

**48VL-C**

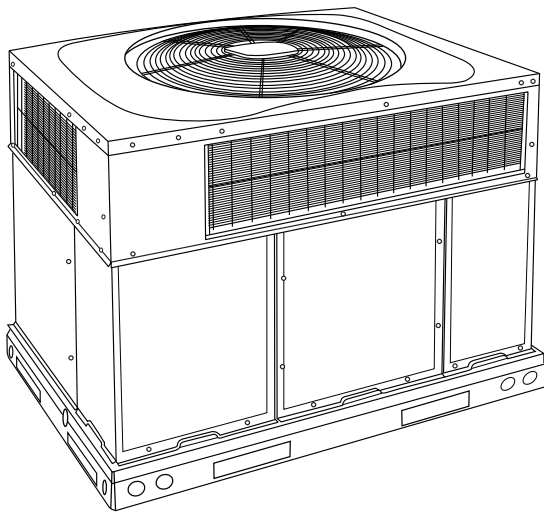
**Comfort™ 14 SEER Single-Packaged Air  
Conditioner and Gas Furnace System with Puron®  
(R-410A) Refrigerant**

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

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



## Product Data



A09034

**Fig. 1 - Unit 48VL-C**

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

- 14.0 SEER
- 11.5 EER
- 81.0% AFUE (Single phase models)
- ECM Motor-Standard
- Direct Spark Ignition
- Low Sound Levels
- 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. The most important advantage of Puron refrigerant is that it has not been banned in future air conditioning systems as the traditional refrigerant R-22 has been. 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 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 two 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 14.0, 11.5 EER, and AFUE (Annual Fuel Utilization Efficiency) ratings up to 81.0%.

**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

**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

**Time Guard® II** anti-short cycle protection circuitry. If a non-corporate thermostat without anti-short cycle protection is used the Time Guard II field-installed anti-short cycle kit is recommended.

**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 Pressure Switch** provides 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 73dBA.

**Easy to service cabinets** provide easy 3-panel accessibility to serviceable components during maintenance and installation. The basepan with integrated drain pan provides easy ground level installation with mounting pad. A nesting feature ensures a positive basepan to roof curb seal when the unit is roof mounted. A convenient 3/4-in. (19.05 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.

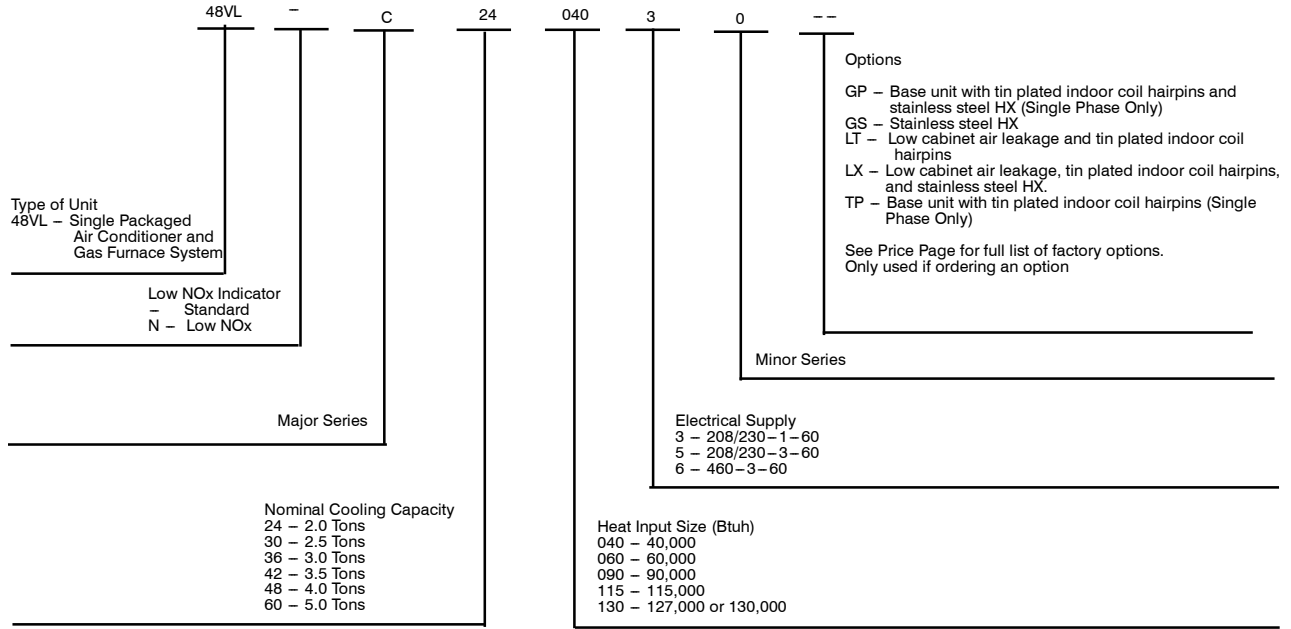
**Integrated Gas Control (IGC) board** provides safe and efficient control of heating and simplifies trouble-shooting through its built-in diagnostic function.

**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 62.2.) The sloped drain pan minimizes standing water in the drain. An external drain is provided.

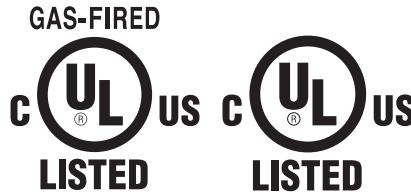
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# MODEL NUMBER NOMENCLATURE



**48VL-C**



Use of the AHRI Certified  
TM Mark indicates a  
manufacturer's  
participation in the  
program For verification  
of certification for individual  
products, go to  
[www.ahridirectory.org](http://www.ahridirectory.org).

# AHRI\* CAPACITIES

## Cooling Capacities and Efficiencies

UNIT SIZE	NOMINAL TONS	STANDARD CFM	COOLING CAPACITY	EER	SEER
24	2	800	23000	11.5	14.0
30	2.5	1000	28600	11.5	14.0
36	3	1150	34800	11.5	14.0
42	3.5	1350	40000	11.5	14.0
48	4	1550	46000	11.5	14.0
60	5	1750	56000	11.5	14.0

**LEGEND**

**dB**—Sound Levels (decibels)

**db**—Dry Bulb

**SEER**—Seasonal Energy Efficiency Ratio

**wb**—Wet Bulb

**COP**—Coefficient of Performance

\* 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 wb (19.4°C) indoor entering—air temperature and 95°F db (35°C) outdoor entering—air temperature.

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

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## Gas Heating Capacities and Efficiencies, Single Phase Models

UNIT SIZE	HEATING INPUT (Btuh)	OUTPUT CAPACITY (Btuh)	TEMPERATURE RISE RANGE °F (°C)	AFUE (%)
<b>24040</b> <b>30040</b>	40,000	33,000	25-55 (14-31)	81.0
<b>24060</b> <b>30060</b> <b>36060</b> <b>42060</b>	60,000	49,000	25-55 (14-31)	81.0
<b>36090</b> <b>42090</b> <b>48090</b> <b>60090</b>	90,000	73,000 74,000 74,000 74,000	35-65 (19-36)	81.0
<b>48115</b> <b>60115</b>	115,000	94,000	30-60 (17-33)	81.0
<b>48130</b> <b>60130</b>	127,000	104,000	35-65 (19-36)	81.0

**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 (%)
<b>36060</b> <b>42060</b>	60,000	48,000 47,000	25-55 (14-31)	80.0 78.5
<b>36090</b> <b>42090</b> <b>48090</b> <b>60090</b>	90,000	72,000 73,000 73,000 73,000	35-65 (19-36)	79.3 80.4 80.4 80.4
<b>48115</b> <b>60115</b>	115,000	93,000	30-60 (17-33)	80.3
<b>48130</b> <b>60130</b>	130,000	103,000	35-65 (19-36)	78.9

**LEGEND**

**AFUE**—Annual Fuel Utilization Efficiency

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

## A-Weighted Sound Power Level (dBA)

UNIT SIZE	SOUND RATING	TYPICAL OCTAVE BAND SPECTRUM (dBA without tone adjustment)						
		125	250	500	1000	2000	4000	8000
24	<b>73</b>	54.3	61.3	55.2	54.8	57.1	53.6	43.1
30	<b>73</b>	58.1	59.4	61.2	64.1	59.2	56.8	50.9
36	<b>74</b>	58.7	62.8	65.7	67.8	63.7	58.9	51.7
42	<b>74</b>	54.4	59.0	61.2	62.1	58.9	53.5	46.7
48	<b>73</b>	57.1	57.6	60.5	62.7	58.2	56.4	50.7
60	<b>76</b>	64.4	59.7	59.6	60.6	59.8	55.5	47.8

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

# PHYSICAL DATA

UNIT SIZE	24040	24060	30040	30060	36060	36090	42060	42090
<b>NOMINAL CAPACITY (ton)</b>	2	2	2-1/2	2-1/2	3	3	3-1/2	3-1/2
<b>SHIPPING WEIGHT lb.</b>	329	329	361	361	390	390	455	455
<b>SHIPPING WEIGHT (kg)</b>	149	149	164	164	177	177	206	206
<b>COMPRESSOR / QUANTITY</b>	Rotary / 1		Recip / 1		Scroll / 1			
<b>REFRIGERANT (R-410A)</b>								
Quantity lb.	5.3	5.3	5.5	5.5	8.2	8.2	6.2	6.2
Quantity (kg)	2.4	2.4	2.5	2.5	3.7	3.7	2.8	2.8
<b>REFRIGERANT METERING DEVICE</b>	Orifice				TXV		Orifice	
<b>ORIFICE ID in. / mm</b>	.059 / 1.5	.059 / 1.5	.061 / 1.55	.061 / 1.55	N/A		.073 / 1.85	.073 / 1.85
<b>OUTDOOR COIL</b>								
Rows...Fins/in.	1...21	1...21	1...21	1...21	1...21	1...21	1...21	1...21
Face Area (sq ft)	11.9	11.9	13.6	13.6	18.8	18.8	13.6	13.6
<b>OUTDOOR FAN</b>								
Nominal CFM	2500	2500	2700	2700	3200	3200	3600	3600
Diameter in.	24	24	24	24	24	24	26	26
Diameter (mm)	609.6	609.6	609.6	609.6	609.6	609.6	660.4	660.4
Motor Hp (Rpm)	1/10 (810)	1/10 (810)	1/10 (810)	1/10 (810)	1/5 (810)	1/5 (810)	1/5 (810)	1/5 (810)
<b>INDOOR COIL</b>								
Rows...Fins/in.	3...17	3...17	3...17	3...17	3...17	3...17	3...17	3...17
Face Area (sq ft)	3.7	3.7	3.7	3.7	3.7	3.7	4.7	4.7
<b>INDOOR BLOWER</b>								
Nominal Cooling Airflow (Cfm)	800	800	1000	1000	1150	1150	1350	1350
Size in.	10x10	10x10	10x10	10x10	11x10	11x10	11x10	11x10
Size (mm.)	254x254	254x254	254x254	254x254	279.4x254	279.4x254	279.4x254	279.4x254
Motor HP (RPM)	1/2 (1050)	1/2 (1050)	1/2 (1050)	1/2 (1050)	3/4 (1000)	3/4 (1000)	3/4 (1075)	3/4 (1075)
<b>FURNACE SECTION*</b>								
Burner Orifice No. (Qty...Drill Size)								
1 Phase Natural Gas (Factory Installed)	2...44	3...44	2...44	3...44	3...44	3...38	3...44	3...38
1 Phase Propane Gas	2...55	3...55	2...55	3...55	3...55	3...53	3...55	3...53
3 Phase Natural Gas (Factory Installed)			2...44	2...38	2...38	3...38	2...38	3...38
3 Phase Propane Gas			2...55	2...53	2...53	3...53	2...53	3...53
<b>HIGH-PRESSURE SWITCH (psig) Cut-out Reset (Auto)</b>	650 +/- 15 420 +/- 25							
<b>LOSS-OF-CHARGE / LOW-PRESSURE SWITCH (Liquid Line) (psig) cut-out Reset (auto)</b>	20 +/- 5 45 +/- 10	N/A						
<b>RETURN-AIR FILTERS†‡</b>							1 each 24x14x1 610x356x25	
Throwaway Size in. (mm)	2 each 20x12x1 508x305x25						24x15x1 610x406x25	

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\*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 air-flow velocity of 300 to 350 ft/minute for throwaway type. Air filter pressure drop for non-standard filters must not exceed 0.08 IN. W.C.

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

# PHYSICAL DATA

UNIT SIZE	48090	48115	48130	60090	60115	60130
<b>NOMINAL CAPACITY (ton)</b>	4	4	4	5	5	5
<b>SHIPPING WEIGHT lb</b>	480	480	480	497	497	497
<b>SHIPPING WEIGHT kg</b>	218	218	218	225	225	225
<b>COMPRESSOR / QUANTITY</b>	Scroll / 1					
<b>REFRIGERANT (R-410A)</b>						
Quantity lb	9.2	9.2	9.2	9.8	9.8	9.8
Quantity (kg.)	4.2	4.2	4.2	4.4	4.4	4.4
<b>REFRIGERANT METERING DEVICE</b>	Orifice					
<b>ORIFICE ID in./mm</b>	.080 / 2.03				.084 / 2.14	
<b>OUTDOOR COIL</b>						
Rows...Fins/in.	1...21	1...21	1...21	1...21	1...21	1...21
Face Area (sq ft)	21.4	21.4	21.4	23.3	23.3	23.3
<b>OUTDOOR FAN</b>						
Nominal Cfm	3600	3600	3600	4200	4200	4200
Diameter in.	26	26	26	26	26	26
Diameter (mm)	660.4	660.4	660.4	660.4	660.4	660.4
Motor Hp (Rpm)	1/5 (810)	1/5 (810)	1/5 (810)	1/5 (810)	1/5 (810)	1/5 (810)
<b>INDOOR COIL</b>						
Rows...Fins/in.	3...17	3...17	3...17	3...17	3...17	3...17
Face Area (sq ft)	4.7	4.7	4.7	5.6	5.6	5.6
<b>INDOOR BLOWER</b>						
Nominal Cooling Airflow (Cfm)	1550	1550	1550	1750	1750	1750
Size in.	11x10	11x10	11x10	11x10	11x10	11x10
Size (mm)	279.4x254	279.4x254	279.4x254	279.4x254	279.4x254	279.4x254
Motor HP (RPM)	1.0 (1075)	1.0 (1075)	1.0 (1075)	1.0 (1040)	1.0 (1040)	1.0 (1040)
<b>FURNACE SECTION*</b>						
<b>Burner Orifice No. (Qty...Drill Size)</b>						
1 & 3 Phase Natural Gas (Factory Installed)	3...38	3...33	3...31	3...38	3...33	3...31
1 & 3 Phase Propane Gas	3...53	3...51	3...49	3...53	3...51	3...49
<b>HIGH-PRESSURE SWITCH (psig) Cut-out Reset (Auto)</b>	650 +/- 15 420 +/- 25					
<b>LOSS-OF CHARGE / LOW-PRESSURE SWITCH (Liquid Line) (psig) cut-out Reset (auto)</b>	N/A					
<b>RETURN-AIR FILTERS Throwaway†‡ in. mm</b>	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 throwaway type. Air filter pressure drop for non-standard filters must not exceed 0.08 IN. W.C.

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

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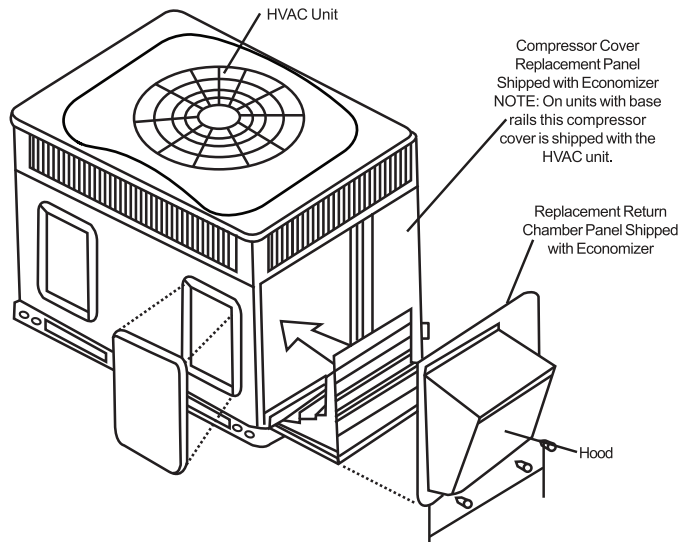
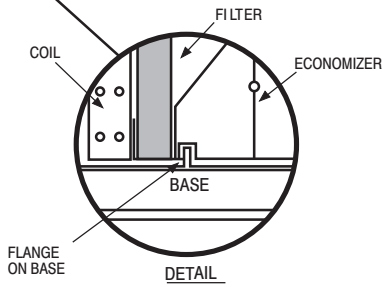
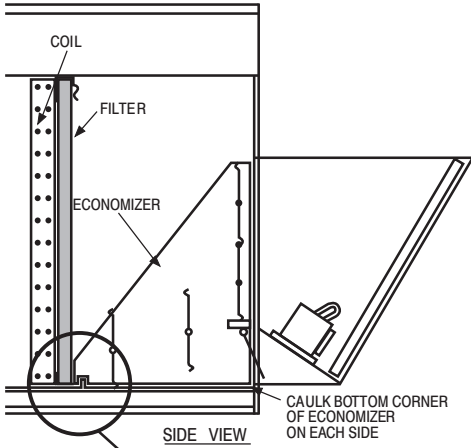
## OPTIONS AND ACCESSORIES

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*
Economizer	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. Includes 1-in. filter.		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.		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 enable 24–48 size units to be fitted to 14 in. (356 mm) 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
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	
Low Pressure Switch Kit	This kit is designed for use when a low pressure control is desired.		X

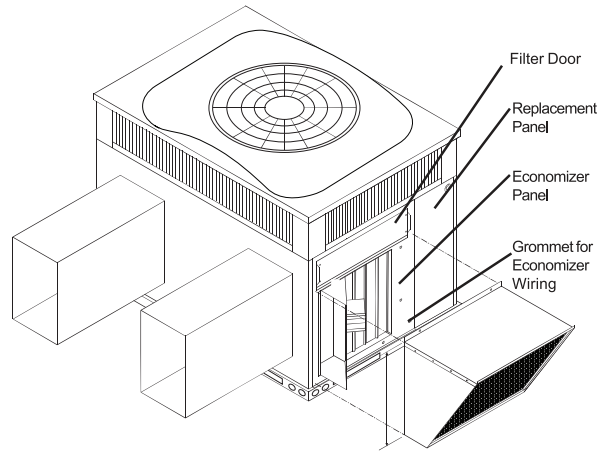
\*Refer to Price Page for application detail.

