

PDB4

13.4 SEER2 Single-Package Dual Fuel System with R-454B Refrigerant Single Phase 2-5 Nominal Tons (Sizes 24-60)



Product Data

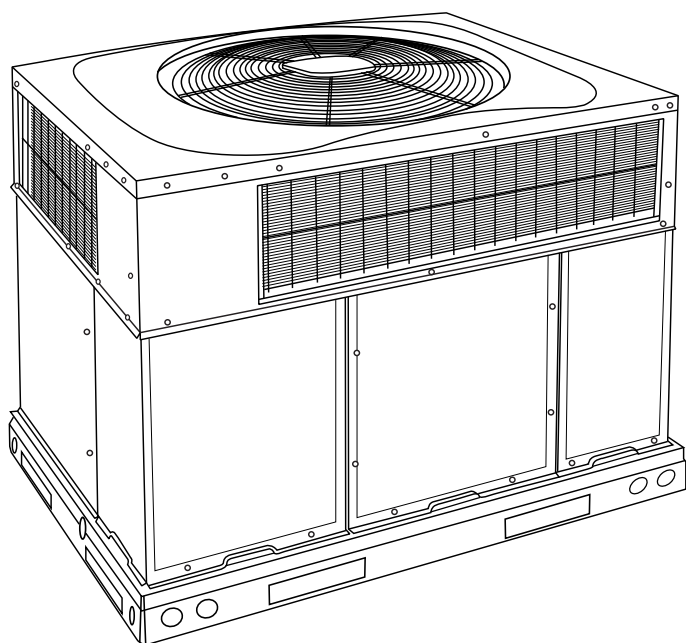


Fig. 1 – Unit PDB4

A09034

Single-Packaged Products with Energy-Saving Features and R-454B refrigerant.

- 13.4 SEER2
- 11.05 EER2
- 6.7 HSPF2
- 81.0% AFUE
- ECM Motor-Standard
- Direct Spark Ignition
- Dehumidification Feature
- Cabinet air leakage of 2.0% or less at .5 in. W.C. when tested in accordance with ASHRAE standard 193.
- Refrigerant leak detection dissipation system for added safety
- Dense Wire Condenser Coil Guard-Standard

Features/Benefits

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

R-454B is the latest choice of refrigerant to help meet the 2025 GWP requirement. This unit is designed and tested with R-454B and contains a dissipation system.

Easy Installation

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

Innovative Unit Base Design

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

Convertible Duct Configuration

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

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 and meet 40 ng/J NOx emissions. Can be installed in air quality management districts with a 40 ng/J NOx emissions requirement.

Durable, dependable components

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

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

Turbo-tubular heat exchangers are constructed of stainless 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. Low ambient kit is available as a field installed accessory.

Refrigerant system is designed to provide dependability. Liquid filter driers are used to promote clean, unrestricted operation. Each unit leaves the factory with non-ozone depleting and low global warming potential R-454B refrigerant charge. Refrigerant service connections make checking operating pressures easier. Factory-installed leak detection dissipation system for added safety.

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

Indoor and Outdoor coils are computer-designed for optimum heat transfer and efficiency. The indoor coil is fabricated from aluminum indoor coils 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 70.0 dBA.

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

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

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

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

drain pan minimizes standing water in the drain. An external drain is provided.

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

Limited Warranty

- Default 3-year no hassle limited warranty
- Default 20-year heat exchanger limited warranty
 - Lifetime limited warranty on heat exchanger with timely registration. Equipment must be registered within 90 days of original installation, except in jurisdictions where warranty benefits cannot be conditioned on registration.
- * Applies to original purchaser/homeowner and 20 years to subsequent owners.
- Default 5-year parts limited warranty (including compressor and coil)
 - 10-year parts limited warranty (including compressor and coil) with timely registration. Equipment must be registered within 90 days of original installation, except in jurisdictions where warranty benefits cannot be conditioned on registration.
- * Applies to original purchaser/homeowner and 5 years to subsequent owners.

See Warranty certificate for complete details

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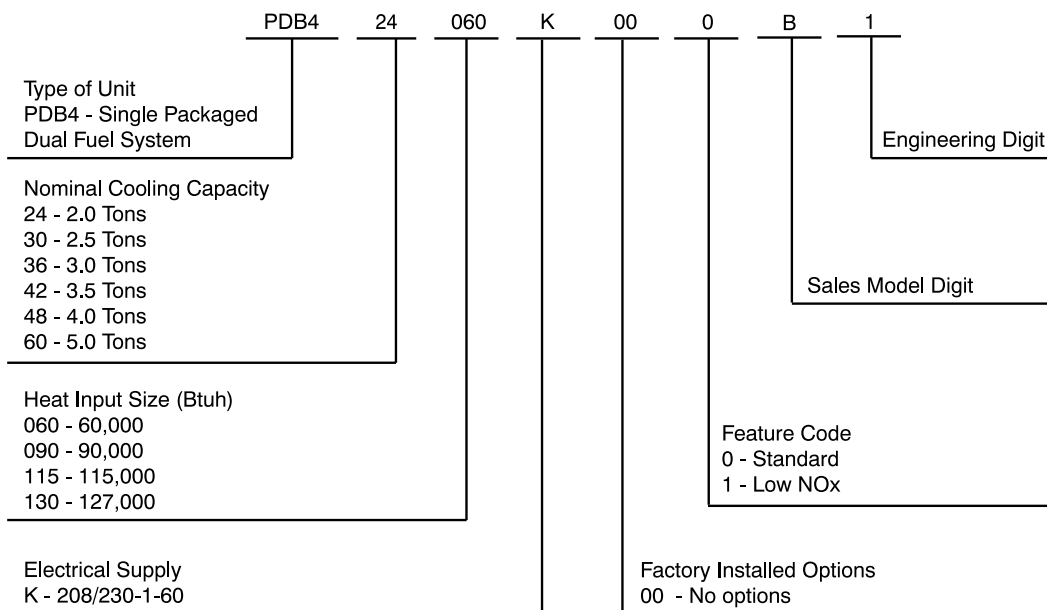
Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program For verification of certification for individual products, go to



For California Residents:

This furnace does not comply with SCAQMD Rule 1111, SJVAPCD Rule 4905, or BAAQMD 9-4, which places a NOx emission limit of 14 ng/J. Therefore, this unit is not eligible to be installed in the South Coast Air Quality Management District (SCAQMD), San Joaquin Valley Air Pollution Control District (SJVAPCD), or Bay Area Air Quality Management District (BAAQMD).

Model Number Nomenclature



SAP Ordering No.	Volts-Phase (60 HZ)	Nominal Cooling Capacity (Btuh)	Nominal Heating Input (Btuh)	Approx Ship Wt (LBS)
PDB424060K000B	208/230-1	24,000	60,000	373
PDB430060K000B	208/230-1	30,000	60,000	406
PDB436090K000B	208/230-1	36,000	90,000	461
PDB442090K000B	208/230-1	42,000	90,000	477
PDB448090K000B	208/230-1	48,000	90,000	491
PDB448115K000B	208/230-1	48,000	115,000	491
PDB460115K000B	208/230-1	60,000	115,000	554
PDB460130K000B	208/230-1	60,000	127,000	554
Low NOx Units				
PDB424060K001B	208/230-1	24,000	60,000	373
PDB430060K001B	208/230-1	30,000	60,000	406
PDB436090K001B	208/230-1	36,000	90,000	461
PDB442090K001B	208/230-1	42,000	90,000	477
PDB448090K001B	208/230-1	48,000	90,000	491
PDB448115K001B	208/230-1	48,000	115,000	491
PDB460115K001B	208/230-1	60,000	115,000	554
PDB460130K001B	208/230-1	60,000	127,000	554

Cooling Capacities and Efficiencies

UNIT SIZE	NOMINAL TONS	STANDARD CFM	COOLING CAPACITY†	EER2‡	SEER2**
24	2	750	22200	11.05	13.4
30	2.5	950	28600	11.05	13.4
36	3	1150	33800	11.05	13.4
42	3.5	1350	42000	11.05	13.4
48	4	1600	47000	11.05	13.4
60	5	1750	55000	11.05	13.4

Heat Pump Heating Capacities and Efficiencies

UNIT	HEATING CAPACITY (BTUH) @ 47°F (8.3°C)	COP @ 47°F (8.3°C)	HEATING CAPACITY (BTUH) @ 17°F (-8.3°C)	COP @ 17°F (-8.3°C)	HSPF2
24	24000	3.8	12400	2.2	6.7
30	27800	3.0	15800	2.1	6.7
36	35600	3.8	19900	2.4	6.7
42	41500	3.7	23400	2.3	6.7
48	45500	3.7	24800	2.26	6.7
60	57500	3.4	31000	2.3	6.7

LEGEND

dBA—Sound Levels (decibels)

db—Dry Bulb

SEER2—Seasonal Energy Efficiency Ratio

wb—Wet Bulb

COP—Coefficient of Performance

HSPF2—Heating Season Performance Factor

* Air Conditioning, Heating & Refrigeration Institute.

**At “A” conditions-80°F (26.7°C) indoor db/67°F (19.4°C) indoor wb & 95°F (35°C) outdoor db.

† Rated in accordance with U.S. Government DOE Department of Energy) test procedures and/or AHRI Standards 210/240.

Notes:

1. Ratings are net values, reflecting the effects of circulating fan heat.

Ratings are based on:

Cooling Standard: 80°F (26.7°C) db, 67°F (19.4°C) wb indoor entering-air temperature and 95°F (35°C) db outdoor entering-air temperature.

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

Gas Heating Capacities and Efficiencies, Single Phase Models

UNIT SIZE	HEATING INPUT (Btuh)	OUTPUT CAPACITY (Btuh)	TEMPERATURE RISE RANGE F (C)	AFUE (%)
24060 30060	60,000	49,000	25-55 (13.9-30.6)	81.0
36090 42090 48090	90,000	74,000	35-65 (19.4-36.1)	
48115 60115	115,000	94,000	30-60 (16.7-33.3)	
60130	127,000	104,000	35-65 (19.4-36.1)	

LEGEND

AFUE—Annual Fuel Utilization Efficiency

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

Physical Data

Unit Size	24060	30060	36090	42090
Nominal Capacity - ton	2	2.5	3	3.5
Shipping Weight (lb)	388	406	464	481
Shipping Weight (kg)	176	184	206	218
Compressor / Quantity	Scroll / 1			
Refrigerant	R-454B			
Refrigerant Quantity (lb)	7.50	8.25	9.50	9.00
Refrigerant Quantity (kg)	3.4	3.7	4.3	4.1
Refrigerant Metering Device	Indoor TXV, Outdoor Dual Accuraters			
Minimum Conditioned Space Area (sq. ft.)	122	137	152	137
Orifice OD (in)	0.032 (2)	0.035 (2)	0.040 (2)	0.042 (2)
Orifice OD (mm)	0.81 (2)	0.89 (2)	1.02 (2)	1.07 (2)
Outdoor Coil				
Rows... Fins/in,	1...21	2...21	1...21	1...21
Face Area (sq. ft.)	18.8	18.8	23.3	23.3
Outdoor Fan				
Nominal Airflow (cfm)	3000	3200	3500	3500
Diameter (in.)	24	24	26	26
Diameter (mm)	610	610	660	660
Motor hp (rpm)	1/10 (810)	1/5 (810)	1/5 (810)	1/5 (810)
Indoor Coil				
Rows... Fins/in,	3...15	3...17	3...17	3...17
face area (sq. ft.)	3.7	3.7	4.7	4.7
Indoor Blower				
Required Minimum Dissipation Airflow (CFM)	213	239	266	239
Nominal Airflow (CFM)	750	950	1150	1350
Size in.(D x W)	10 x 10	10 x 10	11 x 10	11 x 10
Size mm (D x W)	254 x 254	254 x 254	279 x 254	279 x 254
Motor hp	1/2	1/2	1/2	3/4
Furnace Section*				
Burner Orifice				
1-Phase Natural Gas Qty...Drill Size	3...44	3...44	3...38	3...38
1-Phase Propane Gas Qty...Drill Size	3...55	3...55	3...53	3...53
High Pressure Switch (psig)	650 +/- 15			
Cutout	420 +/- 25			
Reset (Auto)				
Loss-of-Charge/Low Pressure Switch (psig)	20 +/- 5			
Cutout	45 +/- 10			
Reset (Auto)				
Return Air Filters [†] disposable	2 each 20x12x1 in. 508x305x25 mm		1 each 24x16x1 in. 610x406x25 mm 24x14x1 in. 610x356x25 mm	

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

†. Required filter sizes shown are based on the larger of the AHRI (Air Conditioning Heating and Refrigeration Institute) rated cooling airflow or the heating airflow velocity of 300 to 350 ft/minute for high-capacity type. Air filter pressure drop for non-standard filters must not exceed 0.08 IN. W.C.

Physical Data Cont'd)

Unit Size	48090	48115	60115	60130
Nominal Capacity - ton	4	4	5	5
Shipping Weight (lb)	477	477	519	519
Shipping Weight (kg)	216	216	235	235
Compressor / Quantity	Scroll / 1			
Refrigerant	R-454B			
Refrigerant Quantity (lb)	9.75		11.0	
Refrigerant Quantity (kg)	4.4		5.0	
Refrigerant Metering Device	Indoor TXV Outdoor Dual Accuraters		Indoor TXV, Outdoor Dual Accuraters	
Minimum Conditioned Space Area (sq. ft.)	152		167	
Orifice ID (in)	N/A		N/A	
Orifice ID (mm)	N/A		N/A	
Orifice OD (in)	0.046 (2)		0.046 (2)	
Orifice OD (mm)	1.17 (2)		1.17(2)	
Outdoor Coil				
Rows... Fins/in,	2...21		2...21	
Face Area (sq. ft.)	13.6		17.5	
Outdoor Fan				
Nominal Airflow (CFM)	3000		3500	
Diameter (in.)	26		26	
Diameter (mm)	660		660	
Motor hp	1/5		1/5	
Motor (rpm)	(810)		(810)	
Indoor Coil				
Rows... Fins/in,	3...17			
face area (sq. ft.)	5.6			
Indoor Blower				
Required Minimum Dissipation Airflow (cfm)	266		293	
Nominal Airflow (cfm)	1600		1750	
Size in. (D x W)	11 x 10		11 x 10	
Size mm (D x W)	279 x 254		279 x 254	
Motor hp	1		1	
Furnace Section*				
Burner Orifice				
1 Phase Natural Gas Qty...Drill Size	3...38	3...33	3...33	3...31
1 Phase Propane Gas Qty...Drill Size	3...53	3...51	3...51	3...49
High Pressure Switch (psig)				
Cutout	650 +/- 15			
Reset (Auto)	420 +/- 25			
Loss-of-Charge/Low Pressure				
Switch (psig)				
Cutout	20 +/- 5			
Reset (Auto)	45 +/- 10			
Return Air Filters†	1 each 24x16x1 in. (610x406x25 mm)			
disposable	24x18x1 in. (610x457x25 mm)			

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

†. Required filter sizes shown are based on the larger of the AHRI (Air Conditioning Heating and Refrigeration Institute) rated cooling airflow or the heating airflow velocity of 300 to 350 ft/minute for high-capacity type. Air filter pressure drop for non-standard filters must not exceed 0.08 IN. W.C.

