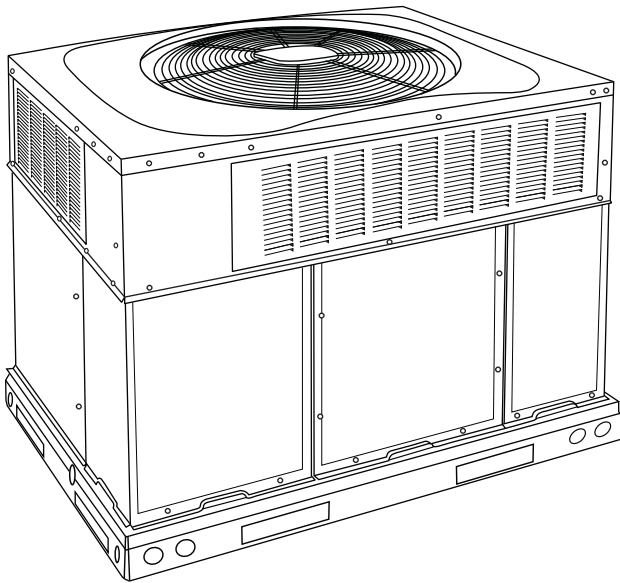


48VT-A

Performance™ 14 SEER Single-Packaged HYBRID
HEAT Dual Fuel System with Puron® (R-410A)
Refrigerant
Single and Three Phase
2 to 5 Nominal Tons (Sizes 24-60)



Product Data



A09033

Fig. 1 - Unit 48VT-A

Single-Packaged Products with Energy-Saving Features and Puron® refrigerant.

- Up to 14.5 SEER
- 12.0 EER
- 8.0 HSPF
- Up to 80.4% AFUE
- Factory-Installed TXV
- ECM Motor-Standard
- Direct Spark Ignition
- Dehumidification Feature

FEATURES/BENEFITS

One-piece heating and cooling units with low sound levels, easy installation, low maintenance, and dependable performance.

Puron Environmentally Sound Refrigerant is Carrier's unique refrigerant designed to help protect the environment. Puron is an HFC refrigerant which does not contain chlorine that can harm the ozone layer. Puron refrigerant is in service in millions of systems, proving highly reliable, environmentally sound performance.

Easy Installation

Factory-assembled package is a compact, fully self-contained, combination gas heating/electric heating and cooling unit that is prewired, pre-piped, and pre-charged for minimum installation expense. These units are available in a variety of standard and optional heating/cooling size combinations with voltage options to meet residential and light commercial requirements. Units are lightweight and install easily on a rooftop or at ground level. The

high tech composite base eliminates rust problems associated with ground level applications.

Innovative Unit Base Design

On the inside a high-tech composite material will not rust and incorporates a sloped drain pan which improves drainage and helps inhibit mold, algae and bacterial growth. On the outside metal base rails provide added stability as well as easier handling and rigging.

Convertible duct configuration

Unit is designed for use in either downflow or horizontal applications. Each unit is converted from horizontal to downflow and includes horizontal duct covers. Downflow operation is provided in the field to allow vertical ductwork connections. The basepan seals on the bottom openings to ensure a positive seal in the vertical airflow mode.

Efficient operation High-efficiency design offers SEER (Seasonal Energy Efficiency Ratios) of up to 14.5, HSPF of 8.0 and AFUE (Annual Fuel Utilization Efficiency) ratings as high as 80.4%.

Energy-saving, direct spark ignition saves gas by operating only when the room thermostat calls for heating. Standard units are furnished with natural gas controls. A low-cost field installed kit for propane conversion is available for all units.

48VTN-A units are dedicated Low NOx units designed for California installations. These models meet the California maximum oxides of nitrogen (NOx) emissions requirement of 40 nanograms/joule or less as shipped from the factory and MUST be installed in California Air Quality Management Districts and wherever a Low NOx rule exists.

Durable, dependable components Compressors are designed for high efficiency. Each compressor is hermetically sealed against contamination to help promote longer life and dependable operation. Each compressor also has vibration isolation to provide quieter operation. All compressors have internal high pressure and overcurrent protection.

Monoport inshot burners produce precise air-to-gas mixture, which provides for clean and efficient combustion. The large monoport on the inshot (or injection type) burners seldom, if ever, requires cleaning. All gas furnace components are accessible in one compartment.

Turbo-tubular™ heat exchangers are constructed of aluminized steel for corrosion resistance and optimum heat transfer for improved efficiency. The tubular design permits hot gases to make multiple passes across the path of the supply air.

In addition, dimples located on the heat exchanger walls force the hot gases to stay in close contact with the walls, improving heat transfer.

ECM Motor is standard on all 48VT-A models.

Direct-drive, PSC (Permanent Split Capacitor) condenser-fan motors are designed to help reduce energy consumption and provide for cooling operation down to 40°F (4.4°C) outdoor temperature. Motormaster® II low ambient kit is available as a field installed accessory.

Thermostat Controls

In order to take full advantage of the features afforded by your HYBRID HEAT® (dual-fuel) product, you need to install the Edge® Thermidstat™ Control in either its programmable (part # TP-PRH) or non-programmable (TP-NRH) models.

Thermostatic Expansion Valve - A hard shutoff, balance port TXV maintains a constant superheat at the evaporator exit (cooling cycle) resulting in higher overall system efficiency.

Refrigerant system is designed to provide dependability. Liquid filter driers are used to promote clean, unrestricted operation. Each unit leaves the factory with a full refrigerant charge. Refrigerant service connections make checking operating pressures easier.

High and Low Pressure Switches provide added reliability for the compressor.

Indoor and Outdoor coils are computer-designed for optimum heat transfer and efficiency. The indoor coil is fabricated from copper tube and aluminum fins and is located inside the unit for protection against damage. The outdoor coil is internally mounted on the top tier of the unit. Copper fin coils and pre-coated fin coils are available from the factory by special order. These coils are recommended in applications where aluminum fins are likely to be damaged due to corrosion. They are ideal for seacoast applications.

Low sound ratings ensure a quiet indoor and outdoor environment with sound ratings as low as 72 dBA.

Easy to service cabinets provide easy multiple panel accessibility to serviceable components during maintenance and installation. The base with integrated drain pan provides easy ground level installation with a mounting pad. A nesting feature ensures a positive basepan to roof curb seal when the unit is roof mounted. A convenient 3/4-in. (19 mm) wide perimeter flange makes frame mounting on a rooftop easy.

Standard horizontal metal duct covers with insulation come with the unit and cover the horizontal duct openings. These can be left in place if the units are converted to downflow.

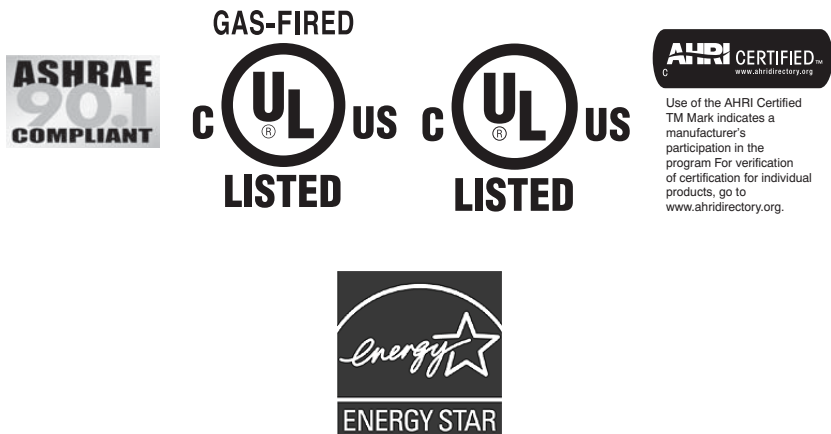
Integrated Gas Control (IGC) board provides safe and efficient control of heating and simplifies trouble-shooting through its built-in diagnostic function.

Cabinets are constructed of heavyduty, phosphated, zinc-coated prepainted steel capable of withstanding 500 hours in salt spray. Interior surfaces of the evaporator/heat exchanger compartment are insulated with cleanable semi-rigid insulation board, which keeps the conditioned air from being affected by the outdoor ambient temperature and provides improved indoor air quality. (Conforms to American Society of Heating, Refrigeration and Air Conditioning Engineers No. 62P.) The sloped drain pan minimizes standing water in the drain. An external drain is provided.

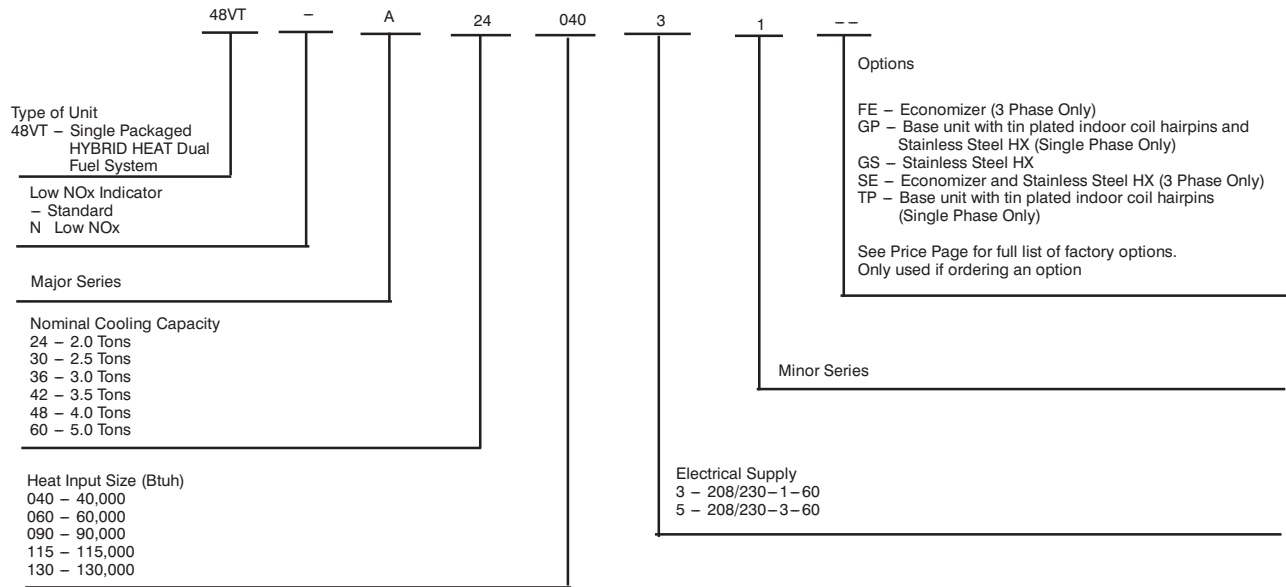
Short-Cycling protection for the compressor is incorporated into our defrost control board ensuring a five minute delay (+/-2 minutes) before restarting compressor after shutdown for any reason.

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MODEL NUMBER NOMENCLATURE



48VT--A

AHRI* CAPACITIES

COOLING CAPACITIES AND EFFICIENCIES

48VT-A	NOMINAL TONS	STANDARD CFM	COOLING CAPACITY	EER	SEER
24---31	2	800	23000	12.0	14.2
30---31/51	2.5	1000	28600	12.0	14.2
36---31/51	3	1200	35800	12.0	14.5
42---31/51	3.5	1400	40500	12.0	14.5
48---31/51	4	1600	46500	12.0	14.5
60---31/51	5	1750	57000	12.0	14.5

HEAT PUMP HEATING CAPACITIES AND EFFICIENCIES

48VT-A	HEATING CAPACITY (BTUH) @ 47°F (8.3°C)	COP @ 47°F (8.3°C)	HEATING CAPACITY (BTUH) @ 17°F (-8.3°C)	COP @ 17°F (-8.3°C)	HSPF
24---31	23000	3.5	11400	2.2	8.0
30---31/51	29600	3.5	15400	2.1	8.0
36---31/51	35800	3.5	19800	2.4	8.0
42---31/51	41500	3.4	23000	2.3	8.0
48---31/51	45500	3.4	26000	2.4	8.0
60---31/51	59000	3.5	32000	2.4	8.0

LEGEND

- dba**—Sound Levels (decibels)
- db**—Dry Bulb
- SEER**—Seasonal Energy Efficiency Ratio
- wb**—Wet Bulb
- COP**—Coefficient of Performance
- HSPF**—Heating Season Performance Factor
- * Air Conditioning, Heating & Refrigeration Institute.
- **At "A" conditions—80°F (26.7°C) indoor db/67°F (19.4°C) indoor wb & 95°F (35°C) outdoor db.
- † Rated in accordance with U.S. Government DOE Department of Energy) test procedures and/or AHRI Standards 210/240.

Notes:

1. Ratings are net values, reflecting the effects of circulating fan heat. Ratings are based on:
Cooling Standard: 80°F (26.7°C) db, 67°F (19.4°C) wb indoor entering—air temperature and 95°F (35°C) db outdoor entering—air temperature.
2. Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.

GAS HEATING CAPACITIES AND EFFICIENCIES

UNIT 48VT-A	HEATING INPUT (Btuh)	OUTPUT CAPACITY (Btuh)	TEMPERATURE RISE RANGE F (C)	AFUE (%)
24040 30040	40,000	32,000	30-60 (16.7-33.3)	80.0
24060 30060 36060 42060	60,000	48,000 48,000 47,000 47,000	25-55 (13.9-30.6)	80.0 80.0 78.5 78.5
36090 42090 48090 60090	90,000	73,000	35-65 (19.4-36.1)	80.4
48115 60115	115,000	93,000	30-60 (16.7-33.3)	80.3
48130 60130	130,000	103,000	35-65 (19.4-36.1)	78.9

LEGEND

AFUE—Annual Fuel Utilization Efficiency

NOTE: Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.

PHYSICAL DATA

	24040	24060	30040	30060	36060	36090
Unit Size	2	2	2.5	2.5	3	3
Shipping Weight (lb) (kg)	354 161	354 161	346 157	346 157	426 193	426 193
Compressor Quantity	1					
Type	Scroll					
Refrigerant	R-410A					
Refrigerant Quantity (lb) Quantity (kg)	11.1 5.0	11.1 5.0	10.3 4.7	10.3 4.7	9.9 4.5	9.9 4.5
Refrigerant Metering Device	Indoor TXV, Outdoor Dual Accurators					
Orifice OD (in) (mm)	0.032 (2) 0.81 (2)	0.032 (2) 0.81 (2)	0.037 (2) 0.94 (2)	0.037 (2) 0.94 (2)	0.038 (2) 0.97 (2)	0.038 (2) 0.97 (2)
Outdoor Coil Rows... Fins/in, face area (sq. ft.)	2...21 13.6	2...21 13.6	2...21 13.6	2...21 13.6	2...21 13.6	2...21 13.6
Outdoor Fan Nominal Airflow (cfm) Diameter (in.) Diameter (mm) Motor hp (rpm)	2500 24 610 1/10 (810)	2500 24 610 1/10 (810)	2700 24 610 1/5 (810)	2700 24 610 1/5 (810)	3100 26 660 1/5 (810)	3100 26 660 1/5 (810)
Indoor Coil Rows... Fins/in, face area (sq. ft.)	3...17 3.7	3...17 3.7	3...17 3.7	3...17 3.7	3...17 4.7	3...17 4.7
Indoor Blower Nominal Airflow (cfm) Size (in.) Size (mm) Motor hp	800 10 x 10 254 x 254 1/2	800 10 x 10 254 x 254 1/2	1000 10 x 10 254 x 254 1/2	1000 10 x 10 254 x 254 1/2	1200 11 x 10 279 x 254 3/4	1200 11 x 10 279 x 254 3/4
Furnace Section* Burner Orifice Natural Gas Qty...Drill Size (Factory Installed) Propane Gas Qty...Drill Size	2...44 2...55	2...38 2...53	2...44 2...55	2...38 2...53	2...38 2...53	3...38 3...53
High Pressure Switch (psig) Cutout Reset (Auto)	650 +/- 15 420 +/- 25					
Loss-of-Charge/Low Pressure Switch (psig) Cutout Reset (Auto)	20 +/- 5 45 +/- 10					
Return Air Filters†‡ disposable (in) (mm)	20x20x1 508x508x25		20x24x1 508x610x25		24x30x1 610x762x25	

*Based on altitude of 0 to 2000 ft (0-610 m).

†Required filter sizes shown are based on the larger of the AHRI (Air Conditioning, Heating and Refrigeration Institute) rated cooling airflow or the heating airflow velocity of 300 ft/minute for high-capacity type. Air filter pressure drop for non-standard filters must not exceed 0.08 IN. W.C.

‡ If using accessory filter rack refer to filter rack installation instructions for correct filter size and quantity.

48VT--A

PHYSICAL DATA (CONT)

	42060	42090	48090	48115	48130	60090	60115	60130
Unit Size	3.5	3.5	4	4	4	5	5	5
Shipping Weight (lb)	472	472	460	460	460	506	506	506
(kg)	214	214	209	209	209	230	230	230
Compressor Quantity	1							
Type	Scroll							
Refrigerant	R-410A							
Refrigerant Quantity (lb)	11.3	11.3	12.5	12.5	12.5	15.2	15.2	15.2
Quantity (kg)	5.1	5.1	5.7	5.7	5.7	6.9	6.9	6.9
Refrigerant Metering Device	Indoor TXV, Outdoor Dual Accuraters							
Orifice OD (in)	0.040 (2)	0.040 (2)	0.040 (2)	0.040 (2)	0.040 (2)	0.049 (2)	0.049 (2)	0.049 (2)
(mm)	1.02 (2)	1.02 (2)	1.02 (2)	1.02 (2)	1.02 (2)	1.24 (2)	1.24 (2)	1.24 (2)
Outdoor Coil								
Rows... Fins/in,	2...21	2...21	2...21	2...21	2...21	2...21	2...21	2...21
face area (sq. ft.)	17.5	17.5	17.5	17.5	17.5	23.3	23.3	23.3
Outdoor Fan								
Nominal Airflow (cfm)	3100	3100	3100	3100	3100	3500	3500	3500
Diameter (in.)	26	26	26	26	26	26	26	26
Diameter (mm)	660	660	660	660	660	660	660	660
Motor hp (rpm)	1/5 (810)	1/5 (810)	1/5 (810)	1/5 (810)	1/5 (810)	1/4 (810)	1/4 (810)	1/4 (810)
Indoor Coil								
Rows... Fins/in,	3...17	3...17	3...17	3...17	3...17	3...17	3...17	3...17
face area (sq. ft.)	4.7	4.7	5.6	5.6	5.6	5.6	5.6	5.6
Indoor Blower								
Nominal Airflow (cfm)	1400	1400	1600	1600	1600	1750	1750	1750
Size (in.)	11 x 10	11 x 10	11 x 10	11 x 10	11 x 10	11 x 10	11 x 10	11 x 10
Size (mm)	279 x 254	279 x 254	279 x 254	279 x 254	279 x 254	279 x 254	279 x 254	279 x 254
Motor hp	3/4	3/4	1	1	1	1	1	1
Furnace Section*								
Burner Orifice								
Natural Gas Qty...Drill Size								
(Factory Installed)	2...38	3...38	3...38	3...33	3...31	3...38	3...33	3...31
Propane Gas Qty...Drill Size	2...53	3...53	3...53	3...51	3...49	3...53	3...51	3...49
High Pressure Switch (psig)	650 +/- 15							
Cutout	420 +/- 25							
Reset (Auto)	20 +/- 5							
Loss-of-Charge/Low Pres-	45 +/- 10							
sure Switch (psig)	20 +/- 5							
Cutout	45 +/- 10							
Reset (Auto)	45 +/- 10							
Return Air Filters†‡	24x30x1				24x36x1			
disposable (in)	610x762x25				610x914x25			
(mm)	610x762x25				610x914x25			

*Based on altitude of 0 to 2000 ft (0–610 m).

†Required filter sizes shown are based on the larger of the AHRI (Air Conditioning, Heating and Refrigeration Institute) rated cooling airflow or the heating airflow velocity of 300 ft/minute for high-capacity type. Air filter pressure drop for non-standard filters must not exceed 0.08 IN. W.C.

‡ If using accessory filter rack refer to filter rack installation instructions for correct filter size and quantity.