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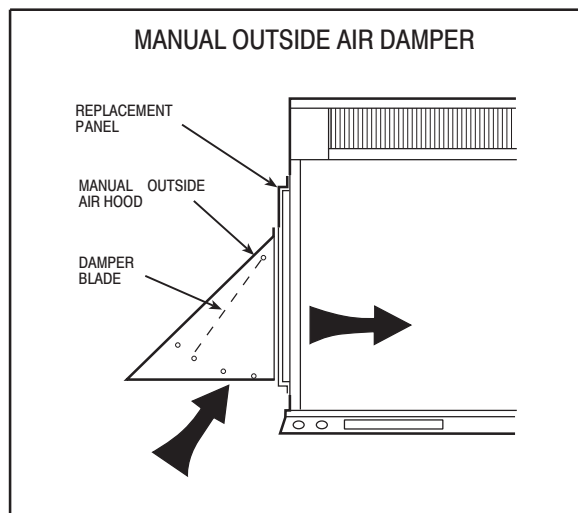
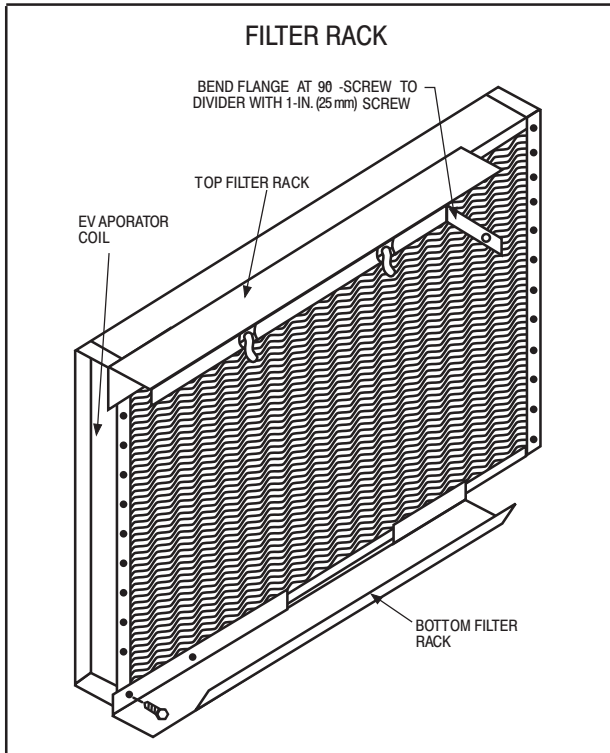
# ECONOMIZER



Vertical Economizer



Horizontal Economizer



A09375

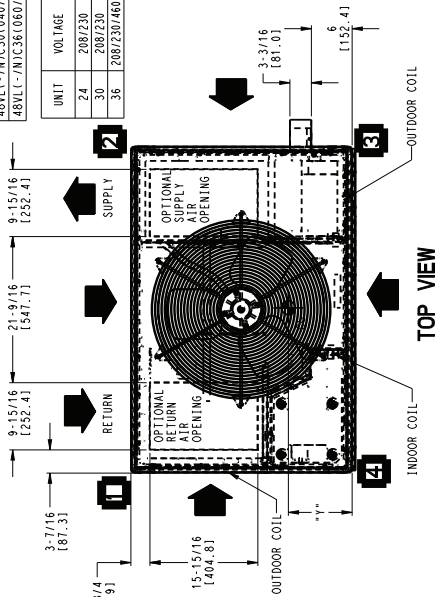
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# UNIT DIMENSIONS - 24-36

UNIT	ELECTRICAL CHARACTERISTICS		UNIT WT.		UNIT HEIGHT		CENTER OF GRAVITY			
	LB	KG	"A"	"X"	Y	Z				
48VLT-AN/C24/C040/060.30	304	138.0	43-3/4"	1111	22-13/16"	579.4	15-5/16"	388.9	15-11/16"	398.5
48VLT-AN/C30/C040/060.30	336	152.0	45-3/4"	1182	22-13/16"	579.4	15-5/16"	388.9	15-13/16"	401.6
48VLT-AN/C36/C060/090.13/5/6.10	349	158.0	51-3/4"	1315	22-13/16"	579.4	15-5/16"	388.9	16-5/8"	422.3

UNIT	CORNER WEIGHT (LB/KG)			
	"1"	"2"	"3"	"4"
24	208/230	45.6/20.7	60.8/27.6	81.2/36.8
30	248/230	50.4/22.9	81.2/36.8	100.9/45.7
36	208/230/460	32.4/15.1	104.7/47.5	122.2/55.4



**REQUIRED CLEARANCES TO COMBUSTIBLE MATL.**

TOP OF UNIT..... 14 [355.6]  
 DUCT SIDE OF UNIT..... 2 [50.8]  
 SIDE OPPOSITE DUCTS..... 14 [355.6]  
 BOTTOM OF UNIT..... 1/2 [12.7]  
 FLUE PANEL..... 36 [914.4]

**NEC-REQUIRED CLEARANCES.**

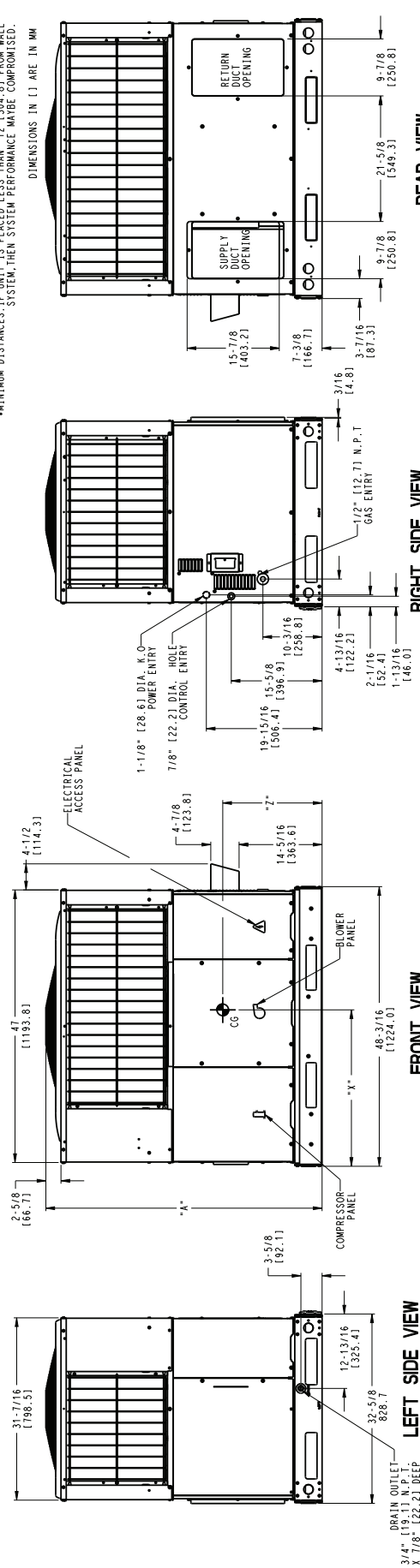
BETWEEN UNITS, POWER ENTRY SIDE..... 42 [1066.8]  
 BETWEEN UNITS, POWER ENTRY SIDE..... 42 [1066.8]  
 UNIT AND BLOWER PANEL, POWER ENTRY SIDE..... 36 [914.0]  
 GROUND SURFACES, POWER ENTRY SIDE..... 42 [1066.8]

**REQUIRED CLEARANCE FOR OPERATION AND SERVICING**

SWAP COIL ACCESS SIDE..... 36 [914.0]  
 POWER ENTRY SIDE..... 42 [1066.8]  
 (EXCEPT FOR NEC REQUIREMENTS)

UNIT TOP OPPOSITE DUCTS..... 48 [1219.2]  
 SIDE OPPOSITE DUCTS..... 36 [914.4]  
 DUCT PANEL..... 12 [304.8]

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



48VL500404

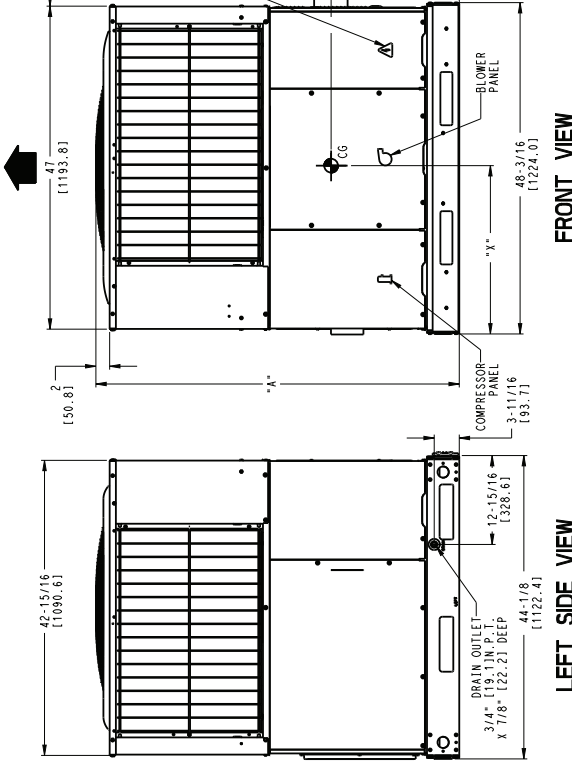
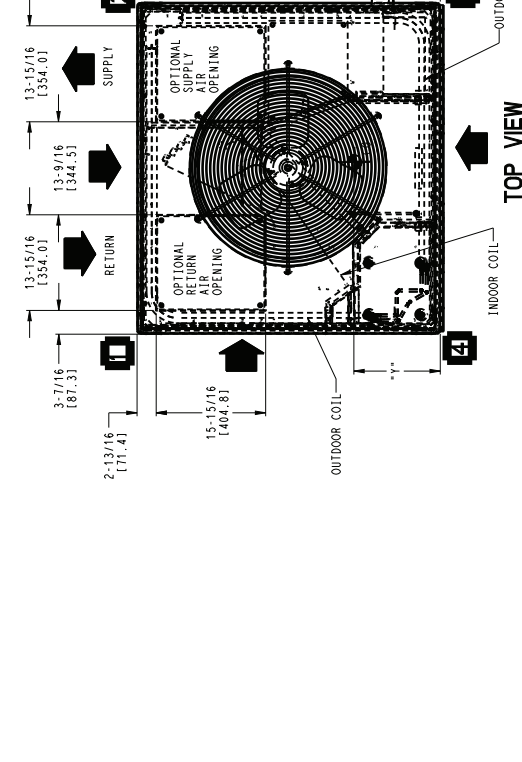
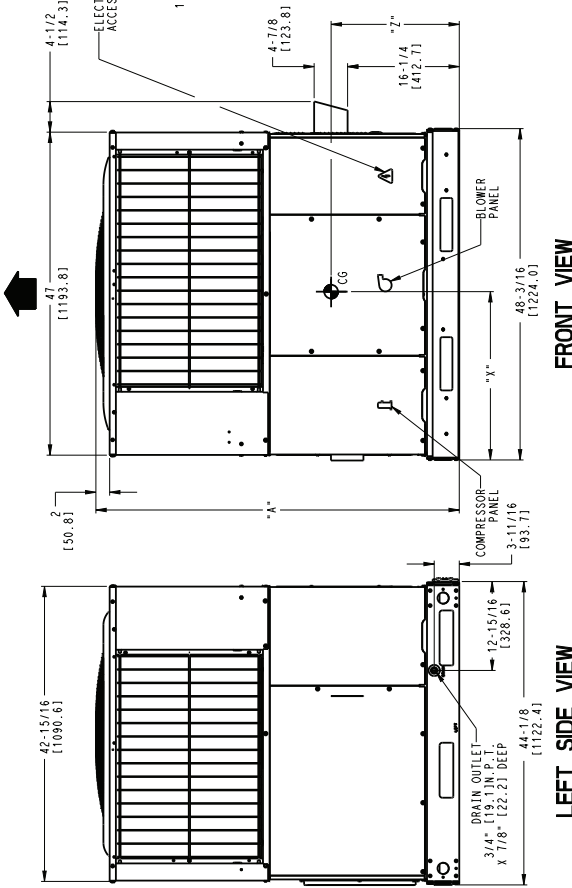
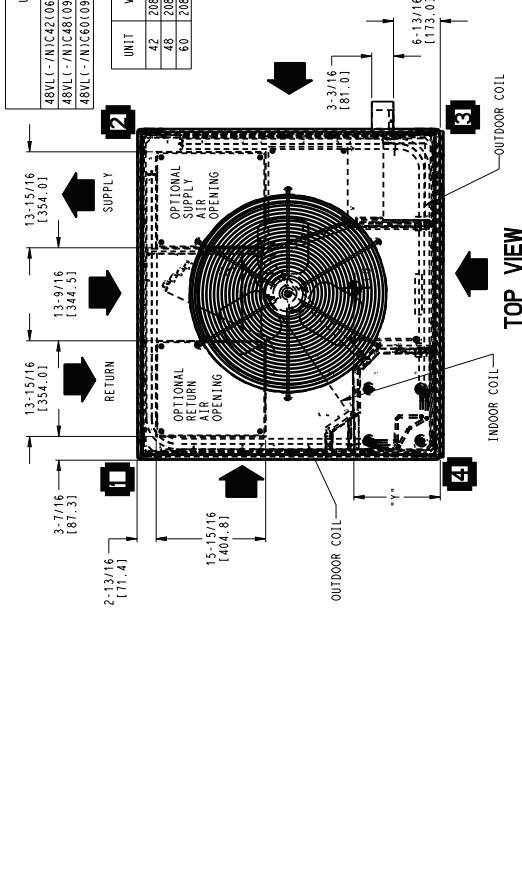
48VL--C

# UNIT DIMENSIONS - 42-60

48VL--C

UNIT	ELECTRICAL CHARACTERISTICS				UNIT WT.			CENTER OF GRAVITY IN/MM											
	UNIT	VOLTAGE	1"*	2"*	3"*	4"*	LB	KG	"A"	X	Z								
48VLT-/N/C42/060/090/13/5/6/10	208/230-1-60	208/230/460	82.0	38.1	82.6	37.5	123.9	56.2	144.6	65.6	187.0	44-3/4	1137	22-13/16	579.4	18	457.2	17-1/8	435.0
48VLT-/N/C48/090/115/130/13/5/7/6/10	208/230-1-60	208/230/460	85.7	29.8	87.6	39.7	131.4	58.6	153.3	69.5	199.0	52-3/4	1340	22-13/16	579.4	18	457.2	17-3/8	441.3
48VLT-/N/C60/090/115/130/13/5/7/6/10	208/230-1-60	208/230/460	88.3	31.0	91.0	41.3	136.5	61.9	159.3	72.2	206.0	54-3/4	1391	22-13/16	579.4	18	457.2	17-5/8	447.7

UNIT	CORNER WEIGHTS LBS/KG				
	1"	2"	3"	4"	
42	208/230/460	82.0	38.1	82.6	37.5
48	208/230/460	85.7	29.8	87.6	39.7
60	208/230/460	88.3	31.0	91.0	41.3



**REQUIRED CLEARANCES TO COMBUSTIBLE MATL.**

INCHES (MM)

TOP OF UNIT.....14 [355.6]

DUCT SIDE OF UNIT.....2 [50.8]

SIDE OPPOSITE DUCTS.....14 [355.6]

BOTTOM OF UNIT.....12 [304.8]

FUELS PANEL.....36 [914.4]

**NEC REQUIRED CLEARANCES:**

INCHES (MM)

BETWEEN UNITS, POWER ENTRY SIDE.....16 [406.4]

UNIT AND UNGROUNDED SURFACES, POWER ENTRY SIDE.....36 [914.0]

UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, POWER ENTRY SIDE.....42 [1066.8]

**REQUIRED CLEARANCE FOR OPERATION AND SERVICING**

INCHES (MM)

EVAP. COIL ACCESS SIDE.....36 [914.0]

POWER ENTRY SIDE.....42 [1066.8]

FOR REFRIG. OR NEV. REQUIREMENTS.....48 [1219.2]

UNIT TOP.....36 [914.0]

SIDE OPPOSITE DUCTS.....36 [914.0]

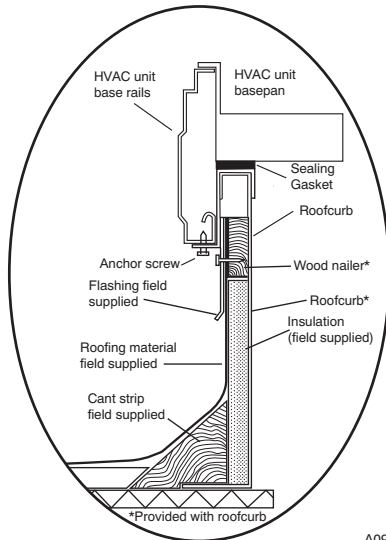
DUCT PANEL.....12 [304.8]