Accessory Kit Filter Sizes (Shipped With Kit)

Kit	Filter 1 Size	Filter 2 Size
CPFILTRK007A00	12"x20"x1"	12"x20"x1"
CPFILTRK008A00	14"x24"x1"	16"x24"x1"
CPFILTRK009A00	16"x24"x1"	18"x24"x1"
CPMANDPR007A00	12"x20"x1"	12"x20"x1"
CPMANDPR008A00	14"x24"x1"	16"x24"x1"
CPMANDPR009A00	16"x24"x1"	18"x24"x1"
CPECOMZR007B00	10"x20"x1"	10"x20"x1"
CPECOMZR008A00	14"x24"x1"	16"x24"x1"
CPECOMZR009A00	16"x24"x1"	18"x24"x1"
CPECOMZR010B00	12"x20"x1"	12"x20"x1"
CPECOMZR011B00	14"x20"x1"	16"x20"x1"
CPECOMZR012B00	16"x20"x1"	18"x20"x1"

A-Weighted Sound Power Level (dBA)

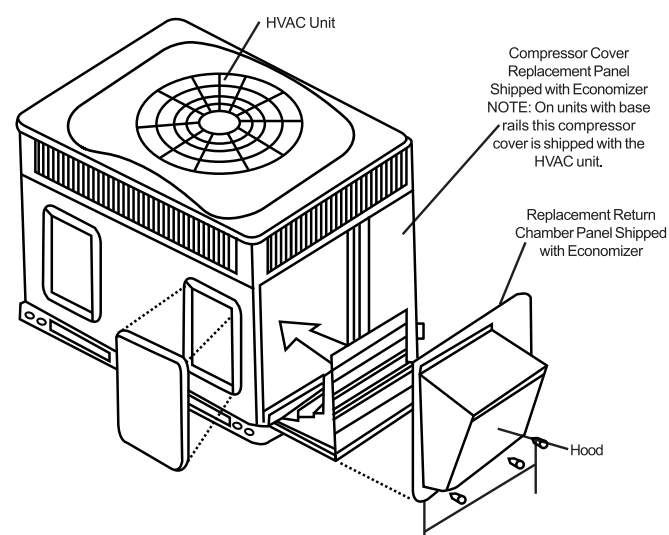
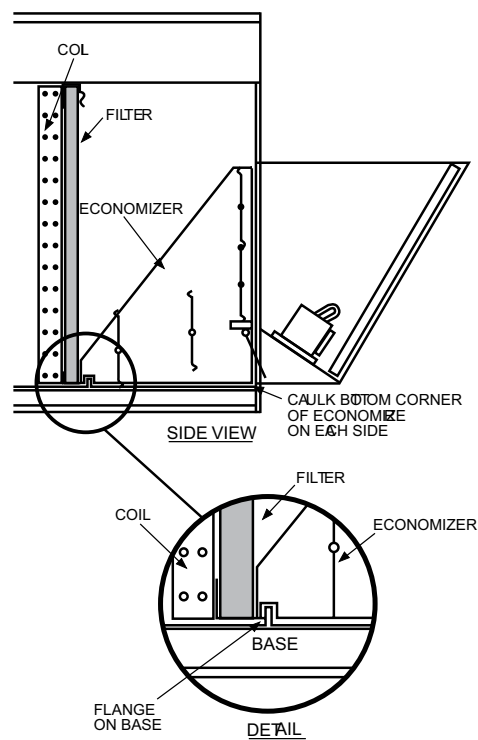
UNIT SIZE	STANDARD RATING (dBA)	TYPICAL OCTAVE BAND SPECTRUM (dBA without tone adjustment)						
		125	250	500	1000	2000	4000	8000
24	70	55	59	65	66	61	57	49
30	72	57	62	68	68	63	57	49
36	71	63	59	65	67	61	57	50
42	74	58	63	69	69	64	62	55
48	75	59	64	69	70	67	63	56
60	72	60	63	66	67	64	61	55

NOTE: Tested in accordance with AHRI 270 but not listed with AHRI.

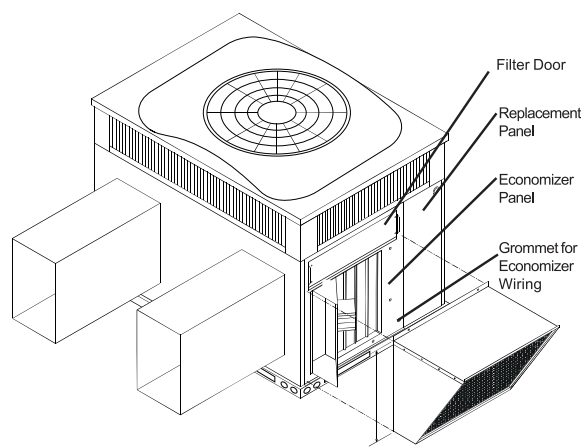
Accessories

AREA	DESCRIPTION	PART NO.	USED WITH
Curbs and Duct Connections	Flat Roof Curbs, 14" High (-011 Kit may be used with 36-60 sizes with overhang)	CPRFCURB011B00	24-30
		CPRFCURB013B00	36-60
	Adapter Curb for 2008 and earlier roofcurb with 2009 and later baserail units	CPADCURB001A00	24-30
		CPADCURB002A00	36-60
	Gasket Kit for 2008 and earlier roofcurb with 2009 and later baserail units	CPGSKTKIT001A00	All
Internal Filter Racks/Economizers/ Dampers	Economizer - Vertical, Gear-driven, Outdoor dry bulb sensor, Filter Rack with 1" filters	NPDUCLFLG002A00	24-48
		CPECOMZR007B00	24-30
		CPECOMZR008A00	36-42
		CPECOMZR009A00	48-60
	Economizer - Horizontal, Gear-driven, Outdoor dry bulb sensor, Filter Rack with 1" filters	CPECOMZR010B00	24-30
		CPECOMZR011B00	36-42
		CPECOMZR012B00	48-60
	Outdoor Enthalpy Control (Replaces outdoor dry bulb sensor in economizer kit)	AXB078ENT	All
	Economizer Relays for Heat Pumps	CPRLYKIT001B00	All
	Manual Outside Air Damper (Includes filter rack and 1" filters, same as CPFILTRK kit)	CPMANDPR007A00	24-30
		CPMANDPR008A00	36-42
		CPMANDPR009A00	48-60
	Internal Filter Rack (Includes 1" filters)	CPFILTRK007A00	24-30
		CPFILTRK008A00	36-42
		CPFILTRK009A00	48-60
AC Accessories	240V Crankcase Heater (Factory-Installed on 208/230 VAC-3 phase units)	CPCRKHTR008A00	24-36
		CPCRKHTR004A00	42-60
	Low Ambient Control (Pressure Switch)	KSALA0301410	All
	Isolation Relay (Use with Low Ambient Control)	KHAIR0201AAA	All
	Low Pressure Switch	CPLPSC TL001A00	All
	5 minute compressor delay anti-short cycle protection. Some non-corporate thermostats do not have short cycle protection, for which use of this accessory is recommended.	CRTIMEGD001A00	All
	PTC Compressor Start Assist Kit (For single phase units only)	CPHSTART002A00	All
Gas Heat Accessories	Natural to LP Conversion Kit (0 - 2000 ft)	NPLPCONV013C00	All (Except Ultra Low NOx)
	Natural to LP Conversion Kit (2001 - 6000 ft)	NPLPCONV014C00	All (Except Ultra Low NOx)
	LP to Natural Gas Conversion Kit (0 - 2000 ft)	NPNGCONV004C00	All (Except Ultra Low NOx)
	Flue Discharge Deflector Assembly	CPFLUEDS001A00	All
Louver Accessories	Outdoor Coil Louver Panels	CPLOUVER022A00	24-30
		CPLOUVER019A00	36-42
		CPLOUVER009A00	48
		CPLOUVER017A00	60

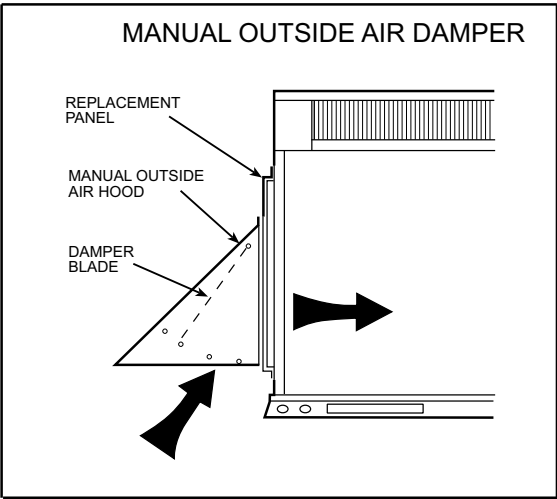
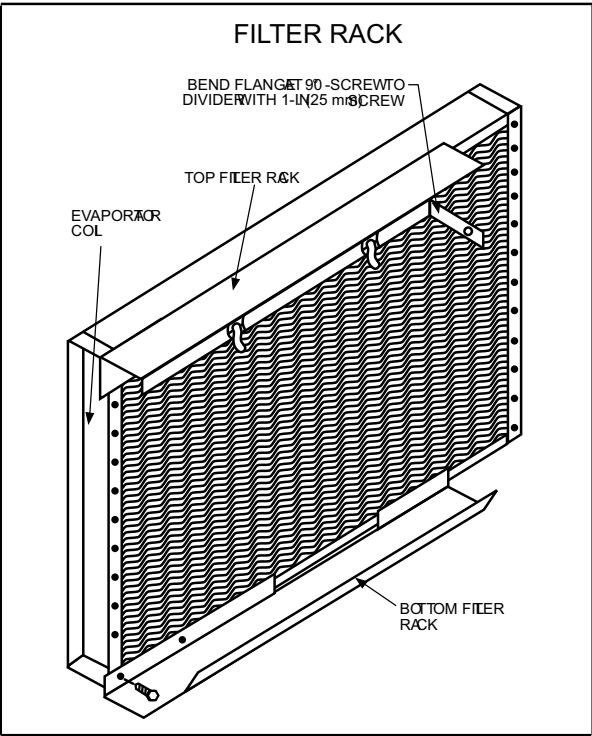
ECONOMIZER



Vertical Economizer



Horizontal Economizer

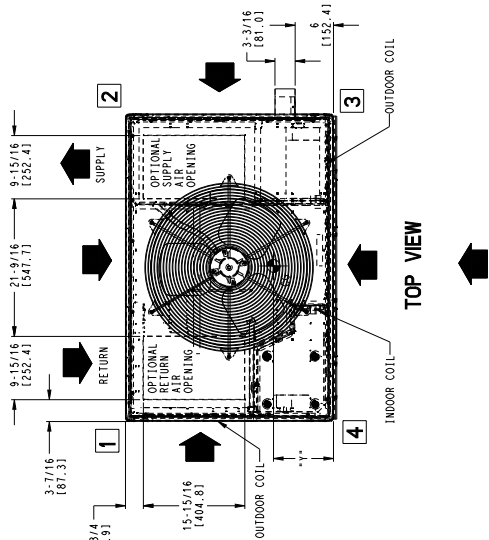


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Unit Dimensions
24-30

COOLING CAPACITY	UNIT WT.		UNIT HEIGHT IN/MM		CENTER OF GRAVITY IN/MM		
	LB	KG	"A"	X	Y	Z	
24	377	171.1	51-3/4	1315	22-3/4	578	15-1/2 394
30	395	179.2	51-3/4	1315	22-3/4	578	15-1/2 394

UNIT	CORNER WEIGHT LB/KG		
	"1"	"2"	"4"
24	96.3 [43.7]	85.0 [38.6]	82.2 [41.8]
30	100.9 [45.8]	88.3 [40.3]	86.6 [43.8]



REQUIRED CLEARANCES TO COMBUSTIBLE MATL.

INCHES (MM)

TOP OF UNIT.....12 [304.8]

DUCT SIDE OF UNIT.....14 [355.6]

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

BOTTOM OF UNIT.....1/2 [12.7]

FLUE PANEL.....36 [914.4]

NEC. REQUIRED CLEARANCES

INCHES (MM)

BETWEEN UNITS, POWER ENTRY SIDE.....42 [1066.8]

UNIT AND GROUNDED SURFACES, POWER ENTRY SIDE.....36 [914.4]

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

REQUIRED CLEARANCE FOR OPERATION AND SERVICING

INCHES (MM)

EVAP. COIL ACCESS SIDE.....36 [914.4]

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

DUCT SIDE OF UNIT.....14 [355.6]

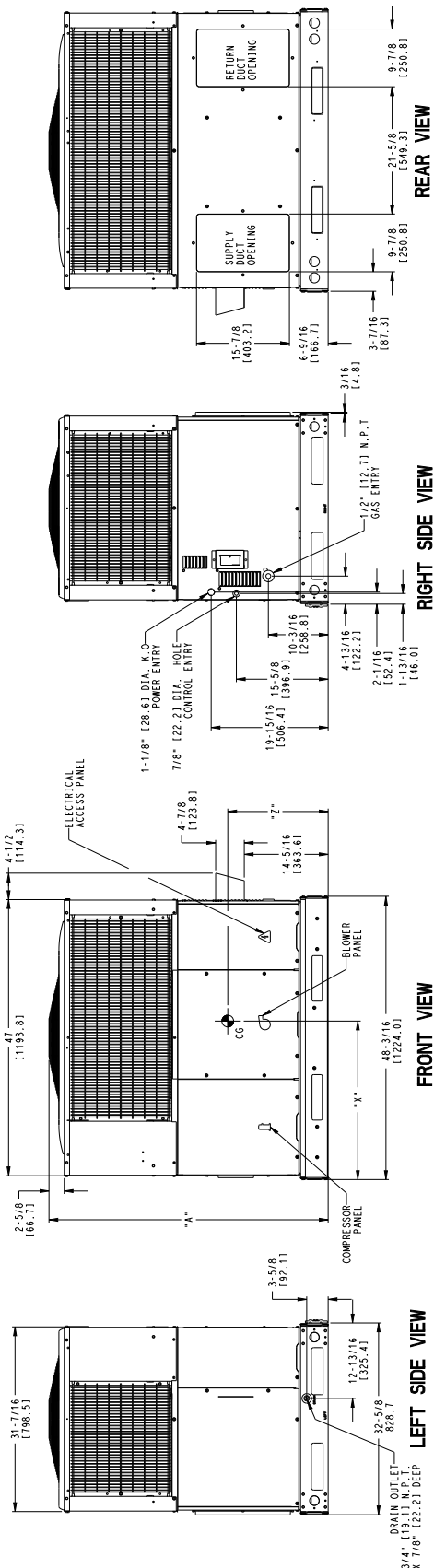
UNIT TOP OR FLOOR (SEE REQUIREMENTS).....48 [1219.2]

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.

