

48VT-C

Comfort™ 14 SEER Single-Packaged HYBRID HEAT®

Dual Fuel System with Puron® (R-410A)

Refrigerant

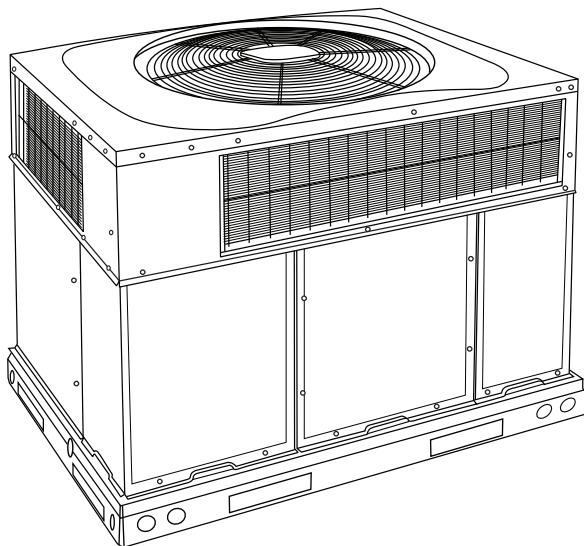
Single Phase 2-5 Nominal Tons (Sizes 24-60)

Three Phase 3-5 Nominal Tons (Sizes 36-60)



turn to the experts™

Product Data



A09034

Fig. 1 - Unit 48VT-C

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

- Up to 14.5 SEER
- Up to 12.0 EER
- 8.0 HSPF
- 81.0% AFUE (Single phase models)
- 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 is Carrier's unique refrigerant designed to be environmentally balanced. 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 and is non-ozone depleting.

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 81.0% on single phase models, and up to 80.4% on three phase models.

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.

Low NOx units are 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

Scroll 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 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® Thermostat™ Control in either its programmable (part # TP-PRH) or non-programmable (TP-NRH) models.

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.

Low sound ratings ensure a quiet indoor and outdoor environment with sound ratings as low as 73 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.

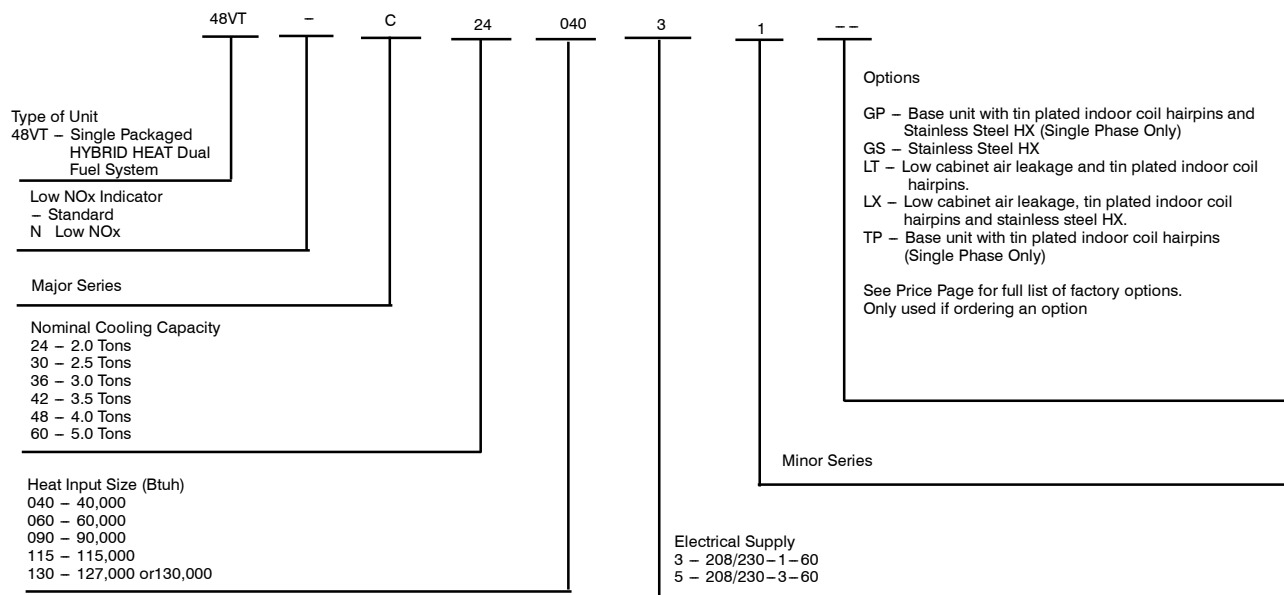
Short-Cycling protection for the compressor is incorporated into our defrost control board ensuring a five minute delay (+/-2 minutes) before restarting compressor after shutdown for any reason.

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MODEL NUMBER NOMENCLATURE



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AHRI* CAPACITIES

COOLING CAPACITIES AND EFFICIENCIES

UNIT SIZE	NOMINAL TONS	STANDARD CFM	COOLING CAPACITY	EER	SEER
24	2	800	23000	12.0	14.5
30	2.5	1000	28600	11.5	14.0
36	3	1200	34200	11.5	14.0
42	3.5	1400	41000	11.5	14.0
48	4	1600	48000	12.0	14.0
60	5	1750	57500	11.5	14.0

HEAT PUMP HEATING CAPACITIES AND EFFICIENCIES

UNIT	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	22600	3.7	12000	2.30	8.0
30	28400	3.7	15600	2.35	8.0
36	34400	3.6	18600	2.30	8.0
42	40000	3.6	22600	2.40	8.0
48	46000	3.6	25800	2.40	8.0
60	57500	3.7	33000	2.45	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, SINGLE PHASE MODELS

UNIT SIZE	HEATING INPUT (Btuh)	OUTPUT CAPACITY (Btuh)	TEMPERATURE RISE RANGE F (C)	AFUE (%)
24040 30040	40,000	33,000	25-55 (14-31)	81.0
24060 30060 36060 42060	60,000	49,000	25-55 (13.9-30.6)	
36090 42090 48090 60090	90,000	74,000	35-65 (19.4-36.1)	
48115 60115	115,000	94,000	30-60 (16.7-33.3)	
48130 60130	130,000	104,000	35-65 (19.4-36.1)	

LEGEND

AFUE—Annual Fuel Utilization Efficiency

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

GAS HEATING CAPACITIES AND EFFICIENCIES, THREE PHASE MODELS

UNIT SIZE	HEATING INPUT (Btuh)	OUTPUT CAPACITY (Btuh)	TEMPERATURE RISE RANGE F (C)	AFUE (%)
36060 42060	60,000	47,000 47,000	25-55 (13.9-30.6)	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

Unit Size	24040	24060	30040	30060	36060	36090
Nominal Capacity – ton	2	2	2.5	2.5	3	3
Shipping Weight (lb) (kg)	365 166	365 166	395 179	395 179	440 200	440 200
Compressor / Quantity	Scroll / 1					
Refrigerant	R-410A					
Refrigerant Quantity (lb) Quantity (kg)	7.5 3.4	7.5 3.4	9.0 4.1	9.0 4.1	8.9 4.0	8.9 4.0
Refrigerant Metering Device	Indoor TXV, Outdoor Dual Accuraters					
Orifice OD (in) (mm)	0.032 (2) 0.81 (2)	0.032 (2) 0.81 (2)	0.035 (2) 0.89 (2)	0.035 (2) 0.89 (2)	0.040 (2) 1.02 (2)	0.040 (2) 1.02 (2)
Outdoor Coil Rows... Fins/in, face area (sq. ft.)	1...21 15.4	1...21 15.4	1...21 18.8	1...21 18.8	1...21 17.5	1...21 17.5
Outdoor Fan Nominal Airflow (cfm) Diameter (in.) Diameter (mm) Motor hp (rpm)	2500 24 610 1/12 (810)	2500 24 610 1/12 (810)	3000 24 610 1/10 (810)	3000 24 610 1/10 (810)	3500 26 660 1/5 (810)	3500 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	2...15 5.6	2...17 5.6
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 1/2	1200 11 x 10 279 x 254 1/2
Furnace Section* Burner Orifice 1 – Phase Natural Gas Qty...Drill Size 1 – Phase Propane Gas Qty...Drill Size 3 – Phase Natural Gas Qty...Drill Size 3 – Phase Propane Gas Qty...Drill Size	2...44 2...55 2...44 2...55	3...44 3...55 2...38 2...53	2...44 2...55 2...44 2...55	3...44 3...55 2...38 2...53	3...44 3...55 2...38 2...53	3...38 3...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	2 each 20x12x1 in. 508x305x25 mm				1 each 24x16x1 in. 610x406x25 mm 24x18x1 in. 510x457x25 mm	

*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 to 350 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.

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PHYSICAL DATA (CONT)

Unit Size	42060	42090	48090	48115	48130	60090	60115	60130
Nominal Capacity – ton	3.5	3.5	4	4	4	5	5	5
Shipping Weight (lb) (kg)	475 215	475 215	500 227	500 227	500 227	515 234	515 234	515 234
Compressor / Quantity	Scroll / 1							
Refrigerant	R-410A							
Refrigerant Quantity (lb) Quantity (kg)	11.2 5.1	11.2 5.1	9.9 4.5	9.9 4.5	9.9 4.5	11.9 5.4	11.9 5.4	11.9 5.4
Refrigerant Metering Device	Indoor TXV, Outdoor Dual Accuraters		Indoor Accurater, Outdoor Dual Accuraters			Indoor TXV, Outdoor Dual Accuraters		
Orifice ID (in) (mm)	N/A		0.080 (1) 2.03 (1)			N/A		
Orifice OD (in) (mm)	0.046 (2) 1.17 (2)	0.046 (2) 1.17 (2)	0.046 (2) 1.17 (2)	0.046 (2) 1.17 (2)	0.046 (2) 1.17 (2)	0.052 (2) 1.32 (2)	0.052 (2) 1.32 (2)	0.052 (2) 1.32 (2)
Outdoor Coil Rows... Fins/in, face area (sq. ft.)	1...21 23.3	1...21 23.3	1...21 23.3	1...21 23.3	1...21 23.3	2...21 17.5	2...21 17.5	2...21 17.5
Outdoor Fan Nominal Airflow (cfm) Diameter (in.) Diameter (mm) Motor hp Motor (rpm)	3500 26 660 1/5 (810)	3500 26 660 1/5 (810)	3500 26 660 1/5 (810)	3500 26 660 1/5 (810)	3500 26 660 1/5 (810)	3500 26 660 1/4 (810)	3500 26 660 1/4 (810)	3500 26 660 1/4 (810)
Indoor Coil Rows... Fins/in, face area (sq. ft.)	3...17 4.7	3...17 4.7	3...17 4.7	3...17 4.7	3...17 4.7	3...17 5.6	3...17 5.6	3...17 5.6
Indoor Blower Nominal Airflow (cfm) Size (in.) Size (mm) Motor hp	1350 11 x 10 279 x 254 1/2	1350 11 x 10 279 x 254 1/2	1600 11 x 10 279 x 254 1	1600 11 x 10 279 x 254 1	1600 11 x 10 279 x 254 1	1750 11 x 10 279 x 254 1	1750 11 x 10 279 x 254 1	1750 11 x 10 279 x 254 1
Furnace Section* Burner Orifice 1 Phase Natural Gas Qty...Drill Size 1 Phase Propane Gas Qty...Drill Size 3 Phase Natural Gas Qty...Drill Size 3 Phase Propane Gas Qty...Drill Size	3...44 3...55 2...38 2...53	3...38 3...53 3...38 3...53	3...38 3...53 3...38 3...53	3...33 3...51 3...33 3...51	3...31 3...49 3...31 3...49	3...38 3...53 3...38 3...53	3...33 3...51 3...33 3...51	3...31 3...49 3...31 3...49
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	1 each 24x14x1 (610x356x25) 24x15x1 (610x406x25)					1 each 24x16x1 (610x406x25) 24x18x1 (610x457x25)		

*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 to 350 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)

UNIT SIZE	STANDARD RATING (dBA)	TYPICAL OCTAVE BAND SPECTRUM (dBA without tone adjustment)						
		125	250	500	1000	2000	4000	8000
24	74	55.1	54.3	56.7	54.9	51.7	47.2	42.9
30	75	52.7	53.0	57.9	58.7	54.8	52.2	43.2
36	74	61.9	63.3	58.9	59.9	58.7	56.2	52.4
42	73	52.7	56.9	61.5	60.7	56.7	54.1	47.9
48	74	57.4	57.1	60.9	63.2	57.8	54.8	46.1
60	75	59.3	62.2	62.1	64.1	59.4	55.8	50.2

NOTE: Tested in accordance with AHRI Standard 270–1995 (not listed in AHRI).

OPTIONS AND ACCESSORIES

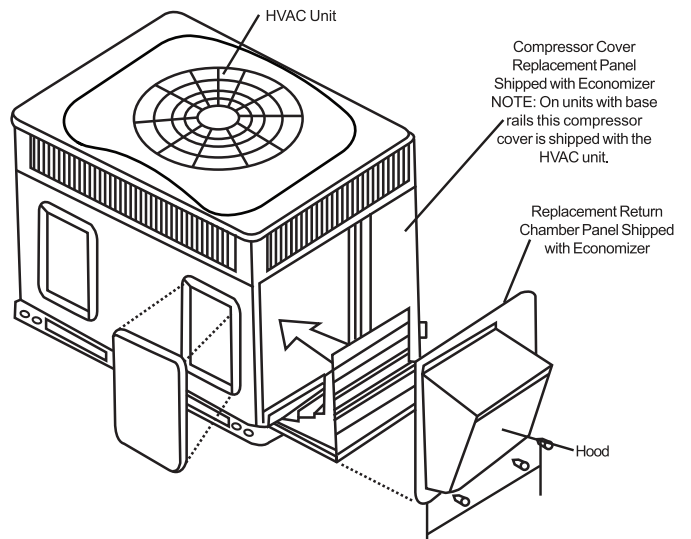
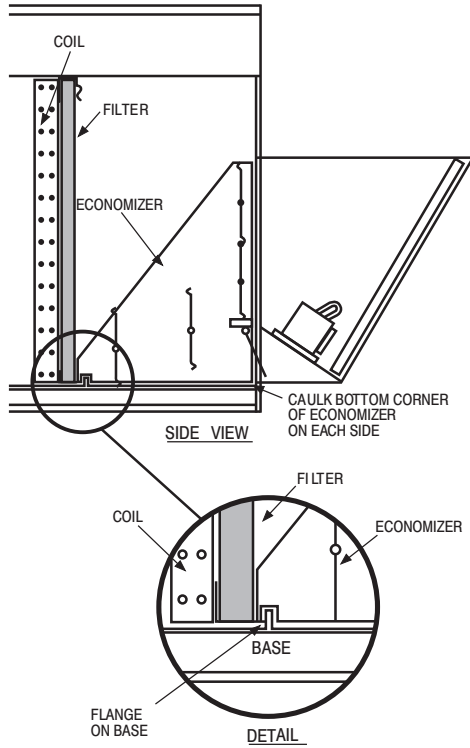
ITEM	DESCRIPTION	FACTORY INSTALLED OPTION	FIELD INSTALLED ACCESSORY
Coil Options	Base unit with tin plated indoor coil hairpins	X	
Compressor Start Kit	Compressor Start Kit assists compressor start-up by providing additional starting torque on single-phase units only.		X
Corporate Thermostats	Thermostats 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 Curb	14-in. (356 mm) Flat Roof Curb is 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
Louver Metal Outdoor Coil Grilles	Louver Metal Outdoor Coil Grilles provide hail and vandalism protection.		X
Low Cabinet Air Leakage	Cabinet air leakage less than 2.0% at 1.0 in. W.C. and cabinet air leakage less than 1.4% at 0.5 in. W.C., when tested in accordance with ASHRAE Standard 193.	X	

*Refer to Price Page for application detail.

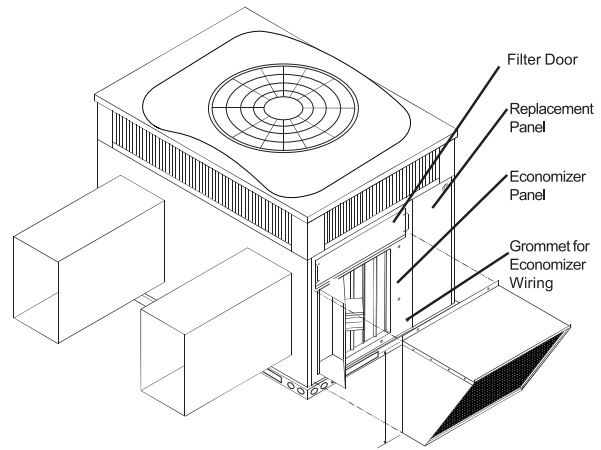
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ECONOMIZER

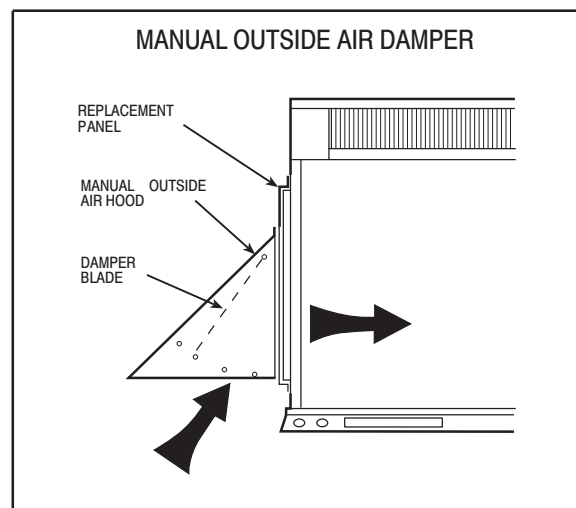
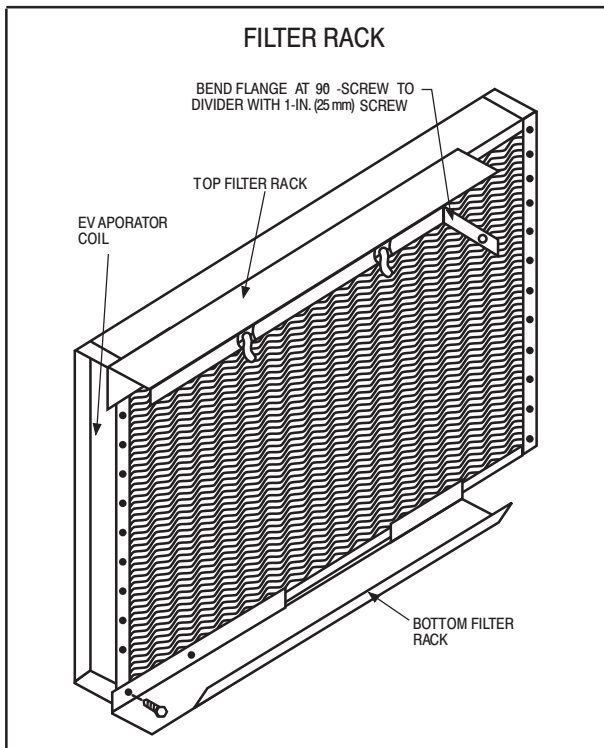
48VT-C



Vertical Economizer



Horizontal Economizer

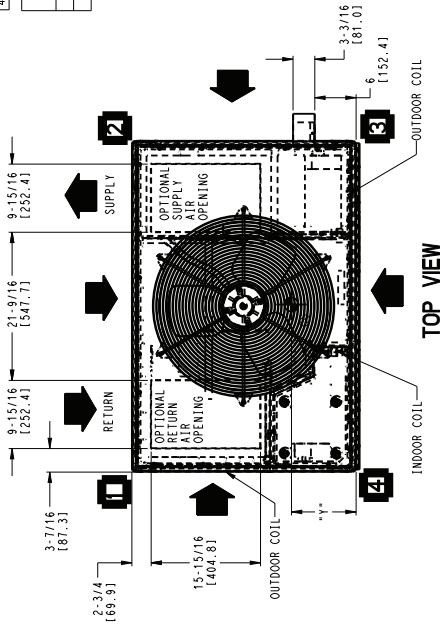


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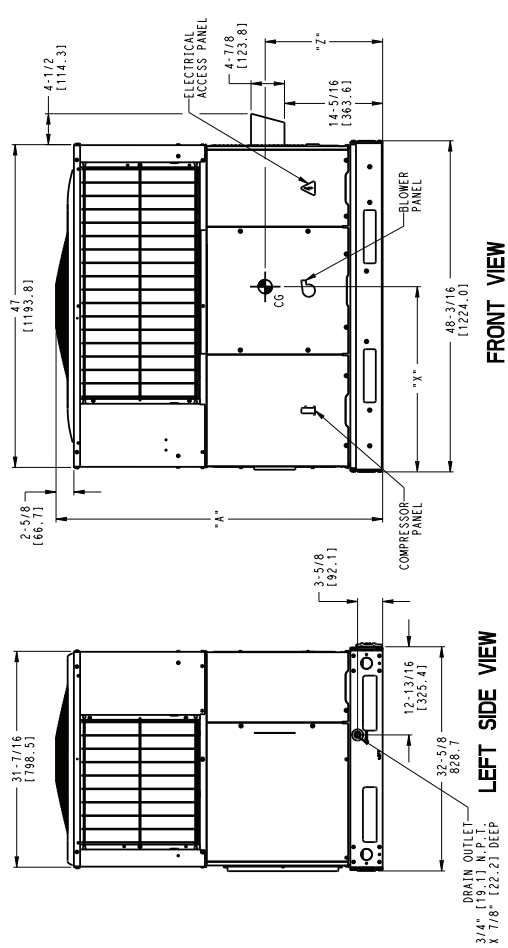
UNIT DIMENSIONS - 24-30