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

DIMENSIONS IN [ ] ARE IN MM

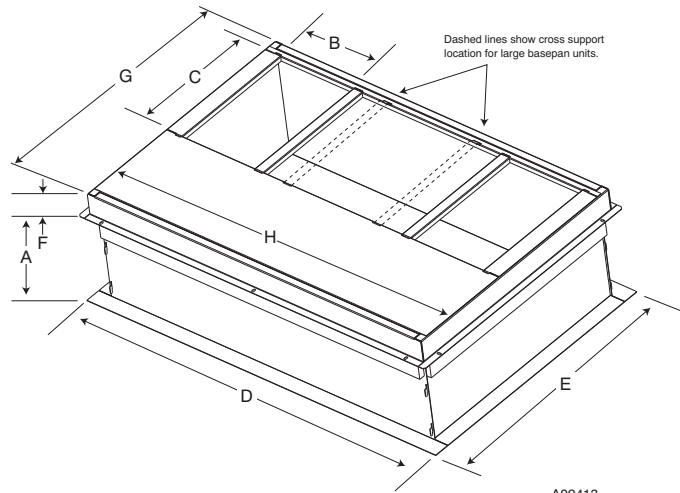
48VL500405

# ACCESSORY DIMENSIONS



A09090

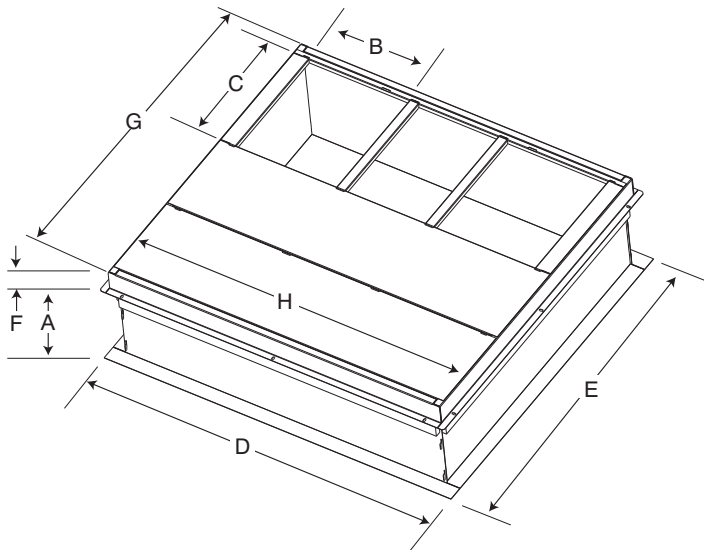
ROOF CURB DETAIL



SMALL/COMMON CURB

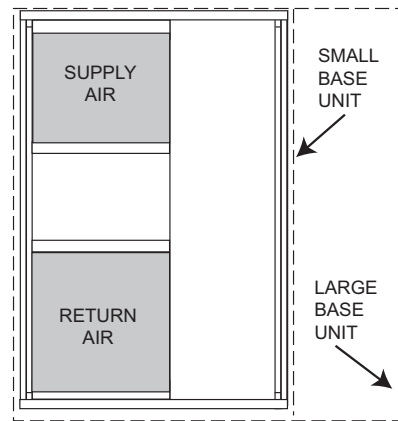
A09413

48VL-C



LARGE CURB

A09415



UNIT PLACEMENT ON COMMON CURB

A09094

SMALL OR LARGE BASE UNIT

A09414

UNIT SIZE	CATALOG NUMBER	A IN. (mm)	B (small / common base) IN. (mm)*	B (large base) IN. (mm)*	C IN. (mm)	D IN. (mm)	E IN. (mm)	F IN. (mm)	G IN. (mm)	H IN. (mm)
Small or Large	CPRFCURB011A00	14 (356)	10 (254)	14 (356)	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)	

\* Part Number CPRFCURB011A00 can be used on both small and large basepan units. The cross supports must be located based on whether the unit is a small basepan or a large basepan.

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.

**SELECTION PROCEDURE (WITH EXAMPLE)**

**1. Determine cooling and heating requirements at design conditions:**

Given:

- Required Cooling Capacity (TC) ..... 34,000 Btuh
- Sensible Heat Capacity (SHC) ..... 25,000 Btuh
- Required Heating Capacity ..... 60,000 Btuh
- Condenser Entering Air Temperature ..... 95°F (35°C)
- Indoor-Air Temperature . 80°F (26°C)edb 67°F (19°C)ewb
- Evaporator Air Quantity ..... 1200 CFM
- External Static Pressure ..... 0.100 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 34,200 Btuh and a SHC of 27,400 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 single phase unit 036090 will provide 73,000 Btuh with an input of 90,000 Btuh.

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

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

External Static Pressure	0.100 IN. W.C
Filter	0.07 IN. W.C
Wet Coil Pressure Drop	<u>0.180</u> IN. W.C
Total Static Pressure	0.287 IN. W.C

Enter the table for Dry Coil Air Delivery—Horizontal and Downflow Discharge. At .287 IN. W.C. ESP, the closest speed to 1200 CFM is Med-Low (pink wire), which delivers 1213 CFM at .3 in ESP.

**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 SIZE

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	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens
	57 (13.8)	23.62	23.62	1.55	21.90	21.90	1.75	20.07	20.07	1.95	17.88	17.88	2.14	15.87	15.87	2.38	14.01	14.01	2.64	
	62 (16.6)	24.47	21.38	1.56	22.45	20.24	1.75	20.32	19.02	1.96	17.92	17.92	2.14	15.90	15.90	2.38	14.03	14.03	2.64	
<b>700</b>	63* (17.2)	24.99	17.43	1.56	22.88	16.39	1.76	20.71	15.32	1.96	18.05	14.06	2.15	15.56	12.87	2.36	13.28	11.77	2.61	
	67 (19.4)	27.02	18.13	1.55	24.79	17.09	1.76	22.51	16.03	1.98	19.92	14.86	2.20	17.28	13.67	2.42	14.91	12.59	2.67	
	72 (22.2)	29.59	14.70	1.55	27.20	13.77	1.76	24.84	12.86	1.99	22.48	11.95	2.24	19.68	10.89	2.51	17.14	9.92	2.77	
	57 (13.8)	24.74	24.74	1.57	22.92	22.92	1.77	21.02	21.02	1.99	18.78	18.78	2.19	16.65	16.65	2.42	14.70	14.70	2.69	
	62 (16.6)	25.14	23.06	1.57	23.07	21.80	1.78	21.05	21.05	1.99	18.81	18.81	2.19	16.68	16.68	2.42	14.72	14.72	2.69	
<b>800</b>	63* (17.2)	25.59	18.60	1.57	23.43	17.53	1.77	21.18	16.43	1.99	18.51	15.14	2.18	15.93	13.90	2.39	13.61	12.73	2.64	
	67 (19.4)	27.63	19.36	1.56	25.32	18.28	1.77	23.00	17.20	2.00	20.41	16.03	2.24	17.67	14.78	2.45	15.25	13.64	2.71	
	72 (22.2)	30.16	15.42	1.56	27.69	14.48	1.77	25.27	13.55	2.01	22.88	12.64	2.26	20.12	11.62	2.53	17.47	10.60	2.80	
	57 (13.8)	25.69	25.69	1.58	23.77	23.77	1.79	21.80	21.80	2.01	19.55	19.55	2.23	17.32	17.32	2.46	15.29	15.29	2.73	
	62 (16.6)	25.74	25.74	1.58	23.81	23.81	1.79	21.84	21.84	2.01	19.58	19.58	2.23	17.35	17.35	2.46	15.31	15.31	2.73	
<b>900</b>	63* (17.2)	26.07	19.72	1.58	23.84	18.62	1.79	21.55	17.49	2.01	18.84	16.17	2.20	16.24	14.87	2.42	13.92	13.92	2.67	
	67 (19.4)	28.08	20.52	1.58	25.72	19.42	1.79	23.37	18.31	2.02	20.82	17.17	2.26	17.98	15.84	2.48	15.54	14.63	2.74	
	72 (22.2)	30.58	16.10	1.58	28.07	15.15	1.79	25.58	14.21	2.02	23.17	13.29	2.28	20.45	12.30	2.56	17.73	11.25	2.83	

See Legend and Notes on Page 19.

PERFORMANCE DATA

30 SIZE

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	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens	Capacity MBtuh	Total Sys KW	Sens
875	57 (13.8)	29.53	1.96	27.08	2.16	24.69	2.37	22.28	2.58	19.59	2.78	16.70	2.97	16.70	2.78	19.59	2.78	16.70	2.97
	62 (16.6)	30.79	1.97	27.80	2.18	24.94	2.38	22.32	2.58	19.63	2.78	16.73	2.98	16.73	2.78	19.63	2.78	16.73	2.98
	63* (17.2)	31.48	1.98	28.41	2.19	25.42	2.39	22.40	2.58	18.92	2.74	15.25	2.90	15.25	2.74	18.92	2.74	15.25	2.90
	67 (19.4)	34.28	1.99	31.11	2.22	27.95	2.45	24.83	2.67	18.09	2.87	17.54	3.02	17.54	2.87	18.09	2.87	17.54	3.02
	72 (22.2)	37.52	2.02	34.41	2.25	31.17	2.49	27.94	2.73	14.44	2.98	20.76	3.20	20.76	2.98	14.44	2.98	20.76	3.20
1000	57 (13.8)	31.03	2.01	28.44	2.22	25.91	2.44	23.40	2.66	20.68	2.87	17.58	3.06	17.58	2.87	20.68	2.87	17.58	3.06
	62 (16.6)	31.72	2.01	28.67	2.23	25.96	2.45	23.44	2.67	20.72	2.87	17.61	3.06	17.61	2.87	20.72	2.87	17.61	3.06
	63* (17.2)	32.32	2.01	29.14	2.23	26.02	2.44	22.95	2.64	19.44	2.80	15.73	2.96	15.73	2.80	19.44	2.80	15.73	2.96
	67 (19.4)	35.07	2.03	31.85	2.26	28.60	2.49	25.37	2.72	17.88	2.94	16.02	3.08	16.02	2.94	17.88	2.94	16.02	3.08
	72 (22.2)	38.18	2.05	35.03	2.29	31.75	2.53	28.42	2.78	13.95	3.02	21.25	3.27	21.25	3.02	13.95	3.02	21.25	3.27
1125	57 (13.8)	32.29	2.04	29.60	2.27	26.94	2.50	24.33	2.73	21.55	2.96	18.32	3.14	18.32	2.96	21.55	2.96	18.32	3.14
	62 (16.6)	32.53	2.05	29.65	2.27	26.98	2.50	24.37	2.73	21.59	2.96	18.35	3.14	18.35	2.96	21.59	2.96	18.35	3.14
	63* (17.2)	32.95	2.05	29.71	2.27	26.51	2.49	23.38	2.70	17.80	2.86	16.36	3.03	16.36	2.86	17.80	2.86	16.36	3.03
	67 (19.4)	35.66	2.06	32.37	2.29	29.08	2.53	25.80	2.76	19.14	2.99	18.31	3.15	18.31	2.99	19.14	2.99	18.31	3.15
	72 (22.2)	38.66	2.08	35.48	2.32	32.15	2.57	28.78	2.82	14.70	3.07	21.59	3.31	21.59	3.07	14.70	3.07	21.59	3.31

See Legend and Notes on Page 19.

# PERFORMANCE DATA (CONT)

## 36 SIZE

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES ° 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	
CFM	EWB F (°C)	Total	Sens	Total	Sens	Total	Sens	Total	Sens	Total	Sens	Total	Sens	Total	Sens	Total	Sens	Total	Sens	Total	Sens	Total	Sens		
<b>1000</b>	57 (13.8)	34.58	34.58	2.40	2.40	32.46	32.46	2.66	2.66	30.31	30.31	2.94	2.94	28.08	28.08	3.27	3.27	25.78	25.78	23.44	23.44	3.65	3.65	20.05	20.05
	62 (16.6)	36.10	31.44	2.41	2.41	33.65	29.92	2.67	2.67	31.16	28.38	2.95	2.95	28.62	26.75	3.27	3.27	26.05	25.03	23.48	23.48	3.65	3.65	20.05	20.05
	63* (17.2)	36.53	25.60	2.42	2.42	34.01	24.25	2.67	2.67	31.48	22.90	2.95	2.95	28.86	21.49	3.28	3.28	26.20	20.05	23.49	18.58	3.65	3.65	20.05	20.05
	67 (19.4)	39.44	26.70	2.43	2.43	36.74	25.34	2.69	2.69	34.00	23.95	2.97	2.97	31.20	22.53	3.30	3.30	28.34	21.07	25.45	19.58	3.67	3.67	20.05	20.05
	72 (22.2)	43.05	21.95	2.46	2.46	40.11	20.71	2.72	2.72	37.12	19.45	3.00	3.00	34.07	18.16	3.32	3.32	30.95	16.85	27.81	15.51	3.69	3.69	20.05	20.05
<b>1150</b>	57 (13.8)	36.19	36.19	2.46	2.46	33.98	33.98	2.71	2.71	31.67	31.67	3.00	3.00	29.30	29.30	3.32	3.32	26.84	26.84	24.34	24.34	3.70	3.70	20.05	20.05
	62 (16.6)	37.15	33.84	2.46	2.46	34.60	32.19	2.72	2.72	32.03	30.46	3.00	3.00	29.42	29.41	3.32	3.32	26.90	26.90	24.38	24.38	3.70	3.70	20.05	20.05
	63* (17.2)	37.52	27.28	2.47	2.47	34.89	25.86	2.72	2.72	32.23	24.43	3.01	3.01	29.50	22.95	3.33	3.33	26.72	21.43	23.92	19.88	3.70	3.70	20.05	20.05
	67 (19.4)	40.47	28.51	2.48	2.48	37.67	27.07	2.74	2.74	34.80	25.60	3.03	3.03	31.88	24.11	3.35	3.35	28.91	22.56	25.90	20.99	3.72	3.72	20.05	20.05
	72 (22.2)	44.12	23.06	2.51	2.51	41.04	21.76	2.77	2.77	37.93	20.44	3.06	3.06	34.77	19.10	3.38	3.38	31.54	17.73	28.28	16.32	3.74	3.74	20.05	20.05
<b>1300</b>	57 (13.8)	37.56	37.56	2.51	2.51	35.24	35.24	2.77	2.77	32.79	32.79	3.05	3.05	30.30	30.30	3.38	3.38	27.71	27.71	25.08	25.08	3.75	3.75	20.05	20.05
	62 (16.6)	38.06	35.99	2.51	2.51	35.47	34.14	2.77	2.77	32.84	32.84	3.05	3.05	30.34	30.34	3.38	3.38	27.75	27.75	25.12	25.12	3.75	3.75	20.05	20.05
	63* (17.2)	38.23	28.87	2.51	2.51	35.57	27.41	2.77	2.77	32.80	25.90	3.05	3.05	29.99	24.35	3.38	3.38	27.14	22.76	24.25	21.11	3.75	3.75	20.05	20.05
	67 (19.4)	41.26	30.24	2.53	2.53	38.33	28.73	2.79	2.79	35.38	27.20	3.08	3.08	32.36	25.62	3.40	3.40	29.31	24.01	26.22	22.34	3.76	3.76	20.05	20.05
	72 (22.2)	44.94	24.09	2.56	2.56	41.77	22.75	2.82	2.82	38.55	21.38	3.11	3.11	35.28	19.98	3.43	3.43	31.96	18.56	28.62	17.10	3.79	3.79	20.05	20.05

See Legend and Notes on Page 19.

PERFORMANCE DATA

42 SIZE

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES ° F (° C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM	EWB F (° C)	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				
1175	57 (13.8)	38.66	38.66	2.51	36.66	36.66	2.87	34.60	34.60	3.30	32.45	32.45	3.80	30.07	30.07	4.39	27.19	27.19	5.02
	62 (16.6)	40.29	35.16	2.54	37.87	33.90	2.90	35.39	32.59	3.32	32.82	31.18	3.82	30.12	30.12	4.39	27.24	27.24	5.03
	63* (17.2)	41.08	28.70	2.54	38.62	27.55	2.92	36.06	26.34	3.34	33.40	25.10	3.84	30.40	23.73	4.40	26.65	22.06	4.98
	67 (19.4)	44.34	29.79	2.59	41.80	28.66	2.97	39.16	27.52	3.42	36.41	26.33	3.95	33.45	25.06	4.57	29.97	23.59	5.21
	72 (22.2)	48.52	24.17	2.66	45.92	23.18	3.05	43.20	22.16	3.52	40.37	21.10	4.06	37.44	20.00	4.70	34.27	18.84	5.44
1350	57 (13.8)	40.50	40.50	2.58	38.39	38.39	2.95	36.24	36.24	3.40	34.01	34.01	3.92	31.54	31.54	4.51	28.67	28.67	5.17
	62 (16.6)	41.38	37.85	2.59	38.93	36.52	2.96	36.44	36.11	3.41	34.06	34.06	3.92	31.59	31.59	4.52	28.72	28.72	5.17
	63* (17.2)	42.06	30.61	2.60	39.52	29.42	2.97	36.90	28.24	3.41	34.16	26.96	3.92	31.10	25.56	4.49	27.35	23.86	5.08
	67 (19.4)	45.33	31.78	2.64	42.72	30.67	3.03	40.00	29.50	3.48	37.18	28.29	4.01	34.18	27.02	4.64	30.76	25.56	5.32
	72 (22.2)	49.45	25.33	2.72	46.79	24.36	3.12	44.00	23.33	3.58	41.11	22.27	4.13	38.09	21.17	4.78	34.91	20.01	5.52
1525	57 (13.8)	41.99	41.99	2.63	39.82	39.82	3.02	37.59	37.59	3.47	35.28	35.28	4.01	32.78	32.78	4.63	29.92	29.92	5.31
	62 (16.6)	42.32	40.26	2.64	39.90	39.90	3.02	37.64	37.64	3.47	35.33	35.33	4.01	32.82	32.82	4.64	29.97	29.97	5.31
	63* (17.2)	42.81	32.42	2.65	40.22	31.23	3.02	37.53	30.01	3.47	34.76	28.74	3.99	31.66	27.29	4.56	27.97	25.57	5.17
	67 (19.4)	46.08	33.66	2.70	43.40	32.57	3.08	40.64	31.35	3.54	37.75	30.14	4.07	34.73	28.86	4.70	31.38	27.42	5.42
	72 (22.2)	50.14	26.41	2.78	47.44	25.44	3.18	44.60	24.44	3.64	41.64	23.37	4.20	38.57	22.27	4.85	35.35	21.11	5.59

See Legend and Notes on Page 19.