DIMENSIONS IN [] ARE IN MM



SD5990-4	-
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Unit Dimensions
36-60

COOLING CAPACITY	UNIT WT.		UNIT HEIGHT IN/MM		CENTER OF GRAVITY IN/MM		
	LB	KG	A	X	Y	Z	
36	450	210.5	54-3/4	1391	22-3/4	518	18 457 17-1/8 448
42	467	211.8	54-3/4	1391	22-3/4	518	18 457 17-3/8 448
48	463	210.0	44-3/4	1137	22-3/4	518	18 457 17-3/8 448
60	505	229.1	48-3/4	1238	22-3/4	518	18 457 18 457

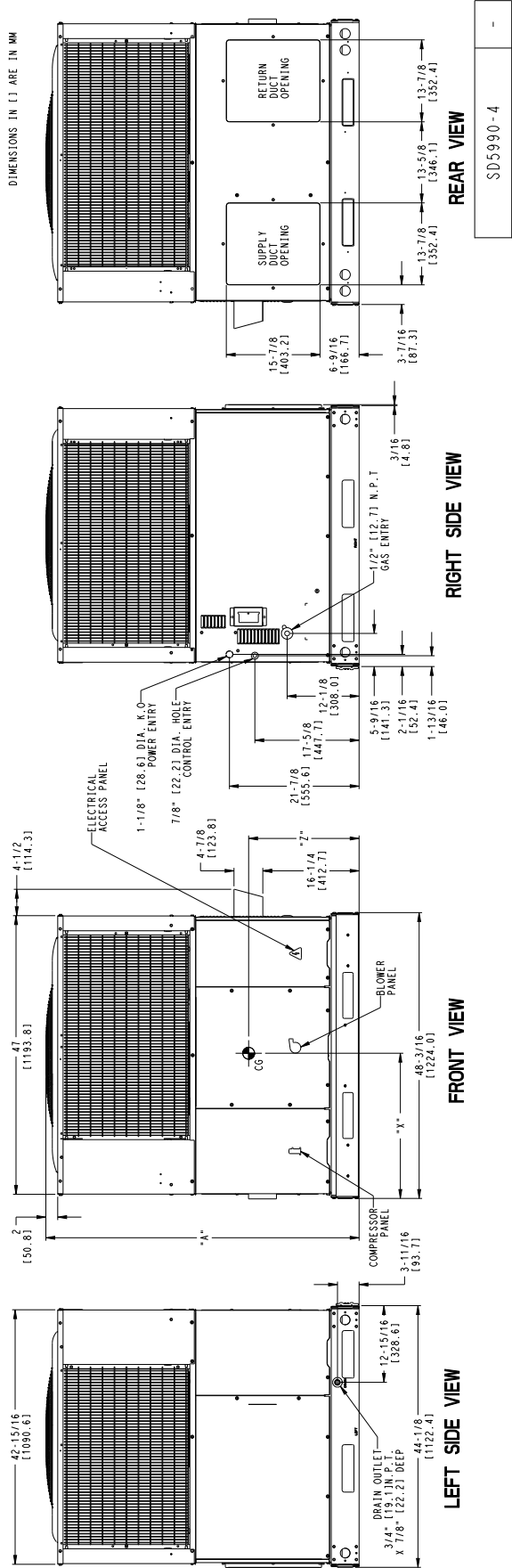
UNIT	CORNER WEIGHT LB/KG			
	"1"	"2"	"3"	"4"
36	98.2	144.5	86.9	39.4
42	101.9	146.2	90.3	41.0
48	100.7	145.7	89.7	40.7
60	109.4	149.6	91.3	44.1

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	1/2 [12.7]
FLUE PANEL	36 [914.4]
NEC REQUIRED CLEARANCES	
BETWEEN UNITS, POWER ENTRY SIDE	42 [1066.8]
UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, POWER ENTRY SIDE	36 [914.0]
INCHES [MM]	42 [1066.8]
EVAP. COIL ACCESS SIDE	36 [914.0]
POWER ENTRY SIDE	42 [1066.8]
(EXCEPT FOR NEC REQUIREMENTS)	
SIDE OPPOSITE DUCTS	48 [1219.2]
DUCT 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 MAY BE COMPROMISED.	

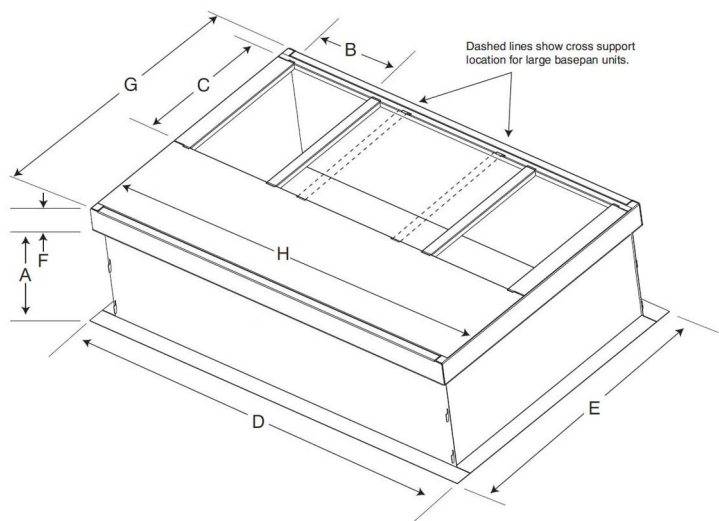
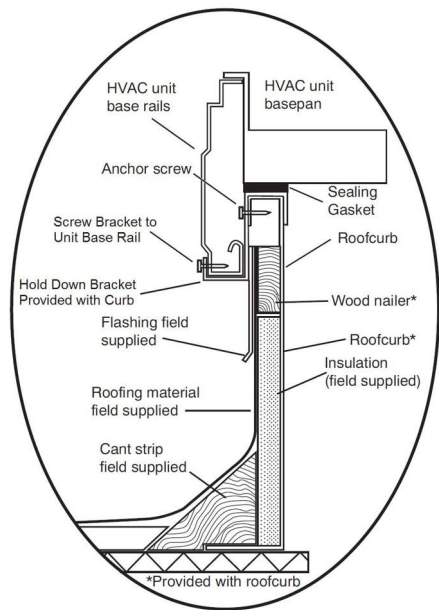
REQUIRED CLEARANCE FOR OPERATION AND SERVICING

	INCHES [MM]
EVAP. COIL ACCESS SIDE	36 [914.0]
POWER ENTRY SIDE	42 [1066.8]
(EXCEPT FOR NEC REQUIREMENTS)	
SIDE OPPOSITE DUCTS	48 [1219.2]
DUCT 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 MAY BE COMPROMISED.	

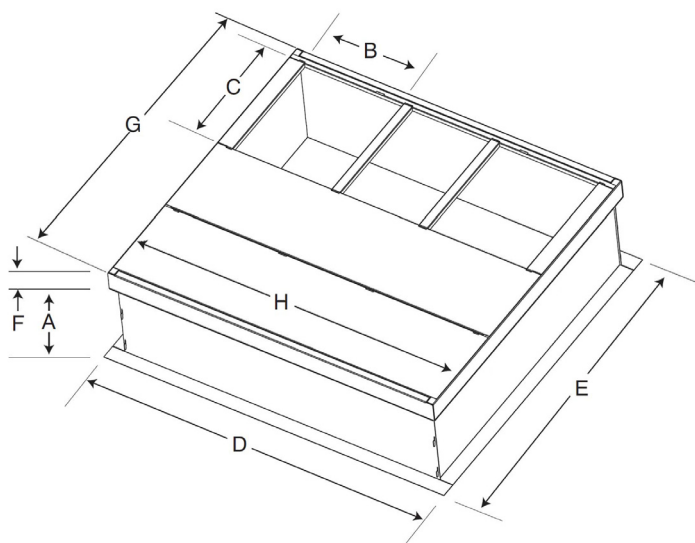


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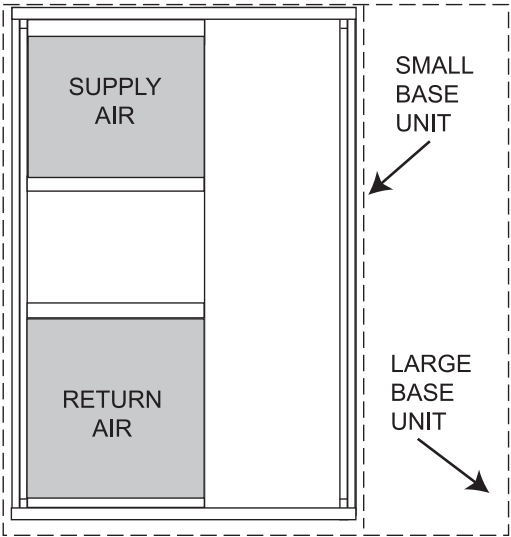
Accessory Dimensions



SMALL/COMMON CURB



LARGE CURB



UNIT PLACEMENT ON
COMMON CURB

SMALL OR LARGE BASE UNIT

A180216

UNIT SIZE	CATALOG NUMBER	A IN. (mm)	B IN. (mm)*	C IN. (mm)	D IN. (mm)	E IN. (mm)	F IN. (mm)	G IN. (mm)	H IN. (mm)
Small	CPRFCURB011B00	14 (356)	10 (254)	16 (406)	47.8 (1214)	32.4 (822)	2.7 (69)	30.6 (778)	46.1 (1170)
Large	CPRFCURB013B00	14 (356)	14 (356)			43.9 (1116)		42.2 (1072)	

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

IMPORTANT: Do not install large base pan dual fuel units onto the small base pan (common curb). The center of gravity on a large base pan HYBRID HEAT unit could overhang the curb causing an unsafe condition. Before installing any large base pan unit onto the common curb, check the “Y” distance in the product literature dimensional drawing to ensure that “Y” is greater than 14 in. (356 mm). Do not install any large base pan unit onto the common curb with a “Y” dimension (center of gravity) less than 14 in. (356 mm).

Selection Procedure (with example)

DETERMINE COOLING AND HEATING REQUIREMENTS AT DESIGN CONDITIONS:

Given:

Required Cooling Capacity (TC) 29,000 Btuh

Sensible Heat Capacity (SHC)..... 21,000 Btuh

Required Heating Capacity 48,000 Btuh

Condenser Entering Air Temperature 95°F (35°C)

Indoor-Air Temperature 80°F (27°C) edb 67°F (19°C) ewb

Evaporator Air Quantity..... 1000 CFM

External Static Pressure 0.300 IN. W.C.

Electrical Characteristics 208-1-60

SELECT UNIT BASED ON REQUIRED COOLING CAPACITY

Enter Performance Data table at condenser entering temperature of 95°F (35°C). Unit 30 at 950 CFM and 67°F (19°C) ewb (entering wet bulb) will provide a total capacity of 28,600 Btuh and a SHC of 21,200 Btuh. Calculate SHC correction, if required, using Note 4 under Cooling Capacities tables.

SELECT HEATING CAPACITY OF UNIT TO PROVIDE DESIGN CONDITION REQUIREMENT.

In the Gas Heating Capacities and Efficiencies table, note that the 30060 size unit will deliver a gas heat capacity of 49,000 BTUH with an input of 60,000 BTUH, which meets the heating capacity requirement.

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	0.300 IN. W.C.
Filter	0.060 IN. W.C.
Wet Coil Pressure Drop	<u>0.060 IN. W.C.</u>
Total Static Pressure	0.430 IN. W.C.

Enter the table for Dry Coil Air Delivery—At 0.42 IN. W.C. ESP (external static pressure) and MED-HIGH speed the motor delivers between 1037 CFM and 987 CFM. Interpolation estimates 1027 CFM at .42 IN. W.C. MED-HIGH delivers CFM needed.

SELECT UNIT THAT CORRESPONDS TO POWER SOURCE AVAILABLE.

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

Performance Data
24 Cooling Extended Performance Table

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES deg F (C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW
CFM / BF	EWB	Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens	
700 / .08	57 (13.9)	22.6	22.6	1.5	21.8	21.8	1.7	20.8	20.8	1.9	17.5	17.5	2.3	16.6	16.6	2.5	15.8	15.8	2.6
	62 (16.7)	23.5	22.0	1.5	22.4	21.4	1.7	21.4	20.3	1.9	17.9	16.8	2.3	17.0	15.4	2.5	16.3	14.2	2.6
	63* (17.2)	24.0	17.7	1.5	22.9	17.2	1.7	21.6	16.6	1.9	17.9	14.3	2.3	16.8	13.6	2.5	15.8	13.3	2.6
	67 (19.4)	25.8	18.5	1.6	24.6	17.9	1.7	23.2	17.3	1.9	19.3	14.9	2.3	18.1	14.2	2.5	16.9	13.8	2.6
	72 (22.2)	28.1	14.8	1.6	26.8	14.1	1.7	25.4	13.6	1.9	21.0	11.6	2.3	19.7	10.9	2.5	18.5	10.5	2.7
750 / .08	57 (13.9)	22.2	22.2	1.6	21.5	21.1	1.7	20.4	19.8	1.9	17.2	16.3	2.3	16.3	15.0	2.5	15.6	13.9	2.6
	62 (16.7)	22.5	21.4	1.6	21.5	20.9	1.7	20.5	19.8	1.9	17.2	16.3	2.3	16.3	15.0	2.5	15.6	13.9	2.6
	63* (17.2)	22.7	17.3	1.6	21.7	16.7	1.7	20.5	16.1	1.9	17.0	13.9	2.3	16.0	13.2	2.5	14.9	12.9	2.6
	67 (19.4)	24.4	18.0	1.6	23.3	17.4	1.7	22.0	16.8	1.9	18.3	14.5	2.3	17.2	13.8	2.5	16.1	13.5	2.6
900 / .09	72 (22.2)	26.6	14.4	1.6	25.4	13.8	1.7	24.0	13.2	1.9	19.9	11.3	2.3	18.7	10.6	2.5	17.5	10.2	2.7
	57 (13.9)	24.5	24.5	1.6	23.7	23.7	1.8	22.6	22.5	1.9	18.9	18.6	2.3	18.0	17.1	2.5	17.2	15.8	2.7
	62 (16.7)	24.8	24.7	1.6	23.7	23.7	1.8	22.6	22.5	1.9	18.9	18.6	2.3	18.0	17.1	2.5	17.2	15.8	2.7
	63* (17.2)	25.1	19.7	1.6	23.9	19.1	1.8	22.6	18.4	1.9	18.7	15.8	2.3	17.6	15.1	2.5	16.5	14.7	2.7
	67 (19.4)	27.0	20.5	1.6	25.7	19.8	1.8	24.3	19.2	2.0	20.2	16.5	2.3	18.9	15.7	2.5	17.7	15.3	2.7
	72 (22.2)	29.4	16.4	1.6	28.1	15.7	1.8	26.5	15.1	2.0	22.0	12.9	2.4	20.6	12.1	2.5	19.3	11.7	2.7