A-Weighted Sound Power Level (dBA)

48VT-A	Standard Rating (dBA)	TYPICAL OCTAVE BAND SPECTRUM (dBA) (without tone adjustment)						
		125	250	500	1000	2000	4000	8000
24---31	74	63.5	64.5	69	69.5	65	59.5	50
30---31/51	75	63.5	66	71	69.5	66.5	61	54
36---31/51	74	64	66	68	68	66.5	60.5	52
42---31/51	73	63.5	63.5	66.5	67	64.5	60	52.5
48---31/51	74	68.5	65	67	67.5	65	60.5	53
60---31/51	75	68	64.5	68.5	69	65.5	62	58

NOTE: Tested in accordance with AHRI Standard 270 (not listed in AHRI).

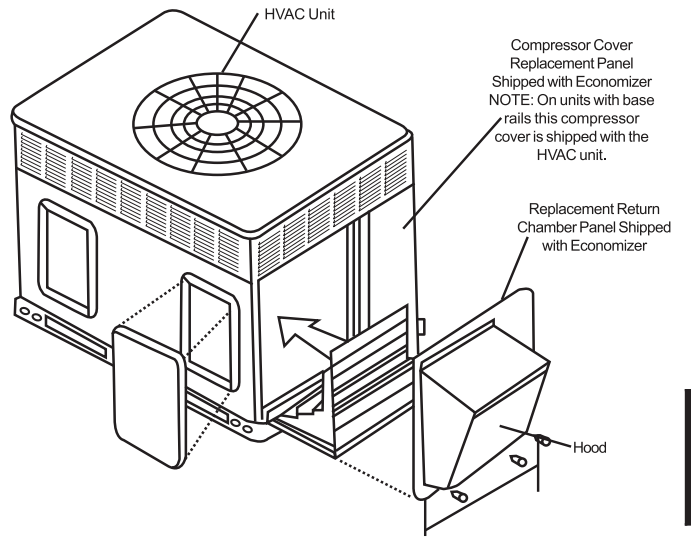
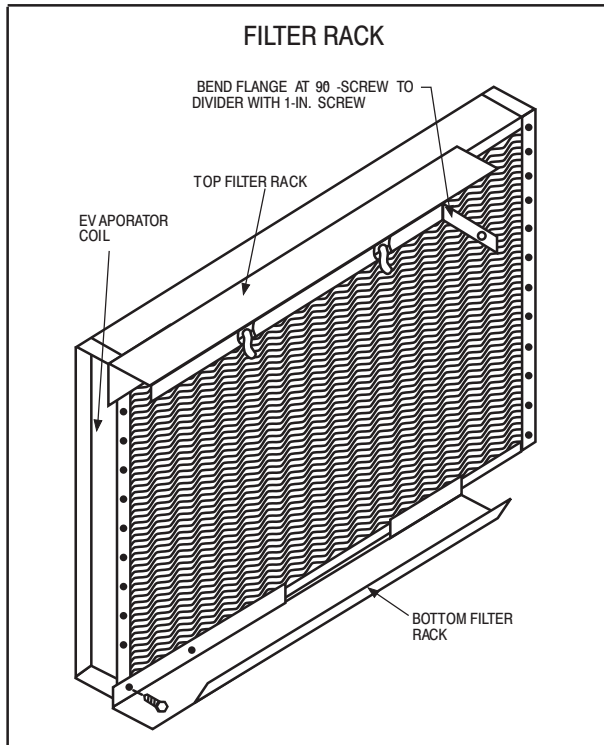
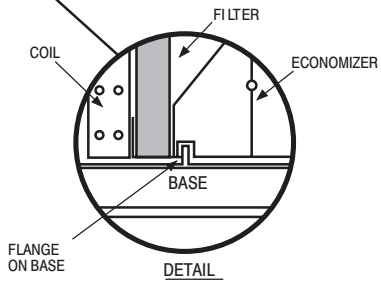
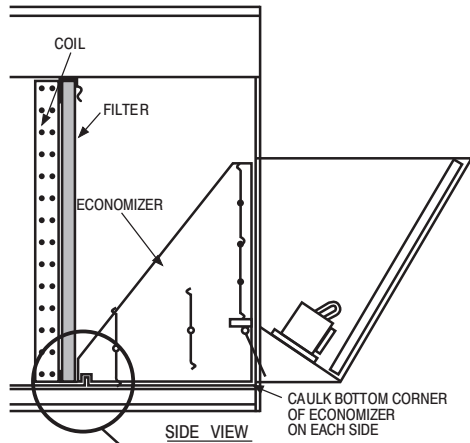
48VT--A

OPTIONS AND ACCESSORIES

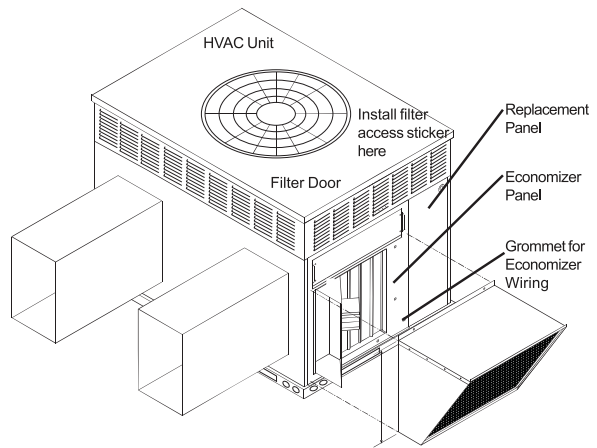
ITEM	DESCRIPTION	FACTORY INSTALLED OPTION	FIELD INSTALLED ACCESSORY
Coil Options	Base unit with tin plated indoor coil hairpins	X	
Compressor Start Kit	Compressor Start Kit assists compressor start-up by providing additional starting torque on single-phase units only.		X
Corporate Thermostats	Thermostats provide control for the system heating and cooling functions.		X
Crankcase Heater	Crankcase Heater provides anti-floodback protection for low-load cooling applications.		X*
Economizers	Horizontal Economizer with solid state controls and barometric relief dampers includes filter racks and provide outdoor air during cooling and reduce compressor operation.		X
	Vertical Economizer with solid state controls and barometric relief dampers includes filter racks and provide outdoor air during cooling and reduce compressor operation.		X
Filter Rack	Filter Rack features easy installation, serviceability, and high-filtering performance for vertical applications.		X
Flat Roof Curbs	Flat Roof Curbs in both 8-in. (203 mm) and 14-in. (356 mm) sizes are available for roof mounted applications.		X
Flue Discharge Deflector	Directs flue gas exhaust 90 degrees upward from current discharge. Designed to allow tighter distances between unit and combustible surfaces.		X
Heat Exchanger	Stainless Steel Heat Exchanger	X	
High Altitude Propane Conversion Kit	High Altitude Propane Conversion Kit is for use at 2001 to 6000 ft (611–1829 m) above sea level. Kit consists of propane gas orifices that compensate for gas heat operation at high altitude.		X
Low Ambient Kit	Low Ambient Kit (Motormaster II Control) allows the use of mechanical cooling down to outdoor temperatures as low as 0°F (-18°C) when properly installed.		X
Manual Outside Air Damper	Manual Outside Air Damper includes hood and filter rack with adjustable damper blade for up to 25% outdoor air.		X
Natural to Propane Gas Conversion Kit	Natural to Propane Gas Conversion Kit allows for conversion from natural gas to propane gas (0–2000 ft) (0–610 m)		X
Propane to Natural Gas Conversion Kit	Propane to Natural Gas Conversion Kit allows for conversion from propane to natural gas for altitudes of 0–2000 ft (0–610 m)		X
Square-to-Round Duct Transition Kit	Square-to-Round Duct Transition Kit enables 24–48 size units to be fitted to 14 in. round ductwork.		X
Time Guard II	Automatically prevents the compressor from restarting for at least 4 minutes and 45 seconds after shutdown of the compressor. Not required when a corporate programmable thermostat is applied or with a RTU-MP control.		X*
Curb Adaptor	Adapter curb for new unit with base rail installed on existing curb		X
Gasket Kit	For field modified existing roof curb with new base rail unit.		X

*Refer to Price Page for application detail.

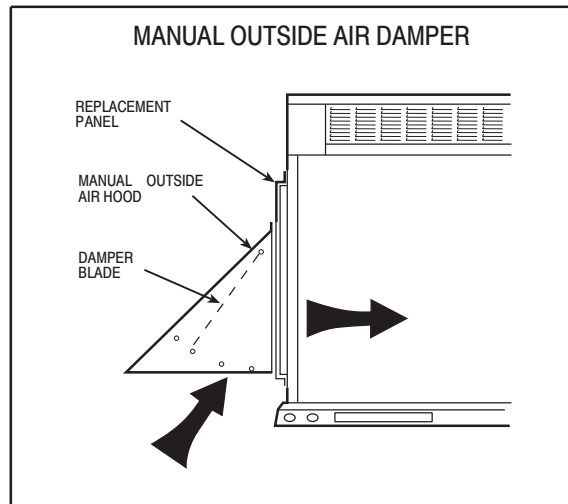
ECONOMIZER



Vertical Economizer



Horizontal Economizer



48VT--A

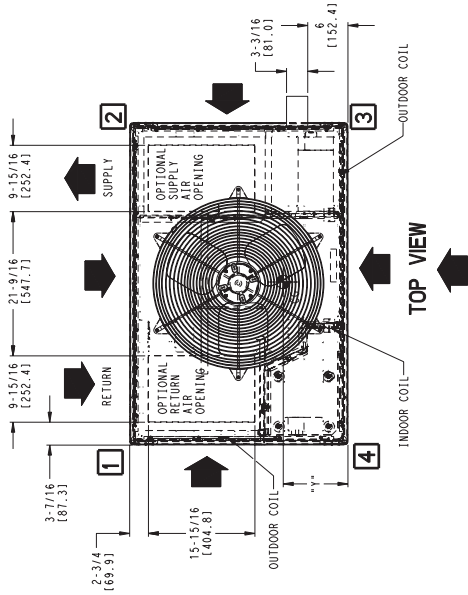
UNIT DIMENSIONS - 48VT-A24-30

48VT--A

UNIT	SERIES	ELECTRICAL CHARACTERISTICS	UNIT WT.			UNIT HEIGHT IN/MM			CENTER OF GRAVITY IN/MM			
			LB	KG	"A"	X	Y	Z				
48VT-A24(040,060)	1	208/230-1-60	368	167	44-1/8	1121	22-3/4	578	15-1/2	394	16-1/4	387
48VT-A30(040,060)	1	208/230-1, 208/230-3-60	360	163	44-1/8	1121	22-3/4	578	15-1/2	394	16-1/4	387

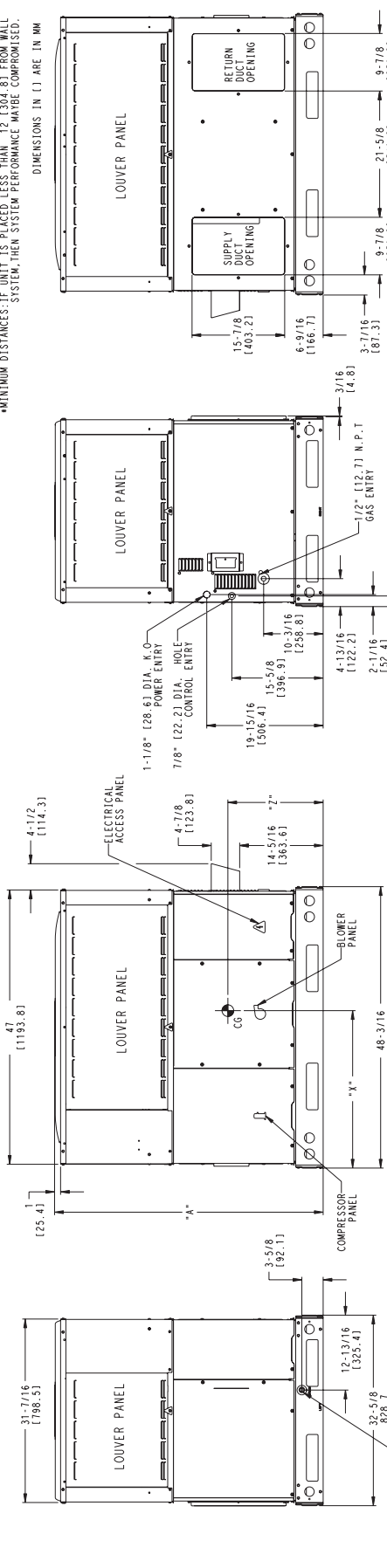
UNITS	VOLTAGE	CORNER WEIGHT LB/KG		
		-1"	-2"	-3"
48VT-A24(040,060)	208/230	94	42	83
48VT-A30(040,060)	208/230	92	42	81

NOTE: ALL TABLE DATA RELEVANT FOR ALL FACTORY INSTALLED OPTIONS EXCEPT ECONOMIZER



REQUIRED CLEARANCES TO COMBUSTIBLE MATL.

- TOP OF UNIT..... 14 [355.6] INCHES [MM]
 - DUCT SIDE OF UNIT..... 2 [50.8]
 - SIDE OPPOSITE DUCTS..... 14 [355.6]
 - BOTTOM OF UNIT..... 172 [4312.7]
 - FLUE PANEL..... 36 [914.4]
- NEC. REQUIRED CLEARANCES.**
- BETWEEN UNITS, POWER ENTRY SIDE..... 42 [1066.8] INCHES [MM]
 - UNITS AND GROUNDED SURFACES, POWER ENTRY SIDE..... 36 [914.4]
 - UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, POWER ENTRY SIDE..... 42 [1066.8]
- REQUIRED CLEARANCE FOR OPERATION AND SERVICING**
- EVAP. COIL ACCESS SIDE..... 36 [914.0] INCHES [MM]
 - POWER ENTRY SIDE (EXCEPT FOR NEC REQUIREMENTS)..... 42 [1066.8]
 - DUCT SIDE..... 36 [914.0]
 - SIDE OPPOSITE DUCTS..... 48 [1219.2]
 - DUCT PANEL..... 12 [304.8]
- *MINIMUM DISTANCES: IF UNIT IS PLACED LESS THAN 12 INCHES FROM WALL SYSTEM, THEN SYSTEM PERFORMANCE MAY BE COMPROMISED.



REV 2.0
48VT500037

UNIT DIMENSIONS - 48VT-A36-60

UNIT	SERIES	ELECTRICAL CHARACTERISTICS	UNIT WT.		CENTER OF GRAVITY IN/MM							
			LB	KG	"A"	"X"	"Y"	"Z"				
48VT-A36(060,090)	1	208/230-1, 208/230-3-60	440	200	44-3/4	1137	22-3/4	518	18	457	17-1/8	435
48VT-A42(060,090)	1	208/230-1, 208/230-3-60	486	220	48-3/4	1238	22-3/4	518	18	457	17-3/8	435
48VT-A48(090,115,130)	1	208/230-1, 208/230-3-60	506	230	48-3/4	1238	22-3/4	518	18	457	17-3/8	435
48VT-A60(090,115,130)	1	208/230-1, 208/230-3-60	540	245	54-3/4	1391	22-3/4	518	18	457	17-3/4	435

UNITS	CORNER WEIGHT LB/KG			
	"1"	"2"	"3"	"4"
48VT-A36(060,090)	208/230	96	43	85
48VT-A42(060,090)	208/230	106	48	94
48VT-A48(090,115,130)	208/230	110	50	98
48VT-A60(090,115,130)	208/230	117	53	104

NOTE: ALL TABLE DATA RELEVANT FOR ALL FACTORY INSTALLED OPTIONS EXCEPT ECONOMIZER

REQUIRED CLEARANCES TO COMBUSTIBLE MATL.

	INCHES [MM]
TOP OF UNIT	14 [355.6]
DUCT SIDE OF UNIT	2 [50.8]
SIDE OPPOSITE DUCTS	14 [355.6]
UNIT	1 [25.4]
FUE PANEL	36 [914.4]

NEC REQUIRED CLEARANCES:

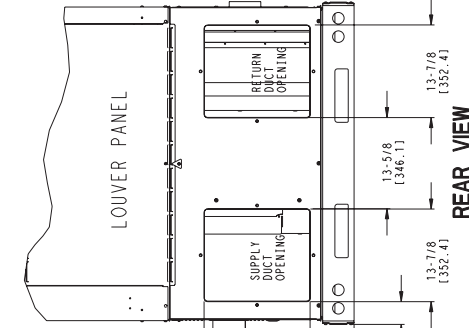
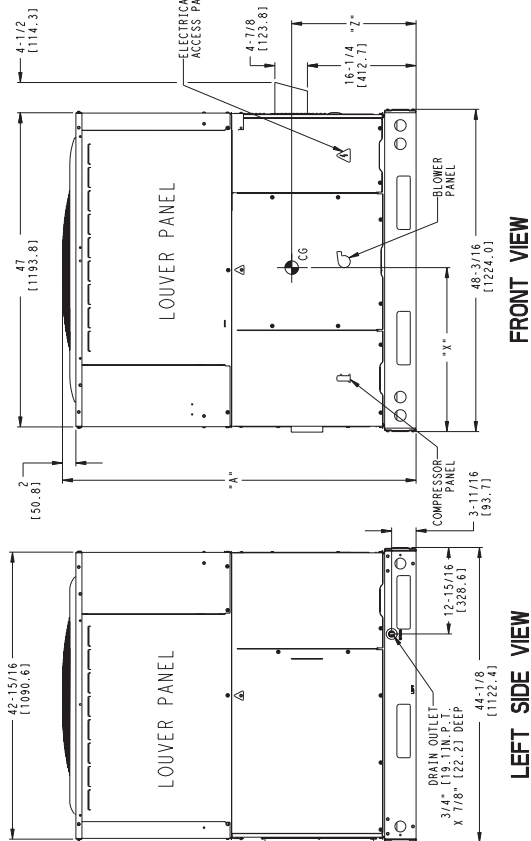
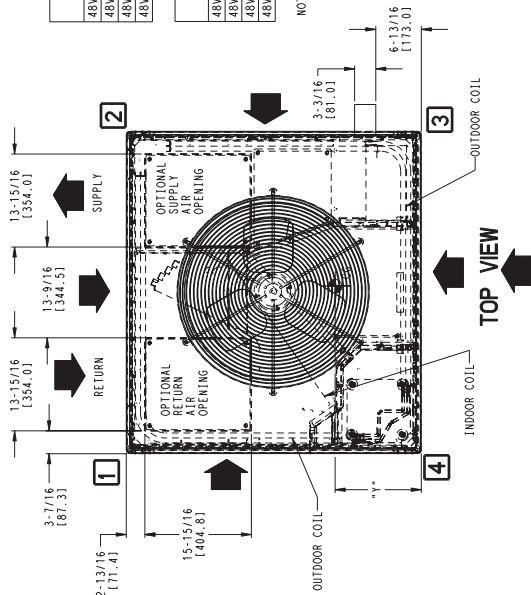
	INCHES [MM]
BETWEEN UNITS, POWER ENTRY SIDE	42 [1066.6]
UNIT AND UNGROUNDED SURFACES, POWER ENTRY SIDE	36 [914.4]
UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, POWER ENTRY SIDE	42 [1066.6]

REQUIRED CLEARANCE FOR OPERATION AND SERVICING

	INCHES [MM]
EMERGENCY ACCESS SIDE	36 [914.4]
POWER ENTRY SIDE	42 [1066.6]
(EXCEPT FOR NEC REQUIREMENTS)	48 [1219.2]
UNIT TOP OPPOSITE DUCTS	48 [1219.2]
DUCT PANEL	12 [304.8]

*MINIMUM DISTANCES: IF UNIT IS PLACED LESS THAN 12" (304.8) FROM WALL SYSTEM, THEN SYSTEM PERFORMANCE MUST BE COMPROMISED.