# PERFORMANCE DATA (CONT)

48 SIZE

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES ° F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		CFM	EWB F (°C)	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 (13.8)	45.45	45.45	3.10	42.83	42.83	3.46	40.16	40.16	3.89	37.26	37.26	4.36	33.52	33.52	4.82	29.80	29.80	5.37
	62 (16.6)	47.27	42.17	3.13	44.15	40.29	3.49	41.03	38.39	3.91	37.61	36.29	4.36	33.57	33.57	4.83	29.84	29.84	5.37
	63* (17.2)	48.20	34.32	3.13	45.02	32.66	3.50	41.76	30.98	3.92	38.24	29.20	4.38	33.54	26.93	4.82	28.81	24.65	5.33
	67 (19.4)	52.06	35.63	3.15	48.74	34.02	3.52	45.33	32.35	3.95	41.77	30.64	4.44	37.35	28.63	4.96	32.39	26.38	5.46
	72 (22.2)	56.98	28.79	3.18	53.50	27.36	3.56	49.89	25.89	3.99	46.16	24.36	4.48	42.23	22.80	5.04	37.37	21.00	5.64
	57 (13.8)	47.02	47.02	3.17	44.27	44.27	3.54	41.50	41.50	3.96	38.53	38.53	4.44	34.79	34.79	4.92	30.91	30.91	5.46
1550	62 (16.6)	48.16	44.46	3.17	45.01	42.51	3.55	41.85	40.45	3.97	38.60	38.60	4.44	34.83	34.83	4.92	30.95	30.95	5.46
	63* (17.2)	49.02	35.96	3.18	45.75	34.27	3.55	42.41	32.55	3.98	38.87	30.75	4.45	34.15	28.45	4.89	29.32	26.09	5.40
	67 (19.4)	52.88	37.35	3.20	49.49	35.71	3.57	46.00	34.00	4.00	42.38	32.25	4.49	38.03	30.31	5.04	32.93	27.95	5.53
	72 (22.2)	57.73	29.76	3.23	54.20	28.31	3.61	50.51	26.84	4.04	46.68	25.28	4.53	42.70	23.71	5.09	37.92	21.96	5.70
	57 (13.8)	49.14	49.14	3.25	46.25	46.25	3.63	43.34	43.34	4.06	40.29	40.29	4.55	36.55	36.55	5.07	32.46	32.46	5.60
	62 (16.6)	49.49	47.88	3.25	46.34	46.34	3.63	43.39	43.39	4.06	40.34	40.34	4.55	36.60	36.60	5.07	32.49	32.49	5.61
1800	63* (17.2)	50.04	38.56	3.25	46.70	36.84	3.63	43.27	35.06	4.06	39.66	33.20	4.54	34.96	30.85	5.00	30.05	28.30	5.51
	67 (19.4)	53.94	40.13	3.28	50.43	38.42	3.65	46.85	36.63	4.08	43.16	34.80	4.57	38.95	32.92	5.12	33.66	30.41	5.65
	72 (22.2)	58.67	31.28	3.31	55.06	29.83	3.69	51.26	28.32	4.12	47.34	26.73	4.62	43.27	25.12	5.18	38.61	23.50	5.78

See Legend and Notes on Page 19.

PERFORMANCE DATA

60 SIZE

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES ° F (° C)																							
		75 (23.9)				85 (29.4)				95 (35)				105 (40.6)				115 (46.1)				125 (51.7)			
		CFM	EWB °F (°C)	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					
1750	57 (13.8)	57.04	57.04	3.68	53.71	53.71	4.20	50.37	50.37	4.81	46.94	46.94	5.51	42.94	42.94	6.27	38.22	38.22	6.27	38.22	38.22	7.08			
	62 (16.6)	58.59	49.98	3.70	54.72	48.26	4.22	50.83	46.41	4.82	47.02	47.02	5.51	43.00	43.00	6.28	38.29	38.29	6.28	38.29	38.29	7.08			
	63* (17.2)	59.69	40.44	3.70	55.67	38.90	4.23	51.62	37.32	4.83	47.50	35.70	5.52	42.48	33.69	6.25	36.58	36.58	6.25	36.58	31.27	7.00			
	67 (19.4)	64.43	42.04	3.73	60.26	40.56	4.26	56.00	39.00	4.87	51.67	37.39	5.57	47.05	35.71	6.38	41.05	41.05	6.38	41.05	33.47	7.21			
	72 (22.2)	70.39	33.58	3.78	66.06	32.25	4.31	61.55	30.87	4.93	56.94	29.39	5.64	52.21	27.88	6.45	47.19	26.29	6.45	47.19	26.29	7.37			
2000	57 (13.8)	59.44	59.44	3.78	55.93	55.93	4.31	52.41	52.41	4.92	48.83	48.83	5.62	44.92	44.92	6.44	39.97	39.97	6.44	39.97	39.97	7.26			
	62 (16.6)	60.04	53.50	3.78	56.07	56.07	4.31	52.48	52.48	4.92	48.90	48.90	5.62	44.98	44.98	6.44	40.04	40.04	6.44	40.04	40.04	7.26			
	63* (17.2)	60.84	43.04	3.78	56.74	41.49	4.31	52.56	39.87	4.92	48.32	38.18	5.62	43.48	36.25	6.39	37.36	37.36	6.39	37.36	33.66	7.13			
	67 (19.4)	65.61	44.79	3.81	61.36	43.29	4.34	56.95	41.68	4.96	52.51	40.02	5.66	47.83	38.30	6.47	41.86	41.86	6.47	41.86	36.09	7.35			
	72 (22.2)	71.45	35.11	3.87	67.02	33.78	4.40	62.40	32.37	5.02	57.67	30.89	5.73	52.81	29.36	6.55	47.75	27.77	6.55	47.75	27.77	7.47			
2250	57 (13.8)	61.37	61.37	3.86	57.76	57.76	4.39	54.09	54.09	5.01	50.36	50.36	5.72	46.38	46.38	6.54	41.44	41.44	6.54	41.44	41.44	7.43			
	62 (16.6)	61.42	61.42	3.86	57.83	57.83	4.40	54.15	54.15	5.01	50.42	50.42	5.72	46.44	46.44	6.54	41.51	41.51	6.54	41.51	41.51	7.43			
	63* (17.2)	61.75	45.60	3.86	57.57	43.99	4.39	53.29	42.29	5.00	48.99	40.55	5.71	44.27	38.64	6.52	38.08	38.08	6.52	38.08	35.80	7.26			
	67 (19.4)	66.46	47.42	3.89	62.10	45.93	4.43	57.67	44.25	5.04	53.13	42.53	5.75	48.44	40.74	6.56	42.58	42.58	6.56	42.58	38.56	7.48			
	72 (22.2)	72.23	36.56	3.95	67.73	35.23	4.48	63.02	33.84	5.11	58.17	32.33	5.82	53.23	30.78	6.65	48.12	29.19	6.65	48.12	29.19	7.57			

See Legend and Notes on Page 19.

## PERFORMANCE DATA (CONT)

\* At 75°F (24°C) entering dry bulb—Tennessee Valley Authority (TVA) rating conditions; all others at 80°F dry bulb.

### 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:

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

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

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

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

4. The SHC is based on 80°F (26.6°C) edb temperature of air entering evaporator coil. Below 80°F (26.6°C) edb, subtract (corr factor x cfm) from SHC.

Above 80°F (26.6°C) edb, add (corr factor x cfm) to SHC.

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

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)

## GAS ADJUSTMENT

### 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/ft<sup>3</sup> 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/ft<sup>3</sup> 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).

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## 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), LP 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), LP 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	114300	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

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).

48VL-C

Dry Coil Air Delivery\* - Horizontal and Downflow Discharge Sizes 24-60 208/230VAC - 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 <sup>1</sup>	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	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
				Heat Rise (°C)	25	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	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	---	---	---	---	---	---	---	---	---	---	---	---	---
		Med - Low <sup>2</sup>	Pink	Heat Rise (°F)	36	40	44	49	54	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
				Heat Rise (°C)	20	22	24	27	50	NA	NA	NA	NA	NA	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	---	---	---	---	---	---	---	---	---	
				Heat Rise (°F)	29	32	34	36	40	44	50	55	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
				Heat Rise (°C)	16	18	19	20	22	24	28	31	NA	NA	NA	NA	NA	NA	NA	NA	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	NA	NA	NA	NA	NA	NA	NA				
		Heat Rise (°C)	16	17	18	19	21	23	26	28	NA	NA	NA	NA	NA	NA	NA	NA	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	---	---	---	---	---	---	---	---				
High	Black	Heat Rise (°F)	25	26	28	30	32	33	35	38	43	49	---	---	---	---	---	---	---	---				
		Heat Rise (°C)	14	15	16	17	18	18	18	20	21	24	---	---	---	---	---	---	---					
		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	NA	NA	NA	NA	NA	NA					
		Heat Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA					
24060	25 - 55 (14 - 31)	Low <sup>3</sup>	Blue	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	NA	NA	NA	NA	NA	NA	NA		
				Heat Rise (°C)	30	NA	NA	NA	NA	NA	NA	NA	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	---	---	---	---	---	---	---			
		Med - Low <sup>2</sup>	Pink	Heat Rise (°F)	44	48	51	55	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
				Heat Rise (°C)	25	27	28	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA				
				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	NA	NA	NA	NA	NA	NA			
				Heat Rise (°C)	24	26	27	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA				
Med - High <sup>1</sup>	Orange	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)	38	40	42	45	48	50	53	NA	NA	NA	NA	NA	NA	NA	NA	NA						
		Heat Rise (°C)	21	22	23	25	27	28	30	NA	NA	NA	NA	NA	NA	NA	NA							
		CFM	669	580	525	423	303	---	---	---	---	---	---	---	---	---	---	---						
		BHP	0.09	0.10	0.11	0.11	0.12	---	---	---	---	---	---	---	---	---	---	---						
High	Black	Heat Rise (°F)	25	26	28	30	32	33	35	38	43	49	---	---	---	---	---	---						
		Heat Rise (°C)	14	15	16	17	18	18	18	20	21	24	---	---	---	---	---							
		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	NA	NA	NA	NA							
		Heat Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA								

**Dry Coil Air Delivery\* - Horizontal and Downflow Discharge Sizes 24-60 208/230VAC - 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 <sup>1</sup>	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	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
				Heat Rise (°C)	25	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	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														
		Med - Low <sup>3</sup>	Pink	Heat Rise (°F)	36	40	44	49	54	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
				Heat Rise (°C)	20	22	24	27	30	NA	NA	NA	NA	NA	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											
				Heat Rise (°F)	29	32	34	36	40	44	50	55	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
				Heat Rise (°C)	16	18	19	20	22	24	28	31	NA	NA	NA	NA	NA	NA	NA	NA	NA	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	NA	NA	NA	NA	NA	NA	NA	NA				
		Heat Rise (°C)	16	17	18	19	21	23	26	28	NA	NA	NA	NA	NA	NA	NA	NA	NA	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													
30060	25 - 55 (14 - 31)	High	Black	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																
				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	NA	NA	NA	NA	NA	NA	NA	NA	NA	
				Heat Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	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	NA	NA	NA	NA	NA	NA	NA	NA		
				Heat Rise (°C)	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	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											
Med - High <sup>1</sup>	Orange	Heat Rise (°F)	44	48	51	55	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA				
		Heat Rise (°C)	25	27	28	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA				
		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	NA	NA	NA	NA	NA	NA	NA	NA	NA			
		Heat Rise (°C)	24	26	27	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	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	0.40													
		Heat Rise (°F)	38	40	42	45	48	50	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA				
		Heat Rise (°C)	21	22	23	25	27	28	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA				

**Dry Coil Air Delivery\* - Horizontal and Downflow Discharge Sizes 24-60 208/230VAC - 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 <sup>3</sup>	Blue	CFM	1056	982	911	882	812	740	667	564	486	361
				BHP	0.24	0.24	0.24	0.26	0.26	0.27	0.28	0.29	0.30	0.30
				Heat Rise (°F)	42	46	49	51	55	NA	NA	NA	NA	NA
				Heat Rise (°C)	24	25	27	28	31	NA	NA	NA	NA	NA
				CFM	1174	1107	1045	985	914	825	760	673	572	
				BHP	0.32	0.32	0.33	0.33	0.34	0.35	0.36	0.37	0.37	
		Heat Rise (°F)	38	40	43	46	49	50	54	NA	NA			
		Heat Rise (°C)	21	22	24	25	27	28	30	NA	NA			
		CFM	1246	1195	1148	1081	1019	953	884	859	795	690		
		BHP	0.38	0.39	0.39	0.40	0.40	0.41	0.42	0.42	0.42			
		Heat Rise (°F)	36	38	39	41	44	47	51	52	NA			
		Heat Rise (°C)	20	21	22	23	24	26	28	29	NA			
Med - High	Orange	CFM	1361	1299	1229	1210	1152	1092	1025	958	889	822		
		BHP	0.48	0.49	0.49	0.50	0.50	0.51	0.51	0.51	0.51			
		Heat Rise (°F)	33	35	36	37	39	41	44	47	50			
		Heat Rise (°C)	18	19	20	21	22	23	24	26	28			
		CFM	1596	1542	1482	1424	1362	1304	1238	1173	1201			
		BHP	0.74	0.74	0.74	0.75	0.75	0.75	0.76	0.76	0.77			
36090	35 - 65 (19 - 36)	High	Black	CFM	1056	982	911	882	812	740	667	564	486	361
				BHP	0.24	0.24	0.24	0.26	0.26	0.27	0.28	0.29	0.30	
				Heat Rise (°F)	63	NA	NA	NA	NA	NA	NA	NA	NA	
				Heat Rise (°C)	35	NA	NA	NA	NA	NA	NA	NA	NA	
				CFM	1174	1107	1045	985	914	890	825	760	673	
				BHP	0.32	0.32	0.33	0.33	0.34	0.35	0.36	0.37	0.37	
		Heat Rise (°F)	57	60	64	NA	NA	NA	NA	NA	NA			
		Heat Rise (°C)	32	34	36	NA	NA	NA	NA	NA	NA			
		CFM	1246	1195	1148	1081	1019	953	884	859	795			
		BHP	0.38	0.39	0.39	0.40	0.40	0.41	0.42	0.42	0.42			
		Heat Rise (°F)	54	56	58	62	NA	NA	NA	NA	NA			
		Heat Rise (°C)	30	31	32	34	NA	NA	NA	NA	NA			
Med - Low	Pink	CFM	1361	1299	1229	1210	1152	1092	1025	958	889	822		
		BHP	0.48	0.49	0.49	0.50	0.50	0.51	0.51	0.51	0.51			
		Heat Rise (°F)	49	51	54	55	58	61	65	NA	NA			
		Heat Rise (°C)	27	29	30	31	32	34	36	NA	NA			
		CFM	1596	1542	1482	1424	1362	1304	1238	1173	1201			
		BHP	0.74	0.74	0.74	0.75	0.75	0.75	0.76	0.76	0.77			
Med - High <sup>1</sup>	Orange	CFM	42	43	45	47	49	51	54	57	56			
		BHP	0.42	0.43	0.45	0.47	0.49	0.51	0.54	0.57	0.58			
		Heat Rise (°F)	23	24	25	26	27	28	30	32	31			
		Heat Rise (°C)	23	24	25	26	27	28	30	32	31			
		CFM	1596	1542	1482	1424	1362	1304	1238	1173	1201			
		BHP	0.74	0.74	0.74	0.75	0.75	0.75	0.76	0.76	0.77			
High	Black	CFM	42	43	45	47	49	51	54	57	56			
		BHP	0.42	0.43	0.45	0.47	0.49	0.51	0.54	0.57	0.58			
		Heat Rise (°F)	23	24	25	26	27	28	30	32	31			
		Heat Rise (°C)	23	24	25	26	27	28	30	32	31			
		CFM	1596	1542	1482	1424	1362	1304	1238	1173	1201			
		BHP	0.74	0.74	0.74	0.75	0.75	0.75	0.76	0.76	0.77			



**Dry Coil Air Delivery\* - Horizontal and Downflow Discharge Sizes 24-60 208/230VAC - 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 <sup>3</sup>	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
		Med - Low <sup>1</sup>	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
		Medium <sup>2</sup>	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
		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
		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		
42090	35 - 65 (19 - 36)	Low <sup>3</sup>	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
		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
		Medium <sup>2</sup>	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	65	68
		Med - High <sup>1</sup>	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	66
		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		