See Legend and Notes on page 19

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

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURE																															
		-10°F (-23.3°C)				0°F (-17.8°C)				10°F (-12.2°C)				20°F (-6.7°C)				30°F (-1.1°C)				40°F (4.4°C)				50°F (8.3°C)				60°F (15.6°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	Capacity (Mbtuh)		Total Sys	KW				
EDB	CFM	Total	Integ	Total		Integ	Total	Integ		Total	Integ	Total		Integ	Total	Integ		Total	Integ	Total		Integ	Total	Integ		Total	Integ	Total		Integ	Total	Integ	
65°F (18.3°C)	700	5.6	5.2	1.46	8.3	7.6	1.50	10.5	9.6	1.56	13.7	12.4	1.61	16.8	14.7	1.67	20.0	20.0	1.76	25.4	25.4	1.85	28.5	28.5	1.98								
	750	5.7	5.2	1.43	8.4	7.7	1.47	10.6	9.8	1.53	13.8	12.5	1.58	17.0	14.9	1.63	20.2	20.2	1.71	25.6	25.6	1.80	28.8	28.8	1.92								
	900	5.8	5.4	1.51	8.5	7.9	1.56	10.8	9.9	1.61	14.0	12.6	1.65	17.2	15.0	1.71	20.4	20.4	1.78	25.9	25.9	1.87	29.0	29.0	1.98								
70°F (21.1°C)	700	5.5	5.0	1.52	8.1	7.4	1.57	10.2	9.4	1.63	13.3	12.0	1.68	16.4	14.4	1.75	19.5	19.5	1.83	24.7	24.7	1.93	27.8	27.8	2.06								
	750	5.5	4.9	1.49	8.2	7.3	1.54	10.3	9.4	1.59	13.4	12.4	1.64	16.6	15.4	1.70	19.7	19.7	1.78	25.0	25.0	1.88	28.1	28.1	2.00								
	900	5.7	5.2	1.57	8.3	7.7	1.61	10.5	9.6	1.67	13.6	12.3	1.72	16.7	14.7	1.77	19.8	19.8	1.85	25.2	25.2	1.94	28.2	28.2	2.05								
75°F (23.9°C)	700	5.4	4.9	1.58	7.9	7.3	1.63	10.0	9.2	1.70	13.0	11.8	1.75	16.2	14.2	1.82	19.3	19.3	1.91	24.5	24.5	2.01	27.5	27.5	2.14								
	750	5.4	5.0	1.55	8.0	7.4	1.60	10.1	9.3	1.65	13.2	11.9	1.71	16.4	14.4	1.77	19.5	19.5	1.85	24.7	24.7	1.95	27.8	27.8	2.08								
	900	5.6	5.1	1.63	8.2	7.5	1.67	10.3	9.5	1.73	13.3	12.1	1.78	16.6	14.5	1.84	19.6	19.6	1.92	25.0	25.0	2.01	28.0	28.0	2.13								

Performance Data
30 Cooling Extended Performance Table

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES deg F (C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW
CFM / BF	EWB	Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens	
875 / .09	57 (13.9)	29.0	29.0	1.9	28.0	28.0	2.1	26.7	26.7	2.3	22.7	22.7	2.7	21.5	21.5	3.0	20.3	20.3	3.2
	62 (16.7)	30.1	27.3	1.9	28.8	26.7	2.1	27.4	25.2	2.3	23.3	21.1	2.7	22.1	19.2	3.0	20.9	17.7	3.2
	63* (17.2)	30.7	22.1	1.9	29.3	21.3	2.1	27.7	20.6	2.3	23.3	17.9	2.7	21.9	16.9	3.0	20.2	16.5	3.2
	67 (19.4)	33.0	23.0	1.9	31.6	22.2	2.1	29.8	21.5	2.3	25.0	18.7	2.7	23.5	17.6	3.0	21.7	17.2	3.2
	72 (22.2)	36.0	18.4	1.9	34.4	17.6	2.1	32.5	16.9	2.3	27.3	14.6	2.8	25.6	13.6	3.0	23.7	13.1	3.3
950 / .10	57 (13.9)	28.9	28.1	1.9	27.9	26.5	2.1	26.6	24.9	2.3	22.6	20.8	2.8	21.5	18.9	3.0	20.3	17.5	3.2
	62 (16.7)	29.2	27.0	1.9	27.9	26.3	2.1	26.6	24.9	2.3	22.6	20.8	2.8	21.5	18.9	3.0	20.3	17.5	3.2
	63* (17.2)	29.5	21.8	1.9	28.2	21.1	2.1	26.6	20.4	2.3	22.3	17.7	2.8	21.0	16.7	3.0	19.4	16.3	3.2
	67 (19.4)	31.7	22.7	1.9	30.3	21.9	2.1	28.6	21.2	2.3	24.0	18.4	2.8	22.6	17.4	3.0	20.9	17.0	3.2
	72 (22.2)	34.6	18.1	1.9	33.0	17.3	2.1	31.3	16.7	2.4	26.2	14.4	2.8	24.6	13.4	3.0	22.8	12.9	3.3
1125 / .11	57 (13.9)	31.5	31.5	2.0	30.4	29.9	2.1	28.9	28.0	2.4	24.6	23.4	2.8	23.4	21.3	3.1	22.1	19.7	3.3
	62 (16.7)	31.8	30.7	2.0	30.4	29.6	2.1	29.0	28.0	2.4	24.6	23.4	2.8	23.4	21.3	3.1	22.1	19.7	3.3
	63* (17.2)	32.2	24.5	2.0	30.7	23.7	2.1	29.0	22.9	2.4	24.3	19.9	2.8	22.9	18.8	3.1	21.2	18.3	3.3
	67 (19.4)	34.6	25.5	2.0	33.0	24.7	2.2	31.2	23.9	2.4	26.2	20.7	2.8	24.6	19.6	3.1	22.7	19.1	3.3
	72 (22.2)	37.7	20.4	2.0	36.0	19.5	2.2	34.1	18.8	2.4	28.5	16.2	2.9	26.8	15.1	3.1	24.8	14.5	3.3

See Legend and Notes on page 19

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

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURE																													
		-10°F (-23.3°C)				0°F (-17.8°C)				10°F (-12.2°C)				20°F (-6.7°C)				30°F (-1.1°C)				40°F (4.4°C)				50°F (8.3°C)				60°F (15.6°C)	
EDB	CFM	Capacity (Mbtuh)		Total Sys	Capacity (Mbtuh)		Total Sys	Capacity (Mbtuh)		Total Sys	Capacity (Mbtuh)		Total Sys	Capacity (Mbtuh)		Total Sys	Capacity (Mbtuh)		Total Sys	Capacity (Mbtuh)		Total Sys	Capacity (Mbtuh)		Total Sys	Capacity (Mbtuh)		Total Sys			
		Total	Integ	KW	Total	Integ	KW	Total	Integ	KW	Total	Integ	KW	Total	Integ	KW	Total	Integ	KW	Total	Integ	KW	Total	Integ	KW	Total	Integ	KW			
65°F (18.3°C)	875	7.6	7.0	1.9	10.7	9.9	2.0	13.3	12.2	2.1	17.0	15.3	2.1	20.6	18.1	2.2	23.7	23.7	2.3	29.4	29.4	2.6	33.1	33.1	2.7						
	950	7.7	7.1	1.9	10.8	10.0	2.0	13.4	12.3	2.0	17.1	15.5	2.1	20.8	18.3	2.2	24.0	24.0	2.3	29.7	29.7	2.5	33.4	33.4	2.7						
	1125	7.9	7.3	2.0	11.0	10.2	2.0	13.6	12.5	2.1	17.3	15.7	2.2	21.0	18.4	2.3	24.2	24.2	2.3	30.0	30.0	2.5	33.6	33.6	2.7						
70°F (21.1°C)	875	7.4	6.8	2.0	10.5	9.6	2.1	12.9	11.9	2.2	16.5	14.9	2.2	20.1	17.6	2.3	23.1	23.1	2.4	28.6	28.6	2.7	32.2	32.2	2.8						
	950	7.5	6.7	2.0	10.6	9.5	2.0	13.1	11.9	2.1	16.7	15.3	2.2	20.3	18.9	2.3	23.4	23.4	2.4	28.9	28.9	2.6	32.5	32.5	2.8						
	1125	7.7	7.1	2.1	10.8	9.9	2.1	13.3	12.2	2.2	16.9	15.3	2.3	20.5	17.9	2.3	23.5	23.5	2.4	29.2	29.2	2.6	32.7	32.7	2.8						
75°F (23.9°C)	875	7.3	6.7	2.1	10.2	9.4	2.2	12.7	11.7	2.3	16.2	14.6	2.3	19.9	17.4	2.4	22.9	22.9	2.5	28.3	28.3	2.8	31.9	31.9	3.0						
	950	7.4	6.8	2.1	10.4	9.5	2.1	12.8	11.8	2.2	16.3	14.8	2.3	20.1	17.6	2.4	23.1	23.1	2.4	28.6	28.6	2.7	32.2	32.2	2.9						
	1125	7.5	6.9	2.1	10.5	9.7	2.2	13.0	12.0	2.3	16.5	15.0	2.3	20.3	17.8	2.4	23.3	23.3	2.5	28.9	28.9	2.7	32.4	32.4	2.9						

Performance Data
36 Cooling Extended Performance Table

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES deg F (C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW
CFM / BF	EWB	Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens	
1050 / .08	57 (13.9)	33.6	33.6	2.3	32.4	32.4	2.5	30.9	30.9	2.8	26.2	26.2	3.0	24.3	24.3	3.4	23.2	23.2	3.7
	62 (16.7)	34.9	33.5	2.3	33.3	32.7	2.5	31.8	30.9	2.8	27.0	25.6	3.0	25.0	23.5	3.4	23.9	21.7	3.7
	63* (17.2)	35.6	27.0	2.3	34.0	26.1	2.5	32.1	25.3	2.8	26.9	21.7	3.0	24.7	20.7	3.4	23.1	20.2	3.7
	67 (19.4)	38.3	28.2	2.3	36.5	27.2	2.6	34.5	26.3	2.9	28.9	22.6	3.0	26.5	21.6	3.4	24.8	21.1	3.7
	72 (22.2)	41.7	22.5	2.4	39.8	21.5	2.6	37.7	20.7	2.9	31.6	17.7	3.0	28.9	16.6	3.5	27.0	16.0	3.8
1150 / .09	57 (13.9)	33.7	33.7	2.3	32.6	32.6	2.6	31.0	30.8	2.9	26.4	25.5	3.0	24.4	23.4	3.5	23.3	21.6	3.7
	62 (16.7)	34.1	33.4	2.3	32.6	32.5	2.6	31.1	30.8	2.9	26.4	25.5	3.0	24.4	23.4	3.5	23.3	21.6	3.7
	63* (17.2)	34.5	26.9	2.3	32.9	26.0	2.6	31.1	25.2	2.9	26.1	21.6	3.0	23.9	20.6	3.5	22.4	20.1	3.7
	67 (19.4)	37.1	28.0	2.4	35.4	27.1	2.6	33.4	26.2	2.9	28.1	22.5	3.0	25.7	21.5	3.5	24.0	21.0	3.7
1350 / .10	72 (22.2)	40.4	22.4	2.4	38.6	21.4	2.6	36.5	20.6	2.9	30.6	17.6	3.1	28.0	16.5	3.5	26.2	15.9	3.8
	57 (13.9)	36.4	36.4	2.4	35.2	35.2	2.6	33.5	33.5	2.9	28.5	28.4	3.1	26.4	26.1	3.5	25.2	24.1	3.8
	62 (16.7)	36.8	36.8	2.4	35.2	35.2	2.6	33.5	33.5	2.9	28.5	28.4	3.1	26.4	26.1	3.5	25.2	24.1	3.8
	63* (17.2)	37.2	30.0	2.4	35.6	29.0	2.6	33.6	28.0	2.9	28.2	24.1	3.1	25.8	23.0	3.5	24.2	22.4	3.8
	67 (19.4)	40.0	31.3	2.4	38.2	30.2	2.7	36.1	29.2	2.9	30.3	25.1	3.1	27.8	24.0	3.5	26.0	23.4	3.8
	72 (22.2)	43.6	25.0	2.5	41.7	23.9	2.7	39.4	23.0	3.0	33.0	19.6	3.1	30.3	18.4	3.6	28.3	17.8	3.8

* See Legend and Notes on page 19

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

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES°F (°C)																							
		-10 (-23.3)			0 (-17.8)			10 (-12.2)			20 (-6.7)			30 (-1.1)			40 (4.4)			50 (10)			60 (15.6)		
EDB °F (°C)	CFM	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW
		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ	
65°F (18.3°C)	1050	8.9	8.2	2.1	12.9	11.8	2.1	16.1	14.8	2.2	21.5	19.4	2.3	26.1	22.9	2.4	30.1	30.1	2.4	37.2	37.2	2.6	41.9	41.9	2.8
	1150	9.0	8.3	2.1	13.0	12.0	2.1	16.3	15.0	2.2	21.7	19.6	2.3	26.4	23.1	2.3	30.4	30.4	2.4	37.6	37.6	2.6	42.3	42.3	2.7
	1350	9.3	8.5	2.2	13.2	12.2	2.2	16.5	15.2	2.3	21.9	19.8	2.4	26.6	23.3	2.4	30.6	30.6	2.5	38.0	38.0	2.7	42.5	42.5	2.8
70°F (21.1°C)	1050	8.7	8.0	2.2	12.5	11.5	2.2	15.7	14.4	2.3	20.9	18.9	2.4	25.4	22.3	2.5	29.3	29.3	2.5	36.2	36.2	2.7	40.8	40.8	2.9
	1150	8.8	7.8	2.1	12.7	11.4	2.2	15.8	14.4	2.3	21.1	19.4	2.4	25.7	23.9	2.4	29.6	29.6	2.5	36.6	36.6	2.7	41.2	41.2	2.9
	1350	9.0	8.3	2.2	12.9	11.9	2.3	16.1	14.8	2.4	21.3	19.3	2.4	25.9	22.7	2.5	29.8	29.8	2.6	37.0	37.0	2.8	41.4	41.4	2.9
75°F (23.9°C)	1050	8.5	7.8	2.3	12.3	11.3	2.3	15.4	14.1	2.4	20.5	18.5	2.5	25.2	22.1	2.6	29.0	29.0	2.6	35.9	35.9	2.8	40.4	40.4	3.0
	1150	8.6	7.9	2.2	12.4	11.4	2.3	15.5	14.3	2.4	20.7	18.7	2.5	25.4	22.3	2.5	29.3	29.3	2.6	36.2	36.2	2.8	40.8	40.8	3.0
	1350	8.8	8.1	2.3	12.6	11.6	2.4	15.7	14.5	2.5	20.9	18.9	2.5	25.7	22.5	2.6	29.5	29.5	2.7	36.6	36.6	2.9	41.0	41.0	3.0