DIMENSIONS IN () ARE IN MM

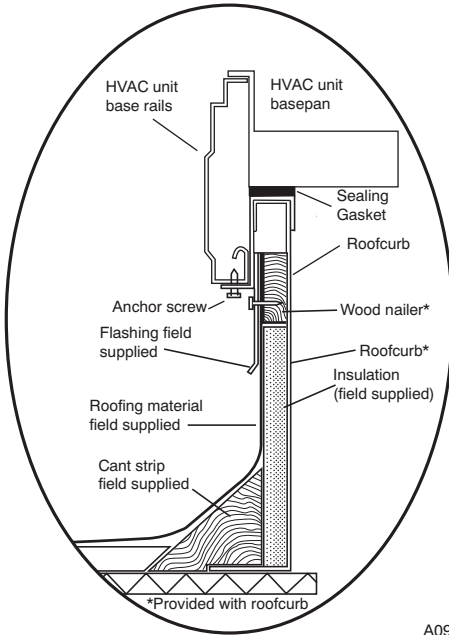


REV 2.0
48VT500038

48VT--A

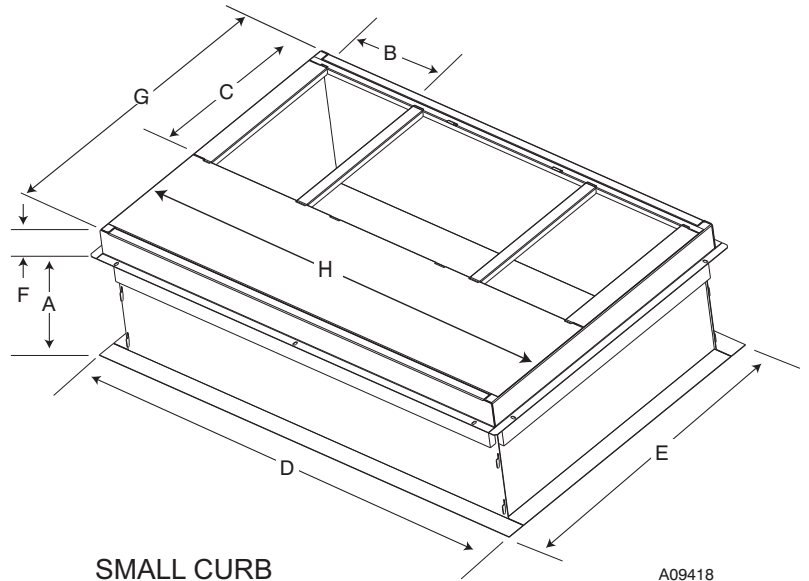
ACCESSORY DIMENSIONS

48VT--A

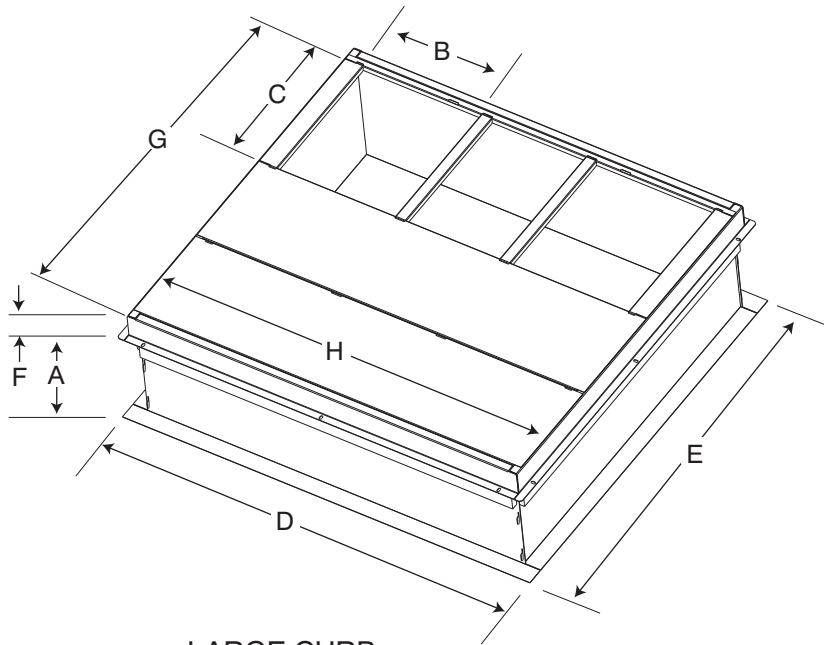


A09090

ROOF CURB DETAIL



A09418



A09415

A09419

UNIT SIZE	CATALOG NUMBER	A IN. (mm)	B IN. (mm)*	C IN. (mm)	D IN. (mm)	E IN. (mm)	F IN. (mm)	G IN. (mm)	H IN. (mm)
Small	CPRFCURB010A00	11 (279)	10 (254)	16 (406)	47.8 (1214)	32.4 (822)	2.7 (69)	30.6 (778)	46.1 (1170)
	CPRFCURB011A00	14 (356)				43.9 (1116)			
Large	CPRFCURB012A00	11 (279)	14 (356)	16 (406)	47.8 (1214)	43.9 (1116)	2.7 (69)	42.2 (1072)	46.1 (1170)
	CPRFCURB013A00	14 (356)							

NOTES:

1. Roof curb must be set up for unit being installed.
2. Seal strip must be applied, as required, to unit being installed.
3. Roof curb is made of 16-gauge steel.
4. Attach ductwork to curb (flanges of duct rest on curb).
5. Insulated panels: 1-in. (25.4 mm) thick fiberglass 1 lb. density.

IMPORTANT: Do not install large base pan HYBRID HEAT units onto the small base pan (common curb). The center of gravity on a large base pan HYBRID HEAT unit could overhang the curb causing an unsafe condition. Before installing any large base pan unit onto the common curb, check the “Y” distance in the product literature dimensional drawing to ensure that “Y” is greater than 14

in. (356 mm). Do not install any large base pan unit onto the common curb with a “Y” dimension (center of gravity) less than 14 in. (356 mm).

SELECTION PROCEDURE (WITH EXAMPLE)

1. Determine cooling and heating requirements at design conditions:

Given:

Required Cooling Capacity (TC) 34,500 Btuh
Sensible Heat Capacity (SHC) 26,000 Btuh
Required Heating Capacity 60,000 Btuh
Condenser Entering Air Temperature 95°F (35°C)
Indoor-Air Temperature 80°F (27°C) edb 67°F (19°C) ewb
Evaporator Air Quantity 1200 CFM
External Static Pressure 0.200 IN. W.C.
Electrical Characteristics 208-1-60

2. Select unit based on required cooling capacity.

Enter Net Cooling Capacities table at condenser entering temperature of 95°F (35°C). Unit 036 at 1200 CFM and 67°F (19°C) ewb (entering wet bulb) will provide a total capacity of 35,800 Btuh and a SHC of 26,950 Btuh. Calculate SHC correction, if required, using Note 4 under Cooling Capacities tables.

3. Select heating capacity of unit to provide design condition requirement.

In the Heating Capacities and Efficiencies table, note that the unit 036090 will provide 73,000 Btuh with an input of 90,000 Btuh.

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

Before entering the air delivery tables, calculate the total static pressure required. From the given example, the Wet Coil Pressure Drop Table, and the Filter Pressure Drop Table:

External Static Pressure	0.200 IN. W.C.
Filter	0.130 IN. W.C.
Wet Coil Pressure Drop	<u>0.180 IN. W.C.</u>
Total Static Pressure	0.510 IN. W.C.

Enter the table for Dry Coil Air Delivery—horizontal and downflow Discharge. At 0.5 ESP (external static pressure), in cooling the fan will deliver 1140 cfm with the MED-LOW speed tap selected. To achieve 1200 CFM a higher speed tap is required.

5. Select unit that corresponds to power source available.

The Electrical Data Table shows that the unit is designed to operate at 208-1-60.

PERFORMANCE DATA
24 Cooling Extended Performance Table

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES deg F (deg C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh	Total Sys kW	EWB	Capacity MBtuh	Total Sys kW	EWB	Capacity MBtuh	Total Sys kW	EWB	Capacity MBtuh	Total Sys kW	EWB	Capacity MBtuh	Total Sys kW	EWB	Capacity MBtuh	Total Sys kW	EWB
700	57 (13.9)	21.90	21.90	21.04	1.68	20.11	20.11	18.10	18.10	2.10	18.03	18.03	2.35	16.87	16.87	2.64			
	62 (16.7)	22.70	20.36	19.79	1.68	20.49	19.17	18.47	2.10	18.08	18.08	2.35	16.90	16.90	2.64				
	63 (17.2)	23.06	16.63	16.09	1.68	20.75	15.53	14.94	2.11	18.17	18.17	2.36	16.75	13.64	2.64				
	67 (19.4)	24.96	17.37	16.83	1.69	22.46	16.26	15.67	2.12	19.68	15.04	2.37	18.16	14.37	2.65				
	72 (22.2)	27.48	14.25	13.75	1.70	24.71	13.19	12.61	2.14	21.65	12.00	2.39	19.99	11.36	2.67				
	57 (13.9)	22.97	22.97	22.03	1.70	21.03	21.03	19.95	2.13	18.79	18.79	2.38	17.55	17.55	2.66				
	62 (16.7)	23.39	21.91	21.26	1.70	21.10	21.08	19.98	2.13	18.82	18.82	2.38	17.58	17.58	2.66				
800	63 (17.2)	23.69	17.76	17.20	1.70	21.26	16.61	15.99	2.13	18.56	15.33	2.38	17.09	14.61	2.66				
	67 (19.4)	25.63	18.59	18.02	1.71	23.00	17.43	16.80	2.14	20.09	16.14	2.39	18.51	15.43	2.67				
	72 (22.2)	28.18	15.05	14.50	1.73	25.28	13.93	13.32	2.16	22.08	12.68	2.41	20.35	12.02	2.69				
	57 (13.9)	23.89	23.89	22.88	1.72	21.81	21.81	20.66	2.15	19.43	19.43	2.40	18.11	18.11	2.69				
	62 (16.7)	24.03	23.26	22.92	1.72	21.85	21.85	20.69	2.15	19.46	19.46	2.40	18.14	18.14	2.69				
	63 (17.2)	24.20	18.85	18.26	1.72	21.66	17.64	16.99	2.15	18.86	16.29	2.40	17.35	15.52	2.68				
	67 (19.4)	26.16	19.77	19.18	1.73	23.42	18.55	17.89	2.16	20.41	17.19	2.41	18.78	16.43	2.69				
72 (22.2)	28.76	15.79	15.22	1.75	25.73	14.82	14.00	2.18	22.41	13.34	2.43	20.62	12.64	2.71					

*At 75°F (23.9 °C) entering dry bulb—tennessee valley Authority [TVA] rating conditions; all others at 80°F (26.7 °C) entering dry bulb. See Legend and Notes.

24 Heating Extended Performance Table - 10-60 (-23.3-15.6 °C)

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES deg F (deg C)																							
		-10 (-23.3)			0 (-17.8)			10 (-12.2)			20 (-6.7)			30 (-1.1)			40 (4.4)			50 (10)			60 (15.6)		
		Capacity MBtuh	Total Sys kW	CFM	Capacity MBtuh	Total Sys kW	CFM	Capacity MBtuh	Total Sys kW	CFM	Capacity MBtuh	Total Sys kW	CFM	Capacity MBtuh	Total Sys kW	CFM	Capacity MBtuh	Total Sys kW	CFM	Capacity MBtuh	Total Sys kW	CFM	Capacity MBtuh	Total Sys kW	CFM
65 (18.3)	700	7.13	6.56	8.70	1.48	9.45	8.70	12.07	11.08	1.62	14.83	13.45	1.68	17.57	15.40	1.74	20.64	20.64	1.81	24.12	24.12	1.90	28.24	28.24	2.03
	800	7.23	6.65	8.81	1.55	9.58	8.81	12.45	11.43	1.62	14.96	13.57	1.67	17.75	15.55	1.72	20.87	20.87	1.78	24.44	24.44	1.86	28.65	28.65	1.98
	900	7.32	6.74	8.91	1.56	9.68	8.91	12.55	11.52	1.61	15.09	13.68	1.66	17.90	15.68	1.71	21.07	21.07	1.76	24.69	24.69	1.84	28.85	28.85	1.95
70 (21.1)	700	6.86	6.31	8.45	1.62	9.18	8.45	11.73	10.77	1.69	14.64	13.28	1.76	17.32	15.17	1.83	20.33	20.33	1.90	23.72	23.72	1.99	27.75	27.75	2.12
	800	6.97	6.41	8.57	1.62	9.31	8.57	11.89	10.92	1.68	14.77	13.40	1.75	17.50	15.33	1.80	20.57	20.57	1.87	24.04	24.04	1.95	28.17	28.17	2.07
	900	7.06	6.50	8.67	1.62	9.42	8.67	12.03	11.04	1.68	14.90	13.51	1.74	17.65	15.47	1.79	20.76	20.76	1.85	24.29	24.29	1.93	28.44	28.44	2.04
75 (23.9)	700	6.56	6.03	8.17	1.69	8.88	8.17	11.22	10.48	1.76	14.43	13.09	1.85	17.06	14.95	1.91	20.03	20.03	1.99	23.35	23.35	2.09	27.26	27.26	2.22
	800	6.67	6.13	8.30	1.69	9.02	8.30	11.37	10.62	1.75	14.57	13.22	1.83	17.24	15.11	1.87	20.26	20.26	1.96	23.65	23.65	2.04	27.67	27.67	2.17
	900	6.76	6.22	8.40	1.70	9.13	8.40	11.71	10.75	1.75	14.69	13.32	1.82	17.40	15.24	1.89	20.45	20.45	1.94	23.89	23.89	2.02	27.96	27.96	2.14

PERFORMANCE DATA (CONT)

30 Cooling Extended Performance Table

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES deg F (deg C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh	Total Sys kW	EWB	Capacity MBtuh	Total Sys kW	EWB	Capacity MBtuh	Total Sys kW	EWB	Capacity MBtuh	Total Sys kW	EWB	Capacity MBtuh	Total Sys kW	EWB	Capacity MBtuh	Total Sys kW	EWB
875	57 (13.9)	27.14	1.89	26.11	2.10	25.02	2.33	23.84	2.59	22.53	2.89	21.09	2.89	21.09	2.89	21.09	2.89	21.09	2.89
	62 (16.7)	28.06	1.90	24.93	2.10	25.43	2.33	24.02	2.59	22.57	2.89	21.13	2.89	21.13	2.89	21.13	2.89	21.13	2.89
	63 (17.2)	28.55	1.90	20.23	2.10	25.81	2.33	24.31	2.59	22.68	2.89	20.91	2.89	20.91	2.89	20.91	2.89	20.91	2.89
	67 (19.4)	30.91	1.91	21.16	2.12	27.96	2.35	26.35	2.61	24.61	2.90	22.72	2.90	22.72	2.90	22.72	2.90	22.72	2.90
	72 (22.2)	34.14	1.93	17.12	2.14	30.88	2.37	29.10	2.63	27.19	2.92	25.11	2.92	25.11	2.92	25.11	2.92	25.11	2.92
	57 (13.9)	28.46	1.93	27.34	2.14	26.16	2.37	24.89	2.63	23.49	2.92	21.96	2.92	21.96	2.92	21.96	2.92	21.96	2.92
	62 (16.7)	28.88	1.93	27.56	2.14	26.22	2.37	24.94	2.63	23.53	2.92	21.99	2.92	21.99	2.92	21.99	2.92	21.99	2.92
1000	63 (17.2)	29.30	1.93	21.66	2.14	26.41	2.37	24.85	2.63	23.15	2.92	21.31	2.92	21.31	2.92	21.31	2.92	21.31	2.92
	67 (19.4)	31.70	1.95	22.69	2.15	28.60	2.38	26.91	2.64	25.10	2.93	23.14	2.93	23.14	2.93	23.14	2.93	23.14	2.93
	72 (22.2)	35.00	1.97	18.15	2.18	31.53	2.41	29.69	2.66	27.70	2.95	25.53	2.95	25.53	2.95	25.53	2.95	25.53	2.95
	57 (13.9)	29.59	1.97	28.40	2.17	27.13	2.40	25.78	2.66	24.30	2.96	22.67	2.96	22.67	2.96	22.67	2.96	22.67	2.96
	62 (16.7)	29.65	1.97	28.45	2.17	27.18	2.40	25.83	2.66	24.34	2.96	22.71	2.96	22.71	2.96	22.71	2.96	22.71	2.96
	63 (17.2)	29.89	1.97	28.41	2.17	26.89	2.40	25.26	2.66	23.52	2.96	21.64	2.96	21.64	2.96	21.64	2.96	21.64	2.96
	67 (19.4)	32.31	1.98	30.72	2.19	29.08	2.42	27.34	2.67	25.48	2.97	23.46	2.97	23.46	2.97	23.46	2.97	23.46	2.97
1125	72 (22.2)	35.63	2.01	19.11	2.21	32.06	2.44	30.14	2.70	28.08	2.99	25.85	2.99	25.85	2.99	25.85	2.99	25.85	2.99
	57 (13.9)	29.59	1.97	28.40	2.17	27.13	2.40	25.78	2.66	24.30	2.96	22.67	2.96	22.67	2.96	22.67	2.96	22.67	2.96
	62 (16.7)	29.65	1.97	28.45	2.17	27.18	2.40	25.83	2.66	24.34	2.96	22.71	2.96	22.71	2.96	22.71	2.96	22.71	2.96
	63 (17.2)	29.89	1.97	28.41	2.17	26.89	2.40	25.26	2.66	23.52	2.96	21.64	2.96	21.64	2.96	21.64	2.96	21.64	2.96
	67 (19.4)	32.31	1.98	30.72	2.19	29.08	2.42	27.34	2.67	25.48	2.97	23.46	2.97	23.46	2.97	23.46	2.97	23.46	2.97
	72 (22.2)	35.63	2.01	19.11	2.21	32.06	2.44	30.14	2.70	28.08	2.99	25.85	2.99	25.85	2.99	25.85	2.99	25.85	2.99
	57 (13.9)	29.59	1.97	28.40	2.17	27.13	2.40	25.78	2.66	24.30	2.96	22.67	2.96	22.67	2.96	22.67	2.96	22.67	2.96

*At 75°F (23.9°C) entering dry bulb—Tennessee Valley Authority [TVA] rating conditions; all others at 80°F (26.7°C) entering dry bulb. See Legend and Notes.