**Dry Coil Air Delivery\* - Horizontal and Downflow Discharge Sizes 24-60 208/230VAC - 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 <sup>1</sup>	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)	49	50	52	54	56	57	60	62	65	NA		
				Heat Rise (°C)	27	28	29	30	31	32	33	35	36	NA		
		Med - Low <sup>2</sup>	Pink	Medium <sup>3</sup>	Red	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)	40	40	41	42	43	44	45	46	47	49
						Heat Rise (°C)	22	22	23	23	24	24	25	26	26	27
		Med - High	Orange	High	Black	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)	NA	NA	35	35	36	37	38	40	42	45
						Heat Rise (°C)	NA	NA	19	20	20	20	21	22	23	25
		48115	30 - 60 (17 - 33)	Low <sup>3</sup>	Blue	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)	NA					NA	NA	NA	35	36	38	40	42	45		
Heat Rise (°C)	NA					NA	NA	NA	20	20	21	22	23	25		
Med - Low <sup>2</sup>	Pink			Medium <sup>1</sup>	Red	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)	NA	NA	NA	NA	NA	35	37	39	41	44
						Heat Rise (°C)	NA	NA	NA	NA	NA	20	20	22	23	24
Med - High	Orange			High	Black	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
High	Black			High	Black	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)	51			52	53	54	55	56	57	59	60	NA		
		Heat Rise (°C)	28			29	29	30	31	31	32	33	34	NA		
High	Black	High	Black	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)	43	44	44	45	46	47	49	51	54	57		
				Heat Rise (°C)	24	24	25	25	26	26	27	28	30	32		
High	Black	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)	42	43	44	44	45	47	49	51	54	58		
				Heat Rise (°C)	23	24	24	24	25	26	27	28	30	32		
High	Black	High	Black	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)	38	39	41	42	43	45	47	50	52	56		
				Heat Rise (°C)	21	22	23	23	24	25	26	28	29	31		

**Dry Coil Air Delivery\* - Horizontal and Downflow Discharge Sizes 24-60 208/230VAC - 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 <sup>3</sup>	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	NA
				Heat Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
				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	
		Med – Low <sup>2</sup>	Pink	Heat Rise (°F)	57	57	59	60	61	62	64	64	NA	NA	
				Heat Rise (°C)	31	32	33	33	34	35	35	NA	NA	NA	
				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)	Med – High <sup>1</sup>	Orange	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	
				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	
		High	Black	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	
				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	64	NA	NA	
				Heat Rise (°C)	28	29	31	32	33	34	35	NA	NA	NA	
60090	35 – 65 (19 – 36)	Med – Low <sup>1</sup>	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	
				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	
		Medium <sup>2</sup>	Red	Heat Rise (°F)	39	40	41	42	42	43	44	46	47	48	
				Heat Rise (°C)	22	22	23	23	23	24	25	25	26	27	
				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	
Med – High	Orange	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			
		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			

**Dry Coil Air Delivery\* - Horizontal and Downflow Discharge Sizes 24-60 208/230VAC - 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 <sup>3</sup>	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	NA
				Heat Rise (°C)	NA	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 <sup>2</sup>	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 <sup>1</sup>	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 24-60 208/230VAC - 1 Phase (Cont.)**

Unit Size	Heating Rise Range °F (°C)	Motor Speed	Wire Color	CFM	External Static Pressure (IN. W.C.)														
					0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1					
60130	35 - 65 (19 - 36)	Low <sup>3</sup>	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	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)	65	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA				
		Medium <sup>2</sup>	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)	55	56	57	59	60	62	63	65	NA	NA	NA				
		Med - High <sup>1</sup>	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					
		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)	43	45	46	48	49	52	54	57	61	65					

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

<sup>1</sup> Factory-shipped heating speed

<sup>2</sup> Factory-shipped cooling speed

<sup>3</sup> Factory-shipped continuous fan 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\* - Horizontal Discharge - Sizes 36-60 3 Phase Models Only

Unit	Heating Rise Range	Motor Speed	Wire Color	Heating Rise (°F) Heating Rise (°C)	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	979	912	859	789	731	654	556	454	374	
				Heating Rise (°F)	45	48	51	NA	NA	NA	NA	NA	NA	NA
				Heating Rise (°C)	25	27	28	NA	NA	NA	NA	NA	NA	NA
				CFM	1136	1080	1015	957	912	861	808	723	633	
				Heating Rise (°F)	39	41	43	46	48	51	54	NA	NA	
				Heating Rise (°C)	22	23	24	26	27	28	30	NA	NA	
		Med – High	Orange	CFM	1208	1144	1091	1025	964	902	886	830	746	
				Heating Rise (°F)	36	38	40	43	46	49	50	53	NA	
				Heating Rise (°C)	20	21	22	24	25	27	28	29	NA	
				CFM	1495	1439	1376	1303	1221	1207	1137	1052	981	
				Heating Rise (°F)	29	31	32	34	36	36	39	42	45	
				Heating Rise (°C)	16	17	18	19	20	20	22	23	25	
36090	35 – 65°F (19 – 36°C)	High	Black	CFM	1560	1491	1416	1337	1255	1233	1160	1082	998	
				Heating Rise (°F)	28	30	31	33	35	36	38	41	44	
				Heating Rise (°C)	16	16	17	18	19	20	21	23	24	
				CFM	979	912	859	789	731	654	556	454	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	1136	1080	1015	957	912	861	808	723	633	
				Heating Rise (°F)	58	61	65	NA	NA	NA	NA	NA	NA	
				Heating Rise (°C)	32	34	36	NA	NA	NA	NA	NA	NA	
				CFM	1208	1144	1091	1025	964	902	886	830	746	
				Heating Rise (°F)	54	58	60	64	NA	NA	NA	NA	NA	
				Heating Rise (°C)	30	32	34	36	NA	NA	NA	NA	NA	
Med – High <sup>1</sup>	Orange	CFM	1495	1439	1376	1303	1221	1207	1137	1052	981			
		Heating Rise (°F)	44	46	48	51	54	55	58	63	NA			
		Heating Rise (°C)	24	25	27	28	30	30	32	35	NA			
		CFM	1560	1491	1416	1337	1255	1233	1160	1082	998			
		Heating Rise (°F)	42	44	46	49	52	53	57	61	NA			
		Heating Rise (°C)	23	25	26	27	29	30	32	34	NA			

**Dry Coil Air Delivery\* - 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	
				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	
		Med – Low <sup>1</sup>	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	
				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	
				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	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	
				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 <sup>2</sup>	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			
		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\* - 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 <sup>1</sup>	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					
					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					
		Med -- Low	Red	Medium <sup>2</sup>	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				
						CFM	2149	2111	2062	2026	1980	1945	1905	1864	1793				
						Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA				
						Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA				
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	NA	NA	NA					
					Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA					
					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	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	NA	NA		
						Heating Rise (°C)	32	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
						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				
High	Black	High	Black	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						
				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\* - 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	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	NA	
		Medium <sup>2</sup>	Red	CFM	1736	1695	1642	1601	1553	1512	1465	1427	1381		
				Heating Rise (°F)	55	56	58	59	61	63	65	65	65	65	
		Med – High <sup>1</sup>	Orange	CFM	2149	2111	2062	2026	1980	1945	1905	1864	1793		
				Heating Rise (°F)	44	45	46	47	48	49	50	50	51	53	
		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
Low <sup>1</sup>	Blue			CFM	1445	1389	1341	1281	1236	1189	1139	1072	1027		
				Heating Rise (°F)	46	48	50	52	54	56	59	62	65		
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		
Medium <sup>2</sup>	Red			CFM	1962	1915	1880	1843	1794	1753	1711	1675	1628		
				Heating Rise (°F)	NA	35	36	36	37	38	39	40	41		
Med – High	Orange			CFM	2131	2088	2065	2013	1982	1941	1888	1860	1785		
				Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	35	37		
High	Black	CFM	2461	2409	2339	2286	2192	2140	2062	1968	1874				
		Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA				

## Dry Coil Air Delivery\* - Horizontal Discharge Sizes 36-60 3 Phase Models Only (Cont.)

Unit	Heating Rise Range	Motor Speed	Wire Color	CFM	External Static Pressure (IN. W.C.)										
					0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9		
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	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		
		Medium <sup>2</sup>	Red	CFM	1962	1915	1880	1843	1794	1753	1711	1675	1628		
				Heating Rise (°F)	43	44	45	46	47	49	50	51	52		
		Med - High <sup>1</sup>	Orange	CFM	2131	2088	2065	2013	1982	1941	1888	1860	1785		
				Heating Rise (°F)	40	41	41	42	43	44	45	46	48		
		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
Low	Blue			CFM	1445	1389	1341	1281	1236	1189	1139	1072	1027		
				Heating Rise (°F)	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		
Medium <sup>2</sup>	Red			CFM	1962	1915	1880	1843	1794	1753	1711	1675	1628		
				Heating Rise (°F)	49	50	51	52	53	54	56	57	58		
Med - High <sup>1</sup>	Orange			CFM	2131	2088	2065	2013	1982	1941	1888	1860	1785		
				Heating Rise (°F)	45	46	46	47	48	49	50	51	53		
High	Black	CFM	2461	2409	2339	2286	2192	2140	2062	1968	1874				
		Heating Rise (°F)	39	40	41	42	43	44	46	48	51				

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

<sup>1</sup> Factory-shipped heating speed<sup>2</sup> Factory-shipped cooling speed

"NA" = Not allowed for heating speed

Note: Ductwork 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 - Downflow 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	1.0	
36060	25 - 55°F (14 - 31°C)	Low	Blue	CFM	979	912	859	789	731	654	566	454	374	255
				WATTS	202	212	217	221	231	236	245	251	259	253
				BHP	0.22	0.23	0.23	0.24	0.25	0.25	0.26	0.27	0.28	0.27
				Heating Rise (°F)	45	48	51	NA	NA	NA	NA	NA	NA	NA
				Heating Rise (°C)	25	27	28	NA	NA	NA	NA	NA	NA	NA
				CFM	1136	1080	1015	957	912	861	808	723	633	545
		Med - Low <sup>1</sup>	Pink	WATTS	294	309	310	322	325	333	341	349	354	367
				BHP	0.32	0.33	0.33	0.35	0.35	0.36	0.37	0.37	0.38	
				Heating Rise (°F)	39	41	43	46	48	51	54	NA	NA	
				Heating Rise (°C)	22	23	24	26	27	28	30	NA	NA	
				CFM	1208	1144	1091	1025	964	902	886	830	746	663
				WATTS	345	350	358	366	373	377	390	396	407	410
		Medium <sup>2</sup>	Red	BHP	0.37	0.38	0.38	0.39	0.40	0.40	0.42	0.42	0.44	0.44
				Heating Rise (°F)	36	38	40	43	46	49	50	53	NA	
				Heating Rise (°C)	20	21	22	24	25	27	28	29	NA	
				CFM	1495	1439	1376	1303	1221	1207	1137	1052	981	894
WATTS	625			634	635	633	624	613	598	583	573	551		
BHP	0.67			0.68	0.68	0.68	0.67	0.66	0.64	0.63	0.61	0.59		
Med - High	Orange	Heating Rise (°F)	29	31	32	34	36	36	39	42	45	49		
		Heating Rise (°C)	16	17	18	19	20	20	22	23	25			
		CFM	1560	1491	1416	1337	1255	1233	1160	1082	998	911		
		WATTS	708	699	683	674	660	634	624	606	581	566		
		BHP	0.76	0.75	0.73	0.72	0.71	0.68	0.67	0.65	0.62	0.61		
		Heating Rise (°F)	28	30	31	33	35	36	38	41	44	48		
High	Black	Heating Rise (°C)	16	16	17	18	19	20	21	23	24			
		Heating Rise (°C)	16	16	17	18	19	20	21	23	24			

**Dry Coil Air Delivery - 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	CFM	979	912	859	789	731	654	566	454	374	255	
				WATTS	202	212	217	221	231	236	245	251	259	253	
				BHP	0.22	0.23	0.23	0.24	0.25	0.25	0.26	0.27	0.28	0.27	
				Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
				Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
				CFM	1136	1080	1015	957	912	861	808	723	633	545	
		Med - Low	Pink	WATTS	294	309	310	322	325	333	341	349	354	367	
				BHP	0.32	0.33	0.33	0.35	0.35	0.36	0.37	0.37	0.38		
				Heating Rise (°F)	58	61	NA	NA	NA	NA	NA	NA	NA	NA	
				Heating Rise (°C)	32	34	NA	NA	NA	NA	NA	NA	NA	NA	
				CFM	1208	1144	1091	1025	964	902	886	830	746	663	
				WATTS	345	350	358	366	373	377	390	396	407	410	
		Medium <sup>2</sup>	Red	BHP	0.37	0.38	0.38	0.39	0.40	0.40	0.42	0.42	0.44	0.44	
				Heating Rise (°F)	54	58	60	64	NA	NA	NA	NA	NA	NA	
				Heating Rise (°C)	30	32	34	36	NA	NA	NA	NA	NA	NA	
				CFM	1495	1439	1376	1303	1221	1207	1137	1052	981	894	
WATTS	625			634	635	633	624	613	598	583	573	551			
BHP	0.67			0.68	0.68	0.68	0.67	0.66	0.64	0.63	0.61	0.59			
Med - High <sup>1</sup>	Orange	Heating Rise (°F)	44	46	48	51	54	55	58	63	NA	NA			
		Heating Rise (°C)	24	25	27	28	30	30	32	35	NA	NA			
		CFM	1560	1491	1416	1337	1255	1233	1160	1082	998	911			
		WATTS	708	699	683	674	660	634	624	606	581	566			
		BHP	0.76	0.75	0.73	0.72	0.71	0.68	0.67	0.65	0.62	0.61			
		Heating Rise (°F)	42	44	46	49	52	53	57	61	NA	NA			
High <sup>1</sup>	Black	Heating Rise (°C)	23	25	26	27	29	30	32	34	NA	NA			

**Dry Coil Air Delivery - 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	486	435			
				WATTS	124	134	140	150	156	166	171	182	188	198		
				BHP	0.13	0.14	0.15	0.16	0.17	0.18	0.18	0.20	0.20	0.21		
				Heating Rise (°F)	45	49	54	NA	NA	NA	NA	NA	NA	NA	NA	NA
				Heating Rise (°C)	25	27	30	NA	NA	NA	NA	NA	NA	NA	NA	NA
				CFM	1002	936	875	821	748	687	613	554	565	518		
		Med - Low <sup>1</sup>	Pink	WATTS	144	155	161	171	176	187	193	203	209	220		
				BHP	0.15	0.17	0.17	0.18	0.19	0.20	0.21	0.22	0.22	0.24		
				Heating Rise (°F)	43	46	49	53	NA	NA	NA	NA	NA	NA	NA	NA
				Heating Rise (°C)	24	26	27	29	NA	NA	NA	NA	NA	NA	NA	NA
				CFM	1255	1210	1145	1074	1008	940	878	895	838	785		
				WATTS	249	272	284	292	305	319	320	329	336	347		
		Medium	Red	BHP	0.27	0.29	0.30	0.31	0.33	0.34	0.34	0.35	0.36	0.37		
				Heating Rise (°F)	35	36	38	40	43	46	49	48	52	55		
				Heating Rise (°C)	19	20	21	22	24	26	27	27	29	31		
				CFM	1335	1267	1246	1176	1109	1049	988	926	872	891		
WATTS	311			323	330	342	356	367	378	385	395	403				
BHP	0.33			0.35	0.35	0.37	0.38	0.39	0.41	0.41	0.42	0.43				
Med - High <sup>2</sup>	Orange	Heating Rise (°F)	32	34	35	37	39	41	44	47	50	49				
		Heating Rise (°C)	18	19	19	20	22	23	24	26	28	27				
		CFM	1472	1401	1326	1251	1275	1198	1139	1085	1023	961				
		WATTS	401	414	426	440	471	462	473	478	486	491				
		BHP	0.43	0.44	0.46	0.47	0.51	0.50	0.51	0.51	0.52	0.53				
		Heating Rise (°F)	29	31	33	35	34	36	38	40	42	45				
High	Black	Heating Rise (°C)	16	17	18	19	19	20	21	22	24	25				

Dry Coil Air Delivery - 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	188	198	
				BHP	0.13	0.14	0.15	0.16	0.17	0.18	0.18	0.20	0.20	0.21	
				Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
				Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
				CFM	1002	936	875	821	748	687	613	554	565	518	
		Med - Low	Pink	WATTS	144	155	161	171	176	187	193	203	209	220	
				BHP	0.15	0.17	0.17	0.18	0.19	0.20	0.21	0.22	0.22	0.24	
				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	
		Medium <sup>1</sup>	Red	CFM	1255	1210	1145	1074	1008	940	878	895	838	785	
				WATTS	249	272	284	292	305	319	320	329	336	347	
				BHP	0.27	0.29	0.30	0.31	0.33	0.34	0.34	0.35	0.36	0.37	
				Heating Rise (°F)	53	55	58	62	NA	NA	NA	NA	NA	NA	
				Heating Rise (°C)	30	31	32	35	NA	NA	NA	NA	NA	NA	
				CFM	1335	1267	1246	1176	1109	1049	988	926	872	891	
Med - High <sup>2</sup>	Orange	WATTS	311	323	330	342	356	367	378	385	395	403			
		BHP	0.33	0.35	0.35	0.37	0.38	0.39	0.41	0.41	0.42	0.43			
		Heating Rise (°F)	50	53	54	57	60	64	NA	NA	NA	NA			
		Heating Rise (°C)	28	29	30	32	34	35	NA	NA	NA	NA			
		CFM	1472	1401	1326	1251	1275	1198	1139	1085	1023	961			
		WATTS	401	414	426	440	471	462	473	478	486	491			
High	Black	BHP	0.43	0.44	0.46	0.47	0.51	0.50	0.51	0.51	0.52	0.53			
		Heating Rise (°F)	45	48	50	53	52	56	59	62	65	NA			
		Heating Rise (°C)	25	27	28	30	29	31	33	34	36	NA			
		CFM	1472	1401	1326	1251	1275	1198	1139	1085	1023	961			

**Dry Coil Air Delivery - 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 <sup>1</sup>	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	1188
		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)	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
		Medium <sup>2</sup>	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)	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		
Med - High	Orange	Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
		Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
		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		
High	Black	Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
		Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA			