Performance Data
42 Cooling Extended Performance Table

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES deg F (C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW
CFM / BF	EWB	Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens	
1225 / .09	57 (13.9)	42.0	42.0	2.8	40.5	40.5	3.1	38.6	38.6	3.5	34.8	34.8	3.9	32.8	32.8	4.2	31.0	31.0	4.5
	62 (16.7)	43.6	39.7	2.8	41.6	38.7	3.1	39.7	36.6	3.5	35.7	33.4	3.9	33.7	30.6	4.2	31.9	27.9	4.5
	63* (17.2)	44.5	32.0	2.8	42.5	30.9	3.1	40.1	29.9	3.5	35.6	28.4	3.9	33.2	26.9	4.2	30.8	26.0	4.5
	67 (19.4)	47.8	33.3	2.9	45.6	32.2	3.2	43.1	31.1	3.5	38.3	29.6	3.9	35.7	28.0	4.2	33.2	27.1	4.5
	72 (22.2)	52.1	26.7	2.9	49.8	25.5	3.2	47.1	24.5	3.5	41.8	23.1	3.9	39.0	21.6	4.3	36.1	20.6	4.5
1350 / .10	57 (13.9)	42.4	41.4	2.9	41.0	39.1	3.2	39.0	36.7	3.5	35.1	33.5	3.9	33.1	30.6	4.3	31.4	28.0	4.5
	62 (16.7)	42.9	39.7	2.9	41.0	38.8	3.2	39.1	36.7	3.5	35.1	33.5	3.9	33.1	30.6	4.3	31.4	28.0	4.5
	63* (17.2)	43.4	32.0	2.9	41.4	31.0	3.2	39.1	30.0	3.5	34.8	28.5	3.9	32.4	27.0	4.3	30.1	26.1	4.5
	67 (19.4)	46.6	33.4	2.9	44.5	32.3	3.2	42.0	31.2	3.6	37.4	29.6	3.9	34.9	28.1	4.3	32.3	27.1	4.5
	72 (22.2)	50.8	26.7	2.9	48.5	25.5	3.2	45.9	24.6	3.6	40.7	23.1	4.0	38.0	21.6	4.3	35.3	20.6	4.6
1575 / .11	57 (13.9)	45.5	45.5	3.0	44.0	43.3	3.2	41.9	40.6	3.6	37.7	37.1	4.0	35.5	33.9	4.3	33.7	31.0	4.6
	62 (16.7)	46.0	44.5	3.0	44.0	42.9	3.2	41.9	40.6	3.6	37.7	37.1	4.0	35.5	33.9	4.3	33.7	31.0	4.6
	63* (17.2)	46.5	35.5	3.0	44.4	34.4	3.2	42.0	33.2	3.6	37.3	31.5	4.0	34.8	29.9	4.3	32.3	28.9	4.6
	67 (19.4)	50.0	37.0	3.0	47.8	35.8	3.3	45.1	34.6	3.6	40.1	32.9	4.0	37.4	31.1	4.3	34.7	30.1	4.6
	72 (22.2)	54.5	29.6	3.0	52.1	28.3	3.3	49.3	27.2	3.7	43.7	25.6	4.1	40.8	24.0	4.4	37.8	22.9	4.7

See Legend and Notes on page 19

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

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES °F (°C)																							
		-10 (-23.3)			0 (-17.8)			10 (-12.2)			20 (-6.7)			30 (-1.1)			40 (4.4)			50 (10)			60 (15.6)		
EDB °F (°C)	CFM	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW
		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ	
65°F (18.3°C)	1225	10.5	9.7	2.5	15.2	14.0	2.6	19.0	17.5	2.7	25.3	22.9	2.8	30.8	27.0	2.9	35.4	35.4	2.9	43.9	43.9	3.2	49.4	49.4	3.4
	1350	10.7	9.8	2.5	15.3	14.1	2.6	19.2	17.6	2.7	25.6	23.1	2.7	31.1	27.3	2.8	35.8	35.8	2.9	44.3	44.3	3.2	49.9	49.9	3.4
	1575	10.9	10.0	2.6	15.6	14.3	2.7	19.4	17.9	2.8	25.8	23.4	2.8	31.4	27.5	2.9	36.0	36.0	3.0	44.8	44.8	3.2	50.1	50.1	3.4
70°F (21.1°C)	1225	10.3	9.4	2.6	14.8	13.6	2.7	18.5	17.0	2.8	24.6	22.3	2.9	30.0	26.3	3.0	34.5	34.5	3.1	42.7	42.7	3.4	48.1	48.1	3.6
	1350	10.4	9.2	2.6	14.9	13.4	2.7	18.7	17.0	2.8	24.9	22.9	2.9	30.3	28.2	2.9	34.9	34.9	3.0	43.2	43.2	3.3	48.6	48.6	3.5
	1575	10.6	9.8	2.7	15.2	14.0	2.8	18.9	17.4	2.9	25.1	22.8	3.0	30.5	26.8	3.0	35.1	35.1	3.1	43.6	43.6	3.4	48.8	48.8	3.6
75°F (23.9°C)	1225	10.1	9.2	2.7	14.5	13.3	2.8	18.1	16.7	2.9	24.1	21.9	3.0	29.7	26.0	3.1	34.2	34.2	3.2	42.3	42.3	3.5	47.6	47.6	3.7
	1350	10.2	9.4	2.7	14.6	13.5	2.8	18.3	16.8	2.9	24.4	22.1	3.0	30.0	26.3	3.1	34.5	34.5	3.1	42.7	42.7	3.4	48.1	48.1	3.7
	1575	10.4	9.6	2.8	14.9	13.7	2.9	18.5	17.1	3.0	24.6	22.3	3.1	30.2	26.5	3.1	34.8	34.8	3.2	43.2	43.2	3.5	48.3	48.3	3.7

Performance Data
48 Cooling Extended Performance Table

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES deg F																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW
CFM / BF	EWB	Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens	
1400 / .09	57 (13.9)	46.2	46.2	3.2	44.6	44.6	3.5	42.5	42.5	3.9	37.9	37.9	4.5	34.8	34.8	4.9	32.4	32.4	5.2
	62 (16.7)	48.0	44.4	3.2	45.9	43.3	3.5	43.7	40.9	3.9	38.9	37.0	4.5	35.8	33.4	4.9	33.3	29.4	5.2
	63* (17.2)	49.0	35.8	3.2	46.8	34.6	3.5	44.2	33.4	3.9	38.8	31.4	4.5	35.3	29.4	4.9	32.2	27.4	5.2
	67 (19.4)	52.7	37.3	3.3	50.3	36.1	3.6	47.5	34.8	4.0	41.8	32.8	4.5	38.0	30.7	4.9	34.6	28.6	5.2
	72 (22.2)	57.4	29.8	3.3	54.8	28.5	3.6	51.9	27.4	4.0	45.5	25.5	4.6	41.4	23.6	4.9	37.8	21.7	5.3
1600 / .10	57 (13.9)	48.5	48.0	3.3	46.8	45.3	3.6	44.6	42.5	4.0	39.7	38.5	4.6	36.5	34.7	5.0	34.0	30.6	5.3
	62 (16.7)	49.0	46.1	3.3	46.8	45.0	3.6	44.6	42.5	4.0	39.7	38.5	4.6	36.5	34.7	5.0	34.0	30.6	5.3
	63* (17.2)	49.6	37.2	3.3	47.3	36.0	3.6	44.7	34.8	4.0	39.3	32.7	4.6	35.7	30.6	5.0	32.6	28.5	5.3
	67 (19.4)	53.3	38.7	3.3	50.9	37.5	3.6	48.0	36.2	4.1	42.2	34.0	4.6	38.4	31.9	5.0	35.0	29.7	5.3
	72 (22.2)	58.1	31.0	3.4	55.5	29.6	3.7	52.5	28.5	4.1	46.0	26.5	4.6	41.9	24.5	5.0	38.2	22.6	5.3
1800 / .11	57 (13.9)	50.2	50.2	3.4	48.4	48.4	3.7	46.2	45.5	4.1	41.1	41.1	4.7	37.8	37.1	5.0	35.2	32.7	5.3
	62 (16.7)	50.7	49.8	3.4	48.4	48.1	3.7	46.2	45.5	4.1	41.1	41.1	4.7	37.8	37.1	5.0	35.2	32.7	5.3
	63* (17.2)	51.3	39.7	3.4	49.0	38.4	3.7	46.3	37.1	4.1	40.7	34.9	4.7	37.0	32.7	5.0	33.7	30.5	5.3
	67 (19.4)	55.1	41.4	3.4	52.7	40.0	3.7	49.7	38.7	4.1	43.7	36.4	4.7	39.7	34.0	5.0	36.3	31.7	5.3
	72 (22.2)	60.1	33.1	3.4	57.4	31.6	3.7	54.3	30.4	4.2	47.7	28.4	4.7	43.3	26.2	5.1	39.5	24.1	5.4

See Legend and Notes on page 19

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

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES °F (°C)																				
		-10 (-23.3)			0 (-17.8)			10 (-12.2)			20 (-6.7)			30 (-1.1)			40 (4.4)			50 (10)		
EDB	CFM	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW
		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ	
65°F (18.3°C)	1400	12.2	11.2	2.7	15.4	14.2	2.7	21.3	19.6	2.8	26.4	23.9	2.9	27.0	23.7	3.0	33.0	33.0	3.1	48.1	48.1	3.4
	1600	12.3	11.3	2.7	15.6	14.4	2.8	21.6	19.8	2.9	26.7	24.2	3.0	27.3	23.9	3.1	33.4	33.4	3.2	48.6	48.6	3.4
	1800	12.5	11.5	2.8	15.8	14.6	2.9	21.8	20.0	3.0	26.9	24.4	3.0	27.5	24.1	3.1	33.6	33.6	3.2	49.1	49.1	3.5
70°F (21.1°C)	1400	11.9	10.9	2.8	15.0	13.8	2.8	20.8	19.1	3.0	25.7	23.3	3.1	26.3	23.1	3.2	32.2	32.2	3.3	46.8	46.8	3.6
	1600	12.0	10.7	2.8	15.2	13.7	2.9	21.0	19.1	3.0	26.0	23.9	3.1	26.6	24.7	3.2	32.5	32.5	3.3	47.3	47.3	3.6
	1800	12.2	11.2	2.9	15.4	14.2	3.0	21.2	19.5	3.1	26.2	23.7	3.2	26.8	23.5	3.3	32.7	32.7	3.3	47.8	47.8	3.6
75°F (23.9°C)	1400	11.6	10.7	2.9	14.7	13.6	3.0	20.4	18.7	3.1	25.2	22.8	3.2	26.1	22.8	3.3	31.8	31.8	3.4	46.4	46.4	3.7
	1600	11.8	10.8	2.9	14.9	13.7	3.0	20.6	18.9	3.1	25.5	23.1	3.2	26.3	23.1	3.3	32.2	32.2	3.4	46.8	46.8	3.7
	1800	12.0	11.0	3.0	15.1	13.9	3.1	20.8	19.1	3.2	25.7	23.3	3.3	26.6	23.3	3.4	32.4	32.4	3.5	47.3	47.3	3.8

Performance Table
60 Cooling Extended Performance Table

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES deg F (C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW
CFM / BF	EWB	Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens	
1600 / .10	57 (13.9)	55.4	55.4	4.0	53.5	53.5	4.3	50.9	50.9	4.8	41.2	41.2	5.5	39.3	39.3	5.8	37.2	37.2	6.1
	62 (16.7)	57.5	51.7	4.0	54.9	50.4	4.3	52.4	47.7	4.8	42.4	39.9	5.5	40.4	37.6	5.8	38.2	35.9	6.1
	63* (17.2)	58.7	41.7	4.0	56.0	40.3	4.3	52.9	38.9	4.8	42.3	33.9	5.5	39.9	33.1	5.8	37.0	33.5	6.1
	67 (19.4)	63.1	43.4	4.0	60.2	42.0	4.4	56.8	40.6	4.9	45.5	35.3	5.5	42.9	34.5	5.8	39.8	34.9	6.1
	72 (22.2)	68.7	34.7	4.0	65.7	33.2	4.4	62.1	31.9	4.9	49.5	27.5	5.6	46.8	26.6	5.9	43.4	26.5	6.2
1750 / .10	57 (13.9)	55.6	53.5	4.0	53.6	50.5	4.4	51.1	47.4	4.9	41.4	39.7	5.5	39.4	37.4	5.9	37.3	35.7	6.2
	62 (16.7)	56.2	51.4	4.0	53.6	50.1	4.4	51.2	47.4	4.9	41.4	39.7	5.5	39.4	37.4	5.9	37.3	35.7	6.2
	63* (17.2)	56.8	41.4	4.0	54.2	40.1	4.4	51.2	38.7	4.9	40.9	33.7	5.5	38.6	32.9	5.9	35.8	33.3	6.2
	67 (19.4)	61.1	43.2	4.0	58.3	41.8	4.4	55.0	40.3	4.9	44.0	35.1	5.5	41.5	34.3	5.9	38.5	34.7	6.2
2000 / .13	72 (22.2)	66.5	34.5	4.1	63.5	33.0	4.5	60.1	31.7	5.0	48.0	27.4	5.6	45.3	26.4	5.9	42.0	26.4	6.2
	57 (13.9)	58.4	58.1	4.1	56.4	54.9	4.5	53.7	51.5	5.0	43.5	43.1	5.6	41.5	40.6	6.0	39.3	38.8	6.2
	62 (16.7)	59.1	56.4	4.1	56.4	54.4	4.5	53.8	51.5	5.0	43.5	43.1	5.6	41.5	40.6	6.0	39.3	38.8	6.2
	63* (17.2)	59.7	45.0	4.1	57.0	43.5	4.5	53.8	42.0	5.0	43.0	36.6	5.6	40.6	35.7	6.0	37.6	36.2	6.2
	67 (19.4)	64.2	46.9	4.1	61.3	45.3	4.5	57.8	43.8	5.0	46.3	38.1	5.6	43.7	37.2	6.0	40.5	37.7	6.2
	72 (22.2)	70.0	37.5	4.2	66.8	35.8	4.6	63.2	34.5	5.1	50.4	29.7	5.7	47.6	28.7	6.0	44.1	28.6	6.3

See Legend and Notes on page 19

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

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURE																													
		-10°F (-23.3°C)				0°F (-17.8°C)				10°F (-12.2°C)				20°F (-6.7°C)				30°F (-1.1°C)				40°F (4.4°C)				50°F (8.3°C)				60°F (15.6°C)	
EDB	CFM	Capacity (Mbtuh)		Total Sys	Capacity (Mbtuh)		Total Sys	Capacity (Mbtuh)		Total Sys	Capacity (Mbtuh)		Total Sys	Capacity (Mbtuh)		Total Sys	Capacity (Mbtuh)		Total Sys	Capacity (Mbtuh)		Total Sys	Capacity (Mbtuh)		Total Sys	Capacity (Mbtuh)		Total Sys			
		Total	Integ	KW	Total	Integ	KW	Total	Integ	KW	Total	Integ	KW	Total	Integ	KW	Total	Integ	KW	Total	Integ	KW	Total	Integ	KW	Total	Integ	KW			
65°F (18.3°C)	1600	15.1	13.8	3.61	21.4	19.7	3.71	27.9	25.7	3.85	32.0	29.0	3.99	32.2	28.2	4.11	41.7	41.7	4.23	60.3	60.3	4.63	67.8	67.8	4.94						
	1750	15.2	14.0	3.57	21.7	19.9	3.66	28.2	26.0	3.80	32.4	29.3	3.93	32.6	28.5	4.04	42.1	42.1	4.15	60.9	60.9	4.53	68.5	68.5	4.82						
	2000	15.5	14.3	3.65	21.9	20.2	3.74	28.5	26.2	3.87	32.6	29.5	3.99	32.8	28.8	4.10	42.4	42.4	4.21	61.5	61.5	4.57	68.8	68.8	4.84						
70°F (21.1°C)	1600	14.7	13.5	3.77	20.9	19.2	3.87	27.2	25.0	4.02	31.2	28.2	4.17	31.4	27.5	4.29	40.6	40.6	4.41	58.7	58.7	4.83	66.0	66.0	5.15						
	1750	14.8	13.2	3.72	21.1	19.0	3.82	27.5	25.0	3.96	31.5	29.0	4.09	31.7	23.1	4.21	41.0	41.0	4.33	59.3	59.3	4.72	66.7	66.7	5.03						
	2000	15.1	13.9	3.80	21.4	19.7	3.88	27.8	25.6	4.02	31.8	28.8	4.15	32.0	28.0	4.26	41.3	41.3	4.37	59.9	59.9	4.75	67.0	67.0	5.03						
75°F (23.9°C)	1600	14.4	13.2	3.93	20.4	18.8	4.03	26.7	24.5	4.19	30.5	27.6	4.34	31.1	27.2	4.47	40.2	40.2	4.60	58.1	58.1	5.03	65.3	65.3	5.37						
	1750	14.5	13.4	3.87	20.7	19.0	3.97	27.0	24.8	4.11	30.9	27.9	4.26	31.4	27.5	4.38	40.6	40.6	4.50	58.7	58.7	4.91	66.0	66.0	5.23						
	2000	14.8	13.6	3.94	20.9	19.3	4.03	27.2	25.0	4.17	31.1	28.2	4.30	31.7	27.7	4.42	40.9	40.9	4.53	59.3	59.3	4.93	66.3	66.3	5.22						