UNIT	ELECTRICAL CHARACTERISTICS		UNIT WT.		UNIT HEIGHT IN/MM		CENTER OF GRAVITY IN/MM	
	LB	KG	LB	KG	"A"	X	Y	Z
48VLT-/N/C24(040,060,30)	311	141	47-3/4	1213	22-3/4	578	15-1/2	384
48VLT-/N/C30(040,060,30)	351	151	51-3/4	1315	22-3/4	578	15-1/2	384

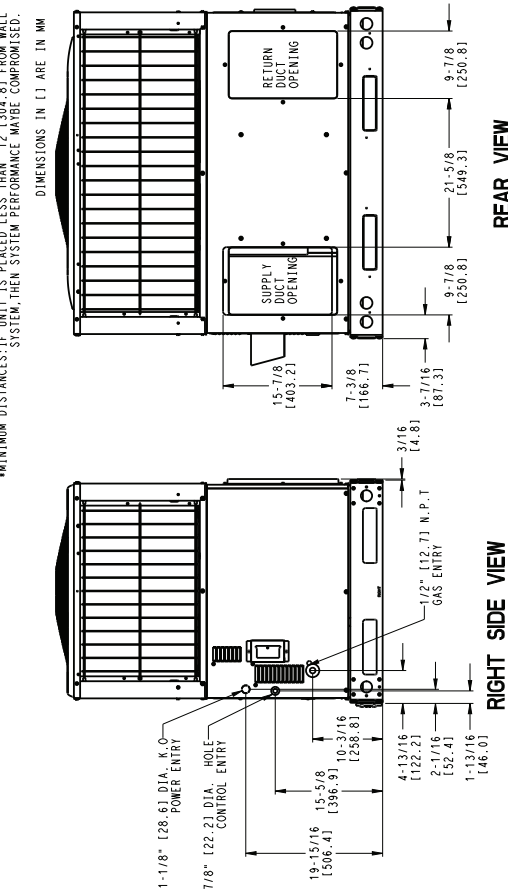
UNITS	VOLTAGE	CORNER WEIGHT LB/KG			
		"1"	"2"	"3"	"4"
24	208/230	46.7	21.2	62.2	93.3
30	208/230	52.7	23.9	70.2	31.8



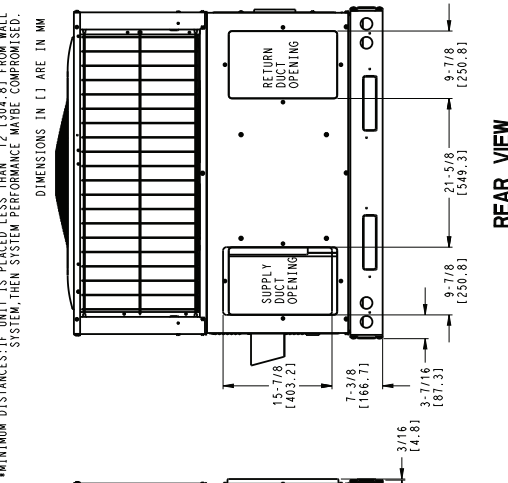
TOP VIEW



FRONT VIEW



RIGHT SIDE VIEW



REAR VIEW

REQUIRED CLEARANCES TO COMBUSTIBLE MATL

TOP OF UNIT.....14 [355.6]
 DUCT SIDE OF UNIT.....2 [50.8]
 SIDE OPPOSITE DUCTS.....14 [355.6]
 SIDE OPPOSITE UNIT.....14 [355.6]
 FLUE PANEL.....36 [914.4]

NEC REQUIRED CLEARANCES

BETWEEN UNITS, POWER ENTRY SIDE.....42 [1066.8]
 UNIT AND UNGROUND SURFACES, POWER ENTRY SIDE.....36 [914.4]
 UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUND SURFACES, POWER ENTRY SIDE.....42 [1066.8]

REQUIRED CLEARANCE FOR OPERATION AND SERVICING

EVAP. COIL ACCESS SIDE.....36 [914.0]
 POWER ENTRY SIDE.....42 [1066.8]
 (EXCEPT FOR NEC REQUIREMENTS)
 UNIT TOP.....48 [1219.2]
 SIDE OPPOSITE DUCTS.....48 [1219.2]
 DUCT PANEL.....42 [1066.8]

•MINIMUM DISTANCES: IF UNIT IS PLACED LESS THAN 12 [304.8] FROM WALL SYSTEM, THEN SYSTEM PERFORMANCE MAYBE COMPROMISED.

DIMENSIONS IN [] ARE IN MM

48VT500130

48VT-C

UNIT DIMENSIONS - 36-60

48VT-C

UNIT	ELECTRICAL CHARACTERISTICS	UNIT WT. LB. KG.	UNIT HEIGHT IN/MM	CENTER OF GRAVITY IN/MM	Y	X	Z
48VT-C/N/C36/060-090/13/5/0	208/230-V-60, 208/230-3-60	387	116.0	48-3/4" 1238	22-3/4" 578	18	457 17-7/8 435
48VT-C/N/C42/080-090/13/5/0	208/230-V-60, 208/230-3-60	435	197.0	54-3/4" 1391	22-3/4" 578	18	457 17-7/8 435
48VT-C/N/C48/090-115/130/13/5/0	208/230-V-60, 208/230-3-60	436	207.0	54-3/4" 1391	22-3/4" 578	18	457 17-7/8 435
48VT-C/N/C60/090-115/130/13/5/0	208/230-V-60, 208/230-3-60	487	221.0	48-3/4" 1238	22-3/4" 578	18	457 17-7/8 435

UNIT	VOLTAGE	1" 1"	2" 2"	3" 3"	4" 4"
36	208/230	58.1	26.3	77.4	35.1
42	208/230	65.3	29.6	87.0	39.5
48	208/230	68.4	31.0	91.2	41.4
60	208/230	73.1	33.1	97.4	44.2

REQUIRED CLEARANCES TO COMBUSTIBLE MAT'L

TOP OF UNIT	INCHES [MM]
TO COMBUSTIBLE MAT'L	14 [355.6]
SIDE OF UNIT	14 [355.6]
SIDE OPPOSITE DUCTS	14 [355.6]
BOTTOM OF UNIT	112 [112.7]
FLUE PANEL	36 [914.4]

NEC- REQUIRED CLEARANCES

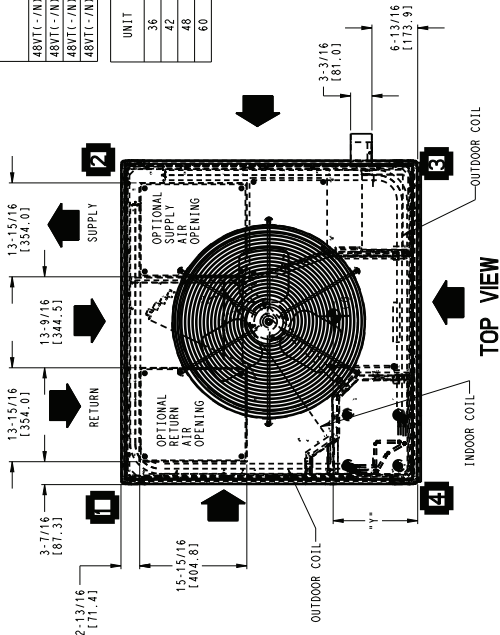
BETWEEN UNITS: POWER ENTRY SIDE	INCHES [MM]
TO COMBUSTIBLE MAT'L	42 [1066.8]
TO UNITS: POWER ENTRY SIDE	36 [914.0]
TO UNITS: POWER ENTRY SIDE	42 [1066.8]
TO UNITS: POWER ENTRY SIDE	42 [1066.8]

REQUIRED CLEARANCE FOR OPERATION AND SERVICING

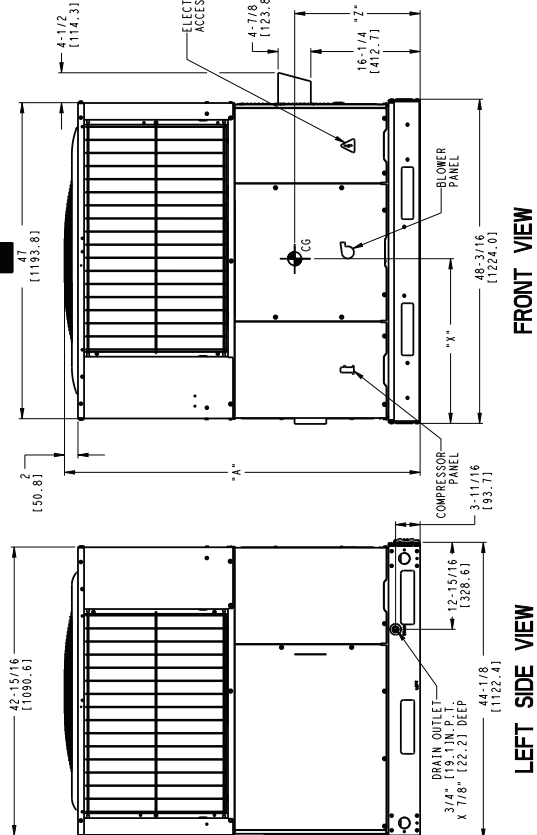
EVAP. COIL ACCESS SIDE	INCHES [MM]
TO COMBUSTIBLE MAT'L	36 [914.0]
TO UNITS: POWER ENTRY SIDE	42 [1066.8]
TO UNITS: POWER ENTRY SIDE	42 [1066.8]
TO UNITS: POWER ENTRY SIDE	42 [1066.8]

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

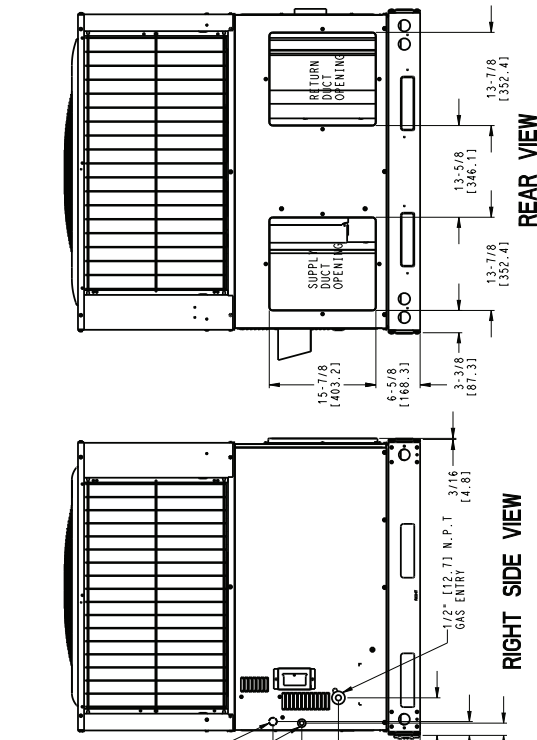
DIMENSIONS IN [] ARE IN MM



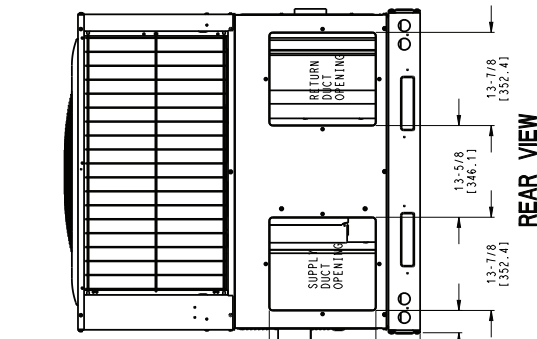
TOP VIEW



FRONT VIEW



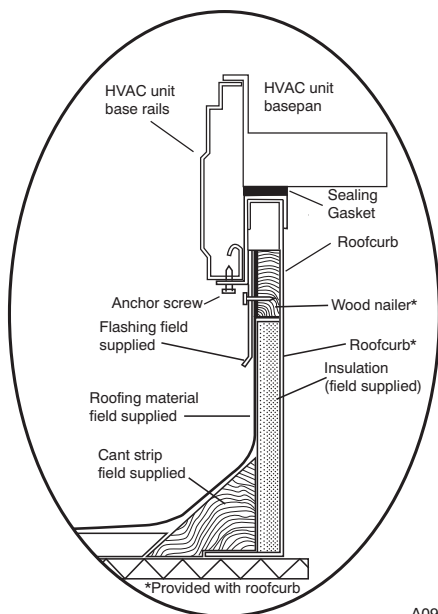
RIGHT SIDE VIEW



REAR VIEW

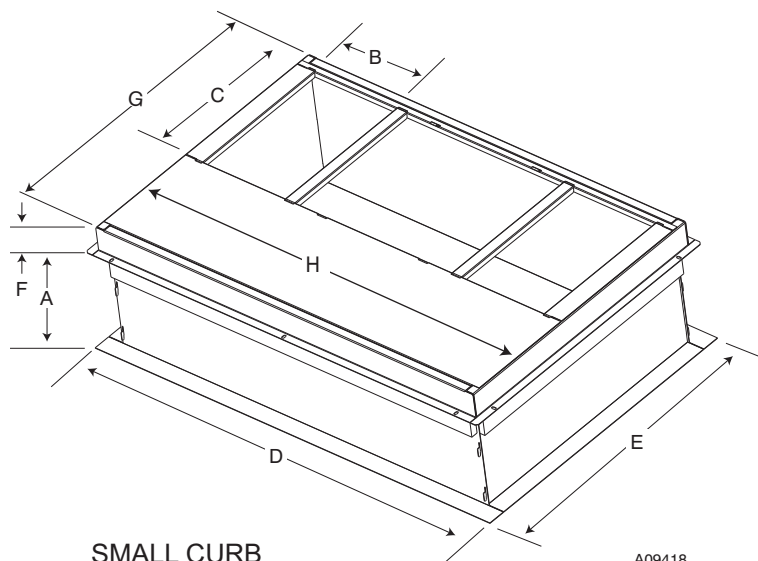
48VT500131

ACCESSORY DIMENSIONS



ROOF CURB DETAIL

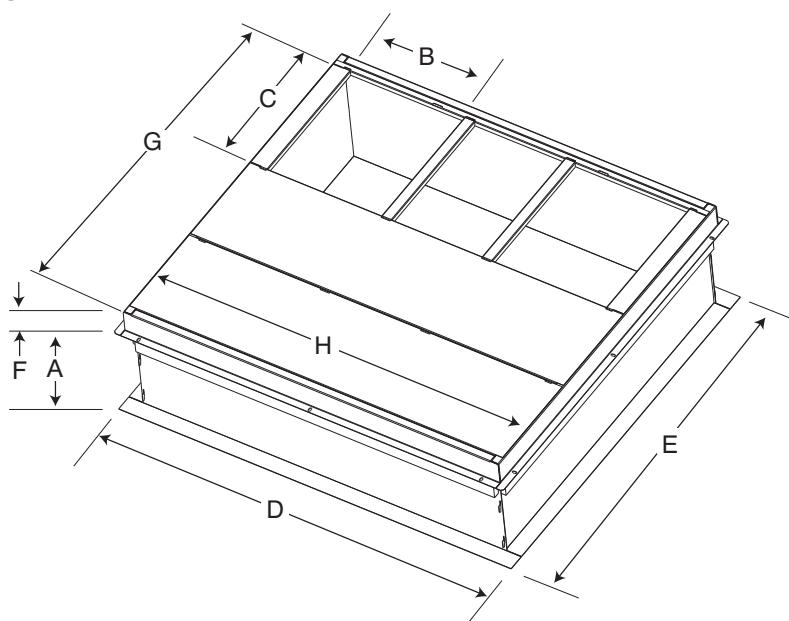
A09090



SMALL CURB

A09418

48VT-C



LARGE CURB

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	CPRFCURB011A00	14 (356)	10 (254)	16 (406)	47.8 (1214)	32.4 (822)	2.7 (69)	30.6 (778)	46.1 (1170)
Large	CPRFCURB013A00	14 (356)	14 (356)			43.9 (1116)		42.2 (1072)	

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 74,000 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 1079 cfm with the MED 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 °F (°C)																	
CFM	EWB °F (°C)	75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)			
		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	
		Total	Sens	Total	Sens	Total	Sens	Total	Sens	Total	Sens	Total	Sens	Total	Sens	Total	Sens	Total	Sens	
700	57 (13.9)	23.20	23.20	1.46	21.89	21.89	1.66	20.49	20.49	1.88	19.02	19.02	2.13	17.49	17.49	2.41	15.90	15.90	2.74	
	62 (16.7)	23.93	21.62	1.46	22.33	20.76	1.66	20.71	19.82	1.88	19.05	19.05	2.13	17.52	17.52	2.41	15.92	15.92	2.74	
	63* (17.2)	24.31	17.61	1.46	22.69	16.85	1.66	21.03	16.01	1.88	19.29	15.13	2.13	17.49	14.20	2.41	15.64	13.24	2.74	
	67 (19.4)	26.08	18.23	1.47	24.35	17.45	1.67	22.58	16.63	1.90	20.74	15.76	2.15	18.83	14.87	2.43	16.87	13.90	2.75	
	72 (22.2)	28.46	14.83	1.48	26.60	14.07	1.69	24.70	13.29	1.91	22.73	12.50	2.17	20.69	11.68	2.46	18.58	10.84	2.78	
	57 (13.9)	24.19	24.19	1.48	22.79	22.79	1.68	21.30	21.30	1.90	19.75	19.75	2.15	18.14	18.14	2.44	16.47	16.47	2.77	
800	62 (16.7)	24.54	23.19	1.48	22.92	22.23	1.68	21.33	21.33	1.90	19.78	19.78	2.15	18.17	18.17	2.44	16.49	16.49	2.77	
	63* (17.2)	24.87	18.76	1.48	23.18	17.97	1.68	21.43	17.11	1.90	19.63	16.20	2.15	17.77	15.24	2.44	15.88	14.24	2.76	
	67 (19.4)	26.67	19.46	1.48	24.86	18.65	1.69	23.00	17.80	1.92	21.09	16.89	2.17	19.13	15.96	2.45	17.11	14.96	2.77	
	72 (22.2)	29.10	15.59	1.49	27.14	14.82	1.71	25.15	14.02	1.94	23.10	13.21	2.19	20.99	12.38	2.48	18.80	11.52	2.80	
	57 (13.9)	25.03	25.03	1.50	23.55	23.55	1.70	21.99	21.99	1.93	20.36	20.36	2.18	18.68	18.68	2.47	16.94	16.94	2.79	
	62 (16.7)	25.10	25.10	1.50	23.58	23.58	1.70	22.02	22.02	1.93	20.39	20.39	2.18	18.71	18.71	2.47	16.96	16.96	2.79	
900	63* (17.2)	25.31	19.86	1.50	23.56	19.04	1.70	21.75	18.16	1.92	19.90	17.21	2.17	18.00	16.23	2.46	16.08	15.18	2.78	
	67 (19.4)	27.13	20.64	1.50	25.24	19.81	1.71	23.33	18.92	1.94	21.37	17.98	2.19	19.36	17.01	2.48	17.30	15.97	2.80	
	72 (22.2)	29.60	16.31	1.51	27.57	15.52	1.73	25.50	14.71	1.96	23.39	13.88	2.21	21.21	13.03	2.50	18.98	12.16	2.82	

*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°F (-23.3-15.6°C)