Dry Coil Air Delivery - 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	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)	57	58	60	NA	NA	NA	NA	NA	NA	NA
				Heating Rise (°C)	31	32	33	NA	NA	NA	NA	NA	NA	NA
				CFM	1556	1508	1461	1432	1388	1346	1302	1256	1221	1188
		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)	55	56	58	59	NA	NA	NA	NA	NA	NA
				Heating Rise (°C)	30	31	32	33	NA	NA	NA	NA	NA	NA
		Medium <sup>2</sup>	Red	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)	46	47	48	48	50	50	51	53	54	55
				Heating Rise (°C)	25	26	26	27	28	28	29	29	30	31
				CFM	2319	2291	2255	2230	2193	2166	2118	2057	1992	1887
Med - High <sup>1</sup>	Orange	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)	37	37	38	38	39	39	40	41	43	45		
		Heating Rise (°C)	20	21	21	21	22	22	22	23	24	25		
High	Black	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)	34	34	35	36	37	38	39	40	42	44		
		Heating Rise (°C)	19	19	19	20	20	21	22	22	23	24		



**Dry Coil Air Delivery - 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	1188		
		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			
	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			
	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				
Heating Rise (°C)	21	21	22	22	23	23	24	25	26	27				

Dry Coil Air Delivery - 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 <sup>1</sup>	Blue	CFM	1479	1436	1387	1346	1298	1253	1206	1160	1114	1061	
				WATTS	224	239	247	262	270	284	300	307	319	330	
				BHP	0.24	0.26	0.26	0.28	0.29	0.30	0.32	0.33	0.34	0.35	
				Heating Rise (°F)	46	47	49	51	52	54	56	59	61	64	
				Heating Rise (°C)	26	26	27	28	29	30	31	33	34	36	
				CFM	1841	1796	1761	1724	1690	1651	1616	1578	1527	1478	
	Med-Low	Pink	WATTS	425	434	453	460	476	485	501	508	525	542		
			BHP	0.46	0.47	0.49	0.49	0.51	0.52	0.54	0.56	0.58			
			Heating Rise (°F)	36	37	38	39	40	41	41	42	44	45		
			Heating Rise (°C)	20	21	21	22	22	23	23	24	24	25		
			CFM	1944	1913	1872	1838	1801	1771	1731	1698	1655	1613		
			WATTS	486	501	511	529	537	554	565	578	595	603		
Med-High	Orange	High	Red	BHP	0.52	0.54	0.55	0.57	0.58	0.59	0.61	0.62	0.64	0.65	
				Heating Rise (°F)	34	35	36	36	37	38	39	39	40	41	
				Heating Rise (°C)	19	19	20	20	21	21	21	22	22	23	
				CFM	2178	2148	2105	2073	2036	2002	1967	1919	1845	1751	
				WATTS	674	691	703	717	733	743	758	754	734	701	
				BHP	0.72	0.74	0.75	0.77	0.79	0.80	0.81	0.81	0.79	0.75	
High	Black	High	Black	Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	35	36	38
				Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	19	20	21
				CFM	2480	2432	2375	2322	2236	2161	2085	2006	1917	1808	
				WATTS	1029	1012	995	975	941	908	869	836	796	751	
				BHP	1.10	1.09	1.07	1.05	1.01	0.97	0.93	0.90	0.85	0.81	
				Heating Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	35	37
Heating Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	19	21				

**Dry Coil Air Delivery - 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	CFM	1479	1436	1387	1346	1298	1253	1206	1160	1114	1061
				WATTS	224	239	247	262	270	284	300	307	319	330
				BHP	0.24	0.26	0.26	0.28	0.29	0.30	0.32	0.33	0.34	0.35
				Heating Rise (°F)	58	59	NA	NA	NA	NA	NA	NA	NA	NA
		Heating Rise (°C)	32	33	NA	NA	NA	NA	NA	NA	NA	NA		
		CFM	1841	1796	1761	1724	1690	1651	1616	1578	1527	1478		
		WATTS	425	434	453	460	476	485	501	508	525	542		
		BHP	0.46	0.47	0.49	0.49	0.51	0.52	0.54	0.54	0.56	0.58		
		Heating Rise (°F)	46	47	48	49	50	52	53	54	56	58		
		Heating Rise (°C)	26	26	27	27	28	29	29	30	31	32		
		CFM	1944	1913	1872	1838	1801	1771	1731	1698	1655	1613		
		WATTS	486	501	511	529	537	554	565	578	595	603		
		BHP	0.52	0.54	0.55	0.57	0.58	0.59	0.61	0.62	0.64	0.65		
		Heating Rise (°F)	44	45	46	46	47	48	49	50	51	53		
		Heating Rise (°C)	24	25	25	26	26	27	27	28	29	29		
		CFM	2178	2148	2105	2073	2036	2002	1967	1919	1845	1751		
WATTS	674	691	703	717	733	743	758	754	734	701				
BHP	0.72	0.74	0.75	0.77	0.79	0.80	0.81	0.81	0.79	0.75				
Heating Rise (°F)	39	40	40	41	42	43	43	44	46	49				
Heating Rise (°C)	22	22	22	23	23	24	24	25	26	27				
CFM	2480	2432	2375	2322	2236	2161	2085	2006	1917	1808				
WATTS	1029	1012	995	975	941	908	869	836	796	751				
BHP	1.10	1.09	1.07	1.05	1.01	0.97	0.93	0.90	0.85	0.81				
Heating Rise (°F)	NA	35	36	37	38	39	41	42	44	47				
Heating Rise (°C)	NA	19	20	20	21	22	23	24	25	26				

Dry Coil Air Delivery - 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	CFM	1479	1436	1387	1346	1298	1253	1206	1160	1114	1061	
				WATTS	224	239	247	262	270	284	300	307	319	330	
				BHP	0.24	0.26	0.26	0.28	0.29	0.30	0.32	0.33	0.34	0.35	
				Heating Rise (°F)	64	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
				Heating Rise (°C)	36	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
				CFM	1841	1796	1761	1724	1690	1651	1616	1578	1527	1478	
	Med-Low	Pink	WATTS	425	434	453	460	476	485	501	508	525	542		
			BHP	0.46	0.47	0.49	0.49	0.51	0.52	0.54	0.54	0.56	0.58		
			Heating Rise (°F)	52	53	54	55	56	58	59	60	62	64		
			Heating Rise (°C)	29	29	30	31	31	32	33	34	35	36		
			CFM	1944	1913	1872	1838	1801	1771	1731	1698	1655	1613		
			WATTS	486	501	511	529	537	554	565	578	595	603		
Med-High <sup>1</sup>	Orange	High	Red	BHP	0.52	0.54	0.55	0.57	0.58	0.59	0.61	0.62	0.64	0.65	
				Heating Rise (°F)	49	50	51	52	53	54	55	56	58	59	
				Heating Rise (°C)	27	28	28	29	29	30	31	31	32	33	
				CFM	2178	2148	2105	2073	2036	2002	1967	1919	1845	1751	
				WATTS	674	691	703	717	733	743	758	754	734	701	
				BHP	0.72	0.74	0.75	0.77	0.79	0.80	0.81	0.81	0.79	0.75	
Med-High <sup>1</sup>	Orange	High	Black	Heating Rise (°F)	44	44	45	46	47	48	48	50	52	54	
				Heating Rise (°C)	24	25	25	26	26	26	27	28	29	30	
				CFM	2480	2432	2375	2322	2236	2161	2085	2006	1917	1808	
				WATTS	1029	1012	995	975	941	908	869	836	796	751	
				BHP	1.10	1.09	1.07	1.05	1.01	0.97	0.93	0.90	0.85	0.81	
				Heating Rise (°F)	38	39	40	41	43	44	46	47	50	53	
Heating Rise (°C)	21	22	22	23	24	24	25	26	28	29					

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

<sup>1</sup> Factory-shipped heating speed

<sup>2</sup> 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.

**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	0.09	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.)**

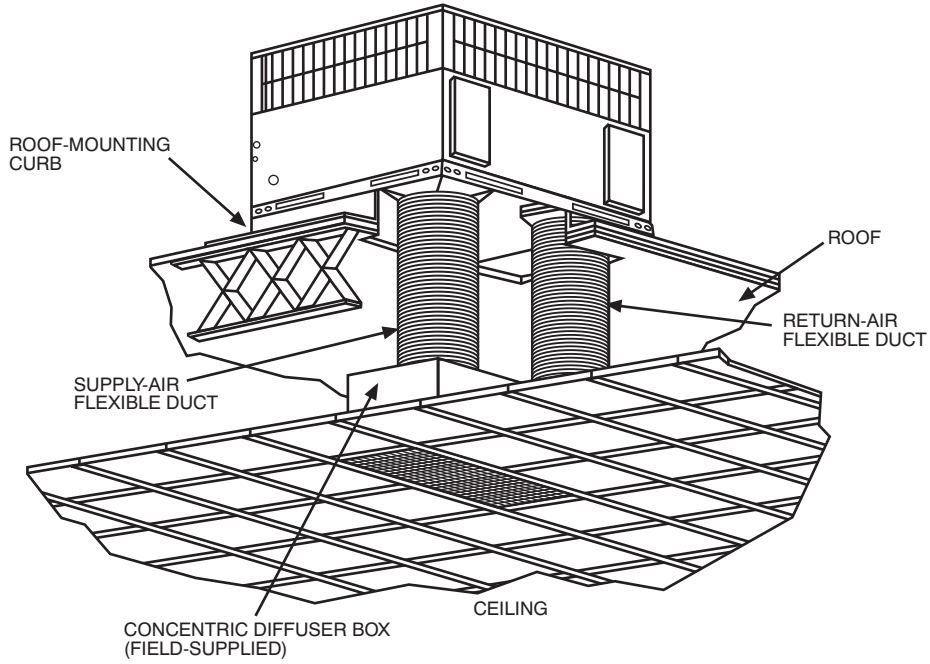
FILTER SIZE IN. (MM)	COOLING TONS	STANDARD CFM (SCFM)																
		600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200
600-1400 CFM 12x20x1+12x20x1 (305x508x25+305x508x25)	2.0,	-	-	0.09	0.14	0.16	0.18	0.25	0.28	0.30	-	-	-	-	-	-	-	-
	2.5,																	
	3.0																	
1200-1800 CFM 16x24x1+14x24x1 (406x610x25+356x610x25)	3.5,	-	-	-	-	-	-	0.10	0.11	0.12	0.13	0.14	0.16	0.16	-	-	-	-
	4.0																	
1500-2200 CFM 16x24x1+18x24x1 (406x610x25+457x610x25)	5.0	-	-	-	-	-	-	-	-	-	0.15	0.17	0.18	0.20	0.21	0.22	0.23	0.23

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

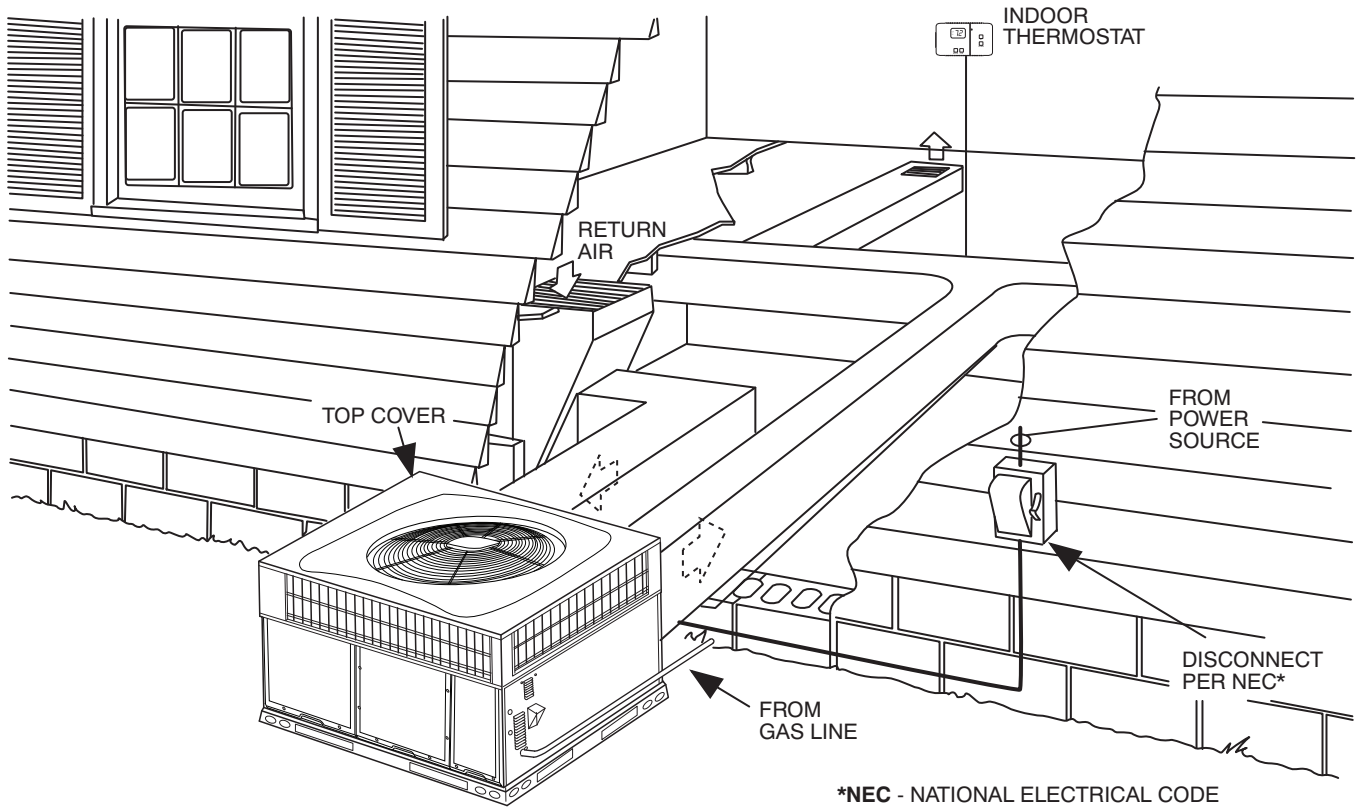
FILTER SIZE IN. (MM)	COOLING TONS	STANDARD CFM (SCFM)																
		600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200
600-1400 CFM 12x20x1+12x20x1 (305x508x25+305x508x25)	2.0,	0.03	0.05	0.06	0.08	0.10	0.11	0.13	0.14	0.16	-	-	-	-	-	-	-	-
	2.5,																	
	3.0																	
1200-1800 CFM 16x24x1+14x24x1 (406x610x25+356x610x25)	3.5,	-	-	-	-	-	-	0.07	0.08	0.09	0.09	0.10	0.11	0.12	-	-	-	-
	4.0																	
1500-2200 CFM 16x24x1+18x24x1 (406x610x25+457x610x25)	5.0	-	-	-	-	-	-	-	-	-	0.04	0.06	0.08	0.10	0.11	0.13	0.14	0.15

# TYPICAL PIPING AND WIRING

48VL-C



A09230



\*NEC - NATIONAL ELECTRICAL CODE

A09231

## APPLICATION DATA

**Condensate trap** — A 2-in. (50.8 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. Use the duct cover to seal the horizontal discharge openings in the unit. Units installed in horizontal discharge orientation do not require duct covers.

**Airflow** — Units are draw-thru in the cooling mode and blow-thru in the heating mode.

**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.

**Minimum ambient cooling operation temperature** — All standard units have a minimum ambient operating temperature of 40°F (4°C). With accessory low ambient temperature kit, units can operate at temperatures down to 0°F (-17°C).

**Minimum temperature** — Air entering the heat exchanger in heating mode must be a minimum of 50°F (10°C) continuous and/or 45°F (7°C) intermittent.

# ELECTRICAL DATA

48VL - C

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	8.7	46	0.6	3.8	0.65	15.2	20
2406030	208/230-1-60	197	253	8.7	46	0.6	3.8	0.65	15.2	20
3004030	208/230-1-60	197	253	11.2	57	0.7	3.8	0.65	18.5	25
3006030	208/230-1-60	197	253	11.2	57	0.7	3.8	0.65	18.5	25
3606030	208/230-1-60	197	253	16.7	79	1.05	5.4	0.65	27.4	40
3606050	208/230-3-60	197	253	10.4	73	1.05	6	1.65	20.1	30
3606060	460-3-60	414	506	5.8	38	0.53	3.2	0.65	11.0	15
3609030	208/230-1-60	197	253	16.7	79	1.05	5.4	.75	27.4	40
3609050	208/230-3-60	197	253	10.4	73	1.05	6	0.52	20.1	30
3609060	460-3-60	414	506	5.8	38	0.53	3.2	0.3	11.0	15
4206030	208/230-1-60	197	253	16.7	109	1.05	3.8	0.65	25.8	40
4206050	208/230-3-60	197	253	11.2	88	1.05	4.1	1.65	19.2	30
4206060	460-3-60	414	506	5.6	44	0.53	3.2	0.65	10.7	15
4209030	208/230-1-60	197	253	16.7	109	1.05	3.8	0.65	25.8	40
4209050	208/230-3-60	197	253	11.2	88	1.05	4.1	0.65	19.2	30
4209060	460-3-60	414	506	5.6	44	0.53	3.2	0.33	10.7	15
4809030	208/230-1-60	197	253	19.6	130	1.05	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
4809060	460-3-60	414	506	6.2	41	0.53	4.0	0.33	12.3	15
4811530	208/230-1-60	197	253	19.6	130	1.05	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
4811560	460-3-60	414	506	6.2	41	0.53	4.0	0.65	12.3	15
4813030	208/230-1-60	197	253	19.6	130	1.05	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
4813060	460-3-60	414	506	6.2	41	0.53	4.0	0.3	12.3	15
6009030	208/230-1-60	197	253	23.7	152.5	1.05	7.6	0.65	38.3	60
6009050	208/230-3-60	197	253	15.9	110	1.05	7.6	0.65	28.6	40
6009060	460-3-60	414	506	7.1	52	0.53	4.0	0.33	13.4	20
6011530	208/230-1-60	197	253	23.7	152.5	1.05	7.6	0.65	38.3	60
6011550	208/230-3-60	197	253	15.9	110	1.05	7.6	1.65	28.6	40
6011560	460-3-60	414	506	7.1	52	0.53	4.0	0.65	13.4	20
6013030	208/230-1-60	197	253	23.7	152.5	1.05	7.6	.75	38.3	60
6013050	208/230-3-60	197	253	15.9	110	1.05	7.6	0.52	28.6	40
6013060	460-3-60	414	506	7.1	52	0.53	4.0	0.3	13.4	20

### LEGEND

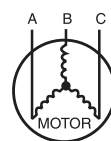
- FLA - Full Load Amps
- IDM - Inducer Motor
- IFM - Indoor Fan Motor
- LRA - Locked Rotor Amps
- MCA - Minimum Circuit Amps
- MOCP - Maximum Over Current Protection
- OFM - Outdoor Fan Motor
- RLA - Rated Load Amps

### 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

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

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%.

