for an entering water temperature range from 55 to 105 F. Air-cooled units shall be built for an entering air temperature range of 70 to 90 F. The unit shall be designed for easy assembly. The refrigeration circuit shall remain intact during disassembly and reassembly. All high-boy modules shall be able to pass through a 36-in. steel framed door.

B. Cabinet:

1. The frame shall be fabricated of an angle iron framework. Unit exterior panels shall be 18 gage G90 galvanized steel for corrosion protection.

2. Each section shall incorporate removable access panels. The complete cabinet frame and access panels shall be insulated with $\frac{3}{4}$ -in., dual density, neoprene-backed fiberglass insulation.
3. The main air conditioning section and the filter/pre-cooling coil section shall contain a galvanized steel drain pan coated with corrosion resistant paint.
4. Low-boy cabinet shall be available on all models. Blower shall be dropped into main coil section reducing the overall height of the unit. This is for those applications where there is a restriction in the height of the unit.

C. Evaporator:

1. The direct expansion coil shall be a minimum of 3 rows and fabricated from $\frac{3}{8}$ -in. or $\frac{3}{4}$ -in. OD seamless copper tubing, mechanically bonded to rippled and corrugated aluminum fins.
2. Each individual evaporator coil shall be removable for replacement without disturbing the remaining refrigerant circuits.
3. Each evaporator coil circuit shall be fed by an adjustable thermostatic expansion valve, with external equalizer, sized to provide efficient operation at full and at part load operating points in the cooling and heating (50BVV only) modes.

D. Supply Fan:

1. Supply fans shall be double-width double-inlet (DWDI) forward curved type of Class II construction.
2. All fans shall be statically and dynamically balanced.
3. Fan shafts shall be mounted in heavy-duty 150,000-hour greasable pillow-block bearings.
4. The fan motor shall be open drip-proof (ODP), three-phase, NEMA T-frame E high-efficiency EPACT rated, 1800 rpm, with grease lubricated ball bearings.
5. The drive shall include a fixed pitch blower sheave and variable pitch motor sheave with multiple V-belts sized for 115% of the fan brake horsepower.
6. Airflow configurations shall include rear return, front supply; and rear return, rear supply.
7. Units shall be available with factory-installed optional blower orientation. See unit certified drawings for details.

E. Reverse Cycle Operation (Heat Pump Only):

Heat pump units shall be equipped with reversing valves to allow operation in the reverse cycle heating mode.

F. Refrigeration Circuit:

1. Each unit shall contain multiple independent refrigeration circuits.
2. Each circuit shall include a high-efficiency heavy-duty scroll compressor.



3. Each circuit shall have high and low pressure cutouts.
4. Each circuit shall be dehydrated and factory charged with R-22 (water-cooled units). Remote air-cooled units will be shipped with a nitrogen holding charge only.
5. Suction and discharge Schrader valves shall be provided for manifold gage connections to facilitate servicing.
6. Optional hot gas bypass shall be provided to allow unit operation under extended operating conditions to avoid coil freeze-up.

G. Compressors:

1. Each unit shall have multiple high-efficiency scroll compressors with internal or external motor protection and a time delay to prevent short cycling and simultaneous starting of compressors following a power failure.
2. Each compressor shall be on an independent refrigerant circuit.
3. The compressors shall be mounted on rubber isolators.

H. Water-Cooled Condensers:

1. All condensers shall be coaxial tube-in-tube for maximum heat transfer efficiency and performance.
2. Inner water tubes shall be either standard copper or optional cupronickel with large internal diameters for reduced waterside pressure drops.
3. Outer tubes shall be steel, painted for corrosion protection.
4. All condensers shall be rated at 450 psig operating refrigerant pressures and 400 psig waterside pressures.
5. Units shall be rated down to 50 F without the use of water regulating valves.

I. Filter Section:

The unit shall be supplied with 4-in. deep pleated, 30% high-efficiency filters. The filters shall have side access capability through an access panel.