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

LEGEND

- BF— Bypass Factor
- edb— Entering Dry-Bulb
- ewb — Entering Wet-Bulb
- KW — Total Unit Power Input
- 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:

$$t_{ldb} = t_{edb} - \frac{\text{Sensible Capacity (Btuh)}}{1.09 \times \text{CFM}}$$

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

$$h_{lwb} = h_{ewb} - \frac{\text{Total Capacity (Btuh)}}{(4.5 \times \text{CFM})}$$

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

- 4.The Sensible Capacity is based on 80°F (26.7 °C) edb temperature of air entering evaporator coil. Below 80°F (26.7°C) edb, subtract (corr factor x cfm) from Sensible Capacity. Above 80°F (26.7°C) edb, add (corr factor x cfm) to Sensible Capacity.
Correction Factor = 1.09 x (1 - BF) x (edb - 80).
- 5.Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

Performance Data

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)
60000	Orifice No. (Qty)	44 (3)	45 (3) [†]	48 (3) [†]	48 (3) [†]	48 (3) [†]
	Manifold Press. (in. W.C.)	3.2	3.2	3.8	3.5	3.2
90000	Orifice No. (Qty)	38 (3)	41 (3) [†]	41 (3) [†]	42 (3) [†]	42 (3) [†]
	Manifold Press. (in. W.C.)	3.6	3.8	3.4	3.4	3.2
115000	Orifice No. (Qty)	33 (3)	36 (3) [†]	36 (3) [†]	36 (3) [†]	38 (3) [†]
	Manifold Press. (in. W.C.)	3.8	3.8	3.6	3.3	3.6
127000	Orifice No. (Qty)	31 (3)	31 (3)	33 (3) [†]	33 (3) [†]	34 (3) [†]
	Manifold Press. (in. W.C.)	3.7	3.2	3.5	3.2	3.2

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

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

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

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

†. Orifices available through your distributor.

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)
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).

High Altitude Compensation, Propane Gas, Single Phase Models

Nameplate Input (Btu/hr)	Rated Heating Input (Btu/hr), Propane Gas at Installation Altitude Above Sea Level, U.S.A.*				
	0 to 2000 ft (0-610 m)	2001 to 3000 ft (611 to 914 m)	3001 to 4000 ft (915 to 1219 m)	4001 to 5000 ft (1220 to 1524 m)	5001 to 6000 ft (1524 to 1829 m)
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, 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)
60000	60000	54000	51600	49200	46800
90000	90000	81000	77400	73800	70200
115000	115000	103500	98900	94300	89700
127000	127000	143000	109200	104100	99100

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

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

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

Dry Coil Air Delivery* - Horizontal and Downflow Discharge Sizes 24-60 208/230 VAC - 1 Phase

Unit Size	Heating Rise °F (°C)	Motor Speed	Tap	Allowable Functions	ESP (in. W.C.)										
						0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
24060	25 - 55 (14 - 31)	Low†	Blue	Alternate Cooling	CFM	723	563	308	---	---	---	---	---	---	---
					BHP	0.09	0.07	0.06	---	---	---	---	---	---	---
					Gas Heat Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
					Gas Heat Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Med-Low	Pink	Alternate Cooling, Alternate Gas Heating	CFM	829	766	696	606	538	470	406	341	283	220
					BHP	0.11	0.12	0.12	0.13	0.13	0.14	0.14	0.15	0.15	0.16
					Gas Heat Rise (°F)	54	NA	NA	NA	NA	NA	NA	NA	NA	NA
					Gas Heat Rise (°C)	30	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Medium**	Red	Cooling, Alternate Gas Heating	CFM	1065	1016	966	914	857	783	716	667	617	566
					BHP	0.19	0.20	0.20	0.21	0.22	0.23	0.23	0.24	0.24	0.25
					Gas Heat Rise (°F)	42	44	46	49	52	NA	NA	NA	NA	NA
					Gas Heat Rise (°C)	23	24	26	27	29	NA	NA	NA	NA	NA
		Med-High†	Orange	Gas Heating, Alternate Cooling	CFM	1097	1048	999	949	893	833	751	701	651	603
					BHP	0.21	0.21	0.22	0.22	0.23	0.24	0.25	0.25	0.26	0.26
					Gas Heat Rise (°F)	41	43	45	47	50	54	NA	NA	NA	NA
					Gas Heat Rise (°C)	23	24	25	26	28	30	NA	NA	NA	NA
		High	Black	High Static Cooling Only	CFM	1215	1173	1129	1085	1038	989	936	854	803	760
					BHP	0.26	0.27	0.28	0.28	0.29	0.30	0.31	0.32	0.32	0.33
30060	25 - 55 (14 - 31)	Low†	Blue		CFM	643	552	455	348	225	---	---	---	---	---
					BHP	0.09	0.10	0.11	0.11	0.11	---	---	---	---	---
					Gas Heat Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
					Gas Heat Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Med-Low	Pink	Alternate Cooling, Alternate Gas Heating	CFM	817	744	673	597	516	431	325	190	---	---
					BHP	0.14	0.15	0.15	0.16	0.17	0.17	0.18	0.18	---	---
					Gas Heat Rise (°F)	55	NA	NA	NA	NA	NA	NA	NA	NA	NA
					Gas Heat Rise (°C)	30	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Medium**	Red	Gas Heating, Alternate Cooling	CFM	1159	1104	1045	990	937	878	821	759	693	618
					BHP	0.31	0.32	0.33	0.33	0.34	0.35	0.36	0.37	0.37	0.38
					Gas Heat Rise (°F)	39	40	43	45	48	51	54	NA	NA	NA
					Gas Heat Rise (°C)	21	22	24	25	26	28	30	NA	NA	NA
		Med-High†	Orange	Cooling, Alternate Gas Heating	CFM	1201	1147	1095	1037	987	934	877	818	755	671
					BHP	0.34	0.35	0.36	0.37	0.37	0.38	0.39	0.40	0.41	0.40
					Gas Heat Rise (°F)	37	39	41	43	45	48	51	55	NA	NA
					Gas Heat Rise (°C)	21	22	23	24	25	27	28	30	NA	NA
		High	Black	High Static Cooling Only	CFM	1291	1236	1181	1131	1080	1033	978	909	792	661
					BHP	0.41	0.42	0.43	0.43	0.44	0.45	0.46	0.45	0.43	0.40

Dry Coil Air Delivery* - Horizontal and Downflow Discharge Sizes 24-60 208/230 VAC - 1 Phase (Continued)

Unit Size	Heating Rise °F (°C)	Motor Speed	Tap	Allowable Functions	ESP (in. W.C.)										
						0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
36090	35 - 65 (19 - 36)	Low†	Blue	Alternate Cooling, Alternate Gas Heating	CFM	1069	1006	955	896	847	800	755	700	649	598
					BHP	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.24
					Gas Heat Rise (°F)	63	NA	NA	NA	NA	NA	NA	NA	NA	NA
					Gas Heat Rise (°C)	35	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Med-Low	Pink	Alternate Cooling, Alternate Gas Heating	CFM	1154	1100	1045	997	936	886	847	804	749	699
					BHP	0.19	0.20	0.21	0.23	0.24	0.24	0.25	0.26	0.27	0.28
					Gas Heat Rise (°F)	58	61	64	NA	NA	NA	NA	NA	NA	NA
					Gas Heat Rise (°C)	32	34	36	NA	NA	NA	NA	NA	NA	NA
		Medium **	Red	Gas Heating, Alternate Cooling	CFM	1295	1247	1199	1152	1104	1050	997	955	918	875
					BHP	0.26	0.27	0.28	0.29	0.30	0.31	0.32	0.33	0.33	0.34
					Gas Heat Rise (°F)	52	54	56	58	61	64	NA	NA	NA	NA
					Gas Heat Rise (°C)	29	30	31	32	34	35	NA	NA	NA	NA
		Med-High‡	Orange	Cooling, Alternate Gas Heating	CFM	1421	1374	1328	1283	1236	1188	1137	1089	1042	1011
					BHP	0.32	0.33	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.41
					Gas Heat Rise (°F)	47	49	50	52	54	56	59	61	64	NA
					Gas Heat Rise (°C)	26	27	28	29	30	31	33	34	36	NA
		High	Black	High Static Cooling Only	CFM	1505	1464	1423	1380	1336	1292	1242	1199	1145	1096
					BHP	0.38	0.39	0.40	0.42	0.43	0.43	0.44	0.45	0.46	0.47
42090	35 - 65 (19 - 36)	Low†	Blue		CFM	956	899	843	786	729	676	621	558	504	435
					BHP	0.13	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18	0.19
					Gas Heat Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
					Gas Heat Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Med-Low	Pink		CFM	1201	1153	1107	1060	1012	965	917	871	828	782
					BHP	0.21	0.22	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29
					Gas Heat Rise (°F)	56	58	60	63	NA	NA	NA	NA	NA	NA
					Gas Heat Rise (°C)	31	32	34	35	NA	NA	NA	NA	NA	NA
		Medium **	Red	Gas Heating, Alternate Cooling	CFM	1443	1402	1361	1322	1284	1243	1204	1164	1124	1084
					BHP	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.42
					Gas Heat Rise (°F)	46	48	49	51	52	54	56	58	60	62
					Gas Heat Rise (°C)	26	27	27	28	29	30	31	32	33	34
		Med-High‡	Orange	Cooling, Alternate Gas Heating	CFM	1529	1491	1451	1411	1376	1338	1300	1261	1223	1185
					BHP	0.37	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47
					Gas Heat Rise (°F)	44	45	46	47	49	50	52	53	55	57
					Gas Heat Rise (°C)	24	25	26	26	27	28	29	29	30	31
		High	Black	High Static Cooling Only	CFM	1604	1565	1529	1490	1455	1421	1385	1348	1310	1274
					BHP	0.42	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52

Dry Coil Air Delivery* - Horizontal and Downflow Discharge Sizes 24-60 208/230 VAC - 1 Phase (Continued)

Unit Size	Heating Rise °F (°C)	Motor Speed	Tap	Allowable Functions	ESP (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†	Blue		CFM	641	551	462	385	289	216	163	115	---	---
					BHP	0.05	0.06	0.06	0.07	0.07	0.08	0.08	0.09	---	---
					Gas Heat Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
					Gas Heat Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Med-Low‡	Pink	Gas Heating, Alternate Cooling	CFM	1437	1395	1351	1307	1265	1221	1176	1132	1084	1039
					BHP	0.29	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38
					Gas Heat Rise (°F)	47	48	50	51	53	55	57	59	62	64
					Gas Heat Rise (°C)	26	27	28	28	29	30	32	33	34	36
		Medium**	Red	Cooling	CFM	1771	1735	1699	1664	1627	1592	1557	1522	1486	1450
					BHP	0.51	0.52	0.53	0.55	0.56	0.57	0.58	0.59	0.61	0.62
					Gas Heat Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
					Gas Heat Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Med-High	Orange	Alternate Cooling	CFM	1928	1897	1862	1830	1796	1764	1732	1698	1620	1512
					BHP	0.64	0.65	0.67	0.68	0.69	0.71	0.72	0.73	0.71	0.66
					Gas Heat Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
					Gas Heat Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		High	Black	High Static Cooling Only	CFM	2212	2167	2124	2061	1976	1892	1794	1699	1567	1438
					BHP	0.97	0.99	1.00	0.97	0.95	0.91	0.86	0.82	0.77	0.71
48115	30 - 60 (17 - 33)	Low†	Blue		CFM	641	551	462	385	289	216	163	115	---	---
					BHP	0.05	0.06	0.06	0.07	0.07	0.08	0.08	0.09	---	---
					Gas Heat Rise (°F)	134	155	185	222	296	NA	NA	NA	NA	NA
					Gas Heat Rise (°C)	74	86	103	124	164	NA	NA	NA	NA	NA
		Med-Low	Pink	Alternate Cooling, Alternate Gas Heating	CFM	1437	1395	1351	1307	1265	1221	1176	1132	1084	1039
					BHP	0.29	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38
					Gas Heat Rise (°F)	60	NA	NA	NA	NA	NA	NA	NA	NA	NA
					Gas Heat Rise (°C)	33	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Medium**	Red	Cooling, Alternate Gas Heating	CFM	1771	1735	1699	1664	1627	1592	1557	1522	1486	1450
					BHP	0.51	0.52	0.53	0.55	0.56	0.57	0.58	0.59	0.61	0.62
					Gas Heat Rise (°F)	48	49	50	51	53	54	55	56	58	59
					Gas Heat Rise (°C)	27	27	28	29	29	30	31	31	32	33
		Med-High‡	Orange	Gas Heating, Alternate Cooling	CFM	1928	1897	1862	1830	1796	1764	1732	1698	1620	1512
					BHP	0.64	0.65	0.67	0.68	0.69	0.71	0.72	0.73	0.71	0.66
					Gas Heat Rise (°F)	44	45	46	47	48	49	49	50	53	57
					Gas Heat Rise (°C)	25	25	26	26	26	27	27	28	29	31
		High	Black	High Static Cooling Only	CFM	2212	2167	2124	2061	1976	1892	1794	1699	1567	1438
					BHP	0.97	0.99	1.00	0.97	0.95	0.91	0.86	0.82	0.77	0.71

Dry Coil Air Delivery* - Horizontal and Downflow Discharge Sizes 24-60 208/230 VAC - 1 Phase (Continued)