30 Heating Extended Performance Table - 10-60 (-23.3-15.6°C)

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES deg F (deg C)																								
		-10 (-23.3)			0 (-17.8)			10 (-12.2)			20 (-6.7)			30 (-1.1)			40 (4.4)			50 (10)			60 (15.6)			
		Capacity MBtuh	Total Sys kW	CFM	Capacity MBtuh	Total Sys kW	CFM	Capacity MBtuh	Total Sys kW	CFM	Capacity MBtuh	Total Sys kW	CFM	Capacity MBtuh	Total Sys kW	CFM	Capacity MBtuh	Total Sys kW	CFM	Capacity MBtuh	Total Sys kW	CFM	Capacity MBtuh	Total Sys kW	CFM	
65 (18.3)	875	9.56	8.79	1.94	12.51	11.51	2.01	16.03	14.71	2.09	19.18	17.39	2.16	22.61	19.81	2.23	26.50	26.50	2.32	31.02	31.02	2.44	36.42	36.42	2.60	
	1000	9.74	8.96	1.96	12.71	11.70	2.02	16.27	14.93	2.09	19.37	17.57	2.15	22.86	20.03	2.22	26.81	26.81	2.30	31.42	31.42	2.41	36.91	36.91	2.56	
	1125	9.89	9.10	1.98	12.89	11.86	2.04	16.43	15.08	2.10	19.55	17.73	2.15	23.07	20.21	2.21	27.06	27.06	2.29	31.72	31.72	2.39	37.19	37.19	2.54	
	70 (21.1)	875	9.13	8.40	2.02	12.12	11.15	2.10	15.35	14.09	2.17	18.92	17.16	2.26	22.31	19.55	2.34	26.15	26.15	2.43	30.55	30.55	2.55	35.85	35.85	2.71
		1000	9.31	8.57	2.04	12.32	11.34	2.11	15.60	14.31	2.17	19.13	17.35	2.25	22.56	19.77	2.32	26.45	26.45	2.40	30.95	30.95	2.51	36.34	36.34	2.67
		1125	9.47	8.72	2.06	12.50	11.51	2.12	15.85	14.55	2.18	19.31	17.51	2.25	22.77	19.95	2.31	26.70	26.70	2.39	31.25	31.25	2.50	36.67	36.67	2.66
		75 (23.9)	875	8.67	7.98	2.11	11.69	10.76	2.19	14.93	13.70	2.27	18.68	16.94	2.37	22.01	19.29	2.45	25.79	25.79	2.45	30.10	30.10	2.67	35.28	35.28
1000			8.85	8.14	2.12	11.90	10.95	2.20	15.16	13.92	2.27	18.88	17.12	2.36	22.25	19.50	2.43	26.09	26.09	2.51	30.49	30.49	2.63	35.76	35.76	2.78
1125			9.01	8.29	2.15	12.08	11.12	2.21	15.36	14.10	2.28	19.05	17.27	2.36	22.46	19.68	2.42	26.33	26.33	2.50	30.79	30.79	2.61	36.10	36.10	2.77

PERFORMANCE DATA (CONT)
36 Cooling Extended Performance Table

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES deg F (deg C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh	Total Sys kW	EWB	Capacity MBtuh	Total Sys kW	EWB	Capacity MBtuh	Total Sys kW	EWB	Capacity MBtuh	Total Sys kW	EWB	Capacity MBtuh	Total Sys kW	EWB	Capacity MBtuh	Total Sys kW	EWB
1050	57 (13.9)	33.80	33.80	2.35	32.51	32.51	2.62	31.13	31.13	2.92	29.64	29.64	3.26	28.00	28.00	3.65	26.21	26.21	4.10
	62 (16.7)	35.12	31.40	2.36	30.56	30.56	2.62	29.63	29.63	2.92	30.03	28.60	3.26	28.11	28.06	3.65	26.26	26.26	4.10
	63 (17.2)	35.63	25.64	2.36	33.98	24.84	2.63	24.00	30.35	2.93	30.35	23.10	3.26	28.32	22.12	3.65	21.07	21.07	4.10
	67 (19.4)	38.56	26.79	2.38	36.80	25.98	2.65	34.93	25.15	2.95	32.93	24.26	3.28	30.76	23.29	3.67	28.43	22.24	4.11
	72 (22.2)	42.38	22.02	2.40	40.45	21.27	2.68	38.42	20.46	2.98	36.23	19.60	3.31	33.88	18.68	3.70	31.34	17.68	4.14
	57 (13.9)	35.46	35.46	2.39	34.08	34.08	2.66	32.59	32.59	2.96	30.99	30.99	3.30	29.24	29.24	3.69	27.32	27.32	4.13
	62 (16.7)	36.21	33.75	2.39	34.54	32.85	2.66	32.81	31.79	2.96	31.05	31.05	3.30	29.29	29.29	3.69	27.37	27.37	4.13
1200	63 (17.2)	36.62	27.38	2.39	34.89	26.53	2.66	33.05	25.66	2.96	31.08	24.72	3.30	28.96	23.70	3.68	26.68	22.59	4.13
	67 (19.4)	39.61	28.66	2.41	37.76	27.82	2.69	35.80	26.95	2.98	33.70	26.01	3.32	31.44	25.00	3.71	29.01	23.90	4.15
	72 (22.2)	43.49	23.23	2.44	41.47	22.43	2.72	39.34	21.59	3.02	37.05	20.70	3.35	34.60	19.74	3.74	31.95	18.70	4.17
	57 (13.9)	36.89	36.89	2.43	35.42	35.42	2.70	33.84	33.84	3.00	32.14	32.14	3.34	30.28	30.28	3.72	28.26	28.26	4.17
	62 (16.7)	37.18	35.89	2.43	35.49	35.49	2.70	33.90	33.90	3.00	32.19	32.19	3.34	30.33	30.33	3.72	28.31	28.31	4.17
	63 (17.2)	37.42	29.04	2.43	35.62	28.17	2.70	33.71	27.26	2.99	31.67	26.28	3.33	29.48	25.20	3.72	27.14	24.02	4.16
	67 (19.4)	40.44	30.46	2.45	38.52	29.60	2.72	36.49	28.69	3.02	34.31	27.70	3.36	31.98	26.64	3.74	29.48	25.47	4.18
72 (22.2)	44.37	24.36	2.48	42.29	23.54	2.75	40.06	22.67	3.05	37.69	21.74	3.39	35.15	20.74	3.77	32.42	19.67	4.21	

*At 75°F (23.9°C) entering dry bulb—Tennessee Valley Authority [TVA] rating conditions; all others at 80°F (26.7°C) entering dry bulb. See Legend and Notes.

36 Heating Extended Performance Table - 10-60 (-23.3-15.6°C)

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES deg F (deg C)																								
		-10 (-23.3)			0 (-17.8)			10 (-12.2)			20 (-6.7)			30 (-1.1)			40 (4.4)			50 (10)			60 (15.6)			
		Capacity MBtuh	Total Sys kW	EDB	Capacity MBtuh	Total Sys kW	EDB	Capacity MBtuh	Total Sys kW	EDB	Capacity MBtuh	Total Sys kW	EDB	Capacity MBtuh	Total Sys kW	EDB	Capacity MBtuh	Total Sys kW	EDB	Capacity MBtuh	Total Sys kW	EDB	Capacity MBtuh	Total Sys kW	EDB	
65 (18.3)	1050	12.06	11.10	2.28	15.34	14.11	2.37	19.31	17.73	2.48	22.99	20.85	2.57	27.20	23.83	2.67	32.01	32.01	2.79	37.62	37.62	2.96	44.15	44.15	3.17	
	1200	12.24	11.26	2.28	15.55	14.31	2.37	19.49	17.89	2.46	23.21	21.05	2.54	27.49	24.09	2.63	32.36	32.36	2.75	38.06	38.06	2.92	43.75	43.75	3.10	
	1350	12.40	11.41	2.29	15.73	14.47	2.37	19.66	18.05	2.46	23.40	21.22	2.53	27.72	24.29	2.62	32.62	32.62	2.75	38.08	38.08	2.88	42.98	42.98	3.07	
	70 (21.1)	1050	11.60	10.67	2.40	14.89	13.70	2.49	19.02	17.45	2.61	22.66	20.55	2.69	26.81	23.49	2.76	31.55	31.55	2.93	37.02	37.02	3.10	43.57	43.57	3.32
		1200	11.79	10.84	2.40	15.10	13.89	2.49	19.22	17.64	2.59	22.88	20.75	2.67	27.09	23.74	2.76	31.91	31.91	2.88	37.47	37.47	3.05	43.39	43.39	3.24
		1350	11.95	10.99	2.41	15.28	14.06	2.49	19.39	17.80	2.59	23.08	20.93	2.66	27.33	23.94	2.74	32.17	32.17	2.86	37.72	37.72	3.02	42.75	42.75	3.21
		75 (23.9)	1050	11.10	10.21	2.52	14.41	13.26	2.62	18.18	16.69	2.72	22.35	20.27	2.83	26.42	23.15	2.94	31.08	31.08	3.07	36.44	36.44	3.24	42.87	42.87
1200			11.29	10.38	2.53	14.62	13.46	2.62	18.52	17.00	2.71	22.56	20.46	2.81	26.70	23.43	2.90	31.43	31.43	3.02	36.87	36.87	3.18	42.98	42.98	3.39
1350			11.45	10.53	2.54	14.81	13.62	2.62	18.95	17.40	2.71	22.75	20.64	2.79	26.93	23.60	2.88	31.71	31.71	2.99	37.19	37.19	3.17	42.46	42.46	3.36

PERFORMANCE DATA (CONT)

42 Cooling Extended Performance Table

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES deg F (deg C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh	Total Sys kW	Sens	Capacity MBtuh	Total Sys kW	Sens	Capacity MBtuh	Total Sys kW	Sens	Capacity MBtuh	Total Sys kW	Sens	Capacity MBtuh	Total Sys kW	Sens	Capacity MBtuh	Total Sys kW	Sens
1225	57 (13.9)	38.52	2.64	36.98	2.93	35.30	3.27	33.49	3.66	31.53	4.11	29.35	4.64	27.40	5.10	25.30	5.59	23.35	6.08
	62 (16.7)	40.25	2.66	35.40	2.95	34.18	3.28	34.25	3.67	31.99	4.12	29.51	4.64	27.40	5.10	25.30	5.59	23.35	6.08
	63 (17.2)	40.42	2.66	28.53	2.95	27.40	3.28	34.29	3.67	31.96	4.12	29.43	4.64	27.40	5.10	25.30	5.59	23.35	6.08
	67 (19.4)	43.85	2.69	29.93	2.98	28.79	3.32	37.21	3.71	34.68	4.17	31.95	4.70	29.43	5.10	25.30	5.59	23.35	6.08
	72 (22.2)	47.65	2.73	24.58	3.02	23.50	3.37	40.32	3.77	37.55	4.23	34.58	4.76	31.95	5.10	25.30	5.59	23.35	6.08
	57 (13.9)	40.25	2.70	38.58	2.99	36.77	3.33	34.83	3.72	32.71	4.18	30.39	4.71	29.43	5.10	25.30	5.59	23.35	6.08
	62 (16.7)	41.40	2.71	37.83	3.00	37.36	3.33	35.17	3.73	32.82	4.18	30.43	4.71	29.43	5.10	25.30	5.59	23.35	6.08
1400	63 (17.2)	41.51	2.71	30.16	3.00	28.97	3.33	35.07	3.72	32.62	4.17	29.99	4.70	27.40	5.10	25.30	5.59	23.35	6.08
	67 (19.4)	45.01	2.74	31.72	3.04	30.50	3.37	38.03	3.77	35.38	4.23	32.54	4.76	29.43	5.10	25.30	5.59	23.35	6.08
	72 (22.2)	48.85	2.78	25.66	3.08	24.51	3.42	41.16	3.83	38.26	4.29	35.16	4.82	31.95	5.10	25.30	5.59	23.35	6.08
	57 (13.9)	41.72	2.75	39.93	3.05	38.01	3.39	35.94	3.78	33.69	4.24	31.24	4.77	29.43	5.10	25.30	5.59	23.35	6.08
	62 (16.7)	42.39	2.76	40.36	3.05	38.18	3.39	36.02	3.78	33.74	4.24	31.28	4.77	29.43	5.10	25.30	5.59	23.35	6.08
	63 (17.2)	42.38	2.76	31.70	3.05	38.04	3.38	35.68	3.77	33.14	4.23	30.42	4.75	29.43	5.10	25.30	5.59	23.35	6.08
	67 (19.4)	45.94	2.79	33.40	3.09	41.24	3.43	38.67	3.83	35.92	4.28	32.99	4.81	31.95	5.10	25.30	5.59	23.35	6.08
72 (22.2)	49.80	2.84	28.65	3.14	25.45	3.48	41.80	3.88	38.81	4.35	35.62	4.88	31.95	5.10	25.30	5.59	23.35	6.08	

*At 75°F (23.9°C) entering dry bulb—Tennessee Valley Authority [TVA] rating conditions; all others at 80°F (26.7°C) entering dry bulb. See Legend and Notes.

42 Heating Extended Performance Table - 10-60 (-23.3-15.6°C)

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES deg F (deg C)																							
		-10 (-23.3)			0 (-17.8)			10 (-12.2)			20 (-6.7)			30 (-1.1)			40 (4.4)			50 (10)			60 (15.6)		
		Capacity MBtuh	Total Sys kW	Sens	Capacity MBtuh	Total Sys kW	Sens	Capacity MBtuh	Total Sys kW	Sens	Capacity MBtuh	Total Sys kW	Sens	Capacity MBtuh	Total Sys kW	Sens	Capacity MBtuh	Total Sys kW	Sens	Capacity MBtuh	Total Sys kW	Sens			
65 (18.3)	1225	13.77	2.42	17.68	2.58	21.89	2.72	25.94	2.83	30.55	2.94	35.85	3.08	42.16	3.29	48.46	3.55	55.17	4.02	62.88	4.50	70.59	4.94		
	1400	13.95	2.44	17.89	2.59	22.07	2.72	26.18	2.82	30.86	2.94	36.22	3.06	42.20	3.24	47.82	3.50	54.53	3.93	62.24	4.38	70.75	4.80		
	1575	14.11	2.46	18.12	2.61	22.25	2.73	26.38	2.83	31.11	2.92	36.53	3.07	41.84	3.24	47.22	3.49	54.30	3.91	61.74	4.36	70.56	4.78		
	70 (21.1)	1225	13.46	2.56	17.32	2.72	21.69	2.86	25.65	2.96	30.15	2.94	35.34	3.22	41.53	3.44	48.06	3.71	54.78	4.14	62.29	4.59	70.80	4.96	
		1400	13.65	2.57	17.54	2.72	21.88	2.86	25.89	2.95	30.46	2.94	35.70	3.19	41.84	3.39	47.53	3.67	54.99	4.02	62.52	4.51	70.83	4.97	
		1575	13.82	2.59	17.73	2.74	22.04	2.86	26.11	2.95	30.72	2.94	36.01	3.20	41.57	3.39	46.99	3.65	54.26	4.02	61.77	4.49	70.86	4.98	
	75 (23.9)	1225	13.07	2.69	16.92	2.85	21.46	2.94	25.36	3.00	29.77	2.94	34.82	3.37	40.89	3.60	47.64	3.89	54.36	4.14	61.88	4.51	70.83	4.97	
1400		13.27	2.71	17.15	2.86	21.67	2.94	25.60	3.00	30.06	2.94	35.19	3.34	41.34	3.56	47.18	3.84	54.43	4.14	61.95	4.51	70.90	4.97		
1575		13.45	2.73	17.36	2.88	21.83	2.94	25.80	3.09	30.32	2.94	35.47	3.34	41.27	3.54	46.71	3.83	54.50	4.14	62.02	4.51	70.97	4.97		

PERFORMANCE DATA (CONT)
48 Cooling Extended Performance Table

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES deg F (deg C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		CFM	EWB	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW		
57	(13.9)	44.75	44.75	3.06	42.98	41.06	39.00	3.77	39.00	36.79	4.20	36.79	4.67	34.42	34.42	5.18			
62	(16.7)	46.12	41.54	3.07	43.97	39.04	37.55	3.78	39.29	36.86	4.20	36.86	4.67	34.48	34.48	5.18			
63	(17.2)	46.70	33.68	3.07	44.47	31.45	30.23	3.78	39.54	36.87	4.20	36.87	4.67	34.05	27.58	5.18			
67	(19.4)	50.55	35.24	3.10	48.13	32.98	31.75	3.81	42.81	39.93	4.23	39.93	4.70	36.89	29.07	5.21			
72	(22.2)	55.52	28.74	3.13	52.82	26.55	25.36	3.84	46.97	43.81	4.26	43.81	4.73	40.47	22.80	5.24			
57	(13.9)	46.77	46.77	3.13	44.87	42.79	40.57	3.85	40.57	38.20	4.27	38.20	4.74	35.66	35.66	5.25			
62	(16.7)	47.44	44.50	3.14	45.22	42.89	40.63	3.85	40.63	38.26	4.27	38.26	4.74	35.71	35.71	5.25			
63	(17.2)	47.85	35.90	3.14	45.50	33.55	32.27	3.85	40.33	37.54	4.27	37.54	4.73	34.62	29.45	5.24			
67	(19.4)	51.78	37.65	3.17	49.22	35.26	33.97	3.88	43.64	40.64	4.30	40.64	4.76	37.48	31.13	5.27			
72	(22.2)	56.83	30.24	3.20	53.99	29.12	27.94	3.91	47.86	44.56	4.33	44.56	4.80	41.08	24.03	5.30			
57	(13.9)	48.51	48.51	3.20	46.46	44.24	41.88	3.92	41.88	39.36	4.34	39.36	4.81	36.67	36.67	5.32			
62	(16.7)	48.63	48.63	3.20	46.54	44.31	41.95	3.92	41.95	39.42	4.34	39.42	4.81	36.72	36.72	5.32			
63	(17.2)	48.76	38.03	3.20	46.31	35.57	34.21	3.91	40.94	38.07	4.33	38.07	4.80	35.07	31.19	5.30			
67	(19.4)	52.73	39.96	3.23	50.06	37.47	36.10	3.94	44.28	41.18	4.36	41.18	4.83	37.93	33.06	5.33			
72	(22.2)	57.85	31.65	3.26	54.90	30.49	29.26	3.97	48.53	45.11	4.39	45.11	4.86	41.53	25.19	5.36			

*At 75°F (23.9°C) entering dry bulb—Tennessee Valley Authority [TVA] rating conditions; all others at 80°F (26.7°C) entering dry bulb. See Legend and Notes.

48 Heating Extended Performance Table -10-60 (-23.3-15.6°C)

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES deg F (deg C)																							
		-10 (-23.3)			0 (-17.8)			10 (-12.2)			20 (-6.7)			30 (-1.1)			40 (4.4)			50 (10)			60 (15.6)		
		EDB	CFM	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW		
65	(18.3)	15.24	14.02	3.00	20.15	18.54	3.09	25.29	23.21	3.21	29.94	27.15	3.32	35.20	30.84	3.45	41.16	41.16	3.82	48.10	48.10	3.83	54.59	54.59	4.07
1600	15.50	14.26	3.04	20.44	18.80	3.12	25.55	23.45	3.23	30.25	27.43	3.33	35.57	31.17	3.45	41.64	41.64	3.63	47.73	47.73	3.81	53.60	53.60	4.04	
1800	14.75	13.57	3.12	19.66	18.09	3.22	25.02	22.96	3.36	29.60	26.84	3.47	34.73	30.43	3.61	40.57	40.57	3.79	47.52	47.52	4.02	54.22	54.22	4.26	
1400	15.01	13.81	3.16	19.94	18.34	3.25	25.26	23.19	3.37	29.91	27.12	3.48	35.11	30.76	3.61	41.02	41.02	3.78	47.42	47.42	3.98	53.38	53.38	4.23	
1800	15.27	14.04	3.21	20.24	18.62	3.29	25.51	23.41	3.40	30.18	27.37	3.50	35.42	31.04	3.63	41.43	41.43	3.80	46.98	46.98	3.99	52.55	52.55	4.22	
1400	14.22	13.08	3.25	19.13	17.60	3.36	24.68	22.65	3.51	29.23	26.51	3.64	34.26	30.02	3.78	39.96	39.96	3.96	46.79	46.79	4.21	53.79	53.79	4.46	
1800	14.48	13.32	3.29	19.44	17.89	3.39	24.97	22.92	3.53	29.54	26.79	3.64	34.63	30.34	3.78	40.40	40.40	3.95	47.06	47.06	4.16	53.09	53.09	4.42	
1800	14.73	13.55	3.34	19.71	18.14	3.43	25.22	23.15	3.56	29.82	27.04	3.66	34.95	30.62	3.79	40.82	40.82	3.98	46.70	46.70	4.17	52.35	52.35	4.42	

PERFORMANCE DATA (CONT)

60 Cooling Extended Performance Table

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES deg F (deg C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh	Sens	Total Sys kW	Capacity MBtuh	Sens	Total Sys kW	Capacity MBtuh	Sens	Total Sys kW	Capacity MBtuh	Sens	Total Sys kW	Capacity MBtuh	Sens	Total Sys kW	Capacity MBtuh	Sens	Total Sys kW
1750	57 (13.9)	56.58	54.25	4.23	51.74	49.03	4.69	49.03	5.20	46.02	46.02	5.80	42.74	42.74	5.80	42.74	42.74	6.47	
	62 (16.7)	58.15	51.34	4.24	52.31	48.23	4.69	49.14	5.21	46.10	46.10	5.80	42.80	42.80	5.80	42.80	42.80	6.47	
	63 (17.2)	58.96	41.68	4.25	52.93	38.94	4.70	49.57	5.21	45.96	45.96	5.79	42.09	34.04	5.79	42.09	34.04	6.46	
	67 (19.4)	63.58	43.48	4.30	57.00	40.70	4.75	53.35	5.26	49.42	49.42	5.84	45.21	35.73	5.84	45.21	35.73	6.50	
	72 (22.2)	69.81	35.09	4.36	62.44	32.52	4.82	58.39	5.33	54.03	54.03	5.90	49.34	27.71	5.90	49.34	27.71	6.55	
	57 (13.9)	59.07	59.07	4.33	53.81	53.81	4.79	50.87	5.31	47.61	47.61	5.89	44.07	44.07	5.89	44.07	44.07	6.56	
	62 (16.7)	59.71	55.08	4.34	53.90	53.90	4.79	50.94	5.31	47.68	47.68	5.90	44.13	44.13	5.90	44.13	44.13	6.56	
2000	63 (17.2)	60.33	44.49	4.34	53.93	41.62	4.79	50.41	5.30	46.64	46.64	5.88	42.63	36.38	5.88	42.63	36.38	6.54	
	67 (19.4)	64.95	46.50	4.39	58.02	43.59	4.84	54.20	5.35	50.08	50.08	5.93	45.71	38.29	5.93	45.71	38.29	6.58	
	72 (22.2)	71.19	37.15	4.46	63.50	34.29	4.91	59.27	5.42	54.69	54.69	5.99	49.83	29.27	5.99	49.83	29.27	6.63	
	57 (13.9)	61.14	61.14	4.43	55.52	55.52	4.89	52.36	5.40	48.89	48.89	5.99	45.23	45.23	5.99	45.23	45.23	6.65	
	62 (16.7)	61.25	61.25	4.43	55.60	55.60	4.89	52.43	5.40	48.95	48.95	5.99	45.28	45.28	5.99	45.28	45.28	6.65	
	63 (17.2)	61.37	47.18	4.43	54.69	44.17	4.88	51.04	5.38	47.15	40.61	5.96	43.03	38.53	5.96	43.03	38.53	6.62	
	67 (19.4)	65.96	49.40	4.48	62.50	47.93	4.93	54.82	5.44	50.57	42.76	6.01	46.07	40.65	6.01	46.07	40.65	6.66	
72 (22.2)	72.28	38.89	4.55	68.41	37.47	5.00	59.88	5.51	55.14	32.63	6.08	50.13	30.78	6.08	50.13	30.78	6.71		

*At 75°F (23.9 °C) entering dry bulb—Tennessee Valley Authority [TVA] rating conditions; all others at 80°F (26.7 °C) entering dry bulb. See Legend and Notes.