J. Electrical:

1. Each unit shall be wired and tested at the factory prior to shipment.
2. Wiring shall comply with NEC requirements and shall conform with all applicable UL standards.
3. The units shall have a single point power connection. Control power shall be supplied through a factory-installed, low voltage control circuit transformer with an integral resettable circuit breaker.

4. The fan motor starter shall have a magnetic three-line, ambient compensated overload protector with a manual reset.
5. A terminal block shall be provided for the main power connection.

K. Special Features:

1. Waterside Economizer:

- a. Shall function as first stage of cooling when free cooling is available. Economizer coil valve can be modulated to control discharge-air temperature when the economizer can meet or exceed cooling needs.
- b. Consists of the economizer coil, two 3-way valves, vent and drain fittings and the required piping. Economizer coils are 4 or 8 row coils with 8 or 10 fins per inch and are chemically cleanable. The unit controller controls all required control logic and changeover.

2. Hot water coil shall be factory-installed on the inlet side of the direct expansion cooling coils with field piping connections on the side of the unit. (Not available for the modular units with waterside economizer.)
3. Hot gas reheat shall help control humidity levels.
4. Energy management and alarm 24-vac relay package shall be provided to remotely start and stop units with constant volume configuration. An additional relay is provided to close when a compressor malfunction is detected, providing remote signaling to a building automation system.
5. Cupronickel condenser shall provide higher corrosion protection.
6. Hot gas bypass shall provide extended capacity operation and to prevent coil freezing at low load conditions.
7. Insulated basepan shall provide additional sound deadening characteristics and corrosion protection in the compressor compartment with Rubatex® insulation.
8. Condensate overflow switch shall provide protection against condensate overflow. The mechanical safety switch shall be located in the unit's evaporator basepan.
9. Extended range option shall provide condensate protection on the condenser waterside for humid applications.
10. Freeze protection switch shall provide evaporator coil protection against freezing.

Guide specifications — 50BVW,X units



Indoor Packaged Unit Variable Air Volume

HVAC Guide Specifications

Size Range: **30 to 60 Tons**

Carrier Model Number:

50BVW — Water-Cooled Packaged Cooling Unit

50BVX — Remote Air-Cooled Packaged Cooling Unit

Part 1 — General

1.01 SYSTEM DESCRIPTION

Units shall be water-cooled, cooling only or remote air-cooled, cooling only self-contained packaged air conditioning units. Capacities, models, and unit arrangement shall be as shown on the unit schedule and the contract drawings.

1.02 QUALITY ASSURANCE

- A. Units shall be listed for UL and UL, Canada. Units shall conform to ANSI/UL standard 1995. Unit shall be accepted for use in the City of New York by the Department of Buildings (MEA).
- B. Each unit shall be completely factory assembled, piped, wired, and tested. Units shall be leak tested and charged with a full operating charge of R-22 refrigerant (water-cooled only). Remote air-cooled models shall be shipped with a nitrogen holding charge.
- C. Units shall then be disassembled into their individual modules for shipping and assembly on site.
- D. Factory test shall include, but not be limited to: complete run check of all electrical components and safeties, including proper control sequencing; pressure test of refrigerant coils and condensers; leak check of completed refrigerant circuits; leak check of completed water circuit (water-cooled units only); compressor run check.

Part 2 — Products

2.01 EQUIPMENT

A. General:

The unit shall be comprised of two distinct modules: the main air-conditioning section and the filter/pre-cooling coil section. The unit shall be designed for easy assembly. Water-cooled units shall be built for an entering water temperature range from 55 to 105 F. Air-cooled units shall be built for an entering air temperature range of 70 to 90 F. The refrigeration circuit shall remain intact during disassembly and reassembly. All high-boy modules shall be able to pass through a 36-in. steel framed door.

B. Cabinet:

1. The frame shall be fabricated of an angle iron framework. Unit exterior panels shall be 18 gage G90 galvanized steel for corrosion protection.
2. Each section shall incorporate removable access panels. The complete cabinet frame and access panels shall be insulated with

$\frac{3}{4}$ -in., dual density, neoprene-backed fiber-glass insulation.