INDOOR AIR			OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C)																							
EDB ° F (° C)	CFM	-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									
65 (18.3)	700	5.16	4.74	1.30	7.34	6.76	1.36	9.88	9.07	1.42	13.05	11.84	1.49	16.15	14.15	1.54	19.76	19.76	1.60	23.93	23.93	1.67	28.94	28.94	1.78	
	800	5.23	4.81	1.31	7.44	6.84	1.37	10.00	9.18	1.42	13.17	11.94	1.48	16.30	14.28	1.52	19.97	19.97	1.57	24.23	24.23	1.64	29.26	29.26	1.71	
	900	5.29	4.87	1.32	7.52	6.92	1.37	10.10	9.27	1.42	13.27	12.04	1.47	16.43	14.40	1.51	20.15	20.15	1.56	24.47	24.47	1.61	29.31	29.31	1.67	
70 (21.1)	700	4.96	4.56	1.36	7.13	6.56	1.42	9.64	8.85	1.49	12.86	11.66	1.56	15.94	13.96	1.62	19.49	19.49	1.68	23.59	23.59	1.76	28.47	28.47	1.86	
	800	5.04	4.63	1.36	7.23	6.65	1.43	9.77	8.97	1.48	12.99	11.78	1.55	16.09	14.10	1.60	19.70	19.70	1.65	23.88	23.88	1.72	28.78	28.78	1.80	
	900	5.11	4.70	1.37	7.31	6.73	1.43	9.88	9.07	1.48	13.11	11.89	1.54	16.23	14.22	1.59	19.88	19.88	1.63	24.12	24.12	1.69	29.00	29.00	1.76	
75 (23.9)	700	4.74	4.36	1.42	6.89	6.34	1.49	9.39	8.62	1.56	12.31	11.16	1.62	15.73	13.78	1.70	19.22	19.22	1.76	23.28	23.28	1.84	28.02	28.02	1.95	
	800	4.81	4.43	1.43	6.99	6.44	1.49	9.52	8.74	1.55	12.51	11.34	1.61	15.89	13.92	1.68	19.43	19.43	1.73	23.53	23.53	1.80	28.43	28.43	1.90	
	900	4.89	4.50	1.44	7.08	6.52	1.50	9.63	8.84	1.55	12.71	11.53	1.61	16.01	14.03	1.67	19.61	19.61	1.71	23.77	23.77	1.78	28.65	28.65	1.85	

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PERFORMANCE DATA (CONT)

30 Cooling Extended Performance Table

EVAPORATOR AIR				CONDENSER ENTERING AIR TEMPERATURES °F (°C)															
CFM	EWB °F (°C)	75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		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
		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens	
875	57 (13.9)	29.07	29.07	1.88	27.22	27.22	2.14	25.32	25.32	2.43	23.37	23.37	2.76	21.36	21.36	3.15	19.29	19.29	3.60
	62 (16.7)	29.99	25.80	1.89	27.81	24.76	2.14	25.64	23.67	2.43	23.47	23.30	2.76	21.39	21.39	3.15	19.32	19.32	3.60
	63* (17.2)	30.49	21.01	1.89	28.28	20.08	2.15	26.05	19.11	2.43	23.78	18.10	2.77	21.43	17.04	3.15	19.04	15.94	3.60
	67 (19.4)	32.82	21.81	1.91	30.45	20.88	2.16	28.08	19.91	2.45	25.64	18.90	2.78	23.16	17.85	3.17	20.61	16.76	3.60
	72 (22.2)	36.00	17.71	1.93	33.44	16.84	2.19	30.86	15.95	2.48	28.22	15.04	2.81	25.53	14.11	3.19	22.78	13.13	3.62
	57 (13.9)	30.31	30.31	1.92	28.34	28.34	2.18	26.34	26.34	2.47	24.28	24.28	2.80	22.17	22.17	3.19	19.99	19.99	3.64
1000	62 (16.7)	30.74	27.66	1.92	28.52	26.50	2.18	26.38	26.38	2.47	24.32	24.32	2.80	22.20	22.20	3.19	20.02	20.02	3.64
	63* (17.2)	31.18	22.37	1.93	28.86	21.41	2.18	26.55	20.41	2.47	24.19	19.37	2.80	21.78	18.26	3.19	19.33	17.11	3.63
	67 (19.4)	33.54	23.28	1.94	31.07	22.31	2.20	28.60	21.30	2.49	26.08	20.25	2.82	23.52	19.15	3.20	20.91	18.02	3.64
	72 (22.2)	36.76	18.67	1.96	34.09	17.77	2.22	31.41	16.84	2.51	28.68	15.90	2.84	25.91	14.92	3.22	23.08	13.91	3.66
	57 (13.9)	31.37	31.37	1.96	29.29	29.29	2.22	27.19	27.19	2.51	25.04	25.04	2.84	22.83	22.83	3.23	20.57	20.57	3.67
	62 (16.7)	31.43	31.43	1.96	29.33	29.33	2.22	27.23	27.23	2.51	25.07	25.07	2.84	22.86	22.86	3.23	20.59	20.59	3.67
1125	63* (17.2)	31.70	23.68	1.96	29.31	22.69	2.22	26.93	21.64	2.50	24.52	20.54	2.84	22.05	19.41	3.22	19.56	18.20	3.67
	67 (19.4)	34.09	24.70	1.98	31.54	23.68	2.23	29.00	22.63	2.52	26.42	21.53	2.85	23.79	20.40	3.24	21.13	19.20	3.68
	72 (22.2)	37.37	19.54	2.00	34.61	18.61	2.26	31.85	17.66	2.55	29.03	16.69	2.88	26.19	15.69	3.26	23.29	14.66	3.69
		*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°F (-23.3-15.6°C)

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C)																							
EDB ° F (° C)	CFM	-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
		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ	
65 (18.3)	875	7.37	6.78	1.70	10.15	9.34	1.76	13.27	12.18	1.82	16.92	15.35	1.88	20.92	18.33	1.95	25.08	25.08	2.01	29.90	29.90	2.09	35.71	35.71	2.21
	1000	7.52	6.92	1.72	10.33	9.50	1.77	13.47	12.37	1.82	17.43	15.81	1.88	21.13	18.51	1.93	25.36	25.36	1.98	30.29	30.29	2.06	36.23	36.23	2.16
	1125	7.66	7.04	1.74	10.49	9.65	1.79	13.66	12.53	1.83	17.61	15.97	1.89	21.32	18.68	1.93	25.59	25.59	1.97	30.61	30.61	2.04	36.66	36.66	2.14
70 (21.1)	875	6.96	6.40	1.77	9.76	8.98	1.84	12.89	11.83	1.90	16.44	14.91	1.97	20.65	18.10	2.04	24.77	24.77	2.11	29.48	29.48	2.19	35.19	35.19	2.31
	1000	7.11	6.54	1.79	9.94	9.15	1.85	13.09	12.02	1.90	16.70	15.15	1.96	20.88	18.30	2.03	25.05	25.05	2.08	29.87	29.87	2.16	35.70	35.70	2.26
	1125	7.24	6.66	1.81	10.09	9.28	1.87	13.27	12.18	1.91	16.95	15.37	1.97	21.07	18.46	2.02	25.28	25.28	2.07	30.18	30.18	2.13	36.11	36.11	2.23
75 (23.9)	875	6.52	6.00	1.85	9.34	8.59	1.92	12.48	11.46	1.99	16.02	14.53	2.06	20.40	17.87	2.15	24.46	24.46	2.21	29.09	29.09	2.30	34.68	34.68	2.42
	1000	6.67	6.13	1.87	9.52	8.76	1.93	12.69	11.65	1.99	16.28	14.76	2.05	20.61	18.06	2.13	24.73	24.73	2.18	29.44	29.44	2.26	35.17	35.17	2.37
	1125	6.80	6.25	1.89	9.67	8.90	1.95	12.87	11.82	2.00	16.49	14.96	2.06	20.80	18.22	2.12	24.96	24.96	2.17	29.75	29.75	2.24	35.58	35.58	2.34

PERFORMANCE DATA (CONT)

36 Cooling Extended Performance Table

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)														
CFM	EWB °F (°C)	75 (23.9)		85 (29.4)		95 (35)		105 (40.6)		115 (46.1)		125 (51.7)		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			
1050	57 (13.9)	34.29	34.29	2.28	31.97	29.65	29.65	2.91	27.29	24.91	24.91	3.75	22.51	22.51	4.28	4.28
	62 (16.7)	35.83	31.87	2.28	33.11	30.40	28.91	2.91	27.69	24.97	24.97	3.75	22.54	22.54	4.28	4.28
	63* (17.2)	36.58	26.06	2.29	33.81	31.02	23.43	2.92	28.22	22.09	20.75	3.76	22.56	19.38	4.28	4.28
	67 (19.4)	39.49	27.08	2.30	36.51	33.53	24.42	2.94	30.54	23.07	21.71	3.78	24.50	20.33	4.29	4.29
	72 (22.2)	43.46	22.18	2.33	40.22	36.98	19.76	2.97	33.73	18.53	17.30	3.80	27.18	16.04	4.31	4.31
	57 (13.9)	35.76	35.76	2.31	33.32	30.86	30.86	2.95	28.38	25.88	25.88	3.79	23.36	23.36	4.31	4.31
1200	62 (16.7)	36.70	34.09	2.32	33.91	31.14	30.87	2.95	28.43	25.91	25.91	3.79	23.38	23.38	4.31	4.31
	63* (17.2)	37.43	27.64	2.32	34.56	31.66	24.91	2.95	28.77	23.53	22.13	3.79	22.94	20.71	4.31	4.31
	67 (19.4)	40.37	28.77	2.34	37.29	34.20	26.00	2.97	31.11	24.60	23.19	3.81	24.89	21.76	4.32	4.32
	72 (22.2)	44.39	23.24	2.36	41.05	37.70	20.75	3.01	34.35	19.49	18.21	3.84	27.60	16.93	4.35	4.35
	57 (13.9)	37.01	37.01	2.35	34.46	31.89	31.89	2.98	29.30	26.69	26.69	3.83	24.06	24.06	4.35	4.35
	62 (16.7)	37.46	36.08	2.35	34.56	31.92	31.92	2.98	29.33	26.72	26.72	3.83	24.09	24.09	4.35	4.35
1350	63* (17.2)	38.10	29.14	2.35	35.13	32.17	26.32	2.98	29.19	24.89	23.44	3.82	23.24	21.94	4.34	4.34
	67 (19.4)	41.06	30.38	2.37	37.88	34.72	27.51	3.01	31.55	26.07	24.61	3.84	25.19	23.11	4.35	4.35
	72 (22.2)	45.13	24.24	2.40	41.68	38.26	21.68	3.04	34.81	20.39	19.09	3.87	27.91	17.77	4.38	4.38

*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°F (-23.3-15.6°C)

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C)																					
EDB ° F (° C)	CFM	-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			
		Total	Integ	Total	Integ	Total	Integ	Total	Integ	Total	Integ	Total	Integ	Total	Integ	Total	Integ	Total	Integ	Total	Integ		
65 (18.3)	1050	8.91	8.20	1.99	12.09	11.12	2.10	15.84	14.54	2.20	20.16	18.29	2.31	25.50	22.34	2.46	30.51	30.51	36.18	36.18	42.89	42.89	2.94
	1200	9.08	8.35	2.00	12.29	11.31	2.10	16.09	14.77	2.19	20.48	18.57	2.29	25.78	22.58	2.54	30.85	30.85	36.62	36.62	43.51	43.51	2.86
	1350	9.23	8.49	2.02	12.47	11.48	2.11	16.30	14.96	2.19	20.74	18.81	2.28	25.99	22.77	2.40	31.14	31.14	36.99	36.99	44.03	44.03	2.80
70 (21.1)	1050	8.38	7.71	2.09	11.57	10.64	2.20	15.32	14.06	2.30	19.62	17.80	2.42	25.09	21.99	2.71	35.72	35.72	35.72	35.72	42.28	42.28	3.08
	1200	8.55	7.86	2.10	11.77	10.83	2.20	15.57	14.29	2.30	19.93	18.08	2.40	25.40	22.25	2.66	30.44	30.44	36.14	36.14	42.89	42.89	2.99
	1350	8.69	8.00	2.12	11.95	10.99	2.21	15.78	14.49	2.30	20.20	18.32	2.39	25.64	22.47	2.63	30.73	30.73	36.50	36.50	43.39	43.39	2.93
75 (23.9)	1050	7.83	7.20	2.20	11.02	10.14	2.30	14.78	13.56	2.41	19.06	17.29	2.53	24.02	21.05	2.85	35.30	35.30	35.30	35.30	41.68	41.68	3.22
	1200	7.98	7.34	2.21	11.22	10.32	2.31	15.02	13.79	2.41	19.37	17.57	2.51	24.54	21.50	2.79	35.70	35.70	35.70	35.70	42.27	42.27	3.13
	1350	8.12	7.47	2.22	11.40	10.49	2.32	15.24	13.98	2.41	19.63	17.80	2.50	25.23	22.10	2.84	30.31	30.31	36.01	36.01	42.76	42.76	3.07

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PERFORMANCE DATA (CONT)

42 Cooling Extended Performance Table

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)													
CFM	EWB °F (°C)	75 (23.9)		85 (29.4)		95 (35)		105 (40.6)		115 (46.1)		125 (51.7)		Total	
		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
1175	57 (13.9)	41.22	2.67	38.65	3.02	36.03	3.43	33.36	3.92	30.67	4.50	27.95	5.18	27.95	5.18
	62 (16.7)	42.88	2.68	39.82	3.03	36.79	3.45	33.74	3.93	30.72	4.50	28.00	5.18	28.00	5.18
	63* (17.2)	43.45	2.69	40.36	3.04	37.28	3.45	34.17	3.94	31.05	4.51	27.90	5.18	27.90	5.18
	67 (19.4)	46.78	2.73	43.42	3.08	40.10	3.50	36.77	4.00	33.43	4.58	30.08	5.25	30.08	5.25
	72 (22.2)	51.06	2.78	47.40	3.14	43.79	3.57	40.20	4.08	36.60	4.68	32.99	5.37	32.99	5.37
	77 (25.0)	57.40	2.84	53.36	3.20	49.74	3.62	45.60	4.12	41.86	4.71	38.00	5.44	38.00	5.44
1350	57 (13.9)	43.16	2.73	40.38	3.08	37.57	3.50	34.75	4.00	31.90	4.58	29.02	5.26	29.02	5.26
	62 (16.7)	44.08	2.74	40.92	3.09	37.79	3.51	34.81	3.99	31.95	4.58	29.06	5.26	29.06	5.26
	63* (17.2)	44.59	2.75	41.33	3.10	38.10	3.51	34.87	4.00	31.64	4.57	28.39	5.24	28.39	5.24
	67 (19.4)	47.99	2.78	44.45	3.14	41.00	3.57	37.54	4.06	34.07	4.64	30.60	5.32	30.60	5.32
	72 (22.2)	52.34	2.84	48.53	3.21	44.76	3.64	41.02	4.15	37.28	4.75	33.55	5.44	33.55	5.44
	77 (25.0)	57.40	2.89	53.36	3.27	49.74	3.70	45.60	4.21	41.86	4.81	38.00	5.51	38.00	5.51
1525	57 (13.9)	44.79	2.79	41.81	3.15	38.87	3.57	35.90	4.07	32.91	4.66	29.90	5.34	29.90	5.34
	62 (16.7)	45.17	2.79	41.88	3.15	38.92	3.57	35.95	4.07	32.96	4.66	29.94	5.35	29.94	5.35
	63* (17.2)	45.49	2.80	42.10	3.15	38.77	3.57	35.43	4.06	32.09	4.63	28.77	5.30	28.77	5.30
	67 (19.4)	48.94	2.84	45.27	3.20	41.68	3.62	38.10	4.12	34.56	4.71	31.00	5.39	31.00	5.39
	72 (22.2)	53.35	2.90	49.40	3.27	45.51	3.70	41.65	4.21	37.80	4.81	33.97	5.51	33.97	5.51
	77 (25.0)	58.40	2.96	53.36	3.33	49.74	3.76	45.60	4.27	41.86	4.87	38.00	5.58	38.00	5.58

*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°F (-23.3-15.6°C)

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES °F (°C)													
EDB °F (°C)	CFM	-10 (-23.3)		0 (-17.8)		10 (-12.2)		20 (-6.7)		30 (-1.1)		40 (4.4)		50 (10)	
		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)	1175	10.12	9.31	2.30	14.66	13.49	2.50	19.40	17.81	2.66	24.41	22.14	2.79	29.75	26.06
		10.35	9.52	2.33	14.93	13.74	2.52	19.74	18.12	2.67	24.85	22.53	2.80	30.28	26.53
		10.56	9.71	2.36	15.19	13.97	2.54	20.05	18.40	2.69	25.21	22.86	2.91	30.72	26.92
70 (21.1)	1175	9.48	8.72	2.42	13.96	12.84	2.62	18.67	17.13	2.78	23.68	21.48	2.92	28.98	25.39
		9.71	8.94	2.45	14.25	13.11	2.64	19.04	17.47	2.79	24.12	21.88	2.92	29.51	25.86
		9.91	9.12	2.48	14.51	13.36	2.66	19.35	17.76	2.81	24.49	22.21	2.93	29.96	26.25
75 (23.9)	1175	8.70	8.01	2.54	13.17	12.12	2.74	17.88	16.41	2.90	22.89	20.76	3.05	28.17	24.68
		8.93	8.22	2.57	13.47	12.40	2.76	18.25	16.75	2.91	23.34	21.17	3.05	28.70	25.15
		9.14	8.41	2.61	13.74	12.64	2.79	18.57	17.04	2.93	23.72	21.51	3.06	29.16	25.55

PERFORMANCE DATA (CONT)

48 Cooling Extended Performance Table

EVAPORATOR AIR			CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
CFM	EWB °F (°C)	75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)			
		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	
		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens		
1400	57 (13.9)	50.12	50.12	3.10	46.77	46.77	3.47	43.47	43.47	3.90	39.22	39.22	4.36	34.90	34.90	4.88	30.65	30.65	5.48	
	62 (16.7)	51.55	44.71	3.10	47.78	41.45	3.48	44.03	38.34	3.91	39.31	39.31	4.36	34.97	34.97	4.88	30.70	30.70	5.48	
	63* (17.2)	52.39	36.35	3.11	48.52	33.63	3.48	44.63	30.99	3.91	39.88	28.04	4.37	34.46	24.92	4.87	29.23	21.95	5.45	
	67 (19.4)	55.61	37.17	3.13	51.57	34.45	3.51	47.38	31.68	3.94	43.53	29.46	4.42	38.57	26.58	4.97	32.97	23.55	5.53	
	72 (22.2)	59.62	29.72	3.15	55.39	27.41	3.53	50.95	25.03	3.97	46.47	22.65	4.46	42.63	20.90	5.01	37.81	18.74	5.62	
	57 (13.9)	51.78	51.78	3.16	48.29	48.29	3.54	44.77	44.77	3.97	41.24	41.24	4.46	36.65	36.65	4.99	32.12	32.12	5.57	
1600	62 (16.7)	52.53	47.41	3.16	48.70	43.96	3.54	44.85	44.85	3.97	41.31	41.31	4.46	36.71	36.71	4.99	32.17	32.17	5.58	
	63* (17.2)	53.23	38.40	3.17	49.26	35.59	3.54	45.25	32.81	3.97	40.90	30.12	4.46	35.28	26.82	4.95	29.90	23.64	5.52	
	67 (19.4)	56.41	39.18	3.19	52.28	36.36	3.57	48.00	33.50	4.00	43.94	31.01	4.49	39.39	28.67	5.03	33.68	25.41	5.62	
	72 (22.2)	60.37	30.80	3.21	56.05	28.44	3.59	51.53	25.98	4.03	46.91	23.51	4.53	42.97	21.80	5.08	38.26	19.80	5.69	
	57 (13.9)	53.08	53.08	3.22	49.47	49.47	3.60	45.76	45.76	4.04	42.48	42.48	4.53	38.09	38.09	5.08	33.40	33.40	5.67	
	62 (16.7)	53.36	49.71	3.22	49.54	49.54	3.60	45.79	45.79	4.04	42.53	42.53	4.53	38.15	38.15	5.08	33.45	33.45	5.67	
1800	63* (17.2)	53.86	40.35	3.23	49.82	37.43	3.61	45.70	34.51	4.04	41.62	32.13	4.51	35.97	28.61	5.03	30.48	25.13	5.60	
	67 (19.4)	57.01	41.09	3.25	52.81	38.19	3.63	48.44	35.21	4.06	44.19	32.41	4.55	39.90	30.52	5.09	34.30	27.16	5.70	
	72 (22.2)	60.93	31.81	3.27	56.55	29.40	3.65	51.95	26.88	4.09	47.23	24.35	4.59	43.19	22.58	5.15	38.57	20.77	5.75	