60 Heating Extended Performance Table -10-60 (-23.3-15.6 °C)

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES deg F (deg C)																								
		-10 (-23.3)			0 (-17.8)			10 (-12.2)			20 (-6.7)			30 (-1.1)			40 (4.4)			50 (10)			60 (15.6)			
		Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW	Capacity MBtuh	Total Sys kW			
65 (18.3)	1750	21.10	19.41	3.70	28.76	24.62	3.86	32.97	30.17	4.02	39.65	35.96	4.20	46.23	40.51	4.36	53.69	54.69	4.55	62.45	62.45	4.80	72.83	72.83	5.13	
	2000	21.50	19.78	3.75	27.19	25.02	3.90	33.42	30.68	4.05	40.05	36.32	4.20	46.75	40.96	4.35	54.33	54.33	4.52	63.26	63.26	4.75	73.65	73.65	5.06	
	2250	21.87	20.12	3.81	27.58	25.37	3.95	34.54	31.70	4.11	40.41	36.65	4.23	47.21	41.37	4.36	54.88	54.88	4.52	63.92	63.92	4.74	74.66	74.66	5.04	
	70 (21.1)	1750	20.30	18.67	3.85	26.01	23.93	4.02	32.15	29.51	4.19	39.25	35.59	4.39	45.69	40.03	4.56	52.98	52.98	4.76	61.58	61.58	5.02	71.76	71.76	5.35
		2000	20.71	19.05	3.90	26.46	24.34	4.06	32.62	29.94	4.22	39.63	35.94	4.39	46.19	40.47	4.55	53.62	53.62	4.73	62.37	62.37	5.02	72.76	72.76	5.27
		2250	21.08	19.39	3.96	26.85	24.71	4.11	33.01	30.30	4.25	40.01	36.29	4.42	46.63	40.86	4.56	54.16	54.16	4.73	63.03	63.03	4.95	73.56	73.56	5.26
		1750	19.43	17.88	4.01	25.22	23.21	4.19	31.39	28.81	4.38	38.81	35.20	4.78	45.13	39.54	4.80	52.29	52.29	4.98	60.72	60.72	5.24	70.71	70.71	5.58
2000		19.85	18.26	4.06	25.67	23.62	4.23	31.88	29.26	4.40	39.22	35.57	4.60	45.64	39.99	4.76	52.90	52.90	4.95	61.50	61.50	5.18	71.69	71.69	5.50	
2250		20.22	18.61	4.12	26.07	23.98	4.28	32.31	29.65	4.44	39.61	35.92	4.62	46.08	40.37	4.77	53.44	53.44	4.94	62.15	62.15	5.16	72.44	72.44	5.47	

LEGEND

- BF — Bypass Factor
 edb — Entering Dry – Bulb
 Ewb — Entering Wet – Bulb
 kW — Total Unit Power Input
 SHC — Sensible Heat Capacity (1000 Btuh)
 TC — Total Capacity (1000 Btuh) (net)
 rh — Relative Humidity

COOLING NOTES:

1. Ratings are net; they account for the effects of the evaporator—fan motor power and heat.
2. Direct interpolation is permissible. Do not extrapolate.
3. The following formulas may be used:

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

$$t_{wb} = \text{Wet-bulb temperature corresponding to enthalpy of air leaving evaporator coil (} t_{lwb} \text{)} = t_{hwb} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{cfm}}$$

Where: t_{hwb} = Enthalpy of air entering evaporator coil

4. The SHC is based on 80°F (26.7 °C) edb temperature of air entering evaporator coil. Below 80°F (26.7° C) edb, subtract (corr factor x cfm) from SHC. Above 80°F (26.7° C) edb, add (corr factor x cfm) to SHC.

5. Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

PERFORMANCE DATA (CONT)

Natural Gas Orifice Sizes and Manifold Pressure

Nameplate Input (Btu/hr)		ALTITUDE OF INSTALLATION (FT. ABOVE SEA LEVEL) U.S.A.*				
		0 to 2000 (0-610 m)	2001 to 3000* (611 to 914 m)	3001 to 4000 (915 to 1219 m)	4001 to 5000 (1220 to 1524 m)	5001 to 6000 (1524 to 1829 m)
40000	Orifice No. (Qty)	44 (2)	45 (2)†	48 (2)†	48 (2)†	48 (2)†
	Manifold Press. (in. W.C.)	3.2	3.2	3.8	3.5	3.2
60000	Orifice No. (Qty)	38 (2)	41 (2)†	41 (2)†	42 (2)†	42 (2)†
	Manifold Press. (in. W.C.)	3.6	3.8	3.4	3.4	3.2
90000	Orifice No. (Qty)	38 (3)	41 (3)†	41 (3)†	42 (3)†	42 (3)†
	Manifold Press. (in. W.C.)	3.6	3.8	3.4	3.4	3.2
115000	Orifice No. (Qty)	33 (3)	36 (3)†	36 (3)†	36 (3)†	38 (3)†
	Manifold Press. (in. W.C.)	3.8	3.8	3.6	3.3	3.6
130000	Orifice No. (Qty)	31 (3)	31 (3)	33 (3)†	33 (3)†	34 (3)†
	Manifold Press. (in. W.C.)	3.8	3.2	3.7	3.4	3.3

*In the U.S.A., the input rating for altitudes above 2000 ft (610m) must be reduced by 4% for each 1000 ft (305 m) above sea level.

In Canada, the input rating for altitudes from 2001 to 4500 ft (611 to 1372 m) above sea level must be derated by 10% by an authorized gas conversion station or dealer.

For Canadian Installations from 2000 to 4500 ft, use U.S.A. column 2001 to 3000 ft.

Note: Orifice sizes and manifold pressure settings are based on natural gas with a heating value of 1025 Btu/ft³ and a specific gravity of .6.

† Orifices available through your distributor.

Propane Gas Orifice Sizes and Manifold Pressure

Nameplate Input (Btu/hr)		ALTITUDE OF INSTALLATION (FT. ABOVE SEA LEVEL) U.S.A.*				
		0 to 2000 (0-610 m)	2001 to 3000* (611 to 914 m)	3001 to 4000 (915 to 1219 m)	4001 to 5000 (1220 to 1524 m)	5001 to 6000 (1524 to 1829 m)
40000	Orifice No. (Qty)	55 (2)	56 (2)	56 (2)	56 (2)	56 (2)
	Manifold Press. (IN. W.C.)	10.0	11.0	11.0	11.0	10.7
60000	Orifice No. (Qty)	53 (2)	54 (2)	54 (2)	54 (2)	54 (2)
	Manifold Press. (IN. W.C.)	10.0	11.0	11.0	11.0	11.0
90000	Orifice No. (Qty)	53 (3)	54 (3)	54 (3)	54 (3)	54 (3)
	Manifold Press. (IN. W.C.)	10.0	11.0	11.0	11.0	11.0
115000	Orifice No. (Qty)	51 (3)	52 (3)	52 (3)	53 (3)	53 (3)
	Manifold Press. (IN. W.C.)	10.0	11.0	10.6	11.0	11.0
130000	Orifice No. (Qty)	49 (3)	50 (3)	51 (3)	52 (3)	52 (3)
	Manifold Press. (IN. W.C.)	10.0	11.0	11.0	11.0	11.0

*In the U.S.A., the input rating for altitudes above 2000 ft (610m) must be reduced by 4% for each 1000 ft (305 m) above sea level.

In Canada, the input rating for altitudes from 2001 to 4500 ft (611 to 1372 m) above sea level must be derated by 10% by an authorized gas conversion station or dealer.

For Canadian Installations from 2000 to 4500 ft (610-1372 m), use U.S.A. column 2001 to 3000 ft (611 to 914 m).

†Use Kit No. CPLPCONV013A00 (0-2000 ft [0-610 m] above sea level). Use Kit No. CPLPCONV014A00 (2001-6000 ft [611-1829 m] above sea level).

High Altitude Compensation, Propane Gas

Nameplate Input (Btu/hr)	Rated Heating Input (Btu/hr), Propane Gas at Installation Altitude Above Sea Level, U.S.A.*				
	0 to 2000 ft (0-610 m)	2001 to 3000 ft* (611 to 914 m)	3001 to 4000 ft (915 to 1219 m)	4001 to 5000 ft (1220 to 1524 m)	5001 to 6000 ft (1524 to 1829 m)
40000	38000	31700	31700	31700	31200
60000	53000	45900	45900	45800	45800
90000	79000	68900	68900	68600	68600
115000	103000	100400	98900	83000	83000
130000	116000	115500	111800	101300	100400

*In the U.S.A., the input rating for altitudes above 2000 ft (610m) must be reduced by 4% for each 1000 ft (305 m) above sea level.

In Canada, the input rating for altitudes from 2001 to 4500 ft (611 to 1372 m) above sea level must be derated by 10% by an authorized gas conversion station or dealer.

For Canadian Installations from 2000 to 4500 ft (610-1372 m), use U.S.A. column 2001 to 3000 ft (611 to 914 m).

High Altitude Compensation, Natural Gas

Nameplate Input (Btu/hr)	Rated Heating Input (Btu/hr), Natural Gas at Installation Altitude Above Sea Level, U.S.A.*				
	0 to 2000 ft (0-610 m)	2001 to 3000 ft* (611 to 914 m)	3001 to 4000 ft (915 to 1219 m)	4001 to 5000 ft (1220 to 1524 m)	5001 to 6000 ft (1524 to 1829 m)
40000	40000	36000	34400	32800	31200
60000	60000	54000	51600	49200	46800
90000	90000	81000	77400	73800	70200
115000	115000	103500	98900	94300	89700
130000	130000	117000	111800	106600	101400

*In the U.S.A., the input rating for altitudes above 2000 ft (610m) must be reduced by 4% for each 1000 ft (305 m) above Sea level.

In Canada, the input rating for altitudes from 2001 to 4500 ft (611 to 1372 m) above sea level must be derated by 10% by an authorized gas conversion station or dealer.

For Canadian Installations from 2000 to 4500 ft (610-1372 m), use U.S.A. column 2001 to 3000 ft (611 to 914 m).

PERFORMANCE DATA (CONT)

Dry Coil Air Delivery CFM* - Horizontal Discharge - Unit 48VT-A24-60 (Cont)

Unit	Heating Rise Range	Motor Speed	Wire Color	Heating Rise Range	External Static Pressure (in. W.C.)										
					0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9		
48VT(-,N)/A42060	25 - 55°F (14 - 31°C)	Low ¹	Blue	CFM	1295	1234	1182	1126	1075	1016	955	898	857		
				Heating Rise (°F)	34	36	38	39	41	47	49	52			
				Heating Rise (°C)	19	20	21	22	23	24	26	27	29		
		Med-Low	Pink	CFM	1345	1282	1235	1194	1140	1095	1027	974	921		
				Heating Rise (°F)	33	35	36	37	39	41	43	46	48		
				Heating Rise (°C)	18	19	20	21	22	23	24	25	27		
		Medium	Red	CFM	1505	1452	1413	1358	1323	1282	1234	1169	1130		
				Heating Rise (°F)	30	31	31	33	33	35	36	38	39		
				Heating Rise (°C)	16	17	17	18	19	19	20	21	22		
		Med-High ²	Orange	CFM	1545	1492	1449	1411	1362	1313	1278	1231	1188		
				Heating Rise (°F)	29	30	31	31	33	34	35	36	37		
				Heating Rise (°C)	16	17	17	18	18	19	19	20	21		
High	Black	CFM	1705	1643	1607	1568	1518	1483	1448	1404	1360				
		Heating Rise (°F)	26	27	28	28	29	30	31	32	33				
		Heating Rise (°C)	14	15	15	16	16	17	17	18	18				
Low	Blue	CFM	1295	1234	1182	1126	1075	1016	955	898	857				
		Heating Rise (°F)	53	55	58	60	63	NA	NA	NA	NA				
		Heating Rise (°C)	29	31	32	34	35	NA	NA	NA	NA				
Med-Low	Pink	CFM	1345	1282	1235	1194	1140	1095	1027	974	921				
		Heating Rise (°F)	51	53	55	57	60	62	NA	NA	NA				
		Heating Rise (°C)	28	29	31	32	33	35	NA	NA	NA				
Medium ¹	Red	CFM	1505	1452	1413	1358	1323	1282	1234	1169	1130				
		Heating Rise (°F)	45	47	48	50	51	53	55	58	60				
		Heating Rise (°C)	25	26	27	28	29	29	31	32	33				
Med-High ²	Orange	CFM	1545	1492	1449	1411	1362	1313	1278	1231	1188				
		Heating Rise (°F)	44	46	47	48	50	52	53	55	57				
		Heating Rise (°C)	24	25	26	27	28	29	30	31	32				
High	Black	CFM	1705	1643	1607	1568	1518	1483	1448	1404	1360				
		Heating Rise (°F)	40	41	42	43	45	46	47	48	50				
		Heating Rise (°C)	22	23	24	24	25	25	26	27	28				
Low	Blue	CFM	1430	1374	1327	1267	1223	1176	1127	1061	1016				
		Heating Rise (°F)	48	49	51	54	56	58	60	64	NA				
		Heating Rise (°C)	26	27	28	30	31	32	34	36	NA				
Med-Low ¹	Pink	CFM	1445	1389	1341	1281	1236	1189	1139	1072	1027				
		Heating Rise (°F)	47	49	51	53	55	57	60	63	NA				
		Heating Rise (°C)	26	27	28	29	31	32	33	35	NA				
Medium ²	Red	CFM	1678	1635	1602	1558	1513	1474	1438	1404	1349				
		Heating Rise (°F)	41	42	42	44	45	46	47	48	50				
		Heating Rise (°C)	23	23	24	24	25	26	26	27	28				
Med-High	Orange	CFM	2131	2088	2065	2013	1982	1941	1888	1860	1785				
		Heating Rise (°F)	NA	NA	NA	NA	NA	35	36	37	38				
		Heating Rise (°C)	NA	NA	NA	NA	NA	19	20	20	21				
High	Black	CFM	2461	2409	2339	2286	2192	2140	2062	1968	1874				
		Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	35				
		Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	19				

PERFORMANCE DATA (CONT)

Dry Coil Air Delivery CFM* - Horizontal Discharge - Unit 48VT-A24-60 (Cont)

Unit	Heating Rise Range	Motor Speed	Wire Color		External Static Pressure (IN. W.C.)									
					0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
48VT(-,N)/A48115	30 - 60°F (17 - 33°C)	Low	Blue	CFM	1430	1374	1327	1267	1223	1176	1127	1061	1016	
				Heating Rise (°F)	61	NA	NA	NA	NA	NA	NA	NA	NA	
				Heating Rise (°C)	34	NA	NA	NA	NA	NA	NA	NA	NA	
				CFM	1445	1389	1341	1281	1236	1189	1139	1072	1027	
				Heating Rise (°F)	60	NA	NA	NA	NA	NA	NA	NA	NA	
				Heating Rise (°C)	33	NA	NA	NA	NA	NA	NA	NA	NA	
		Medium ²	Red	CFM	1678	1635	1602	1558	1513	1474	1438	1404	1349	
				Heating Rise (°F)	52	53	54	56	57	59	60	54	56	
				Heating Rise (°C)	29	30	30	31	32	33	34	33	34	
				CFM	2131	2088	2065	2013	1982	1941	1888	1860	1785	
				Heating Rise (°F)	41	42	42	43	44	45	46	47	49	
				Heating Rise (°C)	23	23	23	24	24	25	26	26	27	
48VT(-,N)/A48130	35 - 65°F (19 - 36°C)	High	Black	CFM	2461	2409	2339	2286	2192	2140	2062	1968	1874	
				Heating Rise (°F)	35	36	37	38	40	41	42	44	46	
				Heating Rise (°C)	20	20	21	21	22	23	23	25	26	
				CFM	1430	1374	1327	1267	1223	1176	1127	1061	1016	
				Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	
				Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	
		Med-Low	Pink	CFM	1445	1389	1341	1281	1236	1189	1139	1072	1027	
				Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	
				Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	
				CFM	1678	1635	1602	1558	1513	1474	1438	1404	1349	
				Heating Rise (°F)	57	59	60	62	64	65	66	66	66	
				Heating Rise (°C)	32	33	33	34	35	36	36	36	36	
48VT(-,N)/A60090	35 - 65°F (19 - 36°C)	Med-High ¹	Orange	CFM	2131	2088	2065	2013	1982	1941	1888	1860	1785	
				Heating Rise (°F)	45	46	47	48	49	50	51	52	54	
				Heating Rise (°C)	25	26	26	27	27	28	28	29	30	
				CFM	2461	2409	2339	2286	2192	2140	2062	1968	1874	
				Heating Rise (°F)	39	40	41	42	44	45	47	49	51	
				Heating Rise (°C)	22	22	23	23	24	25	26	27	29	
		Low ¹	Blue	CFM	1445	1389	1341	1281	1236	1189	1139	1072	1027	
				Heating Rise (°F)	47	49	51	53	55	57	60	63	66	
				Heating Rise (°C)	26	27	28	29	31	33	35	37	39	
				CFM	1678	1635	1602	1558	1513	1474	1438	1404	1349	
				Heating Rise (°F)	41	42	42	44	45	46	47	48	50	
				Heating Rise (°C)	23	23	24	24	25	26	26	27	28	
48VT(-,N)/A60090	35 - 65°F (19 - 36°C)	Med-Low	Pink	CFM	1962	1915	1880	1843	1794	1753	1711	1675	1628	
				Heating Rise (°F)	35	36	36	37	38	39	40	41	42	
				Heating Rise (°C)	19	20	20	20	21	22	22	23	23	
				CFM	2131	2088	2065	2013	1982	1941	1888	1860	1785	
				Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	
				Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	
		Med-High	Orange	CFM	2461	2409	2339	2286	2192	2140	2062	1968	1874	
				Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	
				Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	
				CFM	1678	1635	1602	1558	1513	1474	1438	1404	1349	
				Heating Rise (°F)	52	53	54	56	57	59	60	54	56	
				Heating Rise (°C)	29	30	30	31	32	33	34	33	34	

PERFORMANCE DATA (CONT)

Dry Coil Air Delivery CFM* - Horizontal Discharge - Unit 48VT-A24-60 (Cont)

Unit	Heating Rise Range	Motor Speed	Wire Color	CFM	External Static Pressure (in. W.C.)									
					0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
48VT(-N)/A60115	30 - 60°F (17 - 33°C)	Low	Blue	CFM	1445	1389	1341	1281	1236	1189	1139	1072	1027	
				Heating Rise (°F)	60	NA	NA	NA	NA	NA	NA	NA	NA	
		Med-Low	Pink	CFM	1678	1635	1602	1558	1513	1474	1438	1404	1349	
				Heating Rise (°F)	52	53	54	56	57	59	60	NA	NA	
		Medium ²	Red	CFM	1962	1915	1880	1843	1794	1753	1711	1675	1628	
				Heating Rise (°F)	44	45	46	47	48	50	51	52	53	
	48VT(-N)/A60130	35 - 65°F (19 - 36°C)	Med-High ¹	Orange	CFM	2131	2088	2065	2013	1982	1941	1888	1860	1785
					Heating Rise (°F)	41	42	42	43	44	45	46	47	49
			High	Black	CFM	2461	2409	2339	2286	2192	2140	2062	1968	1874
					Heating Rise (°F)	35	36	37	38	40	41	42	44	46
			Low	Blue	CFM	1445	1389	1341	1281	1236	1189	1139	1072	1027
					Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA
48VT(-N)/A60130	35 - 65°F (19 - 36°C)	Med-Low	Pink	CFM	1678	1635	1602	1558	1513	1474	1438	1404	1349	
				Heating Rise (°F)	57	59	60	62	64	65	NA	NA	NA	
		Medium ²	Red	CFM	1962	1915	1880	1843	1794	1753	1711	1675	1628	
				Heating Rise (°F)	49	50	51	52	54	55	56	57	59	
		Med-High ¹	Orange	CFM	2131	2088	2065	2013	1982	1941	1888	1860	1785	
				Heating Rise (°F)	25	26	26	27	27	28	28	29	30	
High	Black	CFM	2461	2409	2339	2286	2192	2140	2062	1968	1874			
		Heating Rise (°F)	39	40	41	42	44	45	47	49	51			

* Air delivery values are without air filter and are for dry coil (See 48VT-A Wet Coil Pressure Drop table).