3. The main air conditioning section and the filter/pre-cooling coil section shall contain a galvanized steel drain pan coated with corrosion-resistant paint.
4. Low-boy cabinet shall be available on all models. Blower shall be dropped into main coil section reducing the overall height of the unit. This is for those applications where there is a restriction in the height of the unit.

C. Evaporator:

1. The direct expansion coil shall be a minimum of 3 rows and fabricated from $\frac{3}{8}$ -in. or $\frac{3}{4}$ -in. OD seamless copper tubing, mechanically bonded to rippled and corrugated aluminum fins.
2. Each individual evaporator coil shall be removable for replacement without disturbing the remaining refrigerant circuits.
3. Each evaporator coil circuit shall be fed by an adjustable thermostatic expansion valve, with external equalizer, sized to provide efficient operation at full and at part load operating points in the cooling mode.

D. Supply Fan:

1. Supply fans shall be double-width double-inlet (DWDI) forward curved type of Class II construction.
2. All fans shall be statically and dynamically balanced.
3. Fan shafts shall be mounted in heavy-duty 150,000-hour greasable pillow-block bearings.
4. The fan motor shall be open drip-proof (ODP), three-phase, NEMA T-frame E high-efficiency EPACT rated, 1800 rpm, with grease lubricated ball bearings. Motor shall be compatible with variable frequency drive (VFD).
5. Fan shall be belt driven with fixed-pitch motor and fan pulley, with multiple matched belts, drive shall be selected for 110% of motor horsepower and to provide maximum static capability in stable fan operation and when applied with variable frequency drive (VFD).
6. Airflow configuration shall be rear return, rear supply.
7. Units shall be available with factory-installed optional blower orientation. See unit certified drawings for details.

E. Supply Fan Capacity Control/Variable Frequency:

Variable frequency drive (VFD) shall include:

1. Factory-installed VFD motor control device, provided with a NEMA Type 1 enclosure, and factory-mounted, wired and tested. The VFD shall control motor speed to maintain set point static pressure at the supply duct sensor location.



2. Digital display keyboard module, mounted on unit control panel.
3. Factory-mounted duct pressure sensing controller: Differential pressure transducer, 2 to 10 vdc output to unit control module, with adjustable set point range (0.0 to 5.0 in. wg [0 to 1246 Pa]), adjust via unit control keypad.
4. Low pressure reference tube factory installed.

F. Refrigeration Circuit:

1. Each unit shall contain multiple independent refrigeration circuits.
2. Each circuit shall include a high-efficiency heavy-duty scroll compressor.
3. Each circuit shall have high and low pressure cutouts.
4. Each circuit shall be dehydrated and factory charged with R-22 (water-cooled units). Remote air-cooled units will be shipped with a nitrogen holding charge only.
5. Suction and discharge Schrader valves shall be provided for manifold gage connections to facilitate servicing.
6. Optional hot gas bypass shall be provided to allow unit operation under extended operating conditions to avoid coil freeze-up.

G. Compressors:

1. Each unit shall have multiple high-efficiency scroll compressors with internal or external motor protection and a time delay to prevent short cycling and simultaneous starting of compressors following a power failure.
2. Each compressor shall be on an independent refrigerant circuit.
3. The compressors shall be mounted on rubber isolators.

H. Water-Cooled Condensers:

1. All condensers shall be coaxial tube-in-tube for maximum heat transfer efficiency and performance.
2. Inner water tubes shall be either standard copper or optional cupronickel with large internal diameters for reduced waterside pressure drops.
3. Outer tubes shall be steel, painted for corrosion protection.
4. All condensers shall be rated at 450 psig operating refrigerant pressures and 400 psig waterside pressures.
5. Units shall be rated down to 50 F without the use of water regulating valves.

I. Filter Section:

The unit shall be supplied with 4-in. deep pleated, 30% high-efficiency filters. The filters shall have side access capability through an access panel.