*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°F (-23.3-15.6°C)

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES °F (°C)																							
EDB	CFM	-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
		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ	
65 (18.3)	1400	12.87	11.84	2.61	17.23	15.86	2.76	22.14	20.32	2.90	27.76	25.18	3.07	34.69	30.39	3.25	40.97	40.97	3.40	48.22	48.22	3.59	56.85	56.85	3.82
	1600	13.16	12.11	2.64	17.57	16.17	2.78	22.53	20.68	2.92	28.19	25.57	3.07	35.00	30.66	3.23	41.41	41.41	3.36	48.82	48.82	3.53	57.70	57.70	3.74
	1800	13.42	12.35	2.68	17.87	16.44	2.81	22.86	20.98	2.94	28.58	25.92	3.08	35.31	30.94	3.23	41.80	41.80	3.35	49.33	49.33	3.50	58.41	58.41	3.70
70 (21.1)	1400	12.17	11.19	2.71	16.57	15.24	2.87	21.48	19.71	3.02	27.09	24.56	3.19	34.27	30.03	3.40	40.56	40.56	3.56	47.61	47.61	3.75	56.05	56.05	3.99
	1600	12.45	11.45	2.75	16.90	15.55	2.89	21.85	20.06	3.04	27.53	24.96	3.20	34.66	30.37	3.38	40.97	40.97	3.52	48.20	48.20	3.70	56.84	56.84	3.90
	1800	12.71	11.69	2.79	17.18	15.80	2.92	22.19	20.36	3.06	27.91	25.31	3.21	34.99	30.66	3.38	41.34	41.34	3.50	48.71	48.71	3.67	57.58	57.58	3.87
75 (23.9)	1400	11.44	10.52	2.82	15.86	14.59	2.99	20.79	19.09	3.15	26.39	23.94	3.33	32.89	28.81	3.51	40.10	40.10	3.73	47.02	47.02	3.93	55.27	55.27	4.18
	1600	11.72	10.78	2.86	16.18	14.89	3.01	21.17	19.43	3.17	26.83	24.34	3.33	33.55	29.40	3.50	40.56	40.56	3.69	47.59	47.59	3.87	56.04	56.04	4.09
	1800	11.97	11.01	2.90	16.47	15.16	3.04	21.50	19.73	3.19	27.21	24.68	3.34	34.55	30.27	3.53	40.92	40.92	3.67	48.08	48.08	3.83	56.73	56.73	4.04

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PERFORMANCE DATA (CONT)

60 Cooling Extended Performance Table

EVAPORATOR AIR			CONDENSER ENTERING AIR TEMPERATURES °F (°C)																
CFM	EWB °F (°C)	75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		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
		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens	
1750	57 (13.9)	59.01	59.01	3.86	55.84	55.84	4.36	52.53	52.53	4.95	49.01	49.01	5.63	45.25	45.25	6.42	41.25	41.25	7.30
	62 (16.7)	60.65	51.45	3.87	56.94	49.66	4.37	53.07	47.70	4.96	49.10	49.10	5.63	45.32	45.32	6.42	41.31	41.31	7.30
	63* (17.2)	61.42	41.59	3.88	57.58	40.01	4.38	53.66	38.36	4.96	49.53	36.63	5.64	45.16	34.80	6.42	40.58	32.86	7.29
	67 (19.4)	65.91	43.15	3.90	61.77	41.51	4.41	57.50	39.80	5.00	53.02	38.01	5.68	48.31	36.13	6.46	43.40	34.17	7.34
	72 (22.2)	71.65	34.81	3.93	67.13	33.24	4.45	62.46	31.58	5.05	57.59	29.86	5.73	52.50	28.06	6.52	47.21	26.18	7.40
	57 (13.9)	61.36	61.36	3.95	57.93	57.93	4.46	54.38	54.38	5.05	50.64	50.64	5.73	46.62	46.62	6.52	42.39	42.39	7.41
	62 (16.7)	62.11	54.99	3.96	58.19	57.61	4.46	54.45	54.45	5.05	50.70	50.70	5.73	46.68	46.68	6.52	42.45	42.45	7.41
2000	63* (17.2)	62.66	44.18	3.96	58.67	42.54	4.46	54.56	40.83	5.05	50.26	39.04	5.73	45.71	37.12	6.51	41.01	35.05	7.38
	67 (19.4)	67.23	45.93	3.98	62.89	44.22	4.49	58.43	42.45	5.09	53.75	40.59	5.77	48.89	38.64	6.55	43.85	36.55	7.43
	72 (22.2)	73.06	36.47	4.01	68.34	34.84	4.53	63.48	33.14	5.13	58.41	31.35	5.82	53.15	29.51	6.61	47.69	27.59	7.49
	57 (13.9)	63.30	63.30	4.04	59.65	59.65	4.55	55.89	55.89	5.14	51.92	51.92	5.83	47.72	47.72	6.62	43.32	43.32	7.51
	62 (16.7)	63.38	63.38	4.04	59.73	59.73	4.55	55.96	55.96	5.14	51.98	51.98	5.83	47.77	47.77	6.62	43.36	43.36	7.51
	63* (17.2)	63.63	46.69	4.04	59.48	44.99	4.55	55.23	43.21	5.14	50.79	41.33	5.82	46.15	39.28	6.60	41.34	37.04	7.48
	67 (19.4)	68.23	48.62	4.06	63.75	46.87	4.58	59.13	45.03	5.17	54.33	43.09	5.86	49.34	41.00	6.64	44.19	38.75	7.52
2250	72 (22.2)	74.14	38.06	4.09	69.26	36.38	4.61	64.22	34.62	5.22	59.02	32.81	5.91	53.61	30.91	6.70	48.02	28.95	7.59

*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°F (-23.3-15.6°C)

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C)																							
EDB ° F (° C)	CFM	-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			
		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ	
65 (18.3)	1750	17.66	16.25	3.76	23.16	21.31	3.84	29.24	26.84	3.95	35.94	32.60	4.09	43.49	38.10	4.26	52.28	4.47	60.79	4.67	70.82	70.82	4.91		
	2000	18.08	16.63	3.82	23.63	21.75	3.89	29.77	27.32	3.99	36.54	33.14	4.11	44.35	38.86	4.26	52.93	4.45	61.57	4.62	71.85	71.85	4.83		
	2250	18.45	16.97	3.89	24.06	22.13	3.95	30.23	27.75	4.04	37.06	33.61	4.15	45.80	40.13	4.31	53.47	4.45	62.27	4.60	72.73	72.73	4.79		
70 (21.1)	1750	16.61	15.28	3.89	22.18	20.41	3.98	28.31	25.98	4.10	35.03	31.77	4.25	42.48	37.22	4.43	51.67	4.67	60.02	4.88	69.83	69.83	5.12		
	2000	17.01	15.65	3.95	22.64	20.84	4.03	28.83	26.46	4.14	35.62	32.31	4.27	43.19	37.84	4.43	52.25	4.64	60.78	4.82	70.85	70.85	5.04		
	2250	17.37	15.98	4.02	23.05	21.21	4.09	29.29	26.88	4.18	36.14	32.77	4.31	43.80	38.38	4.45	52.80	4.64	61.42	4.80	71.71	71.71	5.00		
75 (23.9)	1750	15.54	14.30	4.03	21.18	19.49	4.13	27.35	25.10	4.26	34.10	30.93	4.42	41.52	36.38	4.61	50.99	4.88	59.24	5.09	68.87	68.87	5.35		
	2000	15.92	14.65	4.09	21.62	19.89	4.18	27.86	25.57	4.30	34.68	31.45	4.44	42.20	36.98	4.61	51.63	4.84	59.98	5.03	69.84	69.84	5.26		
	2250	16.27	14.97	4.16	22.03	20.27	4.24	28.31	25.99	4.34	35.19	31.92	4.47	42.78	37.48	4.63	52.15	4.84	60.64	5.01	70.69	70.69	5.21		

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:

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

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

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

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

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.
Correction Factor = 1,10 x (1 + BF) x (edb – 80).

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, Single Phase Models

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)	44 (3)	45 (3)†	48 (3)†	48 (3)†	48 (3)†
	Manifold Press. (in. W.C.)	3.2	3.2	3.8	3.5	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
127000	Orifice No. (Qty)	31 (3)	31 (3)	33 (3)†	33 (3)†	34 (3)†
	Manifold Press. (in. W.C.)	3.7	3.2	3.5	3.2	3.2

*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.

Natural Gas Orifice Sizes and Manifold Pressure, Three Phase Models

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, Single Phase Models

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)	55 (3)	56 (3)	56 (3)	56 (3)	56 (3)
	Manifold Press. (IN. W.C.)	10.0	11.0	11.0	11.0	10.7
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
127000	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. CPLPCONV013C00 (0–2000 ft [0–610 m] above sea level). Use Kit No. CPLPCONV014C00 (2001–6000 ft [611–1829 m] above sea level).

Propane Gas Orifice Sizes and Manifold Pressure, Three Phase Models

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. CPLPCONV013*00 (0–2000 ft [0–610 m] above sea level). Use Kit No. CPLPCONV014*00 (2001–6000 ft [611–1829 m] above sea level).

High Altitude Compensation, Propane Gas, Single Phase Models

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	57000	47500	47500	47500	46900
90000	79000	68900	68900	68600	68600
115000	103000	100400	98900	83000	83000
127000	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, Propane Gas, Three Phase Models

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, Single Phase Models

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
127000	127000	143000	109200	104100	99100

*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, Three Phase Models

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).

Dry Coil Air Delivery* - Horizontal and Downflow Discharge Sizes 24-60 230VAC 1-Phase

Unit Size	Heating Rise Range °F (°C)	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
24040	25 – 55 (14 – 31)	Low ¹	Blue	CFM	669	580	525	423	303	---	---	---	---	---
				BHP	0.09	0.10	0.11	0.11	0.12	---	---	---	---	---
				Heat Rise (°F)	44	51	NA	NA	NA	NA	NA	NA	NA	NA
		Med – Low ²	Pink	Heat Rise (°C)	25	29	NA	NA	NA	NA	NA	NA	NA	NA
				CFM	829	752	680	602	549	455	313	---	---	---
				BHP	0.14	0.15	0.15	0.16	0.17	0.17	0.18	---	---	---
	25 – 55 (14 – 31)	Medium ³	Red	Heat Rise (°F)	36	40	44	49	54	NA	NA	NA	NA	NA
				Heat Rise (°C)	20	22	24	27	50	NA	NA	NA	NA	NA
				CFM	1014	929	884	818	746	683	600	537	405	305
		Med – High	Orange	BHP	0.24	0.24	0.24	0.25	0.26	0.26	0.27	0.27	0.27	0.29
				Heat Rise (°F)	29	32	34	36	40	44	50	55	NA	NA
				Heat Rise (°C)	16	18	19	20	22	24	28	31	NA	NA
24060	25 – 55 (14 – 31)	High	Black	CFM	1041	972	916	850	782	713	631	581	465	340
				BHP	0.25	0.26	0.26	0.26	0.26	0.27	0.28	0.29	0.30	0.31
				Heat Rise (°F)	29	31	32	35	38	42	47	51	NA	NA
		Low ³	Blue	Heat Rise (°C)	16	17	18	19	21	23	26	28	NA	NA
				CFM	1187	1124	1061	996	930	896	840	776	698	610
				BHP	0.36	0.36	0.37	0.37	0.38	0.38	0.39	0.39	0.39	0.40
	25 – 55 (14 – 31)	Med – Low ²	Pink	Heat Rise (°F)	25	26	28	30	32	33	35	38	43	49
				Heat Rise (°C)	14	15	16	17	18	18	20	21	24	27
				CFM	669	580	525	423	303	---	---	---	---	---
		Medium	Red	BHP	0.09	0.10	0.11	0.11	0.12	---	---	---	---	---
				Heat Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
				Heat Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
24060	25 – 55 (14 – 31)	Med – High ¹	Orange	CFM	829	752	680	602	549	455	313	---	---	---
				BHP	0.14	0.15	0.15	0.16	0.17	0.17	0.18	---	---	---
				Heat Rise (°F)	54	NA	NA	NA	NA	NA	NA	NA	NA	NA
		High	Black	Heat Rise (°C)	30	NA	NA	NA	NA	NA	NA	NA	NA	NA
				CFM	1014	929	884	818	746	683	600	537	405	305
				BHP	0.24	0.24	0.24	0.25	0.26	0.26	0.27	0.27	0.27	0.29

Dry Coil Air Delivery* - Horizontal and Downflow Discharge Sizes 24-60 230VAC 1-Phase (Cont)

Unit Size	Heating Rise Range °F (°C)	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		
30040	25 – 55 (14 – 31)	Low ¹	Blue	CFM	669	580	525	423	303	---	---	---	---	---	---
				BHP	0.09	0.10	0.11	0.11	0.12	---	---	---	---	---	
				Heat Rise (°F)	44	51	NA	NA	NA	NA	NA	NA	NA	NA	
				Heat Rise (°C)	25	29	NA	NA	NA	NA	NA	NA	NA	NA	
		Med – Low ³	Pink	CFM	829	752	680	602	549	455	313	---	---	---	---
				BHP	0.14	0.15	0.15	0.16	0.17	0.17	0.18	---	---	---	---
				Heat Rise (°F)	36	40	44	49	54	NA	NA	NA	NA	NA	NA
				Heat Rise (°C)	20	22	24	27	30	NA	NA	NA	NA	NA	NA
		Medium ²	Red	CFM	1014	929	884	818	746	683	600	537	405	305	
				BHP	0.24	0.24	0.24	0.25	0.26	0.26	0.27	0.27	0.27	0.27	0.29
				Heat Rise (°F)	29	32	34	36	40	44	50	55	NA	NA	NA
				Heat Rise (°C)	16	18	19	20	22	24	28	31	NA	NA	NA
	Med – High	Orange	CFM	1041	972	916	850	782	713	631	581	465	340		
			BHP	0.25	0.26	0.26	0.26	0.26	0.27	0.28	0.29	0.30	0.31		
			Heat Rise (°F)	29	31	32	35	38	42	47	51	NA	NA	NA	
			Heat Rise (°C)	16	17	18	19	21	23	26	28	NA	NA	NA	
30060	25 – 55 (14 – 31)	High	Black	CFM	1187	1124	1061	996	930	896	840	776	698	610	
				BHP	0.36	0.36	0.37	0.37	0.38	0.38	0.39	0.39	0.39	0.40	
				Heat Rise (°F)	25	26	28	30	32	33	35	38	43	49	
				Heat Rise (°C)	14	15	16	17	18	18	20	21	24	27	
		Low ³	Blue	CFM	669	580	525	423	303	---	---	---	---	---	---
				BHP	0.09	0.10	0.11	0.11	0.12	---	---	---	---	---	---
				Heat Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
				Heat Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Med – Low	Pink	CFM	829	752	680	602	549	455	313	---	---	---	---
				BHP	0.14	0.15	0.15	0.16	0.17	0.17	0.18	---	---	---	---
				Heat Rise (°F)	54	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
				Heat Rise (°C)	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Medium ²	Red	CFM	1014	929	884	818	746	683	600	537	405	305			
		BHP	0.24	0.24	0.24	0.25	0.26	0.26	0.27	0.27	0.27	0.27	0.29		
		Heat Rise (°F)	44	48	51	55	NA	NA	NA	NA	NA	NA	NA		
		Heat Rise (°C)	25	27	28	30	NA	NA	NA	NA	NA	NA	NA		
Med – High ¹	Orange	CFM	1041	972	916	850	782	713	631	581	465	340			
		BHP	0.25	0.26	0.26	0.26	0.26	0.27	0.28	0.29	0.30	0.31			
		Heat Rise (°F)	43	46	49	53	NA	NA	NA	NA	NA	NA	NA		
		Heat Rise (°C)	24	26	27	29	NA	NA	NA	NA	NA	NA	NA		
High	Black	CFM	1187	1124	1061	996	930	896	840	776	698	610			
		BHP	0.36	0.36	0.37	0.37	0.38	0.38	0.39	0.39	0.39	0.39	0.40		
		Heat Rise (°F)	38	40	42	45	48	50	53	NA	NA	NA	NA		
		Heat Rise (°C)	21	22	23	25	27	28	30	NA	NA	NA	NA		

Dry Coil Air Delivery* - Horizontal and Downflow Discharge Sizes 24-60 230VAC 1-Phase (Cont)

Unit Size	Heating Rise Range °F (°C)	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
36060	25 – 55 (14 – 31)	Low ³	Blue	CFM	1117	1042	969	893	869	802	741	677	582
				BHP	0.17	0.18	0.19	0.19	0.21	0.21	0.22	0.23	0.25
				Heat Rise (°F)	40	43	46	50	52	NA	NA	NA	NA
				Heat Rise (°C)	22	24	26	28	29	NA	NA	NA	NA
		Med – Low ¹	Pink	CFM	1170	1094	1027	955	883	870	810	748	591
				BHP	0.19	0.20	0.21	0.22	0.23	0.24	0.24	0.25	0.26
				Heat Rise (°F)	38	41	44	47	51	52	NA	NA	NA
				Heat Rise (°C)	21	23	24	26	28	29	NA	NA	NA
		Medium ²	Red	CFM	1292	1246	1183	1124	1059	995	924	877	819
				BHP	0.25	0.26	0.28	0.29	0.30	0.31	0.32	0.33	0.34
				Heat Rise (°F)	35	36	38	40	42	45	49	51	55
				Heat Rise (°C)	19	20	21	22	24	25	27	28	30
		Med – High	Orange	CFM	1311	1225	1199	1145	1081	1015	952	902	843
				BHP	0.26	0.27	0.28	0.30	0.31	0.32	0.33	0.33	0.35
				Heat Rise (°F)	34	37	37	39	41	44	47	50	53
				Heat Rise (°C)	19	20	21	22	23	25	26	28	30
36090	35 – 65 (19 – 36)	High	Black	CFM	1602	1535	1469	1404	1333	1260	1246	1192	1131
				BHP	0.46	0.47	0.48	0.50	0.50	0.51	0.52	0.53	0.55
				Heat Rise (°F)	28	29	31	32	34	36	36	38	40
				Heat Rise (°C)	16	16	17	18	19	20	20	21	22
		Low ³	Blue	CFM	1117	1042	969	893	869	802	741	677	582
				BHP	0.17	0.18	0.19	0.19	0.21	0.21	0.22	0.23	0.25
				Heat Rise (°F)	61	65	NA	NA	NA	NA	NA	NA	NA
				Heat Rise (°C)	34	36	NA	NA	NA	NA	NA	NA	NA
		Med – Low	Pink	CFM	1170	1094	1027	955	883	870	810	748	591
				BHP	0.19	0.20	0.21	0.22	0.23	0.24	0.24	0.25	0.26
				Heat Rise (°F)	58	62	NA	NA	NA	NA	NA	NA	NA
				Heat Rise (°C)	32	34	NA	NA	NA	NA	NA	NA	NA
		Medium ²	Red	CFM	1292	1246	1183	1124	1059	995	924	877	819
				BHP	0.25	0.26	0.28	0.29	0.30	0.31	0.32	0.33	0.34
				Heat Rise (°F)	52	54	57	60	64	NA	NA	NA	NA
				Heat Rise (°C)	29	30	32	33	35	NA	NA	NA	NA
		Med – High ¹	Orange	CFM	1311	1225	1199	1145	1081	1015	952	902	843
				BHP	0.26	0.27	0.28	0.30	0.31	0.32	0.33	0.33	0.35
				Heat Rise (°F)	52	55	56	59	63	NA	NA	NA	NA
				Heat Rise (°C)	29	31	31	33	35	NA	NA	NA	NA
		High	Black	CFM	1602	1535	1469	1404	1333	1260	1246	1192	1131
				BHP	0.46	0.47	0.48	0.50	0.50	0.51	0.52	0.53	0.55
				Heat Rise (°F)	42	44	46	48	51	54	54	57	60
				Heat Rise (°C)	23	24	26	27	28	30	30	32	33

Dry Coil Air Delivery* - Horizontal and Downflow Discharge Sizes 24-60 230VAC 1-Phase (Cont)