1 Factory-shipped gas heating speed

2 Factory-shipped heat pump speed

NA - Not allowed for gas heating speed

Note: Duct field-supplied air filter pressure drop and wet coil pressure drop to obtain external static pressure available for ducting.

Shaded areas indicate speed/static combinations that are not permitted for dehumidification speed.

Note: Deduct 10% for 208 volt operation.

Dry Coil Air Delivery - Downflow Discharge

UNIT	HEATING RISE RANGE	MOTOR SPEED	WIRE COLOR		EXTERNAL STATIC PRESSURE (IN. W.C.)																		
					0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0									
48VT(-,N)A30040	30 - 60°F (17 - 33°C)	Low	Blue	CFM	756	669	548	457	---	---	---	---	---	---	---	---	---	---	---	---			
				WATTS	84	90	96	106	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
				BHP	0.09	0.10	0.10	0.11	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
				Heating Rise (°F)	40	45	55	NA	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
		Heating Rise (°C)	22	25	31	NA	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
		Med-Low	Pink	CFM	1002	928	842	733	660	560	450	---	---	---	---	---	---	---	---	---	---	---	
				WATTS	144	155	161	173	185	192	203	---	---	---	---	---	---	---	---	---	---	---	---
				BHP	0.15	0.17	0.17	0.19	0.20	0.21	0.22	---	---	---	---	---	---	---	---	---	---	---	---
				Heating Rise (°F)	30	33	36	41	46	54	NA	---	---	---	---	---	---	---	---	---	---	---	---
		Heating Rise (°C)	17	18	20	23	25	30	NA	---	---	---	---	---	---	---	---	---	---	---	---	---	
		Medium ²	Red	CFM	1110	1025	967	879	814	706	611	509	461	---	---	---	---	---	---	---	---	---	
				WATTS	188	195	205	211	223	236	243	255	243	---	---	---	---	---	---	---	---	---	---
				BHP	0.20	0.21	0.22	0.23	0.24	0.25	0.26	---	---	---	---	---	---	---	---	---	---	---	---
				Heating Rise (°F)	NA	NA	31	34	37	43	49	59	NA	---	---	---	---	---	---	---	---	---	---
		Heating Rise (°C)	NA	NA	17	19	21	24	27	33	NA	---	---	---	---	---	---	---	---	---	---	---	
		Med-High ¹	Orange	CFM	1160	1091	1004	945	866	804	699	615	496	---	---	---	---	---	---	---	---	---	
WATTS	213			225	232	243	249	261	273	285	291	---	---	---	---	---	---	---	---	---	---		
BHP	0.23			0.24	0.25	0.26	0.27	0.28	0.29	0.31	0.31	---	---	---	---	---	---	---	---	---	---		
Heating Rise (°F)	NA			NA	30	32	35	38	43	49	NA	---	---	---	---	---	---	---	---	---	---		
Heating Rise (°C)	NA	NA	17	18	19	21	24	27	NA	---	---	---	---	---	---	---	---	---	---	---			
High	Black	CFM	1240	1173	1110	1031	966	902	821	726	626	---	---	---	---	---	---	---	---	---			
		WATTS	254	266	274	284	295	302	315	327	331	---	---	---	---	---	---	---	---	---	---		
		BHP	0.27	0.29	0.29	0.30	0.32	0.32	0.34	0.35	0.35	---	---	---	---	---	---	---	---	---	---		
		Heating Rise (°F)	NA	NA	NA	NA	31	34	37	42	48	---	---	---	---	---	---	---	---	---	---		
Heating Rise (°C)	NA	NA	NA	NA	17	19	20	23	27	---	---	---	---	---	---	---	---	---	---	---			

Dry Coil Air Delivery - Downflow Discharge

UNIT	HEATING RISE RANGE	MOTOR SPEED	WIRE COLOR		EXTERNAL STATIC PRESSURE (IN. W.C.)															
					0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0						
48VT(-,N)A30060	25 - 55°F (14 - 31°C)	Low	Blue	CFM	756	669	548	457	---	---	---	---	---	---	---	---	---	---		
				WATTS	84	90	96	106	---	---	---	---	---	---	---	---	---	---	---	
				BHP	0.09	0.10	0.10	0.11	---	---	---	---	---	---	---	---	---	---	---	---
				Heating Rise (°F)	40	45	55	NA	---	---	---	---	---	---	---	---	---	---	---	---
				Heating Rise (°C)	22	25	31	NA	---	---	---	---	---	---	---	---	---	---	---	---
				CFM	1002	928	842	733	660	560	450	---	---	---	---	---	---	---	---	---
		WATTS	144	155	161	173	185	192	203	---	---	---	---	---	---	---	---	---		
		BHP	0.15	0.17	0.17	0.19	0.20	0.21	0.22	---	---	---	---	---	---	---	---	---		
		Heating Rise (°F)	30	33	36	41	46	54	NA	---	---	---	---	---	---	---	---	---		
		Heating Rise (°C)	17	18	20	23	25	30	NA	---	---	---	---	---	---	---	---	---		
		CFM	1110	1025	967	879	814	706	611	509	461	---	---	---	---	---	---	---		
		WATTS	188	195	205	211	223	236	243	255	243	---	---	---	---	---	---	---		
		BHP	0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.26	---	---	---	---	---	---	---		
		Heating Rise (°F)	27	29	31	34	37	43	49	NA	NA	---	---	---	---	---	---	---		
		Heating Rise (°C)	15	16	17	19	21	24	27	NA	NA	---	---	---	---	---	---	---		
		CFM	1160	1091	1004	945	866	804	699	615	496	---	---	---	---	---	---	---		
		WATTS	213	225	232	243	249	261	273	285	291	---	---	---	---	---	---	---		
		BHP	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.31	0.31	---	---	---	---	---	---	---		
Heating Rise (°F)	NA	NA	30	32	35	38	43	49	NA	---	---	---	---	---	---	---				
Heating Rise (°C)	NA	NA	17	18	19	21	24	27	NA	---	---	---	---	---	---	---				
CFM	1240	1173	1110	1031	966	902	821	726	626	---	---	---	---	---	---	---				
WATTS	254	266	274	284	295	302	315	327	331	---	---	---	---	---	---	---				
BHP	0.27	0.29	0.29	0.30	0.32	0.32	0.34	0.35	0.35	---	---	---	---	---	---	---				
Heating Rise (°F)	NA	NA	NA	NA	31	34	37	42	48	---	---	---	---	---	---	---				
Heating Rise (°C)	NA	NA	NA	NA	17	19	20	23	27	---	---	---	---	---	---	---				

Dry Coil Air Delivery - Downflow Discharge

UNIT	HEATING RISE RANGE	MOTOR SPEED	WIRE COLOR		EXTERNAL STATIC PRESSURE (IN. W.C.)									
					0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
48VT(-,N)A36060	25 - 55°F (14 - 31°C)	Low ¹	Blue	CFM	1307	1249	1192	1138	1084	1038	987	934	886	840
				WATTS	158	160	173	180	193	205	218	230	237	249
				BHP	0.17	0.17	0.19	0.19	0.21	0.22	0.23	0.25	0.25	0.27
				Heating Rise (°F)	34	36	37	39	41	43	45	48	50	53
		Heating Rise (°C)	19	20	21	22	23	24	25	26	28	29		
		Med-Low	Pink	CFM	1365	1324	1284	1233	1181	1127	1084	1039	984	939
				WATTS	177	189	201	210	222	236	248	261	269	281
				BHP	0.19	0.20	0.22	0.23	0.24	0.25	0.27	0.28	0.29	0.30
				Heating Rise (°F)	33	34	35	36	38	39	41	43	45	47
		Heating Rise (°C)	18	19	19	20	21	22	23	24	25	26		
		Medium ²	Red	CFM	1425	1384	1339	1301	1254	1199	1151	1104	1065	1015
				WATTS	197	210	223	235	248	257	271	284	296	305
				BHP	0.21	0.23	0.24	0.25	0.27	0.28	0.29	0.30	0.32	0.33
				Heating Rise (°F)	31	32	33	34	35	37	39	40	42	44
		Heating Rise (°C)	17	18	18	19	20	21	21	22	23	24		
		Med-High	Orange	CFM	1582	1549	1509	1469	1433	1392	1346	1300	1249	1213
WATTS	267			280	294	308	322	336	344	359	374	387		
BHP	0.29			0.30	0.32	0.33	0.35	0.36	0.37	0.38	0.40	0.42		
Heating Rise (°F)	28			29	29	30	31	32	33	34	36	37		
Heating Rise (°C)	16	16	16	17	17	18	18	19	20	20				
High	Black	CFM	1775	1736	1696	1660	1622	1588	1557	1516	1472	1426		
		WATTS	371	386	401	410	424	439	453	468	483	497		
		BHP	0.40	0.41	0.43	0.44	0.45	0.47	0.49	0.50	0.52	0.53		
		Heating Rise (°F)	25	26	26	27	27	28	29	29	30	31		
Heating Rise (°C)	14	14	15	15	15	16	16	16	17	17				

Dry Coil Air Delivery - Downflow Discharge

UNIT	HEATING RISE RANGE	MOTOR SPEED	WIRE COLOR		EXTERNAL STATIC PRESSURE (IN. W.C.)									
					0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
48VT(-,N)A36090	35 - 65°F (19 - 36°C)	Low ¹	Blue	CFM	1307	1249	1192	1138	1084	1038	987	934	886	840
				WATTS	158	160	173	180	193	205	218	230	237	249
				BHP	0.17	0.17	0.19	0.19	0.21	0.22	0.23	0.25	0.25	0.27
				Heating Rise (°F)	34	36	37	39	41	43	45	48	50	53
		Heating Rise (°C)	19	20	21	22	23	24	25	26	28	29		
		Med-Low	Pink	CFM	1365	1324	1284	1233	1181	1127	1084	1039	984	939
				WATTS	177	189	201	210	222	236	248	261	269	281
				BHP	0.19	0.20	0.22	0.23	0.24	0.25	0.27	0.28	0.29	0.30
				Heating Rise (°F)	33	34	35	36	38	39	41	43	45	47
		Heating Rise (°C)	18	19	19	20	21	22	23	24	25	26		
		Medium ²	Red	CFM	1425	1384	1339	1301	1254	1199	1151	1104	1065	1015
				WATTS	197	210	223	235	248	257	271	284	296	305
				BHP	0.21	0.23	0.24	0.25	0.27	0.28	0.29	0.30	0.32	0.33
				Heating Rise (°F)	31	32	33	34	35	37	39	40	42	44
		Heating Rise (°C)	17	18	18	19	20	21	21	22	23	24		
		Med-High	Orange	CFM	1582	1549	1509	1469	1433	1392	1346	1300	1249	1213
WATTS	267			280	294	308	322	336	344	359	374	387		
BHP	0.29			0.30	0.32	0.33	0.35	0.36	0.37	0.38	0.40	0.42		
Heating Rise (°F)	NA			NA	NA	NA	NA	NA	NA	NA	34	36	37	
Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	19	20	20			
High	Black	CFM	1775	1736	1696	1660	1622	1588	1557	1516	1472	1426		
		WATTS	371	386	401	410	424	439	453	468	483	497		
		BHP	0.40	0.41	0.43	0.44	0.45	0.47	0.49	0.50	0.52	0.53		
		Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			

Dry Coil Air Delivery - Downflow Discharge

UNIT	HEATING RISE RANGE	MOTOR SPEED	WIRE COLOR		EXTERNAL STATIC PRESSURE (IN. W.C.)										
					0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
48VT(-,N)/A42060	25 - 55°F (14 - 31°C)	Low ¹	Blue	CFM	1365	1324	1284	1233	1181	1127	1084	1039	984	939	
				WATTS	177	189	201	210	222	236	248	261	269	281	
				BHP	0.19	0.20	0.22	0.23	0.24	0.25	0.27	0.28	0.29	0.30	
				Heating Rise (°F)	NA	34	35	36	38	39	41	43	45	47	
		Heating Rise (°C)	NA	19	19	20	21	22	23	24	25	26			
		Med-Low	Pink	CFM	1425	1384	1339	1301	1254	1199	1151	1104	1065	1015	
				WATTS	197	210	223	235	248	257	271	284	296	305	
				BHP	0.21	0.23	0.24	0.25	0.27	0.28	0.29	0.30	0.32	0.33	
				Heating Rise (°F)	NA	NA	NA	34	35	37	39	40	42	44	
		Heating Rise (°C)	NA	NA	NA	19	20	21	21	22	23	24			
		Medium	Red	CFM	1582	1549	1509	1469	1433	1392	1346	1300	1249	1213	
				WATTS	267	280	294	308	322	336	344	359	374	387	
				BHP	0.29	0.30	0.32	0.33	0.35	0.36	0.37	0.38	0.40	0.42	
				Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	34	36	37
		Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	19	20	20		
		Med-High ²	Orange	CFM	1623	1586	1553	1511	1470	1433	1393	1350	1309	1261	
WATTS	285			299	312	324	335	349	363	378	393	407			
BHP	0.31			0.32	0.33	0.35	0.36	0.37	0.39	0.41	0.42	0.44			
Heating Rise (°F)	NA			NA	NA	NA	NA	NA	NA	NA	NA	34	35		
Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	19	20				
High	Black	CFM	1775	1736	1696	1660	1622	1588	1557	1516	1472	1426			
		WATTS	371	386	401	410	424	439	453	468	483	497			
		BHP	0.40	0.41	0.43	0.44	0.45	0.47	0.49	0.50	0.52	0.53			
		Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA				

Dry Coil Air Delivery - Downflow Discharge

UNIT	HEATING RISE RANGE	MOTOR SPEED	WIRE COLOR		EXTERNAL STATIC PRESSURE (IN. W.C.)										
					0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
48VT(-,N)/A42090	35 - 65°F (19 - 36°C)	Low ¹	Blue	CFM	1365	1324	1284	1233	1181	1127	1084	1039	984	939	
				WATTS	177	189	201	210	222	236	248	261	269	281	
				BHP	0.19	0.20	0.22	0.23	0.24	0.25	0.27	0.28	0.29	0.30	
				Heating Rise (°F)	NA	34	35	36	38	39	41	43	45	47	
				Heating Rise (°C)	NA	19	19	20	21	22	23	24	25	26	
				CFM	1425	1384	1339	1301	1254	1199	1151	1104	1065	1015	
		WATTS	197	210	223	235	248	257	271	284	296	305			
		BHP	0.21	0.23	0.24	0.25	0.27	0.28	0.29	0.30	0.32	0.33			
		Heating Rise (°F)	NA	NA	NA	34	35	37	39	40	42	44			
		Heating Rise (°C)	NA	NA	NA	19	20	21	21	22	23	24			
		CFM	1582	1549	1509	1469	1433	1392	1346	1300	1249	1213			
		WATTS	267	280	294	308	322	336	344	359	374	387			
BHP	0.29	0.30	0.32	0.33	0.35	0.36	0.37	0.38	0.40	0.42					
Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	34	36	37				
Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	19	20	20				
CFM	1623	1586	1553	1511	1470	1433	1393	1350	1309	1261					
WATTS	285	299	312	324	335	349	363	378	393	407					
BHP	0.31	0.32	0.33	0.35	0.36	0.37	0.39	0.41	0.42	0.44					
Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	34	35					
Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	19	20					
CFM	1775	1736	1696	1660	1622	1588	1557	1516	1472	1426					
WATTS	371	386	401	410	424	439	453	468	483	497					
BHP	0.40	0.41	0.43	0.44	0.45	0.47	0.49	0.50	0.52	0.53					
Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA					
Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA					

Dry Coil Air Delivery - Downflow Discharge

UNIT	HEATING RISE RANGE	MOTOR SPEED	WIRE COLOR		EXTERNAL STATIC PRESSURE (IN. W.C.)										
					0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
48VT(-,N)/A48090	35 - 65°F (19 - 36°C)	Low ¹	Blue	CFM	1491	1445	1403	1358	1306	1261	1199	1169	1122	1069	
				WATTS	232	239	254	262	278	293	303	316	323	335	
				BHP	0.25	0.26	0.27	0.28	0.30	0.31	0.32	0.34	0.35	0.36	
				Heating Rise (°F)	46	47	48	50	52	54	57	58	61	64	
				Heating Rise (°C)	25	26	27	28	29	30	32	32	34	35	
				CFM	1479	1436	1387	1346	1298	1253	1206	1160	1114	1061	
		WATTS	224	239	247	262	270	284	300	307	319	330			
		BHP	0.24	0.26	0.26	0.28	0.29	0.30	0.32	0.33	0.34	0.35			
		Heating Rise (°F)	46	47	49	51	52	54	56	59	61	64			
		Heating Rise (°C)	26	26	27	28	29	30	31	33	34	36			
		CFM	1813	1785	1745	1709	1663	1632	1592	1548	1506	1450			
		WATTS	411	427	435	451	462	478	489	504	518	529			
BHP	0.44	0.46	0.47	0.48	0.50	0.51	0.52	0.54	0.56	0.57					
Heating Rise (°F)	38	38	39	40	41	42	43	44	45	47					
Heating Rise (°C)	21	21	22	22	23	23	24	24	25	26					
CFM	2178	2148	2105	2073	2036	2002	1967	1919	1845	1751					
WATTS	674	691	703	717	733	743	758	754	734	701					
BHP	0.72	0.74	0.75	0.77	0.79	0.80	0.81	0.81	0.79	0.75					
Heating Rise (°F)	NA	NA	NA	NA	NA	34	35	35	37	39					
Heating Rise (°C)	NA	NA	NA	NA	NA	19	19	20	20	22					
CFM	2480	2432	2375	2322	2236	2161	2085	2006	1917	1808					
WATTS	1029	1012	995	975	941	908	869	836	796	751					
BHP	1.10	1.09	1.07	1.05	1.01	0.97	0.93	0.90	0.85	0.81					
Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	34	35	38					
Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	19	20	21					