J. Electrical:

1. Each unit shall be wired and tested at the factory prior to shipment.
2. Wiring shall comply with NEC requirements and shall conform with all applicable UL standards.
3. The units shall have a single point power connection. Control power shall be supplied through a factory-installed, low voltage control circuit transformer with an integral resettable circuit breaker.
4. The fan motor starter shall have a magnetic three-line, ambient compensated overload protector with a manual reset.
5. A terminal block shall be provided for the main power connection.

K. Controls, Safeties, and Diagnostics:

1. Control shall be accomplished through the use of a factory-installed, microprocessor-based control system and associated electronic and electrical hardware. Control system shall determine control sequences through monitoring the following operational variables:
 - a. Day and time.
 - b. Schedule (Unoccupied/Occupied).
 - c. Set points (Unoccupied/Occupied, Duct Pressure, others).
 - d. Space temperature.
 - e. Outdoor-air temperature.
 - f. Unit supply-air temperature.
 - g. Unit return-air temperature.
 - h. Supply-air fan status.
 - i. Accessory and/or field-supplied sensors, function switches and/or signals.
2. Controls shall be capable of performing the following functions:
 - a. Capacity control based on discharge-air temperature and compensated by rate of change of return-air temperature (VAV [variable air volume]). Capacity control shall be accomplished through the use of compressor staging.
 - b. Perform a quick test to check the status of all input and output signals to the control system using diagnostic display module.
 - c. Supply fan volume control shall control output from a variable frequency drive to maintain duct static pressure at user-configured set point.
 - d. Alerts and Alarms: Control shall continuously monitor all sensor inputs and control outputs to ensure safe and proper system operation. Alerts shall be generated whenever sensor conditions have gone outside user-configured criteria for acceptability. Alarms shall be initiated when unit control detects that a sensor input value is outside its



valid range (indicating a defective device or connection that prevents full unit operation), that an output has not functioned as expected, or that a safety device has tripped. Twelve alerts and 40 alarms shall be available. Current alarms shall be maintained in STATUS function; up to 9 (current or reset) shall be stored in HISTORY function for recall.

e. Display in Metric units: Display may be configured to display data in Metric or English (Imperial) units of measure.

3. Keypad/Display Module (HSIO): Module shall provide hardware necessary for human interface with the unit integrated system controls. Module shall contain a keypad and display for interactive communication. Display shall be two-line, backlit alphanumeric liquid crystal display (LCD). Each line of the LCD shall display up to 24-character (with expanded scrolling display capability). Keypad shall contain 12 numeric keys, 6 function keys, and 4 operative keys. Module shall contain RJ-14 data cable connection for simple installation and to facilitate remote location installation. Module shall be powered by unit's 24-v control circuit.

L. Special Features:

1. Waterside Economizer:

a. Shall function as first stage of cooling when free cooling is available. Economizer coil valve can be modulated to control discharge-air temperature when the economizer can meet or exceed cooling needs.

- b. Consists of the economizer coil, two 3-way valves, vent and drain fittings and the required piping. Economizer coils are 4 or 8 row coils with 8 or 10 fins per inch and are chemically cleanable. The unit controller controls all required control logic and changeover.
2. Hot water coil shall be factory-installed on the inlet side of the direct expansion cooling coils with field piping connections on the side of the unit. (Not available for the modular units with waterside economizer.)
3. Energy management and alarm 24-vac relay package shall be provided to remotely start and stop units with constant volume configuration. An additional relay is provided to close when a compressor malfunction is detected, providing remote signaling to a building automation system.
4. Cupronickel condenser shall provide higher corrosion protection.
5. Insulated basepan shall provide additional sound deadening characteristics and corrosion protection in the compressor compartment with Rubatex® insulation.
6. Condensate overflow switch shall provide protection against condensate overflow. The mechanical safety switch shall be located in the unit's evaporator basepan.
7. Extended range option shall provide condensate protection on the condenser waterside for humid applications.
8. Freeze protection switch shall provide evaporator coil protection against freezing.