Unit Size	Heating Rise °F (°C)	Motor Speed	Tap	Allowable Functions	ESP (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†	Blue		CFM	641	551	462	385	289	216	163	115	---	---
					BHP	0.05	0.06	0.06	0.07	0.07	0.08	0.08	0.09	---	---
					Gas Heat Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
					Gas Heat Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Med-Low	Pink		CFM	1437	1395	1351	1307	1265	1221	1176	1132	1084	1039
					BHP	0.29	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38
					Gas Heat Rise (°F)	60	NA	NA	NA	NA	NA	NA	NA	NA	NA
					Gas Heat Rise (°C)	33	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Medium**	Red	Cooling, Alternate Gas Heating	CFM	1914	1881	1848	1814	1780	1748	1716	1681	1619	1512
					BHP	0.62	0.64	0.65	0.67	0.68	0.69	0.71	0.72	0.71	0.66
					Gas Heat Rise (°F)	45	45	46	47	48	49	50	51	53	57
					Gas Heat Rise (°C)	25	25	26	26	27	27	28	28	29	31
		Med-High‡	Orange	Gas Heating, Alternate Cooling	CFM	1928	1897	1862	1830	1796	1764	1732	1698	1620	1512
					BHP	0.64	0.65	0.67	0.68	0.69	0.71	0.72	0.73	0.71	0.66
					Gas Heat Rise (°F)	44	45	46	47	48	49	49	50	53	57
					Gas Heat Rise (°C)	25	25	26	26	26	27	27	28	29	31
		High	Black	High Static Cooling Only	CFM	2212	2167	2124	2061	1976	1892	1794	1699	1567	1438
					BHP	0.97	0.99	1.00	0.97	0.95	0.91	0.86	0.82	0.77	0.71
60130	35 - 65 (19 - 36)	Low†	Blue		CFM	641	551	462	385	289	216	163	115	---	---
					BHP	0.05	0.06	0.06	0.07	0.07	0.08	0.08	0.09	---	---
					Gas Heat Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
					Gas Heat Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Med-Low	Pink		CFM	1437	1395	1351	1307	1265	1221	1176	1132	1084	1039
					BHP	0.29	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38
					Gas Heat Rise (°F)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
					Gas Heat Rise (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Medium**	Red	Cooling, Alternate Gas Heating	CFM	1914	1881	1848	1814	1780	1748	1716	1681	1619	1512
					BHP	0.62	0.64	0.65	0.67	0.68	0.69	0.71	0.72	0.71	0.66
					Gas Heat Rise (°F)	49	50	51	52	53	54	55	56	58	62
					Gas Heat Rise (°C)	27	28	28	29	29	30	31	31	32	35
		Med-High‡	Orange	Gas Heating, Alternate Cooling	CFM	1928	1897	1862	1830	1796	1764	1732	1698	1620	1512
					BHP	0.64	0.65	0.67	0.68	0.69	0.71	0.72	0.73	0.71	0.66
					Gas Heat Rise (°F)	49	50	51	52	53	54	55	56	58	62
					Gas Heat Rise (°C)	27	28	28	29	29	30	30	31	32	35
		High	Black	High Static Cooling Only	CFM	2212	2167	2124	2061	1976	1892	1794	1699	1567	1438
					BHP	0.97	0.99	1.00	0.97	0.95	0.91	0.86	0.82	0.77	0.71

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

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

“High Static Cooling” = Only to be used for cooling function (Not allowed for gas heating function)

† Factory-shipped continuous fan speed

‡ Factory-shipped gas heating speed

** Factory-shipped cooling speed

”NA” = Not allowed for gas heating speed

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

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

Filter Size in. (mm)	Cooling Tons	Standard CFM (SCFM)																
		600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200
600-1400 CFM 12x20x1+12x20x1 (305x508x25+305x508x25)	2.0, 2.5	0.03	0.04	0.05	0.06	0.06	0.07	0.07	0.08	0.08	-	-	-	-	-	-	-	-
1200-1800 CFM 16x24x1+14x24x1 (406x610x25+356x610x25)	3.0, 3.5	-	-	-	-	0.04	0.05	0.06	0.07	0.08	0.09	0.09	0.10	0.11	0.12	0.12	-	-
1500-2200 CFM 16x24x1+18x24x1 (406x610x25+457x356x25)	4.0, 5.0	-	-	-	-	-	-	-	-	-	0.04	0.06	0.08	0.10	0.11	0.13	0.14	0.15

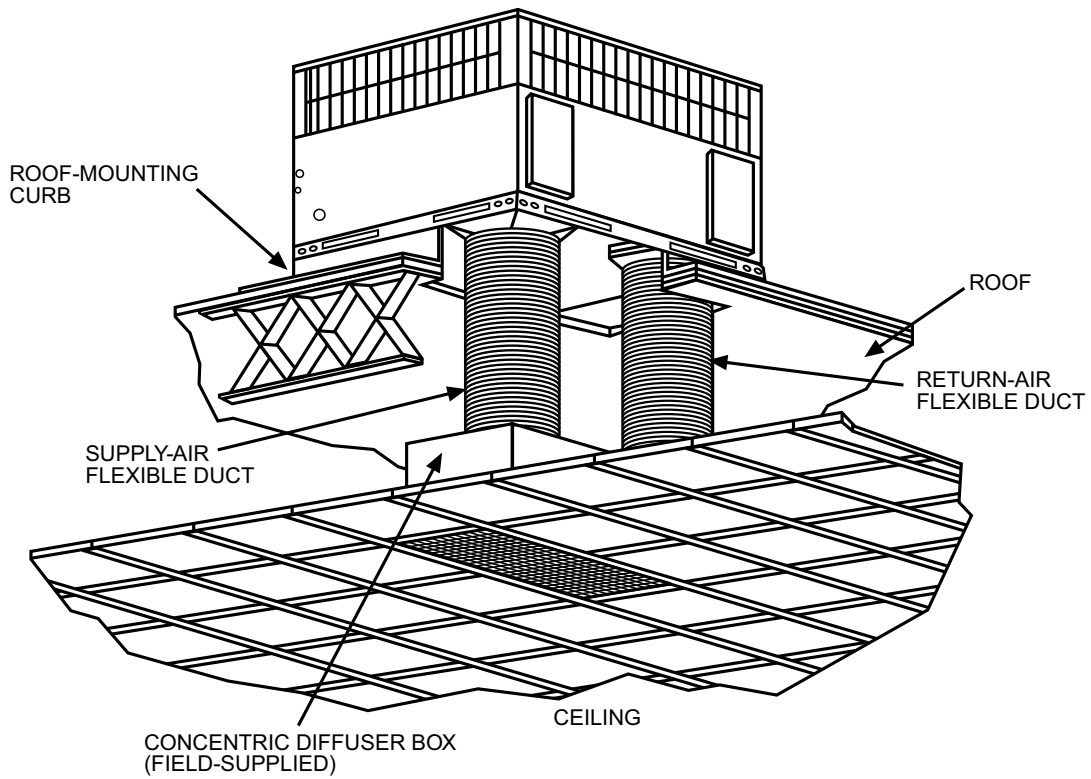
Wet Coil Pressure Drop (IN. W.C.)

Unit Size	Standard CFM (SCFM)																	
	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	
24	0.03	0.04	0.04	0.05	0.06													
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, 60									0.05	0.06	0.07	0.07	0.08	0.09	0.10	0.12	0.13	

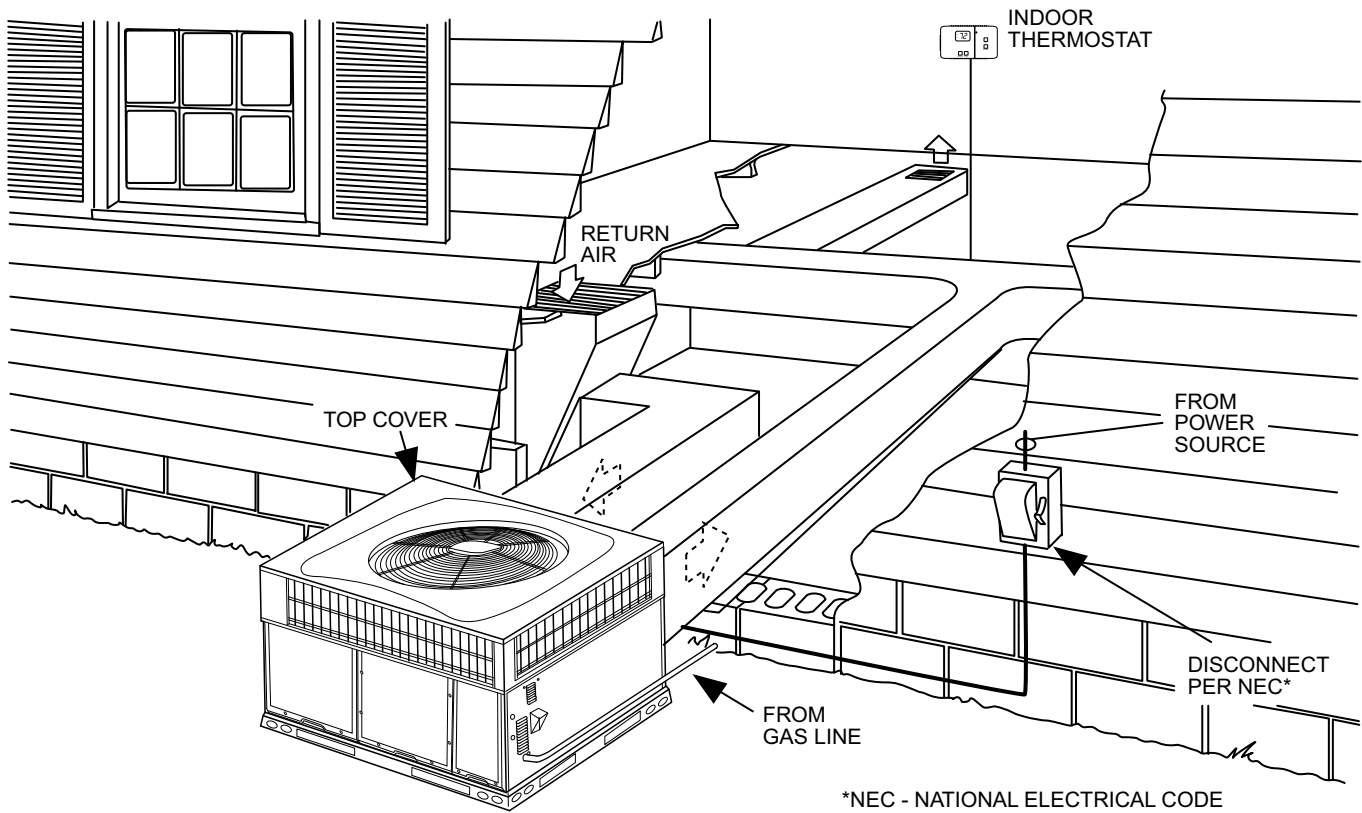
Economizer with 1-in. Filter Pressure Drop (IN. W.C.)

Filter Size in. (mm)	Cooling Tons	Standard CFM (SCFM)																
		600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200
600-1400 CFM 12x20x1+12x20x1 (305x508x25+305x508x25)	2.0, 2.5	-	-	0.08	0.09	0.10	0.11	0.11	0.13	0.14	-	-	-	-	-	-	-	-
1200-1800 CFM 16x24x1+14x24x1 (406x610x25+356x610x25)	3.0, 3.5, 4.0	-	-	-	-	-	0.09	0.09	0.10	0.12	0.13	0.15	0.17	0.17	0.19	0.21	-	-
1500-2200 CFM 16x24x1+18x24x1 (406x610x25+457x356x25)	5.0	-	-	-	-	-	-	-	-	-	0.15	0.17	0.18	0.20	0.21	0.22	0.23	0.23

Typical Piping and Wiring



A09230



A09231

Application Data

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

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

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

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

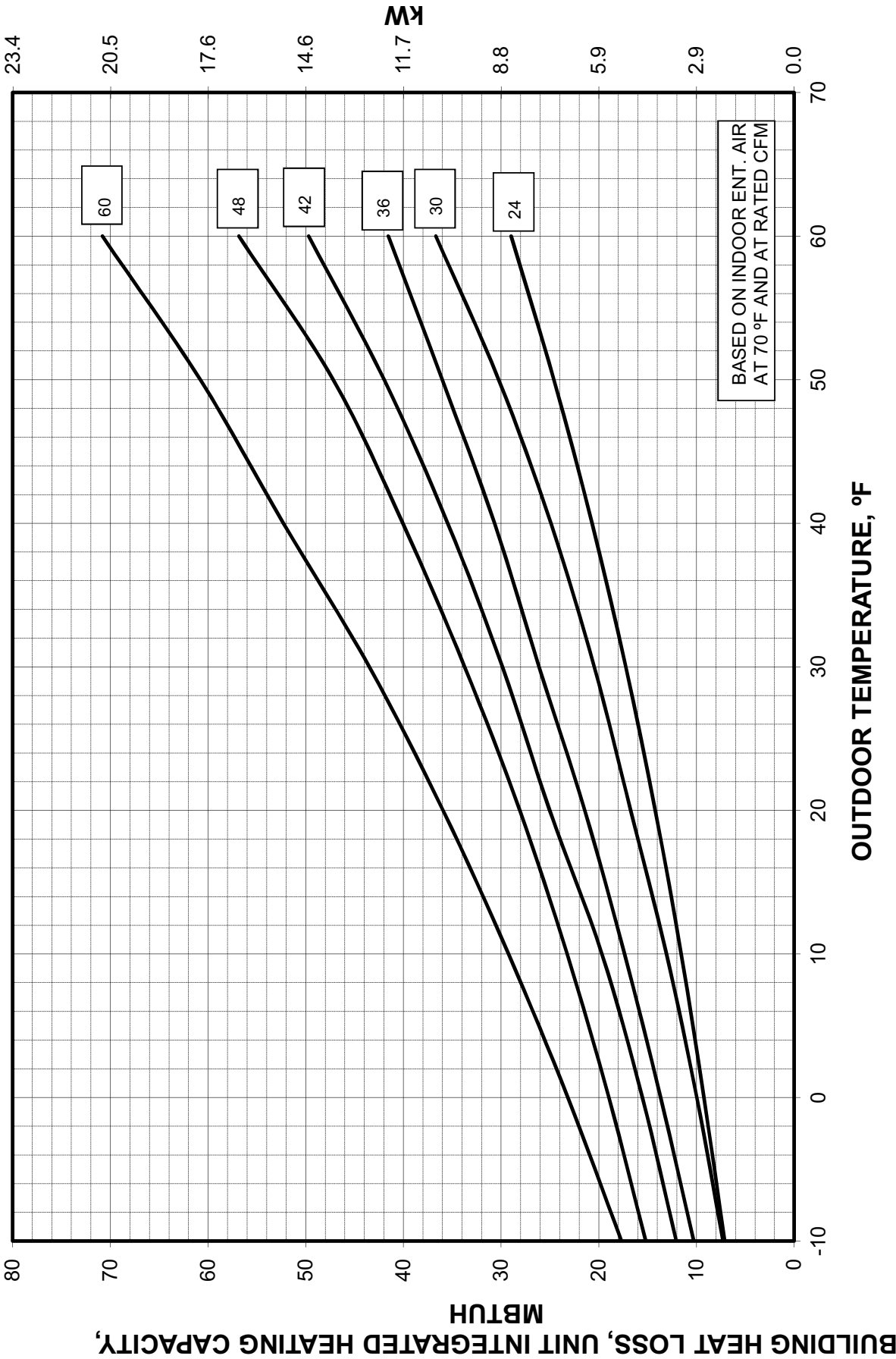
Minimum cooling airflow — Minimum cooling airflow is 350 cfm per ton in cooling mode. Airflow can be lower in certain modes when humidity removal is an issue.

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

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

Balance Point Worksheet

BALANCE POINT WORKSHEET



Electrical Data

MODEL	NOMINAL V-PH-HZ	VOLTAGE RANGE		COMPRESSOR		OFM	IFM	IDM	POWER SUPPLY	
		MIN	MAX	RLA	LRA	FLA	FLA	FLA	MCA	MOCP
24060	208/230-1-60	197	253	11.8	63	0.71	3.9	0.65	18.9	30
30060	208/230-1-60	197	253	13.9	67	1.05	3.9	0.65	22.4	35
36060, 36090	208/230-1-60	197	253	14.4	86	1.05	3.8	0.65	22.9	35
42060, 42090	208/230-1-60	197	253	18.1	95	1.05	5.8	0.65	29.5	45
48090, 48115	208/230-1-60	197	253	19.4	102	1.2	6.9	0.65	32.4	50
60115	208/230-1-60	197	253	23.9	148	1.1	6.9	0.65	37.8	60
60130	208/230-1-60	197	253	23.9	148	1.1	6.9	0.75	37.8	60

LEGEND

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

NOTES:

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

% Voltage imbalance

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

EXAMPLE: Supply voltage is 230-3-60.