Dry Coil Air Delivery - Downflow Discharge

UNIT	HEATING RISE RANGE	MOTOR SPEED	WIRE COLOR		EXTERNAL STATIC PRESSURE (IN. W.C.)										
					0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
48VT(-,N)/A48115	30 - 60°F (17 - 33°C)	Low ¹	Blue	CFM	1491	1445	1403	1358	1306	1261	1199	1169	1122	1069	
				WATTS	232	239	254	262	278	293	303	316	323	335	
				BHP	0.25	0.26	0.27	0.28	0.30	0.31	0.32	0.34	0.35	0.36	
				Heating Rise (°F)	46	47	48	50	52	54	57	58	NA	NA	
				Heating Rise (°C)	25	26	27	28	29	30	32	32	NA	NA	
				CFM	1479	1436	1387	1346	1298	1253	1206	1160	1114	1061	
		Med-Low	Pink	WATTS	224	239	247	262	270	284	300	307	319	330	
				BHP	0.24	0.26	0.26	0.28	0.29	0.30	0.32	0.33	0.34	0.35	
				Heating Rise (°F)	46	47	49	51	52	54	56	59	NA	NA	
				Heating Rise (°C)	26	26	27	28	29	30	31	33	NA	NA	
				CFM	1813	1785	1745	1709	1663	1632	1592	1548	1506	1450	
				WATTS	411	427	435	451	462	478	489	504	518	529	
		Medium ²	Red	BHP	0.44	0.46	0.47	0.48	0.50	0.51	0.52	0.54	0.56	0.57	
				Heating Rise (°F)	38	38	39	40	41	42	43	44	45	47	
				Heating Rise (°C)	21	21	22	22	23	23	24	24	25	26	
				CFM	2178	2148	2105	2073	2036	2002	1967	1919	1845	1751	
WATTS	674			691	703	717	733	743	758	754	734	701			
BHP	0.72			0.74	0.75	0.77	0.79	0.80	0.81	0.81	0.79	0.75			
Med-High	Orange	Heating Rise (°F)	NA	NA	NA	NA	NA	34	35	35	37	39			
		Heating Rise (°C)	NA	NA	NA	NA	NA	19	19	20	20	22			
		CFM	2480	2432	2375	2322	2236	2161	2085	2006	1917	1808			
		WATTS	1029	1012	995	975	941	908	869	836	796	751			
		BHP	1.10	1.09	1.07	1.05	1.01	0.97	0.93	0.90	0.85	0.81			
		Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	34	35	38			
High	Black	Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	19	20	21			
		Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	20	21			

Dry Coil Air Delivery - Downflow Discharge

UNIT	HEATING RISE RANGE	MOTOR SPEED	WIRE COLOR		EXTERNAL STATIC PRESSURE (IN. W.C.)										
					0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
48VT(-,N)/A48130	35 - 65°F (19 - 36°C)	Low ¹	Blue	CFM	1491	1445	1403	1358	1306	1261	1199	1169	1122	1069	
				WATTS	232	239	254	262	278	293	303	316	323	335	
				BHP	0.25	0.26	0.27	0.28	0.30	0.31	0.32	0.34	0.35	0.36	
				Heating Rise (°F)	46	47	48	50	52	54	57	58	61	64	
				Heating Rise (°C)	25	26	27	28	29	30	32	32	34	35	
				CFM	1479	1436	1387	1346	1298	1253	1206	1160	1114	1061	
		Med-Low	Pink	WATTS	224	239	247	262	270	284	300	307	319	330	
				BHP	0.24	0.26	0.26	0.28	0.29	0.30	0.32	0.33	0.34	0.35	
				Heating Rise (°F)	46	47	49	51	52	54	56	59	61	64	
				Heating Rise (°C)	26	26	27	28	29	30	31	33	34	36	
				CFM	1813	1785	1745	1709	1663	1632	1592	1548	1506	1450	
				WATTS	411	427	435	451	462	478	489	504	518	529	
		Med-High	Red	BHP	0.44	0.46	0.47	0.48	0.50	0.51	0.52	0.54	0.56	0.57	
				Heating Rise (°F)	38	38	39	40	41	42	43	44	45	47	
				Heating Rise (°C)	21	21	22	22	23	23	24	24	25	26	
				CFM	2178	2148	2105	2073	2036	2002	1967	1919	1845	1751	
				WATTS	674	691	703	717	733	743	758	754	734	701	
				BHP	0.72	0.74	0.75	0.77	0.79	0.80	0.81	0.81	0.79	0.75	
High	Black	Heating Rise (°F)	NA	NA	NA	NA	NA	34	35	35	37	39			
		Heating Rise (°C)	NA	NA	NA	NA	NA	19	19	20	20	22			
		CFM	2480	2432	2375	2322	2236	2161	2085	2006	1917	1808			
		WATTS	1029	1012	995	975	941	908	869	836	796	751			
		BHP	1.10	1.09	1.07	1.05	1.01	0.97	0.93	0.90	0.85	0.81			
		Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	34	35	38			
Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	19	20	21					

Dry Coil Air Delivery - Downflow Discharge

UNIT	HEATING RISE RANGE	MOTOR SPEED	WIRE COLOR		EXTERNAL STATIC PRESSURE (IN. W.C.)										
					0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
48VT(-,N)A60090	35 - 65°F (19 - 36°C)	Low ¹	Blue	CFM	1479	1436	1387	1346	1298	1253	1206	1160	1114	1061	
				WATTS	224	239	247	262	270	284	300	307	319	330	
				BHP	0.24	0.26	0.26	0.28	0.29	0.30	0.32	0.33	0.34	0.35	
				Heating Rise (°F)	46	47	49	51	52	54	56	59	NA	NA	
				Heating Rise (°C)	26	26	27	28	29	30	31	33	NA	NA	
				CFM	1841	1796	1761	1724	1690	1651	1616	1578	1527	1478	
		WATTS	425	434	453	460	476	485	501	508	525	542			
		BHP	0.46	0.47	0.49	0.49	0.51	0.52	0.54	0.54	0.56	0.58			
		Heating Rise (°F)	37	38	39	39	40	41	42	43	45	46			
		Heating Rise (°C)	21	21	21	22	22	23	23	24	25	26			
		CFM	1944	1913	1872	1838	1801	1771	1731	1698	1655	1613			
		WATTS	486	501	511	529	537	554	565	578	595	603			
BHP	0.52	0.54	0.55	0.57	0.58	0.59	0.61	0.62	0.64	0.65					
Heating Rise (°F)	35	36	36	37	38	38	39	40	41	42					
Heating Rise (°C)	19	20	20	21	21	21	22	22	23	23					
CFM	2178	2148	2105	2073	2036	2002	1967	1919	1845	1751					
WATTS	674	691	703	717	733	743	758	754	734	701					
BHP	0.72	0.74	0.75	0.77	0.79	0.80	0.81	0.81	0.79	0.75					
Heating Rise (°F)	NA	NA	NA	NA	NA	34	35	35	37	39					
Heating Rise (°C)	NA	NA	NA	NA	NA	19	19	20	20	22					
CFM	2480	2432	2375	2322	2236	2161	2085	2006	1917	1808					
WATTS	1029	1012	995	975	941	908	869	836	796	751					
BHP	1.10	1.09	1.07	1.05	1.01	0.97	0.93	0.90	0.85	0.81					
Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	34	35	38					
Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	19	20	21					

Dry Coil Air Delivery - Downflow Discharge

UNIT	HEATING RISE RANGE	MOTOR SPEED	WIRE COLOR		EXTERNAL STATIC PRESSURE (IN. W.C.)										
					0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
48VT(-,N)A60115	30 - 60°F (17 - 33°C)	Low ¹	Blue	CFM	1479	1436	1387	1346	1298	1253	1206	1160	1114	1061	
				WATTS	224	239	247	262	270	284	300	307	319	330	
				BHP	0.24	0.26	0.26	0.28	0.29	0.30	0.32	0.33	0.34	0.35	
				Heating Rise (°F)	46	47	49	51	52	54	56	59	NA	NA	
				Heating Rise (°C)	26	26	27	28	29	30	31	33	NA	NA	
		Med-Low	Pink	CFM	1841	1796	1761	1724	1690	1651	1616	1578	1527	1478	
				WATTS	425	434	453	460	476	485	501	508	525	542	
				BHP	0.46	0.47	0.49	0.49	0.51	0.52	0.54	0.54	0.56	0.58	
				Heating Rise (°F)	37	38	39	39	40	41	42	43	45	46	
				Heating Rise (°C)	21	21	21	22	22	23	23	24	25	26	
		Medium ²	Red	CFM	1944	1913	1872	1838	1801	1771	1731	1698	1655	1613	
				WATTS	486	501	511	529	537	554	565	578	595	603	
				BHP	0.52	0.54	0.55	0.57	0.58	0.59	0.61	0.62	0.64	0.65	
				Heating Rise (°F)	35	36	36	37	38	38	39	40	41	42	
				Heating Rise (°C)	19	20	20	21	21	21	22	22	23	23	
Med-High	Orange	CFM	2178	2148	2105	2073	2036	2002	1967	1919	1845	1751			
		WATTS	674	691	703	717	733	743	758	754	734	701			
		BHP	0.72	0.74	0.75	0.77	0.79	0.80	0.81	0.81	0.79	0.75			
		Heating Rise (°F)	NA	NA	NA	NA	NA	34	35	35	37	39			
		Heating Rise (°C)	NA	NA	NA	NA	NA	19	19	20	20	22			
High	Black	CFM	2480	2432	2375	2322	2236	2161	2085	2006	1917	1808			
		WATTS	1029	1012	995	975	941	908	869	836	796	751			
		BHP	1.10	1.09	1.07	1.05	1.01	0.97	0.93	0.90	0.85	0.81			
		Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	34	38			
		Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	19	21			

Dry Coil Air Delivery - Downflow Discharge

UNIT	HEATING RISE RANGE	MOTOR SPEED	WIRE COLOR		EXTERNAL STATIC PRESSURE (IN. W.C.)										
					0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
48VT(-,N)/A60130	35 - 65°F (19 - 36°C)	Low ¹	Blue	CFM	1479	1436	1387	1346	1298	1253	1206	1160	1114	1061	
				WATTS	224	239	247	262	270	284	300	307	319	330	
				BHP	0.24	0.26	0.26	0.28	0.29	0.30	0.32	0.33	0.34	0.35	
				Heating Rise (°F)	46	47	49	51	52	54	56	59	NA	NA	
				Heating Rise (°C)	26	26	27	28	29	30	31	33	NA	NA	
				CFM	1841	1796	1761	1724	1690	1651	1616	1578	1527	1478	
		WATTS	425	434	453	460	476	485	501	508	525	542			
		BHP	0.46	0.47	0.49	0.49	0.51	0.52	0.54	0.54	0.56	0.58			
		Heating Rise (°F)	37	38	39	39	40	41	42	43	45	46			
		Heating Rise (°C)	21	21	21	22	22	23	23	24	25	26			
		CFM	1944	1913	1872	1838	1801	1771	1731	1698	1655	1613			
		WATTS	486	501	511	529	537	554	565	578	595	603			
BHP	0.52	0.54	0.55	0.57	0.58	0.59	0.61	0.62	0.64	0.65					
Heating Rise (°F)	35	36	36	37	38	38	39	40	41	42					
Heating Rise (°C)	19	20	20	21	21	21	22	22	23	23					
CFM	2178	2148	2105	2073	2036	2002	1967	1919	1845	1751					
WATTS	674	691	703	717	733	743	758	754	734	701					
BHP	0.72	0.74	0.75	0.77	0.79	0.80	0.81	0.81	0.79	0.75					
Heating Rise (°F)	NA	NA	NA	NA	NA	34	35	35	37	39					
Heating Rise (°C)	NA	NA	NA	NA	NA	19	19	20	20	22					
CFM	2480	2432	2375	2322	2236	2161	2085	2006	1917	1808					
WATTS	1029	1012	995	975	941	908	869	836	796	751					
BHP	1.10	1.09	1.07	1.05	1.01	0.97	0.93	0.90	0.85	0.81					
Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	34	35	38					
Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	19	20	21					

*Air delivery values are without air filter and are for dry coil (See Table 15 - 48VT Wet Coil Pressure Drop table).

¹ Factory-shipped heating speed

² Factory-shipped cooling speed

"NA" = Not allowed for heating speed

NOTE: Duct field-supplied air filter pressure drop and wet coil pressure drop to obtain external static pressure available for ducting.

Shaded areas indicate speed/static combinations that are not permitted for dehumidification speed.

PERFORMANCE DATA (CONT)

Filter Pressure Drop Table (IN. W.C.)

FILTER SIZE IN. (MM)	COOLING TONS	STANDARD CFM (SCFM)																
		600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200
600-1400 CFM 12x20x1 + 12x20x1 (305x508x25 + 305x508x25)	2.0,	0.03	0.04	0.05	0.06	0.06	0.07	0.07	0.08	0.08	-	-	-	-	-	-	-	-
	2.5,																	
	3.0																	
1200-1800 CFM 16x24x1 + 14x24x1 (406x610x25 + 356x610x25)	3.5,	-	-	-	-	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.12	-	-	-
	4.0																	
	5.0	-	-	-	-	-	-	-	-	-	0.04	0.06	0.08	0.10	0.11	0.13	0.14	0.15

Wet Coil Pressure Drop (IN. W.C.)

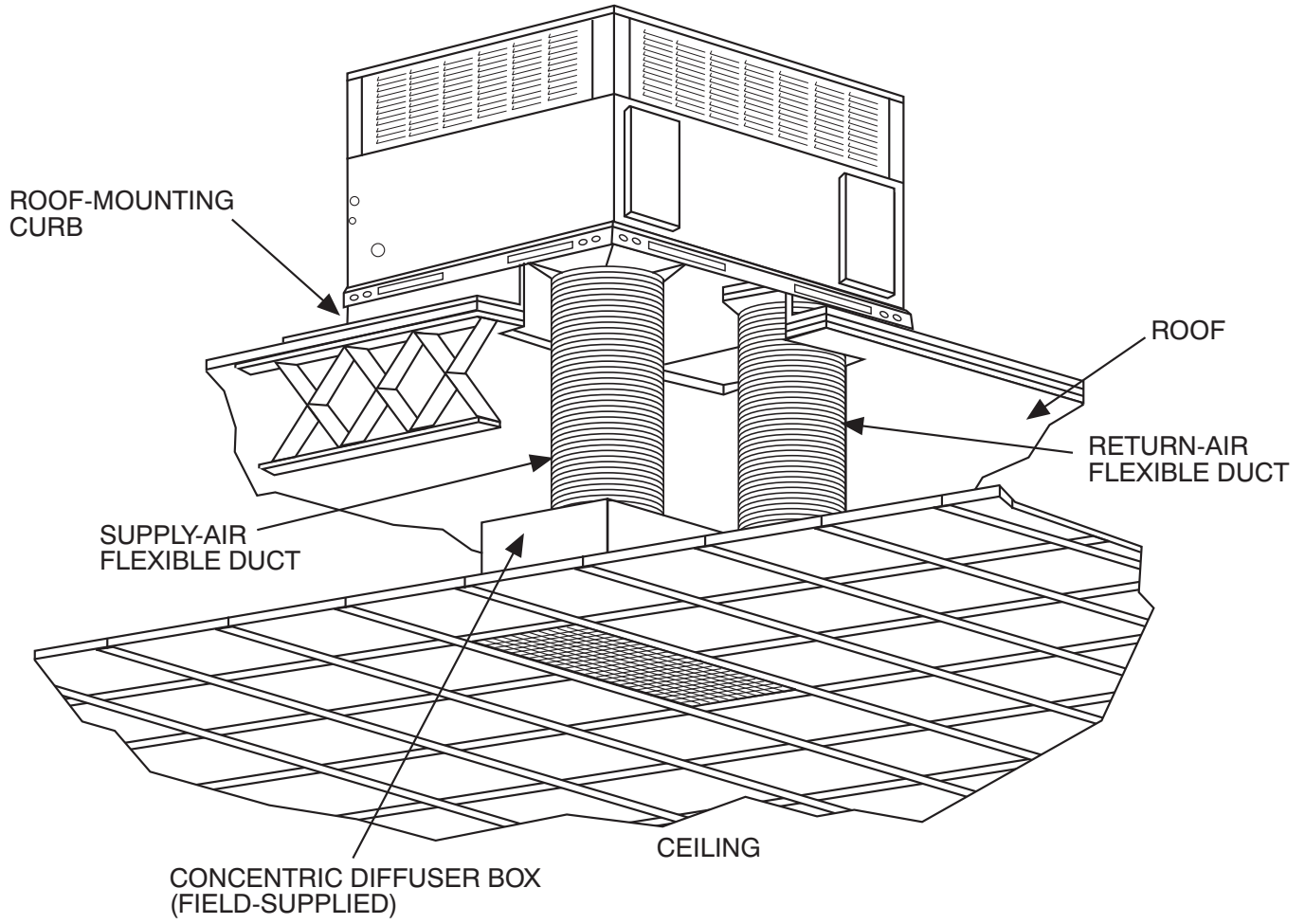
UNIT SIZE	STANDARD CFM (SCFM)																
	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200
24	0.03	0.04	0.04	0.05	0.06	0.07	0.08	0.11									
30				0.05	0.06	0.07	0.08	0.11									
36				0.06	0.06	0.09	0.10	0.11	0.14								
42					0.05	0.05	0.06	0.07	0.08	0.08	0.09	0.09	0.11				
48							0.04	0.06	0.09	0.10	0.10	0.11	0.12	0.13	0.14		
60										0.06	0.07	0.07	0.08	0.09	0.10	0.12	0.13

Economizer with 1-in. Filter Pressure Drop (IN. W.C.)

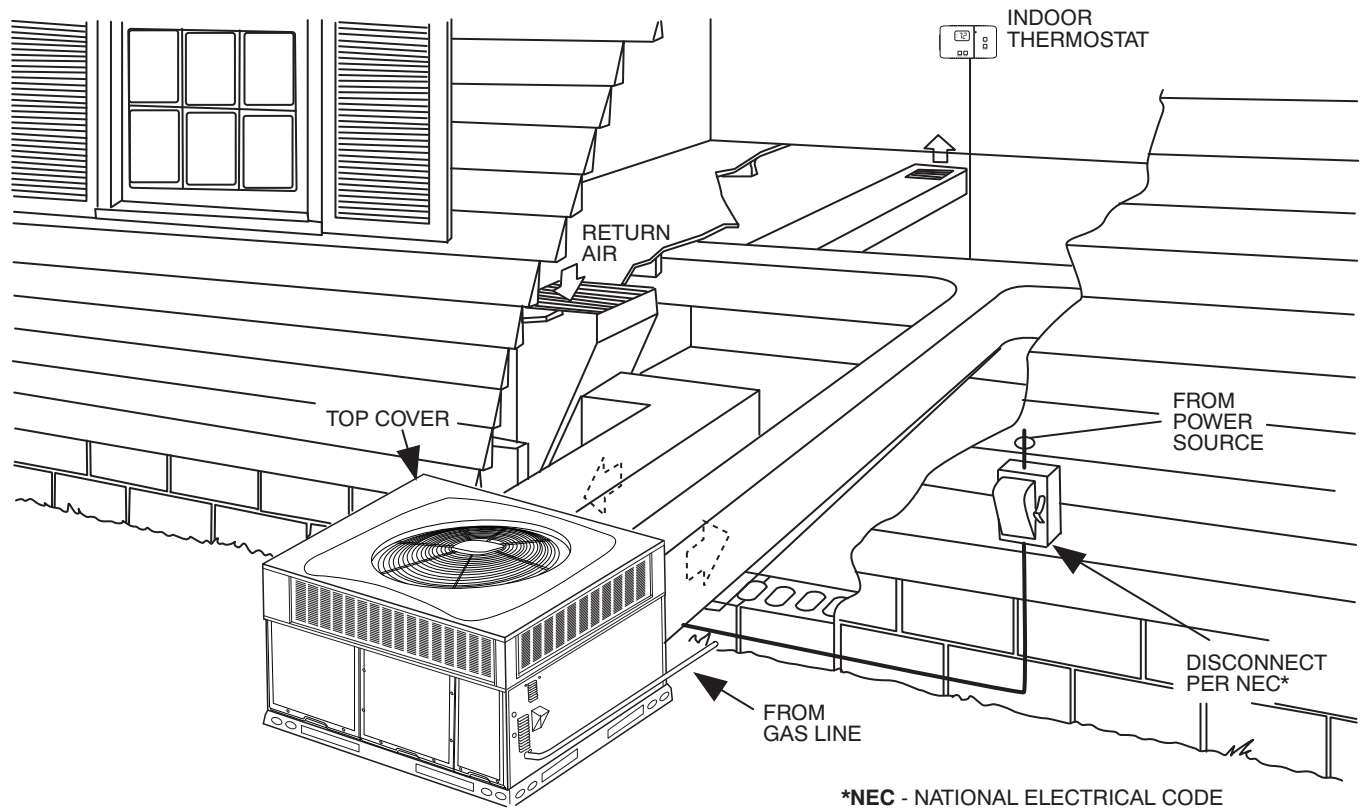
FILTER SIZE IN. (MM)	COOLING TONS	STANDARD CFM (SCFM)																
		600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200
600-1400 CFM 12x20x1 + 12x20x1 (305x508x25 + 305x508x25)	2.0,	-	-	0.08	0.09	0.10	0.11	0.11	0.13	0.14	-	-	-	-	-	-	-	-
	2.5,																	
	3.0																	
1200-1800 CFM 16x24x1 + 14x24x1 (406x610x25 + 356x610x25)	3.5,	-	-	-	-	-	0.09	0.09	0.10	0.12	0.13	0.15	0.17	0.19	0.21	-	-	-
	4.0																	
	5.0	-	-	-	-	-	-	-	-	-	0.15	0.17	0.18	0.20	0.21	0.22	0.23	0.23

TYPICAL PIPING AND WIRING

48VT-A



A09226



*NEC - NATIONAL ELECTRICAL CODE

A09234

APPLICATION DATA

Condensate trap — A 2-in. (51 mm) condensate trap must be field supplied.