Unit Size	Heating Rise Range °F (°C)	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
42060	25 – 55 (14 – 31)	Low ³	Blue	CFM	1001	902	833	777	717	650	575	527	466	419
				BHP	0.13	0.13	0.14	0.14	0.15	0.16	0.17	0.18	0.19	0.20
				Heat Rise (°F)	45	50	54	NA	NA	NA	NA	NA	NA	NA
				Heat Rise (°C)	25	28	30	NA	NA	NA	NA	NA	NA	NA
		Med – Low ¹	Pink	CFM	1016	950	902	842	783	721	655	590	541	480
				BHP	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22
				Heat Rise (°F)	44	47	50	53	NA	NA	NA	NA	NA	NA
				Heat Rise (°C)	25	26	28	30	NA	NA	NA	NA	NA	NA
		Medium ²	Red	CFM	1403	1358	1316	1265	1217	1167	1116	1067	1012	956
				BHP	0.29	0.30	0.31	0.33	0.34	0.35	0.36	0.37	0.38	0.39
				Heat Rise (°F)	32	33	34	35	37	38	40	42	44	47
				Heat Rise (°C)	18	18	19	20	20	21	22	23	25	26
		Med – High	Orange	CFM	1461	1411	1367	1327	1275	1220	1174	1127	1074	1022
				BHP	0.32	0.33	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42
				Heat Rise (°F)	31	32	33	34	35	37	38	40	42	44
				Heat Rise (°C)	17	18	18	19	20	20	21	22	23	24
High	Black	CFM	1575	1528	1488	1447	1406	1360	1314	1264	1213	1159		
		BHP	0.40	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50		
		Heat Rise (°F)	28	29	30	31	32	33	34	35	37	39		
		Heat Rise (°C)	16	16	17	17	18	18	19	20	21	21		
42090	35 – 65 (19 – 36)	Low ³	Blue	CFM	1001	902	833	777	717	650	575	527	466	419
				BHP	0.13	0.13	0.14	0.14	0.15	0.16	0.17	0.18	0.19	0.20
				Heat Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
				Heat Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Med – Low	Pink	CFM	1016	950	902	842	783	721	655	590	541	480
				BHP	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22
				Heat Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
				Heat Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Medium ²	Red	CFM	1403	1358	1316	1265	1217	1167	1116	1067	1012	956
				BHP	0.29	0.30	0.31	0.33	0.34	0.35	0.36	0.37	0.38	0.39
				Heat Rise (°F)	48	50	51	53	56	58	61	63	NA	NA
				Heat Rise (°C)	27	28	29	30	31	32	34	35	NA	NA
		Med – High ¹	Orange	CFM	1461	1411	1367	1327	1275	1220	1174	1127	1074	1022
				BHP	0.32	0.33	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42
				Heat Rise (°F)	46	48	49	51	53	55	58	60	63	NA
				Heat Rise (°C)	26	27	27	28	29	31	32	33	35	NA
High	Black	CFM	1575	1528	1488	1447	1406	1360	1314	1264	1213	1159		
		BHP	0.40	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50		
		Heat Rise (°F)	43	44	45	47	48	50	51	54	56	58		
		Heat Rise (°C)	24	25	25	26	27	28	29	30	31	32		

Dry Coil Air Delivery* - Horizontal and Downflow Discharge Sizes 24-60 230VAC 1-Phase (Cont)

Unit Size	Heating Rise Range °F (°C)	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
48090	35 – 65 (19 – 36)	Low ¹	Blue	CFM	1378	1344	1295	1260	1216	1179	1135	1087	1035
				BHP	0.26	0.27	0.29	0.31	0.31	0.33	0.34	0.36	0.38
				Heat Rise (°F)	49	50	52	54	56	57	60	62	65
				Heat Rise (°C)	27	28	29	30	31	32	33	35	36
		Med – Low ²	Pink	CFM	1696	1671	1631	1607	1574	1539	1507	1463	1432
				BHP	0.45	0.47	0.49	0.50	0.52	0.52	0.54	0.55	0.57
	35 – 65 (19 – 36)	Medium ³	Red	Heat Rise (°F)	40	40	41	42	43	44	45	46	47
				Heat Rise (°C)	22	22	23	23	24	24	25	26	27
				CFM	1994	1968	1943	1910	1882	1835	1774	1702	1614
				BHP	0.72	0.73	0.75	0.76	0.78	0.78	0.76	0.73	0.70
		Med – High	Orange	Heat Rise (°F)	NA	NA	NA	NA	36	37	38	40	42
				Heat Rise (°C)	NA	NA	NA	NA	20	20	21	22	23
				CFM	2267	2201	2133	2071	1997	1923	1835	1739	1654
				BHP	1.03	1.00	0.97	0.93	0.89	0.86	0.82	0.78	0.74
48115	30 – 60 (17 – 33)	Low ³	Blue	Heat Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA
				Heat Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA
				CFM	1378	1344	1295	1260	1216	1179	1135	1087	1035
				BHP	0.26	0.27	0.29	0.31	0.31	0.33	0.34	0.36	0.38
		Med – Low ²	Pink	Heat Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA
				Heat Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA
	30 – 60 (17 – 33)	Medium ¹	Red	CFM	1696	1671	1631	1607	1574	1539	1507	1463	1432
				BHP	0.45	0.47	0.49	0.50	0.52	0.52	0.54	0.55	0.57
				Heat Rise (°F)	51	52	53	54	55	56	57	59	60
				Heat Rise (°C)	28	29	29	30	31	31	32	33	34
		Med – High	Orange	CFM	1994	1968	1943	1910	1882	1835	1774	1702	1614
				BHP	0.72	0.73	0.75	0.76	0.78	0.78	0.76	0.73	0.70
				Heat Rise (°F)	43	44	44	45	46	47	49	51	54
				Heat Rise (°C)	24	24	25	25	26	26	27	28	30
48115	High	High	Black	CFM	2054	2013	1986	1964	1919	1854	1779	1695	1605
				BHP	0.77	0.79	0.80	0.82	0.81	0.80	0.76	0.74	0.69
				Heat Rise (°F)	42	43	44	44	45	47	49	51	54
				Heat Rise (°C)	23	24	24	24	25	26	27	28	30
		High	Black	CFM	2267	2201	2133	2071	1997	1923	1835	1739	1654
				BHP	1.03	1.00	0.97	0.93	0.89	0.86	0.82	0.78	0.74

Dry Coil Air Delivery* - Horizontal and Downflow Discharge Sizes 24-60 230VAC 1-Phase (Cont)

Unit Size	Heating Rise Range °F (°C)	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
48130	35 – 65 (19 – 36)	Low ³	Blue	CFM	1378	1344	1295	1260	1216	1179	1135	1087	1035	995
				BHP	0.26	0.27	0.29	0.31	0.31	0.33	0.34	0.36	0.36	0.38
				Heat Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
				Heat Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Med – Low ²	Pink	CFM	1696	1671	1631	1607	1574	1539	1507	1463	1432	1393
				BHP	0.45	0.47	0.49	0.50	0.52	0.52	0.54	0.55	0.57	0.58
				Heat Rise (°F)	57	57	59	60	61	62	64	NA	NA	NA
				Heat Rise (°C)	31	32	33	33	34	35	35	NA	NA	NA
		Medium	Red	CFM	1994	1968	1943	1910	1882	1835	1774	1702	1614	1512
				BHP	0.72	0.73	0.75	0.76	0.78	0.78	0.76	0.73	0.70	0.66
				Heat Rise (°F)	48	49	49	50	51	52	54	56	59	63
				Heat Rise (°C)	27	27	27	28	28	29	30	31	33	35
60090	35 – 65 (19 – 36)	High	Black	CFM	2054	2013	1986	1964	1919	1854	1779	1695	1605	1498
				BHP	0.77	0.79	0.80	0.82	0.81	0.80	0.76	0.74	0.69	0.65
				Heat Rise (°F)	47	48	48	49	50	52	54	57	60	64
				Heat Rise (°C)	26	26	27	27	28	29	30	31	33	36
		Med – High ¹	Orange	CFM	2267	2201	2133	2071	1997	1923	1835	1739	1654	1551
				BHP	1.03	1.00	0.97	0.93	0.89	0.86	0.82	0.78	0.74	0.69
				Heat Rise (°F)	42	44	45	46	48	50	52	55	58	62
				Heat Rise (°C)	24	24	25	26	27	28	29	31	32	34
		Low ³	Blue	CFM	1330	1277	1232	1191	1147	1103	1060	1004	963	919
				BHP	0.26	0.27	0.29	0.30	0.31	0.32	0.33	0.34	0.36	0.37
				Heat Rise (°F)	51	53	55	57	59	61	64	NA	NA	NA
				Heat Rise (°C)	28	29	31	32	33	34	35	NA	NA	NA
		Med – Low ¹	Pink	CFM	1475	1436	1399	1351	1317	1270	1236	1188	1152	1105
				BHP	0.35	0.36	0.37	0.38	0.40	0.41	0.42	0.43	0.45	0.45
				Heat Rise (°F)	46	47	48	50	51	53	55	57	59	61
				Heat Rise (°C)	25	26	27	28	29	30	30	32	33	34
60090	35 – 65 (19 – 36)	Medium ²	Red	CFM	1736	1710	1668	1630	1600	1557	1522	1479	1450	1406
				BHP	0.53	0.54	0.55	0.58	0.59	0.60	0.62	0.63	0.64	0.65
				Heat Rise (°F)	39	40	41	42	43	43	44	46	47	48
				Heat Rise (°C)	22	22	23	23	23	24	25	25	26	27
		Med – High	Orange	CFM	1935	1909	1867	1836	1808	1766	1696	1619	1535	1454
				BHP	0.71	0.73	0.74	0.76	0.78	0.79	0.77	0.75	0.72	0.68
				Heat Rise (°F)	35	35	36	37	37	38	40	42	44	47
				Heat Rise (°C)	19	20	20	20	21	21	22	23	24	26
		High	Black	CFM	2205	2150	2078	2011	1941	1852	1779	1672	1572	1473
				BHP	1.04	1.02	0.99	0.95	0.92	0.87	0.85	0.79	0.75	0.70
				Heat Rise (°F)	NA	NA	NA	NA	35	37	38	40	43	46
				Heat Rise (°C)	NA	NA	NA	NA	19	20	21	22	24	26

Dry Coil Air Delivery* - Horizontal and Downflow Discharge Sizes 24-60 230VAC 1-Phase (Cont)

Unit Size	Heating Rise Range °F (°C)	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	
60115	30 – 60 (17 – 33)	Low ³	Blue	CFM	1330	1277	1232	1191	1147	1103	1060	1004	963	919
				BHP	0.26	0.27	0.29	0.30	0.31	0.32	0.33	0.34	0.36	0.37
				Heat Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
				Heat Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Med – Low	Pink	CFM	1475	1436	1399	1351	1317	1270	1236	1188	1152	1105
				BHP	0.35	0.36	0.37	0.38	0.40	0.41	0.42	0.43	0.45	0.45
				Heat Rise (°F)	59	60	NA	NA	NA	NA	NA	NA	NA	NA
				Heat Rise (°C)	33	33	NA	NA	NA	NA	NA	NA	NA	NA
		Medium ²	Red	CFM	1736	1710	1668	1630	1600	1557	1522	1479	1450	1406
				BHP	0.53	0.54	0.55	0.58	0.59	0.60	0.62	0.63	0.64	0.65
				Heat Rise (°F)	50	51	52	53	54	56	57	58	60	NA
				Heat Rise (°C)	28	28	29	29	30	31	32	32	33	NA
		Med – High ¹	Orange	CFM	1935	1909	1867	1836	1808	1766	1696	1619	1535	1454
				BHP	0.71	0.73	0.74	0.76	0.78	0.79	0.77	0.75	0.72	0.68
				Heat Rise (°F)	45	45	46	47	48	49	51	53	56	59
				Heat Rise (°C)	25	25	26	26	27	27	28	30	31	33
	High	Black	CFM	2205	2150	2078	2011	1941	1852	1779	1672	1572	1473	
			BHP	1.04	1.02	0.99	0.95	0.92	0.87	0.85	0.79	0.75	0.70	
			Heat Rise (°F)	39	40	42	43	45	47	49	52	55	59	
			Heat Rise (°C)	22	22	23	24	25	26	27	29	31	33	

Dry Coil Air Delivery* - Horizontal and Downflow Discharge Sizes 24-60 230VAC 1-Phase (Cont)

Unit Size	Heating Rise Range °F (°C)	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	
60130	35 – 65 (19 – 36)	Low ³	Blue	CFM	1330	1277	1232	1191	1147	1103	1060	1004	963	919
				BHP	0.26	0.27	0.29	0.30	0.31	0.32	0.33	0.34	0.36	0.37
				Heat Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
				Heat Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
				CFM	1475	1436	1399	1351	1317	1270	1236	1188	1152	1105
				BHP	0.35	0.36	0.37	0.38	0.40	0.41	0.42	0.43	0.45	0.45
		Heat Rise (°F)	65	NA	NA	NA	NA	NA	NA	NA	NA	NA		
		Heat Rise (°C)	36	NA	NA	NA	NA	NA	NA	NA	NA	NA		
		CFM	1736	1710	1668	1630	1600	1557	1522	1479	1450	1406		
		BHP	0.53	0.54	0.55	0.58	0.59	0.60	0.62	0.63	0.64	0.65		
		Heat Rise (°F)	55	56	57	59	60	62	63	65	NA	NA		
		Heat Rise (°C)	31	31	32	33	33	34	35	36	NA	NA		
	Med – High ¹	Orange	CFM	1935	1909	1867	1836	1808	1766	1696	1619	1535	1454	
			BHP	0.71	0.73	0.74	0.76	0.78	0.79	0.77	0.75	0.72	0.68	
			Heat Rise (°F)	50	50	51	52	53	54	57	59	62	NA	
			Heat Rise (°C)	28	28	29	29	29	30	31	33	35	NA	
			CFM	2205	2150	2078	2011	1941	1852	1779	1672	1572	1473	
			BHP	1.04	1.02	0.99	0.95	0.92	0.87	0.85	0.79	0.75	0.70	
			Heat Rise (°F)	43	45	46	48	49	52	54	57	61	65	
			Heat Rise (°C)	24	25	26	26	27	29	30	32	34	36	

*Air delivery values are without air filter and are for dry coil (See 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.

Dry Coil Air Delivery CFM* - Horizontal Discharge Sizes 36-60 3-Phase Models Only

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	
36060	25 – 55°F (14 – 31°C)	Low	Blue	CFM	983	848	764	693	612	542	509	450	374	
				Heating Rise (°F)	44	51	NA	NA	NA	NA	NA	NA	NA	
				Heating Rise (°C)	25	28	NA	NA	NA	NA	NA	NA	NA	
		Med – Low ¹	Pink	CFM	1008	901	838	757	693	618	550	532	471	
				Heating Rise (°F)	43	48	52	NA	NA	NA	NA	NA	NA	
				Heating Rise (°C)	24	27	29	NA	NA	NA	NA	NA	NA	
		Medium ²	Red	CFM	1222	1236	1195	1148	1101	1052	1004	957	916	
				Heating Rise (°F)	35	35	36	38	39	41	43	45	47	
				Heating Rise (°C)	20	19	20	21	22	23	24	25	26	
		Med – High	Orange	CFM	1311	1242	1219	1161	1098	1032	969	907	841	
				Heating Rise (°F)	33	35	36	37	39	42	45	48	52	
				Heating Rise (°C)	18	19	20	21	22	23	25	27	29	
36090	35 – 65°F (19 – 36°C)	High	Black	CFM	1536	1470	1405	1333	1263	1204	1239	1181	1122	
				Heating Rise (°F)	28	29	31	33	34	36	35	37	39	
				Heating Rise (°C)	16	16	17	18	19	20	19	20	21	
		Low	Blue	CFM	983	848	764	693	612	542	509	450	374	
				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	1008	901	838	757	693	618	550	532	471	
				Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	
				Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	
		Medium ²	Red	CFM	1222	1236	1195	1148	1101	1052	1004	957	916	
				Heating Rise (°F)	55	54	56	58	61	64	NA	NA	NA	
				Heating Rise (°C)	30	30	31	32	34	35	NA	NA	NA	
36090	35 – 65°F (19 – 36°C)	Med – High ¹	Orange	CFM	1311	1242	1219	1161	1098	1032	969	907	841	
				Heating Rise (°F)	51	54	55	58	61	65	NA	NA	NA	
				Heating Rise (°C)	28	30	30	32	34	36	NA	NA	NA	
		High ¹	Black	CFM	1536	1470	1405	1333	1263	1204	1239	1181	1122	
				Heating Rise (°F)	44	46	48	50	53	56	54	57	60	
				Heating Rise (°C)	24	25	26	28	29	31	30	31	33	

Dry Coil Air Delivery CFM* - Horizontal Discharge Sizes 36-60 3-Phase Models Only (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	
42060	25 – 55°F (14 – 31°C)	Low	Blue	CFM	952	882	806	746	671	605	530	551	486	
				Heating Rise (°F)	46	49	54	NA	NA	NA	NA	NA	NA	
				Heating Rise (°C)	25	27	30	NA	NA	NA	NA	NA	NA	
		Med – Low ¹	Pink	CFM	1002	936	875	821	748	687	613	554	565	
				Heating Rise (°F)	43	46	50	53	NA	NA	NA	NA	NA	
				Heating Rise (°C)	24	26	28	29	NA	NA	NA	NA	NA	
		Medium	Red	CFM	1255	1210	1145	1074	1008	940	878	895	838	
				Heating Rise (°F)	35	36	38	40	43	46	49	48	52	
				Heating Rise (°C)	19	20	21	22	24	26	27	27	29	
		Med – High ²	Orange	CFM	1335	1267	1246	1176	1109	1049	988	926	872	
				Heating Rise (°F)	32	34	35	37	39	41	44	47	50	
				Heating Rise (°C)	18	19	19	20	22	23	24	26	28	
42090	35 – 65°F (19 – 36°C)	High	Black	CFM	1472	1401	1326	1251	1275	1198	1139	1085	1023	
				Heating Rise (°F)	29	31	33	35	34	36	38	40	42	
				Heating Rise (°C)	16	17	18	19	19	20	21	22	24	
		Low	Blue	CFM	952	882	806	746	671	605	530	551	486	
				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	1002	936	875	821	748	687	613	554	565	
				Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	
				Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	
		Medium ¹	Red	CFM	1255	1210	1145	1074	1008	940	878	895	838	
				Heating Rise (°F)	53	55	58	62	NA	NA	NA	NA	NA	
				Heating Rise (°C)	30	31	32	35	NA	NA	NA	NA	NA	
Med – High ²	Orange	CFM	1335	1267	1246	1176	1109	1049	988	926	872			
		Heating Rise (°F)	50	53	54	57	60	64	NA	NA	NA			
		Heating Rise (°C)	28	29	30	32	34	35	NA	NA	NA			
High	Black	CFM	1472	1401	1326	1251	1275	1198	1139	1085	1023			
		Heating Rise (°F)	45	48	50	53	52	56	59	62	65			
		Heating Rise (°C)	25	27	28	30	29	31	33	34	36			

Dry Coil Air Delivery CFM* - Horizontal Discharge Sizes 36-60 3-Phase Models Only (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	
48090	35 – 65°F (19 – 36°C)	Low ¹	Blue	CFM	1402	1351	1311	1263	1224	1172	1136	1080	1041	
				Heating Rise (°F)	48	50	51	53	55	57	59	62	64	
				Heating Rise (°C)	27	28	28	29	30	32	33	34	36	
		Med – Low	Pink	CFM	1457	1404	1367	1318	1284	1233	1197	1144	1104	
				Heating Rise (°F)	46	48	49	51	52	54	56	58	61	
				Heating Rise (°C)	26	26	27	28	29	30	31	32	34	
		Medium ²	Red	CFM	1736	1695	1642	1601	1553	1512	1465	1427	1381	
				Heating Rise (°F)	39	39	41	42	43	44	46	47	48	
				Heating Rise (°C)	21	22	23	23	24	25	25	26	27	
		Med – High	Orange	CFM	2149	2111	2062	2026	1980	1945	1905	1864	1793	
				Heating Rise (°F)	NA	NA	NA	NA	NA	NA	35	36	37	
				Heating Rise (°C)	NA	NA	NA	NA	NA	NA	20	20	21	
48115	30 – 60°F (17 – 33°C)	High	Black	CFM	2344	2306	2259	2203	2141	2070	1991	1902	1803	
				Heating Rise (°F)	NA	NA	NA	NA	NA	NA	35	37	37	
				Heating Rise (°C)	NA	NA	NA	NA	NA	NA	20	21	21	
		Low	Blue	CFM	1402	1351	1311	1263	1224	1172	1136	1080	1041	
				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	1457	1404	1367	1318	1284	1233	1197	1144	1104	
				Heating Rise (°F)	58	NA	NA	NA	NA	NA	NA	NA	NA	
				Heating Rise (°C)	32	NA	NA	NA	NA	NA	NA	NA	NA	
		Medium ²	Red	CFM	1736	1695	1642	1601	1553	1512	1465	1427	1381	
				Heating Rise (°F)	49	50	52	53	55	56	58	60	NA	
				Heating Rise (°C)	27	28	29	30	30	31	32	33	NA	
Med – High ¹	Orange	CFM	2149	2111	2062	2026	1980	1945	1905	1864	1793			
		Heating Rise (°F)	40	40	41	42	43	44	45	46	48			
		Heating Rise (°C)	22	22	23	23	24	24	25	25	26			
High	Black	CFM	2344	2306	2259	2203	2141	2070	1991	1902	1803			
		Heating Rise (°F)	36	37	38	39	40	41	43	45	47			
		Heating Rise (°C)	20	21	21	21	22	23	24	25	26			