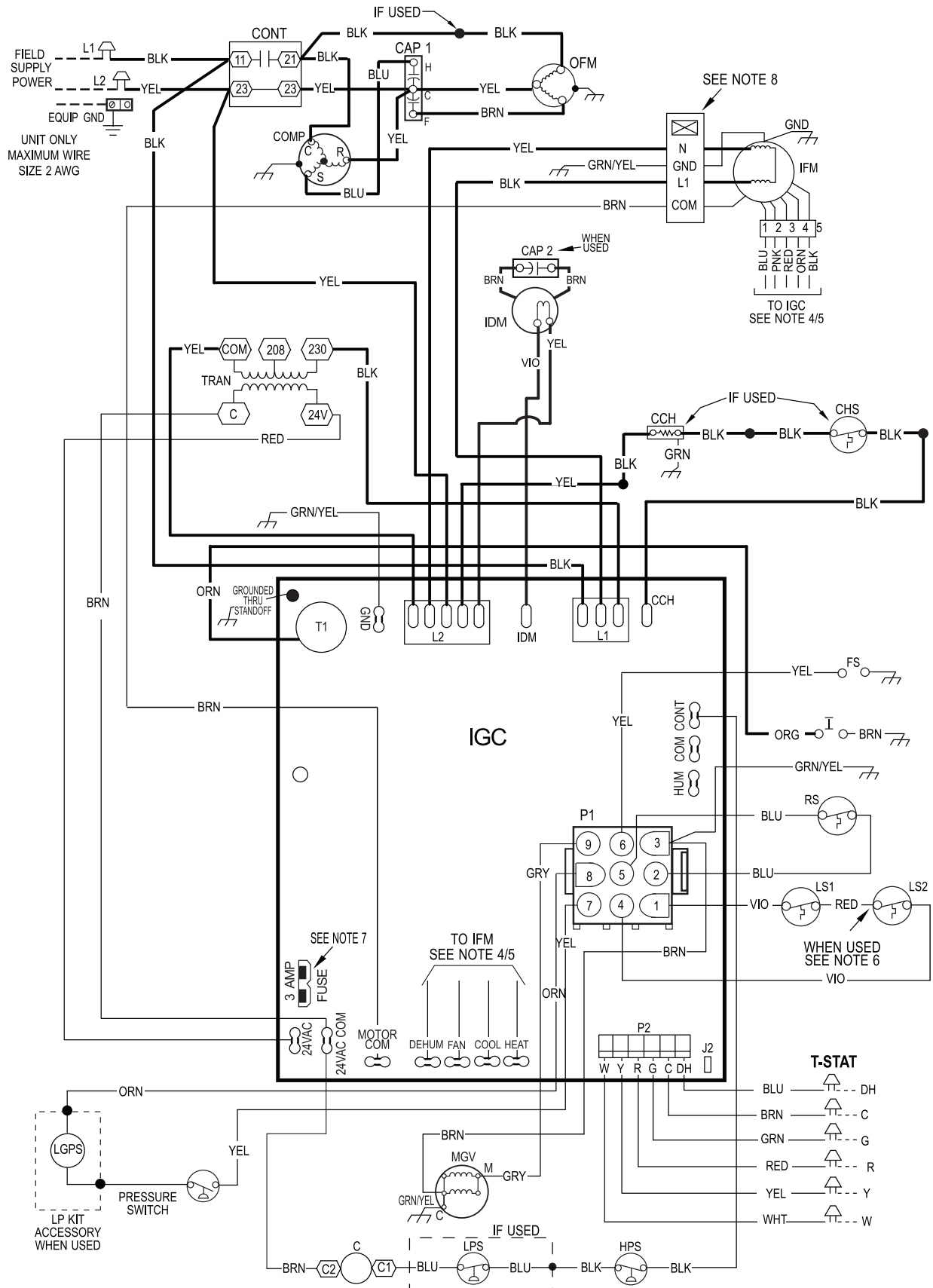
**IMPORTANT:** If the supply voltage phase imbalance is more than 2%, contact your local electric utility company immediately.



# CONNECTION WIRING SCHEMATIC 208/230-1-60

## CONNECTION WIRING DIAGRAM

**DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING**  
**SCHEMATIC 208/230-1-60**



**48VL-C**

# LADDER WIRING SCHEMATIC 208/230-1-60

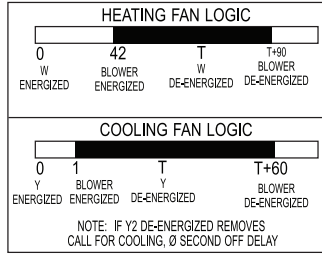
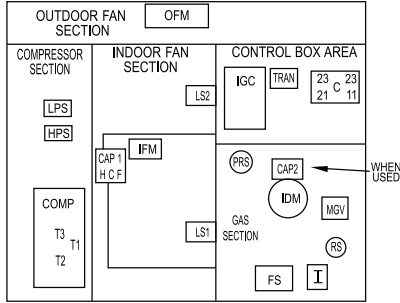
## LADDER WIRING DIAGRAM

**DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING**

### LEGEND

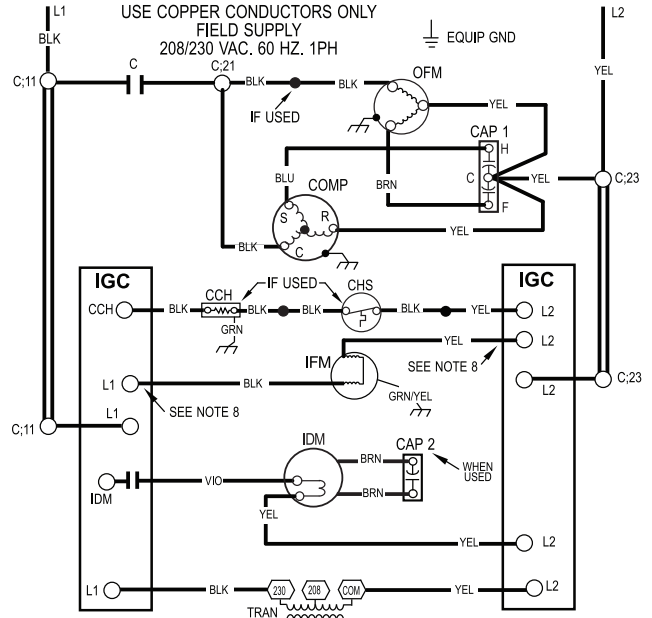
	FIELD SPLICE	EQUIP	EQUIPMENT
	TERMINAL (MARKED)	FS	FLAME SENSOR
	TERMINAL (UNMARKED)	GND	GROUND
	SPLICE	HPS	HIGH PRESSURE SWITCH
	SPLICE (MARKED)	I	IGNITOR
	FACTORY LO VOLTAGE	IDM	INDUCED DRAFT MOTOR
	FIELD CONTROL WIRING	IFM	INDOOR FAN MOTOR
	FIELD POWER WIRING	IGC	INTERGRATED GAS UNIT CONTROLLER
	ACCESSORY OR OPTIONAL WIRING	LGPS	LOW GAS PRESSURE SWITCH (WHEN USED)
	FACTORY HI VOLTAGE	LPS	LOW PRESSURE SWITCH
	CONTACTOR	LS1	PRIMARY LIMIT SWITCH
	CAPACITOR, COMP	LS2	SECONDARY LIMIT SWITCH
	CAPACITOR, INDUCER (WHEN USED)	MGV	MAIN GAS VALVE
	CRANKCASE HEATER	OFM	OUTDOOR FAN MOTOR
	CRANKCASE HEATER SWITCH	OT	QUADRUPLE TERMINAL
	COMPRESSOR MOTOR	RS	ROLL-OUT SWITCH
		TRAN	TRANSFORMER
		T-STAT	THERMOSTAT

### 1Ø UNIT COMPONENT ARRANGEMENT

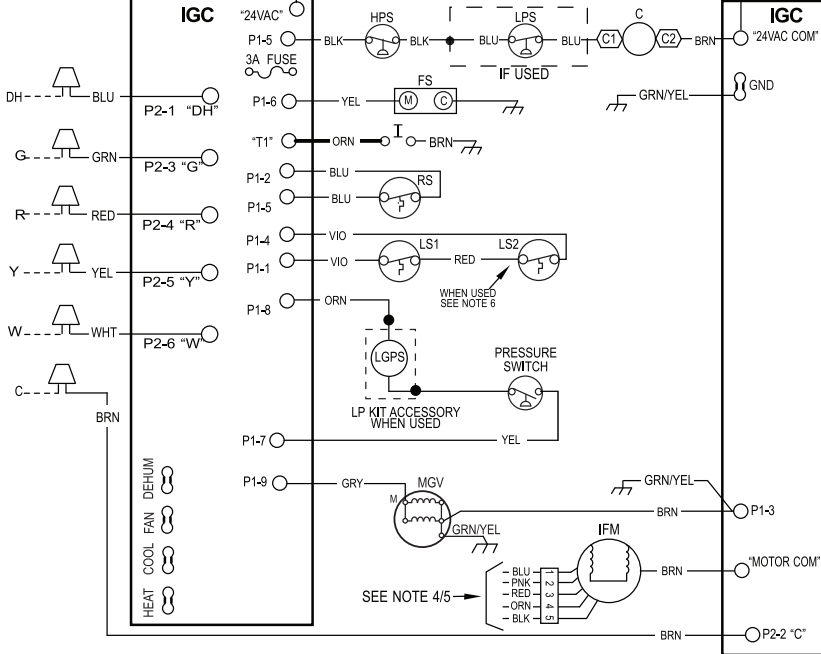


### NOTES:

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



### T-STAT



48VL500420 REV. -



A150510

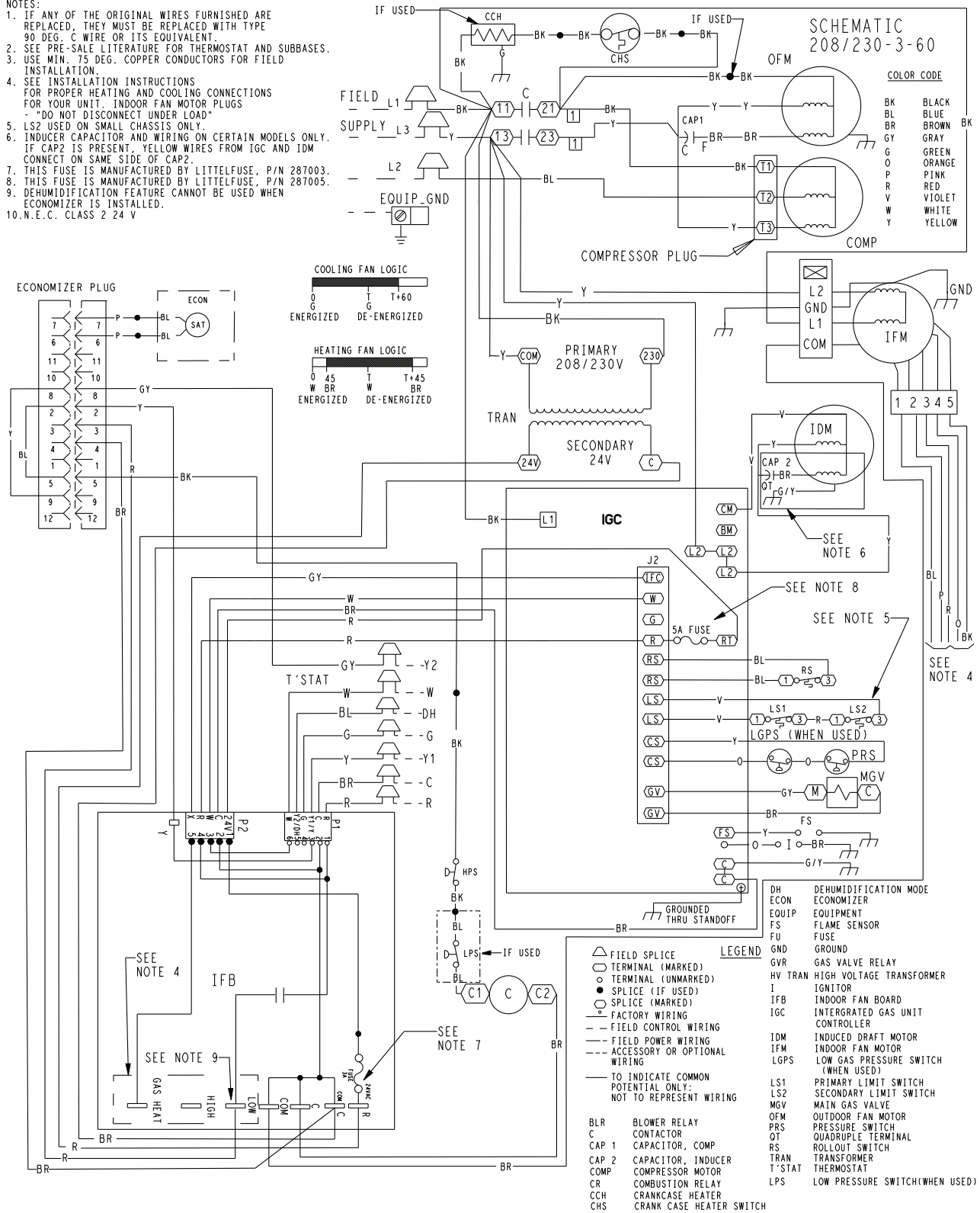
48VL-C

CONNECTION WIRING DIAGRAM

DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING

NOTES:

- IF ANY OF THE ORIGINAL WIRES FURNISHED ARE REPLACED, THEY MUST BE REPLACED WITH TYPE 90 DEG. C WIRE OR ITS EQUIVALENT.
- SEE PRE-SALE LITERATURE FOR THERMOSTAT AND SUBBASES.
- USE MIN. 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"
- LS2 USED ON SMALL CHASSIS ONLY.
- INDUCER CAPACITOR AND WIRING ON CERTAIN MODELS ONLY. IF CAP2 IS PRESENT, YELLOW WIRES FROM IGC AND IDM CONNECT ON SAME SIDE OF CAP2.
- THIS FUSE IS MANUFACTURED BY LITTELFUSE, P/N 287003.
- THIS FUSE IS MANUFACTURED BY LITTELFUSE, P/N 287005.
- DEHUMIDIFICATION FEATURE CANNOT BE USED WHEN ECONOMIZER IS INSTALLED.
- N.E.C. CLASS 2 24 V



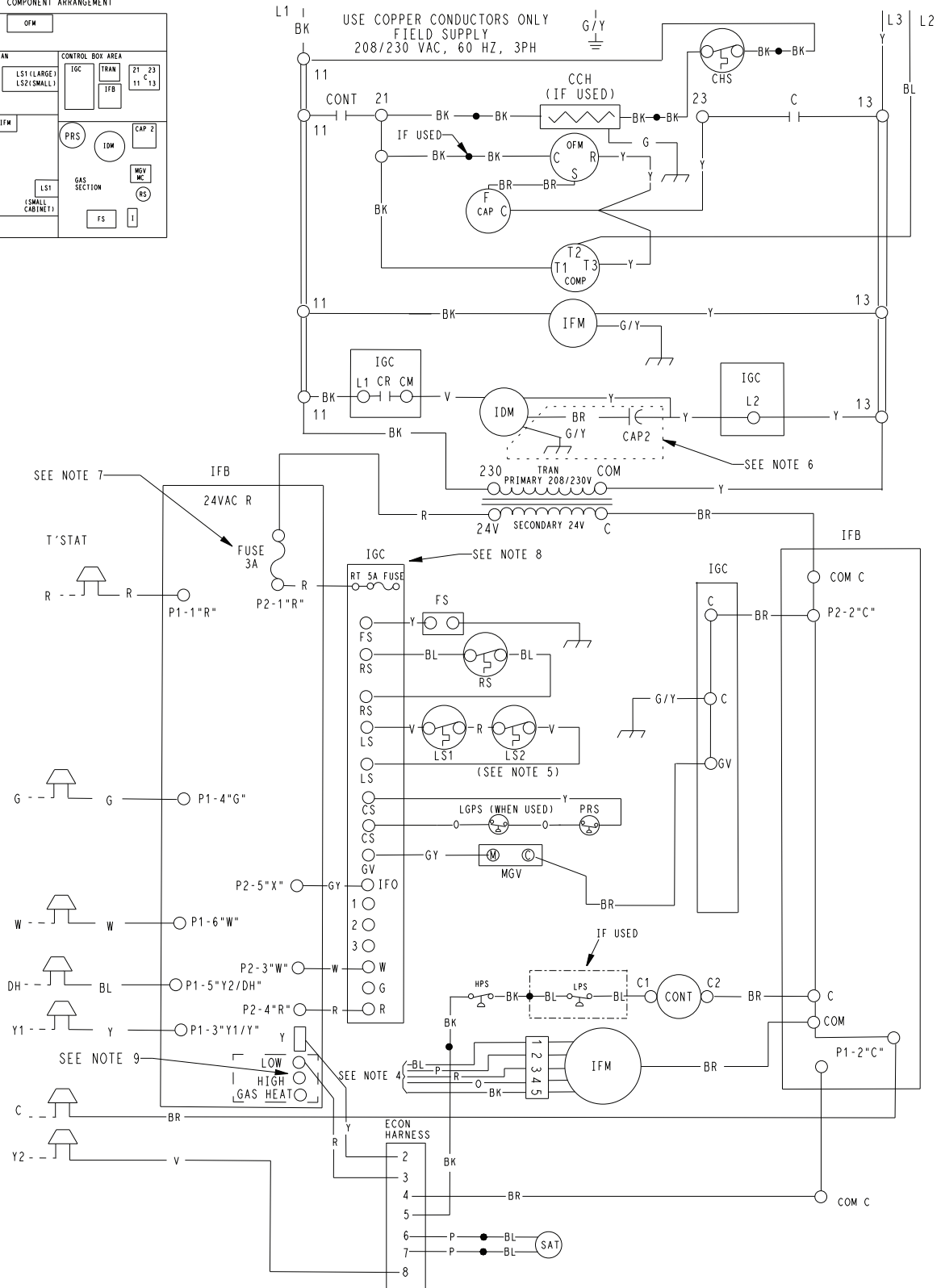
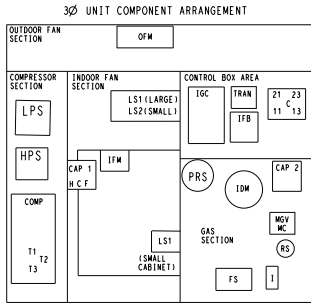
48V L-C