Ductwork — Secure downflow discharge ductwork to roof curb. For horizontal discharge applications, attach ductwork to unit with flanges.

To convert a unit to downflow discharge — Units are equipped with factory-installed inserts in the down-flow openings. Removal of the inserts is similar to removing an electrical knock-out. The unit is factory equipped with duct covers to seal the horizontal discharge openings in the unit. Units installed in horizontal discharge orientation do not require duct covers.

Maximum cooling airflow — To minimize the possibility of condensate blow-off from the evaporator, airflow through the units should not exceed 450 cfm per ton.

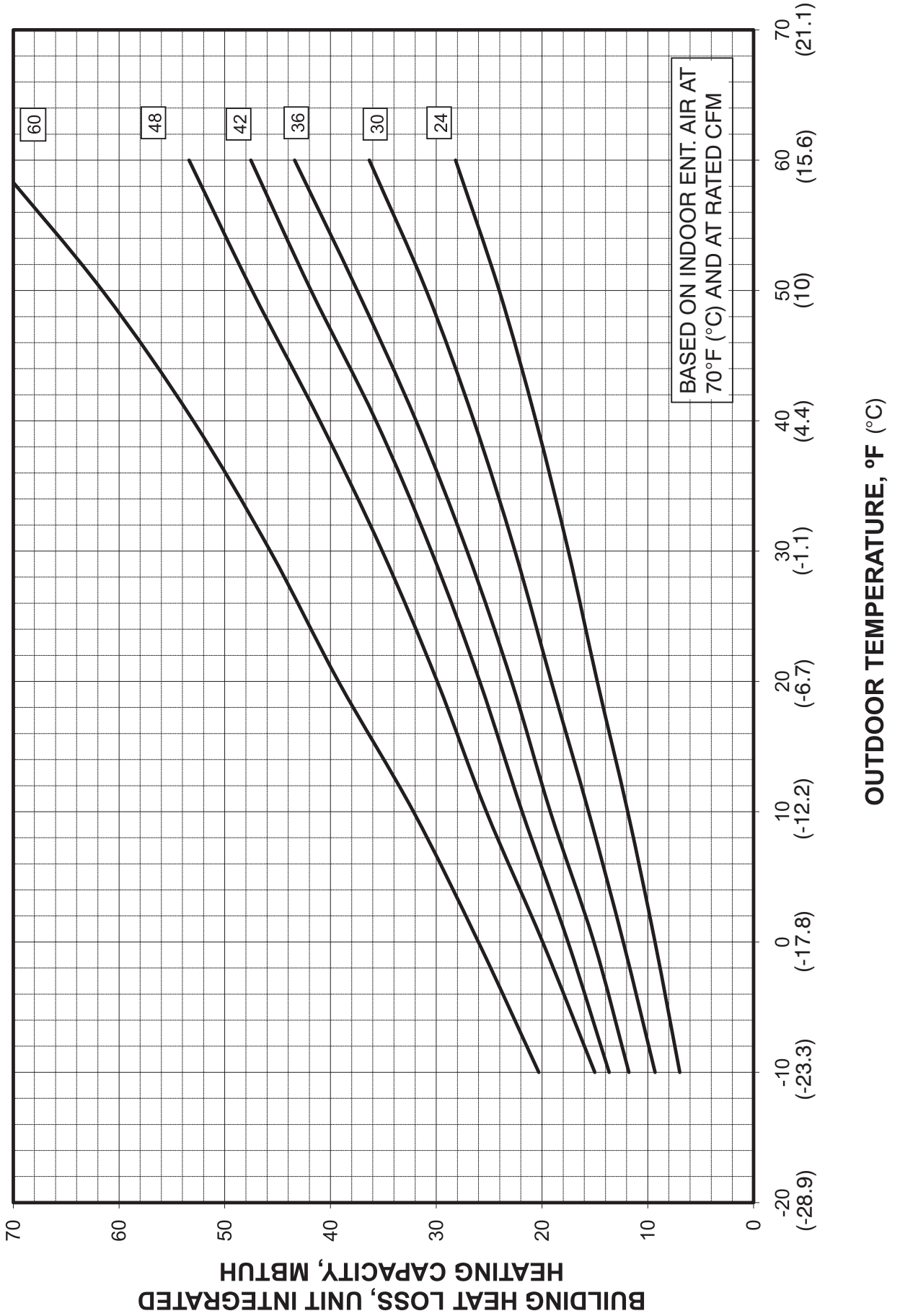
Minimum cooling airflow — Minimum cooling airflow is 350 cfm per ton in cooling mode. Airflow can be lower in certain modes when humidity removal is an issue.

Minimum ambient cooling operation temperature — All standard units have a minimum ambient cooling operating temperature of 40°F (4.4°C). With accessory low ambient temperature kit, units can operate at temperatures down to 0°F (-17.8°C).

Maximum operating outdoor air temperature for cooling is 125°F (51.7°C).

BALANCE POINT WORKSHEET

BALANCE POINT WORKSHEET



ELECTRICAL DATA

48VT-A Electrical Data

MODEL	NOMINAL V-PH-HZ	VOLTAGE RANGE		COMPRESSOR		OFM	IFM	IDM	POWER SUPPLY	
		MIN	MAX	RLA	LRA	FLA	FLA	FLA	MCA	MOCP
48VT(-,N)A2404031--	208/230-1-60	187	253	13.5	58.3	0.7	4.1	0.65	21.7	30
48VT(-,N)A2406031--	208/230-1-60	187	253	13.5	58.3	0.7	4.1	1.65	21.7	30
48VT(-,N)A3004031--	208/230-1-60	187	253	14.1	73	1.2	4.1	0.65	22.9	35
48VT(-,N)A3006031--	208/230-1-60	187	253	14.1	73	1.2	4.1	1.65	22.9	35
48VT(-,N)A3606031--	208/230-1-60	187	253	17.1	79	1.2	6	1.65	28.6	40
48VT(-,N)A3609031--	208/230-1-60	187	253	17.1	79	1.2	6	0.65	28.6	40
48VT(-,N)A4206031--	208/230-1-60	187	253	20.6	112	1.2	6	1.65	33.0	50
48VT(-,N)A4209031--	208/230-1-60	187	253	20.6	112	1.2	6	0.65	33.0	50
48VT(-,N)A4809031--	208/230-1-60	187	253	20.6	109	1.2	7.6	0.65	34.6	50
48VT(-,N)A4811531--	208/230-1-60	187	253	20.6	109	1.2	7.6	1.65	34.6	50
48VT(-,N)A4813031--	208/230-1-60	187	253	20.6	109	1.2	7.6	0.52	34.6	50
48VT(-,N)A6009031--	208/230-1-60	187	253	26.4	134	1.2	7.6	0.65	41.8	60
48VT(-,N)A6011531--	208/230-1-60	187	253	26.4	134	1.2	7.6	1.65	41.8	60
48VT(-,N)A6013031--	208/230-1-60	187	253	26.4	134	1.2	7.6	0.52	41.8	60
48VT(-,N)A3004051--	208/230-3-60	187	253	9	58	1.2	4.1	0.65	16.6	25
48VT(-,N)A3006051--	208/230-3-60	187	253	9	58	1.2	4.1	1.65	16.6	25
48VT(-,N)A3606051--	208/230-3-60	187	253	11.5	88	1.2	6	1.65	21.6	30
48VT(-,N)A3609051--	208/230-3-60	187	253	11.5	88	1.2	6	0.65	21.6	30
48VT(-,N)A4206051--	208/230-3-60	187	253	13.5	88	1.2	6	1.65	24.1	35
48VT(-,N)A4209051--	208/230-3-60	187	253	13.5	88	1.2	6	0.65	24.1	35
48VT(-,N)A4809051--	208/230-3-60	187	253	16	83	1.2	7.6	0.65	28.8	40
48VT(-,N)A4811551--	208/230-3-60	187	253	16	83	1.2	7.6	1.65	28.8	40
48VT(-,N)A4813051--	208/230-3-60	187	253	16	83	1.2	7.6	0.52	28.8	40
48VT(-,N)A6009051--	208/230-3-60	187	253	19.9	110	1.2	7.6	0.65	33.7	50
48VT(-,N)A6011551--	208/230-3-60	187	253	19.9	110	1.2	7.6	1.65	33.7	50
48VT(-,N)A6013051--	208/230-3-60	187	253	19.9	110	1.2	7.6	0.52	33.7	50

48VT - A

LEGEND

- FLA - Full Load Amps
- IDM - Inducer Motor
- IFM - Indoor Fan Motor
- LRA - Locked Rotor Amps
- MCA - Minimum Circuit Amps
- MOCP - Maximum Over Current Protection
- OFM - Outdoor Fan Motor
- RLA - Rated Load Amps

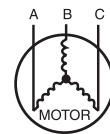
NOTES:

- In compliance with NEC (National Electrical Code) requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be Power Supply fuse or circuit breaker.
- Minimum wire size is based on 60 C copper wire. If other than 60 C wire is used, or if length exceeds wire length in table, determine size from NEC.
- Unbalanced 3-Phase Supply Voltage
Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the percentage of voltage imbalance

% Voltage imbalance

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

EXAMPLE: Supply voltage is 230-3-60.



- AB = 228 v
- BC = 231 v
- AC = 227 v

$$\begin{aligned} \text{Average Voltage} &= \frac{228 + 231 + 227}{3} \\ &= \frac{686}{3} \\ &= 229 \end{aligned}$$

Determine maximum deviation from average voltage.

- (AB) 229 - 228 = 1 v
- (BC) 231 - 229 = 2 v
- (AC) 229 - 227 = 2 v

Maximum deviation is 2 v.

Determine percent of voltage imbalance

$$\begin{aligned} \% \text{ Voltage Imbalance} &= 100 \times \frac{2}{229} \\ &= 0.8\% \end{aligned}$$

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

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

A06564

CONTROLS

Operating sequence

When power is supplied to unit, the transformer (TRAN) is energized.

On units with crankcase heater, heater is also energized.

Cooling — With the thermostat subbase in the cooling position, the thermostat makes circuit “R” to “O”. This energizes the reversing valve solenoid (RVS) and places the unit in standby condition for cooling.

As the space temperature rises, the thermostat closes circuit “R” to “Y1/Y”. A circuit is made to contactor (C), starting the compressor (COMP) and outdoor-fan motor (OFM). Circuit “R” to “G” is made at the same time and starts the indoor-fan motor (IFM).

On the loss of the thermostat call for cooling, 24 V is removed from both the “Y1/Y” and “G” terminals (provided the fan switch is in the “AUTO” position) de-energizing the compressor contactor and opening the contacts supplying power to compressor/OFM. After a 90-second delay, the IFM shuts off. If the thermostat fan selector switch is in the “ON” position, the IFM will run continuously.

Heating - On a call for heating, terminal “W” of the thermostat is energized, starting the induced-draft motor. When the pressure switch senses that the induced-draft motor is moving sufficient combustion air, the burner sequence begins. This function is performed by the integrated gas unit controller (IGC). The indoor (evaporator)-fan motor is energized 45 sec after flame is established. When the thermostat is satisfied and “W” is de-energized, the burners stop firing and the indoor (evaporator) fan motor shuts off after a 45-sec time-off delay. Please note that the IGC has the capability to automatically reduce the indoor fan motor on delay and increase the indoor fan motor off delay in the event of high duct static and/or partially-clogged filter.

Heat Pump Heating — On a call for heat, thermostat makes circuits “R” to “Y1/Y” and “R” to “G”.

A circuit is made to C, starting COMP and OFM. Circuit “R” to “G” is also completed, starting IFM.

Defrost — Defrost board (DB) is a time and temperature control, which includes a field-selectable time period (dip switch 1 and 2 on the board) between checks for defrost (30, 60, 90, or 120 minutes). Electronic timer and defrost cycle start only when contactor is energized and defrost thermostat (DFT) is closed.

The defrost board is also equipped with a third dip switch for selecting Quiet Shift operation. The Quiet Shift operation turns compressor off at defrost initiation and termination. Unit is factory shipped with quiet shift turned off.

Defrost mode is identical to cooling mode. except outdoor fan motor stops and gas heat turns on to warm air supplying the conditioned space. After defrost cycle, gas heat stays on to meet the demand cycle.

NOTE:

1. Compressor time delay occurs through the defrost control board.
2. Defrost control board has built in 5 minute compressor delay; once the compressor has started and then stopped, it cannot be restarted again until 5 minutes have elapsed.

GUIDE SPECIFICATIONS

Packaged HYBRID HEAT Dual Fuel Units

HVAC Guide Specifications

Size Range: **2 to 5 Tons, Nominal Cooling
40,000 to 130,000 Btuh,
Nominal Heating Input**

Model Number: **48VT-A**

Part 1—General

SYSTEM DESCRIPTION

Outdoor, packaged, air-to-air heat pump unit utilizing a hermetic scroll compressor for cooling duty and optional electric heating. Unit shall discharge supply air vertically or horizontally as shown on contract drawings. Outdoor fan/coil section shall have a draw-thru design with vertical discharge for minimum sound levels.

QUALITY ASSURANCE

- A. Unit shall be rated in accordance with AHRI Standards 210/240 and 270.**
- B. Unit shall be designed in accordance with UL Standard 1995 and ANSI Z21.47.**
- C. Unit shall be manufactured in a facility registered to ISO 9001 manufacturing quality standard.**
- D. Unit shall be UL listed and c-UL certified as a total package for safety requirements.**
- E. Roof curb shall be designed to conform to NRCA Standards.**
- F. Insulation and adhesives shall meet NFPA 90A requirements for flame spread and smoke generation.**
- G. Cabinet insulation shall meet ASHRAE Standard 62P.**

DELIVERY, STORAGE AND HANDLING

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

Part 2 — Products

EQUIPMENT

A. General:

Factory-assembled, single-piece, heat pump unit. Contained within the enclosure shall be all factory wiring, piping, controls, refrigerant charge (R-410A), and special features required prior to field start-up.

B. Unit Cabinet:

- 1. Unit cabinet shall be constructed of phosphated, zinc-coated, pre-painted steel capable of withstanding 500 hours of salt spray.
- 2. Normal service shall be through a single removable cabinet panel.
- 3. The unit shall be constructed on a rust proof unit base that has an externally trapped, integrated sloped drain.
- 4. Indoor fan compartment top surface shall be insulated with a minimum 1/2-in. (13 mm) thick, flexible fiberglass insulation, coated on the air side and retained by adhesive and mechanical means. The indoor wall sections will be insulated with a minimum semi-rigid, foil-faced board capable of being wiped clean. Aluminum foil-faced fiberglass insulation shall be used in the entire indoor air cavity section.
- 5. Unit shall have a field-supplied condensate trap.
- 6. Metal Insulated Duct Covers for side discharge will be standard on all sizes.
- 7. Unit insulation conforms to ASHRAE 62P.

C. Fans:

- 1. The evaporator fan motor shall be a ECM Motor.
- 2. Fan wheel shall be made from steel, be double-inlet type with forward curved blades with corrosion resistant finish. Fan wheel shall be dynamically balanced.
- 3. Condenser fan shall be direct drive propeller type with aluminum blades riveted to corrosion resistant steel spiders, be dynamically balanced, and discharge air vertically.

D. Compressor:

- 1. Fully hermetic compressors with factory-installed vibration isolation.
- 2. Scroll compressors shall be standard on all units.
- 3. Compressor Protection:
Defrost control shall protect compressor by preventing "short cycling."

E. Coils:

Indoor and outdoor coils shall have aluminum plate fins mechanically bonded to seamless copper tubes with all joints brazed. (Copper/copper and vinyl-coated construction available as option.) Tube sheet openings shall be belled to prevent tube wear.

F. Refrigerant Metering Device:

Refrigerant metering device shall be thermostatic expansion valve for cooling, and fixed orifice for heating.

G. Filters:

Filter section shall consist of field-installed, throwaway, 1-in. (25 mm)- thick fiberglass filters of commercially available sizes.

H. Controls and Safeties:

- 1. Unit controls shall be complete with a self-contained, low-voltage control circuit.
- 2. Units shall incorporate an internal compressor protector that provides reset capability.

I. Operating Characteristics:

- 1. Unit shall be capable of starting and running at 125°F (51.7°C) ambient outdoor temperature.
- 2. Compressor with standard controls shall be capable of operation down to 40°F (4.4°C) ambient outdoor temperature in cooling mode.
- 3. Unit shall be provided with 90-second fan time delay after the thermostat is satisfied.

J. Electrical Requirements:

All unit power wiring shall enter the unit cabinet at a single location.

K. Motors:

- 1. Compressor motors shall be of the refrigerant-cooled type with line-break thermal and current overload protection.
- 2. All fan motors shall have permanently lubricated bearings, and inherent, automatic reset, thermal overload protection.
- 3. Condenser fan motor shall be totally enclosed.
- 4. Evaporator Fan Motor to be ECM Motor.

GUIDE SPECIFICATIONS (CONT)

L. Compressor Protection:

Solid-state control shall protect compressor by preventing “short cycling.”

M. Low NOx:

Shall provide NOx reduction to values below 40 nanograms/joule to meet California’s and other localities’ emission requirements as shipped from factory.

N. Special Features Available:

1. Coil Options

Base unit with tin plated indoor coil hairpins available as a factory installed option.

2. Compressor Start Kit

Shall provide additional starting torque for single-phase compressors.

3. Thermostat:

To provide for HYBRID HEAT two stage heating and one stage cooling in addition manual or automatic changeover and indoor fan control.

4. Crankcase Heater:

Shall provide anti-floodback protection for lowload cooling applications.

5. Economizer:

- a. Economizer controls capable of providing free cooling using outside air.
- b. Equipped with low leakage dampers not to exceed 3% leakage, at 1.0 IN. W.C. pressure differential.
- c. Spring return motor shuts off outdoor damper on power failure.

6. Filter Rack Kit:

Shall provide filter mounting for downflow applications.

7. Flat Roof Curb:

Curbs shall have seal strip and a wood nailer for flashing and shall be installed per manufacturer’s instructions.

8. Flue Discharge Deflector

Directs flue gas exhaust 90 degrees upward from current discharge.

9. Heat Exchanger

Stainless Steel Heat Exchanger available as a factory installed option.

10. High Altitude Propane conversion Kit

Shall consist of all required hardware to convert to propane gas heat operation at 2001 to 6000 ft (611 to 1829 m) above sea level.

11. Low Ambient Package:

Shall consist of a solid-state control and outdoor coil temperature sensor for controlling outdoor-fan motor operation, which shall allow unit to operate down to 0°F (17.7°C) outdoor ambient temperature.

12. Manual Outdoor Air Damper:

Package shall consist of damper, birdscreen, and rainhood which can be preset to admit outdoor air for year-round ventilation.

13. Natural-to-Propane Conversion Kit:

Shall be complete with all required hardware to convert to propane gas operation at standard altitude (0 to 2000 ft [0-610 m] above sea level).

14. Propane-to-Natural Conversion Kit:

Shall be complete with all hardware to convert to natural gas at standard altitude (0 to 2000 ft [0 to 610 m] above sea level).

15. Square-To-Round Duct Transitions (24-48 models):

Shall have the ability to convert the supply and return openings from rectangular to round.