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

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

Determine maximum deviation from average voltage.

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

Maximum deviation is 2 v.

Determine percent of voltage imbalance

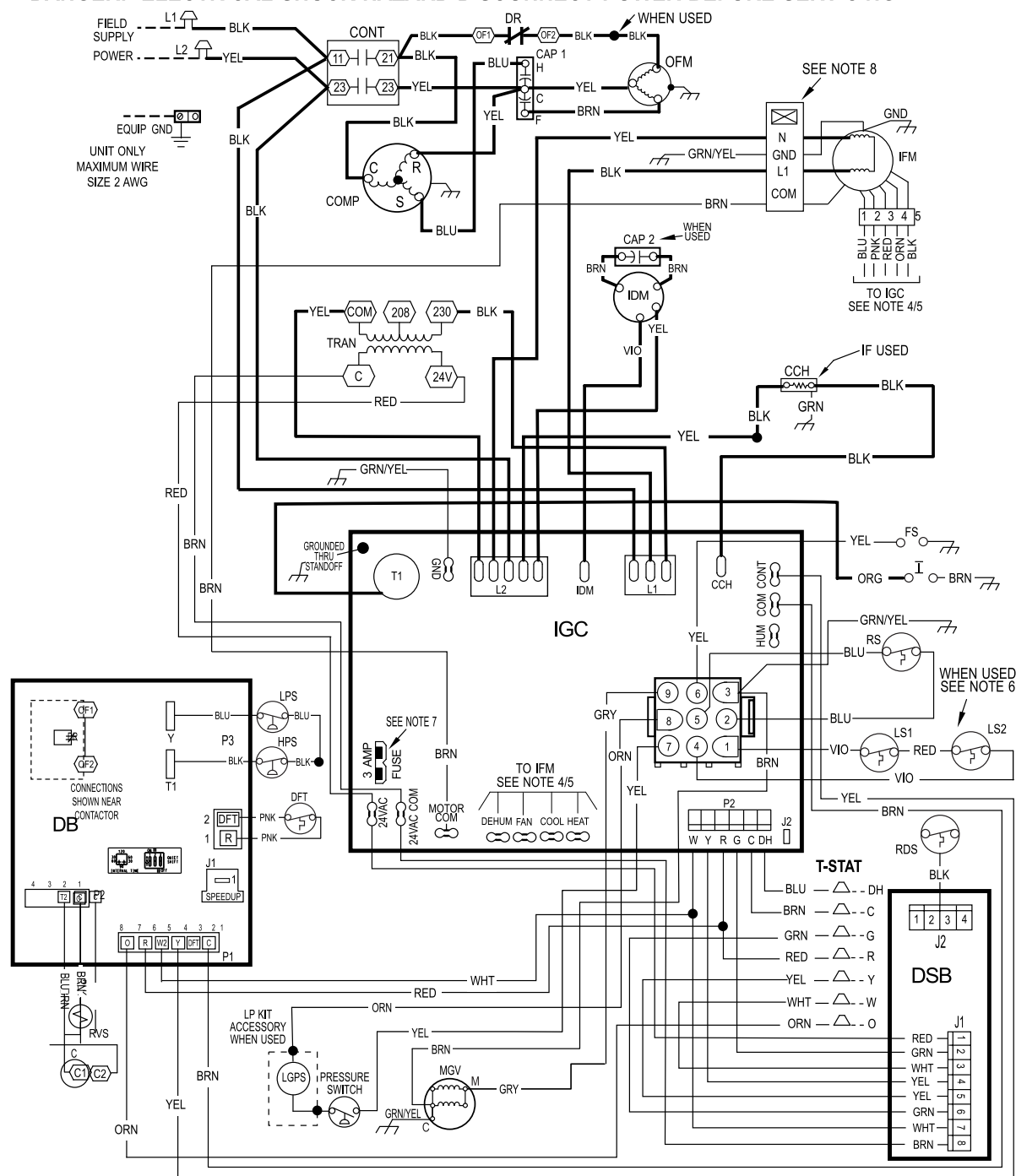
$$\begin{aligned}
 \% \text{ Voltage Imbalance} &= 100 \times \frac{2}{229} \\
 &= 0.8\%
 \end{aligned}$$

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

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

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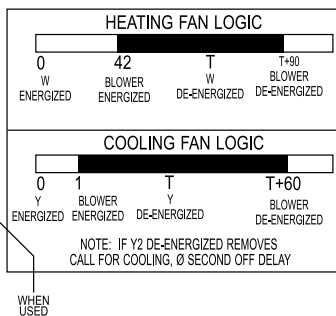
DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING



The diagram illustrates the control system for a 1500 KVA transformer, divided into four main sections:

- OUTDOOR FAN SECTION:** Contains the **OFM** (Outdoor Fan Motor).
- INDOOR FAN SECTION:** Contains the **LS2** (Indoor Fan Limit Switch), **IFM** (Indoor Fan Motor), **LS1** (Indoor Fan Limit Switch), **CAP1** (Indoor Fan Capacitor), and **HCF** (Indoor Fan Control Fuse).
- COMPRESSOR SECTION:** Contains the **LPS** (Low Pressure Switch), **HPS** (High Pressure Switch), **COMP** (Compressor), **R** (Relay), and **C** (Control).
- CONTROL BOX AREA:** Contains the **IGC** (Indoor Gas Control), **TRAN** (Transformer), **PRS** (Pressure Switch), **CAP2** (Control Box Capacitor), **IDM** (Indoor Discharge Motor), **MGV** (Motor Guard Valve), **RS** (Relay Switch), **FS** (Fuses), and **I** (Indicator).

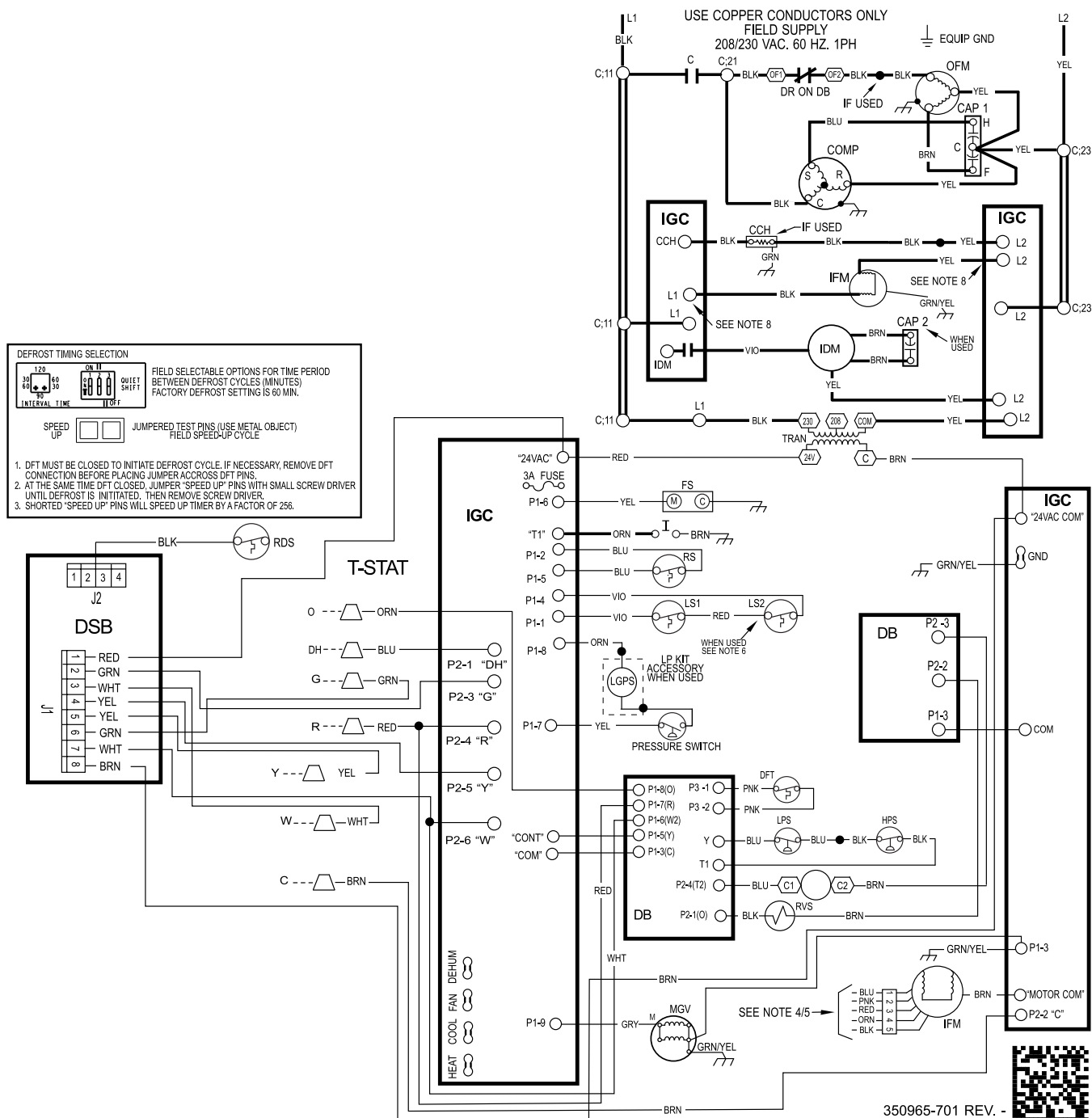
The diagram shows the interconnections between these components, including the **23 C 23 21 C 11** (Control Box Capacitor) and the **IGC** (Indoor Gas Control) connection to the **TRAN** (Transformer).



1. IF ANY OF THE ORIGINAL WIRES FURNISHED ARE REPLACED THEY MUST BE REPLACED WITH THE SAME WIRE OR IT'S EQUIVALENT.
2. SEE PRE-SALE LITERATURE FOR THERMOSTATS.
3. USE 75 DEGREES C COPPER CONDUCTORS FOR FIELD INSTALLATION.
4. REFER TO INSTALLATION INSTRUCTIONS FOR CORRECT SPEED SELECTION FOR IFM.
5. SEE INSTALLATION INSTRUCTIONS FOR PROPER HEATING AND COOLING CONNECTIONS FOR YOUR UNIT.
6. ON SOME MODELS L51 AND L52 ARE WIRED IN SERIES. ON OTHER MODELS ONLY L51 IS USED.
7. THIS FUSE IS MANUFACTURED BY LITTLE FUSE, P/N 287003.
8. DO NOT DISCONNECT PLUG UNDER LOAD.
9. N.E.C. CLASS 2 24V.

DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING

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



Controls

Operating Sequence

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

On units with crankcase heater, heater is also energized.

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

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

On the loss of the thermostat call for cooling, 24 V is removed from both the “Y1/Y” and “G” terminals (provided the fan switch is in the “AUTO” position) de-energizing the compressor contactor and opening the contacts supplying power to compressor/OFM. After a 60-second delay (1 phase models) the IFM shuts off. If the thermostat fan selector switch is in the “ON” position, the IFM will run continuously.

Gas Heating (Single Phase Models)

On a call for heating, terminal W of the thermostat is energized, starting the induced-draft motor for a 5 second pre-purge. When the pressure switch senses that the induced-draft motor is moving sufficient combustion air, the burner sequence begins. This function is controlled by the integrated gas unit controller (IGC). The indoor (evaporator) –fan motor is energized 30 seconds after flame is established. When the thermostat is satisfied and W is de-energized, the burners stop firing and the indoor (evaporator) fan motor shuts off after a 90 second time-off delay. Please note that the IGC has the capability to automatically reduce the indoor fan motor on delay and increase the indoor fan motor off delay in the event of high duct static and/or a partially-clogged filter.

Guide Specifications

Packaged Dual Fuel Units

HVAC Guide Specifications

Size Range: 2 to 5 Tons, Nominal Cooling

40,000 to 127,000 Btuh,

Nominal Heating Input

General

System Description

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

QUALITY ASSURANCE

- Unit shall be rated in accordance with AHRI Standards 210/240 and 270-1995.
- Unit shall be designed and certified in accordance with UL Standard 60335-2, 60335-1 and CSA/ANSI Z21.47 and CSA 2.3.
- Unit shall be manufactured in a facility registered to ISO 9001 manufacturing quality standard.
- Roof curb shall be designed to conform to NRCA Standards.
- Insulation and adhesives shall meet NFPA 90A requirements for flame spread and smoke generation.
- Cabinet insulation shall meet ASHRAE Standard 62P.

DELIVERY, STORAGE AND HANDLING

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

Products

EQUIPMENT

General:

Factory-assembled, single-piece, heat pump unit. Contained within the enclosure shall be all factory wiring, piping, controls, refrigerant charge (R-454B), and special features required prior to field start-up.

Unit Cabinet:

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

Fans:

- The evaporator fan motor shall be a ECM Motor.
- 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.
- Condenser fan shall be direct drive propeller type with aluminum blades riveted to corrosion resistant steel spiders, be dynamically balanced, and discharge air vertically.

Compressor:

- Fully hermetic compressors with factory-installed vibration isolation.
- Scroll compressors shall be standard on all units.

Coils:

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

Refrigerant Metering Device:

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

Filters:

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

Controls and Safeties:

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

Operating Characteristics:

- Unit shall be capable of starting and running at 125°F (51.7°C) ambient outdoor temperature.
- Compressor with standard controls shall be capable of operation down to 40°F (4.4°C) ambient outdoor temperature in cooling mode.
- Unit shall be provided with 60-second fan time (single phase), after the thermostat is satisfied.

Electrical Requirements:

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

Motors:

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

Compressor Protection:

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

Low NOx:

Shall provide NOx reduction to meet 40 ng/J NOx emissions requirements as shipped from the factory.

Guide Specifications (Cont)

Accessory Kits Available:

1. Compressor Start Kit
Shall provide additional starting torque for single-phase compressors.
2. Crankcase Heater:
Shall provide anti-floodback protection for lowload cooling applications.
3. 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.
4. Filter Rack Kit: Shall provide filter mounting for downflow applications. Offered as a field installed accessory.
5. Flat Roof Curb:
Curbs shall have seal strip and a wood nailer for flashing and shall be installed per manufacturer's instructions.
6. Flue Discharge Deflector
Directs flue gas exhaust 90 degrees upward from current discharge.
7. 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.
8. Low Ambient Package:
Pressure-based control to allow cooling operation down to 0°F (-17.7°C).
9. Manual Outdoor Air Damper:
Package shall consist of damper, birdscreen, and rainhood which can be preset to admit outdoor air for year-round ventilation.
10. Natural-to-Propane Conversion Kit:
Shall be complete with all required hardware to convert to propane gas operation at standard altitude (0 to 2000 ft [0-610 m] above sea level).
11. 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).
12. Square-To-Round Duct Transitions (24-48 models):
Shall have the ability to convert the supply and return openings from rectangular to round.
13. Louver Metal Outdoor Coil Grille
Shall provide hail and vandalism protection. Available as a field installed accessory.