Dry Coil Air Delivery CFM* - Horizontal Discharge Sizes 36-60 3-Phase Models Only (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	
48130	35 – 65°F (19 – 36°C)	Low	Blue	CFM	1402	1351	1311	1263	1224	1172	1136	1080	1041	
				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	1457	1404	1367	1318	1284	1233	1197	1144	1104	
				Heating Rise (°F)	65	NA	NA	NA	NA	NA	NA	NA	NA	
				Heating Rise (°C)	36	NA	NA	NA	NA	NA	NA	NA	NA	
		Medium ²	Red	CFM	1736	1695	1642	1601	1553	1512	1465	1427	1381	
				Heating Rise (°F)	55	56	58	59	61	63	65	NA	NA	
				Heating Rise (°C)	30	31	32	33	34	35	36	NA	NA	
		Med – High ¹	Orange	CFM	2149	2111	2062	2026	1980	1945	1905	1864	1793	
				Heating Rise (°F)	44	45	46	47	48	49	50	51	53	
				Heating Rise (°C)	25	25	26	26	27	27	28	28	29	
60090	35 – 65°F (19 – 36°C)	High	Black	CFM	2344	2306	2259	2203	2141	2070	1991	1902	1803	
				Heating Rise (°F)	41	41	42	43	44	46	48	50	53	
				Heating Rise (°C)	23	23	23	24	25	26	27	28	29	
		Low ¹	Blue	CFM	1445	1389	1341	1281	1236	1189	1139	1072	1027	
				Heating Rise (°F)	46	48	50	52	54	56	59	62	65	
				Heating Rise (°C)	26	27	28	29	30	31	33	35	36	
		Med – Low	Pink	CFM	1678	1635	1602	1558	1513	1474	1438	1404	1349	
				Heating Rise (°F)	40	41	42	43	44	45	47	48	50	
				Heating Rise (°C)	22	23	23	24	25	25	26	26	28	
		Medium ²	Red	CFM	1962	1915	1880	1843	1794	1753	1711	1675	1628	
				Heating Rise (°F)	NA	35	36	36	37	38	39	40	41	
				Heating Rise (°C)	NA	19	20	20	21	21	22	22	23	
Med – High	Orange	CFM	2131	2088	2065	2013	1982	1941	1888	1860	1785			
		Heating Rise (°F)	NA	NA	NA	NA	NA	NA	35	36	37			
		Heating Rise (°C)	NA	NA	NA	NA	NA	NA	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	36			
		Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	20			

Dry Coil Air Delivery CFM* - Horizontal Discharge Sizes 36-60 3-Phase Models Only (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	
60115	30 – 60°F (17 – 33°C)	Low	Blue	CFM	1445	1389	1341	1281	1236	1189	1139	1072	1027	
				Heating Rise (°F)	59	NA	NA	NA	NA	NA	NA	NA	NA	
				Heating Rise (°C)	33	NA	NA	NA	NA	NA	NA	NA	NA	
		Med – Low	Pink	CFM	1678	1635	1602	1558	1513	1474	1438	1404	1349	
				Heating Rise (°F)	51	52	53	55	56	58	59	NA	NA	
				Heating Rise (°C)	28	29	30	30	31	32	33	NA	NA	
		Medium ²	Red	CFM	1962	1915	1880	1843	1794	1753	1711	1675	1628	
				Heating Rise (°F)	43	44	45	46	47	49	50	51	52	
				Heating Rise (°C)	24	25	25	26	26	27	28	28	29	
		Med – High ¹	Orange	CFM	2131	2088	2065	2013	1982	1941	1888	1860	1785	
Heating Rise (°F)	40			41	41	42	43	44	45	46	48			
Heating Rise (°C)	22			23	23	24	24	24	25	25	27			
60130	35 – 65°F (19 – 36°C)	High	Black	CFM	2461	2409	2339	2286	2192	2140	2062	1968	1874	
				Heating Rise (°F)	35	35	36	37	39	40	41	43	45	
				Heating Rise (°C)	19	20	20	21	22	22	23	24	25	
		Low	Blue	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	
		Med – Low	Pink	CFM	1678	1635	1602	1558	1513	1474	1438	1404	1349	
				Heating Rise (°F)	57	58	59	61	63	65	NA	NA	NA	
				Heating Rise (°C)	32	32	33	34	35	36	NA	NA	NA	
		Medium ²	Red	CFM	1962	1915	1880	1843	1794	1753	1711	1675	1628	
Heating Rise (°F)	49			50	51	52	53	54	56	57	58			
Heating Rise (°C)	27			28	28	29	29	30	31	32	32			
Med – High ¹	Orange	CFM	2131	2088	2065	2013	1982	1941	1888	1860	1785			
		Heating Rise (°F)	45	46	46	47	48	49	50	51	53			
		Heating Rise (°C)	25	25	26	26	27	27	28	28	30			
High	Black	CFM	2461	2409	2339	2286	2192	2140	2062	1968	1874			
		Heating Rise (°F)	39	40	41	42	43	44	46	48	51			
		Heating Rise (°C)	21	22	23	23	24	25	26	27	28			

* Air delivery values are without air filter and are for dry coil (See 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.

Dry Coil Air Delivery CFM* - Downflow Discharge Sizes 36-60 3 Phase Only

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
36060	25 – 55°F (14 – 31°C)	Low	Blue	CFM	993	848	764	693	612	542	509	450	374
				WATTS	115	107	113	123	128	138	144	154	159
				BHP	0.12	0.11	0.12	0.13	0.14	0.15	0.15	0.17	0.17
				Heating Rise (°F)	44	51	NA	NA	NA	NA	NA	NA	NA
				Heating Rise (°C)	24	28	NA	NA	NA	NA	NA	NA	NA
		Med – Low ¹	Pink	CFM	1008	901	838	757	693	618	550	532	471
				WATTS	123	121	132	137	148	154	164	170	181
				BHP	0.13	0.13	0.14	0.15	0.16	0.17	0.18	0.18	0.19
				Heating Rise (°F)	43	48	52	NA	NA	NA	NA	NA	NA
				Heating Rise (°C)	24	27	29	NA	NA	NA	NA	NA	NA
	25 – 55°F (14 – 31°C)	Medium ²	Red	CFM	1222	1236	1195	1148	1101	1052	1004	957	916
				WATTS	233	221	232	244	251	264	275	285	291
				BHP	0.25	0.24	0.25	0.26	0.27	0.28	0.29	0.31	0.31
				Heating Rise (°F)	35	35	36	38	39	41	43	45	47
				Heating Rise (°C)	20	19	20	21	22	23	24	25	26
		Med – High	Orange	CFM	1311	1242	1219	1161	1098	1032	969	907	841
				WATTS	256	270	283	289	301	313	320	331	343
				BHP	0.27	0.29	0.30	0.31	0.32	0.34	0.34	0.35	0.37
				Heating Rise (°F)	33	35	36	37	39	42	45	48	51
				Heating Rise (°C)	18	19	20	21	22	23	25	27	29
		High	Black	CFM	1536	1470	1405	1333	1263	1204	1239	1181	1122
				WATTS	411	423	429	441	453	464	473	477	488
				BHP	0.44	0.45	0.46	0.47	0.49	0.50	0.51	0.51	0.52
				Heating Rise (°F)	NA	NA	31	32	34	36	35	37	39
				Heating Rise (°C)	NA	NA	17	18	19	20	19	20	21

Dry Coil Air Delivery CFM* - Downflow Discharge Sizes 36-60 3-Phase Models Only (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	1.0
36090	35 – 65°F (19 – 36°C)	Low	Blue										
		Med – Low	Pink										
	35 – 65°F (19 – 36°C)	Medium ²	Red										
		Med – High ¹	Orange										
		High ¹	Black										

Dry Coil Air Delivery CFM* - Downflow Discharge Sizes 36-60 3-Phase Models Only (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	1.0
42060	25 – 55°F (14 – 31°C)	Low	Blue	CFM	952	882	806	746	671	605	530	551	486
				WATTS	124	134	140	150	156	166	171	182	188
				BHP	0.13	0.14	0.15	0.16	0.17	0.18	0.18	0.20	0.20
				Heating Rise (°F)	45	49	54	NA	NA	NA	NA	NA	NA
				Heating Rise (°C)	25	27	30	NA	NA	NA	NA	NA	NA
		Med – Low ¹	Pink	CFM	1002	936	875	821	748	687	613	554	565
				WATTS	144	155	161	171	176	187	193	203	209
				BHP	0.15	0.17	0.17	0.18	0.19	0.20	0.21	0.22	0.22
				Heating Rise (°F)	43	46	49	53	NA	NA	NA	NA	NA
				Heating Rise (°C)	24	26	27	29	NA	NA	NA	NA	NA
	25 – 55°F (14 – 31°C)	Medium	Red	CFM	1255	1210	1145	1074	1008	940	878	895	838
				WATTS	249	272	284	292	305	319	320	329	336
				BHP	0.27	0.29	0.30	0.31	0.33	0.34	0.34	0.35	0.36
				Heating Rise (°F)	35	36	38	40	43	46	49	48	52
				Heating Rise (°C)	19	20	21	22	24	26	27	27	29
		Med – High ²	Orange	CFM	1335	1267	1246	1176	1109	1049	988	926	872
				WATTS	311	323	330	342	356	367	378	385	395
				BHP	0.33	0.35	0.35	0.37	0.38	0.39	0.41	0.41	0.42
				Heating Rise (°F)	32	34	35	37	39	41	44	47	50
				Heating Rise (°C)	18	19	19	20	22	23	24	26	28
		High	Black	CFM	1472	1401	1326	1251	1275	1198	1139	1085	1023
				WATTS	401	414	426	440	471	462	473	478	486
				BHP	0.43	0.44	0.46	0.47	0.51	0.50	0.51	0.51	0.52
				Heating Rise (°F)	29	31	33	35	34	36	38	40	42
				Heating Rise (°C)	16	17	18	19	19	20	21	22	24

Dry Coil Air Delivery CFM* - Downflow Discharge Sizes 36-60 3-Phase Models Only (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	1.0
42090	35 – 65°F (19 – 36°C)	Low	Blue	CFM	952	882	806	746	671	605	530	486	435
				WATTS	124	134	140	150	156	166	171	182	198
				BHP	0.13	0.14	0.15	0.16	0.17	0.18	0.18	0.20	0.21
				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	1002	936	875	821	748	687	613	554	518
				WATTS	144	155	161	171	176	187	193	203	220
				BHP	0.15	0.17	0.17	0.18	0.19	0.20	0.21	0.22	0.24
				Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA
				Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA
	35 – 65°F (19 – 36°C)	Medium ¹	Red	CFM	1255	1210	1145	1074	1008	940	878	838	785
				WATTS	249	272	284	292	305	319	320	336	347
				BHP	0.27	0.29	0.30	0.31	0.33	0.34	0.34	0.36	0.37
				Heating Rise (°F)	53	55	58	62	NA	NA	NA	NA	NA
				Heating Rise (°C)	30	31	32	35	NA	NA	NA	NA	NA
		Med – High ²	Orange	CFM	1335	1267	1246	1176	1109	1049	988	926	891
				WATTS	311	323	330	342	356	367	378	385	403
				BHP	0.33	0.35	0.35	0.37	0.38	0.39	0.41	0.41	0.43
				Heating Rise (°F)	50	53	54	57	60	64	NA	NA	NA
				Heating Rise (°C)	28	29	30	32	34	35	NA	NA	NA
	Black	High	Black	CFM	1472	1401	1326	1251	1275	1198	1139	1085	1023
				WATTS	401	414	426	440	471	462	473	478	486
				BHP	0.43	0.44	0.46	0.47	0.51	0.50	0.51	0.51	0.52
				Heating Rise (°F)	45	48	50	53	52	56	59	62	65
				Heating Rise (°C)	25	27	28	30	29	31	33	34	36

Dry Coil Air Delivery CFM* - Downflow Discharge Sizes 36-60 3-Phase Models Only (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	1.0	
48090	35 – 65°F (19 – 36°C)	Low ¹	Blue	CFM	1503	1457	1423	1374	1330	1287	1241	1199	1153	1111
				WATTS	225	233	246	254	269	282	292	307	314	329
				BHP	0.24	0.25	0.26	0.27	0.29	0.30	0.31	0.33	0.34	0.35
				Heating Rise (°F)	45	46	47	49	50	52	54	56	58	60
				Heating Rise (°C)	25	26	26	27	28	29	30	31	32	33
				CFM	1556	1508	1461	1432	1388	1346	1302	1256	1221	1168
		WATTS	244	261	268	281	290	305	319	330	345	353		
		BHP	0.26	0.28	0.29	0.30	0.31	0.33	0.34	0.35	0.37	0.38		
		Heating Rise (°F)	43	44	46	47	48	50	51	53	55	57		
		Heating Rise (°C)	24	25	25	26	27	28	29	30	30	32		
		CFM	1861	1822	1786	1758	1716	1688	1660	1619	1583	1539		
		WATTS	400	417	426	441	452	467	482	492	507	519		
		BHP	0.43	0.45	0.46	0.47	0.48	0.50	0.52	0.53	0.54	0.56		
		Heating Rise (°F)	36	37	37	38	39	40	40	41	42	43		
		Heating Rise (°C)	20	20	21	21	22	22	22	23	23	24		
		CFM	2319	2291	2255	2230	2193	2166	2118	2057	1992	1887		
		WATTS	758	769	787	799	808	823	822	805	780	737		
		BHP	0.81	0.82	0.84	0.86	0.87	0.88	0.88	0.86	0.84	0.79		
	Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	35			
	Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	20			
	CFM	2532	2487	2444	2391	2330	2259	2179	2111	2033	1949			
	WATTS	1014	1022	1015	994	965	935	898	858	823	786			
	BHP	1.09	1.10	1.09	1.07	1.03	1.00	0.96	0.92	0.88	0.84			
	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 CFM* - Downflow Discharge Sizes 36-60 3-Phase Models Only (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	1.0
48115	30 – 60°F (17 – 33°C)	Low	Blue	CFM	1503	1457	1423	1374	1330	1287	1241	1199	1153
				WATTS	225	233	246	254	269	282	292	307	314
				BHP	0.24	0.25	0.26	0.27	0.29	0.30	0.31	0.33	0.34
				Heating Rise (°F)	57	58	60	NA	NA	NA	NA	NA	NA
				Heating Rise (°C)	31	32	33	NA	NA	NA	NA	NA	NA
				CFM	1556	1508	1461	1432	1388	1346	1302	1256	1221
		Med – Low	Pink	WATTS	244	261	268	281	290	305	319	330	345
				BHP	0.26	0.28	0.29	0.30	0.31	0.33	0.34	0.35	0.37
				Heating Rise (°F)	55	56	58	59	NA	NA	NA	NA	NA
				Heating Rise (°C)	30	31	32	33	NA	NA	NA	NA	NA
				CFM	1861	1822	1786	1758	1716	1688	1660	1619	1583
				WATTS	400	417	426	441	452	467	482	492	507
	30 – 60°F (17 – 33°C)	Medium ²	Red	BHP	0.43	0.45	0.46	0.47	0.48	0.50	0.52	0.53	0.54
				Heating Rise (°F)	46	47	48	48	50	50	51	53	54
				Heating Rise (°C)	25	26	26	27	28	28	29	29	30
				CFM	2319	2291	2255	2230	2193	2166	2118	2057	1992
				WATTS	758	769	787	799	808	823	822	805	780
				BHP	0.81	0.82	0.84	0.86	0.87	0.88	0.88	0.86	0.84
		Med – High ¹	Orange	Heating Rise (°F)	37	37	38	38	39	39	40	41	43
				Heating Rise (°C)	20	21	21	21	22	22	22	23	24
				CFM	2532	2487	2444	2391	2330	2259	2179	2111	2033
				WATTS	1014	1022	1015	994	965	935	898	858	823
				BHP	1.09	1.10	1.09	1.07	1.03	1.00	0.96	0.92	0.88
				Heating Rise (°F)	34	34	35	36	37	38	39	40	42
		High	Black	Heating Rise (°C)	19	19	19	20	20	21	22	22	23

Dry Coil Air Delivery CFM* - Downflow Discharge Sizes 36-60 3-Phase Models Only (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	1.0	
48130	35 – 65°F (19 – 36°C)	Low	Blue	CFM	1503	1457	1423	1374	1330	1287	1241	1199	1153	1111
				WATTS	225	233	246	254	269	282	292	307	314	329
				BHP	0.24	0.25	0.26	0.27	0.29	0.30	0.31	0.33	0.34	0.35
				Heating Rise (°F)	63	65	NA	NA	NA	NA	NA	NA	NA	NA
				Heating Rise (°C)	35	36	NA	NA	NA	NA	NA	NA	NA	NA
				CFM	1556	1508	1461	1432	1388	1346	1302	1256	1221	1168
		Med – Low	Pink	WATTS	244	261	268	281	290	305	319	330	345	353
				BHP	0.26	0.28	0.29	0.30	0.31	0.33	0.34	0.35	0.37	0.38
				Heating Rise (°F)	61	63	65	NA	NA	NA	NA	NA	NA	NA
				Heating Rise (°C)	34	35	36	NA	NA	NA	NA	NA	NA	NA
				CFM	1861	1822	1786	1758	1716	1688	1660	1619	1583	1539
				WATTS	400	417	426	441	452	467	482	492	507	519
	Medium ²	Red	BHP	0.43	0.45	0.46	0.47	0.48	0.50	0.52	0.53	0.54	0.56	
			Heating Rise (°F)	51	52	53	54	55	56	57	59	60	62	
			Heating Rise (°C)	28	29	30	30	31	31	32	33	33	34	
			CFM	2319	2291	2255	2230	2193	2166	2118	2057	1992	1887	
			WATTS	758	769	787	799	808	823	822	805	780	737	
			BHP	0.81	0.82	0.84	0.86	0.87	0.88	0.88	0.86	0.84	0.79	
	Med – High ¹	Orange	Heating Rise (°F)	41	42	42	43	43	44	45	46	48	50	
			Heating Rise (°C)	23	23	23	24	24	24	25	26	27	28	
			CFM	2532	2487	2444	2391	2330	2259	2179	2111	2033	1949	
			WATTS	1014	1022	1015	994	965	935	898	858	823	786	
			BHP	1.09	1.10	1.09	1.07	1.03	1.00	0.96	0.92	0.88	0.84	
			Heating Rise (°F)	38	38	39	40	41	42	44	45	47	49	
	High	Black	Heating Rise (°C)	21	21	22	22	23	23	24	25	26	27	

Dry Coil Air Delivery CFM* - Downflow Discharge Sizes 36-60 3-Phase Models Only (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	1.0
60090	35 – 65°F (19 – 36°C)	Low ¹	Blue										
		Med – Low	Pink										
	35 – 65°F (19 – 36°C)	Medium ²	Red										
		Med – High	Orange										
	High	Black											

Dry Coil Air Delivery CFM* - Downflow Discharge Sizes 36-60 3-Phase Models Only (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	1.0
60115	30 – 60°F (17 – 33°C)	Low	Blue										
		Med – Low	Pink										
	30 – 60°F (17 – 33°C)	Medium ²	Red										
		Med – High ¹	Orange										
		High	Black										

Dry Coil Air Delivery CFM* - Downflow Discharge Sizes 36-60 3-Phase Models Only (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	1.0
60130	35 – 65°F (19 – 36°C)	Low	Blue										
	Med – Low	Med – Low	Pink										
	35 – 65°F (19 – 36°C)	Medium ²	Red										
	Med – High ¹	Med – High ¹	Orange										
	High	High	Black										

* Air delivery values are without air filter and are for dry coil (See 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.