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

LADDER WIRING DIAGRAM

DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING

**48VL-C**



48VL500421 -

A150511

CONNECTION WIRING DIAGRAM

DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING

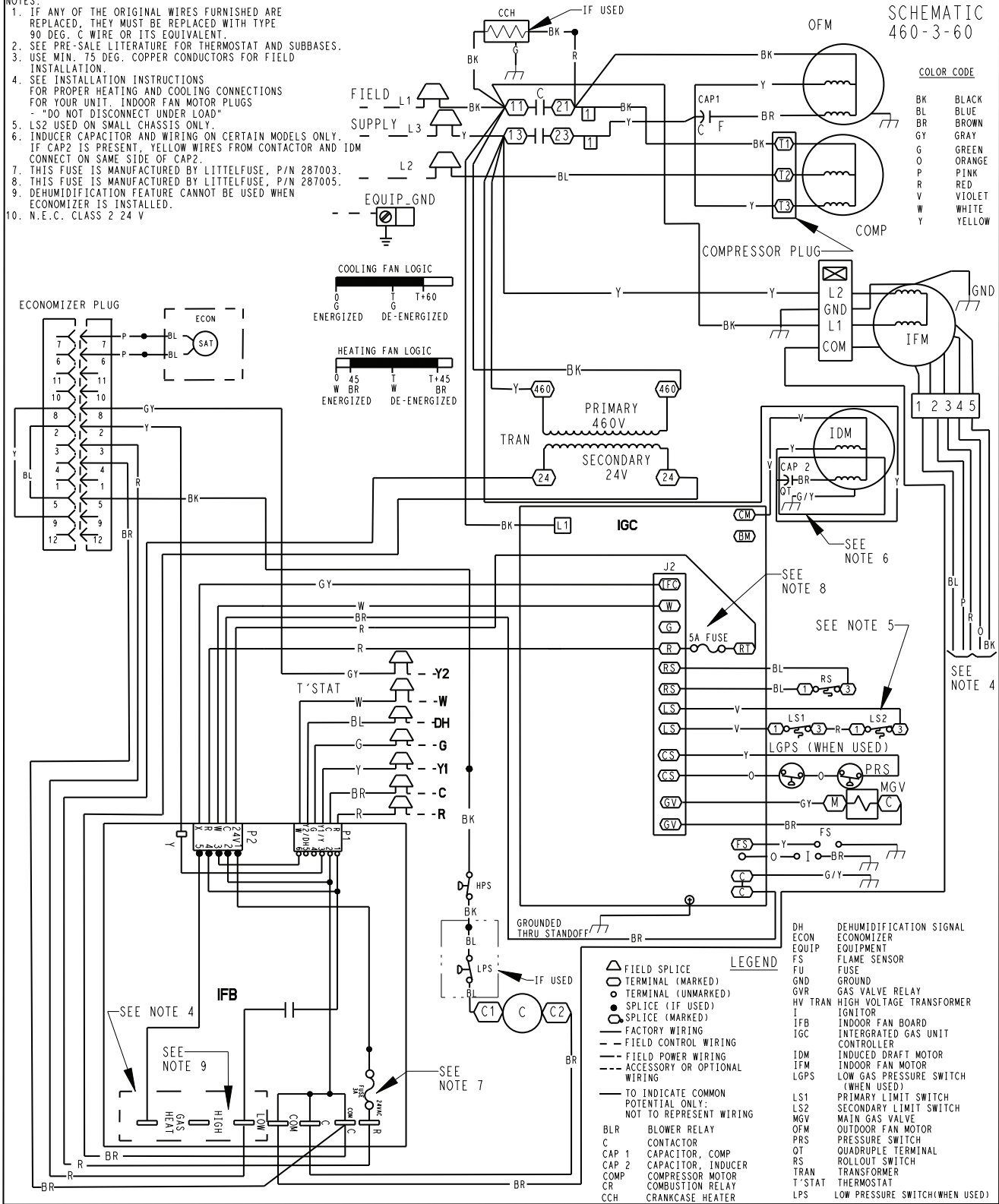
NOTES:

- IF ANY OF THE ORIGINAL WIRES FURNISHED ARE REPLACED, THEY MUST BE REPLACED WITH TYPE 90 DEG. C WIRE OR ITS EQUIVALENT.
- SEE PRE-SALE LITERATURE FOR THERMOSTAT AND SUBBASES.
- USE MIN. 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"
- LS2 USED ON SMALL CHASSIS ONLY.
- INDUCER CAPACITOR AND WIRING ON CERTAIN MODELS ONLY. IF CAP2 IS PRESENT, YELLOW WIRES FROM CONTACTOR AND IDM CONNECT ON SAME SIDE OF CAP2.
- THIS FUSE IS MANUFACTURED BY LITTELFUSE, P/N 287003.
- THIS FUSE IS MANUFACTURED BY LITTELFUSE, P/N 287005.
- DEHUMIDIFICATION FEATURE CANNOT BE USED WHEN ECONOMIZER IS INSTALLED.
- N.E.C. CLASS 2 24 V

SCHEMATIC 460-3-60

COLOR CODE

BK	BLACK
BL	BLUE
BR	BROWN
GY	GRAY
G	GREEN
O	ORANGE
P	PINK
R	RED
V	VIOLET
W	WHITE
Y	YELLOW

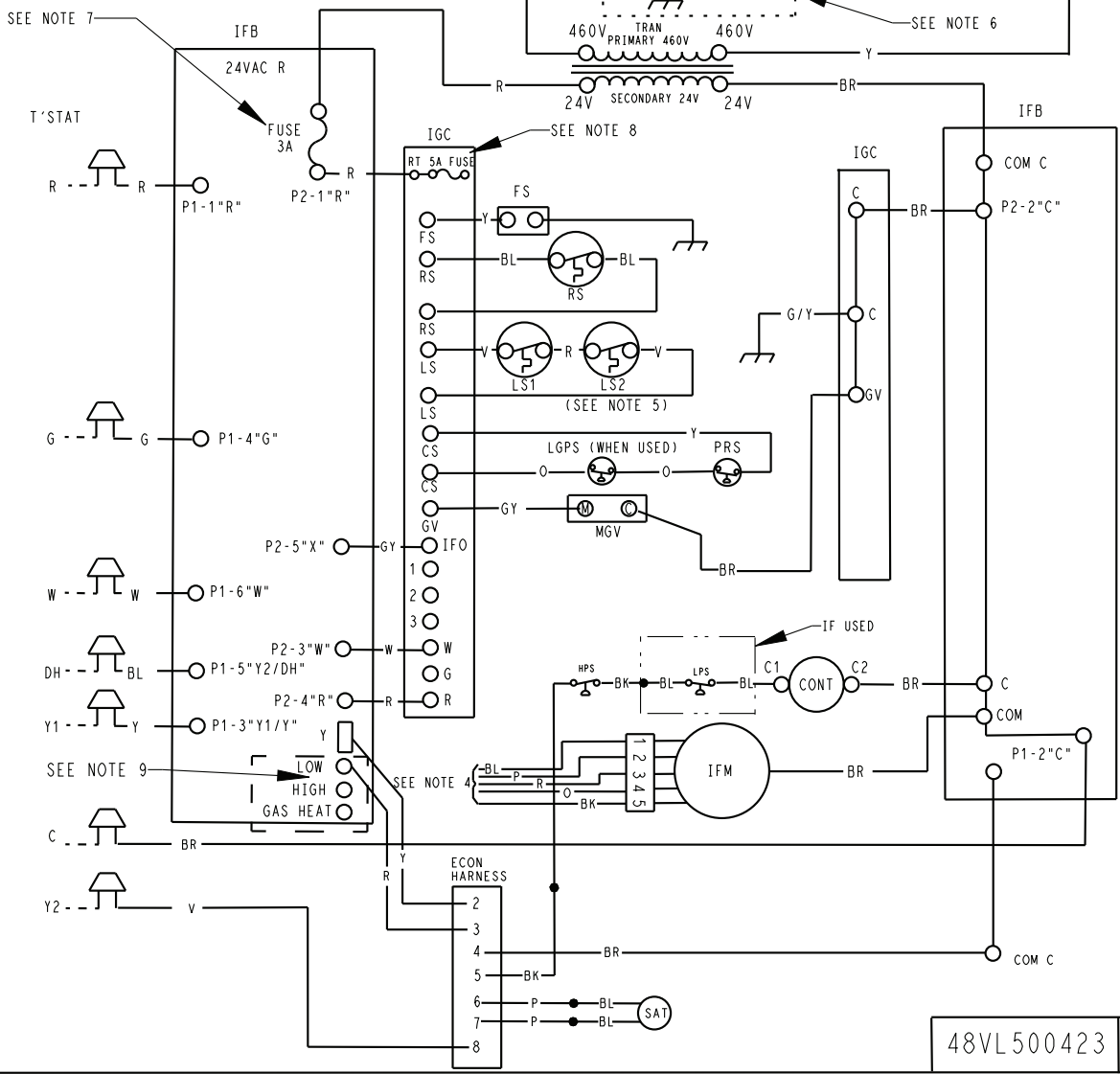
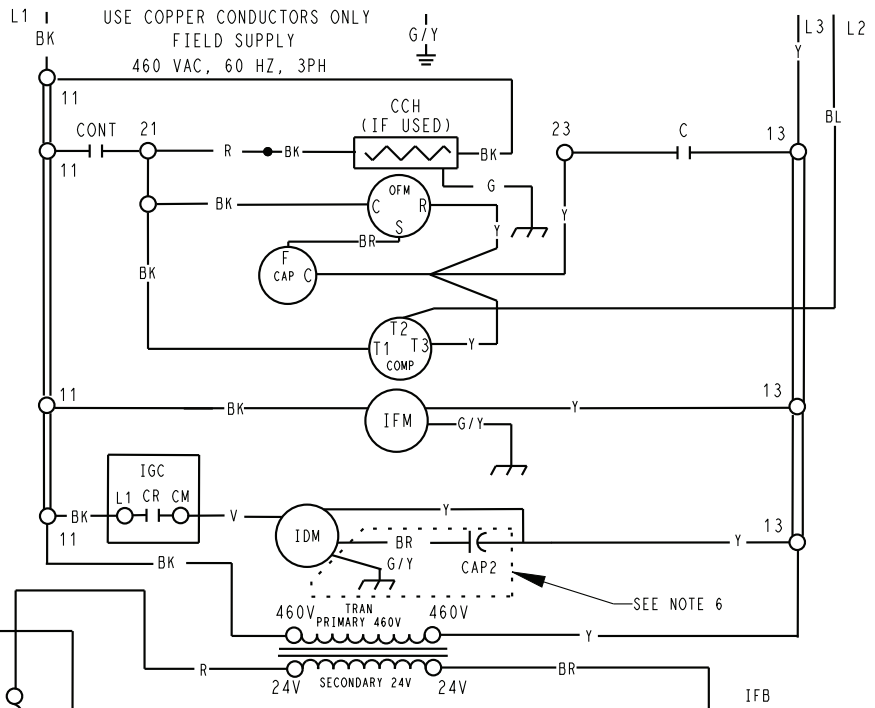
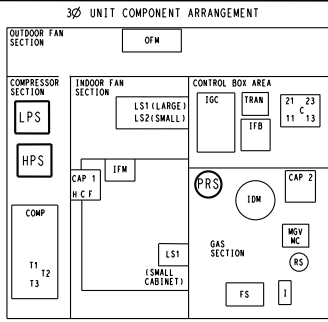


48VL-C

LADDER WIRING DIAGRAM

DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING

48VL-C



48VL500423 -

## CONTROLS

### Operating sequence

**Heating (Single Phase Models)** - (See unit wiring label) 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 (Three 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.

**Cooling** — When the system thermostat calls for cooling, 24 V is supplied to the “Y” and “G” terminals of the thermostat. This completes the circuit to the contactor coil (C) and indoor (evaporator) fan relay (IFR). The normally open contacts of energized C close and complete the circuit through compressor motor (COMP) to outdoor (condenser) fan motor (OFM). Both motors start instantly. The set of normally open contacts of energized IFR close and complete the circuit through IFM. The IFM starts instantly.

On the loss of the thermostat call for cooling, 24 V is removed from both the “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 (1-phase) or 90-second delay (3-phase), the IFM shuts off. If the thermostat fan selector switch is in the “ON” position, the IFM will run continuously.

NOTE: On units with a Time Guard® II device: Once the compressor has started and then stopped, it cannot be restarted again until 5 minutes have elapsed.

# GUIDE SPECIFICATIONS

## Packaged Gas Heating/Electric Cooling Units Constant Volume Application

### HVAC Guide Specifications

Size Range: **2 to 5 Tons, Nominal Cooling  
40,000 to 127,000 Btuh,  
Nominal Heating Input**

#### SYSTEM DESCRIPTION

Outdoor rooftop mounted, gas heating/electric cooling unit utilizing a hermetic scroll compressor for cooling duty. Unit shall discharge supply air vertically or horizontally as shown on contract drawings. Condenser 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 Z 21.47.
- 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 90.1 requirements for flame spread and smoke generation.
- G. Cabinet insulation shall meet ASHRAE Standard 62.2.

#### DELIVERY, STORAGE AND HANDLING

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

#### Part 2 — Products

##### EQUIPMENT

###### A. General:

Factory-assembled, single-piece, heating and cooling unit. Contained within the enclosure shall be all factory wiring, piping, controls, refrigerant charge with R-410A refrigerant, 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 with-standing 500 hours in 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. Evaporator fan compartment top surface shall be insulated with a minimum 1/2-in. (12.7 mm) thick, flexible fiberglass insulation, coated on the air side and retained by adhesive and mechanical means. The evaporator 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.

###### C. Fans:

1. The evaporator fan shall be a multi-speed, direct-drive, as shown on equipment drawings.
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.

###### E. Coils:

Evaporator and condenser 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. Heating Section:

1. Induced-draft combustion type with energy saving direct spark ignition system and redundant main gas valve.
2. Induced-draft motors shall provide adequate airflow for combustion.
3. The heat exchangers shall be constructed of aluminized steel for corrosion resistance.
4. Burners shall be of the in-shot type constructed of aluminum coated steel.
5. All gas piping and electric power shall enter the unit cabinet at a single location.

###### G. Refrigerant Components:

Refrigerant expansion device shall be of the TXV (thermostatic expansion valve) or fixed orifice type.

###### H. Filters:

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

###### I. Controls and Safeties:

1. Unit controls shall be complete with a self-contained low voltage control circuit.
2. Compressors shall incorporate a solid-state compressor protector that provides reset capability.

###### J. Operating Characteristics:

1. Unit shall be capable of starting and running at 125°F (51°C) ambient outdoor temperature per maximum load criteria of AHRI Standard 210.
2. Compressor with standard controls shall be capable of operation down to 40°F (4°C) ambient outdoor temperature.
3. Units shall be provided with fan time delay to prevent cold air delivery before the heat exchanger warms up.
4. Unit shall be provided with 60-second fan time delay (single phase models) or 90 second fan time delay (three phase models) after the thermostat is satisfied.

###### K. Electrical Requirements:

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

###### L. 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.

###### M. Compressor Protection:

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



## GUIDE SPECIFICATIONS (CONT)

### N. 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.

### O. Special Features Available:

#### 1. Coil Options

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

#### 2. Compressor Start Kit (single phase units only):

Shall provide additional starting torque for single-phase compressors.

#### 3. Thermostat:

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

#### 4. Crankcase Heater:

Shall provide anti-floodback protection for low-load 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 condenser coil temperature sensor for controlling condenser-fan motor operation, which shall allow unit to operate down to 0°F (-18°C) outdoor ambient temperature when properly installed.

#### 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 10.0 IN. W.C. manifold pressure.

#### 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. 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. Offered as a field installed accessory.

#### 17. 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.

#### 18. Louver Metal Outdoor Coil Grille

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

#### 19. Low Pressure Switch Kit

Kit is designed for use when a low pressure control is desired. This kit provides added reliability for the compressor.