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, 2.5	0.03	0.04	0.05	0.06	0.06	0.07	0.07	0.08	0.08	-	-	-	-	-	-	-	-
1200-1800 CFM 16x24x1 + 14x24x1 (406x610x25 + 356x610x25)	3.0, 3.5, 4.0	-	-	-	-	0.04	0.05	0.06	0.07	0.08	0.09	0.09	0.10	0.11	0.12	0.12	-	-
1500-2200 CFM 16x24x1 + 18x24x1 (406x610x25 + 457x356x25)	5.0	-	-	-	-	-	-	-	-	-	0.04	0.06	0.08	0.10	0.11	0.13	0.14	0.15

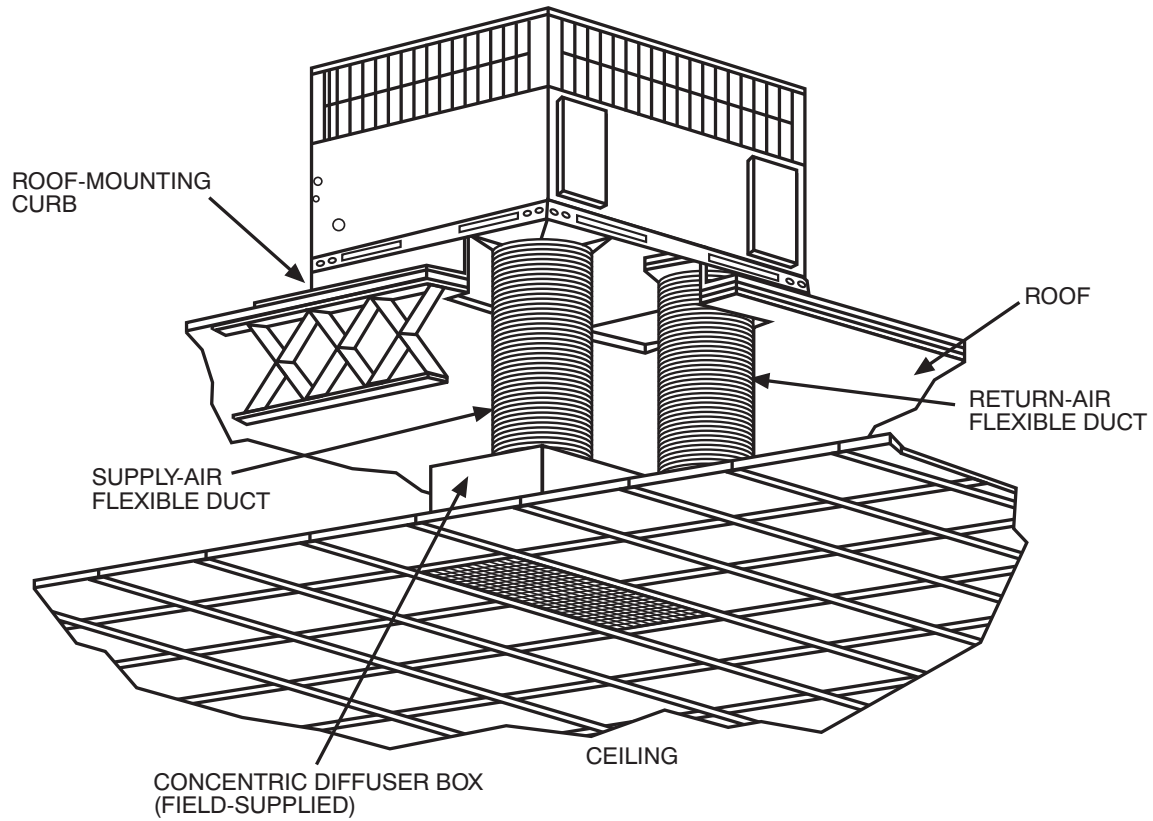
Wet Coil Pressure Drop (IN. W.C.)

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												
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	0.01	0.08	0.09	0.10	0.12	0.13

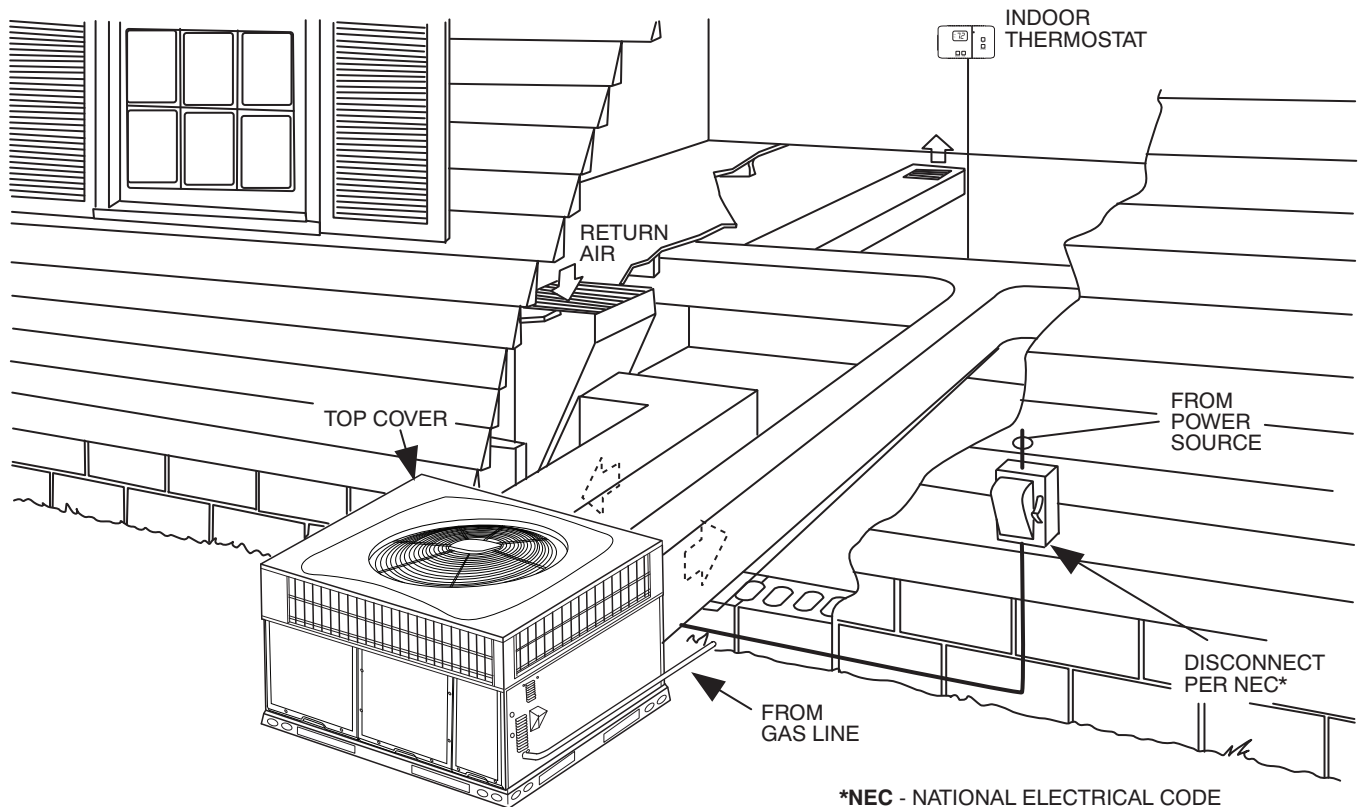
Economizer with 1-in. Filter Pressure Drop (IN. W.C.)

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, 2.5	-	-	0.08	0.09	0.10	0.11	0.11	0.13	0.14	-	-	-	-	-	-	-	-
1200-1800 CFM 16x24x1 + 14x24x1 (406x610x25 + 356x610x25)	3.0, 3.5, 4.0	-	-	-	-	-	0.09	0.09	0.10	0.12	0.13	0.15	0.17	0.17	0.19	0.21	-	-
1500-2200 CFM 16x24x1 + 18x24x1 (406x610x25 + 457x356x25)	5.0	-	-	-	-	-	-	-	-	-	0.15	0.17	0.18	0.20	0.21	0.22	0.23	0.23

TYPICAL PIPING AND WIRING



A09230



*NEC - NATIONAL ELECTRICAL CODE

A09231

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.

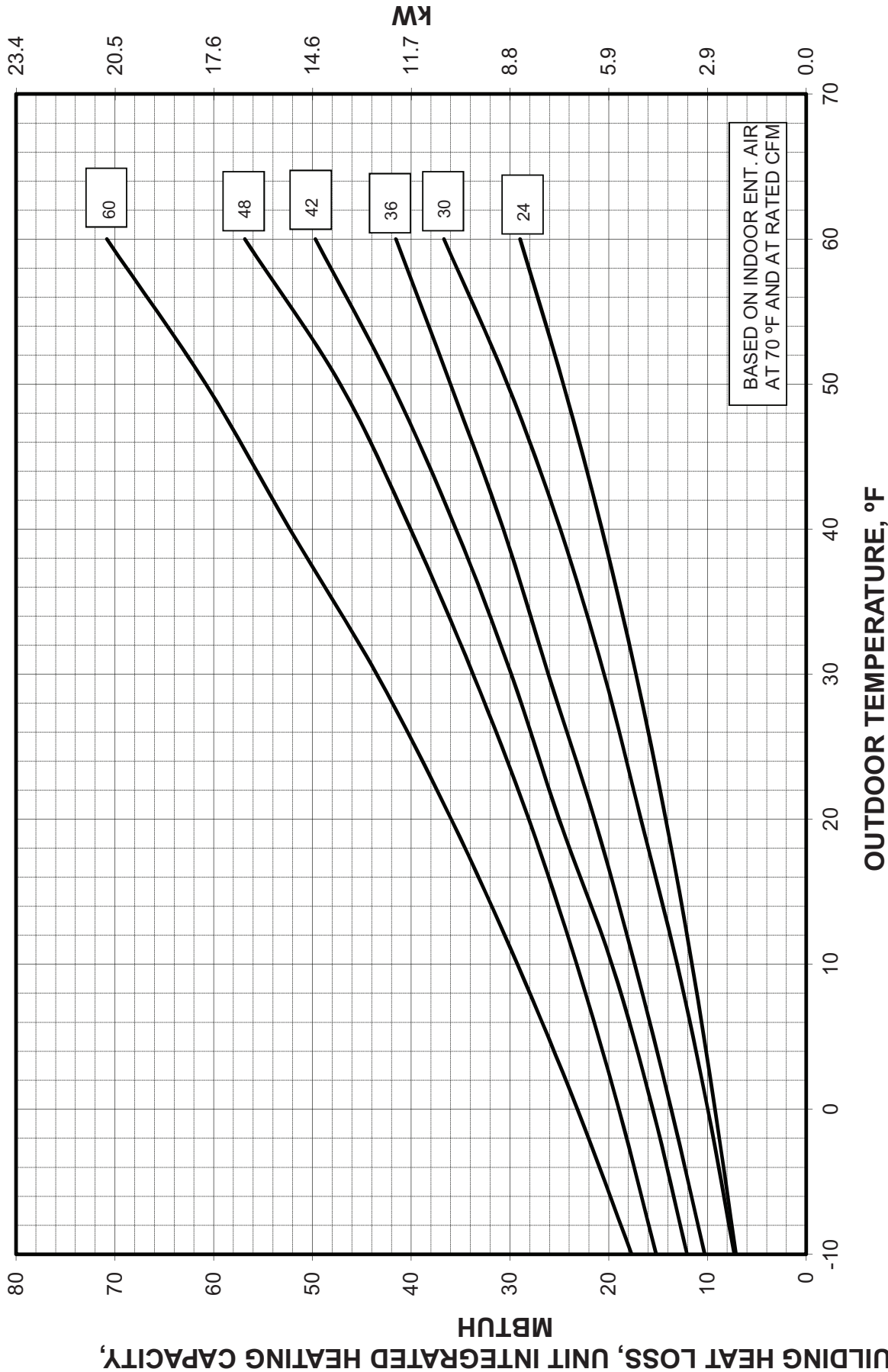
Minimum cooling airflow — Minimum cooling airflow is 350 cfm per ton in cooling mode. Airflow can be lower in certain modes when humidity removal is an issue.

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

MODEL	NOMINAL V-PH-HZ	VOLTAGE RANGE		COMPRESSOR		OFM	IFM	IDM	POWER SUPPLY	
		MIN	MAX	RLA	LRA	FLA	FLA	FLA	MCA	HACR
2404030	208/230-1-60	197	253	13.5	58.3	0.6	3.8	0.65	21.3	30
2406030	208/230-1-60	197	253	13.5	58.3	0.6	3.8	0.65	21.3	30
3004030	208/230-1-60	197	253	14.1	73	0.7	3.8	0.65	22.1	35
3006030	208/230-1-60	197	253	14.1	73	0.7	3.8	0.65	22.1	35
3606030	208/230-1-60	197	253	16.7	79	1.05	3.8	0.65	25.8	40
3606050	208/230-3-60	197	253	10.4	73	1.05	4.1	1.65	18.2	25
3609030	208/230-1-60	197	253	16.7	79	1.05	3.8	0.65	25.8	40
3609050	208/230-3-60	197	253	10.4	73	1.05	4.1	0.65	18.2	25
4206030	208/230-1-60	197	253	19.3	112	1.05	3.8	0.65	29	45
4206050	208/230-3-60	197	253	13.5	88	1.05	4.1	1.65	22.1	35
4209030	208/230-1-60	197	253	19.3	112	1.05	3.8	0.65	29	45
4209050	208/230-3-60	197	253	13.5	88	1.05	4.1	0.65	22.1	35
4809030	208/230-1-60	197	253	19.6	130	1.07	7.6	0.65	33.2	50
4809050	208/230-3-60	197	253	13.7	83.1	1.05	7.6	0.65	25.8	35
4811530	208/230-1-60	197	253	19.6	130	1.07	7.6	0.65	33.2	50
4811550	208/230-3-60	197	253	13.7	83.1	1.05	7.6	1.65	25.8	35
4813030	208/230-1-60	197	253	19.6	130	1.07	7.6	.75	33.2	50
4813050	208/230-3-60	197	253	13.7	83.1	1.05	7.6	0.52	25.8	35
6009030	208/230-1-60	197	253	24.4	144.2	1.3	7.7	0.65	39.5	60
6009050	208/230-3-60	197	253	16	110	1.05	7.6	0.65	28.7	40
6011530	208/230-1-60	197	253	24.4	144.2	1.3	7.7	0.65	39.5	60
6011550	208/230-3-60	197	253	16	110	1.05	7.6	1.65	28.7	40
6013030	208/230-1-60	197	253	24.4	144.2	1.3	7.7	.75	39.5	60
6013050	208/230-3-60	197	253	16	110	1.05	7.6	0.52	28.7	40

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

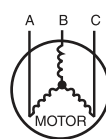
NOTES:

- 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.

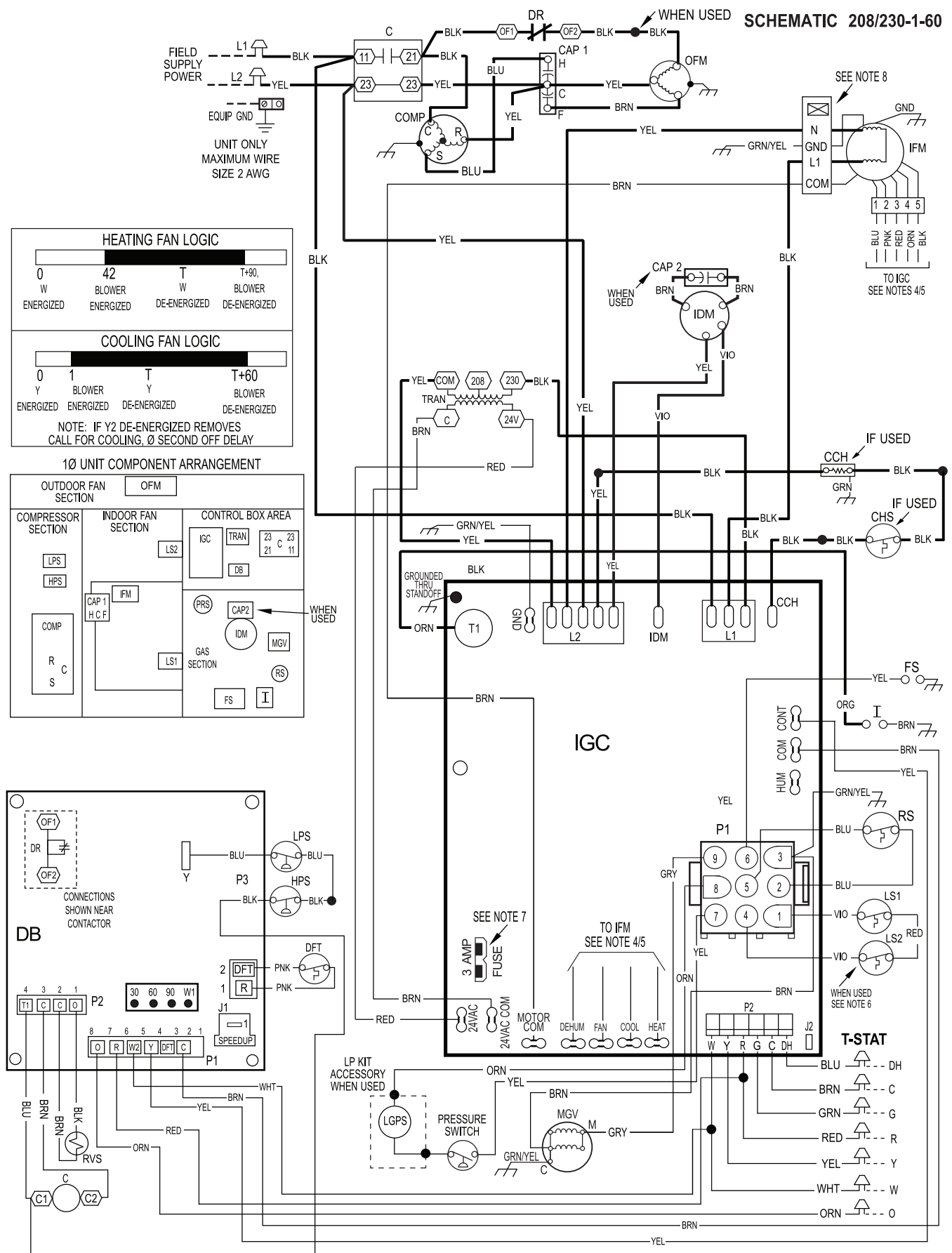
A06564

TYPICAL CONNECTION WIRING SCHEMATIC - 208/230-1-60

CONNECTION WIRING DIAGRAM

DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING

SCHEMATIC 208/230-1-60



48VT-C

TYPICAL LADDER WIRING SCHEMATIC - 208/230-1-60

LADDER WIRING DIAGRAM

DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING

LEGEND

△	FIELD SPICE	DFT	DEFROST TEMPERATURE SWITCH
○	TERMINAL (MARKED)	DR	DEFROST RELAY (SEE DB)
○	TERMINAL (UNMARKED)	EQUIP	EQUIPMENT
●	SPLICE	FS	FLAME SENSOR
○	SPLICE (MARKED)	GND	GROUND
---	FACTORY LO VOLTAGE	HPS	HIGH PRESSURE SWITCH
---	FIELD CONTROL WIRING	I	IGNITOR
---	FIELD POWER WIRING	IDM	INDUCED DRAFT MOTOR
---	ACCESSORY OR OPTIONAL WIRING	IDR	INDUCER RELAY
---	FACTORY HI VOLTAGE	IFM	INDOOR FAN MOTOR
C	CONTACTOR	IGC	INTEGRATED GAS UNIT CONTROLLER
CAP1	CAPACITOR, COMP	LGPS	LOW GAS PRESSURE SWITCH (WHEN USED)
CAP2	CAPACITOR, INDUCER	LPS	LOW PRESSURE SWITCH
CCH	CRANKCASE HEATER	LS1	PRIMARY LIMIT SWITCH
COMP	COMPRESSOR MOTOR	LS2	SECONDARY LIMIT SWITCH
DB	DEFROST BOARD	MGV	MAIN GAS VALVE
		OFM	OUTDOOR FAN MOTOR
		OT	QUADRUPLE TERMINAL
		RS	ROLLOUT SWITCH
		TRAN	TRANSFORMER
		T-STAT	THERMOSTAT

DEFROST TIMING SELECTION

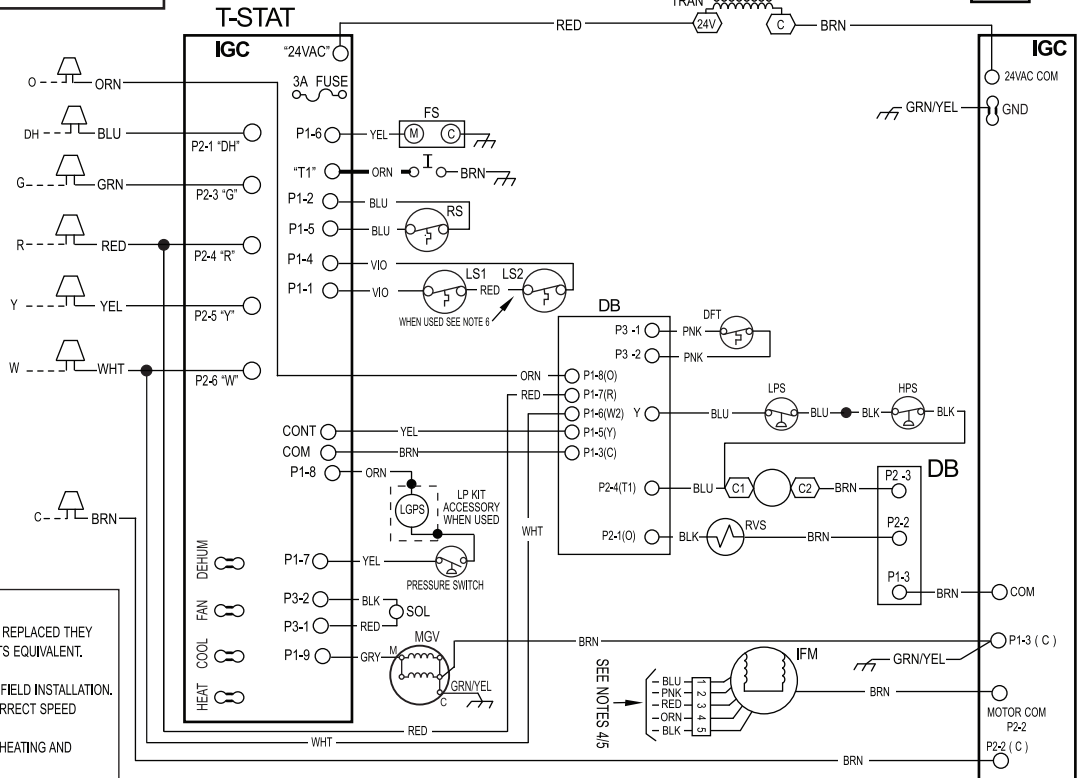
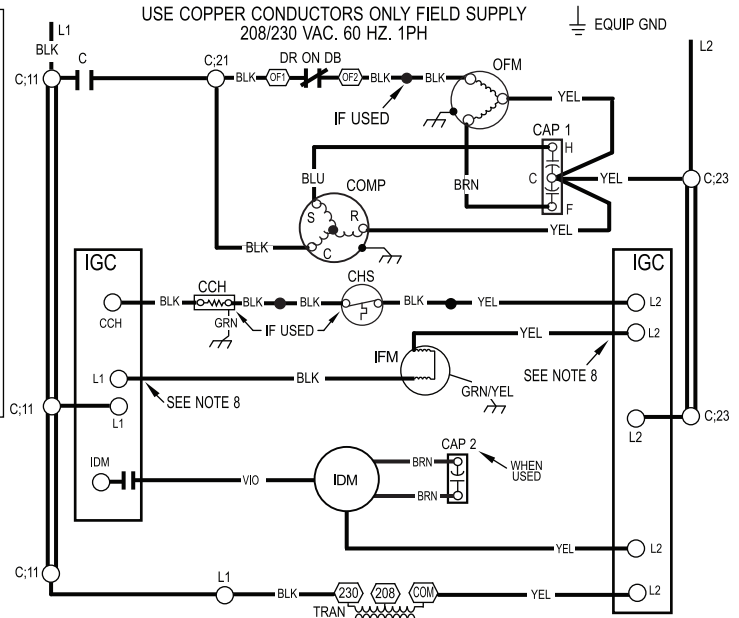
FIELD SELECTABLE OPTIONS FOR TIME PERIOD BETWEEN DEFROST CYCLES (MINUTES). FACTORY DEFROST SETTING IS 60 MIN.

30 60 90 W1

SPEED UP

JUMPED TEST PINS (USE METAL OBJECT) FIELD SPEED-UP CYCLE

1. DFT MUST BE CLOSED TO INITIATE DEFROST CYCLE. IF NECESSARY, REMOVE DFT CONNECTION BEFORE PLACING JUMPER ACROSS DFT PINS.
2. AT THE SAME TIME DFT CLOSED, JUMPER "SPEED UP" PINS WITH SMALL SCREW DRIVER UNTIL DEFROST IS INITIATED, THEN REMOVE SCREW DRIVER.
3. SHORTED "SPEED UP" PINS WILL SPEED UP TIMER BY A FACTOR OF 256.



NOTES:

1. IF ANY OF THE ORIGINAL WIRES FURNISHED ARE REPLACED THEY MUST BE REPLACED WITH THE SAME WIRE OR ITS EQUIVALENT.
2. SEE PRE-SALE LITERATURE FOR THERMOSTATS.
3. USE 75 DEGREES C COPPER CONDUCTORS FOR FIELD INSTALLATION.
4. REFER TO INSTALLATION INSTRUCTIONS FOR CORRECT SPEED SELECTION FOR IFM.
5. SEE INSTALLATION INSTRUCTIONS FOR PROPER HEATING AND COOLING CONNECTIONS FOR YOUR UNIT.
6. ON SOME MODELS LS1 AND LS2 ARE WIRED IN SERIES. ON OTHER MODELS ONLY LS1 IS USED.
7. THIS FUSE IS MANUFACTURED BY LITTLE FUSE, P/N 287003.
8. DO NOT DISCONNECT PLUG UNDER LOAD.
9. N.E.C. CLASS 2, 24V.



48VT500138 REV. 1

48VT500138 REV. -



A150516

48VT - C

TYPICAL CONNECTION WIRING SCHEMATIC - 208/230-3-60

CONNECTION WIRING DIAGRAM

DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING

SCHEMATIC
208/230-3-60

NOTES:

- IF ANY OF THE ORIGINAL WIRES FURNISHED ARE REPLACED, THEY MUST BE REPLACED WITH THE SAME WIRE OR ITS EQUIVALENT.
- SEE PRE-SALE LITERATURE FOR THERMOSTATS.
- USE 75 DEG. COPPER CONDUCTORS FOR FIELD INSTALLATION.
- SEE INSTALLATION INSTRUCTIONS FOR PROPER HEATING AND COOLING CONNECTIONS FOR YOUR UNIT. INDOOR FAN MOTOR PLUGS - "DO NOT DISCONNECT UNDER LOAD".
- THIS FUSE IS MANUFACTURED BY LITTELFUSE, P/N 287003.
- THIS FUSE IS MANUFACTURED BY LITTELFUSE, P/N 287005.
- INDUCER CAPACITOR AND WIRING ON CERTAIN MODELS ONLY. IF CAP2 IS PRESENT, YELLOW WIRES FROM IGC AND IDM CONNECT ON SAME SIDE OF CAP2.
- REMOVE YELLOW SPlice WIRE WHEN ECONOMIZER AND ECONOMIZER RELAYS ARE USED AND CONNECT TO RELAY R1 AS SHOWN.
- WHEN ECONOMIZER AND ECONOMIZER RELAYS ARE USED, CONNECT THE YELLOW AND BLACK WIRES TO RELAY R AS SHOWN. RELAY KIT REQUIRED WITH ECONOMIZER AND HEAT PUMP/DUAL FUEL UNITS.
- WHEN ECONOMIZER AND ECONOMIZER RELAYS ARE USED.
- INSTALL WIRES AS SHOWN ONTO THE COILS OF RELAY R AND RELAY R1.
- DEHUMIDIFICATION FEATURE CANNOT BE USED WHEN ECONOMIZER IS INSTALLED.
- N.E.C. CLASS 2 24 V

LEGEND

- | | |
|---|---|
| <p>FIELD SPlice (TERMINAL MARKED)</p> <p>TERMINAL (UNMARKED)</p> <p>SPlice (IF USED)</p> <p>SPlice (MARKED)</p> <p>FACTORY WIRING</p> <p>FIELD CONTROL WIRING</p> <p>FIELD POWER WIRING</p> <p>ACCESSORY OR OPTIONAL WIRING</p> | <p>ECON ECONOMIZER EQUIPMENT</p> <p>FS FLAME SENSOR</p> <p>GND GROUND</p> <p>HPS HIGH PRESSURE SWITCH</p> <p>I IGNITOR</p> <p>IGC INTEGRATED GAS UNIT CONTROLLER</p> <p>IFB INDOOR FAN BOARD</p> <p>IDM INDUCED DRAFT MOTOR</p> <p>IFM INDOOR FAN MOTOR</p> <p>LGPS LOW GAS PRESSURE SWITCH (WHEN USED)</p> <p>LPS LOW PRESSURE SWITCH</p> <p>LS1 PRIMARY LIMIT SWITCH</p> <p>LS2 SECONDARY LIMIT SWITCH</p> <p>MGV MAIN GAS VALVE</p> <p>OFM OUTDOOR FAN MOTOR</p> <p>PRS PRESSURE SWITCH</p> <p>RS ROLLOUT SWITCH</p> <p>RVS REVERSING VALVE</p> <p>SAT SUPPLY AIR TEMPERATURE SWITCH</p> <p>T-STAT THERMOSTAT</p> <p>DEHUMIDIFICATION MODE R ECON RELAY</p> <p>R1 ECON RELAY</p> |
|---|---|

C CONTACTOR

CAP 1 CAPACITOR, COMP

CAP 2 CAPACITOR, INDUCER

CCH CRANK CASE HEATER

COMP COMPRESSOR MOTOR

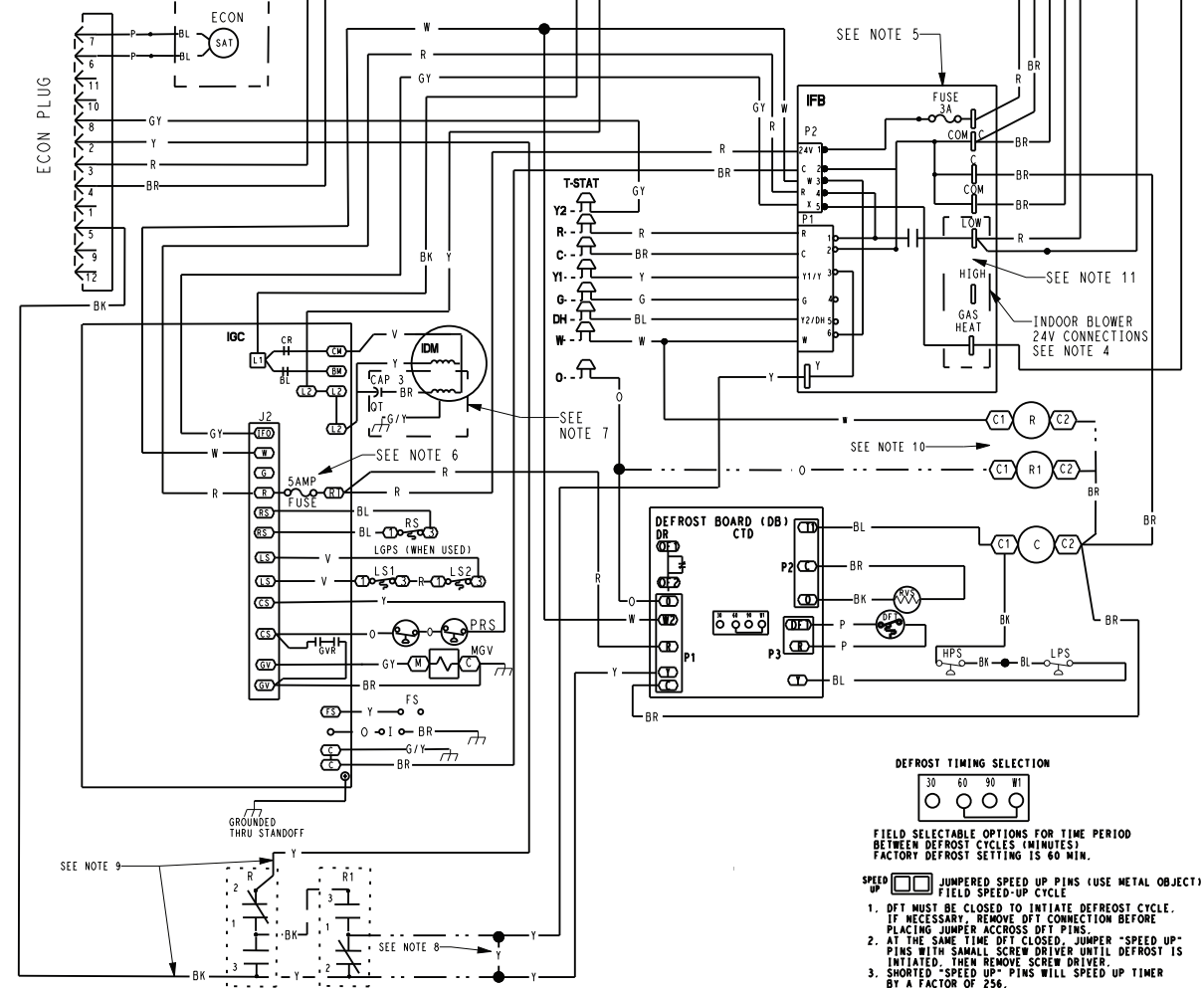
CR COMBUSTION RELAY

DB DEFROST BOARD

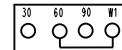
DFT DEFROST TEMPERATURE SWITCH

DEHUMIDIFICATION MODE R ECON RELAY

R1 ECON RELAY



DEFROST TIMING SELECTION



FIELD SELECTABLE OPTIONS FOR TIME PERIOD BETWEEN DEFROST CYCLES (MINUTES)
FACTORY DEFROST SETTING IS 60 MIN.

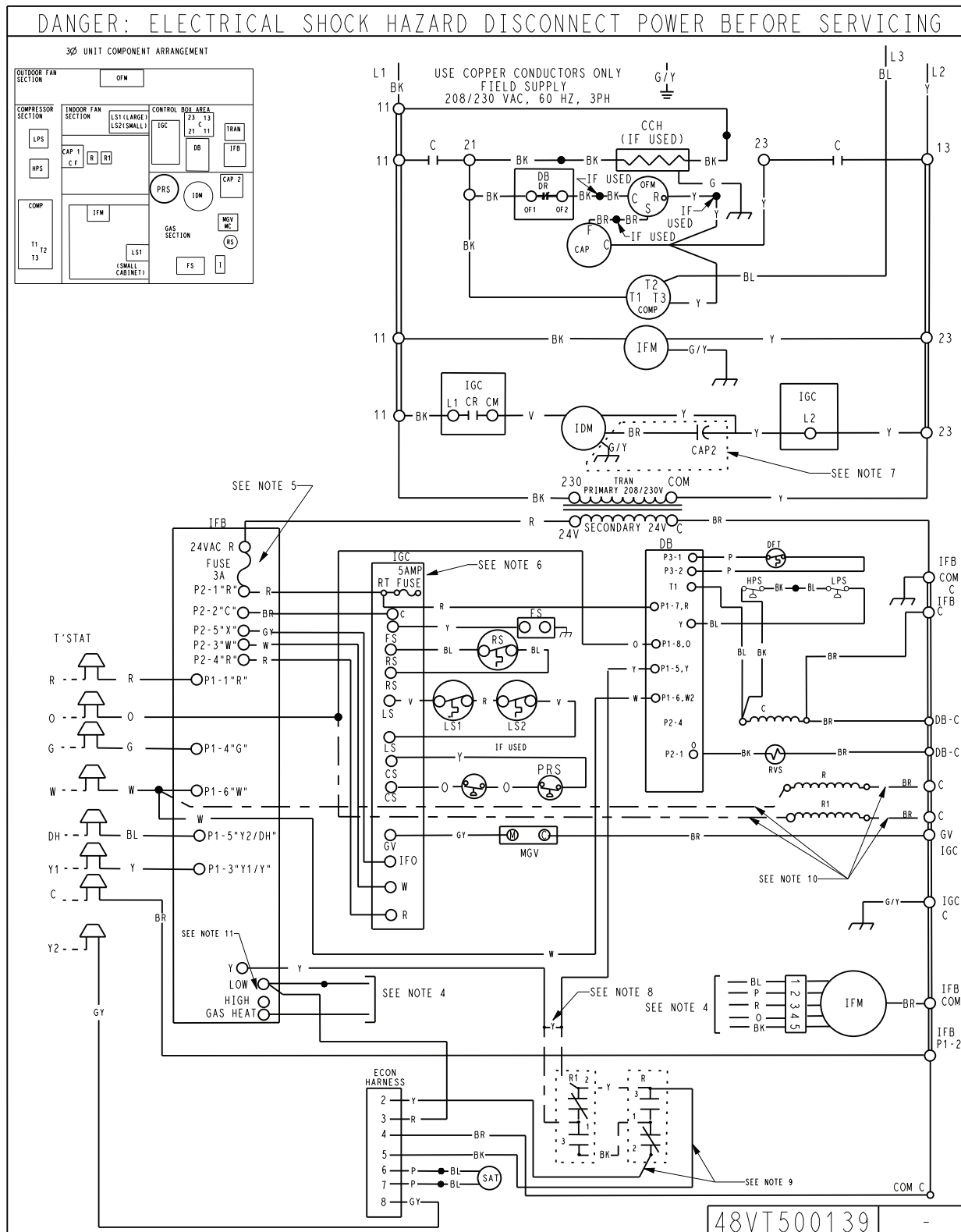
SPEED UP ☐ JUMPERED SPEED UP PINS (USE METAL OBJECT) FIELD SPEED-UP CYCLE

- DFT MUST BE CLOSED TO INITIATE DEFROST CYCLE. IF NECESSARY, REMOVE DFT CONNECTION BEFORE PLACING JUMPER ACROSS DFT PINS.
- AT THE SAME TIME DFT CLOSED, JUMPER "SPEED UP" PINS WITH SMALL SCREW DRIVER UNTIL DEFROST IS INITIATED, THEN REMOVE SCREW DRIVER.
- SHORTED "SPEED UP" PINS WILL SPEED UP TIMER BY A FACTOR OF 25%.

48VT-C

TYPICAL LADDER WIRING SCHEMATIC - 208/230-3-60

LADDER WIRING DIAGRAM



48VT--C

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 60-second delay (1phase models) or 90 second delay (3 phase models), the IFM shuts off. If the thermostat fan selector switch is in the “ON” position, the IFM will run continuously.

Heating (Single Phase Models)

On a call for heating, terminal W of the thermostat is energized, starting the induced-draft motor for a 5 second pre-purge. When the pressure switch senses that the induced-draft motor is moving sufficient combustion air, the burner sequence begins. This function is controlled by the integrated gas unit controller (IGC). The indoor (evaporator) –fan motor is energized 30 seconds 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 90 second 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 a partially-clogged filter.

Heating (3-Phase Models)

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 127,000 Btuh,
Nominal Heating Input**

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 270-1995.**
- 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 3 removable cabinet panels.
- 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.

E. Coils:

Indoor and outdoor coils shall have aluminum plate fins mechanically bonded to seamless copper tubes with all joints brazed. Tube sheet openings shall be belled to prevent tube wear.

F. Refrigerant Metering Device:

Refrigerant metering device shall be thermostatic expansion valve or fixed orifice 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 60-second fan time (single phase), 90-second fan time delay (three phase) 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:

(Horizontal - Field installed accessory)

(Vertical - Field installed accessory)

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. Offered as field installed accessory.

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.

16. Low Cabinet Air Leakage

Cabinet air leakage less than 2.0% at 1.0 in. W.C. and cabinet air leakage less than 1.4% at 0.5 in. W.C., when tested in accordance with ASHRAE Standard 193. Available as a factory installed option.

17. Louver Metal Outdoor Coil Grille

Shall provide hail and vandalism protection. Available as a field installed accessory.